

**2021 ANNUAL MANAGEMENT PLAN**  
**WILLIAM JACK HERNANDEZ SPORT FISH HATCHERY**

**Alaska Department of Fish and Game**  
**Division of Sport Fish**

**March 2021**

## 1 OVERVIEW

This plan remains in effect until it is superseded by a new annual management plan (AMP) in the following year. This AMP serves as a guide for hatchery operations, and any anticipated changes from this plan will be submitted as an amendment to this plan.

Alaska Department of Fish and Game (ADF&G) Division of Sport Fish operates the William Jack Hernandez Sport Fish Hatchery (WJHSFH).

ADF&G Division of Sport Fish annually produces a *Statewide Stocking Plan for Sport Fish* (SSP)<sup>1</sup>. This document contains specific release sites, sizes, and numbers of fish to be released over a 5-year period. All releases for the current year have received departmental and public review.

### 1.1 New for 2021

#### 1.1.1 William Jack Hernandez Sport Fish Hatchery

##### **Smolt production:**

King salmon: Donor stock shortages and use of alternate donor stocks.

- Eklutna Tailrace release: The demand for Ship Creek donor stock brood fish and resulting smolt increased following the 2020 elimination of the Deception Creek donor stock from the sport fish hatchery program. The number of brood fish returning to WJHSFH via Ship Creek in 2020 was insufficient to support the increased demand; therefore, the number of smolt available for release into Eklutna Tailrace in 2021 is reduced from the planned 424,000 to approximately 237,000.
- Prince William Sound (PWS) releases: Ship Creek donor stock is the primary donor stock for Prince William Sound releases, but a shortage of brood fish returning to Ship Creek necessitated the continuing use of alternate donor stocks Ninilchik River and Crooked Creek for the 2021 PWS releases.
- Kachemak Bay releases: A shortage of brood fish returning to Ninilchik River in 2020 resulted in the continuing use of Crooked Creek donor stock smolt for the Kachemak Bay terminal fishery releases.

##### **Egg takes/Incubation:**

Rainbow trout: WJHSFH made two transfers of 100,000 triploid rainbow trout eyed eggs to Deer Mountain Hatchery to support lake stocking programs in the Ketchikan area. The first transfer experienced an estimated 90% egg mortality (cause unknown), so a second transfer of 100,000 eyed eggs was permitted.

Transfers of rainbow trout eyed eggs to Pillar Creek Hatchery or Macaulay Hatchery did not occur in 2021 due to loss of funding to support those programs.

##### **Lake stocking program:**

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<sup>1</sup> The document is available at <http://www.adfg.alaska.gov/index.cfm?adfg=fishingSportstockingHatcheries.stockingPlan>

- Catchable king salmon: Release approximately 13,975 certified triploid catchable king salmon reared at WJHSFH into two Interior Alaska non-category 1 lakes. In exchange, Ruth Burnett Sport Fish Hatchery (RBSFH) will rear and release approximately 14,000 uncertified triploid catchable king salmon into one category 1 Southcentral Alaska lake. Brood year (BY)2020 king salmon at both facilities are Ship Creek donor stock. This exchange of certified and uncertified triploid king salmon between Regions II and III allows the program to meet all catchable king salmon stocking requests in 2021.
- Lake trout: A lake trout egg take is planned for fall 2021. All eggs/fish will incubate/rear at RBSFH. Lake trout will be released into southcentral Alaska lakes in 2022.

## **2 PRODUCTION PLAN**

Fish culture activities for 2021 for WJHSFH are outlined below.

### **2.1 William Jack Hernandez Sport Fish Hatchery**

WJHSFH is located two miles north of downtown Anchorage. Water is provided by three deep (>300') wells, and the hatchery utilizes flow-through, water-reuse, and water-recirculation technologies. Expected total water available is 3,000 gallons per minute (gpm), but planned water use will range from 1,000 to 2,100 gpm.

#### **2.1.1 Incubation**

Incubation is provided by 52 Heath stacks with 14 usable trays per stack. Water temperature to each half-stack (seven trays) can be separately controlled. Moist air incubators may be installed in the future.

WJHSFH provides eyed rainbow trout and Arctic char eggs to Ruth Burnett Sport Fish Hatchery (RBSFH) in Fairbanks. WJHSFH previously provided eyed rainbow trout eggs to Macaulay Salmon Hatchery<sup>2</sup> in Juneau and Pillar Creek Hatchery<sup>3</sup> in Kodiak, but both programs were suspended in 2021. Deer Mountain Hatchery in Ketchikan<sup>4</sup> received eyed rainbow trout eggs in 2021. WJHSFH annually provides eyed king salmon eggs to Wally Noerenberg Hatchery<sup>5</sup> in Prince William Sound.

Planned incubation by species for 2021:

- Rainbow trout: 2,818,799 green eggs
- Arctic char: Up to 82,197 green eggs
- Coho salmon: Up to 1,279,766 green eggs
- King salmon: 3,046,944 green eggs

#### **2.1.2 Rearing**

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<sup>2</sup> Macaulay Salmon Hatchery is operated by Douglas Island Pink and Chum, Inc.

<sup>3</sup> Pillar Creek Hatchery is operated by Kodiak Regional Aquaculture Association.

<sup>4</sup> Deer Mountain Hatchery is operated by Southern Southeast Regional Aquaculture Association.

<sup>5</sup> Wally Noerenberg Hatchery is operated by Prince William Sound Aquaculture Association.

WJHSFH currently produces rainbow trout, Arctic char, king salmon, and coho salmon.

The following units are available for rearing fish at WJHSFH:

- Fifteen 2'-diameter fiberglass tanks (0.16 m<sup>3</sup>)
- Twelve 5'-diameter fiberglass tanks (1.4 m<sup>3</sup>)
- Thirty-three 10'-diameter fiberglass tanks (8.2 m<sup>3</sup>)
- Four 16'-diameter fiberglass tanks (25.6 m<sup>3</sup>)
- Two 20'-diameter fiberglass tanks (40.1 m<sup>3</sup>)
- Thirty-nine 26'-diameter fiberglass tanks (91.7 m<sup>3</sup>)

The following units are available for holding brood fish at WJHSFH:

- Two 5' x 4' x 48' aluminum raceways (27.19 m<sup>3</sup>)
- Two 8' x 2.5' x 75' aluminum raceways (42.3 m<sup>3</sup>)

The following units are available for loading stocking trucks at WJHSFH:

- Two 8' x 2.5' x 75' aluminum raceways (42.3 m<sup>3</sup>)

The approximate number of fish (by brood year (BY) and species, and includes anticipated rearing mortality) reared in 2021 is listed below:

- BY 2019 rainbow trout (release 2021): 217,000
- BY 2020 rainbow trout (release 2021 —2022): Up to 965,000 (includes 4,000 future broodstock)
- BY 2020 king salmon (release 2021—2022): 2,226,000
- BY 2021 king salmon (release 2022—2023): 2,780,000
- BY 2019 coho salmon (release 2021): 915,000
- BY 2020 coho salmon (release 2021—2022): 1,073,000
- BY 2019 Arctic char (release 2021): 22,500
- BY 2020 Arctic char (release 2021—2022): 50,000 (includes 1,000 future broodstock)

### 2.2.3 Captive Broodstock Programs

**Rainbow trout:** Eggs will be collected from the three-year-old (BY 2018b) mixed-sex population of rainbow trout broodstock. Milt from BY 2019 XX males (sex-reversed females that produce all female offspring) will be used to fertilize 100% of the eggs for all-female diploid and all-female triploid production. Milt from the BY 2018b mixed-sex population will be used to fertilize 100% of the eggs for the mixed-sex diploid production. Rainbow trout broodstock photoperiod was manipulated to encourage rainbow trout to spawn in December. With spawn time manipulation, fingerling rainbow trout will be available for stocking in the early part of summer instead of the end of summer.

**Arctic char:** To maintain the genetic diversity of the captive broodstock, milt from 32 three-year-old and 64 four-year-old males will be used to fertilize eggs collected from 64 four-year-old female WJHSFH captive broodstock. Approximately 200 eggs from each female will be designated as replacement broodstock.

Approximate number of broodstock (BY and species) at WJHSFH:

- BY 2017 Arctic char: 400
- BY 2018 Arctic char: 600
- BY 2019 Arctic char: 1,000
- BY 2018b rainbow trout: 4,000 mixed sex.
- BY 2019 rainbow trout: 4,000 mixed sex and 1,600 XX males.
- BY 2020 rainbow trout: 4,150 XX males. Female and XY male replacement brood fish are included in rearing until catchable size.

