

**2012 Annual Management Plan
Port Armstrong Hatchery
Armstrong-Keta, Inc.**



PRODUCTION SUMMARY

Port Armstrong Hatchery

Species & Run	Current Year																							
	2011						2012						2013											
	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
king salmon (Unuk River stock)	BY 2010																							
	T						R																	
	34k						150k																	
	Port Armstrong						Port Armstrong																	
king salmon (Unuk River stock)	BY 2011																							
	E						T R						T R											
	500k						30k 100k						30k 200k											
	Port Armstrong						Port Armstrong						Port Armstrong											
king salmon (Unuk River stock)	BY 2012																							
							E						T R											
							700k						30k 120k											
							Port Armstrong						Port Armstrong											
chum salmon	E th						R						E th											
	30M 30M						28M						30M 30M											
	Port Armstrong						Port Armstrong						Port Armstrong											
pink salmon	E th						R						E th											
	85M 85M						80M						85M 85M											
	Port Armstrong						Port Armstrong						Port Armstrong											
coho salmon (Deep Cove/Sashin Stock)	BY 2010						R																	
	40k 35k						2.4M																	
	Port Armstrong						Port Armstrong																	
coho salmon (Deep Cove/Sashin Stock)	BY 2011												R											
	E												T											
	2.6M												80k											
	Port Armstrong												Port Armstrong											
coho salmon (Deep Cove/Sashin Stock)	BY 2012																							
													E											
													2.7M											
													Port Armstrong											

Codes: Egg take Tagging E T number & site number Release transfers R "to ___" thermal marking th number

2012 ANNUAL MANAGEMENT PLAN
Port Armstrong Hatchery
Armstrong-Keta, Inc.

This plan remains in effect until superseded by the next year's Annual Management Plan (AMP). The AMP serves as an instruction manual for hatchery operations and adult return management; it is incumbent upon the local ADF&G, and Hatchery staff to share information with each other regularly for successful adherence to this plan. Anticipated departures from the plan should be communicated as soon as possible in the event an amendment is necessary. Unintended and unexpected changes should be disclosed immediately. The ADF&G PNP Coordinator will advise as to whether an amendment, exception report, or other action is warranted.

1.0 Executive Summary

1.1 *Introduction*

Port Armstrong Hatchery (PAH) is a private nonprofit facility owned and operated by Armstrong-Keta, Inc. (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). The hatchery is fed by water from two lakes perched 285 feet above the facility. Up to 22 cfs of water is seasonally available for hatchery use and hydropower generation. The hatchery facilities include a primary incubation building, a king and coho salmon building, freshwater raceways, and two saltwater net pen complexes.

PAH produces pink, chum, coho, and king salmon for release at Port Armstrong. These releases contribute to common property fisheries in southern Chatham Strait and other areas of Southeast Alaska. PAH is located in a very 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.

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

No program or operational changes in 2012.

1.3 *New permits or permit amendments*

No permit alterations, FTPs, or amendments are needed this year.

1.4 *Expected Returns*

Species, Run	Release Location	Total Return	Common Property Harvest	Return to Hatchery	Broodstock Needed	Available for Cost Recovery
Pink salmon BY 10	Port Armstrong	1,510,120	664,630	784,453	120,000	725,667
Coho salmon BY 09	Port Armstrong	175,175	87,588	87,588	3,000	84,588
King salmon BY 05-10	Port Armstrong	4,382	1,314	3,067	600	2,467
Chum salmon BY 06-09	Port Armstrong	265,024	53,005	212,019	40,000 ¹	172,019

¹ Includes 25,000 chum salmon for PAH and 15,000 chum salmon for possible GCH and/or HFH egg takes.

1.5 *Production Summary*

Program Name	Brood Year	Planned Release Date	Number to Release	Life Stage	Type of Mark, % Marked
Armstrong pink salmon	2011	5/1/12	80,000,000	Fed fry	Thermal Mark 2,2H 100%
Armstrong coho salmon	2010	5/15/12	2,400,000	Smolt	CWT, 3.3%
Armstrong king salmon	2010	5/1/12	150,000	Smolt	CWT, 20.5%
Armstrong king salmon	2011	5/1/12	100,000	Zero check	CWT, 30%
Armstrong chum salmon	2011	5/1/12	28 million	Fed fry	100% TM 3H3

The egg-take goal at PAH for 2012 will be 85 million pink salmon eggs, 30 million chum salmon eggs, 2.7 million coho salmon eggs, and 0.7 million king salmon eggs. If the king salmon egg take is short of the 0.7 million egg goal, the difference can be made up with increased numbers of coho salmon eggs, up to the total 5 million egg capacity if no king salmon eggs are collected. If eggs are not available at PAH, king salmon eggs may be obtained from Little Port Walter (LPW) or Deer Mountain Tribal Hatchery (DMTH); coho salmon eggs may be obtained from Hidden Falls Hatchery (HFH); and chum salmon eggs may be obtained from HFH or Gunnuk Creek Hatchery (GCH). If there is a request for, and sufficient broodstock is available at PAH, HFH and GCH may obtain chum salmon eggs, and Port Saint Nicholas Hatchery (PSNH) may obtain king salmon eggs from PAH.

1.6 *Current Permitting*

The permitted capacity of PAH is 85 million pink salmon eggs, 30 million chum salmon eggs, and 5 million combined king and coho salmon eggs, with no more than 2 million being king salmon eggs.

2.0 Late Summer Pink Salmon Production

2.1 *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	P	85,000,000	85,000,000
Totals				85,000,000	85,000,000

2.2 *Broodstock capture method*

Pink salmon returning to the hatchery are an enhanced run. In late July, a barrier net may be installed in the narrow gut dividing the inner and outer bay of Port Armstrong. This net is used to facilitate cost-recovery harvest and broodstock collection. Sex ratios are sampled during the harvest to monitor run timing. Broodstock is passed into the inner bay over the course of the run and allowed to mature. In early September, when broodstock have sufficiently matured, three fish ladders are opened and adults are recruited into raceways. An electro-anesthesia unit attached to the raceways is used during egg take.

2.3 *Spawning*

Approximately 120,000 pink salmon will be required for broodstock. Spawning takes place on a covered deck adjacent to the broodstock raceways. After being stunned with an electroanesthesia 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.

2.4 *Egg-take schedule*

Egg take begins around September 10 and lasts for two to three weeks, but may be extended due to run timing and recruitment to the fish ladder. Egg take should approximate the normal run curve since broodstock will be admitted into the inner bay or 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.

2.5 *Carcass disposal*

The majority of carcasses are expected to 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.

