

2019 ANNUAL MANAGEMENT PLAN
WILLIAM JACK HERNANDEZ SPORT FISH HATCHERY

Alaska Department of Fish and Game
Division of Sport Fish

March 2019

2019 ANNUAL MANAGEMENT PLAN

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This plan remains in effect until it is superseded by a new annual management plan (AMP) in the following year.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)¹. 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 2019

1.1.1 William Jack Hernandez Sport Fish Hatchery

King salmon:

- Crooked Creek brood: The number of smolt available for release into Crooked Creek in 2019 is reduced from 140,500 to approximately 127,000 due to a shortage of eggs collected from naturally produced adults in 2018.
- Deception Creek brood: Smolt will not be released into Deception Creek in 2019 due to a shortage of naturally produced adults in the 2018 return.
- Ninilchik River brood: BY2018 Ninilchik River donor stock smolt will be released at Prince William Sound and Resurrection Bay release sites due to a shortage of adult brood returning to both Ship Creek (primary donor stock for Prince William Sound) and Crooked Creek (primary donor stock for Resurrection Bay) in 2018.

Coho salmon:

- Ship Creek brood:
 - Ship Creek release: Go back to a release of 240,000 smolt from a one year increased release number of 360,000 smolt in 2018.
 - NDFL release: Go back to a release of 120,000 smolt from a one year increased release number of 240,000 smolt in 2018.

Egg takes/Incubation:

- Rainbow trout: Shifting the spawn timing forward from January to early December resulted in egg takes occurring in both January and December of 2018. The designated brood year for eggs and fish resulting from the January 2018 egg takes is BY2018, and the designated brood year for eggs and fish resulting from the December 2018 egg takes is BY2018b.

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

Lake stocking program:

- Land locked salmon: BY2018 catchable king salmon were not produced due to a shortage of adult king salmon returning to Ship Creek. Additional eggs were collected from Ship Creek brood coho salmon to produce triploid catchable coho salmon instead of catchable king salmon for release in fall 2019/winter 2020.
- Rainbow trout: Increased catchable rainbow trout production from 147,991 (2018 production) to 204,274 fish (projected 2019 production).

2 PRODUCTION PLAN

Fish culture activities for 2019 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 eggs to Ruth Burnett Sport Fish Hatchery (RBSFH) in Fairbanks, Macaulay Salmon Hatchery² in Juneau, and Pillar Creek Hatchery³ in Kodiak. WJHSFH annually provides eyed king salmon eggs to Wally Noerenberg Hatchery⁴ in Prince William Sound.

Planned incubation by species for 2019:

- Rainbow trout: 2,648,824 green eggs
- Arctic char: Up to 83,677 green eggs
- Arctic grayling: 66,370 green eggs
- Coho salmon: 1,274,293 green eggs
- King salmon: 3,124,170 green eggs

2.1.2 Rearing

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

The following units are available for rearing fish at WJHSFH:

² Macaulay Salmon Hatchery is operated by Douglas Island Pink and Chum, Inc.

³ Pillar Creek Hatchery is operated by Kodiak Regional Aquaculture Association.

⁴ Wally Noerenberg Hatchery is operated by Prince William Sound Aquaculture Association.

- Fifteen 2'-diameter fiberglass tanks (0.16 m³)
- Twelve 5'-diameter fiberglass tanks (1.4 m³)
- Thirty-three 10'-diameter fiberglass tanks (8.2 m³)
- Four 16'-diameter fiberglass tanks (25.6 m³)
- Two 20'-diameter fiberglass tanks (40.1 m³)
- Thirty-nine 26'-diameter fiberglass tanks (91.7 m³)

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

- Two 5'x 4'x 48' aluminum raceways (27.19 m³)
- Two 8'x2.5'x75' aluminum raceways (42.3 m³)

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

- Two 8'x2.5'x75' aluminum raceways (42.3 m³)

The approximate number of fish (by brood year (BY) and species, and includes anticipated rearing mortality) reared in 2019 is listed below:

- BY 2018 rainbow trout (release 2019): 211,564
- BY 2018b rainbow trout (release 2019—2020): Up to 860,000 (includes 4,000 future broodstock)
- BY 2017 king salmon (release 2019): 12,300
- BY 2018 king salmon (release 2019): 1,873,000
- BY 2019 king salmon (release 2020—2021): 2,700,000
- BY 2017 coho salmon (release 2019): 951,000
- BY 2018 coho salmon (release 2019—2020): 1,231,000
- BY 2017 Arctic char (release 2019): 26,000
- BY 2018 Arctic char (release 2020): 65,000 (includes 1,000 future broodstock)
- BY 2018 Arctic grayling (release 2019): 25,900
- BY 2019 Arctic grayling (release 2019—2020): 48,500

