



BASIC MANAGEMENT PLAN
Little Port Walter Hatchery
Armstrong-Keta, 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 king, chum, and pink salmon as well as steelhead. The LPW research facility has been releasing king salmon onsite since 1977. The primary king salmon stocks released from LPW have been Chickamin River and Unuk River king salmon. In 2013, LPW began researching releasing Keta River stock king salmon.

Armstrong-Keta, Inc. (AKI) owns and operates Port Armstrong Hatchery (PAH) which is located approximately five nautical miles south of LPW. In 2001, PAH began a king salmon broodstock program utilizing the Unuk River king salmon stock from LPWH. In 2015, AKI submitted a private nonprofit hatchery permit application proposing to use Little Port Walter for production of Unuk River king salmon currently being produced at PAH. This basic management plan (BMP) describes the planned development of LPWH, operating with a maximum permitted capacity of 600,000 king salmon green eggs.

II. Goals

2.1 Production Goals

Permitted capacity for LPWH will be 600,000 Unuk River stock king salmon eggs. The production of other salmon species is not proposed.

Maximum permitted capacity: 600,000 king salmon green eggs.

2.2 Broodstock Source

The ancestral broodstock source for LPWH king salmon production was Unuk River. The broodstock source for the LPWH production will be king salmon returns to Little Port Walter or PAH. Both hatcheries will continue to act as a backup brood source for the other.

2.3 Broodstock Development

Little Port Walter has a long-standing history of adult returns of Unuk River stock king salmon. Eggs for the proposed production will come from already established returns to Little Port Walter, with already established returns to PAH used as a backup brood source.

Beginning with brood year (BY) 1987, PAH received Unuk River stock king salmon eggs from the LPW research facility. The king salmon program at PAH was discontinued from 1992-2000. In 2001, PAH reestablished the king salmon broodstock program using Unuk River stock king salmon from LPW research facility. Since 2006, adult king salmon returns to Port Armstrong have been the primary source of eggs for PAH.

2.4 Release numbers and locations

The resultant progeny of up to 600,000 Unuk River stock king salmon green eggs, an estimated 400,000 smolt, will be released at LPW. Port Armstrong is provided as an alternate release location. Juvenile king salmon will be transferred to saltwater net pens for additional rearing and imprinting prior to release. Hatchery net pen sites are located within LPW and Port Armstrong.

2.5 Principal Project Goals

Little Port Walter Hatchery will contribute an estimated 4,000 adult king salmon annually to the common property fisheries (commercial, sport, personal use, and subsistence), 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.

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 68% or better over the life of the program.
- 3) Produce quality fry for release at optimum ocean conditions each year (historically in May) 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 45–140 cfs, with the lowest flow occurring in March. Incubation and rearing at LPWH will require an estimated 4 cfs August through October; freshwater rearing requirements are 1-2 cfs March–July. Water rights are secured by NOAA for the LPW research facility and will be provided to AKI through a Memorandum of Understanding (in process).

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 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.

3.3 Fish Culture

Egg takes will occur in late-July or early-August. King salmon gametes will be collected at the hatchery using standard procedures, including iodine disinfection. Gametes will be removed from male and female fish and placed into individual plastic bags. Eggs from one female are

fertilized with gametes from one or more males, as appropriate. All current hatchery-produced king salmon from LPW are coded-wire-tagged (CWT) and adipose clipped to allow for family tracking. A portion of the proposed new production will be coded-wire-tagged and adipose clipped to evaluate contribution and marine survival of the new production. All adult king salmon broodstock returning to LPWH with an adipose fin are assumed to be from the unmarked portion of the new release and may be spawned immediately. Adult king salmon missing an adipose fin shall require CWT analysis before gametes are combined. Possible CWT results include LPW research Unuk River stock, LPW research Keta River stock, and the proposed new production of LPWH Unuk River stock. 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.

All females will be sampled for Bacterial Kidney Disease (BKD) and eggs with positive sample results will be destroyed. Eggs will be treated with saltwater treatment 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 an estimated eight months in vertical raceways until placed in saltwater net pens in October for overwinter rearing. Target release size is 30.0 grams, with release timing planned for May. While rearing in the net pens, fish will be fed a commercial fish feed diet.

IV. Fisheries Management

Operating at maximum permitted capacity of 600,000 king salmon eggs at start-up, assuming a 1.5% smolt to adult survival rate, the initial brood year return of 1,158 fish are anticipated after three ocean years (year-3). A return of an additional 2,314 fish would be anticipated for year-4, and 386 fish in year-5. Operating at full production, total returns are estimated to be 3,472 in year-4 and 3,858 in year-5. Annual returns are expected to remain at an estimated 3,858 adults.

Broodstock requirements at full production would be near 300 fish (assuming 5,500 eggs per female and a 2:1 male/female spawning ratio) and includes a buffer to account for prespawning mortality, overripe/unripe broodstock, and egg loss. The number of fish required for cost recovery will depend on market prices and corporate needs and is difficult to predict. King salmon returns to LPWH will contribute to the common property fisheries (commercial, sport, and personal use) 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 and PAH king 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 king salmon will have returned 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 300 king salmon (of hatchery origin);
- 2) to allow for an orderly common property harvest of king salmon surplus to #1 above;
- 3) to allow for an orderly hatchery cost-recovery harvest of hatchery king salmon surplus to #2 above, up to the value established as the hatchery's revenue goal, and to allow for a commercial common property harvest of any hatchery fish within the LPWH Special Harvest Area surplus to this amount.

