

Alaska Department of Fish and Game



STATEWIDE STOCKING PLAN

FOR

SPORT FISH

2019

January 2019

ALASKA DEPARTMENT OF FISH AND GAME

STATEWIDE STOCKING PLAN

FOR

SPORT FISH

2019 - 2023

2019 UPDATE

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INTRODUCTION

Meeting public demand for sport fishing opportunities in Alaska while at the same time maintaining and protecting the state's fishery resources has become increasingly complex. In the early years of statehood, before rapid population expansion and road development, productive, un-crowded fishing opportunity was readily available. Large sport fisheries were few and easily monitored. Sport fishing was considered to be a minor factor in management of commercially exploited species such as salmon.

Today, Alaska is experiencing increased tourism and continued development. A well equipped, avid recreation-oriented population accompanies this growing economy. Many sport fisheries have become crowded, new fisheries have developed in recently accessible locations, and pressure from a large mobile population is spilling ever farther afield. Native land allotments, legislated land conveyance quotas, federal treaties, allocation of fisheries resources, and other challenges to public access have complicated the management and expansion of sport fishing opportunities. Also, conflicts are now developing over how best to manage public lands to meet the needs of all users. The state and private corporations have made substantial commitments to hatchery propagation in support of both sport and commercial fisheries in an attempt to provide more consistent harvest opportunity. Angler participation has been relatively steady for several years.

The Alaska Sport Fish Harvest Survey shows that anglers fished approximately 2 million angler days, caught approximately 5.1 million fish (including razor clams and smelt), and harvested nearly 2.2 million fish in 2017.¹ Stocking serves to divert angling pressure away from fragile stocks and maintain angling opportunities. Consequently, stocking has become a vital component of the statewide sport fish program.

Funding for the Sport Fish stocking projects detailed in this plan comes primarily from two sources. The first is the Sport Fish Account of the state Fish and Game fund, which includes revenues from sales of sport fishing licenses. The second, and larger funding component for this program, is comprised of federal funds. The Federal Aid in Sport Fisheries Restoration program, through the Dingell Johnson (D-J) Fund and the Wallop-Breaux Amendment (W-B), provides money from federal taxes on specific sporting goods, marine motor fuels, etc. Private non-profit organizations in Kodiak, Cook Inlet, Prince William Sound and Southeast Alaska also provide some support through cooperative agreements with the State of Alaska or the United States Forest Service.

Only fish stocking activities specifically initiated for improving sport fisheries are included in this plan. There are other fish stocking activities by private-non-profit hatcheries initiated for common property fisheries that benefit recreational anglers, but those projects are not included in this plan.

The Division of Sport Fish currently operates two fish hatcheries, William Jack Hernandez Sport Fish Hatchery (WJHSFH) (opened July 2011) in Anchorage, and Ruth Burnett Sport Fish Hatchery (RBSFH) (opened winter 2011/2012) in Fairbanks. Ruth Burnett Sport Fish Hatchery provides fish primarily for Interior Alaska (as well as Arctic grayling eggs for WJHSFH), and William Jack Hernandez Sport Fish Hatchery provides fish primarily for Southcentral Alaska as well as Arctic char and rainbow trout eggs for RBSFH.

Fishery management objectives for releasing hatchery fish listed in this plan are outlined in the management synopses at the beginning of each section. Supporting the fishery objectives are specific stocking actions and program evaluations to assess the benefits of each project. Each release of fish in the stocking tables

¹ Jennings, G. B., K. Sundet, and A. E. Bingham. *In prep.* Participation, catch and harvest in Alaska sport fisheries during 2017. Alaska Department of Fish and Game, Fishery Data Series, Anchorage.

references a fishery plan synopsis. Anyone interested in learning more about the division's management plans and evaluation programs can contact their local Sport Fish management biologist.

Most evaluation of Sport Fish stocking projects involves measurement of angler effort, catch, and harvest of the stocked fish. These statistics are often estimated using the Statewide Harvest Survey for sport fisheries (SWHS). The SWHS is an annual mail-out survey to licensed Alaska sport anglers. In most instances, the SWHS is an accurate measure of Sport Fish stocking projects. However, angler statistics associated with some of our smaller stocking projects are periodically under-reported because the sample size of the survey is limited; often, unlicensed anglers under 16 years of age heavily utilize such stocking projects and are not counted in this survey.

In general, stocking sites have been selected to maximize the benefits to sport anglers. Resident species are usually stocked in landlocked lakes near population centers. Anadromous species are usually stocked in sites with accessible terminal beach, marine, and stream appropriate for sport fishing. Specific stocking sites are intended to: (1) increase the numbers of fish caught by anglers beyond historic levels; or (2) establish a new fishery. All movement of fish and fish eggs in the state is controlled through regulations in Title 5 of the Alaska Administrative Code and is further governed by specific policies of the Department of Fish and Game that address fish genetics, disease concerns, lake stocking, and management of the resultant fisheries. This plan is significant because it serves as the approving document supporting all fish transport permits authorizing the transportation and release of fishes for the sport fish fish-stocking program. This plan is reviewed and updated annually by many departmental staff, the public and interested agencies. Since a major funding source for the projects in this plan is federal money administered through the U.S. Fish and Wildlife Service, they also review and approve the plan.

Locations not listed in this plan will not be stocked for sport fish enhancement until the public has been notified of the stocking proposal and has had an opportunity to comment. Any amendments to the plan include a public notice in local newspapers, a minimum 10-day review and comment period, and a review by area staff of all comments prior to making a decision on whether to stock fish in the new location. An amended stocking plan will be posted on the ADF&G website. On occasion, there are compelling reasons to discontinue a stocking project. Loss of public access, management conflicts with other pre-existing fisheries or poor survival of stocked fish have caused the cancellation of stocking projects. In such cases, the department may temporarily discontinue or completely eliminate the stocking project. Moreover, if fishery plan objectives are not being met, the project may be terminated or modified.