## **2.3 PRODUCTION SYNOPSIS**

Fish produced at WJHSFH reduce pressure on wild fish stocks, increase sport fishing opportunity, and provide diversity in sport fisheries throughout Southcentral Alaska. In 2021, 151 sites in Southcentral Alaska will be stocked with fish reared at WJHSFH. In addition, two sites in Interior Alaska will be stocked with catchable king salmon reared at WJHSFH. The lake stocking program comprises the vast majority of the sites. Rainbow trout eyed eggs are transferred in January to Deer Mountain Hatchery to provide fish for three Ketchikan area lakes. Rainbow trout and Arctic char eyed eggs are transferred to RBSFH in Fairbanks to provide fish (2021 fingerling and 2022 catchable rainbow trout releases and 2022 fingerling/subcatchable and 2023 catchable Arctic char releases) for up to 84 Interior Alaska lakes. Most stocked lakes are landlocked lakes or have minimal opportunity for stocked fish to leave the system. Anadromous salmon smolts are released at 11 different sites. The anadromous stocking sites create and expand opportunities to harvest king and coho salmon in a variety of sport fisheries. King salmon eyed eggs will be transferred to Wally Noerenberg Hatchery to provide fish for release at Chenega in Prince William Sound. Some anadromous king and coho salmon are harvested in the commercial fisheries.

### **2.3.1 Lake Stocking**

Diploid fish (capable of reproduction) and triploid fish (sterile) are produced for lake stocking programs. Landlocked lakes may be stocked with diploid or triploid fish, but non-landlocked lakes (lakes with intermittent or barriered outlets or subject to occasional flooding) must be stocked with only triploid fish. The one exception is diploid rainbow trout may be released into lakes with a weir if triploid rainbow trout are not available and the weir has been verified as fish tight. Triploid fish populations must be certified [90% triploid with 95% confidence interval (CI) for all-female populations or 99% triploid with 95% CI for mixed-sex populations] before they can be stocked into non-landlocked lakes. Populations that fail to achieve certification are stocked into landlocked lakes as uncertified triploids. ADF&G produces triploid fish in each of the six species used for lake stocking programs. Triploid fish have lower in-hatchery survival rates than diploid fish. This increases the number of broodstock needed to obtain enough eggs to meet stocking

requests. The benefit of protecting the genetic integrity of wild fish populations through triploid fish releases outweighs the drawback of lower in-hatchery survival rates.

### ***Rainbow Trout***

**General Information:** Rainbow trout production is the largest component (approximately 73% by number in 2021) of the Division of Sport Fish lake stocking program in Southcentral Alaska. Captive broodstock held at WJHSFH support the program. Broodstock originated from wild Swanson River rainbow trout on the Kenai Peninsula and have been held in the hatchery (Fort Richardson Hatchery, Elmendorf Hatchery, and now WJHSFH) since 1982. Both diploid and triploid rainbow trout are produced. Diploid rainbow trout populations are mixed sex or all female. Triploid rainbow trout populations are usually all female, but mixed-sex triploid rainbow trout may be produced if mature XX males are not available for all-female production. Some triploid rainbow trout are stocked in a small number of streams that support no native trout populations. Broodstock (excess to hatchery needs) are stocked in late summer to early winter, catchable fish are stocked in early to late summer, and fingerling fish are stocked in early to midsummer.

**Release Information:** In 2021, approximately 708,814 rainbow trout of various sizes will be stocked at 135 sites throughout Southcentral Alaska (Table 1). Specific release sites and numbers of fish to stock can be found in the *Statewide Stocking Plan for Sport Fish, 2021*.

**Egg Take and Rearing:** Approximately 2,818,799 rainbow trout eggs will be collected from the domestic Swanson River ancestral stock at WJHSFH (Table 2). Triploidy will be induced in approximately 98% of the eggs collected in December 2021. Brood fish are not screened for bacterial kidney disease (BKD)

WJHSFH transferred 200,000 BY2020 all-female triploid eyed eggs to Deer Mountain Hatchery (the first shipment of 100,000 eggs experienced an approximately 90% mortality rate, so another 100,000 eggs was shipped) in Ketchikan and 569,940 all-female triploid eyed eggs to RBSFH in Fairbanks in January 2021 (Table 3). WJHSFH continued to incubate an estimated 1,315,357 all-female triploid, 102,444 all-female diploid, and 17,524 mixed-sex diploid BY2020 eyed eggs. Eggs for replacement broodstock are included in the all-female and mixed-sex diploid eyed egg numbers. In years where there are not enough triploid fish available to meet production needs, diploid fingerlings surplus to replacement broodstock needs may be released into category 1 lakes.

From May through September, approximately 473,440 BY 2020 fingerlings and 203,674 BY 2019 catchables at WJHSFH will be released into Southcentral Alaska lakes. If available, an additional 30,000 fingerlings will be released into Southcentral Alaska lakes. A total of approximately 1,700 surplus brood fish will be released prior to and following the December 2021 egg take.

### ***Arctic Char***

**General Information:** With the exception of replacement broodstock, all Arctic char produced are triploid. Diploid broodstock surplus to broodstock replacement needs are periodically released into Category 1 lakes as part of the regular stocking program. When available, diploid and triploid fingerlings surplus to broodstock replacement and catchable production needs respectively are released in summer and fall. Catchable Arctic char are released in the spring and summer, and adult broodstock Arctic char are released in the fall.

**Release Information:** Approximately 20,825 catchable Arctic char and if available up to 850 surplus broodstock and 19,300 fingerling Arctic char will be stocked into Region II lakes (Table 1). Specific release sites and numbers of fish to stock can be found in the *Statewide Stocking Plan for Sport Fish, 2021*.

**Egg Take and Rearing:** Up to 337,088 eggs will be collected from 64 pairs of captive broodstock Arctic char at WJHSFH for fertilization and incubation (Table 2). Approximately 200 eggs from each female will be designated as replacement broodstock. Triploidy will be induced in approximately 69,398 eggs for production. Eggs surplus to production and replacement broodstock needs will be discarded. Approximately 27,500 triploid eyed eggs will be shipped to RBSFH. An estimated 20,825 triploid fish for Region II catchable releases in 2023 and an estimated 1,000 diploid fish for replacement broodstock will rear at WJHSFH. Surplus broodstock fish are released into Category 1 lakes throughout the rearing process as part of the regular stocking program. If available, and additional 19,300 fingerling Arctic char will be released into Southcentral Alaska lakes.

### *Arctic Grayling*

**General Information:** Due to budget constraints, the Arctic grayling program was suspended in 2020. ADF&G will reinstate the program when funding becomes available.

**Release Information:** No planned releases in 2021.

**Egg Take and Rearing:** No planned egg take in 2021.

### *Lake Trout*

**General Information:** ADF&G is reestablishing the lake trout stocking program. Eggs taken from Sevenmile donor brood are used to stock lakes in Southcentral Alaska. All lake trout eggs are pressure shocked to induce triploidy. Incubation and rearing take place at Ruth Burnett Sport Fish Hatchery (RBSFH).

**Release Information:** Lake trout releases occur every two years starting in 2020; no lake trout will be released in 2021. In years when lake trout are released, approximately 11,400 lake trout subcatchables will be released into seven Region II lakes. Lake trout may be transferred from RBSFH directly to the release sites or to an outdoor stocking raceway at WJHSFH where they will be held for up to one week prior to release in Southcentral Alaska lakes. Lake trout fish transport permits (FTPs) are associated with RBSFH.

**Egg Take and Rearing:** Lake trout eggs are collected in October by RBSFH staff in alternate (odd) years. All lake trout incubation and rearing occur at RBSFH.

### ***King Salmon***

**General Information:** Ship Creek is the primary donor stock for the lake stocking program. Crooked Creek or Ninilchik River donor stocks may be used depending on broodstock availability. Most catchable king salmon are released in early October. These fish are primarily harvested in the winter ice fishery. Approximately 10,000 – 13,000 fish are released the following February for winter ice fishing events or released into the fishing pond at the Great Alaskan Sportsman Show (cancelled in 2021).

**Release Information:** Approximately 77,000 BY 2020 catchable king salmon from Ship Creek donor stock will be released into 15 lakes in Southcentral Alaska in 2021 (Table 1). In addition, approximately 13,975 certified triploid king salmon (Ship Creek donor stock) reared at WJHSFH will be released into two non-category 1 lakes in Interior Alaska in exchange for approximately 14,000 uncertified triploid King salmon (also Ship Creek donor stock) reared at RBSFH that will be released into one category 1 lake in Southcentral Alaska. Specific release sites and numbers of fish to stock can be found in the in the *Statewide Stocking Plan for Sport Fish, 2021*.

**Egg Take and Rearing:** In 2021, approximately 246,172 king salmon eggs will be collected for catchable production (Table 2). Eggs for catchable releases will be collected at Ship Creek. Depending on broodstock availability, triploidy may be induced in king salmon eggs for catchable production. Fish reared from eggs collected in 2021 will be released as 120-gram catchable salmon in fall 2022/winter 2023. Kidney samples collected from female adult king salmon spawned will be tested for BKD and the fertilized eggs will be family tracked. Fertilized eggs from any broodstock that tests positive for BKD will be destroyed.