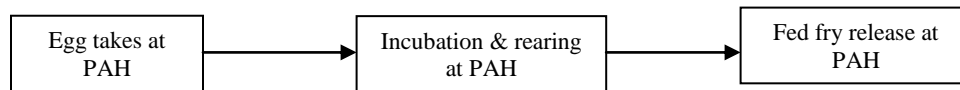
2.6 *Planned releases this calendar year of previous brood year's production*

Program Name	Brood Year	Release Date	Number to Release	Life Stage	Type of Mark, % Marked
Armstrong pink salmon	2011	5/1/12	80,000,000	Fed Fry	Thermal Mark, 2,2H 100%

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

Program Name	Brood Year	Number Live (Jan. 1)	Life Stage	Type of Mark, % to Mark	Number to Release, Date
None					

2.8 *Operational diagram*



2.9 *Program details*

The pink salmon program at PAH began in 1983. PAH strives to release 80 million 0.5 gram otolith marked pink salmon fry each spring. 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 return to the hatchery to meet PAH cost recovery and broodstock requirements.

Average historical marine survival (released fry to adult return) of pink salmon for return years 1985 through 2011 has been about 2.4%, with a high of 6.9% (1990) and a low of 0.12% (2008). PAH has been investigating return performance of rearing and release strategies focusing on both size-at-release and time-of-release. Preliminary results suggest that late-release groups may not survive as well as many previous years' early-release groups. However, when release timing is the same, larger sizes appear to survive better. All BY 11 pink salmon will be released around the spring zooplankton bloom (May 1). There will be no second (late/large) release group. In 2002, PAH began otolith collection from pink salmon returning to the rack, and will do so again this year.

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 area management biologists based on review of historical catch records. There is speculation that PAH pink salmon are caught in districts 103 and 104. BY 10 pink fry were 100% otolith marked (3H). At present, there is no mark recovery program in place. In 2012, AKI is planning a pilot sampling program, and the results of that program will be used to direct further sampling efforts.

2.10 *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	85 million, eggs	1/31/18

3.0 **Fall Coho Salmon**

3.1 *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 109-10-002	P	3,000,000	5,000,000
Armstrong coho salmon	Deep Cove/Sashin Creek	Hidden Falls Hatchery	A	None	3,000,000
Species/ Run Totals				3,000,000	5,000,000

3.2 *Broodstock capture method*

Coho salmon returning to the hatchery are enhanced fish. In October, three 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.

3.3 *Spawning*

Approximately 3,000 adults are required for broodstock. Spawning takes place on a covered deck adjacent to the broodstock raceways. After being stunned with an electroanesthesia unit, males and females are sorted and their gametes are collected and transported to coho and king salmon incubation building. Initial incubation takes place in Heath tray incubators. Iodophor is used to disinfect eggs. Family tracking is used and eggs are culled from parents identified to be BKD-positive.

3.4 *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.

3.5 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.

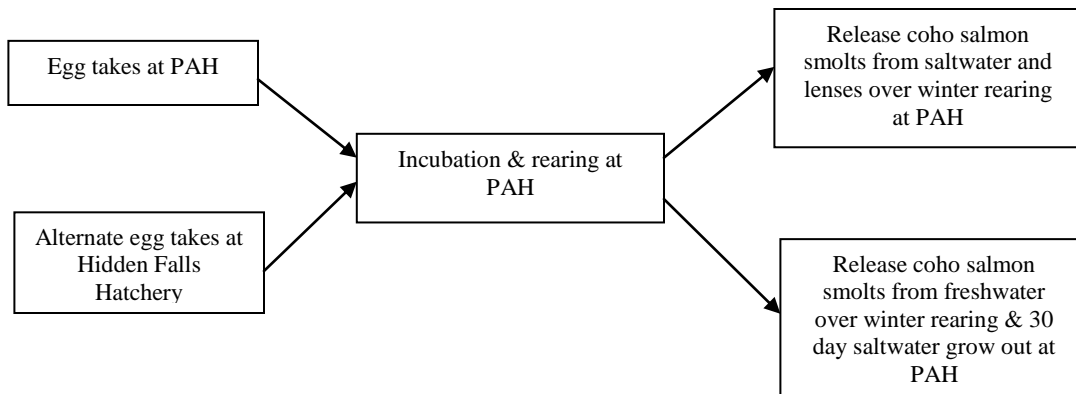
3.6 Planned releases this calendar year of previous brood years' production

Program Name	Brood Year	Release Date	Number to Release	Life Stage	Type of Mark, % Marked
Armstrong coho salmon	2010	5/15/12	2,400,000	smolt	CWT, 3.3%

3.7 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 coho salmon	2011	2,600,000	eggs	CWT, 3.0%	2.35M, May 2013

3.8 Operational diagram



3.9 Program details

The purpose of the program is to provide coho salmon to common property fisheries in Lower Chatham Strait, 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, 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 king salmon eggs are collected (permitted capacity is 5 million combined king and coho salmon eggs with no more than 2 million being king salmon eggs). Coded-wire-tag (CWT) recoveries indicate the average contribution rate to the troll fishery is approximately 50% of the total PAH

return. Overall marine survivals for BY 88-08 releases average 5.8%, with a high of 23.6% (BY 99) and a low of 1.45 % (BY 02). 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 treatment, if necessary. Fish are also being fed Aqua 100 at fry stage as a BKD preventative. PAH strives to annually release at least 2.3 million, 18 to 24 gram coho salmon smolt, maintain a green egg to smolt survival rate over 85%, 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.

In 2011, approximately 70,000 of the BY 10 smolt were coded-wire-tagged (CWTed) prior to release. These tags are to be recovered by ADF&G during port sampling the troll and sport fishery and by AKI at the hatchery rack during spawning. In 2012, approximately 80,000 of BY 11 smolt will be CWTed prior to release. PAH will continue to CWT coho salmon at ADF&G approved tag rates.

3.10 *Fish transport permits*

FTP #	Egg take, transport, or release	Trans. From → To	Maximal #, Life Stage	Expires
98J-1010	Egg take and release	PAH to PAH	5,000,000 eggs	8/31/15
93J-1036	Transport and release	HFH to PAH	3,000,000 eggs	8/31/15

4.0 Spring king salmon

4.1 *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 king salmon	Unuk River	Little Port Walter	A	0	2,000,000
Armstrong king salmon	Unuk River	Port Armstrong Hatchery 109-10-002	P	700,000	2,000,000
Species/ Run Totals				700,000	2,000,000

4.2 *Broodstock capture method*

King salmon returning to the hatchery are enhanced fish. Over the course of the run, broodstock enter the inner bay and mature. In mid-July, three fish ladders are opened and adults are recruited into several holding raceways. Males and females are monitored for ripeness. Little Port Walter (LPW) research facility, located five miles north of PAH, is used as a back-up egg source.

