THE ALITAK BAY DISTRICT COMMERCIAL SALMON FISHERY

Report to the Alaska Board of Fisheries, 2002

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ABSTRACT

The salmon fisheries of the Alitak Bay area are some of the oldest in the Kodiak Management Area. Sockeye salmon *Oncorhynchus nerka* bound for Upper Station (Olga Lakes) were targeted, and the first cannery was built in this area in 1889 with others soon following. As competition increased, sockeye salmon stocks declined, and pink salmon *O. gorbuscha* made up a substantial portion of the harvest from this district after 1924. With statehood (1959) came greater control over the fishery, and the Alaska Department of Fish and Game was given the duty to conserve and rebuild salmon stocks. Sockeye salmon were introduced into the previously barren Frazer Lake beginning in 1951. This introduction was successful, and since the early 1970s the Frazer system has had a self-sustaining sockeye salmon stock.

The Alitak Bay District fishery is unique in the KMA, because set gillnet and seine gear can fish in this district but are segregated in different sections. Set gillnets are allowed only in the inside waters of the Moser-Olga Bay Section, while seine gear is limited to the outer waters of the Cape Alitak and Humpy-Deadman Sections. In 1987 the existing harvest strategy was formalized into a regulatory management plan and was adopted by the Board of Fisheries (5AAC 18.361). This plan details the key species and targeted stocks that are managed for in each section of the district throughout the fishing season. The stated intent of this plan is that salmon be harvested in the "traditional" fisheries located in the Cape Alitak, Humpy-Deadman, and Moser-Olga Bay Sections.

As scheduled in the 2001 Kodiak Area Commercial Salmon Fishery Harvest Strategy, the first commercial salmon fishing period for this district began on June 9. Commercial salmon fisheries occurred in Alitak Bay District management units throughout the season, based on run strength of local sockeye, pink and coho salmon stocks. The last Alitak Bay District delivery occurred on September 11. In total, 651 chinook *O. tshawytscha*, 461,785 sockeye, 2,471 coho *O. kisutch*, 1,439,930 pink, and 52,521 chum salmon *O. keta* were harvested. Thirty four (34) purse seine permit holders fished in the Alitak Bay District fisheries, and harvested 79.4% of the total catch. Seventy seven (77) gill net permit holders fished in the Alitak Bay District, and harvested 20.6% of the total catch. The ADF&G test fishery harvested 1,666 sockeye, 1 coho, 111 pink, and 39 chum salmon.

INTRODUCTION

The Alitak Bay District (ABD) is one of seven commercial salmon fishing districts in the Kodiak Management Area (KMA). This district contains 32 known salmon streams. Six species of Pacific salmon migrate through, and spawn within streams in the district, including sockeye *Oncorhynchus nerka*, pink *O. gorbuscha*, chum *O. keta*, coho *O kisutch*, chinook salmon *O. tshawytscha*, and steelhead trout *O. mykiss*. The ABD is currently managed under the guidelines of the ABD Salmon Management Plan (5 AAC 18.361), an Alaska Board of Fisheries (BOF) approved regulatory management plan

There are five proposed regulatory changes concerning the ABD that will be addressed by the BOF in January, 2002 (Proposals 82 through 86). This report is intended to provide background information to the BOF concerning the ABD salmon resources and fisheries management.

Location

The ABD is located at the southern end of Kodiak Island, extending from Cape Trinity, on the Aliulik Peninsula, to the latitude of Low Cape, on the southwest side of Kodiak Island (Figure 1). Within these boundaries are Humpy Cove, Portage and Sulua Bays, Deadman Bay, Alitak Bay, Moser Bay, Olga Bay, and the outside beach from Cape Alitak to Low Cape, which includes Sukhoi Lagoon.

Alitak Bay District Management Units

The ABD is currently subdivided into eight sections (Figure 2). Exclusive areas for both seine and gillnet gear have been in effect in the ABD since prior to Alaska statehood (1959). This was modified slightly in 1970 when fishing by seine gear was allowed in the entire ABD after September 4; this modification is still in effect. The Humpy-Deadman, Cape Alitak, and Moser-Olga Bay Sections are considered the traditional harvest areas. The Humpy-Deadman and Cape Alitak Sections are designated seine gear only, and the Moser-Olga Bay Section is designated set gillnet only prior to September 5. The remaining five sections, the Dog Salmon Flats, Inner Akalura, Outer Akalura, Outer Upper Station, and Inner Upper Station Sections, are also designated set gillnet only prior to September 5. These sections are normally closed to fishing and open only if salmon well in excess of escapement requirements move past the traditional fishing areas.

History

Commercial fishing for salmon has a long history in this area, beginning with the Russians in the early 1800s. The first canneries were built in 1889, one in Moser Bay and one in inner Olga Bay. A cannery built in Alitak Bay near the village of Akhiok in 1918 is still in operation today. Sockeye salmon was the species that drew commercial interest to Alitak Bay, with the Olga Lakes (Upper Station system) and Akalura Lake being the major producers. After 1924 pink salmon began to compose a considerable portion of the catch. Fish traps were the primary gear used to harvest salmon, plus a few large beach seines and gillnets. Since the 1930s commercial salmon fishing in

Olga Bay and in portions of Moser Bay in the ABD has been limited to set gillnets only. Purse seines were first allowed into this district in 1933 when, by regulation, they were allowed to operate outside of Moser Bay from Cape Trinity to Cape Alitak. Fish traps, previously allowed at specific sites in Alitak Bay, were prohibited in 1959 when Alaska received statehood. Both seine and gillnet gear are still allowed to fish this district, though separated into set gillnet only and seine only areas (Figure 2).

As competition for salmon resources increased in the early 1900s stocks declined. Harvest control was virtually nonexistent prior to 1924, leading to the congressional enactment of the White Act. The White Act mandated that escapement should equal 50% of the total run, as determined by harvest reports and escapement counts, with sockeye salmon the principal (if not only) species considered (Brennan 1998). In Alitak Bay these escapement counts came from fish counting weirs at Upper Station (on Olga Lake) and at Akalura Creek. Closed water sanctuaries were established, and fixed weekly fishing periods and season lengths were adjusted preseason to perceived run strengths. With little enforcement this was largely ineffective, plus large escapements did not lead to increased productivity. Sockeye salmon runs continued to decline or remained depressed. With Alaska statehood came the application of fixed escapement goals, increased research of optimum spawning capacity, stocking of previously barren lake systems, adjustments in escapement goals, increased monitoring and enforcement, emergency order openings and closures based on actual run strength, modifications in gear size and operation, and changes in harvest strategies and management plans. These are tools the department uses to achieve optimum escapement and maximize the sustainable harvest.

SALMON RESOURCES

The ABD currently has two major sockeye salmon producing systems and several major pink, chum, and coho producing systems. Escapement into district streams is estimated by aerial survey for most systems, with foot surveys on some minor systems, and fish counting weirs installed on major sockeye salmon producing systems. The first weirs were installed in 1923 at Upper Station and Akalura.

Escapement goals for individual salmon systems have developed over time. With State management, the Alaska Department of Fish and Game (ADF&G) has attempted to achieve fixed goals, based on research of the individual systems' production potential. With increased knowledge of each system's response to various escapement levels and their production potentials, escapement goals have been modified (Table 1).

Prior to the late 1980s escapement goals for pink, chum, and coho salmon were set by wide geographical areas, and only for areas where significant production occurred. Escapement goal ranges (with lower and upper bounds) were first listed for major or representative pink, chum, and coho salmon systems in 1988 (Table 2). These goals were meant to be a working range for management, such that accomplishment of escapements within these ranges should ensure stable salmon production and allow for continued commercial harvest. Pink salmon returns throughout the KMA may exhibit an odd numbered year or even numbered year dominance, and pink salmon escapement goals are based on odd-year or even-year production.

Sockeye Salmon

Sockeye salmon are found in at least five streams in the ABD (ADF&G 1993), with two relatively large producers (the Upper Station and Frazer Lake systems) and three smaller producing systems (Akalura, Silver Salmon, and Horse Marine systems). All five systems empty into Olga Bay (Figure 1). Historically, the ABD systems produced large numbers of sockeye salmon, and commercial catches were second only to those from the Karluk system. Prior to the establishment of a Frazer Lake sockeye salmon run, Upper Station and Akalura systems were the major producers in Alitak Bay. Production from Alitak Bay sockeye salmon systems declined drastically and remained at low levels through the late 1960s (Figure 3). Through the mid 1970s the only major contributor to the ABD sockeye salmon catch was Upper Station (Manthey et al. 1977). Despite years of poor returns, with sockeye salmon escapements far below current objectives, the Alitak sockeye salmon stocks remained viable and, with protection, have rebuilt (Figure 4).

Sockeye salmon were introduced into the previously barren Frazer Lake from 1951 through 1971. A fish pass was constructed in 1962 to allow sockeye salmon to migrate around the barrier falls and into the lake. Counts of upstream migrant salmon have been made at the Frazer Lake fish pass since 1962. This introduction is considered very successful, and since the early 1970s has been self-sustaining (Blackett 1979). In an attempt to rebuild early sockeye salmon runs to Karluk Lake and minor sockeye salmon systems and to allow the new Frazer Lake run to build, most of the KMA (including Alitak Bay) was closed to fishing during June and early July from 1971 through 1977.

Initial attempts at stabilizing production included setting escapement goals for sockeye salmon systems (Table 1). In the early 1970s the Frazer Lake escapement goal for sockeye salmon was set at 175,000 while Upper Station sockeye salmon was set at 180,000 (Brennan 1998). Research on the Frazer Lake escapement goal, conducted from the mid 1960s to late 1970s, indicated a potential optimum escapement of 365,000 to 400,000 spawning sockeye salmon. This optimum escapement goal level was based on estimates of rearing capacity and the available spawning habitat of Frazer Lake and its tributaries (Blackett 1979). However, the Frazer run was newly established and it was uncertain whether all spawning habitat would be utilized. This uncertainty resulted in setting a lower goal of 175,000 to 250,000 (Manthey et al. 1981). The extensive June and early July closures of commercial fisheries from 1971 through 1977 greatly improved the sockeye salmon escapements into the developed Frazer Lake run. As an added benefit of the closures, the early portion of the Upper Station sockeye salmon run began to build. To take advantage of the newly improved production levels very limited commercial fisheries (two 24-hour openings) were allowed in June beginning in 1978. These fisheries were limited to the gillnet only area (the equivalent of the current Moser-Olga Bay Section).

Sockeye salmon escapement goals were first listed in preseason management plans in 1978 (Manthey et al. 1978). In developing the Upper Station sockeye salmon escapement goal, it was noted that extensive research into the optimum escapement level for this and other systems was lacking. As a result of this "lack of extensive research", many of the initial escapement goals were based on assessment and interpretation of historic production levels. For Upper Station the sockeye salmon escapement goal ranged from 100,000 to 180,000 fish. This goal was apportioned by month, as follows: July-30,000, August-130,000, and September-20,000 fish. The August portion of the goal was further broken down into weekly goals. Note that no portion of the year-end escapement requirement was expected to occur in June. The Frazer goal remained at 175,000 to 250,000 sockeye salmon.

After a large sockeye salmon escapement at Frazer in 1980 (405,000) there were indications that the previous assessment of spawning potential was correct. In 1981 the Frazer Lake goal was raised to 350,000 to 400,000 sockeye salmon. In order to meet the new escapement goal for Frazer Lake, the department continued with a very restrictive management strategy that resulted in some large escapements into Frazer Lake that met, and at times exceeded, the new goal. Due to the restrictive management, sockeye salmon were not intercepted before migrating into Olga Bay; which tended to produce large daily catches in Olga Bay. These new levels of sockeye salmon available for harvesting attracted the attention of both gillnetters and seiners.

In 1983 a weir was established on the lower portion of the Frazer system, in the Dog Salmon River approximately one mile from saltwater. The new weir provided managers immediate counts of sockeye salmon escapement into the river (the fishpass is five miles and four days migration time above the commercial fishery), and allowed assessment of salmon buildups on the flats near the river mouth. Also in 1983 the sockeye salmon escapement goal for Upper Station was increased to a range of 150,000 to 250,000 fish. The primary justification for this increase was based on an improved return from only one year (1974) of high escapement. It was also evident that the very restricted commercial fishing in June allowed the early segment of the Upper Station sockeye salmon run to build. As this early portion of the run developed and interest in harvesting the fish increased, it became prudent to establish an escapement goal (there was no Upper Station escapement goal for June). The first June escapement goal was assigned in 1983 when the early portion of the goal was changed from 30,000 sockeye salmon in July to 50,000 sockeye salmon in June and July (Manthey et al. 1983). The goal was apportioned so that 20,000 sockeye salmon was the June goal, while the July goal remained at 30,000 (Brennan 1998). In addition, the August portion of the goal was increased from 130,000 sockeye salmon to 175,000 sockeye salmon. The new August goal was again broken down into weekly goals. The September portion of the goal was also increased from 20,000 to 25,000. These escapement goals remained in effect through 1987.

Although the increase in sockeye salmon escapements, combined with favorable environmental conditions, resulted in an increase of sockeye salmon available for harvesting, there were signs that problems were developing with the Frazer sockeye salmon run. The Frazer Lake sockeye salmon stock did not respond as expected to the higher escapements, with much lower than expected returns coming from the large escapements. The first poor run was in 1984, and the effects of previous overescapements were suspected. Poor sockeye salmon runs to Frazer Lake occurred again in 1986 and 1987. Severe fishery restrictions during June were again employed to assure sufficient escapement reached the Frazer system. The Frazer Lake sockeye salmon escapement goal was lowered to 200,000 to 275,000 sockeye salmon in 1986.

In 1985 additional ADF&G research staff were added to the Kodiak salmon program to construct brood tables for Kodiak's major sockeye salmon systems and initiate a formal forecasting program. With the development of formal forecasts for each major sockeye salmon system the expected timing of the harvests could be projected. This led to breaking Kodiak's long fishing season into early and late segments, with July 15 as the break point. For sockeye salmon systems that have a bimodal time of entry, July 15 was utilized as a break between the early and late-run escapement goals. Instead of using interim escapement goals by month or week, interim goals were changed to reflect an average escapement time of entry (percent by day). In 1986 ADF&G initiated a test fishery to be used to estimate the abundance of Frazer bound sockeye salmon

entering Olga Bay during closures, and maximize the harvest in traditional fishing areas. This test fishery has been located in Chip Cove, near the narrows leading into Olga Bay, since 1988.

In 1988 the sockeye salmon escapement goals for Upper Station and Frazer Lake were again changed. For Frazer, upon review of escapements and subsequent returns by ADF&G management and research staffs, the goal was reduced to 140,000 to 200,000 sockeye salmon, with an escapement of 140,000 sockeye salmon being the targeted escapement goal (as counted through the Dog Salmon weir). The Frazer stock is essentially an early run (prior to July 15).