### ***Coho Salmon***

**General Information:** Ship Creek (Little Susitna River) is the primary donor stock (ancestral stock) for the lake stocking program. Bear Lake donor stock may be used as well. Coho salmon fingerlings are released in early summer. These fish are primarily harvested in the winter ice fishery, but some are harvested in mid to late summer.

**Release Information:** Approximately 133,820 certified triploid fingerlings will be released into 17 Region II lakes.

Fingerling releases are scheduled for early summer 2021, when fish have reached the 1–5 g target size.

Specific lakes and stocking numbers can be found in the *Statewide Stocking Plan for Sport Fish, 2021*.

**Egg Take and Rearing:** Up to 168,531 coho salmon eggs will be collected for fingerling production (Table 2). Eggs for fingerling releases will be collected at Ship Creek. Depending on broodstock availability, up to 100% of the fingerling production may be triploid. Coho salmon eggs will be collected in September and October and



incubated throughout the winter at WJHSFH. Emergence will occur in February and fingerlings will be released in early summer of 2022. Kidney samples collected from female adult coho salmon spawned will be tested for BKD. The fertilized eggs will be family tracked. Fertilized eggs from broodstock that test positive for BKD will be destroyed.

### 2.3.2 Anadromous Smolt Stocking

#### *King Salmon*

**General Information:** King salmon smolt are stocked at nine different locations (Table 4). All fish stocked are from early-run donor stocks. Two locations (Ninilchik River and Crooked Creek) have self-sustaining, naturally-producing populations of king salmon. Stocking supplements naturally-produced runs with the intent to provide a dependable sport fishery. The other seven locations are terminal fisheries with no significant wild populations of king salmon or wild-stock concerns. The current stocking program is supported by three donor stocks of king salmon. Ship Creek is the primary donor stock for Ship Creek, Eklutna Tailrace, and Prince William Sound (Whittier and Cordova) releases, and it may be used in Resurrection Bay (Seward Lagoon) and Kachemak Bay terminal fishery (Homer Spit and Seldovia) releases if needed. Crooked Creek is the primary donor stock for Crooked Creek and Resurrection Bay releases, and it may also be used for Kachemak Bay terminal fishery releases and Prince William Sound terminal fishery releases. Ninilchik River is the primary donor stock for Ninilchik River and Kachemak Bay releases and is an alternate donor stock for Prince William Sound and Resurrection Bay releases. Some brood fish at Ninilchik River and Ship Creek are injected with Ovaplant®; Salmon Gonadotropin - Releasing Hormone analogue (sGnRHa) to synchronize spawn timing. The 2020 egg-take goals at Ship Creek and Ninilchik River were not achieved. This resulted in a shortfall in the number of smolt produced for the Eklutna Tailrace release and the use of alternate donor stocks for the Kachemak Bay releases (Crooked Creek donor stock) and Prince William Sound releases (Crooked Creek and Ninilchik River donor stocks).

**Release Information:** A total of 2,047,500 king salmon smolt are scheduled for release in 2021 (Table 4). A size at release study using Ship Creek release groups was initiated with the 2014 releases and will continue into 2021. One release group of approximately 156,900 smolt has a target average size at release of 18.0–20.0 g, and a second release group with approximately 424,500 smolt has a target average size at release of 12.0–14.0 g. The target release size for all other releases is 12.0–14.0 g. King salmon smolt will be released in May/June. Ninilchik River smolt will be released approximately 14 river miles upstream from the mouth of the Ninilchik River. Crooked Creek smolt will be released at Crooked Creek Hatchery. To minimize straying of returning adults, smolt will be held for imprinting in the Crooked Creek Hatchery raceways prior to release. All smolt released at these two sites are fin-clipped to identify hatchery-released fish from naturally-produced fish in the adult returns. Cordova smolt will be released at Fleming Spit and Whittier smolt will be released near Cove Creek. Homer Spit smolt will be released into the Nick Dudiak Fishing Lagoon, and Seldovia smolt will be released into Seldovia Lagoon. Ship Creek smolt will be released into Ship Creek, and Eklutna Tailrace smolt will be released into Eklutna

Tailrace. Cordova and Whittier releases are held for a minimum of three days at the stocking site prior to release to improve imprinting and reduce potential straying. The Eklutna Tailrace smolt may be released directly into Eklutna Tailrace and not held for imprinting due to lack of funding. The Nick Dudiak Fishing Lagoon (Homer Spit) is sampled prior to release for the presence of *Chaetoceros* to determine if the smolt can be safely held in net pens during the imprinting process. In recent years, the smolt have been held in net pens for several hours (from delivery to approximately midnight) at the stocking site before release. This reduces the rate of predation by sea birds. The smolt released at Homer Spit typically remain in the lagoon for several days after release and are fed until they leave the area. Ship Creek smolt will be transferred to the salmon broodstock collection raceways at WJHSFH and held for imprinting. All king salmon release groups are 100% thermally marked.

**Egg Take and Rearing:** In 2021, approximately 3,046,944 king salmon eggs will be collected for production of 2022 smolt and fall 2022 – winter 2023 catchables (Table 5). This includes approximately 50,000 eggs that will be transferred at the eyed-egg stage to Wally Noerenberg Hatchery for continued incubation and rearing until release (Table 3). Egg fertilization will take place at WJHSFH. Kidney samples collected from female adult king salmon spawned will be tested for BKD. Fertilized eggs will be family tracked. Fertilized eggs from broodstock that test positive for BKD will be destroyed.

### ***Coho Salmon***

**General Information:** Coho salmon are stocked at six different locations using two different donor stocks (Table 6). Ship Creek (Little Susitna River) donor stock is used to stock Homer Spit, Ship Creek, Eklutna Tailrace, Bird Creek, and Campbell Creek. Bear Lake donor stock is used to stock Resurrection Bay (Seward Lagoon).

**Release Information:** A total of 895,000 coho salmon smolt are available for release in 2021. Anticipated numbers of fish to be released are listed in Table 6. All coho salmon release groups are thermally marked.

**Egg Take and Rearing:** In 2021, approximately 1,287,919 coho salmon eggs will be collected for 2022 fingerling production and 2023 smolt production (Table 7). Eggs will be fertilized at WJHSFH. Eggs for smolt releases into Ship Creek, Campbell Creek, Bird Creek, Homer Spit, Eklutna Tailrace, and all fingerling releases will be collected at Ship Creek. This will require approximately 237 females. Approximately 312,859 eggs (78 females) of Bear Lake donor stock will be collected, in cooperation with Cook Inlet Aquaculture Association, for Resurrection Bay releases. Kidney samples collected from all female adult coho salmon spawned will be tested for BKD. Fertilized eggs will be family tracked. Fertilized eggs from female broodstock that test positive for BKD will be destroyed. All coho salmon eggs will be collected in September/October 2021 and incubated at WJHSFH throughout the winter. Emergence will occur in February 2022. Approximately 133,820 coho salmon fingerlings will be released into lakes in 2022. WJHSFH will rear the remaining fish for one more year to produce 895,000 smolts in May 2023.

### **3 MANAGEMENT CONSIDERATIONS**

#### **3.1 Lake Stocking**

Rainbow trout, king and coho salmon, and Arctic char are stocked in lakes on a “put-and-take” or “put-and-grow” basis; no special management considerations are required. The sport fish season and bag limits generally provide for a maximum harvest of these stocked species. A list of fish transport permits (FTPs) associated with lake stockings is presented in Table 8. Specific objectives for these programs are provided in the *Statewide Stocking Plan for Sport Fish, 2021*.

#### **3.2 Anadromous Smolt Stocking**

##### **3.2.1 King Salmon**

The primary purpose of the Ninilchik River and Crooked Creek king salmon stocking projects is to increase fishing opportunities on a sustainable basis by supplementing natural runs of fish in each stream without significantly altering historic age and sex compositions. Commercial harvest of these stocks is minimal due to their early run timing. Sport fishery management concerns associated with these projects are minimal. Sport fish regulations on early-run Kasilof River (Crooked Creek release) and Ninilchik River king salmon fisheries target harvest of hatchery-released fish. These fisheries are designed to increase angler opportunity and harvest potential on hatchery stocks while preserving the wild component of the run.

The primary purpose of the Ship Creek, Seldovia, Homer Spit, Resurrection Bay, Eklutna Tailrace, Whittier, and Cordova king salmon stocking projects is to provide for terminal fisheries in areas where no king salmon fisheries would otherwise exist. These fisheries provide for harvest of large numbers of king salmon with little or no wild stock impacts. These fisheries also generate a significant number of angler days of effort and potentially reduce angler effort on accessible wild fish populations. Commercial harvest of these stocks is minimal due to their early run timing. Sport fishery management concerns associated with these projects are minimal.

