

**Area Management Report for the Sport Fisheries of
Southeast Alaska, 2003**

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ABSTRACT

Sport fishery management actions taken in Southeast Alaska during 2003 are summarized along with a description of the region and its sport fisheries. The region is divided into seven areas for management purposes and management and research activities along with issues in each area are described.

Key words: Southeast Alaska, sport fishery, fisheries management, Ketchikan, Prince of Wales, Petersburg, Wrangell, Sitka, Juneau, Haines, Skagway, Glacier Bay, Yakutat, surveys, access project, emergency order, management action

INTRODUCTION

The Southeast Region of the Division of Sport Fish encompasses all waters of Alaska from Dixon Entrance on the south to Cape Suckling on the north (Figure 1). Southeast Alaska provides a large variety of freshwater and saltwater sportfishing opportunities for anglers. The sportfishing effort in Southeast represents about 22% of the angler days expended in Alaska. (Jennings et al. 2006).

Sport fisheries management and research programs for Southeast Alaska are conducted from ADF&G offices located in Ketchikan, Craig, Petersburg, Sitka, Juneau, Haines, and Yakutat. For administrative purposes, these offices each correspond to surrounding management areas. These management areas closely correspond to the eight survey areas for which harvests are estimated through the statewide mail survey (Jennings et al. 2006). The areas listed in the mail survey include: Ketchikan (A); Prince of Wales Island (B); Kake, Petersburg, Wrangell and the Stikine River (C); Sitka (D); Juneau (E); Haines-Skagway (F); Glacier Bay (G); and Yakutat (H).

Sport anglers provide a majority of the funding for Southeast Alaska sport fisheries management and research programs. The Federal Aid in Sport Fish Restoration Act (Wallop-Breaux), whose funds are received via federal excise taxes on sport fishing equipment and fuels, provides about 40% of the total budget. Sales of Alaska sport fishing licenses and tags (Fish and Game Fund) provide 31% of the budget. Federal funding provided via the Southeast Sustainable Salmon Fund provides about 24% of the regional budget and small contracts, federal subsistence funds, and the U.S./Canada Letter of Agreement funds

provide the remaining 5% of the region's funding.

The Wallop-Breaux Amendment mandates that at least 15% of annual federal aid funding go toward access projects that benefit recreational power boaters. The Sport Fish Division Access Program is a statewide effort designed to improve angler access to the state's sport fishing resources. Access projects are categorized into either large "CIP" projects for developing or improving major facilities or "Small Access Site Maintenance" projects for small repairs or improvements at existing sites. Projects are also classified as either "motorized boating" projects or "non-boating" projects. Funds spent on "non-boating" projects do not count toward the 15% mandatory spending.

The primary mission of the Alaska Department of Fish and Game (ADF&G) is to manage, protect, maintain, and improve the fish, game, and aquatic plant resources of the state, and manage their use and development in the best interest of the economy and well being of the people of the state, consistent with the sustained yield principle. In 2002, the Division of Sport Fish completed a strategic planning process to more clearly define the future of Alaska's sport fisheries and the division. The impetus for the plan was a desire to have a more coordinated approach to budgeting and planning of the division's management, research, and hatchery efforts. Through this process four goals were identified: 1.) sustain recreational fishing opportunities while optimizing social and economic benefits from these opportunities, 2.) conserve, manage, and improve Alaska's aquatic, riparian, and upland habitats to ensure sustainability of Alaska's fishery resources, 3.) foster a public that is consistently informed and involved in recreational

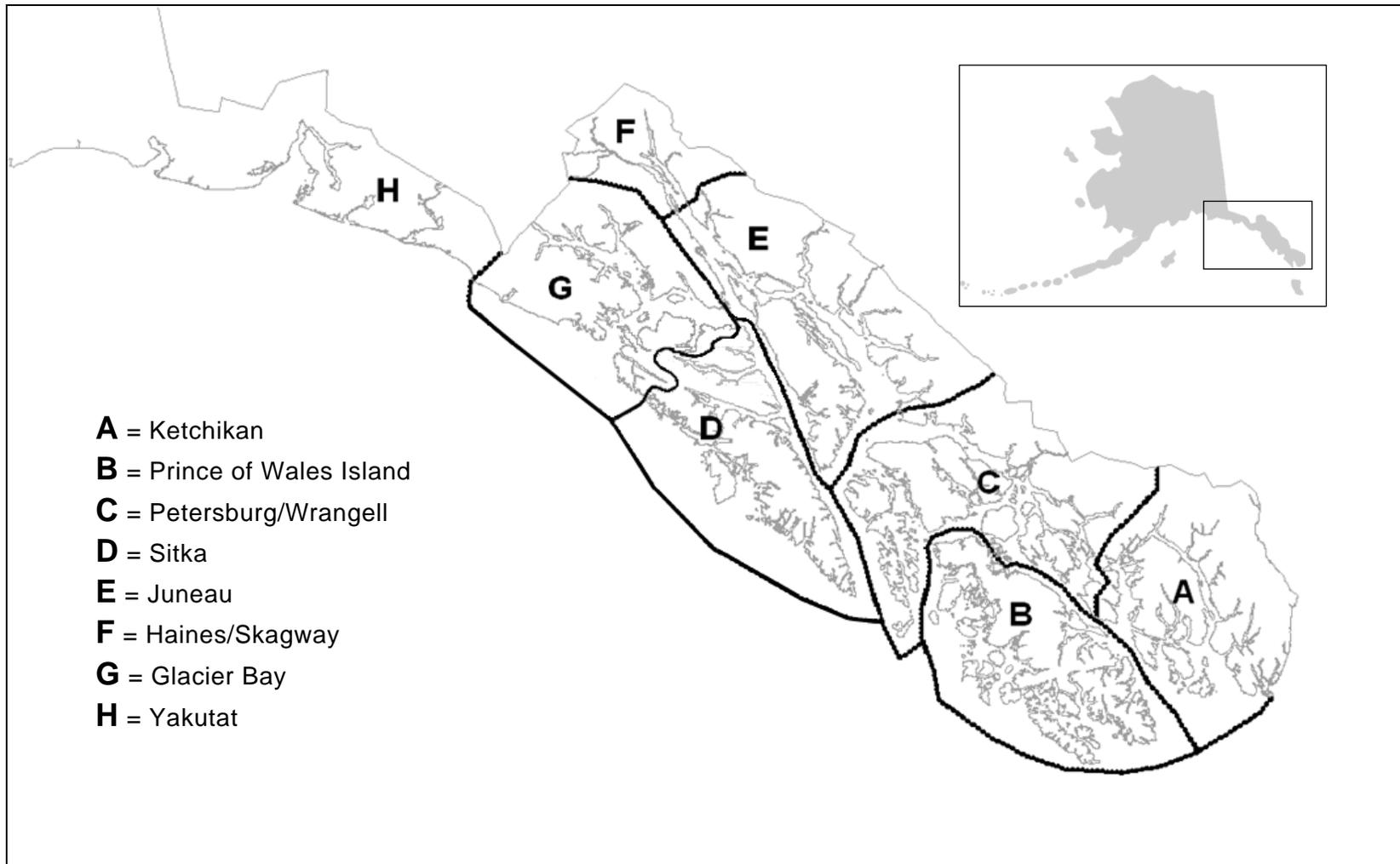


Figure 1.—Boundaries of the eight harvest survey reporting areas (A–H) in Southeast Alaska.

fisheries, and 4) recruit, develop, empower, and retain a diverse, dedicated, motivated, and effective workforce. Within each goal is a list of desired outcomes, objectives, and key strategies to achieve the objectives. The strategic plan will provide direction for the division and its programs for the next five years (through 2007).

This report summarizes sport fishery management actions, issues, and activities in Southeast Alaska during 2003. Similar reports were previously published for 1994 and 1998–2002 (Bentz et al. 1996; Holmes et al. 2002–2003; Suchanek et al. 2001a-b, 2002).

SPORT FISHERY OVERVIEW

Southeast Alaska provides unique sport fishing opportunities for several fish species with a limited distribution in Alaska. In 2002, for example, Southeast Alaska provided 95% of the cutthroat trout *Oncorhynchus clarki* and 65% of the steelhead *O. mykiss* sport catches in Alaska (Jennings et al. 2006). Major opportunities for salmon and bottomfish also abound with the region producing the following percentages of total Alaska sport harvests in 2002: 45% of Chinook salmon *O. tshawytscha*, 36% of coho salmon *O. kisutch*, 31% of Pacific halibut *Hippoglossus stenolepis*, 41% of rockfish *Sebastes*, and 47% of lingcod *Ophiodon elongatus*.

REGULATIONS

Alaska's fishing regulations are embodied in Title 5 of the Alaska Administrative Code. Sport fisheries in Southeast Alaska are managed directly under regulations in 5 AAC Chapter 47. Statewide regulations (Chapter 75) also apply in Southeast Alaska unless superseded by Chapter 47. Specific management plans that affect the sport and other fisheries can be found in other chapters, including Chapters 1 (Subsistence Finfish Fishery); 28 (Groundfish Fishery); 29 (Salmon Troll Fishery); 30 (Yakutat Area); and 40 (Private Nonprofit Salmon Hatcheries).

The Alaska Board of Fisheries (Board) develops and modifies Alaska's fishing regulations. The Board is comprised of seven lay members representing various fishing interests and

geographic locations throughout the state. Members of the public provide direct input to the Board via regulatory proposals and written and oral testimony. The Board meets on an established 3-year cycle; the Board deliberated on Southeast Alaska shellfish, groundfish and subsistence issues in January, 2003, and on Southeast Alaska finfish issues in February, 2003. Proposals regarding Southeast Alaska will be deliberated again during 2006.

Local advisory committees, comprised of users representing sport and other fishing and hunting interests, have been established in communities throughout Alaska to support the board process. Advisory committees evaluate local fish and wildlife issues and proposed regulation changes, and develop comments and positions on regulatory proposals. Like other members of the public, advisory committees input directly to the Boards of Fish and Game. Most committees meet at least once each year. There are currently 22 advisory committees in Southeast Alaska.

The sport fishery in Southeast Alaska is substantially affected by regulations promulgated by the Federal Subsistence Board (FSB) and the North Pacific Fishery Management Council (NPFMC).

FISHERY MONITORING PROGRAM

Estimates of sport fishing effort and harvest are obtained from two primary sources, the Statewide Harvest Survey and the Southeast Marine Creel Survey. The Statewide Harvest Survey is a postal survey conducted by the Division of Sport Fish to estimate effort and harvest of all species on a statewide basis. Postal surveys have been conducted annually since 1977 (Mills 1979–1994; Howe et al. 1995, 1996, 2001a-d; Walker et al. 2003; Jennings et al. 2006). Estimates from the statewide harvest survey reported herein are for 2002.

Sport Fish Division implemented a comprehensive regional marine creel survey program in 1992. At that time the existing creel survey program was expanded to a comprehensive regional program to monitor sport harvests of Chinook salmon in Southeast Alaska, as mandated by the Southeast Alaska King Salmon Management Plan. The primary goals of the program are to

estimate inseason the regionwide harvest of Chinook salmon, Chinook salmon of Alaska hatchery origin, and coho salmon of Alaska hatchery origin in the Ketchikan, Juneau, and Sitka fisheries. Additional tasks include estimating angler effort, harvest, and catch of all Pacific salmon species, Pacific halibut, lingcod, rockfish, and Dolly Varden; harvest per unit effort (HPUE) for Chinook and coho salmon and Pacific halibut; and average weights of Pacific halibut and lingcod harvested in the above fisheries.

EFFORT, HARVEST AND CATCH

About 21% of all angler days of sport fishing effort in Alaska are expended in Southeast Alaska (Jennings et al. 2006).

Most sportfishing effort in Southeast Alaska (78%) occurs in salt water; the remaining 19% occurs in fresh water (Figure 2). Marine angling effort increased from about 200,000 angler-days in 1980 to about 455,000 in 1994, then decreased to 368,000 angler-days in 2002. Freshwater effort increased from about 50,000 angler-days in 1980 to about 102,000 angler-days in 2002. Most of the recent increases in fishing effort are attributable to increased numbers of nonresident anglers fishing in Southeast Alaska (Figure 3). Since 1985, when numbers of resident and nonresident anglers were

about equal, the number of nonresident anglers has grown to over 80,000 while the number of Alaska residents participating in Southeast Alaska fisheries has declined to fewer than 30,000.

Creel survey information and local knowledge by area management biologists were used to estimate effort for each major species of sport fish in Southeast Alaska during 1998 (Suchanek et al. 2001a). Target species vary substantially, depending on whether anglers are fishing from a boat or shore in marine waters or in fresh water. Over 75% of the regionwide fishing effort was targeted on Chinook salmon, coho salmon, or bottomfish (primarily Pacific halibut). About 44% of freshwater fishing effort was for trout or char (primarily Dolly Varden *Salvelinus malma*), while only about 4% of marine fishing effort was for these species. About two-thirds of all fishing effort was for salmon species.

The most important fisheries in the region, in terms of angler participation and economic value, are those for salmon. Sport harvests of coho and Chinook salmon in Southeast Alaska have increased significantly in recent years (Figure 4). In 1980, the sport fishery harvested about 20,000 Chinook salmon. From 1998 to 2002 the Chinook harvest more than tripled, to an average of

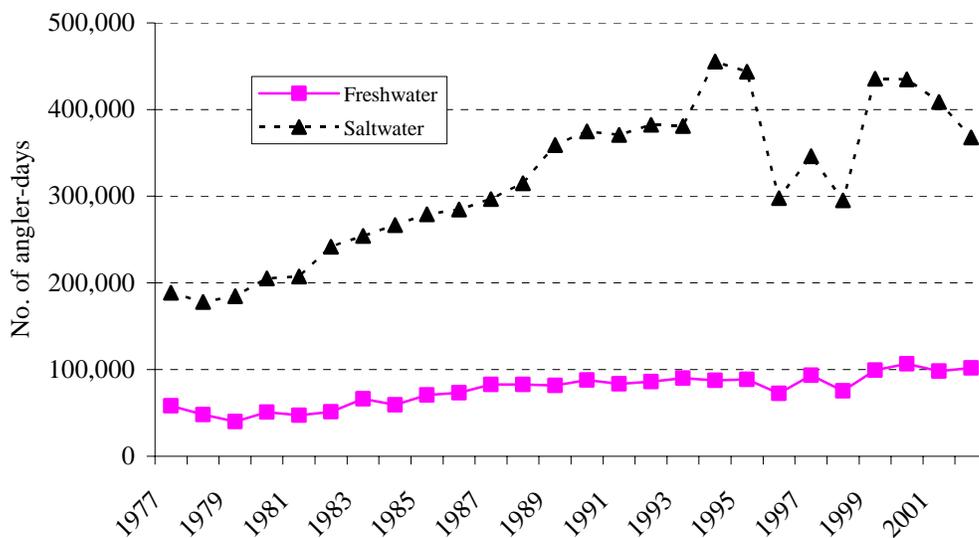


Figure 2.—Estimated sportfishing effort in the salt and fresh waters of Southeast Alaska, 1977–2001.

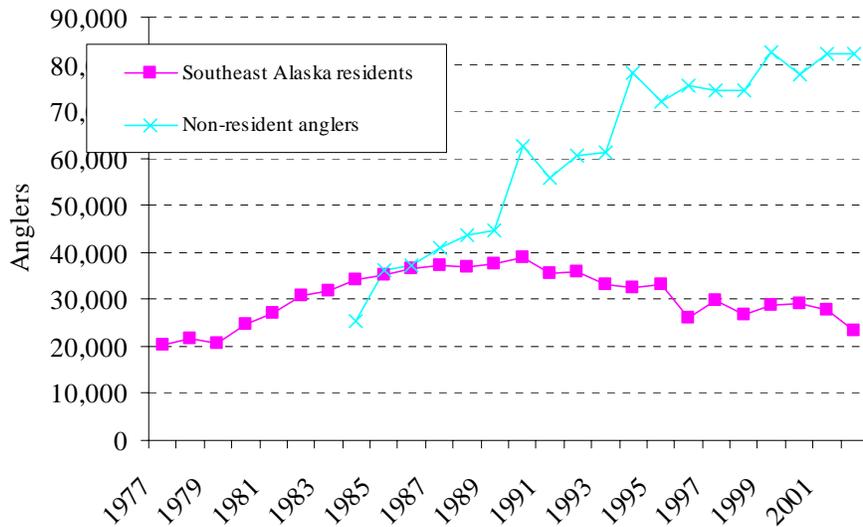


Figure 3.—Numbers of Southeast Alaska resident and nonresident anglers fishing within Southeast Alaska, 1977–2001.

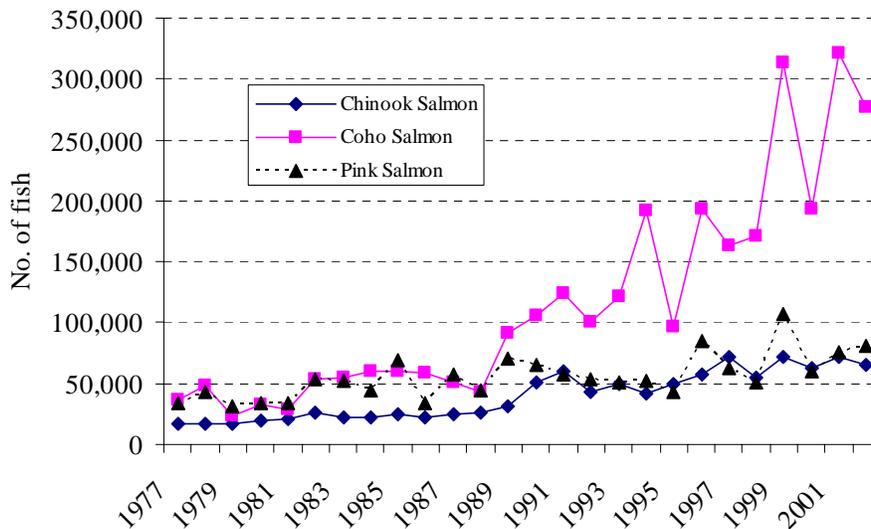


Figure 4.—Estimated sport harvests of Chinook, coho, and pink salmon in Southeast Alaska, 1977–2001.

about 65,000 fish per year. The Chinook salmon harvest would have been even greater in recent years, except that the sport fishery has been allocated a fixed percentage of the quota set under the U.S./Canada Pacific Salmon Treaty since 1992. During the same time period, coho salmon harvests increased sevenfold, from about 33,000 in 1980 to an average of nearly 255,000 from 1998 to 2002. Pink salmon, *O. gorbuscha*

harvests increased from about 35,000 in 1980 to an average of 75,000 during 1998–2002.

The next most important fisheries in Southeast Alaska are those for bottomfish, primarily Pacific halibut, rockfish, and lingcod (Figure 5). Pacific halibut harvest increased from about 6,000 fish in 1978 to an average of 108,000 during 1998–2002. Rockfish harvest increased steadily until 1988 when it peaked at 57,000 fish. Harvest then

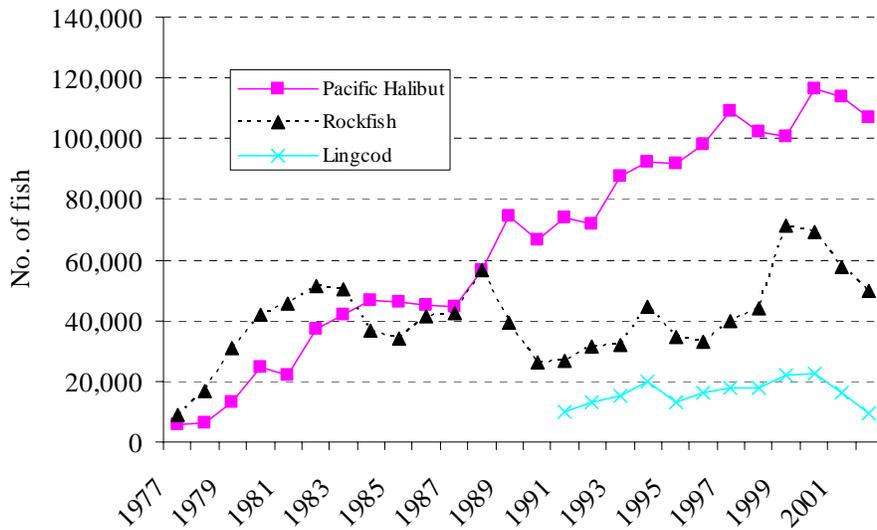


Figure 5.—Estimated sport harvests of Pacific halibut, rockfish, and lingcod in Southeast Alaska, 1977–2001.

declined for several years to a low of 26,000 in 1990, then increased again to a peak of 71,000 in 1999. Since then, rockfish harvests have again declined to 50,000 fish. Lingcod distribution is limited primarily to the outer coast and harvest primarily occurs in the Sitka and Prince of Wales areas. Lingcod harvest has averaged about 18,000 fish annually for the last five years. Lingcod harvest declined substantially in 2001 and 2002, after the Board allocated a fixed percent of a regionwide guideline harvest level (GHL) to the sport fishery in 2000.

The most important freshwater fisheries are those for Dolly Varden, cutthroat trout, and steelhead. Dolly Varden harvest peaked in the mid 1980s at about 60,000 fish and has since declined to average about 19,000 during 1998–2002 (Figure 6). Only about one out of every 5 Dolly Varden caught are harvested. Cutthroat trout harvest declined from about 23,000 in the late 1970s to about 15,000 in 1993. In 1994, more restrictive regulations (minimum size limits, reduced bag limits, and gear restrictions) were placed on all cutthroat trout fisheries. Since then the harvest has averaged about 5,000 cutthroat trout per year and only about one of every 9 cutthroat caught has been harvested. A minimum size limit, reduced bag limit, and annual limit for steelhead were also enacted in 1994. Steelhead harvest in the last five

years has averaged about 200, but the annual catch averaged almost 19,000. Prior to 1994, steelhead harvest averaged 3,200, with a peak of 5,400 in 1989.

2003 ALASKA BOARD OF FISHERIES ACTIONS

OCTOBER 2002 WORK SESSION

The Board held its fall work session October 17–19, 2002, in Anchorage. The Board considered an emergency petition to increase the fishing area available to the sport fishery by modifying the boundary of the Greys Passage area, at the mouth of the Stikine River. The Board found that the petition did not meet the emergency petition criteria.

The department presented information on four candidate stocks of concern in Southeast Alaska: Hugh Smith Lake sockeye, Blossom River Chinook, Tahltan Lake sockeye, and Taku River chum salmon. Department staff recommended that the Board discuss Hugh Smith sockeye as a potential stock of concern at its February meeting.

Wild Rainbow Trout

During the summer of 2001, former Governor Knowles proposed a Wild Rainbow Trout Initiative aimed at assuring the sustainability of

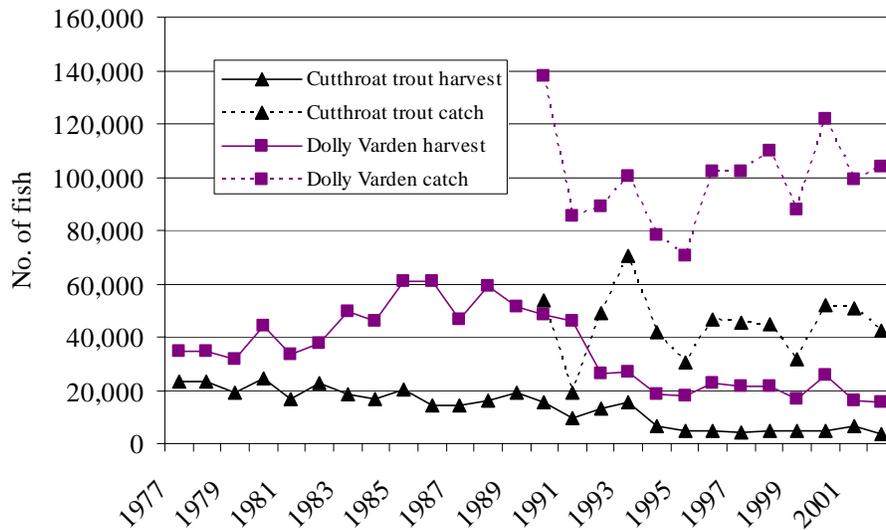


Figure 6.—Estimated sport harvest of cutthroat trout and Dolly Varden in Southeast Alaska, 1977–2001, and total catch of these species, 1990–2001.

Alaska’s wild rainbow trout resources. In response, the department hosted a Wild Trout Summit in October 2001. A wide variety of people participated, ranging from consumptive to non-consumptive users and including various resource agencies. Participants in the summit reviewed trout management and recommended that a statewide management plan and sustainable fishery policy be developed for wild trout, and that additional research be conducted to fill information gaps.

In November 2001, the Board considered the recommendations of summit participants and established the Wild Rainbow Trout Task Force. The Task Force was composed of consumptive and non-consumptive users from across the state and included two Board members and department staff as advisors. The Board charged the Task Force to develop proposals for a statewide wild rainbow trout management plan and a statewide wild rainbow trout sustainable fisheries policy. A web site was also established where up-to-date versions of the plan and policy were posted and public comments were collected throughout this process. The Task Force met in January and reported to the BOF in March 2002. The Task Force met again in April 2002 to further refine a statewide plan to guide the utilization of Alaska’s wild trout stocks, and a statewide policy to assure

for the sustainability of these stocks, and submitted these to the Board as proposal 423.

The Board considered the Task Force proposal (423) at its October 2002 Work Session. Board and department staff held an informal public meeting on the plan and the policy, where several issues were raised. These included: a need to base provision of food sources on scientifically defensible information; need to define management benefits; balloon effects on other species; recognition of subsistence and other consumptive uses; species interaction effects; and recognition of existing step-down plans, among others. In response to public comments, the Board tabled action on the proposal until its March 2003 meeting to enable more time for public understanding of the policy and plan, and to provide additional time for members of the public to provide input on the proposal. Several Advisory Committees provided comments during this period. The Board also established a committee where the plan and policy were discussed and modified prior to adoption.

JANUARY 2003 MEETING

The Board met January 20–29, 2003 in Sitka to consider proposals for Southeast Alaska and Yakutat subsistence personal use finfish, and herring, groundfish, Dungeness crab, shrimp, and

miscellaneous shellfish. The Board considered seven proposals to change sportfishing regulations in Southeast Alaska (Appendix A1). At this meeting, the Board:

- adopted the Redoubt Bay and Lake Sockeye Salmon Management Plan (proposal 115), and
- required escape rings (minimum size 4 3/8 inches dia.) on Dungeness crab pots used for subsistence, personal use, and sportfishing to be on opposite sides of the pot and be on the upper half of the vertical plane (proposal 199).

The Board rejected or took no action on five other proposals related to sport fisheries for shellfish and spiny dogfish in Southeast Alaska. The Board considered but did not adopt six proposals to establish halibut Local Area Management Plans (LAMP) because the proposals did not meet the protocol jointly established by the Board and the North Pacific Fishery Management Council.

FEBRUARY 2003 MEETING

The Board met in Ketchikan February 20–28 to deliberate proposals for Southeast Alaska finfish. Fifty-six proposals to change sportfishing regulations, including three management plans, were considered at this meeting (Appendix A); 11 were adopted. The Board:

- adopted the Lynn Canal and Chilkat River Chinook Salmon Fishery Management Plan (proposal 274);
- modified the Situk-Ahrnklin and Lost River Chinook Salmon Management Plan (proposal 275);
- repealed a requirement to manage the sport and commercial troll fisheries to stay within 7.5 percent of allocations on an annual and cumulative basis (proposal 312);
- modified the Southeast Alaska King Salmon Management Plan (proposal 323);
- removed a regionwide regulation that allowed a bag limit of 2 steelhead if at least 1 had a clipped adipose fin as evidenced by a healed scar, and applied the regulation specifically on the Klawock River and Ketchikan Creek (proposal 343);

- allowed only unbaited, artificial lures (year round) in Salt Lake (at the outlet of Peterson Creek), Mendenhall Lake, Auke Lake and its tributaries, including the outlet stream downstream to Glacier Highway (proposal 344);
- reduced the minimum size limit for rainbow trout from 11 to 9 inches in Lost Lake (proposal 346);
- increased the Dolly Varden bag and possession limits from 2 to 4 fish per day and in possession in Chilkoot Lake drainages (proposal 347);
- repealed regulations that closed waters within 150 feet of the Gastineau Hatchery dock to snagging (proposal 351);
- allowed only unbaited, single hook, artificial lures to be used in the Karta River drainage (proposal 353);
- changed the season in City Park Ponds (Ketchikan) to the first Saturday in June through the first Sunday in July (proposal 365).

MARCH 2003 STATEWIDE MEETING

The Board met March 17–25, 2003, in Anchorage to consider proposals related to statewide shellfish (except Southeast Alaska) and supplemental issues. At this meeting, the Board adopted the Policy for the management of sustainable wild trout fisheries (policy), and statewide management standards for wild trout (plan). The policy provides principles and criteria to ensure conservation, sustainability, and optimal sustained yield and benefits for wild trout, and provides direction to the Board and the department as to how those principles and criteria are to be applied in the regulatory process.

The plan ensures conservative management of wild trout fisheries while recognizing existing plans and policies that guide management of wild trout on a regional basis. In most areas of the state, conservative management for wild rainbow trout, cutthroat trout, and steelhead trout, in combination, means a bag and possession limit of 2 fish, of which only one may be 20 inches or

greater in length, with an annual limit of 2 fish 20 inches or greater in length.

In Southeast Alaska, conservative management for wild rainbow trout and cutthroat trout, in combination, means a bag and possession limit of 2 fish, no less than 11 inches and no greater than 22 inches in length; and for steelhead means a bag limit of 1 fish, no less than 36 inches in length, with a possession and annual limit of 2 fish. The plan allows the Board to adopt regulations that deviate from the plan as necessary to address sustainability or optimal sustained yield issues, establish special management areas, or liberalize harvest opportunities in specific water bodies under other criteria.

Regulations pertaining to the January and February meetings in Southeast Alaska are discussed in more detail in following sections.

REGIONWIDE ISSUES AND ACTIONS

CHINOOK SALMON ISSUES UNDER THE PACIFIC SALMON TREATY

In 1985, the United States and Canada signed the Pacific Salmon Treaty, which included provisions for management and conservation of Chinook salmon stocks that inhabit the Pacific Coast, north of southern Oregon. Stocks for which the Treaty applied included those that migrate north and are caught in the fisheries of both countries. Harvest ceilings (quotas) were established for the Chinook salmon fishery in Southeast Alaska and other major Chinook fisheries in Canada as part of the initial sharing arrangements. Each of these fisheries was managed to ensure harvests would not exceed negotiated fixed annual quotas. As an incentive to minimize harvest of wild Chinook salmon, the Treaty allows for an unlimited harvest of Alaska hatchery produced Chinook salmon (add-on); the majority of Chinook salmon produced at Alaska hatcheries do not count toward Alaska's quota.

The Treaty expired after 1994 and the Pacific Salmon Commission (PSC) directly negotiated Chinook quotas for 1995 and 1996. In 1996, U.S. section members signed a Letter of Agreement (LOA) that embodied abundance-based management. Under the LOA, quotas were based

on a preseason abundance index and subject to in season adjustments.

In 1999, the Pacific Salmon Commission (PSC) negotiated a new treaty agreement, which implemented abundance-based management in all Chinook fisheries in both the U.S. and Canada. Since 1999, Southeast Alaska and other fisheries have been managed to achieve a Chinook harvest based on the abundance of Chinook rather than on a fixed ceiling. Under the agreement, the allowable harvest level for the Southeast Alaska Chinook salmon fisheries is established based on the best available preseason or inseason abundance index as determined by the Chinook Technical Committee (CTC). Combinations of both the preseason and inseason indices have been used to set the allowable harvest for Southeast Alaska fisheries. The agreement specifies the total allowable catch for Southeast Alaska fisheries at given abundance indices, which are based on exploitation levels that increase as abundance increases (Figure 7).

The original Treaty established quantitative, measurable overage and underage provisions ($\pm 7.5\%$ of the quota) for ceiling fisheries to ensure quotas were attained but not exceeded on an annual basis. Under this provision, harvests of treaty fish in excess of the quota but within the management range, or unharvested treaty Chinook within the management range, could be added or subtracted from the harvest of treaty fish during the following year. Cumulative deviations above the upper bound of the management range had to be subtracted from the quota the following year, but the cumulative number of unharvested treaty Chinook salmon below the lower bound of the management range could not be added to future quotas.

The 1999 agreement includes overage and underage provisions for all coastwide fisheries but specifics were undefined and remain under discussion within the PSC. Harvest targets are based on the pre-season abundance index while Treaty performance is evaluated based using "the first post-season calibration of the Chinook abundance model." The 1999 agreement recognized that managing a fishery based on a post-season calibration presented significant problems, and directed the CTC to review and

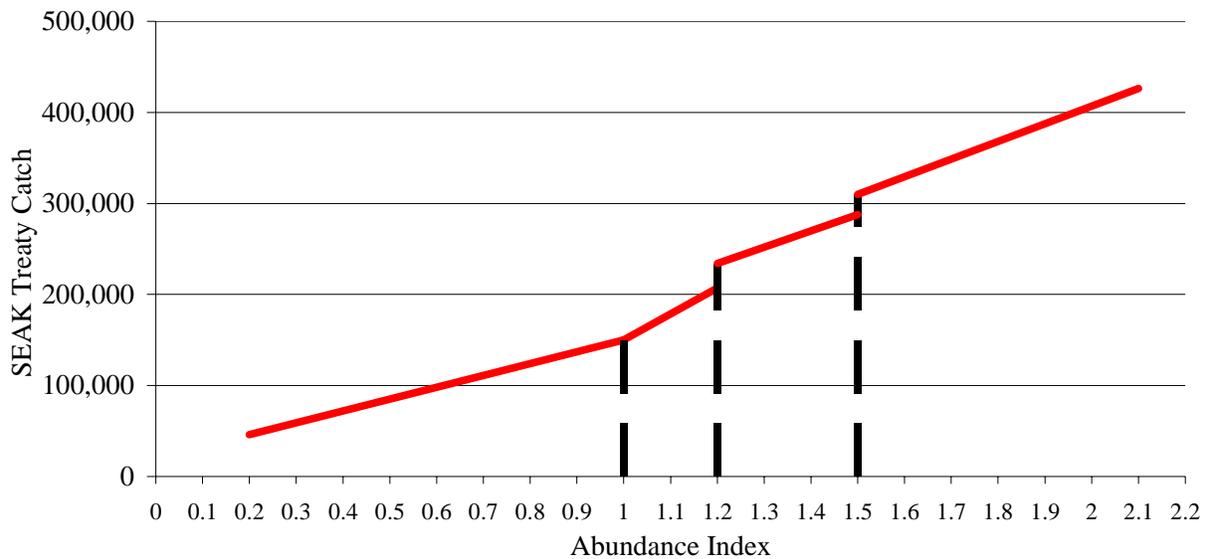


Figure 7.—Southeast Alaska all-gear Chinook harvest relative to abundance indices.

clarify the 7.5 percent cumulative management range and payback provisions (Chapter 3 paragraph 7 (a) ii). The CTC conducted a review in January 2002, but has been unable to develop an overage/underage policy acceptable to all parties of the Treaty.

Currently, there is no quantitative and measurable policy in place. Following the 2002 review, the PSC requested that the CTC annually provide the preseason expected, actual, and post-season allowed catch. The PSC will determine if the parties are managing outside the intended boundaries based on this annual review.

CHINOOK SALMON MANAGEMENT

Chinook salmon is the species most preferred by sport anglers in Southeast Alaska, and it is also highly valued by commercial fishermen. A quota, established under the Pacific Salmon Treaty, limits the harvest of Chinook salmon by all commercial and sport fisheries in Southeast Alaska. The Board has allocated a share of this quota to the sport fishery and the rest to various commercial gear groups.

Regulatory History

Retention of Chinook salmon has been prohibited year-round in fresh waters of Southeast Alaska since 1963, except in the Yakutat area. In the Yakutat area, anglers may take 1 Chinook salmon over 20 inches in length per day, and 10 less than 20 inches in length.

Regionwide regulations concerning Chinook salmon in marine recreational fisheries have changed considerably over the years (Table 1). In 1989, The Board authorized the department to increase harvest opportunities for Chinook salmon in marine and freshwater terminal harvest areas near hatchery release sites. In 1997, the Board prohibited charter vessel operators and crew members working on a charter vessel from retaining king salmon while clients are on board the vessel. Also in 1997, an annual limit for nonresidents (4 Chinook salmon) was put into place. Other changes to the regionwide Chinook salmon regulations have occurred at specific times in areas. Portions of Behm Canal near Ketchikan, Greys Passage near Wrangell, Chilkat Inlet near Haines, and Taku Inlet near Juneau have been

Table 1.—Summary of Southeast Alaska Chinook salmon regulations, 1958–2003.

Years	Bag limit	Possession limit	Minimum size limit	Other regionwide regulations
1958–1962	3	3	26" fork	
1963–1975	3	3	none	Freshwater season closure (excluding Yakutat) adopted in 1963
1976	3	3	26" total	
1977	3	3	28" total	
1978–1979	3	3	28" total	
1980–1982	3	3	28" total	No size limit: April 1 through June 14
1983–1988	2	2	28" total	No size limit: tagged fish
1989–1991	2	2	28" total	Terminal area management implemented in 1989
1992–1996	2	2	28" total	Southeast Alaska King Salmon Management Plan adopted in 1992
1997–2000	2	2	28" total	Retention by charter vessel crews prohibited; annual limit implemented for nonresidents
2000–2003			28" total	Bag and possession limit (year-round) determined by management plan

closed to recreational fishing to protect Chinook salmon returning to spawn. Since 2000, bag and possession limits of 1 or 2 fish per day and in possession have been established directly under provisions of the Southeast Alaska King Salmon Management Plan for the entire year. The current minimum size limit (28 inches) has been in effect since 1977. When the Treaty was implemented in 1985, only the commercial troll fishery was managed to ensure that annual quotas for Treaty fish were not exceeded. But in 1987, the Board allocated the harvest of Treaty fish among the various commercial groups that harvest Chinook in Southeast Alaska by regulation.

In 1992, the Board established an allocation for the sport fishery as well as the commercial troll and net fisheries; prior to 1992, the estimated sport harvest was subtracted from the annual quota and the commercial fishery was managed to take the balance. The Board allocated 20,000 treaty Chinook salmon to commercial net fisheries. Eighty-three percent of the remainder was allocated to the commercial troll fishery and 17 percent to the sport fishery. In spring 1994, the Board increased the allocation to the sport fishery by one percent per year from 1994 through 1996. Since 1996, the sport fishery has been managed to achieve 20 percent of the annual Treaty quota after net fishery allocations are subtracted.

The Board adopted the Southeast Alaska King Salmon Management Plan in 1992 to guide management of the marine sport fishery under the new allocation. The objectives of the original plan were to: 1) allow uninterrupted sport fishing in marine waters for Chinook salmon while not exceeding the sport fishery allocation, and 2) to minimize regulatory restrictions on unguided anglers. The plan directed the department to estimate king salmon harvest inseason. The regionwide bag and possession limit of 2 Chinook salmon 28 inches or more in length was to remain in effect in marine waters until the department projected (preseason or inseason) that the total harvest of treaty fish would deviate by more than 7.5 percent above or below the quota. The plan directed the department to restrict or liberalize regulations by emergency order when the annual harvest of treaty fish was projected to exceed or fall short of the management range, and provided regulatory options to use.

The plan was subsequently modified in 1997. At that time the Board determined that stability was important to the sport fishery and modified the plan to minimize inseason restrictions. This plan directed the department, as soon as the sport fishery allocation was determined, to establish a bag limit of 1, 2, or 3 fish, whichever would result in the projected harvest that would come closest to the sport fishery allocation of treaty fish. The projected harvest of treaty fish under the specific

bag limit became the new harvest target for the sport fishery. Similar to the original version, the 1997 plan directed the department to take action only when the annual harvest of treaty fish was projected to fall short of or exceed a 7.5 percent management range.