4.3 *Spawning*

Approximately 600 adults are required for broodstock. Spawning takes place on a covered deck adjacent to the broodstock raceways. After being stunned with an electroanesthesia unit, males

and females are sorted and their gametes are transported to the coho and king salmon incubation building. Initial incubation takes place in Heath tray incubators. Iodophor is used to disinfect eggs. Family tracking is used, and eggs are culled from BKD-positive parents.

4.4 *Egg-take schedule*

Egg take usually occurs in late-July or early-August, over a one to two week period as females ripen. Eggs will be taken in lots of approximately 250,000, or greater, until the egg-take goal is reached. If sufficient broodstock is not available at PAH, additional eggs may be taken at LPW. Gametes will be shipped in separate containers to PAH for fertilization and incubation.

4.5 *Carcass disposal*

Carcasses are sold to a processor 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.

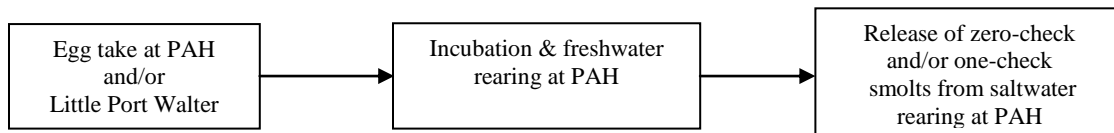
4.6 *Planned releases this calendar year of previous brood years' production.*

Program Name	Brood Year	Release Date	Number to Release	Life Stage	Type of Mark, % Marked
Armstrong king salmon	2010	5/1/12	150,000	Smolt	CWT, 20.5%
Armstrong king salmon	2011	5/15/12	100,000	Zero check	CWT, 30%

4.7 *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 king salmon	2011	210,000	Fry	CWT 15%	200,000, 2013

4.8 *Operational diagram*



4.9 *Program details*

In 2001, PAH began a king salmon broodstock program utilizing the Unuk River king salmon stock from LPW. The purpose of the program is to provide increased opportunity for common property harvest of king salmon in Lower Chatham Strait, as well as provide a sufficient king salmon return to the hatchery to meet PAH cost recovery and broodstock requirements. In 2005, the first adult king salmon returned to PAH. In 2006, PAH conducted its first king salmon egg take. PAH initiated a zero-check program beginning with BY 06. For this program,

approximately 50% 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 are CWTed (per ADF&G guidelines) and transferred to saltwater pens in May for short-term rearing, then released in June at approximately 10 grams. The purpose of the zero-check program is to increase king salmon production at PAH while keeping production costs manageable. The remaining 50% of the king 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 over-winter rearing, and released the following May. A minimum of 30,000 fish from this release group are CWTd (per ADF&G guidelines). The target release size of one-check smolt is 35 to 40 grams. The smolt release is timed to coincide with LPW king salmon releases. PAH strives to annually release 140,000 25 to 40 gram king salmon smolt and 120,000 15 gram zero-check king salmon. PAH strives to maintain a green egg to smolt survival rate above 80%.

AKI will CWT and adipose clip king salmon released from PAH as per ADF&G requirements. 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 during egg take.

4.10 *Fish transport permits*

FTP #	Egg take, transport, or release	Trans. From → To	Maximal #, Life Stage	Expires
01J-1005	Egg take, transport, and release	LPW to PAH	2,000,000 eggs	2015
11J-1004	Egg take, transport, and release	PAH to PAH	2,000,000 eggs	2016

5.0 **Summer chum salmon**

5.1 *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	P	30,000,000	30,000,000
Armstrong chum salmon	HFH	GCH	A	30,000,000	30,000,000
Armstrong chum salmon	HFH	HFH	A	30,000,000	30,000,000
Species/ Run Totals				30,000,000	30,000,000

5.2 *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 are recruited into raceways. An electro-anesthesia unit, attached to the raceways, is used during egg take.

5.3 Spawning

Approximately 25,000 chum salmon will be required for broodstock. Additional broodstock may be required if eggs are taken for GCH and/or HFH. Spawning takes place on a covered deck adjacent to the brood raceways. After being stunned with an electroanesthesia 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 R48 bulk incubators for incubation to the eyed stage.

5.4 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 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.

5.5 Carcass disposal

The majority of carcasses are expected to 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.

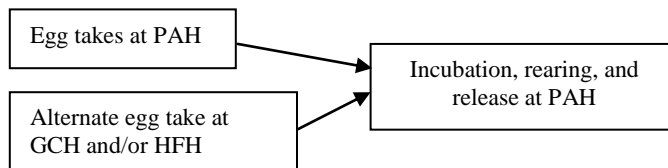
5.6 Planned releases this calendar year of previous brood years' production

Program Name	Brood Year	Release Date	Number to Release	Life Stage	Type of Mark, % Marked
Armstrong chum salmon	BY 11	5/1/12	28 million	Fed Fry	100% TM 3H3

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

Program Name	Brood Year	Number Live (Jan. 1)	Life Stage	Type of Mark, % to Mark	Number to Release, Date
None					

5.8 Operational diagram



5.9 Program details

In 2003, PAH began its summer chum salmon program utilizing the enhanced chum salmon stock from Gunnuk Creek Hatchery and Hidden Falls Hatchery. 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 AKI. 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. PAH will release all chums as one group near the beginning of May. The production goal is to annually release up to 28 million 1.5 gram thermal marked chum salmon fry. PAH strives to maintain a green egg to fry survival rate above 90%.

AKI will thermal mark 100% of the chum salmon incubated at PAH. No port sampling program is presently in place to evaluate survival and contribution rates. In 2012, AKI is planning a pilot catch sampling program, and the results of that program will be used to direct further sampling efforts. In recent years, the department has been sampling otoliths from productive chum salmon streams throughout Southeast Alaska to evaluate stray rates of hatchery chum. Scale samples will be collected from adults returning to the hatchery to determine the age composition of the returning adults.

5.10 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	30,000,000 eggs	2016
03J-1002	Egg take, transport, and release	GCH to PAH	30,000,000 eggs	2012
03J-1009	Egg take, transport, and release	HFH to PAH	30,000,000 eggs	2012

6.0 HARVEST MANAGEMENT

6.1 Special harvest area

Described in **5 AAC 40.081 DISTRICT 9: PORT ARMSTRONG SPECIAL HARVEST AREA.**

The AKI Special Harvest Area (SHA) for king 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 Figure 3) 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 to harvest salmon surplus to cost recovery and broodstock needs.

