



BASIC MANAGEMENT PLAN
Little Port Walter Hatchery
Northern Southeast Regional Aquaculture Association,
Inc.

I. Introduction

Little Port Walter Hatchery (LPWH) is located in Little Port Walter, Alaska, near the southeastern tip of Baranof Island at the site of the NOAA Fisheries Little Port Walter (LPW) research station. The facility is accessible only by boat or floatplane; site location coordinates are 56°22'56.6"N, 134°39'01.7"W. Sashin Creek is the hatchery water source and the location of the LPW weir, at the head of the inner bay.

The LPW research facility was constructed on US Forest Service land in 1934. The research station has been host to a wide variety of fisheries research projects involving Chinook, chum, and pink salmon as well as steelhead. The LPW research facility has been releasing Chinook salmon onsite since 1977. The primary Chinook salmon stocks released from LPW have been Chickamin River and Unuk River Chinook salmon. In 2013, LPW began researching and releasing Keta River stock Chinook salmon. Releases of Unuk River stock Chinook salmon were discontinued in 2021.

Northern Southeast Regional Aquaculture Association, Inc. (NSRAA) owns and operates Hidden Falls Hatchery (HFH) which is located approximately sixty nautical miles north of LPW. In 2018, NSRAA added Keta River stock Chinook salmon to the HFH permit (PNP Hatchery Permit #28). In 2022, NSRAA added Little Port Walter as a release site for Keta River stock Chinook. Releases from LPW in 2023 were conducted under the HFH permit. In 2023, NSRAA submitted a private nonprofit (PNP) hatchery permit application proposing to use the LPWH for Keta River stock Chinook salmon production. Armstrong Keta, Inc. (AKI) was issued hatchery permit #51 for operations and production at LPWH in 2018. AKI agreed to relinquish their permit

concurrently with a new permit issuance to NSRAA. This basic management plan (BMP) describes the planned development of LPWH, operating with a maximum permitted capacity of 1,000,000 Chinook salmon green eggs, under PNP Hatchery Permit #52.

II. Goals

2.1 Production Goals

Maximum permitted capacity: 1,000,000 Keta River stock Chinook salmon eggs.

2.2 Broodstock Source

The broodstock source for the LPWH production will be Keta River ancestral stock Chinook salmon returns to Little Port Walter.

2.3 Broodstock Development

Beginning with brood year (BY) 2013, LPW received Chinook salmon eggs from the Keta River with the first fish released at the site in 2015. Chinook salmon eggs were also taken at Keta River in 2014, 2015, and 2017 for the LPW facility. Eggs for the LPW facility were also collected from returns to LPW in 2018-2020. NSRAA collected eggs from LPW returns in 2021-2023 under the HFH permit with planned releases of the progeny from Little Port Walter. Eggs for the proposed production will come from adult returns to Little Port Walter.

2.4 Release numbers and locations

The release goal at LPW is 1,000,000 smolt. The resultant progeny of up to 1,000,000 Keta River stock Chinook salmon green eggs, an estimated 600,000 smolt, will be released at LPW. Hidden Falls Hatchery may also release Keta River Chinook smolt in LPW. In combination, no more than 1 million smolt would be released at LPW. Juvenile Chinook salmon will be transferred to saltwater net pens for additional rearing and imprinting prior to release. Hatchery net pen sites are located within LPW.

2.5 Principal Project Goals

Little Port Walter Hatchery will contribute an estimated 9,000 adult Chinook salmon annually to the common property fisheries, primarily within the Lower Chatham Strait area and along migratory corridors, once operating at maximum permitted capacity. Local economic benefit in addition to common property fisheries is provided through direct employment at the hatchery and indirectly to support industries. At maximum release capacity surplus broodstock to production will be available which will allow for the introduction of the Keta River stock Chinook salmon to other hatcheries and release locations.

2.6 Annual Fish Culture Objectives

- 1) Develop adult broodstock capture and holding protocols to maximize adult survival to spawn.
- 2) Maximize egg to fry survival to attain 60% or better over the life of the program.

- 3) Produce quality fry for release at optimum ocean conditions each year (historically in May for yearling production, zero production varies) and thereby maximize marine survival.
- 4) Maximize facility efficiency and benefit to cost ratio.
- 5) Maximize contribution to common property fisheries.
- 6) Share knowledge of program with agencies through publications, presentations at conferences, and interaction with local colleges, schools, and colleagues in the Pacific Northwest.

