INTRODUCTION

Meeting public demand for recreational fishing opportunities in Alaska while at the same time maintaining and protecting the fishery resources has become increasingly complex. In the early years of statehood, before rapid population expansion and industrial development, good, uncrowded fishing was accessible. Large sport fisheries were few and easily monitored. Sport fishing was considered to be a minor factor in management of commercially exploited species.

Today, Alaska is experiencing increased tourism and continued forest, mineral, petroleum, and associated government development. A growing avid recreation-oriented population accompanies this growing economy. Accessible sport fisheries have become crowded, new fisheries have developed, 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 problems of access have complicated maintenance 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 aquaculture and hatchery propagation. Moreover, recreational fishing is now a significant factor in total fisheries management in parts of Alaska, such as in Cook Inlet and Southeast, where user conflicts have developed.

The Alaska Sport Fish Harvest Survey shows that anglers fished approximately 2.5 million angler days, caught approximately 7.2 million fish (including razor clams and smelt), and harvested more than 3.0 million fish in 2007.[1] These figures demonstrate a 8.7% increase in the number of days fished, a 7.2% increase in fish caught, and a 11.0% increase in fish harvested compared to 2006. 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 recreational 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 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 initiated for improving recreational 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.

Sport Fish Division operates Fort Richardson and Elmendorf hatcheries located in Southcentral Alaska. Fort Richardson Hatchery serves as a broodstock center and central incubation facility for rainbow trout and Arctic char. Together, Fort Richardson and Elmendorf hatcheries produce over half of all fish requested in this stocking plan. An experimental hatchery is located in Fairbanks.

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

Most evaluation of Sport Fish Division stocking projects involves measuring angler effort, catch, and harvest of the stocked fish. These statistics are often estimated using the Statewide Harvest Survey for Recreational Fisheries (SWHS). The SWHS is an annual mail-out survey to licensed Alaska sport anglers. In most instances, the SWHS is an

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[1] Jennings, G. B., K. Sundet, and A. E. Bingham. *In prep*. Participation, catch and harvest in Alaska sport fisheries during 2007. Alaska Department of Fish and Game, Fishery Data Series, Anchorage.

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 the stocking project.

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 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 recreational 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 recreational fishery 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 formal agency review of all comments prior to making a decision on whether to stock fish in the new location. 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 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 recreational 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 many hundreds of locations statewide. The recreational 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 rearing 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 compete with natural rearing 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, 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.

Until September of 2005, Elmendorf Hatchery used warm-water effluent from the Elmendorf Power Plant to heat hatchery process water. The power plant closed in September 2005, and the loss of heated effluent resulted in changes to the catchable rainbow trout stocking program. The catchable rainbow trout program transitioned from a one- year, warm-water rearing program to a two-year, cold-water rearing program. Fish reared in cold water will average 5 to 6" at stocking.

DNA from the parasite *Myxobolus cerebralis* was recently detected in some rainbow trout at the Elmendorf Hatchery. This parasite may cause whirling disease in salmonids; however, neither the parasite nor the disease has been observed in the hatchery fish. As a precaution, fish reared at Elmendorf Hatchery will not be released into open watersheds; they may be released into landlocked lakes only. Elmendorf Hatchery houses most of the catchable release programs for Arctic char, Chinook salmon, and rainbow trout. Catchable fish originally planned for stocking into non-landlocked lakes have been reallocated to landlocked lakes only. In some cases, fingerling or subcatchable sized fish will be stocked into non-landlocked sites instead. Fingerling and subcatchable sized fish are reared at Fort Richardson Hatchery, and the stocking restrictions do not apply to fish reared at that facility.

Two new hatcheries, one in Fairbanks and one in Southcentral Alaska, are being constructed. These facilities will allow for expansion of the stocking program in the next two to three years. Because these facilities will use well water only, the stocking of catchable fish into non-landlocked lakes will resume once the new hatcheries are operating.

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

Term	Definition
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 coho or any 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.
2008-2012:	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.

Sport Fish 5-Year Stocking Plan

Summary of all planned stockings for recreational fishing in Alaska for 2009 through 2013.