In 1988 the Upper Station target escapement goal was raised to 275,000 sockeye salmon, and a minimum goal of 200,000 sockeye salmon was established. An early-run component was identified as those fish counted past the weir through July 15, and a late-run component was identified as sockeye salmon entering the lakes after July 15. The sockeye salmon escapement goal for the early Upper Station run was changed to a range of 50,000 to 75,000 fish through July 15. This was a large increase from the previous early-run goal (50,000 in June and July, with 20,000 in June). This early-run goal seemed to reflect that there may be a sustainable early run, even though historically only the July-August-September run was recognized. This early goal would also be used as an "action point" to trigger directed fisheries in the normally closed waters of upper Olga Bay. This meant that directed fisheries in the closed waters would not occur unless it appeared that the upper range of the goal would be exceeded. The sockeye salmon escapement goal for the late run to Upper Station was changed to a range of 150,000 to 200,000 fish from July 15 through mid September, recognizing that this was still the most productive portion of Upper Station's annual sockeye salmon run.

Individual sockeye salmon escapement goals have been formulated for Upper Station (early and late run) and Frazer Lake. Other systems with sockeye salmon production include Akalura River, Horse Marine and Silver Salmon. These five systems account for 99.9% of the total sockeye salmon escapement in the ABD (there are two additional very small sockeye salmon systems known in this district, one in Kempf Bay and one on the Aliulik Peninsula). Weirs have been operated annually at Upper Station, Dog Salmon, and Akalura River (except in 1998 and 1999 when Akalura River did not have a weir due to lack of funding). Sockeye salmon escapements to Horse Marine and Silver Salmon (and to Akalura in 1998 and 1999) have been estimated by aerial survey. For all systems combined, the ABD aggregate escapement benchmark is 386,000 to 550,000 sockeye salmon (Table 3). The sockeye salmon escapement goal for the ABD was not met in 2001. Prior to 2001, the goals have been met or exceeded each year since 1988, and sockeye salmon escapements have been within the desired range in 8 of the last 10 years (Figure 5). The highest recorded sockeye salmon escapement was 933,852 individuals (1985) and the recent 10-year (1992-2001) average escapement is 478,063 sockeye salmon (Table 3).

The recent 10-year (1992-2001) average harvest is 892,668 sockeye salmon, with the record harvest of 2,062,718 sockeye salmon occurring in 1991 (Table 4).

Chinook Salmon

Chinook salmon fry were planted in the Frazer Lake/Dog Salmon River system from 1966 through 1969 (Blackett 1979). The introduction was successful and chinook salmon still return to the Frazer system; however, the size of the population remains small (Table 3). This system accounts for

99.9% of the total chinook salmon escapement in the ABD (there are occasionally individual chinook salmon counted in other systems in this district, but are considered strays). The highest recorded escapement was 685 chinook salmon (1996), and the recent 10-year (1992-2001) average escapement is 215 chinook salmon (Table 3).

Small numbers of chinook salmon have long been harvested in the ABD, even in years prior to the Frazer Lake introductions. The recent 10-year (1992-2001) average harvest is 938 chinook salmon, with the record harvest of 1,946 chinook salmon occurring in 1994 (Table 5).

Coho Salmon

Coho salmon are known to spawn in at least 15 streams within the ABD (ADF&G 1993). Sukhoi, Silver Salmon, Akalura, Upper Station, Dog Salmon, Horse Marine, Deadman, Sulua, and Humpy Creeks all have relatively minor populations. There are three representative streams for which sustainable escapement goals (SEGs) have been established: Upper Station, Dog Salmon, and Akalura. These three streams account for an average of over 70% (range 48-100%) of the ABD coho salmon escapement counts. Because coho salmon may continue to migrate into streams late into the fall (as late as November), and budgets and weather preclude late season escapement surveys, the escapement goals expressed are considered interim goals. These numbers represent the number of coho salmon that should be counted in these systems by September 15.

The ABD aggregate escapement benchmark is 8,500 to 14,500 coho salmon (Table 3). Indexed coho salmon escapements in the entire district (including systems without escapement goals) seldom exceed 30,000 fish. Due to limited escapement monitoring late in the season, coho salmon escapement estimates generally represent minimum numbers. The highest recorded coho salmon escapement was 52,941 individuals (1998), and the recent 10-year (1992-2001) average escapement is 22,748 coho salmon (Table 3). The coho salmon escapement goal has been met or exceeded each year since 1985 (Figure 7).

The recent 10-year (1992-2001) average harvest is 22,212 coho salmon, with the record harvest of 43,914 coho salmon occurring in 1985 (Table 6).

Chum Salmon

Chum salmon escapements have been documented in 14 streams within the ABD (ADF&G 1993). Sukhoi supports a large population (escapements in excess of 100,000 have been documented), and the chum salmon runs to Dog Salmon, Deadman, Portage, and Northeast Sulua systems can be significant (greater than 20,000). Yearly indexed chum salmon escapements in the district vary widely, though difficulties identifying chum salmon in streams during large pink salmon returns may be a significant influence.

KMA chum salmon escapement goals have been established on a district-wide, rather than individual stream, basis. The Alitak district-wide escapement goal range is 26,000 to 78,000 chum salmon (Table 3). The escapement goal has been met or exceeded in 9 of the last 10 years (Figure 8). The recent 10-year (1992-2001) average escapement is 63,183 chum salmon, and the highest recorded chum escapement (1991) was 139,520 chum (Table 3).

The recent 10-year (1992-2001) average harvest is 69,477 chum salmon, with the record harvest of 191,437 chum salmon occurring in 1971 (Table 7).

Pink Salmon

Pink salmon are generally the most numerous salmon species and certainly the most wide spread in the KMA, occurring in all known salmon streams (ADF&G 1993). The largest producing systems in the ABD are the Humpy, Deadman, and Dog Salmon Rivers. As with most pink salmon populations, survival and subsequent return of pink salmon to this district is highly variable. Over the last twenty years these systems have exhibited an odd-year dominance, with larger pink salmon returns usually occurring in odd numbered years (Table 3). It should also be noted that the timing of the pink salmon return to the Dog Salmon River varies considerably between odd and even years. On odd-numbered years the highest pink salmon escapement counts occur during the last week of July, while on even-numbered years peak escapement occurs the last week of August (Figure 9).

Similar to chum salmon, KMA pink salmon escapement goals have been established on a district-wide, rather than individual stream, basis. The Alitak district-wide escapement goal range is 162,000 to 486,000 pink salmon in even numbered years, and 212,000 to 636,000 pink salmon in odd numbered years (Table 3). The escapement goals have been met or exceeded in 19 of the last 20 years (Figures 10 and 11). In the past 10 years (1992-2001) the average odd-year escapement is 1,396,897 pink salmon, while the even-year pink salmon escapement is 593,488 (Table 3). The highest recorded pink salmon escapement was 3,796,345 individuals (1995).

During the past 10 years (1992-2001) the odd-year average harvest is 2,856,088 pink salmon, while the even-year average pink salmon harvest is 736,253 (Table 8). The record harvest of 7,065,924 pink salmon occurred in 1995.

MANAGEMENT

In the ABD ADF&G attempts to ensure that stock specific escapement requirements are met while allowing harvest of surplus fish throughout the run in traditional harvest areas (the Humpy-Deadman, Cape Alitak, and Moser-Olga Bay Sections). The overlap in run timing of various stocks, combined with variations in run size, add to management difficulty. The complexity of managing for several salmon producing systems with various run timings, and the involved fisheries on these stocks, necessitated a detailed overall management plan.

Each year preseason sockeye salmon forecasts are prepared by ADF&G research staff, based on recent-year sibling relationships and smolt to adult survival data. Forecasts for other species are formulated based on recent escapements and assumed production capabilities. To judge inseason run strength various data are used, including salmon counts from weirs, escapement and buildup estimates from aerial surveys, ADF&G test fishery estimates of fish passage into Olga Bay, commercial catch and effort levels, and estimates of the commercial catch stock composition.

Management Plans

Just as escapement goals have been set and modified over time, so has the management of the ABD commercial salmon fishery evolved. Various harvest strategies have been applied to the salmon resources. Most emphasis has been centered around the management of sockeye salmon stocks (Table 1).

As noted earlier, from 1970 through 1977 there was a complete closure of the ABD during June, to allow Frazer sockeye salmon stocks to build. In 1975 management moved from weekly fishing periods set preseason to commercial openings set inseason by emergency order. In the late 1970s a Moser-Olga Bay Management Plan was formulated by ADF&G area biologists. In 1978 the preseason plan allowed for a minimum of two, single day, fisheries in the district during June (typically near June 14 and June 22). However, only the set gillnet sections were opened.

In the early 1980s, in order to meet Frazer Lake sockeye salmon escapement goals, the department continued with this restrictive management strategy, which resulted in some relatively large sockeye salmon harvests inside Olga Bay, as well as escapements into Frazer Lake that met, and at times exceeded, the current goals. These new, increased, levels of sockeye salmon available for harvest in the ABD attracted the attention of both gillnetters and seiners (Figure 4). In 1982 catch reporting statistical areas were changed so that gillnet harvests could be distinguished between Olga and Moser Bays. In 1982 gillnetters harvested 86% of the sockeye salmon caught in the ABD (Table 4).

In 1983, with the Frazer sockeye salmon stock developing well, the BOF directed the department to open the Cape Alitak Section (seine gear) concurrently with openings of the Moser-Olga Bay Section (set gillnet only). The ABD harvest strategy also allowed for the possibility of limited gillnet openings in the normally closed area in upper Olga Bay and near the mouth of the Dog Salmon River (Dog Salmon Flats) in the event of escapements in excess of established escapement goals. Late in the 1983 season “mop up” fisheries were executed in the normally closed upper Olga Bay area (the equivalent of the Inner and Outer Upper Station and Outer Akalura Sections) and on Dog Salmon Flats, for coho and late Upper Station sockeye salmon (Table 9). In 1983, the first year that the seiners were allowed equal fishing time, the gillnetters harvested 59% of the sockeye salmon harvested in the ABD (Table 4).

Beginning in 1984 a more aggressive harvest strategy was implemented by ADF&G. Specifically, a June 9 one-day "commercial test fishery" was initiated. This allowed an early commercial fishing period for the purpose of assessing the strength of the early sockeye salmon run. This also distributed the Frazer harvest to fishers outside Olga Bay, to Moser Bay gillnet and Alitak Bay seine fishers. The June 9 harvest has been used to trigger another commercial opening as early as June 12. The harvest during this June 9 fishery is still used as an indicator of the actual strength of early-run sockeye salmon stocks.

The Frazer Lake sockeye salmon run was poor in 1984, and the effects of previous overescapements were suspected. Severe fishery restrictions during June were employed to assure sufficient escapement reached the Frazer system. Upper Station experienced a good sockeye salmon run, and an upper Olga Bay “mop up” fishery was necessary (Table 9). In 1985 the Frazer sockeye salmon run was strong, and the first Frazer sockeye salmon mop up fishery was allowed, in the normally closed water section at the stream mouth on Dog Salmon Flats. Poor

sockeye salmon runs to Frazer occurred again in 1986 and 1987, which resulted in a minimal amount of fishing time in the traditional harvest locations in the Moser-Olga Bay, Humpy-Deadman, and Cape Alitak Sections.

Upper Station continued to have good returns, exceeding the current escapement goals, and upper Olga Bay mop up fisheries were necessary during June and July of 1986 and 1987 (for the Upper Station early run), and in August of 1986 (for the Upper Station late run). These mop up fisheries were not popular with the majority of KMA commercial fishers. Seine fishers could not access these fisheries because upper Olga Bay areas are gillnet only prior to September 5. Many gillnet fishers disliked these upper bay mop up fisheries because a great deal of effort and expense is required to move from their normal sites. Initially, three days advance notice was given to allow gillnet permit holders from Westside Kodiak areas more opportunity to participate.

In 1987 the department proposed to the BOF several regulation changes for the ABD. The current section boundaries were described, with specific "normal closed water" upper Olga Bay sections defined (the Inner and Outer Akalura, Inner and Outer Upper Station, and Dog Salmon Flats Sections). The existing harvest strategy for the ABD was formalized into a regulatory management plan, detailing which species affect fishing time for each section throughout the season. This plan was adopted by the BOF in 1987, and in 1988 the ABD Salmon Management Plan (5AAC 18.361) went into regulation (Table 10). It is the stated intent that salmon be harvested in the traditional fisheries located in the Humpy-Deadman, Cape Alitak and Moser-Olga Bay Sections.

This plan provides a basic management strategy, with minor differences for even versus odd numbered years. The fishery is to be managed from June 9 through July 15 based on sockeye salmon escapement to the Frazer system; from July 16 through August 9 in even years for sockeye salmon escapement to Upper Station, and in odd years for pink salmon escapements to the Dog Salmon River; from August 10 to August 25 in even years for sockeye salmon escapement to Upper Station, and in odd years on both Upper Station sockeye salmon and Dog Salmon pink salmon escapements; and after August 25 management is based on sockeye and coho salmon escapements to the district streams (ADF&G 1999). The department uses aerial survey and weir escapement counts, qualitative analysis of inseason run timing, catch per unit effort of test and commercial fisheries, and species composition of the catches, to open and close the fishery by emergency order within the guidelines of the management plan.

This plan fully recognized that through July 15 sockeye salmon returning to Frazer Lake would largely determine fishing time in the traditional harvest locations, with the Frazer sockeye salmon run much more productive than the early Upper Station sockeye salmon run. There were no directives in the regulatory management plan to provide opportunities (such as closures) to get early Upper Station sockeye salmon past the traditional harvest locations if there was a harvestable surplus of Frazer sockeye salmon. It was assumed that a sufficient number of early Upper Station sockeye salmon (necessary to sustain the run) would escape to spawn in the course of managing the traditional fishing areas to meet Frazer sockeye salmon escapement goals. With the improvement in the Frazer sockeye salmon production the June 9 commercial test fishery has triggered additional fishing time beginning June 12 in 1990, 1991, 1993, 1995, and 1996.

With the current good production, the reduced Frazer goal has been fairly easy to achieve. In years of very large runs the sockeye salmon escapement into the Frazer system may continue to exceed

daily interim escapement goals despite nearly continuous fishing in the traditional harvest areas (the Cape Alitak, Humpy-Deadman, and Moser-Olga Bay Sections), requiring short mop up fisheries in a portion of the Dog Salmon Flats Section. Dog Salmon Flats openings under these circumstances generally result in the harvest of lower quality fish. Since the adoption of lower Frazer sockeye salmon escapement goals (1988), openings on Dog Salmon Flats targeting Frazer sockeye salmon have occurred in 1988, 1990, 1991, 1994, 1997 and 2001.

Similarly, in years of strong late Upper Station sockeye salmon and strong coho salmon runs to Olga Bay systems, or in years when low Frazer pink salmon returns have necessitated closures in the traditional harvest areas, openings in normally closed waters of upper Olga Bay were required. Since the adoption of higher Upper Station sockeye salmon escapement goals (1988), upper Olga Bay openings, in the Outer and/or Inner Upper Station Sections, targeting late Upper Station sockeye and coho salmon have occurred in 1988, 1991, 1990, 1994, and 1997. An upper Olga Bay opening was allowed in 1988 for early-run Upper Station sockeye salmon. A short mop up fishery for Akalura sockeye salmon occurred in 1992. Specific statistical area numbers for the upper bay sections were not in place prior to 1995, so a breakdown of catches from the normally closed upper bay sections is not possible.

