2022 ANNUAL MANAGEMENT PLAN Port Armstrong Hatchery

Armstrong-Keta, Inc.

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 Armstrong-Keta, Inc. (AKI) or Alaska Department of Fish and Game (ADF&G) may result in changes to this AMP in order to reach or maintain program objectives. AKI 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 AKI. This policy applies to all hatchery operations covered under the AMP.

1.0

Executive Summary

1.1 Introduction

The Port Armstrong Hatchery (PAH) is a PNP facility owned and operated by AKI. The hatchery is located at the outlet of Jetty Lake, in Port Armstrong, near the southeastern tip of Baranof Island along Chatham Strait (Figure 1). Fed by water from two lakes perched 285 feet above the facility, up to 30 cfs of water is seasonally available for hatchery use and hydropower generation. The hatchery facilities include a primary incubation building, a Chinook and coho salmon building, ten freshwater raceways, and three saltwater net pen complexes.

PAH is currently producing pink, chum, and coho salmon, and is also permitted to produce Chinook salmon. Because of the overlap of its Chinook and chum runs, AKI decided to move its Chinook salmon production from its PAH facility to the Little Port Walter Research Station, where there is extra water and facility space available. AKI has procured a hatchery permit for Chinook production on that site but is waiting on the availability of broodstock to start production there. Currently, PAH-permitted production is released at or near Port Armstrong, except for a small portion of the pink salmon that have been reared and released for two years at Port Herbert SHA. In addition, PAH has a chum salmon release site at Port Lucy that has not been active. Fish from Port Armstrong contribute to common property fisheries in southern Chatham Strait and other areas of Southeast Alaska. PAH is located in a productive traditional troll fishery area, and seine fisheries exist immediately north and east of Port Armstrong. Salmon returning to Port Armstrong not harvested in common property fisheries are used for hatchery cost recovery and broodstock. AKI believes that nearshore predation on salmon fry is negatively impacting marine survival. Since 2015, AKI has been experimenting with different salmon release strategies to boost marine survivals. In 2015, AKI towed a differentially thermal marked cohort of PAH pink salmon fry up to one mile off shore into Chatham Strait for release to avoid the narrow bottleneck at the entrance

of Port Armstrong. In most years since 2017 AKI has released a cohort of PAH pink salmon fry offshore of the hatchery in southern Chatham Strait via a fry transport vessel. While data has been inconclusive due to differences in timing and average fry size at release between the vessel transport and control cohorts as well as weather-related problems releasing the vessel transport fry in the target zone, the available data points to pink returns from the vessel transport fish returning with higher marine survivals back to the hatchery than the net pen tow-out or Port Armstrong released groups. In 2021, both 20.9 million pink fry and 1.9 million coho smolts were transported by vessel south in Chatham for release while the chum fry were released in Port Armstrong. Vessel-transported fish are reared in pens at PAH and when they are ready for release into the wild during the spring, they are transferred to holding tanks on the transport vessel. Aboard the transport vessel ocean water is pumped into the fish holds during transport to ensure the fry have contact with the same water they would have otherwise traveled through during out-migration. All vessel transports are carried out in the direction of the open ocean near the southern tip of Baranof Island, within the distances and parameters defined by separate FTPs for each species. It is hoped the vessel-transport method will better ensure departure of the fry from the nearshore area, while still allowing them to imprint on the PAH water signature.

1.2 New this year (production, harvest management, culture techniques, etc.)

In 2022, PAH intends to reduce its chum salmon egg take to 10 million or possibly 20 million eggs, and at the same time make use of the incubation capacity to increase its pink salmon egg take to its full permitted 105 million capacity. Despite many years of intensive efforts to maximize chum marine survivals, the results have been discouraging over the past decade apart from a decent return in 2017. Because the feed and labor costs of rearing chums are much higher than with pinks, and the pink marine survivals have been somewhat better than the chums, AKI's intention is to reduce its operating costs by focusing on the pinks, while achieving better common property contribution with the pinks caught primarily by the seine fleet. AKI is in the planning stages of renovating its original incubation building, and as it puts the new facilities into service, expects in future years to take additional chum green eggs up to the 60 million green eggs that the current permit allows.

Additionally, PAH plans to expand its coho production from 5 million to 6 million green egg take because of PAR approval this year. AKI plans to apply for a PAR to increase coho egg capacity to 8 million in the future. With its current fresh water availability and rearing raceway capacity, combined with the early saltwater introduction coho program that has been developed at Port Armstrong over the past decade, 8 million cohos would make optimum use of the facilities. One million of these would be freshwater overwintered in the rearing raceways, while the other 7 million would be initially ponded in the freshwater raceways and then moved to saltwater net pens in June of their first spring before rearing there until their release the following spring. Several years of returns from early saltwater introduction cohos have demonstrated that their marine survivals are as good as or exceed those of the freshwater overwintered cohos. The hatchery is discontinuing its late fall saltwater introduction program, which has not performed as well.

1.3 *New permits or permit amendments*

PAH's coho/Chinook green egg permitted capacity was increased by 1 million, from 5 million to a maximum of 6 million, with no more than 2 million eggs being Chinook eggs.

The FTP (21J-1009) for vessel transport of a portion of its pink production approximately 10 miles offshore towards the mouth of Chatham Strait was approved.

Species, Run	Release Location	Total Return	Common Property Harvest	Return to Hatchery	Broodstock needed	Available for Cost Recovery
Pink salmon, BY20	Port Armstrong	910,591	418,872	491,719	300,000	191,719
Pink Salmon, BY20	Port Herbert	0	0	0	0	0
Coho salmon, BY19	Port Armstrong	190,123	95,062	95,062	7,000	88,062
Chinook salmon, BY15-16	Port Armstrong	0	0	0	0	0
Chum salmon, BY16-21	Port Armstrong	372,372	37,237	335,135	30,000	305,135

1.4 *Expected Returns*

Additional detail on adult salmon returns from PAH projects can be found in the appendices Table 1.

1.5 *Production Summary*

Program Name	Brood Year	Planned Release Date	Number to Release	Life Stage	Type of Mark, Percent or Number Marked
Armstrong pink salmon; Tow out release	2021	May 15, 2022	71.25 million	Fed Fry	100% TM 3H
Armstrong pink salmon; S. Chatham boat release ^a	2021	May 15, 2022	20.0 million	Fed Fry	100% TM 3H3
Armstrong coho salmon	2020	May 25, 2022	3.66 million	Smolt	CWT, 1.83%
Armstrong chum salmon	2021	May 11, 2022	8.7 million	Fed fry	TM 33% 6H

^a Pink salmon were not vessel-transported before release in 2022.

In 2022, the egg-take goal at PAH will be 105 million pink salmon eggs, depending on incubation space available; 10 million chum salmon eggs; 6 million coho salmon eggs; and zero Chinook salmon eggs.

1.6 *Current Permitting*

The permitted capacity of PAH is 105 million pink salmon eggs, 60 million chum salmon eggs, and 6 million combined Chinook and coho salmon eggs with no more than 2 million being Chinook salmon eggs.

2.0 Late Summer Pink Salmon Production

2.1 *Program details*

Since 1983, PAH has been producing pink salmon. In previous years, PAH strived to annually release 97 million, 0.5 gram to 1.2-gram, otolith-marked pink salmon fry. Due to the increase in chum production, the hatchery has had insufficient capacity for the past several years to continue releasing pink salmon at its full permitted level without procuring additional net pens and incubation space. With the change in production goals for 2022, PAH's pink egg take goal for 2022 is the full permitted 105 million. The purpose of the program is to provide pink salmon to common property fisheries in lower Chatham Strait, as well as provide sufficient pink salmon returns to the hatchery to meet PAH cost-recovery and broodstock requirements.

Average marine survival of PAH pink salmon has been approximately 2.0%, with a high of 6.9% in return-year 1990 and a low of 0.12% in return-year 2008 (Table 2), with relatively depressed average returns during the past decade. In 2015, PAH began investigating the effects of release location on marine survival by towing a cohort of differentially marked pink salmon into Chatham Strait for release. In 2017, PAH began releasing a portion of their pink salmon production at Port Herbert SHA (Figure 2). In 2017, there were four pink salmon release strategies: traditional rearing and release at PAH; traditional rearing at PAH with release in Chatham Strait; remote rearing and release at Port Herbert; and release via vessel transport of fed fry to lower Chatham Strait, approximately seven miles from PAH towards the mouth of Chatham Strait, presumably in the direction of their normal outmigration. For 2018 releases and subsequent years until additional rearing facilities can be acquired, the hatchery has chosen not to rear pink fry at the Port Herbert site due to the reduced egg take number, requiring that all the pinks be released from the Port Armstrong Hatchery in order to ensure sufficient broodstock. AKI has a multi-pronged release strategy again in 2022, via net pen tow-outs into Chatham Strait, and when necessary due to weather or health conditions, within Port Armstrong, where the pinks are subject to predation by the coho smolts released a couple of weeks later.

ADF&G has estimated that, on average, 44% of the PAH pink salmon return is harvested in the lower Chatham seine fishery (District 109). This is an estimate made years ago by the Sitka and Petersburg ADF&G area management biologists based on review of historical catch records. While the current estimate of PAH pink salmon contribution to common property fisheries is 44%, changes in fishing effort and the department's understanding of PAH pink salmon contribution to fisheries outside of District 9 warrants further investigation into updating this value.