##### **3.2.2 Coho Salmon**

The primary purpose of the coho salmon enhancement program is to increase coho salmon sport fishing opportunities in Northern Cook Inlet, Lower Cook Inlet, and Resurrection Bay. Significant sport fisheries exist at all six stocking locations and each location provides excellent terminal harvest opportunity. Commercial harvest is minimal on Lower Cook Inlet and Resurrection Bay returns. Lafferty et al. (2007) reported that from 1993–2003 Upper Cook Inlet commercial fisheries annually harvested an average of 33.4% of the coho salmon returning to stocked Anchorage area streams. However, returns to these fisheries are usually sufficient to support large sport fisheries, and sport fishery management concerns associated with these projects are minimal. A list of FTPs associated with anadromous stockings is presented in Table 8.

### **4 PROJECTED HARVESTS**

Table 9 summarizes projected 2021 sport fish harvest rates for projects supported through fish production from WJHSFH. The 2021 harvest projection for Ship Creek, Bird Creek,

and Eklutna Tailrace anadromous releases is the most recently published (2019) Statewide Harvest Survey (SWHS) harvest estimate. Harvest projection for Resurrection Bay (coho and king salmon) and Homer Spit (coho and king salmon) is the SWHS shoreline estimate for 2019. The contribution of returning adult salmon from these hatchery releases to the boat sport fish harvest is not estimated. The harvest projection for Campbell Creek, Crooked Creek, and Ninilchik River is not reported because the hatchery contribution to the sport fish harvest for these fisheries is not estimated. The harvest projection for Seldovia is not reported as harvest at this location is not reported separately in the SWHS. The harvest projection for Whitter and Cordova cannot be determined as these fish may be harvested during the winter feeder king fisheries. Harvest projection for Arctic char, Arctic grayling, landlocked salmon, and rainbow trout is also based on the 2019 SWHS estimate.

## **5 EVALUATION**

All king and coho salmon smolts are thermally marked to allow for assessment of commercial harvest, inriver sport fishery contributions, and straying at selected stocking locations. Table 10 outlines mark group assignments for each release site. In 2021, all king salmon smolt released at Crooked Creek and Ninilchik River are marked with an adipose fin clip to identify hatchery-produced fish from naturally-produced fish in the sport fishery, broodstock collection, and escapement. Coded-wire-tagging of king salmon was discontinued following the 2017 releases. The most recent Willow Creek evaluation results are presented in Oslund et al. (2013). Marine sport fishery data for Cook Inlet is summarized in Begich (2007).

A recovery program for coho salmon otoliths at Seward remained in effect from 2003–2005. Coded-wire-tagging of coho salmon smolt was discontinued in 2005.

Otoliths may be collected from adult king and coho salmon returning to streams adjacent to release sites to monitor for straying. A post-hatch accessory mark for the Ninilchik River King salmon release was applied to the BY2021 smolt to determine the source of adipose-clipped King salmon strays (Crooked Creek release or Ninilchik River release) entering Deep Creek and the Anchor River.

Sport fishery catch, harvest, and effort statistics are estimated annually by the SWHS.

Fin-marking and thermal marking of some lake stocking products are done on an as needed basis, as defined by Division of Sport Fish research biologists, to evaluate various lake stocking projects. Catch, harvest, and effort statistics are estimated annually by the SWHS.

## **6 RESEARCH**

2021 is the eighth year of a multi-year study to determine the king salmon smolt size at release that yields the greatest return to the sport fishery. Two release groups of Ship Creek donor stock smolt, with target average size at release of 12.0–14.0 g and 18.0–20.0 g, are scheduled for release into Ship Creek in 2021. Unique thermal marks were applied to 100% of the smolt in both release groups so their contribution to the fishery can be determined. Otoliths collected from adult king salmon returning to the brood holding raceways along Ship Creek are prepared and read by hatchery staff.

Future research will be conducted at WJHSFH. Possible projects include selective spawning of rainbow trout, Arctic char, and salmon.

## **7 LITERATURE CITED**

Begich, R. N. 2007. Contributions of coded wire tagged king salmon stocks to the early-run marine fishery in Cook Inlet, 1999–2001. Alaska Department of Fish and Game, Fishery Data Series No. 07-54, Anchorage.

Oslund, S., S. Ivey., and D. Lescanec. 2013. Area Management Report for the Recreational Fisheries of Northern Cook Inlet, 2011–2012. Alaska Department of Fish and Game, Fishery Management Report No. 13-50, Anchorage.

Alaska Sport Fishing Survey database [Internet]. 1996–present. Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited October 14, 2015). Available from: <http://www.adfg.alaska.gov/sf/sportfishingsurvey/>.

Lafferty, R., R. Massengill, D. Bosch, and J.J. Hasbrouck. 2007. Stock status of coho salmon in Upper Cook Inlet: Report to the Alaska Board of Fisheries, January 2005. Alaska Department of Fish and Game, Fishery Manuscript No. 07-01, Anchorage.

PRAqua and HDR. 2007. Anchorage Sport Fish Hatchery Anchorage, Alaska Bio-programming summary. Prepared for State of Alaska Department of Transportation and Public Facilities and Department of Fish and Game.

## 8 APPROVALS

### **Recommendation for Approval: William Jack Hernandez Sport Fish Hatchery Annual Management Plan, 2021.**

Jeff Milton, Division of Sport Fish 5/4/2021

Tom Vania, Regional Supervisor, Division of Sport Fish 5/4/2021

Bert Lewis, Regional Supervisor, Division of Commercial Fisheries 5/4/2021

Ethan Ford, Regional Resource Development Biologist Com. Fish 5/5/2021

Lorraine Vercessi, PNP Hatchery Program Coordinator, Div. of Commercial Fisheries 5/5/2021

### **Approval: The 2021 William Jack Hernandez Sport Fish Hatchery Annual Management Plan is hereby approved.**

Tom Taube, Deputy Director, Division of Sport Fish 5/20/2021

Peter Bangs, Assistant Director, Division of Commercial Fisheries 5/19/2021

William Jack Hernandez Sport Fish Hatchery 2021 Annual Management Plan

**Table 1.–Summary of Fish Releases from WJHSFH for Lake Stocking Programs in 2021.**

<b>Species</b>	<b>Release Location</b>	<b>Number<sup>1</sup></b>	<b>Size<sup>2</sup></b>	<b>Type<sup>3</sup></b>	<b>Number of Stocking Locations<sup>4</sup></b>
Rainbow Trout	Region II	371,390	Fingerling	3N/2N	51
		102,050	Fingerling	3N	20
		30,000	Fingerling <sup>5</sup>	3N	4
		162,444	Catchable	3N/2N	40
		41,230	Catchable	3N	26
		1,700	Broodstock <sup>5</sup>	2N	10
<b>Total</b>		<b>708,814</b>			<b>135</b>
Arctic Char	Region II	9,300	Fingerling <sup>5</sup>	3N/2N	5
		10,000	Fingerling <sup>5</sup>	3N	3
		2,000	Catchable	3N	1
		18,825	Catchable	3N/2N	17
		850	Broodstock	2N	5
<b>Total</b>		<b>40,975</b>			<b>24</b>
King Salmon	Region II	21,000	Catchable	3N	4
		56,000	Catchable	3N/2N	11
	Region III	13,975	Catchable <sup>6</sup>	3N	2
	<b>Total</b>		<b>90,975</b>		
Coho Salmon	Region II	14,000	Fingerling	3N	3
		119,820	Fingerling	3N/2N	14
<b>Total</b>		<b>133,820</b>			<b>17</b>
<b>Total</b>		<b>1,018,334</b>			<b>153</b>

<sup>1</sup> Numbers don't include BY 2020 rainbow trout eyed eggs transferred to RBSFH and Deer Mountain Hatchery, BY2021 Arctic char eyed eggs transferred to RBSFH, and BY 2021 king salmon eyed eggs transferred to Wally Noerenberg Hatchery (Table 3). All species are Statewide Stocking Plan request numbers.

<sup>2</sup> Fingerling - 1 to 3 g, Subcatchable - 15 to 70 g, Catchable - greater than 70g. Broodstock fish older than 2 years and greater than 100 g.

<sup>3</sup> 2N = Diploid; 3N = Triploid; 3N/2N = Triploid preferred, but diploid may be permitted if triploid fish are not available.

<sup>4</sup> Total # of stocking locations by species may not equal the sum of the # of locations for each life stage because some release sites receive more than 1 life stage. Overall total release sites may not equal the sum of species release sites because some release sites receive more than 1 species.

<sup>5</sup> Released if available.

<sup>6</sup> Approximately 13,925 certified 3N catchable King salmon will be released into two non-category 1 Region III lakes.

**Table 2.–Summary of Division of Sport Fish Egg Takes for Lake Stocking Programs in 2021.**

<b>Species</b>	<b>Donor stock (Ancestral stock)</b>	<b>Females</b>	<b>Number of Eggs</b>
Rainbow Trout <sup>1</sup>	WJHSFH (Swanson River)	1,166	2,818,799
Arctic Char <sup>2</sup>	WJHSFH (Lake Aleknagik)	64	Up to 337,088
King salmon <sup>3</sup>	Ship Creek, Ninilchik River, or Crooked Creek	Up to 42	246,172
Coho salmon <sup>4</sup>	Ship Creek (Little Susitna River) or Bear Lake	Up to 42	168,531

<sup>1</sup> Includes eggs to produce 200,000 eyed eggs for PCH and 564,000 eyed eggs for RBSFH.

