

**2019 ANNUAL MANAGEMENT PLAN**  
**Macaulay Salmon Hatchery**  
Douglas Island Pink & Chum, 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 the Douglas Island Pink and Chum (DIPAC) or Alaska Department of Fish and Game (ADF&G) may result in changes to this AMP in order to reach or maintain program objectives. DIPAC 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 the DIPAC. This policy applies to all hatchery operations covered under the AMP.

**1.0 EXECUTIVE SUMMARY**

1.1 *Introduction*

In 1987, DIPAC was issued PNP Hatchery Permit #25, to operate Macaulay Salmon Hatchery (MSH) along Gastineau Channel. The current permitted incubation capacity of this facility is 135 million chum salmon, 1.5 million coho salmon and 1.25 million Chinook salmon green eggs, plus 50,000 rainbow trout eyed eggs. Salmon enhancement projects operated by the private nonprofit corporation contribute to commercial, sport, and personal use fisheries in Juneau, Haines, Skagway, Petersburg, and Wrangell areas, and along salmon migratory routes in northern Southeast Alaska.

1.2 *New This Year (production, harvest management, culture techniques, etc.)*

The cooperative coho salmon bioenhancement project with the United States Forest Service at Davidson Creek has completed its third and final year of stocking. The coho green egg goal for MSH will be reduced accordingly by 100,000 eggs now that this program has sunsetted. No other production changes planned for 2019.

The production level of coho at MSH will be further reduced by between 200,000 and 400,000 green eggs (up to 380,000 smolt) to accommodate the re-purposing of one to two raceways. The footprint of this rearing unit(s) will be used to install a water recycling system for chum incubation. These measures are deemed necessary to address the continued warming trend of the MSH water supply.

### 1.3 *New permits or permit amendments*

The following fish transport permit and cooperative agreement renewals will be needed this year:

1. FTP #00J-1003 which allows for the transport and release of up to 15,000,000 fed MSH stock chum fry at Limestone Inlet will expire June 30, 2019 and will require renewal.
2. FTP #00J-1011 which allows for the transport and release of up to 24,000,000 fed MSH stock chum fry at Boat Harbor will also expire on June 30, 2019 and will require renewal.
3. FTP #97J-1001 which allows for the transport and release of up to 200,000 Andrew Creek stock Chinook smolt at the Auke Bay netpen site will expire on June 30, 2019 and will require renewal.
4. FTP #09J-1017 which allows for the transport of up to 650,000 Andrew Creek stock Chinook eggs from the Hidden Falls Hatchery as a backup/contingency egg source for MSH production will expire July 31, 2019. In that the HF facility is currently phasing out production of this stock, a renewal for only five (5) years will be requested for this permit.
5. The cooperative agreement between DIPAC and ADF&G Sport Fish Division to enhance the Juneau area recreational Chinook salmon fishery (COOP-10-006) will need to be renewed prior to the beginning of fiscal year 2020. The current agreement expires June 30, 2019.

### 1.4 *Expected Returns*

<b>Species</b>	<b>Return Site/District</b>	<b>Common Property Harvest<sup>1</sup></b>	<b>Hatchery Terminal Area<sup>2</sup></b>	<b>Total Return</b>
Chum salmon	Gastineau Channel	510,000	686,000	1,196,000
	Amalga Harbor	1,389,000	737,000	2,126,000
	Limestone Inlet	229,000	-	229,000
	Boat Harbor	749,000	-	749,000
Chinook salmon	Macaulay	1,300	1,100	2,400
	Auke Bay	550	250	800
	Fish Creek	1,300	140	1,400
	Lena Cove	1,400	630	2,000
	Thane	190	160	350
	Pullen Creek	40	30	70
Coho salmon	Gastineau Channel	40,300	22,000	62,000

<sup>1</sup>Includes commercial catch, marine boat sport harvest, and remote-release site terminal sport harvest.

<sup>2</sup>Includes cost recovery, broodstock, escapement, and terminal recreational harvest.

## 1.5 Production Summary

Program Name	Brood Year	Planned Release Date	Number to Release	Life Stage	Type of Mark, Percent Marked
Macaulay chum salmon	2018	Spring 2019	11,600,000	Fed fry	100% TM
Thane chum salmon	2018	Spring 2019	19,300,000	Fed fry	100% TM
Amalga Harbor chum salmon	2018	Spring 2019	47,400,000	Fed fry	100% TM
Boat Harbor chum salmon	2018	Spring 2019	19,900,000	Fed fry	100% TM
Limestone Inlet chum salmon	2018	Spring 2019	11,500,000	Fed fry	100% TM
Macaulay Chinook salmon	2017	Spring 2019	250,000	Smolt	50,500 CWT
Fish Creek Chinook salmon	2017	Spring 2019	280,000	Smolt	55,700 CWT
Auke Bay Chinook salmon	2017	Spring 2019	90,000	Smolt	17,900 CWT
Lena Cove Chinook salmon	2017	Spring 2019	185,000	Smolt	35,500 CWT
Thane Chinook salmon	2017	Spring 2019	185,000	Smolt	36,400 CWT
Macaulay coho salmon	2017	Spring 2019	300,000	Smolt	20,900 CWT
Thane coho salmon	2017	Spring 2019	870,000	Smolt	54,500 CWT
Davidson Creek coho salmon	2018	Summer 2019	100,000	Fed fry	100% TM
Twin Lakes rainbow trout	2016	Spring 2019	9,000	Catchable	Ad clip
Mendenhall Ponds rainbow	2016	Summer 2019	1,500	Catchable	Ad clip/Floy

## 1.6 Current Permitting

Facility	Species	Egg Number
Macaulay Salmon Hatchery	Chum salmon	135,000,000
	Chinook salmon	1,250,000
	Coho salmon	1,500,000
	Rainbow trout	50,000

## 1.7 Egg take, Incubation, Rearing, and Release Plans

### Chum Salmon

In 2019, the chum salmon egg take goal is 135 million and is expected to be met using broodstock returning to MSH. If the DIPAC egg take goal is not met, additional eggs may be available from Northern Southeast Regional Aquaculture Association's (NSRAA's) Hidden Falls Hatchery (HFH). Incubation will occur during the fall and winter of 2019–2020. All fish (100%) will be otolith thermal marked. Short-term rearing will occur in the spring of 2020 in saltwater net pens at a number of approved chum salmon release sites. Each site was selected to meet at least one of three harvest goals: broodstock, cost recovery (CR), or common property (CP) contribution. The following table shows DIPAC's currently approved chum salmon production levels by release site.

2019 Chum Salmon Production Levels by Release Site.

Release Site	Egg-Take Goal	Fry Release Goal	Harvest Goals
Macaulay Salmon Hatchery	14,100,000	12,000,000	Broodstock/CP/CR
Thane	28,200,000	24,000,000	Broodstock/CP/CR
Amalga Harbor	46,900,000	45,000,000	CP/CR
Boat Harbor	28,200,000	24,000,000	CP
Limestone Inlet	17,600,000	15,000,000	CP
Total	135,000,000	120,000,000	

If prioritization of releases between Boat Harbor and Limestone Inlet is necessary, it will be based on input from the gillnet fleet and the DIPAC board.

**Chinook Salmon**

In 1994, the department transferred its Juneau recreational fisheries Chinook salmon enhancement program from Snettisham Hatchery to MSH. The program is funded through a cooperative agreement between ADF&G and DIPAC. Under terms of the agreement, general production goals call for DIPAC to produce 570,000 25-gram smolt.

Chinook salmon production for the Juneau program will continue to utilize Andrew Creek stock. In 2019, the MSH Chinook salmon egg-take goal is up to 1.1 million and is expected to be met using broodstock returning to MSH. Crystal Lake Hatchery (CLH), Medvejie Creek Hatchery (MCH), and Hidden Falls Hatchery (HFH) may be used as backup egg sources.

2019 Chinook Salmon Production Levels, by Release Site.

Stock	Release Site	Release Goal
Andrew Creek	Macaulay Salmon Hatchery	220,000
	Fish Creek	280,000
	Auke Bay	90,000
	Lena Cove	180,000
	Thane Saltwater Site	180,000

An estimated 20% (approx. 160,000 smolt total) of each of the release groups (Auke Bay/Fish Creek /Lena Cove and Gastineau Channel/Thane), will be marked with separate coded wire tag codes.

**Coho Salmon**

The 2019 egg take goal will be up to 1.5 million green eggs, depending on available rearing space. Broodstock requirements will be based on inseason fecundity estimates. Smolt will be released at MSH and the Thane Saltwater Site.

An estimated 7% of the total coho salmon production will be marked with coded wire tags.

## **Rainbow Trout**

MSH will receive up to 50,000 eyed triploid rainbow trout eggs from the William Jack Hernandez Sport Fish Hatchery, in Anchorage. Following 2 to 3 years of rearing, this production will be stocked as catchables into Twin Lakes and Mendenhall Ponds.

## **2.0 HATCHERY RETURN MANAGEMENT**

### *2.1 2019 DIPAC Hatchery Return Projections*

Expected 2019 adult salmon returns from DIPAC releases are shown on Table 1 at the end of this plan. Total returns are expected to be 4,300,000 chum salmon, 62,000 coho salmon, and 7,000 Chinook salmon. A complete accounting of common property harvest of adult Chinook and coho salmon will be obtained from analysis of coded wire tag data. Accounting of common property harvest of chum salmon will be limited to fisheries for which thermal-mark sampling is conducted.

### *2.2 Management in Common Property Fisheries*

DIPAC hatchery returns will contribute to the troll, purse seine, drift gillnet, and sport fisheries along their migration routes back to release sites in the Juneau area. DIPAC Chinook and coho salmon are coded-wire-tagged to provide estimates of contribution to common property fisheries. Thermal otolith mark and recovery programs have provided contribution estimates for DIPAC chum salmon in both the districts 111 and 115 commercial drift gillnet fisheries, the districts 112 and 114 purse seine fisheries, and in developing troll fisheries in some District 114 spring troll areas.

DIPAC chum salmon returns are harvested in purse seine fisheries in both Icy Strait and northern Chatham Strait. The nearshore waters between Funter Bay and Point Marsden in Chatham Strait is known as the Hawk Inlet Shore. Fishing is sometimes allowed in this area to harvest pink salmon migrating northward into Lynn Canal and Upper Stephens Passage. During July, ADF&G manages the Hawk Inlet Shore in accordance with 5 AAC 33.366, *Northern Southeast Seine Fishery Management Plans*.

Pink salmon parent-year escapements were within management target ranges for most Juneau management area stock groups, but the NOAA SECM survey investigating outbound juvenile salmon abundance had very poor results in 2019, adding uncertainty to the anticipated 2019 pink salmon return. In 2019, purse seine fishing opportunities along the Hawk Inlet Shore in July will be based on observed pink salmon abundance and conservation of other salmon stocks. Provided pink salmon abundance surplus to escapement needs is observed during August, seine opportunities may occur along the Hawk Inlet shore if northbound pink salmon runs are strong. Conversely, if northbound runs are poor during August and southbound runs are strong, seining may be allowed only south of Point Marsden.

Chum salmon returning to DIPAC facilities are expected to be present in the drift gillnet fisheries in Sections 11-B and 15-C. The District 11 summer gillnet fishery is managed on wild stock sockeye salmon abundance. ADF&G may allow additional harvest opportunities in Stephens Passage for chum salmon returning to the Limestone Inlet remote-release site by allowing additional fishing time. A minimum 6-inch mesh size will be required during some weeks from mid-July to mid-

August in the area south of Circle Point to protect Port Snettisham wild sockeye salmon stocks transiting the area. This mesh size has been shown to maximize chum salmon harvests while minimizing sockeye salmon interceptions. Portions of Section 15-C are managed to harvest both natural and hatchery chum salmon runs, and additional fishing time is expected adjacent to Boat Harbor. Fishery sampling for otolith marks provides estimates of the proportions of hatchery chum salmon in both the Districts 11 and 15 drift gillnet fisheries to aid wild stock management and assessment of hatchery returns. In 2019, this sampling program is expected to continue.

Chinook and coho salmon returns to DIPAC hatcheries have contributed substantially to commercial fisheries, as determined by recovery and analysis of coded wire tags. No specific commercial fishery management actions pertaining to returning hatchery Chinook or coho salmon is deemed necessary since historic return levels have been sufficient to provide hatchery broodstock. However, MSH coho salmon abundance in the Districts 11 and 15 drift gillnet fisheries is closely monitored in season so wild stock strength can be assessed.

The Juneau sport fishery also harvests substantial DIPAC hatchery returns. The marine sport fishery harvests significant numbers of Chinook and coho salmon. The Juneau shoreline sport fishery harvests Chinook, coho, and chum salmon near the hatcheries. In 1991, a public dock was constructed by DIPAC to provide more sport fishing opportunities. This structure has been replaced by a new dock as part of a highway improvement project that also includes uplands development and continues to be a very popular fishery with the community. In 2019, DIPAC staff will estimate catch by anglers fishing from the dock and adjacent beach by using a simplified abundance-based model as well as visual observations on the number of sport anglers and catch. Sport fisheries will be managed by general regulations described in codified regulations for those waters. Prior to 2015, no sport fishery management actions were necessary to protect hatchery broodstock. In 2015, 2016, 2017, and 2018 the terminal recreational fishery at MSH was closed in July and August to protect Chinook salmon broodstock. In 2017, an additional 80 Chinook were collected from Fish Creek as a backup broodstock source for MSH (FTP: 17J-1008 and 17J-1009).

### 2.3 *Special Harvest Areas (SHAs)*

#### **Gastineau Channel SHA**

In 1994, the Alaska Board of Fisheries (BOF) combined and expanded the previously-existing Kowee Creek, Sheep Creek, and Macaulay Hatchery special harvest areas (SHAs), located adjacent to each facility, into a common SHA for harvest of cost-recovery fish. The revised Gastineau Channel SHA includes all the waters within Gastineau Channel between Salmon Creek and one mile north of the Dupont dock, (all waters east of 134°29.25'W long and west of 134°17.38'W long) (Figure 3). Legal gear for cost recovery in the Gastineau Channel SHA includes purse seine, hand purse seine, beach seine, fyke net, drift gillnet, set gillnet, and dip net.

Projected returns in 2019 from Gastineau Channel releases are expected to total 1,196,000 chum salmon. The portion of the return not harvested in common property fisheries will be available for cost-recovery harvest in the Gastineau Channel SHA and for broodstock. In 2019, a total of 62,100 DIPAC coho salmon are expected to return. Returns to the SHA not harvested in common property fisheries will be available for cost recovery and broodstock. Tables 6–13 summarize pink, chum, coho, and Chinook salmon returns by SHA.

DIPAC will operate a weir in Salmon Creek to control the number of hatchery chum salmon entering the stream. Beginning July 1, DIPAC will monitor abundance of chum salmon in Salmon Creek. When sufficient numbers of chum salmon warrant, the weir will be installed and operated in a manner that allows controlled escapement of chum salmon into the stream throughout the run. Salmon Creek will be managed for a maximum escapement of 2,500 chum salmon. Appropriate measures will be taken to ensure the weir does not cause substantial delay or mortality in the migration of other salmon and trout species; these measures may include, but are not limited to, opening pickets to pass fish holding below the weir and removing the weir when ADF&G considers chum salmon escapement control measures are no longer necessary. Sport fisheries will be managed as described in codified regulations for these waters. The department may use EO authority to address issues in season. The department typically liberalizes sport harvest limits for Chinook salmon in a terminal area that includes a portion of the Gastineau Channel SHA.

### **Amalga Harbor SHA**

In 1997, the BOF passed regulatory language formally establishing the Amalga Harbor SHA. The Amalga Harbor SHA has been opened by EO annually since 1994. This SHA includes those waters enclosed by a line from the Shrine of St. Therese to the southernmost tip of Bird Island, to the northernmost tip of Gull Island to a point on the eastern mainland shore at 58°30.80'N lat (Figure 4). As stated in the MSH permit, if conflicts with wild stocks become evident during the hatchery cost-recovery fishery, restrictions in the harvest area may be necessary or alternative sites may be investigated. DIPAC's chum salmon cost recovery primarily takes place at Amalga Harbor; however, in years of large returns to MSH, cost recovery may take place in Gastineau Channel.

Fed chum salmon fry were released from the Amalga Harbor site for the first time in 1991 and the first substantial returns occurred in 1994. In 2019, projected returns from Amalga Harbor fry releases are expected to total approximately 2,126,000 chum salmon. In order to increase the common property share of enhanced chum production, DIPAC will be continuing with common property purse seine openings in a portion of the Amalga SHA, if conditions warrant. This is a step towards the DIPAC goal of providing at least 70% of production to the common property harvest. Purse seine gear is the only net gear type that can legally fish in Section 11-A and is very effective in harvesting a substantial volume of fish in a short period of time, thereby minimizing impact to the Amalga Harbor area. These openings may occur during a nine-hour period (9:00 a.m. – 6:00 p.m.) on Thursdays in July. Decisions about these commercial openings will be based on returning run strength of enhanced chum salmon, progress towards cost-recovery goals, expected effort levels, and considerations for nontarget species. The department will sample the catch for sockeye salmon otoliths as part of the department's normal sampling of commercial salmon harvests.

DIPAC will operate a weir at the outlet of the Petersen Creek lagoon to control the number of hatchery chum salmon entering Peterson Creek. Peterson Creek will be managed for a maximum escapement of 3,000 chum salmon. Appropriate measures will be taken to ensure the weir does not cause substantial delay or mortality in the migration of other salmon and trout species; these measures may include, but are not limited to, opening pickets to pass fish holding above or below the weir and removing the weir when ADF&G considers chum salmon escapement control measures are no longer necessary. ADF&G retains authority to require DIPAC to conduct cost-recovery fishing in the SHA to remove salmon, if needed, for biological reasons. Sport fisheries will be managed as described in codified regulations for these waters. The department may use EO authority to address issues inseason. In 2019, a portion of the Amalga Harbor SHA is closed to sport fishing

within a 200-yard radius of the mouth of Peterson Creek. Over the last several years survey counts indicate extremely low production of returning steelhead. In order to protect returning steelhead ADF&G used its EO authority to close sport fishing in Peterson Creek from the barrier falls to the saltwater shoreline within 200 yards of the creek mouth from April 15 through June 30.