In 1999 the ABD Salmon Management Plan was once again revised. Proposals were submitted to modify the management plan to protect the genetic diversity of the district salmon systems and increase the sockeye salmon harvest for Olga Bay fishers to historical percentages through an allocation plan. In an attempt to conserve minor stocks the BOF adopted the following revision to the ABD Salmon Management Plan:

- the Frazer sockeye salmon run shall be managed for maximum sustained yield and the early Upper Station sockeye salmon run shall be managed for sustained yield (defined as an early-run escapement of 25,000 sockeye salmon to Upper Station);
- there will be one 33 hour commercial test fishery between June 5 and June 13 in the Cape Alitak, Moser-Olga Bay, and Humpy-Deadman Sections;
- from June 13 through July 15 in the Cape Alitak, Humpy-Deadman, and Moser-Olga Bay Sections there must be a minimum closure of 63 consecutive hours (2.6 days) in every 10-day period, unless the sockeye salmon escapement goals have been achieved for the Frazer and early Upper Station sockeye salmon runs;
- from July 16 through August 25 there shall be a minimum closure of 63 consecutive hours (2.6 days) in every 10-day period in the Cape Alitak and Moser-Olga Bay Sections. The 2.6-day closure windows would allow for pulses of escapement to reach the major and minor systems in Olga Bay and perhaps increase the Olga Bay fisher's sockeye salmon harvest percentage without placing a strict allocative plan in regulation.

The Board appointed an Alitak Task Force composed of selected members of each gear group (Olga Bay gillnet, inner Moser Bay gillnet, outer Moser Bay/Alitak Bay gillnet and purse seine). The task force was charged with reviewing the ABD Salmon Management Plan with regards to further changes in time and area, methods and means, and allocation between gear groups and between areas.

Gear Restrictions

An evolution of regulations has also occurred in regards to restrictions on fishing gear allowed in the ABD (Table 11). The increased sockeye salmon production in this district has attracted a lot of interest from other set net permit holders to establish a fishing site in the Moser-Olga Bay Section or expand their existing fishing site. This resulted in years of controversy over where and how it is legally permissible to fish a gillnet in the ABD.

Seine

In 1985 a regulation was passed that prevents using a seine as a stationary trap (Table 11). In 1990 the maximum depth limit for purse seines was set at 325 meshes, with mesh size of seines not to exceed seven inches. Purse seines must be between 100 and 200 fathoms in length, and must be between 100 and 325 meshes deep with at least 50 fathoms of the seine at 150 meshes in depth. Beach seines must be between 100 and 225 fathoms in length and must be at least 100 meshes in depth. A lead of no more than 100 fathoms may be used with a purse seine, but the aggregate length of purse seine and lead may not exceed 250 fathoms.

Set Gillnet

For the set gillnet fishery more changes in regulations have taken place, and some regulations specific to gear operating in the ABD have been adopted (Table 11). Prior to 1983 the aggregate length of set gillnets used by an individual could not exceed 150 fathoms, and no more than two set gillnets could be operated by the individual holding the gear license. Set gillnets were required to be operated in a straight line, with no more than 25 fathoms of each net used as a single hook. Seine webbing could be used on the inshore end of the set net as a lead, but only between high and low water marks. The inshore end of the set gillnet was required to be attached to the shore above the mean low water mark. Further, it was stated in regulation that no part of a set gillnet could be placed or operated within 900 feet of any part of another set gillnet. In 1983 a 25 fathom hook in any configuration was allowed.

In 1985 many modifications to gillnet operations were passed into regulation. "Joint venture" set net operations were first allowed. This essentially allows two permit holders to combine their gear, whereby three gillnets, none of which can be more than 150 fathoms in length, could be operated. Also in 1985 it was specified that set net attachment points must be 900 feet apart and cannot be attached inside closed waters. Further, it was added that the shoreward end of the set gillnet must be attached to the beach above the lowest tide of the day. It was specified that seine webbing on the shoreward end of a set gillnet may not extend more than 50 fathoms seaward of the beach at lowest tide of the day, except in the Moser-Olga Bay Section where seine webbing may be used only from the high tide mark seaward, and no portion of the seine web may be in water deeper than five feet during the lowest tide of the day.

In 1988 the BOF again passed a number of set gillnet regulations. In order to increase the efficiency of terminal gillnet fisheries in the normally closed sections of Olga Bay, minimum distance requirement between units of gear were eliminated. In addition, no set gillnet gear, including running lines, leads, anchors, or buoys, could be in place in the water prior to the opening time.

It was also determined that the shoreward end of a set gillnet must be attached to a point of land that was exposed at the lowest tide of the day or to a rock that was within five feet of the surface at the lowest tide of the day. A rock was defined as any naturally located or created geological formation that shows no evidence of having been located or created through man-made means.

Further it was passed that in the Moser-Olga Bay Section south of a line from Bun Point to a point on the opposite shore at 56°57'59" N lat., 154°07'35" W long. seine webbing may be used only from high tide seaward, plus no portion of the seine webbing used can be in water deeper than five feet at lowest tide of the day, or the seine web lead length could not exceed 20 fathoms.

In 1990 the BOF passed into regulation the stipulation that in the ABD the distance from an attachment point to the shore end of the net is limited to the legal lead distance for that gear location. Also in 1990 a maximum depth limit was placed on set gillnets of 125 meshes.

In 1994, in response to claims that there had been a proliferation of new set gillnet gear into the Moser Bay portion of the Moser–Olga Bay Section, and because of difficulties in enforcing a regulation on set gillnet attachment points based on determination of which rocks were within five feet of the surface at the lowest tide of the day, the BOF passed new regulations on attachment points for set gillnets in the Moser–Olga Bay Section of the ABD, to take effect for the 1995 season (ADF&G 1999). Beginning January 1, 1995, the shoreward end attachment point could be no more than 2.1 feet below the surface of the water at mean low water at Alitak Bay. If the shoreward attachment is under water at any time, it must be certified and marked with a permanent survey monument by registered land surveyors. Also, the gillnet attachment can be no more than two feet from the survey monument, and never deeper than the 2.1 foot limit.

2001 SEASON SUMMARY

The first commercial salmon fishing period in 2001 for the ABD began on June 9. Commercial salmon fisheries occurred in ABD management units throughout the season, based on the strength of local sockeye, pink and coho salmon runs. The last ABD delivery occurred on September 29. In total, 651 chinook, 461,785 sockeye, 1,439,930 pink, 52,521 chum, and 2,471 coho salmon were harvested; this includes 1,666 sockeye, 111 pink, 1 coho and 39 chum salmon harvested in the ADF&G test fishery (Table 12).

Thirty four purse seine permit holders fished in the ABD fisheries, and harvested 581 chinook (89.2% of the total chinook harvest), 166,550 sockeye (36.1%), 1,342,867 pink (93.3%), 41,371 chum (78.9%), and 1,880 coho (76.1%) salmon (Tables 12 and 13). Seventy-seven gillnet permit holders fished in the ABD, and harvested 70 chinook (10.8%), 295,235 sockeye (63.9%), 97,063 pink (6.7%), 11,150 chum (21.2%), and 590 coho (23.9%) salmon. Further, the gillnet harvest can be apportioned between the Moser Bay (statistical area 257-41) and Olga Bay (statistical area 257-40, 257-42) gillnet fishers (Table 14). Sixty-one gillnet permit holders fished in Moser Bay, and harvested 59 chinook, 242,141 sockeye (52.4% of the total sockeye salmon harvest), 79,065 pink, 7,894 chum, and 535 coho salmon. Thirty-two gillnet permit holders fished in Olga Bay, and harvested 11 chinook, 53,094 sockeye (11% of the total sockeye salmon harvest), 17,998 pink, 3,254 chum, and 55 coho salmon (Table 14).

Early Run

The ABD Salmon Management Plan (5AAC 18.361) dictates that from June 9 through July 15 commercial salmon fishing must be managed in the Cape Alitak, Moser-Olga Bay, and Humpy-Deadman Sections based on the sockeye salmon run to the Frazer system. In 2001 the forecast for the Frazer system was a run of 500,000 sockeye salmon (range 218,000 to 782,000), with a harvestable surplus of approximately 360,000 sockeye salmon. The forecast for the early run to the Upper Station system was 111,000 sockeye salmon (range 63,000 to 159,000), with a harvestable surplus of approximately 61,000 sockeye salmon. Early Upper Station sockeye salmon are taken incidentally during fisheries primarily targeting Frazer system sockeye salmon or in directed fisheries in upper Olga Bay.

Sockeye salmon run patterns were extremely unusual in the spring of 2001. The escapement through Dog Salmon was very early, with the first escapement counts starting on May 28, about a week earlier than average (Figure 12). The ADF&G Chip Cove test fishery had record high catches prior to June 9 indicating a strong movement of sockeye salmon into Olga Bay. There were 80,258 sockeye salmon counted through the Dog Salmon weir by June 9, compared to the 10-year average escapement by June 9 of 6,930. Buildups were not seen on the Dog Salmon Flats, which suggested that the sockeye salmon were not holding in Olga Bay but rather entering Dog Salmon immediately. The first fishing period for these sections was the 33-hour commercial test fishery beginning on June 9. The June 9 fishery was slow, resulting in a harvest of 26,353 sockeye salmon, indicating the influx of salmon into the ABD was weak.

After the closure of the ABD to commercial salmon fishing, the Chip Cove test fishery catches increased dramatically, indicating a surge of fish entering Olga Bay. Through June 13 the escapement of Frazer Lake sockeye salmon into the Dog Salmon River was well above the interim escapement goals for that date (Figure 13). Typically at this date, few sockeye salmon have passed through the weirs at Dog Salmon and Upper Station, but are instead building up near the stream mouths. Through June 13 the escapement through the Dog Salmon weir was approximately 110,400 sockeye salmon, well ahead of the interim escapement goals (3,390 to 4,521). The escapement through the Upper Station weir was approximately 56,964, achieving the early-run lower escapement goal (Figure 14). Due to the strong early run of sockeye salmon to Olga Bay systems, commercial salmon fishing was allowed for a 3.4-day (81-hour) period beginning on June 14.

Through June 15 the escapement through the Dog Salmon River weir was approximately 126,000 sockeye salmon, over the interim escapement goal through July 15 (120,000). The escapement through the Upper Station weir was approximately 61,800, surpassing the early-run lower escapement goal (50,000 through July 15). A 4-day (96-hour) extension in commercial salmon fishing time in the ABD was implemented. Once again, survey reports indicated that fish were not building on the Dog Salmon Flats, but were instead moving from deep water directly into the river. It was uncertain if significant numbers of additional sockeye salmon were present in the upper bay. Therefore, in conjunction with this extension, a commercial fishery was announced on the Dog Salmon Flats for 105 hours. This opening was allowed in order to keep escapements from significantly exceeding escapement goals. Catches on the Dog Salmon Flats were low with a harvest of only 365 sockeye salmon. Commercial fishing closed in the ABD on June 21 after the maximum 7.4-day open period.

A commercial salmon fishery was opened again on June 24, after the minimum 2.6-day closure. As estimated escapement into the Dog Salmon River continued to far exceed interim escapement goals, the fishery was extended through July 1 (the maximum 7.4-day open period).

With the July 1 closure, Olga Narrows test fish catches increased, but the catches were low. With escapement levels in Frazer exceeding interim goals, and the ABD reopened to commercial fishing on July 4 and remained open until July 11. Again the maximum fishing time allowed under the ABD Salmon Management Plan (7.4 days).

The ABD reopened to commercial fishing on July 14 and was extended once through July 19.

The ABD salmon harvest through July 15 included 570 chinook, 357,573 sockeye, 329 coho, 107,751 pink, and 17,199 chum salmon. The sockeye salmon harvest for the outer, seine only, sections (Cape Alitak and Humpy-Deadman) was 127,957 (35.5%), and for the inner, gillnet only, areas (Moser-Olga Bay) was 229,616 (64.5%) sockeye salmon. Post season analyses of commercial catch samples from the ABD fisheries indicate that the June 9 through July 15 (early-run) harvest comprised approximately 74.3% Frazer Lake bound sockeye salmon and 25.7% Upper Station bound sockeye salmon.

Through July 15 the escapement through the Frazer River fish pass was 145,706 sockeye salmon, surpassing the targeted season goal (140,000). The sockeye salmon escapement through the Upper Station weir was 66,794, surpassing the targeted early-run escapement goal (50,000 through July 15).

Late Run

The ABD Salmon Management Plan (5AAC 18.361) dictates that during odd numbered years (as in 2001) from July 16 through August 9 commercial salmon fishing must be managed in the Cape Alitak and Moser-Olga Bay Sections based on the pink salmon run to the Frazer system, and that the Humpy-Deadman Section be managed based on the strength of salmon runs to its systems through season's end. The forecasted late-run Upper Station sockeye salmon run was fair, estimated at 378,000 (range 65,000 to 692,000) with a harvestable surplus of approximately 203,000. The 2001 forecasted pink salmon harvest for the ABD was approximately 1.3 to 2.8 million pink salmon.

In recent years, the actual end-of-season sockeye salmon escapements into Frazer Lake have exceeded the upper escapement goal of 200,000 fish. Limnology data indicates declining salmon forage (zooplankton) in Frazer Lake, likely resulting from overgrazing by above optimum numbers of juvenile salmon. It was desired to keep the sockeye salmon escapement into Frazer Lake as near as possible to the lower escapement goal of 140,000. The number of pink salmon in the system was above recent years averages, and early catch reports during the fishing period indicated that there were significant numbers of sockeye and pink salmon moving into the area. Historical timing indicated that the bulk of the pink salmon return was approximately two weeks away. It was prudent to reduce the escapement of sockeye salmon into Frazer by extending the fishing period to July 19, prior to the peak escapement timing for Frazer system pink salmon.

On July 22 commercial fishing was allowed in the ABD for a 3.4-day (81-hour) fishing period. Fishing time was warranted in order to prevent overescapement of sockeye salmon into the Frazer system, while allowing for the initial harvests of returning pink salmon. The timing and length of this period coincided with that of a general pink salmon fishing period occurring concurrently in much of the KMA

On July 30 the ABD was again opened to commercial salmon fishing. The pink salmon escapements into the Alitak systems were very good, and commercial catches from the previous fishing period indicated large numbers of pink salmon were moving into this district. In addition, sockeye salmon continued to enter the Frazer system. Fishing time in these sections was allowed for the harvest of returning pink salmon while helping to reduce overescapement of sockeye salmon into the Frazer system. The timing and length of this period coincided with another general pink salmon fishing period occurring in other districts of the KMA.

During this fishing period commercial catches indicated that large numbers of pink salmon were moving into the district, though pink salmon catches by set net fishers in the Moser-Olga Bay Section were less than expected. Recent escapements into the Frazer river system, the main pink salmon system in the Moser-Olga Bay Section, while above average, were well below the desired escapement. Catch and escapement reports for the date indicated that large numbers of pink salmon were bound for the major systems in the Humpy-Deadman Section. Therefore, the Cape Alitak and Moser-Olga Bay Sections closed as scheduled on August 2 and a 48-hour extension was allowed in the Humpy-Deadman Section through August 4.

Commercial catches from the last fishing period in the ABD indicated an influx of pink and chum salmon into the Humpy-Deadman Section. The catches also indicated a poor flow of fish through Cape Alitak and Moser-Olga Bay to the Frazer River. The escapement of pink salmon in the Frazer (through the Dog Salmon weir) were below the lower goal, while aerial surveys documented excessive escapements into the major systems within the Humpy-Deadman Section. Therefore the Humpy-Deadman Section opened for a 3.4-day (81-hour) period, starting August 6, and the Cape Alitak and Moser-Olga Bay Sections remained closed pending improvement of the Frazer pink return.