2.2 Egg Takes

Program Name	Ancestral Stock(s)	Egg-Take Site & Stat Area	Primary or Alternate Source?	Current Year Egg Goal	Permitted Maximum
Armstrong pink salmon	Sashin Creek	Port Armstrong Hatchery 109-10-002	Р	105,000,000	105,000,000
Total				105,000,000	105,000,000

2.3 Broodstock capture method

Pink salmon returning to the hatchery are an enhanced run. Sex ratios are sampled during the harvest to monitor run timing. Broodstock mature in the inner bay over the course of the run. In early September, when broodstock have sufficiently matured, two fish ladders are opened and adults are recruited into raceways. An electro-anesthesia unit attached to the raceways is used during egg take.

2.4 Spawning

Approximately 200,000 pink salmon will be required for broodstock. Spawning takes place on a covered deck adjacent to the broodstock raceways. After being stunned with an electro-anesthesia unit, males and females are sorted and their gametes are collected. The eggs are transported by hand cart to the incubation building, where fertilization and rinsing takes place. The fertilized eggs are loaded into R-48 bulk incubators for incubation to the eyed stage.

2.5 *Egg-take schedule*

Egg take typically begins around September 10 and lasts for two to three weeks, but may be extended due to run timing and pace of recruitment to the fish ladder. Egg take should approximate the normal run curve since broodstock will be allowed to accumulate at the mouth of the creek proportionally during the course of the run. Depending on the number of ripe females and fecundity, between 5 and 10 million eggs can be taken in a day.

2.6 *Carcass disposal*

The majority of carcasses are expected to be given away or sold to processors. Those carcasses not sold are collected daily in a small barge. Carcasses may also be given away and/or sold as bait. All remaining carcasses are driven approximately one mile offshore and discarded in Chatham Strait at a DEC-approved carcass disposal area.

Program Name	Brood Year	Planned Release Date	Number to Release	Life Stage	Type of Mark, Percent or Number Marked
Armstrong pinks; tow out release	2021	May 17, 2022	21 million	Fed Fry	100% TM 3H4
Armstrong pink salmon; S. Chatham boat release ^a	2021	May 12-15, 2022	36 million	Fed Fry	100% TM 3H

2.7 Planned releases this calendar year of previous brood year's production

^a Pink salmon were not vessel-transported before release in 2022.

2.8 *Operational diagram*



2.9 Fish transport permits

FTP #	Egg take, transport or release	Transport from, to	Maximal #, Life Stage	Expires
98J-1009	Egg take and release	PAH to PAH	105 million eggs	1/31/2025
21J-1013	Transport and release	PAH to Port Herbert	55 million eggs	3/31/2031
15J-1015	Egg take and transport	Sashin Creek to PAH	105 million eggs	12/31/2025
22J-1009	Transport and release	PAH to offshore of PAH ^a	20 million fry	4/1/2026

^a Release is approximately 10 miles offshore near the mouth of Chatham Strait.

Egg take at Sashin Creek under 15J-1015 cannot commence until the ADF&G Division of Commercial Fisheries area management biologist has authorized it for that year. The escapement target for Sashin Creek is a peak aerial survey count of between 20,000 and 40,000 pink salmon. This includes fish above and below the weir site. The weir may be installed once a 20,000 pink salmon peak aerial survey count has been made. No hatchery broodstock may be collected until an estimated 20,000 fish are above the weir. Once 20,000 fish are estimated above the weir, 20% of the daily return may be collected for hatchery broodstock until an estimated 50,000 fish are above the weir. S0% of the daily return may be

collected for hatchery broodstock until an estimated 100,000 fish are above the weir. Once 100,000 fish are estimated above the weir, 80% of the daily return may be collected for hatchery broodstock.

Fish transport Permit 17J-1010 was issued for 2017 and 2018 to experiment with a release strategy, vessel transporting fry out of the near-shore environment at time of release in an attempt to improve marine survival of PAH pink salmon. AKI was issued a new fish transport permit 19J-1006 effective from March 2019 through May 2021 to allow two additional years of this alternative release strategy. AKI was issued a four-year fish transport permit in 2022 to vessel release pink fry, 22J-1009, contingent on a department reviewed evaluation plan. Fry will be reared in net pens at PAH per usual practice, but at time of release they will be transferred to a vessel which will transport them for around two hours to a point specified in the FTP as approximately 10 miles offshore near the mouth of Chatham Strait.

3.0 Fall Coho Salmon

3.1 Program details

The purpose of the program is to provide coho salmon to common property fisheries in lower Chatham Strait and outer Baranof Island, as well as provide a sufficient coho salmon return to the hatchery to meet PAH cost recovery and broodstock requirements.

In 1988, PAH began its coho salmon program with broodstock taken from Blanchard Lake in Deep Cove. In 1989 and 1990, broodstock was taken from Sashin Creek stock at the NSRAA Mist Cove site. In 2005, the permitted capacity of PAH coho salmon increased from 2 million to 3 million eggs. In 2007, the permitted capacity increased to a possible 5 million coho salmon eggs, if no Chinook salmon eggs are collected (permitted capacity is 5 million combined Chinook and coho salmon eggs with no more than 2 million being Chinook salmon eggs). In 2022, the permitted capacity for coho/Chinook eggs increased to 6 million, with no more than 2 million being Chinook. Coded wire tag (CWT) recoveries indicate the average contribution rate to the troll fishery averages approximately 50% of the total PAH return. Overall marine survivals for BY88 through BY18 releases average 6.9% (Table 3). The highest marine survival was 23.5% (BY99) and the low was 0.9% (BY18). PAH strives to annually release at least 4.8 million, 25 to 35gram coho salmon smolt, maintain a green egg to smolt survival rate over 80%, maintain marine survivals comparable to, or exceeding, those experienced at Hidden Falls and Mist Cove, and maintain a fishery contribution rate of 50% or higher. Bacterial kidney disease (BKD) is managed by strict family tracking with culling of positive families prior to hatching, isolation between brood years and stocks, and early diagnosis and possible treatment. Fish may be fed Aqua 100 at fry stage as a BKD preventative.

Starting with BY19, coho salmon will be 100% otolith thermal-marked with a pre-hatch code. We will differentially tag any distinct rearing or release groups with coded-wire tags.

In 2022, approximately 66,000 BY20 coho salmon smolt were coded wire tagged. These tags are to be recovered by AKI at the rack and by ADF&G during sampling of the commercial and sport

fisheries. A portion of this year's release was vessel-transported into Chatham Strait to increase marine survival and received a unique CWT code.

3.2 Egg takes

Program Name	Ancestral Stock(s)	Egg-Take Site, Stat Area	Primary (P) or (A) Alternate Source?	Current Year Egg Goal	Permitted Maximum
Armstrong coho salmon	Deep Cove/Sashin Creek	Port Armstrong Hatchery	Р	6,000,000	6,000,000ª
Armstrong coho salmon	Deep Cove/Sashin Creek	Hidden Falls Hatchery	А	None	3,000,000
Species Total				6,000,000	6,000,000

^a Six million combined Chinook and coho salmon eggs, with no more than 2 million being Chinook salmon eggs.

3.3 *Broodstock capture method*

Coho salmon returning to the hatchery are from an enhanced run. In October, two fish ladders are opened and adult coho salmon are recruited into several holding raceways. Males and females are monitored for the next several weeks for ripeness.

3.4 Spawning

Approximately 6,000 adults are required for broodstock. Spawning takes place on a covered deck adjacent to the broodstock raceways. After being stunned with an electro-anesthesia unit, males and females are sorted and their gametes are collected and transported to the coho and Chinook salmon incubation building. Initial incubation takes place in Heath tray incubators. Iodophor is used to disinfect eggs. Eggs are family-tracked and are culled from parents identified to be BKD-positive.

3.5 *Egg-take schedule*

Egg take usually occurs between late October and early November, over a one to two-week period, as females ripen. Eggs will be taken in lots of approximately 500,000, or greater, until the egg-take goal has been reached. In the event that sufficient broodstock is not available at PAH, additional eggs may be taken at HFH.

3.6 *Carcass disposal*

Carcasses are sold to processors when possible. Carcasses that are not sold are collected in a small barge and made available to local residents or fishermen for bait. Any remaining carcasses are disposed of in Chatham Strait, approximately one mile offshore.

3.7 Planned releases this calendar year of previous brood years' production

Program Name	Brood Year	Release Date	Number to Release	Life Stage	Type of Mark, Number Marked
Armstrong coho salmon	2020	5/25/2022	3.66 million ^a	smolt	CWT: 66,000

^a A portion (~17%) of this release was vessel-transported into Chatham Strait and received a unique CWT code.

3.8 *Previous brood years that will remain in culture during the entire calendar year*

Program Name	Brood Year	Number Live	Life Stage	Type of Mark Number Marked	Number to Release, Date
Armstrong coho salmon	2021	3.2 million	fry	44,000 CWT and 100% otolith	3.0 million, May 2023

3.9 *Operational diagram*



3.10 Fish transport permits

FTP #	Stock	Egg take, transport, or release	Trans. From / To	Maximal #, Life Stage	Expires
98J-1010	Sashin Creek	Egg take and release	PAH to PAH	5,000,000 eggs ^a	8/31/2025
93J-1036	Sashin Creek	Egg take, transport, and release	HFH to PAH	3,000,000 eggs ^a	8/31/2025

FTP #	Stock	Egg take, transport, or release	Trans. From / To	Maximal #, Life Stage	Expires
17J-1027	Deep Cove	Egg take and release	PAH to PAH	5,000,000 eggs ^a	8/31/2025
17J-1028	Deep Cove	Egg take, transport, release	HFH to PAH	3,000,000 eggs ^a	8/31/2025
20J-1020	Sashin Creek	Transport, Release	PAH to PAH ^b	2,500,000 juveniles	6/30/2023

^a Total not to exceed 5 million eggs when combined with Chinook salmon eggs.