III. Hatchery Operations

3.1 Water Supply and Distribution

The LPWH freshwater source is Sashin Creek. The Sashin Lake watershed is approximately 5.2 square miles and consists of Round Lake and Sashin Lake, which flow into and stabilize Sashin Creek. Sashin Creek originates at Sashin Lake approximately two miles from tidewater and drains into Little Port Walter.

The discharge pattern of Sashin Creek is primarily based on seasonal rainfall. The maximum water flow recorded is 2,650 cubic feet per second (cfs) and the minimum 0.75 cfs. Mean monthly flow ranges from 42–140 cfs, with the lowest flow occurring in March. Incubation at LPWH will require an estimated 60 gpm. Freshwater rearing requirements vary considerably based on rearing strategies being implemented. Water rights are secured by NOAA for the LPW research facility and will be provided to NSRAA through a Memorandum of Understanding.

The water intake is a slotted aluminum sheet in an underwater gallery located in Sashin Creek at approximately 150 feet above sea level, above the barrier falls that prohibits anadromous fish passage. Two water supply lines are located at the intake, 700 yards from tidewater; one 4-inch and one 8-inch polyethylene pipe run parallel from the intake and are submerged across the inner bay. The 8-inch pipeline supplies the vertical raceways at about four feet above sea level and the 4-inch line supplies the incubation building at 30 feet above sea level. There is no effluent water treatment. Effluent will be discharged directly to the marine environment.

3.2 Facility Description

LPWH is located on the shore of Little Port Walter, which is an estuarine environment adjacent to Chatham Strait near the open Gulf of Alaska. The hatchery facility includes the hatchery complex, outbuildings, and onsite saltwater broodstock holding pens, freshwater vertical raceways for fry rearing, and saltwater smolt rearing net pens. The hatchery complex houses the incubation room that will contain rows of stacked Heath tray, or other style, incubators. At the mouth of Sashin Creek there is a weir with adult segregation and passage equipment as well as side channel freshwater holding areas.

3.3 Fish Culture

Broodstock will be collected from returns to LPW. Adults will be either be captured and held in saltwater net pens until deemed ready for spawning, or in combination at the weir and adult

freshwater holding area. Saltwater maturation of broodstock results in low fertility rates, which has been accounted for in egg take and production goals. Some broodstock may be held in freshwater at either the weir or vertical raceways for final maturation. Egg takes will occur in September. Chinook salmon gametes will be collected at the hatchery using standard disinfection procedures. Eggs from one female are fertilized with gametes from one or more males, as appropriate. Once fertilized, eggs from one female are rinsed with iodine solution and placed into one incubator tray. Initial green eggs estimates will be based on assumed fecundity as they are seeded into the incubators. All equipment used for spawning and fertilization will be disinfected with an iodine solution daily. Survival of eggs from broodstock held in freshwater versus saltwater will be evaluated.

In general, all Chinook salmon released from the LPW research facility were coded-wire-tagged (CWT) and adipose clipped to allow for family tracking. Exceptions to this include brood year 2018 Unuk and Keta releases, which were untagged due to Covid-19 staffing complications, and a portion of the brood year 2019 Keta release which was untagged due to staff and equipment issues. Genetics on all parents from 2018 and the Keta parents from 2019 have been processed by the ADF&G Gene Conservation Laboratory. This information has been and will be used to ensure discrete stock management for the 2022-2025 egg takes. The last adult return of the Unuk stock to LPW will occur in 2025. Beginning with brood year 2023, which will begin to return to LPW in 2026, NSRAA will coded-wire tag and adipose clip a portion of the release to allow for contribution and marine survival calculations.

All females will be sampled for presence of *Renibacterium salmoninarum*, the causative agent of Bacterial Kidney Disease (BKD), and eggs from females with positive sample results will be destroyed. Eggs will be treated with formalin and/or saltwater for fungus or freshwater parasites, as necessary. At the eyed stage of development, eggs will be shocked and picked. Live eggs will be enumerated prior to being placed into the incubators.