It is important to recognize the dynamic nature of a complex sport fish-stocking program. Several hatcheries located across the state in Southeast and Southcentral Alaska are involved. More than **7 million fish** from dozens of stocks and species will be released at hundreds of locations statewide. The Sport Fish stocking program is continually changing depending on the success of prior fish plants, angler preferences, acquisition of public lands, human population growth, availability of funding, hatchery limitations, and recreational trends. To the extent possible, anglers and the general public will be alerted to any significant departure from the plan. In effect, this plan is open for continual review by public and staff. Recommendations are always welcomed and considered. This plan is formally reviewed and updated annually.

Anadromous species (salmon) are released as fingerling or smolt depending on the stocking site and the intent of the program. Fingerlings are often planted in lakes underutilized by natural stocks or with no natural stocks due to barriers to returning adults. Depending on the species, fingerling may rear for one or two years before becoming smolt and migrating to sea. Hatchery-reared smolt go directly to sea when released into fresh water and do not significantly compete with native fish. Smolt may also be released directly into the marine environment or held in saltwater rearing pens for additional growth before release.

The majority of resident species (rainbow trout, Arctic char, Arctic grayling, and landlocked salmon) are stocked in landlocked lakes that initially contained no natural sport fish. Resident species are stocked in lakes as fry, fingerling, subcatchable, or catchable depending on the species, the release site, and the intent of the program.

Egg take numbers are based on average fecundity and estimates of hatchery survival from egg to fry. In many instances, long-term hatchery rearing of fish is necessary prior to release. It would therefore be unusual to have exactly the planned number of fish from every hatchery lot available for stocking. It is often necessary for departmental staff to make minor changes in fish numbers, stock, or exact release location to accommodate the variables in fish production. This is particularly true for anadromous species that have a brief, biological "window" of time during which they can successfully be released. Therefore, the actual number available for stocking may deviate by as much as 10% from the planned number in this document. Such variations are viewed as a normal and acceptable component of the stocking program.

The Alaska Department of Fish and Game Division of Sport Fish Lake Stocking Policy is scheduled for review every 5 years. This policy is currently under review (See Appendix A).

TERMS AND DEFINITIONS

When reviewing the tables listing the planned releases of fish, the following terms are used:

REGION:	Division of Sport Fish Region I = Southeast Alaska; Region II = Southcentral Alaska; Region III = Interior Alaska.
AREA:	Division of Sport Fish Management Area.
FISHERY PLAN:	Management plan describing fishery enhancement objectives. A synopsis of each plan appears in this stocking plan to support proposed hatchery releases of fish.
HATCHERY:	Facility where fish are produced.
RELEASE SITE:	Lake, stream, or marine location to be stocked.
ANADROMOUS:	Either YES (these fish are being planted in a location where they can go to sea) or NO (these fish are being planted in a landlocked lake or are a freshwater resident species).
LIFESTAGE:	FRY = fish less than 1 gram in weight; FINGERLING = anadromous or resident fish ranging from 1 to 4 grams; SMOLT = anadromous fish ranging from 1 to 20 grams, depending on species; SUBCATCHABLE = resident fish generally ranging from 15 to 70 grams; CATCHABLE = resident or landlocked fish weighing greater than 70 grams; BROODSTOCK = resident fish older than 2 years of age.
PLOIDY:	Fish proposed for stocking are 2N = diploid, having 2 sets of chromosomes which is the normal number; or 3N = triploid, having 3 sets of chromosomes rendering the fish sterile; triploid rainbow trout released are from all-female populations. If this option is not listed, all fish stocked are from diploid populations.
TARGET RELEASE SIZE:	Approximate minimum size in grams that the fish should be at release.
TARGET RELEASE DATE:	Approximate date before which the fish should be released.
2017-2021:	Numbers of fish requested, by year, species, and lifestage for the stocking location. However, these numbers must be viewed more realistically as a target range, with plus or minus 10% being acceptable.

GUIDELINES FOR STOCKED WATERS SELECTION

Alaska Administrative Code: Section 5 AAC 41.070 prohibits the importation of any live fish into the state for purposes of stocking or rearing in the waters of the state.

Alaska Administrative Code: Section 5 AAC 75.055 prohibits the possession, transport, and release of live fish or live fish eggs without a permit issued by the Commissioner of Fish and Game under 5 AAC 41.005 or AS 16.05.930 (a).

Division of Sport Fish management biologists use the following guidelines to assess current and proposed stocking projects. The process to determine whether a proposed stocking location meets ADF&G guidelines may take anywhere from a few weeks to a few years and would depend on the proposed location, public input, permit approval, production capacity, and the availability of funding.

(1) LEGAL PUBLIC ACCESS

Legal public access is required before stocking can occur. Access may be afforded by a section line or other dedicated public right-of-way (ROW) or easement, or if a lake is large enough to land a float or ski plane. Public access must be sufficient for anglers to access the stocking location and a portion of the surrounding land. Legal public access must also be of practical use to the angling public. An un-cleared ROW, no available parking, or a remote fly-in lake with no land that may be used by the public for camping would not be adequate public access. Once an access point is identified, a land or trail survey may be required to establish a legal ROW or an agreement with state, local, or federal government agencies, or private land owners. Easement applications filed with government agencies or ROW grants from private land owners may require surveys conducted by registered land surveyors. These are costly and contingent on funding.