In 2000, management of the sport fishery for Chinook salmon changed substantially when the Board revised the plan again. The objectives of this plan were: 1) to manage the sport fishery to attain a harvest of 20 percent of the annual harvest ceiling specified by the Pacific Salmon Commission, after subtracting commercial net harvest; 2) to allow uninterrupted sport fishing in salt waters for king salmon, while not exceeding the sport fishery harvest ceiling; 3) to minimize regulatory restrictions on resident anglers not fishing from a charter vessel; and 4) to provide stability to the sport fishery by eliminating inseason regulatory changes, except those needed for conservation. The 2000 version directed the department to establish sport fishery regulations prior to May 1 and have the regulations remain in effect for the entire year, and for the following year until the preseason abundance index becomes available. Previously, regulations were changed only in season; regionwide bag and possession limits (2 Chinook salmon 28 inches or more in length) and other regulations were in effect for the majority of the year. Unlike previous versions, this plan tied specific management measures directly to ranges in the abundance index issued by the CTC; the department was no longer to manage in season to achieve a management range of 7.5 percent above and below the allocation. This version also called for more restrictive regulations on nonresidents and anglers fishing from charter vessels and outlined different, more restrictive, measures when there existed a cumulative sport harvest overage. Under this plan, the commercial troll allocation was to be adjusted up or down to harvest the balance of the annual quota when the sport fishery was projected to exceed or fall short of its allocation. In this way, cumulative sport harvests above the sport fishery allocation were deducted from the troll allocation and were to be paid back in future years by not implementing more liberal regulations.

The department has implemented numerous inseason regulatory actions under the management plan (Table 2).

Southeast Alaska King Salmon Task Force

The sport fishery exceeded its allocation in each of the first two years that the 2000 management plan was in effect, based on information available in the fall 2001. Overages by the sport fishery were anticipated at abundance index levels of 1.1–1.2, and the management plan called for those overages to be paid back during years of higher abundance. However, the magnitude of the overages was greater than expected and contributed to Alaska exceeding its treaty quota, causing greater than anticipated reductions in the level of harvest by the commercial troll fishery.

In response, the Division hosted a meeting in Juneau in December 2001 to explore ideas for future management of the king salmon sport fishery. A wide range of people participated, including sportfishing business owners, Alaska resident anglers, sportfishing organizations, commercial troll fishermen, two members of the Board, and department staff. Participants reviewed management of the sport fishery and recommended that a task force be established under the direction of the Board to reduce harvest by nonresidents and guided anglers in years of low abundance and minimize impacts on resident anglers.

In January 2002, the Board considered the recommendations of meeting participants and established the Southeast Alaska King Salmon Management Plan Task Force. The Task Force was composed of 10 lodge owners, charter operators, sportfishing and tribal organizations and resident anglers geographically located throughout Southeast Alaska. A member of the Board chaired the task force, and department staff participated as advisors. The Board charged the Task Force to recommend changes to the Southeast Alaska King Salmon Management Plan to minimize regulatory impacts to resident anglers, and to develop management options to reduce harvests by nonresidents and guided

Table 2.—Sport fishery regulatory actions taken under the King Salmon Management Plan to adjust Chinook salmon harvests during 1992–2003.

Year	Dates	Bag limit ^a	Nonresident annual limit	Other restrictions
1992	May 15–July 28	1		Ban on take by charter crews
1993	June 17–Aug 15	1		Ban on take by charter crews; downrigger ban
	Aug 16–Dec 31	1		Ban on take by charter crews
1994	April 15–June 30	1		Ban on take by charter crews
	July 30–Dec 31	3		
1995	Aug 17–Oct. 3 ^b	1		
1996	June 15–Dec. 31	1		
1997 ^c	July 7–Dec. 31	1		
1998	July 3–Sept 8	3		
	Sept. 9–Dec. 31	1		
1999	July 3–Dec. 31	1		
2000	May 3–June 26	1	2	4-line limit on charter boats; closure to retention of Chinook salmon by chartered and nonresident anglers on Wednesdays ^d
	June 27–Dec 31	1	3	
2001	Jan. 1–Dec. 31	1	3	
2002	Jan 1–April 26	1	3	
	April 27–Dec 31	1 (nonresidents); 2 (residents)	3	
2003	Jan 1–Dec 31	1 (nonresidents);	3	
		2 (residents)		

^a From 1992–2003, the regulatory bag limit was 2 Chinook salmon.

^b Action taken in response to a court order that closed commercial fisheries and capped additional sport harvest at 2,000 Chinook salmon.

^c In 1997, the Board of Fisheries prohibited charter operators and crew members from retaining king salmon while clients are on board the vessel; at the same time, the Board also established an annual limit of 4 Chinook salmon $\geq 28''$ for nonresidents.

^d Additional restrictions included a closure to retention of Chinook salmon for nonresidents and charter anglers during August and September, and a closure to retention of Chinook salmon on the outer coast from July 12 to July 31. However, restrictions implemented May 3 were rescinded on June 26.

anglers in years of low abundance to stay within the sport fishery allocation.

The Task Force met in Sitka during March 2002 and via teleconference in April. It identified issues associated with management of the sport fishery

for Chinook salmon, developed proposed changes to the management, and subsequently submitted proposal 323 to the Board. The Task Force met again in November 2002 in person and via teleconference to modify the proposed plan and develop a set of findings to present to the Board.

2003 Alaska Board of Fisheries Action

Actions taken by the Board at the February 2003 meeting substantially affected management of the sport fishery for Chinook salmon.

First, the Board repealed a regulation that required the department to manage the sport and commercial troll fisheries to stay within 7.5 percent of allocations on an annual and cumulative basis. This regulation was originally adopted by the Board for consistency with the 1985 Treaty, which required all parties including Alaska to manage fisheries for similar ranges around fixed quotas. The change to abundance-based management embodied in the 1999 agreement brought additional complexity in managing for a quota on an annual basis. Fishery regulations are established each year based on a quota derived from a preseason abundance index, but harvests are evaluated with respect to quotas based on a postseason abundance index produced after the fisheries occurred. Differences between the two indices at times exceed 7.5%; in those instances it is not possible to manage precisely for the quota in any given year. With the advent of abundance-based quotas embodied in the 1999 Treaty and the lack of the measurable, quantifiable overage/underage policy, the regulation was no longer necessary or practical.

Beginning in 2003, fishery managers will evaluate harvest performance in commercial and sport fisheries based on allocations with respect to the total harvest, as opposed to the treaty quota. Cumulative overages and underages in the Southeast Alaska harvest with respect to the treaty will be evaluated prior to each season. Large cumulative treaty overages or underages, if and when they occur, will be addressed by establishing a Southeast Alaska harvest target above or below the treaty quota in a given year.

Second, the Board substantially modified the Southeast Alaska King Salmon Management Plan based on the proposal (323) submitted by the Southeast Alaska King Salmon Task Force. The Board removed provisions that called for the commercial troll allocation to be adjusted up or down to harvest the balance of the annual quota when the sport fishery was projected to exceed or fall short of its allocation. Provisions that called

for differential regulations in the sport fishery when there existed an overage versus when there was no overage were also removed. Together, these actions simplified management of both fisheries by removing the complexities associated with calculating annual overage or underage in the sport fishery and uncoupling the two fisheries. Beginning in 2003, all fisheries will be managed for their allocations based on the preseason abundance index, not for a target adjusted in season. The Board will address cumulative overage or underage in the sport fishery during its regular meeting cycle as opposed to annually by the department.

Management options prescribed for the sport fishery for given ranges of abundance indices changed, as did the ranges of abundance indices used and the groups affected (Figure 8). Under the new plan, bag and possession limits are managed distinctly for Alaska residents and nonresidents; the previous version made the distinction between non-guided Alaska residents as one group, and guided and resident anglers as the other. Under the new version, guided residents of Alaska will be afforded more liberal bag limits. Bag limits for Alaska residents were increased at moderate abundance levels, while bag and annual limits for nonresident anglers were reduced at high abundance levels. Other restrictions at low abundance levels rely more heavily on season closures, applied first to nonresidents, than previous versions.

2003 Chinook Salmon Overview

Management Actions

At the beginning of 2003, the 2000 management plan was in effect. Since the preseason abundance index is usually not received until April each year, the bag and possession limits and other measures for the coming year are based on the prior year's abundance index until the new preseason abundance index is obtained. In 2002, the abundance index was 1.74 and a cumulative overage existed for the sport fishery. Under these circumstances, the 2000 management plan called for a bag and possession limit of 2 king salmon 28 inches or greater in length for non-guided resident anglers, and of 1 king salmon 28 inches or greater in length for guided and nonresident anglers. The

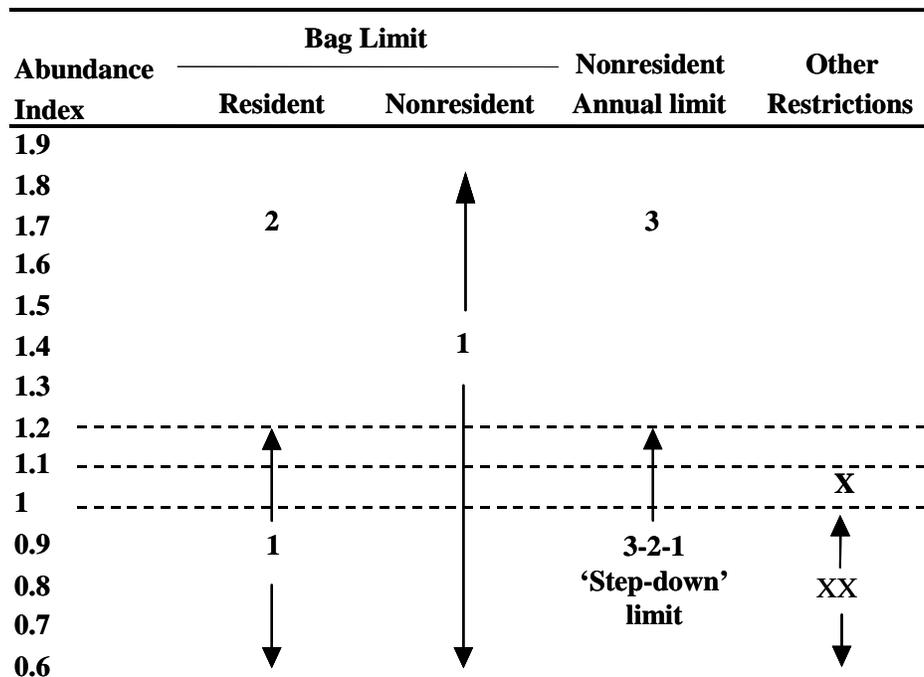


Figure 8.—Graphic representation of the 2003 Southeast Alaska King Salmon Management Plan (5 AAC 75.055).

plan also called for an annual limit for nonresident anglers of 3 king salmon 28 inches or more in length. These regulations were implemented by emergency order (E.O. 1-01-03) on January 1, 2003 (Appendix A2).

On April 2, 2003, the 2003 preseason abundance index of 1.79 was announced. This abundance index was slightly higher than the 2002 abundance index, and resulted in an all-gear quota of 366,100 Chinook salmon. This represented an increase over the 2002 quota of nearly 10,000 fish, and was the largest quota since the implementation of the treaty in 1985. The sport fishery allocation was 68,358 king salmon (excluding most Alaska hatchery fish and fish harvested in the Situk River).

At this level of abundance and regardless of an overage in the sport fishery, the newly adopted (2003) management plan called for a bag and possession limit of 2 king salmon 28 inches or greater in length for Alaska resident anglers, and of 1 king salmon 28 inches or greater in length for nonresident anglers. The plan also called for an annual limit for nonresident anglers of 3 king salmon 28 inches or more in length. These revised

regulations were implemented via Emergency Order (E.O. 1-07-02) on April 30, 2003. Given the high abundance, it was expected that the sport fishery would harvest less than its allocation.

The bag limit for nonresident anglers in the Southeast Alaska marine fishery has remained at 1 Chinook salmon since 2000 (Table 2). Similarly, nonresident annual limits have remained at 3 fish since June 27, 2000. The bag limit for Alaska residents was increased from 1 to 2 Chinook salmon in 2002 for the first time since 2000, and remained at 2 fish in 2003.

Regulations authorize the department to increase bag limits by emergency order in terminal harvest areas to provide anglers with additional opportunity to harvest Alaska hatchery Chinook salmon. In 2003, bag limits were increased in 5 freshwater and marine areas to harvest excess hatchery Chinook salmon, including jacks less than 28 inches in length (Table 3). In addition, Chinook salmon caught in many of these areas (where limits were 3 or more Chinook salmon \geq 28 inches in length) did not count toward nonresident annual limits. Most of these Alaska hatchery

Table 3.—Names, locations, and dates of terminal harvest areas (THAs) that had liberalized regulations in 2003 to allow for increased harvests of Alaska hatchery Chinook salmon.

Terminal Harvest Area	SWHS Area	Dates	Action
Mountain Point & Neets Bay	Ketchikan	6/14–7/31	Established a bag limit of 12 Chinook, no size limit; repealed nonresident annual limit.
Wrangell Narrows	Petersburg Wrangell	6/01–7/31	Established a bag limit of 4 Chinook 28 inches and larger; 8 less than 28 inches; nonresident annual limit repealed.
Silver Bay & Hidden Falls	Sitka	7/04–7/31	Established a bag limit of 2 Chinook 28 inches and larger; 2 less than 28 inches; nonresident annual limit repealed.
Juneau	Juneau	6/11–8/31	Established a bag limit of 4 Chinook, no size limit; repealed nonresident annual limit.
Taiya Inlet	Haines Skagway	6/10–7/31	Established a bag limit of 2 Chinook, no size limit; repealed nonresident annual limit; closed saltwater area near mouth of Pullen Creek.

Chinook salmon do not count toward the allocation. Terminal harvest area management is described for each management area later in the report.

King Salmon Tag Sales

Effort estimates in angler-days are available from the Statewide Harvest Survey for Southeast Alaska (Figure 2). However, this survey does not estimate the amount of fishing effort specifically directed at Chinook salmon.

Since 1993, most anglers fishing for Chinook salmon have been required to purchase (and have in possession while Chinook fishing) a king salmon harvest tag. The number of king salmon tags sold annually in Southeast Alaska provides an index of the amount of fishing interest in Chinook salmon. Between 1993 and 2002, overall tag purchases increased about 62% from 35,600 to 57,600 (Table 4). Resident tag purchases remained relatively constant, averaging 16,100 with a peak of 17,000 occurring in 1997 when Chinook returns to the region were outstanding. Nonresident tag purchases more than doubled during the same time period and averaged 34,000 over the 10-year period. Increased tag prices and the availability of more options could explain the slight drop in nonresident tag purchases between 1997 and 1998. Sales of annual nonresident tags declined dramatically in 1998 due to the large

increase in cost (\$35 to \$100) and the availability of 7-day tags.

Over 57,000 king salmon tags were sold in 2003. This was similar to the number sold annually from 2000–2002. However, the number of resident tags sold in 2003 was the lowest since the tag requirement was put into place and fell short of the number sold in 2002 by over 1,000 tags. In contrast, the number of nonresident tags sold in 2003 was the largest since 1993. Resident tags comprised 26% of all tags sold, compared with 44% in 1993.

Harvest

The preliminary harvest estimate is 72,971 king salmon (Table 5). This estimate is 5% larger than the harvest estimate for 2002, and the largest since 1977. Estimated harvests met or exceeded the 1998–2002 average in Ketchikan, Prince of Wales Island, Sitka, Juneau, and Haines-Skagway; the estimated harvest for the Ketchikan area is the largest since 1977. Alaska hatcheries contributed about 23,000 Chinook salmon to the Southeast Alaska sport fishery, 4,000 fish to terminal harvest area fisheries and 19,000 fish to fisheries outside of terminal harvest areas (Table 6). The estimated harvest of Alaska hatchery Chinook composed 32% of the estimated harvest, which is significantly higher than the 1998–2002 average of 26%.

Table 4.—Number and percent of king salmon tags sold to resident and nonresident anglers in Southeast Alaska, 1993–2003.

Year	Resident tags		Nonresident tags		Total
1993	15,569	44%	20,059	56%	35,628
1994	16,750	41%	24,342	59%	41,092
1995	16,542	36%	28,909	64%	45,451
1996	16,390	34%	31,708	66%	48,098
1997	17,020	32%	36,316	68%	53,336
1998 ^a	15,639	31%	34,666	69%	50,305
1999	15,379	28%	39,838	72%	55,217
2000	16,425	29%	40,944	71%	57,369
2001	15,827	28%	41,106	72%	56,933
2002	15,718	27%	41,910	73%	57,628
Average	16,126	32%	33,980	68%	50,106
2003	14,620	26%	42,569	74%	57,189

^a The fee structure for nonresident tags was changed in 1998, and probably negatively affected sales. Fees for annual tags increased from \$35 to \$100; 14-day tags increased from \$35 to \$50. Three-day tags increased from \$15 to \$20. Fees did not increase for 1-day tags (\$10). A 7-day nonresident tag (\$30) option was first offered beginning in 1998.

Contributions of Alaska hatchery stocks to inside fisheries (excluding terminal harvest areas) were 25% above the 1998–2002 average and contributed over half of the Chinook harvest in the Ketchikan and Juneau areas. The largest contribution was observed in Juneau (55%), followed by Ketchikan (51%), Gustavus (29%), Elfin Cove (17%), Petersburg (14%), Sitka (14%), Wrangell (8%), and Craig (3%). Three of 10 facilities that produce Chinook salmon in Southeast Alaska produced 69% of Alaska hatchery fish harvested in the sport fishery outside of terminal harvest areas. These included Macaulay Hatchery near Juneau (23%), Medvejie Hatchery near Sitka (25%), and Whitman Lake Hatchery in Ketchikan (21%).

The estimated harvest of treaty fish for all Southeast Alaska fisheries is 383,490 Chinook salmon. This exceeds the Southeast Alaska quota based on the preseason abundance index by 17,400 fish (5 percent). However, performance with respect to the treaty will be based on the postseason abundance, expected from the CTC in April 2004, as directed in the 1999 agreement.

The preliminary estimate for treaty fish taken in the sport fishery is 52,828 king salmon; commercial net and troll fishery harvests were estimated at 23,314 and 307,348 Chinook salmon. After deducting the commercial net harvest from the harvest taken in all Southeast Alaska fisheries,

the sport harvest comprised 15% of the remainder, compared to the 20% allocation.

LINGCOD MANAGEMENT

Lingcod are taken incidentally in the Southeast Alaska marine sport fishery as well as commercial longline and jig fisheries for rockfish and halibut. A directed commercial fishery targets lingcod as well. During the 1990s trends in catch-per-unit effort in the directed fishery indicated that stock abundance may have been declining, and there was little evidence of large-scale recruitment into the population.

Guideline Harvest Level

In February 2000, the Board substantially changed management of lingcod fisheries in Southeast Alaska in response to an apparent regionwide decline in lingcod abundance. The Board established a guideline harvest level (GHL) management approach for sport and commercial fisheries in Southeast Alaska, reduced allowable harvests by setting the GHL lower than recent harvest levels, and allocated the GHL among sport and commercial fisheries in each of seven management areas (5 AAC 28.160 (e) and 5 AAC 28.165). Guideline harvest levels and sport fishery allocations are listed in Table 7.

The Board, recognizing that harvest regulations would need to be modified to attain the

Table 5.—Estimated sport harvest of Chinook salmon in Southeast Alaska by SWHS area, 1977–2003.

Year	Ketchikan	Prince of Wales	Petersburg-Wrangell	Sitka	Juneau	Haines-Skagway	Glacier Bay	Yakutat	Total
1977	4,672	811	2,671	1,738	6,377	471	356	353	17,449
1978	3,845	1,817	2,109	1,841	5,686	769	315	257	16,639
1979	4,165	863	2,173	2,054	5,935	664	282	445	16,581
1980	5,415	1,274	3,495	1,489	7,068	792	241	439	20,213
1981	5,683	1,294	2,906	1,955	7,722	1,372	184	184	21,300
1982	6,215	933	4,076	1,781	10,614	1,592	147	398	25,756
1983	7,968	1,543	3,332	2,108	5,431	1,426	157	356	22,321
1984	5,063	1,095	3,067	2,251	8,948	1,313	129	184	22,050
1985	6,170	534	4,060	1,430	10,376	2,041	186	61	24,858
1986	6,197	987	3,906	1,902	7,213	2,054	183	109	22,551
1987	5,826	649	3,534	2,537	9,857	1,419	258	244	24,324
1988	7,422	1,135	4,668	3,539	7,884	789	438	285	26,160
1989	7,642	2,599	4,702	5,569	9,375	758	344	82	31,071
1990	12,784	5,564	10,185	8,041	12,349	1,809	369	117	51,218
1991	11,887	6,749	8,011	13,243	16,914	679	2,385	624	60,492
1992	8,010	4,381	5,746	11,139	11,886	181	1,071	478	42,892
1993	6,028	8,367	6,132	13,464	13,118	844	716	577	49,246
1994	5,448	7,006	4,217	12,263	11,407	636	576	812	42,365
1995	3,543	9,063	4,085	17,342	11,428	1,243	895	2,068	49,667
1996	5,437	6,833	5,039	19,743	14,684	777	1,384	3,612	57,509
1997	5,257	7,830	6,299	28,986	15,521	1,609	3,093	2,929	71,524
1998	3,242	10,232	3,692	24,547	8,778	691	1,314	2,517	55,013
1999	7,916	8,518	9,502	28,548	11,574	1,168	2,095	2,760	72,081
2000 ^a	9,570	6,755	8,926	18,888	12,126	1,342	3,217	2,349	63,173
2001	10,348	7,455	9,962	24,205	15,215	1,252	2,711	1,143	72,291
2002	12,366	11,917	8,542	17,994	13,364	1,550	2,838	966	69,537
1998–2002	8,688	8,975	8,125	22,836	12,211	1,201	2,435	1,947	66,419
Mean									
2003 ^b	14,099	10,722	7,130	23,400	12,697	1,601 ^c	1,725	1,596 ^c	72,971

^a Beginning in 2000, the Glacier Bay SWHS area was changed to include the southern half of Icy Strait and Cross Sound as well as the northern shoreline of Chichagof Island. Prior to 2000, these waters and area were part of the Sitka SWHS area.

^b Preliminary.

^c These two fisheries were estimated as an aggregate for the current year.

allocations, granted the department additional authority (5 AAC 47.060) to impose size limits and annual limits in the sport fishery for lingcod. These regulations also direct the department to specify that when size limits are established, lingcod may be landed only by hand or with a landing net. They also provide the emergency order authority to establish time periods within areas during which anglers fishing from a vessel in salt water may not fillet, mutilate, or otherwise disfigure lingcod until the lingcod are offloaded from the vessel. Lastly in 2000, the Board reduced the season by changing the opening date from May 1 to May 16.

Under the GHL approach, the sport fishery is managed to maintain lingcod harvest at or below harvest allocations (in pounds) in each of seven management areas. The sport fishery is managed on a year-to-year basis, and four of the seven areas are managed as two groups (CSO/NSO; IBS/EYS) for a combined allocation given limitations in harvest assessment. Harvest trends are evaluated postseason to determine whether management action is necessary prior to the upcoming season. If harvests substantially exceed the harvest guideline in an area, restrictions are applied during the upcoming season to reduce harvests below the guideline harvest level.

Table 6.—Minimum estimated hatchery contributions of Chinook salmon from marine sport fisheries within Southeast Alaska, 2003.^a

Hatchery	Ketchikan 4/28–9/28	Craig 4/28–9/14	Petersburg 5/05–7/06	Wrangell 4/28–6/29	Sitka 4/28–9/28	Juneau 4/28–9/28	Gustavus 5/05–9/14	Elfin Cove 6/01–9/06	Total
Non-Alaska hatchery contributions									
Conuma (WCVI) ^b	-	643	-	-	1,053	-	51	-	1,747
Nitinat (WCVI) ^b	-	263	-	-	990	-	-	-	1,253
Robertson Creek (WCVI) ^b	90	808	-	-	2,015	-	-	-	2,913
Other Non-Alaska	295	1,005	140	10	2,087	11	1	146	3,695
Total	385	2,719	140	10	6,145	11	52	146	9,608
Alaska hatchery contributions									
Crystal Lake	90		56	30	47	95			318
Crystal Lake/Earl West			12	136	50			40	238
Crystal Lake/Neets Bay	751				104				855
Deer Mountain	318								318
Macaulay (Gastineau)	4					2,538	3		2,545
Hidden Falls					182	283	19	117	601
Little Port Walter		8	1		23	23	1		56
Medvejie	41	235			2,425	30	34	39	2,804
Neets Bay	180	45	31		42	35			333
Sheldon Jackson					-				-
Tamgas Creek	543				220	15			778
Whitman Lake	2,025			104	196	7	13		2,345
Total	3,952	288	100	166	3,289	3,026	70	196	11,191
Combined total	4,337	3,007	240	176	9,434	3,037	122	342	20,799
Unexpanded harvest estimates ^a	7,715	8,234	691	2,115	24,124	5,516	242	1,142	49,779
Alaska hatchery contribution	51%	3%	14%	8%	14%	55%	29%	17%	22%
Non-Alaska hatchery contribution	5%	33%	20%	0%	25%	0%	21%	13%	19%

^a Craig, Petersburg, Wrangell, Gustavus, and Elfin Cove estimates based on catch sampling programs only. Other estimates based on creel surveys. Additional terminal area Alaska hatchery harvests included about 1,500 fish (Gastineau/Snettisham) in the Juneau area and 2,500 fish (Crystal Lake) in the Petersburg area.

^b WCVI = West Coast Vancouver Island hatchery stock.

Table 7.—Designated management areas, guideline harvest levels (GHLs), and sport fishery allocations for lingcod.

Area	Upper Range GHL (lbs.) All Fisheries Combined	Sport Fishery Allocation	
		%	Lbs. Equivalent
Icy Bay Section (IBS)	100,000	33%	33,330
East Yakutat Section (EYS)	200,000	2%	4,000
Northern Southeast Outside Section (NSO)	40,000	22%	8,800
Central Southeast Outside Section (CSO)	240,000	30%	72,000
Southern Southeast Outer Coast Sector (SSO)	167,000	44%	73,480
Southern Southeast Internal Sector (SSI)	52,000	92%	47,840
Northern Southeast Inside Subdistrict (NSI)	32,000	50%	16,000

Likewise, if harvests fall well below harvest guidelines, restrictions are eased prior to the upcoming season.

In 2000 and 2001, available harvest estimates were evaluated to determine harvest reductions necessary. Depending on the area, the sport harvest (lbs.) needed to be reduced by 25 to 55%. Bag limit reductions and minimum length regulations were implemented by emergency order in each area to achieve the reductions (Table 8). However, the estimated harvest (lbs.) in CSO/NSO, SSO, and NSI areas substantially exceeded allocations during both years (Table 9).

The fishery was managed differently in 2002 in two ways. First, the prior year (2001) harvest was projected by management area/group, using available logbook and creel survey information to determine whether recent harvest levels exceeded or fell short of the allocation, and to improve our ability to estimate the amount of any adjustments necessary. Prior to 2002, only final SWHS estimates, which did not include the year prior, were used. Second, we chose a seasonal closed period in lieu of a minimum size limit as the primary mechanism to reduce harvest. We reasoned that harvest opportunity lost as a result of a closure would not be as easily replaced as harvest opportunity lost as a result of a minimum size limit. A slot (minimum and maximize length) limit was also used to avoid large harvests of large fish, which would increase the average weight of fish harvested and mitigate reductions in numbers of fish. The strategy used in 2002 appeared to be more successful; sport harvests fell near or below the GHL for each management area.

2003 Lingcod Overview

The Board took no action during the 2002–2003 regulatory cycle that affected the sport fishery for lingcod. Two proposals addressed the GHL in the IBS management area; the Board adopted these proposals but that action did not affect the sport fishery.

In 2003, the fishery was managed using the same strategy used in 2002. Prior to the season, the 2002 harvest (lbs.) was projected using available creel survey and logbook data. The 2002 harvests were projected to be 17 to 46 percent below the allocations along the outer coast (CSO/NSO and SSO) and near Yakutat (EYS/IBS) (Table 9). Harvest in NSI and SSI areas were projected to exceed allocations by 21 and 12 percent. In northern Southeast Alaska and along the outer coast of Prince of Wales Island (CSO/NSO, NSI, and SSO areas), a seasonal closure from June 16 through August 15 and a bag limit of 1 lingcod and a possession limit of 2 lingcod was implemented for all anglers (E.O. 1-02-03). That action also established a slot limit (30-inch minimum and 40-inch maximum) for guided and nonresident anglers. Near Ketchikan (SSI), a bag limit of 1 lingcod and a possession limit of 2 lingcod for all anglers were implemented (E.O. 1-03-03). Additionally, a slot limit (30-inch minimum and 40-inch maximum) for guided and nonresident anglers was implemented in the Ketchikan area for the first time. In the Yakutat area (IBS/EYS), harvest limits were reduced to 1 per day and 2 in possession (all anglers) and a slot limit (32 inch minimum and 42 inch maximum) was established for guided and nonresident anglers (E.O. 1-04-03). As directed by the Board,

Table 8.—Sport fishery regulatory actions implemented by emergency order for lingcod, 2000–2003.

Year/Management area(s)	Season closure	Bag and possession limit restrictions	Size limit restrictions ^a	Gaff prohibition ^a
2000	IBS/EYS NSI, CSO/NSO SSO SSI		38-inch minimum	X
2001	IBS/EYS NSI, CSO/NSO SSO SSI		39-inch minimum 34-inch minimum	X X
2002	IBS/EYS NSI, CSO/NSO SSO SSI	June 16–August 15 June 16–August 15	32- 42-inch slot 30- 40-inch slot 30- 40-inch slot	X X X
2003	IBS/EYS NSI, CSO/NSO SSO SSI	June 16–August 15 June 16–August 15	32- 42-inch slot 30- 40-inch slot 30- 40-inch slot 30- 40-inch slot	X X X X

^a Applied to nonresident and guided anglers only, per 5 AAC 47.060. No size limit applied to non-guided resident anglers.

gaffing lingcod was prohibited where size limits were established. In addition, anglers returning to ports during times that creel sampling was occurring were not allowed to head or fillet their lingcod (E.O. 1-05-03; 1-06-03).

Estimated harvests of lingcod in the 2003 sport fishery fell near or below allocations (range –27 to 5 percent) in five management areas that comprise northern Southeast Alaska and the Yakutat areas (CSO/NSO, NSI, EYS/IBS). In the SSO and SSI management areas along the outer coast of Prince of Wales and in the Ketchikan area, lingcod harvests fell substantially below allocations (–60 and –53 percent, respectively), (Table 9). Final 2003 harvest estimates will be available in fall 2004.

SPORTFISHING BUSINESSES AND GUIDES

Increases in guided sport fishing effort have contributed to local and regional allocation issues with the sport fishery and among the sport and other fisheries since the early 1990s.

Charter Vessel Registration and Licensing

Since 1982, when charter vessel registration was first required by ADF&G, the number of registered charter vessels within Southeast Alaska has increased (Figure 9). In 1986, the number of registered charter vessels decreased due to a

regulation change that eliminated registration requirements for vessels that did not have an operator for hire (dry rentals) or were used in freshwater. From 1986 through 1997, however, the number of charter vessels increased annually to a peak in 1997 of 979 charter vessels.

In 1998, the ADF&G vessel registration process was replaced with the licensing process conducted by the Commercial Fisheries Entry Commission (CFEC). Since CFEC also requires freshwater vessels for hire to be licensed as well as vessels used only for transporting guided anglers to shore, some of the increase in vessel registrations since 1998 is due to these changes. Another part of the increase during the 1990s may be due to operators registering or licensing their vessel under the perception that charter vessels might be subject to a future limited entry program or moratorium. Since 1998, the number of vessels registered with home ports in Southeast Alaska has remained relatively constant at about 1,275.

Charter Logbook Program

In 1998, a saltwater charter vessel logbook program was implemented which required all charter vessels operating in salt water with a guide to obtain and complete a logbook. Summary data from the logbook program show that slightly more

Table 9.—Estimated Southeast Alaska sportfishing harvests (lbs.) of lingcod, 1991–2003.

Year	IBS/EYS	CSO/NSO	SSO	NSI	SSI	Total
1991	2,460	42,398	34,579	29,838	35,416	144,691
1992	4,735	74,884	43,136	32,126	44,877	199,757
1993	7,557	61,454	66,400	32,078	53,952	221,441
1994	10,021	102,812	82,255	34,010	67,799	296,898
1995	9,021	70,645	53,345	19,395	45,390	197,795
1996	17,134	97,876	74,749	25,280	32,959	247,997
1997	33,563	126,563	49,554	37,765	43,672	291,117
1998	22,783	117,484	78,334	25,664	49,995	280,748
1999	26,139	133,921	109,065	64,692	28,253	334,845
2000	42,291	131,813	107,124	91,738	67,226	440,192
2001	19,734	167,056	114,273	54,509	38,029	393,602
2002 (preliminary)	21,478	67,437	39,585	19,306	54,029	201,835
Allocation	37,330	80,800	73,480	16,000	47,840	257,450
Projected reduction needed for 2003	-42%	-17%	-46%	21%	13%	-22%
2003 Harvest (preliminary)	27,086	74,396	29,158	16,771	22,509	169,921
Deviation from allocation	-27%	-8%	-60%	5%	-53%	-34%

than 50% of licensed vessels reported taking clients on charter fishing trips (Table 10). Since 1999, the number of active vessels has remained stable at about 670. On average, about 34% of the active vessels reported their port was in the Sitka area, 23% in the Prince of Wales Island (PWI) area, and 19% in the Juneau area.

Forms were received from 674 vessels documenting marine charter boat sport fishing activities in Southeast Alaska during 2003. This was similar to the average number of active vessels (668) in Southeast Alaska from 1998–2002.

The distribution of reported logbook effort and harvest by mail survey area confirms that Sitka is the most heavily fished area by charter anglers in Southeast Alaska (Table 11). Overall, charter clients expended 107,898 angler-days of salmon fishing effort and 61,638 angler-days of bottomfishing effort (many fished for both targets on a given day) in Southeast Alaska. This was an increase of 2% in salmon fishing effort and 12% in bottomfishing effort from that reported in 2002. Reported harvests included about 43,600 Chinook salmon, 205,800 coho salmon, 64,400 pink salmon, 5,800 lingcod, and 43,600 rockfish. Chinook salmon harvests were less than those reported for 2002, while there was an increase in reported harvests of coho and pink salmon, lingcod and rockfish.

PROHIBITION ON HEADING OR FILLETING SALMON

In 1998, the Board gave ADF&G the authority to prohibit heading or filleting of Chinook and coho salmon during times and locations that department creel sampling programs were in operation. This regulation was intended to provide increased recoveries of coded wire tags (CWTs) implanted in Chinook and coho salmon for estimation of the contributions of both wild and hatchery stocks. This was especially important for Alaska hatchery Chinook salmon since these fish generally do not count toward the annual PSC quota. Since 1998, enactment of this regulation, in combination with increased catch sampling efforts, increased sampling rates for Chinook salmon from 18% in 1994 to near 30%. Coho sampling rates increased from 15% in 1997 to over 30% in subsequent years. The heading and filleting regulation was again enacted by emergency order (E.O. 1-06-03; 1-23-03) in 2003 for marine boat anglers returning to any harbor or boat launch connected to the following ports during the following time periods:

Ketchikan, Sitka:	April 28–September 28
Juneau:	April 15–September 28
Craig, Klawock:	May 5–September 14
Petersburg:	May 5–September 14
Haines:	May 5–June 29
Wrangell:	April 28–September 14
Gustavus:	May 5–September 14

Via these emergency orders, anglers were allowed to gut and gill Chinook and coho salmon before returning to port, and anglers could fillet

and head Chinook and coho salmon on their boats once they had returned to a docking facility and tied their boat up to a float.

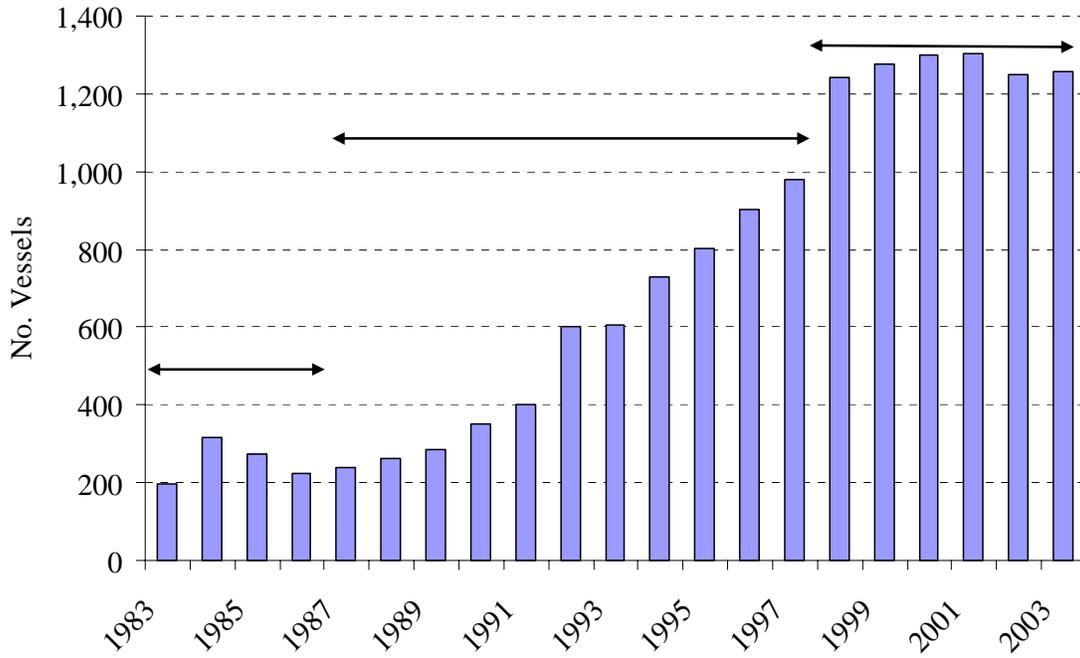


Figure 9.—Number of sportfishing charter vessels registered in Southeast Alaska, 1982–2003.

Table 10.—Number of active charter vessels in Southeast Alaska as determined from charter vessel logbooks (2003 data are preliminary). Active vessels are those that turned in logbook forms reporting at least 1 trip with clients.

Year	Ketchikan	Prince of Wales Island	Petersburg-Wrangell	Sitka ^a	Juneau	Haines-Skagway	Glacier Bay ^a	Yakutat	Total ^b
1998	102	123	52	231	119	15	37	17	618
1999	110	165	72	242	126	20	36	12	663
2000	118	172	80	218	146	21	97	14	699
2001	136	157	79	216	137	16	88	15	704
2002	132	152	60	217	115	15	82	14	655
Average	120	154	69	225	129	17	68	14	668
2003	140	157	66	206	106	19	85	15	674

^a Beginning in 2000, the northern section of Chichagof Island (including Pelican, Elfin Cove, Hoonah, and the southern half of Icy Strait and Cross Sound) was re-assigned to SWHS Area G (Glacier Bay) and removed from SWHS Area D (Sitka). This was the primary reason for the increase in active vessels for Glacier Bay area and decrease in active vessels for the Sitka area between 1999 and 2000 .

^b Total values for Southeast Alaska charter vessels are lower than the actual row total because a unique vessel may have operated or offloaded fish and/or clients in more than one SWHS area during a given year.

PACIFIC HALIBUT MANAGEMENT

Guideline Harvest Level

The North Pacific Fishery Management Council (Council) adopted Guideline Harvest Levels (GHL) for Alaska's charter halibut fisheries (Areas 2C and 3A) in February 2000. Each GHL was based on 125% of the 1995–1999 average harvested biomass. Biomass was estimated by multiplying the estimated number of halibut harvested by the charter fleet (estimate obtained from the SWHS) by the average weight of halibut sampled in the marine creel census. The Secretary of Commerce implemented a GHL of 1,432,000 lb for Southeast Alaska, excluding Yakutat (Area 2C), effective September 8, 2003. This amounts to 13.1 percent of the combined commercial and guided sport quota.

The original plan was to implement the GHL, monitor harvest, and if the GHL was exceeded, implement harvest restrictions (such as trip limits, prohibiting retention by captains and crew, or reduced bag limits) in the following season. However, NOAA legal review determined that they do not have the authority to impose these restrictions without further public review. Therefore, if the GHL is ever exceeded, the Council would go through the entire rulemaking process to restrict the fishery. This process would probably take 2–3 years to accomplish.

In 2002, the Statewide Harvest Survey estimated that the area 2C charter fishery harvested 64,616 halibut (down from 2001 by about 1,800 fish). Based on creel sampling the average weight of halibut harvested by charter anglers was 19.7 lb, for a total harvest biomass of 1,275,000. This is 11% below the GHL.