27-Jan-09

Species		2009 Projected	2010 Projected	2011 Projected	2012 Projected	2013 Projected
Arctic Char						
	Catchable	34,150	40,975	35,972	41,303	21,350
	Fingerlings	0	0	2,000	0	2,000
	Subcatchable	47,850	16,143	48,178	0	10,378
	Arctic Char	**82,000**	**57,118**	**86,150**	**41,303**	**33,728**
Chinook Salmon						
	Catchable	126,000	126,000	120,250	120,250	120,250
	Smolt	4,500,000	5,160,000	5,160,000	5,160,000	5,160,000
	Subcatchable	14,000	14,000	14,000	14,000	14,000
	Chinook Salmon	**4,640,000**	**5,300,000**	**5,294,250**	**5,294,250**	**5,294,250**
Coho Salmon						
	Fingerling	336,320	296,820	306,320	296,820	306,320
	fingerling/smol	5,000	5,000	5,000	5,000	5,000
	Smolt	1,165,000	1,345,000	1,345,000	1,345,000	1,345,000
	Subcatchable					
	Coho Salmon	**1,506,320**	**1,646,820**	**1,656,320**	**1,646,820**	**1,656,320**
Grayling						
	Catchable	100	1,100	1,100	33,420	33,420
	Fingerling	46,300	54,300	46,300	44,300	46,300
	Subcatchable	10,000	0	0	0	0
	Grayling	**56,400**	**55,400**	**47,400**	**77,720**	**79,720**

Species		2009 Projected	2010 Projected	2011 Projected	2012 Projected	2013 Projected
Lake Trout						
	Catchable	0	0	0	0	850
	Subcatchable	0	0	0	30,600	0
	Lake Trout	**0**	**0**	**0**	**30,600**	**850**
Rainbow Trout						
	Broodstock	1,175	1,140	1,175	1,140	1,175
	Catchable	268,880	268,955	259,055	339,530	339,030
	Fingerling	987,930	1,058,050	1,007,430	866,350	783,850
	Subcatchable	300	300	300	300	300
	Rainbow Trout	**1,258,285**	**1,328,445**	**1,267,960**	**1,207,320**	**1,124,355**
	Grand Total:	**7,543,005**	**8,387,783**	**8,352,080**	**8,298,013**	**8,189,223**

LAKE STOCKING POLICY
FOR
SPORT FISH DIVISION

Original Policy Authorized in February of 1998
Revised 04/07/2008

INTRODUCTION

The stocking of lakes with hatchery reared fish was initiated in the 1950's and has become an integral component of the Alaska Department of Fish and Game (ADF&G) Sport Fish Division. Initial fish stocking included the introduction of species and stocks from the Pacific Northwest, as well as transporting Alaska stocks of fish into non-native areas with the intent to establish populations. These types of stockings were acceptable management practices at the time, but they would not be allowed today. Currently, over 300 lakes in Southeast, Southcentral and Interior Alaska are 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 plan stocking projects. This policy is intended to guide the 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 an ADF&G planning 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 the lake will be made based on the investigation results and appropriate lake stocking guidelines.

All Sport Fish Division lake stocking is primarily funded with Federal Aid in Sport Fish Restoration funds. 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 all information pertinent to the project. Each application is reviewed by a cross-section of ADF&G personnel and submitted to the Commissioner of ADF&G with a recommendation for approval or denial.

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

All lake stocking FTPs will be issued for a fixed period. Sport Fish Division has selected a maximum period of 5 years. All FTPs for each species are scheduled to expire simultaneously. Expiration of FTPs 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
Chinook salmon	12/31/09
Rainbow trout – all genetic types	12/31/10
Lake trout	12/31/10
Arctic grayling	12/31/11
Coho Salmon	12/31/12
Arctic char	12/31/13

Following review, FTPs may be issued or amended to extend the effective date for another 5-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 may 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 regularly 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 escape from weired Category 3 lakes is low and is not likely to impact wild fish populations. ***Category 4*** lakes are prone to floods. These are small 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). We produce fish that are reproductively viable (diploid, mix-sex) and reproductively impaired. Two methods are used to produce fish that are unlikely to result in self-reproducing populations or in hybridization with local stocks: triploidy and all-female induction. 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 Departments threshold for mixed-sex triploids is being 95% confident that the triploid rate is 99% or higher. The certification rate for all-female triploid rainbow trout is being 95% confident that the triploid rate is 90% or higher. Fish certified at a lower rate can only be stocked into lakes approved for stocking of diploid stocking products.

In order to reduce the potential for negative impacts to wild fish populations, the Sport Fish Division is endorsing 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. The broodstock is descended from wild Swanson River rainbow trout collected in the 1980s.

Numerous sizes of rainbow trout are stocked. Excess broodstock at Ft. Richardson Hatchery are periodically culled for stocking. Rainbow trout broodstock are 1 to 3 years old and usually weigh 0.2 to 1.0 kg (1/2 to 2.2 pounds). Catchable rainbow trout are 1-2 years old and weigh an average of 100 g (1/4 pound). 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 1 and 4 g. Rainbow trout fry are less than 2 months old and usually weight less than a gram.

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 wild fish from the Chena River stock. No captive broodstock is maintained in the hatchery. Fingerling Arctic grayling are usually 2 to 4 months old and weigh between 1 and 4 g. Arctic grayling fry are less than 2 months old and usually weigh less than a gram. Arctic grayling sac-fry are newly hatched and weigh less than 0.1 g. The Arctic grayling catchable program was suspended after stocking in 2003, however, the catchable program may be reinitiated with the completion of new hatchery facilities expected in 2010.