2.2.3 Captive Broodstock Programs

Rainbow trout: Eggs will be collected from the three-year-old (BY 2017) mixed-sex population of rainbow trout broodstock. Milt from BY 2018 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 2017 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 2015 Arctic char: 400
- BY 2016 Arctic char: 600
- BY 2017 Arctic char: 1,000
- BY 2017 rainbow trout: 4,000 mixed sex.
- BY 2018 rainbow trout: 4,000 mixed sex and 1,600 XX males.
- BY 2018b rainbow trout: 4,200 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 2019, 143 sites in Southcentral Alaska will be stocked with fish reared at WJHSFH. The lake stocking program comprises the vast majority of the sites. Rainbow trout eyed eggs are transferred in January to Pillar Creek Hatchery to provide fish for 16 Kodiak area lakes, and to Macaulay Salmon Hatchery to provide fish for four Juneau area lakes. Rainbow trout and Arctic char eyed eggs are transferred to RBSFH in Fairbanks to provide fish (2019 fingerling and 2020 catchable rainbow trout releases and 2021 catchable Arctic char releases) for up to 85 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. A second exception was made in February 2015 when a combination of diploid and uncertified triploid king salmon were permitted for release into two non-landlocked lakes for youth ice fishing events. Donor stocks used for this were from Cook Inlet, and the lakes were located in Cook Inlet. 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 five 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 70.4% by number in 2019) 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 2019, approximately 678,014 rainbow trout of various sizes will be stocked at 127 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, 2019*.

Egg Take and Rearing: Approximately 2,650,000 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 2019. Brood fish are not screened for bacterial kidney disease (BKD)

WJHSFH transferred 200,000 BY2018b all-female triploid eyed eggs to Pillar Creek Hatchery in Kodiak, 50,000 all-female triploid eyed eggs to Macaulay Salmon Hatchery in Juneau, and 645,619 all-female triploid eyed eggs to RBSFH in Fairbanks in January 2019 (Table 3). WJHSFH continued to incubate an estimated 1,068,575 all-female triploid, 66,500 all-female diploid, and 9,000 mixed-sex diploid BY2018b eyed eggs. Eggs for replacement broodstock are included in the all-female and mixed-sex diploid eyed egg numbers. In years where enough triploid fish are available to meet production needs, surplus diploid fingerlings are culled.

From May through September, approximately 472,440 BY 2018b fingerlings and 204,274 BY 2018 catchables at WJHSFH will be released into Southcentral Alaska lakes. A total of approximately 1,300 surplus brood fish will be released prior to and following the December 2019 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.

Catchable Arctic char are released in the spring and summer and broodstock Arctic char are released in the fall.

Release Information: Approximately 20,825 catchable Arctic char and 670 surplus broodstock 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, 2019*.

Egg Take and Rearing: Up to 320,896 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 70,877 eggs for production. Eggs surplus to production and replacement broodstock needs will be discarded. Approximately 22,000 triploid eyed eggs will be shipped to RBSFH. An estimated 32,125 triploid fish for Regions II and III catchable releases in 2021 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.

Arctic Grayling

General Information: Eggs taken from the Tanana River Drainage (Chena River donor brood) are used to stock lakes in Southcentral Alaska. All Arctic grayling produced are triploid. Incubation and rearing will take place at WJHSFH.

Release Information: Approximately 9,500 BY 2019 triploid Arctic grayling fingerlings will be released into one Region II lake and approximately 21,600 BY2018 triploid catchable Arctic grayling are available for release into 18 lakes (Table 1). The remaining BY 2019 fish will be reared to a catchable size for release in 2020. Specific release sites and numbers of fish to stock will be listed in the *Statewide Stocking Plan for Sport Fish, 2019*.

Egg Take and Rearing: Arctic grayling eggs will be collected in May from up to 20 pairs of Chena River broodstock Arctic grayling (Table 2). Fry will emerge in June, and fingerlings will be released in August or September. Catchable Arctic grayling will be released in May 2020.

Lake Trout

General Information: ADF&G is reestablishing the lake trout stocking program. Lake trout were last released in 2001. Region III Sport Fish staff plan to collect gametes from lake trout starting in 2019, and all lake trout will incubate and rear at RBSFH. Region II lakes will receive lake trout starting in 2020.

King Salmon

General Information: Ship Creek is the primary donor stock for the lake stocking program. Crooked Creek, Ninilchik River, or Deception Creek 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.