A summary of fishery performance statistics for monitored Pacific halibut fisheries in Southeast Alaska in 2003 can be found in a report presented to the IPHC (White and Jaenicke *Unpublished*).

Individual Fishery Quotas

In April 2001, the Council approved a proposal developed by a select group of charter industry representatives to develop an Individual Fisheries Quota System (IFQ) for charter operators that would parallel the existing commercial IFQ system. The preliminary charter allocation would be approximately 13% of the combined

commercial and guided sport quota. This is approximately the same percentage as the current GHL for the charter fishery. After the initial allocation, quota shares could be bought and sold within and between the sport and commercial sectors.

The IFQs for both the sport and commercial sectors would fluctuate up and down as the estimated harvestable biomass of halibut fluctuated. It is planned that quotas would be issued to vessel owners (or to the people who lease a vessel), and who actively chartered for halibut during 1998, 1999, and 2000. Charter IFQs would be issued in numbers of fish. Seventy percent of an individual's IFQ allocation would be based on the harvest that they reported on charter logbooks during 1998 and 1999 with an additional 10% allocated for each year of operation from 1995–1997.

ADF&G opposed passage of the IFQ system and presented data to the Council that suggested that logbook records of halibut harvest were inflated as compared to the SWHS estimates. We concluded that logbook data from 2000 and 2001 in area 2C and 1999–2001 in area 3A-should not be used to make management decisions in the halibut fishery. As a result of these findings, ADF&G stopped collecting halibut harvest information from charter logbooks in 2002. NMFS is in the process of developing a contract to collect inseason halibut harvest data with which to manage the charter IFQ fishery.

The Council has decided to go forward with the IFQ process and submitted the program for review by NMFS in May 2003. Revisions in the proposed IFQ program are expected based on the NMFS review. Assuming that the Secretary of Commerce approves the regulations, the IFQ program could be in effect as soon as 2007. The Council is expected to form an IFQ Implementation Committee to provide advice on development of the IFQ regulations. This committee is expected to be formed in 2004.

Localized Depletion

In their report to the IPHC, ADF&G creel staff concluded that while regionwide halibut harvest was increasing, localized depletion of halibut stocks was occurring in areas where: 1) fishing effort is high; 2) local productive fishing areas

Table 11.—Marine charter logbook sportfishing effort and harvest for Southeast Alaska, 2003.

Mail survey area	Client angler-days ^a		Harvests of important species					
	Salmon	Bottomfish	Chinook salmon	Coho salmon	Pink salmon	Pacific halibut	Lingcod	Rockfish
Ketchikan	24,046	5,941	6,254	28,666	33,178	n/a	172	5,741
Prince of Wales I.	21,974	14,329	8,750	76,310	15,227	n/a	1,311	12,936
Petersburg/Wrangell	2,267	2,872	905	3,434	967	n/a	33	522
Sitka ^b	35,209	22,749	21,286	74,431	6,897	n/a	2,711	15,709
Juneau	10,738	5,115	2,505	9,748	4,875	n/a	56	3,515
Haines/Skagway	3,643	563	1,713	82	106	n/a	0	6
Glacier Bay	7,427	7,929	1,912	9,987	3,102	n/a	493	3,768
Yakutat	1,459	2,140	242	3,153	91	n/a	1037	1,433
Total	107,898	61,638	43,567	205,810	64,443	n/a	5,813	43,630
Change from 2002	2%	12%	-3%	34%	18%	n/a	33%	19%

^a Client angler-days for salmon and bottomfish should not be summed because many anglers fish for both types of fish on the same trip. Summing across the two types of fisheries will produce an overestimate of total client angler-days fished.

^b The northern boundaries between Sitka and Glacier Bay SWHS areas were revised in 2000 so that the size of the Glacier Bay area was significantly increased.

for halibut are limited; and 3) little productive area is left for effort to redistribute once resources in primary areas have been exhausted (White and Jaenicke *Unpublished*). Juneau is one area of concern. In 2001 and 2002 halibut harvest and bottomfishing effort reached record low levels. The amount of bottomfishing effort near Juneau has declined 41% since 1988, while effort farther away from Juneau increased 155%.

Halibut Subsistence

Federal regulations to formally authorize the Alaska subsistence halibut fishery were adopted by the Secretary of Commerce and published in the federal register on April 15, 2003. These new regulations (50 CFR Parts 300.600 and 679) became effective on May 15, 2003.

Eligible subsistence users include: 1) residents of rural communities with customary and traditional uses of halibut; and 2) members of federally recognized Alaska Native Tribes with customary and traditional uses of halibut. Legal subsistence gear is limited to spears or longline and hand-held gear with not more than 30 hooks. The daily bag limit in Southeast Alaska is 20 halibut. Subsistence halibut fishing is legal in all areas of Southeast Alaska except the Juneau and Ketchikan “non-rural” areas.

Anyone wishing to engage in subsistence halibut fishing must obtain a subsistence halibut

registration certificate (SHARC). A SHARC issued to a rural resident expires after 2 years from the date of issue. SHARCs issued to Alaska Native tribal members are good for 4 years from the date of issue. As of March 8, 2004, a total of 11,924 permits had been issued statewide (6,178 to rural residents and 5,746 to tribal members). Of this total, 68% of the rural permits and 54% of the tribal permits were issued in Southeast Alaska. No harvest data are currently available; however ADF&G, Subsistence Division, is conducting a mail survey of all individuals who received a SHARC in 2003. NMFS requested ADF&G perform this survey because of the Division of Subsistence’s experience in performing subsistence research.

An issue related to bycatch of rockfish and lingcod occurred during the 2003 subsistence fishery. A federal officer in Sitka reportedly told subsistence halibut fishermen that it was legal for them to keep other species, such as lingcod and rockfish. The department position is that other species harvested using longline gear can be retained under state personal use regulations, but non-target species harvested in numbers above the sport bag limit using hook and line must be released.

During the October 2003 meeting the Council took action on several issues affecting Southeast halibut subsistence fisheries: 1) they reduced the

amount of gear and halibut allowed on a vessel to 30 hooks and 20 halibut in area 2C; 2) proxy fishing and stacking of gear would not be allowed in area 2C; 3) because of these additional restrictions, a Community Harvest Permit (CHP) would be developed for area 2C, with the exception of the Sitka LAMP area; 4) longline fishing would be prohibited within a 4 nautical mile radius south of Low Island (within the Sitka LAMP); and 5) a ceremonial, cultural, or educational permit system would be developed for eligible Alaska Native tribes. These permits would be limited to a harvest of 25 fish. These regulatory changes were submitted to the Secretary of Commerce and it was anticipated that publication of the new rule to incorporate these changes would occur before the end of 2003 and the regulations would become effective in 2004.

The Council rescheduled a proposal to the October 2004 meeting that would restrict the subsistence fishery in the Sitka LAMP area as follows: 9/1 to 5/31–30 hooks per vessel, power hauling allowed, 10 halibut/day/vessel; and 6/1 to 8/31–15 hooks per vessel, no power hauling, no proxy, no stacking, and 5 halibut/day/vessel. In addition, the Council initiated new analyses of the following regulation changes to occur during 2004: 1) possession limits of none or 2 daily bag limits; 2) allow or disallow use of charter vessels for subsistence halibut fishing; and 3) revise the customary trade provision from \$400 to \$100 or no cash trade allowed.

Creel Sampling for Halibut

In 2003 NMFS provided the SE Region with \$153,000 to sample halibut sport fisheries. With these funds ADF&G extended creel sampling into three new ports: Gustavus, Elfin Cove, and Yakutat. In addition creel sampling time was extended in Petersburg and Craig. Creel personnel concentrated on sampling halibut for size and determining catch rate information.

FEDERAL SUBSISTENCE MANAGEMENT

Federal Subsistence Board Action

The Federal Subsistence Board (FSB) published 27 regulatory proposals to change

federal subsistence regulations for the federal 2003 regulatory year; seven proposals were specific to Southeast. The Southeast Regional Advisory Council met September 30–October 2, 2002 in Hoonah to deliberate each proposal, and on December 17–19, the FSB acted on them as follows:

- Proposal FP03-20 sought to close all fresh waters and a portion of the marine waters near the mouth of Redoubt Lake and increase the harvest limit for sockeye salmon. The Board rejected the portion of the proposal that sought to extend federal jurisdiction into marine waters and close the fresh waters to non-federally qualified subsistence users. They deferred the decision on increasing the harvest limit until after the Board acted on a proposal to develop an escapement goal and management plan for the Redoubt Lake fisheries. The deferred component of the proposal was to be taken up during the 2003–2004 Federal Board meeting.
- A proposal (FP03-21) to allow use of bait year-round for coho salmon was rejected. State and federal staffs as well as the RAC opposed this proposal.
- Proposals FP03-22-26 sought to modify steelhead regulations on Prince of Wales Island to provide additional subsistence harvest opportunity. The federal board adopted a modified regulation that allowed additional harvest opportunity in the form of both a winter and spring steelhead fishery. The winter steelhead fishery will occur December 1 through February 28/29 with a 2 fish seasonal household limit and a 100 fish harvest cap for Prince of Wales Island. The summer fishery will be open March 1 through May 31. The harvest limit is 5 fish per household and the seasonal harvest cap is 600 fish minus the number taken in the winter fishery. Both fisheries require a permit that must be returned within 15 days of the close of the season. The local manager in consultation with ADF&G will determine other permit conditions and systems to receive special protection.

ENHANCEMENT

In 2003, over 440 million fish were released by hatcheries in Southeast Alaska (Table 12). Releases of Chinook and coho salmon provide the primary benefit to sport fisheries. Tables 13 and 14 provide the estimated harvest of Chinook and coho salmon by the various sport and commercial fisheries in Southeast Alaska (Farrington 2004). Over the past five years, hatchery releases of Chinook salmon have remained fairly stable, ranging from 5.4 to 7.4 million smolts annually, with about 7.2 million Chinook salmon smolts being released in 2003 by hatcheries in Southeast Alaska.

All enhancement activities in Southeast Alaska are conducted by private nonprofit hatcheries. Crystal Lake hatchery is a Sport Fish Division facility, but the Southern Southeast Regional Aquaculture Association (SSRAA) has operated the hatchery under contract since July 1, 2000. Via this contract ADF&G provides approximately one third of the hatchery funding, SSRAA provides one third of the funding, and the Southeast Sustainable Salmon Fund (SSSF) provides the other third. The final year of SSSF funding will be FY05. Thereafter, SSRAA will be responsible for providing the additional funding.

Sport Fish Division also provides financial support for Chinook releases conducted by Douglas Island Pink and Chum, Inc. (DIPAC) in Juneau, SSRAA in the Ketchikan area, and coho salmon releases at Crystal Lake Hatchery. In total, Sport Fish funding accounted for 1.3 million Chinook salmon smolts released in Southeast Alaska (about 18% of the total number of Chinook salmon released in SE). The release sites funded by Sport Fish Division are selected to provide the maximum benefit to the sport fishery. The percentage of Alaska hatchery fish harvested by the sport fishery in non-terminal fisheries during the past five years in Juneau, Petersburg, and Ketchikan has averaged 55%, 28% and 55%, respectively. Harvest of Alaska hatchery produced king salmon in other ports has averaged less than 15%. In 2003, the SE sport fishery harvested 18,122 Alaska hatchery produced Chinook salmon, of which 8,631 (48%) were produced using Sport Fish Division funding.

In 2003, the Northern Southeast Regional Aquaculture Association (NSRAA) requested that Sport Fish Division provide funding to support their Chinook and coho enhancement activities at Hidden Falls and Medvejie hatcheries. In addition, several charter operators sent letters and the Sitka City Council passed a resolution requesting Sport Fish funding for NSRAA. While agreeing that NSRAA's Chinook and coho salmon are harvested by sport fisheries, Sport Fish Division declined to provide funding for their enhancement programs. The rationale was that harvest opportunity for Chinook salmon in the Sitka area is far better than in the rest of the region, even if all enhancement activities were curtailed. Therefore, it did not make sense to shift limited enhancement funding from areas, such as Juneau, Ketchikan, and Petersburg where the Alaska hatchery contribution is very important to maintaining an adequate fishery.

Many Chinook salmon taken in Southeast Alaska originate from hatcheries in British Columbia, Washington, and Oregon. Preliminary estimates are that 46% of the total hatchery-produced fish caught by the sport fishery came from non-Alaska hatcheries. The majority of these fish (92%) were harvested in Sitka and Craig. Few non-Alaska hatchery coho salmon are harvested in SE Alaska. In 2003, less than 0.8% of the SE Alaska sport harvest of coho salmon came from non-Alaska hatcheries. Detailed estimates of hatchery contributions for Alaskan and non-Alaskan stocks taken by marine boat sport fisheries appear in Wendt and Jaenicke (*In prep*).

AREA SPECIFIC PROGRAMS, ACTIONS, AND ISSUES

KETCHIKAN AREA

The Ketchikan management area includes all freshwater and saltwater systems from the middle of the Cleveland Peninsula south to the Alaska/Canada border in Dixon Entrance (Figure 10). This area includes the communities of Ketchikan, Metlakatla, Meyers Chuck, and Hyder, and numerous islands, the largest of which are Revillagigedo, Annette, and Gravina. The major

Table 12.—Southeast Alaska hatchery releases in 2003, in millions of fish.

Operator	Hatchery/Location	Pink	Chum	Coho	Chinook	Sockeye	Other	Total
SSRAA	Whitman Lake				0.7			0.7
	Kendrick Bay		10.63					10.63
	Nakat Inlet		8.5	0.31				8.8
	Anita Bay			0.22				0.22
	Neets Bay			3.13				3.13
	Long Lake				0.26			0.26
	Neets Bay		39.03	2.08				41.1
	Nakat Inlet							0
	Anita Bay		5.41					5.41
	Burnett Inlet				0.25		0.04	0.29
	Hugh Smith Lake						0.42	0.42
	Neck Lake/Creek				1.7		0.36	2.06
	Crystal Lake				0.18	0.73		0.91
	Neets Bay					0.52		0.52
	Anita Bay					0.41		0.41
NSRAA	Hidden Falls		38.79	2.02	1.5			42.31
	Takatz Bay		36.63					36.63
	Medvejie	0.27	6.8	0.01	1.76			8.84
	Deep Inlet		41.41					41.41
	Deer Lake			2.47				2.47
	Shamrock Bay			0.22				0.22
	Haines projects		0.71					0.71
AKI	Port Armstrong	83.47		1.33	0.11			84.91
DIPAC	Macaulay		34.8	0.78	0.12			35.71
	Amalga Harbor		34.88					34.88
	Boat Harbor		12.22					12.22
	Limestone Inlet		14					14
	Skagway				0.06			0.06
	Fish Cr/Auke Bay/Twin L			0.01	0.13			0.14
	Snettisham						5.82	5.82
	Sweetheart Lake						0.53	0.53
	Tahltn/Tuya Lakes						3.75	3.75
Tatsamenie Lake						1.35	1.35	
KTHC	Deer Mountain			0.05	0.1		0.04	0.15
KNFC	Gunnuk Creek		6.56					6.56
	Southeast Cove		27.66					27.66
SJC	Sheldon Jackson	0.8	0.18	0	0			0.98
MIC	Tamgas Creek				0.59			0.59
POWHA	Klawock			2.91		0.36		3.27
NMFS	Little Port Walter				0.19		0.01	0.2
		84.53	318.2	17.67	7.17	12.62	0.05	440.22

marine sport fisheries in the Ketchikan area are for Chinook salmon, coho salmon, pink salmon, and bottomfish (Pacific halibut, rockfish, and lingcod). Major freshwater sport fisheries include steelhead, cutthroat trout, Dolly Varden, coho, pink, and sockeye salmon. Permanent Sport Fish management staff consists of a fishery biologist III, Stephen Hoffman, and administrative assistant III, Jodi Goffinet, both stationed in Ketchikan.

Local Management and Research Programs

Marine Creel

The 2003 season marked the twelfth year of expanded marine creel surveys in the Ketchikan area. Four seasonal technicians were employed between late April and the end of September to interview anglers at major harbors and boat launches for harvest information and collection of coded wire tag (CWT) data. Estimates generated from this study indicated that anglers harvested 7,706 Chinook salmon; 38,499 coho salmon; 34,454 pink salmon; 2,903 chum salmon; 77 sockeye salmon; 7,138 Pacific halibut; 415 lingcod; and 7,126 rockfish during 2003 (*Wendt and Jaenicke In prep*). In addition, local anglers harvested 6,055 Dungeness crab and 158,520 shrimp. Overall, Chinook, pink, and coho salmon, rockfish, Dungeness crab, and shrimp harvests were above the past 5-year average while chum and sockeye salmon harvests were below the 5-year average.

Salmon Research

Two major salmon research programs were active in the Ketchikan area in 2003. Chinook salmon research entailed inserting coded wire tags (CWTs) into juvenile Chinook salmon prior to leaving the Unuk River, adult escapement surveys, and adult mark-recapture studies in this drainage. The CWT studies were undertaken to determine fisheries interceptions and exploitation. Escapement surveys via helicopter to monitor long-term trends, and mark-recapture studies to estimate total escapement were conducted. Coho salmon research on the Unuk River included marking of juvenile coho salmon with CWTs to determine fisheries interceptions, adult escapement surveys via helicopter for trend

monitoring and mark-recapture studies of returning adults to estimate total escapement into the drainage. Similar studies on king and coho salmon were conducted in the Chickamin River drainage in 2003.

Trout Research

No trout research occurred in this area in 2003.

Management Actions

Ketchikan Creek

Ketchikan Creek is closed to sport fishing for all species from May 16 through September 14, by regulation. A below average return of hatchery Chinook and coho salmon to the Deer Mountain hatchery prevented an early opening of Ketchikan Creek despite an above average wild pink salmon return. Protection of Chinook and coho salmon brood stock drove the decision not to open this creek early.

Actions taken by the Alaska Board of Fisheries (Board) in the spring of 2003 identified Ketchikan Creek as one of two streams in the region (the Klawock River on Prince of Wales Island is the second stream) where retention of hatchery-produced steelhead is allowed. The limit for hatchery steelhead identified by a missing adipose fin is 2 per day, no minimum size limit or annual bag limit. Adoption of this regulation by the Board came in response to a proposal submitted by the department, which eliminated the regionwide regulation that permitted additional harvest of hatchery steelhead and legalized the supplemental hatchery steelhead harvest only in the streams that have these fish in SE Alaska.

Pink Salmon

The pink salmon bag limit in fresh and salt water located in Southeast Alaska, including the Ketchikan area, was increased to 12 fish per day and 24 in possession from July 18 through October 31, 2003. Above average returns of wild stock pink salmon (25% or higher than the escapement goal) allowed expansion of limits for this species by authority granted to the department by the Board. Emergency Order 1-27-03 increased the pink salmon bag and possession limits in most fresh and all saltwater areas during this time period. Evaluation of this emergency order will occur once the SWHS data for 2003 is available.

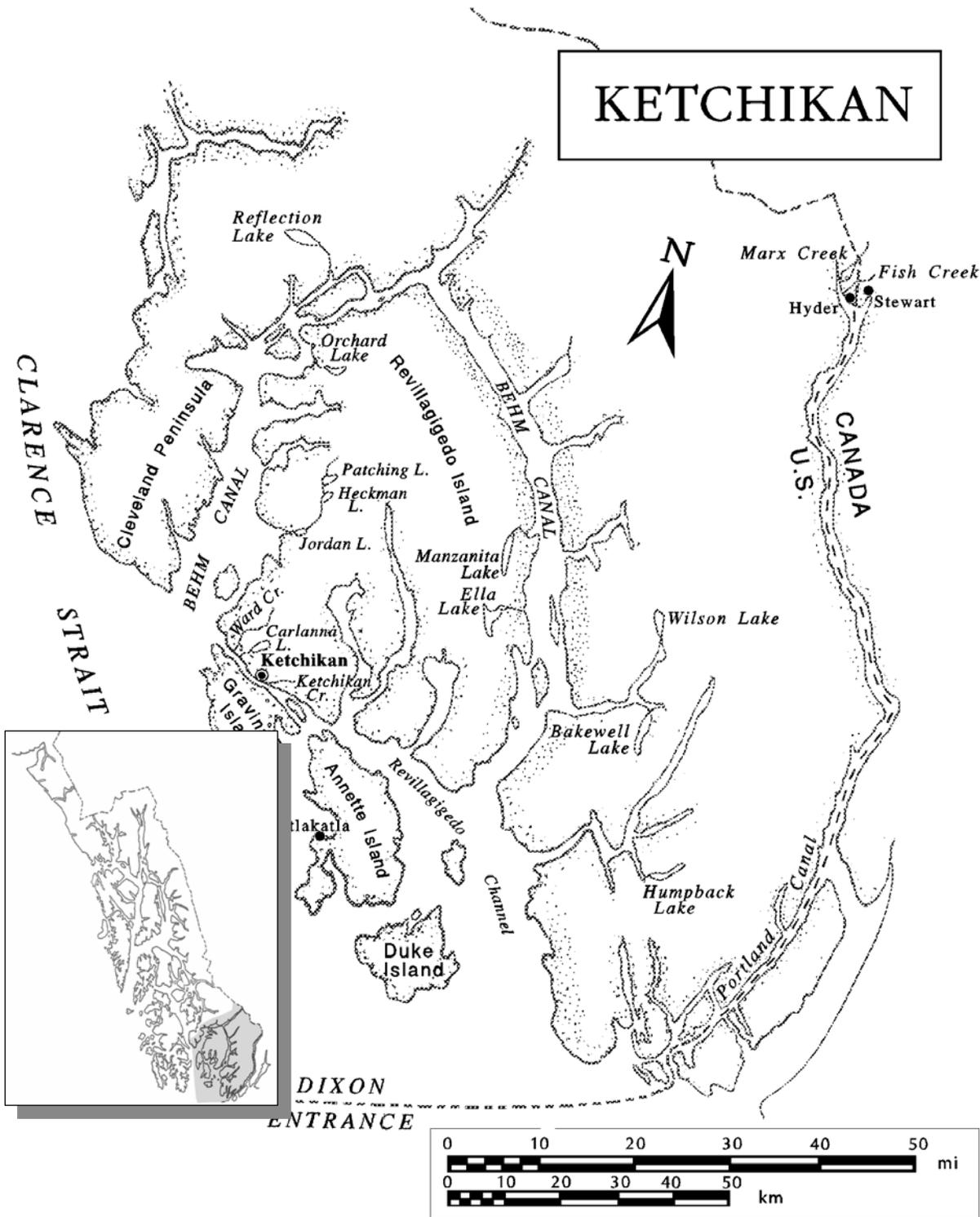


Figure 10.—Map of the Ketchikan Management Area with inset of Southeast Alaska.

Table 13.—Estimated Chinook salmon returns to Southeast Alaska hatcheries in 2003, including common property harvest, as reported by operators.

Operator	Location	Seine	Gillnet	Troll	Sport	Other	Brood	Recovery	Escapement	Total
SSRAA	Whitman Lake	120	140	5,700	2,180	7,426	999		2,500	19,065
	Earl West Cove	390	6,260	670	240					7,560
	Neets Bay	380	280	3,240	1,870	350		6,350		12,470
ADF&G	Crystal Lake Hatchery	60	530	520	4,590	534				6,234
NSRAA	Medvejie	966	922	9,387	3,140	2,845	1,609	30,045		48,914
	Hidden Falls	4,648	15	6,313	640	4,475	837	12,066		28,994
BCF	Burro Creek									0
DIPAC	Macaulay	15	522	543	5,415	1,295	1,024	177	198	9,189
KTHC	Deer Mountain Hatchery	569	42	263		76	78		215	1,243
SJC	Sitka			59					73	132
MIC	Tamgas Creek*									9,029
NOAA	Little Port Walter	37	9	697	54	1,384	302			2,483
	Total	7,185	8,720	27,392	18,129	18,385	4,849	48,638	2,986	145,313

* The hatchery operator reported the total return but did not break out the return by user group.

Table 14.—Estimated coho salmon returns to Southeast Alaska hatcheries in 2003, including common property harvest, as reported by operators.

Operator	Location	Seine	Gillnet	Troll	Sport	Other	Brood	Cost		Total
								Recovery	Escapement	
SSRAA	Whitman Lake	2,160	6,600	11,070	2,160	2,838	2,864			27,692
	Anita Bay	300	9,400	9,100	1,300					20,100
	Nakat	1,350	12,200	8,600	1,150					23,300
	Neets Bay	24,100	84,900	104,120	20,100	6,900	160	56,900		297,180
	Burnett Inlet	4,600	3,300	1,600	1,100	3,300	2,400	14,400		30,700
	Neck Lake	10,900	27,000	6,900	6,700			50,400	3,500	105,400
	Crystal Lake Hatchery	400	1,400	1,100	4,000	1,280	135			8,315
NSRAA	Medvejie	145	2	489	235	244	234			1,349
	Deer Lake	1,439		13,896	1,767	1,541		34,075		52,718
	Shamrock Cove	22		5,432	1,488	400				7,342
	Hidden Falls	8,644	195	38,828	3,190	6,776	2,844	140,908	4,000	205,385
	Patterson Bay	71		295	37				400	803
AKI	Port Armstrong	2,330		19,890	951	15,420	2,494	25,270		66,355
KNFC	Gunnuk Creek	9	191	93	11		304			608
DIPAC	Macaulay Sheep Creek	2,887	3,608	11,188	14,869	2,556	591	48,914		84,613 0
KTHC	Deer Mountain	962	652	415	909	519	124	310	1,000	4,891
SJC	Sitka			1,959		3				1,962
BCF	Burro Creek									0
POWHA	Klawock Hatchery	11,365	44	28,037	6,407	4,919	1,859	17,543	5,997	76,171
MIC	Tamgas Creek*									80,000
NMFS	Auke Creek									0
		71,684	149,492	263,012	66,374	46,696	14,009	388,720	14,897	1,094,884

* The hatchery operator reported the total return but did not break out the return by user group.

Sockeye and Chum Salmon

The sockeye and chum salmon bag and possession limits in Ketchikan fresh and saltwater areas were maintained at 6 per day and 12 in possession. Below average to average sockeye and chum salmon returns precluded expansion of sport fish bag limits.

Chinook Salmon

The Chinook salmon bag and possession limit was increased in two terminal fishery areas, Mountain Point and Neets Bay (Figure 11), to harvest surplus hatchery produced fish from June 14 through July 31, 2003 (E.O. 1-15-03). The bag and possession limit was increased to 12 king salmon of any size. In addition, the department implemented a personal use gillnet fishery for Alaskan residents in the Herring Cove terminal harvest area (Figure 12) seven days per week between July 8 and July 31 (E.O. 1-19-03). This fishery was opened to harvest surplus Chinook salmon returning to the Whitman Lake hatchery, operated by Southern Southeast Regional Aquaculture Association (SRAA), located on Herring Cove Creek. Drift gillnets 60 feet or less in length were allowed with a limit of 50 Chinook salmon of any size. Personal use permits returned to date indicate a total of 38 king salmon were harvested by three permit holders. Preliminary creel survey data indicates that 3,585 Chinook salmon of Alaskan hatchery origin were harvested in the Ketchikan sport fishery; the majority were taken within the boundary of the terminal harvest area.

Surveys

Salmon

Chinook salmon escapement surveys were conducted by helicopter and/or foot on several area index streams to obtain yearly trend comparisons (Table 15). Escapement surveys in Ketchikan area Chinook salmon index streams indicated escapements were down on three streams and up on one stream. Survey counts on the Chickamin and Blossom Rivers were slightly lower than 2002 while the Keta River was down substantially from the previous year. The Blossom River was the only system that did not reach its escapement goal range in 2003. Escapement to the Unuk River increased considerably from 2002 and

was well within the escapement goal range for returns to this stream.

Helicopter/foot/weir escapement surveys were also conducted on 16 of 17 coho salmon index streams in the Ketchikan area (Table 16). Coho salmon escapement counts in general were above the 1999–2003 average in 10 of the index streams and below average in six of these streams.

Steelhead

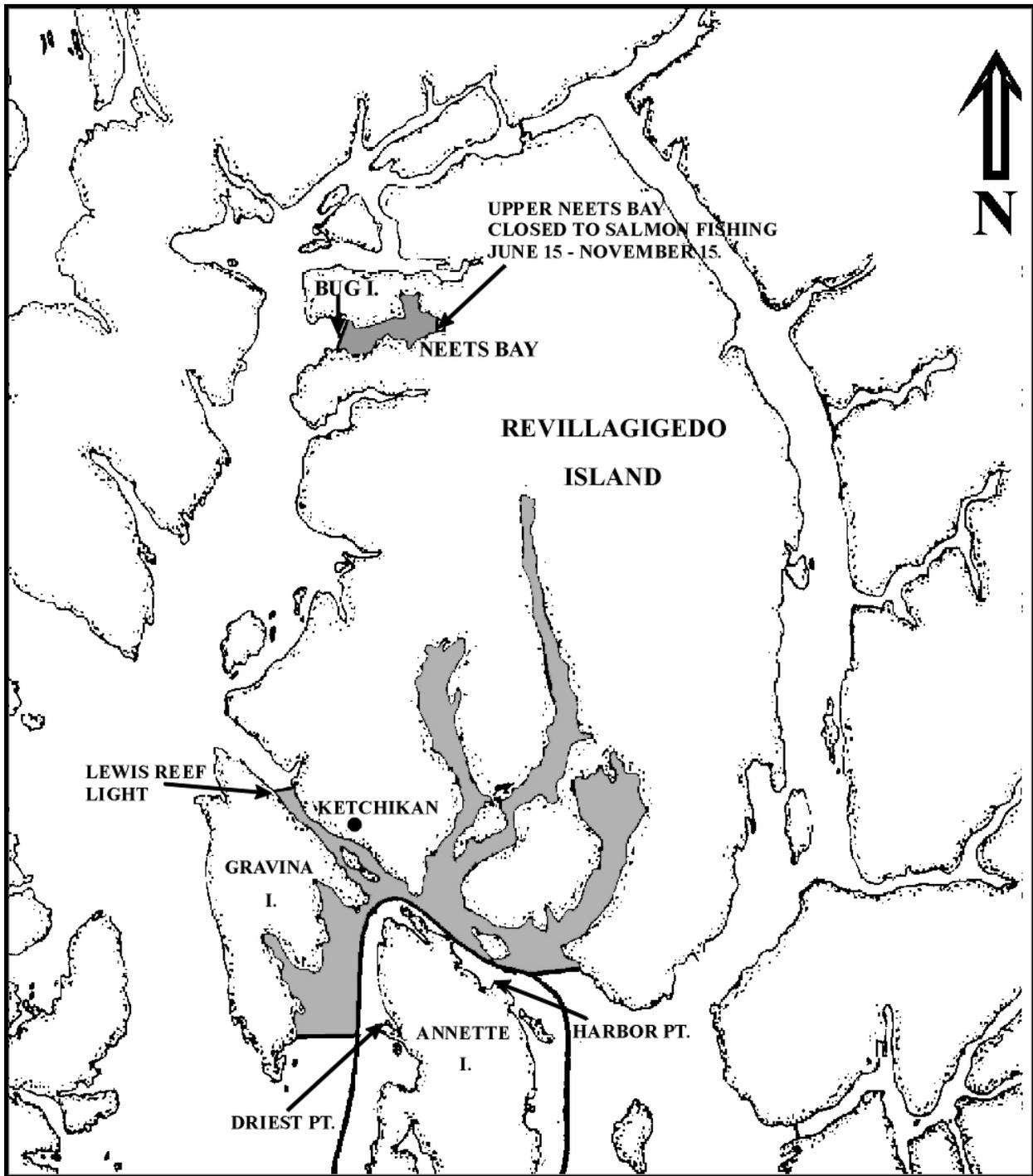
Research conducted on steelhead in the Ketchikan area in 2003 consisted of repetitive snorkel surveys of adult escapement in five index streams. The counts are used to track escapement trends in area streams for any future inseason or Board actions (Table 17). Peak survey counts for 2003 in all five of the index streams showed a general increase from 2002 and earlier totals. Since snorkel surveys count a higher percentage of the total escapement, it can be misleading to compare 2003 snorkel survey data to foot counts made prior to 1997.

Enhancement

Chinook Salmon

This was the eighth year of a Cooperative Agreement (01-078) between ADF&G, Division of Sport Fish, and SSRAA to release Chinook salmon smolts at their Neets Bay and Whitman Lake hatchery facilities. The goal of this agreement is to jointly finance the release of 700,000 Chinook salmon smolts at Neets Bay (250,000 from SSRAA plus 450,000 from the Division's Crystal Lake Hatchery in Petersburg) and 750,000 at Whitman Lake (SSRAA produced fish) to enhance local sport and commercial fisheries. In 2003, 650,000 smolts were released at Neets Bay and 750,000 at Whitman Lake. Adult returns from these releases will begin in the year 2005 when 2 ocean adults (\cong 28 inches in length) will return followed by increased returns of 3-ocean fish in 2006, 4-ocean in 2007, and 5-ocean in 2008. Evaluation of this program is conducted as part of the local marine creel census program. In 2003, the releases from prior years contributed 68% of the hatchery Chinook harvest and 38% of the overall Chinook harvest in the Ketchikan sport fishery.

In addition to the Chinook salmon releases from this project, the Deer Mountain hatchery owned



■ AREA OPEN TO 12 KING SALMON OF ANY SIZE
FROM JUNE 14 THROUGH JULY 31, 2003.

Figure 11.—Mountain Point and Neets Bay terminal sport fishery areas, 2003.

and operated by Ketchikan Indian Corporation (KIC) released 133,000 Chinook salmon smolts into Ketchikan Creek as part of its ongoing hatchery program. No divisional funds were used to pay for this project. Evaluation of this program is conducted as part of the local marine creel census program. In 2003, the releases from prior years contributed 8% of the hatchery Chinook harvest and 4% of the overall Chinook harvest in the Ketchikan sport fishery.

The Metlakatla Indian Corporation (MIC) operates the Tamgas Hatchery located on Annette Island Reserve south of Ketchikan. This facility releases 1.2 million Chinook smolts each year to enhance island fisheries. The releases from this facility are also a significant contributor to off-island fisheries such as the Ketchikan sport fishery. No divisional funds were used to fund this project. Evaluation of this program is conducted as part of the local marine dockside creel census program. In 2003, the releases from prior years contributed 13% of the hatchery Chinook harvest and 7% of the overall Chinook harvest in the Ketchikan sport fishery.

Coho and Chum Salmon

The Division is not involved in either coho or chum salmon enhancement in the Ketchikan area. SSRAA released 3.5 million coho salmon at its

Neets Bay and Whitman Lake facilities in 2003. Ketchikan Indian Corporation also funded releases of approximately 96,800 summer-run coho salmon in Ketchikan Creek, and 92,600 in Ward Lake. MIC's Tamgas hatchery on Annette Island released over 6.8 million coho salmon smolts paid for by MIC funding. All three of these programs benefit commercial and sport fisheries in the Ketchikan area. SSRAA also released 39.0 million summer-run and 15.0 million fall-run chum salmon at its Neets Bay facility in 2003. Chum returns from 1999–2000 releases were below average, and sport fishermen in the local area benefited very little from these releases.

Rainbow Trout and Steelhead

The Division is not involved in either rainbow trout or steelhead enhancement in the Ketchikan area other than to provide triploid rainbow trout eggs to KIC. These eggs are shipped to the Deer Mountain Hatchery where KIC raises them for release in the Ketchikan Creek City Park Kids Day fishery and to enhance the sport fisheries in Carlanna and Harriet Hunt lakes. In 2003, KIC released 2,100 triploid rainbows in the City Park Kids Fishing Day project, plus 21,500 in Harriet Hunt Lake and 5,800 fish in Carlanna Lake. KIC also released 8,900 steelhead fingerlings in Ketchikan Creek in 2003.

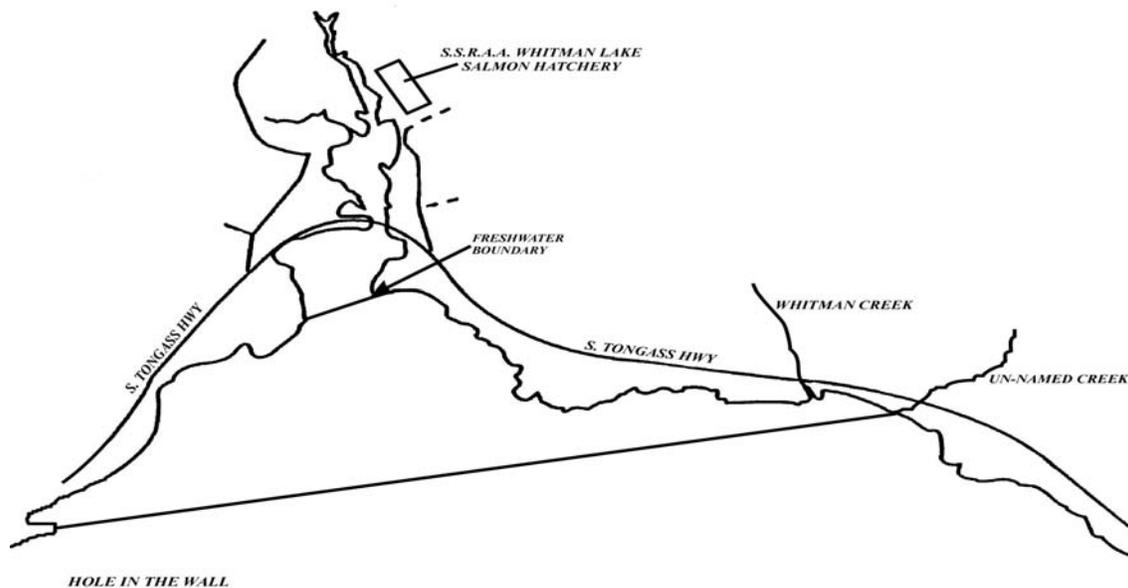


Figure 12.—Herring Cove personal use king salmon gillnet fishery, 2003.

Access Projects

In 2003, Ketchikan area staff were involved in review and/or development of two boat ramp projects, one transient float for yachts, and one fishing pier project within the Ketchikan Management Area (Table 18).

Other Issues

Hydroelectric Projects

Division staff reviewed and made field inspection trips to five different hydroelectric projects in 2003 (Table 19). Considerable staff time was spent reviewing these projects, attending interagency meetings, and working with consultant firms involved with these projects to ensure the applicants include adequate protection for the fishery resources found in these systems.

Timber Harvest

Logging activities continued to be planned or implemented in the Ketchikan area during 2003 (Table 20). Eight different timber harvest plans were reviewed and comments provided to Habitat Division and/or DNR staff concerning potential impacts on various freshwater sport fisheries.

Table 15.—Escapement survey peak counts of Chinook salmon within Ketchikan area index systems, 1988–2003.

Year	Blossom	Keta	Unuk	Chickamin
1988	384	575	1,746	786
1989	344	1,155	1,149	934
1990	257	606	591	564
1991	239	272	655	487
1992	150	217	874	346
1993	303	362	1,068	389
1994	161	306	711	388
1995	217	175	722	356
1996	220	297	1,167	422
1997	132	246	636	272
1998	91	106	840	391
1999	212	276	680	492
2000	231	300	1,341	801
2001	204	343	2,019	1,010
2002	224	411	899	1,013
2003	203	288	1,121	964
Lower Goal	250	250	650	450
Upper Goal	500	500	1,400	900

Federal Subsistence Management

The federal government officially asserted jurisdiction on federal lands in 2000. To date, Ketchikan area residents, with the exception of Saxman residents, are considered urban and therefore not eligible to participate under federal subsistence rules. Federal management of freshwater systems in the Ketchikan area in 2003 did not result in any restrictions on other user groups.

PRINCE OF WALES ISLAND AREA

The Prince of Wales Island (PWI) management area includes all freshwater systems draining Prince of Wales Island and a number of adjacent smaller islands (Figure 13). The major marine fisheries of the area are for Chinook salmon, coho salmon, pink salmon, and bottomfish (Pacific halibut, rockfish, and lingcod). Major freshwater sport fisheries include steelhead, cutthroat trout, Dolly Varden, coho salmon, pink salmon, and sockeye salmon. Permanent Sport Fish management staff consists of one fishery biologist II, Steven McCurdy, stationed in Craig. The current sport fish office is shared with the habitat division of The Department of Natural Resources and the commercial fish and wildlife divisions of ADF&G. All divisions share an administrative clerk III, Ann Marie Marble.