<sup>2</sup> The 64 pairs of Arctic char spawned to obtain genetic diversity in the captive broodstock is more than what is necessary to meet production needs. Approximately 82,198 BY21 eggs will be incubated, and the surplus eggs will be culled. Includes 27,500 eyed eggs for RBSFH.

<sup>3</sup> If brood fish are available, up to 42 pairs will be spawned in case incubation survival and triploid induction rates are lower than anticipated.

<sup>4</sup> If brood fish are available, up to 42 pairs will be spawned in case the incidence of BKD in female brood fish is greater than anticipated and the triploid induction rate is lower than anticipated.



**Table 3.–Summary of hatchery-to-hatchery transfers in 2021.**

<b>Species</b>	<b>Life stage</b>	<b>Sending hatchery</b>	<b>Receiving hatchery</b>	<b>Ploidy</b>	<b>Donor stock</b>	<b>Sex</b>	<b>Number</b>
Rainbow trout	Eyed egg	WJHSFH	RBSFH	3N	WJHSFH (Swanson River)	All female	569,940
Rainbow trout	Eyed egg	WJHSFH	Deer Mountain	3N	WJHSFH (Swanson River)	All female	200,000
King salmon	Eyed egg	WJHSFH	WNH <sup>1</sup>	2N	Ship Creek	Mixed sex	50,000
Arctic char	Eyed egg	WJHSFH	RBSFH	3N	WJHSFH (Lake Aleknagik)	Mixed sex	27,500

*Notes: PWSAC = Prince William Sound Aquaculture Corp., RBSFH = Ruth Burnett Sport Fish Hatchery, WJHSFH = William Jack Hernandez Sport Fish Hatchery, WNH = Wally Noerenberg Hatchery*

<sup>1</sup> Eggs for PWSAC Wally Noerenberg Hatchery terminal fishery at Chenega.

**Table 4.–Numbers of king salmon smolt to be stocked by Division of Sport Fish in 2021.**

<b>Release Site</b>	<b>Hatchery</b>	<b>Donor stock</b>	<b>Release Number<sup>4</sup></b>
<b>Northern Cook Inlet</b>			
Ship Creek	WJHSFH	Ship Creek	575,000
Eklutna Tailrace <sup>1</sup>	WJHSFH	Ship Creek	<u>237,000</u>
		<b>Total</b>	<b>812,000</b>
<b>Central/Lower Cook Inlet</b>			
Crooked Creek	WJHSFH	Crooked Creek	140,500
Seldovia <sup>2</sup>	WJHSFH	Crooked Creek	105,000
Homer Spit <sup>2</sup>	WJHSFH	Crooked Creek	315,000
Ninilchik River	WJHSFH	Ninilchik River	<u>150,000</u>
		<b>Total</b>	<b>710,500</b>
<b>Resurrection Bay</b>			
Seward Lagoon	WJHSFH	Crooked Creek	<u>315,000</u>
		<b>Total</b>	<b>315,000</b>
<b>Prince William Sound<sup>3</sup></b>			
Whittier	WJHSFH	Crooked Creek/Ninilchik River	105,000
Cordova	WJHSFH	Crooked Creek/Ninilchik River	<u>105,000</u>
		<b>Total</b>	<b>210,000</b>
<b>Grand Total</b>			<b>2,047,500</b>

<sup>1</sup> A shortage of Ship Creek donor stock in 2020 resulted in a shortfall in the number of smolt produced for the Eklutna Tailrace release.

<sup>2</sup> A shortage of Ninilchik donor stock in 2020 resulted in the using the secondary donor stock Crooked Creek to produce smolt for the Kachemak Bay Terminal fishery releases.

<sup>3</sup> A shortage of Ship creek donor stock in 2020 resulted in using Crooked Creek and Ninilchik River donor stock smolt for the Prince William Sound releases.

<sup>4</sup> Release number is the stocking goal presented in the Statewide Stocking Plan for Sport Fish. Actual release number may be +/- 5% of the stocking goal.

**Table 5.–Division of Sport Fish king salmon egg-take summary for 2021.**

<b>Donor stock</b>	<b>Number of Sites</b>	<b>Number of Eggs</b>	<b>Fecundity</b>	<b>Number of Females</b>	<b>Females to Spawn</b>	<b>Egg-take Responsibility</b>	<b>Incubation Facility</b>
Ship Creek <sup>1,2</sup>	4	1,720,776	6,014	287	287	WJHSFH	WJHSFH
Crooked Creek	2	576,633	5,012	115	115	WJHSFH and Soldotna	WJHSFH
Ninilchik	3	749,535	4,944	152	152	WJHSFH and Homer	WJHSFH
<b>Totals</b>	<b>9</b>	<b>3,046,944</b>		<b>554</b>	<b>554</b>		

<sup>1</sup> Includes up to 246,172 eggs from up to 42 females for lake stocking programs.

<sup>2</sup> Includes eggs for transfer to PWSAC WNH for Chenega release.

**Table 6.–Division of Sport Fish coho salmon smolt releases in 2021.**

<b>Release Site</b>	<b>Hatchery</b>	<b>Donor stock (Ancestral stock)</b>	<b>Release Number<sup>1</sup></b>
<b>Northern Cook Inlet</b>			
Ship Creek	WJHSFH	Ship Creek (Little Susitna River)	240,000
Bird Creek	WJHSFH	Ship Creek (Little Susitna River)	125,000
Campbell Creek	WJHSFH	Ship Creek (Little Susitna River)	50,000
Eklutna Tailrace	WJHSFH	Ship Creek (Little Susitna River)	<u>120,000</u>
		<b>Total</b>	<b>535,000</b>
<b>Lower Cook Inlet</b>			
Homer Spit	WJHSFH	Ship Creek (Little Susitna River)	<u>120,000</u>
		<b>Total</b>	<b>120,000</b>
<b>Resurrection Bay</b>			
Seward Lagoon	WJHSFH	Bear Lake	240,000
		<b>Total</b>	<b>240,000</b>
<b>Grand Total</b>			<b>895,000</b>

<sup>1</sup> Release number is the stocking goal presented in the Statewide Stocking Plan for Sport Fish. Actual release number may be +/- 5% of the stocking goal.

**Table 7.–Division of Sport Fish coho salmon egg-take summary for 2021.**

<b>Donor stock</b>	<b>Number of Sites</b>	<b>Number of Eggs<sup>1</sup></b>	<b>Fecundity</b>	<b>Number of Females</b>	<b>Females to Spawn</b>	<b>Egg-take Responsibility</b>	<b>Incubation Facility</b>
Bear Creek	1	312,859	4,023	77	78	WJHSFH and CIAA	WJHSFH
Ship Creek (Little Susitna River)	5	975,059	4,130	236	237	WJHSFH	WJHSFH
<b>Totals</b>	<b>6</b>	<b>1,287,919</b>		<b>313</b>	<b>315</b>		

<sup>1</sup> Up to 168,531 eggs (42 females) for lake stocking are included in the Ship Creek (Little Susitna River) broodstock. Either Bear Lake or Ship Creek coho salmon donor stocks may be used for lake stocking projects.

**Table 8.–Fish transport permits (FTPs) for egg takes, hatchery-to-hatchery transfers, and fish releases from William Jack Hernandez Sport Fish Hatchery.**

Area	Species	Donor Stock (Ancestral Stock)	FTP #	Expiration Date	Release Description	Lake Category	Life Stage
Anchorage	Arctic char	WJHSFH (L. Aleknagik)	13A-0028	12/31/2028	Campbell Pt L, Clunie L, GASS, Fish L, Green L, Thompson L	1	2N Catchable/ Broodstock
Anchorage	Arctic char	WJHSFH (L. Aleknagik)	13A-0029	12/31/2028	Campbell Pt L, Clunie L, GASS, Fish L, Green L, Thompson L	1	3N Catchable
Anchorage	Arctic char	WJHSFH (L. Aleknagik)	13A-0030	12/31/2028	Sand L	3	2N Broodstock
Anchorage	Arctic char	WJHSFH (L. Aleknagik)	13A-0031	12/31/2028	Sand L	3	3N Catchable
Anchorage	King salmon	Ship Ck	12A-0089	12/31/2029	Ship Ck	NA	Smolt
Anchorage	King salmon	Ship Ck	12A-0121	12/31/2029	Jewel L, Hillberg L, Green L, Campbell Pt L, Clunie L, Delong L, GASS	1	Catchable
Anchorage	King salmon	Deception Ck (Willow Ck.)	15A-0015	12/31/2029	Jewel L, Hillberg L, Green L, Campbell Pt L, Clunie L, Delong L, GASS	1	2N Catchable
Anchorage	King salmon	Ship Ck	12A-0120	12/31/2029	Taku Campbell L	2	3N Catchable
Anchorage	King salmon	Ship Ck	12A-0122	12/31/2029	Beach L, Cheney L, Mirror L, Sand L	3	3N Catchable
Anchorage	Coho salmon	Ship Ck (L. Susitna R)	18A-0027	12/31/2027	Bird Ck	NA	Smolt
Anchorage	Coho salmon	Ship Ck (L. Susitna R)	18A-0028	12/31/2027	Campbell Ck	NA	Smolt
Anchorage	Coho salmon	Ship Ck (L. Susitna R)	18A-0029	12/31/2027	Ship Ck.	NA	Smolt
Anchorage	Coho salmon	Ship Ck (L. Susitna R)	19A-0029	12/31/2027	Jewel L, Hillberg L, Green L, Campbell Pt L, Clunie L, Delong L, GASS	1	3N Catchable
Anchorage	Coho salmon	Ship Ck (L. Susitna R)	19A-0030	12/31/2027	Taku Campbell L	2	3N Catchable
Anchorage	Coho salmon	Ship Ck (L. Susitna R)	19A-0032	12/31/2027	Mirror L, Cheney L, Beach, Sand L	3	3N Catchable
Anchorage	Grayling	Chena R	20A-0019	12/31/2021	Delong L	1	3N Catchable
Anchorage	Grayling	Chena R	20A-0020	12/31/2021	Taku-Campbell L	2	3N Catchable