### **Boat Harbor SHA**

In 1996, the regional planning team (RPT) requested establishment of an SHA near the Boat Harbor remote-release site that could be opened by EO. In 1997, the BOF passed regulatory language creating an SHA near the Boat Harbor remote-release site. The Boat Harbor SHA is described as those waters within one mile of the western shoreline of Lynn Canal south of 58°40'N lat to a point 2.4 miles north of Pt. Whidbey at 58°37.05'N lat, including those waters inside Boat Harbor (Figure 2). In 2019, the return from Boat Harbor releases is expected to total 749,000 chum salmon. DIPAC does not anticipate using the SHA for cost recovery this year. ADF&G retains authority to require DIPAC to conduct cost-recovery fishing in the SHA to remove salmon, if needed, for biological reasons. Sport fisheries will be managed as described in codified regulations for these waters. The department may use EO authority to address issues inseason.

### **Limestone Inlet SHA (not in regulation)**

In 1996, the RPT requested establishment of an SHA near the Limestone Inlet remote-release site that could be opened by EO. The area is described as those waters of Limestone Inlet east of a line from 58°01.72'N lat, 133°59.26'W long, to 58°02.1'N lat, 133°59.67'W long (Figure 1). This area is closed to commercial fishing by regulation, although outer portions of the inlet are opened to commercial fishing by EO to increase utilization of returning chum salmon. This management strategy will be followed again in 2019. Cost-recovery fishing within this SHA was experimental in nature in 1996 and 1997. No cost-recovery fishing has been conducted at Limestone Inlet since 1997 and DIPAC does not anticipate using the SHA for cost recovery in 2019. The 2019 return from Limestone Inlet releases is expected to total approximately 229,000 chum salmon. ADF&G retains authority to require DIPAC to conduct cost-recovery fishing in the SHA to remove salmon, if needed, for biological reasons. Sport fisheries will be managed as described in codified regulations for these waters. The department may use EO authority to address issues inseason.

## **2.4 *Carcass Disposal Plans***

### **Broodstock**

As in previous years, broodstock carcasses will be sold or disposed of in a manner consistent with Alaska Department of Environmental Conservation wastewater discharge regulations.

### **Cost Recovery**

As in prior years, DIPAC intends to fully utilize all cost-recovery fish harvested in its SHAs. ADF&G retains authority to require DIPAC to conduct cost-recovery fishing in the SHAs to remove excess salmon, if needed, for biological reasons.



### **3.0 SPECIAL STUDIES**

DIPAC conducts contract work for the National Marine Fisheries Service at Auke Bay Laboratory in association with the Southeast Coastal Monitoring (SECM) project and for the Alaska Department of Fish and Game's Alaska Hatchery Research Project (Hatchery Wild Interaction Study), which it co-funds. The contract work includes processing otolith and scale samples from juvenile pink and chum salmon to determine the presence and abundance of hatchery stocks in Southeast Alaska.

## 4.0 APPROVAL

### Recommendation for Approval

Eric Prestegard, Executive Director 5/23/2019

Dave Harris, Area Management Biologist, Division of Commercial Fisheries 5/24/2019

Dan Teske, Area Management Biologist, Division of Sport Fish 5/24/2019

Lowell Fair, Regional Supervisor, Division of Commercial Fisheries 6/12/2019

Judy Lum, Regional Supervisor – Division of Sport Fish 6/13/2019

Lorraine Vercessi, PNP Hatchery Program Coordinator, Div. of Commercial Fisheries 6/12/2019

### Approval:

The 2019 Macaulay Salmon Hatchery Annual Management Plan is hereby approved:

Tom Taube, Deputy Director, Division of Sport Fish 6/13/2019

Peter Bangs, Assistant Director, Division of Commercial Fisheries 6/14/2019

## 5.0 ATTACHMENTS

### *Tables*

- Table 1.–Summary of 2019 DIPAC planned releases, returns, and egg-take goals.  
Table 2.–DIPAC pink salmon releases by site, brood years 1977–2001.  
Table 3.–DIPAC chum salmon releases by release site, brood years 1976–2017.  
Table 4.–DIPAC releases of coho salmon smolt by release site, brood years 1984–2016.  
Table 5.–DIPAC releases of Chinook salmon smolt by release site, brood years 1984–2016.  
Table 6.–DIPAC terminal area pink salmon returns by site, 1979–2003.  
Table 7.–DIPAC terminal area chum salmon returns by age class, release site, and year of return.  
Table 8.–DIPAC terminal area chum salmon brood year performance by age class and release site.  
Table 9.–DIPAC coho salmon brood year performance, by release site.  
Table 10.–Sheep Creek/Thane Chinook salmon production summary, brood years 1984–2016.  
Table 11.–Macaulay Salmon Hatchery Chinook salmon production summary, brood years 1987–2016.  
Table 12.–Fish Creek Chinook salmon production summary, brood years 1996–2016.  
Table 13.–Auke Bay Chinook salmon production summary, brood years 1993–2016.  
Table 14.–Lena Cove Chinook salmon production summary, brood years 2012 – 2016.  
Table 15.–Pullen Creek Chinook salmon production summary, brood years 1998–2013.  
Table 16.–Macaulay Salmon Hatchery fish transport permits.

### *Figures*

- Figure 1.–Limestone Inlet SHA.  
Figure 2.–Boat Harbor SHA.  
Figure 3.–Gastineau Channel SHA.  
Figure 4.–Amalga Harbor SHA.

Table 1.–Summary of 2019 DIPAC planned releases, returns, and egg-take goals.

**Planned Releases by Species and Release Site**

<u>Species</u>	<u>Stage</u>	<u>Facility</u>	<u>Release Site</u>	<u>No. Released</u>	<u>No. Fish Marked</u>
Chum salmon	Fed Fry	Macaulay	Macaulay	11,600,000	100% Otolith
			Thane	19,300,000	100% Otolith
			Amalga	47,400,000	100% Otolith
			Boat Harbor	19,900,000	100% Otolith
			<u>Limestone</u>	<u>11,500,000</u>	<u>100% Otolith</u>
			TOTAL CHUM	109,700,000	100% Otolith
Coho salmon	Smolt	Macaulay	Macaulay	300,000	20,900 CWT
			Thane	870,000	54,500 CWT
	Fed Fry	Macaulay	<u>Davidson Creek</u>	<u>100,000</u>	<u>100% Otolith</u>
			TOTAL COHO	1,270,000	75,400 CWT
Chinook salmon	Smolt	Macaulay	Macaulay	250,000	50,500 CWT
			Fish Cr.	239,000	55,700 CWT
			Auke Cr.	90,000	17,900 CWT
			Lena	185,000	35,500 CWT
			Thane	185,000	36,400 CWT
			TOTAL CHINOOK	949,000	196,000CWT
			TOTAL CHINOOK & COHO	2,219,000	271,400 CWT
Rainbow Trout	Catchable	Macaulay	Twin Lakes	9,000	100% Ad clip
Catchable	Macaulay	Mendenhall Ponds	1,500	100% Ad clip/Floy tag	

continued...

Table 1 continued.

**Expected Adult Returns by Release Site**

<u>Species</u>	<u>Release Site</u>	<u>Number of Adults</u>	<u>Assumed % Marine Survival</u>
Chum salmon	Gastineau Channel SHA	1,196,000	age and site-specific assumptions
	Amalga Harbor SHA	2,126,000	age and site-specific assumptions
	Boat Harbor (Remote Site)	749,000	age and site-specific assumptions
	Limestone Inlet (Remote Site)	<u>229,000</u>	age and site-specific assumptions
	Subtotal	4,300,000	
Coho salmon	Gastineau Channel SHA	62,000	5%
Chinook salmon	Macaulay Salmon Hatchery	2,400	age and site-specific assumptions
	Auke Bay (Remote Site)	800	age and site-specific assumptions
	Fish Creek (Remote Site)	1,400	age and site-specific assumptions
	Lena Cove (Remote Site)	2,000	age and site-specific assumptions
	Thane (Remote Site)	350	age and site-specific assumptions
	Pullen Creek (Remote Site)	<u>70</u>	age and site specific assumptions
	TOTAL	7,000	

**Egg Take Goals**

<u>Species</u>	<u>Facility or Source</u>	<u>Number of Eggs</u>
Chum salmon	Macaulay	135 million
Coho salmon	Macaulay	1.5 million
Chinook salmon <sup>1</sup>	Macaulay	1.1 million
Rainbow trout	William Jack Hernandez (Anchorage)	50,000

<sup>1</sup>The 2019 Chinook salmon egg-take goal for Macaulay Salmon Hatchery includes up to 1,100,000 Andrew Creek stock eggs for sport fishery enhancement in Juneau. Crystal Lake, Medveje Creek, and Hidden Falls hatcheries may be used as backup egg sources for Andrew Creek stock Chinook salmon eggs.

**Table 2. DIPAC Pink Salmon Releases by Release Site, Brood Years 1977 to 2001.**

Brood Year	Kowee Creek	Sheep Creek	Macaulay Hatchery	Total
1977	1,643,586		1,643,586	
1978	2,100,100		2,100,100	
1979	2,087,152		2,087,152	
1980	2,395,200	786,480	3,181,680	
1981	3,603,368	8,416,942	12,020,310	
1982	3,276,947	14,402,028	17,678,975	
1983	6,351,572	32,013,322	38,364,894	
1984	4,001,642	14,931,240	18,932,882	
1985	140,662	36,754,490	36,895,152	
1986	53,333	8,423,628	8,476,961	
1987	-	29,776,915	11,853,385	41,630,300
1988	-	-	15,032,297	15,032,297
1989	-	17,962,133	9,669,565	27,631,698
1990	-	16,258,086	14,846,296	31,104,382
1991	-	31,636,411	15,420,179	47,056,590
1992	-	32,660,175	15,768,972	48,429,147
1993	-	-	8,663,682	8,663,682
1994	-	-	8,539,515	8,539,515
1995	-	-	8,743,899	8,743,899
1996	-	-	5,901,486	5,901,486
1997	-	-	8,709,149	8,709,149
1998	-	-	5,760,018	5,760,018
1999	-	-	1,681,918	1,681,918
2000	-	-	1,723,910	1,723,910
2001	-	-	1,696,762	1,696,762
<b>Total</b>	<b>25,653,562</b>	<b>244,021,850</b>	<b>134,011,033</b>	<b>403,686,445</b>

**Table 3. DIPAC chum salmon releases by release site, brood years 1976 to 2017.**

<b>Brood Year</b>	<b>Kowee Creek</b>	<b>Sheep Creek/Thane</b>	<b>Macaulay Hatchery</b>	<b>Amalga Harbor</b>	<b>Limestone Inlet</b>	<b>Boat Harbor</b>	<b>Total</b>
1976	76,245						76,245
1977	130,205						130,205
1978	-						-
1979	224,014						224,014
1980	921,484						921,484
1981	515,482	104,400					619,882
1982	299,666	726,592					1,026,258
1983	297,029	920,856					1,217,885
1984	-	4,291,652					4,291,652
1985	-	7,001,628					7,001,628
1986	-	18,868,280					18,868,280
1987	-	10,122,835	8,226,934			5,170,000	23,519,769
1988	-	26,697,200	8,719,086			8,508,356	43,924,642
1989	-	3,073,538	11,586,928			8,300,782	22,961,248
1990	-	38,874,036	11,326,584	34,744,923	9,031,860	9,337,000	103,314,403
1991	-	27,011,585	11,959,076	35,918,054	8,500,000	6,709,659	90,098,374
1992	-	27,002,939	11,891,265	36,147,451	10,016,175	9,545,177	94,603,007
1993	-	14,635,458	5,869,938	34,817,531	5,833,126	6,464,450	67,620,503
1994	-	44,673,729	11,825,076	34,472,077	11,411,420	8,931,491	111,313,793
1995	-	44,174,890	11,474,457	34,979,646	15,421,245	8,536,780	114,587,018
1996	-	39,278,455	12,166,444	34,535,728	12,983,190	7,759,020	106,722,837
1997	-	-	24,246,804	49,155,073	13,993,898	7,211,676	94,607,451
1998	-	-	21,991,640	50,783,014	14,473,858	9,262,694	96,511,206
1999	-	-	27,878,900	53,218,962	15,100,000	9,010,000	105,207,862
2000	-	-	27,858,929	46,028,136	15,144,122	14,883,720	103,914,907
2001	-	13,046,247	15,095,772	17,452,832	14,616,604	11,263,498	71,474,953
2002	-	23,004,281	11,794,325	34,878,279	14,001,897	12,223,213	95,901,995
2003	-	23,414,790	10,806,816	36,042,133	14,798,685	14,576,139	99,638,563
2004	-	24,082,294	11,186,653	36,791,145	15,005,171	13,558,987	100,624,250
2005	-	23,553,814	11,337,816	34,718,622	14,145,482	13,472,501	97,228,235
2006	-	24,740,121	11,972,504	48,098,292	15,177,070	14,901,861	114,889,848
2007	-	24,385,242	10,852,489	45,334,725	15,036,500	14,719,447	110,328,403
2008	-	23,678,056	11,868,990	43,970,489	15,220,005	14,251,927	108,989,467
2009	-	15,625,000	7,733,000	44,104,000	14,057,000	13,651,000	95,170,000
2010	-	21,940,000	10,650,000	43,420,000	13,690,000	10,860,000	100,560,000
2011	-	24,035,500	11,988,300	45,145,800	14,418,900	18,356,500	113,945,000
2012	-	23,413,500	11,091,900	41,961,300	14,742,200	22,429,500	113,638,400
2013	-	23,856,200	11,577,300	42,390,600	14,915,000	22,900,100	115,639,200
2014	-	21,658,000	11,733,000	39,562,000	13,450,000	21,046,000	107,449,000
2015	-	19,267,500	10,270,700	31,617,400	13,167,800	20,655,900	94,979,300
2016	-	21,586,600	10,321,900	33,655,100	13,417,000	19,218,700	98,199,300
2017	-	20,083,800	11,819,700	44,429,200	11,715,700	19,789,600	107,838,000
<b>Total</b>	<b>2,464,125</b>	<b>678,829,018</b>	<b>399,123,226</b>	<b>1,108,372,512</b>	<b>373,483,908</b>	<b>397,505,678</b>	<b>2,959,778,467</b>

**Table 4. DIPAC releases of coho salmon smolts by release site, brood years 1984-2016. <sup>1</sup>**

Brood Year	Number of Fish Released							
	Sheep Creek/Thane		Macaulay		Twin Lakes		Other	
	Total	Tagged	Total	Tagged	Total	Tagged	Total <sup>2</sup>	Tagged
1984								
1985	61,342	38,653						
1986	100,000	48,534	49,659	20,284			18,896	18,858
1987	44,940	20,551	36,866	19,764				
1988	533,233	39,134	546,255	40,198			100,763	19,883
1989	505,287	45,318	507,819	45,868				
1990	582,739	65,983	392,508	32,550	1,719	-		
1991	562,150	55,814	477,999	37,821	4,796	-	2,205	-
1992	563,357	54,173	380,282	36,138			50,574	10,130
1993 <sup>3</sup>	621,235	69,825	422,482	43,353	4,370	-	128,245	22,998
1994 <sup>4</sup>	518,625	58,788	347,512	34,645	12,771	-		
1995	575,554	59,732	425,899	36,897				
1996			823,659	83,456				
1997 <sup>5</sup>	54,251	54,251	783,622	79,846				
1998 <sup>5</sup>	91,024	91,024	805,963	83,712				
1999			770,656	75,829				
2000 <sup>5</sup>	95,746	90,671	813,225	82,177				
2001			783,928	46,581	9,186	-		
2002			567,282	41,925				
2003			499,616	129,603				
2004			595,187	35,601				
2005			565,964	41,542				
2006			736,511	56,735				
2007			559,429	40,654				
2008			328,000	24,539				
2009			349,000	24,587				
2010			306,700	21,967				
2011			524,900	36,901				
2012	837,900	57,070	343,600	34,573				
2013	686,900	48,482	326,100	22,301				
2014	736,600	45,957	318,100	16,897				
2015	784,800	54,066	233,900	15,877				
2016	907,100	67,000	322,500	19,020				
Total	8,862,783	1,065,026	14,945,123	1,361,841	32,842	-	300,683	71,869

1/ Shaded cells represent Snettisham Hatchery fish released at Sheep Creek as part of a cooperative agreement between DIPAC and ADF&G.

2/ Releases from "other" areas were made at:

1986 brood released from Auke Rec in 1988.

1988 brood released as pre-smolt into Mendenhall Ponds in December 1989.

1991 brood released as pre-smolt into Picnic Creek at Lena Cove in September 1992.

1992 brood includes 48,574 pre-smolt (10,130 tagged) released into Davidson Creek and 2,000 pre-smolt (untagged).

3/ Includes 9,874 Pavlof River coho F/W reared at Auke Creek Hatchery and transferred to Sheep Creek Hatchery for S/W rearing and release. (All fish were coded wire tagged.)

4/ Includes 7,229 Pavlof River coho F/W reared at Auke Creek Hatchery and transferred to Sheep Creek Hatchery for S/W rearing and release. (All fish were coded wire tagged.)

5/ Sheep Creek releases from UAF coho outbreeding project.