At swim-up, juveniles will be ponded in fresh water vertical raceways for rearing. Juveniles are reared for various lengths of time prior to saltwater transfer and release. Sub yearling releases may occur in the spring/summer and/or fall. The spring/summer release group would enter saltwater as early as osmocompetent with a target release size of 18-20 grams in July. The fall release group would enter saltwater in May-June with a target release size of 30-40 grams in October. Yearling saltwater overwinter groups would target entry to net pens in October with release in May at a size of 40-50 grams. Yearling freshwater overwinter groups would rear in vertical raceways with saltwater entry in May for short term rearing and imprinting prior to release at a target size of 25 grams. Throughout all rearing phases, fish will be fed a commercial fish feed diet. Any or all of the above strategies may be implemented for a given brood year depending on available eggs and production goals and trends.

IV. Fisheries Management

Operating at maximum permitted capacity of 1,000,000 Chinook salmon eggs at start-up, assuming low egg survival due to saltwater maturation of broodstock and a 1.5% smolt to adult survival rate, the initial brood year return of 781 fish are anticipated for year-3. A return of an additional 5,866 fish would be anticipated for year-4, 2,265 fish in year-5, and 88 fish in year-6. Operating at full production, total returns are estimated to be 9,000 fish per year starting in year-6.

Broodstock requirements at full production would be near 660 fish (assuming 5,500 eggs per female and a 2:1 male/female spawning ratio) and includes a buffer to account for pre-spawning mortality, overripe/unripe broodstock, and egg loss. The number of fish available for cost recovery will depend on market prices and additional brood needs for other releases of the Keta River stock and is difficult to predict. Chinook salmon returns to LPWH will contribute to the common property fisheries in the Chatham Strait area. Lower Chatham Strait serves as the primary harvest area for returning adult fish of hatchery origin.

4.1 Commercial Fisheries

Historic LPW Chinook salmon releases are recovered mainly in the commercial traditional summer troll fisheries in the outer coastal waters and Lower Chatham Strait. The proposed releases are not expected to change management of the spring troll fisheries in southern Chatham Strait. Seine fisheries do occur on the shoreline outside of Little Port Walter based on the strength of local pink salmon returns. Seine openings along this shoreline generally do not begin until the second week of August, after when most of the Chinook salmon will be holding close to Little Port Walter.

The department's Division of Commercial Fisheries staff will attempt to meet the following management priorities for the LPWH:

- 1) to achieve the LPWH broodstock requirement of approximately 660 Chinook salmon (of hatchery origin);
- 2) to allow for an orderly common property harvest of Chinook salmon surplus to #1 above;
- 3) to allow for an orderly hatchery cost-recovery harvest of hatchery Chinook salmon surplus to #1 and #2 above, within the LPWH Special Harvest Area.

4.2 Special Harvest Areas

The Little Port Walter Special Harvest Area consists of the marine waters of Little Port Walter south of 56° 23.24' N. latitude (Hutchison Point Light).

A person holding a permit under AS 16.10.400 for Little Port Walter Hatchery, and an agent, contractor, or employee of that person who is authorized under 5 AAC 40.005(g), may harvest salmon within the Little Port Walter Hatchery Special Harvest Area.

Fishing periods for the hatchery permit holder will be opened and closed by emergency order by gear type. Notwithstanding 5 AAC 33.330, legal gear type for the hatchery permit holder in the SHA is purse seine, beach seine, gillnet, troll gear, and dip net. A hatchery permit holder harvesting salmon within the SHA is exempt from the provisions of 5 AAC 33.310.

NSRAA will be required to remove unharvested hatchery-produced Chinook salmon remaining in the terminal harvest area should a significant number remain after common property fisheries have ceased.

4.3 Sport Fishery

Sport fisheries will be managed in accordance with regulations as provided in 5 AAC 47 – 5 AAC 75. Emergency orders may be issued to liberalize or restrict sport fisheries based on achievement of broodstock goals.

Currently, sport fisheries in the vicinity of LPW are managed under regional bag and possession limits. Chinook salmon limits are set annually based on a preseason index of abundance.

Liberalized regulations for Chinook salmon could potentially be implemented in a limited area to encourage the harvest of hatchery-produced salmon if excess fish returned to the hatchery. Alternatively, sport fishing may be closed by emergency order in a small area to facilitate broodstock collection.

V. Approval

The Little Port Walter Hatchery Basic Management Plan is hereby approved.