Area	Species	Donor Stock (Ancestral Stock)	FTP #	Expiration Date	Release Description	Lake Category	Life Stage
Anchorage	Grayling	Chena R	13A-0032	12/31/2021	Beach L, Sand L	3	2N Catchable
Anchorage	Grayling	Chena R	13A-0033	12/31/2021	Alder Pond, Beach L, Sand L	3	3N Catchable
Anchorage	Rainbow Trout	WJHSFH (Swanson R)	16A-0043	12/31/2023	Campbell Pt L, Clunie L, DeLong L, Fish L, Green L, Gwen L, Hillberg L, Jewel L, Otis L, Spring L, Triangle L, Waldon L	1	3N Catchable
Anchorage	Rainbow Trout	WJHSFH (Swanson R)	16A-0022	12/31/2023	Campbell Pt L, Clunie L, DeLong L, Fish L, Green L, Gwen L, Hillberg L, Jewel L, Otis L, Spring L, Triangle L, Waldon L, GASS	1	2N Catchable Broodstock
Anchorage	Rainbow Trout	WJHSFH (Swanson R)	16A-0023	12/31/2023	Airstrip/Willow Pond, Taku Campbell L, Tangle Pond	2	3N Catchable
Anchorage	Rainbow Trout	WJHSFH (Swanson R)	16A-0024	12/31/2023	Alder Pond, Beach L, Cheney L, Edmunds L, Lower Fire L, Mirror L, Otter L, Rabbit L, Sand L, Symphony L	3	3N Catchable/ Fingerling
Anchorage	Rainbow Trout	WJHSFH (Swanson R)	15A-0064	12/31/2023	Cheney L, Sand L	3	2N Broodstock/ Catchable
Anchorage	Rainbow Trout	WJHSFH (Swanson R)	16A-0044	12/31/2023	Campbell Creek, Chester Creek, Upper Six-Mile L	5	3N Catchable
Delta	Arctic char	WJHSFH (L. Aleknagik)	19A-0003	12/31/2024	Backdown L, Brodie L, Coal Mine #5, Four Mile L, Ken's Pond, Quartz L, Rangeview L, Shaw Pond, Sheefish L	1	Fingerling/ Subcatchable/ Catchable
Delta	Arctic char	WJHSFH (L. Aleknagik)	20A-0001	12/31/2024	Nickel L	2	3N Fingerling/ Subcatchable/ Catchable
Delta	Arctic char	WJHSFH (L. Aleknagik)	20A-0002	12/31/2024	J L	3	3N Fingerling/ Subcatchable/ Catchable
Delta	Coho salmon	Ship Ck. (Little Susitna R.)	20A-0008	12/31/2027	Quartz L	1	Fingerling
Delta	Rainbow Trout	WJHSFH (Swanson R)	13A-0022	12/31/2023	Little Lost L	1	2N Broodstock
Fairbanks	Arctic char	WJHSFH	13A-0019	12/31/2024	Kid's Fishing Pond	1	2N Broodstock

Area	Species	Donor Stock (Ancestral Stock)	FTP #	Expiration Date	Release Description	Lake Category	Life Stage
		(L. Aleknagik)					
Fairbanks	Arctic char	WJHSFH (L. Aleknagik)	19A-0004	12/31/2024	Bathing Beauty Pond, Chena L, Grayling L, Harding L, Hidden L (EAFB), Moose L, Polaris L	1	Fingerling/ Subcatchable/ Catchable
Fairbanks	Arctic char	WJHSFH (L. Aleknagik)	19A-0005	12/31/2024	Birch L, Lost L	3	Fingerling/ Subcatchable/ Catchable
Fairbanks	King salmon	Ship Ck.	20A-0028	12/31/2029	Birch L, Lost L	3	Catchable
Fairbanks	King salmon	Ship Ck.	20A-0029	12/31/2029	Cushman L	2	Catchable
Fairbanks	Rainbow Trout	WJHSFH (Swanson R)	13A-0023	12/31/2023	Ballaine L, Bathing Beauty L, Chena L, Chena HS #30, Kids' Fishing Pond, L Harding L, North Pole Pond	1	2N Broodstock
Glennallen	Arctic char	WJHSFH (L. Aleknagik)	19A-0006	12/31/2024	Buffalo L, Dick L, Ryan L	1	Fingerling/ Subcatchable/ Catchable
Glennallen	Arctic char	WJHSFH (L. Aleknagik)	19A-0007	12/31/2024	Gergie L, John L	2	Fingerling/ Subcatchable/ Catchable
Glennallen	Arctic char	WJHSFH (L. Aleknagik)	19A-0008	12/31/2024	Crater L, Tex Smith L	3	Fingerling/ Subcatchable/ Catchable
Glennallen	Arctic char	WJHSFH (L. Aleknagik)	19A-0009	12/31/2024	Two Mile L	5	Fingerling/ Subcatchable/ Catchable
Glennallen	Rainbow Trout	WJHSFH (Swanson R)	15A-0005	12/31/2023	Buffalo L, Junction L, North Jans L, Ryan L, South Jans L, Strelna L, Tolsona Mountain L	1	3N Fingerling/ Subcatchable/ Catchable
Glennallen	Rainbow Trout	WJHSFH (Swanson R)	15A-0006	12/31/2023	Gergie L, Old Road L, Peanut L, Pippin L, Round L, Sculpin L, Silver L, Tolsona L	2	3N Fingerling/ Subcatchable/ Catchable
Glennallen	Rainbow Trout	WJHSFH (Swanson R)	15A-0007	12/31/2023	Crater L, DJ L, Tex Smith L	3	3N Fingerling/ Subcatchable/ Catchable



Area	Species	Donor Stock (Ancestral Stock)	FTP #	Expiration Date	Release Description	Lake Category	Life Stage
Glennallen	Rainbow Trout	WJHSFH (Swanson R)	15A-0008	12/31/2023	Squirrel Creek Pit	4	3N Fingerling/ Subcatchable/ Catchable
Glennallen	Rainbow Trout	WJHSFH (Swanson R)	15A-0009	12/31/2023	Three Mile L, Two Mile L	5	3N Fingerling/ Subcatchable/ Catchable
Homer	King salmon	Ninilchik R	12A-0079	12/31/2029	Ninilchik R	NA	Smolt
Homer	King salmon	Crooked Ck	18A-0010	12/31/2027	Homer Spit	NA	Smolt
Homer	King salmon	Crooked Ck	18A-0012	12/31/2027	Seldovia	NA	Smolt
Homer	King salmon	Ninilchik R	18A-0013	12/31/2027	Homer Spit	NA	Smolt
Homer	King salmon	Ninilchik R	18A-0015	12/31/2027	Seldovia	NA	Smolt
Homer	King salmon	Ship Ck	12A-0117	12/31/2027	Homer (Nick Dudiak Fishing Lagoon)	NA	Smolt
Homer	King salmon	Ship Ck	12A-0119	12/31/2027	Seldovia Reservoir/Harbor	NA	Smolt
Homer	Coho salmon	Ship Ck (L. Susitna R)	13A-0041	12/31/2027	Homer Spit (Nick Dudiak Fishing Lagoon)	NA	Smolt
Kenai	Arctic char	WJHSFH (L. Aleknagik)	13A-0026	12/31/2028	Island L, Spirit L	1	2N Broodstock/ Catchable
Kenai	Arctic char	WJHSFH (L. Aleknagik)	20A-0018	12/31/2028	Carter L, Troop L, Upper Summit L, Vagt L.	3	3N Fingerling
Kenai	King salmon	Crooked Ck	12A-0070	12/31/2029	Crooked Ck	NA	Smolt
Kenai	King salmon	Ship Ck	12A-0064	12/31/2029	Sport L	1	Catchable
Kenai	King salmon	Crooked Ck	12A-0067	12/31/2029	Sport L	1	Catchable
Kenai	King salmon	Deception Ck	12A-0068	12/31/2029	Sport L	1	Catchable
Kenai	King salmon	Ninilchik R	12A-0069	12/31/2029	Sport L	1	Catchable
Kenai	Coho salmon	Ship Ck	12A-0071	12/31/2027	Arc L, Centennial L, Elephant (Spirit) L, Longmare L, Sport L	1	Fingerling/ Catchable
Kenai	Coho salmon	Bear Ck	12A-0073	12/31/2027	Arc L, Centennial L, Elephant (Spirit) L, Longmare L, Sport L	1	Fingerling/ Catchable
Kenai	Grayling	Chena R	12A-0072	12/31/2021	Arc L, Scout L, Tirmore L	1	Fingerling/ Catchable
Kenai	Rainbow Trout	WJHSFH (Swanson R)	16A-0031	12/31/2025	Aurora L, Barbara L, Cabin L, Centennial L, Chugach Est, Douglas L, Elephant (Spirit) L, Encelewski L, Island L, Johnson L,	1	Fingerling/ Catchable/ Broodstock