Table 5. DIPAC releases of Chinook salmon smolts by release site, brood years 1984-2016. <sup>1,2</sup>

Brood Year	Number of Fish Released																		
	Sheep Creek/Thane		Macaulay		Fish Creek		Auke Bay		Lena Cove		Pullen Creek		Lutak Inlet		Twin Lakes		Other		
	Total	Tagged	Total <sup>4</sup>	Tagged	Total	Tagged	Total	Tagged	Total	Tagged	Total	Tagged	Total	Tagged	Total <sup>5</sup>	Tagged	Total <sup>6</sup>	Tagged	
1984	30,280	28,221																	
1985	31,112	26,227																	
1986	31,556	28,527																	
1987	120,000	57,513	11,000	10,435															
1988	122,155	31,177	101,462	30,016															
1989 <sup>3</sup>	<b>100,543</b>	<b>26,367</b>	43,595	20,518															
1990			191,765	29,894															
1991			207,536	29,917											3,379	-	107,399	103,573	
1992			241,336	38,710											6,216	-	23,389	21,775	
1993	28,458	26,483	158,681	31,365	196,549	39,817	193,464	39,683							8,713	-	28,062	26,546	
1994	35,423	24,523	64,360	26,030	109,274	29,177	106,255	28,929							8,265	-			
1995	44,664	9,899	171,908	19,581	179,164	19,783	176,193	20,494							12,095	-			
1996			212,285	19,959	179,059	30,207	174,230	19,498							14,182	-			
1997			221,443	30,533	183,701	19,893	173,207	18,375							13,200	-			
1998			208,586	31,745	166,670	27,868	56,929	n/a <sup>7</sup>			91,618	27,637			14,684	-			
1999			213,232	29,426	183,252	19,884	157,393	16,653			32,123	29,746			14,277	-			
2000			213,276	29,737	178,745	18,360	85,040	8,758			95,386	27,835			14,069	-			
2001			120,891	28,766	121,670	29,094					58,793	30,781							
2002	70,525	9,882	177,423	19,607	171,895	16,268	104,949	9,900			128,688	31,288			10,830	-			
2003	101,968	9,424	222,218	24,341	178,429	20,385	86,065	10,406			219,260	28,179			12,801	-			
2004	104,812	9,224	211,248	19,988	184,864	16,715	95,184	9,013			68,002	28,440			13,814	-			
2005	101,093	11,597	147,723	23,980	183,225	23,416	90,767	11,272			168,135	34,107			14,210	-			
2006			147,062	21,794	275,425	33,369	84,447	10,727			51,495	30,416			15,394	-			
2007			216,639	32,194	288,579	31,572	87,190	9,964			276,262	31,004			15,100	-			
2008			223,000	30,636	282,000	30,463	89,000	10,130			258,000	32,497			2,200	-	1,500	-	
2009			193,931	17,660	220,635	30,572	90,388	9,224			128,619	25,494	92,785	14,011	17,900	-	1,500	-	
2010			213,229	31,538	278,640	27,751	89,932	10,643			194,603	41,423			9,900	-	1,500	-	
2011			206,400	30,484	280,200	25,658	87,800	10,157			50,100	10,375			11,500	-			
2012			257,300	31,988	209,700	20,534	70,000	10,949	90,000	11,058					8,800	-	2,000	-	
2013			218,900	29,381	269,500	27,828	88,800	10,090	179,900	19,266	228,700	40,248			9,230	-			
2014	124,100	13,433	220,500	21,875	279,400	26,886	88,400	9,663	179,100	29,353					6,620	-			
2015	150,100	14,176	219,500	19,342	279,300	25,930	87,000	7,557	148,900	13,554					4,000	-			
2016			249,400	22,500	233,900	22,300	89,300	9,750											
<b>Total</b>	<b>1,196,789</b>	<b>326,673</b>	<b>5,505,829</b>	<b>783,940</b>	<b>5,113,776</b>	<b>613,730</b>	<b>2,451,933</b>	<b>301,835</b>			<b>2,049,784</b>	<b>449,470</b>	<b>92,785</b>	<b>14,011</b>	<b>261,379</b>	<b>-</b>	<b>165,350</b>	<b>151,894</b>	

1/ Dark shaded cells represent Snettisham Hatchery fish released at Sheep Creek and Macaulay Hatchery as part of cooperative agreements for sport fishery enhancement and brood stock development, respectively.

2/ Light shaded cells represent releases of King Salmon River stock chinook. All other production releases are Andrew Creek stock.

3/ Numbers in bold are actually age 2.0 BY88 fish released at Sheep Creek in 1991.

4/ Brood year 1987 and 1988 fish are DIPAC fish produced at Snettisham for DIPAC brood stock development.

5/ Twin Lakes BY 1991 fish were released as age 3.0 fish in November 1994.

Twin Lakes BY 1992 fish were released as age 2.0 fish in May 1995.

6/ "Other" BY 1991 releases include 62,579 (60,555 tagged) Tahini River fish and 44,820 (43,018 tagged) Big Boulder Creek fish, released into their respective streams on May 1992.

"Other" BY 1992 fish were released into Big Boulder Creek in May 1993.

"Other" BY 1993 fish were released into Big Boulder Creek in May 1994.

"Other" BY 2008 fish were released (500 each) into Glacier L. (right pelvic fin clip), Moraine L. (left pelvic fin clip), and Crystal L. (upper caudal fin clip) in October 2010.

"Other" BY 2009 fish were released into Glacier L., Moraine L., and Crystal L. in May 2012.

7/ Auke Creek release represented by Fish Creek tags.

**Table 6. DIPAC terminal area pink salmon returns by site, 1979 to 2003.**

<b>Return Year</b>	<b>Kowee Creek</b>	<b>Sheep Creek</b>	<b>Macaulay Hatchery</b>	<b>Total</b>
1979	20,000			20,000
1980	6,000			6,000
1981	14,000			14,000
1982	10,624	5,713		16,337
1983	10,028	95,972		106,000
1984	7,000	53,000		60,000
1985	13,654	429,077		442,731
1986	1,225	21,352		22,577
1987	28,687	766,063		794,750
1988	16,620	20,489		37,109
1989	5,569	65,051	13,079	83,699
1990	686	5,907	58,893	65,486
1991	2,033	259,967	82,641	344,641
1992	1,111	10,340	961,474	972,925
1993	44	1,469	27,523	29,036
1994	1,658	34,128	2,742,870	2,778,656
1995	-	144	82,147	82,291
1996	-	-	25,480	25,480
1997	-	-	209,427	209,427
1998	-	-	171,261	171,261
1999	-	-	511,327	511,327
2000	-	-	115,124	115,124
2001	-	-	106,173	106,173
2002	-	-	93,080	93,080
2003	-	-	100,497	100,497
<b>TOTAL</b>	<b>138,939</b>	<b>1,768,672</b>	<b>5,300,996</b>	<b>7,208,607</b>

**Table 7. DIPAC terminal area chum salmon returns by age class, release site, and year of return.**

**Sheep Creek Hatchery Terminal Area Return by Age Class**

Return Year	Estimated Percentage				Total Return	Estimated Numbers				Total Return
	Age 3	Age 4	Age 5	Age 6		Age 3	Age 4	Age 5	Age 6	
1987	2.8%	58.2%	37.9%	1.1%	100%	115	2,386	1,554	45	4,100
1988	0.0%	94.5%	5.5%	0.0%	100%	-	35,645	2,075	-	37,720
1989	4.6%	81.1%	14.3%	0.0%	100%	1,545	27,243	4,804	-	33,592
1990	0.2%	71.5%	28.2%	0.1%	100%	362	129,260	50,981	181	180,784
1991	2.1%	8.1%	88.1%	1.7%	100%	3,707	14,297	155,505	3,001	176,510
1992	0.9%	80.0%	10.5%	8.6%	100%	1,565	139,072	18,253	14,950	173,840
1993	1.2%	9.0%	89.3%	0.5%	100%	759	5,695	56,507	316	63,277
1994	1.5%	93.1%	4.6%	0.8%	100%	2,044	123,570	6,079	1,035	132,728
1995 <sup>1</sup>	15.3%	21.4%	62.3%	0.9%	100%	15,801	21,988	64,153	947	102,941
1996	0.2%	89.3%	9.3%	1.2%	100%	1,206	440,329	45,632	5,916	493,083
1997	4.9%	9.3%	85.2%	0.6%	100%	6,130	11,501	105,675	791	124,097
1998	2.9%	90.6%	5.0%	1.4%	100%	1,539	47,591	2,615	756	52,501
1999	16.5%	71.2%	12.0%	0.3%	100%	9,058	39,059	6,594	144	54,855
2000	0.3%	81.5%	18.1%	0.1%	100%	174	52,584	11,649	76	64,483
2001	0.2%	1.6%	95.0%	3.3%	100%	50	398	24,311	841	25,600
*** No returns from Sheep Creek production since 2001 ***										
Average	2.6%	63.4%	32.3%	1.7%	100%	2,937	72,708	37,092	1,933	114,674
Total						44,054	1,090,618	556,387	29,000	1,720,111

**Macaulay Salmon Hatchery Chum Terminal Area Return by Age Class**

Return Year	Estimated Percentage				Total Return	Estimated Numbers				Total Return
	Age 3	Age 4	Age 5	Age 6		Age 3	Age 4	Age 5	Age 6	
1989	0.9%	87.9%	8.4%	2.8%	100%	8	737	71	23	839
1990	0.5%	50.5%	49.0%	0.0%	100%	28	2,796	2,713	-	5,536
1991	2.2%	15.6%	80.0%	2.2%	100%	48	342	1,754	48	2,193
1992	1.2%	60.8%	29.1%	8.9%	100%	31	1,552	743	227	2,552
1993	1.7%	75.8%	22.0%	0.5%	100%	308	13,745	3,989	91	18,133
1994	1.6%	76.9%	21.3%	0.1%	100%	1,479	69,778	19,343	127	90,727
1995 <sup>2</sup>	10.3%	18.3%	68.6%	2.7%	100%	7,821	13,903	52,074	2,027	75,826
1996 <sup>5</sup>	0.3%	89.3%	8.2%	2.1%	100%	555	190,265	17,509	4,559	212,889
1997	0.7%	61.8%	37.4%	0.2%	100%	825	76,882	46,487	229	124,422
1998	2.3%	60.4%	34.7%	2.6%	100%	1,772	47,206	27,098	2,032	78,108
1999	3.8%	83.3%	11.8%	1.1%	100%	3,969	87,459	12,408	1,153	104,989
2000	0.5%	61.5%	37.5%	0.6%	100%	676	83,913	51,193	770	136,553
2001	1.3%	49.4%	47.2%	2.1%	100%	1,130	42,858	40,993	1,814	86,795
2002	8.7%	43.2%	47.5%	0.6%	100%	9,115	45,512	50,042	615	105,283
2003	5.0%	90.6%	4.1%	0.3%	100%	10,283	185,678	8,499	514	204,973
2004	2.4%	77.7%	19.8%	0.0%	100%	4,434	142,470	36,356	-	183,260
2005	33.8%	39.2%	25.3%	1.8%	100%	76,102	88,267	57,019	3,954	225,342
2006	4.2%	91.0%	4.5%	0.3%	100%	23,099	496,386	24,473	1,802	545,761
2007	3.2%	59.9%	36.2%	0.7%	100%	7,457	140,551	84,951	1,590	234,549
2008	2.8%	76.9%	18.4%	1.9%	100%	5,730	155,052	37,109	3,850	201,742
2009	1.3%	64.4%	33.3%	1.0%	100%	2,932	141,410	72,985	2,090	219,416
2010	3.8%	45.1%	49.4%	1.7%	100%	5,116	60,178	65,823	2,230	133,347
2011	4.3%	90.9%	4.5%	0.3%	100%	11,824	252,894	12,551	864	278,133
2012	0.5%	65.8%	33.6%	0.0%	100%	1,318	158,145	80,735	-	240,198
2013	2.2%	53.1%	41.7%	3.0%	100%	5,666	133,669	104,924	7,644	251,903
2014	4.4%	35.4%	58.8%	1.4%	100%	8,046	65,052	108,057	2,647	183,802
2015	2.7%	82.2%	15.0%	0.2%	100%	7,704	238,509	43,430	640	290,283
2016	2.5%	64.3%	31.6%	1.6%	100%	5,703	147,612	72,602	3,680	229,597
2017	0.8%	78.1%	19.5%	1.6%	100%	3,238	298,249	74,586	5,984	382,057
2018	6.2%	25.2%	67.6%	1.0%	100%	13,016	52,970	142,426	2,126	210,538
Average	3.9%	62.5%	32.2%	1.4%	100%	7,314	114,468	45,098	1,778	168,658
Total						219,434	3,434,037	1,352,942	53,332	5,059,745

continued...

Table 7 - continued: DIPAC terminal area chum salmon returns by age class, release site, and year of return.

Gastineau Channel SHA Return by Age Class

Return Year	Estimated Percentage				Total Return	Estimated Numbers				Total Return
	Age 3	Age 4	Age 5	Age 6		Age 3	Age 4	Age 5	Age 6	
1987	2.8%	58.2%	37.9%	1.1%	100%	112	2,328	1,516	44	4,000
1988	0.0%	94.5%	5.5%	0.0%	100%	-	35,645	2,075	-	37,720
1989	4.5%	81.3%	14.2%	0.1%	100%	1,553	27,980	4,874	23	34,431
1990	0.2%	70.8%	28.9%	0.1%	100%	353	118,931	48,517	162	167,963
1991	2.1%	8.2%	88.0%	1.7%	100%	3,359	13,112	140,647	2,728	159,846
1992	0.9%	79.7%	10.8%	8.6%	100%	1,439	126,716	17,171	13,682	159,008
1993	1.3%	25.1%	73.1%	0.5%	100%	996	18,902	55,162	377	75,437
1994	1.6%	84.0%	13.9%	0.4%	100%	4,140	218,800	36,304	1,099	260,343
1995 <sup>1,2</sup>	13.1%	20.0%	65.2%	1.7%	100%	22,326	34,087	110,963	2,897	170,272
1996 <sup>5</sup>	0.2%	89.3%	9.0%	1.5%	100%	1,825	653,883	65,555	10,788	732,050
1997	2.8%	35.6%	61.2%	0.4%	100%	6,955	88,383	152,162	1,020	248,520
1998	2.8%	84.1%	11.5%	1.7%	100%	9,998	301,507	41,070	6,072	358,647
1999	7.4%	77.7%	14.3%	0.6%	100%	22,610	237,827	43,921	1,895	306,253
2000	0.2%	71.5%	28.0%	0.3%	100%	948	308,483	121,064	1,140	431,636
2001	1.0%	38.5%	58.1%	2.4%	100%	1,180	43,256	65,304	2,655	112,395
2002	8.7%	43.2%	47.5%	0.6%	100%	9,115	45,512	50,042	615	105,283
2003	5.0%	90.6%	4.1%	0.3%	100%	10,283	185,678	8,499	514	204,973
2004	2.4%	77.7%	19.8%	0.0%	100%	4,434	142,470	36,356	-	183,260
2005	33.8%	39.2%	25.3%	1.8%	100%	76,102	88,267	57,019	3,954	225,342
2006	4.3%	91.0%	4.4%	0.3%	100%	61,565	1,289,496	62,500	3,928	1,417,488
2007	3.8%	66.4%	29.5%	0.3%	100%	32,043	564,717	250,706	2,524	849,990
2008	1.7%	74.4%	22.2%	1.7%	100%	13,499	595,710	177,506	14,006	800,721
2009	1.5%	67.9%	30.1%	0.4%	100%	9,628	436,001	193,435	2,590	641,653
2010	4.2%	47.6%	46.9%	1.4%	100%	21,405	243,679	240,122	7,079	512,285
2011	3.1%	91.6%	5.0%	0.3%	100%	22,630	672,126	36,539	2,214	733,509
2012	0.9%	64.0%	35.1%	0.0%	100%	6,411	479,133	263,169	340	749,052
2013	1.5%	51.8%	43.4%	3.3%	100%	5,666	198,138	166,030	12,532	382,365
2014	4.0%	38.1%	56.6%	1.4%	100%	9,429	90,203	134,044	3,287	236,963
2015	2.2%	81.1%	16.3%	0.3%	100%	11,935	438,723	88,392	1,697	540,747
2016	1.9%	64.2%	32.1%	1.8%	100%	7,628	260,971	130,436	7,257	406,291
2017	1.3%	80.4%	17.1%	1.2%	100%	12,309	778,986	165,936	11,343	968,574
2018	2.9%	21.1%	74.9%	1.2%	100%	14,720	107,220	381,313	6,088	509,342
Average	3.9%	62.8%	32.2%	1.2%	100%	12,706	276,465	104,636	3,892	397,699
Total						406,595	8,846,868	3,348,347	124,550	12,726,360

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Table 7 - continued: DIPAC terminal area chum salmon returns by age class, release site, and year of return.