Release Information: Approximately 12,300 BY 2017 catchable king salmon from Ship Creek donor stock will be released into two lakes in Southcentral Alaska as well as the fishing pond at the Great Alaskan Sportsman Show. Due to a shortage of king salmon brood fish in 2018, king salmon eggs for catchable production were not collected. Catchable coho salmon will substitute for the catchable king salmon in the fall 2019/winter 2020 releases (Table 1), as provided in the *Statewide Stocking Plan for Sport Fish, 2019*.

Egg Take and Rearing: In 2019, approximately 187,046 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 2019 will be released as 120-gram catchable salmon in fall 2020/winter 2021. 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 132,720 triploid fingerlings and 88,000 triploid catchables will be released into 33 Region II lakes (Table 1). Fingerling releases are scheduled for early summer 2019, when fish have reached the 1–5 g target size. Because BY2018 king salmon are not available for the lake stocking program, BY2018 catchable coho salmon will be provided for winter fisheries. Catchable releases are scheduled for early October, with an additional 7,000 BY2018 catchable sized fish released the following February for winter ice fishing events or released into the fishing pond at the Great Alaskan Sportsman Show. Specific lakes and stocking numbers can be found in the *Statewide Stocking Plan for Sport Fish, 2019*.

Egg Take and Rearing: Approximately 158,994 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 2020. 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 usually stocked at 10 different locations; however, Deception Creek will not be stocked in 2019 (Table 4). All fish stocked are from early-run donor stocks. Three locations (Deception Creek, 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 4 donor stocks of king salmon. Ship Creek is the primary donor stock for Ship Creek and Prince William Sound (Whittier and Cordova) releases, and it may be used in Eklutna Tailrace, Resurrection Bay (Seward Lagoon) and Kachemak Bay terminal fishery (Homer Spit and Seldovia) releases if needed. Deception Creek is the primary donor stock for Deception Creek and Eklutna Tailrace releases, and it may be used in Prince William Sound. 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 (Homer Spit and Seldovia) releases. Ninilchik River is the primary donor stock for Ninilchik River and Kachemak Bay (Homer Spit and Seldovia) releases and has been approved as a tertiary 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 2018 egg-take goals at Deception Creek, Crooked Creek, and Ship Creek were not achieved. This resulted in zero smolt produced for the 2019 Deception Creek release, the use of a secondary donor stock (Ship Creek) for the Eklutna Tailrace release, and the use of the Ninilchik River donor stock for both Prince William Sound releases and a portion of the Seward Lagoon release.

Release Information: A total of 1,811,748 king salmon smolt are scheduled for release in 2019 (Table 4). A size at release study using Ship Creek release groups was initiated with the 2014 releases and will continue into 2019. One release group of approximately 142,000 smolt has a target average size at release of 18.0–20.0 g, and a second release group with approximately 221,500 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 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, Whittier, and Eklutna Tailrace releases are held for a minimum of

three days at the stocking site prior to release to improve imprinting and reduce potential straying. 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 2019, approximately 3,124,170 king salmon eggs will be collected for production of 2020 smolt and fall 2020 – winter 2021 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 is available for release in 2019. 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 2019, approximately 1,274,293 coho salmon eggs will be collected for 2020 fingerling production and 2021 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 234 females. Approximately 314,977 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 2019 and incubated at WJHSFH throughout the winter. Emergence will occur in February 2020. Approximately 132,720 coho salmon fingerlings will be released into lakes in 2020. WJHSFH will rear the remaining fish for one more year to produce 895,000 smolts in May 2021.

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, 2019*.

3.2 Anadromous Smolt Stocking

3.2.1 King Salmon

The primary purpose of the Deception Creek, 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 6 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 2019 sport fish harvest rates for projects supported through fish production from WJHSFH. The 2019 harvest projection for Ship Creek, Bird Creek, and Eklutna Tailrace anadromous releases is the Statewide Harvest Survey (SWHS) harvest estimate for 2017. Harvest projection for Resurrection Bay (coho and king salmon) and Homer Spit (coho and king salmon) is the SWHS shoreline estimate for 2017. 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, Deception Creek, Crooked Creek, and Ninilchik River is not reported since the hatchery contribution to the sport fish harvest for these fisheries is not estimated. The harvest projections for Seldovia and Halibut Cove are not reported as harvest at these locations are 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 SWHS estimate 2017.

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 2019, 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 Chinook salmon release has been requested in order to determine the source of adipose-clipped Chinook 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 is 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

2019 is the sixth 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 2019. 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

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8 APPROVALS

Recommendation for Approval: William Jack Hernandez Sport Fish Hatchery Annual Management Plan, 2019.