Sam Rabung
Director, Division of Commercial Fisheries
Alaska Department of Fish and Game

Date

Israel Payton
Director, Division of Sport Fish
Alaska Department of Fish and Game

Date

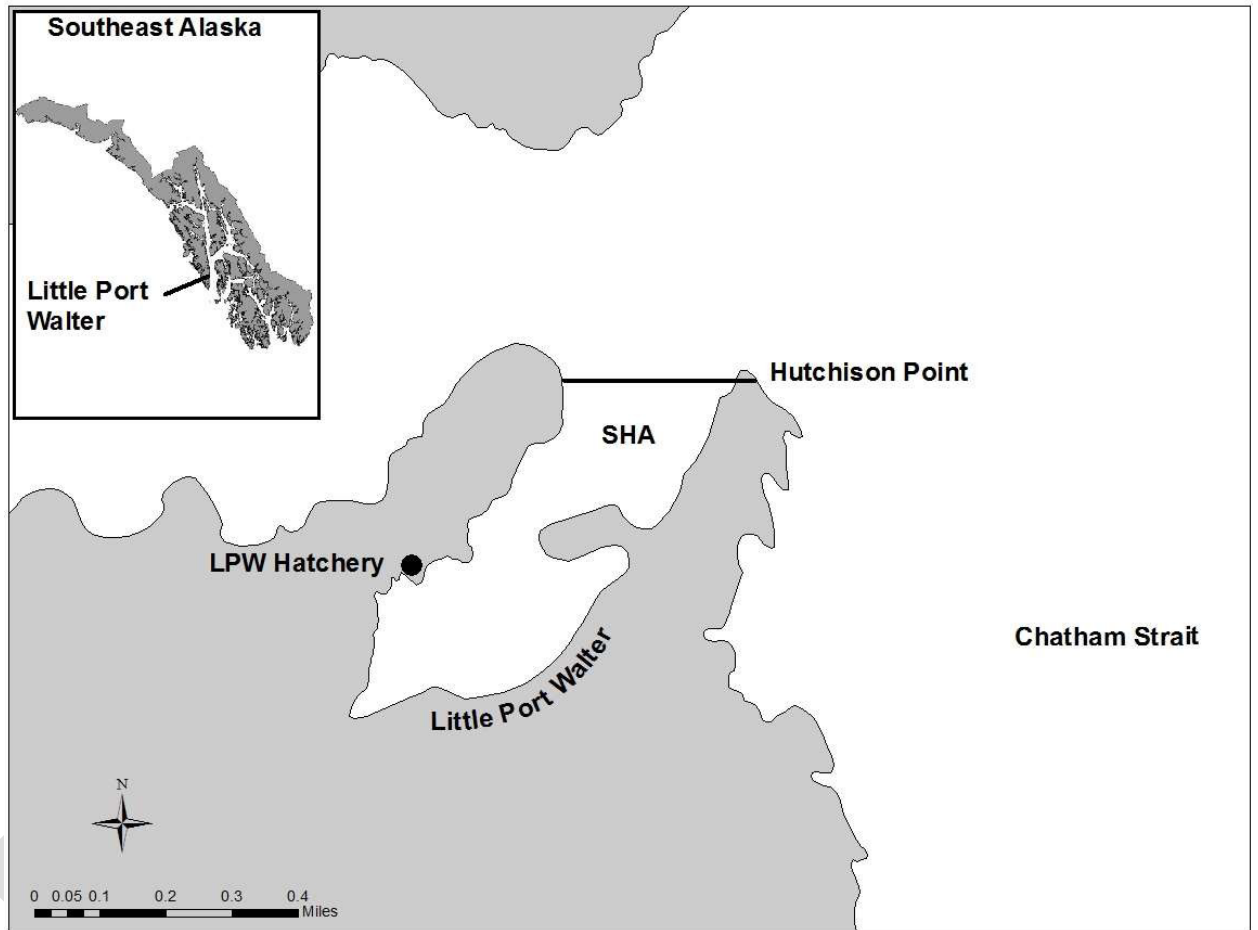
VI. Appendices6.1 Maps

Figure 1. –Little Port Walter Special Harvest Area includes the waters of Little Port Walter south of 56°23.24' N. latitude (Hutchison Point Light).