

Alaska Department of Fish and Game



STATEWIDE STOCKING PLAN

FOR

SPORT FISH

2024

February 2024

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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 recreational 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. 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.

The Alaska Sport Fish Harvest Survey shows that anglers fished approximately 1.8 million angler days, caught approximately 4.8 million fish (including clams and smelt), and harvested just over 2.4 million fish in 2022.¹ 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 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 sport fish anglers, but those projects are not included in this plan.

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

¹"Alaska Sport Fishing Survey database [Internet]. 1996-. Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited November 15, 2021). Available from: <http://www.adfg.alaska.gov/sf/sportfishingsurvey/>."

and program evaluations to assess the benefits of each project. Each release of fish in the stocking tables 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 Division 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 Division 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-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, Southcentral and Interior Alaska are involved. Approximately **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 stockings, 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. Guidelines for lake stocking are included in the Sport Fish Division Lake Stocking Policy (Appendix A).

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.

TERMS AND DEFINITIONS

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

REGION:	Sport Fish Division 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.
2024-2028:	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).

Sport Fish Division 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 RECREATIONAL 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. FTPs for established programs may have 10-year effective periods. FTPs with 10-year effective periods may list lakes that could be stocked in 10 years, however, the statewide stocking plan is the 5-year stocking schedule. FTPs may list lakes that could be stocked in an FTP’s 10-year effective period that are approved for stocking that are not in the 5-year statewide stocking plan.

(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

Summary of all planned stockings for recreational fishing in Alaska for 2024 through 2028.

08-Dec-23

Species	Lifestage	2024 Projected	2025 Projected	2026 Projected	2027 Projected	2028 Projected
Arctic char						
	Broodstock	850	850	850	850	850
	Catchable	32,125	32,125	32,125	32,125	32,375
	Fingerling	19,300	26,300	19,300	26,300	19,300
	Subcatchable	0	27,025	0	27,025	0
	Arctic char Total	52,275	86,300	52,275	86,300	52,525
Arctic grayling						
	Catchable	0	0	0	0	0
	Fingerling	0	0	0	0	0
	Arctic grayling Total	0	0	0	0	0
Chinook salmon						
	Catchable	131,000	171,000	171,000	171,000	171,000
	Smolt	4,911,000	2,394,500	2,394,500	2,394,500	2,394,500
	Chinook salmon Total	5,042,000	2,565,500	2,565,500	2,565,500	2,565,500
coho salmon						
	Fingerling	239,320	243,820	243,820	243,820	243,820
	Smolt	1,245,000	1,095,000	895,000	895,000	895,000
	coho salmon Total	1,484,320	1,338,820	1,138,820	1,138,820	1,138,820
lake trout						
	Subcatchable	22,900	0	22,900	0	22,900
	lake trout Total	22,900	0	22,900	0	22,900
rainbow trout						
	Broodstock	1,550	1,550	1,550	1,550	1,550
	Catchable	343,924	344,424	343,424	344,674	343,424
	Fingerling	674,340	673,940	674,340	674,940	674,340
	Sub/Catchable	52,000	0	0	0	0
	Subcatchable	300	300	300	300	300
	rainbow trout Total	1,072,114	1,020,214	1,019,614	1,021,464	1,019,614
Grand Total		7,673,609	5,010,834	4,799,109	4,812,084	4,759,359

Sport Fish 5-Year Stocking Plan Region I

Summary of all planned stockings for recreational fishing in Alaska for 2024 through 2028.

08-Dec-23

Species	Lifestage	2024 Projected	2025 Projected	2026 Projected	2027 Projected	2028 Projected
Chinook salmon						
	Smolt	2,700,000	0	0	0	0
	Chinook salmon Total	2,700,000	0	0	0	0
coho salmon						
	Smolt	100,000	0	0	0	0
	coho salmon Total	100,000	0	0	0	0
rainbow trout						
	Catchable	2,000	0	0	0	0
	Sub/Catchable	52,000	0	0	0	0
	Subcatchable	300	300	300	300	300
	rainbow trout Total	54,300	300	300	300	300
Grand Total		2,854,300	300	300	300	300

Sport Fish 5-Year Stocking Plan Region II

Summary of all planned stockings for recreational fishing in Alaska for 2024 through 2028.