^bRelease up to 5 miles east and 7.5 miles south of PAH.

4.0 Spring Chinook salmon

4.1 *Program details*

In 2001, PAH began a Chinook salmon broodstock program utilizing the Unuk River stock Chinook salmon from LPW. The purpose of the program is to provide increased opportunity for common property harvest of Chinook salmon in lower Chatham Strait, as well as provide a sufficient Chinook salmon return to the hatchery to meet PAH cost-recovery and broodstock requirements. In 2005, the first adult Chinook salmon returned to PAH. In 2006, PAH conducted its first Chinook salmon egg take. PAH initiated a zero-check program beginning with BY06. For this program, a portion of the eggs are incubated in warmer water, ponded early, and reared in indoor tanks. A minimum of 30,000 fish from this release group will be given a CWT (per ADF&G guidelines) and transferred to saltwater pens in May for short-term rearing, then released in late May at approximately 14 grams. The purpose of the zero-check program is to increase Chinook salmon production at PAH within the constraints of fresh water and existing raceway capacity while keeping production costs manageable. The remaining Chinook salmon are incubated in colder water and reared in a traditional one-check program. Fry are reared in freshwater raceways and then transferred to a saltwater net pen for overwinter rearing and released the following May. A minimum of 30,000 fish from this release group will be given a CWT (per ADF&G guidelines). The target release size of one-check smolt is 25 to 40 grams. The smolt release is timed to coincide with LPW Chinook salmon releases. PAH strives to annually release 140,000 25 to 40-gram Chinook salmon smolt and 120,000 14 gram zero-check Chinook salmon. PAH strives to maintain a green egg to smolt survival rate above 80%, although in some years extra eggs are culled when survivals exceed anticipated percentages, resulting in reported survivals lower than actual rates. CWT recoveries will be used to evaluate PAH common property contributions and survival rates. ADF&G personnel recover CWTs while sampling the commercial troll and sport fisheries. PAH employees also recover CWTs at the rack during egg take. Additional information on PAH Chinook salmon survival can be found in the appendices (Table 4).

No Chinook salmon eggs have been taken at PAH since 2015, and the last Chinook salmon smolts released were zero-checks released by June 30, 2016. The Chinook salmon program has been suspended until such time that Keta River stock Chinook salmon eggs are available to initiate

rearing at Little Port Walter under AKI's PNP permit for LPW. In 2022, PAH will not release any Chinook salmon and will not take any Chinook salmon eggs at PAH.

4.2 Egg takes

Program Name	Ancestral Stock(s)	Egg-Take Site, Stat Area	(P) Primary or (A) Alternate Source?	Current Year Egg Goal	Permitted Maximum
Armstrong Chinook salmon	Unuk River	Little Port Walter	Α	0	2,000,000
Armstrong Chinook salmon	Unuk River	Port Armstrong Hatchery 109-10- 002	Р	0	2,000,000
Armstrong Chinook salmon	Unuk River	Deer Mountain Hatchery	Α	0	2,000,000
Species/ Run Totals				0	2,000,000

4.3 *Broodstock capture method*

Chinook salmon returning to the hatchery are an enhanced run. Over the course of the run, broodstock enter the inner bay and mature. In mid-July, two fish ladders are opened and adults are recruited into several holding raceways. Males and females are monitored for ripeness. Little Port Walter research facility, located five miles north of PAH, is a backup egg source for Unuk River stock Chinook salmon eggs.

4.4 Spawning

Not applicable because no egg takes are planned.

4.5 *Egg-take schedule*

No egg takes are planned.

4.6 *Carcass disposal*

Not applicable because no egg takes are planned.

4.7 *Planned releases this calendar year of previous brood years' production.*

No previous brood year fish available for release (see section 4.1)

4.8 *Previous brood years that will remain in culture during the entire calendar year.*

Program Name	Brood Year	Number Live	Life Stage	Type of Mark, # to Mark	Number to Release, Date
Armstrong Chinook salmon	N/A	-	-	-	-

4.9 *Operational diagram*



4.10 *Fish transport permits*

FTP #	Ancestral Stock	Egg take, transport, or release	Trans. From To	Maximal #, Life Stage	Expires
01J-1005	Unuk	Egg take, transport, and release	LPW to PAH	2,000,000 eggs ^a	9/30/2025
11J-1004	Unuk	Egg take, transport, and release	PAH to PAH	2,000,000 eggs ^a	12/31/2025
12J-1015	Unuk	Egg take, transport, and release	DMH to PAH	2,000,000 eggs ^a	<mark>8/14/2022</mark>

^a Total not to exceed 6 million eggs when combined with coho salmon eggs.

5.0 Summer chum salmon

5.1 *Program details*

In 2003, PAH began its summer chum salmon program utilizing the enhanced-return chum salmon stock from GCH and HFH. The purpose of the program is to establish a chum salmon return at PAH that will provide opportunities for common property harvest of chum salmon in Lower Chatham Strait, as well as broodstock and cost recovery fish for PAH. Since 2009, a full complement of chum salmon year-classes has returned to PAH. It is anticipated that all future egg-take goals will be achieved from returns to PAH. In 2015, permitted chum salmon production at PAH increased from 30 million to 60 million green eggs, and a permitted remote release site was added at Port Lucy (Figure 3). The eventual production goal has been to annually release over 55 million 2.0 gram or larger thermal marked chum salmon fry split between both Port Armstrong and from Port Lucy, once the program is at full production, but poor returns over the past decade have prompted AKI to change focus to the pink and coho programs in 2022. The 2022 goal is to take 10 million, or possibly as many as 20 million chum eggs this year. Of these fish, up to seven million, or half, may be released by vessel transport to a point defined in the FTP as no more than 7.5 miles offshore near the mouth of Chatham Strait and the other half by net pen towing just outside the mouth of Port Armstrong, or inside the bay if necessary. Chum salmon will be released

from each location as a single group, near the beginning of May. PAH strives to maintain a green egg to fry survival rate above 90%.

AKI strives to thermal mark 100% of the chum salmon incubated at PAH.

5.2 *Egg takes*

Program Name	Ancestral Stock(s)	Egg-Take Site, Stat Area	Primary or Alternate Source?	Current Year Egg Goal	Permitted Maximum
Armstrong chum salmon	HFH	PAH, 109-10-002	Р	10,000,000	60,000,000
Armstrong chum salmon	HFH		Α	10,000,000	30,000,000
Species/ Run Totals				10,000,000	60,000,000

5.3 Broodstock capture method

Returning chum salmon are from an enhanced run. Sex ratios will be sampled during the harvest to monitor run timing. In late July, when broodstock have sufficiently matured, three fish ladders are opened and adults recruit into raceways. An electro-anesthesia unit, attached to the raceways, is used during egg take.

5.4 Spawning

Approximately 10,000 chum salmon will be required for broodstock. Additional broodstock may be required if eggs are taken for HFH. Spawning takes place on a covered deck adjacent to the brood raceways. After being stunned with an electro-anesthesia unit, males and females are sorted and their gametes are collected. The eggs are transported by handcart to the incubation building, where fertilization and rinsing takes place. The fertilized eggs are loaded into R48 bulk incubators for incubation to the eyed stage.

5.5 *Egg-take schedule*

Egg take generally begins around the end of July, and lasts for one to two weeks; however, it may be extended depending on run timing and pace of recruitment into the fish ladder. Between 3 and 6 million eggs can be taken in a day, depending on the number of ripe females available and their fecundities.

5.6 *Carcass disposal*

The majority of carcasses will be sold to processors. Those carcasses not sold are collected daily in a small barge. Carcasses may also be given away and/or sold as bait. All remaining carcasses are driven approximately one mile offshore and discarded in Chatham Strait.

5.7 *Planned releases this calendar year of previous brood years' production*

Program Name Broo Year		Release Date	Number to Release	Life Stage	Type of Mark, % Marked	
Armstrong chum salmon	BY20	5/11/2021	16.2 million	Fed Fry	TM 100%	

5.8 *Operational diagram*

Egg take, incubation, rearing, and release at PAH or release in Chatham Strait

5.9 Fish transport permits

FTP #	Egg take, transport, or release	Transport from to	Maximal #, Life Stage	Expires
06J-1011	Egg take and release	PAH to PAH	60,000,000 eggs	12/31/2025
03J-1009	Transport and release	HFH to PAH	30,000,000 eggs	11/01/2022
15J-1016	Transport and release	PAH to Port Lucy	30,000,000 eggs	12/31/2025
19J-1012	Transport and release	PAH to offshore of PAH ^a	20,000,000 fed fry	06/01/2023

^a Vessel-transport release to be no more than 7.5 miles south and 5 miles east of PAH.

6.0 HARVEST MANAGEMENT

6.1 *Special harvest areas*

Described in 5 AAC 40.081 District 9: Port Armstrong Special Harvest Area.

The AKI Special Harvest Area (SHA) for Chinook salmon is defined in regulation as the waters of Port Armstrong west of 134°39.47' W. longitude and is open for harvest by the hatchery permit holder beginning April 15. The SHA for chum, pink, and coho salmon includes the waters of Port Armstrong Bay enclosed by a line from Point Eliza at 56°17.73' N. latitude, 134°38.75' W. longitude to a point on the Baranof Island shoreline at 56°17.98' N. latitude, 134°38.35' W. longitude (Figure 1) and is open to harvest to the hatchery permit holder from June 15 through October 31. This area will be closed to common property commercial fishing by regulation from July 31 through September 30, unless opened by emergency order (EO) to harvest salmon surplus to cost recovery and broodstock needs, or for continued trolling by request of PAH.