Jeff Milton, Division of Sport Fish 6/5/2019

Tom Vania, Regional Supervisor, Division of Sport Fish 6/13/2019

Bert Lewis, Regional Supervisor, Division of Commercial Fisheries 6/19/2019

Ethan Ford, Regional Resource Development Biologist Com. Fish 6/24/2019

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

Approval: The 2019 William Jack Hernandez Sport Fish Hatchery Annual Management Plan is hereby approved.

Tom Taube, Deputy Director, Division of Sport Fish 6/25/2019

Peter Bangs, Assistant Director, Division of Commercial Fisheries 7/1/2019

Table 1.–Summary of Fish Releases from WJHSFH for Lake Stocking Programs in 2019.

Species	Release Location	Number¹	Size²	Type³	Number of Stocking Locations⁴
Rainbow Trout	Region II	367,990	Fingerling	3N/2N	48
		104,450	Fingerling	3N	18
		165,694	Catchable	3N/2N	40
		38,580	Catchable	3N	22
		1,300	Broodstock	2N	8
Total		678,014			127
Arctic Char	Region II	2,400	Catchable	3N	1
		18,425	Catchable	3N/2N	15
		670	Broodstock	2N	6
Total		21,495			18
Arctic Grayling	Region II	9,500	Fingerling	3N	1
		3,700	Catchable	3N	5
		17,900	Catchable	3N/2N	13
Total		31,100			19
King Salmon ⁵	Region II	2,000	Catchable	3N	1
		10,300	Catchable	3N/2N	2
Total		12,300			3
Coho Salmon	Region II	14,000	Fingerling	3N	3
		118,720	Fingerling	3N/2N	14
		21,000	Catchable	3N	5
		67,000	Catchable	3N/2N	11
Total		220,720			33
Total		963,629			133

¹ Numbers don't include BY 2018b rainbow trout eyed eggs transferred to Pillar Creek Hatchery, RBSFH and Macaulay Salmon Hatchery, BY2019 Arctic char eyed eggs transferred to RBSFH, and BY 2019 king salmon eyed eggs transferred to Wally Noerenberg Hatchery (Table 3). All species are Statewide Stocking Plan request numbers. Includes fish for sportsman's shows.

² 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.

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

⁴ 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.

⁵ Approximately 5,300 catchable king salmon that were not released in fall 2018 will be released in February 2019. These fish are in addition to the 7,000 fish scheduled for release in winter 2019.

Table 2.–Summary of Division of Sport Fish Egg Takes for Lake Stocking Programs in 2019.

Species	Donor stock (Ancestral stock)	Females	Number of Eggs
Rainbow Trout ¹	WJHSFH (Swanson River)	1,187	2,648,824
Arctic Char ²	WJHSFH (Lake Aleknagik)	64	Up to 320,896
Arctic grayling	Chena River	Up to 20	Up to 66,370
King salmon	Ship Creek, Ninilchik River, Crooked Creek, or Deception Creek	30	187,046
Coho salmon	Ship Creek (Little Susitna River) or Bear Lake	40	158,994

¹ Includes eggs to produced 200,000 eyed eggs for PCH, 680,000 eyed eggs for RBSFH and 50,000 eyed eggs for Macaulay Hatchery.

² 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 83,700 BY19 eggs will be incubated, and the surplus eggs will be culled. Includes 22,000 eyed eggs for RBSFH.

Table 3.–Summary of hatchery-to-hatchery transfers in 2019.

Species	Life stage	Sending hatchery	Receiving hatchery	Ploidy	Donor stock	Sex	Number
Rainbow trout	Eyed egg	WJHSFH	RBSFH	3N	WJHSFH (Swanson River)	All female	645,619
Rainbow trout	Eyed egg	WJHSFH	PCH	3N	WJHSFH (Swanson River)	All female	200,000
Rainbow trout	Eyed egg	WJHSFH	Macaulay	3N	WJHSFH (Swanson River)	All female	50,000
King salmon	Eyed egg	WJHSFH	WNH ¹	2N	Ship Creek	Mixed sex	50,000
Arctic char	Eyed egg	WJHSFH	RBSFH	3N	WJHSFH (Lake Aleknagik)	Mixed sex	22,000

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

¹ 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 2019.