4.2 Special Harvest Areas

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

King salmon returning to Port Armstrong will be harvested in the Port Armstrong Special Harvest Area for king salmon, which consists of the waters of Port Armstrong west of 134°39.47'W long (5 AAC 40.081).

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.

AKI will be required to remove unharvested hatchery-produced king 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. King salmon limits are set annually based on a preseason index of abundance. Liberalized regulations for king 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 Basic Management Plan for the Little Port Walter Hatchery is hereby approved.

Scott Kelley
Alaska Department of Fish and Game
Director, Division of Commercial Fisheries

Date

Tom Brookover
Alaska Department of Fish and Game
Director, Division of Sport Fish

Date

VI. Appendices

6.1 Maps

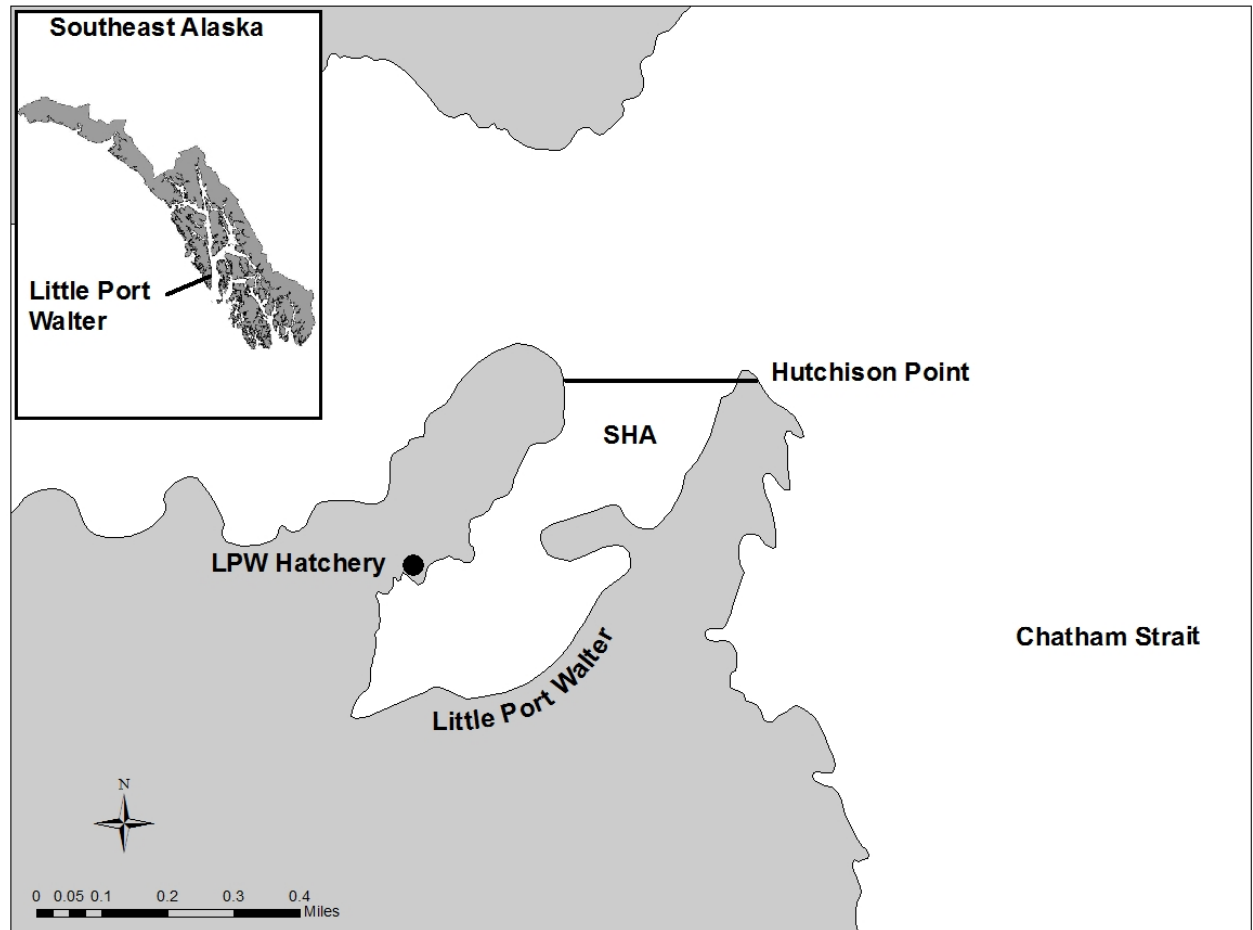


Figure 1. –Little Port Walter Special Harvest Area includes the waters for Little Port Walter south of 56°23.24' N. latitude (Hutchison Point Light).