(2) PROVIDE INCREASED OPPORTUNITY OR DIVERSITY FOR SPORT FISH ANGLERS

Stocking projects are intended to provide diverse and dependable angling opportunities that are attractive alternatives to the harvest of wild fish stocks. New stocking projects can be initiated through verbal or written requests directed to the area management biologist. Requests with demonstrated support from multiple users or user groups are given priority over requests from a single individual. Current stocking projects are reviewed annually by area management biologists and fish are allocated to waters that are most likely to meet the primary enhancement objectives for the greatest number of anglers.

(3) SITE SURVEY

A site survey is required before stocking can occur. Public access, fish, water quality, and morphometric data are collected to identify existing sport fisheries, potential food sources, and habitat available to stocked fish. If a proposed site is approved for stocking, these data are used in conjunction with public input, anticipated harvest, and current hatchery production to select the species, life stage, and number of fish to stock.

- (a) Adequate water quality to support fish;

At a minimum, water quality parameters must be adequate to support stocked fish during the open water season, and suitable conditions year-round are preferred. Depth and water quality data are collected to determine if environmental conditions approach or exceed critical biological limits for stocked species. In general, winter oxygen levels in a stocked lake should be greater than 2 mg/L and summer water temperature should be less than 18 C throughout some portion of the water column. If a lake cannot support fish overwinter, only catchable size fish may be stocked.

(b) No self-sustaining sport fishery exists;

ADF&G is trying to attract anglers to “new” fisheries. The practice of stocking fish where wild sport fish populations already exist is generally avoided. Exceptions are made at the area management biologist’s discretion where natural (wild) fish are at levels too low to attract anglers or where stocked fish can divert pressure (e.g. harvest) away from wild populations.

(4) PUBLIC REVIEW PROCESS

All ADF&G fish releases are subject to public review. Public review occurs when a new stocking location is included in the annual 5-year statewide stocking plan or when the current year plan is amended. Amending the current year plan to include a new stocking location requires ADF&G to issue a press release requesting comments for a 10 day period, plus any public and/or agency notification regarding the proposed site. If no significant issue is raised, the plan can be amended. If there is significant objection, the area management biologist may choose to discontinue the stocking project or conduct a more formal public review.

(5) ISSUANCE OF A FISH TRANSPORT PERMIT (FTP) or FISH RESOURCE PERMIT (FRP) BY THE COMMISSIONER OF FISH AND GAME (5 AAC 41.005)

After adequate biological, disease, and genetic concerns have been addressed, a Fish Transport Permit (FTP) or Fish Resource Permit (FRP) can be issued by the commissioner of Fish and Game permitting the transport and release of hatchery produced fish in Alaska. The permitting process reduces potential deleterious effects of hatchery-produced fish on wild stocks by restricting stocking activities to department approved release sites. Approved release sites are determined by the potential for stocked fish to impact other fish stocks and by the origin and ploidy of fish released. Approved fish releases for different lake categories are outlined in the *Lake Stocking Policy for Sport Fish Division* (Appendix A). This document is reviewed and updated every 5 years.

(6) ADEQUATE HATCHERY PRODUCTION AVAILABLE TO PROVIDE ANGLING OPPORTUNITY

In most cases, if the above criteria are met, a "new" stocking location could be stocked with hatchery produced fish within a year; however, more time (2-4 years) may be needed to collect additional eggs and raise the resulting progeny to the desired size. In years of reduced fish production due to budget constraints or production limitations, area management biologists prioritize stocking projects to allocate available fish production.

Sport Fish 5-Year Stocking Plan Region I

Summary of all planned stockings for recreational fishing in Alaska for 2019 through 2023.

31-Dec-18

Species	Lifestage	2019		2020		2021		2022		2023	
		Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected
Chinook salmon											
	Smolt	2,250,000	2,250,000	2,250,000	2,290,000	2,290,000	2,290,000	2,290,000	2,290,000	2,290,000	2,290,000
	Chinook salmon Total	2,250,000	2,250,000	2,250,000	2,290,000	2,290,000	2,290,000	2,290,000	2,290,000	2,290,000	2,290,000
coho salmon											
	Smolt	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
	coho salmon Total	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
rainbow trout											
	Catchable	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500
	Sub/Catchable	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
	Subcatchable	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800
	rainbow trout Total	11,800	11,800	11,800	11,800	11,800	11,800	11,800	11,800	11,800	11,800
Grand Total		2,361,800	2,361,800	2,361,800	2,401,800	2,401,800	2,401,800	2,401,800	2,401,800	2,401,800	2,401,800

Sport Fish 5-Year Stocking Plan Region II

Summary of all planned stockings for recreational fishing in Alaska for 2019 through 2023.

31-Dec-18

Species	Lifestage	2019 Projected	2020 Projected	2021 Projected	2022 Projected	2023 Projected
Arctic char						
	Broodstock	670	770	670	770	670
	Catchable	20,825	20,725	20,825	20,725	20,825
	Arctic char Total	21,495	21,495	21,495	21,495	21,495
Arctic grayling						
	Catchable	21,600	22,100	22,100	22,100	22,100
	Fingerling	9,500	9,500	9,500	9,500	9,500
	Arctic grayling Total	31,100	31,600	31,600	31,600	31,600
Chinook salmon						
	Catchable	2,000	91,000	93,000	92,500	92,500
	Smolt	2,131,748	2,606,500	2,606,500	2,606,500	2,606,500
	Chinook salmon Total	2,133,748	2,697,500	2,699,500	2,699,000	2,699,000
coho salmon						
	Catchable	88,000	7,000	0	0	0
	Fingerling	132,720	132,720	132,720	132,720	132,720
	Smolt	1,145,000	1,145,000	895,000	895,000	787,000
	coho salmon Total	1,365,720	1,284,720	1,027,720	1,027,720	919,720
rainbow trout						
	Broodstock	1,300	1,300	1,300	1,300	1,300
	Catchable	204,274	203,274	204,274	203,274	204,274
	Fingerling	544,140	545,140	545,140	545,140	545,140
	rainbow trout Total	749,714	749,714	750,714	749,714	750,714
Grand Total		4,301,777	4,785,029	4,531,029	4,529,529	4,422,529

Sport Fish 5-Year Stocking Plan Region III

Summary of all planned stockings for recreational fishing in Alaska for 2019 through 2023.