Release Site	Hatchery	Donor stock	Release Number⁴
Northern Cook Inlet			
Ship Creek	WJHSFH	Ship Creek	365,000
Deception Creek ¹	WJHSFH	Deception Creek	0
Eklutna Tailrace ¹	WJHSFH	Deception Creek/Ship Creek	<u>226,748</u>
		Total	591,748
Central/Lower Cook Inlet			
Crooked Creek	WJHSFH	Crooked Creek	125,000
Seldovia	WJHSFH	Ninilchik River	105,000
Homer Spit	WJHSFH	Ninilchik River	315,000
Ninilchik River	WJHSFH	Ninilchik River	<u>150,000</u>
		Total	695,000
Resurrection Bay			
Seward Lagoon ²	WJHSFH	Crooked Creek/Ninilchik River	<u>315,000</u>
		Total	315,000
Prince William Sound³			
Whittier	WJHSFH	Ninilchik River	105,000
Cordova	WJHSFH	Ninilchik River	<u>105,000</u>
		Total	210,000
			<i>Grand Total</i>
			<i>1,811,748</i>

¹ A shortage of Deception Creek donor stock in 2018 resulted in zero smolt available for release into Deception Creek and the use of the secondary donor stock Ship Creek to the Eklutna Tailrace release.

² A shortage of Crooked Creek and Ship Creek donor stocks in 2018 resulted in the addition of the tertiary donor stock Ninilchik River to the Seward Lagoon release.

³ A shortage of Ship creek donor stock in 2018 resulted in the use of the Ninilchik River donor stock for the Prince William Sound releases.

⁴ 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 2019.

Donor stock	Number of Sites	Number of Eggs	Fecundity	Number of Females	Females to Spawn	Egg-take Responsibility	Incubation Facility
Ship Creek ^{1,2}	3	979,335	6367	154	154	WJHSFH	WJHSFH
Crooked Creek	2	571,486	5418	105	105	WJHSFH and Soldotna	WJHSFH
Ninilchik	3	796,127	5,204	153	153	WJHSFH and Homer	WJHSFH
Deception Creek	2	777,222	6319	123	123	WJHSFH and Palmer	WJHSFH
Totals	10	3,124,170		535	535		

¹ Includes 187,046 eggs from 30 females for lake stocking programs.

² Includes eggs for transfer to PWSAC WNH for Chenega release.

Table 6.–Division of Sport Fish coho salmon smolt releases in 2019.

Release Site	Hatchery	Donor stock (Ancestral stock)	Release Number¹
Northern Cook Inlet			
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>
		Total	535,000
Lower Cook Inlet			
Homer Spit	WJHSFH	Ship Creek (Little Susitna River)	<u>120,000</u>
		Total	120,000
Resurrection Bay			
Seward Lagoon	WJHSFH	Bear Lake	240,000
		Total	240,000
			<hr/>
			<i>Grand Total</i>
			<i>895,000</i>

¹ 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 2019.

Donor stock	Number of Sites	Number of Eggs¹	Fecundity	Number of Females	Females to Spawn	Egg-take Responsibility	Incubation Facility
Bear Creek	1	314,977	4,052	78	78	WJHSFH and CIAA	WJHSFH
Ship Creek (Little Susitna River)	5	959,316	4,127	234	234	WJHSFH	WJHSFH
Totals	6	1,274,293		312	312		

¹ 158,994 eggs (40 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	12/31/2019	Ship Ck	NA	Smolt
Anchorage	King salmon	Ship Ck	12A-0121	12/31/2019	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	12/31/2019	Jewel L, Hillberg L, Green L, Campbell Pt L, Clunie L, Delong L, GASS	1	2N Catchable
Anchorage	King salmon	Ship Ck	12A-0120	12/31/2019	Taku Campbell L	2	3N Catchable
Anchorage	King salmon	Deception Ck (Willow Ck)	15A-0013	12/31/2019	Mirror L, Cheney L	3	2N Catchable
Anchorage	King salmon	Ship Ck	15A-0014	12/31/2019	Mirror L, Cheney L	3	Uncertified 3N Catchable
Anchorage	King salmon	Ship Ck	12A-0122	12/31/2019	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)	To be applied for	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)	To be applied for	12/31/2027	Taku Campbell L	2	3N Catchable