Amalga Harbor Chum Terminal Area Return by Age Class

Return Year	Estimated Percentage				Total Return	Estimated Numbers				Total Return
	Age 3	Age 4	Age 5	Age 6		Age 3	Age 4	Age 5	Age 6	
1993 <sup>3</sup>	-				100%	-				
1994	1.2%	98.8%			100%	1,500	123,494			124,994
1995 <sup>4</sup>	20.4%	18.3%	60.1%	1.1%	100%	54,523	48,852	160,734	2,836	267,880
1996	1.2%	90.9%	6.8%	1.1%	100%	11,443	880,127	66,201	10,676	968,448
1997	0.6%	54.4%	44.4%	0.6%	100%	3,930	377,003	307,544	4,116	692,593
1998	1.8%	49.1%	47.6%	1.5%	100%	8,920	250,017	242,269	7,480	508,686
1999	8.1%	77.9%	13.0%	0.9%	100%	58,736	563,522	94,181	6,860	723,298
2000	0.7%	78.8%	20.2%	0.2%	100%	9,891	1,057,832	271,587	2,831	1,342,141
2001	6.2%	40.1%	51.8%	1.9%	100%	33,479	216,653	279,743	10,249	540,124
2002	6.7%	65.6%	27.5%	0.2%	100%	76,749	755,633	317,076	1,955	1,151,413
2003	2.5%	85.2%	11.3%	1.0%	100%	44,766	1,556,214	206,933	19,009	1,826,922
2004	0.2%	60.2%	39.5%	0.1%	100%	2,339	634,521	415,663	1,002	1,053,526
2005	29.5%	1.6%	64.6%	4.3%	100%	69,373	3,709	152,209	10,216	235,507
2006	2.2%	96.9%	0.3%	0.6%	100%	36,432	1,617,656	4,642	10,683	1,669,413
2007	2.5%	46.3%	51.3%	0.0%	100%	20,393	383,236	424,813	-	828,442
2008	1.7%	78.3%	18.5%	1.5%	100%	13,885	649,542	153,123	12,806	829,357
2009	2.2%	70.3%	27.0%	0.5%	100%	23,699	749,466	288,122	5,311	1,066,597
2010	4.6%	61.5%	33.4%	0.5%	100%	46,425	617,549	335,189	4,860	1,004,023
2011	0.7%	87.7%	11.1%	0.4%	100%	10,090	1,184,488	150,223	5,893	1,350,695
2012	3.9%	61.9%	34.1%	0.0%	100%	49,425	776,352	427,669	-	1,253,447
2013	0.6%	73.8%	23.8%	1.9%	100%	12,543	1,573,125	506,666	39,541	2,131,875
2014	1.4%	27.8%	69.8%	1.0%	100%	10,098	200,290	501,978	7,185	719,551
2015	1.3%	68.0%	29.2%	1.6%	100%	13,405	688,960	294,295	15,931	1,012,591
2016	1.6%	66.3%	29.5%	2.6%	100%	15,013	624,826	278,156	24,717	942,713
2017	2.9%	65.1%	31.4%	0.7%	100%	30,897	695,966	335,383	7,237	1,069,483
2018	12.6%	46.1%	39.9%	1.4%	100%	85,260	311,270	269,157	9,471	675,158
Average	4.7%	62.8%	32.8%	1.1%	100%	29,729	661,612	270,148	9,203	959,555
Total						743,215	16,540,302	6,483,559	220,867	23,988,878

- 1/ Figures do not include an estimate 52 (.001) age-2 fish.
- 2/ Figures do not include an estimate 114 (.001) age-2 fish.
- 3/ No data available for age-3 returns from 1990 brood year releases.
- 4/ Figures do not include an estimated 589 (.002) age-2 fish.
- 5/ Figures do not include an estimated 119 (.001) age-7 fish.

Table 8. DIPAC terminal area chum salmon brood year performance by age class and release site.

**Sheep Creek Hatchery Terminal Area Brood Year Performance by Age Class**

Brood Year	No. of Fry Released	No. Adults Returned to Terminal Area				Total Return	Total % Return	% Terminal Run by Age Class			
		Age 3	Age 4	Age 5	Age 6			Age 3	Age 4	Age 5	Age 6
1984	4,291,652	115	35,645	4,804	181	40,745	0.9%	0.3%	87.5%	11.8%	0.4%
1985	7,001,628	-	27,243	50,981	3,001	81,225	1.2%	0.0%	33.5%	62.8%	3.7%
1986	18,971,280	1,545	129,260	152,505	14,950	298,260	1.6%	0.5%	43.3%	51.1%	5.0%
1987	10,122,835	362	14,297	18,253	316	33,228	0.3%	1.1%	43.0%	54.9%	1.0%
1988	26,697,200	3,707	139,072	56,507	1,035	200,321	0.8%	1.9%	69.4%	28.2%	0.5%
1989	3,073,538	1,565	5,695	6,079	947	14,286	0.5%	11.0%	39.9%	42.6%	6.6%
1990	37,874,036	759	123,570	64,153	5,916	194,398	0.5%	0.4%	63.6%	33.0%	3.0%
1991	27,011,585	2,044	21,988	45,632	791	70,455	0.3%	2.9%	31.2%	64.8%	1.1%
1992	27,002,939	15,801	440,329	105,675	756	562,561	2.1%	2.8%	78.3%	18.8%	0.1%
1993	14,635,458	1,206	11,501	2,615	144	15,466	0.1%	7.8%	74.4%	16.9%	0.9%
1994	44,673,729	6,130	47,591	6,594	76	60,391	0.1%	10.2%	78.8%	10.9%	0.1%
1995	41,240,126	1,539	39,059	11,649	841	53,088	0.1%	2.9%	73.6%	21.9%	1.6%
1996	39,278,455	9,058	52,584	24,311	-	85,953	0.2%	10.5%	61.2%	28.3%	0.0%

\*\*\* No broodstock collection conducted at Sheep Creek since 1996\*\*\*

**Macaulay Salmon Hatchery Chum Terminal Area Brood Year Performance by Age Class**

Brood Year	No. of Fry Released	No. Adults Returned to Terminal Area				Total Return	Total % Return	% Terminal Run by Age Class			
		Age 3	Age 4	Age 5	Age 6			Age 3	Age 4	Age 5	Age 6
1987	8,226,934	28	342	743	91	1,203	0.0%	2.3%	28.4%	61.7%	7.5%
1988	8,719,086	48	1,552	3,989	127	5,716	0.1%	0.8%	27.1%	69.8%	2.2%
1989	11,586,928	31	13,745	19,343	2,027	35,146	0.3%	0.1%	39.1%	55.0%	5.8%
1990	11,326,584	308	69,778	52,074	4,559	126,719	1.1%	0.2%	55.1%	41.1%	3.6%
1991	11,959,076	1,479	13,903	17,509	229	33,120	0.3%	4.5%	42.0%	52.9%	0.7%
1992	11,891,265	7,821	190,265	46,487	2,032	246,605	2.1%	3.2%	77.2%	18.9%	0.8%
1993	5,869,938	555	76,882	27,098	1,153	105,688	1.8%	0.5%	72.7%	25.6%	1.1%
1994	11,825,076	825	47,206	12,408	768	61,206	0.5%	1.3%	77.1%	20.3%	1.3%
1995	11,474,457	1,772	87,459	51,065	1,814	142,111	1.2%	1.2%	61.5%	35.9%	1.3%
1996	12,166,444	3,969	83,703	40,993	615	129,280	1.1%	3.1%	64.7%	31.7%	0.5%
1997	24,264,239	675	42,858	50,042	514	94,088	0.4%	0.7%	45.6%	53.2%	0.5%
1998	21,991,640	1,130	45,512	8,499	-	55,141	0.3%	2.0%	82.5%	15.4%	0.0%
1999	27,878,900	9,115	185,678	37,003	3,954	235,749	0.8%	3.9%	78.8%	15.7%	1.7%
2000	27,858,929	10,283	145,002	57,019	1,802	214,106	0.8%	4.8%	67.7%	26.6%	0.8%
2001	28,142,018	4,513	88,267	24,473	1,590	118,843	0.4%	3.8%	74.3%	20.6%	1.3%
2002	34,798,606	76,102	496,386	84,951	3,850	661,290	1.9%	11.5%	75.1%	12.8%	0.6%
2003	34,221,606	23,099	140,551	37,109	2,090	202,849	0.6%	11.4%	69.3%	18.3%	1.0%
2004	35,268,947	7,457	155,052	72,985	2,230	237,723	0.7%	3.1%	65.2%	30.7%	0.9%
2005	34,891,630	5,730	141,410	65,823	864	213,827	0.6%	2.7%	66.1%	30.8%	0.4%
2006	36,712,625	2,932	60,178	12,551	-	75,660	0.2%	3.9%	79.5%	16.6%	0.0%
2007	35,327,731	5,116	252,894	80,735	7,644	346,390	1.0%	1.5%	73.0%	23.3%	2.2%
2008	35,547,046	11,824	158,145	104,924	2,647	277,540	0.8%	4.3%	57.0%	37.8%	1.0%
2009	23,141,752	1,318	133,669	108,057	640	243,683	1.1%	0.5%	54.9%	44.3%	0.3%
2010	32,596,088	5,666	65,052	43,430	3,680	117,827	0.4%	4.8%	55.2%	36.9%	3.1%
2011	35,971,566	8,046	238,509	72,602	5,984	325,142	0.9%	2.5%	73.4%	22.3%	1.8%
2012	34,505,488	7,704	147,612	74,586	2,126	232,028	0.7%	3.3%	63.6%	32.1%	0.9%
2013	35,433,550	5,703	298,249	142,426	-	446,378	1.3%	-	-	-	-
2014	33,391,211	3,238	52,970	-	-	56,209	0.2%	-	-	-	-
2015	29,538,216	13,016	-	-	-	13,016	0.0%	-	-	-	-

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Table 8 - continued: DIPAC terminal area chum salmon brood year performance by age class and release site.

Gastineau Channel SHA Chum Terminal Area Brood Year Performance by Age Class											
Brood Year	No. of Fry Released	No. Adults Returned to Terminal Area				Total Return	Total % Return	% Terminal Run by Age Class			
		Age 3	Age 4	Age 5	Age 6			Age 3	Age 4	Age 5	Age 6
1984	4,291,652	112	29,778	3,479	131	33,500	0.8%	0.3%	88.9%	10.4%	0.4%
1985	7,001,628	-	19,731	36,872	1,926	58,528	0.8%	0.0%	33.7%	63.0%	3.3%
1986	18,971,280	1,119	93,488	99,789	10,687	205,082	1.1%	0.5%	45.6%	48.7%	5.2%
1987	18,349,769	353	13,112	17,171	377	31,012	0.2%	1.1%	42.3%	55.4%	1.2%
1988	35,416,286	3,359	126,716	55,162	1,099	186,336	0.5%	1.8%	68.0%	29.6%	0.6%
1989	14,660,466	1,439	18,902	36,304	2,897	59,542	0.4%	2.4%	31.7%	61.0%	4.9%
1990	49,200,620	996	218,800	110,963	10,788	341,546	0.7%	0.3%	64.1%	32.5%	3.2%
1991	38,970,661	4,140	34,087	65,555	1,020	104,802	0.3%	4.0%	32.5%	62.6%	1.0%
1992	38,894,204	22,326	653,882	152,162	6,072	834,442	2.1%	2.7%	78.4%	18.2%	0.7%
1993	20,505,396	1,825	88,383	41,070	1,895	133,173	0.6%	1.4%	66.4%	30.8%	1.4%
1994	56,498,805	6,955	301,507	43,921	1,138	353,521	0.6%	2.0%	85.3%	12.4%	0.3%
1995	52,714,583	9,998	237,827	120,936	2,655	371,416	0.7%	2.7%	64.0%	32.6%	0.7%
1996	51,444,899	22,610	308,272	65,304	615	396,801	0.8%	5.7%	77.7%	16.5%	0.2%
1997	24,264,239	946	42,858	50,042	514	94,359	0.4%	1.0%	45.4%	53.0%	0.5%
1998	21,991,640	1,130	45,512	8,499	-	55,141	0.3%	2.0%	82.5%	15.4%	0.0%
1999	27,878,900	9,115	185,678	37,003	3,954	235,749	0.8%	3.9%	78.8%	15.7%	1.7%
2000	27,858,929	10,283	145,002	57,019	3,928	216,231	0.8%	4.8%	67.1%	26.4%	1.8%
2001	28,142,018	4,513	88,267	62,500	2,529	157,808	0.6%	2.9%	55.9%	39.6%	1.6%
2002	34,798,606	76,102	1,289,496	251,683	14,006	1,631,286	4.7%	4.7%	79.0%	15.4%	0.9%
2003	34,221,606	61,565	567,217	177,506	2,590	808,879	2.4%	7.6%	70.1%	21.9%	0.3%
2004	35,268,947	32,187	595,710	193,435	7,079	828,412	2.3%	3.9%	71.9%	23.4%	0.9%
2005	34,891,630	13,499	436,000	240,122	2,214	691,835	2.0%	2.0%	63.0%	34.7%	0.3%
2006	36,712,625	9,628	243,679	36,539	340	290,186	0.8%	3.3%	84.0%	12.6%	0.1%
2007	35,327,731	21,405	672,126	263,169	12,532	969,231	2.7%	2.2%	69.3%	27.2%	1.3%
2008	35,547,046	22,630	479,133	166,030	3,287	671,080	1.9%	3.4%	71.4%	24.7%	0.5%
2009	23,141,752	6,411	198,138	134,044	1,697	340,290	1.5%	1.9%	58.2%	39.4%	0.5%
2010	32,596,088	5,666	90,203	88,392	7,257	191,517	0.6%	3.0%	47.1%	46.2%	3.8%
2011	35,971,566	9,429	438,723	130,436	11,343	589,932	1.6%	1.6%	74.4%	22.1%	1.9%
2012	34,505,488	11,935	260,971	165,936	6,088	444,930	1.3%	2.7%	58.7%	37.3%	1.4%
2013	35,433,550	7,628	778,986	381,313		1,167,927	3.3%				
2014	33,391,211	12,309	107,220			119,528	0.4%				
2015	29,538,216	14,720				14,720	0.0%				

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Table 8 - continued: DIPAC terminal area chum salmon brood year performance by age class and release site.

Amalga Harbor Chum Terminal Area Brood Year Performance by Age Class											
Brood Year	No. of Fry Released	No. Adults Returned to Terminal Area				Total Return	Total % Return	% Terminal Run by Age Class			
		Age 3	Age 4	Age 5	Age 6			Age 3	Age 4	Age 5	Age 6
1990 <sup>1</sup>	34,744,923	-	123,494	160,734	10,676	294,904	0.8%		41.9%	54.5%	3.6%
1991	35,918,054	1,500	48,852	66,201	4,116	120,668	0.3%	1.2%	40.5%	54.9%	3.4%
1992	36,147,451	54,523	880,127	307,544	7,480	1,249,675	3.5%	4.4%	70.4%	24.6%	0.6%
1993	34,817,531	11,443	377,003	242,269	6,860	637,575	1.8%	1.8%	59.1%	38.0%	1.1%
1994	34,472,077	3,930	250,017	94,181	2,831	350,960	1.0%	1.1%	71.2%	26.8%	0.8%
1995	34,979,646	8,920	563,522	271,587	10,249	854,278	2.4%	1.0%	66.0%	31.8%	1.2%
1996	34,535,728	58,736	1,057,832	279,743	1,955	1,398,265	4.0%	4.2%	75.7%	20.0%	0.1%
1997	49,155,073	9,891	216,653	317,076	19,009	562,630	1.1%	1.8%	38.5%	56.4%	3.4%
1998	50,783,014	33,479	755,633	206,933	1,002	997,046	2.0%	3.4%	75.8%	20.8%	0.1%
1999	53,218,963	76,749	1,556,214	415,663	10,216	2,058,842	3.9%	3.7%	75.6%	20.2%	0.5%
2000	46,028,136	44,766	634,521	152,209	10,683	842,180	1.8%	5.3%	75.3%	18.1%	1.3%
2001	17,452,832	2,339	3,709	4,642	-	10,689	0.1%	21.9%	34.7%	43.4%	0.0%
2002	34,878,279	69,373	1,617,656	424,813	12,806	2,124,648	6.1%	3.3%	76.1%	20.0%	0.6%
2003	36,042,133	36,432	383,236	153,123	5,311	578,102	1.6%	6.3%	66.3%	26.5%	0.9%
2004	36,791,145	20,393	649,542	288,122	4,860	962,917	2.6%	2.1%	67.5%	29.9%	0.5%
2005	34,644,948	13,885	749,466	335,189	5,893	1,104,433	3.2%	1.3%	67.9%	30.3%	0.5%
2006	48,098,292	23,699	617,549	150,223	-	791,471	1.6%	3.0%	78.0%	19.0%	0.0%
2007	45,334,725	46,425	1,184,488	427,669	39,541	1,698,123	3.7%	2.7%	69.8%	25.2%	2.3%
2008	43,970,489	10,090	776,352	506,666	7,185	1,300,294	3.0%	0.8%	59.7%	39.0%	0.6%
2009	44,104,194	49,425	1,573,125	501,978	15,931	2,140,460	4.9%	2.3%	73.5%	23.5%	0.7%
2010	43,425,771	12,543	200,290	294,295	24,717	531,846	1.2%	2.4%	37.7%	55.3%	4.6%
2011	45,027,980	10,098	688,960	278,156	7,237	984,451	2.2%	1.0%	70.0%	28.3%	0.7%
2012	41,961,294	13,405	624,826	335,383	9,471	983,084	2.3%	1.4%	63.6%	34.1%	1.0%
2013	42,390,618	15,013	695,966	269,157		980,136	2.3%				
2014	39,562,122	30,897	311,270			342,167	0.9%				
2015	31,617,435	85,260				85,260	0.3%				

1/ No data available for age-3 returns from brood year 1990 Amalga Harbor releases.



Table 9: DIPAC coho salmon brood year performance, by release site.