Local Management and Research Programs

Marine Catch Sampling

A marine coded wire tag (CWT) sampling project was operated for the tenth season on the west coast of PWI. Two technicians sampled harbors, boat launches, and lodges in Craig and Klawock from late April through mid-September to collect coded wire tag information from charter and non-charter anglers returning to port in these locations. Harvest estimates of the different species caught in marine waters off PWI are derived from the Statewide Harvest Survey (SWHS) and only inseason CWT and fishery performance data are collected by the technicians. The Chinook harvest was below average for the year and the coho harvest was above average (*Wendt and Jaenicke In prep*).

Table 16.—Escapement survey peak count data of coho salmon within the Ketchikan area, 1994–2003. Streams shown were surveyed at least 4 of the last 10 years, and distances surveyed or survey type vary between years on some streams.

Stream Name	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	5 yr Avg. (1999–2003)	10 yr Avg. (1994–2003)
Barrier Creek	175	220	230	N/S	50	25	72	15	70	57	48	92
Blossom River	775	800	829	1,143	1,004	598	1,354	1,561	1,359	1,940	1,362	1,000
Carroll Creek	475	400	240	140	24	425	275	173	270	0*		
Choca Creek	225	180	220	175	190	225	180	450	220	380	291	245
Eulachon River	755	435	383	420	460	657	600	929	1,105	875	833	662
Fish Creek (Hyder)	496	95	465	258	502	818	923	1229	2,094	801	1173	768
Grant Creek	220	94	92	30	130	127	94	110	138	17*	97	105
Herman Creek	265	250	94	75	94	75	135	80	88	242	124	140
Hugh Smith Creek	1,679	1,758	964	732	1,129	1,238	684	1580	3,260	1,517	1,656	1,454
Humpback Creek	560	82	440	32	256	520	102	506	2,004	214*	669	472
Humpy Creek	155	185	80	N/S	*	107	50	0	0	N/S	-	96
Indian Creek	560	600	570	100	304	356	380	1140	940	690	701	564
Keta River	1,100	1,155	1,506	571	1,169	1,895	1,619	422	1,368	1,934	1,448	1,274
King Creek	325	415	457	55	411	627	620	891	700	1,140	796	564
Klahini River	200	165	40	60	120	150	110	151	20	39	94	106
Marten River	2,205	1,385	1,924	759	1,961	1,518	1,421	1956	2,302	1,980	11,835	1,741
McDonald L	381	561	335	552	710	265	250	89	472	175*	250	379
Reflection L	116	42	312	N/S	71	N/S	N/S	N/S	N/S	N/S	-	135
Tombstone River	850	2,446	1,806	847	666	840	1,672	505	1,639	1,745	1,280	1,302
											Mean	

* Poor survey conditions or pre-peak escapement survey timing prevented making accurate peak escapement estimates.

Table 17.—Escapement peak counts for steelhead within Ketchikan area streams, 1995–2003. The 1995–1996 surveys were by foot while the 1997–2002 surveys were snorkel surveys.

Stream	1995	1996	1997	1998	1999	2000	2001	2002	2003
White River	77	42	84	86	60	38	48	37	77
Ketchikan Creek	16	42	48	47	19	15	24	5	60
Naha River	33	37	20	31	49	NS	NS	NS	NS
Ward Creek	NS ^a	NS	10	41	NS	NS	NS	NS	143
McDonald Lake	66	60	145	86	100	47	74	17	79
Humpback Creek	27	20	91	24	4	7	101	94	105

^a NS = not surveyed.

Table 18.—Access projects conducted within the Ketchikan area, 2003.

City/Borough	Project title	Amenities	Type ^a	Funding		Status
				Status	Cost	
Hyder	Boat Launch Improvements	Marine ramp, parking, float improvements.	B	FY 98	\$150,000	Completed
Prince of Wales Island	Hollis Boat ramp Improvements	Marine boat ramp reconstruction	B	FY 99	\$150,000	Completion date is April 2004
Ketchikan	Thomas Basin Fishing Pier	Fishing dock	N	FY99	\$100,000	On hold
Ketchikan	Thomas Basin Yacht Transient	Float	B	FY02	\$150,000	On hold

^a B = Boating, N = Non-boating

Salmon Research

2003 was the third year of operation of a coho salmon research project funded by the Southeast Alaska Sustainable Salmon Fund. The Chuck Creek project, located on Heceta Island is designed to be a full indicator stock for monitoring coho salmon stocks on the southern outside coast of Southeast Alaska. Components of this project included capturing coho salmon smolts and tagging them with CWTs, counting the number of returning adults past a weir each year, and estimating total smolt production, marine survival, and exploitation rates in marine commercial and sport fisheries.

The adult return of 2003 was the first year that adult coho that had been tagged as smolt (in the spring of 2002) returned to Chuck Creek and/or were harvested in marine fisheries. A total of 614 adult coho were counted past the weir in 2003, of which approximately 70% had been tagged as smolt with CWTs. An additional 206 adult coho bearing coded wire tags from Chuck Creek were sampled by ADF&G port samplers from the harvest of commercial and sport fisheries. In addition to data collected from adult coho, over 23,000 coho smolt were captured and tagged with CWTs as they emigrated from Chuck Creek in the spring of 2003. These smolt will be sampled as adults in the various fisheries and escapement in 2004. Data collected from harvest and escapement of Chuck Creek coho in 2003 will allow for very precise estimates of smolt abundance, marine survival, and exploitation rates that will be reported in a Fisheries Data Series report in 2004.

Management Actions

In 2003, two emergency orders were enacted specific to the PWI area. On June 10, 2003, Emergency Order 1-14-03 was issued, closing the sport fishery in a portion of Hatchery Creek (in the Sweetwater Lake drainage) to all sport fishing in order to protect a weak return of sockeye salmon. The area closed was adjacent to two waterfalls that are partial barriers to migrating sockeye salmon and the total distance closed was approximately 260 meters in length.

This action was taken after on-site observations of the sockeye run in Hatchery Creek indicated that the run size was small and may be insufficient to meet escapement needs. Both sport and personal use harvest of this stock has increased substantially in recent years, in part due to improved access to productive fishing areas provided by a recently constructed forest service board walk leading to a series of waterfalls on Hatchery Creek. Sockeye salmon are vulnerable to harvest at the base of these falls and this particular stock may currently be harvested at a rate that is unsustainable. A similar action was taken in 2002, when the entire watershed was closed to sockeye salmon fishing to protect a weak return of sockeye salmon.

The action taken in 2003 appeared to be more effective at protecting the sockeye return than the action in 2002 because it closed the area where the vast majority of the harvest occurs (the base of the falls), and it had little impact on other fisheries as it was only in effect for a short time period

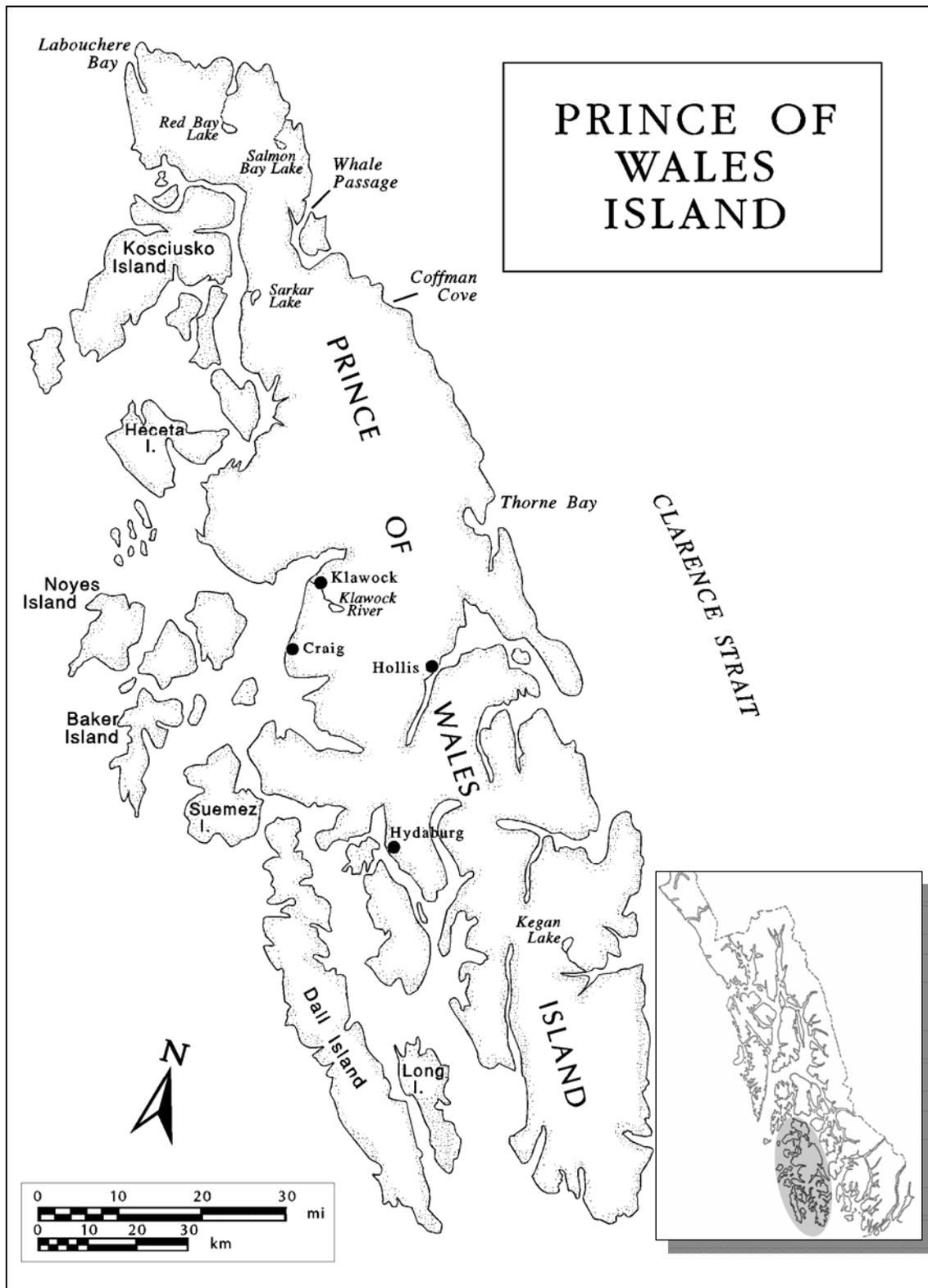


Figure 13.—Map of the Prince of Wales Island Management Area, with inset of Southeast Alaska.

Table 19.—Hydroelectric projects in the Ketchikan area, 2003.

Name	Status	Species of concern
Ketchikan Lakes	Re-licensed with state and federal stipulations. Mitigation consisting of rock boulder cluster placement in creek completed in consultation with ADF&G staff. In addition, a 5-foot high partial log barrier was removed 1/3 mile above KPU powerhouse.	All species of salmon; steelhead; rainbow, brook, and cutthroat trout; and Dolly Varden in lake.
Connell Lake	1 st stage consultation. ADF&G drafting study needs. On hold.	All species of salmon; steelhead; rainbow and cutthroat trout; Dolly Varden.
Whitman Lake	1 st and 2 nd stage consultation. ADF&G drafted study needs. Minimum instream flows below project recommended by staff and adopted by applicant.	Dolly Varden, cutthroat trout
Mahoney Lake	Currently licensed, awaiting construction, compliance monitoring. On hold by applicant as sales of power blocked by construction of Swan to Tyee Lake intertie.	Sockeye, coho, pink, and chum salmon; steelhead; rainbow and cutthroat trout. Arctic grayling in upper Mahoney Lake
Swan Lake	Currently licensed, fisheries monitoring studies under review. New fisheries population studies to be mandated when license renewal occurs or change in operation dictates new EA by the Corp of Engineers.	Dolly Varden, kokanee, cutthroat trout

when adult sockeye were present at the falls. Prior to the season the Division of Commercial Fisheries added restrictions to the personal use fishery permit by only allowing harvest 4 days a week and only in the month of June. The Division of Sport Fish will continue to monitor this run via on-site observations and work with the Division of Commercial Fisheries in this regard. The other emergency order enacted was E.O. 1-37-03, issued on September 18, 2003. This emergency order allowed for the use of bait while sport fishing in the Klawock River downstream of ADF&G regulatory markers on the outlet stream. It was enacted to increase the opportunity for sport anglers to catch hatchery produced coho salmon in excess of escapement and brood stock needs. It is unlikely that this action significantly affected sport harvest of coho salmon in the Klawock River.

Regionwide emergency orders also modified the PWI fishery in 2003. The king salmon bag limit was set at 2 per day 28" or larger for resident anglers, and 1 per day for nonresident anglers. It also established an annual limit of 3 fish for nonresidents. The lingcod sport fishery was modified by emergency order along the outer

coast of PWI. Lingcod bag limits were reduced to 1 fish per day for all anglers and a slot limit of 30" minimum and 40" maximum size was put in place for guided and nonresident anglers. The season was modified to extend from May 16 through June 15 and then reopened from August 16 through November 30. These actions were adopted in order to keep harvest levels within the guideline harvest levels for this area established by the Board.

The outcome of these actions will be evaluated when final SWHS results become available in fall, 2004.

Alaska Board of Fisheries

During the February 2003 meeting in Ketchikan, the Board changed the sportfishing regulations on the Karta River so that only single hooks are allowed year-round. This was in response to a proposal from the public that asked the Board to make the Karta River a fly-fishing only stream. The intent of the proposal was difficult to understand, but it appeared to address a perceived problem with snagging of steelhead with treble hooks on the Karta River. The new regulation went into effect in 2003.

Table 20.—Ketchikan area timber harvest plans, 2003.

Name	Status
Boundary Timber Sale	EA scoping underway
KRD Area Thinning Proposal	EA scoping underway
N. Revillagigedo Island	Timber harvest continuing
Upper Carroll Inlet	Timber sales released. Road construction in progress.
Sea Level–Thorne Arm	FEIS completed; sales being released
Licking Creek (Carroll Inlet)	DEIS out soon for review
Several DNR timber sales	In planning phase
Clover Passage (Cape Fox Corp.)	Road construction and logging completed

Escapement Surveys

Coho Salmon

Coho salmon escapements into five PWI streams were monitored by means of foot surveys (Table 21). Multiple surveys were conducted on “108” Creek, Shaheen Creek, Port St. Nicholas Creek, Maybeso Creek, and Harris River. In past years the Harris River and Maybeso Creeks have been surveyed from a helicopter near the time of peak counts.

Peak counts were extremely variable on POW streams in 2003, but were generally below average for most of the streams. The high peak counts on Shaheen and Maybeso Creeks were probably more related to survey conditions that were much better than most years (low, clear water and good light at the peak of coho abundance in the streams) rather than an actual increase in the escapement. The reason for the low count on Port St. Nichols Creek is unknown, but this stream is difficult to survey and fish are almost never observed except when on the spawning riffles. However, surveys of Port St. Nichols Creek were conducted near traditional

peak spawning times under good conditions so apparently there was a lack of fish in 2003.

Steelhead

Snorkel surveys to obtain peak spawner counts in two index streams (Harris River and Eagle Creek) were objectives of the PWI steelhead research project in 2003 (Table 22). Information derived from these surveys is used to monitor trends in area streams for any future in season or Alaska Board of Fisheries actions.

The Harris River peak count in 2003 (195 fish) was higher than the 5-year average. Survey conditions were excellent during the Harris River surveys (due to low, clear water) and a higher percentage of the total run was probably counted than in past years. Eagle Creek had a peak count of 95 fish. Again low, clear water during surveys of Eagle Creek likely resulted in a higher percentage of the 2003 return being counted during the snorkel surveys.

Enhancement

The department was not involved in enhancement on PWI in 2003. The Prince of Wales Island

Table 21.—Escapement survey peak counts (helicopter and foot) of coho salmon within Prince of Wales Island area streams, 1998–2003.

Stream name	1998	1999	2000	2001	2002	5 yr Avg.	2003
"108" Creek	242	163	151	301	759	323	100
Harris River	839 ^H	321 ^H	851 ^H	633	838	696	358
Maybeso Creek	81 ^H	183 ^H	186 ^H	62	360	174	260
Port. St Nicholas Creek	52	54	55	28	166	71	1
Shaheen Creek	153	155	135	25	157	125	226

^H = Helicopter

Table 22.—Escapement survey peak counts (snorkel) for steelhead trout within Prince of Wales Island area index streams, 1998–2003.

Index system	1998	1999	2000	2001	2002	5 yr Avg.	2003
Eagle Creek	56	118 ^a	82	NS	36	73	95
Harris River	156	192	79	100	188	143	195

NS = not surveyed

^a Eagle Creek closed to fishing due to low early snorkel counts and illegal harvest of steelhead early in the season during 1999.

Hatchery Association (POWHA), which operates the Klawock Hatchery, released both coho salmon smolts and sockeye salmon fry in 2003 into the Klawock watershed. Southern Southeast Regional Aquaculture Association (SSRAA) released 853,007 pre-smolt coho salmon into Neck Lake in the fall of 2002 (that smolted in spring 2003) along with 847,791 coho salmon smolt in the spring of 2003. All these coho are originally from Reflection Lake summer-run brood stock that will return to the outlet of Neck Lake in the summer of 2004. SSRAA also released 356,129 sockeye salmon smolts (originally McDonald Lake brood stock) into the outlet stream from Neck Lake in 2003. A total of 38,506 adult coho and 200 sockeye returned to Neck Lake in 2003 and were recovered in cost recovery operations by SSRAA. Anglers utilized coho returning to Neck Lake in both the outlet stream and in saltwater.

Unlike most areas of Southeast Alaska, no enhancement of Chinook salmon took place on PWI in 2003.

Access Projects

No access projects were conducted on POW in 2003. Sport fish staff identified the outlet of Neck Lake as a potential location for an access project as this is a very popular sport fishery for hatchery produced coho salmon. Access to this fishery would be greatly enhanced by construction of a simple trail down a steep embankment and across an intertidal area to the stream mouth.

Habitat Issues

Water Use Projects

PWI sport fish staff spent time in 2003 reviewing several operational and proposed projects on PWI. Staff time was spent conducting reviews of Black Bear Lake hydro operations, as well as the

proposed Three Mile Creek Klawock City Water project. Numerous inter-agency meetings concerning these projects were also attended.

Alaska Power and Telephone's Black Bear Lake hydro operation was an issue in 2003 due to extremely low flows in the summer. This hydro project produces power by siphoning water out of Black Bear Lake (a historically fishless high elevation lake that now contains a self-sustaining population of introduced rainbow trout), running it through a powerhouse, then spilling the water back into the stream channel at the top of anadromous habitat. Because AP&T is required to meet minimum instream flow requirements below the powerhouse as part of their Federal Energy Regulatory Commission (FERC) permit, they must pass water through their powerhouse when Black Bear Lake is not full and spilling water (a common occurrence in the summer) to meet this requirement. AP&T requested that minimum flow requirements be adjusted temporally in August because if they were to loose their siphon the powerhouse would be shut down and instream flows would be reduced to zero at the powerhouse tail race. ADF&G agreed with AP&T's request to FERC that this would be the best solution until fall rains occurred. By early September, fall rains occurred and instream flows were returned to normal.

The City of Klawock is in the process of developing a new water source from a tributary to Three Mile Creek (a major tributary to Klawock Lake). Discussions were held with the city, DNR and ADF&G staff to discuss agency concerns and decide on minimum flow requirements for this project to proceed. It appears that this project will have little or no negative impacts to anadromous fish habitat as long as adequate flows are maintained in the stream below the water intake point.

Federal Subsistence Management

Sport Fish Division staff continued to work with federal staff concerning federal subsistence regulations on PWI. Proposals to the Federal Subsistence Board (FSB) to liberalize subsistence harvest of steelhead were also discussed with federal staff. Liberalized subsistence limits for steelhead on PWI, passed by the FSB in December 2002, became effective as federal regulations beginning March 1, 2003. The federal board adopted a regulation that allowed additional harvest opportunity in the form of both a winter and spring steelhead fishery. The winter steelhead fishery will occur December 1 through February 28/29 with a 2 fish seasonal household limit and a 100 fish harvest cap for Prince of Wales Island. The summer fishery will be open March 1 through May 31. The harvest limit is 5 fish per household and the seasonal harvest cap is 600 fish minus the number taken in the winter fishery. Both fisheries require a permit that must be returned within 15 days of the close of the season. The federal regulation directs federal managers of this fishery to consult with ADF&G in determining permit conditions and systems to receive special protection.

Sport Fish Division (SFD) staff met with USFS staff in person prior to the spring steelhead season to discuss permit conditions and systems to receive special protection. USFS and SFD staffs expressed concern over impacts that additional harvest opportunity may have on small, road accessible steelhead runs, and SFD staff also expressed concern for small streams that were not accessible by road.

Federal staff did not fully agree with ADF&G recommendations concerning permit conditions and systems to receive special protections in 2003. The federal subsistence fishing permit for the spring steelhead fishery exempted 21 primarily road accessible systems from the new steelhead regulations; this compared to about 45 streams recommended for special protection by SFD. More conservative regulations for the 21 streams were implemented by permit and included a bag and annual limit of 2 steelhead, 36 inches or greater. Federal staff added two additional streams to the list of permit exemptions for the fall 2003 fishery.

Division of Sport Fish staff continues to have concerns about the sustainability of the subsistence steelhead fishery. SFD staff will continue to advise federal staff on these issues and on the status of steelhead stocks when given the opportunity.

PETERSBURG/WRANGELL AREA

The Petersburg/Wrangell management area includes the islands of Kuiu, Kupreanof, Mitkof, Zarembo, Etolin, and Wrangell. It also includes the portion of the mainland east to the border with British Columbia and from Cape Fanshaw south to Meyers Chuck on the Cleveland Peninsula (Figure 14). Most land lies within the Tongass National Forest; the remaining land is state and local government owned, with small parcels held in the private sector. Forested and glaciated mountains, areas of open muskeg, numerous islands, glacial fjords, tidal estuaries, and expansive alluvial river deltas make up the landscape. Dozens of streams and lakes are scattered throughout the area, and the 330-mile-long Stikine River, flowing out of British Columbia, empties into Eastern Passage just six miles north of Wrangell.

The area is lightly populated with five communities. Petersburg is the largest town with 3,300 residents. Paved and unpaved roads extend the length of Mitkof Island from Petersburg, and a number of forest roads provide additional access. A network of forest roads exists on adjacent Kupreanof Island, but fails to provide interconnection throughout the island. The city of Wrangell, located near the mouth of the Stikine River on Wrangell Island, has 2,500 residents and many miles of roads. Three other smaller communities include Kake (population 665) in northwestern Kupreanof Island, Meyers Chuck on the Cleveland Peninsula (population 50), and Kupreanof (population 50) directly across Wrangell Narrows from Petersburg, on Kupreanof Island. The local economy has historically been influenced by logging and commercial fishing, and more recently by tourism and visitor industries.

The area's major sport fisheries occur in marine waters and target salmon and bottomfish

(primarily Pacific halibut and rockfish *spp.*). All five species of Pacific salmon are seasonally available in area waters. Fresh water and estuarine sport fisheries target Chinook and coho salmon, steelhead, cutthroat trout, and Dolly Varden. Freshwater shoreline fishing for Chinook salmon is popular on Mitkof Island, unlike most other areas in SE Alaska.

Management and research activities are based at the Petersburg ADF&G office. Permanent staff in Petersburg includes one area management biologist, Doug Fleming, assisted by one Fish and Wildlife program technician, Mary Meucci. One administrative clerk, Kim Fisher, provides assistance at the Wrangell ADF&G Office and additional seasonal technicians operate remote field research projects and assist with local monitoring projects. Area staff responsibilities include local sport fisheries management and monitoring, conducting and overseeing fisheries research, and representing ADF&G's interests in habitat and access issues within the local communities. Other activities conducted from the Petersburg and Wrangell office include logistical support for salmon stock assessment studies on the Stikine River, maintaining fish passage at the local Falls Creek fish ladder, posting regulatory signs, and assisting local fishing derbies and other community programs, such as scouts and school programs.

Local Management and Research Programs

Coded Wire Tag Harvest Sampling

Since 1983 SFD has conducted a harvest monitoring program seasonally in Petersburg and Wrangell. The primary objectives of the program are to estimate Alaska hatchery Chinook salmon contributions and to track local catch rates for Chinook salmon and bottomfish in both Petersburg and Wrangell. In 2003, the program was conducted through mid-September to gather additional information on the coho salmon sport fishery.

In 2003, the dockside program produced an estimated harvest of 691 Chinook salmon in Petersburg, excluding sport harvests in the Wrangell Narrows Terminal Harvest Area (THA)

(Wendt and Jaenicke *In prep*). Alaska hatchery fish made up 14%, which was well below Petersburg's 5-year average of 28%. Harvest per unit effort (HPUE) declined by 31% from the 2002 level, but remained 3% higher than the 5-year average. In Wrangell, the 2003 harvest estimate was 2,115 fish; 13% were estimated from Alaska hatcheries, which was below the 5-year average of 18% for Wrangell. The 2003 harvest per unit effort was about 21% higher than in 2002, and 74% greater than the 5-year average. Crystal Lake and Neets Bay releases were the primary contributors to Petersburg fishery; Earl West Cove and Whitman Lake releases contributed to the Wrangell fishery.

Preliminary estimates of harvested coho salmon included 1,244 from Petersburg and 1,850 from Wrangell. Alaska hatchery fish accounted for 52% of the Petersburg harvest, and 32% of the Wrangell harvest. Neets Bay, Burnett Inlet, and Crystal Lake Hatchery releases contributed to Petersburg anglers, while Burnett Inlet and Whitman hatcheries were the chief sources in Wrangell. The Burnett Inlet summer-run coho, released at Neck Lake, have attracted attention by anglers in late June and early July. These salmon supplement anglers' catches at times between peak Chinook and peak coho seasons.

Chinook Salmon

Sport fisheries harvest mixed wild and hatchery Chinook salmon stocks during May to early June, and target Crystal Lake Hatchery returns as they peak near the end of June and early July in the Wrangell Narrows THA. A local winter sport fishery also occurs in the area and harvests feeder Chinook salmon.

Most sport fishery management effort is expended on Chinook salmon produced at Crystal Lake Hatchery (CLH), currently operated under a lease to the Southern Southeast Regional Aquaculture Association (SSRAA). Chinook at this hatchery are raised and released as smolts into Blind Slough on Mitkof Island, rear in Central Inside waters of SEAK and contribute to mixed stock commercial and sport fisheries under regionwide commercial and sport regulations. Upon their return migration, CLH Chinook salmon are targeted in Wrangell Narrows. Fishing in this area

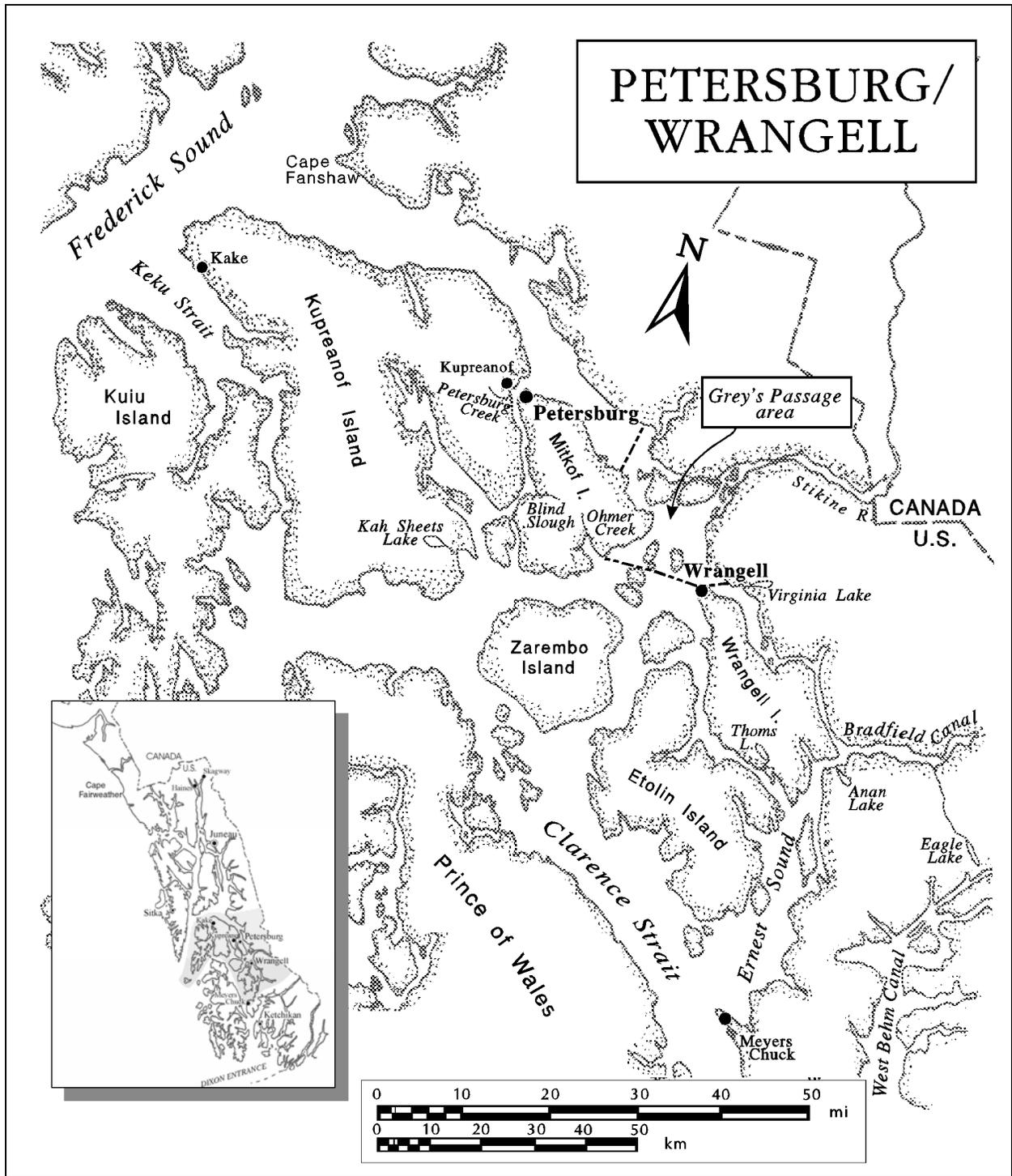


Figure 14.—Map of the Petersburg/Wrangell Management Area, with inset of Southeast Alaska.

is locally managed under the terms of the Wrangell Narrows-Blind Slough Terminal Harvest Area Management Plan (5 AAC 33.381) to achieve brood stock goals.

Beginning in 2001, CLH Chinook have been pen-imprinted and released annually in Anita Bay on Etolin Island, near Wrangell. Anita Bay Chinook salmon returns continued to be managed under regional regulations in 2003. It is expected that Wrangell area sport fishers will eventually benefit from these releases as adult returns build in the next few years.

Wild stocks of Chinook salmon play an important role to the marine sport fishery in Petersburg and Wrangell. The Stikine River is one of the two largest producers of Chinook salmon in northern British Columbia and Southeast Alaska (Pahlke 1995). Until the mid 1970s, directed commercial harvests occurred in a District 108 gillnet fishery when mature adults were returning to the Stikine River. In 1978 the Chinook salmon gillnet fishery was suspended to allow Stikine River Chinook stocks, believed to be depleted, to rebuild. At that time, the popular Greys Pass area was closed to sportfishing between mid-April and mid-June to protect Stikine bound Chinook. Findings from earlier studies, Transboundary Technical Committee (TTC) escapement goal analysis, and retrospective escapement analysis indicated that Stikine River Chinook have recovered; spawning escapements have met or exceeded the escapement goal range of 14,000 to 28,000 adult spawners in most years since 1985.

The 1999 Pacific Salmon Treaty agreement included a directive to develop abundance-based management by 2004. Models have been developed to provide pre- and inseason inriver run estimates for large Chinook (≥ 660 mm MEF) that will be utilized when directed fisheries return to harvest Stikine stocks. Recent Pacific Salmon Treaty negotiations have focused on harvest sharing arrangements.

Stikine River Chinook Salmon Stock Assessment

In 1981, the Chinook management and research program was formalized into a 15-year program designed to rebuild spawning escapements by 1995 to a level capable of supporting sustainable fisheries in Alaska and Canada. Initially, ADF&G

and the Canadian Department of Fisheries and Oceans (DFO) tracked rebuilding through counts of spawning Chinook in Andrew Creek near the mouth of the Stikine, and at a weir across the Little Tahltan River. In the mid 1990s a cooperative program between ADF&G, DFO, the Tahltan First Nation (TFN) and the U.S. National Marine Fisheries Service (NMFS) initiated pilot studies that showed mark-recapture experiments could be used to estimate escapement of Chinook salmon in the Stikine River.

Since 1996, a cooperative program between SFD, DFO, and the TFN has been conducted annually to estimate escapement and inriver harvest rates of Stikine River Chinook salmon. In 2003, immigrating Chinook salmon were caught between early May and mid-July with drift gillnets in the vicinity of Kakwan Point by SFD and DFO crews, tagged, and released as the first of two sampling events. During the second event, Chinook salmon were inspected for marks upriver in test (Chinook and sockeye), commercial, and aboriginal fisheries, and on the spawning grounds. A post-season, inriver mark-recapture estimate for 2003 is not available at this time, but approximately 2,000 large Chinook salmon were tagged and released during the first event.

Since 2000, a coded wire tagging program has been conducted annually to estimate smolt abundance, marine harvest, exploitation, and survival of Stikine River Chinook salmon. Presmolt Chinook salmon are captured in baited minnow traps and beach seines on the main stem Stikine River above the U.S./Canada border and the Iskut River. In 2003, a total of 19,927 smolt were tagged and released.

Coho Salmon

Wild coho salmon stocks provide for numerous angling opportunities in area salt and fresh waters. Coho salmon produced at CLH and released in Wrangell Narrows THA and Anita Bay provide additional opportunity for sport as well as commercial and personal use fisheries. In 2003, hatchery-produced coho salmon were harvested in these terminal areas under regionwide harvest limits. The 2003 escapement to the CLH was in excess of 1,400 coho. In 2003, personal use coho salmon fisheries were also permitted in Wrangell Narrows and near Anita Bay, although there were

no permits issued for Anita Bay. Coho are also harvested in subsistence fisheries. In 2003, subsistence fishers reported harvesting a total of 61 coho salmon, all from the Kake Area.

Stikine River Coho Salmon Stock Assessment

Stock assessment crews capture and tag coho at the Rock Island sampling site on the Stikine River, and recapture sampling occurs upstream in a British Columbia test fishery. A preliminary mark-recapture estimate indicated a total inriver escapement of 139,200 coho salmon (range 98,200 to 195,200 fish), well above the interim escapement goal range of 30,000 to 50,000 fish (K. Jensen, *personal communication*).

Slippery Creek Coho Salmon Stock Assessment

The Slippery Creek coho stock assessment program, initiated in 1999, continued in 2003. This cooperative project with the U.S. Forest Service is one of several coho stock assessment programs SFD has developed to provide timely data about run strength for inseason management. Between mid April and early June 2003, coho smolts were captured using a wolf trap, tagged with a CWT and adipose clipped. A total of 24,907 coho smolt were tagged and released bearing CWTs as the first of two sampling events (Table 23). After adult returns are counted and sampled in 2004, a Petersen model with Chapman's

modifications will be used to estimate the abundance of coho salmon smolt leaving freshwater in 2003.

In 2003, the project changed its adult monitoring location from the fish ladder to the outlet of Slippery Lake. A new picket weir was constructed in late July in Petersburg, then transported by boat and helicopter to Slippery Lake's outlet in early August. Adult coho escapement counts and sampling took place between August 15 and October 13. A total of 735 adult coho were captured, examined, sampled, and released upstream to continue their migration to spawning areas. At the weir, 379 adult coho bearing adipose clips (51.5% clipped) were recovered, indicating that a sufficient proportion of smolt were tagged in 2002 to yield ample precision for estimates associated with harvest and survival (Fleming 2005).

The escapement in 2003 was lower than in 2001 and 2002, but represented the median escapement level observed in five years of study. During the 2003 common property troll fishery, Slippery Creek's CWT contributions declined by only 17% from the 2002 fishery while observed escapements declined by 86% from 2002 (5,341 to 735 fish), which could indicate a downward shift in marine survival rate for this index stock. Late run timing observed for this stock in 2003 and lower inseason weir counts were consistent with those gauged at Chuck Creek, on Heceta Island. Fleming (2005) provides numbers on coho

Table 23.—Estimates for Slippery Creek coho salmon smolt abundance, marking, adult harvest, exploitation, marine survival, and weir escapement, 1997–2002.

Smolt/adult year	Est. smolt	CWT-marked		Adult harvest	Exploitation	Marine survival	Escapement
		smolt	% marked				
1997–1998 ^a	43,544	33,077	75.9%	2,932	82.3%	8.2%	632
1999–2000 ^b	31,015	12,956	36.3%	2,193	84.2%	8.4%	411
2000–2001 ^c	36,057	12,391	34.3%	2,839	50.6%	15.6%	2,772
2001–2002 ^d	42,533	19,193	45.2%	2,089	28.1%	17.5%	5,341
2002–2003 ^e	tbd	24,907	tbd	tbd	tbd	tbd	735
Averages ^f	38,287	19,404	48%	2,513	61%	12%	2,289

^a Beers (1999)

^b Beers (2001)

^c Beers (2003)

^d Fleming (2005)

^e Preliminary.

^f Average is only for 4 years with complete data.

salmon production from the lake, including smolt abundance, harvest, marine survival, exploitation rate, and total run.

Sockeye Salmon

Sockeye salmon populations are present across the Petersburg/Wrangell management area, but are not generally targeted in sport fisheries. Regionwide regulations apply to freshwater sockeye salmon populations in all locations except the Pillar Bay drainages, which have remained closed to sport harvest by federal regulation since December 2000. During 2002 and 2003, Division of Commercial Fisheries conducted a stock assessment project at Kutlaku Lake to estimate adult sockeye escapement, sockeye fry density, and limnological parameters for comparison to other SEAK sockeye producing lakes. Estimates are published in Conitz and Cartwright (2005).

Other sockeye salmon stock assessment projects were conducted by the Division of Commercial Fisheries in the Petersburg/Wrangell Management area, including joint U.S./Canada work along the Stikine River, and a project at Thoms Lake near Wrangell. Information from these projects is primarily used for management of commercial and personal use fisheries.

Trout

ADF&G staff did not conduct any trout research or management activities in the Petersburg/Wrangell Management Area during 2003.

Management Actions

Wrangell Narrows Terminal Harvest Area (THA)

The Wrangell Narrows THA encompasses waters in section 6A south of 56° 46' N. latitude (Martinsen's dock) and east of the longitude of the northern tip of Woewodski Island, plus the tidal and freshwaters of Blind Slough. Since 1997, sport and commercial fisheries within the THA have been managed in accordance with the Wrangell Narrows-Blind Slough Terminal Harvest Area Management Plan (5 AAC 33.381) to ensure 1,000 adult Chinook reach the Crystal Lake Hatchery (CLH) and are available for stock. The management plan allocates harvest between commercial and sport user groups using trigger

points based on a preseason forecast of adults entering the THA. The fishery is monitored via port sampling and on-site visits, and managed in season to ensure brood stock objectives are met

In 2003, a run of 4,926 Chinook salmon was forecast for the Wrangell Narrows THA. Because the forecast exceeded 4,000 fish, the plan called for a low level commercial fishery to harvest 50% of fish in excess of 4,000; the commercial harvest target was 465 fish. As directed by the plan, terminal waters of Wrangell Narrows and Blind Slough were opened for sport fishing by emergency order (E.O. 1-09-03) with an increased bag limit of 4 Chinook salmon 28 inches or larger and 8 Chinook salmon less than 28 inches in length from June 1 through July 31. By regulation, bait was allowed and salmon hooked other than in the mouth could be retained in Blind Slough beginning June 15.

In early June, local anglers and charter operators indicated that the return was late and possibly weak based on low catches. An analysis of cumulative CWT recovery patterns indicated the run was later than in recent years. However, atypical CWT recovery patterns were observed elsewhere in Southeast Alaska. The number of Chinook salmon sampled in the harvest monitoring project comprised approximately 85% of the recent four-year average (1999–2002).