Area	Species	Donor Stock (Ancestral Stock)	FTP #	Expiration Date	Release Description	Lake Category	Life Stage
Anchorage	Coho salmon	Ship Ck (L. Susitna R)	To be applied for	12/31/2027	Mirror L, Cheney L	3	3N Catchable
Anchorage	Grayling	Chena R	13A-0032	12/31/2021	Beach L, Sand L	3	2N Catchable
Anchorage	Grayling	Chena R	13A-0033(1)	12/31/2021	Alder Pond, Beach L, Sand L	3	3N Catchable
Anchorage	Rainbow Trout	WJHSFH (Swanson R)	16A-0043	12/31/2020	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	12/31/2020	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	2N Catchable Broodstock
Anchorage	Rainbow Trout	WJHSFH (Swanson R)	16A-0023	12/31/2020	Airstrip/Willow Pond, Taku Campbell L, Tangle Pond	2	3N Catchable
Anchorage	Rainbow Trout	WJHSFH (Swanson R)	16A-0024	12/31/2020	Alder Pond, Beach L, Cheney L, Edmunds L, Lower Fire L, Mirror L, Otter L, Rabbit L, Sand L	3	3N Catchable
Anchorage	Rainbow Trout	WJHSFH (Swanson R)	15A-0064	12/31/2023	Cheney L	3	2N Broodstock/ Catchable
Anchorage	Rainbow Trout	WJHSFH (Swanson R)	16A-0044	12/31/2020	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	King salmon	Salcha R	12A-0021	12/31/2019	Brodie L, Bolio L, Coal Mine #5, Quartz L	1	Fingerling/ Subcatchable/ Catchable
Delta	King salmon	Chena R	13A-0020	12/31/2019	Brodie L, Bolio L, Coal Mine #5, Quartz L	1	Fingerling/ Subcatchable/ Catchable
Delta	Rainbow Trout	WJHSFH (Swanson R)	13A-0022	12/31/2023	Little Lost L	1	2N Broodstock
Fairbanks	Arctic char	WJHSFH (L. Aleknagik)	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
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	Salcha R	17A-0002	12/31/2019	Bathing Beauty Pond, Chena L, Grayling L, North Pole Pond, Otto L, Polaris L	1	Fingerling/ Subcatchable/ Catchable
Fairbanks	King salmon	Chena R	13A-0021	12/31/2019	Bathing Beauty Pond, Chena L, Grayling L, Monterey L, Mullins Pit, North Pole Pond, Otto L, Polaris L	1	Fingerling/ Subcatchable/ Catchable
Fairbanks	King salmon	Chena R	17A-0003	12/31/2019	Cushman L	2	Fingerling/ Subcatchable/ Catchable
Fairbanks	King salmon	Salcha R	17A-0004	12/31/2019	Cushman L	2	Fingerling/ Subcatchable/ Catchable
Fairbanks	King salmon	Chena R	17A-0005	12/31/2019	Birch L	3	Fingerling/ Subcatchable/ Catchable
Fairbanks	King salmon	Salcha R	17A-0006	12/31/2019	Birch L	3	Fingerling/ Subcatchable/ 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

Area	Species	Donor Stock (Ancestral Stock)	FTP #	Expiration Date	Release Description	Lake Category	Life Stage
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, Pippin L, Round 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, Sculpin L, Tex Smith L	3	3N Fingerling/ Subcatchable/ Catchable
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	Peanut L, Three Mile L, Two Mile L	5	3N Fingerling/ Subcatchable/ Catchable
Homer	King salmon	Ninilchik R	12A-0079	12/31/2019	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	12/31/2019	Homer (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	King salmon	Crooked Ck	12A-0070	12/31/2019	Crooked Ck	NA	Smolt
Kenai	King salmon	Ship Ck	12A-0064	12/31/2019	Sport L	1	Catchable

Area	Species	Donor Stock (Ancestral Stock)	FTP #	Expiration Date	Release Description	Lake Category	Life Stage
Kenai	King salmon	Crooked Ck	12A-0067	12/31/2019	Sport L	1	Catchable
Kenai	King salmon	Deception Ck	12A-0068	12/31/2019	Sport L	1	Catchable
Kenai	King salmon	Ninilchik R	12A-0069	12/31/2019	Sport L	1	Catchable
Kenai	Coho salmon	Ship Ck	To be applied for	12/31/2027	Sport L	1	Catchable
Kenai	Coho salmon	Ship Ck	12A-0071	12/31/2027	Arc L, Centennial L, Elephant (Spirit) L, Longmare L	1	Fingerling
Kenai	Coho salmon	Bear Ck	12A-0073	12/31/2027	Arc L, Centennial L, Elephant (Spirit) L, Longmare L	1	Fingerling
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, Longmere L, Loon L, Roque L, Scout L, Sport L, Thetis L, Tirmore L, Kenai Peninsula Sport, Rec, and Trade Show	1	Fingerling/ Catchable/ Broodstock
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
Kodiak	Rainbow Trout	WJHSFH (Swanson R)	18A-0016	12/31/2023	PCH to Bull L, Dolgoi L, Long L, Tanignak L, Twin L	1	3N Fingerling
Kodiak	Rainbow Trout	WJHSFH (Swanson R)	18A-0017	12/31/2023	PCH to Abercrombie L, Aurel L, Big (Lilly) L, Caroline L, Cicely L, Dragonfly L, Heitman L, Horseshoe L, Lee, Lilly Pond L	2	3N Fingerling
Kodiak	Rainbow Trout	WJHSFH (Swanson R)	18A-0018	12/31/2023	PCH to Dark L, Island L	3	3N Fingerling
Mat-Su	Arctic char	WJHSFH (L. Aleknagik)	to be applied for		Benka L, Carpenter L, Crooked L, Echo L, Irene L, Johnson 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	12A-0001	12/31/2019	Deception Ck	NA	Smolt