6.2 *Projected return this year*

Species, run	Program Name	Projected Common Property Harvest	Other ¹	Total Projected Return, Current Year
Pink salmon BY 10	Port Armstrong	664,453	845,667	1,510,120
Coho salmon BY 09	Port Armstrong	87,588	87,588	175,175
Chum salmon BY 06-09	Port Armstrong	53,005	212,019	265,024
King salmon BY 05-10	Port Armstrong	1,314	3,067	4,382

¹Other includes broodstock, cost recovery, escapement, etc.

6.3 *Common property fisheries management:*

Commercial fisheries

King Salmon

In 2012, PAH is expecting about 4,400 adult king salmon to return. PAH king salmon will be caught in the traditional summer troll season in the outer coastal waters and Lower Chatham Strait. An estimated 20% to 50% of these fish will be harvested in common property fisheries.

Chum Salmon

In 2012, PAH is expecting about 265,000 adult chum salmon to return. The ancestral stock is Hidden Falls Hatchery chum salmon, which return in July. If PAH chum salmon return through Lower Chatham Strait, very few will be harvested in traditional purse seine fisheries, since Lower Chatham Strait purse seine fisheries do not occur until August. Conversely, if PAH chum salmon enter inside waters through Cross Sound, then 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 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.

Pink Salmon

In 2012, PAH is expecting a return of about 1,500,000 adult pink salmon. 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 over-whelmed. PAH will maintain close contact with the Sitka Area 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 overlaps 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 during the later part of August. Parent year escapements to southern Section 9-A were below management targets and lower Section 9-B streams were within the management target ranges. Opportunities for traditional purse seine fisheries in the southern portions of Section 9-A and 9-B will be determined inseason based on observations and abundance. In Section 9-A, traditional purse seine fisheries occur north of Armstrong Point.

Coho Salmon

In 2012, PAH is expecting a return of about 175,000 adult coho salmon. PAH coho salmon are mostly harvested in the traditional summer troll season in the outer coastal waters and in Lower Chatham Strait. Hatchery staff has observed increased sport effort in Port Armstrong Bay in recent years. This is attributed largely to increased charter boat fishing originating in Port Alexander. 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.

6.4 *Cost recovery harvest management:*

Species	CR goal¹	CR goal in dollars
King salmon	All king salmon in terminal area.	
Chum salmon	All chum salmon in terminal area.	
Pink salmon	All pink salmon in terminal area.	
Coho salmon	All coho salmon in terminal area.	

¹ Assumes 600 king salmon, 25,000 chum salmon, 120,000 pink salmon, and 3,000 coho salmon are needed for broodstock. An additional 15,000 chum salmon may be taken as broodstock for possible GCH and/or HFH egg takes.

PAH does not anticipate using the barrier net for cost-recovery harvest. However, staff may install the barrier net, if they deem it necessary. 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 that are aimed at

maximum roe value, with flesh quality being secondary. As a general practice, PAH and its contracted harvester will strive to keep the outer portion of the SHA fully harvested each day in order to minimize any potential straying. PAH anticipates 726,000 pink salmon to be available for cost recovery. Sufficient processing and tendering capabilities will be contracted to handle daily harvest amounts of nearly 800,000 lbs.

PAH intends to contract with a gillnetter during the month of June for cost recovery of the returning king salmon. The gillnetter will use a driftnet of 6” or greater mesh size in the inner bay and attempt to harvest the kings as quickly as possible as they return in order to maximize quality and take advantage of the higher early-season prices.

In 2012, PAH anticipates a return of 172,000 chum salmon to be available for cost recovery in the SHA. 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 the 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 may overlap slightly 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. The coho salmon often completely segregate themselves from the pink salmon within the inner bay. Definitive coho salmon harvest strategies may vary with changing conditions and different fish behavior.

7.0 ADDITIONAL INFORMATION

None.

APPROVAL

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The 2012 Annual Management Plan for the Port Armstrong Hatchery is hereby approved.

APPENDICES

- Production Summary (Timeline on page 2).

- Maps:

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

- Historic production tables:

Table 1. Projected returns for the 2012 season.

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

Table 3. Chum salmon egg take, release, and survival data for Port Armstrong Hatchery.

Table 4. King salmon egg take, release, and survival data for Port Armstrong Hatchery.

Table 5. Coho salmon egg take, release, and survival data for Port Armstrong Hatchery.