Sport fishing will be open in the SHA. Sport fisheries will be managed by regional sport fishing regulations in effect for the Port Armstrong SHA. If necessary to protect broodstock, sport fishing may be closed by EO. If the number of Chinook salmon returning to the SHA is expected to exceed broodstock needs, the sport fish bag and possession limit may be increased.

Port Herbert Special Harvest Area–Terminal Harvest Area.

The SHA for Port Herbert is designated as waters within Port Herbert west of 134°39.70'W longitude. Prior to August 15, Port Herbert will be closed west of 134°44.30'W longitude. Prior to September 1, waters off Nakvassin Creek will be closed inside a line from 56°26.51' N. latitude, 134°44.85' W. longitude to 56°26.33' N. latitude, 134°44.64' W. longitude to 56°26.53' N. latitude, 134°44.55' W. longitude (Figure 2). A hatchery permit holder harvesting salmon within the SHA is exempt from the provisions of 5 AAC 33.310. Fishing periods for the hatchery permit holder will be opened and closed by emergency order by gear type. Notwithstanding 5 AAC 33.330, legal gear type for the hatchery permit holder in the SHA is purse seine, beach seine, gillnet, troll gear, and dip net. Additionally, AKI may be required to remove unharvested pink salmon remaining in the terminal harvest area should a significant number remain after common property fisheries have ceased.

Port Lucy Special Harvest Area–Terminal Harvest Area.

The SHA for Port Lucy is designated as all waters of Port Lucy west of 134°40.0'W longitude (Figure 3). A hatchery permit holder harvesting salmon within the SHA is exempt from the provisions of 5 AAC 33.310. Fishing periods for the hatchery permit holder will be opened and closed by emergency order by gear type. Notwithstanding 5 AAC 33.330, legal gear type for the hatchery permit holder in the SHA is purse seine, beach seine, gillnet, troll gear, and dip net. AKI will be required to remove unharvested hatchery-produced chum salmon remaining in the terminal harvest area should a significant number remain after common property fisheries have ceased.

Species, run	Program Name	Projected Common Property Harvest	Return to hatchery ¹	Total Projected Return, Current Year
Pink salmon BY 20	Port Armstrong	418,872	491,719	910,591
Pink salmon BY 20	Port Herbert	0	0	0
Coho salmon BY 19	Port Armstrong	95,062	95,062	190,123
Chum salmon BY 17-19	Port Armstrong	37,237	335,135	372,372
Chinook salmon	Port Armstrong	0	0	0

6.2 *Projected return this year*

¹Includes broodstock, cost recovery, escapement, etc.

6.3 *Common property fisheries management*

Commercial fisheries

Chinook Salmon

In 2022, PAH is not expecting any PAH released adult Chinook salmon to return. If any BY15 or BY16 PAH Chinook salmon return this year, they will be caught in the traditional summer troll season in the outer coastal waters and lower Chatham Strait. An estimated 20% to 40% of these fish will be harvested in common property fisheries.

Chum Salmon

In 2022, PAH is expecting approximately 198,000 adult chum salmon to return at 1.5% ocean survival. The ancestral stock is HFH chum salmon, which return in July. If PAH chum salmon return through lower Chatham Strait, very few will likely be harvested in traditional purse seine fisheries, because lower Chatham Strait purse seine fisheries do not occur until August. Conversely, if PAH chum salmon enter inside waters through Cross Sound, harvest would be expected in traditional seine fisheries in northern Chatham Strait and the Hidden Falls THA. Traditional troll fisheries allow good access to PAH chum salmon. All chum salmon returning to the SHA in excess of broodstock requirements will be harvested for cost recovery by PAH. Common property openings targeting PAH chum salmon are not anticipated in the SHA; however, the outer bay portion of the SHA may be kept open for troll access when the inner bay is closed. Though unlikely, common property openings may be necessary to harvest surplus fish in the SHA if cost-recovery harvesting is overwhelmed. PAH will maintain close contact with the Sitka Area ADF&G management staff throughout the return so the department can respond to unharvested surplus fish in a timely manner, should the need arise. PAH may request the outer bay be closed if broodstock collection or cost recovery falls below projection.

<u>Pink Salmon</u>

In 2022, AKI is predicting a return to Port Armstrong of approximately 328,000 adult pink salmon at 1.0% ocean survival. All pink salmon returning to the SHA in excess of broodstock requirements will be harvested by PAH for cost recovery. No common property openings targeting PAH pink salmon are anticipated in the SHA. Though unlikely, common property openings may be necessary to harvest surplus fish in the SHA if cost-recovery harvesting is overwhelmed. No pinks are expected to return to the Port Herbert rearing and release site this year. PAH will maintain close contact with the Sitka Area ADF&G management staff throughout the return so the department can respond to unharvested surplus in a timely manner, should the need arise.

Wild stock run timing in the most southerly portions of sections 9-A and 9-B overlap with the run timing of returning PAH pink salmon; therefore, a significant interception of pink salmon returning to PAH would be expected in these fisheries should they occur during mid to late August. Opportunities for traditional purse seine fisheries in the southern portions of sections 9-A and 9-B will be determined in season based on observations and abundance. In Section 9-A, traditional purse seine fisheries occur north of Armstrong Point. In recent years, few if any common property openings for seining have occurred south of Red Bluff Bay. <u>Coho Salmon</u>

In 2022, PAH is expecting a return to the hatchery of about 58,400 adult coho salmon at 5% ocean survival. PAH coho salmon are mostly harvested in the traditional summer troll season in the outer coastal waters and in lower Chatham Strait. It is estimated that 50% of PAH coho salmon will be

harvested in the common property fisheries. All coho salmon returning to the SHA in excess of broodstock requirements will be harvested for cost recovery by PAH.

Sport fisheries

Relatively small numbers of PAH salmon are caught in sport fisheries in Chatham Strait. Some targeted fishing may occur near Port Armstrong hatchery for coho salmon. Sport fisheries will be managed as described in regional codified regulations for the waters of Southeast Alaska. There are no special regulations for Port Armstrong. The department may use EO authority to address additional issues as they arise in season.

6.4 *Cost recovery harvest management*

Species	CR goal
Chinook salmon	All Chinook salmon in terminal area.
Chum salmon	All chum salmon in terminal area.
Pink salmon	All pink salmon in terminal areas.
Coho salmon	All coho salmon in terminal area.

Pink salmon run timing is monitored via daily sex ratio sampling during the harvest activities. Initially, the early portion of the pink salmon return is managed to provide the highest quality flesh condition, as the preponderance of these fish are excess males. As the run progresses and more females begin to account for a larger share of the return, management emphasis may turn to harvesting strategies aimed at maximum roe value, with flesh quality being secondary. As a general practice, PAH and its contracted processor's harvester will strive to keep the outer portion of the SHA fully harvested each day in order to minimize any potential straying. PAH anticipates 130,000 pink salmon to be available for cost recovery, not counting fish that are lost to sea lion predation. Sufficient processing and tendering capabilities will be contracted to handle daily harvest amounts of nearly 800,000 lbs. if necessary.

With the decline in Chinook salmon returns anticipated since the cessation of Chinook salmon egg takes at PAH, the staff no longer intends to use a gillnetter during May and June for cost recovery of returning Chinook salmon. In past years, the gillnetter has used a driftnet of 6" or greater mesh size in the inner bay and attempt to harvest Chinook as quickly as possible as they return in order to maximize quality and take advantage of the higher early-season prices.

In 2022, PAH anticipates a return of 198,000 chum salmon to be available for cost recovery in the SHA, again, not counting sea lion predation. Chum salmon should make a significant contribution to PAH's cost-recovery harvest. The chum salmon run generally ends before the end of July, one to two weeks before the pink salmon harvest begins. PAH plans to contract a seiner to fish at least twice a week, to keep the SHA fully harvested.

Based on historical catch data, PAH anticipates that approximately 50% of returning coho salmon will be captured in the traditional summer troll fishery in the outer coastal waters of Baranof Island and lower Chatham Strait. Adult coho salmon not caught in common property fisheries typically begin arriving in the SHA in late August. The coho salmon return usually overlaps with the end of the pink salmon return. If requested by the processor, efforts may be made to harvest coho salmon and pink salmon separately. Coho salmon often completely segregate themselves from pink salmon within the inner bay. Definitive coho salmon harvest strategies may vary with changing conditions and different fish behavior.

7.0 APPROVAL

Recommendation for Approval: Port Armstrong Hatchery Annual Management Plan, 2022

Bryanna Graham Armstrong-Keta, Inc.	7/27/2022
Troy Tydingco, Area Management Biologist, Division of Sport Fish	8/29/2022
Aaron Dupuis, Area Management Biologist, Division of Commercial Fisheries	7/26/2022
Judy Lum, Regional Supervisor, Division of Sport Fish	8/29/2022
Lowell Fair, Regional Supervisor, Division of Commercial Fisheries	7/26/2022
Lorraine Vercessi, PNP Hatchery Program Coordinator, Div. of Commercial Fisheries	8/31/2022
Approval:	
The 2022 Port Armstrong Hatchery Annual Management Plan is hereby approve	ed:
Tom Taube, Deputy Director, Division of Sport Fish	9/2/2022
Forrest Bowers, Deputy Director, Division of Commercial Fisheries	9/9/2022

APPENDICES

Maps:

Figure 1. Location of Port Armstrong (SHA) in Southeast Alaska.