Commercial salmon fishing in the Humpy-Deadman Section was extended five more times, through the end of the commercial salmon fishing season. Escapements in local streams were excellent and catches remained strong.

The ABD Salmon Management Plan states that in odd numbered years from August 10 to 25 the Cape Alitak and Moser-Olga Bay Sections are to be managed based on the late sockeye salmon run to Upper Station. These sections were opened once more on August 10; this was a 33-hour test fishery to help ascertain the strength of Upper Station late-run sockeye salmon. Catches were poor and the fishing period closed as scheduled. The Moser-Olga Bay and Cape Alitak Sections remained closed for the remainder of the season due to poor returns of late Upper Station sockeye salmon.

The ABD Salmon Management Plan states that from August 26 to season's end the Cape Alitak and Moser-Olga Bay Sections are to be managed based on the late sockeye salmon and coho salmon returning to the entire district. Late-run Upper Station sockeye salmon continued to lag behind the lower goal for the season (150,000; Figure 15). Coho salmon escapements through the Upper

Station and Dog Salmon weirs were above their respective interim escapement goals. However, in order to conserve the Upper Station sockeye salmon late run, the Cape Alitak and Moser-Olga Bay Sections remained closed. Escapements of pink, coho, and chum salmon continued to meet established goals. The Humpy-Deadman Section, as previously mentioned, remained opened through the end of the commercial salmon fishing season (October 31). The last landing occurred on August 25.

The ABD salmon harvest from July 16 through season end included 81 chinook, 104,212 sockeye, 2,141 coho, 1,332,179 pink, and 35,322 chum salmon. The salmon harvest for the outer, seine only, sections (Cape Alitak and Humpy-Deadman) included 38,593 (10.3%) sockeye and 1,258,252 (94.1%) pink salmon, and for the inner, gillnet only, areas (Moser-Olga Bay) included 65,619 (65.3%) sockeye and 73,927 (5.9%) pink salmon.

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Table 1. Chronology of events affecting the management of commercial salmon fisheries in the Alitak Bay District, Kodiak Management Area, 1960 to 2001.

Year	Management Action or Change
1960	The Alaska Department of Fish and Game assumes management control of salmon fisheries. Weekly fishing periods set preseason, with Emergency Order closures announced when needed.
1962	Fishpass installed on barrier falls near Frazer Lake.
1970	Continued poor returns of Alitak Bay sockeye salmon stocks leads to complete closure of the Alitak Bay District during June.
1971	Last year of sockeye salmon plants into the Frazer system. Adult returns are sufficient to insure population buildup. Optimum Frazer Lake escapement estimated to be near 120,000 sockeye salmon. Management minimum escapement goal set at 175,000.
1975	Frazer Lake optimum sockeye salmon escapement estimated at 365,000 - 400,000. Management minimum escapement goal still 175,000. Upper Station sockeye salmon escapement goal set at 180,000.
	Fishing periods set inseason by Emergency Order. Limited Entry comes to Kodiak salmon fisheries.
1978	Frazer escapement goal first published at 175,000 - 250,000. Upper Station sockeye salmon escapement goal listed at 100,000 - 180,000, with interim goals for July (30,000), August (130,000), and September (20,000).
	Minimum of two single day fisheries in June allowed (June 14 and 22). However, only gillnet areas opened (Moser-Olga Bay).
1980	Frazer Lake sockeye salmon escapement (405,525) meets optimum level developed in 1975 (365,000 - 400,000).
1981	Frazer Lake sockeye salmon escapement goal raised to 350,000 – 400,000. Frazer sockeye escapement was high (377,716).
1982	Moser-Olga Bay Section split into two statistical areas, so gillnet catch from Moser Bay vs. Olga Bay can be determined. Frazer sockeye escapement again high (430,423).
1983	Equal fishing time mandated for gillnet area (Moser-Olga Bay) and seine areas (Cape Alitak and Humpy-Deadman) during June. Harvest strategy recognizes possible upper Olga Bay closed water gillnet only openings in the event of sockeye salmon escapements higher than established interim goals.
	Upper Station sockeye salmon escapement goal raised to 150,000 - 250,000, with interim goals for June and July (50,000), August (175,000), and September (25,000).
	Weir installed near saltwater on Dog Salmon River (which drains Frazer Lake), in order to assess salmon buildups on Dog Salmon Flats and provide more timely counts of Frazer sockeye salmon escapement.
1984	More aggressive harvest strategy by ADF&G. First June 9 “commercial test fishery” for the Alitak Bay District.
	First poor sockeye salmon return to Frazer Lake; the effects of previous overescapements suspected.
	First gillnet mop up fishery in upper Olga Bay for late-run Upper Station sockeye salmon.
1985	First gillnet mop up fishery on Dog Salmon Flats for Frazer Lake sockeye salmon.
	ADF&G salmon research staff begins development of formal sockeye salmon forecasts. Sockeye salmon runs broken down into early (pre-July 15) and late (post-July 15) runs.

-Continued-

Table 1. (page 2 of 2)

Year	Management Action or Change
1986	ADF&G early-run sockeye salmon test fishery begins in Moser Bay, near the narrows leading to Olga Bay.
	Second year of weak sockeye salmon return to Frazer system. Record late sockeye salmon run to Upper Station. Gillnet mop up fisheries in upper Olga Bay for early and late-run Upper Station sockeye salmon.
	Frazer Lake sockeye salmon escapement goal lowered to 200,000 - 275,000. Escapement goals for other Alitak Bay District salmon species first listed.
1987	Gillnet mop up fishery in upper Olga Bay for early and late-run Upper Station sockeye salmon.
1988	Alitak Bay District Salmon Management Plan placed in Regulations (5AAC 18.361)
	Frazer Lake sockeye salmon escapement goal lowered to 140,000 - 200,000. Upper Station sockeye salmon escapement goal raised to 200,000 - 275,000 with early run (pre-July 15) at 50,000 - 75,000, and late run (post-July 15) at 150,000 - 200,000.
1990	New record sockeye salmon harvest in the Alitak Bay District. Gillnet mop up fishery on Dog Salmon Flats for Frazer Lake sockeye salmon, and in upper Olga Bay for late-run Upper Station sockeye salmon.
1991	New record sockeye salmon harvest in the Alitak Bay District. Gillnet mop up fishery on Dog Salmon Flats for Frazer sockeye salmon.
1992	Gillnet mop up fishery at Inner Akalura Section for late-run Akalura sockeye salmon.
1994	Gillnet mop up fishery on Dog Salmon Flats for Frazer sockeye salmon, and in upper Olga Bay for late-run Upper Station sockeye salmon.
1995	Normally closed sections in Olga Bay (Dog Salmon Flats, Inner and Outer Upper Station, and Inner and Outer Akalura) given separate statistical numbers to allows discrimination of catches from those areas.
1997	Gillnet mop up fishery on Dog Salmon Flats for Frazer Lake sockeye salmon, and in upper Olga Bay for late-run Upper Station sockeye salmon.
1999	Alitak Bay District Salmon Management Plan revised to include a pulse fishery; for every 10 days of fishing there must be 2.6 days of closure. Early-run sockeye salmon into the Upper Station managed with an Optimal Escapement Goal of 25,000, and the Frazer system sockeye salmon managed for MSY. The initial 33-hour commercial test fishery may occur between June 5 and June 13.
2001	Earliest return of sockeye salmon to the Frazer system. Gillnet mop up fishery on Dog Salmon Flats for Frazer Lake sockeye salmon.

Table 2. Salmon escapement goals and representative index streams in the Alitak Bay District, of the Kodiak Management Area, 2001.

Stream Number	Stream Name	Run Timing	Optimal Escapement Goal[b]	Current Escapement Goal Lower	Current Escapement Goal Upper
Alitak Sockeye Systems					
(257-304)	Upper Station[a] - Early-Run	Early June to Mid July	25,000	50,000	75,000
	Late-Run	Mid July to Mid September		150,000	200,000
				200,000	275,000
(257-403)	Frazer[a]	Early June to Mid July		140,000	200,000
(257-302)	Akalura[a]	Mid July to Mid September		40,000	60,000
Other systems[c]		Mid July to Mid August		6,000	15,000
Total Alitak Sockeye Aggregate Escapement Benchmark				**386,000**	**550,000**

Stream Number	Stream Name	Run Timing	Even-Year Component Objective Lower	Even-Year Component Objective Upper	Odd-Year Component Objective Lower	Odd-Year Component Objective Upper
Alitak Pink Salmon Systems						
(257-701)	Humpy	Mid July to Late August	70,000	210,000	90,000	270,000
(257-403)	Dog Salmon[a] - Even-Year	Late July to Early September	50,000	150,000		
	Odd-Year	Early July to Mid August			60,000	180,000
(257-502)	Deadman	Late July to Early September	40,000	120,000	60,000	180,000
(257-401)	Narrows	Late July to Late August	2,000	6,000	2,000	6,000
Total Alitak Pink Salmon Escapement Goal			**162,000**	**486,000**	**212,000**	**636,000**

Stream Number	Stream Name	Run Timing	Current Component Objective Lower	Current Component Objective Upper
Alitak Chum Salmon Systems				
(257-102)	Big Sukhoi	Early July to Mid August	10,000	30,000
(257-603)	Sulua	Late July to Late August	5,000	15,000
(257-502)	Deadman	Mid July to Late August	3,000	9,000
(257-401)	Narrows	August	1,000	3,000
(257-403)	Dog Salmon[a]	July to Early September	2,000	6,000
(257-601)	Portage	Late July to Late August	5,000	15,000
Total Alitak Chum Salmon Escapement Goal			**26,000**	**78,000**
Alitak Coho Salmon Systems				
(257-304)	Upper Station[a]	Mid August to October	3,500	5,500
(257-403)	Dog Salmon[a]	Mid August to October	3,500	5,500
(257-302)	Akalura	Mid August to October	1,500	3,500
Total Alitak Coho Salmon Escapement Goal			**8,500**	**14,500**

[a] Goals reflect escapement as measured by weirs; all others as measured by aerial survey.

[b] The optimum escapement goal of Upper Station was mandated by the BOF in 1999 in order to conserve the early-run component of the Upper Station sockeye salmon.

[c] Includes systems without published escapement goals that contribute escapement to the Alitak Bay District.

Table 3. Historical salmon escapements and goals, by species, for the Alitak Bay District, of the Kodiak Management Area, 1970 to 2001.

	Escapement Goals				
	Sockeye[a]	Pink	Chum	Coho	Chinook[a]
		Even : Odd			
Lower	386,000	162,000 : 212,000	26,000	8,500	110
Upper	550,000	486,000 : 636,000	78,000	14,500	330

	Escapement of Salmon				
Year	Sockeye	Pink	Chum	Coho	Chinook
1970	80,695	256,898	13,200	2,902	2
1971	163,793	333,800	6,602	4,031	24
1972	188,569	145,000	21,783	7,512	117
1973	150,157	128,566	10,821	6,308	35
1974	403,048	235,788	6,700	9,042	12
1975	163,124	235,744	27,220	13,513	6
1976	223,463	634,115	33,755	11,779	21
1977	218,355	411,508	46,520	9,762	205
1978	274,210	657,337	35,683	6,547	143
1979	332,325	569,185	9,815	11,605	53
1980	528,154	517,905	99,575	3,050	69
1981	579,494	625,206	68,110	8,733	22
1982	920,706	466,829	122,900	10,439	47
1983	467,305	440,358	117,917	14,754	169
1984	396,100	313,518	110,522	7,855	138
1985	933,852	798,638	53,168	10,798	341
1986	621,758	380,321	26,634	11,463	222
1987	295,667	512,694	123,248	18,563	104
1988	612,395	211,868	47,033	15,734	305
1989[b]	771,359	2,710,821	53,199	20,588	160
1990	563,388	89,013	16,441	26,066	275
1991	636,591	468,244	139,520	32,235	283
1992	491,445	183,124	49,372	21,838	265
1993	458,485	949,662	23,742	21,205	337
1994	518,814	545,907	69,096	18,257	391
1995	470,931	3,796,345	66,438	20,188	470
1996	524,085	490,459	44,387	21,946	685
1997	572,170	505,001	68,857	23,192	662
1998	490,220	1,353,251	67,029	52,941	294
1999	509,382	965,492	124,549	14,018	282
2000	423,311	394,698	73,076	18,426	359
2001	321,782	767,986	45,286	15,469	367
AVERAGES:					
1970-01	447,035	659,228	56,944	15,336	215
1992-01	478.063	995.193	63.183	22.748	411

[a] Includes systems without published escapement goals that contribute to the escapement.

[b] Commercial fisheries severely restricted due to the M/V Exxon Valdez oil spill.

Table 4. Commercial sockeye salmon harvest by gear for the Alitak Bay District, of the Kodiak Management Area, 1970 to 2001.

Year	SEINE[a] # Permits	SEINE[a] Harvest	SEINE[a] Percent	GILLNET[a] # Permits	GILLNET[a] Harvest	GILLNET[a] Percent	Total Harvest
1970	79	19,528	24	49	62,016	76	81,544
1971	119	55,514	45	47	68,966	55	124,480
1972	69	6,681	30	46	15,446	70	22,127
1973	45	3,889	38	38	6,449	62	10,338
1974	73	33,323	49	45	34,420	51	67,743
1975	46	4,746	29	45	11,752	71	16,498
1976	121	28,304	29	56	68,711	71	97,015
1977	75	24,474	31	55	54,338	69	78,812
1978	172	88,921	41	61	129,380	59	218,301
1979	149	158,400	50	63	158,860	50	317,260
1980	96	36,252	18	64	161,514	82	197,766
1981	94	91,525	26	64	254,548	74	346,073
1982	109	67,168	14	66	409,694	86	476,862
1983	158	190,776	41	68	269,311	59	460,087
1984	75	126,515	33	70	256,214	67	382,729
1985	125	262,924	37	75	440,311	63	703,235
1986	146	522,383	42	79	724,983	58	1,247,366
1987	153	193,206	37	73	322,204	63	515,410
1988	123	470,529	42	81	653,318	58	1,123,847
1990	158	690,818	48	91	744,643	52	1,435,461
1991	187	864,944	42	86	1,197,774	58	2,062,718
1992	141	248,699	47	79	276,459	53	525,158
1993	116	474,096	47	76	524,655	53	998,751
1994	111	430,462	46	74	500,866	54	931,328
1995	149	890,194	53	75	782,998	47	1,673,192
1996	138	676,011	46	80	782,204	54	1,458,215
1997	92	282,047	41	78	403,588	59	685,635
1998	71	435,018	43	77	567,572	57	1,002,590
1999	50	193,096	31	76	438,260	69	631,356
2000	58	237,614	43	77	321,060	57	558,674
2001	34	166,550	36	77	295,235	64	461,785
AVERAGES[b]:							
1970-01		257,245	42		352,831	58	610,076
1978-87	128	173,807	36	68	312,702	64	486,509
1992-01	96	403,379	45	77	489,290	55	892,668

[a] Harvest in numbers of fish. Data from ADF&G Annual Management Reports and fish ticket summaries.