Area	Species	Donor Stock (Ancestral Stock)	FTP #	Expiration Date	Release Description	Lake Category	Life Stage
					Longmere L, Loon L, Roque L, Scout L, Sport L, Thetis L, Tirmore L, Kenai Peninsula Sport, Rec, and Trade Show		
Kenai	Rainbow Trout	WJHSFH (Swanson R)	16A-0032	12/31/2025	Carter L, Long L, Meridian L, Rainbow L, Troop L, Upper Summit L, Vagt L	3	3N Fingerling
Mat-Su	Arctic char	WJHSFH (L. Aleknagik)	19A-0024	12/31/2028	Benka L, Carpenter L, Echo L, Finger L, Irene L, Kepler-Bradley L, Long L (Mi 86), Lynne L, Marion L, Matanuska L, Memory L, Prator L, Rush L, Seventeenmile L	1	Broodstock/ Catchable
Mat-Su	King salmon	Deception Ck (Willow Ck)	14A-0098	12/31/2029	Eklutna Tailrace	NA	Smolt
Mat-Su	King salmon	Ship Ck	12A-0006	12/31/2027	Eklutna Tailrace	NA	Smolt
Mat-Su	King salmon	Crooked Ck	12A-0002	12/31/2027	Finger L, Knik L, Matanuska L, Memory L, Prator L, Victor L	1	Catchable
Mat-Su	King salmon	Deception Ck (Willow Ck)	12A-0003	12/31/2027	Finger L, Knik L, Matanuska L, Memory L, Prator L, Victor L	1	Catchable
Mat-Su	King salmon	Ninilchik R	12A-0004	12/31/2027	Finger L, Knik L, Matanuska L, Memory L, Prator L, Victor L	1	Catchable
Mat-Su	King salmon	Ship Ck	12A-0005	12/31/2027	Finger L, Knik L, Matanuska L, Memory L, Prator L, Victor L	1	Catchable
Mat-Su	Coho salmon	Ship Ck (L. Susitna R)	19A-0025	12/31/2021	Finger L, Knik L, Matanuska L, Memory L	1	Catchable
Mat-Su	Coho salmon	Ship Ck (L. Susitna R)	12A-0009	12/31/2027	Barley L, Bearpaw L, Carpenter L, Christiansen L, Diamond L, Echo L, Johnson L, Kalmbach L, Klaire L, Loberg L, Victor L	1	Fingerling
Mat-Su	Coho salmon	Ship Ck (L. Susitna R)	12A-0010	12/31/2027	Gate L, Kashwitna L, Mile 180 L, Slipper L, Walby L, Willow L	2	Fingerling
Mat-Su	Coho salmon	Ship Ck (L. Susitna R)	12A-0011	12/31/2027	Lucille L, Seymour L, Wolf L	3	Fingerling
Mat-Su	Coho salmon	Ship Ck (L. Susitna R)	13A-0051	12/31/2027	Eklutna Tailrace	1	Smolt

Area	Species	Donor Stock (Ancestral Stock)	FTP #	Expiration Date	Release Description	Lake Category	Life Stage
Mat-Su	Grayling	Chena R	13A-0050	12/31/2023	Canoe L, Finger L, Florence L, Goober L, Ida L, Kepler/Bradley L, Knik L, Long L, Lorraine L, Meirs L, Ravine L, Reed L	1	Catchable
Mat-Su	Grayling	Chena R.	20A-0016	12/31/2030	Summit L	2	Catchable
Mat-Su	Rainbow Trout	WJHSFH (Swanson R)	16A-0007	12/31/2025	Bruce L, Canoe L, Echo L, Irene L, Kepler/Bradley L, Knik L, Leech L, Loberg L, Long L (Mi86), Matanuska L, Meirs L, Memory L, Ravine L, Rocky L, Reed L	1	Broodstock/ Catchable
Mat-Su	Rainbow Trout	WJHSFH (Swanson R)	16A-0008	12/31/2025	Barley L, Bearpaw L, Benka L, Boot L, Carpenter L, Christiansen L, Diamond L, Farmer L, Finger L, Florence L, Golden L, Goober L, Honeybee L, Ida L, Johnson L, Kalmbach L, Kings L, Knob L, L. Lonely L, Long L (K/B), Long L (Mi86), Lorraine L, Lynne L, Marion L, Matanuska L, Meirs L, Peggy L, Reed L, Seventeenmile L, Slipper L, Tigger L, Walby L, X L, Y L	1	Fingerling
Mat-Su	Rainbow Trout	WJHSFH (Swanson R)	16A-0009	12/31/2025	Anderson L, Coyote L, Gate L, Kashwitna L, Knob L, M. 180, N. Knob L, Reflections L, Slipper L, Walby L, Weiner L, Willow L	2	Catchable
Mat-Su	Rainbow Trout	WJHSFH (Swanson R)	16A-0010	12/31/2025	Bench L, Beverly L, Big Beaver L, Brockler L, Buck L, Butterfly L, Cranberry L, Crooked L, Lalen L, L. Beaver L, N. Friend L, N. Rolly L, Rhein L, Ruby L, S. Friend L, Threemile L, Twin Island L, Vera L, Visnaw L, Weiner L, W. Beaver L, W. Sunshine L, Wishbone L, Zero L.	2	Fingerling

Area	Species	Donor Stock (Ancestral Stock)	FTP #	Expiration Date	Release Description	Lake Category	Life Stage
Mat-Su	Rainbow Trout	WJHSFH (Swanson R)	16A-0011	12/31/2025	Crystal L, Lucille L, South Rolly L, Tanaina L	3	Catchable
Mat-Su	Rainbow Trout	WJHSFH (Swanson R)	16A-0012	12/31/2025	Caswell #3 L, Crystal L, Dawn L, Homestead L, Loon L, Lucille L, Morvo L, Seymour L, Wolf L	3	Fingerling
PWS	King salmon	Crooked Ck	20A-0014	12/31/2029	Fleming Spit (Cordova)	NA	Smolt
PWS	King salmon	Ship Ck	12A-0094	12/31/2029	Fleming Spit (Cordova)	NA	Smolt
PWS	King salmon	Ninilchik R	19A-0022	12/31/2029	Fleming Spit (Cordova)	NA	Smolt
PWS	King salmon	Ninilchik R	19A-0021	12/31/2029	Whittier Harbor	NA	Smolt
PWS	King salmon	Deception Ck (Willow Ck)	12A-0098	12/31/2029	Whittier Harbor	NA	Smolt
PWS	King salmon	Crooked Ck	20A-0015	12/31/2029	Whittier Harbor	NA	Smolt
PWS	King salmon	Ship Ck	12A-0099	12/31/2029	Whittier Harbor	NA	Smolt
PWS	Grayling	Chena R	12A-0095	12/31/2021	Thompson L	5	3N Fingerling/ Catchable
PWS	Rainbow Trout	WJHSFH (Swanson R)	16A-0046	12/31/2023	Ruth L	1	3N Catchable
PWS	Rainbow Trout	WJHSFH (Swanson R)	16A-0045	12/31/2023	Ruth L	1	2N Catchable Broodstock
PWS	Rainbow Trout	WJHSFH (Swanson R)	16A-0047	12/31/2023	Blueberry L, Thompson L	5	3N Catchable
Res Bay	King salmon	Ship Ck	12A-0090	12/31/2029	Lowell Ck	NA	Smolt
Res Bay	King salmon	Crooked Ck	12A-0091	12/31/2029	Seward Lagoon	NA	Smolt
Res Bay	King salmon	Ship Ck	12A-0092	12/31/2029	Seward Lagoon	NA	Smolt
Res Bay	King salmon	Ninilchik R	19A-0020	12/31/2029	Seward Lagoon	NA	Smolt
Res Bay	King Salmon	Ninilchik R	19A-0023	12/31/2029	Lowell Ck	NA	Smolt
Res Bay	King salmon	Crooked Ck	12A-0093	12/31/2029	Lowell Ck	NA	Smolt
Res Bay	Coho salmon	Bear Ck	18A-0030	12/31/2027	Seward Lagoon	NA	Smolt
Res Bay	Rainbow Trout	WJHSFH (Swanson R)	16A-0048	12/31/2023	Derby: 1st L	3	Catchable
Anchorage	Arctic char	WJHSFH (L. Aleknagik)	15A-0046	12/31/2025	315,000 Egg take @ WJHSFH	NA	Green eggs
Fairbanks	Arctic char	WJHSFH (L. Aleknagik)	14A-0015 <sup>a</sup>	12/31/2024	214,000 Transfer: WJHSFH to RBSFH (3N MX)	NA	Eyed eggs
Kenai	King salmon	Crooked Ck	11A-0013	12/31/2029	1,740,000 Egg take @ Crooked Creek	NA	Green eggs

