

2018 Annual Management Plan
Hidden Falls Hatchery
Northern Southeast Regional Aquaculture Association

This plan remains in effect until superseded by the next year's annual management plan (AMP).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

1.0 SUMMARY

1.1 Introduction

In 1978, the State of Alaska constructed Hidden Falls Hatchery (HFH). In 1988, operation of HFH was contracted to Northern Southeast Aquaculture Association (NSRAA), and PNP Hatchery Permit #28 was issued. The hatchery is located in Kasnyku Bay on the eastern shore of Baranof Island.

Projected returns are shown in Table 1 at the end of this narrative. Historical release and survival data are presented in tables 2–5. Chum salmon broodstock requirements and egg-take goals are shown in Table 6. The HFH Terminal Harvest Area (THA) for chum and king salmon is shown in Figure 1, the HFH tax assessment area is shown in Figure 2, the HFH Special Harvest Area (SHA) for coho salmon is shown in Figure 3, and the modified HFH THA for coho salmon during summer troll fishery closure is shown in Figure 4. Figure 5 shows the Hidden Falls inner Kasnyku Bay closure line and Figure 6, the Mist Cove SHA.

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

In 2017, NSRAA acquired Gunnuk Creek Hatchery. Chum salmon operations at HFH may be affected to bring Gunnuk Creek Hatchery up to production levels more quickly. Additionally, in 2017, the Medvejie Creek Hatchery permit was amended to allow up to 20 million chum salmon eggs to be used for release at Bear Cove, as an alternative to releases at HFH.

1.3 New permits or permit amendments

In 2015, the HFH permit was amended to include Gunnuk Creek as a release location for up to 200,000 Andrew Creek stock Chinook salmon. Fish transport permit (FTP) 18J-1005 was issued to allow transport, net pen rearing and release of up to 200,000 smolt. In 2017, NSRAA acquired Gunnuk Creek Hatchery and is currently rearing chum salmon at this location. FTP 17J-1018 was issued to allow egg take of up to 65 million chum salmon eggs at Gunnuk Creek and transport to Hidden Falls Hatchery for incubation. FTP 17J-1019 allows transport, rearing and release of up to 20 million chum salmon fry from Hidden Falls Hatchery to Gunnuk Creek.

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FTP 17J-1020 was issued to allow egg take of up to 65 million chum salmon eggs at HFH for GCH projects. FTP 17J-1016 was issued to Medvejie Creek Hatchery to allow egg take of up to 20 million chum salmon eggs at HFH, transport to Medvejie Creek Hatchery and release at Bear Cove. Two FTPs, 18J-1001 and 18J-1002 were issued for HFH to use Port Armstrong Hatchery as a backup egg source. Two FTPs, 17J-1014 and 17J-1015 were issued to release HFH coho salmon at Blanchard Lake.

1.4 *Expected Returns*

Species	Return Site	Common Property Harvest	Cost Recovery	Broodstock	Total Return
Chum salmon	HFH	403,000	0	190,000	593,000
Chum salmon	SEC	21,000	122,000	0	143,000
Coho salmon	HFH	75,950	105,050	10,000	191,000
Coho salmon	Mist Cove	84,150	68,850	0	153,000
King salmon	HFH	1,000	0	1,000	2,000

1.5 *Production Summary*

Program Name	Brood Year	Planned Release Date	Release Goal	Life Stage	Type of Mark, % Marked
Kasnyku chum salmon	2017	May 2018	34,475,158	Fed fry	100% TM
Kasnyku 4.0 chum salmon	2017	May 2018	16,330,338	Fed fry	100% TM
Thomas Bay chum salmon	2017	May 2018	13,608,615	Fed fry	100% TM
Thomas Bay 4.0 chum salmon	2017	May 2018	9,072,410	Fed fry	100% TM
SE Cove 4.0 chum salmon	2017	May 2018	18,144,820	Fed fry	100% TM
SE Cove chum salmon	2017	May 2018	31,753,435	Fed fry	100% TM
Gunnuk Cr chum salmon	2017	May 2018	9,072,410	Fed fry	100% TM
Kasnyku king salmon	2016	May 2018	433,333	Smolt	65,000 CWT
Gunnuk Cr king salmon	2016	May 2018	200,000	Smolt	15,000 CWT
Deer Lake coho salmon	2016	May 2018	2,165,760	Smolt	60,000 CWT
Kasnyku middle saltwater entry coho salmon	2016	May 2018	811,440	Smolt	20,000 CWT
Kasnyku early saltwater entry coho salmon	2016	May 2018	811,440	Smolt	20,000 CWT
Kasnyku late saltwater entry coho salmon	2016	May 2018	811,440	Smolt	20,000 CWT
Kasnyku saltwater overwinter coho salmon	2016	May 2018	1,018,440	Smolt	20,000 CWT

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1.6 *Current Permitting*

HFH is permitted to take 101 million green chum salmon eggs for HFH programs; in addition, 24 million green chum salmon eggs may be taken for transport to Medvejie Creek Hatchery (MCH) and release at Deep Inlet. HFH is a backup chum salmon egg source for Port Armstrong Hatchery (PAH) and Macaulay Salmon Hatchery (MSH). HFH may take an additional 55 million green chum salmon eggs for release as fry at SE Cove, on behalf of GCH, and an additional 10 million green chum salmon eggs for PAH. HFH is permitted to take 3.8 million green king salmon eggs for HFH programs, which includes 300,000 eggs for the Haines king salmon project that is no longer active. HFH may collect an additional 5.2 million green king salmon eggs for transfer to MCH. In addition, HFH is a backup king salmon egg source for Crystal Lake Hatchery (CLH) and MSH. HFH is permitted for 7.7 million green coho salmon eggs. HFH is permitted to take an additional 1.0 million green coho salmon eggs as a backup egg source for other permitted facilities. The following table lists current permitted green egg capacity, by species, for HFH.

Species	Release Site	HFH acts as a Primary or Backup egg source	Permitted Number of Eggs
Chum salmon	Kasnyku/Takatz	Primary	101 million
	Deep Inlet	Primary	24 million
	GCH/SE Cove	Primary	55 million
	PAH	Backup	30 million
	MSH	Backup	32 million
Coho salmon	Kasnyku	Primary	4.5 million
	Lake Rearing	Primary	3.2 million
	PAH	Backup	1.0 million
King salmon	Kasnyku/GCH	Primary	3.5 million
	MCH	Primary	5.2 million
	MSH	Backup	650,000
	CLH	Backup	1.0 million

2.0 OPERATIONAL PLANS FOR 2018

2.1 *Egg-take Goals and Brood Sources*

Species	Donor Stock	Eggs (millions)	Females	Total Broodstock	Release Site
Chum salmon	Hidden Falls	56	38,000		Kasnyku Bay
	Hidden Falls	25	12,500		Thomas Bay
	Hidden Falls	44.0	12,000		Deep Inlet
	Hidden Falls	55.0	27,500		SE Cove ⁵
Total		180	90,000	190,000 ²	
King salmon	Hidden Falls ¹	.66	120		Kasnyku Bay
	Hidden Falls ¹	3.3	680		Bear Cove
	Hidden Falls ¹	.33	60		Gunnuk Creek
	Medvejie ¹	backup			Kasnyku Bay
	Crystal Lake ¹	backup			Kasnyku Bay
Total		3.5	860	2,000 ³	
Coho salmon	Hidden Falls	4.5	1,850		Kasnyku Bay
	Deer Lake	backup			Kasnyku Bay
	Hidden Falls	3.2	1,250		CLR
	Hidden Falls	backup			Port Armstrong
Total		7.7	3,100	6,200 ⁴	

¹ Andrew Creek stock.

² This level assumes 50% female ratio and an additional 10,000 for green/bad females. Additional brood may be needed to ensure egg-take goals are met, but that would not allow sufficient backup broodstock for any other project (GCH or PAH).

³ This includes excess brood. Cost-recovery harvest cannot catch all king salmon in excess of broodstock needs.

⁴ This requirement doesn't include all coho salmon expected to ascend the fish ladder. Excess coho salmon to broodstock needs will likely be about 5,000 resulting in a total rack escapement of approximately 10,000 fish.

⁵ Annually up to 20 million of the 55 million destined for SE Cove may be made up of MSH stock chum salmon.

2.2 *Broodstock Collection*

Chum salmon

Broodstock are captured passively inside Kasnyku Bay using leads on the barrier net, nets, and net pen frames. The number of fish will be estimated as they enter the inner bay behind the barrier net. Some of the required broodstock may be captured by purse seine and transferred over the barrier net if the barrier leads do not capture sufficient broodstock in a timely manner. As the run progresses, the barrier net will be lowered, allowing the remaining broodstock to enter the inner bay. Fish are held in raceways above the ladder until ready for spawning.

King salmon

High king salmon harvest during commercial openings targeting chum salmon could make backup egg sources necessary to meet king salmon egg-take goals. Closures of Kasnyku Bay in June and July could be used to minimize the need for backup broodstock sources. However, after years of successfully managing king salmon broodstock numbers, it is unlikely these actions will be necessary. King salmon broodstock will also enter the barrier net, fish ladder, and holding pens volitionally during chum salmon broodstock collection and once the barrier net is lowered. King salmon that may be captured by purse seine during chum salmon broodstock collection will be placed inside the barrier net. King salmon may be transferred to holding raceways separate from those used for chum salmon prior to spawning.

Coho salmon

Broodstock enter the lagoon at HFH through a fixed weir. Once in the lagoon, coho salmon will hold for approximately one month prior to heading up the ladder and into the adult raceways. Cost recovery is managed to allow for passage of adequate broodstock numbers through the weir into the lagoon throughout the return. Portions of the return in excess of broodstock needs will be harvested for cost recovery by seine, gillnet, or out of the adult freshwater raceways. Coho salmon will be captured from holding raceways after ascending the fish ladder for spawning. See coho salmon Section 3.0 *Broodstock Management* and Section 4.3 *Cost-recovery Fishery* for additional details.

2.3 *Egg-Take, Transport, and Carcass Disposal Plans*

Chum salmon

Broodstock will be collected from the adult holding raceways, and eggs and sperm removed in an attached covered spawning area. Fertilization occurs in the spawning area; eggs are transported by vehicle several hundred feet to the incubation building. There they are rinsed and then water-hardened in bulk R-48 type incubators. Broodstock carcasses are typically sold and will be iced and loaded on tenders. Attempts will be made to donate unsold carcasses prior to grinding.

King salmon

Broodstock will be collected from the adult holding raceways, and eggs and sperm removed in an attached covered spawning area. Fertilization, water-hardening in separate trays, and egg-surface disinfection with iodophor will occur. All female broodstock will be sampled for the presence of bacterial kidney disease (BKD) and fertilized eggs from parents testing high positive for this organism will be discarded. Broodstock carcasses are typically sold and will be iced and loaded on tenders. Attempts will be made to donate unsold carcasses prior to grinding.

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Coho salmon

Coho salmon returning to HFH will be collected from the adult holding raceways, and eggs and sperm removed in an attached covered spawning area. If backup broodstock is required, gametes will be transported from Mist Cove via aircraft or vessel. Fertilization will occur in the spawning area; water-hardening and egg-surface disinfection will occur in bulk R-48 type incubators for the HFH freshwater overwinter and coho lake rearing (CLR) groups. The HFH saltwater overwinter group will be placed into Heath trays for water-hardening, egg-surface disinfection, and BKD family tracking. Broodstock carcasses and coho salmon in surplus of broodstock needs will be ground and discharged into Kasnyku Bay. Attempts will be made to donate or sell these carcasses prior to grinding.

2.4 *Incubation Plans*

Chum salmon

Chum salmon will be incubated in R-48 incubators until the eyed stage and then transferred to NOPAD incubators for hatch. Eggs for the Deep Inlet release will be transported to MCH via vessel during the fall, after the eggs have eyed and been otolith marked.

King salmon

King salmon will be incubated and hatched in Heath trays. Eggs from high BKD-positive parents will be removed and destroyed. Eyed and otolith marked eggs destined for MCH will be transported via air or vessel in coolers.

Coho salmon

Hidden Falls Hatchery freshwater overwinter and CLR group coho salmon will be incubated in R-48 incubators until the eyed stage and then transferred to NOPAD incubators for hatch. HFH saltwater overwinter group will be placed into Heath trays for water-hardening, egg-surface disinfection, and BKD family tracking and hatched in either NOPADs or Heath trays.

2.5 *Rearing and Release Plans*

Chum salmon

Expected chum salmon survival from green eggs to ponding is 92%. Approximately 71.5 million fry will be reared in Kasnyku Bay, 23.5 million fry will be reared in Thomas Bay, and 50.6 million fry will be reared at SE Cove. Fry reared in Kasnyku Bay will be transferred by pipeline to saltwater net pens for short-term rearing (normally 70 to 80 days) and then released. Half of the fry reared in Kasnyku Bay will be loaded on a boat and transferred to Eastern Chatham Strait for release. Fry reared at Gunnuk Creek, Thomas Bay and SE Cove will be loaded on a boat and transported to saltwater net pens for short-term rearing and then released. Survival from ponding until release is expected to be about 90%.

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King salmon

Approximately 400,000 BY16 king salmon will be reared in salt water in Kasnyku Bay until May and released as yearling smolt. Up to 200,000 BY 16 chinook will be transferred and reared in salt water at Gunnuk Creek until May and released as yearling smolt. Approximately 800,000 BY16 king salmon fry will be ponded into freshwater raceways for initial swim up and feeding. Fry will be transferred to round ponds for summer through winter rearing prior to transfer to saltwater net pens in May. They will be reared in saltwater net pens for 3-4 weeks prior to release.

Coho salmon

Hidden Falls

The current HFH age-1 production release goals are 1.0 million smolt from overwinter saltwater net pens and 2.5 million smolt from traditional freshwater rearing. All coho salmon fry will be ponded into freshwater raceways for initial swim up and feeding. The saltwater overwinter population will be treated with erythromycin as fry to treat BKD. Age-0 fry will be transferred to round ponds for summer rearing.

In October 1.25 million pre-smolt will be transferred to saltwater net pens for overwinter rearing. The remaining 2.5 million pre-smolt will be reared in freshwater round ponds until spring.

Coho Lake Rearing

Approximately 2.8 million age 0-coho salmon fry will be reared at HFH until mid-June, when they will be transported via aircraft to rearing pens in Deer Lake. Up to 300,000 surplus age-0 coho salmon fry may be transported to Banner Lake for natural rearing and emigration. NSRAA rotates stocking surplus fry into Banner, Cliff, and Parry Lake.