31-Dec-18

Species	Lifestage	2019		2020		2021		2022		2023	
		Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected
Arctic char	Catchable	11,300	11,300	11,300	11,300	11,300	11,300	11,300	11,300	11,300	11,300
	Fingerling	7,000	0	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000
	Subcatchable	27,025	0	27,025	27,025	27,025	27,025	27,025	27,025	27,025	27,025
	Arctic char Total	45,325	11,300	45,325	45,325	45,325	45,325	45,325	11,300	45,325	45,325
Arctic grayling	Catchable	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,200
	Fingerling	0	6,000	0	6,000	0	6,000	0	6,000	0	0
	Arctic grayling Total	26,000	32,000	26,000	32,000	26,000	32,000	26,000	32,000	26,200	26,200
Chinook salmon	Catchable	40,420	40,420	40,420	40,420	40,420	40,420	40,420	40,420	40,420	40,420
	Chinook salmon Total	40,420	40,420	40,420	40,420	40,420	40,420	40,420	40,420	40,420	40,420
coho salmon	Fingerling	66,000	75,500	66,000	75,500	66,000	75,500	66,000	75,500	66,000	66,000
	coho salmon Total	66,000	75,500	66,000	75,500	66,000	75,500	66,000	75,500	66,000	66,000
rainbow trout	Catchable	139,870	140,170	140,170	140,170	140,170	140,170	140,170	140,170	140,570	140,570
	Fingerling	101,800	100,500	101,800	100,500	101,800	100,500	101,800	100,500	101,800	101,800
	rainbow trout Total	241,670	240,670	241,970	240,670	241,970	240,670	241,970	240,670	242,370	242,370
Grand Total		419,415	399,890	419,715	399,890	419,715	399,890	419,715	399,890	420,315	420,315

Sport Fish 5-Year Stocking Plan

Summary of all planned stockings for sport fishing in Alaska for 2019 through 2023.

17-Dec-18

Species	Lifestage	2019 Projected	2020 Projected	2021 Projected	2022 Projected	2023 Projected
Arctic char	Broodstock	670	770	670	770	670
	Catchable	32,125	32,025	32,125	32,025	32,125
	Fingerling	7,000	0	7,000	0	7,000
	Subcatchable	27,025	0	27,025	0	27,025
	Arctic char Total	66,820	32,795	66,820	32,795	66,820
Arctic grayling	Catchable	47,600	48,100	48,100	48,100	48,300
	Fingerling	9,500	15,500	9,500	15,500	9,500
	Arctic grayling Total	57,100	63,600	57,600	63,600	57,800
Chinook salmon	Catchable	42,420	131,420	133,420	132,920	132,920
	Smolt	4,381,748	4,856,500	4,896,500	4,896,500	4,896,500
	Chinook salmon Total	4,424,168	4,987,920	5,029,920	5,029,420	5,029,420
coho salmon	Catchable	88,000	7,000	0	0	0
	Fingerling	198,720	208,220	198,720	208,220	198,720
	Smolt	1,245,000	1,245,000	995,000	995,000	887,000
	coho salmon Total	1,531,720	1,460,220	1,193,720	1,203,220	1,085,720
rainbow trout	Broodstock	1,300	1,300	1,300	1,300	1,300
	Catchable	352,644	351,944	352,944	351,944	353,344
	Fingerling	645,940	645,640	646,940	645,640	646,940
	Sub/Catchable	1,500	1,500	1,500	1,500	1,500
	Subcatchable	1,800	1,800	1,800	1,800	1,800
	rainbow trout Total	1,003,184	1,002,184	1,004,484	1,002,184	1,004,884
Grand Total		7,082,992	7,546,719	7,352,544	7,331,219	7,244,644

Alaska Department of Fish and Game

Division of Sport Fish

Lake Stocking Policy

LAKE STOCKING POLICY FOR SPORT FISH DIVISION

**Original Policy Established in February of 1998
Revised 04/07/2008**

Current Policy Revised and Approved 02/25/2013

INTRODUCTION

The stocking of Alaska's lakes with hatchery-reared fish was initiated in the 1950's and has remained an integral component of the Alaska Department of Fish and Game (ADF&G) Sport Fish Division's management program. Early fish stocking included the introduction of species and stocks from the Pacific Northwest, as well as transporting Alaska stocks into non-native areas with the intent to establish reproductive populations. These types of stockings were acceptable management practices at the time, but they are generally not allowed today. Over 300 lakes in Southeast, Southcentral and Interior Alaska have been stocked with hatchery-produced fish.

Fish stocking is stringently regulated in Alaska. Title 16 of the Alaska Statutes and Title 5 of the Alaska Administrative Code specifically address the transportation and possession of live fish. Although the statutes and administrative code provide overall directives, they do not provide specific recommendations on what physical and biological characteristics define acceptable stocking locations, appropriate measures to sterilize fish, or specific recommendations for the use of species, life stages or genetic type. Fishery managers need guidelines on these variables to consider when evaluating stocking projects. This policy is intended to guide the development of Sport Fish Division lake stocking projects that benefit recreational anglers. Regular review of this policy will be necessary to keep it germane to management philosophy and hatchery technology changes.

PLANNING

Sites for stocking fish are proposed, reviewed, and approved through a formal process. Sport Fish Division Area Management Biologists or regional stocking program personnel initiate all stocking requests for their area of responsibility. Public inquiries relative to lake stocking should be directed to these people. They will investigate the ability of the lake to sustain fish, public access opportunities, and lake characteristics. A recommendation to stock or not to stock a lake will be made based on the investigation results and appropriate lake stocking guidelines.