[b] 1989 not included in averages; commercial fisheries were severely restricted due to the M/V Exxon Valdez oil spill.

Table 5. Commercial chinook salmon harvest by gear for the Alitak Bay District, of the Kodiak Management Area, 1970 to 2001.

	SEINE[a]			GILLNET[a]			Total
Year	# Permits	Harvest	Percent	# Permits	Harvest	Percent	Harvest
1970	79	4	50	49	4	50	8
1971	119	23	70	47	10	30	33
1972	69	9	60	46	6	40	15
1973	45	2	50	38	2	50	4
1974	73	16	84	45	3	16	19
1975	46	0	0	45	0	0	0
1976	121	13	72	56	5	28	18
1977	75	12	60	55	8	40	20
1978	172	294	42	61	400	58	694
1979	149	82	76	63	26	24	108
1980	96	27	82	64	6	18	33
1981	94	39	87	64	6	13	45
1982	109	30	70	66	13	30	43
1983	158	140	88	68	19	12	159
1984	75	258	89	70	32	11	290
1985	125	158	79	75	41	21	199
1986	146	111	83	79	23	17	134
1987	153	93	89	73	12	11	105
1988	123	558	89	81	66	11	624
1990	158	667	83	91	140	17	807
1991	187	740	90	86	81	10	821
1992	141	964	91	79	92	9	1,056
1993	116	1,646	90	76	182	10	1,828
1994	111	1,794	92	74	152	8	1,946
1995	149	718	85	75	130	15	848
1996	138	467	82	80	102	18	569
1997	92	202	69	78	89	31	291
1998	71	1,394	94	77	93	6	1,487
1999	50	239	88	76	32	12	271
2000	58	390	90	77	43	10	433
2001	34	581	89	77	70	11	651
AVERAGES[b]:							
1970-01		376	86	67	61	14	437
1978-87	128	123	68	68	58	32	181
1992-01	96	840	89	77	99	11	938

[a] Harvest in numbers of fish. Data from ADF&G Annual Management Reports and fish ticket summaries.

[b] 1989 not included in averages; commercial fisheries were severely restricted due to the M/V Exxon Valdez oil spill.

Table 6. Commercial coho salmon harvest by gear for the Alitak Bay District, of the Kodiak Management Area, 1970 to 2001.

	SEINE[a]			GILLNET[a]			Total
Year	# Permits	Harvest	Percent	# Permits	Harvest	Percent	Harvest
1970	79	1,227	27	49	3,313	73	4,540
1971	119	777	34	47	1,484	66	2,261
1972	69	647	50	46	642	50	1,289
1973	45	38	30	38	87	70	125
1974	73	661	51	45	623	49	1,284
1975	46	1,586	97	45	41	3	1,627
1976	121	1,676	47	56	1,859	53	3,535
1977	75	572	43	55	771	57	1,343
1978	172	1,327	48	61	1,461	52	2,788
1979	149	6,840	46	63	8,167	54	15,007
1980	96	8,665	66	64	4,455	34	13,120
1981	94	7,611	45	64	9,400	55	17,011
1982	109	17,504	60	66	11,874	40	29,378
1983	158	15,825	55	68	13,122	45	28,947
1984	75	12,409	49	70	12,890	51	25,299
1985	125	22,707	52	75	21,207	48	43,914
1986	146	17,041	56	79	13,507	44	30,548
1987	153	8,481	47	73	9,478	53	17,959
1988	123	18,670	62	81	11,331	38	30,001
1990	158	6,300	35	91	11,876	65	18,176
1991	187	11,783	48	86	12,818	52	24,601
1992	141	11,107	45	79	13,441	55	24,548
1993	116	11,641	60	76	7,630	40	19,271
1994	111	18,186	56	74	14,126	44	32,312
1995	149	10,055	53	75	8,945	47	19,000
1996	138	18,967	53	80	16,562	47	35,529
1997	92	19,860	59	78	13,689	41	33,549
1998	71	17,004	53	77	15,181	47	32,185
1999	50	3,439	26	76	9,687	74	13,126
2000	58	4,919	49	77	5,212	51	10,131
2001	34	1,881	76	77	590	24	2,471
AVERAGES[b]:							
1970-01		9,013	52		8,241	48	17,254
1978-87	128	11,841	53	68	10,556	47	22,397
1992-01	96	11,706	53	77	10,506	47	22,212

[a] Harvest in numbers of fish. Data from ADF&G Annual Management Reports and fish ticket summaries.

[b] 1989 not included in averages; commercial fisheries were severely restricted due to the M/V Exxon Valdez oil spill.

Table 7. Commercial chum salmon harvest by gear for the Alitak Bay District, of the Kodiak Management Area, 1970 to 2001.

	SEINE[a]			GILLNET[a]			Total
Year	# Permits	Harvest	Percent	# Permits	Harvest	Percent	Harvest
1970	79	79,433	85	49	13,887	15	93,320
1971	119	178,454	93	47	12,983	7	191,437
1972	69	89,117	94	46	6,018	6	95,135
1973	45	19,880	81	38	4,528	19	24,408
1974	73	21,870	91	45	2,069	9	23,939
1975	46	1,731	61	45	1,122	39	2,853
1976	121	58,926	86	56	9,206	14	68,132
1977	75	62,652	88	55	8,317	12	70,969
1978	172	60,625	84	61	11,541	16	72,166
1979	149	15,245	68	63	7,217	32	22,462
1980	96	59,808	88	64	7,833	12	67,641
1981	94	38,722	63	64	22,791	37	61,513
1982	109	79,398	78	66	22,145	22	101,543
1983	158	85,491	79	68	22,295	21	107,786
1984	75	64,145	76	70	20,779	24	84,924
1985	125	57,077	67	75	27,683	33	84,760
1986	146	63,185	84	79	12,458	16	75,643
1987	153	37,865	63	73	21,858	37	59,723
1988	123	60,693	65	81	32,698	35	93,391
1990	158	32,083	64	91	18,221	36	50,304
1991	187	63,483	76	86	19,520	24	83,003
1992	141	19,642	57	79	14,938	43	34,580
1993	116	39,415	73	76	14,221	27	53,636
1994	111	91,468	82	74	20,723	18	112,191
1995	149	87,163	83	75	18,037	17	105,200
1996	138	45,536	71	80	18,714	29	64,250
1997	92	56,437	66	78	29,273	34	85,710
1998	71	24,492	60	77	16,054	40	40,546
1999	50	66,040	84	76	12,910	16	78,950
2000	58	55,467	83	77	11,722	17	67,189
2001	34	41,371	79	77	11,150	21	52,521
AVERAGES[b]:							
1970-01		56,675	79		15,255	21	71,930
1978-87	128	56,156	76	68	17,660	24	73,816
1992-01	96	52,703	76	77	16,774	24	69,477

[a] Harvest in numbers of fish. Data from ADF&G Annual Management Reports and fish ticket summaries.

[b] 1989 not included in averages; commercial fisheries were severely restricted due to the M/V Exxon Valdez oil spill.

Table 8. Commercial pink salmon harvest by gear for the Alitak Bay District, of the Kodiak Management Area, 1970 to 2001.

	SEINE[a]			GILLNET[a]			Total
Year	# Permits	Harvest	Percent	# Permits	Harvest	Percent	Harvest
1970	79	691,013	73	49	258,858	27	949,871
1971	119	955,531	90	47	110,649	10	1,066,180
1972	69	156,773	83	46	31,704	17	188,477
1973	45	32,486	65	38	17,446	35	49,932
1974	73	321,568	91	45	33,586	9	355,154
1975	46	210,456	89	45	25,255	11	235,711
1976	121	1,361,475	75	56	465,007	25	1,826,482
1977	75	738,853	77	55	222,820	23	961,673
1978	172	3,691,218	88	61	500,538	12	4,191,756
1979	149	1,550,402	93	63	114,008	7	1,664,410
1980	96	1,812,336	88	64	239,937	12	2,052,273
1981	94	1,807,562	87	64	266,067	13	2,073,629
1982	109	380,224	73	66	139,656	27	519,880
1983	158	1,338,208	94	68	90,318	6	1,428,526
1984	75	323,767	75	70	110,039	25	433,806
1985	125	907,028	86	75	150,912	14	1,057,940
1986	146	603,812	83	79	124,393	17	728,205
1987	153	831,927	91	73	84,948	9	916,875
1988	123	251,888	65	81	133,847	35	385,735
1990	158	125,678	87	91	19,249	13	144,927
1991	187	2,261,769	95	86	111,747	5	2,373,516
1992	141	42,942	72	79	16,326	28	59,268
1993	116	3,259,000	94	76	206,473	6	3,465,473
1994	111	1,024,739	91	74	96,093	9	1,120,832
1995	149	6,638,137	94	75	427,787	6	7,065,924
1996	138	339,155	61	80	214,269	39	553,424
1997	92	816,687	85	78	138,566	15	955,253
1998	71	1,266,107	74	77	438,474	26	1,704,581
1999	50	1,187,407	88	76	166,451	12	1,353,858
2000	58	169,953	70	77	73,208	30	243,161
2001	34	1,342,867	93	77	97,063	7	1,439,930
AVERAGES[b]:							
1970-01	107	1,175,515	88		165,345	12	1,340,860
Odd Years	106	1,591,888	91		148,701	9	1,740,589
Even Years	105	829,131	81		191,729	19	1,020,860
1978-87	128	1,324,648	88	68	182,082	12	1,506,730
Odd Years	136	1,287,025	90	69	141,251	10	1,428,276
Even Years	120	1,362,271	86	68	222,913	14	1,585,184
1992-01	96	1,608,699	90	80	187,471	10	1,796,170
Odd Years	88	2,648,820	93	76	207,268	7	2,856,088
Even Years	104	568,579	77	77	167,674	23	736,253

[a] Harvest in numbers of fish. Data from ADF&G Annual Management Reports and fish ticket summaries.

[b] 1989 not included in averages; commercial fisheries were severely restricted due to the M/V Exxon Valdez oil spill.

Table 9. Chronology of commercial fishery openings in the normally closed waters sections of Olga Bay, in the Alitak Bay District of the Kodiak Management Area, 1983 to 2001.

Year[a]	Dates	Location	Targeted Salmon Stocks
1983	9/6-10/31	Inner and Outer Upper Station, and Outer Akalura	Late Upper Station Sockeye and Upper Olga Bay Coho
	9/26-10/31	Dog Salmon Flats	Dog Salmon and Horse Marine Coho
1984	9/1-6	Inner and Outer Upper Station, and Outer Akalura	Late Upper Station Sockeye and Upper Olga Bay Coho
	9/5-6, 9/10-12, 9/17-19, 9/24-10/31	Dog Salmon Flats	Dog Salmon and Horse Marine Coho
1985	7/3-6	Dog Salmon Flats	Frazer Sockeye
	8/22-25	Inner and Outer Upper Station	Late Upper Station Sockeye
	9/12-10/31	Outer Upper Station and Outer Akalura	Upper Olga Bay Coho
1986	6/22–30	Inner Upper Station	Early Upper Station Sockeye
	6/22–7/10, 7/12-17	Outer Upper Station	Early Upper Station Sockeye
	8/17-27	Inner and Outer Upper Station	Late Upper Station Sockeye
	9/5-10/31	Dog Salmon Flats	Dog Salmon and Horse Marine Coho
1987	6/17-19, 6/24-7/7	Outer Upper Station	Early Upper Station Sockeye
	6/25-28	Inner Upper Station	Early Upper Station Sockeye
1988	6/26-28	Outer Upper Station	Early Upper Station Sockeye
	7/11-12	Dog Salmon Flats	Frazer Sockeye
	8/14-20	Inner Upper Station	Late Upper Station Sockeye
	8/11-20, 8/23-25, 8/30-9/16, 9/19-10/31	Outer Upper Station	Late Upper Station Sockeye and Coho
	9/6-16, 9/19-10/31	Outer Akalura	Late Sockeye and Coho
1990	6/27-7/11, 7/28+30	Dog Salmon Flats	Frazer Sockeye
	8/16-18	Outer Upper Station	Late Upper Station Sockeye
1991	6/30-7/17	Dog Salmon Flats	Frazer Sockeye
	9/11-10/31	Outer Upper Station and Outer Akalura	Upper Bay Sockeye and Coho
1992	8/20	Inner Akalura	Akalura Sockeye
1994	7/20	Dog Salmon Flats	Frazer Sockeye
	8/24-27	Inner and Outer Upper Station	Late Upper Station Sockeye
1997	6/21-22	Dog Salmon Flats	Frazer Sockeye
	8/29	Inner and Outer Upper Station	Late Upper Station Sockeye
	9/7-10/31	Outer Upper Station	Late Upper Station Sockeye and Coho
2001	6/17-6/21	Dog Salmon Flats	Frazer Sockeye

[a] Prior to 1988 there were no defined Sections in upper Olga Bay, but the equivalent areas are listed.

Table 10. Primary management species and management chronology of the Alitak Bay District Salmon Management Plan for the Kodiak Management Area.

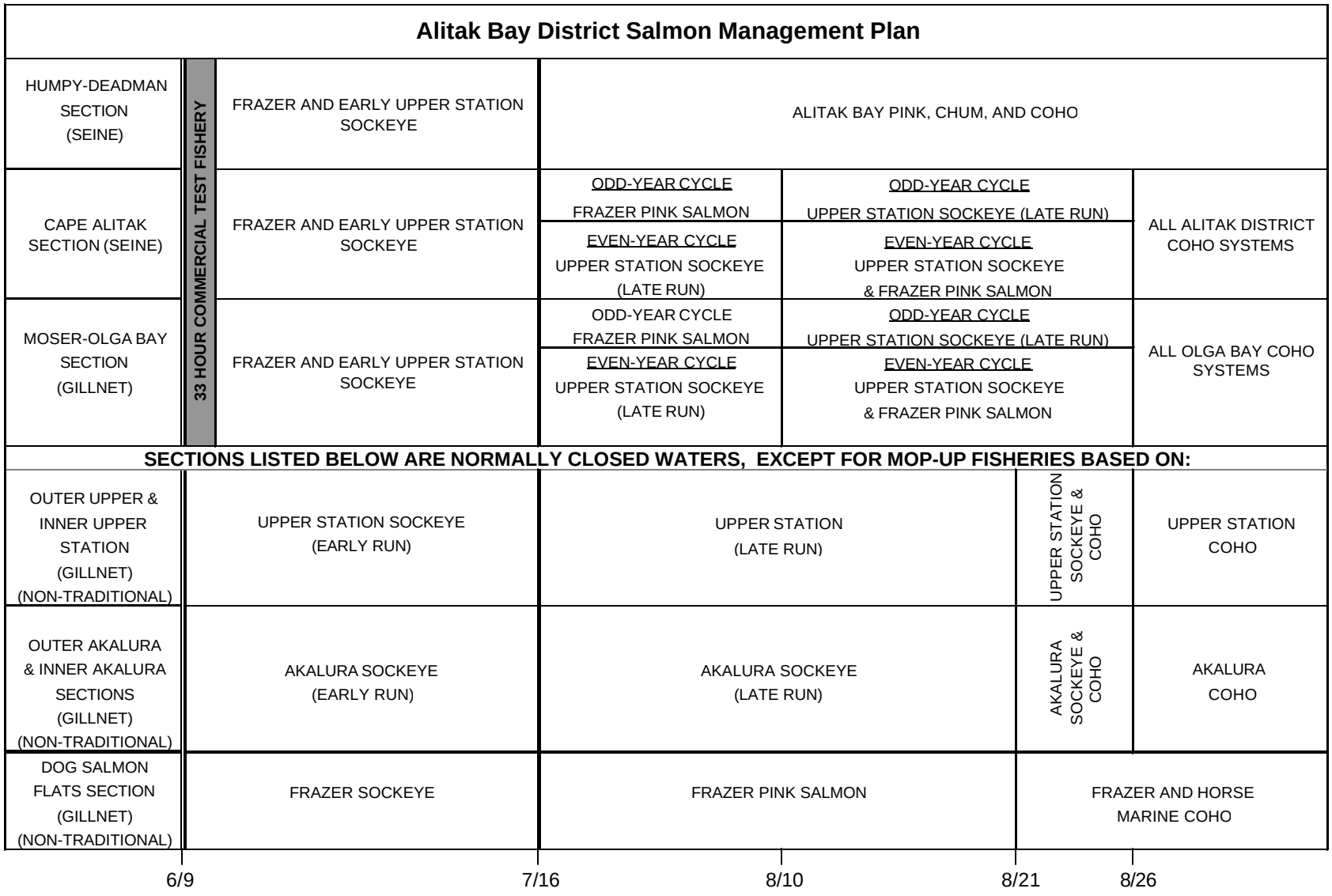


Table 11. Changes in gear regulations affecting the commercial salmon fisheries in the Alitak Bay District of the Kodiak Management Area, 1983 to 2001.