08-Dec-23

Species	Lifestage	2024 Projected	2025 Projected	2026 Projected	2027 Projected	2028 Projected
Arctic char						
	Broodstock	850	850	850	850	850
	Catchable	20,825	20,825	20,825	20,825	21,075
	Fingerling	19,300	19,300	19,300	19,300	19,300
	Arctic char Total	40,975	40,975	40,975	40,975	41,225
Arctic grayling						
	Catchable	0	0	0	0	0
	Fingerling	0	0	0	0	0
	Arctic grayling Total	0	0	0	0	0
Chinook salmon						
	Catchable	91,000	91,000	91,000	91,000	91,000
	Smolt	2,211,000	2,394,500	2,384,500	2,384,500	2,354,500
	Chinook salmon Total	2,302,000	2,485,500	2,475,500	2,475,500	2,445,500
coho salmon						
	Fingerling	133,820	133,820	133,820	133,820	133,820
	Smolt	1,145,000	1,095,000	895,000	895,000	895,000
	coho salmon Total	1,278,820	1,228,820	1,028,820	1,028,820	1,028,820
lake trout						
	Subcatchable	11,400	0	11,400	0	11,400
	lake trout Total	11,400	0	11,400	0	11,400
rainbow trout						
	Broodstock	1,550	1,550	1,550	1,550	1,550
	Catchable	201,924	204,424	203,424	204,674	203,424
	Fingerling	574,640	578,140	574,640	579,140	574,640
	rainbow trout Total	778,114	784,114	779,614	785,364	779,614
Grand Total		4,411,309	4,539,409	4,336,309	4,330,659	4,306,559

Sport Fish 5-Year Stocking Plan Region III

Summary of all planned stockings for recreational fishing in Alaska for 2024 through 2028.

08-Dec-23

Species	Lifestage	2024 Projected	2025 Projected	2026 Projected	2027 Projected	2028 Projected
Arctic char						
	Catchable	11,300	11,300	11,300	11,300	11,300
	Fingerling	0	7,000	0	7,000	0
	Subcatchable	0	27,025	0	27,025	0
	Arctic char Total	11,300	45,325	11,300	45,325	11,300
Arctic grayling						
	Catchable	0	0	0	0	0
	Fingerling	0	0	0	0	0
	Arctic grayling Total	0	0	0	0	0
Chinook salmon						
	Catchable	40,000	80,000	80,000	80,000	80,000
	Chinook salmon Total	40,000	80,000	80,000	80,000	80,000
coho salmon						
	Fingerling	105,500	110,000	110,000	110,000	110,000
	coho salmon Total	105,500	110,000	110,000	110,000	110,000
lake trout						
	Subcatchable	11,500	0	11,500	0	11,500
	lake trout Total	11,500	0	11,500	0	11,500
rainbow trout						
	Catchable	140,000	140,000	140,000	140,000	140,000
	Fingerling	99,700	95,800	99,700	95,800	99,700
	rainbow trout Total	239,700	235,800	239,700	235,800	239,700
Grand Total		408,000	471,125	452,500	471,125	452,500