Arctic Char

Arctic char are stocked in Interior and Southcentral Alaska lakes. Hatchery Arctic char are produced from eggs taken from a captive broodstock maintained at Fort Richardson Hatchery that descended from fish captured in Bristol Bay (Lake Aleknagik). Numerous sizes of Arctic char are stocked. Catchable Arctic char are 1½ 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 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. Lake trout were stocked in a few Interior and Southcentral Alaska lakes. All hatchery lake trout were from eggs taken from a 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 100g. Fingerling lake trout were usually 4 to 6 months old and weighed between 5 and 10g. The lake trout program may be reinitiated with the completion of construction of new hatchery facilities expected by 2010.

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 all hatchery-produced coho salmon used for lake stocking are from eggs taken from hatchery-produced adults. Broodstock used may vary depending on availability and may change with completion of new hatchery facilities expected by 2010. Two sizes of coho salmon have been stocked. Fingerling coho salmon are 2 to 4 months old and weigh between 1 and 5g. Subcatchable coho salmon are 1 year old and weigh an average of 23g.

Chinook Salmon

Chinook salmon are stocked in many Interior and Southcentral Alaska lakes and a few Southeast Alaska lakes. Currently, all hatchery-produced Chinook salmon used for lake stocking are from eggs taken from hatchery-produced adults. Broodstock used may vary depending on availability and may change with completion of new hatchery facilities expected by 2010. Two sizes of Chinook salmon have been stocked. Catchable Chinook salmon are 1 year old and weigh an

average of 100 g. Subcatchable 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 to lakes is governed by two complex policies. The genetic policy (Genetic Policy, Alaska Department of Fish and Game, 1985) was developed to protect the genetic integrity 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, 2003) was developed to prevent the spread of fish diseases to wild and hatchery fish stocks. One area of concern for all categories is the illegal removal and transport of live fish out of 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 pre-release disease evaluations and certified triploids will significantly reduce genetic and disease risks, respectively 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 or disease concerns with the stocking of any species of fish into a category 1 (landlocked) lake. The fish cannot escape 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 bodies of water.

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 the lake of origin it is possible that genetic interaction, species range extension or the spread of pathogens could 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 problems.

Fish stocked in 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 not acceptable from either a genetics or disease perspective. However, select 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 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. 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, Sport Fish Division hatchery produced fish 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 utilized 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 in the rare circumstance that 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 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 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; and, in the rare circumstance that there are no or insufficient triploid rainbow trout available, diploid mixed sex rainbow trout.

Category 4 lakes can be stocked with all-female triploid rainbow trout and under special circumstances triploid fish of any other species as long as there is limited possibility of the stocked fish attempting to interbreed with native populations.

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.

		Rainbow Trout			Arctic Grayling		Landlocked Salmon		Arctic char		Lake Trout
		Mixed-Sex	All-Female		Mixed-Sex		Mixed-Sex		Mixed-Sex		Mixed-Sex
Lake Type[1]	**Lake Category [1]**	**Diploid**	**Diploid**	**Triploid[2] (90%)**	**Diploid**	**Triploid[2] (99%)**	**Diploid**	**Triploid[2] (99%)**	**Diploid**	**Triploid[2] (99%)**	**Diploid**
Landlocked/Connected	**1**	Maybe[8]	Yes	Preferred	Yes[4]	Preferred	Yes[4]	Preferred	Yes[4]	Preferred	Yes[5]
Intermittent Outlet	**2**	No	No	Maybe[3,4]	No	Maybe [3,4]	No	Maybe [3,4]	No	Maybe [3,4]	Maybe [5]
Weired[6]/Barriered Outlet	**3**	Maybe[8]	Maybe[7]	Yes[3,4]	No	Yes[3,4]	No	Yes[3,4]	No	Yes[3,4]	Maybe [5]
Flood Prone	**4**	No	No	Maybe[3,4]	No	Maybe [3,4]	No	Maybe [3,4]	No	Maybe [3,4]	No
Open Outlet	**5**	No	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] Within the species range, it may be stocked only if there is no possibility of the stocked fish interbreeding with native populations.

[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] 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.
[7] 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.
[8] 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.

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 been genetically altered so that most fish are sterile and cannot reproduce. Populations with triploidy 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 been genetically altered so that all the 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

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http://www.sf.adfg.state.ak.us/Statewide/hatchery/index.cfm/FA/stocking.plan

Reviewed by:

Theodore R. Meyers
Ted Meyers
Chief Fish Pathologist

4/7/08
Date

William D. Templin
Principal Geneticist

4/14/08
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 must be reviewed again in 2012 prior to initiation of stocking from any new Sport Fish Division hatchery facilities.

Charles O. Swanton
Director
Sport Fish Division

4/7/08
Date