3.0 BROODSTOCK MANAGEMENT

The SHA will be managed as follows: to protect broodstock and facilitate broodstock collection activities, the inner portion of the SHA will be closed by regulation to sport and commercial fishing (5 AAC 33.374 (g)).

The inner portion of the SHA will be defined as the waters north and west of a line between a point at 57°13.17'N lat, 134°51.86'W long and a point at 57°13.08'N lat, 134°52.02'W long, and the waters north of a line from 57°13.05'N lat, 134°52.24'W long and a point at 57°13.06'N lat, 134°52.20'W long (see Figure 5).

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Chum salmon

About 90,000 females are required for broodstock, although an additional 10,000 may be captured to ensure that egg-take goals are met. Assuming an equal sex ratio, NSRAA plans to manage returns for 180,000 total broodstock. NSRAA will inform department area staff if arrangements are made with PAH to provide broodstock, since this may decrease returns available for common property harvest.

The barrier net will be fish-tight by the last week in June. Broodstock collection will begin during the same week or when chum salmon become available in Kasnyku Bay, usually no later than July 4. Broodstock collection will end once 140,000 chum salmon are protected behind the barrier net, which is traditionally accomplished by the third week of July. An additional 40,000 chum salmon broodstock will be allowed to collect on the ocean side of the barrier net. Generally, once the first 30,000 chum salmon are spawned, the barrier net is dropped so additional broodstock can move toward the lagoon and fish ladder. Historically, this occurs the last week of July or the first week in August, depending on run timing.

King salmon

About 500 king salmon will be required for HFH broodstock. In 2018, closure of the Kasnyku Bay portion of the Hidden Falls SHA to commercial and sport fishing due to king salmon broodstock concerns will most likely occur due to the poor king salmon marine survival currently being experienced region wide in SE Alaska.

Coho salmon

Hidden Falls

About 6,000 coho salmon are needed for broodstock. Coho salmon returning to hatchery raceways will be used for broodstock and surplus coho salmon will be harvested for cost recovery. Total escapement into the raceway may reach 10,000 coho salmon (brood, escapees from cost recovery, and unusable brood fish). Broodstock is collected from all portions the return. A closure of the entire Hidden Falls coho salmon SHA is unlikely to be necessary but may be requested if broodstock needs are not being achieved. Broodstock management occurs simultaneously with coho salmon cost-recovery management. See Section 4.3 *Cost-recovery Fishery* for additional details.

Mist Cove

The primary source of coho salmon broodstock for the Hidden Falls and CLR programs will be from the HFH. Mist Cove returns will only be used as a backup source of broodstock. If broodstock for HFH is needed from the Mist Cove SHA, NSRAA will request the entire area be closed by emergency order (EO) authority to all common property fishing. Coho salmon returning will be captured by beach or purse seine in Mist Cove and held until fully mature in marine net pens off the Fawn Lake outlet. An artificial freshwater lens may be used around the net pens to facilitate maturity.

4.0 FISHERIES MANAGEMENT

4.1 *Intercepting Fisheries*

Troll Fishery

Several spring troll fisheries will open along the outer coast to intercept HFH king salmon, along with other Alaska hatchery-produced king salmon. Most spring troll fisheries target king salmon and are conducted during May and June. In 2018, both Chatham Strait and Icy Strait corridors will have fishery restrictions implemented during May and June, based on wild stock king salmon concerns. These restrictions will delay initial openings and close areas to king salmon retention. HFH coho salmon are predominantly harvested during the general summer troll season. Troll coho salmon retention is allowed from June 1 through September 20. The fishery may be extended through September 30 if wild coho salmon abundance is projected to meet escapement needs after considering harvest and effort.

SE Cove Troll

In 2018, troll effort targeting chum salmon returning to SE Cove is likely. Statistical Areas 109-30 42, 44, 50, 51, and 110-17 could see an increase in troll effort during June and July. The SE Cove SHA will see the first return of age-5 and second return age-4 NSRAA-produced chum salmon. Estimated NSRAA portion of the return to SE Cove is 122,000. Several GCH produced chum salmon will also be returning to SE Cove and eliminates the potential for a commercial opening in the SHA in 2018.

Purse Seine Fishery

The majority of HFH chum salmon migrate from the north through Icy Strait, primarily down the western shore of Chatham Strait. Some HFH chum salmon migrate from the south through lower Chatham Strait.

Hatchery chum salmon are taken incidentally in wild pink and/or chum salmon purse seine fisheries. Weekly seine openings will occur at Point Augusta, where a small area is traditionally opened to gauge run strength of pink and chum salmon. To a lesser degree, returns may enter seine fisheries in Chatham Strait along Admiralty Island, southeast Baranof Island, and Kuiu Island. Common property harvest of HFH chum salmon is expected to be primarily in the THA. During some years, the boundary of the HFH THA has been extended north to include Kelp Bay and the Catherine Island shoreline south of the Point Lull light when wild chum salmon escapements to Kelp Bay streams have been strong and there are indications of good pink salmon abundance in the Chatham Strait corridor. Portions of Kelp Bay may also be opened specifically to harvest surplus wild stock pink and chum salmon returns. In recent years, Clear River summer chum salmon escapements have been well below historical levels, while nearby Ralph's Creek summer chum salmon returns have been strong, and more than escapement needs. It is not clear to what extent harvest is contributing to the low escapements to Clear River, but more conservative harvesting opportunities in Kelp Bay can be expected during July.

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Gillnet Fishery

Coded wire tag (CWT) recovery data from previous years indicates that relatively small catches of HFH chum salmon are taken by commercial drift gillnet gear. In recent years, otolith thermal-mark data has corroborated the CWT data.

Sport Fishery

Relatively small numbers of HFH salmon are caught in sport fisheries in Chatham Strait. Concentrated sport fishing effort does occur terminally in Kasnyku Bay for king and coho salmon. Sport and personal use fisheries will be managed as described in regional codified regulations for those waters defined in each SHA. In 2018, the retention of king salmon will be closed in Chatham Strait and parts of Peril Strait through June 14. The department may use EO authority to address additional issues as they arise in season.

4.2 *Terminal Fisheries*

In January 2006, the Alaska Board of Fisheries (BOF) adopted new language for regulations under the *Hidden Falls Terminal Harvest Area Management Plan* (5 AAC 33.374). The new regulatory language only clarified how the common property fisheries in the THA will be managed and did not change the intent of the previous regulatory language. In summary, regulations for management of HFH THA stipulate that during June, trollers may target and retain chum and king salmon, and purse seine openings will be limited to two days per week. In June, if the purse seine fishery does not open as scheduled in the *Southeast Alaska Purse Seine Fishery Management Plan*, to achieve broodstock goals, trollers are not allowed to retain chum salmon provided at least 7 days remain prior to July 1. During June, an area within Kasnyku Bay may be closed during seine openings to allow trollers continued access to king salmon. Beginning in July, trollers are limited to retaining 1 chum salmon for each king salmon in their catch. During July, areas within the THA may be closed to seine and troll gear, as needed, to provide for broodstock needs at the hatchery.

Chum salmon

In 2018, NSRAA is not planning any direct cost-recovery harvest in the Hidden Falls SHA. Additionally, due to a low forecast of chum salmon returns, there will be no tax assessment in the HFH THA. To generate revenues to operate HFH, the THA and adjacent waters have been designated as a tax assessment area (Figure 2). Purse seine openings are scheduled to begin June 17 with no Thursday opening the first week. Due to recent run failures and a weak forecast it is anticipated that only 2-3 openings will likely occur prior to anticipated closure for broodstock collection. Commercial openings will be allowed if the run comes in substantially above forecast. In 2017, the HFH chum salmon return came in at 85% of forecast. In 2018, based upon the poor chum salmon return in 2017, broodstock management will be extremely conservative.

In the event of very large catches or fish buildups, openings at HFH may be announced with a 24-hour minimum notice. The HFH THA boundary definition has been modified to provide for easier enforcement and compliance with THA boundaries. Rather than using range markers at

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the northern and southern boundaries, these boundaries are defined by points indicated by markers on the Baranof Island shoreline to offshore coordinates. A line between the two offshore coordinates will also define the outer boundary as a straight line, approximately two miles offshore Baranof Island.

Additionally, in 2010, seiners requested that the southern boundary of the THA be moved a short distance to the south to provide for easier use of a hook-off point that currently lies on the traditional boundary line; the department agreed to move the boundary line south approximately 150 yards. Also, the offshore eastern boundary is now described as a straight line between two points, which is approximately two nautical miles offshore of Baranof Island rather than “within two nautical miles of the Baranof Island shoreline” as currently described in regulation. This allows for a more enforceable boundary line. The new definition will describe the HFH THA as the waters of Chatham Strait, Kasnyku Bay, and Takatz Bay, within the boundaries of a line from South Point, as indicated by a marker at 57°16.28'N lat, 134°51.78'W long to a point offshore at 57°16.28'N lat, 134°48.00'W long, then running south to a point at 57°06.76'N lat, 134°43.00'W long, then due west to a point on the Baranof Island shoreline, approximately one mile south of Takatz Bay, at 57°06.76'N lat, 134°47.50'W long. During some years, the boundary of the HFH THA has been extended north to include Kelp Bay and the Catherine Island shoreline south of the Point Lull light when wild chum salmon escapements to Kelp Bay streams have been strong and there are indications of good pink salmon abundance in the Chatham Strait corridor.

A contraction of the offshore boundary of the HFH THA to less than 2 miles off the Baranof Island shoreline will occur due to Chinook salmon conservation and pink salmon escapements to neighboring areas are forecast to be weak and unlikely to meet escapement goals.

Chum salmon troll catches comprise only a small percentage of the total return to the hatchery. However, in 2001, the troll fleet in the HFH THA harvested approximately 70,000 chum salmon during the latter part of June. During 2002–2004, the chum salmon catch was less than 10,000 fish and in subsequent years, even less. In 2010, the chum salmon troll fleet began working on plans to increase its opportunity to harvest chum salmon at NSRAA facilities. Troll effort for chum salmon at HFH THA may increase during the month of June prior to significant common property seine activity. On July 1, regulations go into effect that limits troll harvest to one chum salmon per king salmon.

King salmon

Spring troll fisheries are prosecuted in an attempt to intercept surplus HFH, as well as other hatchery king salmon stocks, and will occur in areas designated as Salisbury Sound (113-62), Sitka Sound (113-41), Redoubt Bay (113-30), Goddard (113-32) and Western Channel. These areas, all located on the outer coast of Baranof Island, are much reduced from the historic corridor fisheries of both Icy and Chatham Straits. Fishery restrictions to inside waters and adjacent corridors are for wild stock king salmon conservation during May and June. The HFH THA will be opened on a continuous basis beginning May 1. Other spring fisheries will likely be opened for specific dates. The *2018 Spring Troll Fishery Management Plan* will provide the management approach and maps of open areas. Details of the area and open fishing periods will

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be announced weekly in department news releases. Adjustments to spring troll fisheries may occur in season, in accordance with 5 AAC 29.090 based on the percentage of Alaska hatchery fish in the catch.

Coho salmon

Hidden Falls

Approximately 50% of HFH coho salmon will be harvested in the general summer troll and sport fisheries seasons, and about 50% are expected to return to the terminal area. In 2012, the BOF adopted new regulations allowing trollers to retain coho salmon in the HFH THA beginning June 1, until the end of the general summer troll season, unless closed by EO. The new regulations also provide that during the mid-August troll closure, the HFH THA will open restricted to an area within 1 mile from shore south of 57°15.00'N lat, north of 57°10.00'N lat and west of a line from 57°15.00'N lat, 134°48.60'W long to 57°10.00'N lat, 134°46.40'W long (5 AAC 33.374 (e)) (Figure 4).

To facilitate broodstock management and cost-recovery harvesting, the inner portion of the SHA will be closed by regulation (5 AAC 33.374 (g) and 5 AAC 47.021(g)(7)). The closed portion of the SHA is defined as the waters north and west of a line between a point at 57°13.17'N lat, 134°51.86'W long and a point at 57°13.08'N lat, 134°52.02'W long, and the waters north of a line from 57°13.05'N lat, 134°52.24'W long and a point at 57°13.06'N lat, 134°52.20'W long (see Figure 5).

Mist Cove

The major portion of the common property harvest will be in the traditional summer troll fisheries along the outer coast of Baranof and Chichagof islands, and in lower Chatham Strait. Traditional purse seine fisheries in Section 9-A will incidentally harvest some coho salmon returns, if pink salmon fisheries are open. The Mist Cove SHA will remain open to commercial trolling by emergency order and is open to sport fishing under regional sport fishing regulations, except a small area inside the Mist Cove SHA is closed to both commercial and sport fishing by regulation to facilitate cost-recovery harvest in Mist Cove SHA. See Section 4.3 *Cost-recovery Fishery*, for additional details on Mist Cove SHA.

Except for the closed portion, sport and commercial fisheries will be managed as described in regional codified regulations for those waters defined in each SHA. The department may use EO authority to address inseason issues.

4.3 *Cost-recovery Fishery*

If a broodstock closure is in place and cost recovery harvest is necessary, every effort will be made to minimize cost recovery harvest of the species closed to common property harvest.

Hidden Falls SHA

Cost recovery in the HFH SHA is conducted to achieve the financial goals and objectives of NSRAA. At the March 2008 NSRAA board meeting a resolution was passed directing all cost-recovery revenue generated from harvest of king and coho salmon be applied to the following fiscal year budget. Thus, the cost-recovery goal each year is to harvest all king and coho salmon not intercepted in THA/SHA common property fisheries, excluding what is necessary for broodstock.

Beginning in 2012, chum salmon cost recovery is achieved by a tax assessment applied to all chum salmon caught in the HFH THA, as well as subdistricts 112-11 and 112-21, from June 15th until July 31st each year. This tax amount is adjusted yearly to balance NSRAA's operating and capital budget. This tax assessment dollar amount is the difference of the total from the previous year salmon enhancement tax revenue, combined with the king and coho salmon cost-recovery revenue generated the previous season, and the board-approved NSRAA budget. In 2018, due to a low forecast of chum salmon returns, there will be no tax assessment in the HFH THA.