LAKE STOCKING POLICY FOR SPORT FISH DIVISION

Original policy established in February of 1998

Revised 04/07/2008, 02/25/2013

Current policy revised and approved 12/23/2023

INTRODUCTION

The stocking of Alaska's lakes¹ with hatchery-reared fish has been an integral component of the Alaska Department of Fish and Game (ADF&G) Division of Sport Fish's management program since the late 1950s. Early lake stocking included the introduction of fish species and stocks from the Pacific Northwest, as well as transportation of Alaska stocks into non-native areas with the intent of establishing self-sustaining populations. While these types of stockings were acceptable management practices in the past, they are no longer allowed. 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, Chapter 5 of the Alaska Statutes (AS 16.05) and Title 5 of the Alaska Administrative Code (5 AAC) 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, ecological, and biological characteristics define acceptable stocking locations; appropriate measures to sterilize fish; or recommendations for the use of specific species, life stages, or genetic backgrounds. Division of Sport Fish managers need guidelines on these variables to evaluate stocking projects. The lake policy was established to guide the development of ecologically responsible Division of Sport Fish lake stocking projects that benefit recreational anglers. Regular review of this policy is necessary to keep it current as management philosophy and hatchery technology change.

PLANNING

Sites for stocking fish are proposed, reviewed, and approved through a formal planning process. Division of Sport Fish Area Management Biologists or regional stocking program personnel initiate all stocking requests for their area of responsibility. Public inquiries relating to lake stocking should be directed to these Division of Sport Fish personnel. Staff will investigate the ability of the lake to sustain fish, public access, and other factors. A recommendation to stock or not to stock a lake will be made based on the results of these investigations and applicable lake stocking guidelines. Valid proposals will be listed in the *Statewide Stocking Plan for Recreational Fisheries* (SSP; ADF&G 2023) and considered for permitting.

The SSP is the primary planning document for ADF&G lake stocking. This document describes a five-year plan for stocking projects for recreational angling 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.

¹ Lake stockings are differentiated from Division of Sport Fish anadromous stocking programs, where fish are stocked into systems open to the ocean, are expected to grow unassisted in the marine environment, and are harvested in common property fisheries before returning to the release location.

Division of Sport Fish lake stocking is primarily funded with Dingell-Johnson (Sport Fish Restoration) funds generated through license sales and from excise tax on sport fishing equipment and motorboat fuel. Therefore, each lake stocking project must also comply with rules outlined in the Wildlife and Sport Fish Restoration Program's Code of Federal Regulations (50 CFR 80 and 2 CFR 200).

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, who make recommendations on approval or denial. The final decision to approve or deny the FTP is made by the Commissioner of ADF&G.

Numerous lakes stocked by the Division of Sport Fish 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 (defined in *Lake Categories* section below) and geographic area.

Lake stocking FTPs are issued for a fixed period, with a maximum period of 10 years. FTPs for each species in a management area are scheduled to expire simultaneously. Expiration of an FTP for a species will trigger an internal review of the stocking program for that species. Following review, FTPs may be issued or amended to extend the effective date for another 10-year period.

Aquatic Resource Permits (ARPs) are granted to *Salmon In The Classroom* participants. Valid for one year, ARPs are issued through a separate process by the ADF&G Division of Commercial Fisheries Permit Coordinator. Permits require participants releasing fry to follow lake stocking policy guidelines. Fry releases associated with the classroom incubation program to approved locations are not included in the *Statewide Stocking Plan* because the releases do not contribute significantly to sport fishing effort or harvest. Approved lakes are reviewed annually by Area Management Biologists and other relevant staff (e.g., genetics and pathology).

GENETIC AND DISEASE CONSIDERATIONS

Fish releases in Alaska are guided by two additional policies addressing genetic and pathology concerns. First, the *Genetic Policy* (ADF&G 1985) was developed to protect the genetic integrity of wild and hatchery stocks. Second, the *Policies and Guidelines for Alaska Fish and Shellfish Health and Disease Control* (Meyers 2014) was developed to prevent the spread of fish diseases to wild and hatchery fish stocks. Through these policies, priority is given to the protection of wild stocks from harmful interactions with introduced stocks. Stocking is not performed at sites where significant negative genetic impacts on wild stocks could occur.

To reduce the potential for spreading disease, 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 stocking cultured fish.

The degree of genetic and pathology concerns 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 impact wild fish populations. In addition, there is no outlet to transport waterborne pathogens. Of concern for all lake categories is the illegal removal and transport of live fish from stocked lakes for release into other waterbodies, but it is the primary concern in Category 1 lakes.