Port Armstrong SHA

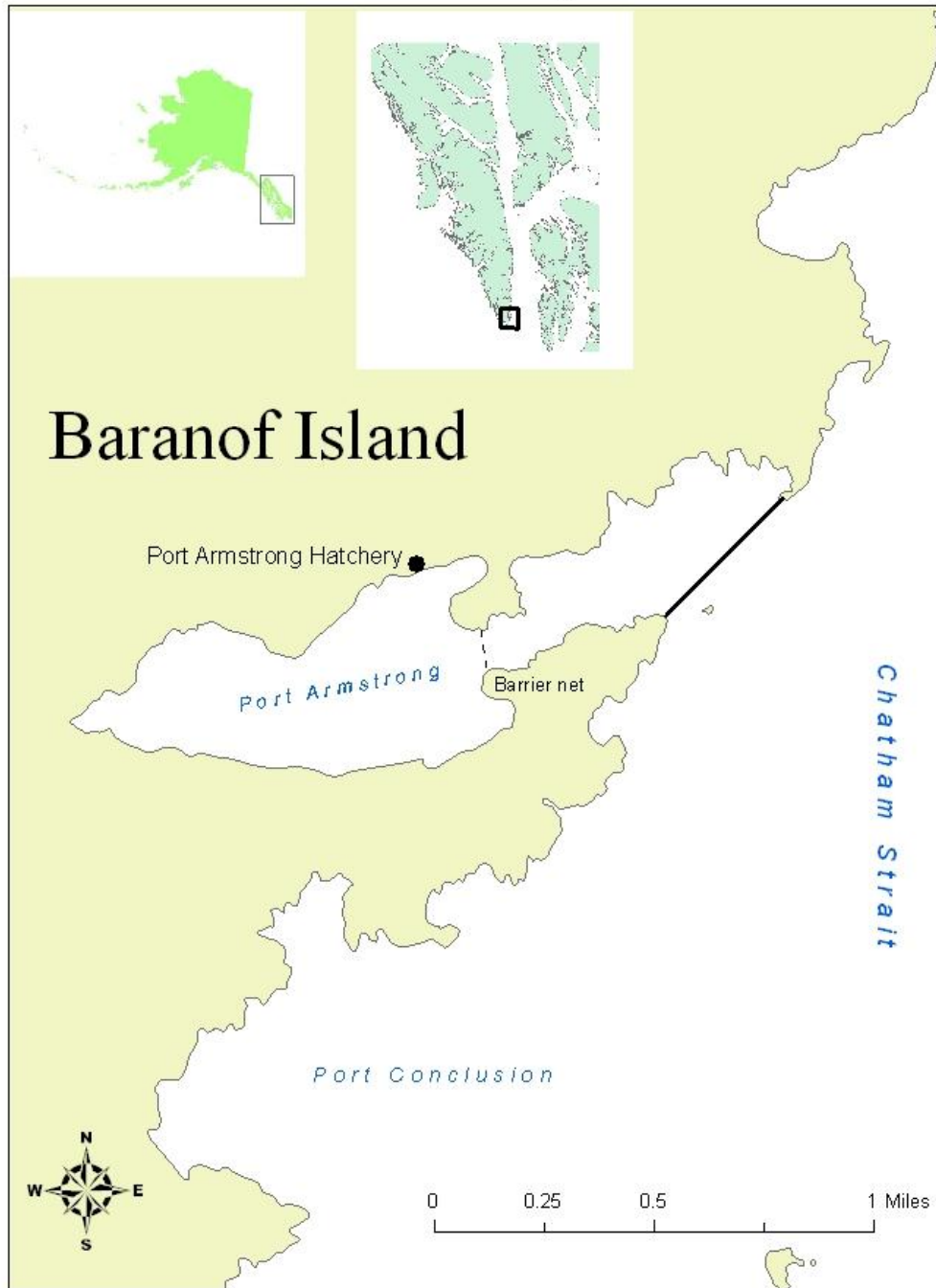


Figure 1. Location of Port Armstrong SHA in Southeast Alaska.

Table 1. AKI projected returns for the 2012 season.

Species	Brood Year	Age	Fry/Smolt Released	Est. Marine Survival %	Percent at Age	Estimated Return	Estimated CP Harvest	Estimated Brood Stock	Estimated Cost Recovery
Pink	2010	2	75,506,000	2.0%	100%	1,510,120	664,453 44.0%	120,000	725,667 48.1%
Coho	2009	3	2,275,000	7.7%	100%	175,175	87,588 50.0%	3,000	84,588 48.3%
King	2005	7	148,561	1.0%	5%	74	5 ocean		
	2006	6	275,251	1.0%	20%	551	4 ocean		
	2007	5	123,017	3.0%	50%	1,845	3 ocean		
	2008	4	126,376	3.0%	20%	758	2 ocean		
	2009	3	129,980	3.0%	5%	195	Jacks		
zero check	2006	6	663,306	0.0%	5%	0	5 ocean		
	2007	5	483,053	0.25%	20%	242	4 ocean		
	2008	4	429,612	0.25%	50%	537	3 ocean		
	2009	3	149,722	0.5%	20%	150	2 ocean		
	2010	2	120,458	0.5%	5%	30	Jacks		
King	TOTAL		2,649,336			4,382	1,314 30.0%	600	2,467 56.3%
Chum	2006	6	17,448,248	1.0%	1%	1,745			
	2007	5	13,786,610	2.0%	31%	85,477			
	2008	4	12,417,244	2.0%	65%	161,424			
Chum	2009	3	27,296,476	2.0%	3%	16,378			
	TOTAL		70,948,578			265,024	53,005 20.0%	40,000	172,019 64.9%
						Estimated Return	Estimated CP Harvest	Estimated Brood Stock	Estimated Cost Recovery
Total	TOTALS					1,954,701	806,360	163,600	984,741

Table 2. Pink salmon: egg take, release, and survival data for Port Armstrong Hatchery.

Brood	Eggs	Fry	% Fry	Size	Release	Adult	%	Total	%	Return	
Year	Origin	Taken	Released	Survival	Gram	Dates	Return To Hatchery	Return to Hatchery	Adult Return	Marine Survival	Year
1983	Sashin Creek	2,900,000									
1983	Lovers Cove	6,100,000	7,400,000	82.2%	0.23	3/5-4/12/1984	74,000	1.00%	148,000	2.00%	1985
1984	Sashin Creek	2,800,000									
1984	Lovers Cove	8,400,000	7,500,000	67.0%	0.30	4/29-5/23/1985	30,098	0.40%	60,196	0.80%	1986
1985	Port Armstrong	13,630,000	9,676,000	71.0%	0.40	5/1-7/1986	275,976	2.85%	289,775	2.99%	1987
1986	Port Armstrong	14,520,000	12,350,000	85.1%	0.39	4/15-25/1987	24,061	0.19%	28,256	0.23%	1988
1987	Port Armstrong	20,940,000	19,370,000	92.5%	0.32	4/18-24/1988	75,066	0.39%	125,115	0.65%	1989
1988	Port Armstrong	17,150,000	16,040,000	93.5%	0.36	4/24-29/1989	903,378	5.63%	1,113,413	6.94%	1990
1989	Port Armstrong	24,000,000	22,420,000	93.4%	0.38	4/28-5/1/1990	1,097,622	4.90%	1,393,752	6.22%	1991
1990	Port Armstrong	53,710,000	50,116,000	93.3%	0.34	5/5-15/1991	2,041,595	4.07%	2,722,127	5.43%	1992
1991	Port Armstrong	41,849,000	39,616,000	94.7%	0.45	5/2-6/1992	358,967	0.91%	478,623	1.21%	1993
1992	Port Armstrong	58,108,000	51,189,000	88.1%	0.31	4/27-5/5/1993	1,260,758	2.46%	1,760,758	3.44%	1994
1993	Port Armstrong	58,668,000	43,000,000	73.3%	0.30	4/26-5/4/1994	843,954	1.96%	1,343,954	3.13%	1995
1994	Port Armstrong	59,416,000	53,839,000	90.6%	0.31	4/24-5/3/1995	1,266,381	2.35%	2,110,635	3.92%	1996
1995	Port Armstrong	81,360,000	72,480,000	91.0%	0.31	4/27-5/7/1996	1,246,342	1.72%	1,821,342	2.51%	1997
1996	Port Armstrong	91,286,000	81,012,000	88.7%	0.32	4/25 - 5/10/1997	1,426,978	1.76%	2,212,708	2.73%	1998
1997	Port Armstrong	80,071,739	75,776,850	94.6%	0.70	3/31-4/27/1998	3,522,588	4.65%	4,327,788	5.71%	1999
1998	Port Armstrong	86,619,007	73,269,304	84.6%	0.45	4/26 - 6/7/1999	204,618	0.28%	304,618	0.42%	2000
1999	Port Armstrong	89,082,366	85,638,750	96.1%	0.63	4/24 - 5/8/2000	1,362,561	1.59%	2,452,610	2.90%	2001
2000	Port Armstrong	52,992,615	52,343,525	96.0%	0.94	4/20-6/4/2001	1,104,959	2.10%	1,988,926	3.80%	2002
2001	Port Armstrong	78,906,537	72,663,780	92.1%	0.67	5/1-6/12/2002	598,569	0.82%	1,077,424	1.48%	2003
2002	Port Armstrong	90,366,055	83,470,980	92.4%	0.78	4/24-5-29/2003	1,184,027	1.42%	1,691,465	2.03%	2004
2003	Port Armstrong	89,675,516	83,835,050	93.5%	0.76	4/21 - 6/2/2004	1,015,299	1.21%	1,786,926	2.13%	2005
2004	Port Armstrong	88,040,126	80,110,972	91.0%	0.78	4/28 - 5/31/2005	356,371	0.44%	636,377	0.79%	2006
2005	Port Armstrong	87,610,268	78,172,288	89.2%	1.12	5/27 - 6/1/2006	672,207	0.86%	1,209,973	1.55%	2007
2006	Port Armstrong	85,617,687	78,211,021	91.3%	0.60	6/2 - 6/7/2007	52,113	0.07%	93,803	0.12%	2008
2007	Port Armstrong	64,478,274	61,734,194	95.7%	0.75	5/20 - 5/28/2008	793,488	1.29%	1,428,278	2.31%	2009
2008	Port Armstrong	23,204,712	21,438,507	92.4%	0.64	5/6/2009	759,488	3.54%	1,240,699	5.79%	2010
2009	Port Armstrong	59,858,384	53,677,075	89.2%	0.49	4/29/2010	658,638	1.23%	1,176,351	2.19%	2011
2010	Port Armstrong	85,090,195	75,506,078	88.7%	0.48	5/3-5/7/2011					2012
2011	Port Armstrong	85,870,462									2013