Sport Fish Division lake stocking is primarily funded with Federal Aid in Sport Fish Restoration funds and license sales revenues. Therefore, each lake stocking project must comply with rules outlined in the "Federal Aid Manual" and other criteria specified by the Division of Federal Aid, U.S. Fish and Wildlife Service (USFWS).

The primary planning document for lake stocking is the *Statewide Stocking Plan for Recreational Fisheries* (SSP). This document describes a five-year plan for stocking projects

for recreational anglers and is updated annually. The SSP receives state, federal, and public review. Any proposed lake stocking should appear in the SSP one year or more prior to the initial stocking.

PERMITTING

Once the planning phase of a stocking project is complete, a Fish Transport Permit (FTP) must be obtained. The FTP is required as part of authorization for possession, transport, and release of live fish within the state (5 AAC 41.005). An FTP can be obtained by filling out a detailed application that contains information pertinent to the project. Each application is reviewed by relevant ADF&G personnel and submitted to the Commissioner of ADF&G with a recommendation for approval or denial.

Numerous lakes stocked by Sport Fish Division may be grouped together on a single FTP. The primary groupings are organized by species and ploidy. Multiple life stages can be included on a single FTP. Secondary groupings can be organized by lake category and geographic area.

Lake stocking FTPs will be issued for a fixed period. Sport Fish Division has selected a maximum period of 10 years. FTPs for each species are scheduled to expire simultaneously. Expiration of an FTP for a species will trigger an internal review of the stocking program for that species. The expiration dates by species are as follows:

Species	Expiration Date
Rainbow trout – Fort Richardson Hatchery brood	12/31/15
Coho Salmon	12/31/17
Arctic char – Fort Richardson Hatchery brood	12/31/18
Chinook salmon	12/31/19
Lake trout	12/31/20
Arctic grayling	12/31/21
Rainbow trout – W. Hernandez Hatchery brood	12/31/23
Arctic char – W. Hernandez Hatchery brood	12/31/24

Following review, FTPs may be issued or amended to extend the effective date for another 10-year period.

LAKE CATEGORIES

Prior to stocking, a lake must be classified into one of five categories that rank lakes according to the likelihood that fish stocked in the lakes will escape into other water bodies within the drainage. **Category 1** lakes are single or multiple connected lakes that are landlocked from which fish cannot escape. These lakes have no outlet stream with direct or indirect access to an open system that eventually leads to saltwater. **Category 2** lakes have intermittent outlets. A small stream may flow out of the lake during high water periods. The incidence of high water periods

is usually less than 2 weeks per year. Fish may periodically escape and interact with wild fish populations. **Category 3** lakes have barriered or weired outlets. A barriered outlet has a natural structure that prevents fish passage into or out of the lake. A weired outlet has a man-made structure that prevents fish passage, has passed requirements for blockage to fish passage, and is annually inspected and certified for blockage. Birch Lake in interior Alaska and Cheney Lake in Southcentral Alaska are examples of weired Category 3 lakes that meet blockage requirements. Fish may periodically escape from barriered Category 3 lakes and impact wild fish populations. The incidence of fish escaping from weired Category 3 lakes is low, and these fish are not likely to impact wild fish populations. **Category 4** lakes are prone to flooding. These are lakes or ponds usually located in the floodplain of a stream and subject to flooding during high water flows. Fish can leave the system during flood events. Some lakes in this category may flood every year while others rarely flood. **Category 5** lakes have open outlets. Fish can pass freely in and out of the system. The potential impact to wild fish populations is high. The magnitude of impact depends on the species and life stage stocked and the wild stocks present.

STOCKING PRODUCTS

Five species are currently reared for stocking projects (Table 1). Hatcheries produce fish that are reproductively viable (diploid, mix-sex) or reproductively impaired. Triploidy and all-female induction produce fish that are unlikely to result in self-reproducing populations or hybridize with local stocks. Triploids have been produced for all species, except lake trout. Triploid induction success rate varies by species with high induction rates for Arctic grayling, landlocked salmon, and Arctic char, and lower rates for rainbow trout. To further insure the non-reproductive status of triploid rainbow trout, all-female lots are produced. Triploids are sterile, while all-females are incapable of establishing self-reproducing populations in the absence of wild fish.

The Department's threshold for mixed-sex triploids requires a 95% confidence level that the triploid rate is 99% or higher. The certification rate for all-female triploid rainbow trout requires a 95% confidence level that the triploid rate is 90% or higher. Fish certified at a lower rate can be stocked but only into lakes approved for stocking of diploid fish.

In order to reduce the potential for negative impacts on wild fish populations, Sport Fish Division endorses the use of sterile stocking products whenever practical.

Rainbow trout

Rainbow trout are the primary hatchery product used in lake stocking. All rainbow trout production comes from captive broodstock maintained at Fort Richardson Hatchery (through 2013) and William Jack Hernandez Sport Fish Hatchery (starting in 2014). The broodstock is descended from wild Swanson River rainbow trout collected in the 1980s.

Numerous sizes of rainbow trout are stocked. Excess broodstock are periodically used for stocking. Rainbow trout broodstock are 1 to 3 years old and usually weigh 0.2 to 2.0 kg (1/2 to 4.4 pounds). Catchable rainbow trout are 1 year old and weigh an average of 120 g (~1/4 pound). Sub-catchable rainbow trout are 6 months to 1 year old and weigh between 15 and 60 g.

Fingerling rainbow trout are usually 2 to 4 months old and weigh between 1 and 4 g. Rainbow trout fry are less than 2 months old and usually weigh less than 1 g.