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, because all these factors influence the potential for negative impacts.

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

MANAGEMENT CONSIDERATIONS

Management concerns associated with stocked lakes are minimal. No commercial fisheries are involved and there are no conservation concerns. Sport anglers are likely the sole harvesters of fish from the Division of Sport Fish lake stocking program, although subsistence fisheries could develop at some lakes. Stocking activity should be periodically 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 local wild stocks. Regulations on stocked lakes are generally more liberal. Sport anglers are encouraged to harvest hatchery-produced fish to preserve local wild stocks. The Division of Sport Fish will attempt to maintain liberal harvest limits on all stocked lakes. Meanwhile, other stocked lakes now support fisheries where the objective is to provide the opportunity to catch 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 the Federal Aid in Sport Fish Restoration Act and state license sales revenue). Consequently, no fish should be stocked unless the public has access to catch these fish, and the Division of Sport Fish will not stock fish in a lake unless there is legally designated public access. In addition, fish produced by the Division of Sport Fish hatcheries will not be sold to private individuals or groups, because the fish were produced with public funds.

LAKE CATEGORIES

Prior to stocking, a lake must be classified into one of five categories. These categories rank lakes according to the likelihood that stocked fish will escape into other waterbodies within the drainage. Categorizations for each lake are reviewed on a rotational basis (10-year preferred), whereby Division of Sport Fish staff visit the lake and document information necessary for accurate categorization. The process for gathering information for lake categorization should include observing lakes during episodic flooding and other high-water events.

- **Category 1: Landlocked.** Single or multiple connected lakes with no outlet stream to an open drainage (see definition of drainage; Table 2). *No possibility that fish can escape system and interact with wild fish populations. Few restrictions to fish stocking.*
- **Category 2: Intermittent outlet.** Lake is usually landlocked, but a small stream may connect a lake to a drainage during higher water. The incidence of high-water periods is usually less than two weeks per year. *Fish may periodically enter or escape through the outlet during high-water events and interact with wild fish populations. Moderate restrictions to fish stocking.*
- **Category 3: Barrired or weired outlet.** A barrired outlet has a natural structure that prevents live fish passage into or out of the lake. A weired outlet has a manufactured structure that prevents fish passage, has passed requirements for blockage to fish passage, and is annually inspected and documented for blockage to a drainage. Birch Lake in Interior Alaska and Cheney Lake in Southcentral Alaska are the most prominent examples of weired Category 3 lakes that meet blockage requirements. To meet requirements for blockage, the probability of fish escaping must be determined to be unlikely. *Fish may, but are not likely to, escape and genetically impact wild fish populations. Pathology remains a concern. Moderate restrictions on fish stocking.*
- **Category 4: Flood prone.** These are lakes that are usually landlocked but located in a floodplain subject to periodic high-water flows to and/or from a drainage. Lakes in this category may flood every year while others rarely flood. *Fish may leave the lake and interact with wild fish populations during and after high-water events. Moderate to severe restrictions on fish stocking.*
- **Category 5: Open outlet.** These are lakes with an outlet stream into a drainage. The magnitude of disease and genetic impacts depend on the species and life stage stocked and the wild stocks present. *Fish can pass freely in and out of the lake. The potential impact to wild fish populations is high. Severe restrictions on fish stocking.*

STOCKED PRODUCTS

To reduce the potential for negative genetic impacts on wild fish populations, the Division of Sport Fish prioritizes the use of sterile stocking products.

Six species are reared for stocking projects (Table 1). Hatcheries produce fish that are reproductively viable (diploid, mixed-sex) or reproductively impaired (triploid, sterile). Using the combined techniques of triploidization and all-female induction fish produced are unlikely to result in self-sustaining (reproductively viable) populations or hybridize with local stocks (see Table 2 for definitions of stocking products). Triploids have been produced for all stocked species. To further ensure the nonreproductive status of triploid rainbow trout, all-female cohorts are produced. All-female cohorts are incapable of reproducing and establishing viable populations in the absence of wild (male) fish.