Historic production tables:

Table 1. Projected returns for the 2020 season.

- **Table 2.** Pink salmon egg take, release, and survival data for Port Armstrong Hatchery.
- **Table 3.** Coho salmon egg take, release, and survival data for Port

 Armstrong Hatchery.
- **Table 4.** Chinook salmon egg take, release, and survival data for Port

 Armstrong Hatchery.
- **Table 5.** Chum salmon egg take, release, and survival data for PortArmstrong Hatchery.

 Table 6. Production summary.



Table 1	AKI proje	cted ret	turns for the 202	22 season.					
Species	Brood Year	Age	Fry/Smolt Released	Est. Marine Survival %	Percent at Age	Est. Return	Est. CP Harvest	Est. Brood Stock	Est. Cost Recovery
									, i
Pink	2020	2	60,706,053	1.50%	100%	910,591	418,872	300,000	191,719
							46%		
Coho	2019	3	3,802,460	5.00%	100%	190,123	95,062	7,000	88,062
							50%		
Chum	2019	3	51,663,892	1.00%	6%	30,998			
	2018	4	37,185,005	1.00%	63%	234,266			
	2017	5	34,876,032	1.00%	30%	104,628			
	2016	6	24,802,314	1.00%	1%	2,480			
	Total					372,372	37,237	30,000	305,135
							10%		

Table 2	able 2.–Pink salmon: egg take, release, and survival data for Port Armstrong Hatchery, 1983-2022.											
Brood Year	Origin	Eggs Taken	Fry Released	% Fry Survival	Size (gram)	Release Dates	Adult Return To Hatchery	% Return To Hatcher	Total Adult Return	% Marine Survival	Return Year	
1983	Sashin Creek	2,900,000										
1983	Lovers Cove	6,100,000	7,400,000	82.20%	0.23	1984/3/5-4/12	74,000	1.00%	148,000	2.00%	1985	
1984	Sashin Creek	2,800,000										
1984	Lovers Cove	8,400,000	7,500,000	67.00%	0.3	1985/4/29-5/23	30,098	0.40%	60,196	0.80%	1986	
1985	Port Armstrong	13,630,000	9,676,000	71.00%	0.4	1986/5/1-7	275,976	2.85%	289,775	2.99%	1987	
1986	Port Armstrong	14,520,000	12,350,000	85.10%	0.39	1987/4/15-25	24,061	0.19%	28,256	0.23%	1988	
1987	Port Armstrong	20,940,000	19,370,000	92.50%	0.32	1988/4/18-24	75,066	0.39%	125,115	0.65%	1989	
1988	Port Armstrong	17,150,000	16,040,000	93.50%	0.36	1989/4/24-29	903,378	5.63%	1,113,413	6.94%	1990	
1989	Port Armstrong	24,000,000	22,420,000	93.40%	0.38	1990/4/28-5/1	1,097,622	4.90%	1,393,752	6.22%	1991	
1990	Port Armstrong	53,710,000	50,116,000	93.30%	0.34	1991/5/5-15	2,041,595	4.07%	2,722,127	5.43%	1992	
1991	Port Armstrong	41,849,000	39,616,000	94.70%	0.45	1992/5/2-6	358,967	0.91%	478,623	1.21%	1993	
1992	Port Armstrong	58,108,000	51,189,000	88.10%	0.31	1993/4/27-5/5	1,260,758	2.46%	1,760,758	3.44%	1994	
1993	Port Armstrong	58,668,000	43,000,000	73.30%	0.3	1994/4/26-5/4	843,954	1.96%	1,343,954	3.13%	1995	
1994	Port Armstrong	59,416,000	53,839,000	90.60%	0.31	1995/4/24-5/3	1,266,381	2.35%	2,110,635	3.92%	1996	
1995	Port Armstrong	81,360,000	72,480,000	91.00%	0.31	1996/4/27-5/7	1,246,342	1.72%	1,821,342	2.51%	1997	
1996	Port Armstrong	91,286,000	81,012,000	88.70%	0.32	1997/4/25 - 5/10	1,426,978	1.76%	2,212,708	2.73%	1998	
1997	Port Armstrong	80,071,739	75,776,850	94.60%	0.7	1998/3/31-4/27	3,522,588	4.65%	4,327,788	5.71%	1999	
1998	Port Armstrong	86,619,007	73,269,304	84.60%	0.45	1999/4/26 - 6/7	204,618	0.28%	304,618	0.42%	2000	
1999	Port Armstrong	89,082,366	85,638,750	96.10%	0.63	2000/4/24 - 5/8	1,362,561	1.59%	2,452,610	2.90%	2001	
2000	Port Armstrong	52,992,615	52,343,525	96.00%	0.94	2001/4/20-6/4	1,104,959	2.10%	1,988,926	3.80%	2002	
2001	Port Armstrong	78,906,537	72,663,780	92.10%	0.67	2002/5/1-6/12	598,569	0.82%	1,077,424	1.48%	2003	
2002	Port Armstrong	90,366,055	83,470,980	92.40%	0.78	2003/4/24-5-29	1,184,027	1.42%	1,691,465	2.03%	2004	
2003	Port Armstrong	89,675,516	83,835,050	93.50%	0.76	2004/4/21 - 6/2	1,015,299	1.21%	1,786,926	2.13%	2005	
2004	Port Armstrong	88,040,126	80,110,972	91.00%	0.78	2005/4/28 - 5/31	356,371	0.44%	636,377	0.79%	2006	
2005	Port Armstrong	87,610,268	78,172,288	89.20%	1.12	2006/5/27 - 6/1	672,207	0.86%	1,209,973	1.55%	2007	
2006	Port Armstrong	85,617,687	78,211,021	91.30%	0.6	2007/6/2 - 6/7	52,113	0.07%	93,803	0.12%	2008	
2007	Port Armstrong	64,478,274	61,734,194	95.70%	0.75	2008/5/20 - 5/28	793,488	1.29%	1,428,278	2.31%	2009	
2008	Port Armstrong	23,204,712	21,438,507	92.40%	0.64	2009/5/6	759,488	3.54%	1,240,699	5.79%	2010	
2009	Port Armstrong	59,858,384	53,677,075	89.20%	0.49	2010/4/29	658 <i>,</i> 638	1.23%	1,176,351	2.19%	2011	
2010	Port Armstrong	85,090,195	75,506,078	88.70%	0.48	2011/5/3-5/7	163,538	0.22%	292,032	0.39%	2012	
2011	Port Armstrong	85,870,462	82,734,292	96.30%	0.52	2012/5/1-2	1,086,035	1.31%	2,204,708	2.66%	2013	
2012	Port Armstrong	53,598,205	52,120,334	97.20%	0.65	2013/4/25 - 5/4	310,959	0.60%	403,843	0.77%	2014	
2013	Port Armstrong	87,840,626	79,659,097	90.70%	0.46	2014/4/18 - 5/7	451,741	0.51%	721,612	0.82%	2015	
2014	Port Armstrong	93,185,785	87,664,878	94.10%	.597	2015/4/20-5/6	151,347	0.17%	280,272	0.32%	2016	
2015	Port Armstrong	103,883,660	97,116,922	93.50%	.6199	2016/ 4/13 - 4/19	758,455	0.78%	1,404,546	1.45%	2017	
2016	Port Armstrong	55,134,038	52,820,574	95.80%	.529	2019/4/28 - 5/14	194,535	0.37%	360,250	0.68%	2018	
2017	Port Armstrong	82,198,745	77,904,453	94.78%	.4248	2018/4/30 - 5/8	212,640	0.27%	303,771	0.39%	2019	
2018	Port Armstrong	40,206,672	36,787,073	91.49%	.7786	2019/5/5	802,469	2.18%	1,146,790	3.12%	2020	
2019	Port Armstrong	41,737,626	38,929,384	93.27%	.95-1.05	2020/4/28 - 5/12	170,226	0.44%	243,197	0.62%	2021	
2020	Port Armstrong	64,671,802	60,706,053	93.87%	.6581	2021/5/12 - 17					2022	
2021	Port Armstrong	17,285,000						#DIV/0!		#DIV/0!	2023	