Chum salmon

Terminal chum salmon returns to HFH are harvested by common property fisheries and processor contracted cost-recovery fisheries. The HFH THA and adjacent waters have been designated as a tax assessment area to generate cost-recovery revenue from common property seine openings. In 2018, the NSRAA board did not approve a tax assessment due to a low forecast return of chum salmon. Additionally, there are no plans for a directed cost-recovery fishery. NSRAA is committed to ensuring that all terminal returns will be "mopped up" to ensure full utilization and complete harvest.

Coho salmon

Hidden Falls

Approximately 10,000 coho salmon are needed for broodstock; the remainder will be harvested by seine gear for cost recovery, commercial troll and by local sport fishing. The HFH SHA for coho salmon is defined as the waters of Kasnyku Bay west of a line from 57°13.33' N. latitude, 134°50.93' W. longitude to the northernmost tip of an unnamed island locate at 57°12.93' N. latitude, 134°51.40' W. longitude then due south to the Baranof Island shoreline (Figure 3).

In 2015, the Board of Fisheries adopted a regulation to close the inner portion of the HFH SHA to sport and commercial salmon fishing to facilitate coho salmon broodstock collection, cost recovery, and protect NSRAA equipment and property. The closed area is defined as the waters north and west of a line between a point at 57°13.17'N lat, 134°51.86'W long and a point at 57°13.08'N lat, 134°52.02'W long, and the waters north of a line from 57°13.05'N lat, 134°52.24'W long and a point at 57°13.06'N lat, 134°52.20'W long (Figure 5).

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During the month of August, NSRAA staff has agreed to work with the troll fleet to delay from cost-recovery operations as long as possible, especially if significant troll effort in the area is observed and catch rates look good. It is NSRAA's goal to try to facilitate the increase of troll harvest of HFH coho salmon. However, should sufficiently large numbers of fish show up, and increased sea lion predation occurs, NSRAA may begin aggressively harvesting coho salmon within the SHA. The entire coho salmon SHA may be closed to commercial fishing when coho salmon are present if necessary to facilitate cost recovery or broodstock.

Sport fisheries will be managed as described in regional codified regulations for those waters defined in each SHA. The department may use EO authority to close area if broodstock are projected to be below goals.

Mist Cove

Cost recovery will occur in the Mist Cove SHA by seine and gillnet as follows:

The SHA shall consist of all waters of Mist Cove west of a line from 56°31.70'N lat, 134°39.97'W long to a point at 56°31.27'N lat, 134°39.85'W long (Figure 6). The SHA will be open for harvest by hatchery permit holder from 12:01 a.m., August 1 until 11:59 p.m., October 31 (5 AAC 40.042(a)(8)).

The Mist Cove SHA will remain open to sport salmon fishing and to commercial trolling during the summer troll fishery except for a small portion of the Mist Cove SHA that is closed by regulation. The closed area is defined as the waters south of a line from 56°31.07'N lat, 134°40.20'W long to 56°31.07'N lat, 134°40.12'W long (Figure 6). Sport fisheries will be managed as described in by regional codified regulations for those waters defined in each SHA. The department may use EO authority to address conflicts between common property fisheries and cost recovery harvest within the SHA if issues arise in season.

King salmon

If large numbers of king salmon are available for cost recovery, then a targeted harvest in the inner bay will be performed. This will likely be a purse seine effort but may involve beach seine efforts as well.

SE Cove SHA

Chum Salmon

An estimated 21,000 may be intercepted in commercial fisheries prior to entering the SE Cove SHA. The remainder, estimated at 122,000, will be harvested as cost recovery. An unknown number of Gunnuk Creek Hatchery (GCH) produced chum salmon will be returning, as well. NSRAA is compensated for their portion of the return based upon otolith sampling at the processor (currently Trident). Proceeds from the GCH produced portion of cost recovery are returned to the State of Alaska to offset debt.

5.0 MARK/TAG/RECOVERY PROGRAM FOR 2018

All chum salmon production are otolith-marked (there is no CWT program for chum salmon). Otolith marks on chum salmon will be used to evaluate different rearing strategies and the comparative survival and catch distribution of fish released from Kasnyku, Thomas Bay and SE Cove. Marks also assist National Marine Fishery Service (NMFS) research on ocean carrying capacity.

Chum adults returning will be sampled for age distribution by scale and otolith analysis. Two hundred scales will be collected each week from fisheries in Kasnyku and Takatz bays, as well as at the hatchery rack. Approximately 98 pairs of otoliths will be collected each week from commercial fisheries and at the hatchery rack.

A portion of all king and coho salmon released at HFH are marked with coded wire tags. All king and coho salmon returning to the hatchery rack will be examined for marks and tags. Tag-recovery data will be used for stock and release-strategy survival information. Coho salmon harvested in cost-recovery fisheries will also be sampled for CWT at HFH and Mist Cove. See the table in section 1.5 for additional detail.

8.0 APPROVAL

Recommendation for Approval: Hidden Falls Hatchery Annual Management Plan, 2018

Approved via email, 5/2/2018

Scott Wagner, NSRAA

Approved via email, 5/7/2018

Troy Tydingco, Area Management Biologist, Division of Sport Fish

Approved via email, 5/3/2018

Patrick Fowler, Area Management Biologist, Division of Sport Fish

Approved via email, 5/2/2018

Eric Coonradt, Area Management Biologist, Division of Commercial Fisheries

Approved via email, 5/2/2018

Troy Thynes, Area Management Biologist, Division of Commercial Fisheries

Approved via email, 5/9/2018

Judy Lum, Regional Supervisor, Division of Sport Fish

Approved via email, 5/2/2018

Lowell Fair, Regional Supervisor, Division of Commercial Fisheries

Approved via email, 5/1/2018

Flip Pryor, Regional Resource Development Biologist,
Division of Commercial Fisheries

Approved via email, 5/9/2018

Lorraine Vercessi, PNP Hatchery Program Coordinator,
Division of Commercial Fisheries

2018 Hidden Falls Hatchery Annual Management Plan

Approval:

The 2018 Hidden Falls Hatchery Annual Management Plan is hereby approved:

Approved via email, 5/10/2018

Tom Taube, Deputy Director, Division of Sport Fish

Approved via email, 5/9/2018

Peter Bangs, Deputy Director, Division of Commercial Fisheries

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Table 1. Projected Returns to Hidden Falls Hatchery, Takatz Bay, Southeast Cove, Mist Cove and Cliff Lake for 2018.

Species	Brood Year	Release Site	Total number of fish expected	Range of expected return	
				minimum	maximum
Chum	2012	Kasnyku & Takatz Bays	2,000	1,000	3,000
	2013	Kasnyku & Takatz Bays	238,000	119,000	579,000
	2014	Kasnyku & Takatz Bays	334,000	167,000	841,000
	2015	Kasnyku & Takatz Bays	19,000	10,000	29,000
Chum			593,000	297,000	1,452,000
Chum	2012	Southeast Cove	400	200	600
	2013	Southeast Cove	13,000	6,500	19,500
	2014	Southeast Cove	105,000	52,500	157,500
	2015	Southeast Cove	24,000	12,000	36,000
Chum			142,400	71,200	213,600
Chinook	2011	Kasnyku Bay	-	-	14
	2012	Kasnyku Bay	-	-	64
	2013	Kasnyku Bay	1,103	551	3,409
	2014	Kasnyku Bay	860	536	2,680
Chinook			2,000	1,100	6,200
Coho	2015	Kasnyku Bay	191,000	127,000	318,000
	2015	Mist Cove	153,000	102,000	256,000
	2015	Cliff Lake	1,000	1,000	2,000
Coho			348,000	231,000	579,000

COMMENTS:

Please provide additional information on ocean-survival calculations (i.e. percentages used, etc.)

Chum (Kasnyku & Takatz):

Forecast is for Kasnyku Bay and Takatz Bay releases combined.

Forecasts for Age 4-6 are done by a linear regression of the previous age class.

Forecast for Age 3 fish is based on release number x 5-yr avg marine survival x average percent returning as 3s. Approximate values are 1.0% m.s. / 2.2% 3's.

Chum (Southeast Cove):

With little history for SE Cove, we are using Hidden Falls historical age structure (2.2% returns as 3s on average; 60.5% as 4s; 35.8% as 5s), with a final marine survival estimate of 2.5%. Range = 1.5% and 4.5%. Final BY12 marine survival projects to about 2.9%; very few BY13 3s returned in 2016. We are using 2.5% marine survival in the estimates for 3s and 4s for the 2017 forecast.

Chinook:

Same method as chum; 3 to 5-ocean by regression, 2-oc by averages.

Approximate values for marine survival and portion as 2-ocean fish:

674,433 BY 13 smolt x .73% m.s x 29% as 2-oc age class = 1,446.

Coho:

Coho forecast is calculated at 6% of release, with a range of 4-10%

Cliff Lake fry plant in 2016 - assumes 75% survive to smolt

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Table 2a. Chum salmon returns to Hidden Falls projects.

KASNYKU BAY & TAKATZ BAY								
1977	K,C (unknown)	KAS	212,551	0.84	0.85	5/18/78	1.57%	3,340
1978	K,C	KAS	1,889,184	1.01-1.65	1.13	5/20,22,23/79	2.36%	44,540
1979	K,C	KAS	3,599,384	1.5-2.7	1.76	4/18,5/16,18,20/80 4/15,5/8,9,10,11,12,1	4.50%	161,884
1980	K,S	KAS	9,013,938	1.6-2.4	1.54	5,16,17,18/81	8.19%	738,628
1981	K,S,HF(K)	KAS	10,291,351	1.1-1.2	1.34	4/21,5/21/82	4.33%	445,910
1982	HF	KAS	18,909,761	0.4-1.0	0.94	4/27/1983	3.27%	618,539
1983	HF	KAS	20,100,000	0.4-1.0	1.01	5/2/1984	3.34%	671,469
1984	HF	KAS	21,530,000	0.4-0.75	0.82	5/19/1985	1.27%	273,967
1985	HF	KAS	19,680,000	0.4-0.7	0.63	5/12/1986	1.03%	201,730
1986	HF	KAS, TAK	40,390,000	1.1-1.5	1.23	5/14,20/87	1.54%	620,857
1987	HF	KAS, TAK	50,755,717	1.68	1.61	5/18,20,21/88	1.78%	901,881
1988	HF	KAS, TAK	60,300,600	1.5	1.57	5/15,16/89	2.48%	1,494,332
1989	HF	KAS, TAK	62,506,791	1.6-1.9	1.75	5/12,19/90	4.70%	2,940,331
1990	HF	KAS, TAK	64,275,400	1.4-1.6	1.55	5/23,24/91	4.38%	2,812,054
1991	HF	KAS, TAK	56,129,200	1.4-1.5	1.50	5/13,15/92	5.13%	2,879,438
1992	HF	KAS, TAK	62,442,900	1.7	1.70	5/19/93	7.36%	4,596,885
1993	HF	KAS, TAK	60,222,973	1.3-1.7	1.53	5/20,21/94	0.95%	574,853
1994	HF	KAS, TAK	70,889,750	1.5-1.9	1.71	5/21,22/95	4.41%	3,125,145
1995	HF	KAS, TAK	76,671,678	1.4-1.9	1.59	5/21,22/96	2.87%	2,198,109
1996	HF	KAS, TAK	62,565,996	1.5-2.0	1.72	5/21,22/97	6.04%	3,777,135
1997	HF	KAS, TAK	63,691,981	1.8-2.5	2.10	05/18/98	1.36%	867,533
1998	HF	KAS, TAK	74,650,314	1.5-1.9	1.66	5/17,19/99	1.71%	1,276,322
1999	HF	KAS, TAK	74,949,068	1.5-2.1	1.86	5/19,21/00	3.83%	2,873,891
2000	HF	KAS, TAK	80,844,732	1.7-2.3	1.99	5/19,22/01	1.65%	1,337,415
2001	HF	KAS, TAK	72,820,877	1.4-1.6	1.50	5/21,22/02	1.53%	1,116,972
2002	HF	KAS, TAK	75,415,683	1.8-2.3	1.94	5/6,10,21/03	2.39%	1,803,004
2003	HF	KAS, TAK	88,598,169	2.0-3.5	2.26	5/18,21,6/5/04	1.65%	1,458,159
2004	HF	KAS, TAK	88,800,300	2.0-3.3	2.16	5/16,19,20,22,24,6/3/05 5/17,21,22,26,28,30/06	2.94%	2,614,584
2005	HF	KAS, TAK	86,198,298	2.0-3.3	2.18	6	2.12%	1,830,789
2006	HF	KAS, TAK	88,301,824	2.1-3.9	2.38	5/31,6/1,3,6,15/07	0.81%	714,090
2007	HF	KAS, TAK	84,482,754	2.2-3.6	2.44	6/4,6,7,11,24/08	0.44%	368,385
2008	HF	KAS, TAK	81,597,511	2.1-2.4	2.27	6/1,5,8/09	2.38%	1,938,582
2009	HF	KAS, TAK	79,307,655	2.0-2.1	2.05	(KAS) 5/13-17,20-22 (TAK) 5/24-30/10 ⁴	1.19%	945,057
2010	HF	KAS, TAK	76,438,022	2.1-3.8	2.32	(KAS) 5/20-27 (TAK) 5/29-6/13/11 ⁴	0.14%	109,796
2011	HF	KAS, TAK	80,990,646	1.9-3.7	2.39	(KAS) 5/18-23, 6/1,2/12 (TAK) 5/24-26,30,31, 6/2,9,10/12 ⁴	0.36%	295,485
2012	HF	KAS, TAK	74,521,716	2.1-4.2	2.55	(KAS) 5/24, 6/3 (TAK) 5/23-26/13 ⁴	0.36%	270,014 ³
2013	HF	KAS, TAK	74,815,037	2.1-4.3	2.59	(KAS) 5/21-27, 6/6-7 (TAK) 5/23-27,6/5-7/14 ⁴	0.53%	394,514 ³
2014	HF	KAS, TAK	73,605,540	2.1-4.3	2.63	(KAS) 5/12-18,25,28-29/15 (TAK) 5/17-21,27-28/15 ⁴	0.01%	5,448 ³

(Continued on next page)

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Table 2 a. (continued)

2015	HF	KAS, TAK	84,397,127	2.2-4.5	2.68	(KAS) 4/27,28,5/2,3,4, 5/12-16/16 (TAK) 4/30, 5/2, 5/12-16/16 ⁴		
2016	HF	KAS/ EAST CHATHAM	64,602,663	1.7-3.7	2.11	(KAS) 5/10-14, 5/30- 6/1/17 (E CHAT) 5/10- 13, 5/30-31/17		
SOUTHEAST COVE								
2012	HF	SE COVE	8,712,136	4.01	4.01	6/8/2013	2.16%	187,970 ³
2013	HF	SE COVE	9,142,373	3.89	3.89	6/7/2014	0.23%	21,025 ³
2014	HF	SE COVE	17,478,583	4.15	4.15	5/30/2015	0.02%	3,449 ³
2015	HF	SE COVE	42,758,270	2.3-4.1	2.87	5/8-13, 5/23-27/16 ⁴		
2016	HF	SE COVE	46,749,525	2.0-4.2	2.87	5/8, 10, 11, 14, 15, 17, 19, 21, 29-31, 6/1, 3, 4/17		
THOMAS BAY								
2016	HF	THOMAS BAY	21,899,063	2.2-4.2	2.85	5/4,8,23,26/17		

¹ K= Kadashan River, C= Clear River, S= Seal Bay, HF= Hidden Falls Returns
BY77 (unknown) and BY81 (K) are entries in ADF&G database (M. McNair 5/98)

² This table contains data for fed fry only.