Arctic Grayling

Arctic grayling are stocked in many Southcentral and Interior Alaska lakes. A few lakes in Southeast Alaska have been stocked intermittently. All hatchery-produced Arctic grayling are reared from eggs obtained from Chena River wild stock. No captive broodstock is maintained in the hatchery. Catchable Arctic grayling are 1 year old and weigh an average of 100 g. Fingerling Arctic grayling are usually 2 to 4 months old and weigh between 1 and 4 g.

Arctic Char

Arctic char are stocked in Interior and Southcentral Alaska lakes. Arctic char are produced from eggs taken from a captive broodstock maintained at Fort Richardson Hatchery (through 2014) and William Jack Hernandez Sport Fish Hatchery (starting in 2015) that descended from fish captured in Bristol Bay (Lake Aleknagik). Various sizes of Arctic char are stocked. Excess broodstock are periodically released into lakes. Broodstock Arctic char are 2 to 4 years old and weigh an average of 1,500 g (3.3 pounds). Catchable Arctic char are 1½ years old and weigh an average of 120 g. Sub-catchable Arctic char are 6 months old and weigh between 15 and 60 g. Fingerling Arctic char are usually 4 to 6 months old and weigh between 5 and 10 g.

Lake Trout

The lake trout stocking program has been dormant since the 2001 stocking season but may be reinitiated in the future. Lake trout were stocked in a few Interior and Southcentral Alaska lakes. All hatchery lake trout were produced from eggs taken from wild fish stocks. The broodstock used was from Seven-mile Lake (Yukon River drainage) near Paxson. No captive broodstock was maintained in the hatchery. Due to the difficulty of conducting a wild egg take and the longevity of this species, eggs were only taken every other year. Two sizes of lake trout were stocked. Catchable lake trout were 1½ years old and weighed an average of 100 g. Fingerling lake trout were usually 4 to 6 months old and weighed between 5 and 10 g.

Coho Salmon

Coho salmon are stocked in many Interior and Southcentral Alaska lakes. Sport Fish Division use of coho salmon to stock lakes in Southeast Alaska has been limited. Currently most hatchery-produced coho salmon used for lake stocking in Southeast and Southcentral Alaska are progeny of hatchery-produced adults. Broodstock used may vary depending on availability. Hatchery produced coho salmon used for lake stocking in Interior Alaska are from eggs obtained from wild fish of the Delta Clearwater stock. Two sizes of coho salmon have been stocked. Fingerling coho salmon are 2 to 4 months old and weigh between 1 and 5 g. Sub-catchable coho salmon are 1 year old and weigh an average of 23 g.

Chinook Salmon

Chinook salmon are stocked in many Interior and Southcentral Alaska lakes and a few Southeast Alaska lakes. Currently, most hatchery-produced Chinook salmon used for lake stocking in Southeast and Southcentral Alaska are progeny of hatchery-produced adults. Broodstock used may vary depending on availability. Hatchery-produced Chinook salmon used for lake stocking in Interior Alaska are from eggs obtained from either Chena River or Salcha River wild stock.

Two sizes of Chinook salmon have been stocked. Catchable Chinook salmon are 1 year old and weigh an average of 100 g. Sub-catchable Chinook salmon are 6 to 8 months old and weigh an average of 20 g.

GENETIC AND DISEASE CONCERNS

The release of fish from hatcheries into lakes is guided by two additional policies. The genetic policy (Genetic Policy, Alaska Department of Fish and Game, 1985) was developed to protect the genetic integrities of wild and hatchery stocks. The disease policy (Regulation Changes, Policies and Guidelines for Alaska Fish and Shellfish Health and Disease Control, Alaska Department of Fish and Game, 2010) was developed to prevent the spread of fish diseases to wild and hatchery fish stocks. One area of concern for all lake categories is the illegal removal and transport of live fish from stocked lakes for release into other water bodies. To reduce the potential for spreading disease via stocking or illegal fish transfers, hatchery fish are evaluated and approved for release by the pathology section before stocking. The use of effective isolation and disease management protocols in hatchery facilities, pre-release disease evaluations of high risk production groups and certified triploids significantly reduces genetic and disease risks from illegal fish transfers.

The degree of genetic and pathology concern depends on the species and product (ploidy and sex) of fish stocked and the category of lake. There are minimal genetic and disease concerns with the stocking of any species of fish into a category 1 (landlocked) lake. The fish cannot escape from the lake and cause problems with wild fish populations. In addition, there is no outlet to transport water borne pathogens. The primary concern in category 1 lakes is the illegal transport and release by the public to nearby water bodies.

There are both genetic and disease concerns with stocking fish into category 2 (intermittent outlet), category 3 (certified weired or barriered outlet), and category 4 (flood prone) lakes. Whenever stocked fish escape from the lake of origin it is possible that genetic interaction, species range extension or the spread of pathogens will occur. Stockings should be considered for each instance based on episodic floods, certification of the weir structure, or barrier along with the species stocked, habitat suitability, and the wild species present, as all these factors influence the potential for negative impacts.

Fish stocked into Category 5 (open outlet) lake/stream systems can enter and leave most systems at will, which increases the possibility for genetic interaction, spreading disease, and expanding species range. Stocking fish in lakes with open outlets is generally unacceptable from either a genetics or disease perspective. However, particular circumstances exist at some lakes that may ameliorate genetic and disease concerns. This may include barren systems or open systems stocked with sterile fish not expected to significantly compete with or prey upon resident fish.