GASTINEAU CHANNEL TOTALS (MC=Montana Cr., SN=Snettisham, SH=Sheep Cr., MH=Macaulay, UAS=various hybrid stocks, FC= Fish Creek/Taku River)

Brood Year	Egg Source	Number Released	Common Property Catch				Cost Recovery	Brood Stock <sup>1</sup>	Total Return <sup>2</sup>	Marine Survival
			Troll	Seine	Gillnet	Sport				
1985	MC	61,342	239	9	464	11	0	678	1,401	2.3%
1986	ST+SN	168,528	7,383	138	837	1,170	0	3,873	13,401	8.0%
1987	MC+SN	81,806	3,635	71	734	210	0	1,132	5,782	7.1%
1988	SH	1,079,488	34,086	1,082	48,119	18,092	109,834	924	212,137	19.7%
1989	MH	1,013,106	40,524	3,244	50,990	15,130	70,733	767	181,388	17.9%
1990	MH	975,247	40,172	687	11,855	11,463	34,539	687	99,403	10.2%
1991	MH	1,040,149	70,757	10,875	29,584	14,486	50,743	1,265	177,710	17.1%
1992	MH	943,853	13,790	104	16,844	3,303	19,988	1,568	55,597	5.9%
1993	MH	1,033,843	24,275	838	9,751	6,610	23,953	1,267	66,694	6.5%
1994	MH	858,908	7,317	830	508	6,553	29,046	1,118	45,372	5.3%
1995	MH	1,001,453	26,750	1,703	6,003	15,092	47,458	1,241	98,247	9.8%
1996	MH	823,659	38,800	3,407	5,459	11,925	58,270	2,683	120,544	14.6%
1997	MH+UAS	837,873	24,586	1,935	3,194	12,503	48,095	2,713	93,026	11.1%
1998	MH+UAS	896,987	24,896	1,191	2,831	6,737	48,744	2,571	86,970	9.7%
1999	MH	770,656	13,917	3,854	3,592	15,874	69,815	846	107,897	14.0%
2000	MH	813,225	11,188	2,887	3,608	14,869	48,914	591	82,056	10.1%
2001	MH	783,928	18,130	2,638	3,473	6,785	33,930	829	65,785	8.4%
2002	MH	567,282	11,437	1,643	639	4,179	21,284	646	39,827	7.0%
2003	MH	499,616	8,182	3	2,455	2,762	13,802	589	27,793	5.6%
2004	MH	595,131	7,463	397	724	2,030	12,623	463	23,700	4.0%
2005	MH	565,964	11,221	0	2,829	4,329	25,520	17	43,916	7.8%
2006	MH	736,511	5,607	491	230	4,052	23,043	97	33,520	4.6%
2007	MH	559,429	7,369	110	6,752	4,131	23,721	1,655	43,738	7.8%
2008	FC	328,000	10,351	2,143	4,059	6,813	7,754	324	31,444	9.6%
2009	FC	349,000	3,605	15	712	2,327	5,292	679	12,630	3.6%
2010	FC	306,700	11,971	2,017	8,402	3,300	8,965	675	35,330	11.5%
2011	MH	524,900	4,305	0	4,839	3,125	11,769	758	24,796	4.7%
2012	MH	1,181,500	17,282	794	6,885	14,120	32,993	962	73,036	6.2%
2013	MH	1,013,000	5,996	0	11,856	7,073	10,244	987	36,156	3.6%
2014	MH	1,054,700	5,031	908	1,663	3,283	2,409	797	14,090	1.3%
2015	MH	1,018,790	12,947	134	16,603	17,054	16,184	716	63,637	6.2%
<b>Total</b>		<b>22,484,574</b>	<b>523,212</b>	<b>44,147</b>	<b>266,493</b>	<b>239,389</b>	<b>909,665</b>	<b>34,118</b>	<b>2,017,024</b>	<b>8.4%</b>

continued...

**Table 9 - continued: MISCELLANEOUS RELEASES (MH=Macaulay, SH=Sheep Cr., AC=Auke Cr., TR=Taku River, PR=Pavlof River, MP=Mendenhall Ponds)**

Brood Year	Egg Source/ Hatchery/ Release Site	Number Released	Common Property Catch				Cost Recovery	Brood Stock	Total Return <sup>2</sup>	Marine Survival
			Troll	Seine	Gillnet	Sport				
1988	SH/MH/MP	100,763	1,596	210	867	2,412	0	0	5,085	5.0%
1992	TR/SH/TR	48,574	190	0	272	0	0	0	462	1.0%
1993	TR/SH/TR	126,245	522	0	468	5	0	0	995	0.8%
1993	PR/AC/SH	9,874							0	0.0%
1994	PR/SH/SH	7,229	3	0	1	0	0	0	4	0.1%
1997	(*)/SH/SH <sup>3</sup>	54,251	1,172	70	213	115		281	1,850	3.4%
Total		346,936	3,483	280	1,821	2,532	0	281	8,396	

1/ Although all broodstock return to Macaulay Hatchery, a portion is allocated to each release site in proportion to common property catches estimated from CWT recoveries.

2/ Returns do not include jacks.

3/ The release of BY97 coho from Sheep Creek Hatchery in 1999 was conducted under contract with the University of Alaska, Southeast for a genetics outbreeding depression experiment. Egg sources for this release include: Macaulay Hatchery, Hidden Falls Hatchery and Whitman Lake Hatchery.

Table 10. Sheep Creek/Thane Chinook salmon production summary, brood years 1984 - 2016.

Brood Year	Donor Source/Ancestral Stock	Rearing Location	Smolt Released	(Return Year) Age Class	Hatchery Rack Returns <sup>1</sup>	Estimated Commercial Harvest <sup>2</sup>	Estimated Sport Harvest <sup>2</sup>	Total	Marine Survival
1984	Snettisham & Crystal Lake/ (Andrew Cr.)	Snettisham Hatchery	30,280	(1988) age 4	2	49	42	93	
				(1989) age 5	37	151	87	275	
				(1990) age 6	35	45	10	90	
				(1991) age 7	1	2	0	3	
				<b>Total Return</b>	<b>75</b>	<b>247</b>	<b>139</b>	<b>461</b>	
1985	Snettisham & Crystal Lake/ (Andrew Cr.)	Snettisham Hatchery	31,112	(1987) minis	0	0	0	0	
				(1988) jacks	1	6	0	7	
				(1989) age 4	12	29	10	51	
				(1990) age 5	45	164	94	303	
				(1991) age 6	31	66	5	102	
				(1992) age 7	0	1	0	1	
<b>Total Return</b>	<b>89</b>	<b>266</b>	<b>109</b>	<b>464</b>	<b>1.49%</b>				
1986	Snettisham & Crystal Lake/ (Andrew Cr.)	Snettisham Hatchery	31,556	(1988) minis	0	0	0	0	
				(1989) jacks	22	12	2	36	
				(1990) age 4	22	104	1	127	
				(1991) age 5	82	93	77	252	
				(1992) age 6	2	84	36	122	
				(1993) age 7	2	0	0	2	
<b>Total Return</b>	<b>130</b>	<b>293</b>	<b>116</b>	<b>539</b>	<b>1.71%</b>				
1987	Snettisham & Crystal Lake/ (Andrew Cr.)	Snettisham Hatchery	120,000	(1989) minis	0	0	0	0	
				(1990) jacks	89	11	0	100	
				(1991) age 4	132	59	73	264	
				(1992) age 5	136	343	141	620	
				(1993) age 6	218	591	126	935	
				(1994) age 7	21	17	0	38	
<b>Total Return</b>	<b>596</b>	<b>1,021</b>	<b>340</b>	<b>1,957</b>	<b>1.63%</b>				
1988	Snettisham & Crystal Lake/ (Andrew Cr.)	Snettisham Hatchery	122,155	(1990) minis	0	0	0	0	
				(1991) jacks	0	6	0	6	
				(1992) age 4	1	50	0	51	
				(1993) age 5	176	429	278	883	
				(1994) age 6	241	367	174	782	
				(1995) age 7	27	51	0	78	
<b>Total Return</b>	<b>445</b>	<b>903</b>	<b>452</b>	<b>1,800</b>	<b>1.47%</b>				
1988	Snettisham & Crystal Lake/ (Andrew Cr.) (released @ age 2.0)	Snettisham Hatchery	100,543	(1991) minis	657	0	0	657	
				(1992) jacks	0	0	0	0	
				(1993) age 4	4	1	0	5	
				(1994) age 5	18	24	2	44	
				(1995) age 6	56	126	0	182	
				(1996) age 7	43	190	66	299	
<b>Total Return</b>	<b>778</b>	<b>341</b>	<b>68</b>	<b>1,187</b>	<b>1.18%</b>				
1993	L. Port Walter/ (King Salmon R.)	Macaulay Hatchery	28,458	(1995) minis	0	0	0	0	
				(1996) jacks	0	0	0	0	
				(1997) age 4	0	0	0	0	
				(1998) age 5	2	4	19	25	
				(1999) age 6	3	0	1	4	
				(2000) age 7	0	0	0	0	
<b>Total Return</b>	<b>5</b>	<b>4</b>	<b>20</b>	<b>29</b>	<b>0.10%</b>				
1994	L. Port Walter/ (King Salmon R.)	Macaulay Hatchery	35,423	(1996) minis	0	0	0	0	
				(1997) jacks	0	0	0	0	
				(1998) age 4	19	1	20	40	
				(1999) age 5	4	6	93	103	
				(2000) age 6	0	0	0	0	
				(2001) age 7	0	0	0	0	
<b>Total Return</b>	<b>23</b>	<b>7</b>	<b>113</b>	<b>143</b>	<b>0.40%</b>				
1996 - 2001		No Broodstock Collected		No Smolt Released					

continued.....

Table 10. continued.

Brood Year	Donor Source/Ancestral Stock	Rearing Location	Smolt Released	(Return Year) Age Class	Hatchery Rack Returns <sup>1</sup>	Estimated Commercial Harvest <sup>2</sup>	Estimated Sport Harvest <sup>2</sup>	Total	Marine Survival
1995	L. Port Walter/ (King Salmon R.)	Macauley Hatchery	44,664	(1997) minis (1998) jacks (1999) age 4 (2000) age 5 (2001) age 6 (2002) age 7 <b>Total Return</b>	0 0 30 0 0 0 <b>30</b>	0 0 35 0 0 0 <b>35</b>	0 0 20 0 14 0 <b>34</b>	0 0 85 0 14 0 <b>99</b>	<b>0.22%</b>
2002	Macauley/Andrew Cr.	Macauley Hatchery	70,525	(2004) minis (2005) jacks (2006) age 4 (2007) age 5 (2008) age 6 (2009) age 7 <b>Total Return</b>	0 0 24 0 58 0 <b>82</b>	0 12 45 11 0 0 <b>68</b>	0 0 9 0 0 0 <b>9</b>	0 12 78 11 58 0 <b>159</b>	<b>0.23%</b>
2003	Macauley/Andrew Cr.	Macauley Hatchery	101,968	(2005) minis (2006) jacks (2007) age 4 (2008) age 5 (2009) age 6 (2010) age 7 <b>Total Return</b>	0 0 0 0 159 0 <b>159</b>	0 0 0 0 109 0 <b>109</b>	0 0 0 3 93 0 <b>96</b>	0 0 0 3 361 0 <b>364</b>	<b>0.36%</b>
2004	Macauley/Andrew Cr.	Macauley Hatchery	104,812	(2006) minis (2007) jacks (2008) age 4 (2009) age 5 (2010) age 6 (2011) age 7 <b>Total Return</b>	0 0 0 624 73 75 <b>772</b>	0 0 0 85 51 49 <b>185</b>	0 0 0 189 54 45 <b>288</b>	0 0 0 898 178 169 <b>1,245</b>	<b>1.19%</b>
2005	Macauley/Andrew Cr.	Macauley Hatchery	101,093	(2007) minis (2008) jacks (2009) age 4 (2010) age 5 (2011) age 6 (2012) age 7 <b>Total Return</b>	0 0 64 265 68 0 <b>397</b>	0 0 21 315 49 0 <b>385</b>	0 0 95 197 45 0 <b>337</b>	0 0 180 777 162 0 <b>1,119</b>	<b>1.11%</b>
2006 - 2013		No Broodstock Collected			No Smolt Released				
2014	Macauley/Andrew Cr.	Macauley Hatchery	124,100	(2016) minis (2017) jacks (2018) age 4 (2019) age 5 (2020) age 6 (2021) age 7 <b>Total Return</b>	0 63 39 0 0 0 <b>102</b>	0 0 109 0 0 0 <b>109</b>	0 6 0 0 0 0 <b>7</b>	0 69 148 0 0 0 <b>217</b>	<b>0.18%</b>
2015	Macauley/Andrew Cr.	Macauley Hatchery	150,100	(2017) minis (2018) jacks (2019) age 4 (2020) age 5 (2021) age 6 (2022) age 7 <b>Total Return</b>	0 10 0 0 0 0 <b>10</b>	0 54 0 0 0 0 <b>54</b>	0 0 0 0 0 0 <b>0</b>	0 63 0 0 0 0 <b>63</b>	<b>0.04%</b>
2016	Macauley/Andrew Cr.	No Broodstock Collected			No Smolt Released				
'85-'05		Macauley Hatchery & Snettisham Hatchery	922,589	minis jacks age 4 age 5 age 6 age 7 <b>BY84-BY05 Total</b> <b>% of Total</b>	657 112 308 1,352 909 168 <b>3,506</b> <b>38.5%</b>	0 47 345 1,474 1,443 308 <b>3,617</b> <b>39.7%</b>	0 2 228 1,093 548 111 <b>1,982</b> <b>21.8%</b>	657 161 881 3,919 2,900 587 <b>9,105</b> <b>100.0%</b>	<b>0.99%</b>

1/ Except in 1988, all adults generally return to Macauley Salmon Hatchery from the Sheep Creek saltwater rearing site.

2/ Contributions based on tag recoveries.

Table 11: Macaulay Salmon Hatchery Chinook salmon production summary, brood years 1987 - 2016.

Brood Year	Donor Source/Ancestral Stock	Rearing Location	Smolt Released	(Return Year) Age Class	Hatchery Rack Returns	Estimated Commercial Harvest	Estimated Sport Harvest	Total	Marine Survival
1987	Snettisham + Crystal L/ Andrew Creek	Snettisham Hatchery	11,000	(1989) minis	0	0	5	5	<b>1.38%</b>
				(1990) jacks	5	0	0	5	
				(1991) age 4	5	5	5	15	
				(1992) age 5	20	15	15	50	
				(1993) age 6	38	17	8	63	
				(1994) age 7	0	2	12	14	
				<b>Total Return</b>	<b>68</b>	<b>39</b>	<b>45</b>	<b>152</b>	
1988	Snettisham + Crystal L/ Andrew Creek	Snettisham Hatchery	101,462	(1990) minis	6	0	0	6	<b>0.63%</b>
				(1991) jacks	0	7	0	7	
				(1992) age 4	10	8	0	18	
				(1993) age 5	57	57	67	181	
				(1994) age 6	314	14	68	396	
				(1995) age 7	21	6	0	27	
				<b>Total Return</b>	<b>408</b>	<b>92</b>	<b>135</b>	<b>635</b>	
1989	Macaulay + Snettisham/ Andrew Creek	Macaulay Hatchery	43,595	(1991) minis	91	0	0	91	<b>1.95%</b>
				(1992) jacks	13	0	0	13	
				(1993) age 4	106	99	0	205	
				(1994) age 5	295	22	119	436	
				(1995) age 6	79	18	10	107	
				(1996) age 7	0	0	0	0	
				<b>Total Return</b>	<b>584</b>	<b>139</b>	<b>129</b>	<b>852</b>	
1990	Macaulay + Crystal L/ Andrew Creek	Macaulay Hatchery	191,765	(1992) minis	6	0	0	6	<b>2.11%</b>
				(1993) jacks	153	105	0	258	
				(1994) age 4	487	455	109	1,051	
				(1995) age 5	1,437	462	453	2,352	
				(1996) age 6	250	59	53	362	
				(1997) age 7	0	0	1	1	
				(1998) age 8	13	0	0	13	
				<b>Total Return</b>	<b>2,346</b>	<b>1,081</b>	<b>616</b>	<b>4,043</b>	
1991	Macaulay + Crystal L/ Andrew Creek	Macaulay Hatchery	207,536	(1993) minis	0	0	0	0	<b>2.70%</b>
				(1994) jacks	402	160	0	562	
				(1995) age 4	610	307	189	1,106	
				(1996) age 5	617	1,086	867	2,570	
				(1997) age 6	687	230	418	1,335	
				(1998) age 7	14	9	0	23	
				<b>Total Return</b>	<b>2,330</b>	<b>1,792</b>	<b>1,474</b>	<b>5,596</b>	
1992	Macaulay + Crystal L/ Andrew Creek	Macaulay Hatchery	241,366	(1994) minis	12	0	0	12	<b>0.87%</b>
				(1995) jacks	69	56	54	179	
				(1996) age 4	69	45	29	143	
				(1997) age 5	467	238	231	936	
				(1998) age 6	208	69	549	826	
				(1999) age 7	0	0	0	0	
				<b>Total Return</b>	<b>825</b>	<b>408</b>	<b>863</b>	<b>2,096</b>	
1993	Little Port Walter/ King Salmon River	Macaulay Hatchery	158,681	(1995) minis	0	0	0	0	<b>0.18%</b>
				(1996) jacks	0	0	0	0	
				(1997) age 4	32	22	48	102	
				(1998) age 5	28	9	100	137	
				(1999) age 6	23	0	21	44	
				(2000) age 7	0	0	0	0	
				<b>Total Return</b>	<b>83</b>	<b>31</b>	<b>169</b>	<b>283</b>	
1994	Little Port Walter/ King Salmon River	Macaulay Hatchery	64,360	(1996) minis	0	0	0	0	<b>0.21%</b>
				(1997) jacks	18	0	0	18	
				(1998) age 4	9	6	35	50	
				(1999) age 5	20	2	47	69	
				(2000) age 6	0	0	0	0	
				(2001) age 7	0	0	0	0	
				<b>Total Return</b>	<b>47</b>	<b>8</b>	<b>82</b>	<b>137</b>	
1995	Little Port Walter/ King Salmon River	Macaulay Hatchery	171,908	(1997) minis	9	0	0	9	<b>0.17%</b>
				(1998) jacks	0	0	0	0	
				(1999) age 4	12	68	12	92	
				(2000) age 5	23	36	118	177	
				(2001) age 6	13	0	4	17	
				(2002) age 7	0	0	0	0	
<b>Total Return</b>	<b>57</b>	<b>104</b>	<b>134</b>	<b>295</b>					

continued.....

Table 11: continued.