YEAR	GEAR REGULATIONS
Prior to 1983	The aggregate length of set gillnets used by an individual may not exceed 150 fathoms. No more than two set gillnets may be operated by the individual holding the gear license. Set gillnet shall be operated in substantially a straight line. No more than 25 fathoms of each net may be used as a single hook. Seine webbing may be used as a lead on the shore end between high and low water marks. The inshore end of a set gillnet must be attached to the shore above the mean low water mark.
	No part of a set gillnet may be placed or operated within 900 feet of any part of another set gillnet.
1983	25 fathom of setnet may be used as a single hook, in any configuration.
1985	Joint venture set gillnet sites.
	Shoreward end of a set gillnet must be attached to the beach above the lowest tide of the day. Set gillnet attachment points must be 900 feet apart and cannot be attached inside closed waters.
	Seine webbing used as a lead may extend on the shoreward end of a set gillnet and may not extend more than 50 fathoms seaward of beach at low tide of day except for Moser-Olga Bay Section where seine webbing used from high tide mark seaward and no portion of the seine web may be in water deeper than five feet during the lowest tide of the day.
	Seines may not be used as a stationary trap.
1988	For Moser Bay set gillnets outside Bun Point, minimum lead length of 20 fathoms or seine webbing from high tide seaward no deeper than five feet at lowest tide of the day.
	No minimum distance between set gillnet gear in Olga Bay closed water openings. No running lines or buoys in water prior to openings in normally closed waters,
	Shoreward end of set gillnet attached to point of land or rock within five feet of the lowest tide of the day (also defined rock - naturally located).
1990	In the Alitak District distance from attachment point to set gillnet limited to legal lead distance for that gear location.
	Purse seine maximum depth limit 325 meshes with mesh not over 7”.
	Set gillnets maximum depth limit 125 meshes.
1995	Shoreward attachment point for Alitak set gillnet no more than 2.1’ below water surface at mean low water (Alitak Bay tide). If attachment point under water at any time it must be marked by permanent survey monument and certified as no more than 2.1’ below water surface by registered surveyor. Set gillnet may be attached no more than 2’ from monument and never deeper.

Table 12. Salmon harvest, by gear and species, for the Alitak Bay District of the Kodiak Management Area, 2001.

			CHINOOK		SOCKEYE		COHO		PINK		CHUM		TOTAL	
	Permits	Landings	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
EARLY RUN														
PURSE SEINE	34	231	504	10,905	127,957	714,584	275	2,429	84,615	334,933	10,799	104,397	224,150	1,167,248
Average Weight -				21.6		5.6		8.8		4.0		9.7		
% of Total Catch				88.4%		35.8%		83.3%		78.5%		62.8%		46.4%
SET GILLNET	74	1,445	66	1,274	229,616	1,299,874	55	354	23,136	87,581	6,400	56,467	259,273	1,445,550
Average Weight -				19.3		5.7		6.4		3.8		8.8		
% of Total Catch				11.6%		64.2%		16.7%		21.5%		37.2%		53.6%
EARLY RUN SUBTOTAL		1,676	570	12,179	357,573	2,014,458	330	2,783	107,751	422,514	17,199	160,864	483,423	2,612,798
				21.4		5.6		8.4		3.9		9.4		
LATE RUN														
PURSE SEINE	28	371	77	1,988	38,593	208,331	1,606	13,048	1,258,252	4,536,534	30,572	268,302	1,329,100	5,028,203
Average Weight -				25.8		5.4		8.1		3.6		8.8		
% of Total Catch				95.1%		10.8%		75.0%		94.5%		86.6%		90.2%
SET GILLNET	62	703	4	101	65,619	392,289	535	4,596	73,927	286,384	4,750	41,492	144,835	724,862
Average Weight -				25.3		6.0		8.6		3.9		8.7		
% of Total Catch				4.9%		63.0%		25.0%		5.5%		13.4%		9.8%
LATE RUN SUBTOTAL		1,074	81	2,089	104,212	600,620	2,141	17,644	1,332,179	4,822,918	35,322	309,794	1,473,935	5,753,065
				25.8		5.8		8.2		3.6		8.8		
SEASON TOTAL														
PURSE SEINE	34	602	581	12,893	166,550	922,915	1,881	15,477	1,342,867	4,871,467	41,371	372,699	1,553,250	6,195,451
Average Weight -				22.2		5.5		8.2		3.6		9.0		
				89.2%		36.1%		76.1%		93.3%		78.8%		79.4%
SET GILLNET	77	2,148	70	1,375	295,235	1,692,163	590	4,950	97,063	373,965	11,150	97,959	404,108	2,170,412
Average Weight -				19.6		5.7		8.4		3.9		8.8		
				10.8%		63.9%		23.9%		6.7%		21.2%		20.6%
ALL GEAR TOTAL		2,750	651	14,268	461,785	2,615,078	2,471	20,427	1,439,930	5,245,432	52,521	470,658	1,957,358	8,365,863
				21.9		5.7		8.3		3.6		9.0		
ADF&G TEST FISHERY TOTAL	1	37	0	0	1,666	9,608	1	7	111	458	39	331	1,817	10,404
Average Weight -				0.0		5.8		7.0		4.1		8.5		

Table 13. Commercial salmon harvest, by species, with percent harvest by gear, in the Alitak Bay District, of the Kodiak Management Area, 1954 to 2001.

	Chinook			Sockeye			Coho			Pink			Chum			TOTAL		
YEAR	Number	GN%	PS%	Number	GN%	PS%	Number	GN%	PS%	Number	GN%	PS%	Number	GN%	PS%	Number	GN%	PS%
1954	3	33%	67%	44,448	94%	6%	1,118	93%	7%	490,038	47%	53%	55,788	19%	81%	591,395	48%	52%
1955	38	74%	26%	56,058	89%	11%	410	68%	32%	1,656,363	15%	85%	100,031	17%	83%	1,812,900	18%	82%
1956	10	10%	90%	62,673	77%	23%	904	25%	75%	335,669	30%	70%	55,967	11%	89%	455,223	34%	66%
1957	7	14%	86%	15,365	88%	12%	378	31%	69%	410,620	12%	88%	49,661	27%	73%	476,031	16%	84%
1958	11	0%	100%	30,542	79%	21%	488	33%	67%	770,851	29%	71%	81,255	8%	92%	883,147	29%	71%
1959	11	18%	82%	24,888	59%	41%	378	30%	70%	544,592	23%	77%	70,589	8%	92%	640,458	23%	77%
1960	29	17%	83%	68,472	77%	23%	2,129	77%	23%	1,561,476	25%	75%	102,432	13%	87%	1,734,538	26%	74%
1961	23	4%	96%	145,781	67%	33%	1,470	49%	51%	1,589,027	14%	86%	60,600	18%	82%	1,796,901	19%	81%
1962	5	20%	80%	124,496	75%	25%	1,792	79%	21%	1,886,769	23%	77%	54,115	26%	74%	2,067,177	26%	74%
1963	30	7%	93%	54,992	60%	40%	1,202	31%	69%	1,522,856	14%	86%	42,836	10%	90%	1,621,916	15%	85%
1964	29	10%	90%	50,167	72%	28%	2,324	76%	24%	1,408,731	46%	54%	34,460	13%	87%	1,495,711	46%	54%
1965	16	6%	94%	68,876	68%	32%	688	16%	84%	1,129,185	11%	89%	20,604	17%	83%	1,219,369	14%	86%
1966	2	50%	50%	70,526	91%	9%	585	78%	22%	429,204	40%	60%	33,153	18%	82%	533,470	46%	54%
1967	6	0%	100%	14,227	82%	18%	50	0%	100%	84,918	66%	34%	17,377	55%	45%	116,578	66%	34%
1968	16	44%	56%	40,662	86%	14%	3,701	79%	21%	1,046,221	21%	79%	29,450	35%	65%	1,120,050	24%	76%
1969	27	37%	63%	98,722	54%	46%	7,240	7%	93%	3,768,917	8%	92%	45,134	15%	85%	3,920,040	10%	90%
1970	8	50%	50%	81,528	76%	24%	4,540	73%	27%	949,488	27%	73%	93,306	15%	85%	1,128,870	30%	70%
1971	33	30%	70%	124,480	55%	45%	2,261	66%	34%	1,066,180	10%	90%	191,437	7%	93%	1,384,391	14%	86%
1972	15	40%	60%	22,127	70%	30%	1,270	51%	49%	187,154	17%	83%	93,236	6%	94%	303,802	18%	82%
1973	4	50%	50%	10,338	62%	38%	125	70%	30%	49,932	35%	65%	24,408	19%	81%	84,807	34%	66%
1974	19	16%	84%	66,605	52%	48%	1,284	49%	51%	363,389	9%	91%	22,220	9%	91%	453,517	16%	84%
1975	0	0%	0%	16,515	72%	28%	1,627	3%	97%	235,720	11%	89%	2,855	40%	60%	256,717	15%	85%
1976	18	28%	72%	96,668	71%	29%	3,518	53%	47%	1,804,003	26%	74%	66,183	14%	86%	1,970,390	28%	72%
1977	20	40%	60%	78,805	69%	31%	1,343	57%	43%	961,673	23%	77%	70,978	12%	88%	1,112,819	26%	74%
1978	694	58%	42%	218,165	59%	41%	2,788	52%	48%	4,191,756	12%	88%	72,166	16%	84%	4,485,569	14%	86%
1979	108	24%	76%	317,906	50%	50%	15,007	54%	46%	1,664,249	7%	93%	22,454	32%	68%	2,019,724	14%	86%
1980	34	21%	79%	208,200	83%	17%	12,972	34%	66%	2,033,236	12%	88%	67,471	12%	88%	2,321,913	18%	82%
1981	45	13%	87%	346,073	74%	26%	17,011	55%	45%	2,073,629	13%	87%	61,513	37%	63%	2,498,271	22%	78%
1982	43	30%	70%	476,862	86%	14%	29,378	40%	60%	519,880	27%	73%	101,543	22%	78%	1,127,706	52%	48%
1983	159	12%	88%	460,087	59%	41%	28,953	45%	55%	1,318,526	7%	93%	107,786	21%	79%	1,915,511	21%	79%
1984	290	11%	89%	382,729	67%	33%	25,299	51%	49%	433,806	25%	75%	84,924	24%	76%	927,048	43%	57%
1985	199	21%	79%	703,186	63%	37%	43,914	48%	52%	1,057,912	14%	86%	84,760	33%	67%	1,889,971	34%	66%
1986	134	17%	83%	1,247,976	58%	42%	30,548	44%	56%	728,205	17%	83%	75,643	16%	84%	2,082,506	42%	58%
1987	105	11%	89%	515,410	63%	37%	17,959	53%	47%	916,875	9%	91%	59,723	37%	63%	1,510,072	29%	71%
1988	624	11%	89%	1,123,474	58%	42%	30,001	38%	62%	385,735	35%	65%	93,391	35%	65%	1,633,225	51%	49%

-Continued-

Table 13. (page 2 of 2)

	Chinook			Sockeye			Coho			Pink			Chum			TOTAL		
YEAR	Number	GN%	PS%	Number	GN%	PS%	Number	GN%	PS%	Number	GN%	PS%	Number	GN%	PS%	Number	GN%	PS%
1990	807	17%	83%	1,435,461	52%	48%	18,176	65%	35%	144,927	13%	87%	50,304	36%	64%	1,649,675	48%	52%
1991	821	10%	90%	2,062,718	58%	42%	24,601	52%	48%	2,373,516	5%	95%	83,003	24%	76%	4,544,659	30%	70%
1992	1056	9%	91%	525,158	53%	47%	24,548	55%	45%	59,268	28%	72%	34,580	43%	57%	644,610	50%	50%
1993	1828	10%	90%	998,751	53%	47%	19,271	40%	60%	3,465,473	6%	94%	53,636	27%	73%	4,538,959	17%	83%
1994	1946	8%	92%	931,328	54%	46%	32,312	44%	56%	1,120,832	9%	91%	112,191	18%	82%	2,198,609	29%	71%
1995	848	15%	85%	1,674,169	47%	53%	19,000	47%	53%	7,065,939	6%	94%	105,224	17%	83%	8,865,180	14%	86%
1996	569	18%	82%	1,458,215	54%	46%	35,529	47%	53%	553,424	39%	61%	65,250	29%	71%	2,112,987	49%	51%
1997	291	31%	69%	685,635	59%	41%	33,549	41%	59%	955,253	15%	85%	85,710	34%	66%	1,760,438	33%	67%
1998	1487	6%	94%	1,003,245	57%	43%	32,185	47%	53%	1,704,581	26%	74%	40,554	40%	60%	2,782,052	37%	63%
1999	271	12%	88%	633,579	70%	30%	13,126	74%	26%	1,353,933	12%	88%	79,000	16%	84%	2,079,909	30%	70%
2000	433	10%	90%	558,674	57%	43%	10,131	51%	49%	243,161	30%	70%	67,189	17%	83%	879,588	47%	53%
2001	651	11%	89%	461,785	64%	36%	2,471	24%	76%	1,439,930	7%	93%	52,521	21%	79%	1,957,358	26%	74%
AVERAGES:																		
1954-01	294	21%	77%	423,335	67%	33%	11,905	49%	51%	1,277,809	20%	80%	65,502	22%	78%	1,778,846	30%	70%
1991-00	955	13%	87%	1,053,147	56%	44%	24,425	50%	50%	1,889,538	18%	82%	72,634	27%	74%	3,040,699	34%	66%

Table 14. Sockeye salmon harvest, by gear and area, in the Alitak Bay District, of the Kodiak Management Area, 1982 to 2001.