³ Incomplete Returns.

⁴ Daily releases for periods shown; staggered to reduce potential of whale predation

2018 Hidden Falls Hatchery Annual Management Plan

Table 2b. Chum Salmon Release Data for Hidden Falls Hatchery.
Release Site/ Fed or Unfed Status / Late-Large

BY	Kasnyku Fed Fry Regular	Kasnyku Fed Fry Late - Large	Takatz Fed Fry	Takatz Fed Fry Late - Large	Total Fed Fry	Release Biomass (kg)	Kasnyku Unfed Fry	Baranof Unfed Fry	Total Unfed Fry	Grand Totals Fed+Unfed
1977	212,551				212,551	180				212,551
1978	1,889,184				1,889,184	2,141				1,889,184
1979	3,599,384				3,599,384	6,341				3,599,384
1980	9,013,938				9,013,938	13,907				9,013,938
1981	10,291,351				10,291,351	13,769				10,291,351
1982	18,909,761				18,909,761	17,775	2,726,310		2,726,310	21,636,071
1983	20,100,000				20,100,000	20,301	8,400,000		8,400,000	28,500,000
1984	21,530,000				21,530,000	17,661	8,550,000		8,550,000	30,080,000
1985	19,680,000				19,680,000	12,406	24,060,000	1,560,000	25,620,000	45,300,000
1986	21,140,000		19,250,000		40,390,000	49,841				40,390,000
1987	29,181,000		21,574,717		50,755,717	81,894				50,755,717
1988	34,249,000		26,051,600		60,300,600	94,793				60,300,600
1989	36,371,500		26,135,291		62,506,791	109,412				62,506,791
1990	37,686,000		26,589,400		64,275,400	99,453				64,275,400
1991	36,479,100		19,650,100		56,129,200	83,913				56,129,200
1992	36,530,800		25,912,100		62,442,900	106,153				62,442,900
1993	33,155,175		27,067,798		60,222,973	92,388				60,222,973
1994	37,035,400		33,854,350		70,889,750	121,009				70,889,750
1995	49,715,678		26,956,000		76,671,678	121,732				76,671,678
1996	37,544,876		25,021,120		62,565,996	107,782				62,565,996
1997	37,809,253		25,882,728		63,691,981	133,753				63,691,981
1998	48,905,343		25,744,971		74,650,314	123,920				74,650,314
1999	38,689,735		36,259,333		74,949,068	139,405				74,949,068
2000	41,925,974		38,918,758		80,844,732	160,881				80,844,732
2001	36,503,940		36,316,937		72,820,877	109,231				72,820,877
2002	38,788,889		36,626,794		75,415,683	146,306				75,415,683
2003	29,881,079	13,662,435	45,054,655		88,598,169	200,232				88,598,169
2004	33,897,948	9,917,604	44,984,748		88,800,300	191,809				88,800,300
2005	34,971,120	9,300,684	41,926,494		86,198,298	187,912				86,198,298
2006	34,654,534	9,252,243	44,395,047		88,301,824	209,904				88,301,824
2007	31,966,262	9,688,433	42,828,059		84,482,754	206,138				84,482,754
2008	41,302,992		40,294,519		81,597,511	185,095				81,597,511
2009	40,268,478		39,039,177		79,307,655	164,923				79,307,655
2010	37,630,694		30,212,170	8,595,158	76,438,022	177,508				76,438,022
2011	31,283,930	7,048,558	29,204,857	13,453,301	80,990,646	193,392				80,990,646
2012	28,358,647	6,508,719	29,681,749	9,972,601	74,521,716	190,030				74,521,716
2013	25,970,400	6,395,064	32,028,756	10,420,817	74,815,037	194,117				74,815,037
2014	23,868,519	6,513,515	31,396,973	11,826,533	73,605,540	193,460				73,605,540
2015	35,599,703	10,419,637	31,032,302	7,345,485	84,397,127	226,391				84,397,127
2016	53,311,753	11,290,910			64,602,663	136,503				64,602,663
	Southeast Cove Fed Fry Regular	Southeast Cove Fed Fry Late - Large								
2012		8,712,136			8,712,136	34,936				8,712,136
2013		9,142,373			9,142,373	35,564				9,142,373
2014		17,478,583			17,478,583	72,536				17,478,583
2015	29,441,527	13,316,743			42,758,270	122,826				42,758,270
2016	29,183,809	17,565,716			46,749,525	134,014				46,749,525
	Thomas Bay Fed Fry Regular	Thomas Bay Fed Fry Late - Large								
2016	14,749,497	7,149,566			21,899,063	62,334				21,899,063

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Table 2c. Annual Chum Salmon Returns to Hidden Falls Hatchery.

Return Utilization									
Return Year	Commercial	Percent	Broodstock	Percent	Surplus/ Egg Sales	Percent	Cost Recovery	Percent	Total Return
1980	0		0		5				5
1981	ND		ND						3,431
1982	ND		ND						58,030
1983	73,334	62%	45,253	38%					118,587
1984	561,793	91%	32,000	5%	22,400	4%			616,193
1985	380,567	84%	65,000	14%	5,020	1%			450,587
1986	594,819	89%	55,000	8%	15,000	2%			664,819
1987	434,453	80%	85,095	16%	2,000	0%	22,091	4%	543,639
1988	205,594	49%	75,149	18%	2,200	1%	139,028	33%	421,971
1989	50,184	32%	72,576	47%	1,500	1%	30,703	20%	154,963
1990	257,587	54%	81,373	17%	8,500	2%	132,258	28%	479,718
1991	579,329	67%	71,985	8%	16,067	2%	202,522	23%	869,903
1992	738,121	72%	83,932	8%	18,894	2%	186,037	18%	1,026,984
1993	1,437,282	80%	112,153	6%	49,759	3%	192,011	11%	1,791,205
1994	2,855,275	89%	88,290	3%	60,264	2%	204,043	6%	3,207,872
1995	3,216,855	90%	82,729	2%	45,526	1%	212,643	6%	3,557,753
1996	3,370,728	83%	72,636	2%	130,499	3%	481,479	12%	4,055,342
1997	1,377,400	81%	71,247	4%	41,153	2%	220,064	13%	1,709,864
1998	1,837,515	82%	80,582	4%	31,390	1%	302,981	13%	2,252,468
1999	2,336,207	86%	79,599	3%	19,655	1%	279,238	10%	2,714,699
2000	2,737,324	88%	75,377	2%	20,845	1%	266,903	9%	3,100,449
2001	1,177,019	74%	93,256	6%	32,806	2%	278,466	18%	1,581,547
2002	1,230,535	76%	88,569	5%	23,824	1%	277,562	17%	1,620,490
2003	1,351,523	63%	123,833	6%	69,260	3%	604,325	28%	2,148,941
2004	1,154,761	60%	118,420	6%	17,148	1%	622,887	33%	1,913,216
2005	342,258	42%	110,904	14%	27,414	3%	325,985	40%	806,561
2006	1,761,483	81%	104,562	5%	34,231	2%	284,803	13%	2,185,079
2007	500,931	41%	99,137	8%	32,334	3%	594,692	48%	1,227,094
2008	1,747,811	78%	79,510	4%	52,515	2%	371,721	17%	2,251,557
2009	1,889,975	82%	88,283	4%	23,326	1%	303,385	13%	2,304,969
2010	659,437	66%	91,180	9%	25,131	3%	217,808	22%	993,556
2011	132,228	36%	95,113	26%	48,062	13%	96,538	26%	371,941
2012	1,084,357	87%	104,102	8%	43,680	4%	7,948	1%	1,240,087
2013	1,239,914	89%	113,334	8%	33,376	2%	27	0%	1,386,651
2014	252,007	54%	106,974	23%	60,248	13%	51,117	11%	470,346
2015	49,417	17%	149,132	52%	90,385	31%	0	0%	288,934
2016	15,936	6%	146,932	54%	75,515	28%	33,218	12%	271,601
2017	199,804	46%	148,125	34%	65,353	15%	20,415	5%	433,697

1977-1988 = Hidden Falls Returns, 1989 and later = Hidden Falls & Takatz Bay.

1996 Cost Recovery includes 200,873 regular cost recovery and 280,606 Joint Venture Roe fish.

1998 Cost Recovery includes 239,227 regular cost recovery and 63,754 surplus fish harvested in August.

2009 Broodstock included 5.0M eggs for Gunnuk Creek Hatchery

2010 Broodstock included 5.1M eggs for Gunnuk Creek Hatchery

2012 Broodstock included 5.0M eggs for Gunnuk Creek Hatchery

Table 2d. Annual Chum Salmon Returns to Southeast Cove.

Return Utilization									
Return Year	Commercial	Percent	Broodstock	Percent	Surplus/ Egg Sales	Percent	Cost Recovery	Percent	Total Return
2015	0		0		0		13,428	100%	13,428
2016	0		0		0		149,520	100%	149,520
2017	0		0		0		49,502	100%	49,502

2018 Hidden Falls Hatchery Annual Management Plan

Table 3a. Chinook Salmon Release and Survival Data for Hidden Falls Hatchery
by Ancestral Stock

Brood Year	Stock /1	Smolt Released	Size (gm)	Release Date	% Marine Survival	Adult Return
1981	AC	80,460	12.3	5/17-22/83	0.12%	93
1982	AC	70,002	23.5	5/17&24/84	1.30%	910
1983	AC	50,211	18.8	05/21/85	0.75%	375
1984	CL	45,583	15.2	05/22/86	0.47%	215
1985	CL	46,137	15.7	05/22/87	0.61%	283
1986	CL	101,571	20.7	05/28/88	2.17%	2,204
1987	CL, HF	284,132	21.5	05/28/89	0.95%	2,698
1988	CL, HF	310,783	26.9	05/29/90	0.57%	1,276 /5
1989	HF	169,379	26.6	06/04/91	1.59%	2,697
1990	HF, CL, MH	1,554,021	19.6, 28.1	5/28-6/4/92	1.63%	25,403
1991	HF, MH	1,754,956	23.7, 34.0	6/2&5/93	2.89%	50,779
1992	HF	1,053,038	28.8, 37.2	5/28&29/94	2.69%	28,363
1993	HF	923,506	36.5	06/06/95	1.06%	9,808
1994	HF	888,538	27.5, 28.4	06/05/96	0.92%	8,217
1995	HF	944,457	38.3	05/27/97	4.52%	42,706
1996	HF	1,070,885	39.2	05/29/98	4.53%	48,496
1997	HF	1,104,403	35.1	06/01/99	1.38%	15,285
1998	HF	1,232,716	36.7	5/19&24/00	2.75%	33,905
1999	HF	1,214,625	24.3, 40.5	5/30&6/5/01	1.94%	23,582
2000	HF	1,145,835	42.7	06/03/02	1.74%	19,957
2001	HF	1,248,290	39.7	06/01/03	1.18%	14,671
2002	HF	922,407	25.5, 39.6	4/28, 6/2, 3, 4/04	0.43%	3,969
2003	HF	1,249,354	42.0	06/04/05	1.50%	18,708
2004	HF	1,052,892	18.6, 35.8	4/16-21, 5/9/06 /7	0.46%	4,807
2005	HF	604,149	46.3	5/11, 13/07	1.20%	7,245
2006	HF	498,136	46.3	5/27, 6/5, 6/08	1.24%	6,160
2007	HF	908,118	40.3	06/04/09	1.30%	11,821
2008	HF	939,962	69.8	5/28-6/1/10	1.12%	10,546
2009	HF	598,284	53.2	5/10-16/11	0.18%	1,071
2010	HF	480,642	59.3	5/7-10/12	0.52%	2,477
2011	HF	518,277	66.2	4/26-5/7/13	0.47%	2,459 /2
2012	HF	558,227	66.8	5/1-4/14	0.15%	854 /2
2013	HF	674,433	65.0	4/16-17, 5/15/15	0.03%	189 /2
2014	HF	588,842	59.1	5/5-10/16		
2015	HF	552,298	55.8	4/26-28, 5/16-17		

(Part 1 of 2, continued on next page)

2018 Hidden Falls Hatchery Annual Management Plan

(Part 2 of 2)

Table 3a. Chinook Salmon Release and Survival Data for Hidden Falls Hatchery
by Ancestral Stock

Brood Year	Stock /1	Smolt Released	Size (gm)	Release Date		% Marine Survival	Adult Return
2002	HF	246,895	10.1	07/17/03	/6	0.00%	0
2006	HF	252,825	8.9	08/03/07	/6	0.00%	0
2007	HF	264,676	8.0	07/28/08	/6	0.00%	0
2008	HF	289,236	10.7	07/13/09	/6	0.00%	0
2009	HF	367,460	13.3	07/16/10	/6	0.00%	0
1983	TR	46,750	18.8	05/21/85		0.25%	115
1984	TR	46,518	16.7	05/22/86		0.15%	72
1985	TR	51,847	16.6	05/22/87		0.23%	118
1986	TR	57,460	17.2	05/28/88		0.53%	302
1987	TR	53,768	23.0	05/28/89		0.71%	382
1988	TR	38,660	38.0	05/21/90	/3	NA	NA
1989	TR	14,750	27.3	06/04/91		1.53%	226
1990	TR	30,223	15.3	05/20/92	/4	NA	NA
1991	TR	56,415	21.2	05/22/93	/4	NA	NA
1992	TR	38,789	ND	05/20/94	/4	NA	NA
1993	TR	0					
2007	PC(TR)	164,865	11.0	07/24/08	/6,3	0.08%	138
2008	PC(TR)	222,151	11.5	07/16/09	/6,3	0.04%	88
2009	PC(TR)	80,672	18.7	07/15/10	/6,3	0.18%	147

/1 AC= Andrew Creek, CL=Crystal Lake Hatchery, HF=Hidden Falls Hatchery, PC=Pullen Creek
TR=Tahini River, MH=Medvejie Hatchery

/2 Incomplete Returns

/3 Lutak Bay Release Site

/4 Taiya Inlet Release Site

/5 Only 222,573 BY88 smolts were represented by a tag code. Marine survival shown reflects this.
No contribution has been estimated for the 88,210 smolts not represented by a code.