Table 3a. Chum salmon: egg take, release, and survival data for Port Armstrong Hatchery, 1984-2002.

Brood Year	Origin	Eggs Taken	Fry Released	% Fry Survival	Size Gram	Release Dates	Age at Return	% Marine Survival	Adult Return	Return Year
1984	Security Bay	1,236,400	702,540	56.8%	0.80	6/18 - 21/1985	3	0.000%	0	1987
		Camden	703,000	223,000	31.7%		1.00	6/6/1985	4	0.010%
		1,939,400	925,540	47.7%			5	0.000%	2	1989
							BY84 TOTAL	0.010%	92	
1985	Security Bay	2,702,250	1,626,400	60.2%	0.84	5/19-6/9/1986	3	0.002%	27	1988
							4	0.003%	46	1989
							5	0.000%	0	1990
							BY85 TOTAL	0.004%	73	
1986	Security Bay	2,171,103	1,982,450	91.3%	1.05	6/1/1987	3	0.006%	128	1989
							4	0.018%	363	1990
							5	0.000%	0	1991
							BY86 TOTAL	0.025%	491	
1987	Security Bay	1,506,500	1,287,060	85.4%	0.90	4/24/1988	3	0.065%	839	1990
							4	0.031%	396	1991
							5	0.000%	0	1992
							BY87 TOTAL	0.096%	1235	
1988	Port Armstrong	46,571	42,500	91.3%	0.67	4/24-30/1989	3	2.172%	923	1991
							4	0.296%	126	1992
							5	0.000%	0	1993
							BY88 TOTAL	2.468%	1049	
1989	Port Armstrong	157,303	141,921	90.2%	0.56	5/1/1990	3	0.282%	400	1992
							4	0.000%	0	1993
							5	0.000%	0	1994
							BY89 TOTAL	0.282%	400	
1990	Port Armstrong	855,167	794,673	92.9%	0.51	5/5-15/1991	3	0.000%	0	1993
							4	0.000%	0	1994
							5	0.000%	0	1995
							BY90 TOTAL	0.000%	0	
1991	Port Armstrong	444,453	423,000	95.2%	0.52	5/4/1992	3	0.000%	0	1994
							4	0.000%	0	1995
							5	0.000%	0	1996
							BY91 TOTAL	0.000%	0	
1992-02	no eggs taken	-	-	-	-		BY91 TOTAL	0.000%	0	

Table 3b. Chum salmon: egg take, release, and survival data for Port Armstrong Hatchery, 2003-2011

Brood Year	Origin	Eggs Taken	Fry Released	% Fry Survival	Size Gram	Release Dates	Age at Return	% Marine Survival	Adult Return	Return Year
2003	Hidden Falls	10,000,826	9,306,909	93.1%	1.62	5/30/2004	3	0.06%	7,561	2006
	Gunnuk Creek	5,535,655	4,098,640	74.0%	1.99	4/21/2004	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
							BY03 TOTAL	0.40%	53,384	
2004	Hidden Falls	12,914,888	574,958	4.5%	2.19	5/31/2005	3	0.05%	287	2007
							4	0.14%	799	2008
							5	1.09%	6,266	2009
							6	0.00%	0	2010
							BY04 TOTAL	1.28%	7,352	
2005	Hidden Falls	2,716,112	2,110,821	77.7%	2.93	6/1/2006	3	0.27%	10,293	2008
	Gunnuk Creek	1,911,488	1,770,390	92.6%	3.86	5/15/2006	4	2.91%	112,780	2009
	TOTAL	4,627,600	3,881,211	83.9%	3.35		5	0.21%	7,976	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	6/2-7/2007	3	0.03%	5,012	2009
	Port Armstrong	5,049,447	4,654,882	92.2%	1.77	6/7/2007	4	0.18%	31,905	2010
	Gunnuk Creek	940,933	917,949	97.6%	3.27	5/24/2007	5	0.57%	100,239	2011
	TOTAL	19,290,444	17,448,248	90.5%			6	0.00%		2012
							BY06 TOTAL	0.79%	137,156	
2007	Port Armstrong	15,348,631	13,786,610	89.8%	2.14	5/28/2008	3	0.24%	33,501	2010
							4	1.20%	166,072	2011
							5	0.00%		2012
							6	0.00%		2013
							BY07 TOTAL	1.45%	199,573	
2008	Port Armstrong	13,104,587	12,417,244	94.8%	1.20	5/7/2009	3	0.06%	6,904	2011
							4	0.00%		2012
							5	0.00%		2013
							6	0.00%		2014
							BY08 TOTAL	0.06%	6,904	
2009	Port Armstrong	30,019,963	27,296,476	90.9%	1.21	4/27/2010	3	0.00%		2012
							4	0.00%		2013
							5	0.00%		2014
							6	0.00%		2015
							BY09 TOTAL	0.00%	0	
2010	Port Armstrong	30,479,861	28,444,881	93.3%	1.34		3	0.00%		2013
							4	0.00%		2014
							5	0.00%		2015
							6	0.00%		2016
							BY10 TOTAL	0.00%	0	
2011	Port Armstrong	30,139,827					3	0.00%		2014
							4	0.00%		2015
							5	0.00%		2016
							6	0.00%		2017
							BY11 TOTAL	0.00%	0	