	Gillnet									Seine			All Gear
	Moser Bay			Olga Bay			Total District			Total District			District
Year	Permits	Harvest	%	Permits	Harvest	%	Permits	Harvest	%	Permits	Harvest	%	Harvest
1982	56	246,998	52	44	162,696	34	66	409,694	86	109	67,168	14	476,862
1983	61	183,417	40	36	85,894	19	68	269,311	59	158	190,776	41	460,087
1984	62	176,297	46	40	79,917	21	70	256,214	67	75	126,515	33	382,729
1985	70	301,634	43	45	138,677	20	75	440,311	63	125	262,924	37	703,235
1986	67	338,492	27	65	386,491	31	79	724,983	58	146	522,383	42	1,247,366
1987	60	188,343	37	61	133,861	26	73	322,204	63	153	193,206	37	515,410
1988	65	401,887	36	59	251,431	22	81	653,318	58	123	470,529	42	1,123,847
1989[a]	45	133.983	10	80	1.150.084	90	87	1.284.067	100	1	100	0	1.284.167
1990	73	507,372	35	63	237,271	17	91	744,643	52	158	690,818	48	1,435,461
1991	65	626,061	30	67	571,713	28	86	1,197,774	58	187	864,944	42	2,062,718
1992	65	197,733	38	44	78,726	15	79	276,459	53	141	248,699	47	525,158
1993[b]	64	384.487	38	35	140.168	14	76	524.655	53	116	474.096	47	998.751
1994	61	364,925	39	43	135,941	15	74	500,866	54	111	430,462	46	931,328
1995[b]	61	622.810	37	30	160.188	10	75	782.998	47	149	890.194	53	1.673.192
1996[b]	71	677.399	46	23	104.805	7	80	782.204	54	138	676.011	46	1.458.215
1997	70	318,855	47	47	84,733	12	78	403,588	59	92	282,047	41	685,635
1998[b]	61	448.625	45	30	118.947	12	77	567.572	57	71	435.018	43	1.002.590
1999[b]	72	318.283	50	42	119.977	19	76	438.260	69	50	193.096	31	631.356
2000[b]	70	265,240	47	29	55,820	10	77	321,060	57	58	237,614	43	558,674
2001	61	242,141	52	32	53,094	11	77	295,235	64	34	166,550	36	461,785
AVERAGES[a]													
1982-01[a]	65	358.474	39	44	163.176	18	77	521.650	57	115	390.687	43	912.337
1983-87	64	237,637	36	49	164,968	25	73	402,605	61	131	259,161	39	661,765
1988-93[a]	65	443.611	35	49	225.063	18	80	668.673	53	141	581.392	47	1.250.065
1994-01	66	407,285	44	35	104,188	11	77	511,473	55	88	413,874	45	925,347

[a] Harvest patterns were unusual due to the effect of the Exxon Valdez oil spill. The harvest in 1989 was not used to calculate averages.

[b] There were no commercial mop up fisheries in the normally closed water areas of Olga Bay during this year.

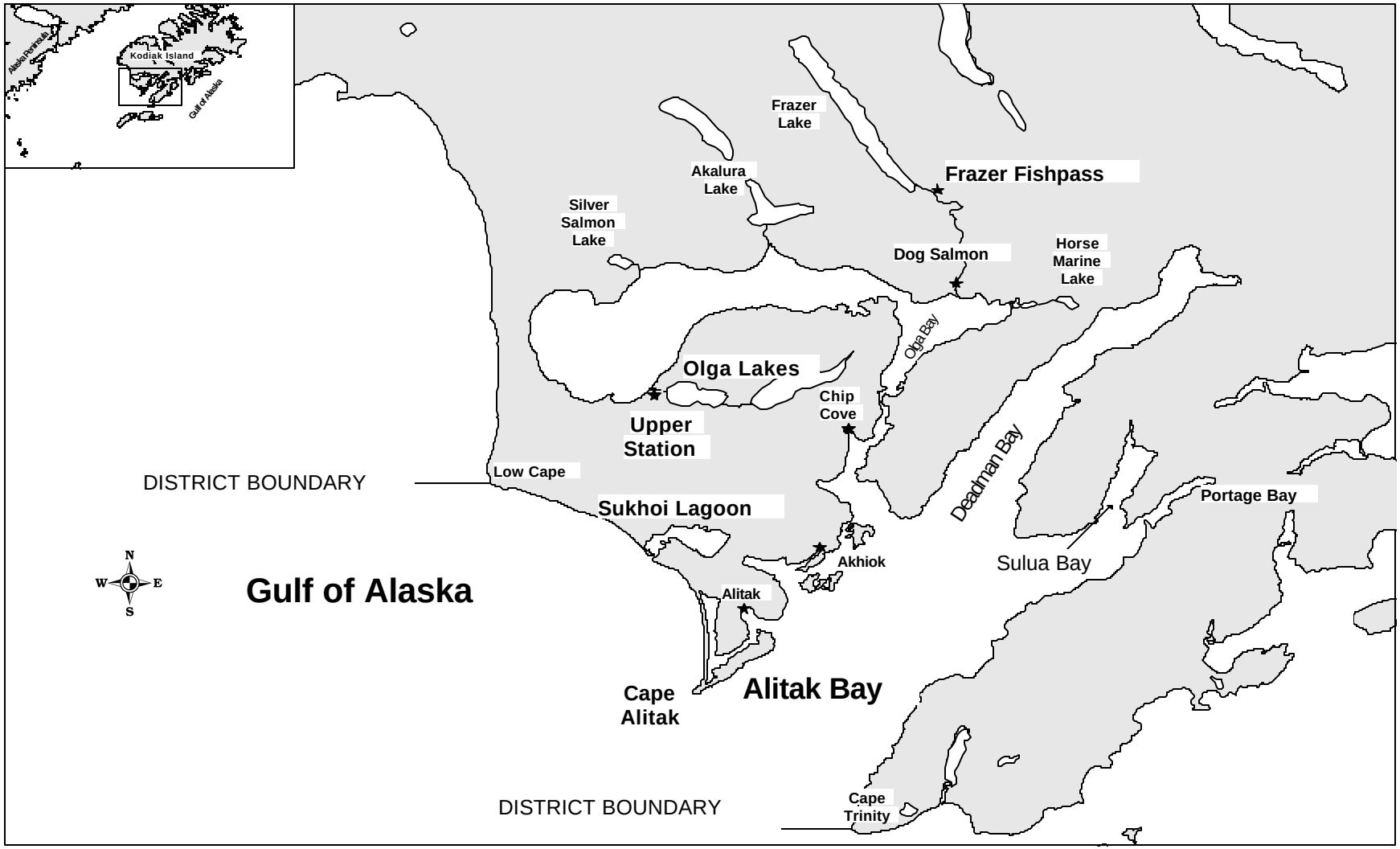


Figure 1. Map of the Alitak Bay commercial salmon fishing district and sockeye salmon producing systems.

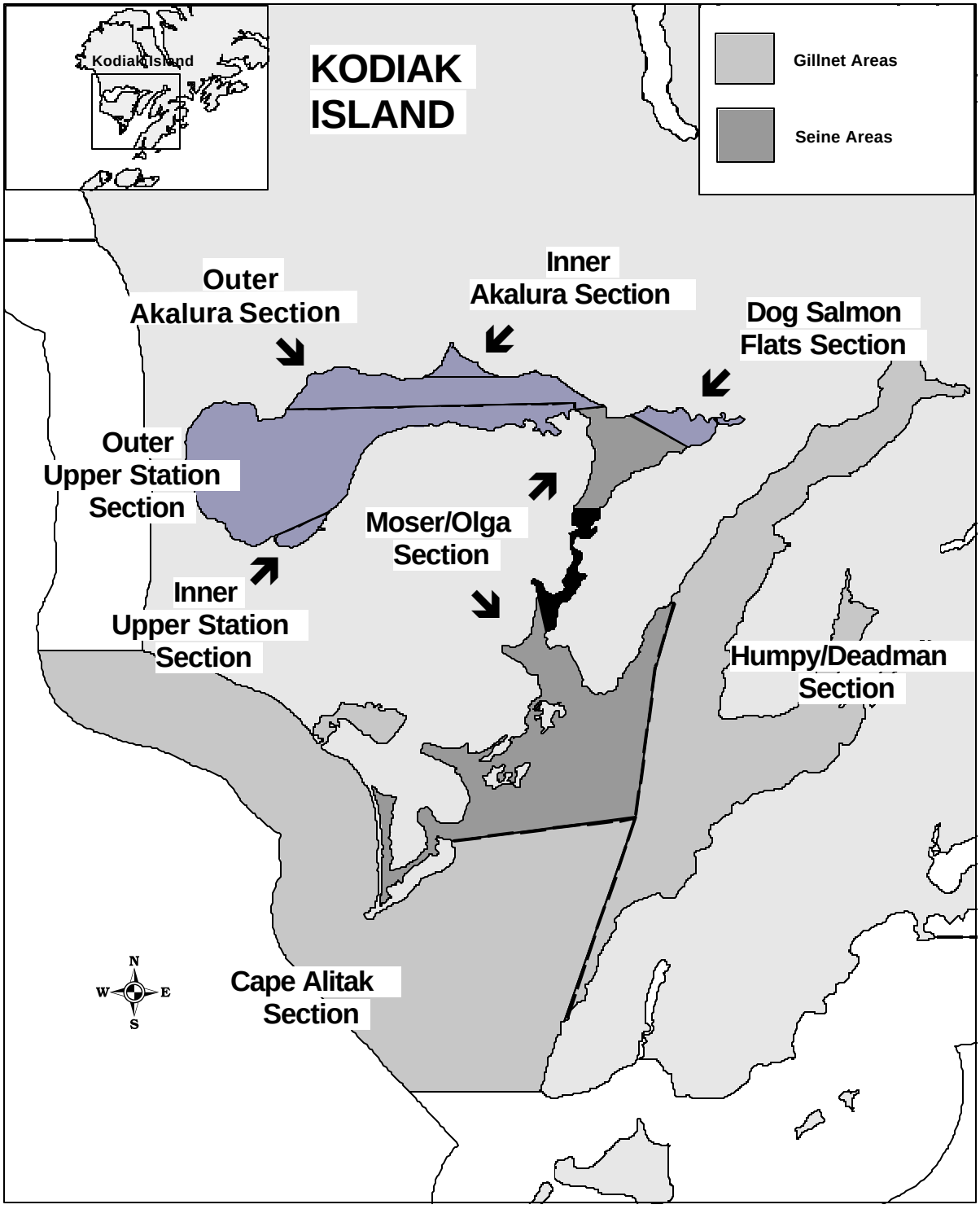


Figure 2. Map of the Alitak Bay District with exclusive seine and gillnet fishing areas identified.