MANAGEMENT CONCERNS

Management concerns associated with stocked lakes are minimal. No commercial fisheries are involved and there are no conservation concerns with stocked fish. Sport anglers are likely the sole harvesters of fish from the Sport Fish Division lake stocking program, however, subsistence fisheries could develop at some lakes. If this occurs, stocking activity should be evaluated to assure adequate benefit is being derived by sport anglers to justify continued stocking. Some

lake stocking projects may require a change in area sport fishing regulations. Most area regulations are conservative to preserve wild stocks of resident fish. Regulations on stocked lakes are generally more liberal. Sport anglers are encouraged to harvest hatchery-produced fish and preserve wild stocks of fish. Sport Fish Division will attempt to maintain liberal harvest limits on all stocked lakes. Some stocked lakes now support fisheries where the objective is to provide the opportunity to catch several large fish. Public support for a wide range of “quality” fisheries is increasing and area management personnel are making adjustments to provide a balance among high harvest, mixed species, and trophy fishing opportunities.

Other management issues associated with lake stocking are public access and the sale of fish. Production of all hatchery fish is paid for with funds collected from sport anglers (through Federal Aid in Sport Fish Restoration and state license sales revenue). Consequently, no fish should be stocked unless the public has access to catch the fish. Sport Fish Division will not stock fish in a lake unless there is legally designated public access. In addition, fish produced by Sport Fish Division hatcheries will not be sold to private individuals or groups, since the fish were produced with public funds.

STOCKING GUIDELINES

In cases where triploids are required as a condition of permitted stocking activity, triploids must be certified before release. Fish not meeting certification criteria cannot be stocked into lakes approved for triploid stocking only. ***All hatchery fish must meet the established ADF&G Fish Health and Disease Control Regulations, Policies and Guidelines at the time of stocking.***

Category 1 lakes within the species range can be stocked with any hatchery product (Table 1). There are minimal genetic or disease concerns. The one concern for all lake categories is the illegal removal and transport of fish out of stocked lakes and into other water bodies. The use of certified triploids significantly reduces the genetic risk from this activity. Therefore, triploids (and for rainbow trout, all-female triploids) should be used whenever possible.

Category 1 lakes outside the species' range can be stocked with mixed-sex or all-female triploid rainbow trout, triploids of any other species, or diploid lake trout, in cases where there is no possibility of the stocked fish creating a natural population. Diploid mixed-sex rainbow trout can be used when there are no or insufficient triploid rainbow trout available.

Category 2 lakes can be stocked with all-female triploid rainbow trout and may be stocked with triploid fish of any other species and diploid lake trout as long as there is no possibility of the stocked fish interbreeding with native populations or establishing a new population. The life history of lake trout makes it highly unlikely that lake trout will escape the lake, establish a naturally reproducing population, and compete with native fish. Category 2 lakes in the Tanana River drainage may be stocked with diploid Chinook salmon, coho salmon, or Arctic grayling only if the hatchery-reared fish are F1 descendants of a local stock and are approved by Genetics staff under the FTP process.

Category 3 lakes can be stocked with all-female triploid rainbow trout and may be stocked with triploid fish of any other species and diploid lake trout as long as there is no possibility of the stocked fish interbreeding with native populations or establishing a new population. The life history of lake trout makes it highly unlikely that lake trout will escape from the lake, establish a

naturally reproducing population and compete with native fish. Weired category 3 lakes that have been annually certified as a blockage to fish passage can additionally be stocked with mixed-sex triploid rainbow trout. Mixed-sex diploid rainbow trout may be stocked when there are no or insufficient triploid rainbow trout available. Category 3 lakes in the Tanana River drainage may be stocked with diploid Chinook salmon, coho salmon, or Arctic grayling only if the hatchery-reared fish are F1 descendants of a local stock and are approved by Genetics staff under the FTP process.

Category 4 lakes can be stocked with all-female triploid rainbow trout and, under special circumstances, with triploid fish of any other species as long as there is limited possibility of the stocked fish attempting to interbreed with native populations. Category 4 lakes in the Tanana River drainage may be stocked with diploid Chinook salmon, coho salmon, or Arctic grayling, only if the hatchery-reared fish are F1 descendants of a local stock and are approved by Genetics staff under the FTP process.

Category 5 lakes should not be stocked, except under special circumstances. Any stocking in a Category 5 system should be solely for creating a significant fishery for species not readily available in the area. If circumstances for stocking arise, all-female triploid rainbow trout and triploid fish of any other species may be stocked into systems that do not contain native fish of the species stocked. Reproduction will not occur.

Table 1: Classification of lakes and recommended stocking products for Sport Fish Division lake stocking projects.

Lake Type ¹	Rainbow Trout		Arctic Grayling		Landlocked Salmon		Arctic char		Lake Trout	
	Mixed-Sex	All-Female	Mixed-Sex		Mixed-Sex		Mixed-Sex		Mixed-Sex	
Lake Category ¹	Diploid	Diploid	Diploid	Triploid ² (99%)	Diploid	Triploid ² (99%)	Diploid	Triploid ² (99%)	Diploid	Triploid ² (99%)
Landlocked/Connected	1	Yes	Preferred	Yes ⁴	Yes ⁴	Preferred	Yes ⁴	Preferred	Yes ⁴	Preferred
Intermittent Outlet	2	No	Maybe ^{4,6}	Maybe ⁷	Maybe ^{4,6}	Maybe ^{4,6}	Maybe ⁷	Maybe ^{4,6}	No	Maybe ^{4,6}
Weired⁸/Barriered Outlet	3	Maybe ³	Maybe ⁹	Maybe ⁷	Yes ^{4,6}	Yes ^{4,6}	Maybe ⁷	Yes ^{4,6}	No	Yes ^{4,6}
Flood Prone	4	No	Maybe ^{4,6}	Maybe ⁷	Maybe ^{4,6}	Maybe ^{4,6}	Maybe ⁷	Maybe ^{4,6}	No	Maybe ^{4,6}
Open Outlet	5	No	No	No	No	No	No	No	No	No

¹ See Table 2 for definition of terms.