/6 Zero-check smolt release.

/7 Accidental early release (4/16-21/2006) 126,304 smolts

2018 Hidden Falls Hatchery Annual Management Plan

Table 3b. Annual Chinook Salmon Returns to Hidden Falls Hatchery
 Catch & Escapement Combined
 (Ages 4,5,6,7)

Andrew Creek		Tahini River	
Return	Number	Return	Number
1985	35		
1986	199		
1987	613	1987	17
1988	475	1988	83
1989	350	1989	107
1990	669	1990	153
1991	1,874	1991	402
1992	2,075	1992	348
1993	1,988	1993	75
1994	8,191	1994	184
1995	35,369	1995	59
1996	41,458		
1997	25,492		
1998	11,409		
1999	23,072		
2000	39,304		
2001	36,178		
2002	23,453		
2003	27,913		
2004	28,898		
2005	18,901		
2006	10,013		
2007	10,549		
2008	12,274		
2009	6,288		
2010	6,858		
2011	10,872		
2012	9,577		
2013	7,208		
2014	1,841		
2015	2,734		
2016	1,423		
2017	649		

2018 Hidden Falls Hatchery Annual Management Plan

Table 4. Coho Salmon Release and Survival Data for Hidden Falls Hatchery

Brood Year	Brood Source	Ancestral Stock	Smolt Released	Size (g)	Release Date	Survival	Adult Return
1988	Blanchard Lake	Deep Cove	62,595	17.2	05/25/90	16.2%	10,153
1989	Deer Lake	Sashin Creek	64,155	28.5	05/25/91	29.1%	18,661
1990	Deer Lake	Sashin Creek	168,862	21.4	06/02/92	19.6%	33,166
1991	Deer Lake	Deep Cove	404,069	19.7,24.7	06/07/93	22.9%	92,400
1992	Hidden Falls	Sashin Creek	1,651,071	24.1	6/4&6/94	14.2%	233,650
1993	Hidden Falls	Sashin Creek	1,458,657	18-21	5/31&6/6/95	13.2%	192,045
1994	Hidden Falls	Deep Cove	1,554,122	18-23	5/30&6/3,6/96	6.3%	98,199
1995	Hidden Falls	Sashin Creek	1,501,428	15-19	06/02/97	11.8%	177,425
1996	Hidden Falls	Sashin Creek	1,489,644	22-26	06/03/98	16.9%	251,096
1997	Hidden Falls	Deep Cove	1,657,809	20-22	06/07/99	10.3%	170,082
1998	Hidden Falls	Sashin Creek	1,599,069	20.5	06/02/00	12.2%	195,359
1999	Hidden Falls	Sashin Creek	1,758,775	22.6	5/29&30/01	23.5%	412,992
2000	Hidden Falls	Deep Cove	1,954,204	22.1	6/1&5/02	10.3%	201,652
2001	Hidden Falls	Sashin Creek	2,023,849	21.9	06/02/03	10.2%	206,819
2002	Hidden Falls	Sashin Creek	2,251,020	18.9	6/1,3,6/04	8.6%	194,657
2003	Hidden Falls	Deep Cove	2,199,914	20.8	5/26,31,6/6/05	10.3%	226,205
2004	Hidden Falls	Sashin Creek	2,802,729	18.9	5/19,24,6/8/2006	1.9%	53,703
2005	Hidden Falls	Sashin Creek	2,487,823	19.0	5/21,22,23,6/8/07	9.8%	243,544
2006	Hidden Falls	Deep Cove	2,274,731	18.7	5/22,26,30/08	4.8%	109,749
2007	Hidden Falls	Sashin Creek	2,797,375	18.9	5/17,22,29,30,6/5/09	7.2%	201,890
2008	Hidden Falls	Sashin Creek	2,560,498	20-23	5/5-11,5/25-26/10	9.9%	254,307
2009	Hidden Falls	Deep Cove	3,185,142	20.1-21.7	5/6-27/2011	1.1%	36,476
2010	Hidden Falls	Sashin Creek	2,569,138	22.2	5/4,5,12,13,14,15,25,26/2012	4.9%	124,923
2011	Hidden Falls	Sashin Creek	3,136,431	24.4	5/4-6/7/2013	2.6%	81,465
2012	Hidden Falls	Deep Cove	3,119,963	22.9	3/14 & 5/5,16,20,27/14	1.8%	56,323
2013	Hidden Falls	Sashin Creek	3,236,886	23.8	5/4,11,14,19,28/15	0.9%	30,505
2014	Hidden Falls	Sashin Creek	3,321,349	21.4	4/25,5/1,14,19,20/16	1.2%	38,261
2015	Hidden Falls	Deep Cove	3,176,580	22.4	5/5-6/2/17		
Total			56,467,888				3,945,707

2018 Hidden Falls Hatchery Annual Management Plan

Table 5. Coho salmon egg take, release and return data for the NSRAA lake stocking program, BY 1981-2016.

Brood Year	Broodstock Source	/1	Number Eggs	Release Location	Rearing	Number Fry Release	Age FW	Number Smolts	Average Weight	Number Adults	Marine Survival %	
1981	Sea Lion Cove		48,684	Sealion L. Sealion R.	Lake	15,174	I	11,762	13	400	3	
					Stream	9,508	II	31	86			
1981	Sashin Creek Deep Cove	/2	90,110	Banner L.	Lake		I	66,850	16	12,500	19	
			18,881	Banner L.	Lake	97,512	II	724	52	55	8	
1982	Falls Creek		226,440	Elfendahl	Lake	115,335	I	7,750	11	615	8	
							II	ND		100		
1983	Sashin Creek		236,000	L. Rostislaw L.	Lake	188,603	I	107,659	9	1,872	2	
							II	10,769	20	272	3	
1984	Sealion Cove		146,500	Sealion L. Surprise L. Surprise R.	Lake	30,000	I	18,870	10	1,075	6	
					Lake	75,163	I	20,911	11	1,250	5	
					Stream	26,487	I	2,155	5			
1984	Banner Lake (Sashin)		1,306,700	Deer Lake	Lake	780,800	I	317,200	13	18,750	6	
							II	32,400	21	1,550	5	
					Blanchard L.	Lake	74,961	I	18,000	15	594	3
							II	440	24	ND		
					Finger Lake	Lake	49,958	I	900	13	0	0
					Fiddle Lake	Lake	29,977	I	3,150	13	162	5
1985	Deep Cove		75,104	Blanchard L.	Lake	69,974	I	35,383	17	1,648	5	
							II	149	65			
1986	L. Rostislaw (Sashin)		988,000	Deer Lake	Lake	842,900	I	370,500	13	26,050	7	
							II	9,100	35	650	7	
1987	Deer Lake (Sashin)		1,026,300	Deer Lake	Lake-Fert	475,000	I	306,000	18	52,700	17	
							II	1,000	32	700	70	
					Blanchard L.	Lake	90,000	I	49,518	9	2,150	4
							II	6,588	34	565	9	
					Banner L.	Lake	100,000	I	47,600	10	4,390	9
							II	14,746	22	1,650	11	
1988	Blanchard L. (Deep C.)		1,500,000	Deer Lake	Lake-Fert	1,443,500	I	680,000	22	165,700	24	
							II	450	46	ND	ND	
1989	Deer Lake (Sashin)		2,000,000	Deer Lake	Lake-Fert	1,741,500	I	737,100	17	143,650	19	
							II	925	30	ND	ND	
1990	Deer Lake (Sashin)		2,396,000	Deer Lake	Lake-Fert	1,875,000	I	591,800	12	75,800	13	
							II	61,300	28	24,200	39	
1991	Deer Lake (Deep Cove)	/3	2,329,600	Deer Lake	Lake-Fert	2,055,000	I	1,031,500	16	239,200	23	
							II	34,600	29	5,900	17	
					U. Deer Lake	Lake	218,000	I				
						II						

(Part 1 of 3, continued on next page)

2018 Hidden Falls Hatchery Annual Management Plan

Table 5. Coho salmon egg take, release and return data for the NSRAA lake stocking program, BY 1981-2016. (Cont.)

Brood Year	Broodstock Source	/1	Number Eggs	Release Location	Rearing	Number Fry Release	Age FW	Number Smolts	Average Weight	Number Adults	Marine Survival %
1992	Deer Lake (Sashin)		2,458,000	Deer Lake	Lake-Fert	2,330,000	I	1,132,000	16	153,500	14
							II	4,650	29	500	11
1993	Deer Lake (Sashin)	/4	2,256,700	Deer Lake	Lake-Fert	2,076,000	I	1,490,000	18	168,300	11
							II	2,675	28	175	7
1994	Hidden Falls (Deep Cove)		2,573,600	Deer Lake	Lake-Fert	2,425,000	I	1,665,000	16	99,100	6
							II	2,950	34	540	18
1995	Hidden Falls (Sashin)		2,626,100	Deer Lake	Lake-Fert	2,505,000	I	1,812,000	17	88,950	5
							II	10,900	30	6,418	59
1996	Hidden Falls (Sashin)		2,927,000	Deer Lake	Lake-Fert	2,714,500	I	1,709,000	17	286,657	17
							II	22,850	22	623	3
1997	Hidden Falls (Deep Cove)		3,015,600	Deer Lake	Lake-Fert	2,829,000	I	1,518,000	10	17,858	1
							II	202,600	18	60,906	30
1998	Hidden Falls (Sashin)		2,832,150	Deer Lake	Lake-Fert	2,525,000	I	408,550	7	27,538	7
							II	350,300	29	103,613	30
1999	Hidden Falls (Sashin)		315,000	Banner Lake	Lake	300,063	I	209,734	ND	17,038	8
							II	16,139	ND	843	5
2000	Hidden Falls (Deep Cove)		2,837,000	Deer Lake	Lake-Fert	2,408,500	I	951,300	10	52,365	6
							II	144,800	28	31,757	22
2001	Hidden Falls (Sashin)		0	Deer Lake	Lake-Fert	0		0			
2002	Hidden Falls (Sashin)		2,600,000	Deer Lake	Lake-Fert	2,326,500	I	1,031,681	17	133,501	13
							II	26,610	19	1,363	5
2003	Hidden Falls (Deep Cove)		2,700,000	Deer Lake	Lake-Fert	1,755,085	I	693,827	17	86,507	12
							II	18,482	43	7,914	43
2004	Hidden Falls (Sashin)		675,550	Deer Lake	Lake-Netpen	581,923		264,290	19	27,198	10
2005	Hidden Falls (Sashin)		1,110,795	Deer Lake	Lake-Netpen	1,002,438	I	533,248	16	18,468	3
							II	0			
2006	Hidden Falls (Deep Cove)		1,537,642	Deer Lake	Lake-Netpen	1,056,903	I	675,462	14	50,883	8
							II	12,025		611	5
2007	Hidden Falls (Sashin)		1,558,136	Deer Lake	Lake-Netpen	1,110,882	I	826,158	13	41,966	5
							II	12,958	33	259	2
2008	Hidden Falls (Sashin)		2,403,037	Deer Lake	Lake-Netpen	2,037,104	I	1,063,381	16	81,845	8
							II	13,000	32	825	6

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Table 5. Coho salmon egg take, release and return data for the NSRAA lake stocking program, BY 1981-2016. (Cont.)

Brood Year	Broodstock Source	/1	Number Eggs	Release Location	Rearing	Number Fry Release	Age FW	Number Smolts	Average Weight	Number Adults	Marine Survival %			
2009	Hidden Falls (Deep Cove)		2,498,400	Deer Lake	Lake-Netpen	2,123,950	I	647,000	23	41,042	6			
							II	354,622	25	42,370	12			
2010	Hidden Falls (Sashin)		2,511,040	Deer Lake	Lake-Netpen	2,000,300	I	1,711,170	19	204,396	12			
							II	112,330	28	-	0			
2011	Hidden Falls (Sashin)		3,200,000	Deer Lake	Lake-Netpen	2,801,419	I	2,314,224	21	239,417	10			
							II	52,395	46	ND				
2012	Hidden Falls (Deep Cove)		3,132,330	Deer Lake	Lake-Netpen	2,802,628	I	2,364,473	25	143,183	6			
							II	2,521	63	-	0			
							Cliff Lake ⁵	Lake	50,003	I&II	37,502	2	862	2
2013	Hidden Falls (Sashin)		3,217,500	Deer Lake	Lake-Netpen	2,800,536	I	2,495,732	25	56,885	2			
							II	0						
							Banner Lake ⁵	Lake	100,819	I&II	75,614	2	1,127	1
2014	Hidden Falls (Sashin)		3,200,000	Deer Lake	Lake-Netpen	2,814,430	I	2,427,271	22	125,719	5			
							II							
							Parry Lake ⁵	Lake	128,158	I&II	96,119	2	783	1
2015	Hidden Falls (Deep Cove)		3,200,000	Deer Lake	Lake-Netpen	2,900,000	I	2,557,538	25					
							II							
							Cliff Lake ⁵	Lake	29,789	I&II	22,342	3		
2016	Hidden Falls (Sashin)		3,200,000	Deer Lake	Lake-Netpen	2,800,385	I							
							II							
							Banner Lake ⁵	Lake	118,000	I&II		4		
							Blanchard Lake ⁵		47,203	I&II		4		
2017	Hidden Falls (Sashin)		3,200,000	Deer Lake	Lake-Netpen		I							
							II							
							Cliff Lake ⁵	Lake		I&II				

/1 The ancestral origin of the stock is given in parentheses.