A brief period of high sport fishing catch rates were realized during early July in the marine waters of the THA, but anglers interviewed in the shoreline fishery at Blind River Rapids indicated lower success than in recent years. Warm water temperatures in early to mid August created conditions where maturing Chinook were concentrating and vulnerable to shoreline anglers near the Blind River Rapids trail access. Staff posted signs, spoke with anglers on-site, and gave a local radio interview explaining how the current weather conditions and apparently weak adult return may result in a shortage of brood stock at the hatchery. Aerial and boat surveys failed to indicate significant numbers of Chinook salmon in Blind Slough, and by mid August low numbers of Chinook had entered Crystal Creek or the holding ponds at CLH. On August 14, 2003, the Chinook sport fishery in Blind Slough was closed to the harvest of Chinook salmon by emergency order

(E.O. 1-34-03) to conserve all remaining Chinook salmon for use as brood stock. In late August, periods of low water and high water temperatures (up to 25°C) led to a die-off among pre-spawning Chinook in Blind Slough. Foot surveys located approximately 100 dead Chinook in the rapids areas, but no dead Chinook in deeper areas with cooler water (15°–18° C). Very few additional Chinook salmon entered the holding ponds after the emergency order was issued. A significant shortage of brood stock occurred. The overall escapement estimated at Crystal Creek in 2003 was approximately 500 adult Chinook. However, eggs were collected from only 54 females. This egg take was later augmented with eggs taken from surplus Chinook salmon, also of Andrews Creek lineage, at Medvejie Hatchery. Total run estimates are not yet available for 2003, pending availability of Statewide Harvest data.

The management action did not significantly impair sportfishing opportunity at the Blind River Rapids, as the run of returning coho salmon was building. The commercial fishery opened June 1 and closed June 20, at which time a total of 543 Chinook had been harvested.

Surveys

The Petersburg/Wrangell Sport Fish staff is responsible for conducting annual adult steelhead surveys as part of the regional monitoring program, and monitoring Blind Slough Chinook salmon as needed to ensure adequate brood stock at CLH.

Four weekly snorkel surveys for adult steelhead were conducted in Steelhead Creek between April 22 and May 19, 2003. Snorkel surveys were not delayed by water and ice conditions. The peak count of 188 steelhead occurred on May 6, with excellent visibility (14 to 21 ft lateral extinction distance using secchi disk) and low water conditions (Table 24). The significant increase over 5-year average counts for this creek may be partially attributable to the ideal survey conditions in 2003.

Three snorkel surveys for adult steelhead were conducted in Slippery Creek between May 1 and May 16, 2003. Unlike Petersburg Creek, the late ice-out at Slippery Lake precluded earlier counts in 2003. The peak count of 76 steelhead occurred

on May 1, with excellent visibility (20 to 24 ft lateral extinction distance using a secchi disk) and low water conditions. The significant increase over 5-year average counts for this creek may be partially attributable to the ideal survey conditions in 2003.

Enhancement

Two hatcheries operate within the Petersburg management area: Crystal Lake and Burnett Inlet.

Crystal Lake Hatchery

Southern Southeast Regional Aquaculture Association (SSRAA) continued operating CLH, which was the last state-owned and operated hatchery in Southeast Alaska, under a lease from the state. The hatchery will be fully funded through FY2005, with a combination of state, SSRAA, and Southeast Sustainable Salmon Fund monies. In addition to an annual release near Blind Slough, Chinook salmon produced at CLH are transported to Neets Bay for annual releases that contribute to the Ketchikan area sport fisheries. Since 2001, Anita Bay, which is south of Wrangell along Etolin Island, replaced Earl West Cove as the release site for Chinook salmon near Wrangell. Chinook returns are expected to build in Anita Bay and decline at Earl West Cove over the next few years. Large releases of summer chum salmon and small releases of coho have occurred at Anita Bay since 2001. The hatchery maintains a coho release program, using Crystal Creek stock, to mitigate loss of coho salmon spawning habitat caused by the construction and operation of CLH.

The current Chinook smolt release goals are 600,000 fish in Crystal Creek and 400,000 smolt for Neets Bay. In 2003, a total of 727,600 Chinook smolt were released at Crystal Creek, and 520,600 smolt were transported to Neets Bay. An additional 406,800 Chinook smolts from CLH were produced for the Anita Bay release site in 2003. These fish will benefit Wrangell anglers but are not directly funded through the Division of Sport Fish.

Projected returns of CLH Chinook salmon to the local Petersburg area fisheries are allocated between commercial and sport user groups under the terms of the Wrangell Narrows-Blind Slough

Table 24.—Escapement peak counts (snorkel) of steelhead trout within Petersburg/Wrangell area index systems, 1997–2002.

Index System	1998	1999	2000	2001	2002	5 yr Avg. (1998–2002)	2003
Petersburg Creek	15	11	68	64	41	88	188
Slippery Creek	NS ^a	NS ^a	42	41	31	38	76

^a NS = not surveyed.

Terminal Harvest Area Management Plan (5 AAC 33.381). During years of lower expected returns, the entire run (in excess of those needed for egg takes) is allocated to the sport fishery. At higher projected returns, the commercial fisheries may take an increasingly larger share of the harvest. On average the sport fishery has accounted for 70% of the Crystal Lake Chinook salmon harvest between 1998 and 2002 (Table 25).

The coho smolt release goal is 150,000 each year. In 2003, 178,900 coho smolt were released into Crystal Creek. Coho salmon produced at CLH are caught in salt water and fresh water terminal harvest areas. Since 1998, the average sport harvest has been 1,101 coho salmon, and anglers account for 30% of the total harvest of CLH coho (Table 26).

Burnett Inlet Hatchery

SSRAA also owns and operates the Burnett Inlet Hatchery on Etolin Island, which has produced summer-run coho salmon released at Burnett Inlet and Neck Lake on Prince of Wales Island (PWI). Petersburg and Wrangell sport fishers have begun to take advantage of the earlier return timing for these summer-run coho at a time between traditional Chinook and coho salmon fisheries. Anglers target returning fish as they migrate through Sumner Strait and into Snow Passage, between Zarembo and Prince of Wales Islands.

A 2003 Permit Alteration Request (PAR) for the Burnett Hatchery was submitted by SSRAA and taken up by the Regional Planning Team (RPT) at a December 2003 meeting. During the comment period, concerns were voiced over the impact of additional fish in District 106 and 108 to commercial fisheries management. Additionally SFD staff expressed concern for increased interception of small wild stocks of coho salmon and the potential impacts of straying without a means to adequately evaluate impacts. As a result, the RPT authorized an increase in sockeye salmon

production at the Burnett Inlet Hatchery from 500,000 to 750,000 smolt divided between Burnett Inlet and Neck Lake release sites.

Access Projects

In 2003, there were no new access projects initiated by the Division of Sport Fish in the Petersburg/Wrangell Management Area. Funding for the 2002 proposed project to build a boat ramp in Wrangell Harbor near Shakes Island has been delayed, and the project will likely shift to Wrangell’s new “Heritage Harbor” pending its construction.

Similar to 2002, Petersburg SFD staff were involved in a panel-driven process to allocate monies from a U.S. Forest Service administered program for uses in the Petersburg and Wrangell communities. In October 2000, Congress passed Public Law 106-393 entitled "Secure Rural Schools and Community Self Determination Act of 2000" which stabilized federal payments to states for funding schools and roads. The new law, commonly referred to as Payments to States, replaces and fundamentally changes the way the Forest Service has been returning a portion of its annual receipts to jurisdictions falling within national forest boundaries ("the 25 percent fund").

Under this program, communities may opt to either collect a fixed amount of this revenue directly (like Kake), or compete with other communities for funds to complete projects that benefit the communities (Petersburg and Wrangell). The projects can encompass a broad range of maintenance and improvement work for such items as roads and trails, watersheds, and fisheries and wildlife habitat on national forests or non-federal land where the project would benefit resources on federal land.

A Resource Advisory Committee (RAC), established with residents from Petersburg and Wrangell, has now begun to complete several projects, and has made recommendations on how

Table 25.—Estimated contributions of Crystal Lake hatchery Chinook salmon to the sport and commercial fisheries, 1998–2002.

Year	Sport				Commercial			Percent Sport
	Mixed saltwater boat ^a	THA saltwater boat ^b	THA shoreline ^c	Sport total	Mixed stock ^d	THA ^e	Commercial Total	
1998	257	1,276	1,030	2,563	1,181	0	1,181	68%
1999	190	2,442	3,594	6,226	1,782	268	2,050	75%
2000	476	3,781	2,784	7,041	2,316	1,329	3,645	66%
2001	519	3,647	4,769	8,935	1,518	1,948	3,466	72%
2002	550	2,218	1,918	4,686	1,056	917	1,973	70%
5 yr Avg.	398	2,673	2,819	5,890	1,571	892	2,463	70%

^a Estimated from regionwide dockside creel sampling programs.

^b Statewide harvest survey (includes adult and jack Chinook salmon) estimate for Wrangell Narrows/Blind Slough Terminal Harvest Area (THA).

^c Statewide harvest survey (includes both freshwater and estuary/saltwater shoreline adult and jack Chinook harvest) estimate for Wrangell Narrows/Blind Slough Terminal Harvest Area (THA).

^d Estimated from regionwide commercial port sampling programs.

^e Fish ticket information.

Table 26.—Estimated contributions of Crystal Lake hatchery coho salmon to the sport, commercial, and personal use fisheries, 1998–2002.

Year	Sport				Commercial			Personal use total ^e	Percent Sport
	Mixed saltwater boat ^a	THA saltwater boat ^b	THA shoreline ^c	Sport total	Mixed stock ^d	THA ^e	Total	THA	All areas
1998	0	66	167	233	1,449		1,449	170	13%
1999	18	1,270	415	1,703	2,329		2,329	175	41%
2000	207	189	480	876	3,022		3,022	0	19%
2001	88	76	1,005	1,169	2,030	435	2,465	450	29%
2002	41	261	1,223	1,525	866	589	1,455	365	46%
5 yr Avg.	71	372	658	1,101	1,939	512	2,144	232	30%

^a Estimated from regionwide dockside creel sampling programs.

^b Statewide harvest survey estimate for Wrangell Narrows/Blind Slough Terminal Harvest Area (THA).

^c Statewide harvest survey (includes both freshwater and estuary/saltwater shoreline harvest) estimate.

^d Estimated from regionwide commercial port sampling programs.

^e Personal use harvest reports.

other special project funds should be spent. One completed project that directly benefits Petersburg and Wrangell fisherman is a remote, dial-up wind sensor near Banana and Blaquiére points. This project will directly benefit the safety of sport anglers and other boaters wishing to determine the weather conditions near the mouth of the Stikine River, where hazardous wind conditions often exist. Other funded projects awaiting the start of construction include the project to rebuild the Banana Point wave attenuator and resurfacing of the Blaquiére Point boat launch. Several other candidate projects have been nominated by the two communities, but funding decisions will occur later in 2004. Nominated projects with sport fishing implications include a proposed boardwalk to Thoms Lake near Wrangell and improvements to the Falls Creek fish ladder viewing area.

Other Issues

Federal Subsistence Management

In 2001, the Federal Subsistence Board (FSB) passed a proposal allowing federal subsistence steelhead fisheries in Kadake Creek and the Hamilton Rivers, near Kake. Participating anglers are required to hold a Federal fishing permit, but no permits have been issued through 2003. Additional federal subsistence fishing opportunities have become available for Dolly Varden, cutthroat, and rainbow trout in Virginia Lake, near Wrangell, under federal regulations. Similarly, no permits have been issued for this fishery.

In December 2000, the FSB closed the Pillar Bay drainages to non-federally qualified users, including sport fishers. In turn, the Office of Subsistence Management (OSM) funded a stock assessment project to estimate escapement and evaluate limnological characteristics at Kutlaku Lake. Preliminary findings indicated the 2002 estimated escapement in the inlet stream was 1,354 adult sockeye (SE = 103), with many additional beach spawning sockeye (unquantified) present along the lakeshore (Conitz and Cartwright 2003). A more robust study design was undertaken in 2003 to estimate escapement in both inlet and beach areas. Results from the 2003 study are published in Conitz and Cartwright (2005).

Habitat

A number of habitat related events occurred in the Petersburg/Wrangell area during 2003. The long-term efforts by the City of Petersburg to relicense the Blind Slough Hydroelectric Project (FERC Project No. P-201-AK) came to an end when they received their new license in August 2003. The remainder of this section includes narratives on events, issues, and projects within the management area.

Oil Spill at CLH

On February 4, 2003, oil spilled from the Blind Slough Hydroelectric Project, owned and operated by Petersburg Municipal Power and Light (PMPL), into the water system for the Crystal Lake Hatchery. The spill was first detected when maintenance workers noted a loss of oil from a heat exchanger following its maintenance at the hydroelectric plant. The plant was immediately shut down and the water discharge inspected. Upon finding oil in the discharge water, hatchery staff were immediately notified, as were DEC, the State Oil Spill Coordinator (SOSC), and ADF&G staff in Petersburg. It was estimated that 20 gallons of IFO 68 hydraulic oil spilled from a heat exchanger into the hatchery's water delivery system and into Crystal Creek.

Hatchery personnel found oil sheens in all 24 hatchery raceways, and observed some oil that had passed into lower Crystal Creek and entered Blind Slough. Fortunately, the SOSC was in Petersburg after conducting a spill response training drill, and became immediately available to lead spill containment and cleanup efforts at CLH. A hard boom and sorbent boom were deployed below the hatchery to prevent further discharges into Blind Slough. To remove the oil from the hatchery raceways, 10 boxes of sorbent snare and marina boom from the ADEC Response Container and a drum skimmer were deployed to the hatchery on the afternoon of February 4. By early on February 5, the sorbent snare had effectively collected the majority of the oil in the raceways. With assistance from the Auke Bay Laboratory, SFD staff collected and preserved samples of incubating salmon that could be later analyzed for hydrocarbons if acute impacts to incubated eggs or rearing salmon occurred at the

hatchery. No acute impacts to salmon or area wildlife were noted. A small oil sheen observed on Blind Slough during aerial overflights appeared to dissipate by weathering between successive flights. Survival of the smolt releases from fish exposed to oil (2003 and 2004) will be monitored.

The hydroelectric plant was restarted on the morning of February 7, 2003. On startup a small pocket of oil apparently trapped in the piping system was released from the plant and entered raceway 24 at the hatchery, creating a light, 30 foot sheen. The SOSOC and hatchery personnel contained and collected this oil with sorbent snare. No further discharge was noted. Hatchery and City of Petersburg personnel continued the cleanup of small residual sheens in the raceways and the Crystal Creek pond overflow.

Oil Spill at USFS Building in Petersburg

The U.S. Forest Service reported an oil spill to ADEC at 8:00 PM May 16, 2003 at the Omni Building, an office building used by regional Tongass National Forest (TNF) and National Marine Fisheries staff (NMFS). A leaking pump was found to be the source and replaced; however it was estimated that between 200 and 900 gallons (approximately 5–21 bbls) of diesel oil was discharged under the building over an unknown period of time. An undetermined amount had traveled underground, and a small amount resurfaced by a small water seep immediately adjacent to a small headwater tributary of Hammer Slough which contains coho salmon, pink salmon and Dolly Varden.

An environmental consultant oversaw the cleanup of the site while a private contractor installed a silt fence, sump pump, and boom for the unnamed creek. Contaminated soils and rock were excavated between the building and the silt fence near the small creek. Approximately 300 cubic yards of contaminated soils were removed and are to be disposed of at an approved Rabanco landfill in Washington State. Twelve 55-gallon drums of contaminated diesel and diesel impacted water were shipped out for treatment. Approximately 5,000 gallons of diesel-contaminated water was treated on-site and processed through the Petersburg sanitary sewer system. After contaminated soils and water were removed, the

area was backfilled with armoring rock, shot rock, sand and organic material until the area was restored to its original configuration. Access shafts were constructed to allow future monitoring of subsurface water for contamination, and sump-pumping if needed. Erosion matting was installed over the new rock and native vegetation was replanted to aid in stabilizing the slope. To date, there have been no observations or reports of oil below the site, or impacts to fish and wildlife in the small creek, or below in Hammer Slough.

Woewodski Island Mining

Woewodski Island is located at the entrance of the very productive Duncan Canal, which locally produces large commercial catches of shellfish, is the site of a number of popular U.S. Forest Service public use cabins, and offers excellent sport fishing for coho salmon, trout, and steelhead. In 2003, Bravo Venture Group, Inc. purchased mining claims on Woewodski Island, held by local partners of Olympic Resources who have been pursuing exploration work on the mineralized island. The results of shallow core drilling and aeromagnetic surveys indicated significant deposits of gold, zinc, silver, copper, and other metals. Bravo Venture Group, Inc. plans to increase drilling in 2004, using larger equipment to conduct core sampling at depths of 1,000 feet or more.

U.S. Forest Service Habitat Enhancement Project at Eagle Lake

Eagle Lake is the site of a USFS recreational use cabin, is one of the designated trophy cutthroat trout lakes, and is the source of Eagle Creek.

A number of barriers on Eagle Creek prevent upstream passage for anadromous stocks of salmon and steelhead.

In early summer 2003, the Ketchikan Public Utilities (KPU) undertook clearing in the Eagle Creek watershed in conjunction with the Swan/Tyee power line intertie project (Figure 15).

Concurrently, U.S. Forest Service staff coordinated the use and placement of unmerchantable timber into three littoral zone areas along the west shore of Eagle Lake to enhance trout habitat. Prior to the project's implementation, SFD staff questioned the need for

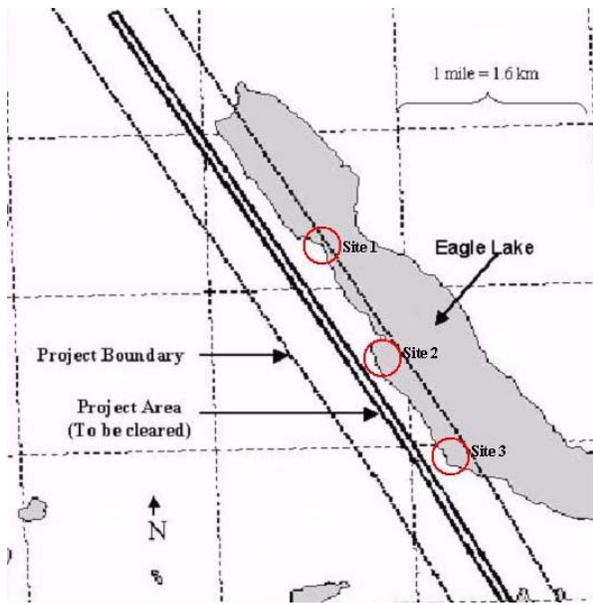


Figure 15.—Intertie project area and enhancement sites.

placing additional wood into Eagle Lake since it is managed as a trophy cutthroat fishery, and suggested that introduced timber be cable-anchored to assure greater stability.

Helicopter and choke-setter crews transported 144 pieces of felled timber and placed them, with tips extending to deeper water, below the high water mark (Figure 16). Additional trees were placed in an irregular pattern on top to form a counter-weighting system for stability. USFS staff stated that structure stability will be monitored, and project will be monitored to determine if rearing trout recruit to areas with introduced timber over the next four years. No direct staff involvement occurred in 2003 with the field project. However, staff plan to be involved with the project evaluation.

Cathedral Falls Creek

In 2003, fishery resource permitting (FRP) activities culminated after several years with the approval of a permit (P-03-022) and fishery transport permit (FTP) 03J-1011 issued to the Kake City School District, and Brian Ashton, of ARED Inc. This permitting allowed the participants to carry out efforts to take coho salmon eggs, and plant incubated eggs above barrier falls located in the Cathedral Falls Creek

watershed. Efforts to modify this FRP were extensive by department staff, and ultimately were unsuccessful.

Pat's Creek Quarry

An existing quarry near Pat's Lake on Wrangell Island was initially selected for significant expansion into an adjacent unnamed watershed to provide large rock material for the U.S. Corps of Engineers Wrangell Harbor Improvement Project. This project, also known as Heritage Harbor, would require 1.1 million tons of rock, and expansion of an existing log transfer facility (LTF) site. In response to a U.S. Corps of Engineers' environmental assessment public notification, SFD assisted DNR staff with a stream survey to determine upstream limits of fish distribution in the small, high gradient stream. On September 9, 2003, staff conducted backpack electro fishing and set baited minnow traps in the stream. No fish were captured or observed, contrary to reports of small cutthroat trout presence by U.S. Forest Service staff based in Wrangell. Although no fish were found, an alternate site was selected close to the Wrangell Airport, ending the process for the Pat's Lake site.

Since the change of sites, members of the public have expressed concern with the need to drive pilings to accommodate loading barges with the quarried rock material in areas used by sport anglers. Several test pilings have been driven, and the bulk of the project will occur in 2004.

South Mitkof Ferry Terminal Environmental Assessment

During 2003, CH2M Hill contacted Petersburg ADF&G staff for information on species and fisheries that could potentially be impacted by the future South Mitkof Ferry Terminal. The selected location for the inter-island terminal is at MP 25 Mitkof Highway, near the entrance to the South Blind Slough. The inter-island ferry terminals on Mitkof Island and at Coffman Cove on PWI are slated for completion and start of service in 2006. Information was provided from both Commercial Fisheries and Sport Fish Divisions on presence and timing windows for migration. SFD staff also answered questions on potential impacts of the proposed all-season road to existing sport



Figure 16.—Photograph of an Eagle Lake 2003 timber habitat enhancement site prior to, and following placement of transported unmarketable timber from the Swan/Tyee Intertie project.

fisheries. Currently no snow removal occurs past Crystal Lake Hatchery, where the paved road ends. Increased snow removal will allow anglers to access several fisheries on South Mitkof that do not receive fishing pressure through much of the winter, namely Ohmer Creek and Man-made Hole. Small runs of steelhead and overwintering concentrations of Dolly Varden and cutthroat trout at these sites will likely receive additional fishing pressure. Additionally, enforcement may be needed at or near the Banana Point boat launch during the winter Chinook fishery.

Falls Creek Fish Ladder

A poured-cement fish ladder, built in 1945 for salmon enhancement in the Falls Creek drainage, is subject to shifting bed load, and routine plugging with sand and other debris and is periodically maintained during the year between March and October. Small runs of steelhead and coho salmon, along with Dolly Varden and cutthroat trout attract angling effort in various portions of the drainage, and pink salmon fishing occurs below the fish ladder in the intertidal area. Falls Creek is popular with anglers given it is the closest road accessible salmon and steelhead fishery, only nine miles from Petersburg.

During the first trip to clean the fish pass in 2003, a hole through the cement lateral wall was observed diverting flow out of the ladder. This and other smaller fractures in the 50-year structure indicate the structure's integrity is failing. Sport and Commercial Fish Division staff temporarily

patched the hole using burlap bags filled with coarse cobbles. Eventual failure of the structure will require either replacement or other measures, such as blasting, to maintain passage and sustain the sport fisheries at Falls Creek.

SITKA AREA

The Sitka Management Area includes all waters of Baranof Island, Yakobi Island, and Chichagof Island west of a line extending from Point Hayes to Column Point (Figure 17). Sitka (about 8,500 residents) is the only large community located within the Sitka Management Area. Smaller communities include Pelican, Baranof Warm Springs, and Port Alexander. The Sitka Management Area provides about 18% of the sport fishing effort in Southeast Alaska. Permanent Sport Fish management staff consists of one fishery biologist III, Robert Chadwick, and one fishery biologist II, Troy Tydingco. One program technician, Linda Schmidt, is supervised by Division of Wildlife Conservation and partially funded by SFD to conduct administrative duties for both Divisions in the Sitka office.

The Sitka area supports one of the largest marine sport fisheries in Alaska. According to the most recent Sport Fish Statewide Harvest Survey data, more Chinook salmon were harvested in the Sitka marine fishery than in any other fishery in Alaska. Harvest of rockfish and lingcod in the Sitka fishery represent the second and third largest harvest respectively in the state. Both the marine coho and halibut harvest are the fifth largest in the

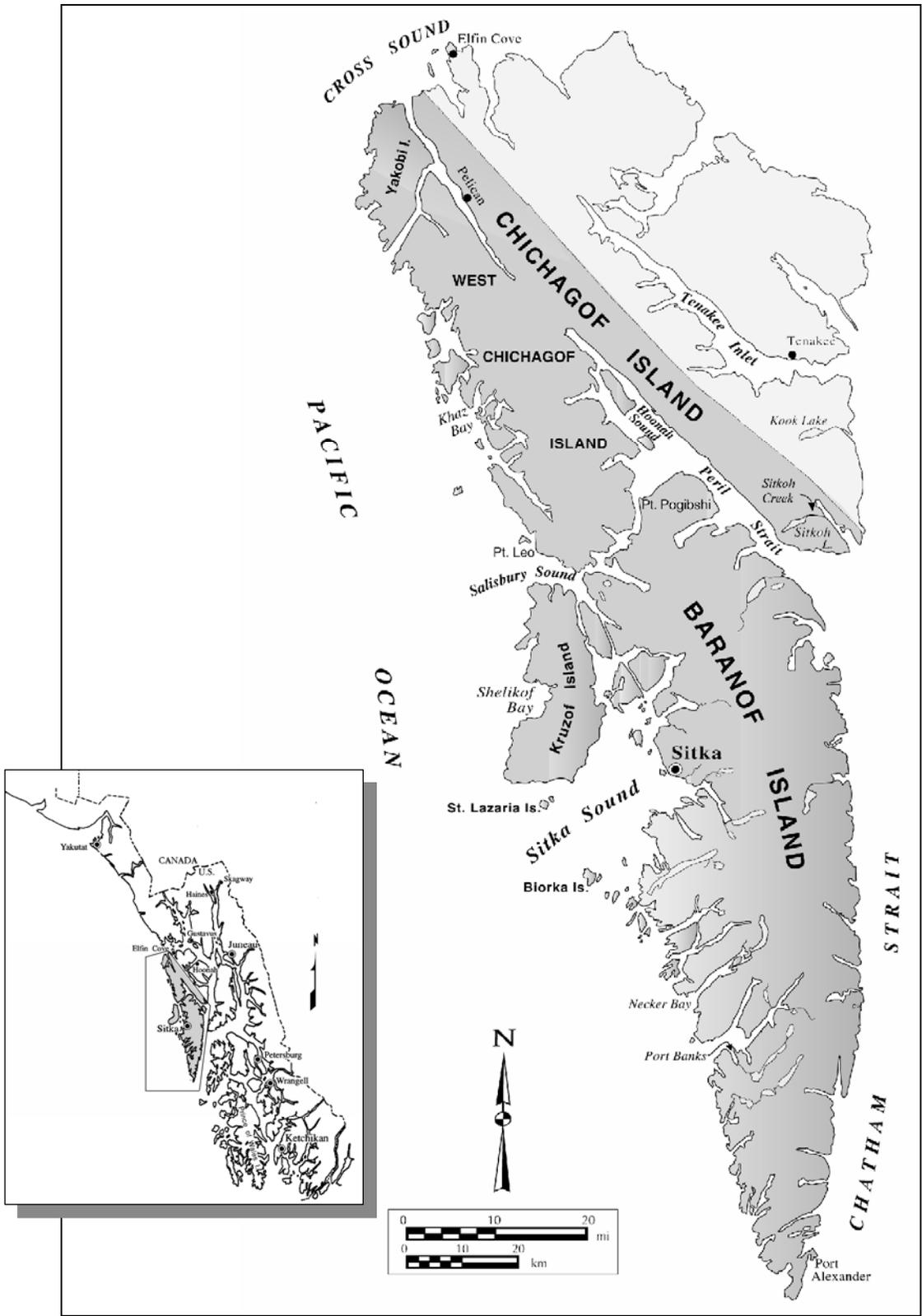


Figure 17.—Map of the Sitka Management Area with inset of Southeast Alaska.

state. In 2002, marine angling comprised 93% of the sport fishing effort in the Sitka area. When angler effort in marine fisheries is compared statewide, the Sitka marine fishery is the sixth largest marine fishery with 63,361 angler-days expended.

Local Management and Research Programs

Marine Creel

Since 1992, a marine creel survey has been conducted in Sitka as part of an expanded regional program to monitor sport harvests in Southeast Alaska. Five technicians were employed to conduct the creel survey of the Sitka marine boat fishery from April 28 to September 28, 2003. Catch rates for Chinook salmon in the Sitka marine fishery were outstanding for most of the 2003 season; rates exceeded the 5-year average for 15 of the 22 weeks (82%) surveyed. The catch rate trend was similar to previous years, with the major peak in June, followed by a gradual decline in July and a minor peak occurring in August (M. Jaenicke, *personal communication*). Sport anglers harvested 24,124 Chinook salmon (preliminary estimate) in the Sitka marine sport fishery. This was down 3% from 2002 and is 15% higher than the recent 5-year average. This harvest represents the third largest harvest on record, and comprised an estimated 34% of the total sport harvest within Southeast Alaska in 2003. Contributions of non-Alaska hatchery stocks in the Sitka marine sport fishery were up in 2003. Alaska hatchery stocks contributed about 14%; this is above the recent 5-year average of 12%. Medvejie Hatchery stock once again made up the majority (74%) of the Alaska hatchery Chinook salmon contributions in the waters near Sitka in 2003. Non-Alaska hatcheries contributed about 26% of the Sitka Chinook harvest, which is slightly above the 5-year average of 25%. The origin of the non-Alaska hatchery contributions (n = 6,145 fish) in the waters near Sitka was as follows: British Columbia (77%), Washington (15%), and Oregon (9%).

Coho salmon began to show in the Sitka fishery during the usual time of mid to late June, and catches continued to steadily improve throughout July and August. From the beginning of June through mid August, Sitka coho catch rates were

nearly identical to the 5-year average. The catch rates peaked during late August, remained above average until the end of the survey in late September, and were similar in magnitude to the 1999 catch rates. Sport anglers took about 73,760 coho salmon (preliminary estimate) in the Sitka marine sport fishery. This is the second largest harvest for the Sitka fishery, up 60% from the 2002 harvest, and 32% above the recent 5-year average. The hatchery contribution was 25% and almost entirely comprised of Alaska hatchery fish. Neets Bay stocks were again taken in large numbers and represented 49% of the hatchery fish and 12% of all coho salmon taken near Sitka. The next two largest Alaskan hatchery stocks to contribute to the Sitka marine fishery were Whitman Lake (11% of hatchery fish and 3% of all coho taken near Sitka) and Medvejie (9% of hatchery fish and 2% of total coho salmon harvest). Most sport fishing effort for bottomfish was directed at areas outside of Sitka Sound and comprised of guided anglers. Catch rates for Pacific halibut were excellent throughout the season; they averaged about three angler-hours per halibut kept and were similar to the out catch rates experienced in 2000.

Salmon Lake Coho and Sockeye Salmon Stock Assessment

Increasing interest in and effort on sockeye and coho salmon in Silver Bay and Salmon Lake has led to the development and implementation of a program designed to assess and better manage these fish and fisheries. This program was initiated in part as a response to information that indicated a change in the status of coho salmon in Salmon Lake. From 1984 to 1990, annual spawning escapements of coho salmon in Salmon Lake declined steadily from 1,500 to 200 fish, and exploitation on this stock increased from 36% to 74% (Schmidt 1996). Since 1990, fishing effort has increased in the commercial purse seine and sport fisheries, but annual spawning escapements were not estimated until 2001. A CWT study completed in 1995 indicated that the 1995 exploitation of Salmon Lake coho salmon was high, and the resulting escapement was likely low. Beginning in 1998, ADF&G and Northern Southeast Regional Aquaculture Association (NSRAA) initiated a cooperative effort to conduct snorkel surveys of the main inlet streams of

Salmon Lake during October (the assumed peak spawning period) to assess the potential for survey counts as an index of total escapement. Peak survey counts of large adults between 1998 and 2003 ranged from 48 to 142 fish.

At the February 2000 meeting, the Board of Fisheries (Board) acted on a number of proposals that indirectly impact coho salmon runs to Salmon Lake. At the meeting, members of the public, staff, and Board also voiced concern over the status of this stock. In response, the Board directed ADF&G to work closely with NSRAA and other stakeholders to develop a stock assessment program for Salmon Lake coho. The Board also directed ADF&G to conservatively manage fisheries that harvest Salmon Lake coho.

As a result of the Board's direction, a cooperative agreement between ADF&G, NSRAA, USFS, and Sitka Tribe of Alaska (STA) was established to conduct research on both coho and sockeye stocks in Salmon Lake at the head of Silver Bay. The cooperative project generated estimates of sockeye and coho escapements as well as other information, including lake productivity, sockeye biomass (through hydroacoustic analysis), and coho presmolt abundance. To collect data, a weir and field camp were constructed and operated at the outlet of Salmon Lake.

The cooperative project began in 2001 and continued through 2003. In 2003, ADF&G and STA again installed the floating weir and field camp at Salmon Lake. The weir was manned between June 6 and October 31, 2003, by both ADF&G and STA staff. Through the 2003 field season, all immigrating fish were enumerated by the weir staff, which also collected biological and limnological data. NSRAA tagged Salmon Lake coho smolt in October.

In 2003, the Deep Inlet fishery near Sitka was sampled for coho independently from the commercial fisheries port-sampling program. As part of the Salmon Lake coho stock assessment program, Deep Inlet sampling was conducted between July 23 and September 23. This component of the project was designed to estimate coho harvest in the Deep Inlet fishery that has, in the past, been underreported. Over the course of sampling, 87 coho were observed and captured and 242 were reported harvested from fish ticket

information. Data analysis is currently underway to estimate the harvest from 2003 sampling events.

In 2003, 793 adult coho and 740 adult sockeye were counted through the weir. Because the weir was found to not be fish-tight at short high-water intervals, a series of mark-recapture experiments were conducted to estimate coho and sockeye escapements. The mark-recapture experiments resulted in estimates of 864 adult coho salmon and 934 sockeye salmon. Additionally, we estimate that 614 jack coho salmon and 238 jack sockeye salmon escaped into Salmon Lake. On October 20, 2003, a peak count of 48 adult coho salmon was observed during a snorkel survey of the inlet stream system. This observation, like similar observations in 2002, suggests that the spawning escapement in Salmon Lake was probably not at an extremely low level. This peak coho count represents approximately 7.0% of the estimated total escapement, a relatively low index of escapement compared to other streams in the region (Jones III and McPherson 1997).

During October 2003, NSRAA tagged and released 5,190 coho presmolt. Most of these fish will smolt during 2004. Recoveries from the commercial fishery and escapement sampling in 2005 will provide an estimate of presmolt abundance in 2003. In addition, adult harvest and presmolt survival will be estimated through the recoveries of these fish.

Nakwasina River Coho Salmon Stock Assessment

The Nakwasina River drainage is one of the larger river systems on Baranof Island and one of six systems in the Sitka Management Area surveyed annually for escapement of coho salmon. Nakwasina River has been the subject of a coho assessment project since 1998 that supplements foot surveys which have been conducted since 1988 (Table 27). Between 1998 and 2003, documented peak counts have ranged from 104 (1988) to 753 (2001) coho salmon in Nakwasina River. Average survey counts in Nakwasina River represent the second highest numbers recorded for surveyed streams in the Sitka area.

Nakwasina River is important to area sport fisheries because it supports a significant population of coho salmon, is easily accessed

from Sitka, and is one of the few rivers in Sitka Sound that attracts freshwater sport fishing effort. From 1984 to 2001, estimated angler effort expended in Nakwasina Sound and river ranged from 31 to 891 angler days. In the 1960s, the majority of the anadromous portion of the Nakwasina River valley, including riparian zones, was clearcut to the streambank (G. Killinger, *personal communication*). Nakwasina River coho salmon are of special concern because of the potential risk of excessive exploitation in combination with likely impacts to the stock from habitat damage.

In 1998, Sport Fish Division staff began a CWT project for coho salmon in Nakwasina River to estimate smolt abundance and harvest of this stock in commercial and sport fisheries. This ongoing investigation will be used to assess whether current regulations are assuring sustained yield of this stock and provide for maximum sport fishing opportunity.

From April 15 through May 17, 2003, baited minnow traps were fished in lower Nakwasina River, and 15,761 coho salmon smolt ≥ 65 mm FL were marked with an adipose fin clip and given a CWT. Overnight tag retention in sampled fish was 99% 24 hours after tagging. In 2003, fish less than 85 mm FL were given a tag code different from the tag code used for fish 85 mm FL or greater. In addition, fish present in Bridge Creek, a tributary that flows into Nakwasina at high tide, were captured and tagged using a unique (third) tag code. This location was included for the first time in 2000 to boost the sample size and subsequently produced approximately one-third of all smolt tagged. Smolt data collected in 2003 will be reported along with adult harvest and recovery data collected in 2004 in a FDS report in 2005.

In 2003, 46 adult coho salmon bearing CWTs from Nakwasina River were recovered in random sampling of marine fisheries. The resulting harvest estimate for fish originating from Nakwasina River was 779 (SE = 121). From September 16 to December 12, 2003, 901 individual coho salmon were captured, examined for tags, and marked in Nakwasina River. The 2003 estimated escapement of 2,090 (SE = 232) was lower than the 4-year average. This lower escapement could be due to the lower parent

escapement in 2000 (Table 28). Final estimates and results of fall tagging will be presented in detail in a Division of Sport Fish Fishery Data Series (FDS) report in 2004.

Baranof Lake Research

Baranof Lake is relatively unique among large lakes in Southeast Alaska in that it supports only one species of fish, cutthroat trout. Physical and biological data were first collected from Baranof Lake in 1981 (Schmidt 1982). The average length of cutthroat trout in the 1981 sample (primarily sport caught) was 350 mm FL, and fish up to 500 mm FL were collected, indicating that the potential for a high-quality fishery existed in Baranof Lake. Baranof Lake is now a moderately popular recreation area. In a mail survey that censused parties reserving USFS cabins on 13 cutthroat lakes throughout Southeast Alaska during 1992, Jones (1994) estimated that 528 (8%) of the total 6,338 hours fished and 113 (7%) of 1,573 total angler days were expended at Baranof Lake. During 2003, USFS cabin users fished 44 hours to catch 63 cutthroat trout while harvesting 12. These estimates only reflect effort exerted by USFS cabin users; the fishing pressure at Baranof Lake was probably greater due to tourism at Baranof Warm Springs. During May and June 1994, an inseason mark-recapture abundance experiment was conducted at Baranof Lake (Der Hovanisian and Marshall 1995). The abundance of cutthroat trout ≥ 180 mm FL was estimated at 12,186 (SE = 888) for a density of approximately 38 fish per hectare. This density ranked Baranof Lake foremost among carefully studied large lakes (Florence, Wilson, Hasselborg, and Turner Lakes) in Southeast Alaska. Subsequent Jolly-Seber abundance estimates for the years 1995 to 2002 averaged 5,985 and ranged from 3,387 to 7,794 cutthroat trout ≥ 180 mm FL (Table 29). Other benefits of the sampling event included direct estimates of the natural survival rate, among the first for cutthroat trout in Alaska.

Two 10-day sampling events were conducted at Baranof Lake in 2003 (Harding et al. *In prep*). All cutthroat trout ≥ 180 mm FL captured were tagged (or previous tags recorded), sampled for length

Table 27.—Escapement peak counts of coho salmon in the Sitka Area, 1980–2003.