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

Rainbow trout

Rainbow trout are the primary hatchery product used in lake stocking. All rainbow trout production comes from captive broodstock maintained at the William Jack Hernandez Sport Fish Hatchery (since 2014). The broodstock is descended from wild Swanson River rainbow trout collected in the 1980s and previously maintained at the Fort Richardson Hatchery. Numerous sizes of rainbow trout are stocked. Excess broodstock are periodically used for stocking.

Rainbow trout brood trout stock are 1 to 3 years old and usually weigh 0.2 to 2.0 kg (0.5 to 4.4 lb). Catchable rainbow trout are 1 year old and weigh an average of 150 g (0.33 lb). Subcatchable 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 2 and 4 g. Rainbow trout fry are less than 2 months old and usually weigh less than 1 g.

Arctic Grayling

Arctic grayling have been stocked in many Southcentral and Interior Alaska lakes; however, the program has been suspended since 2020. A few lakes in Southeast Alaska have been stocked intermittently. All hatchery-produced Arctic grayling are reared from eggs obtained from Chena River or Goodpaster River wild stock. No captive broodstock is maintained in the hatchery. Catchable Arctic grayling are 1 year old and weigh an average of 120 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 captive broodstock maintained at the William Jack Hernandez Sport Fish Hatchery (since 2015). The broodstock originally descended from fish captured in Bristol Bay (Lake Aleknagik) and previously maintained at Fort Richardson Hatchery until 2014. 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 1.5 kg (3.3 lb). Catchable Arctic char are 1.5 years old and weigh an average of 120 g. Subcatchable Arctic char are 6 months old and weigh between 15 and 60 g. Fingerling Arctic char are usually 7 months old and weigh 2 g.

Lake Trout

Lake trout have been produced intermittently since 1963 at various hatcheries. Since 2020, lake trout have been stocked in a few Interior and Southcentral Alaska lakes using eggs collected from Sevenmile Lake (Delta River within the Tanana River drainage near Paxon). To reduce potential negative impacts on wild fish and because the species is long lived, egg takes are conducted every other year. One size of lake trout is stocked. Subcatchable lake trout are 1 year old and weigh an average of 15 to 25 g.

Coho Salmon

Coho salmon are stocked in many Interior and Southcentral Alaska lakes. Releases in Southeast Alaska lakes have been limited. Broodstock varies depending on availability. Currently most hatchery-produced coho salmon used for lake stocking in Southcentral Alaska are progeny of anadromous adults from either Ship Creek in Anchorage or Bear Lake near Seward. Hatchery produced coho salmon used for lake stocking in Interior Alaska are from eggs obtained from the Delta Clearwater River stock (Tanana River within Yukon River drainage) but may be substituted with eggs from Southcentral broodstocks during times of low escapement. Two sizes of coho salmon have been stocked. Fingerling coho salmon are 2 to 4 months old and weigh between 1 and 5 grams. Subcatchable 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, hatchery-produced Chinook salmon used for lake stocking in Alaska are progeny of anadromous adults. Broodstock used may vary depending on availability. Ship Creek is the preferred broodstock; if insufficient broodstock are available from Ship Creek, Crooked Creek or Ninilchik River may be used. Hatchery produced Chinook salmon used for lake stocking in Interior Alaska are from eggs obtained from either Chena River or Salcha River (Tanana River within the Yukon River drainage) stocks, but eggs from Southcentral broodstocks may be utilized during seasons of inadequate escapement. Two sizes of Chinook salmon have been stocked. Catchable Chinook salmon are 1 year old and weigh an average of 120 g.

STOCKING GUIDELINES

All hatchery fish must meet the established ADF&G Fish Health and Disease Control Regulations, Policies and Guidelines at the time of stocking.