/2 Sashin Creek fish were untagged and Deep Cove were tagged before planting into Banner lake. In 1984 only Sashin Creek fish were used for brood.

/3 Smolt and adult data for Deer and Upper Deer Lakes are combined.

/4 Broodstock source: 1,780,100 eggs from Deer Lake (Sashin); 476,600 from Hidden Falls (Sashin).

/5 Lake stocking with no enumeration at emmigration. Smolt are estimated at 75% of fry plant and are assumed to be split between Age I and Age II. Adults are total adults for all years.

Beginning with BY2004, eggs are kept at Hidden Falls for enire incubation and initial rearing. Fry are transported directly from Hidden Falls to Deer Lake. (Previous incubation was at Medvejje.)

(Part 3 of 3)

2018 Hidden Falls Hatchery Annual Management Plan

Table 6. Numbers of Fish, Eggs, and Fry Associated with the 2018 Chum Salmon Egg Take At Hidden Falls Hatchery by Release Location

Release Location	Egg Take (millions)	Females Required	Brood Required	Eyed Eggs (millions)	Ponded Fry (millions)	Fry Released (millions)
Kasnyku	56.0	28,000	56,000	52.4	52.4	50.8
Takatz	0.0	0	0	0.0	0.0	0.0
Southeast Cove	45.0	22,500	45,000	42.1	42.1	40.8
Gunnuk Creek	20.0	10,000	20,000	18.7	18.7	18.1
Thomas Bay	25.0	12,500	25,000	23.4	23.4	22.7
H.F. Subtotal ^{1/1}	146.0	73,000	146,000	136.5	136.5	132.4
Deep Inlet ^{2/2}	24.0	12,000	24,000	23.0	23.0	22.3
Bear Cove ^{2/2}	20.0	10,000	20,000	23.0	23.0	22.3
Offsite ^{3/3}	10.0	5,000	10,000	9.4	9.4	9.1
Overall Total	200.0	100,000	200,000	191.9	191.9	186.1
<p>1/ Hidden Falls Hatchery (HFH) permit allows for 101 million chum eggs to be incubated at HFH for Kasnyku, Takatz & Thomas Bay releases plus up to 65 million for GCH/ SE COVE.</p> <p>2/ Medvejie permit allows for 44 million chum eggs to be taken at HFH: 24 million for Deep Inlet and 20 million for Bear Cove.</p> <p>3/ Unspecified Destination. DIPAC and Port Armstrong permits allow for up to 10 million chum eggs (combined) to be taken at HFH.</p>						

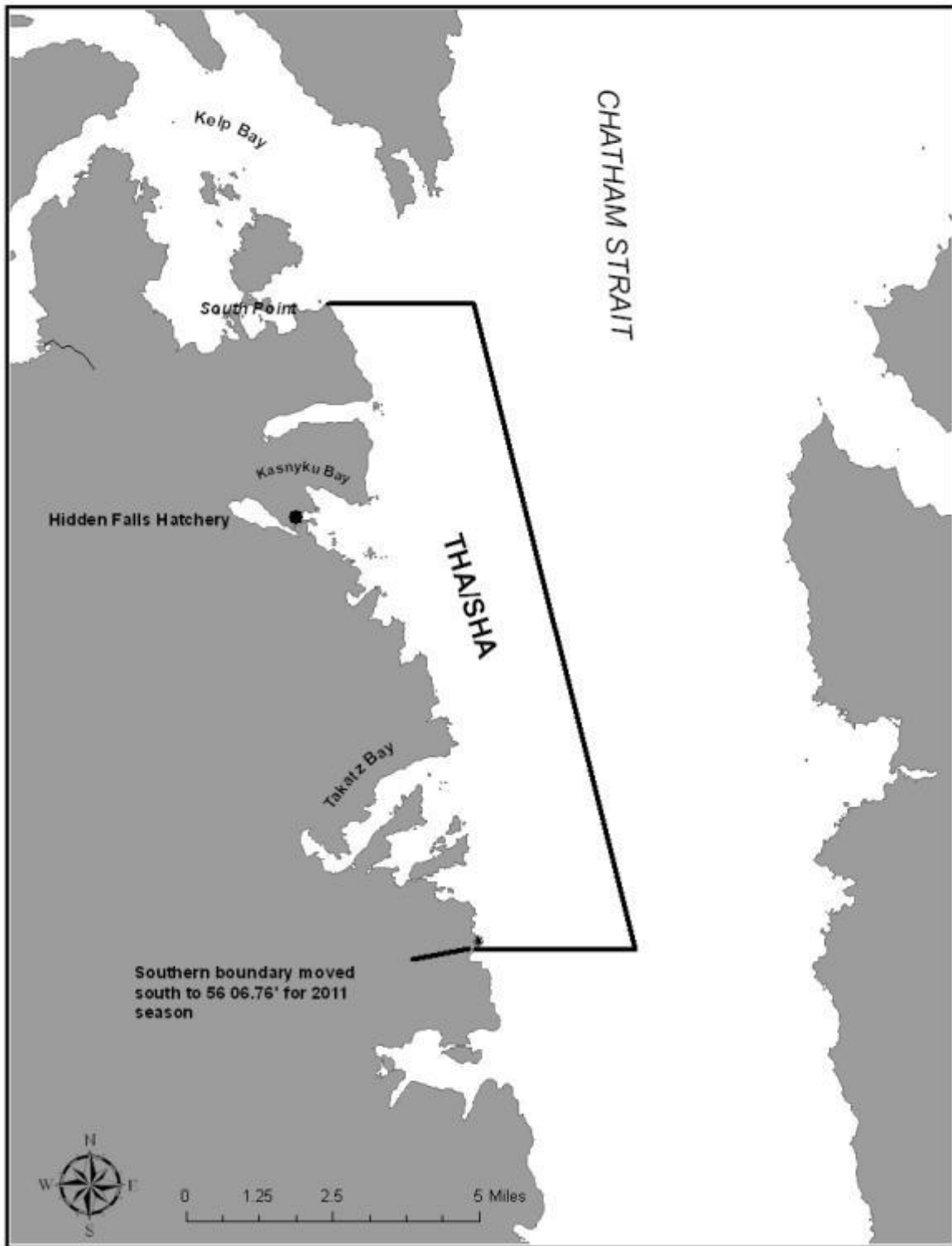


Figure 1.—Hidden Falls Hatchery THA and SHA for chum and king salmon.

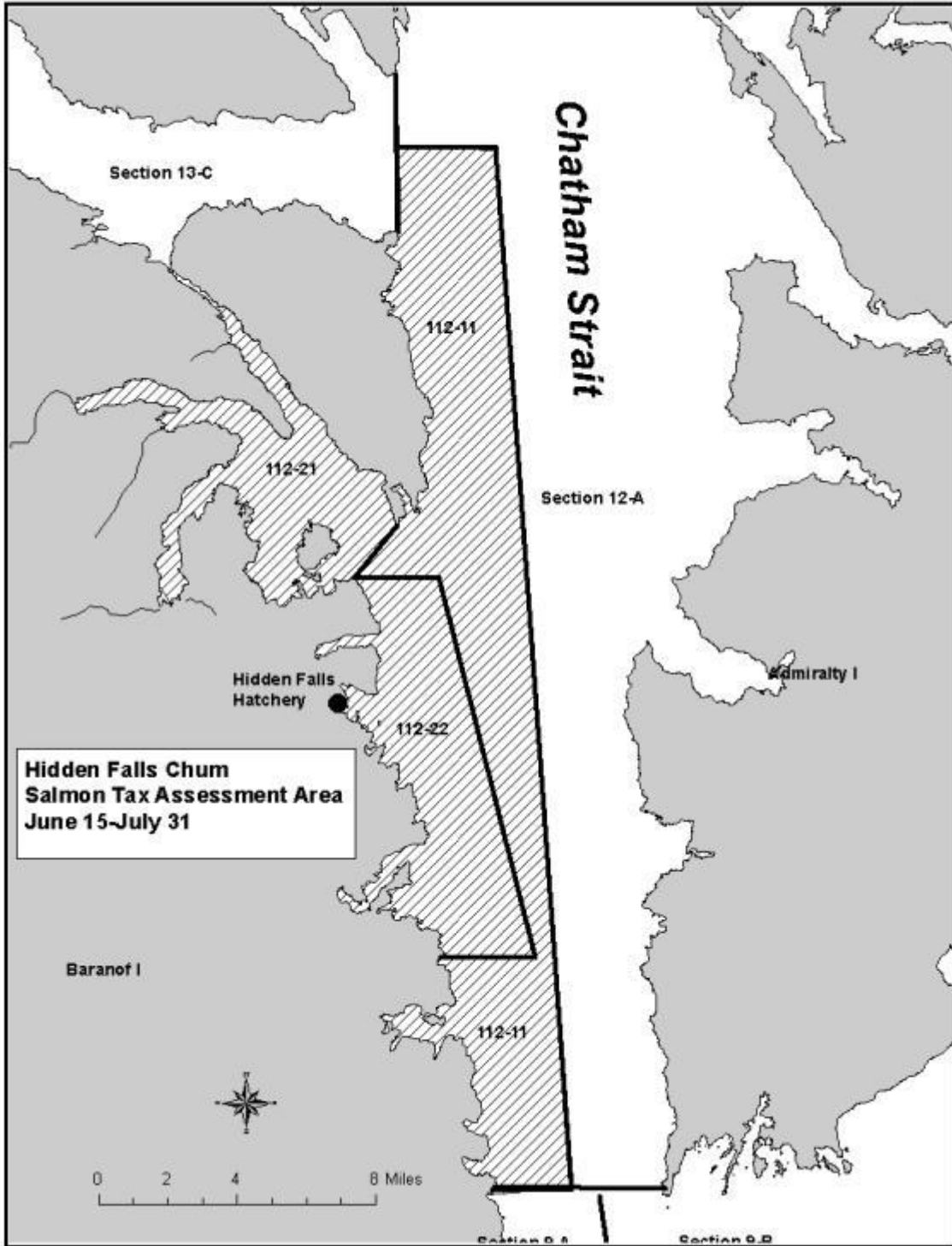


Figure 2.—Hidden Falls Hatchery chum salmon tax assessment area from June 15–July 31. Hidden Falls chum salmon tax assessment area defined as the waters of Section 12-A south of 57°27.00'N lat, north of 57°01.00'N lat and west of a line from 57°27.00'N lat 134°45.50'W long to 57°01.00'N lat, 134°41.50'W long (subsections 112-22, 112-21, and 112-11).



Figure 3.–Hidden Falls Hatchery SHA for coho salmon.

2018 Hidden Falls Hatchery Annual Management Plan

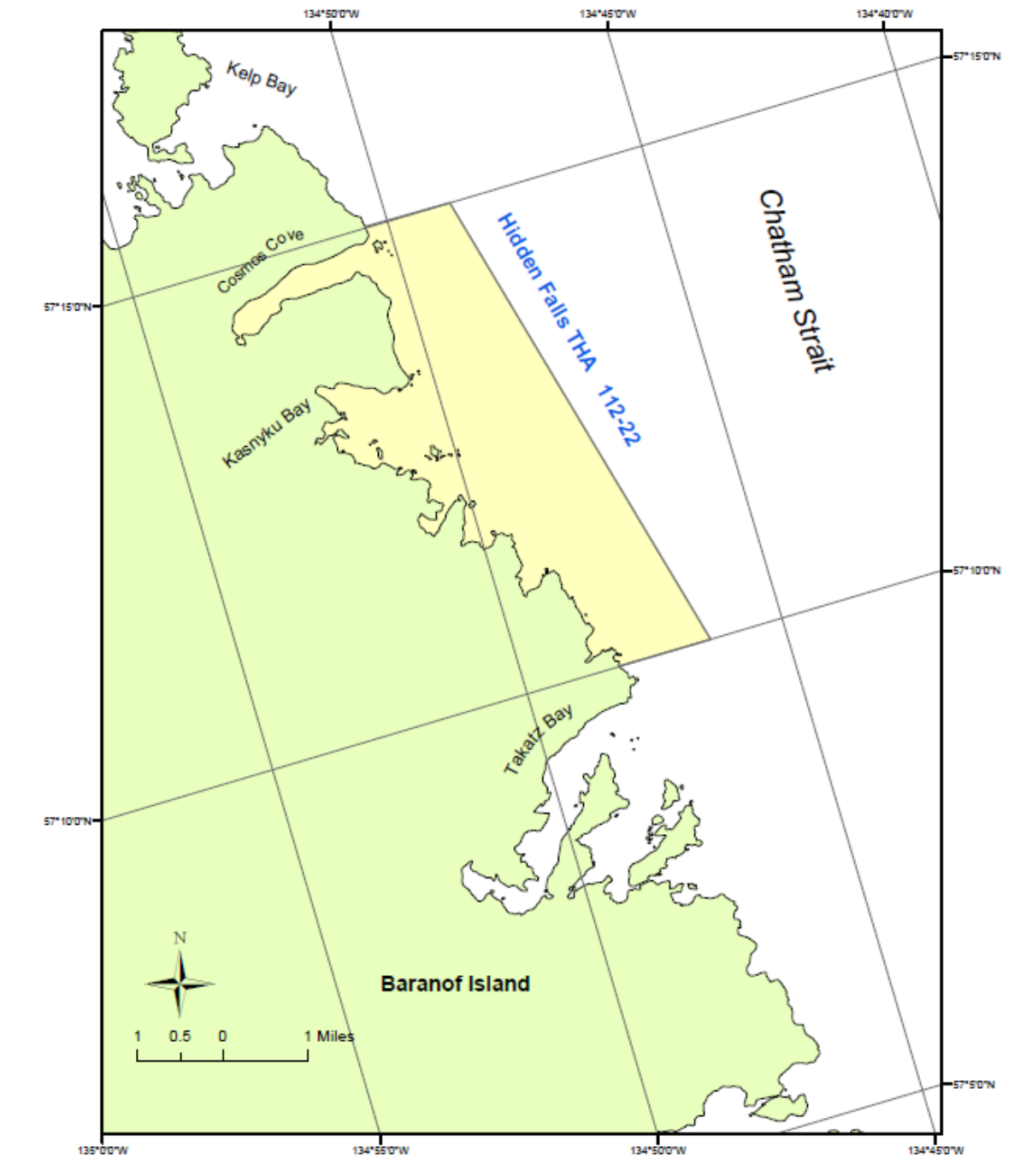


Figure 4.—Modified Hidden Falls Hatchery THA for coho salmon during the summer troll closure.