Year	Sinitsin Creek			St. John Baptist Bay Creek			Starrigavan River			Eagle River			Black River			Nakwasina River							
	Survey Method	Peak Survey Date	No. of Coho	Survey Method	Peak Survey Date	No. of Coho	Survey Method	Peak Survey Date	No. of Coho	Survey Method	Peak Survey Date	No. of Coho	Survey Method	Peak Survey Date	No. of Coho	Survey Method	Peak Survey Date	No. of Coho					
1980	Foot	30-Sep	39	Foot	9-Oct	26	Foot						Foot	26-Oct	328	Foot	29-Oct	70					
1981	Foot	6-Oct	85	Foot	14-Oct	51	Foot	20-Oct	170	Foot	22-Sep	27				Foot	7-Oct	780					
1982	Foot	20-Oct	46	Foot			Foot	21-Oct	317														
1983	Foot	27-Sep	31	Foot	13-Oct	12	Foot	6-Oct	45							Foot	14-Oct	217					
1984	Foot	10-Oct	160	Foot	10-Oct	154	Foot	10-Oct	385				Helo	3-Oct	425	Foot	17-Oct	715					
1985	Foot	15-Oct	144	Foot	8-Oct	109	Foot	11-Oct	193				Helo	7-Oct	1,628	Foot	7-Oct	408					
1986	Foot	30-Sep	4	Foot	10-Oct	9	Foot	10-Oct	57	Foot	26-Sep	245	Helo	10-Oct	312	Foot	28-Oct	275					
1987	Foot	23-Sep	32	Foot	23-Sep	9	Foot	9-Oct	36	Foot	24-Sep	167	Helo	9-Oct	262	Foot	30-Oct	47					
1988	Foot	3-Oct	56	Foot	3-Oct	71	Foot	12-Oct	45	Foot	2-Sep	10	Helo	10-Oct	280	Foot	27-Oct	104					
1989	Foot	5-Oct	76	Foot	5-Oct	89	Foot	13-Oct	101	Foot	2-Oct	130	Helo	13-Oct	181	Foot	19-Oct	129					
1990	Foot	1-Oct	80	Foot	1-Oct	35	Foot	17-Oct	39	Snorkel	2-Oct	214	Helo	4-Oct	842	Foot	31-Oct	195					
1991	Foot	1-Oct	186	Foot	10-Oct	107	Foot	2-Oct	142	Snorkel	17-Oct	454	Helo	17-Oct	690	Foot	25-Oct	621					
1992	Foot	23-Sep	265	Foot	14-Oct	110	Foot	12-Oct	241	Snorkel	6-Oct	629	Helo	6-Oct	866	Foot	30-Oct	654					
1993	Foot	7-Oct	213	Foot	6-Oct	90	Foot	13-Oct	256	Snorkel	13-Oct	513	Helo	7-Oct	764								
1994	Foot	30-Sep	313	Foot	30-Sep	227	Foot	11-Oct	304	Snorkel	1-Oct	717	Helo	14-Oct	758	Foot	14-Oct	404					
1995	Foot	26-Sep	152	Foot	5-Oct	99	Foot	6-Oct	272	Snorkel	5-Oct	336	Helo	27-Sep	1,265	Foot	29-Sep	626					
1996	Foot	2-Oct	150	Snorkel	2-Oct	201	Foot	17-Oct	59	Snorkel	30-Sep	488	Helo	30-Sep	385	Foot	30-Oct	553					
1997	Foot	29-Sep	90	Snorkel	30-Sep	68	Foot	27-Oct	55	Snorkel	30-Sep	296	Helo	30-Sep	686	Foot	14-Nov	239					
1998	Foot	1-Oct	109	Snorkel	9-Oct	57	Foot	8-Oct	123	Snorkel	9-Oct	300	Helo	8-Oct	1,520	Foot	2-Nov	653					
1999	Snorkel	11-Oct	48	Snorkel	29-Oct	25	Snorkel	8-Oct	166				Helo	4-Oct	1,590	Snorkel	12-Nov	291					
2000	Foot	26-Sep	48	Snorkel	26-Oct	32	Snorkel	8-Oct	144	snorkel	29-Sep	108	Helo	2-Oct	880	Foot	8-Nov	419					
2001	Foot	5-Oct	62	Snorkel	4-Oct	80	Snorkel	8-Oct	430	snorkel	4-Oct	417	Helo	4-Oct	1,080	Foot	14-Nov	753					
2002	Foot	10-Oct	169	Snorkel	2-Oct	100	Foot	10-Oct	227	snorkel	10-Oct	659	Helo	3-Oct	1,994	Foot	5-Nov	713					
2003	Foot	29-Oct	102	Snorkel	30-Sep	91	Foot	2-Oct	95	snorkel	9-Oct	375	Helo	2-Oct	1,055	Foot	31-Oct	440					
Avg. (1980–2003)			111				81				170				331				847				423
5 yr Avg. (1999–2003)			86				66				212				390				1,320				523

Table 28.—Summaries of estimated coho salmon smolt abundance, harvest, escapement, exploitation rate, and stream survey counts in the Nakwasina River 1998–2003.

Year	Smolt Tagged	Smolt Abundance Estimate	Smolt SE	Adult Esc	Adult Esc SE	Harvest	Harvest SE	Exploitation	Theta	Stream Survey Peak Count	Proportion of Escapement Estimate
1998	9,985	102,794	15,255	-	-	-	-	-	-	653	-
1999	3,971	47,571	6,402	-	-	1,983	605	-	0.095	291	-
2000	10,228	46,575	2,722	2,000	261	1,219	231	0.370	0.082	419	0.210
2001	10,381	39,461	3,057	2,992	510	1,439	155	0.325	0.221	753	0.252
2002	5,286	22,482	1,460	3,141	661	731	109	0.178	0.237	713	0.227
2003	15,761	-	-	2,090	232	779	121	0.272	0.225	440	0.211
Avg.	9,269	51,777	5,796	2,556	416	1,230	244	0.286	0.172	523	0.225

and scales, and released. The first sampling event started on May 7 and resulted in the capture of 436 cutthroat trout ≥ 180 mm FL. The second 10-day sample event started on July 22 and resulted with 319 cutthroat trout ≥ 180 mm, 15 of which were marked in the first trip. Approximately 24% of the fish captured had been marked during previous years. The closed population (Petersen) estimate for 2003 was 8,739 fish (SE = 2,028).

Steelhead Trout Production Studies at Sitkoh Creek

A lack of information on the life history of steelhead trout in Southeast Alaska prompted a long-term biological study on Sitkoh Creek beginning in 2003. The Sitkoh Creek system (ADF&G Anadromous Stream Catalog No. 113-59-10040) is located on southeastern Chichagof Island in Southeast Alaska and empties into Chatham Straight via Sitkoh Bay.

Sportfishing effort in the Sitkoh Lake system has increased within the past 10 years. This system supported the highest freshwater fishing effort in the Sitka area from 1999–2001, after ranking third highest during 1993 and 1994 (Mills 1994; Howe et al. 1995). It received 17%, 26%, and 5% of the total Sitka area freshwater fishing effort during 2000, 2001, and 2002, respectively. The USFS maintains two popular public use cabins on Sitkoh Lake. The lake is accessible by floatplane and by logging roads; Sitkoh Creek is accessible by boat via Sitkoh Bay. Steelhead trout in the Sitkoh system have been investigated six times; weirs were operated to estimate spawning escapement in

1936, 1937, 1982, 1990, 1993, and 1996 (Table 30; Chipperfield 1937; Jones 1983; Jones et al. 1991; Harding and Jones 1994; Yanusz 1997; Love *In prep*). The long-term objective of this project is to evaluate regulations and management strategies for steelhead trout in Southeast Alaska by first estimating a set of basic biological parameters for the steelhead population in Sitkoh Creek. These parameters include smolt survival, percent repeat spawners, and adult instream and annual mortality rates after spawning. Additionally, adult escapement and smolt-to-adult survival will be estimated. These benchmarks will contribute to our understanding of steelhead populations in Sitkoh Creek and similar systems throughout Southeast Alaska.

A weir was operated on Sitkoh Creek just above salt water from April 10 to June 20, 2003, and a total of 672 steelhead trout were passed upstream through the weir (historical range 520–1108; Love *In prep*). All but one immigrating steelhead was PIT tagged. The mean fork length of all immigrating steelhead during 2003 was 751 mm (SE = 2.9 mm), and ranged from 555 mm to 910 mm (N = 671). Downstream emigrants counted at the weir were 460 adult steelhead trout and 3,166 juveniles, 4,588 sea-run cutthroat trout, and 52,884 sea-run Dolly Varden. Every emigrating adult steelhead, and 2,995 juvenile steelhead smolt were released downstream containing PIT tags. Systematic length (SFL) sampling of cutthroat trout and Dolly Varden produced mean fork lengths of 290 mm (SE = 2.8, n = 442) and 279 mm (SE = 2.7, n = 526), respectively.

Table 29.—Estimated abundance and survival of cutthroat trout ≥ 180 mm FL and angler effort, harvest, and total catch at Baranof Lake, 1990–2002.

Year	Abundance ^a	SE	Survival rate	SE	Number of anglers ^b	Angler-days fished	Harvest	Catch
1990					426	617	426	1,413
1991					319	497	392	654
1992					399	608	422	1,952
1993					362	842	841	2,943
1994	12,186	888	0.42	0.03	321	693	361	4,304
1995	7,224	533	0.58	0.05	451	1,109	218	1,940
1996	7,050	612	0.52	0.05	234	364	144	2,192
1997	5,582	487	0.61	0.06	671	1,111	337	2,910
1998	7,794	759	0.46	0.04	513	702	223	2,888
1999	6,961	652	0.56	0.06	320	498	95	1,020
2000	5,812	537	0.47	0.06	369	750	159	1,476
2001	6,840	869	0.34	0.07	321	683	168	773
2002	3,387	646	0.84	0.034	300	576	78	1,371
2003	5,426	2,110						

^a Petersen estimate for 1994, Jolly-Seber estimates for 1995–2003.

^b Fishing effort, harvest and catch statistics from SWHS.

Lake Stocking Project (Swan Lake)

Swan Lake, located in downtown Sitka, is the site of an annual Junior Trout Derby for young anglers. Each year, Sport Fish Division supplements the rainbow trout population in Swan Lake with subcatchable rainbow trout from Sukoi Lake, Kruzof Island. The purpose of this program is to improve angler success by increasing the

availability of rainbow trout in Swan Lake. Its objectives are to produce 200 angler-days of fishing effort and to provide for a harvest of 150 rainbow trout each year. The Statewide Stocking Plan permits transport of up to 300 fish annually.

On May 24 and 25, 2003, five hoop traps were baited with salmon eggs and set along the Sukoi Lake perimeter in 1 to 2 m of water. Traps were checked and rebaited at least once during the 2-day period. Hook and line gear was used (3.5 hours effort) both days to supplement hoop trap catches. A total of 227 rainbow trout and 283 Dolly Varden were captured in hoop traps and an additional 32 rainbow trout and 30 Dolly Varden were caught with hook and line gear. A total of 199 rainbow trout were retained for transport and marked with an upper caudal clip. Kidney samples collected from 60 rainbow trout and 65 Dolly Varden were sent to the ADF&G Pathology Section for disease incidence testing. The information from this testing will be used to assess this project during the review of the Fish Transport Permit in early 2004. On May 26, 2003, 199 rainbow trout were successfully transported from Sukoi Lake in an aerated tank via floatplane and introduced to Swan Lake. The Junior Trout

Table 30.—Summary of weir counts and snorkel surveys for steelhead trout in Sitkoh Creek.

Year	Weir count	Snorkel count	Date of peak count
1936	760		
1937	1,108		
1982	690		
1990	661		
1993	520		
1996	926	122	14-May
1997		329	20-May
1998		154	12-May
1999		120	19-May
2000		112	4-May
2001		115	16-May
2002		65	20-May
2003	672	294	30-Apr

Derby during 2003 was held on June 7, 2003, from 8:30 AM to noon. There were 111 children age 12 and under that participated in the derby. All children were accompanied by at least one adult. Anglers were provided buckets to hold fish alive for transport to the derby check station. Fish received at the derby were identified by species, measured to the nearest 1/8 inch, and examined for an upper caudal mark by USFS staff with the assistance of ADF&G staff. Most anglers chose to release their fish. Fifty cutthroat trout, 60 rainbow trout, and 20 Dolly Varden, for a total of 130 fish, were sampled at the derby station. Upper caudal clips were observed on 47 rainbow trout. Only 23 trout and 2 Dolly Varden over 11 inches were sampled.

Management Actions

Sockeye Salmon

Salmon Lake

Sockeye salmon escapement at Salmon Lake was counted through a weir beginning June 6, 2003. The total escapement as of July 9, 2003, was 40 sockeye salmon. Based on 2001 and 2002 weir data, this represented about 38% of the expected escapement. Subsistence harvests reported on permit returns for Salmon Lake had ranged from 0 to 353 since monitoring began in 1985. Observed subsistence fishing effort and harvest in 2003 had been high. As a result, subsistence harvest of Salmon Lake sockeye, if left unrestricted, would have likely exceeded historical reported levels of harvest and jeopardized the sustainability of this population. Sport fishing for sockeye also occurs in Silver Bay and within the Salmon Lake drainage but based on estimates for the Sitka area, effort and harvest is low relative to the subsistence fishery. However, because of the low projected escapement, a closure of the sockeye sport fishery was necessary to protect the Salmon Lake sockeye population. On July 11, 2003, Emergency Order 1-26-02 closed all marine waters to retention and possession of sockeye salmon by sport anglers in District 13 within a 0.3 nautical mile radius of the Salmon Lake outlet stream. This restriction on sport anglers was also in effect for all fresh waters of the Salmon Lake drainage. The subsistence fishery at the head of Silver Bay was also closed.

The total sockeye salmon escapement at Salmon Lake was 934 sockeye with the last fish passed on September 19. No retention of sockeye salmon was observed by the weir crew in the sport or subsistence fisheries during the closure.

Klag Bay Sockeye

As of June 22, 2003, the total sockeye salmon escapement at Klag Bay Lake was 182 sockeye salmon. Based on reported harvest timing and weir data, this represented about 15% to 50% of the expected escapement. Subsistence harvests reported on permit returns for Klag Bay ranged from 23 to 3,889 since monitoring began in 1985. Observed subsistence fishing effort and harvest in 2003 was high, and low water flow in the outlet stream prohibited movement of salmon upstream. As a result, subsistence harvest at Klag Bay, if left unrestricted, would likely have exceeded historical reported levels of harvest and jeopardized the sustainability of this sockeye population. Sportfishing for sockeye also occurs at Klag Bay, but based on estimates for the Sitka area, effort and harvest is low relative to the subsistence fishery. However, because of the low projected escapement, a closure of the sport fishery was necessary to protect the Klag Bay Lake sockeye population. On July 24, 2002, Emergency Order 1-29-03 closed Klag Bay north of 57° 37'38.9" N. latitude and the Klag Bay Lake drainage to retention and possession of sockeye salmon by sport anglers from July 25 through December 31, 2003. The subsistence fishery at Klag Bay was also closed. During this closure, on-site creel sampling did not observe any harvest of sockeye.

On July 31, 2003, after a period of rainfall, sockeye escapement increased to 5,066 fish and additional fish schools were observed in the bay. This indicated that escapement needs were expected to be met. With the management concern for the Klag Bay sockeye salmon no longer present, Emergency Order 1-31-03 was issued July 23, 2003, rescinding Emergency Order 1-29-03, and reverting to the regionwide regulatory limits. The total sockeye escapement through the weir was 22,809 fish. On-site creel sampling estimated the sport and subsistence sockeye harvest at 146 and 1,938 fish, respectively.

Chinook Salmon Terminal Harvest Area

Based on projections by NSRAA, surplus hatchery-produced Chinook salmon were expected to return to the Hidden Falls terminal harvest and Medvejie (Bear Cove) special harvest areas in 2003. Early cost recovery harvests of Chinook at both locations indicated that brood stock and cost recovery goals would likely be met in 2003. The Board, under 5 AAC 75.005, authorized the department to increase bag and possession limits and liberalize methods and means, by emergency order, when hatchery-produced fish escape through existing fisheries to designated harvest areas in numbers that exceed brood stock or cost recovery goals. In response to this surplus, the bag and possession limits in the Hidden Falls terminal harvest area and the waters of Silver Bay east of a line from Entry Point to Silver Bay was increased to 4 Chinook salmon, of which no more than 2 could be 28 inches or more in length, from July 4 through July 31, 2002 (E.O. 1-20-03).

The department liberalized king salmon bag limits in the Hidden Falls terminal harvest area and the Medvejie (Bear Cove) special harvest areas annually from 1985 to 1995. During this time, when retention of king salmon less than 28 inches in length was not allowed, marine harvest estimates derived from the SWHS for Silver Bay averaged 263 king salmon 28 inches or more in length. From 1996 to 2002, when retention of king salmon less than 28 inches was allowed, king salmon harvest estimates for Silver Bay have averaged 639 fish 28 inches or more in length, and 144 fish less than 28 inches. The marine creel estimate for Silver Bay king salmon in 2003 was 335 fish 28 inches or more in length, and no fish harvested under 28 inches. King salmon harvest in the Hidden Falls terminal harvest area was not estimated. Saltwater Charter Vessel Logbook data (1999–2003) for the area that contains the Hidden Falls terminal harvest area indicates that harvest of king salmon under 28 inches occurs when the king salmon bag limit is liberalized.

Swan Lake Junior Trout Derby

The Board adopted 5 AAC 47.045 Cutthroat and Rainbow Trout Management Plan to provide harvest opportunities for trout in fresh waters near Southeast Alaska communities that fit specific

criteria. Under the plan, if a community does not have nearby fresh waters where anglers can fish for trout with bait throughout the year, the department may by emergency order open a season and designate one fresh water near the community to allow the use of bait, eliminate the minimum size limit for trout, and establish a bag and possession limit of 2 fish. Sitka fits this definition. The plan also requires that the fresh water must be close to a community that has good road, trail, or boat access to the fresh water, and the fresh water must be landlocked or otherwise inaccessible to sea-run trout. Swan Lake meets those criteria. Since 1985, the department has annually stocked up to 300 rainbow trout in Swan Lake to provide additional freshwater fishing opportunity in Sitka. The Sitka Rotary Club conducts an annual Junior Trout Derby to introduce young anglers to sport fishing. On June 7, 2003, the regulatory prohibition of bait and minimum size limits were rescinded during the derby to allow young anglers to catch stocked fish (E.O. 1-11-03). A summary of the effort and harvest during the Sitka Rotary Club annual Junior Trout Derby is provided above in the Lake Stocking Project section.

Redoubt and Salmon Lake Sockeye Salmon Closure

In January 2003, the Board adopted the Redoubt Bay and Lake Sockeye Salmon Management Plan. This plan provides a management approach for sport, subsistence, and commercial fisheries that harvest Redoubt Lake sockeye salmon based on a new optimal escapement goal of 7,000 to 25,000 fish. The plan establishes a bag and possession limit of 4 sockeye salmon in Redoubt Bay and the Redoubt Lake drainage, prohibits snagging in Redoubt Bay from June 1 to July 15, and additionally prohibits snagging in Redoubt Bay by nonresident anglers from July 16 to August 31. The plan calls for added management measures for the sport and other fisheries based on projected run strength.

The regulatory plan was approved by the Board in January but did not become effective until July 18, 2003. On June 1, Emergency Order 1-10-03 was issued to effectively implement the provisions of the management plan that pertain to the Redoubt Lake and Bay sport fishery until the

management plan became effective. This emergency order reduced the bag and possession limits for sockeye salmon to 4 per day and in possession in Redoubt Bay and Lake. It also prohibited snagging in Redoubt Bay south of 56° 54.71' N. latitude from July 16 through August 31. Changes to subsistence permits, implemented in May 2003 under the department's permitting authority, effectively carried out provisions of the plan that pertain to the subsistence fishery.

The plan calls for a bag and possession limit of 6 sockeye salmon in Redoubt Bay and the Redoubt Lake drainage, if the projected total escapement on or around July 15 is greater than 30,000 sockeye salmon. On July 14, 2003, the projected total escapement for Redoubt Lake sockeye salmon was 46,689 fish. The department issued Emergency Order 1-26-03, which established a bag and possession limit of 6 sockeye salmon for all sport anglers and prohibited snagging in Redoubt Bay south of 56°54.71' N. latitude by nonresident anglers from July 16 to August 31. The total sockeye escapement through the Redoubt Lake outlet weir was 69,893 fish.

Freshwater Chinook Salmon Fishery Allowed in Sawmill and Salmon Lake Creek

Observations of Chinook salmon in Sawmill Creek and Salmon Lake Creeks on July 11 indicated that hatchery-produced king salmon strayed from their production areas to local rivers. These king salmon exceed hatchery requirements. Regulations changing bag and possession limits were justified according to provisions in 5AAC 47.055 (k) (1) and 5AAC 75.003 (2) (b) to allow harvest of surplus king salmon by sport anglers.

From July 15–July 31, bag and possession limits in the waters of Sawmill and Salmon Lake creeks were established at 10 king salmon of any size (E.O. 1-25-03). King salmon caught in these drainages did not count toward a nonresident's annual limit. On July 31, department staff observed anglers harvesting king salmon, and subsequent snorkel surveys indicated the continued presence of king salmon in these streams. To provide additional opportunity to harvest the king salmon in these streams,

Table 31.—Peak escapement counts of steelhead trout in the Sitka Management Area, 1973–2003.

Stream	Year	Survey type (no.)	Peak survey date	Peak count
Sitkoh Creek	1973	Foot (1)	27-Apr	33
	1976	Foot (1)	17-May	18
	1978	Foot (1)	16-May	17
	1980	Foot (1)	2-Jun	42
	1981	Foot (1)	3-Jun	42
	1982	Foot (2)	30-May	58
	1983	Foot (1)	17-May	143
	1984	Foot (1)	11-May	92
	1985	Foot (1)	21-May	115
	1986	Foot (1)	21-May	58
	1987	Foot (1)	20-May	107
	1988	Foot (1)	24-May	17
	1989	Foot (1)	18-May	20
	1991	Foot (1)	14-May	40
	1993	Foot (1)	14-May	23
	1994	Foot (1)	16-May	67
	1995	Foot (2)	9-May	81
1996	Snorkel (2)	14-May	270	
1997	Snorkel (1)	20-May	329	
1998	Snorkel (2)	12-May	154	
1999	Snorkel (2)	19-May	120	
2000	Snorkel (2)	4-May	112	
2001	Snorkel (2)	16-May	125	
2002	Snorkel (2)	20-May	65	
2003	Snorkel (4)	20-May	253	
Ford Arm Creek	1993	Foot (3)	14-Jul	31
	1994	Foot (1)	17-May	67
	1995	Foot (3)	24-May	75
	1996	Foot (1)	16-May	125
	1997	Snorkel (2)	16-May	296
	1998	Snorkel (2)	11-May	103
	1999	Snorkel (3)	18-May	89
	2000	Snorkel (4)	26-May	134
2001	Snorkel (1)	3-May	110	
2002	Snorkel (3)	22-May	122	
2003	Snorkel (4)	19-May	181	

Emergency Order 1-30-03 was issued to reopen the fishery until September 30 with identical regulations as Emergency Order 1-25-03a. Department staff continued to observe king salmon harvest until September 9.

Coho Salmon Restrictions for Bear Cove

Coho returning to Medveje Hatchery in 2003 were not expected to meet brood stock needs due to low ocean survival. Estimated survival (6.6%) of Medveje coho salmon was less than survival estimated during 1993, 1994, 2001, and 2002 (at or below 8.8%) when brood stocks needs were not met. As of September 15, 2003, no coho salmon had been observed at the hatchery raceway. On September 19, 2003, all waters east of a line between ADF&G regulatory markers located on the north and south shores of Bear Cove were closed to the retention of coho salmon to ensure brood stock needs could be achieved (E.O. 1-36-03).

Surveys

Sitka area streams are surveyed annually to count steelhead and coho salmon. Peak counts are used as indices of spawning escapement for tracking trends in spawning abundance. In addition, razor clams are being monitored on an important local beach.

Steelhead

Beginning in 1973, stream surveys have been conducted annually to count spawning steelhead in Sitkoh Creek, and, beginning in 1993, in Ford Arm Creek (Table 31). Visual surveys conducted by foot were replaced with snorkel surveys in 1996 (Sitkoh Creek) and 1997 (Ford Arm Creek) because snorkel surveys were found to observe a higher proportion of steelhead populations. Observers attempt to conduct surveys once per week for three consecutive weeks during late April and May to ensure a count during the week of peak inriver abundance. In 2003, four steelhead surveys were conducted on both streams.

The highest count for Sitkoh Creek occurred on May 20 and is the third highest since 1996, when snorkel surveys were initiated. Visibility during the surveys was normal or excellent due to low water conditions. Bracketing of peak escapement timing was not accomplished due to increasing survey counts for each survey conducted. The peak escapement count was identified on May 21 using daily weir counts. With a weir in place to enumerate immigrating and emigrating steelhead, survey counts were compared to the inriver abundance to assess the feasibility of creating an

expansion factor for snorkel survey counts. Four snorkel counts comprised from 31% to 56% of the inriver abundance. In future years snorkel surveys will be conducted to bracket the peak escapement timing so the peak survey count can be compared with total escapement.

Four surveys were conducted in Ford Arm Creek between April 28 and May 29, 2003. The peak number of steelhead (181) was counted on the third survey under normal water conditions. This was the second highest count since the inception of snorkel surveys in 1997.

Coho Salmon

Sport and Commercial Fisheries staff conduct annual foot, snorkel, and aerial surveys of streams in the Sitka area to index spawning escapements of coho salmon. Observer visibility and survey conditions in 2003 were good for all surveys. The peak escapement counts in Sinitzin and St. John Baptist Bay Creeks were the only coho escapement counts above the 5-year average for the 6 systems surveyed (Table 27). With the exception of Starrigavan River, counts for all surveyed streams were close to or above the 1980–2003 average. Marine survival is the primary factor influencing southeast coho salmon populations; estimates of marine survival for coho salmon throughout the region were relatively high in 2003. Lower escapements in the Sitka area during 2003 might be attributed to lower parent escapement, as indicated by surveys conducted in 2000. Coho smolt production in Nakwasina in 2002 was the lowest since inception of the Nakwasina coho project in 1998 (Table 28).

Access Projects

Discussions between ADF&G, City and Borough of Sitka (CBS), and DNR Division of Parks staffs concerning the Starrigavan boat launch facility began in 2002 and continued in 2003. Funding was procured in 2003 for the replacement of the ramp, dock, and parking area extension in the fall 2004. The Starrigavan dock will be replaced by the CBS and the existing dock will be used to replace the dock at Sealing Harbor Boat Launch Facility. A maintenance agreement for the Starrigavan boat launch facility with the Division of Parks is currently being drafted and will be completed prior to construction.

The CBS granted ADF&G permission to place informational bulletin boards at the top of Sitka harbor ramps. These bulletin boards will be installed in April 2004 and used solely to post department information.

The concept of a boat launch facility, including boat ramp, float, parking and picnicking areas, was also discussed with staff of the CBS Parks and Recreation Department. In 2000, the City submitted a funding request for such a facility at Herring Cove in Silver Bay. In 2001, ADF&G allocated \$150,000 to conduct a feasibility study for the site. In 2002, the Herring Cove site was surveyed and three configurations for the boat ramp facility were developed. Also in 2002, two public meetings were held regarding the proposed Herring Cove facility and the feasibility study was started. Conceptual drawings of the Herring Cove Boat Launch were presented to the public for comment at the second meeting and again in February 2003. Since the third meeting, the CBS support for this project has waned. For this project to proceed, matching funds from the CBS will have to be provided.

In consultation with Sitka Trail Works, the need for a float at Heart Lake to facilitate angler access from the muskeg shoreline was identified. The department is currently working on dock plans and a maintenance agreement with Sitka Trail Works. The department has agreed to purchase the dock, which will be installed by Sitka Trail Works in summer 2004.

Federal Subsistence Management

In 2002, the Federal Subsistence Board (FSB) deliberated on one federal subsistence proposal specific to the Sitka area. Sitka Tribe of Alaska (STA) submitted a proposal to create federal subsistence regulations for Redoubt sockeye salmon, similar to a proposal they submitted in 2001. The Southeast Regional Advisory Council (RAC) supported the proposal. Both the department and federal staff opposed the proposal for the following reasons: the FSB does not have jurisdiction over marine waters identified in the proposal, closing areas to non-federally qualified users would unnecessarily restrict non-federal fisheries because there are no conservation problems, and divergence between state and federal programs would increase public confusion and

impact the ability to monitor harvest. Additional concerns of the department were the incidental harvests of non-targeted species with a proposed year-round federal subsistence season, harvest limits that would allow overfishing, and an unclear identification of subsistence needs. The FSB deferred action on harvest limits, methods, and means pending action by the Alaska Board of Fisheries Board on the Redoubt Sockeye Management Plan. The portions of the proposal that extended Federal jurisdiction in Redoubt Bay and closed the Redoubt area waters to non-federally qualified users were rejected.

Alaska Board of Fisheries

Redoubt sockeye salmon are primarily harvested in terminal subsistence and sport fisheries and incidentally caught in Southeast Alaska's commercial and sport marine fisheries. Despite 20 years of escapement data, an escapement goal or management plan had not been established to guide the department in the management of the Redoubt sockeye fisheries due in part to inconsistencies in the escapement data and confounding factors such as lake fertilization and the introduction of competing fish species. Biological and physical factors affecting Redoubt Lake production and runs are complex and still not fully understood.

In recent years, use conflicts surfaced as Redoubt sockeye runs, fishing effort, and harvest in the sport and subsistence fisheries increased. In 2002, the FSB deferred establishing harvest limits, methods, and means for federally qualified users at Redoubt Lake pending action by the Board on the Redoubt fishery issues. Recognizing the need for a Redoubt Lake sockeye salmon management plan and to have the plan in regulation, the department, in consultation with the Sitka Advisory Committee, submitted a proposal for the development of an escapement-based management plan. The department simultaneously developed a Sustainable Escapement Goal as part of the planning process.

In March 2002, the Sitka Advisory committee formed the Redoubt Lake Sockeye Salmon Task Force to develop and facilitate public comment on a Redoubt Lake sockeye salmon management plan and associated allocation issues. The committee charged the task force to develop an escapement-

based management plan for Redoubt Lake sockeye salmon fisheries using a consensus approach with representatives from all fisheries that harvest Redoubt Lake sockeye salmon. The Task Force met five times, developed and reached consensus on a draft management plan, and presented it to the committee in December 2002. The committee unanimously supported the plan and submitted it to the Board. The department also supported the development of the plan, but was neutral on its allocative elements.

In January 2003, the Board adopted the Redoubt Bay and Lake Sockeye Salmon Management Plan (5 AAC 01.760). The plan provides a management approach for sport, subsistence, and commercial fisheries that harvest Redoubt Lake sockeye salmon based on an optimal escapement goal of 7,000 to 25,000 fish. Under the new plan, when total escapement is less than 10,000, the sport fishery would be closed. The plan establishes a bag and possession limit of 4 sockeye salmon in Redoubt Bay and Lake, prohibits snagging in Redoubt Bay from June 1 to July 15, and prohibits snagging in Redoubt Bay by nonresident anglers for an additional period from July 16 to August 31 if the projected total escapement is greater than 10,000 sockeye. If the sockeye escapement is projected to be greater than 30,000, the plan establishes a bag and possession limit of 6 sockeye. The plan calls for added management measures for the sport and other fisheries based on projected run strength.

Habitat

Sitka staff reviewed a total of 18 Title 41 and Title 8 Fish Resource Permits in 2003 (Table 32). Comments and suggested permit requirements were provided to the appropriate permitting agency to lessen or prevent fish habitat degradation.

Sitka staff reviewed and made field inspections of the Blue and Green Lakes hydroelectric projects in 2003. Considerable staff time was spent reviewing and commenting on the Blue Lake Hydroelectric Facility re-licensing application. Numerous interagency meetings were attended to develop instream flow and fish monitoring studies that will be used in the development of the new FERC license for the Blue Lake Hydroelectric Facility.

Staff reviewed the Finger Mountain Timber Sale, Record of Decision and Impact Statement and Final Impact Statement. The False Island Timber Sale scoping comments were also reviewed and comments were provided to the U.S. Forest Service.

Sitka staff participated in the first Indian River Working Group meeting in 2003. The Indian River Working Group is an informal advisory organization formed to assist the City and Borough of Sitka in the development of the Indian River Corridor and Watershed Master Plan.

JUNEAU/GLACIER BAY MANAGEMENT AREA

The Juneau management area includes all marine and fresh waters in the vicinity of Admiralty Island, Douglas Island, Northern Chichagof Island, Lynn Canal, and the immediate Juneau area (Figure 18). Included in this area is the Glacier Bay harvest area as reported in the Statewide Harvest Survey. The major Juneau area sport fisheries are in marine waters for Chinook salmon, coho salmon, Pacific halibut, and Dungeness crab, and in fresh water for coho salmon, cutthroat trout, Dolly Varden, and steelhead. Popular personal use fisheries consist of sockeye fisheries in the Taku River and at Sweetheart Creek, and a red king crab fishery that occurs in much of northern Southeast Alaska but with high levels of fishing effort around Juneau in Subdistrict 11-A. Sport Fish area management staff for the Juneau area consists of one permanent fishery biologist III, Brian Glynn, and a fishery biologist II assistant, Jason Shull.

Local Management and Research Programs

Taku River Chinook and Coho Salmon Assessment

The Taku River Chinook and coho salmon stock assessment projects are designed to monitor the status of the fish stocks and manage the fisheries they support. These projects consist of coded wire tagging (CWT) studies to estimate smolt production, smolt survival and fishery contribution. Returning adult Chinook and coho salmon were captured by gill net and/or by a fish wheel at Canyon Island, tagged with spaghetti

Table 32.—Title 41 permits in the Sitka area reviewed and comments submitted in 2003.

Location	Description of Work
Redoubt Lake	Adult salmon weir installation (USFS)
Salmon Lake	Adult salmon weir installation (ADF&G)
Nakwasina	Salmon smolt weir installation (ADF&G)
Sitkoh Weir permit	Steelhead weir installation (ADF&G)
Crab Bay	Cleanup of former log transfer facility (USFS)
Crab Bay	Cleanup of former log transfer facility (USFS)
Appleton Cove Creek	Construction of fish pass (USFS)
Hidden Fall Lake outlet	Construction of hatchery lagoon dike. (NSRAA)
Indian River	Debris removal pedestrian bridge (City and Borough of Sitka)
Corner Creek	Fish pass maintenance (USFS)
Indian River	Inriver repair of hatchery intake (Sheldon Jackson College)
Sitka Sound 267	Pile driving (Private)
Mud Bay Creek	Replacement of bridge (USFS)
Sawmill Creek road	Replacement of culvert (City and Borough of Sitka)
False Island Ponds	Salmon smolt weir installation (USFS)
Swan Lake	Sediment Removal (City and Borough of Sitka)
Appleton Cove Pond	Salmon smolt weir installation (USFS)
Sitka Sound 153	Tide land fill (Private)

tags, and recovered in Canadian fisheries or during spawning ground surveys to estimate escapement.

Jordan Creek and Duck Creek Coho Salmon Assessment

The Jordan and Duck Creek coho salmon assessment projects are designed to monitor coho salmon production while long-term stream restoration efforts are being implemented. In both streams, coho salmon smolt were counted and coded-wire-tagged as they emigrated downstream past a weir. The Duck Creek weir was located on the upstream end of the culvert that lies beneath the access road to Mendenhall Mall. Because of low water conditions in Duck Creek, only about a dozen emigrating coho salmon smolt were counted and tagged.

In Jordan Creek, the smolt weir was located within the airport perimeter just above the intertidal area, and was operated April 4–June 30, 2003. During that time period, the following numbers of emigrating fish were counted: 9,545 coho smolt, 9,625 coho fry, 1,008 chum salmon fry, 457 pink salmon fry, 150 Dolly Varden, and 14 cutthroat trout. Ten immigrating steelhead trout were also counted. Emigrant Dolly Varden and cutthroat trout were sampled for length and all cutthroat trout were given a PIT tag.

In the fall, an adult fish weir was installed on Jordan Creek at the smolt weir site. Returning adult coho salmon, coded-wire-tagged as smolt in the spring of 2002, were counted. Because it was likely that a large portion of the 2002 smolt emigration had been captured and coded-wire-tagged, tagged adults returning in 2003 were not sampled for presence of CWTs at the weir. CWT recoveries were made during escapement surveys. All carcasses and spawned out fish encountered on the spawning grounds were inspected for the presence of CWTs to obtain the tagged fraction of the 2002 smolt migration. The heads of all non coded wire tagged carcasses were also taken so that they could be inspected for thermally marked otoliths to determine if they had strayed from nearby Macaulay Hatchery. One other potential source for adults straying into Jordan Creek was from hybridized coho salmon that had been coded-wire-tagged and released from DIPAC’s Sheep Creek facility as part of a study on out-breeding depression.

In the fall of 2003, a total of 399 adult coho salmon were counted at the weir. There were 132 carcasses sampled on the spawning grounds of which 27 (20%) contained thermally marked otoliths and 3 had CWTs used in the out breeding depression study. One adipose fin clipped adult coho salmon was found bearing a CWT that had

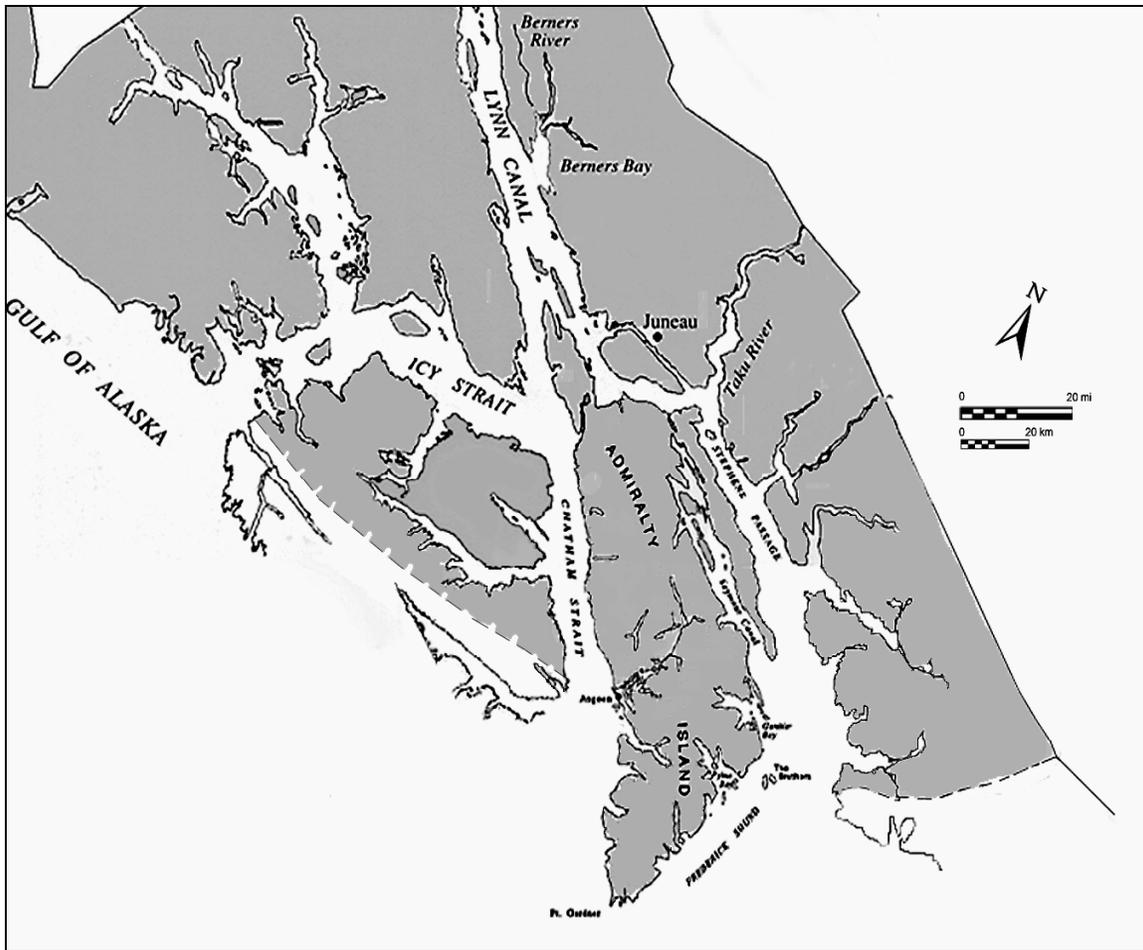


Figure 18.—Map of the Juneau/Glacier Bay Management Area.

been injected in 2001 on the Chilkat River in Haines (J. Lum *personal communication*). The activities and data associated with the Jordan and Duck Creek work will be reported in an FDS report in 2004.

Auke Creek Weir Activities and Results

The National Marine Fisheries Service personnel along with Sport Fish Division staff worked cooperatively at the Auke Creek weir in conducting the annual stock assessment program on the fish of Auke Creek and Auke Lake. Counts of fish that emigrated from and immigrated into the Auke Lake system in 2003 are listed in Table 33. More detailed results of the Auke Creek investigations are summarized in an annual report prepared by the weir staff (Taylor and Lum *Unpublished*).

In addition to counting migrant anadromous fish in the Auke Lake drainage, a mark–recapture study was conducted to estimate the population of resident cutthroat trout in the lake after the anadromous population emigrated from the system. This study found that the lake contained an estimated 423 resident cutthroat trout greater than 180 mm in length (Taylor and Lum *Unpublished*).