In cases where triploids are required as a genetic condition of the permitted stocking activity, they must be certified before release. Fish not meeting certification criteria cannot be stocked into lakes approved for triploid stocking only.

Due to the historical use of local stocks, Category 2, 3, and 4 lakes in the Tanana River drainage may be stocked with diploid Chinook salmon, coho salmon, lake trout, or Arctic grayling if the hatchery-reared fish are the first-generation offspring of a local stock and reviewed by Genetics staff under the FTP process.

Category 1, 2, 3, and 4 lakes outside the species range can be stocked with mixed-sex or all-female triploid rainbow trout, triploids of other species, or diploid lake trout where there is no possibility of the stocked fish establishing a new population (e.g., evidence of spawning). Mixed-sex or all-female diploid rainbow trout or other species may be used in Category 1 lakes when there are no or insufficient triploid fish available. Stocking outside a species range warrants a cautious approach to ensure ecosystems impacts are carefully considered.

Category 1 lakes within the species range can be stocked with any hatchery product (Table 1). There are minimal genetic or disease concerns. A primary concern for all lake categories is the illegal removal and transport of fish out of stocked lakes and into other waterbodies. Certified triploids (and for rainbow trout, all-female triploids) significantly reduce the genetic risk from this activity and should be used whenever possible. Mixed-sex or all-female diploid rainbow trout may be used when no or insufficient triploid rainbow trout are available.

Category 2 lakes can be stocked with all-female triploid rainbow trout, triploids of other species, and diploid lake trout where there is no possibility of the stocked fish interbreeding with wild fish or establishing a new population. The life history of lake trout makes it unlikely that lake trout will escape the lake, establish self-sustaining populations elsewhere, and compete with wild fish.

Category 3 lakes can be stocked with all-female triploid rainbow trout, triploid fish of other species, and diploid lake trout where there is no possibility of the stocked fish interbreeding with wild fish or establishing a new population. The life history of lake trout makes it highly unlikely that lake trout will escape from the lake, establish self-sustaining populations, and compete with wild fish. ***Weired Category 3 lakes*** that have been annually verified for blockage to fish passage can additionally be stocked with mixed-sex triploid rainbow trout or mixed-sex diploid rainbow trout when there are insufficient triploid rainbow trout available.

Category 4 lakes can be stocked, under special circumstances, with all-female triploid rainbow trout and triploid fish of other species where there is limited possibility of the stocked fish interbreeding with wild fish or establishing a new population.

Category 5 lakes should not be stocked, except under extraordinary circumstances. Stocking would be permitted solely for the purpose of creating a significant fishery for species not readily available in the area. If such circumstances supporting stocking arise, all-female triploid rainbow trout and triploid fish of other species may be stocked into systems that do not contain wild fish of the species stocked.

Table 1.—Classification of lakes and recommended stocking products¹ for Division of Sport Fish lake stocking projects.

ASSUMES NO POSSIBILITY STOCKED FISH INTERBREED WITH WILD FISH OR ESTABLISH NEW POPULATIONS	Rainbow Trout				Arctic Grayling		Arctic char		Lake Trout		Salmon (Chinook/Coho)		
	Lake Type ¹	Mixed-Sex		All-Female		Mixed-Sex		Mixed-Sex		Mixed-Sex		Mixed-Sex	
		Diploid	Triploid ²	Diploid	Triploid ² (90%)	Diploid	Triploid ² (99%)	Diploid	Triploid ² (99%)	Diploid	Triploid ² (99%)	Diploid	Triploid ² (99%)
Landlocked /Connected	1	Maybe ₃	Yes	Preferred	Yes ⁵	Preferred	Yes ⁵	Preferred	Yes ⁶	Preferred	Yes ⁵	Preferred	
Intermittent Outlet	2	No	No	Yes ⁵	Maybe ₇	Yes ⁵	No	Yes ⁵	Maybe ^{6,7}	Yes ⁶	Maybe ⁷	Yes ⁵	
Weired⁸/ Barriered Outlet	3	Maybe ₃	Maybe ⁴	Yes ⁵	Maybe ₇	Yes ⁵	No	Yes ⁵	Maybe ^{6,7}	Yes ⁶	Maybe ⁷	Yes ⁵	
Flood Prone	4	No	No	Maybe ^{5,9}	Maybe ₇	Maybe ^{5,9}	No	Maybe ^{5,9}	No	Maybe ^{5,9}	Maybe ⁷	Maybe ^{5,9}	
Open Outlet¹⁰	5	No	No	No	No	No	No	No	No	No	No	No	

¹ See Table 2 for definition of terms.