Figure 5.–Hidden Falls inner Kasnyku Bay closure line (RED). Green and yellow lines represent barrier nets.

The inner portion of Kasnyku Bay is closed by regulation to common property commercial fishing. The closed portion is defined as the waters north and west of a line between a point at 57°13.17'N lat, 134°51.86'W long and a point at 57°13.08'N lat, 134°52.02'W long, and the waters north of a line from 57°13.05'N lat, 134°52.24'W long and a point at 57°13.06'N lat, 134°52.20'W long. Department regulatory markers have been posted. These regulatory markers close the inner portion of Kasnyku Bay to sport fishing.

Mist Cove - with coordinates

Mist Cove SHA



Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

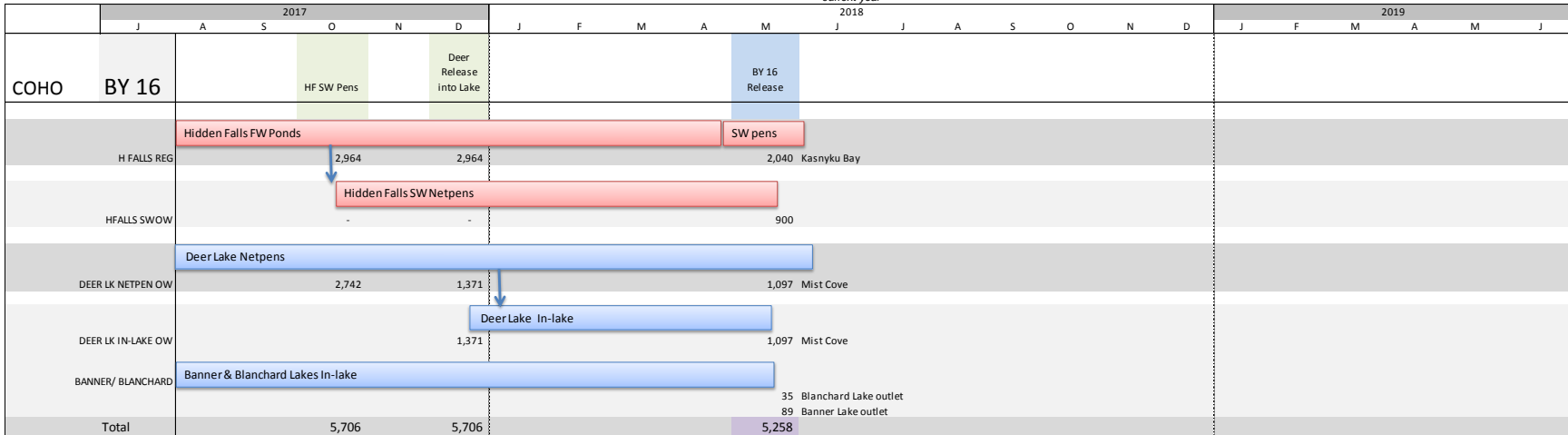
Figure 6.– Mist Cove SHA, consisting of all waters of Mist Cove west of a line from 56°31.70'N lat, 134°39.97'W long to 56°31.27'N lat, 134°39.85'W long; Waters closed to common property fishing with the Mist Cove SHA are south of a line from 56°31.07'N lat, 134°40.20'W long to 56°31.07'N lat, 134°40.12'W long.

PRODUCTION SUMMARY

Organization or Hatchery

NSRAA: HIDDEN FALLS

current year



Deer Lake: a portion of fish are released into the lake after turnover; these emigrate voluntarily in the spring. The remainder stay in netpens over-winter and are pumped out of pens - a "forced" release in the spring.

HIDDEN FALLS/ DEER LAKE COHO BY 16

Thousands

BS SOURCE	STOCK ORIGIN	AGENCY	GREEN EGGS	GROUP	EYED EGGS	FRY	OCT POP	SPLIT PCNT	REL SITE	REL EST
H FALLS	SASHIN	NSRA	3,000	HF	4,365	4,134	2,964		KAS	2,040
H FALLS	SASHIN	NSRA	1,500	HF SWOW	3,104	2,800	2,742	50%	MIST	900
H FALLS	SASHIN	NSRA	3,200	DL PEN	3,104	2,800	2,742	50%	MIST	1,097
				DL LAKE				50%	MIST	1,097
				BLANCHARD LK		47			Lake Outlet	35
				BANNER LK		118			Lake Outlet	89
Total			7,700		7,469	7,099	5,706	100%		5,258

survival from green egg: 100% 97% 92% 74% 68% (HF SWOW) (DL IN-LAKE OW)

incremental survival (for planning) 90% 92% (HF) 98% 82% 80% 80% 94% (DL) (HF REG) (DL PEN OW)

TOTALS by SITE

Site	Green Eggs	Eyed Eggs	Fry	Oct Pop	Release Site	Release Estimate
Hidden Falls	4,500	4,365	4,134	2,964	Kasnyku Bay	2,940
Deer Lake	3,200	3,104	2,800	2,742	Mist Cove	2,194

Codes:

Egg take	ET	number & site
Tagging	T	number
Release	R	number & site
transfers	"to ____"	
Otolith	OT	
DeerLake	DL	
Hidden Falls	HF	
Sashin Creek stock	SASHIN	
Deep Cove stock	DEEP CV	
Kasnyku Bay	KAS	
Mist Cove	MIST	
Satwater over-winter	SWOW	

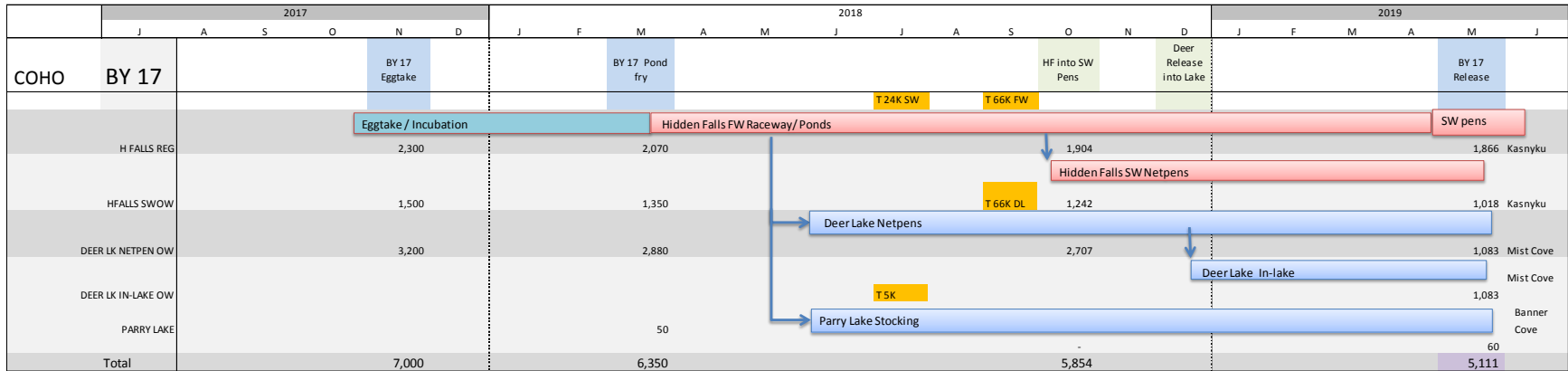
2018 Hidden Falls Hatchery Annual Management Plan

PRODUCTION SUMMARY

Organization or Hatchery

NSRAA: HIDDEN FALLS

current year



- Codes:**
- | | | |
|----------------------|----------|---------------|
| Egg take | ET | number & site |
| Tagging | T | number |
| Release | R | number & site |
| transfers | "to ___" | |
| Otolith | OT | |
| DeerLake | DL | |
| Hidden Falls | HF | |
| Sashin Creek stock | SASHIN | |
| Deep Cove stock | DEEP CV | |
| Kasnyku Bay | KAS | |
| Mist Cove | MIST | |
| Satwater over-winter | SWOW | |

HIDDEN FALLS/ DEER LAKE COHO BY 17

BS SOURCE		STOCK ORIGIN	AGENCY	GREEN EGGS	GROUP	EYED EGGS	FRY	OCT POP	SPLIT PCNT	REL SITE	REL EST
H FALLS	SASHIN	NSRA	2,300	HF	2,185	2,070	1,904			KAS	1,866
H FALLS	SASHIN	NSRA	1,500	HF SWOW	1,425	1,350	1,242			KAS	1,018
H FALLS	SASHIN	NSRA	3,200	DL PEN	3,040	2,880	2,707	50%		MIST	1,083
				DL LAKE					50%	MIST	1,083
				PARRY LAKE		80				Lake Outlet	60
Total			7,000		6,650	6,380	5,854	100%			5,111

survival from green egg: 100% (95% 91% 84%) (73% (HF SWOW) (DL IN-LAKE OW))

incremental survival (for planning) 90% 92% (HF) 98% 82% 80% 80%

(94% (DL) (HF REG) (DL PEN OW))

TOTALS by SITE						
Hidden Falls	3,800	3,610	3,420	3,146	Kasnyku Bay	2,885
Deer Lake	3,200	3,040	2,880	2,707	Mist Cove	2,166

2018 Hidden Falls Hatchery Annual Management Plan

PRODUCTION SUMMARY

Organization or Hatchery

NSRAA: HIDDEN FALLS

current year

COHO	BY 18	2017					2018					2019																
		J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J			
												BY 18 Eggtake											BY 18 Pond fry					
H FALLS REG												Eggtake / Incubation					Hidden Falls FW RW/ Ponds											
HFALLS SWOW																												
DEER LK NETPEN OW																						DeerLake						
DEER LK IN-LAKE OW																												
CLIFF LAKE																						CliffLake						
Total												7,000					6,380											

Codes:

Egg take	ET	number & site
Tagging	T	number
Release	R	number & site
transfers	"to ___"	
Otolith	OT	
DeerLake	DL	
Hidden Falls	HF	
Sashin Creek stock	SASHIN	
Deep Cove stock	DEEP CV	
Kasnyku Bay	KAS	
Mist Cove	MIST	
Satwater over-winter	SWOW	

HIDDEN FALLS/ DEER LAKE COHO BY 18

Thousands

BS SOURCE	STOCK		GREEN		EYED		OCT POP	SPLIT PCNT	REL SITE	REL EST
	ORIGIN	AGENCY	EGGS	GROUP	EGGS	FRY				
0.67 0.38 H FALLS	SASHIN	NSRA	2,300	HF	2,185	2,070	1,904		KAS	1,866
0.33 0.18 H FALLS	SASHIN	NSRA	1,500	HF SWOW	1,425	1,350	1,242		KAS	1,018
0.39 H FALLS	SASHIN	NSRA	3,200	DL PEN	3,040	2,880	2,707	50%	MIST	1,083
				DL LAKE				50%	MIST	1,083
			CLIFF LAKE			80			Lake Outlet	60
Total			7,000		6,650	6,380	5,854	100%		5,111

survival from green egg: 100% 95% 91% 84% 73% (HF SWOW) (DL IN-LAKE OW)

incremental survival (for planning) 90% 92% (HF) 98% 82% 80% 80%
94% (DL) (HF REG) (DL PEN OW)

TOTALS by SITE

Hidden Falls	3,800	3,610	3,420	3,146	Kasnyku Bay	2,885
Deer Lake	3,200	3,040	2,880	2,707	Mist Cove	2,166

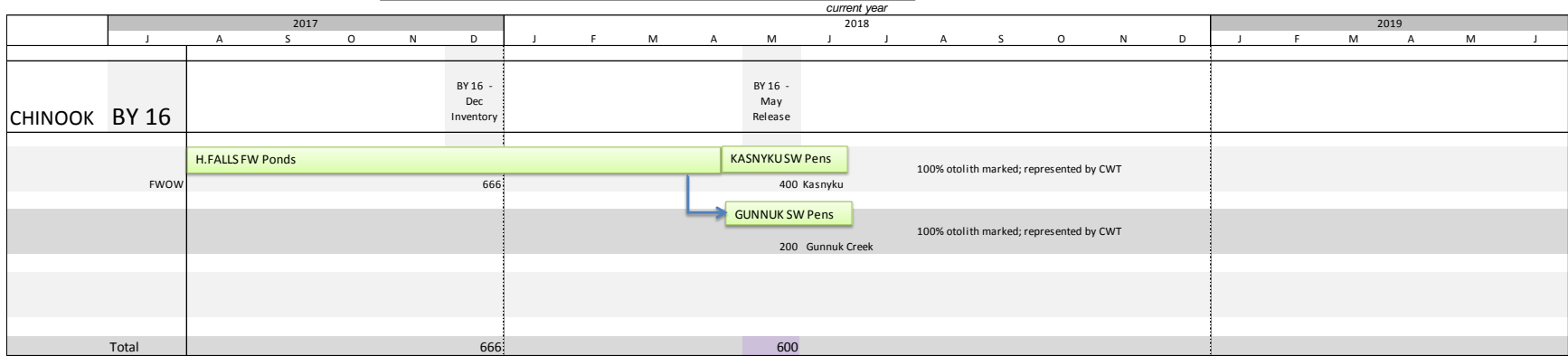
1,354 held in pens

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PRODUCTION SUMMARY

Organization or Hatchery

NSRAA: HIDDEN FALLS



HIDDEN FALLS CHINOOK BY 16

Thousands

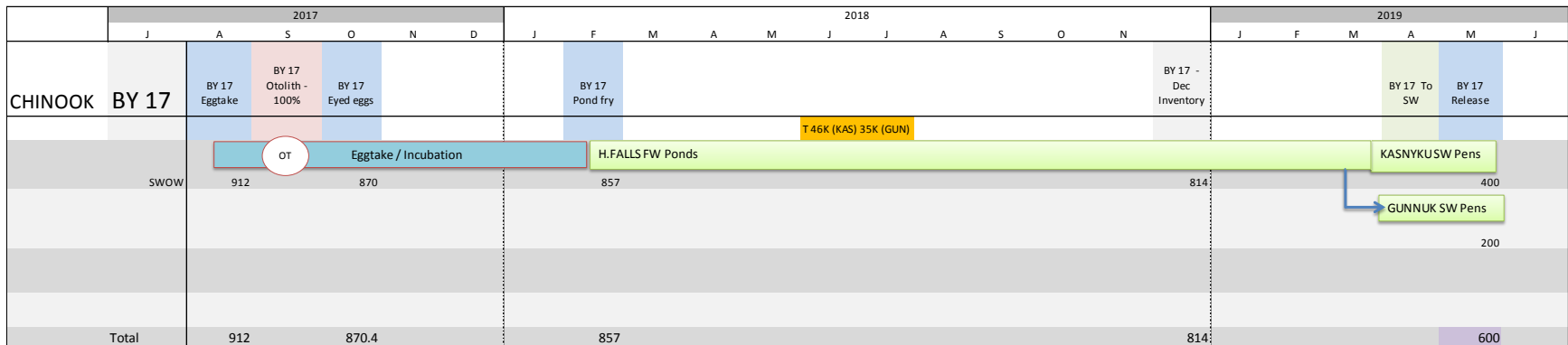
BS SOURCE	AGENCY	SITE	GREEN EGGS	TRX OUT	EYED EGGS	FRY	GROUP	DEC POP	REL SITE	REL EST
HF (AC)	NSRA	HF	832.2		685.0	676.5	FWOW	665.9	KASNYKU	400.0
	NSRA	from MED	89.9						GUNNUK	200.0
Total			922.0	0.0	685.0	676.5		665.9		600.0