² Stocking of triploids in any particular category is based on the level of certification (See stocking guidelines).

³ Mixed-sex diploid rainbow trout may only be stocked into category 1 lakes, and weired and certified category 3 lakes in rare circumstances when no all-female diploid or mixed sex triploid rainbow trout products are available.

⁴ Outside the species range, it may be stocked only if there is no possibility of the stocked fish establishing a population.

⁵ The life history of this fish makes it highly unlikely that fish will escape the lake, establish a naturally reproducing population and/or interbreed with native fishes.

⁶ Within the species range, it may be stocked only if there is no possibility of the stocked fish interbreeding with native populations.

⁷ Mixed-sex diploid fish may be stocked into non-category 1 lakes in the Tanana River drainage if fish from the Tanana River drainage are used as broodstock.

⁸ Lakes with a man-made weir must be periodically certified (i.e., pass a test for fish blockage) to be considered category 3 lakes. The recommended period for certification is annually prior to stocking. Weired category 3 lakes that do not pass certification for fish blockage cannot be considered weired category 3 lakes.

⁹ Weired lakes that are certified for blockage may have all-female diploid rainbow trout stocked into them. Birch Lake in interior Alaska and Cheney Lake in Southcentral Alaska are examples of lakes that are certified for fish blockage.

Table 2. Definition of terms used for lake classification and stocking products.

Lake Type	Definition
Landlocked	There is no outlet; fish cannot escape lake.
Connected Lakes	Two or more lakes connected by streams, but no outlet for lowest lake in the drainage. Fish cannot escape lowest lake.
Intermittent Outlet	Lake is usually landlocked, but fish can escape if high water flows occur.
Weired	Outlet stream is blocked by man-made structure. Fish cannot escape unless weir fails or is compromised. A lake is considered weired if it is periodically certified (i.e., passes a test of blockage). The recommended certification period is annually prior to stocking. Otherwise it is considered intermittent, flood prone, or open as per these definitions.
Barriered Outlet	Outlet stream is blocked by natural structure. Fish cannot usually pass through the barrier and survive.
Flood Prone	Lake is landlocked, but is subject to flooding during high water periods. Fish can escape during floods.
Open Outlet	Lake has outlet stream and fish can move into and out of lake.

Lake Category	Definition
Category 1	Lakes are truly landlocked and fish cannot exit the system. There is no interaction with any wild fish populations except those indigenous to the lake. Few restrictions on fish stocking.
Category 2	Lakes with an intermittent outlet. Snowmelt during heavy snow years may fill lake basin and create a small outlet stream. Fish may periodically escape from a Category 2 lake and compete with wild fish populations. However, the incidence of stocked fish escapement is low. The danger to wild fish populations is also low. Moderate restrictions on fish stocking.
Category 3	Includes weired lakes and lakes with barriered outlets. Fish may periodically escape from a category 3 lake and compete with wild fish populations. However, the incidence of stocked fish escapement is low. The danger to wild fish populations is also low. The primary concern with Category 3 systems is the passage of pathogens from stocked fish to wild fish. Moderate restrictions on fish stocking.
Category 4	Lakes are flood prone. These are small lakes or ponds usually located in the floodplain of a stream and subject to flooding during high stream water flows. Fish can leave the system during flood periods. Moderate to severe restrictions on fish stocking.
Category 5	Lakes with open outlets. Fish are free to pass in and out of the system at will. Stocking not recommended. Stocking may occur under severe restrictions.

Table 2. Continued

Stocking Products	Definition
Mixed-Sex	These are normal fish that are capable of reproduction.
Mixed-Sex Triploid	These fish have cells with three sets of chromosomes. Fertilized eggs are pressure shocked during early development to interrupt cell division, and this causes cells to retain a third set of chromosomes. Triploid fish are sterile and cannot reproduce. Populations with triploid rates <100% will contain some fish capable of reproduction. The certification rate for mixed-sex triploids is 95% confident that the triploid rate is 99% or higher.
All-Female Triploid	These fish have cells with three sets of chromosomes. Fertilized eggs are heat shocked during early development to interrupt cell division and cause cells to retain a third set of chromosomes. These fish are females, sterile, and cannot reproduce. The certification rate for all-female triploid rainbow trout is 95% confident that the triploid rate is 90% or higher.
All-Female Diploid	These fish are capable of reproduction, but a naturally producing population of fish cannot be established because all fish are female.
Drainage	All of the waters comprising a watershed, including tributary rivers, streams, sloughs, ponds and lakes which contribute to the supply of the watershed.

REFERENCES

Alaska Statutes Title 16 Chapter 5. Alaska Department of Law. Juneau, Alaska.


Genetic Policy. 1985. Alaska Department of Fish and Game. 333 Raspberry Road, Anchorage, Alaska.

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Reviewed by:

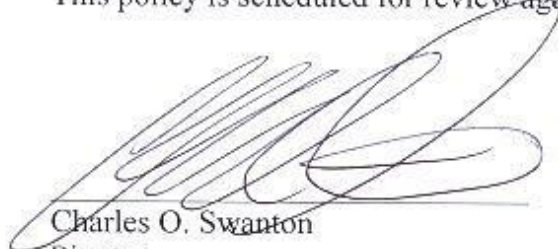

Ted Meyers
Chief Fish Pathologist

2/25/13
Date


William D. Templin
Principal Geneticist

2/25/13
Date

This policy has been thoroughly reviewed by Sport Fish Division staff in all regions of the State in addition to the state's Genetics and Pathology staff. This policy is approved as an official policy of the Alaska Department of Fish and Game, Sport Fish Division. This policy is scheduled for review again in 2018.


Charles O. Swanton
Director
Sport Fish Division

2/25/13
Date