Brood		Eggs	Smolt	Smolt	Size	Release	Return	Marine	Adult	F
Year	Origin	Taken	Released	Survival	Gram	Dates	Age	Survival	Return	ť
10.9.9	Blanchard Lake	140.000	121 720	86.05%	2/1 2	1000/5/16	7,80	2 0%	2 442	┢
1900		140,000	121,730	80.9576	24.5	1990/3/10	2	2.070	27 090	t
1090	(Deep Cove)	280.000	206 724	72 020/	10.6	1001/5/25 26	2	0.2%	// 27,090	┢
1909		280,000	200,724	75.65%	19.0	1991/3/23-20	2	10.2%	400	┢
1000	Door Lako (Sachin)	220 190	164 766	71 5 00/	10 E	1002/5/17 19	2	0.1%	100	┢
1990		250,180	104,700	71.56%	10.5	1992/5/17-18	2	7.0%	11 /02	┝
1001	Doortoko	612 504	01 672	12 210/	17.2	1002/5/22	3	7.0%	11,495	┢
1991		013,504			17.Z	1993/5/23	2	0.0%	2 905	┢
1002	(Deep Cove) - Abrior					1004/5/20.20	2	4.7%	212	┝
1992		895,000	020,199	92.74%	10.4	1994/5/20-50	2	10.0%	86.244	┢
1002		662,000	457 201	69 07%	17.6	1005 /5 /29 20	2	10.4%	15	┢
1995	Hiddon Falls	217,000	457,201	00.97%	15.5	1995/5/28-29	2	0.0%	22 1/2	┢
		217,000	104,525	65.05%	15.5	1995/5/28	5	0.0%	32,443	┢
1004	DALL	1 008 000			20.0	1000/0/2	4	0.0%	97	┢
1994	PAN Lliddon Follo	1,098,000	/51,500	00.02%	20.8	1996/6/2	2	0.0%	-	┢
1005		1 820 000	053,203	50.03%	10.7	1990/5/31	3	5.5%	1 500	┢
1995	PAH	1,830,000	952,000	52.02%	19.7	1997/5/19-6/6	2	0.2%	1,500	┝
1000	199,800 sub quality	SWOW smolt r	eleased not e			e post release.	3	3.6%	33,801	┝
1996		1,853,000	123,850	35.11%	21.4	1998/5/23	2	0.0%	-	┝
4007	1,500,300 unfed fry	released. No n	narine surviva	l expecte	d.	1000/5/100.00	3	16.4%	20,244	╞
1997	РАН	/48,//9	625,363	83.52%	22.6	1999/5/19-26	2	0.0%	-	╞
1000	244	4 505 000	4 959 999	05.000		2000/5/45.00	3	3.1%	19,589	╞
1998	РАН	1,585,368	1,358,299	85.68%	22.9	2000/5/15-28	2	1.8%	25,000	╞
							3	15.0%	203,619	-
1999	Hidden Falls	1,400,000	975,549	83.83%	24.2	2001/5/22-23	2	0.4%	3,690	┝
							3	23.2%	226,409	-
2000	Hidden Falls	1,775,298	1,468,761	82.70%	21.5	2002/5/24-31	2	0.1%	700	L
							3	4.5%	66,355	-
2001	РАН	1,861,605	1,331,351	71.52%	22.2	2003/5/30	2	0.0%	-	L
							3	2.6%	34,724	-
2002	PAH	1,576,659	1,340,985	70.51%	27.3	2004/6/3-4	2	0.0%	-	L
	Hidden Falls	325,171					3	1.5%	19,444	L
2003	РАН	2,338,298	1,581,050	67.62%	26.7	2005/6/9	2	0.0%	-	L
							3	2.3%	36,238	L
2004	РАН	1,287,880	2,616,063	86.21%	19.3	2006/6/8	2	0.1%	1,666	L
	Hidden Falls	1,746,625					3	5.6%	145,393	L
2005	РАН	2,933,857	2,156,500	73.50%	20.7	2007/6/15	2	0.0%	751	L
							3	2.7%	59,038	
2006	РАН	3,296,075	2,509,128	76.12%	18.9	2008/6/5	2	0.1%	2,572	L
							3	4.5%	113,254	
2007	РАН	3,702,400	3,148,462	85.04%	15	2009/5/28	2	0.0%	217	
							3	3.9%	123,552	
2008	РАН	4,287,737	3,223,867	75.19%	16.5	2010/5/8-27	2	0.0%	1,031	
							3	4.6%	148,756	
2009	РАН	3,494,400	2,274,860	65.10%	19.5	2011/5/15-27	2	0.0%	695	
							3	2.6%	58,332	2
2010	РАН	2,421,000	2,380,474	85.28%	19.6	2012/5/18-28	2	0.0%	477	
							3	5.7%	135,869	Γ
2011	РАН	2,499,209	2,243,392	89.76%	23.6	2013/5/19-27	2	0.0%	788	Γ
							2	9.7%	250 555	T

Table 3	(continued)Coho	salmon: egg tak	e, release an	d surviva	l data fo	r Port Armstrong	Hatcher	y, 2012–2	018.	
Brood	Origin	Eggs	Smolt	Smolt	Size	Release	Return	Marine	Adult	Return
Year	Oligili	Taken	Released	Survival	Gram	Dates	Age	Survival	Return	Year
2012	РАН	3,010,994	2,466,514	81.90%	24.4	2014/5/17-22	2	0.2%	3,701	2014
							3	9.1%	223,802	2015
2013	РАН	2,358,046	1,944,904	82.50%	24.5	2015/5/15-21	2	1.1%	20,740	2015
							3	5.3%	103,141	2016
2014	РАН	2,911,992	2,192,592	75.30%	29-36	2016/5/6-15	2	1.0%	22,236	2016
							3	6.6%	191,736	2017
2015	РАН	2,886,214	2,061,012	71%	25-52	2017/4/7-5/25	2	0.6%	17,522	2017
							3	2.0%	56 <i>,</i> 880	2018
2016	РАН	5,023,610	4,006,231	80%	20-30	2018/5/18-31	2	0.1%	4,658	2018
	Annual report states	all returns wer	e BY2015				3	4.5%	179,165	2019
2017	РАН	6,438,400	3,732,285	58%	28-31	2019/5/14-23	2	0.5%	18,566	2019
							3	2.0%	75,163	2020
2018	РАН	4,828,800	3,652,153	76%	24-27	2020/5/13-20	2	0.2%	6,324	2020
							3	1.3%	48,618	2021
2019	РАН	4,838,400	3,802,460	79%	20/25	2021/5/15-23	2	0.2%	7,528	2021
							3			2022
2020	РАН	4,838,400	3,673,263	76%	20-27	2022/5/24-25	2			2022
							3			2023
2021	РАН	5,004,000					2			2023
							3			2024

Table	ble 4a.–King salmon: egg take, release, and survival data for Port Armstrong Hatchery, 1985–2015.											
Brood	Origin	Eggs	Fry	% Fry	Size	Release	Age at	% Marine	Adult	Return		
Year	Oligili	Taken	Released	Survival	Gram	Dates	Return	Survival	Return	Year		
1985	Sashin (Unuk)	n/a	69,949	n/a	24.13	6/3/1987	2(minijack)	0.21%	150	1987		
							3(jack)	0.42%	295	1988		
							4	0.50%	351	1989		
							5	1.50%	1,051	1990		
							6	1.28%	896	1991		
							BY85 TOTAL	3.92%	2,743			
1986	Sashin (Unuk)	80,000	75,602	94.50%	6.21	7/2/1987	n/a	0.00%	-			
							BY86 TOTAL	0.00%	-			
1987	Sashin (Unuk)	130,000	89,942	69.20%	35.04	5/18/1989	2(minijack)	2.97%	2,667	1989		
							3(jack)	0.29%	264	1990		
							4	0.20%	180	1991		
							5	0.68%	615	1992		
							6	1.33%	1,192	1993		
						· · ·	BY87 TOTAL	5.47%	4,918			
1988	Sashin (Unuk)	166,000	144,323	86.90%	38.72	5/16/1990	2(minijack)	0.24%	340	1990		
							3(jack)	0.08%	121	1991		
							4	0.06%	88	1992		
							5	0.40%	584	1993		
							6	0.19%	275	1994		
							BY88 TOTAL	0.98%	1,408			
1989	Sashin (Unuk)	154,588	62,176	40.20%	40.25	5/26/1991	2(minijack)	0.19%	120	1991		
						5/27/1991	3(jack)	0.16%	100	1992		
							4	0.27%	170	1993		
							5	0.29%	181	1994		
							6	0.08%	48	1995		
							BY89 TOTAL	1.00%	619			
1990	Sashin (Unuk), PAH	160,316	88,964	55.50%	25.6	5/26/1992	2(minijack)	0.00%	-	1992		
	Snettisham Smolt	n/a	306,701	n/a	10.5	6/11/1992	3(jack)	0.10%	413	1993		
			395,665				4	0.19%	734	1994		
							5	0.08%	315	1995		
							6	0.10%	398	1996		
	, ,			,			BY90 TOTAL	0.47%	1,860			
1991	Sashin (Unuk), PAH	32,000	-	0.00%	-	1/1/1994	2(minijack)	0.00%	-	1993		
	Snettisham Smolt		1,275,041	n/a	8.87	6/9/1993	3(jack)	0.00%	-	1994		
							4	0.05%	594	1995		
							5	0.00%	-	1996		
							6	0.00%	-	1997		
	BY 91 PAH smolt los	t due to pip	eline failure				BY91 TOTAL	0.05%	594			
1992-2	000 No Eggs Taken											