Survival from green eggs:: 100% 74% 73% 72% 65%

Incremental for planning gr egg>fry 94% fry>fall 95% fall>rel 85% (SW)

Codes:

Egg take ET number & site
 Tagging T number
 Release R number & site
 transfers "to ___"
 Otolith OT
 MED Medveje
 HF Hidden Falls
 SWOW Saltwater over-winter
 AC Andrew Creek stock



HIDDEN FALLS CHINOOK BY 17

Thousands

BS SOURCE	AGENCY	SITE	GREEN EGGS	TRX OUT	EYED EGGS	FRY	GROUP	DEC POP	REL SITE	REL EST
HF (AC)	NSRA	HF	911.6		870.4	856.9	FWOW	814.1	KASNYKU	400.0
									GUNNUK	200.0
Total			911.6	0.0	870.4	856.9		814.1		600.0

Survival from green eggs:: 100% 95% 94% 89% 66%

Incremental for planning gr egg>fry 94% fry>fall 95% fall>rel 85% (SW)

Codes:

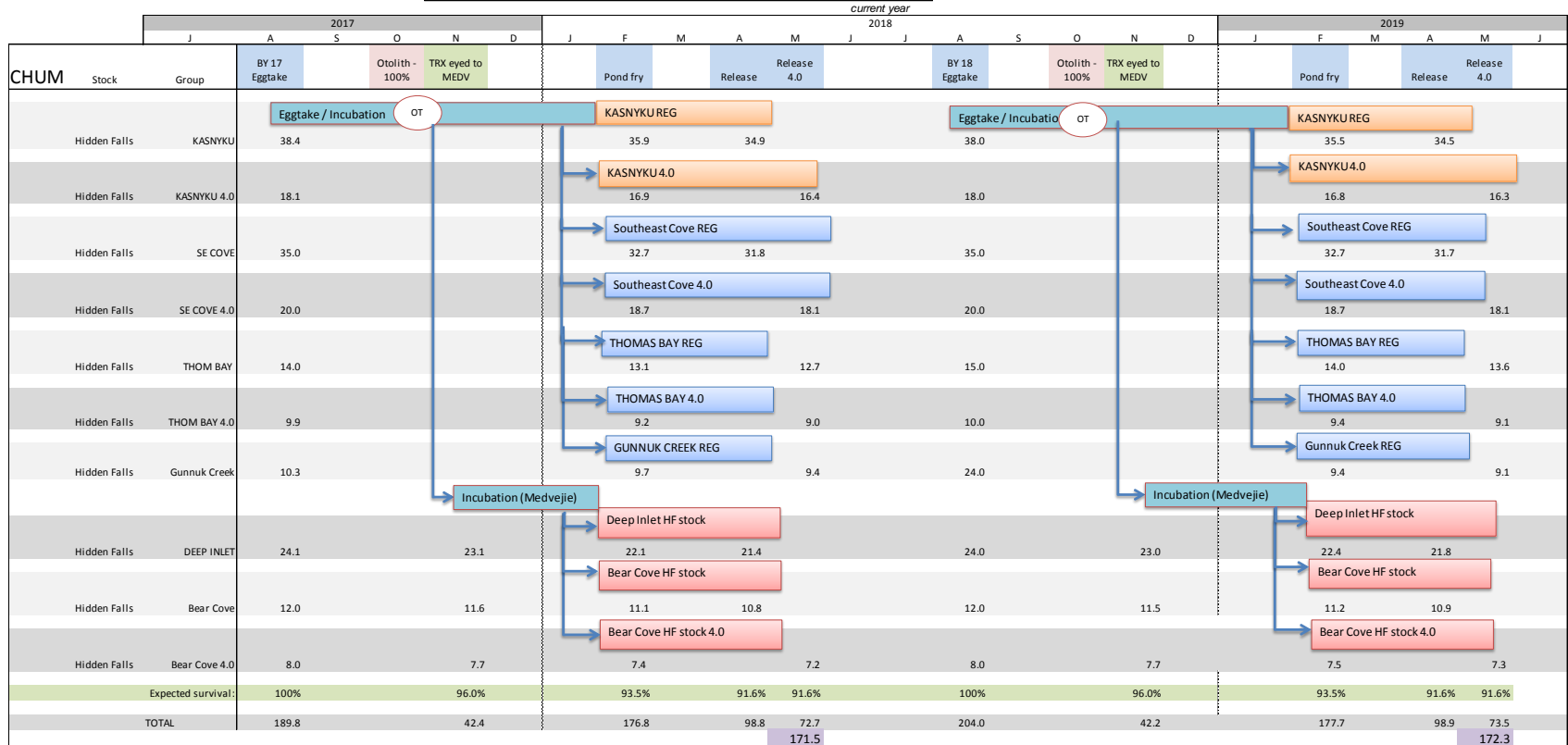
Egg take ET number & site
 Tagging T number
 Release R number & site
 transfers "to ___"
 Otolith OT
 MED Medveje
 HF Hidden Falls
 SWOW Saltwater over-winter
 AC Andrew Creek stock

2018 Hidden Falls Hatchery Annual Management Plan

PRODUCTION SUMMARY

Organization or Hatchery

NSRAA: HIDDEN FALLS



HIDDEN FALLS CHUM BY 17
Millions

STOCK	REL SITE	AGENCY	GROUP	GREEN EGGS	TRX-OUT	FRY	REL GOAL
H Falls	KAS	NSRA	REG	38.4		35.9	34.9
H Falls	KAS	NSRA	LL4.0	18.1		16.9	16.4
Subtotal				56.5		52.8	51.2
H Falls	TAK	NSRA	REG	0.0		0.0	0.0
H Falls	TAK	NSRA	LL4.0	0.0		0.0	0.0
Subtotal				0.0		0.0	0.0
H Falls	THOMAS	NSRA	REG	14.0		13.1	12.7
H Falls	THOMAS	NSRA	LL4.0	9.9		9.2	9.0
Subtotal				23.9		22.3	21.6
H Falls	SE COVE	NSRA	REG	35.0		32.7	31.8
H Falls	SE COVE	NSRA	LL4.0	20.0		18.7	18.1
Subtotal				55.0	0.0	51.4	49.9
H Falls	GUNNUK CR	NSRA	REG	10.3		9.7	9.4
Subtotal				10.3	0.0	9.7	9.4
H Falls	DI	NSRA	REG	24.1	23.1	22.1	21.4
H Falls	Bear Cove	NSRA	REG	12.0	11.6	11.1	10.8
H Falls	Bear Cove	NSRA	LL4.0	8.0	7.7	7.4	7.2
Subtotal				44.1	42.4	40.6	39.4
GRAND TOTAL				189.8	42.4	176.8	171.5

NSRAA TOTALS

Codes:
 Egg take ET number & site
 Tagging T number
 Release R number & site
 transfers "to -"
 Otolith OT
 KAS Kasnyku Bay
 TAK Takatz Bay
 THOMAS BAY Thomas bay
 SE COVE Southeast Cove
 KAKE Gunnuk Creek Hatchery
 LL4.0 or 4.0 Late Large (4.0 g target size)

HIDDEN FALLS CHUM BY 18
Millions

STOCK	REL SITE	AGENCY	GROUP	GREEN EGGS	TRX-OUT	FRY	REL GOAL
H Falls	KAS	NSRA	REG	38.0		35.5	34.5
H Falls	KAS	NSRA	LL4.0	18.0		16.8	16.3
Subtotal				56.0		52.4	50.8
H Falls	TAK	NSRA	REG			0.0	0.0
H Falls	TAK	NSRA	LL4.0			0.0	0.0
Subtotal				0.0		0.0	0.0
H Falls	THOMAS	NSRA	REG	15.0		14.0	13.6
H Falls	THOMAS	NSRA	LL4.0	10.0		9.4	9.1
Subtotal				25.0		23.4	22.7
H Falls	SE COVE	NSRA	REG	35.0		32.7	31.7
H Falls	SE COVE	NSRA	LL4.0	20.0		18.7	18.1
Subtotal				55.0		51.4	49.9
H Falls	GUNNUK CR	NSRA	REG	10.0		9.4	9.1
Subtotal				10.0		9.4	9.1
H Falls	DI	NSRA	REG	24.0	23.0	22.4	21.8
H Falls	Bear Cove	NSRA	REG	12.0	11.5	11.2	10.9
H Falls	Bear Cove	NSRA	LL4.0	8.0	7.7	7.5	7.3
Subtotal				44.0	42.2	41.1	39.9
GRAND TOTAL				190.0	42.2	177.7	172.3

NSRAA TOTALS

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Fish Transport Permits

Stock/Species	FTP	ET, trans, or release?	Transfer from To	Maximum Number, Life Stage	Expires
Sashin Creek coho salmon	92J-1042	All	HFH to Kasnyku Bay	4,500,000 eggs	8/30/2022
Sashin Creek coho salmon	07J-1019	All	HFH to Deer Lake	3,200,000 eggs	8/30/2022
Sashin Creek coho salmon	13J-1008	Transfer, release	HFH to Cliff Lake	50,000 fry	12/31/2023
Sashin Creek coho salmon	13J-1017	Transfer, release	HFH to Banner Lake	300,000 fry	12/31/2023
Sashin Creek coho salmon	15J-1009	Transfer, release	HFH to Parry Lake	150,000 fry	12/31/2025
Sashin Creek coho salmon	17J-1014	Transfer, release	HFH to Blanchard Lake	150,000 fry	12/31/2027
Sashin Creek coho salmon	18J-1001	Egg take, transfer	PAH to HFH (backup)	7,700,000 eggs	12/31/2027
Deep Cove coho salmon	03J-1004	All	HFH to Kasnyku Bay	4,500,000 eggs	8/30/2022
Deep Cove coho salmon	11J-1022	All	HFH to Deer Lake	3,200,000 eggs	6/30/2026
Deep Cove coho salmon	13J-1007	Transfer, release	HFH to Cliff Lake	50,000 fry	12/31/2023
Deep Cove coho salmon	13J-1016	Transfer, release	HFH to Banner Lake	300,000 fry	12/31/2023
Deep Cove coho salmon	15J-1008	Transfer, release	HFH to Parry Lake	150,000 fry	12/31/2025
Deep Cove coho salmon	17J-1015	Transfer, release	HFH to Blanchard Lake	150,000 fry	12/31/2027
Deep Cove coho salmon	18J-1002	Egg take, transfer	PAH to HFH (backup)	7,700,000 eggs	12/31/2027
Andrew Creek king salmon	92J-1019	All	HFH to Kasnyku Bay	3,500,000 eggs	8/1/2022
Andrew Creek king salmon	16J-1018	Egg take, transfer	CLH to HFH	3,500,000 eggs	12/31/2026
Andrew Creek king salmon	16J-1020	Egg take, transfer	MSH to HFH	3,500,000 eggs	12/31/2026
Andrew Creek king salmon	18J-1005	Transfer, release	HFH to Gunnuk Creek	200,000 smolt	12/31/2028
Kadashan chum salmon	95J-1010	All	HFH to Kasnyku Bay	101,000,000 eggs	12/31/2025
Kadashan chum salmon	95J-1009	All	HFH to Takatz Bay	101,000,000 eggs	12/31/2025
Kadashan chum salmon	12J-1022	Transfer, release	HFH to SE Cove	35,000,000 eggs	9/10/2022
Kadashan chum salmon	11J-1023	Egg take, Transfer	PAH to HFH (back up)	50,000,000 eggs	6/30/2020
Kadashan chum salmon	16J-1004	Egg take, transfer	Gunnuk Creek SHA to HFH (backup)	55,000,000 eggs	12/31/2025
Kadashan chum salmon	16J-1005	Egg take, transfer	SE Cove SHA to HFH (backup)	55,000,000 eggs	12/31/2025
Kadashan chum salmon	17J-1003	Transfer, release	HFH to Thomas Bay	40,000,000 fry	12/31/2026
Kadashan chum salmon	17J-1011	Transfer, release	Kasnyku Bay to Eastern Chatham Strait	50,500,000 fed fry	12/31/2022

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Kadashan chum salmon	17J-1018	Egg take, transfer	Gunnuk Creek to HFH (backup)	65,000,000 eggs	12/31/2020
Kadashan chum salmon	17J-1019	Transfer, release	HFH to Gunnuk Creek	20,000,000 fry	12/31/2022
Kadashan chum salmon	17J-1020	Egg take	HFH to GCH projects	65,000,000 eggs	12/31/2022
Macaulay chum salmon	15J-1010	Egg take, transfer, release	MSH to HFH to SE Cove (backup)	20,000,000 eggs	12/31/2020

LIST OF MANAGEMENT CONTACTS:

Following are Division of Commercial Fisheries contacts regarding this management plan:

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Eric Coonradt Area Management Biologist	304 Lake St., Rm. 103 Sitka, Alaska 99835-7671 (907) 747-6688
Aaron Dupuis Assistant Management Biologist	304 Lake St., Rm. 103 Sitka, AK 99835-7671 (907) 747-6688

Following are Division of Sport Fisheries contacts regarding this management plan:

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Troy Tydingco Area Management Biologist	304 Lake St., Rm. 103 Sitka, Alaska 99835-7671 (907) 747-5355
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