² Stocking of triploids in any category is based on the level of certification (see *Stocking Guidelines*). Fish not meeting triploid criteria are treated as diploid. An additional criterion of mixed-sex or all-female is applied to rainbow trout.

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 Weired lakes that are certified for blockage to fish passage may be stocked with mixed-sex triploid rainbow trout, or with all-female diploid rainbow trout. Birch Lake in interior Alaska and Cheney Lake in Southcentral Alaska are examples of lakes that are certified for fish blockage.

⁵ Outside the species range, stocking may occur only if there is no possibility of the stocked fish establishing a population. Within the species range, stocking may occur only if there is no possibility of interbreeding with native populations.

⁶ The life history of lake trout makes it unlikely that fish will leave the lake.

⁷ In the Tanana River drainage, mixed-sex diploid fish may be stocked into Category 2, 3, or 4 lakes if they are the first-generation offspring of broodstock collected from local stocks.

⁸ Lakes with a manufactured 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.

⁹ Stocking may occur for Category 4 lakes for triploid fish only under special circumstances (see *Stocking Guidelines* section for discussion).

¹⁰ No stocking in Category 5 lakes except under extraordinary circumstances (see *Stocking Guidelines* section for discussion).

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

Waterbody	Definition
Landlocked	There is no outlet; fish cannot escape lake.
Connected lakes	Two or more lakes connected by streams, but there is no outlet for the lowest lake in the drainage. Fish cannot escape the lowest lake.
Intermittent outlet	Lake is usually landlocked, but fish can escape via a small stream created if high water flows occur. Incidence of high-water periods is usually less than two weeks per year.
Weired	Outlet stream is blocked by manufactured structure. Fish cannot escape unless the 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 located in a flood plain. During high water periods, fish can escape. Flooding may occur annually or rarely.
Open outlet	Lake has an outlet stream and fish can move into or out of the lake.
Watershed	All the tributary rivers, streams, sloughs, ponds, and lakes which contribute to a body of water (lake, creek, or river). This is a subset of a drainage.
Drainage	All the waters comprising a watershed including tributary rivers, streams, sloughs, ponds, and lakes which contribute to the water supply of the watershed.

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. 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 escaping 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.

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Stocking products	Definition
Mixed-sex	These fish are normal male and females capable of reproducing.
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% confidence that the triploid rate is 99% or higher. Fish not passing certification can be stocked in places approved for Mixed-Sex diploids.
All-female triploid	These fish have cells with three sets of chromosomes. Fertilized eggs are pressure 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% confidence that the triploid rate is 90% or higher. Fish not passing certification can be stocked in places approved for All-Female diploids.
All-female diploid	These fish have cells with the normal two sets of chromosomes. These fish are capable of reproduction if there are wild fish (males) present. In barren systems, these fish cannot establish self-sustaining populations.

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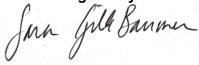
Reviewed by:

Ted Meyers

12/12/2023

Ted Meyers
Chief Fish Pathologist

Date

DocuSigned by:

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12/14/2023

Sara Gilk-Baumer
Principle Geneticist

Date

This policy has been thoroughly reviewed by Division of Sport Fish 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, Division of Sport Fish. This policy is scheduled for review in 2029.

DocuSigned by:
Israel Payton
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12/14/2023

Israel Payton
Director
Division of Sport Fish

Date