Brood Year	Donor Source/Ancestral Stock	Rearing Location	Smolt Released	(Return Year) Age Class	Hatchery Rack Returns	Estimated Commercial Harvest	Estimated Sport Harvest	Total	Marine Survival
1996	Little Port Walter/ King Salmon River + AC <sup>1</sup>	Macaulay Hatchery	212,285	(1998) minis	0	0	0	0	
				(1999) jacks	8	0	76	84	
				(2000) age 4	53	36	133	222	
				(2001) age 5	170	81	222	473	
				(2002) age 6	45	33	12	90	
				(2003) age 7	0	0	0	0	
				<b>Total Return</b>	<b>276</b>	<b>150</b>	<b>443</b>	<b>869</b>	<b>0.41%</b>
1997	Macaulay/Andrew Cr.	Macaulay Hatchery	221,443	(1999) minis	164	0	0	164	
				(2000) jacks	47	147	0	194	
				(2001) age 4	306	75	127	508	
				(2002) age 5	2,618	220	1,152	3,990	
				(2003) age 6	514	92	649	1,255	
				(2004) age 7	23	7	10	40	
				<b>Total Return</b>	<b>3,672</b>	<b>541</b>	<b>1,938</b>	<b>6,151</b>	<b>2.78%</b>
1998	Macaulay/Andrew Cr.	Macaulay Hatchery	208,586	(2000) minis	93	0	0	93	
				(2001) jacks	42	120	13	175	
				(2002) age 4	299	162	105	566	
				(2003) age 5	647	128	1,088	1,863	
				(2004) age 6	467	201	204	872	
				(2005) age 7	0	0	0	0	
				<b>Total Return</b>	<b>1,548</b>	<b>611</b>	<b>1,410</b>	<b>3,569</b>	<b>1.71%</b>
1999	Macaulay/Andrew Cr.	Macaulay Hatchery	213,232	(2001) minis	367	0	0	367	
				(2002) jacks	183	0	51	234	
				(2003) age 4	492	310	806	1,608	
				(2004) age 5	1,768	482	1,635	3,885	
				(2005) age 6	461	396	543	1,400	
				(2006) age 7	24	0	9	33	
				<b>Total Return</b>	<b>3,295</b>	<b>1,188</b>	<b>3,044</b>	<b>7,527</b>	<b>3.53%</b>
2000	Macaulay/Andrew Cr.	Macaulay Hatchery	231,276	(2002) minis	0	0	0	0	
				(2003) jacks	17	0	19	36	
				(2004) age 4	611	315	352	1,278	
				(2005) age 5	679	608	461	1,748	
				(2006) age 6	213	146	163	522	
				(2007) age 7	0	11	0	11	
				<b>Total Return</b>	<b>1,520</b>	<b>1,080</b>	<b>995</b>	<b>3,595</b>	<b>1.55%</b>
2001	Macaulay/Andrew Cr.	Macaulay Hatchery	120,891	(2003) minis	12	0	0	12	
				(2004) jacks	14	0	6	20	
				(2005) age 4	129	88	95	312	
				(2006) age 5	236	267	157	660	
				(2007) age 6	0	17	0	17	
				(2008) age 7	0	7	0	7	
				<b>Total Return</b>	<b>391</b>	<b>379</b>	<b>258</b>	<b>1,028</b>	<b>0.85%</b>
2002	Macaulay/Andrew Cr.	Macaulay Hatchery	177,423	(2004) minis	172	0	0	172	
				(2005) jacks	0	0	0	0	
				(2006) age 4	0	28	107	135	
				(2007) age 5	424	13	340	777	
				(2008) age 6	163	106	87	356	
				(2009) age 7	0	0	0	0	
				<b>Total Return</b>	<b>759</b>	<b>147</b>	<b>534</b>	<b>1,440</b>	<b>0.81%</b>
2003	Macaulay/Andrew Cr.	Macaulay Hatchery	222,218	(2005) minis	0	0	0	0	
				(2006) jacks	0	0	0	0	
				(2007) age 4	0	267	78	345	
				(2008) age 5	725	805	776	2,306	
				(2009) age 6	301	164	0	465	
				(2010) age 7	0	0	0	0	
				<b>Total Return</b>	<b>1,026</b>	<b>1,236</b>	<b>854</b>	<b>3,116</b>	<b>1.40%</b>
2004	Macaulay/Andrew Cr.	Macaulay Hatchery	211,248	(2006) minis	0	0	0	0	
				(2007) jacks	0	0	0	0	
				(2008) age 4	112	99	38	249	
				(2009) age 5	310	165	191	666	
				(2010) age 6	203	30	224	457	
				(2011) age 7	0	0	0	0	
				<b>Total Return</b>	<b>625</b>	<b>294</b>	<b>453</b>	<b>1,372</b>	<b>0.65%</b>

continued.....

Table 11: continued.

Brood Year	Donor Source/Ancestral Stock	Rearing Location	Smolt Released	(Return Year) Age Class	Hatchery Rack Returns	Estimated Commercial Harvest	Estimated Sport Harvest	Total	Marine Survival
2005	Macaulay/Andrew Cr.	Macaulay Hatchery	147,723	(2007) minis	0	0	0	0	1.08%
				(2008) jacks	0	0	0	0	
				(2009) age 4	45	19	13	77	
				(2010) age 5	493	158	491	1,142	
				(2011) age 6	153	96	121	370	
				(2012) age 7	0	0	0	0	
				<b>Total Return</b>	<b>691</b>	<b>273</b>	<b>625</b>	<b>1,589</b>	
2006	Macaulay/Andrew Cr.	Macaulay Hatchery	147,062	(2008) minis	0	0	0	0	0.30%
				(2009) jacks	0	0	22	22	
				(2010) age 4	22	3	16	41	
				(2011) age 5	146	66	132	344	
				(2012) age 6	19	0	13	32	
				(2013) age 7	0	0	0	0	
				<b>Total Return</b>	<b>187</b>	<b>69</b>	<b>183</b>	<b>439</b>	
2007	Macaulay/Andrew Cr.	Macaulay Hatchery	216,639	(2009) minis	0	0	0	0	0.95%
				(2010) jacks	0	10	0	10	
				(2011) age 4	248	201	224	673	
				(2012) age 5	490	183	397	1,070	
				(2013) age 6	130	66	116	312	
				(2014) age 7	0	0	0	0	
				<b>Total Return</b>	<b>868</b>	<b>460</b>	<b>737</b>	<b>2,065</b>	
2008	Macaulay/Andrew Cr.	Macaulay Hatchery	223,000	(2010) minis	0	0	0	0	0.87%
				(2011) jacks	0	63	0	63	
				(2012) age 4	224	137	150	511	
				(2013) age 5	387	237	502	1,126	
				(2014) age 6	109	21	99	229	
				(2015) age 7	0	0	0	0	
				<b>Total Return</b>	<b>720</b>	<b>458</b>	<b>751</b>	<b>1,929</b>	
2009	Macaulay/Andrew Cr.	Macaulay Hatchery	193,931	(2011) minis	0	0	0	0	0.71%
				(2012) jacks	0	0	0	0	
				(2013) age 4	154	192	102	448	
				(2014) age 5	411	98	307	816	
				(2015) age 6	17	0	89	106	
				(2016) age 7	0	0	0	0	
				<b>Total Return</b>	<b>582</b>	<b>290</b>	<b>498</b>	<b>1,370</b>	
2010	Macaulay/Andrew Cr.	Macaulay Hatchery	213,229	(2012) minis	0	0	0	0	1.35%
				(2013) jacks	76	0	50	126	
				(2014) age 4	343	235	230	808	
				(2015) age 5	655	217	840	1,712	
				(2016) age 6	92	80	69	241	
				(2017) age 7	0	0	0	0	
				<b>Total Return</b>	<b>1,166</b>	<b>532</b>	<b>1,189</b>	<b>2,887</b>	
2011	Macaulay/Andrew Cr.	Macaulay Hatchery	206,400	(2013) minis	0	0	0	0	0.42%
				(2014) jacks	7	0	4	11	
				(2015) age 4	116	104	67	287	
				(2016) age 5	277	83	101	462	
				(2017) age 6	94	0	4	98	
				(2018) age 7	0	0	0	0	
				<b>Total Return</b>	<b>494</b>	<b>187</b>	<b>177</b>	<b>858</b>	
2012	Macaulay/Andrew Cr.	Macaulay Hatchery	257,300	(2014) minis	0	0	0	0	0.64%
				(2015) jacks	9	1	5	15	
				(2016) age 4	184	62	47	293	
				(2017) age 5	1,115	89	135	1,339	
				(2018) age 6	0	0	0	0	
				(2019) age 7	0	0	0	0	
				<b>Total Return</b>	<b>1,308</b>	<b>152</b>	<b>187</b>	<b>1,647</b>	
2013	Macaulay/Andrew Cr.	Macaulay Hatchery	218,900	(2015) minis	8	0	5	13	0.51%
				(2016) jacks	90	31	7	129	
				(2017) age 4	731	9	231	971	
				(2018) age 5	0	0	0	0	
				(2019) age 6	0	0	0	0	
				(2020) age 7	0	0	0	0	
				<b>Total Return</b>	<b>830</b>	<b>40</b>	<b>242</b>	<b>1,112</b>	

continued.....

Table 11: continued.

Brood Year	Donor Source/Ancestral Stock	Rearing Location	Smolt Released	(Return Year) Age Class	Hatchery Rack Returns	Estimated		Total	Marine Survival
						Commercial Harvest	Sport Harvest		
2014	Macaulay/Andrew Cr.	Macaulay Hatchery	220,500	(2016) minis	0	0	0	0	
				(2017) jacks	137	13	54	204	
				(2018) age 4	107	105	37	249	
				(2019) age 5				0	
				(2020) age 6				0	
				(2021) age 7				0	
				<b>Total Return</b>	<b>244</b>	<b>118</b>	<b>91</b>	<b>453</b>	<b>0.21%</b>
2015	Macaulay/Andrew Cr.	Macaulay Hatchery	219,500	(2017) minis	0	0	0	0	
				(2018) jacks	14	42	2	58	
				(2019) age 4				0	
				(2020) age 5				0	
				(2021) age 6				0	
				(2022) age 7				0	
				<b>Total Return</b>	<b>14</b>	<b>42</b>	<b>2</b>	<b>58</b>	<b>0.03%</b>
2016	Macaulay/Andrew Cr.	Macaulay Hatchery	249,400	(2018) minis	0	0	0	0	
				(2019) jacks				0	
				(2020) age 4				0	
				(2021) age 5				0	
				(2022) age 6				0	
				(2023) age 7				0	
				<b>Total Return</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.00%</b>
'89-'11	Macaulay/Andrew Cr.	Macaulay Hatchery	3,638,563	minis	917	0	0	917	0.03%
				jacks	1,023	661	219	1,903	0.05%
				age 4	4,373	3,141	2,837	10,351	0.28%
				age 5	13,082	5,538	10,240	28,861	0.79%
				age 6	4,160	1,791	3,411	9,361	0.26%
				age 7	61	34	20	115	0.00%
				<b>BY89-10 Total*</b>	<b>23,616</b>	<b>11,165</b>	<b>16,727</b>	<b>51,508</b>	<b>1.42%</b>
				<b>% of Total</b>	<b>45.8%</b>	<b>21.7%</b>	<b>32.5%</b>	<b>100.0%</b>	

\*Macaulay Hatchery - excludes BY93-96 KSR releases

<sup>1</sup>BY96 release was composed of 114,337 King Salmon River chinook smolts, of which 21,086 were marked with coded wire tags, and 97,948 Andrew Creek chinook, of which none were tagged.



Table 12: Fish Creek Chinook salmon production summary, brood years 1993 - 2016.

Brood Year	Donor Source/Ancestral Stock	Rearing Location	Smolt Released	(Return Year) Age Class	Hatchery Rack + Escapement Returns	Estimated Commercial Harvest	Estimated Sport Harvest	Total	Marine Survival	
1993	Snettisham + Crystal L/ Andrew Creek	Macaulay Hatchery	196,549	(1997) minis	0	0	0	0		
				(1996) jacks	0	0	0	0		
				(1997) age 4	15	0	0	15		
				(1998) age 5	31	111	340	482		
				(1999) age 6	0	82	248	330		
				(2000) age 7	0	0	0	0		
				<b>Total Return</b>	<b>46</b>	<b>193</b>	<b>588</b>	<b>827</b>		<b>0.42%</b>
1994	Little Port Walter/ King Salmon River	Macaulay Hatchery	109,274	(1996) minis	0	0	0	0		
				(1997) jacks	64	0	34	98		
				(1998) age 4	8	101	136	245		
				(1999) age 5	0	61	255	316		
				(2000) age 6	0	0	32	32		
				(2001) age 7	0	0	0	0		
				<b>Total Return</b>	<b>72</b>	<b>162</b>	<b>457</b>	<b>691</b>		<b>0.63%</b>
1995	Macaulay Hatchery/ Andrew Creek + KSR <sup>1</sup>	Macaulay Hatchery	179,164	(1997) minis	0	0	0	0		
				(1998) jacks	19	0	0	19		
				(1999) age 4	12	193	223	428		
				(2000) age 5	30	167	395	592		
				(2001) age 6	26	52	132	210		
				(2002) age 7	0	0	0	0		
				<b>Total Return</b>	<b>87</b>	<b>412</b>	<b>750</b>	<b>1,249</b>		<b>0.70%</b>
1996	Macaulay Hatchery/ Andrew Creek	Macaulay Hatchery	179,059	(1998) minis	0	0	0	0		
				(1999) jacks	8	0	55	63		
				(2000) age 4	70	207	606	883		
				(2001) age 5	255	476	880	1,611		
				(2002) age 6	0	72	525	597		
				(2003) age 7	0	0	0	0		
				<b>Total Return</b>	<b>333</b>	<b>755</b>	<b>2,066</b>	<b>3,154</b>		<b>1.76%</b>
1997	Macaulay Hatchery/ Andrew Creek	Macaulay Hatchery	183,701	(1999) minis	25	0	0	25		
				(2000) jacks	0	0	0	0		
				(2001) age 4	54	81	92	227		
				(2002) age 5	117	277	842	1,236		
				(2003) age 6	33	42	555	630		
				(2004) age 7	0	0	0	0		
				<b>Total Return</b>	<b>229</b>	<b>400</b>	<b>1,489</b>	<b>2,118</b>		<b>1.15%</b>
1998	Macaulay Hatchery/ Andrew Creek	Macaulay Hatchery	166,670	(2000) minis	0	0	0	0		
				(2001) jacks	0	0	0	0		
				(2002) age 4	0	34	0	34		
				(2003) age 5	10	159	533	702		
				(2004) age 6	26	42	373	441		
				(2005) age 7	0	0	48	48		
				<b>Total Return</b>	<b>36</b>	<b>235</b>	<b>954</b>	<b>1,225</b>		<b>0.73%</b>
1999	Macaulay Hatchery/ Andrew Creek	Macaulay Hatchery	183,252	(2001) minis	85	0	0	85		
				(2002) jacks	39	0	87	126		
				(2003) age 4	133	47	352	532		
				(2004) age 5	577	494	721	1,792		
				(2005) age 6	77	242	169	488		
				(2006) age 7	0	0	0	0		
				<b>Total Return</b>	<b>911</b>	<b>783</b>	<b>1,329</b>	<b>3,023</b>		<b>1.65%</b>
2000	Macaulay Hatchery/ Andrew Creek	Macaulay Hatchery	178,525	(2002) minis	0	0	0	0		
				(2003) jacks	0	0	0	0		
				(2004) age 4	0	53	198	251		
				(2005) age 5	27	114	305	446		
				(2006) age 6	62	61	77	200		
				(2007) age 7	0	0	0	0		
				<b>Total Return</b>	<b>89</b>	<b>228</b>	<b>580</b>	<b>897</b>		<b>0.50%</b>
2001	Macaulay/Andrew Cr.	Macaulay Hatchery	121,670	(2003) minis	4	0	0	4		
				(2004) jacks	7	0	3	10		
				(2005) age 4	0	64	125	189		
				(2006) age 5	264	208	334	806		
				(2007) age 6	0	18	52	70		
				(2008) age 7	0	0	0	0		
				<b>Total Return</b>	<b>275</b>	<b>290</b>	<b>514</b>	<b>1,079</b>		<b>0.89%</b>

continued.....

Table 12: continued.

Brood Year	Donor Source/Ancestral Stock	Rearing Location	Smolt Released	(Return Year) Age Class	Hatchery Rack + Escapement Returns	Estimated Commercial Harvest	Estimated Sport Harvest	Total	Marine Survival
2002	Macaulay/Andrew Cr.	Macaulay Hatchery	171,895	(2004) minis	7	0	3	10	0.77%
				(2005) jacks	0	0	0	0	
				(2006) age 4	102	61	166	329	
				(2007) age 5	0	106	589	695	
				(2008) age 6	0	37	252	289	
				(2009) age 7	0	0	0	0	
				<b>Total Return</b>	<b>109</b>	<b>204</b>	<b>1,010</b>	<b>1,323</b>	
2003	Macaulay/Andrew Cr.	Macaulay Hatchery	178,429	(2005) minis	0	0	0	0	0.50%
				(2006) jacks	0	0	0	0	
				(2007) age 4	0	76	99	175	
				(2008) age 5	0	226	328	554	
				(2009) age 6	0	40	118	158	
				(2010) age 7	0	0	0	0	
				<b>Total Return</b>	<b>0</b>	<b>342</b>	<b>545</b>	<b>887</b>	
2004	Macaulay/Andrew Cr.	Macaulay Hatchery	184,864	(2006) minis	0	0	0	0	0.71%
				(2007) jacks	0	0	0	0	
				(2008) age 4	0	34	0	34	
				(2009) age 5	41	437	694	1,172	
				(2010) age 6	0	32	77	109	
				(2011) age 7	0	0	0	0	
				<b>Total Return</b>	<b>41</b>	<b>503</b>	<b>771</b>	<b>1,315</b>	
2005	Macaulay/Andrew Cr.	Macaulay Hatchery	183,225	(2007) minis	0	0	0	0	0.34%
				(2008) jacks	0	0	0	0	
				(2009) age 4	0	19	42	61	
				(2010) age 5	13	61	433	507	
				(2011) age 6	8	42	5	55	
				(2012) age 7	0	0	0	0	
				<b>Total Return</b>	<b>21</b>	<b>122</b>	<b>480</b>	<b>623</b>	
2006	Macaulay/Andrew Cr.	Macaulay Hatchery	275,425	(2008) minis	0	0	0	0	0.14%
				(2009) jacks	0	0	0	0	
				(2010) age 4	0	4	24	28	
				(2011) age 5	8	73	113	194	
				(2012) age 6	0	86	70	156	
				(2013) age 7	0	0	0	0	
				<b>Total Return</b>	<b>8</b>	<b>163</b>	<b>207</b>	<b>378</b>	
2007	Macaulay/Andrew Cr.	Macaulay Hatchery	288,579	(2009) minis	0	0	0	0	0.34%
				(2010) jacks	0	0	0	0	
				(2011) age 4	9	226	28	263	
				(2012) age 5	0	356	226	582	
				(2013) age 6	0	31	109	140	
				(2014) age 7	0	0	0	0	
				<b>Total Return</b>	<b>9</b>	<b>613</b>	<b>363</b>	<b>985</b>	
2008	Macaulay/Andrew Cr.	Macaulay Hatchery	282,000	(2010) minis	0	0	0	0	0.78%
				(2011) jacks	9	43	43	95	
				(2012) age 4	0	345	136	481	
				(2013) age 5	9	630	652	1,291	
				(2014) age 6	25	18	298	341	
				(2015) age 7	0	0	0	0	
				<b>Total Return</b>	<b>43</b>	<b>1,036</b>	<b>1,129</b>	<b>2,208</b>	
2009	Macaulay/Andrew Cr.	Macaulay Hatchery	220,635	(2011) minis	0	0	0	0	0.46%
				(2012) jacks	0	0	52	52	
				(2013) age 4	0	178	0	178	
				(2014) age 5	92	213	337	642	
				(2015) age 6	0	32	119	151	
				(2016) age 7	0	0	0	0	
				<b>Total Return</b>	<b>92</b>	<b>423</b>	<b>508</b>	<b>1,023</b>	
2010	Macaulay/Andrew Cr.	Macaulay Hatchery	278,640	(2012) minis	0	0	0	0	0.67%
				(2013) jacks	20	0	95	115	
				(2014) age 4	56	221	288	565	
				(2015) age 5	12	319	845	1,176	
				(2016) age 6	0	0	0	0	
				(2017) age 7	0	0	0	0	
				<b>Total Return</b>	<b>88</b>	<b>540</b>	<b>1,228</b>	<b>1,856</b>	

continued.....