Area	Species	Donor Stock (Ancestral Stock)	FTP #	Expiration Date	Release Description	Lake Category	Life Stage
		(Willow Ck)					
Mat-Su	King salmon	Deception Ck (Willow Ck)	14A-0098	12/31/2019	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)	To be applied for	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)	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, 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
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, Lorraine L, Meirs L, Ravine L, Reed L	1	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, 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	1	Fingerling

Area	Species	Donor Stock (Ancestral Stock)	FTP #	Expiration Date	Release Description	Lake Category	Life Stage
					L, Diamond L, Farmer L, Finger L, Florence L, Golden L, Goober L, Honeybee L, Ida L, Johnson L, Kalmbach 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		
Mat-Su	Rainbow Trout	WJHSFH (Swanson R)	16A-0009	12/31/2025	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, Bocker 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.	2	Fingerling
Mat-Su	Rainbow Trout	WJHSFH (Swanson R)	16A-0011	12/31/2025	Lucille L, South Rolly L, Tanaina L, Crystal 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	Deception Ck (Willow Ck)	12A-0096	12/31/2019	Fleming Spit, Cordova	NA	Smolt
PWS	King salmon	Ship Ck	12A-0094	12/31/2019	Fleming Spit, Cordova	NA	Smolt
PWS	King salmon	Ninilchik R	To be applied for	12/31/2029	Fleming Spit, Cordova	NA	Smolt
PWS	King salmon	Ninilchik R	To be applied for	12/31/2029	Whittier	NA	Smolt
PWS	King salmon	Deception Ck (Willow Ck)	12A-0098	12/31/2019	Whittier	NA	Smolt
PWS	King salmon	Ship Ck	12A-0099	12/31/2019	Whittier	NA	Smolt

Area	Species	Donor Stock (Ancestral Stock)	FTP #	Expiration Date	Release Description	Lake Category	Life Stage
PWS	Grayling	Chena R	12A-0095	12/31/2021	Thompson L	5	3N Fingerling/ Catchable
PWS	Rainbow Trout	WJHSFH (Swanson R)	16A-0046	12/31/2020	Ruth L	1	3N Catchable
PWS	Rainbow Trout	WJHSFH (Swanson R)	16A-0045	12/31/2020	Ruth L	1	2N Catchable Broodstock
PWS	Rainbow Trout	WJHSFH (Swanson R)	16A-0047	12/31/2020	Blueberry L, Thompson L	5	3N Catchable
Res Bay	King salmon	Ship Ck	12A-0090	12/31/2019	Lowell Ck	NA	Smolt
Res Bay	King salmon	Crooked Ck	12A-0091	12/31/2019	Seward Lagoon	NA	Smolt
Res Bay	King salmon	Ship Ck	12A-0092	12/31/2019	Seward Lagoon	NA	Smolt
Res Bay	King salmon	Ninilchik R	To be applied for	12/31/2029	Seward Lagoon	NA	Smolt
Res Bay	King salmon	Crooked Ck	12A-0093	12/31/2019	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	12/31/2020	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	12/31/2024	214,000 Transfer: WJHSFH to RBSFH (3N MX)	NA	Eyed eggs
Kenai	King salmon	Crooked Ck	11A-0013	12/31/2019	1,740,000 Egg take @ Crooked Creek	NA	Green eggs
Anchorage	King salmon	Ship Ck	11A-0017	12/31/2019	2,150,000 Egg take @ Ship Creek	NA	Green eggs
Homer	King salmon	Ninilchik R	11A-0026	12/31/2019	1,500,000 Egg take @ Ninilchik River	NA	Green eggs
Mat-Su	King salmon	Deception Ck (Willow Ck)	11A-0045	12/31/2019	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	WJHSFH	14A-0032	12/31/2023	3,000,000 Egg take @ WJHSFH	NA	Green eggs