Table 4a. King salmon: egg take, release, and survival data for Port Armstrong Hatchery, 1985-2000.

Brood		Eggs	Fry	% Fry	Size	Release	Age at	%	Adult	Return
Year	Origin	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%	1051	1990
							6	1.28%	896	1991
							BY85 TOTAL	3.92%	2743	
1986	Sashin (Unuk)	80,000	75,602	94.5%	6.21	7/2/1987	n/a	0.00%	0	
							BY86 TOTAL	0.00%	0	
1987	Sashin (Unuk)	130,000	89,942	69.2%	35.04	5/18/1989	2(minijack)	2.97%	2667	1989
							3(jack)	0.29%	264	1990
							4	0.20%	180	1991
							5	0.68%	615	1992
							6	1.33%	1192	1993
							BY87 TOTAL	5.47%	4918	
1988	Sashin (Unuk)	166,000	144,323	86.9%	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%	1408	
1989	Sashin (Unuk)	154,588	62,176	40.2%	40.25	5/26-27/1991	2(minijack)	0.19%	120	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 Snettisham Smolt	160,316	88,964	55.5%	25.60	5/26/1992	2(minijack)	0.00%	0	1992
		n/a	306,701	n/a	10.50	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%	1860		
1991	Sashin (Unuk), PAH ¹ Snettisham Smolt	32,000	-	0.0%	-	1/1/1994	2(minijack)	0.00%	0	1993
			1,275,041	n/a	8.87	6/9/1993	3(jack)	0.00%	0	1994
							4	0.05%	594	1995
							5	0.00%	0	1996
							6	0.00%	0	1997
			BY91 TOTAL					0.05%	594	
1992- 2000	No Eggs Taken		-		-					

¹ BY 91 PAH smolt lost due to pipeline failure.

Table 4b. King salmon: egg take, release, and survival data for Port Armstrong Hatchery, 2001-2006.

Brood	Eggs	Fry	% Fry	Size	Release	Age at	%	Adult	Return				
Year	Origin	Taken	Released	Survival	Gram	Dates	Return	Survival	Return	Year			
2001	Sashin (Unuk) Little Port Walter	181,228	106,756	58.9%	31.68	5/20/2003	2 (minijack)	0.00%	0	2003			
							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) Little Port Walter	172,915	96,285	55.7%	44.81	5/8/2004
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) Little Port Walter	240,465	83,479	34.7%	52.83	5/21/2005							
							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) Little Port Walter	907,633	273,788	30.2%	42.00	5/5/2006
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) Little Port Walter	215,440	148,631	69.0%	44.20	5/7/2007							
							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			
							Average:	141,788					
							BY05 TOTAL	2.71%	4,024				
2006	Sashin (Unuk) Port Armstrong -0 check	1,352,379	938,557	69.4%	4.30	6/25/2007	0 ocean (zeromini)	0.00%	0	2007			
			663,306				1 ocean (zerojack)	0.00%	0	2008			
							2 ocean zero	0.00%	0	2009			
							3 ocean zero	0.00%	0	2010			
							4 ocean zero	0.00%	0	2011			
							0 check total	0.00%	0				
			Port Armstrong -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	0.00%		2012
										1 check total	2.31%	6,358	
										BY06 TOTAL	0.68%	6,358	

Table 4c. King salmon: egg take, release, and survival data for Port Armstrong Hatchery, 2007-2010.

Brood Year	Origin	Eggs Taken	Fry Released	% Fry Survival	Size Gram	Release Dates	Age at Return	% Marine Survival	Adult Return	Return Year	
2007	Sashin (Unuk)	844,492	<u>606,070</u>	71.8%	30.70	5/2/2009					
	Port Armstrong -0 check		483,053		7.03	6/9/2008	0 ocean (mini)	0.00%	0	2008	
							1 ocean (jack)	0.00%	0	2009	
							2 ocean zero	0.00%	0	2010	
							3 ocean zero	0.03%	132	2011	
							4 ocean zero	0.00%		2012	
							0 check total	0.03%	132		
		Port Armstrong -1 check		123,017				2 (minijack)	0.17%	208	2009
								3 (jack)	0.31%	384	2010
								4 yr old	0.42%	520	2011
								5 yr old	0.00%		2012
								6 yr old	0.00%		2013
								1 check total	0.90%	1,112	
								BY07 TOTAL	0.21%	1,244	
2008	Sashin (Unuk)	973,421	<u>555,988</u>	57.1%	50.20	5/8/2010					
	Port Armstrong -0 check		429,612		8.35	6/3/2009	0 ocean (mini)	0.00%	0	2009	
							1 ocean (jack)	0.00%	16	2010	
							2 ocean zero	0.00%	20	2011	
							3 ocean zero	0.00%		2012	
							4 ocean zero	0.00%		2013	
							0 check total	0.008%	36		
		Port Armstrong -1 check		126,376				2 (minijack)	0.49%	620	2010
								3 (jack)	0.07%	92	2011
								4 yr old	0.00%		2012
								5 yr old	0.00%		2013
								6 yr old	0.00%		2014
								1 check total	0.56%	712	
								BY08 TOTAL	0.00	748	
2009	Sashin (Unuk)	734,201	<u>279,702</u>	38.1%							
	Port Armstrong -0 check		149,722		13.10	5/17/2010	0 ocean (mini)	0.00%	0	2010	
							1 ocean (jack)	0.02%	31	2011	
							2 ocean zero	0.00%		2012	
							3 ocean zero	0.00%		2013	
							4 ocean zero	0.00%		2014	
							0 check total	0.02%	31		
		Port Armstrong -1 check		129,980		44.00	5/15/2011	2 (minijack)	0.08%	102	2011
								3 (jack)	0.00%		2012
								4 yr old	0.00%		2013
								5 yr old	0.00%		2014
								6 yr old	0.00%		2015
								1 check total	0%	102	
								BY09 TOTAL	0.05%	133	
2010	Sashin (Unuk)	833,753	<u>120,458</u>	14.4%							
	Port Armstrong -0 check		120,458		16.05	5/15/2011	0 ocean (mini)	0.03%	34	2011	
							1 ocean (jack)	0.00%		2012	
							2 ocean zero	0.00%		2013	
							3 ocean zero	0.00%		2014	
							4 ocean zero	0.00%		2015	
							0 check total	0.03%	34		
		Port Armstrong -1 check					2012	2 (minijack)	0.00%		2012
								3 (jack)	0.00%		2013
								4 yr old	0.00%		2014
								5 yr old	0.00%		2015
								6 yr old	0.00%		2016
								1 check total	0.00%	0	
								BY10 TOTAL	0.03%	34	