Table	Table 4b.–King salmon: egg take, release, and survival data for Port Armstrong Hatchery, 2001–2006.												
Brood		Eggs	Fry	% Fry	Size	Release	Age at	% Marine	Adult	Return			
Year	Origin	Taken	Released	Survival	Gram	Dates	Return	Survival	Return	Year			
2001	Sashin (Unuk)	181,228	106,756	58.90%	31.68	5/20/2003	2 (minijack)	0.00%	-	2003			
	Little Port Walter						3 (jack)	1.12%	1,200	2004			
							4 yr old	1.55%	1,656	2005			
							5 yr old	1.54%	1,644	2006			
							6 yr old	0.26%	277	2007			
	,						BY01 TOTAL	4.47%	4,777				
2002	Sashin (Unuk)	172,915	96,285	55.70%	44.81	5/8/2004	2 (minijack)	0.09%	83	2004			
	Little Port Walter						3 (jack)	0.01%	8	2005			
							4 yr old	0.05%	45	2006			
							5 yr old	0.90%	862	2007			
							6 yr old	0.06%	60	2008			
							BY02 TOTAL	1.10%	1,058				
2003	Sashin (Unuk)	240,465	83,479	34.70%	52.83	5/21/2005	2 (minijack)	0.00%	-	2005			
	Little Port Walter						3 (jack)	0.07%	57	2006			
							4 yr old	0.31%	262	2007			
							5 yr old	0.35%	291	2008			
							6 yr old	0.20%	169	2009			
							BY03 TOTAL	0.93%	779				
2004	Sashin (Unuk)	907,633	273,788	30.20%	42	5/5/2006	2 (minijack)	0.01%	18	2006			
	Little Port Walter						3 (jack)	0.01%	20	2007			
							4 yr old	0.03%	75	2008			
							5 yr old	0.12%	337	2009			
							6 yr old	0.01%	34	2010			
							BY04 TOTAL	0.18%	484				
2005	Sashin (Unuk)	215,440	148,631	69.00%	44.2	5/7/2007	2 (minijack)	0.07%	111	2007			
	Little Port Walter						3 (jack)	0.41%	608	2008			
							4 yr old	0.79%	1,180	2009			
							5 yr old	1.43%	2,125	2010			
							6 yr old	0.00%	-	2011			
							BY05 TOTAL	2.71%	4,024				
2006	Sashin (Unuk)	1,352,379	938,557	69.40%	4.3	6/25/2007	0 ocean (mini)	0.00%	-	2007			
	PAH - 0 check		663,306				1 ocean (jack)	0.00%	-	2008			
							2 ocean zero	0.00%	-	2009			
							3 ocean zero	0.00%	-	2010			
							4 ocean zero	0.00%	-	2011			
							0 check total	0.00%	-				
	PAH - 1 check		275,251		28.97	5/5/2008	2 (minijack)	0.19%	523	2008			
							3 (jack)	0.22%	597	2009			
							4 yr old	0.74%	2,046	2010			
							5 yr old	1.16%	3,192	2011			
							6 yr old	0.08%	213	2012			
							1 check total	2.39%	6,571				
							BY06 TOTAL	0.70%	6,571				

Table 4c.–King salmon: egg take, release, and survival data for Port Armstrong Hatchery, 2007–201											
Brood	Eggs Fry % Fry Size Release Age at % Marine A							Adult	Return		
Year	Origin	Taken	Released	Survival	Gram	Dates	Return	Survival	Return	Year	
2007	Sashin (Unuk)	844,492	606,070	71.80%							
	PAH -0 check		483,053		7.03	6/9/2008	0 ocean (mini)	0.00%	-	2008	
							1 ocean (jack)	0.00%	-	2009	
							2 ocean zero	0.00%	-	2010	
							3 ocean zero	0.03%	132	2011	
							4 ocean zero	0.01%	70	2012	
							0 check total	0.04%	202		
	PAH -1 check		123,017		30.7	5/2/2009	2 (minijack)	0.17%	208	2009	
							3 (jack)	0.31%	384	2010	
							4 yr old	0.42%	520	2011	
							5 yr old	0.33%	407	2012	
							6 yr old	0.02%	30	2013	
							1 check total	1.26%	1,549		
	1	1					BY07 TOTAL	0.29%	1,751		
2008	Sashin (Unuk)	973,421	555,988	57.10%							
	PAH -0 check		429,612		8.35	6/3/2009	0 ocean (mini)	0.00%	-	2009	
							1 ocean (jack)	0.00%	16	2010	
							2 ocean zero	0.00%	20	2011	
							3 ocean zero	0.07%	286	2012	
							4 ocean zero	0.02%	95	2013	
							0 check total	0.10%	417		
	PAH -1 check		126,376		50.2	5/8/2010	2 (minijack)	0.49%	620	2010	
							3 (jack)	0.07%	92	2011	
							4 yr old	0.47%	594	2012	
							5 yr old	0.39%	494	2013	
							6 yr old	0.04%	52	2014	
							1 check total	1.46%	1,852		
							BY08 TOTAL	0.41%	2,269		
2009	Sashin (Unuk)	734,201	279,702	38.10%							
	PAH - 0 check		149,722		13.1	5/17/2010	0 ocean (mini)	0.00%	-	2010	
							1 ocean (jack)	0.02%	31	2011	
							2 ocean zero	0.23%	344	2012	
							3 ocean zero	0.67%	997	2013	
							4 ocean zero	0.12%	182	2014	
							0 check total	1.04%	1,554		
	PAH - 1 check		129,980		44	5/15/2011	2 (minijack)	0.08%	102	2011	
							3 (jack)	0.07%	88	2012	
							4 yr old	0.20%	262	2013	
							5 yr old	0.36%	462	2014	
L							6 yr old	0.00%	6	2015	
							1 check total	0.35%	920		
	1	1				1	BY09 TOTAL	0.71%	1,824		
2010	Sashin (Unuk)	833,753	273,553	32.80%							
	PAH - 0 check		120,458		16.05	5/15/2011	0 ocean (mini)	0.03%	34	2011	
							1 ocean (jack)	0.01%	10	2012	
							2 ocean zero	0.08%	94	2013	
							3 ocean zero	0.12%	140	2014	
							4 ocean zero	0.03%	35	2015	
							0 check total	0.26%	313		
	PAH - 1 check		153,095		53	5/18/2012	2 (minijack)	0.11%	172	2012	
							3 (jack)	0.08%	123	2013	
							4 yr old	0.25%	384	2014	
							5 yr old	0.32%	488	2015	
							6 yr old	0.00%		2016	
							1 check total	0.19%	295		
							BY10 TOTAL	0.16%	433		

Table	Table 4d.–King salmon: egg take, release, and survival data for Port Armstrong Hatchery, 2011-2016.												
Brood		Eggs	Fry	% Fry	Size	Release	Age at	% Marine	Adult	Return			
Year	Origin	Taken	Released	Survival	Gram	Dates	Return	Survival	Return	Year			
2011	Sashin (Unuk)	737,644	314,938	42.70%									
	PAH -0 check		96,224		19.6	5/12/2012	0 ocean (mini)	0.00%	-	2012			
							1 ocean (jack)	0.00%	-	2013			
							2 ocean zero	0.00%	6	2014			
							3 ocean zero	0.03%	32	2015			
							4 ocean zero	0.00%	3	2016			
							0 check total	0.04%	41				
	PAH -1 check		218,748		43.24	5/18/2013	2 (minijack)	0.57%	870	2013			
							3 (jack)	0.00%	128	2014			
							4 yr old	0.00%	1,116	2015			
							5 yr old	0.00%	45	2016			
							6 yr old	0.00%	-	2017			
							1 check total	0.97%	2,159				
							BY11 TOTAL	0.68%	2,200				
2012	Sashin (Unuk)												
	PAH -0 check	384,073	238,629	62.10%	13.55	5/14/13	0 ocean (mini)	0.00%		2013			
							1 ocean (jack)	0.10%	230	2014			
							2 ocean zero	0.19%	445	2015			
							3 ocean zero	0.00%	260	2016			
							4 ocean zero	0.01%	30	2017			
							BY12 total	0.40%	965				
2013	Sashin (Unuk)												
	PAH - 0 check	327,100	161,355	49.33%	14.7	2014	0 ocean (mini)	0.00%		2014			
							1 ocean (jack)	0.05%	76	2015			
							2 ocean zero	0.00%	293	2016			
							3 ocean zero	0.27%	437	2017			
							4 ocean zero	0.02%	33	2018			
							BY13 total	0.52%	839				
2014	Sashin (Unuk)												
	PAH - 0 check	293,450	196,994	67.13%	17.5	5/8/2015	0 ocean (mini)	0.00%	-	2015			
	(100,170 of these s	molts were	released at	LPW)		thru	1 ocean (jack)	0.00%	-	2016			
						7/28/2015	2 ocean zero	0.09%	181	2017			
							3 ocean zero	0.24%	473	2018			
							4 ocean zero	0.29%	572	2019			
							BY14 total	0.62%	1,226				
2015	Sashin (Unuk)												
	PAH - 0 check	406,030	231,839	57.10%	18	6/30/2016	0 ocean (mini)	0.00%	114	2016			
							1 ocean (jack)	0.05%	105	2017			
							2 ocean zero	0.08%	196	2018			
							3 ocean zero	0.18%	413	2019			
							4 ocean zero	0.02%	43	2020			
The Po	rt Armstrong Hatche	ery Chinook p											

Table 5	a.–Chum salmon: e	egg take, relea	use, and surviv	val data for	Port Armst	rong Hatchery	, 1984–2	002.		
Brood	Origin	Eggs	Fry	% Fry	Size	Release	Return	% Marine	Adult	Return
Year	Oligin	Taken	Released	Survival	(gram)	Dates	Age	Survival	Return	Year
1984	Security Bay	1,236,400	702,540	56.8%	0.8	1985/6/18	3	0.00%	-	1987
	Camden	703,000	223,000	31.7%	1	1985/6/6	4	0.01%	90	1988
		1,939,400	925,540	47.7%			5	0.00%	2	1989
						BY84	TOTAL	0.01%	92	
1985	Security Bay	2,702,250	1,626,400	60.2%	0.84	1986/5/19	1986/5/19 3		27	1988
						1986/6/9	4	0.00%	46	1989
							5	0.00%	-	1990
						BY85	TOTAL	0.00%	73	
1986	Security Bay	2,171,103	1,982,450	91.3%	1.05	1987/6/1	3	0.01%	128	1989
							4	0.02%	363	1990
							5	0.00%	-	1991
						BY86	TOTAL	0.03%	491	
1987	Security Bay	1,506,500	1,287,060	85.4%	0.9	1988/4/24	8/4/24 3		839	1990
							4	0.03%	396	1991
							5	0.00%	-	1992
	1					BY87	TOTAL	0.10%	1,235	
1988	Port Armstrong	46,571	42,500	91.3%	0.67	1989/4/24	3	2.17%	923	1991
						1989/4/30	4	0.30%	126	1992
							5	0.00%	-	1993
	1					BY88	TOTAL	2.47%	1,049	
1989	Port Armstrong	157,303	141,921	90.2%	0.56	1990/5/1	3	0.28%	400	1992
							4	0.00%	-	1993
							5	0.00%	-	1994
	1					BY89	TOTAL	0.28%	400	
1990	Port Armstrong	855,167	794,673	92.9%	0.51	1991/5/5	3	0.00%	-	1993
						1991/5/15	4	0.00%	-	1994
							5	0.00%	-	1995
			1			BY90	TOTAL	0.00%	-	
1991	Port Armstrong	444,453	423,000	95.2%	0.52	1992/5/4	3	0.00%	-	1994
							4	0.00%	-	1995
							5	0.00%	-	1996
			1			BY91	TOTAL	0.00%	-	
No egg	s were taken fror	n 1992-2002								