Turner Lake and Florence Lake Cutthroat Trout Research

The Trout Research section conducted two-event mark–recapture population estimates at Florence Lake (Bangs *In prep*) and Turner Lake (Harding et al. *In prep*). The Florence Lake work was part of a project designed to monitor cutthroat trout abundance at various lakes in the region on a

Table 33.—Spring and fall counts of salmon and sea run cutthroat trout and Dolly Varden at Auke Creek, 2002.

Spring Weir Counts							
	Pink Salmon Fry	Coho Salmon Smolt	Sockeye Salmon Smolt	Chum Salmon Fry	Dolly Varden	Cutthroat Trout	
2003	95,132	3,573	21,137	5,374	5,066	254	
Avg. (1980-2003)	106,402	6,196	17,089	5,207	6,294	261	
Fall Weir Counts							
	Pink Salmon	Coho Salmon	Sockeye Salmon	Chum Salmon	Dolly Varden	Cutthroat Trout	Chinook Salmon
2003	10,580	579	3,239	1,578	3,878	120	164
Avg. (1980-2003)	10,274	718	5,158	815	4,506	247	243

periodic basis. Abundance estimates at Florence Lake have been conducted in 1994, 2002 and 2003 and they all estimate the abundance of cutthroat trout greater than 180 mm in length. These studies showed the following abundances of cutthroat in Florence Lake: 10,948 fish in 1994; 13,772 fish in 2002; and 12,473 fish in 2003.

Cutthroat trout abundance has been estimated at Turner Lake since 1994 as part of a long-term project designed to estimate surplus production. Turner Lake is the only lake in the region that has a catch and release restriction and, because of its proximity to Juneau, it receives the highest sport fishing effort of all lakes with USFS cabins. Because this study requires a substantial amount of data, Turner Lake is visited at least twice each year by the research staff. This project has demonstrated a relatively stable population with estimates of abundance ranging from 1,539 to 2,791 cutthroat trout (Harding et al. *In prep*).

Juneau Marine Creel Program

The Juneau marine creel survey program provided important inseason harvest, effort, and stock composition information concerning the local marine boat sport fishery. Dockside interviews were conducted from late April to late September. This program has gone through many changes, but is likely the longest running on-site marine creel program in Alaska.

In 2003, Chinook and coho salmon harvests were estimated to be slightly greater than 5-year average harvests, while halibut harvests were roughly 50% above the 5-year average harvest. Estimates of effort, harvest, catch, and

contributions of wild and hatchery stocks all appear in an annual FDS report covering harvest studies of selected marine sport fisheries (Wendt and Jaenicke *In prep*).

The hatchery contribution of Chinook salmon to the Juneau marine boat sport fishery in 2003 was 3,037 fish, or 55% of the creel survey harvest estimate of 5,516 fish. Eighty-four percent of the hatchery contribution came from nearby Macaulay Salmon Hatchery. The next largest hatchery contribution was 283 fish, or 9%, which originated from Hidden Falls Hatchery. The remaining 7% of the hatchery contribution, or 216 Chinook, came from the following sources: Neets Bay (35); Medvejie (30); Little Port Walter (23); Tamgas (15); Whitman Lake (7); non-Alaska hatcheries (11).

The hatchery contribution of coho salmon to the Juneau marine boat sport fishery in 2003 was 2,166 fish, or 12% of the creel survey harvest estimate of 18,682 fish. Ninety-nine percent (2,142 fish) of the hatchery contribution of hatchery coho salmon came from nearby Macaulay Hatchery. The remaining hatchery coho salmon came from Hidden Falls (23 fish), and Snootli Creek (1 fish) in British Columbia.

Juneau King Crab Survey

Division of Commercial Fisheries staff conducted their annual king crab stock assessment surveys in surrounding marine waters. The area surveyed includes subdistrict 11-A. Data from the survey is used to estimate the harvestable percentage, or guideline harvest level, of the total mature biomass.

Management Actions

Chinook Salmon Terminal Harvest Area

Emergency Order 01-13-03, issued June 9, 2003, and effective June 11, 2003, opened a terminal saltwater area around Juneau to liberalize the harvest of surplus hatchery-produced Chinook salmon (Appendix A2). The bag and possession limit in this saltwater area was 4 Chinook salmon, any size. This regulation remained in effect through August 31, 2002. The terminal area included all contiguous marine waters east of a line from Indian Point in Auke Bay to the tip of False Outer Point on North Douglas Island, and waters west of the Juneau-Douglas Bridge. Chinook salmon taken in this terminal area by non-residents did not count toward their annual limit of 3 king salmon and there was no harvest-recording requirement.

A similar emergency order (E.O. 1-16-03), issued June 17, 2003, opened all freshwater drainages crossed by the Juneau road system that were open to sport fishing to Chinook salmon harvest. Harvest limits in these freshwater areas were the same as in the saltwater terminal area: 4 Chinook salmon daily and in possession, any size. This regulation remained in effect through September 30, 2003. Anglers were also provided liberalized methods and means at Fish Creek Pond, including use of bait, retention of Chinook salmon hooked other than in the mouth, and use of fixed or weighted hooks and lures and multiple hooks with a gap between the point and shank larger than ½ inch.

Saltwater Closure Adjacent to Auke Creek

A small area of Auke Bay immediately off the mouth of Auke Creek was closed to snagging from July 2 through September 15, 2003 (E.O. 1-18-03). The area was inside of a line extending from the Auke Bay Laboratory's boat dock south to the nearest of two white buoys marking the location of the laboratory's salt water intake pipe, then continuing to an identical second buoy, and finally extending to a departmental regulatory marker on the Fritz Cove shoreline.

This emergency order was different from actions used in prior years, when during a similar period all sport fishing was prohibited in area. Both strategies were implemented for the purpose of

protecting a small run of wild sockeye salmon that return to the Auke Lake system. The return is vulnerable to intentional and incidental snagging by anglers targeting hatchery king salmon that also return to the area. Harvest of sockeye salmon in salt water near the mouth of Auke Creek has been closed by regulation since 1983. In recent years, weir staff have documented snagging injuries in up to 10% of the sockeye salmon seen at the Auke Creek weir. In 2003, a snagging prohibition was utilized instead of a complete closure to allow fishing opportunity for king salmon and other species in this popular shoreline area. Following the snagging prohibition, very little fishing effort was observed in the area. The low fishing activity may have been the result of years of complete closures during this time period. The resulting sockeye escapement at the Auke Creek weir totaled 3,239 fish, short of the escapement goal of 5,000.

Twin Lakes Stocking

The department contracts with Douglas Island Pink and Chum, Inc. (DIPAC) to annually stock Twin Lakes with 10,000 catchable Chinook or coho salmon. This project supports Family Fishing Day and all sport fishing at the Twin Lakes throughout the year. As usual, in 2003, DIPAC placed approximately half of the 10,000 fish in Twin Lakes in late March, to provide space for young-of-the-year fry in their raceways. The remainder of the fish were stocked in early May, one month prior to Family Fishing Day.

In addition to DIPAC's contracted stocking obligations, they planted an additional 5,800 fish in Twin Lakes on October 23 for winter ice fishing opportunities. In some prior years milfoil growth has restricted fishing opportunity along much of the lake's shallow shoreline area. Shoreline areas were relatively clear of milfoil throughout all of 2003.

Personal Use King Crab

The personal use fishery is managed under the regulatory guidance of the Section 11-A Red and Blue King Crab Management and Allocation Plan (5 AAC 34.111). The plan allocates 40% of the harvest to the commercial fishery and 60% to the personal use fishery. To assure that the personal use fishery extends into the winter months, the

fishery is managed for a summer component extending from July 1 to September 31 and a winter component that runs from October 1 until March 30. Under the plan, 50% of the total harvest is reserved for the summer personal use fishery and the remaining 10% is reserved for the winter season. Both the summer and winter personal use fisheries can be closed early if their respective quotas are reached prior to their respective scheduled closure dates of September 30 and March 31.

In 2003, the summer personal use fishery was closed on September 7 and as of this writing, the winter fishery is expected to remain open at least through the end of February 2004. The bag and possession limit for king crab in Section 11-A was 2 crabs per person with a seasonal limit of 20 crabs per person. Limits for the winter fishery were 1 crab, with a seasonal limit of 20 crabs per person.

Escapement Surveys

Steelhead

Peak counts of steelhead escapement in Peterson Creek on the Juneau road system and Pleasant Bay Creek in lower Seymour Canal (Table 34) were again conducted in 2003 as part of a regionwide program to provide an annual index of steelhead abundance. Because of the relatively low number of fish in a given steelhead population, these escapements are monitored through weekly “snorkel surveys” as opposed to the foot surveys used for monitoring coho escapements. As in a foot survey, two observers count the number of steelhead seen while snorkeling through a designated index area.

Peterson Creek and Pleasant Bay Creek have been selected as the best indicator streams in the Juneau area based primarily on the relatively short length of stream accessible to steelhead spawners. The barrier falls on each of these two streams limits the upstream migration of steelhead to a distance that can be surveyed in its entirety in only a few hours. Additionally, they are popular among sport anglers, as Peterson is easily accessed from the Juneau road system, and Pleasant Bay provides a larger population of fish in a pristine setting.

Snorkel surveys of Peterson and Pleasant Bay Creeks have been conducted since 1994 and 1996

respectively; thus we are still learning about variability in annual run strength and peak timing. The peak count in Peterson Creek in 2003 occurred on May 8 and was 36 fish, roughly 25% greater than the 1997–2002 average. The peak count in Pleasant Bay Creek in 2003 occurred on May 13 and was 50 fish; this was up from last year’s record low count, but comprised only 60% of the 1997–2002 average of 83 fish.

Coho Salmon

Escapement of coho salmon to five streams along the Juneau road system is monitored annually by multiple foot surveys of each water body (Table 35). The five streams provide an index of run strength in the Juneau area and are also utilized to supplement abundance estimates of coho escapement on a regional level.

Access Projects

In late 2003, the Amalga Harbor Launch Ramp Rehabilitation project was started. Improvements to the Amalga Harbor and the North Douglas launch ramps are still planned to occur in the near future. No shoreline access projects were undertaken in 2003.

Other Issues

Hatchery Chinook Salmon Terminal Escapements and Associated Issues

In 2003, the return of hatchery king salmon to the Juneau area was a record 10,312 fish (Table 36). This estimate includes fish caught in the sport and

Table 34.—Escapement peak counts of steelhead trout derived from annual snorkel surveys.

Year	Peterson Creek	Pleasant Bay Creek
1997	26	155
1998	29	81
1999	38	132
2000	27	48
2001	41	48
2002	13*	36
1997-2002 Avg.	29	83
2003	36	50

* 2002 peak count possibly biased low due to poor counting conditions.

Table 35.—Peak survey counts (foot) of spawning coho salmon in Juneau area index systems, 2003, compared with average peak counts for 1981–2001 and escapement goals.

	Jordan Creek	Montana Creek	Peterson Creek	Steep Creek	Switzer Creek
1981–2002 average	270	992	263	266	87
2003 peak count	78	808	203	400	100
2003% of average	29%	81%	77%	150%	115%
Point esc. goal	150	450	200	150	50
Esc. goal range	75–200	200–500	100–350	100–300	25–75
2003 at or above goal?	Yes	Yes	Yes	Yes	Yes

Table 36.—DIPAC hatchery Chinook salmon returns as indicated by the sum of estimated sport and commercial fishery contributions plus returns to Macaulay Hatchery.

Year	Number of Chinook salmon
1996	3,080
1997	2,858
1998	2,479
1999	3,285
2000	4,572
2001	7,740
2002	10,312
2003	5,709

commercial fisheries and fish returning to the hatchery.

In 2003, 242,561 hatchery reared Chinook salmon smolt were released in the Juneau area. Of those, 120,891 were released at the Macaulay Salmon Hatchery, and 121,670 were released at the mouth of Fish Creek. (Table 37)

Shoreline fishing for adult hatchery Chinook salmon in the terminal area occurs at all three terminal release sites: Macaulay Hatchery, Fish Creek and the mouth of Auke Creek. A creel survey to estimate harvest and effort is conducted only at Macaulay Hatchery (Table 38).

Hatchery Chinook salmon smolt were not released at Auke Bay in 2003, as they have in the past, for two reasons. The primary reason was that a very low number of Chinook smolt were available for release due to high juvenile mortality. In 2003, it was also proposed the Auke Creek release site be eliminated from the program. The proposal was based on conflicts between shoreline angler activity and boating traffic within the nearby Statter Harbor, and a chronic problem at the mouth of Auke Creek where shoreline anglers targeting hatchery Chinook incidentally snag and

illegally harvest sockeye salmon from the small run bound for Auke Creek. The sockeye salmon issue is explained in greater detail in the Management Actions section.

Geographically, the mouth of Auke Creek is an excellent release site for the Juneau area hatchery Chinook salmon because it provides a sheltered site for net pens, and a protected fishing area that is easily accessible from the harbor. Despite these benefits, management staff have for some time discussed omitting the Auke Bay release site from the hatchery Chinook program citing the fact that it tends to draw shoreline anglers to an area that is closed to sockeye salmon harvest (by regulation since 1983) and typically becomes closed to all fishing (annually by emergency order) during the time period that hatchery Chinook and wild sockeye are both present. The discovery of an additional fishing closure within the harbor area (under the authority of the city harbormaster) provided further justification for removing the release site from the hatchery Chinook program. The Auke Creek release site was not originally included in the 2003 Draft Statewide Stocking Plan. Auke Creek was included as a release site in the 2003 Final Statewide Stocking Plan after considering comments submitted in eight letters during the draft comment period. All but one letter was from a charter boat operator and each of these strongly contested the decision to eliminate the site from the program, citing the importance of the site because of its proximity to the harbor and its fishability when poor weather limits fishing in other areas. The remaining letter asked that we consider releasing hatchery Chinook salmon from the south end of Gastineau Channel at a location such as Sheep Creek, Dupont or even as far south as Taku Harbor. The author believed that smolt released from the hatchery tended to return as

Table 37.—Releases of Chinook salmon smolts from Juneau area hatcheries.

Release Year	Brood	Juneau area Chinook salmon smolt releases by release site			
		Sheep Creek	Macaulay Hatchery	Fish Creek	Auke Creek
1986	1984	30,280 ¹			
1987	1985	31,112 ^{1,3}			
1988	1986	31,556 ^{1,3}			
1989	1987	120,000 ¹	11,000		
1990	1988	133,151 ¹	101,462 ¹		
1991	1989	100,543 ^{1,2}	43,595		
1992	1990		191,765		
1993	1991		207,536		
1994	1992		241,336		
1995	1993	28,458	158,681	196,549	193,464
1996	1994	35,423	64,360	109,274	106,255
1997	1995	44,664	171,908	179,164	176,193
1998	1996		212,285	179,059	174,230
1999	1997		221,443	183,701	173,207
2000	1998		208,586	166,670	56,929
2001	1999		213,232	183,252	157,393
2002	2000		213,276	178,525	85,040
2003	2001		120,891	121,670	-

¹ Snettisham Hatchery fish released at Sheep Creek and Macaulay as part of cooperative agreements for sport fishery enhancement and brood stock development, respectively.

² Smolt released from Sheep Creek in 1991 are actually age 2.0 brood year 1988 fish.

³ Brood year 1987 and 1988 fish are DIPAC fish produced at Snettisham for DIPAC brood stock development.

adults from the north across the Gastineau Channel bar, rather than from the south end of the channel. Although not confirmed, this concept has support from hatchery staff. As a result of this comment and a desire of management staff to further distribute fishing opportunity throughout the Juneau area, it was decided to release up to 100,000 Chinook smolt from the Sheep Creek release site in the spring of 2004, and to continue releasing smolt from this site in subsequent years.

Alaska Board of Fisheries

Eight proposals to modify sportfishing regulations in the Juneau Management Area were brought before the Board at the February 20–25, 2003, meeting in Ketchikan (Appendix A1). The Board adopted two proposals, No. 344 and No. 351.

The department submitted proposal No. 344 to institute regulations for Auke and Mendenhall

Lake and Peterson Lagoon, consistent with existing regulations on other high-use cutthroat trout lakes where a 14-inch minimum and 22-inch maximum size limit and a year round bait restriction are in place. The effect of proposal No. 344 would eliminate the use of bait in Auke Lake, Mendenhall Lake and Peterson Lagoon, where regulations included the size limits but not the bait restriction. There was little discussion on this proposal at the Board committee meeting and it was adopted with little opposition.

Proposals No. 351 and No. 352 were submitted to address a regulation that became outdated when facilities (Gastineau Hatchery and its nearby fishing dock) directly referenced by the regulation were replaced under different ownership and names (Macaulay Hatchery and the new Channel Wayside fishing dock). A regulation, existing in 2003, prohibited snagging within 150 feet of the

Table 38.—Terminal Sport Harvest of DIPAC Salmon at Macaulay Salmon Hatchery.

Year	Angler Days	Large Chinook	Small Chinook	Large Coho	Small Coho	Chum	Pink
1993	15,825	118		7,057		1,515	713
1994	24,192	70		3,509		593	9,197
1995	21,546	157	223	2,212	422	2,047	3,421
1996	19,189	695	88	2,860	765	2,274	1,039
1997	22,385	931	110	3,507	1,601	1,605	2,878
1998	28,273	471	86	11,722	1,187	2,376	5,653
1999	18,828	109	134	7,275	144	1,028	2,986
2000	23,539	155	147	10,303	218	1,520	2,386
2001	19,045	581	92	4,222	181	1,176	1,453
2002	22,531	1,120	92	11,521	570	1,706	1,079
1993–2002 Avg.	21,535	441	122	6,419	636	1,584	3,081
2003	25,548	2,382	78	12,072	346	1,933	2,295

Gastineau Hatchery fishing dock. That regulation became outdated when the hatchery and dock were renamed.

Proposal No. 351, submitted by DIPAC, requested to maintain the intent of the original regulation by prohibiting snagging in salt waters between Macaulay Hatchery and the Channel Wayside dock. Little support for maintaining a snagging prohibition was voiced at the committee meeting. The Board voted to repeal the existing regulation, thereby allowing snagging in this area. Support for this came from the Juneau/Douglas AC (advisory committee) and the Juneau harbormaster, who maintains the dock facility.

The Board did not adopt six proposals affecting the Juneau area. The intent of Proposal 350 was to prohibit snagging in salt waters adjacent to Peterson Creek located on the Juneau road system. Both the Juneau Advisory Committee and the Klukwan Advisory Committee supported this proposal. It was also pointed out that a seasonal prohibition on snagging would increase protection for steelhead while providing opportunity to target enhanced chum salmon that return later in the season. The Board agreed with the department that because this steelhead stock was monitored annually, management staff could take action should a conservation concern develop.

Proposal No. 354 sought to allow only unbaited, artificial flies (unweighted) and fly rods and reels when fishing at Montana Creek and the Mendenhall River. It also asked that a catch and release restriction be adopted such that all fish caught would have to be returned to the river

immediately. Department comments stated that the proposal sought to diversify sportfishing opportunity and that there were no conservation concerns in these drainages that would justify catch and release or fly-fishing only regulations. The department also stated that there are currently no regulations that provide for or describe the use of fly rods or reels; current regulations for fly-fishing describe only the terminal gear, and enforcement of this proposal would be difficult. The Juneau Douglas AC voted to support the proposal if it was modified so that the restrictions consisted of barbless hooks and artificial lures only. The AC was initially opposed to the proposal; members stated that the area was easily accessible for youths and that they might not afford or be able to use fly-fishing gear. The Board voted to oppose the proposal after comments stated fly fishers already use the site under current regulations; the proposal would decrease sportfishing opportunity; fly reels and rods are not defined in regulation; and there was no conservation concern to justify a no harvest regulation.

Proposal No. 356 would have allowed anglers to only use a single, barbless hook when sport fishing from April 1 through September 15. The proposal was written such that it would apply to all fresh waters of Southeast Alaska. However the specific streams mentioned in the proposal were in the Icy Strait area. The department opposed the proposal based on its apparent regionwide scope and the fact that there is no conclusive evidence of conservation benefits with the use of single barbless hooks. The Board voted to oppose the

proposal based on the following comments voiced during the Board committee meeting: lack of information suggesting any conservation concern; the fact that the U.S. Forest Service limits guided use in the specific drainages mentioned in the proposal; and comments from the Juneau/Douglas AC stating that the language was too broad but that they would support the proposal with amended language for freshwater streams in the Icy Strait area. No support for the proposal was provided during the Board committee meeting.

Proposal No. 334 would reduce the bag limit of 6 coho salmon to 2 coho per day. The department was neutral based on the fact that little information was available for stocks stated in the proposal and general SWHS trends indicated that effort on streams in the Icy Strait area was low, albeit increasing, compared to streams on the Juneau road system. Comments against the proposal, also brought out in committee, stated that the U.S. Forest Service has limited the number of guided anglers to minimize conflicts between user groups.

Proposal No. 348 sought to reduce the bag limit for Dolly Varden to 2 fish per day. Proposal 348 was similar to proposals 334 and 356 in that it dealt with restrictions on freshwater streams in the Icy Strait area. The department was neutral on this proposal based on the lack of site-specific harvest or stock assessment information on Dolly Varden in the Icy Strait area.

Land Use

Comments were provided to local, state and federal agencies concerning habitat issues related to local development projects, for applications for Fish Resource Permits (FRP) and Fish Transport Permits (FTP), for Department of Natural Resources (DNR) habitat permit applications, and within different phases of the NEPA process. Major efforts in this area of work consisted of providing comments:

- to the City and Borough of Juneau for development of the Fish Creek, Amalga Harbor and Eagle Beach recreation areas;
- to DNR or ADF&G Habitat Division for culvert installation requirements in widening Glacier Highway, beaver dam removal and management at the Mendenhall Glacier

Recreation Area, developing a golf course on Peterson Creek on north Douglas Island, and bioengineering and bank stabilization on upper Montana Creek Road;

- for numerous FRP applications to sample and or collect fish species for either research or educational purposes, to determine presence/absence of fish in areas proposed for construction projects and/or commercial development, or for U.S. Forest Service enhancement projects;
- for FTP applications for transporting cutthroat trout from Florence Lake to Glacier/Moraine Lakes and for a Kadashan River coho salmon egg take in conjunction with the Indian River coho enhancement project; and,
- to the agencies and consultants involved in the Glacier Bay National Park and Preserve Vessel Quotas and Operating Requirements Environmental Impact Statement; and the Juneau International Airport Expansion EIS.

HAINES/SKAGWAY AREA

The Haines/Skagway management area includes all waters from Point Sherman to the Canadian border, including Lynn Canal and all drainages entering it (Figure 19). The major fisheries in the area are in saltwater for Chinook salmon and Pacific halibut and in freshwater for cutthroat trout, Dolly Varden, coho, sockeye, and pink salmon. Two major drainages support substantial sport fisheries in the Haines area, the Chilkoot and Chilkat rivers. The Skagway area has limited fisheries resources and relies more on hatchery production to provide sportfishing opportunities. Permanent Sport Fish management staff consists of one fishery biologist III, Randolph Ericksen, stationed in Haines.

Local Management and Research Programs

Chinook Salmon

The Chilkat River is considered the third or fourth largest producer of Chinook salmon in Southeast Alaska (McPherson et al. 2003). A spring sport fishery in Chilkat Inlet near Haines targets mature Chinook salmon returning to the Chilkat River. A creel survey has been used to estimate effort and

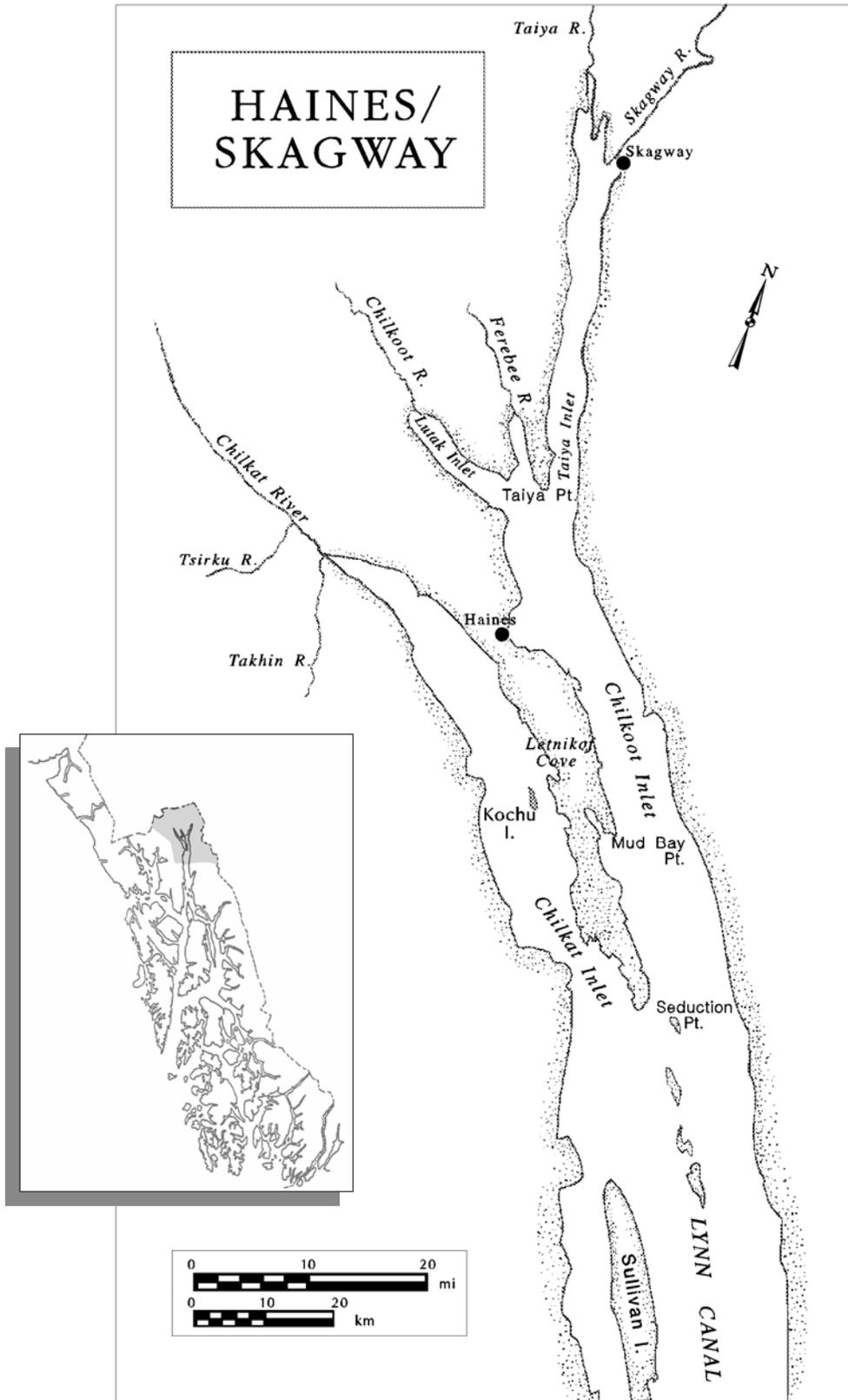


Figure 19.—Map of the Haines/Skagway Management Area, with inset of Southeast Alaska..

Table 39.—Estimated angler effort, catch and harvest of large (≥ 28 in.) Chinook salmon in the spring Haines marine boat sport fishery, 1984–2003; and abundance of large (\geq age 1.3) Chinook salmon entering the Chilkat River, 1991–2003. Data through 2002 from tables in Ericksen (2003a) and 2003 data from Ericksen (2004).

Year	Salmon		Chinook salmon				CPUE ^a	In-river abundance ^b	
	Effort	SE	Catch	SE	Harvest	SE			SE
1984	9,855	^c	1,072	^c	1,072	^c	0.109		
1985	20,582	^c	1,705	^c	1,696	^c	0.083		
1986	32,533	^c	1,659	^c	1,638	^c	0.051		
1987	22,848	2,191	1,094	189	1,094	189	0.048		
1988	32,723	3,476	505	103	481	101	0.015		
1989	9,363	922	237	42	235	42	0.025		
1990	11,972	1,169	248	60	241	57	0.021		
1991			Fishery closed					5,897	1,005
1992			Fishery closed					5,284	949
1993	9,069	1,479	349	63	314	55	0.038	4,472	851
1994	7,682	597	269	41	220	32	0.035	6,795	1,057
1995	8,606	483	255	42	228	41	0.030	3,790	805
1996	9,596	866	367	43	354	41	0.038	4,920	751
1997	8,758	697	381	46	381	46	0.044	8,100	1,193
1998	7,546	747	222	60	215	56	0.029	3,675	565
1999	6,097	734	184	24	184	20	0.030	2,271	408
2000	4,043	532	103	34	49	12	0.025	2,035	334
2001	5,107	804	199	26	185	26	0.039	4,517	722
2002	7,566	634	343	40	337	40	0.045	4,051	433
2003	10,016	520	405	38	404	38	0.040	5,628	689
1984–1990 Avg.	19,982	2,185	931	114	922	113	0.050		
1993–2003 Avg.	7,644	781	280	43	261	39	0.036	4,569	754
1984–2003 Avg.	12,442	1,312	533	69	518	67	0.041	4,726	793

^a Catch of large (≥ 28 inches) Chinook salmon per hour of effort.

^b Abundance of large (\geq age 1.3) Chinook salmon entering the Chilkat River. No estimates available prior to 1991.

^c No variances available for 1984–1986.

Chinook harvest in this fishery since 1984. Historically, this fishery harvested up to 1,700 Chinook salmon annually (Table 39). From 1981 through 1992 escapement was monitored through index counts on clearwater tributaries to the Chilkat River. Restrictive management of the fishery began in 1987 when high harvests of Chinook salmon in the sport fishery coincided with low numbers of fish observed in spawning tributaries. The restrictions culminated with a closure of the spring fishery in 1991 and 1992. Mark–recapture experiments have been used to estimate the abundance of large Chinook salmon entering the Chilkat River since 1991. Inriver abundance of large Chinook salmon has varied between 2,035 and 8,100 fish (Table 39). These

studies showed that escapements were higher than expected and the fishery was reopened in 1993. Since then, the estimated harvest of Chinook salmon in the spring fishery has averaged about 250 fish despite liberalized harvest regulations. It is unclear whether the high harvests observed during the mid 1980s were the result of higher effort, larger returns of Chinook salmon to the Chilkat River, or both. The effort, catch, and harvest of Chilkat River Chinook salmon in the Haines spring marine boat fishery dropped to its lowest level in 2000, corresponding with the lowest escapement on record. The Chilkat Chinook salmon return improved in 2002 and effort and harvest in this fishery increased (Table 39).

Wild Chinook salmon in the Chilkat River drainage have been coded wire tagged (CWT) each year beginning in 2000 to estimate juvenile abundance and marine harvest of this stock. Because of the long life cycle of these fish (up to seven years) results have not been completed for the first years of this study. However, 76 adults with Chilkat CWTs have been recovered in random fishery and escapement programs through 2003. Most notably, 8 of these fish were sampled as immature fish from the Taiya Inlet terminal hatchery harvest area near Skagway. In 2003, 2,797 smolt (brood year 2001) were tagged in the spring, and 36,640 fingerlings (brood year 2002) were tagged in the fall.

Management of Chilkat River Chinook salmon has been largely passive in recent years. For example, Chilkat Inlet, off the mouth of the river, is closed to sport fishing by regulation from April 15 to July 15. However, the BOF adopted the Lynn Canal and Chilkat River King Salmon Fishery Management Plan in 2003. This plan establishes management for sport, commercial, and subsistence fisheries based on the Chilkat River biological escapement goal range of 1,750–3,500 large (age-1.3 and older) Chinook salmon. The management plan starts off the season based on a preseason forecast of the return of large Chinook salmon to Lynn Canal using the previous year's sibling return (e.g., the return of age-1.3 fish in 2002 is used to forecast the return of age-1.4 fish in 2003). The 2003 preseason run forecast (4,594 fish, 80% CI = 3,259–5,929) was reasonably close to the postseason estimate (6,045 fish, SE = 554). The Upper Lynn Canal Fish and Game Advisory Committee (ULCAC) submitted the original proposal at the request of the department to establish a Lynn Canal and Chilkat River Chinook salmon fishery management plan.

However, the ULCAC disagreed with the BEG adopted by the department, believing that it was too low, and subsequently opposed the plan that was adopted by the BOF.

The Burro Creek Hatchery (currently not in operation) and Jerry Myers Hatchery (operated by the Skagway High School) released Chinook salmon smolts in the Skagway area for a number of years (Table 40). These releases were increased from 1992 to 1994 under an agreement with the

Hidden Falls hatchery operated by NSRAA. Hidden Falls was allowed to discontinue use of the Tahini River brood stock under the provision that the remaining brood be released in Taiya Inlet near Skagway. As a result, the number of hatchery Chinook salmon returning to the Skagway area increased for several years. In 1998, Burro Creek hatchery sustained damage due to a flood and subsequent fire. As a result, all eggs were transferred to Macaulay Hatchery. The resulting smolt (91,600) were released in Pullen Creek in 2000. Since that time, eggs collected from Pullen Creek and Burro Creek have been incubated at the Macaulay and Jerry Meyers hatcheries for release in the Skagway area. Macaulay Hatchery has conducted these releases as a component of their program to develop the Tahini River stock as the primary brood for release in the Juneau and Skagway areas.

Table 40.—Chinook salmon smolts released within the Skagway area by brood year and hatchery facility, 1987–2003.

Facility	Brood year	Date released	Number of smolt released
Jerry Myers	85	6/16/87	6,060
Jerry Myers	86	6/10/88	4,659
Jerry Myers	87	6/10/89	1,730
Jerry Myers	88	6/8/90	6,431
Jerry Myers	89	6/19/91	7,152
Jerry Myers	90	6/10/92	11,905
Hidden Falls	90	5/20/92	30,223
Jerry Myers	91	6/11/93	12,859
Hidden Falls	91	5/22/93	56,415
Burro Creek	91	6/3/93	8,572
Jerry Myers	92	6/11/94	1,650
Hidden Falls	92	5/20/94	38,789
Burro Creek	92	6/5/94	8,749
Jerry Myers	93	6/10/95	5,595
Burro Creek	93	6/10/95	1,903
Jerry Myers	94	5/24/96	1,507
Burro Creek	94	6/15/96	34,895
Burro Creek	95	6/21/97	12,815
Jerry Myers	96	6/10/98	8,631
Burro Creek	96	6/14/98	15,956
Jerry Myers	97	5/31/99	1,856
Macaulay	98	6/02/00	91,618
Macaulay	99	6/12/01	32,123
Macaulay	00	6/13/02	95,386
Macaulay	01	6/16/03	58,793

A growing charter boat industry targeting these hatchery fish has taken advantage of increased numbers of cruise ship passengers arriving in Skagway. A part-time employee sampled for CWTs two days a week in Skagway in 2003. During 2003, 15% (SE = 3%) of the small and 32% (SE = 4%) of the large Chinook salmon sampled were missing adipose fins (Table 41). All of the successfully decoded tags were of Alaska origin, and 81% of the large and 54% of the small recoveries were from Skagway area releases. However, 15% of the small and 9% of the large tag recoveries were wild Chilkat River Chinook salmon.

Coho Salmon

The Chilkat River supports one of the largest freshwater sport fisheries for coho salmon in the Southeast region, with annual harvests averaging about 1,000 fish. This system also contributes a significant number of coho salmon to commercial troll, gillnet and seine fisheries in northern Southeast Alaska. Research conducted during the 1980s on coho salmon stocks in Lynn Canal suggests that these stocks are subjected to very high (over 85%) exploitation rates (Elliott and Kuntz 1988; Shaul et al. 1991). The department initiated a program to coded-wire-tag coho salmon smolt in the Chilkat River in 1999.

During the spring of 2002, 25,289 coho smolts were tagged within the drainage. These fish returned as adults during the fall of 2003. Chilkat River coho salmon were sampled in various fisheries throughout Southeast Alaska, and in Chilkat River fish wheels during 2003. Results of this study are that 1,637,493 (SE = 182,522) coho salmon smolt emigrated from the Chilkat River in 2002, and most of the estimated harvest in 2003 occurred in the commercial troll and Lynn Canal drift gillnet fisheries (Ericksen and Chapell 2005). During the spring of 2003, we tagged 25,559 coho salmon smolt in the drainage. These fish will return as adults in 2004.

Coho salmon escapement into the Chilkat River was assessed using two methods in 2003. Peak survey counts of coho salmon to the Chilkat River in 2003 were well above the long-term average (Table 42). The long-term management program for Chilkat River coho salmon relies on postseason monitoring of escapements by an

Table 41.—Chinook salmon sampled for missing adipose fins from the Skagway Boat Harbor during 2003.

Date	Examined for ad-clips		Ad-clipped	
	Small	Large	Small	Large
6/04	0	3	0	1
6/10	1	2	0	0
6/18	0	0	0	0
6/24	4	7	2	1
7/01	3	2	0	2
7/08	8	11	2	3
7/09	5	4	0	1
7/15	14	8	4	6
7/16	7	9	1	4
7/23	21	11	1	4
7/24	7	5	0	2
7/29	11	7	3	1
7/30	28	14	3	7
8/05	0	8	0	3
8/06	0	8	0	2
8/14	0	8	0	2
8/15	0	2	0	0
8/22	0	16	0	3
8/26	0	8	0	2
8/27	0	9	0	1
Total	109	142	16	45

“index system,” where survey counts are conducted on four streams: Clear Creek, Spring Creek, Tahini River, and Kelsall River. The number of adult coho salmon are counted on one day during the peak of spawning. These index counts appear to reflect abundance trends in the Chilkat drainage given comparisons with 4 years of mark–recapture estimates (Table 42). We also conducted a mark–recapture study to estimate the number of adults entering the Chilkat River in 2003. The preliminary estimate of 100,872 (SE = 7,707), confirms that abundance was above average in 2003 (Table 42).

The Chilkoot Lake and River sport fishery is one of the largest freshwater sport fisheries in Southeast Alaska. Sockeye salmon returning to the Chilkoot River drainage support important sport, commercial, and subsistence fisheries. Although the sport fishery typically harvests fewer than 1,000 sockeye salmon per year, it has been very popular with residents and visitors to the area. The CF Division monitors the escapement of sockeye salmon into the drainage using a weir.

Table 42.—Coho salmon peak counts from surveys of four index streams of the Chilkat River, 1987–2003, and mark–recapture estimates of escapement, 1990, 1998, 2002, and 2003.

Year	Peak survey counts					Mark-recap. estimate	SE	Ratio ^d
	Spring Creek	Kellsall River	Tahini River	Clear Creek	Total			
1987	84	184	696	23	987			
1988	83	152	539	35	809			
1989	48	182	981	134	1,345			
1990	79	328	2,448	150	3,005	80,700	9,984	0.0372
1991	176	392	1,707	135	2,410			
1992	174	266	1,077	700	2,217			
1993	95	115	947	460	1,617			
1994	398	440	4,419	381	5,638			
1995	253	178	1,029	177	1,637			
1996	180	157	381	290	1,008			
1997	204	129	643	250	1,226			
1998	264	262	638	275	1,439	37,132 ^a	7,432	0.0388
1999	324	202	930	195	1,651			
2000	302	551	1,302	420	2,575			
2001	441	221	1,252	1,285	3,199			
2002	1,274	423	2,536	1,310	5,543	170,550 ^b	26,587	0.0325
2003	475	348	1,382	1,645	3,850	100,872 ^c	Prelim.	0.0382
Avg.	286	266	1,347	389	2,362	96,127		0.0367

^a 1998 mark–recapture estimate from Ericksen (1999).

^b 2002 mark–recapture estimate from Ericksen (2003b).

^c 2003 mark–recapture estimate from Ericksen and Chapell (2005).

^d Ratio of total survey counts to mark–recapture estimate.

The weir count in 2003 was within the escapement goal range (52,500–91,500) for the third year in a row (Figure 20). As a result, management of this fishery was less restrictive than in past years.

Pink Salmon

The escapements of pink salmon into the Chilkoot River have been very strong in recent years (Figure 21). The 2003 escapement was one of the highest on record. The large pink salmon escapements are primarily a result of good marine survival and restrictive management of the Lynn Canal commercial gillnet fishery to boost escapement of Chilkoot sockeye salmon.