Table 12: continued.

Brood Year	Donor Source/Ancestral Stock	Rearing Location	Smolt Released	(Return Year) Age Class	Hatchery Rack + Escapement Returns	Estimated Commercial Harvest	Estimated Sport Harvest	Total	Marine Survival
2011	Macaulay/Andrew Cr.	Macaulay Hatchery	280,200	(2013) minis	0	0	0	0	0.17%
				(2014) jacks	0	0	0	0	
				(2015) age 4	0	93	116	209	
				(2016) age 5	17	34	1	52	
				(2017) age 6	0	46	167	213	
				(2018) age 7	0	0	0	0	
				<b>Total Return</b>	<b>17</b>	<b>174</b>	<b>284</b>	<b>474</b>	
2012	Macaulay/Andrew Cr.	Macaulay Hatchery	209,700	(2014) minis	0	0	0	0	0.26%
				(2015) jacks	0	0	0	0	
				(2016) age 4	28	0	61	89	
				(2017) age 5	13	99	289	401	
				(2018) age 6	0	49	0	49	
				(2019) age 7	0	0	0	0	
				<b>Total Return</b>	<b>40</b>	<b>148</b>	<b>350</b>	<b>538</b>	
2013	Macaulay/Andrew Cr.	Macaulay Hatchery	269,500	(2015) minis	0	0	0	0	1.08%
				(2016) jacks	13	14	50	77	
				(2017) age 4	48	78	321	447	
				(2018) age 5	32	44	2,319	2,394	
				(2019) age 6	0	0	0	0	
				(2020) age 7	0	0	0	0	
				<b>Total Return</b>	<b>92</b>	<b>135</b>	<b>2,690</b>	<b>2,917</b>	
2014	Macaulay/Andrew Cr.	Macaulay Hatchery	279,400	(2016) minis	0	0	0	0	0.11%
				(2017) jacks	12	22	1	35	
				(2018) age 4	3	143	119	266	
				(2019) age 5	0	0	0	0	
				(2020) age 6	0	0	0	0	
				(2021) age 7	0	0	0	0	
				<b>Total Return</b>	<b>15</b>	<b>166</b>	<b>120</b>	<b>301</b>	
2015	Macaulay/Andrew Cr.	Macaulay Hatchery	279,300	(2017) minis	0	0	0	0	0.00%
				(2018) jacks	0	5	0	5	
				(2019) age 4	0	0	0	0	
				(2020) age 5	0	0	0	0	
				(2021) age 6	0	0	0	0	
				(2022) age 7	0	0	0	0	
				<b>Total Return</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>5</b>	
2016	Macaulay/Andrew Cr.	Macaulay Hatchery	233,900	(2018) minis	0	0	0	0	0.00%
				(2019) jacks	0	0	0	0	
				(2020) age 4	0	0	0	0	
				(2021) age 5	0	0	0	0	
				(2022) age 6	0	0	0	0	
				(2023) age 7	0	0	0	0	
				<b>Total Return</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	
'93-'11	Macaulay/Andrew Cr.	Macaulay Hatchery	3,732,482	minis	121	0	3	124	0.00%
				jacks	102	43	335	480	0.01%
				age 4	451	1,936	2,495	4,882	0.13%
				age 5	1,503	4,462	8,568	14,532	0.39%
				age 6	257	975	3,346	4,579	0.12%
				age 7	0	0	48	48	0.00%
				<b>BY93-10 Total*</b>	<b>2,434</b>	<b>7,416</b>	<b>14,795</b>	<b>24,645</b>	<b>0.66%</b>
<b>% of Total</b>	<b>9.9%</b>	<b>30.1%</b>	<b>60.0%</b>	<b>100.0%</b>					

\*excludes BY94 KSR releases

<sup>1</sup>Includes 4,000 King Salmon River smolts.

Table 13: Auke Bay Chinook salmon production summary, brood years 1993 - 2016.

Brood Year	Donor Source/Ancestral Stock	Rearing Location	Smolt Released	(Return Year) Age Class	Hatchery Rack +	Estimated	Estimated Sport	Total	Marine Survival
					Escapement Returns	Commercial Harvest	Harvest		
1993	Snettisham + Crystal L/ Andrew Creek	Macaulay Hatchery	193,464	(1995) minis	0	0	0	0	0.41%
				(1996) jacks	5	0	0	5	
				(1997) age 4	44	17	0	61	
				(1998) age 5	71	89	152	312	
				(1999) age 6	104	111	186	401	
				(2000) age 7	8	0	2	10	
				<b>Total Return</b>	<b>232</b>	<b>217</b>	<b>340</b>	<b>789</b>	
1994	Little Port Walter/ King Salmon River	Macaulay Hatchery	106,255	(1996) minis	0	0	0	0	0.71%
				(1997) jacks	256	10	17	283	
				(1998) age 4	39	43	108	190	
				(1999) age 5	25	35	160	220	
				(2000) age 6	0	45	18	63	
				(2001) age 7	0	0	0	0	
				<b>Total Return</b>	<b>320</b>	<b>133</b>	<b>303</b>	<b>756</b>	
1995	Macaulay Hatchery/ Andrew Creek + KSR <sup>1</sup>	Macaulay Hatchery	176,193	(1997) minis	0	0	0	0	1.23%
				(1998) jacks	161	21	0	182	
				(1999) age 4	332	306	264	902	
				(2000) age 5	197	161	433	791	
				(2001) age 6	100	102	87	289	
				(2002) age 7	0	0	0	0	
				<b>Total Return</b>	<b>790</b>	<b>590</b>	<b>784</b>	<b>2,164</b>	
1996	Macaulay Hatchery/ Andrew Creek	Macaulay Hatchery	174,230	(1998) minis	0	0	0	0	3.20%
				(1999) jacks	71	0	110	181	
				(2000) age 4	380	466	629	1,475	
				(2001) age 5	858	1,193	944	2,995	
				(2002) age 6	192	241	486	919	
				(2003) age 7	0	0	0	0	
				<b>Total Return</b>	<b>1,501</b>	<b>1,900</b>	<b>2,169</b>	<b>5,570</b>	
1997	Macaulay Hatchery/ Andrew Creek	Macaulay Hatchery	173,207	(1999) minis	50	0	0	50	2.39%
				(2000) jacks	0	3	37	40	
				(2001) age 4	302	192	257	751	
				(2002) age 5	880	312	1,328	2,520	
				(2003) age 6	237	20	524	781	
				(2004) age 7	0	0	0	0	
				<b>Total Return</b>	<b>1,469</b>	<b>527</b>	<b>2,146</b>	<b>4,142</b>	
1998	Macaulay Hatchery/ Andrew Creek	Macaulay Hatchery	56,929	(2000) minis	0	0	0	0	0.45%
				(2001) jacks	16	0	0	16	
				(2002) age 4	0	0	0	0	
				(2003) age 5	0	55	183	238	
				(2004) age 6	0	0	0	0	
				(2005) age 7	0	0	0	0	
				<b>Total Return</b>	<b>16</b>	<b>55</b>	<b>183</b>	<b>254</b>	
1999	Macaulay Hatchery/ Andrew Creek	Macaulay Hatchery	157,393	(2001) minis	16	0	0	16	1.64%
				(2002) jacks	0	0	0	0	
				(2003) age 4	79	100	211	390	
				(2004) age 5	46	388	1,181	1,615	
				(2005) age 6	0	273	283	556	
				(2006) age 7	0	0	0	0	
				<b>Total Return</b>	<b>141</b>	<b>761</b>	<b>1,675</b>	<b>2,577</b>	
2000	Macaulay Hatchery/ Andrew Creek	Macaulay Hatchery	85,040	(2002) minis	0	0	0	0	1.37%
				(2003) jacks	47	0	52	99	
				(2004) age 4	125	0	109	234	
				(2005) age 5	135	427	90	652	
				(2006) age 6	57	57	0	114	
				(2007) age 7	0	0	67	67	
				<b>Total Return</b>	<b>364</b>	<b>484</b>	<b>318</b>	<b>1,166</b>	
2001	No Broodstock Collected			No Smolt Released					
2002	Macaulay/Andrew Cr.	Macaulay Hatchery	104,949	(2004) minis	0	0	0	0	1.57%
				(2005) jacks	0	0	0	0	
				(2006) age 4	95	58	39	192	
				(2007) age 5	663	47	524	1,234	
				(2008) age 6	75	79	67	221	
				(2009) age 7	0	0	0	0	
				<b>Total Return</b>	<b>833</b>	<b>184</b>	<b>630</b>	<b>1,647</b>	

continued.....

Table 13: continued.

Brood Year	Donor Source/Ancestral Stock	Rearing Location	Smolt Released	(Return Year) Age Class	Hatchery Rack + Escapement Returns	Estimated Commercial Harvest	Estimated Sport Harvest	Total	Marine Survival
2003	Macaulay/Andrew Cr.	Macaulay Hatchery	86,065	(2005) minis	0	0	0	0	
				(2006) jacks	0	0	0	0	
				(2007) age 4	0	132	0	132	
				(2008) age 5	562	222	445	1,229	
				(2009) age 6	128	63	71	262	
				(2010) age 7	0	0	0	0	
				<b>Total Return</b>	<b>690</b>	<b>417</b>	<b>516</b>	<b>1,623</b>	
2004	Macaulay/Andrew Cr.	Macaulay Hatchery	95,184	(2006) minis	166	0	0	166	
				(2007) jacks	0	0	0	0	
				(2008) age 4	139	98	99	336	
				(2009) age 5	775	411	752	1,938	
				(2010) age 6	89	13	136	238	
				(2011) age 7	0	0	0	0	
				<b>Total Return</b>	<b>1,169</b>	<b>522</b>	<b>987</b>	<b>2,678</b>	
2005	Macaulay/Andrew Cr.	Macaulay Hatchery	90,767	(2007) minis	0	0	0	0	
				(2008) jacks	19	0	0	19	
				(2009) age 4	63	37	39	139	
				(2010) age 5	196	208	178	582	
				(2011) age 6	78	57	86	221	
				(2012) age 7	0	0	0	0	
				<b>Total Return</b>	<b>356</b>	<b>302</b>	<b>303</b>	<b>961</b>	
2006	Macaulay/Andrew Cr.	Macaulay Hatchery	84,447	(2008) minis	8	0	0	8	
				(2009) jacks	0	0	0	0	
				(2010) age 4	15	45	10	70	
				(2011) age 5	26	57	84	167	
				(2012) age 6	22	10	15	47	
				(2013) age 7	0	0	0	0	
				<b>Total Return</b>	<b>71</b>	<b>112</b>	<b>109</b>	<b>292</b>	
2007	Macaulay/Andrew Cr.	Macaulay Hatchery	87,190	(2009) minis	2	0	0	2	
				(2010) jacks	0	0	0	0	
				(2011) age 4	47	69	87	203	
				(2012) age 5	74	317	102	493	
				(2013) age 6	0	0	47	47	
				(2014) age 7	0	0	0	0	
				<b>Total Return</b>	<b>123</b>	<b>386</b>	<b>236</b>	<b>745</b>	
2008	Macaulay/Andrew Cr.	Macaulay Hatchery	89,000	(2010) minis	32	0	0	32	
				(2011) jacks	19	7	11	37	
				(2012) age 4	25	75	16	116	
				(2013) age 5	53	241	307	601	
				(2014) age 6	50	0	146	196	
				(2015) age 7	0	0	0	0	
				<b>Total Return</b>	<b>179</b>	<b>323</b>	<b>480</b>	<b>982</b>	
2009	Macaulay/Andrew Cr.	Macaulay Hatchery	90,388	(2011) minis	0	0	0	0	
				(2012) jacks	0	10	0	10	
				(2013) age 4	49	18	78	145	
				(2014) age 5	205	99	52	356	
				(2015) age 6	0	0	0	0	
				(2016) age 7	0	0	0	0	
				<b>Total Return</b>	<b>254</b>	<b>127</b>	<b>130</b>	<b>511</b>	
2010	Macaulay/Andrew Cr.	Macaulay Hatchery	89,932	(2012) minis	0	0	0	0	
				(2013) jacks	0	0	74	74	
				(2014) age 4	54	163	30	247	
				(2015) age 5	80	58	245	383	
				(2016) age 6	26	0	1	27	
				(2017) age 7	0	0	0	0	
				<b>Total Return</b>	<b>160</b>	<b>221</b>	<b>350</b>	<b>731</b>	
2011	Macaulay/Andrew Cr.	Macaulay Hatchery	87,800	(2013) minis	0	0	0	0	
				(2014) jacks	10	0	0	10	
				(2015) age 4	57	0	131	189	
				(2016) age 5	185	36	210	432	
				(2017) age 6	0	21	117	137	
				(2018) age 7	0	0	0	0	
				<b>Total Return</b>	<b>252</b>	<b>57</b>	<b>458</b>	<b>767</b>	

continued.....

Table 13: continued.

Brood Year	Donor Source/Ancestral Stock	Rearing Location	Smolt Released	(Return Year) Age Class	Hatchery Rack +	Estimated	Estimated Sport	Total	Marine Survival
					Escapement Returns	Commercial Harvest	Harvest		
2012	Macaulay/Andrew Cr.	Macaulay Hatchery	70,000	(2014) minis	0	0	0	0	0.52%
				(2015) jacks	28	0	34	62	
				(2016) age 4	17	24	1	42	
				(2017) age 5	159	71	6	235	
				(2018) age 6	14	0	13	27	
				(2019) age 7				0	
				<b>Total Return</b>	<b>219</b>	<b>94</b>	<b>53</b>	<b>366</b>	
2013	Macaulay/Andrew Cr.	Macaulay Hatchery	88,800	(2015) minis	53	0	6	58	0.64%
				(2016) jacks	0	0	0	0	
				(2017) age 4	80	22	107	208	
				(2018) age 5	97	71	130	298	
				(2019) age 6				0	
				(2020) age 7				0	
				<b>Total Return</b>	<b>229</b>	<b>92</b>	<b>243</b>	<b>564</b>	
2014	Macaulay/Andrew Cr.	Macaulay Hatchery	88,400	(2016) minis	0	0	0	0	0.22%
				(2017) jacks	62	53	6	122	
				(2018) age 4	14	38	22	74	
				(2019) age 5				0	
				(2020) age 6				0	
				(2021) age 7				0	
				<b>Total Return</b>	<b>76</b>	<b>91</b>	<b>28</b>	<b>195</b>	
2015	Macaulay/Andrew Cr.	Macaulay Hatchery	87,000	(2017) minis	0	0	0	0	0.03%
				(2018) jacks	29	0	1	30	
				(2019) age 4				0	
				(2020) age 5				0	
				(2021) age 6				0	
				(2022) age 7				0	
				<b>Total Return</b>	<b>29</b>	<b>0</b>	<b>1</b>	<b>30</b>	
2016	Macaulay/Andrew Cr.	Macaulay Hatchery	89,300	(2018) minis	0	0	0	0	0.00%
				(2019) jacks				0	
				(2020) age 4				0	
				(2021) age 5				0	
				(2022) age 6				0	
				(2023) age 7				0	
				<b>Total Return</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	
'93-'11	Macaulay/Andrew Cr.	Macaulay Hatchery	1,922,178	minis	274	0	0	274	1.44%
				jacks	348	41	284	673	
				age 4	1,806	1,776	1,999	5,582	
				age 5	5,006	4,321	7,210	16,538	
				age 6	1,158	1,047	2,252	4,456	
				age 7	8	0	69	77	
				<b>BY93-10 Total*</b>	<b>8,600</b>	<b>7,185</b>	<b>11,814</b>	<b>27,600</b>	
<b>% of Total</b>	<b>31.2%</b>	<b>26.0%</b>	<b>42.8%</b>	<b>100.0%</b>					

\*excludes BY94 KSR releases

<sup>1</sup>Includes 4,009 King Salmon River smolts.

Table 14: Lena Cove Chinook salmon production summary, brood years 2012 - 2016.