Table 5	b.–Chum salmon	: egg take, re	lease, and s	urvival dat	a for Port A	Armstrong Hat	chery, 2	003–2019.		
Brood		Eggs	Fry	% Fry	Size	Release	Return	% Marine	Adult	Return
Year	Origin	Taken	Released	Survival	Gram	Dates	Age	Survival	Return	Year
2003	Hidden Falls	10,000,826	9,306,909	93.1%	1.62	2004/5/30	3	0.06%	7,561	2006
	Gunnuk Creek	5,535,655	4,098,640	74.0%	1.99	2004/4/21	4	0.28%	37,471	2007
	TOTAL	15,536,481	13,405,549	86.3%	1.73		5	0.05%	7,098	2008
							6	0.01%	1,254	2009
	1					BY03	TOTAL	0.40%	53,384	
2004	Hidden Falls	12,914,888	574,958	4.5%	2.19	2005/5/31	3	0.05%	287	2007
							4	0.14%	799	2008
							5	1.09%	6,266	2009
							6	0.00%	0	2010
	1					BY04	TOTAL	1.28%	7,352	
2005	Hidden Falls	2,716,112	2,110,821	77.7%	2.93	2006/6/1	3	0.27%	10,294	2008
	Gunnuk Creek	1,911,488	1,770,390	92.6%	3.86	2006/5/15	4	2.91%	112,780	2009
	TOTAL	4,627,600	3,881,211	83.9%	3.35		5	0.21%	8,205	2010
							6	0.02%	719	2011
						BY05	TOTAL	3.40%	131,998	
2006	Hidden Falls	13,300,064	11,875,417	89.3%	1.59	2007/6/2	3	0.03%	5,012	2009
	Port Armstrong	5,049,447	4,654,882	92.2%	1.77	2007/6/7	4	0.18%	31,905	2010
	Gunnuk Creek	940,933	917,949	97.6%	3.27	2007/5/24	5	0.57%	100,239	2011
	TOTAL	19,290,444	17,448,248	90.5%			6	0.01%	2,476	2012
			BY06 T					0.80%	139,632	
2007	Port Armstrong	15,348,631	13,786,610	89.8%	2.14	2008/5/28	3	0.24%	33,501	2010
							4	1.20%	166,072	2011
							5	0.28%	38,726	2012
							6	0.00%	587	2013
						BY07	TOTAL	1.73%	238,886	
2008	Port Armstrong	13,104,587	12,417,244	94.8%	1.2	2009/5/7	3	0.06%	6,904	2011
							4	1.03%	128,379	2012
							5	0.31%	38,174	2013
							6	0.00%	363	2014
						BY08	TOTAL	1.40%	173,820	
2009	Port Armstrong	30,019,963	27,296,476	90.9%	1.21	2010/4/27	3	0.03%	7,520	2012
							4	0.45%	128,029	2013
							5	0.13%	38,070	2014
							6	0.00%	762	2015
		. ,				BY09	TOTAL	0.61%	174,381	
2010	Port Armstrong	30,479,861	28,444,881	93.3%	1.34	2011/5/7	3	0.01%	3,524	2013
							4	0.08%	23,930	2014
							5	0.08%	23,627	2015
							6	0.00%	505	2016
						BY10	TOTAL	0.18%	51,586	
2011	Port Armstrong	30,139,827	26,459,338	87.8%	1.91	2012/5/1-4	3	0.04%	10,152	2014
							4	0.19%	49,541	2015
							5	0.06%	15,154	2016
							6	0.02%	4,094	2017
						BY11	TOTAL	0.30%	78,941	

Table 5	able 5c.–Chum salmon: egg take, release, and survival data for Port Armstrong Hatchery, 2003–2019.												
2012	Port Armstrong	29,620,820	25,695,046	86.7%	1.78	2013/4/25	3	0.01%	2,286	2015			
			, ,				4	0.12%	31,824	2016			
							5	0.48%	122.806	2017			
							6	0.01%	1.777	2018			
					1	BY12	TOTAL	0.62%	158.693				
2013	Port Armstrong	30 174 044	25 028 988	82.9%	2.42	2014/4/30	3	0.01%	3 031	2016			
	l'orevittis d'orig		25,020,500	021070	22	2011/1/00	4	1 03%	257 892	2017			
								0.21%	53 320	2017			
							6	0.00%	526	2010			
						BV13		1 26%	31/1 768	2015			
2014	Port Armstrong	24 772 774	22 817 058	02.1%	2.04	2015/4/11	2	0.11%	24 561	2017			
2014	FOILAINSTON	24,773,774	22,017,030	52.170	5.04	2013/4/11	3	0.11%	111 071	2017			
							- 4 -	0.49%	22,400	2010			
							5		22,400	2019			
						DV/14	TOTAL	#VALUE!	301	2020			
2015		40 604 077	24 044 542	06 40/	2.00	BY14		#VALUE!	159,233	2010			
2015	Port Armstrong	40,601,877	34,944,513	86.1%	2.66	2016/3/23	3	0.03%	10,664	2018			
						2016/4/10	4	0.44%	153,500	2019			
							5	0.01%	4,516	2020			
							6	#VALUE!	630	2021			
					1	BY15	TOTAL	#VALUE!	169,310				
2016	Port Armstrong	28,179,519	24,802,314	88.0%	2.01	2017/5/5	3	0.04%	10,800	2019			
							4	0.04%	9,184	2020			
							5	0.04%	9,457	2021			
							6	0.00%	0	2022			
					1	BY16	TOTAL	0.12%	29,441				
2017	Port Armstrong	40,153,986	34,876,032	86.9%	1.34	2018/5/4	3	0.00%	1,054	2020			
							4	0.06%	19,229	2021			
							5	0.00%		2022			
							6	0.00%		2023			
						BY17	TOTAL	20,283					
2018	Port Armstrong	57,029,720	37,185,005	65.2%	1.99-2.76	2019/5/8-19	3	0.01%	2,207	2021			
							4	0.00%		2022			
							5	0.00%		2023			
							6	0.00%		2024			
			1		1	BY18	TOTAL	0.01%	2,207				
2019	Port Armstrong	57,293,201	51,663,892	90.2%	1.99-2.76	2020/5/6-12	3	0.00%		2022			
	boat releases	, , ,	17,723.855		2.74g	2020/5/8-12	4	0.00%		2023			
	white box		33.940.037		1.71g	2020/5/20	5	0.00%		2024			
						,	6	0.00%		2025			
			L]		1	BY19		0.00%	2 207				
2020	Port Armstrong	14 915 004	13 208 266	88.6%		2021/5/11	3	0.00%	2,207	2023			
2020	larges	1,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	10 145 670	23.070		2021/5/21	4	0.00%		2023			
	smalls		3 062 596			2021/5/11	-+ 5	0.00%		2024			
	5110115		3,002,030			2021/0/11	2	0.00%		2023			
						DV10	TOTAL	0.00%	2 207	2020			
2024	Port Armstrong	17 295 000		0.0%		2022/	10TAL 2	0.00%	2,207	2024			
2021		17,200,000		0.0%		2022/	3	0.00%		2024			
						2022/	4	0.00%		2025			
	smalls					2022/	5	0.00%		2026			
							6	0.00%		2027			

Produ	uction Summary																								
Port A	Armstrong Hatch	ery																							
Table	6– Production Su	umma	ry																			Curre	nt Yea	ır	
				20	2019									2020						2021					
		Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
	Species & Run																								
											_	_	}										<u> </u>		
	chum salmon	BY19	E			TM						R	— ВУ20	E		TM						R			
			57M			57M						52M			15M			15M					<u> </u>	13M	
<u> </u>			РАП	1	1				1			РАП			РАП			1	1					РАП	<u> </u>
									-		-							1							
	nink salmon		RV10	Е		ΤM						R				BV20	E	ТМ						R	
			42M	42M						39M				0120	65M	65M						61M			
				PAH								PAH					PAH	-						PAH	
											_		1					-							
	coho salmon	BY18		-		Т			_		_	R						{							
(0						4.8M						3.6M		<u> </u>	<u> </u>			1							
(Deep	Cove/Sashin Stock)					1						PAH	1		1										
						F												т						R	
					BY19	4.8M												-						3.8M	
						PAH			1				1					<u>-</u>						PAH	
															1			E							
																	BY20	4.8M							
																		PAH							
	Codes: Egg take:		E	Ta	agging:	Т	Rele	ease:	R		Thermal Marking:			TM											