Dolly Varden

The Chilkoot Lake and River sport fishery supports the largest harvest of Dolly Varden in the region. This harvest peaked in 1985 at over 14,000 Dolly Varden and steadily declined until 1994 (Figure 22), suggesting the population might

have been overexploited. As a result of this decline, the bag limit in the drainage was reduced from 10 to 2 per day in 1994. Since 1994, the harvest has remained stable at about 1,400 Dolly Varden per year. Because of the importance of the Chilkoot Dolly Varden sport fishery, research was conducted on the population during 1997 and 1998. During the winter of 1997–1998, we estimated that 109,152 (SE = 21,065) Dolly Varden ≥ 220 mm FL overwintered in Chilkoot Lake (Ericksen 2000). A per-recruit analysis of the population indicated that at similar population levels, the harvest should not exceed 7,300 fish annually (Ericksen 2000). Because recent harvest levels were well below this level, the BOF increased the bag and possession limit of Dolly Varden to 4 in 2003. This provided additional harvest opportunity for Dolly Varden in the drainage.

Lost Lake Rainbow Trout

The BOF reduced the rainbow trout minimum size limit at Lost Lake from 11 to 9 inches in 2003.

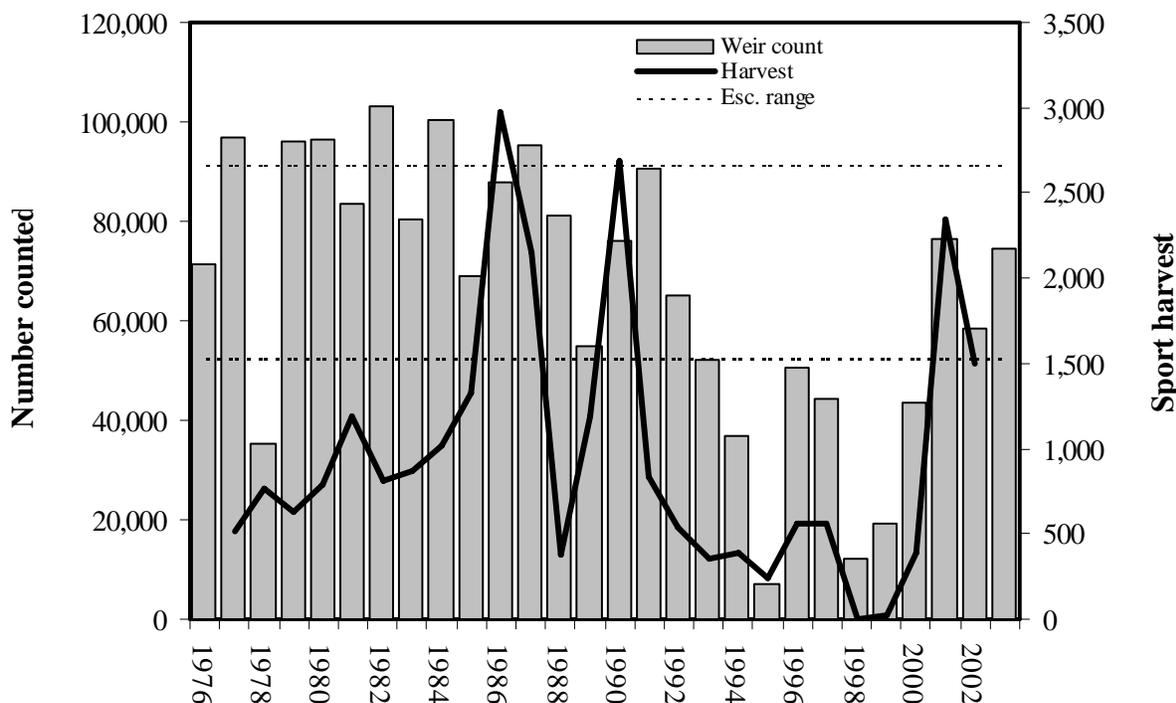


Figure 20.—Number of sockeye salmon counted through the Chilkoot River weir (1976–2003) and total harvest in the Chilkoot River drainage sport fishery (1977–2002).

Lost Lake is 12 acres in size and located at about 1,450 feet elevation 4½ miles northwest of Skagway. The lake is accessed by a steep, unimproved 1½ mile trail near the historic town of Dyea. Lost Lake was stocked with rainbow trout in 1956. ADF&G surveyed the lake in 1986 and sampled 20 rainbow trout that ranged in size from 4 to 10 inches and averaged 7½ inches in length. No other species were caught. Local residents claimed that the fish in the lake do not reach the minimum size limit. The 1986 survey supported this observation. Because of the small size of the lake and trail access, the lake receives relatively little fishing pressure. Therefore, the size limit reduction allows for some additional harvest opportunity.

Management Actions

Skagway Chinook Salmon Terminal Harvest Area

Two emergency orders were issued during 2003 related to sportfishing for hatchery Chinook salmon returning to the Skagway Area.

The purpose of the first emergency order (E.O. 1-12-03) was to liberalize bag and possession limits for Chinook salmon and to close a small area to sportfishing to allow sufficient numbers of Chinook salmon to escape for brood stock needs. This emergency order established a bag and possession limit for all (Alaska resident and nonresident) anglers of 2 king salmon with no size limit and (for nonresidents) no annual limit in the terminal salt waters of Taiya Inlet. This area was opened to allow harvest of surplus hatchery produced Chinook salmon released at Pullen Creek.

However, Chinook salmon returning to Pullen Creek must migrate through a culvert accessible only during high tide. Hatchery fish therefore mill in saltwater off the mouth of the stream until a sufficient high tide allows them to pass through the culvert. These fish are vulnerable to sport fishing. To ensure that enough Chinook salmon entered Pullen Creek for brood stock needs, the salt waters of Taiya Inlet north of a line extending from a department marker on the Broadway Dock to a department marker on the ore terminal dock,

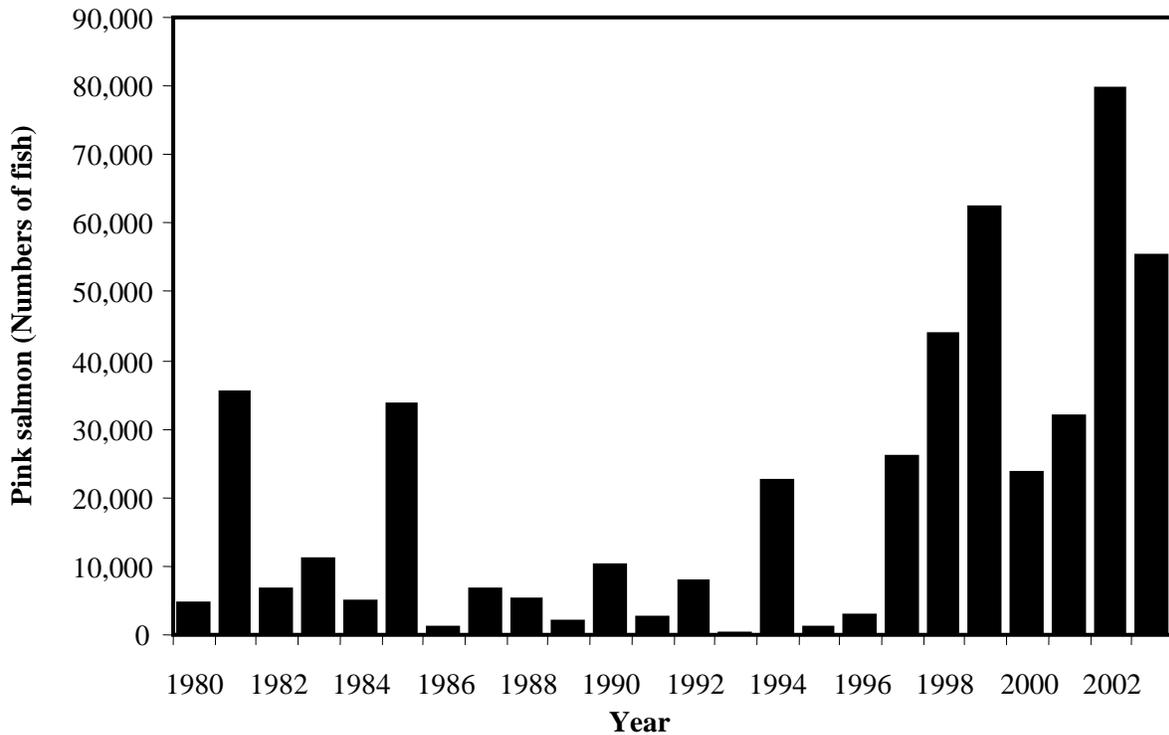


Figure 21.—Number of pink salmon counted through the Chilkoot River weir (1980–2003).

and including the area off the mouth of Pullen Creek, were closed to sportfishing. These regulations were in effect from June 10 through July 31, 2003.

The second emergency order (E.O. 1-33-03) opened king salmon fishing in Pullen Creek above Second Avenue in Skagway. By August 4, hatchery personnel had captured enough male fish for brood stock needs and were releasing surplus fish upstream. Anglers fishing in Pullen Creek near Skagway were allowed to keep 10 king salmon of any size and no annual limit from August 5 through September 14. This area was opened to provide recreational anglers with the opportunity to harvest surplus hatchery fish.

Chilkoot Drainage Sockeye Salmon

Three emergency orders were issued during 2003 related to sportfishing for sockeye salmon in the Chilkoot drainage. The first closed Chilkoot Lake and River sport fishery to retention of sockeye salmon effective July 4 through October 15 (E.O. 1-21-03). The early return of sockeye salmon to

the Chilkoot Lake and River was projected to be well below the escapement goal (16,500–31,500). By July 1, 3,137 sockeye salmon had been counted through the Chilkoot River weir. On average, 68% of the early return had passed through the weir by this date. Therefore, the early return was not expected to reach the lower end of the escapement goal and restrictions on the Chilkoot Lake and River sockeye salmon sport fishery were necessary. Although this action eliminated further harvest of early return fish in the sport fishery, the early portion of the escapement (16,056) was below the goal.

The last two emergency orders concerning Chilkoot River sockeye salmon increased bag and possession limits in the Chilkoot River drainage. The bag and possession limit in the Chilkoot River below the weir was increased to 2 sockeye salmon on July 22 (E.O. 1-28-03) after the late return was projected to exceed the lower end of the escapement goal (34,000-60,000). Chilkoot Lake and the river above the weir remained closed to retention of sockeye salmon to protect early run

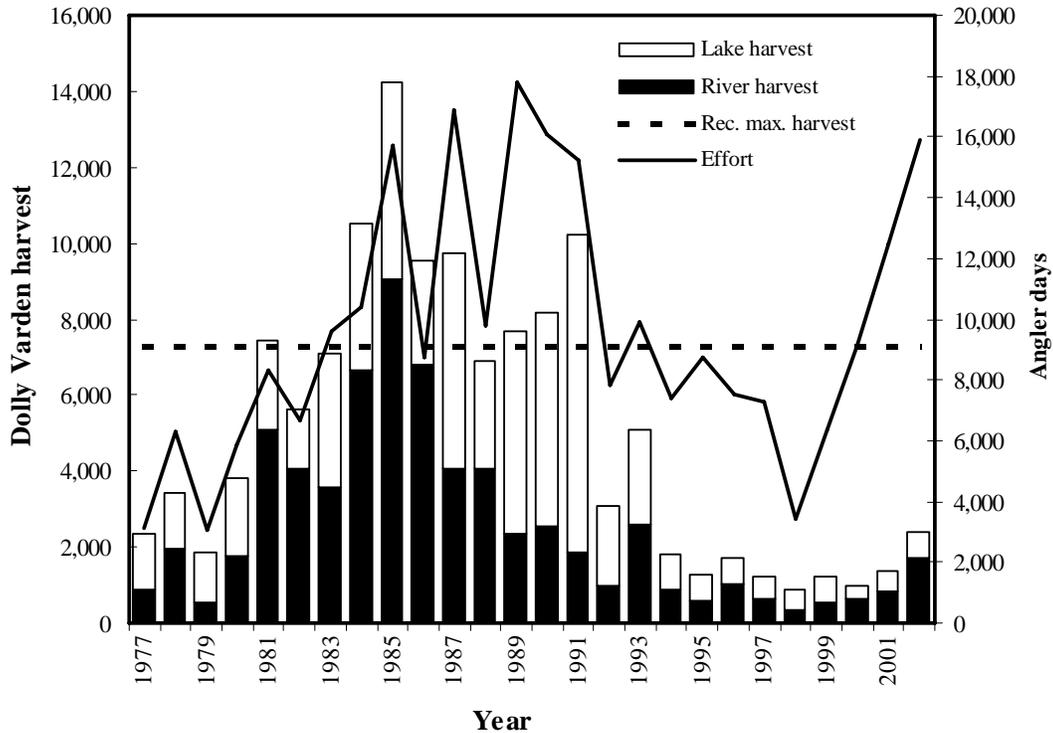


Figure 22.—Total effort and Dolly Varden harvest in the Chilkoot River drainage sport fishery, 1977–2002.

sockeye salmon already in the drainage. However by July 30, the late return was projected to exceed the upper end of the escapement goal. Therefore, the bag and possession limit in the Chilkoot River below the weir was increased to 6 sockeye salmon on August 1 (E.O. 1-32-03). Chilkoot Lake and the river above the weir remained closed to retention of sockeye salmon through August 15 to protect early return fish already in the drainage. The late portion of the escapement (58,403) was well within the escapement goal. The total sockeye salmon escapement through the weir was 74,459 (Figure 21).

Access Projects

Discussions continued with the City of Haines regarding the Portage Cove boat launch. The Portage Cove boat launch is currently on hold pending expansion of the Small Boat Harbor.

Other Issues

Land Use

Two draft environmental impact statements were reviewed and comments were provided to DNR

Office of Habitat Management & Permitting (OHMP) to incorporate into the state’s response. The first was for the Kensington Gold Mine Project that is located on the east side of Lynn Canal just north of Berners Bay. The second was for the Juneau Access Project that examines options for improving transportation access to Juneau. These include improved ferry access to road construction up the Lynn Canal.

Three Alaska Power and Telephone (AP&T) hydropower projects near Skagway were active during 2003. Dewey Lakes Hydro applied for relicensing, Goat Lake Hydro went into operation in 1997, and planning and design continued on the Otter (Kasidaya) Creek Hydro project. The Dewey Lakes Hydroelectric Project involves three lakes, two of which have fish. Local personnel reviewed the scoping document and fish surveys were requested to identify potential license stipulations to protect fish populations. Goat Lake was stocked with Arctic grayling in 1994 and 1995. These fish have survived and successfully spawned. AP&T has applied to increase the amount the lake is drawn down. It is unclear how

a spring draw down will affect future spawning success of the grayling. ADF&G requested that Alaska Power and Telephone conduct studies to determine whether grayling can access the spawning stream during the spring draw down period. Kasidaya Creek is a high-gradient glacial stream that flows directly into Taiya Inlet. Fish habitat is limited to the intertidal reaches of the stream.

Staff was also involved in a number of other land use issues in Haines and Skagway. We worked closely with DOT to repair road erosion and minimize bank disturbance along the Chilkoot River. An initial proposal to discharge tertiary sewage water directly into Sawmill Creek was evaluated and commented on. Currently secondary sewage effluent in Haines is discharged into Lynn Canal. The proposal is to discharge "drinking water standard" effluent into a portion of Sawmill Creek that presently goes dry each summer. The proposed discharge would likely benefit fish habitat in this section of stream. ADF&G staff worked with the Takshanuk Watershed Council and the Haines Borough to relocate a portion of Sawmill Creek near Sixth Avenue. This portion of stream was impacted by road maintenance activities. The stream was relocated away from the road and cutthroat trout spawning habitat was improved. A letter from Weeping Trout Sports Resort was reviewed and responded to regarding constructing a dike to prevent Tsirku River incursions into Chilkat Lake. The glacial Tsirku River periodically flows into Chilkat Lake causing temporary flow reversals on the lake outlet and an influx of glacial water in the lake. The resort owners are concerned because they feel that this phenomenon is detrimental to salmon production. This issue has been debated for decades between the department and local residents. The department has maintained that at the present level, glacial silt intrusion into Chilkat Lake has a net beneficial effect on lake productivity due to the influx of inorganic phosphate as well as calcium and magnesium carbonate. Further, any manipulation of the Tsirku River to direct flow away from the outlet of Chilkat Lake would be very costly, may not work or be very temporary and could cause harm to what currently is a natural occurrence.

Anadromous Fish Stream Nominations

Staff submitted 12 nominations for addition or correction to the Catalog of Waters Important for Spawning, Rearing, or Migration of Anadromous Fishes in 2003.

DNR Management Plans

The Alaska Department of Natural Resources (DNR) completed the Chilkat Bald Eagle Preserve Management Plan in 2003. However, some regulations regarding prohibiting commercial recreational use in sensitive fish habitat areas of the Chilkat River have been appealed. Haines area staff provided information to DNR to help with the appeal process.

Skagway Chinook Enhancement

Skagway residents are actively pursuing ways to increase the number of Chinook salmon released in their area. DIPAC is currently working with the city of Skagway to cooperatively develop the Tahini River brood stock for potential use in Skagway and at DIPAC's Macaulay facility near Juneau. DIPAC released 58,793 Chinook smolt in Pullen Creek in 2003 and was holding about 130,000 Chinook fry (2002 brood year) and 250,000 Chinook eggs (2003 brood year) in 2003 for release in the Skagway area.

YAKUTAT AREA

The Yakutat management area includes all waters of Alaska draining into the Gulf of Alaska from Cape Suckling to Cape Fairweather (Figure 23). The major fisheries of the Yakutat area are in salt water for Pacific halibut, coho salmon, and Chinook salmon, and in fresh water for steelhead, Chinook salmon, coho salmon, and sockeye salmon. Permanent Sport Fish management staff consists of one fishery biologist III, Robert Johnson, stationed in Yakutat.

Local Management and Research Programs

Yakutat Marine Catch Sampling and Situk River Creel

The Yakutat area lingcod sport fishery takes place primarily within the Icy Bay Groundfish Management area. The guideline harvest level

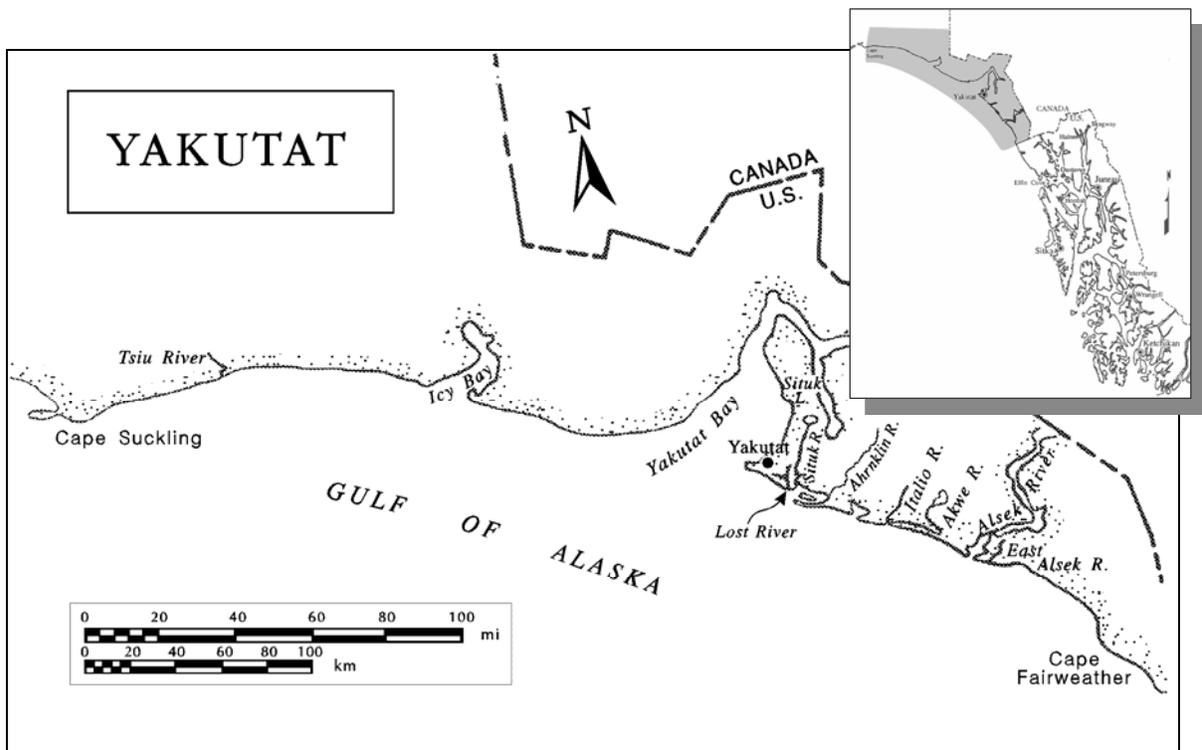


Figure 23.—Map of Yakutat Management Area, with inset of Southeast Alaska.

(GHL) for the sport fishery within this area is set at 33,000 pounds. For several years, the lingcod sport fishery exceeded this harvest level and the minimum size restriction imposed for 2002 was not effective in reducing the weight of lingcod landed. As a result, effective Tuesday, April 15, 2003, lingcod length and bag restrictions were imposed (E.O. 1-04-03) as in 2002 to manage for the Yakutat area GHL. The regulations similarly reduced the lingcod limit from 2 fish per day, 4 in possession to 1 fish per day, 2 in possession for all anglers. Additionally, a slot limit with a minimum size of 32 inches and a maximum size of 42 inches was established for guided and nonresident anglers in Yakutat and northern Southeast Alaska. The effectiveness of the regulation was monitored by having a technician contact anglers returning to the Yakutat harbor from July 23 through September 14 to sample lengths and among other tasks, count numbers of lingcod harvested. In 1,695 angler interviews, 121 lingcod were sampled for length and sex. A comparison of lingcod harvested during 2000, 2001, 2002, and 2003 indicates that the new lingcod regulations reduced the numbers and weight of lingcod harvested. The average weight of fish landed declined from 30.7 lbs. in 2001 to about 23 lbs. in

2002 and 2003. The recent management actions have increased the male component of the harvest from 1% in 2001 to 25% in 2002 and to 33% in 2003.

Additional tasks for the catch sampling program were to monitor the sport halibut harvest and examine Chinook and coho salmon for adipose fin clips, which indicate presence of coded wire tags (CWT). As a result, 212 of 1,267 Pacific halibut observed were sampled for length, and 10 Chinook salmon and 3,894 coho salmon were inspected for CWTs.

From June 12 through July 30, a technician also interviewed anglers from the Situk River Chinook salmon fishery, which resulted in an estimated sport harvest of 840 large (≥ 28 inches in length) Chinook salmon. The robust harvest during 2003 can be attributed to the size of the run, and liberal regulations described below.

Situk River Steelhead Escapement Monitoring

The Situk River produces the largest run of steelhead in Southeast Alaska. Recent runs of steelhead to the river have varied between about 5,800 and 9,200 fish. This is the largest known spring run of steelhead in Alaska. Low steelhead

numbers in 1991 and 1992 in the Situk River helped prompt conservation concerns that resulted in regional regulations to reduce harvests to a minimum (i.e., artificial unbaited lures only, with only one fish ≥ 36 inches in total length per day, and 2 per season).

Steelhead abundance is currently monitored by counting emigrant adults (kelts) at a weir and by counting adults in float surveys (Johnson and Jones 2001).

The Situk steelhead population attracts a substantial number of anglers. Each year, many more steelhead are caught in the Situk River than are eventually counted through the weir. Annual harvests of these fish are very low. Between April 26 and August 8, 2003, 7,964 steelhead were counted as they emigrated downstream through a weir located 1.2 miles upstream of the Lower Landing on the Situk River. This count was the third highest count in recent history. The 9,204 steelhead counted in 1999 was the highest count since the early 1950s. The peak of emigration during 2003 occurred May 24, when 949 steelhead were counted downstream through the weir. A total of 760 steelhead were sampled for length, scales, sex, and condition.

A single float survey from Nine Mile Bridge downstream was conducted May 20, 2003, under good survey conditions, and 2,186 steelhead were counted from Nine Mile Bridge downstream (27% of total weir count).

Management Actions

Situk River Chinook Salmon

The Situk River is managed for a Chinook salmon biological escapement goal of 450 to 1,050 large (age 3-ocean or older) fish with a midpoint of 600 large Chinook salmon. Runs are highest when escapements are between 600 and 1,100 large spawners, and runs are lower when escapements are above or below that range.

During 2003, managers projected a return of large Chinook at the low end of the historical range. However, given an expected exploitation rate of 60%, at least 1,500 large king salmon were projected to escape past the Situk River weir. At this level, the Situk-Ahrnklin Inlet and Lost River Chinook Salmon Commercial Fishery

Management Plan directs the department to manage fisheries to harvest large Situk River king salmon in excess of the escapement goal range. For the sport fishery, the plan gives the department discretion to increase bag and possession limits for large king salmon, with no annual limit for nonresidents, and allow the use of bait. The plan also directs the department to provide for bag and possession limits of 10 king salmon less than 20 inches in length and one king salmon 20 inches in length or greater, and no annual limit.

As of June 21, 536 large king salmon had migrated past the Situk River weir, which is approximately five times the number necessary for the mid-point projection of the escapement goal and 65% greater than the average count for this date. On average, only 20% of the large king salmon escapement enters the river by this date. Based on the observed escapement, managers projected with greater confidence that the 2003 Situk River spawning escapement of large king salmon would exceed 1,050 fish, still at a level where the Situk-Ahrnklin Inlet and Lost River Chinook Salmon Commercial Fishery Management Plan directs the department to manage fisheries to harvest large Situk River king salmon in excess of the escapement goal range. As a result, the bag limit in the Situk River for king salmon 20 inches or greater in length increased to 2 fish per day with 4 in possession downstream from the Situk River Nine Mile Bridge, with no annual limit for nonresidents, on June 24, 2003 (E.O. 1-17-03). Additionally, in order to harvest the Chinook salmon surplus above and beyond the escapement goal while providing protection for upstream resident rainbow trout *Oncorhynchus mykiss* stocks, bait was allowed downstream from the Middle Situk River Airstrip, and the area opened to Chinook retention between Situk Nine Mile Bridge and the Middle Situk Airstrip was extended until August 15 instead of closing July 1.

On July 9, 2,111 large king salmon had migrated past the Situk River weir, which was approximately three times the point escapement goal. On average, about 60% of the large king salmon escapement has entered the river by this date. Managers now projected that the 2003 Situk River spawning escapement of large king salmon

would exceed 3,000 fish. Accordingly, on July 11, the bag limit in the Situk River for king salmon 20 inches or greater in length increased once more to 3 fish per day with 4 in possession downstream from the Situk River Nine Mile Bridge, with no annual limit for nonresidents (E.O. 1-25-03b). Additionally, bait continued to be allowed downstream from the Middle Situk River Airstrip, and the area between Situk Nine Mile Bridge and the Middle Situk Airstrip remained open for retention of king salmon until August 15 instead of closing July 1. Situk River escapement of large king salmon totaled 2,615 fish during 2003.

Situk River Sockeye Salmon

The escapement range for sockeye salmon in the Situk River is 30,000–70,000 fish. The point escapement goal is 50,000 fish. Regulations for sockeye salmon in the Situk River during 2003 were 6 fish per day, and 12 in possession with no inseason management changes. A total of 89,720 sockeye were counted through the weir during 2003. The final Situk River sockeye escapement for 2003 was approximately 87,000 fish, considering the above-weir sport harvest, and that sockeye continued to immigrate into the Situk River following removal of the weir.

Surveys

In addition to the steelhead escapement survey conducted on the Situk River discussed above, the Situk River peak coho survey occurred on October 23 when 5,258 coho salmon were counted from Situk Lake downstream to the Lower Landing.

The peak East Alek River sockeye salmon survey occurred on August 22, when 31,000 fish were counted from the air.

On September 26, a peak escapement count of 35,000 coho salmon was made during an aerial survey of the Tsiu River.

Access Projects

No access projects were active in Yakutat during 2003. Final work on re-routing the electrical service at the small boat harbor still needs attention.

Other Issues

Revision of the Situk River Management Plan continued with the U. S. Forest Service, Yakutat Tlingit Tribe, and the City and Borough of Yakutat, and State of Alaska (The "Partners") participating.

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APPENDIX A

Appendix A1.—List of regulatory proposals submitted for Southeast Alaska sport fisheries and discussed by the Alaska Board of Fisheries during the 2002–2003 regulatory cycle.

Proposal No.	Description
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January Meeting

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| 115. | Create a management for Redoubt Lake sockeye salmon. |
| 190. | Repeal bag, possession, and harvest limits for spiny dogfish. |
| 199. | Clarify escape ring location requirements. |
| 217. | Close the sport fishery for shrimp and Dungeness crab in Area A. |
| 218. | Allow sport fishing for Dungeness crab only in areas and during times open to commercial fishing to Dungeness crab. |
| 226. | Allow sport fishing for shrimp in Area A only in areas and times open to commercial harvest. |
| 255. | Close waters near Ketchikan to abalone fishing. |

February Meeting

Chinook salmon/Southeast Alaska King Salmon Management Plan

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| 312. | Modify Chinook harvest overage payback provisions. |
| 313-319. | Increase sport allocation of Chinook salmon. |
| 320-321. | Divide the sport allocation between resident and nonresident anglers. |
| 322. | Restrict Chinook harvest on the outer coast before restricting fisheries in inside waters. |
| 323. | Reduce harvest by nonresident and guided anglers in years of low abundance to stay within the sport allocation, and minimize regulatory impacts to resident anglers. |
| 324. | Increase resident bag limits to 2 Chinook salmon when abundance index is 1.2 or greater. |
| 325. | Establish sport fishery allocations for Chinook salmon by area and establish allocations or caps for nonresidents in each area. |
| 326. | Reduce the Chinook salmon annual limit for nonresidents in Districts 4 and 13 to 2 Chinook salmon 28 inches or greater in length and require that the first 2 legal fish caught be harvested. |
| 327-328. | Reduce the Chinook salmon bag, possession and annual limit for nonresidents. |
| 329. | Increase Chinook salmon bag limits in Ketchikan when the hatchery component is greater than 30 percent. |
| 330. | Increase the possession limit for Chinook salmon to 2 bag limits. |
| 331. | Decrease the minimum size limit to 25 inches. |
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Proposal No.	Description
<i>Coho Salmon</i>	
332–333.	Reduce coho bag and possession limits, and implement an annual limit for nonresidents.
334.	Reduce coho bag and possession limits in select Icy Straight streams.
335.	Close Situk and Mountain Lake to sport fishing for sockeye salmon.
336.	Modify bag and possession limits for pink, sockeye, and coho salmon in the Yakutat area.
337.	Reduce sockeye bag and possession limits in the Situk River.
338.	Restrict catch-and-release fishing in a portion of the Tsiu River.
339.	Limit the number of fish an individual could catch to ten per day.
340.	Prohibit heading and filleting of sport-caught king and coho salmon.
<i>Steelhead, trout, and char</i>	
341.	Allow only catch-and-release fishing for steelhead.
342.	Reduce the annual limit, repeal the size limit, and require the first steelhead caught to be retained.
343.	Allow one steelhead per day, 2 in possession in Klawock River and Ketchikan Creek.
344.	Eliminate the use of bait in Auke Lake, Mendenhall Lake, and Peterson Lagoon near Juneau.
345.	Increase the trout size limit and eliminate the use of bait in Winstanley Lake near Ketchikan.
346.	Repeal the size limit for rainbow trout in Lost Lake near Skagway.
347.	Increase bag and possession limits for Dolly Varden in Chilkoot Lake and inlet streams.
348.	Reduce the bag limit for Dolly Varden in select streams in Icy Straight.
<i>Methods and means</i>	
349.	Allow the use of sport-caught salmon as bait.
350.	Prohibit snagging in salt waters adjacent to Peterson Creek.
351.	Prohibit snagging in salt waters between the Macauley Hatchery and the Channel Wayside fishing pier.
352.	Repeal or modify the snagging closure at the dock near Macauley Hatchery.
353.	Allow only fly-fishing on the Karta River.
354.	Allow only catch-and-release fly-fishing in Montana Creek and Mendenhall River.
355.	Allow the use of cast nets in Southeast Alaska. This proposal was adopted as amended by the Board, to allow the use of cast nets in personal use fisheries.
356.	Allow only single, barbless hooks from April 1 through September 15.

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Proposal No.	Description
<i>Guides</i>	
357-359.	Allow guides to fish while guiding.
360.	Allow guides to hook fish for clients.
361.	Clarify how guides may assist clients.
362.	Prohibit guides from setting or retrieving shellfish gear with clients onboard.
363.	Close days to guided fishing in salt water.
<i>Miscellaneous</i>	
364.	Establish annual limits for all species equal to the possession limit.

Appendix A2.—List of sport fishery emergency orders issued during 2003.

Emergency Order Number	Effective Date	Action
1-01-03	1-Jan-03	Established bag and possession limit of 2 king salmon 28 inches or more in length for non-guided resident anglers, and one king salmon 28 inches or more in length for guided and nonresident anglers in salt waters of Southeast Alaska. Also established an annual limit of 3 king salmon 28 inches or more in length for nonresidents in all salt waters of Southeast Alaska, and in all fresh waters between Cape Suckling and Cape Fairweather.
1-02-03	16-May-03	Closed northern Southeast Alaska and outer coast of Prince of Wales Island to the harvest of lingcod from June 16 through August 15. In the same area, decreased the bag and possession limit for lingcod to one fish per day and 2 in possession; established, for lingcod harvested by guided and nonresident anglers, a 30-inch minimum and 40-inch maximum size limit; and required that all lingcod caught by guided and nonresident anglers must be landed only by hand or with a landing net.
1-03-03	16-May-03	In the Ketchikan area, decreased the bag and possession limit for lingcod to one fish per day and 2 in possession; established, for lingcod harvested by guided and nonresident anglers, a 30-inch minimum and 40-inch maximum size limit; and required that all lingcod caught by guided and nonresident anglers must be landed only by hand or with a landing net.
1-04-03	16-May-03	In the Yakutat area, decreased the bag and possession limit for lingcod to one fish per day and 2 in possession; established, for lingcod harvested by guided and nonresident anglers, a 32-inch minimum and 42-inch maximum size limit; and required that all lingcod caught by guided and nonresident anglers must be landed only by hand or with a landing net.
1-05-03	27-Apr-03	Closed all salt waters of Southeast Alaska to sport fishing for one minute prior to the subsequent emergency order as required in 5 AAC 47.030.
1-06-03	28-Apr-03	Prohibited marine boat anglers, during times and returning to ports specified, from filleting, mutilating, or de-heading sport caught king salmon, coho salmon and lingcod until the fish have been offloaded, unless the fish have been consumed or preserved on board.
1-07-03	1-May-03	Established bag and possession limits for resident anglers of 2 and, for nonresident anglers, of 1 king salmon 28 inches or more in length in salt waters of Southeast Alaska. Also established an annual limit of 3 king salmon 28 inches or more in length for nonresidents in salt waters of Southeast Alaska and in all fresh waters between Cape Suckling and Cape Fairweather.
1-08-03	29-May-03	Established a bag and possession limit 1 king salmon 20 inches or more in length, no annual limit, in the Situk River.

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Emergency Order Number	Effective Date	Action
1-09-03	1-Jun-03	Increased the bag and possession limits in terminal salt waters of Wrangell Narrows and fresh waters of Blind Slough, near Petersburg, to 4 king salmon 28 inches or more length, and 8 less than 28 inches in length, no (nonresident) annual limit.
1-10-03	1-Jun-03	Reduced the bag and possession limits for sockeye salmon to 4 fish per day and in possession in Redoubt Lake and Bay near Sitka, and prohibited snagging in Redoubt Bay.
1-11-03	7-Jun-03	Permitted the use of bait and eliminated trout size limits in Swan Lake, near Sitka.
1-12-03	10-Jun-03	Established a bag and possession limit for all anglers of 2 king salmon, no size limit, no (nonresident) annual limit in Taiya Inlet terminal salt waters near Skagway. Also closed saltwater areas at the mouth of Pullen Creek.
1-13-03	11-Jun-03	Increased bag and possession limits to 4 king salmon, no size limit, no annual limit, in terminal salt waters near Juneau.
1-14-03	14-Jun-03	Closed a portion of Hatchery Creek on Prince of Wales Island to sport fishing.
1-15-03	14-Jun-03	Increased the bag and possession limit to 12 king salmon, no size limit, no (nonresident) annual limit, in terminal salt waters near Ketchikan.
1-16-03	18-Jun-03	Opened Juneau roadside freshwater drainages to king salmon fishing and established a bag and possession limit of 4 king salmon, no size limit, no (nonresident) annual limit; liberalized methods and means and allowed retention of fish hooked elsewhere than in the mouth in Fish Creek.
1-17-03	24-Jun-03	Increased bag and possession limits to 2 king salmon 20 inches or more in length per day, 4 in possession, no annual limit on the Situk River downstream of the Nine Mile Bridge; allowed the use of bait downstream from the Middle Situk Airstrip; and from Nine Mile Bridge to the Middle Situk Airstrip, extended the season for king salmon until August 15.
1-18-03	2-Jul-03	Prohibited snagging in a saltwater area near the mouth of Auke Creek near Juneau.
1-19-03	8-Jul-03	Opened a personal use permit fishery for king salmon in Herring Cove near Ketchikan.
1-20-03	4-Jul-03	Increased the bag and possession limits in Silver Bay and Hidden Falls terminal saltwater areas to 4 king salmon, of which no more than 2 may be 28 inches or more in length, no (nonresident) annual limit.
1-21-03	4-Jul-03	Closed Chilkoot Lake and River to the retention of sockeye salmon.
1-22-03	9-Jul-03	Closed all salt waters of Southeast Alaska to sport fishing for one minute prior to the subsequent emergency order as required in 5 AAC 47.030.

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Emergency Order Number	Effective Date	Action
1-23-03	10-Jul-03	Prohibited marine boat anglers returning to ports in Petersburg and Wrangell, during times specified, from filleting, mutilating, or de-heading sport caught king salmon, coho salmon and lingcod until the fish have been offloaded, unless the fish have been consumed or preserved on board.
1-24-03	11-Jul-03	Closed the Salmon Lake system and adjacent salt waters to the retention and possession of sockeye salmon.
1-25-03a	15-Jul-03	Opened Salmon Lake and Sawmill Creek near Sitka to sport fishing for king salmon; established a bag and possession limit of 10 king salmon, no size limit, no (nonresident) annual limit.
1-25-03b	11-Jul-03	Increased bag and possession limits to 3 king salmon 20 inches or more in length per day, 4 in possession, no annual limit on the Situk River downstream of the Nine Mile Bridge.
1-26-03	15-Jul-03	Increased the bag and possession limit to 6 sockeye salmon in Redoubt Bay and Lake; prohibited snagging by nonresident anglers in Redoubt Bay.
1-27-03	16-Jul-03	Increased the regionwide bag and possession limits for pink salmon 16 inches or more in length to 12 per day and 24 in possession.
1-28-03	22-Jul-03	Rescinded Emergency Order 1-21-03; increased sockeye salmon bag and possession limits in the Chilkoot River below the weir to 2 fish; closed Chilkoot Lake and River above the weir to retention of sockeye salmon.
1-29-03	25-Jul-03	Closed Klag Bay Lake and a portion of Klag Bay to retention and possession of sockeye salmon.
1-30-03	1-Aug-03	Extended the provisions of Emergency Order 1-25-03 through September.
1-31-03	2-Aug-03	Rescinded Emergency Order 1-29-03.
1-32-03	1-Aug-03	Rescinded Emergency Order 1-28-03; increased sockeye salmon bag and possession limits in the Chilkoot River below the weir to 6 fish; closed Chilkoot River and Lake above the weir to retention of sockeye salmon through August 15.
1-33-03	5-Aug-03	Opened Pullen Creek above Second Avenue to sport fishing for king salmon; established a bag and possession limit of 10 king salmon, no size limit, no (nonresident) annual limit.
1-34-03	14-Aug-03	Closed Blind Slough to the retention of king salmon.
1-35-03	14-Aug-03	Opened (entire) Pullen Creek to sport fishing for king salmon; established a bag and possession limit of 10 king salmon, no size limit, no (nonresident) annual limit.
1-36-03	19-Sep-03	Closed Bear Cove near Sitka to the harvest of coho salmon.
1-37-03	19-Sep-03	Allowed the use of bait in the Klawock River.