Area	Species	Donor Stock (Ancestral Stock)	FTP #	Expiration Date	Release Description	Lake Category	Life Stage
Anchorage	King salmon	Ship Ck	11A-0017	12/31/2029	2,400,000 Egg take @Ship Creek	NA	Green eggs
Homer	King salmon	Ninilchik R	11A-0026	12/31/2029	1,500,000 Egg take @ Ninilchik River	NA	Green eggs
Mat-Su	King salmon	Deception Ck (Willow Ck)	11A-0045	12/31/2029	1,560,000 Egg take @ Deception Creek	NA	Green eggs
Anchorage	Coho salmon	Ship Ck (L. Susitna R)	11A-0019	12/31/2027	1,120,000 Egg take @ Ship Creek	NA	Green eggs
Seward	Coho salmon	Bear Ck	11A-0016	12/31/2027	730,000 Egg take @ Bear Creek	NA	Green eggs
Fairbanks	Grayling	Chena R	11A-0015	12/31/2021	113,000 Egg take @ Chena River	NA	Green eggs
Fairbanks	Grayling	Chena R	12A-0106	12/31/2021	170,000 Egg take @ Chena River	NA	Green eggs
Fairbanks	Grayling	Goodpaster R	12A-0107	12/31/2021	170,000 Egg take @ Goodpaster River	NA	Green eggs
Anchorage	Rainbow Trout	WJHSFH (Swanson R)	14A-0032	12/31/2023	3,500,000 Egg take @ WJHSFH	NA	Green eggs
Fairbanks	Rainbow Trout	WJHSFH (Swanson R)	13A-0007	12/31/2023	1,079,000 Transfer: WJHSFH to RBSFH (3N AF)	NA	Eggs/ Fry/ Fingerlings
Kodiak	Rainbow Trout	WJHSFH (Swanson R)	18A-0016 <sup>b</sup>	12/31/2023	200,000 Transfer: WJHSFH to Pillar Creek Hatchery + release	1	Eyed eggs
Kodiak	Rainbow Trout	WJHSFH (Swanson R)	18A-0017 <sup>b</sup>	12/31/2023	200,000 Transfer: WJHSFH to Pillar Creek Hatchery + release	2	Eyed eggs
Kodiak	Rainbow Trout	WJHSFH (Swanson R)	18A-0018 <sup>b</sup>	12/31/2023	200,000 Transfer: WJHSFH to Pillar Creek Hatchery + release	3	Eyed eggs

<sup>a</sup>Issued to Ruth Burnett Sport Fish Hatchery.

<sup>b</sup>Issued to Pillar Creek Hatchery operated by Kodiak Regional Aquaculture Association.

Notes:

PWS = Prince William Sound; Res Bay = Resurrection Bay; WJHSFH = William Jack Hernandez Sport Fish Hatchery; RBSFH = Ruth Burnett Sport Fish Hatchery; 2N = Diploid, 3N = Triploid, MX – Mixed sex, AF = All female, GASS = Great Alaskan Sportsman Show (Anchorage). To be applied for Needs amending

**Table 9.–Projected 2021 harvest from Division of Sport Fish stocking projects.**

Release Site	Projected Harvest					
	King Salmon	Coho Salmon	Rainbow Trout	Arctic Char	Arctic Grayling	Landlocked Salmon
<b>Northern Cook Inlet</b>						
Ship Creek <sup>1</sup>	976	4,946				
Bird Creek <sup>1</sup>		1,959				
Campbell Creek <sup>2</sup>		Not available				
Eklutna Tailrace <sup>1</sup>	524	1,881				
<b>Central/Lower Cook Inlet</b>						
Crooked Creek <sup>2</sup>	Not available					
Kachemak Bay						
Seldovia <sup>3</sup>	Not available					
Homer Spit <sup>4</sup>	1,226	2,097				
Ninilchik <sup>2</sup>	Not available					
<b>Resurrection Bay</b>						
Resurrection Bay	340 <sup>4</sup>	6,767				
<b>Prince William Sound</b>						
Cordova <sup>6</sup>	Not available					
Whittier <sup>6</sup>	Not available					
<b>Lake Stocking</b>						
All Areas <sup>1</sup>			12,592	762	141	1,446

<sup>1</sup> Harvest estimate is the most recently published (2019) Statewide Harvest Survey (SWHS) estimate.

<sup>2</sup> Hatchery contribution to the sport fish harvest is not estimated.

<sup>3</sup> Harvest at this release site is not reported separately in the SWHS.

<sup>4</sup> Harvest estimate is the most recently published (2019) SWHS shoreline estimate. The reported number does not include the undetermined contribution of adult salmon returning from hatchery releases to boat-based sport fisheries.

<sup>5</sup> Harvest estimate is the most recently published (2019) SWHS shoreline estimate. The reported number does not include the undetermined contribution of adult salmon returning from ADF&G hatchery releases to boat-based sport fisheries.

Boat based sport fish harvest also includes fish from Cook Inlet Aquaculture Assoc. releases and natural production.

<sup>6</sup> The sport fish harvest for this release cannot be determined as these fish may be harvested during winter feeder king fisheries.

**Table 10.–Otolith-mark groups and release sites for thermally marked coho and king salmon released in 2021.**

Species	Release Site	Mark Group	Thermal mark code	Donor stock
King Salmon				
	Ninilchik River <sup>1</sup>	Cook Inlet	2,3H4	Ninilchik River
	Seldovia <sup>2</sup>	Cook Inlet	2,3H	Crooked Creek
	Homer Spit <sup>2</sup>	Cook Inlet	2,3H	Crooked Creek
	Eklutna Tailrace <sup>2</sup>	Cook Inlet	2,3H	Ship Creek
	Ship Creek <sup>3</sup>	Cook Inlet	2,3H3,3	Ship Creek
	Ship Creek <sup>3</sup>	Cook Inlet	2,3H2,2	Ship Creek
	Cordova <sup>4</sup>	Prince William Sound	2,4H	Crooked Creek/Ninilchik River
	Whittier <sup>4</sup>	Prince William Sound	2,4H	Crooked Creek/Ninilchik River
	Seward Lagoon	Resurrection Bay	2,5H	Crooked Creek
Coho Salmon				
	Homer Spit	Cook Inlet	1,5H	Ship Cr (Little Susitna River)
	Ship Creek	Cook Inlet	1,5H	Ship Cr (Little Susitna River)
	Bird Creek	Cook Inlet	1,5H	Ship Cr (Little Susitna River)
	Campbell Creek	Cook Inlet	1,5H	Ship Cr (Little Susitna River)
	Eklutna Tailrace	Cook Inlet	1,5H	Ship Cr (Little Susitna River)
	Seward Lagoon	Resurrection Bay	2,4H	Bear Lake

<sup>1</sup> Smolt for the Ninilchik River release received a post-hatch accessory thermal mark that will be used to identify the source(s) (Ninilchik River and/or Crooked Creek) of hatchery strays into Deep Creek and Anchor River.

<sup>2</sup> A shortage of Ninilchik River donor brood in 2020 resulted in fewer eggs collected from that brood source than what was needed to produce fish for the Kachemak Bay terminal fisheries. Eggs from Crooked Creek donor stock were used to produce smolt for the Homer Spit and Seldovia releases.

<sup>3</sup> A size at release study conducted with king salmon smolt released into Ship Creek began with the 2014 release. Approximately 424,500 smolt with a target average weight of 12.0–14.0 g and thermally marked with a thermal mark code 2,3H3,3 and approximately 156,900 smolt with a target average weight of 18.0–20.0 g and thermally marked with a thermal mark code 2,3H2,2 will be released into Ship Creek.

<sup>4</sup> A shortage of Ship Creek donor stock in 2020 resulted in fewer eggs collected from that brood source. In order to achieve the stocking goals for Prince William Sound releases, Crooked Creek and Ninilchik River donor stock smolt will be released at Cordova (Fleming Spit) and Whittier.