Brood Year	Donor Source/Ancestral Stock	Rearing Location	Smolt Released	(Return Year) Age Class	Hatchery Rack + Escapement Returns	Estimated Commercial Harvest	Estimated Sport Harvest	Total	Marine Survival
2012	Macaulay/Andrew Cr.	Macaulay Hatchery	90,000	(2014) minis	0	0	0	0	0.00%
				(2015) jacks	45	0	54	99	0.11%
				(2016) age 4	68	60	5	133	0.15%
				(2017) age 5	184	190	46	419	0.47%
				(2018) age 6	18	43	22	83	0.09%
				(2019) age 7			0	0	0.00%
				<b>Total Return</b>	<b>314</b>	<b>293</b>	<b>127</b>	<b>734</b>	<b>0.82%</b>
2013	Macaulay/Andrew Cr.	Macaulay Hatchery	179,900	(2015) minis	109	0	0	109	0.06%
				(2016) jacks	57	128	4	189	0.11%
				(2017) age 4	253	479	6	738	0.41%
				(2018) age 5	391	550	523	1,463	0.81%
				(2019) age 6					
				(2020) age 7					
				<b>Total Return</b>	<b>810</b>	<b>1,158</b>	<b>532</b>	<b>2,500</b>	<b>1.39%</b>
2014	Macaulay/Andrew Cr.	Macaulay Hatchery	179,100	(2016) minis	104	0	2	106	0.00%
				(2017) jacks	62	30	6	98	0.00%
				(2018) age 4	19	265	73	357	0.04%
				(2019) age 5				0	0.00%
				(2020) age 6				0	0.00%
				(2021) age 7				0	0.00%
				<b>Total Return</b>	<b>185</b>	<b>295</b>	<b>82</b>	<b>561</b>	<b>0.31%</b>
2015	Macaulay/Andrew Cr.	Macaulay Hatchery	148,900	(2017) minis	0	0	0	0	
				(2018) jacks	14	25	26	65	0.01%
				(2019) age 4				0	0.00%
				(2020) age 5				0	0.00%
				(2021) age 6				0	0.00%
				(2022) age 7				0	0.00%
				<b>Total Return</b>	<b>14</b>	<b>25</b>	<b>26</b>	<b>65</b>	<b>0.04%</b>
2016	Macaulay/Andrew Cr.	No Broodstock Collected							
						No Smolt Released			

Table 15: Pullen Creek Chinook salmon production summary, brood years 1998-2013.

Brood Year	Donor Source/Ancestral Stock	Rearing Location	Smolt Released	(Return Year) Age Class	Hatchery Rack +	Estimated	Estimated Sport	Total	Marine Survival
					Escapement Returns	Commercial Harvest	Harvest		
1998	Burro Cr./Tahini River	Macaulay Hatchery	91,618	(2001) jacks	0	71	20	91	0.58%
				(2002) age 4	20	27	56	103	
				(2003) age 5	221	10	48	279	
				(2004) age 6	13	19	29	61	
				(2005) age 7	0	0	0	0	
				<b>Total Return</b>	<b>254</b>	<b>127</b>	<b>153</b>	<b>534</b>	
1999	Burro Cr./Tahini River	Macaulay Hatchery	32,123	(2002) jacks	2	0	7	9	1.11%
				(2003) age 4	86	21	76	183	
				(2004) age 5	25	15	84	124	
				(2005) age 6	31	4	6	41	
				(2006) age 7	0	0	0	0	
				<b>Total Return</b>	<b>144</b>	<b>40</b>	<b>173</b>	<b>357</b>	
2000	Burro Cr./Tahini River	Macaulay Hatchery	95,386	(2003) jacks	4	0	3	7	0.70%
				(2004) age 4	20	24	208	252	
				(2005) age 5	151	76	164	391	
				(2006) age 6	0	0	0	0	
				(2007) age 7	18	0	0	18	
				<b>Total Return</b>	<b>193</b>	<b>100</b>	<b>375</b>	<b>668</b>	
2001	Burro Cr./Tahini River	Macaulay Hatchery	58,793	(2004) jacks	0	8	8	16	1.43%
				(2005) age 4	74	76	308	458	
				(2006) age 5	19	213	82	314	
				(2007) age 6	30	6	18	54	
				(2008) age 7	0	0	0	0	
				<b>Total Return</b>	<b>123</b>	<b>303</b>	<b>416</b>	<b>842</b>	
2002	Burro Cr./Tahini River	Macaulay Hatchery	128,688	(2005) jacks	0	29	172	201	0.87%
				(2006) age 4	26	36	89	151	
				(2007) age 5	545	28	154	727	
				(2008) age 6	38	0	0	38	
				(2009) age 7	0	0	0	0	
				<b>Total Return</b>	<b>609</b>	<b>93</b>	<b>415</b>	<b>1,117</b>	
2003	Pullen Cr./Tahini River	Macaulay Hatchery	219,260	(2006) jacks	0	8	112	120	0.86%
				(2007) age 4	83	210	582	875	
				(2008) age 5	729	84	34	847	
				(2009) age 6	40	0	0	40	
				(2010) age 7	0	0	0	0	
				<b>Total Return</b>	<b>852</b>	<b>302</b>	<b>728</b>	<b>1,882</b>	
2004	Pullen Cr./Tahini River	Macaulay Hatchery	68,002	(2007) jacks	0	2	22	24	0.79%
				(2008) age 4	112	58	0	170	
				(2009) age 5	243	42	37	322	
				(2010) age 6	6	0	12	18	
				(2011) age 7	0	0	0	0	
				<b>Total Return</b>	<b>361</b>	<b>102</b>	<b>71</b>	<b>534</b>	
2005	Pullen Cr./Tahini River	Macaulay Hatchery	168,135	(2008) jacks	46	0	0	46	0.27%
				(2009) age 4	40	10	164	214	
				(2010) age 5	83	54	30	167	
				(2011) age 6	30	0	0	30	
				(2012) age 7	0	0	0	0	
				<b>Total Return</b>	<b>199</b>	<b>64</b>	<b>194</b>	<b>457</b>	
2006	Pullen Cr./Tahini River	Macaulay Hatchery	51,495	(2009) jacks	0	0	0	0	0.03%
				(2010) age 4	0	1	0	1	
				(2011) age 5	10	5	0	15	
				(2012) age 6	1	0	0	1	
				(2013) age 7	0	0	0	0	
				<b>Total Return</b>	<b>11</b>	<b>6</b>	<b>0</b>	<b>17</b>	

continued.....



Table 15 continued.

Brood Year	Donor Source/Ancestral Stock	Rearing Location	Smolt Released	(Return Year) Age Class	Hatchery Rack +	Estimated	Estimated Sport	Total	Marine Survival
					Escapement Returns	Commercial Harvest	Harvest		
2007	Pullen Cr./Tahini River	Macaulay Hatchery	276,262	(2010) jacks	0	0	0	0	0.17%
				(2011) age 4	315	0	0	315	
				(2012) age 5	26	106	10	142	
				(2013) age 6	0	0	0	0	
				(2014) age 7	0	0	0	0	
				<b>Total Return</b>	<b>341</b>	<b>106</b>	<b>10</b>	<b>457</b>	
2008	Pullen Cr./Tahini River	Macaulay Hatchery	258,000	(2011) jacks	0	38	0	38	0.38%
				(2012) age 4	35	221	0	256	
				(2013) age 5	441	43	159	643	
				(2014) age 6	2	0	53	55	
				(2015) age 7	0	0	0	0	
				<b>Total Return</b>	<b>478</b>	<b>302</b>	<b>212</b>	<b>992</b>	
2009	Pullen Cr./Tahini River	Macaulay Hatchery	128,619	(2012) jacks	0	0	0	0	0.48%
				(2013) age 4	37	304	168	509	
				(2014) age 5	9	91	9	109	
				(2015) age 6	0	0	0	0	
				(2016) age 7	0	0	0	0	
				<b>Total Return</b>	<b>46</b>	<b>395</b>	<b>177</b>	<b>618</b>	
2010	Pullen Cr./Tahini River	Macaulay Hatchery	194,603	(2013) jacks	0	0	0	0	0.11%
				(2014) age 4	17	59	39	115	
				(2015) age 5	0	10	87	97	
				(2016) age 6	0	0	0	0	
				(2017) age 7	0	0	0	0	
				<b>Total Return</b>	<b>17</b>	<b>69</b>	<b>126</b>	<b>212</b>	
2011	Pullen Cr./Tahini River	Macaulay Hatchery	50,100	(2014) jacks	0	0	0	0	0.13%
				(2015) age 4	0	0	64	64	
				(2016) age 5	0	0	0	0	
				(2017) age 6	0	0	0	0	
				(2018) age 7	0	0	0	0	
				<b>Total Return</b>	<b>0</b>	<b>0</b>	<b>64</b>	<b>64</b>	
2012		No Broodstock Collected				No Smolt Released			
2013	Pullen Cr./Tahini River	Macaulay Hatchery	228,700	(2016) Jacks	0	17	0	17	0.03%
				(2017) age 4	0	50	1	51	
				(2018) age 5	0	6	0	6	
				(2019) age 6	0	0	0	0	
				(2020) age 7	0	0	0	0	
				<b>Total Return</b>	<b>0</b>	<b>73</b>	<b>1</b>	<b>74</b>	
2014		No Broodstock Collected				No Smolt Released			
'98-'11	Pullen Cr./Tahini River	Macaulay Hatchery	1,821,084	jacks	52	156	344	552	6.31%
				age 4	865	1,046	1,754	3,665	41.88%
				age 5	2,502	778	898	4,178	47.74%
				age 6	191	29	118	338	3.86%
				age 7	18	0	0	18	0.21%
				<b>BY98-10 Total</b>	<b>3,628</b>	<b>2,009</b>	<b>3,114</b>	<b>8,751</b>	<b>0.48%</b>
				<b>% of Total</b>	<b>41.5%</b>	<b>23.0%</b>	<b>35.6%</b>		

Table 16.–Macaulay Salmon Hatchery fish transport permits.

<b>Species/Stock</b>	<b>Location</b>	<b>ET, transport, release?</b>	<b>FTP #</b>	<b>Maximal #, Life Stage</b>	<b>Expires</b>
Chum	MSH	ET, Release	99J-1002	135 million eggs/36 million fry	6/30/27
Chum	Amalga Harbor	Transfer, Release	99J-1001	54 million fry	12/31/23
Chum	Boat Harbor	Transfer, Release	00J-1011	24 million fry	6/30/19
Chum	Limestone Inlet	Transfer, Release	00J-1003	15 million fry	6/30/19
Chum	Thane	Transfer, Release	02J-1001	24 million fry	6/30/27
Chum	HFH to MSH	Transport	02J-1015	32 million eggs	6/30/27
Chinook/Andrew Creek	MSH	ET, Release	10J-1006	1,250,000 eggs/ 650,000 smolt	7/24/20
Chinook/Andrew Creek	Fish Creek	Transfer, Release	97J-1002	300,000 smolt	12/31/19
Chinook/Andrew Creek	Auke Bay	Transfer, Release	97J-1001	200,000 smolt	6/30/19
Chinook/Andrew Creek	Twin Lakes	Transfer, Release	98J-1031	15,000 subcatchables/ catchables	12/21/21
Chinook/Andrew Creek	Mendenhall Ponds	Transfer, Release	10J-1027	4,000 subcatchables/ catchables	9/30/20
Chinook/Andrew Creek	Thane	Transfer, Release	04J-1003	200,000 smolt	12/31/23
Chinook/Andrew Creek	Lena Cove	Transfer, Release	14J-1010	320,000 smolt	4/30/24
Chinook/Andrew Creek	CLH to MSH	ET, Transfer, Release	06J-1035	650,000 eggs	8/31/21

continued...

Table 16 continued.

<b>Species/Stock</b>	<b>Location</b>	<b>ET, transport, release?</b>	<b>FTP #</b>	<b>Maximal #, Life Stage</b>	<b>Expires</b>
Chinook/Andrew Creek	MCH to MSH	ET, Transfer	08J-1002	650,000 eggs	7/31/28
Chinook/Andrew Creek	HFH to MSH	ET, Transfer	09J-1017	650,000 eggs	7/31/19
Chinook/Andrew Creek	Fish Creek	Transfer	17J-1008	400 adults	6/30/27
Chinook/Andrew Creek	Fish Creek	ET, Transfer	17J-1009	1 million eggs	6/30/27
Chinook/Tahini River	Tahini River to MSH	ET, Transfer, Release	00J-1010	1.25 million eggs	7/31/20
Chinook/Tahini River	Pullen Creek	Transfer, Release	10J-1016	300,000 smolt	6/15/23
Chinook/Tahini River	Lutak Inlet	Transfer, Release	11J-1001	300,000 smolt	6/15/21
Chinook/Tahini River	MSH	ET, Release	10J-1007	1.25 million eggs	7/24/20
Coho	MSH	ET, Release	12J-1012	1.5 million eggs	6/30/21
Coho	Thane	Transfer, Release	13J-1015	1.2 million smolt	12/31/28
Rainbow Trout	WJHH to MSH to Twin Lakes	Transfer, Release	16J-1001	50,000 eggs/ 15,000 catchables	12/31/25
Rainbow Trout	WJHH to MSH to Mendenhall Ponds	Transfer, Release	16J-1002	50,000 eggs/ 4,000 catchables	12/31/25

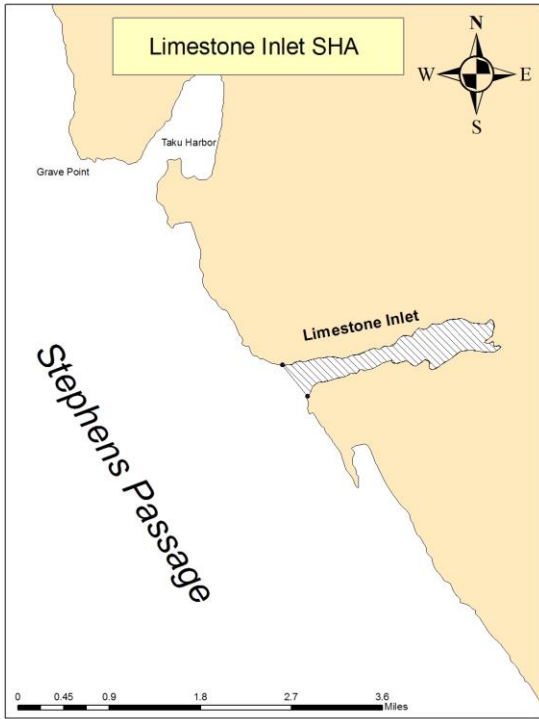


Figure 1. Limestone Inlet SHA.

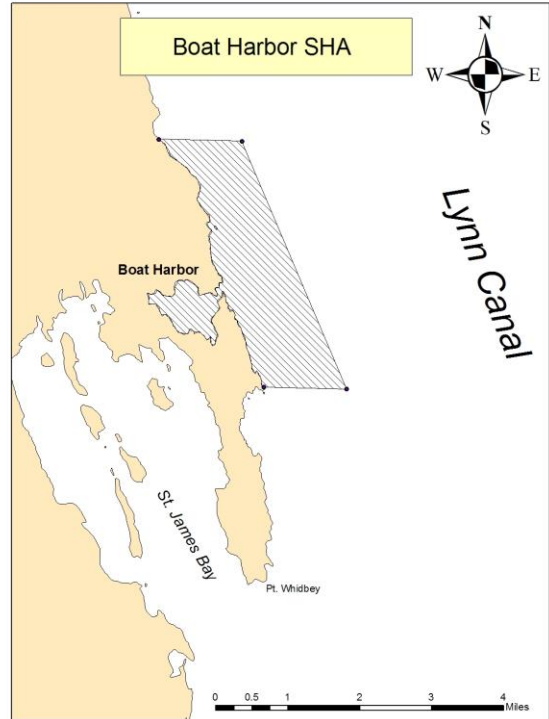


Figure 2. Boat Harbor SHA.

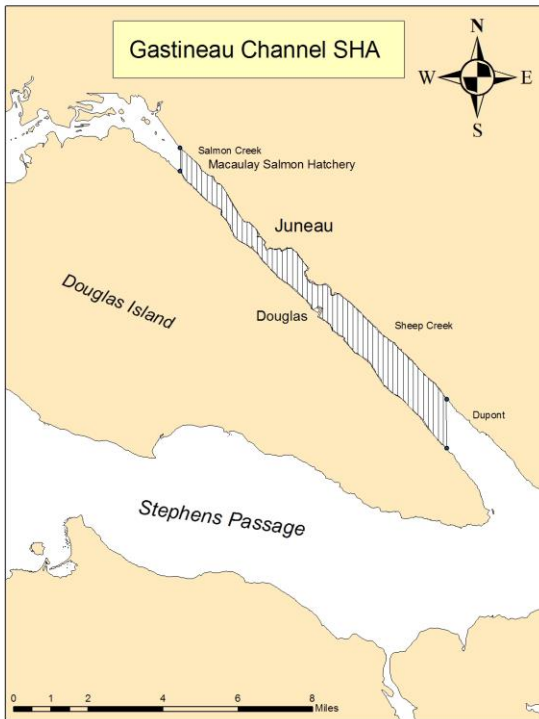


Figure 3. Gastineau Channel SHA.

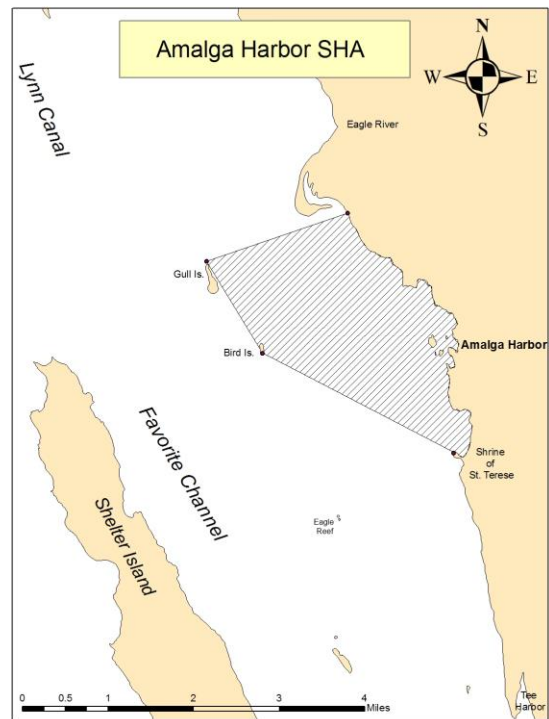


Figure 4. Amalga Harbor SHA.