Area	Species	Donor Stock (Ancestral Stock)	FTP #	Expiration Date	Release Description	Lake Category	Life Stage
	Trout	(Swanson R)					
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	12/31/2023	200,000 Transfer: WJHSFH to Pillar Creek Hatchery + release	1	Eyed eggs
Kodiak	Rainbow Trout	WJHSFH (Swanson R)	18A-0017	12/31/2023	200,000 Transfer: WJHSFH to Pillar Creek Hatchery + release	2	Eyed eggs
Kodiak	Rainbow Trout	WJHSFH (Swanson R)	18A-0018	12/31/2023	200,000 Transfer: WJHSFH to Pillar Creek Hatchery + release	3	Eyed eggs

Notes:

PWS = Prince William Sound; Res Bay = Resurrection Bay; FRH = Fort Richardson Hatchery; WJHSFH = William Jack Hernandez Sport Fish Hatchery; RBSFH = Ruth Burnett Sport Fish Hatchery; 2N = Diploid, 3N = Triploid, MX – Mixed sex, AF = All female. **To be applied for** **Needs amending**

Table 9.—Projected 2019 harvest from Division of Sport Fish stocking projects.

Release Site	Projected Harvest					
	King Salmon	Coho Salmon	Rainbow Trout	Arctic Char	Arctic Grayling	Landlocked Salmon
Northern Cook Inlet						
Ship Creek ¹	635	6,011				
Deception Creek ²	Not available					
Bird Creek ¹		1,836				
Campbell Creek ²		Not available				
Eklutna Tailrace ¹	551	913				
Central/Lower Cook Inlet						
Crooked Creek ²	Not available					
Kachemak Bay						
Halibut Cove ³	Not available					
Seldovia ³	Not available					
Homer Spit ⁴	933	1,313				
Ninilchik ²	Not available					
Resurrection Bay						
Resurrection Bay	166 ⁴	5,094 ⁵				
Prince William Sound						
Cordova ⁶	Not available					
Whittier ⁶	Not available					
Lake Stocking						
All Areas ¹			18,731	373	555	5,117

¹ Harvest estimate is the Statewide Harvest Survey (SWHS) estimate for 2017.

² Hatchery contribution to the sport fish harvest is not estimated.

³ Harvest at this release site is not reported separately in the SWHS.

⁴ Harvest estimate is the SWHS shoreline estimate for 2017. The reported number does not include the undetermined contribution of adult salmon returning from hatchery releases to boat based sport fisheries.

⁵ Harvest estimate is the SWHS shoreline estimate for 2017. 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.

⁶ 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 2019.

Species	Release Site	Mark Group	Thermal mark code	Donor stock
King Salmon				
	Ninilchik River ¹	Cook Inlet	2,3H	Ninilchik River
	Seldovia	Cook Inlet	2,3H	Ninilchik River
	Homer Spit	Cook Inlet	2,3H	Ninilchik River
	Eklutna Tailrace ²	Cook Inlet	2,3H	Deception Creek (Willow Creek)/Ship Creek
	Ship Creek ³	Cook Inlet	2,3H4,2	Ship Creek
	Ship Creek ³	Cook Inlet	2,3H2,4	Ship Creek
	Cordova ⁴	Prince William Sound	2,4H	Ninilchik River
	Whittier ⁴	Prince William Sound	2,4H	Ninilchik River
	Seward Lagoon ⁵	Resurrection Bay	2,5H	Crooked Creek/Ninilchik River
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

¹ Egg collected for the Ninilchik River release may receive a post-hatch accessory thermal mark that will be used to identify the source (Ninilchik River or Crooked Creek) of hatchery stays into Deep Creek and the Anchor River.

² A shortage of Deception Creek donor brood in 2018 resulted in fewer eggs collected from that brood source than what was needed to produce fish for the Eklutna Tailrace terminal fishery. Eggs from Ship Creek donor stock were also used to produce smolt for the Eklutna Tailrace release.

³ A size at release study conducted with king salmon smolt released into Ship Creek began with the 2014 release. Approximately 221,500 smolt with a target average weight of 12.0–14.0 g and thermally marked with a thermal mark code 2,3H4,2 and approximately 141,800 smolt with a target average weight of 18.0–20.0 g and thermally marked with a thermal mark code 2,3H2,4 will be released into Ship Creek.

⁴ A shortage of Ship Creek donor brood in 2018 resulted in fewer eggs collected from that brood source than what was needed to produce fish for the Prince William Sound releases. Eggs from Ninilchik River donor stock were used to produce smolt for the Prince William Sound releases.

⁵ A shortage of Crooked Creek and Ship creek donor brood in 2018 resulted in fewer eggs collected from either brood source than what was needed to produce fish for the Seward Lagoon release. Eggs from Ninilchik River donor stock were used to produce smolt for Seward Lagoon.