Table 4d. King salmon: egg take, release, and survival data for Port Armstrong Hatchery, 2011.

Brood Year	Origin	Eggs Taken	Fry Released	% Fry Survival	Size Gram	Release Dates	Age at Return	% Marine Survival	Adult Return	Return Year
2011	Sashin (Unuk)	737,644								
	Port Armstrong -0 check					2012	0 ocean (zeromini)	0.00%		2012
							1 ocean (zerojack)	0.00%		2013
							2 ocean zero	0.00%		2014
							3 ocean zero	0.00%		2015
							4 ocean zero	0.00%		2016
							0 check total	0.00%		
	Port Armstrong -1 check					2013	2 (minijack)	0.00%		2013
							3 (jack)	0.00%		2014
							4 yr old	0.00%		2015
							5 yr old	0.00%		2016
							6 yr old	0.00%		2017
							1 check total	0.00%		
							BY11 TOTAL	0.00%		

Table 5. Coho salmon: egg take, release and survival data for Port Armstrong Hatchery 1988-2011.

Brood	Eggs	Smolt	Smolt	Size	Release	Return	Marine	Adult	Return	
Year	Origin	Taken	Released	Survival	Gram	Dates	Age	Survival	Return	Year
1988	Blanchard Lake	140,000	121,730	86.95%	24.3	5/16/1990	2	2.01%	2,442	1990
	(Deep Cove)						3	22.25%	27,090	1991
1989	Deer Lake (Sashin)	280,000	206,724	73.83%	19.6	5/25-26/1991	2	0.24%	488	1991
							3	19.42%	40,140	1992
1990	Deer Lake (Sashin)	230,180	164,766	71.58%	18.5	5/17-18/1992	2	0.06%	100	1992
							3	6.98%	11,493	1993
1991	Deer Lake ¹	613,504	81,673	13.31%	17.2	5/23/1993	2	0.00%	-	1993
	(Deep Cove)		¹ Abnormally low fry survival due to pipeline failure.				3	4.66%	3,805	1994
1992	Deer Lake (Sashin)	893,000	828,199	92.74%	18.4	5/20-30/1994	2	0.04%	312	1994
							3	10.42%	86,244	1995
1993	PAH	663,000	457,281	68.97%	17.6	5/28-29/1995	2	0.00%	15	1995
	Hidden Falls	217,000	184,525	85.03%	15.5	5/28/1995	3	5.05%	32,443	1996
							4	0.02%	97	1997
1994	PAH	1,098,000	751,566	68.45%	20.8	6/2/1996	2	0.00%	-	1996
	Hidden Falls	703,333	633,203	90.03%	18.7	5/31/1996	3	5.52%	76,488	1997
1995	PAH	1,830,000	952,000	52.02%	19.7	5/19-6/6/1997	2	0.16%	1,500	1997
		² 199,800 sub quality SWOW smolt released not expected to survive post release.					3	3.55%	33,801	1998
1996	PAH	1,853,000	123,850	35.11%	21.4	5/23/1998	2	0.00%	-	1998
		³ 1,500,300 unfed fry released. No marine survival expected.					3	16.35%	20,244	1999
1997	PAH	748,779	625,363	83.52%	22.6	5/19-26/1999	2	0.00%	-	1999
							3	3.13%	19,589	2000
1998	PAH	1,585,368	1,358,299	85.68%	22.9	5/15-28/2000	2	1.84%	25,000	2000
							3	14.99%	203,619	2001
1999	Hidden Falls	1,400,000	975,549	83.83%	24.2	5/22-23/2001	2	0.38%	3,690	2001
							3	23.20%	226,409	2002
2000	Hidden Falls	1,775,298	1,468,761	82.70%	21.5	5/24-31/2002	2	0.05%	700	2002
							3	4.52%	66,355	2003
2001	PAH	1,861,605	1,331,351	71.52%	22.2	5/30/2003	2	0.00%	-	2003
							3	2.61%	34,724	2004
2002	PAH	1,576,659	1,340,985	70.51%	27.3	6/3-4/2004	2	0.00%	-	2004
	Hidden Falls	325,171					3	1.45%	19,444	2005
2003	PAH	2,338,298	1,581,050	67.62%	26.7	6/9/2005	2	0.00%	-	2005
							3	2.29%	36,238	2006
2004	PAH	1,287,880	2,616,063	86.21%	19.3	6/8/2006	2	0.06%	1,666	2006
	Hidden Falls	1,746,625					3	5.56%	145,393	2007
2005	PAH	2,933,857	2,156,500	73.50%	20.7	6/15/2007	2	0.03%	751	2007
							3	2.74%	59,038	2008
2006	PAH	3,296,075	2,509,128	76.12%	18.9	6/5/2008	2	0.10%	2,572	2008
							3	4.51%	113,254	2009
2007	PAH	3,702,400	3,148,462	85.04%	15.0	5/28/2009	2	0.01%	217	2009
							3	3.92%	123,552	2010
2008	PAH	4,287,737	3,223,867	75.19%	16.5	5/8&27/2010	2	0.03%	1,031	2010
							3	4.61%	148,756	2011
2009	PAH	3,494,400	2,274,860	65.10%	19.5	5/15-27/2011	2	0.03%	695	2011
							3			2012
2010	PAH	2,421,000				2012	2			2012
							3			2013
2011	PAH	2,682,000				2013	2			2013
							3			2014