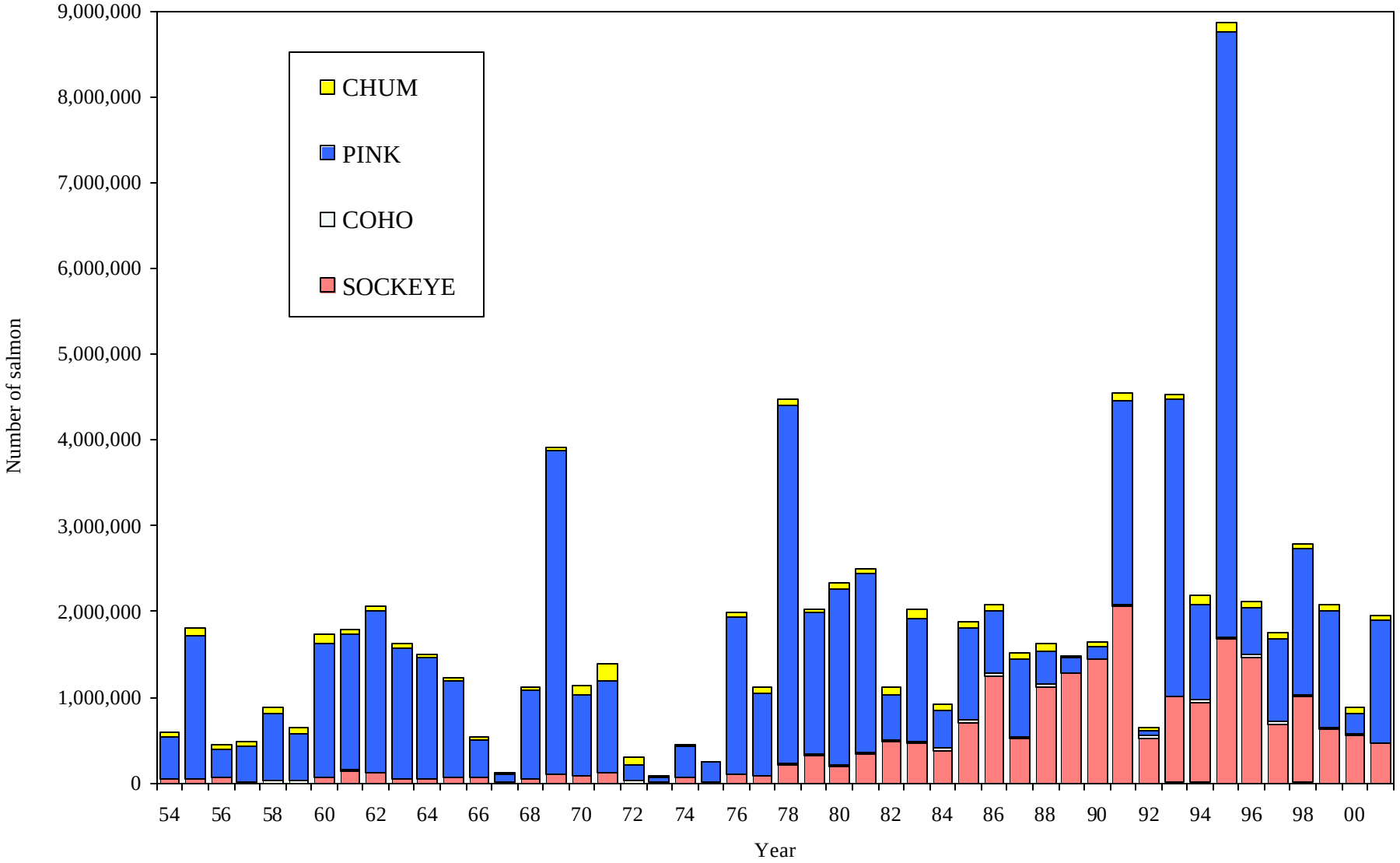
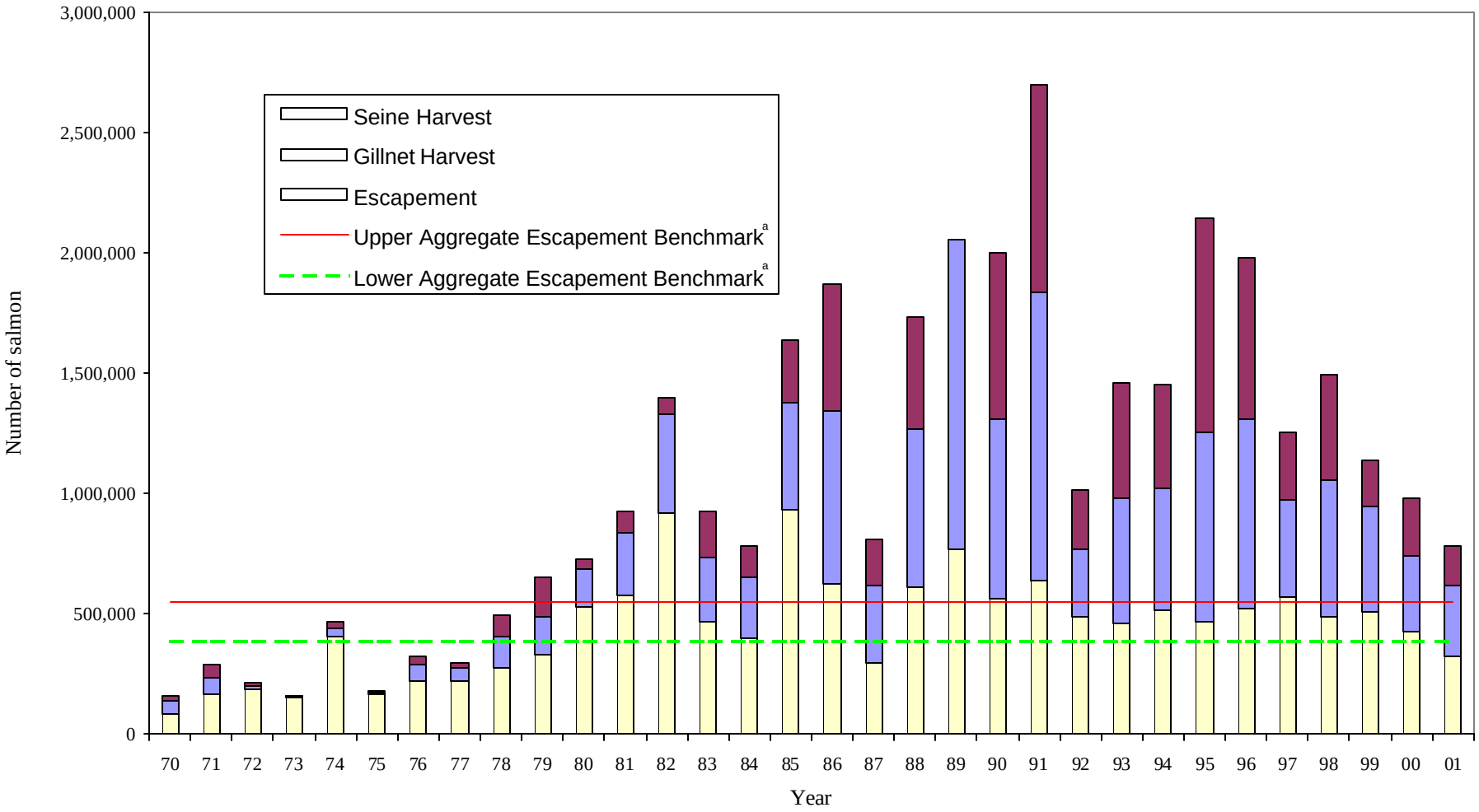
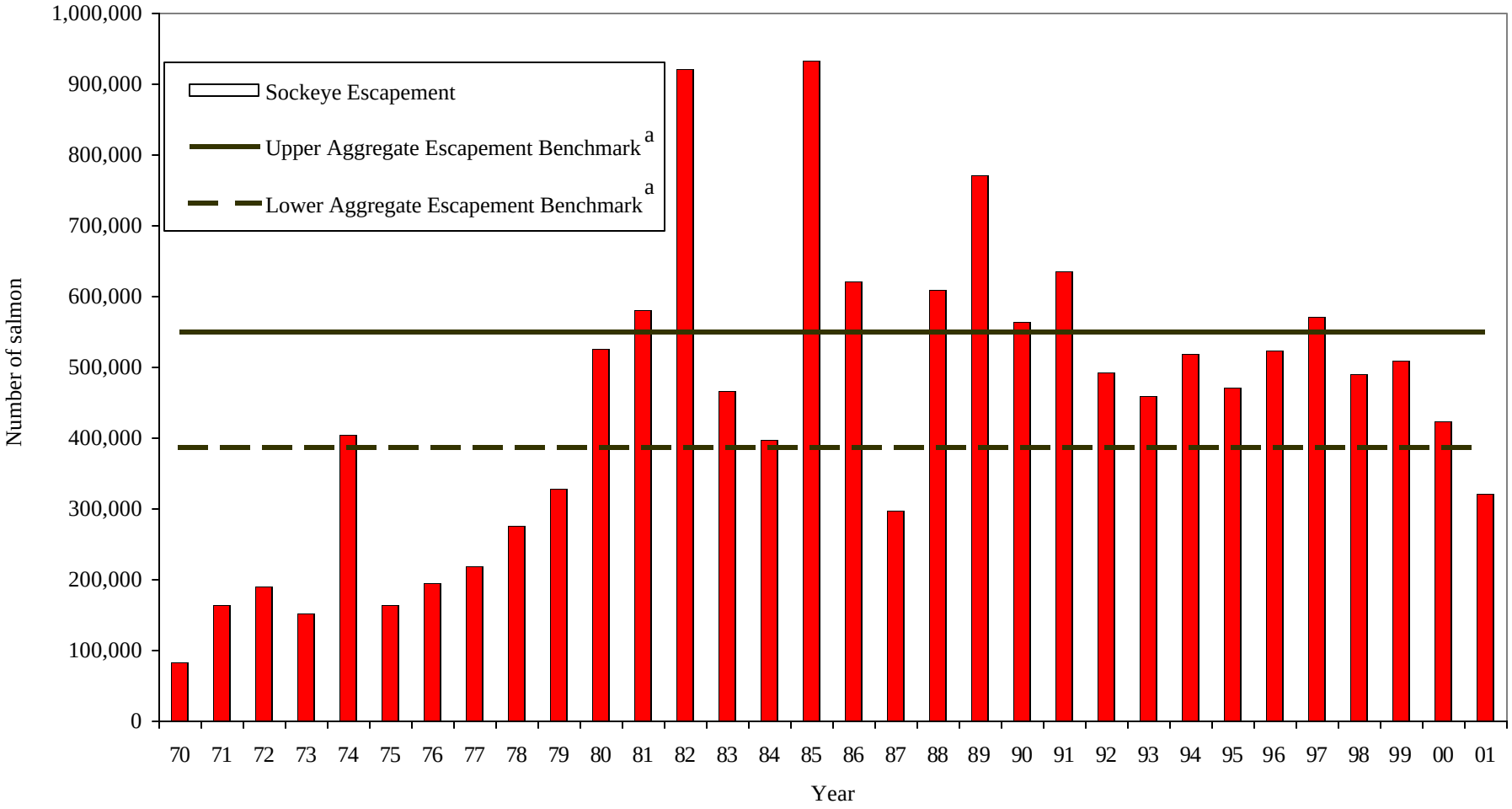


Figure 3. Annual commercial salmon harvest, by species, all gear combined, for the Alitak Bay District, of the Kodiak Management Area, 1954 to 2001.



[a] Includes systems without published escapement goals that contribute escapement to the Alitak Bay District.

Figure 4. Sockeye salmon commercial catch and escapement from the Alitak Bay District, of the Kodiak Management Area, 1970 to 2001.



[a] Includes systems without published escapement goals that contribute escapement to the Alitak Bay

Figure 5. Sockeye salmon escapement and current aggregate escapement benchmarks for the Alitak Bay District, 1970 to 2001.

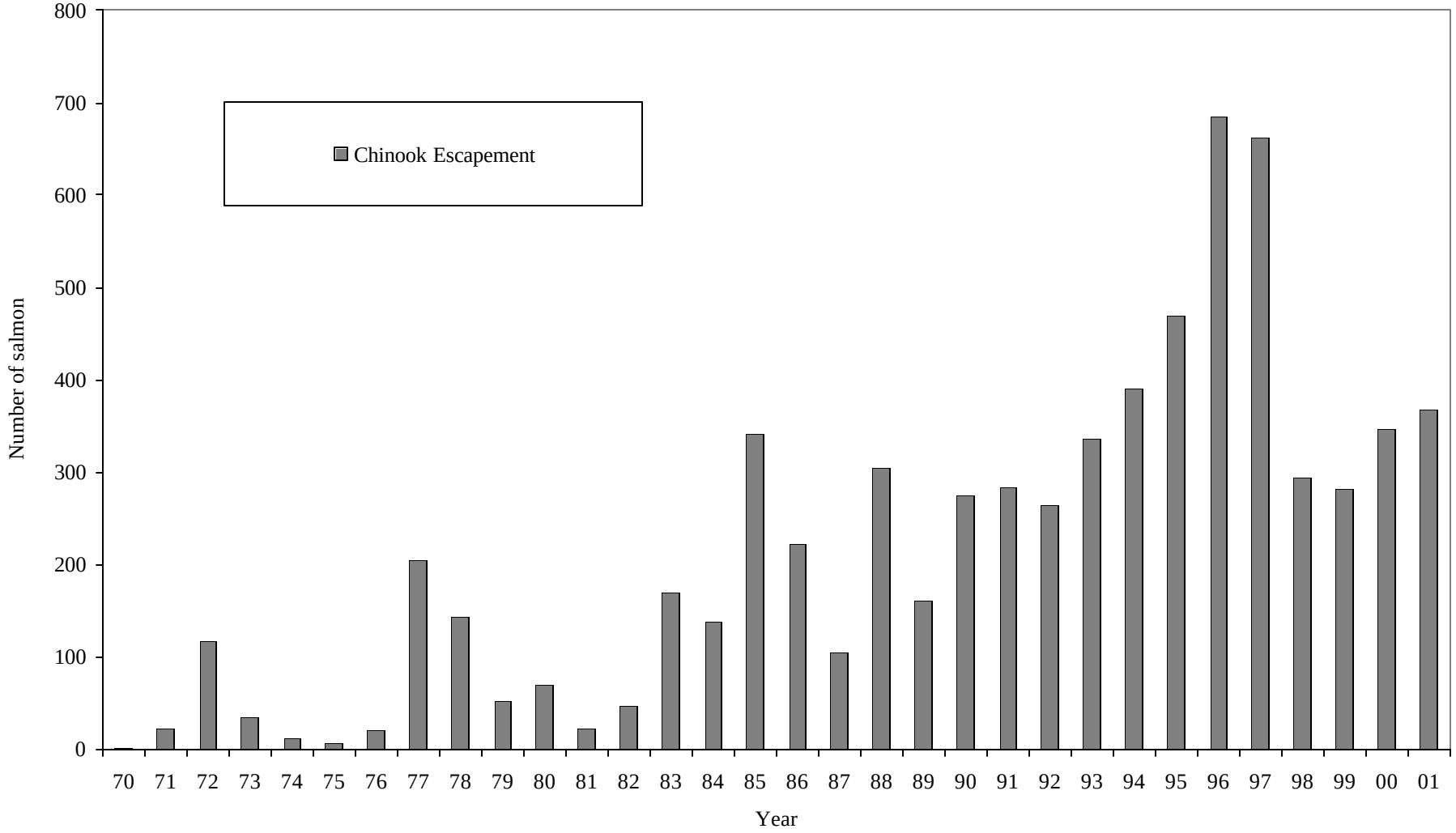


Figure 6. Chinook salmon escapement for the Alitak Bay District, 1970 to 2001.

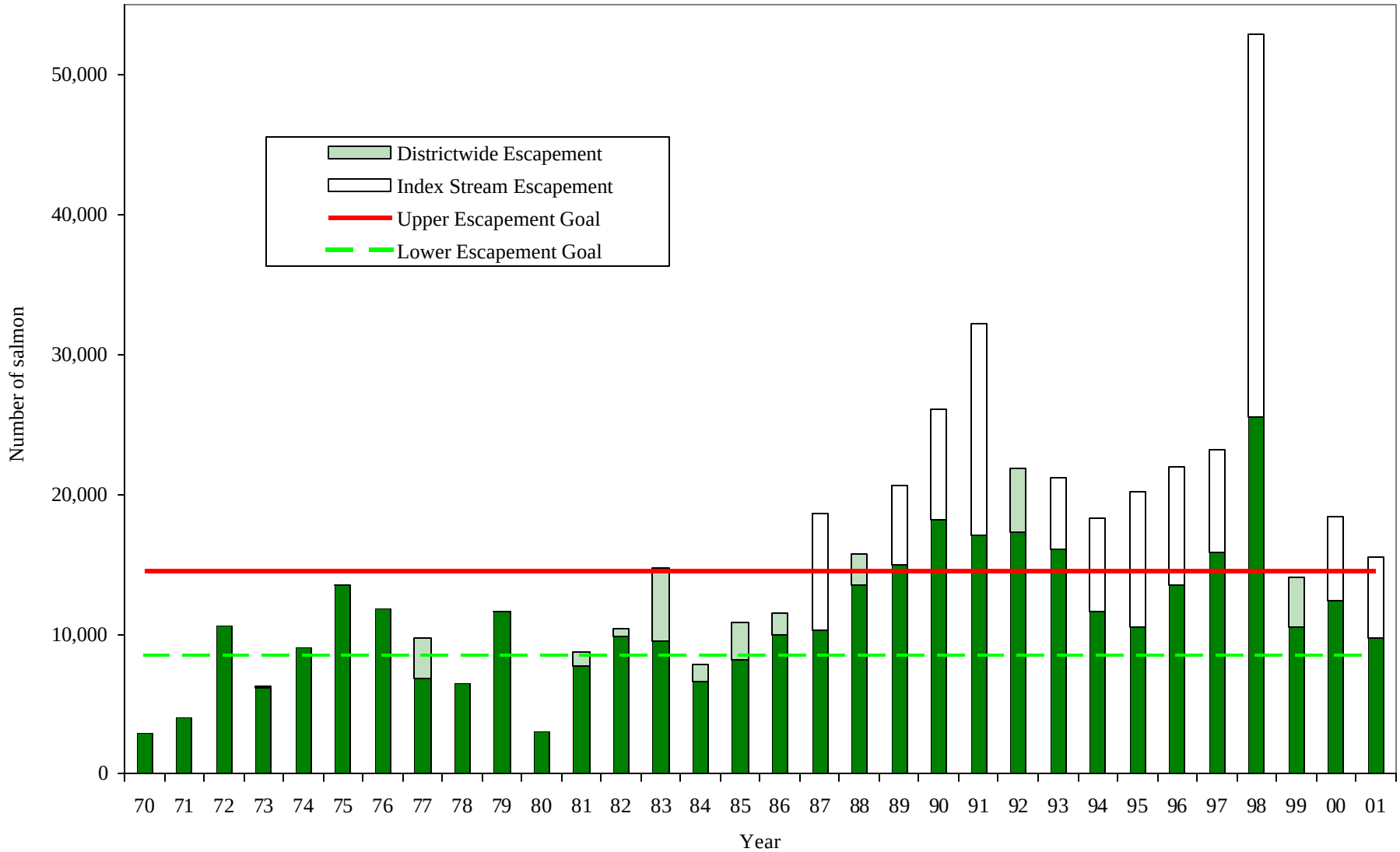


Figure 7. Coho salmon escapement, districtwide and in index streams, and current indexed escapement goals for the Alitak Bay District, 1970 to 2001.

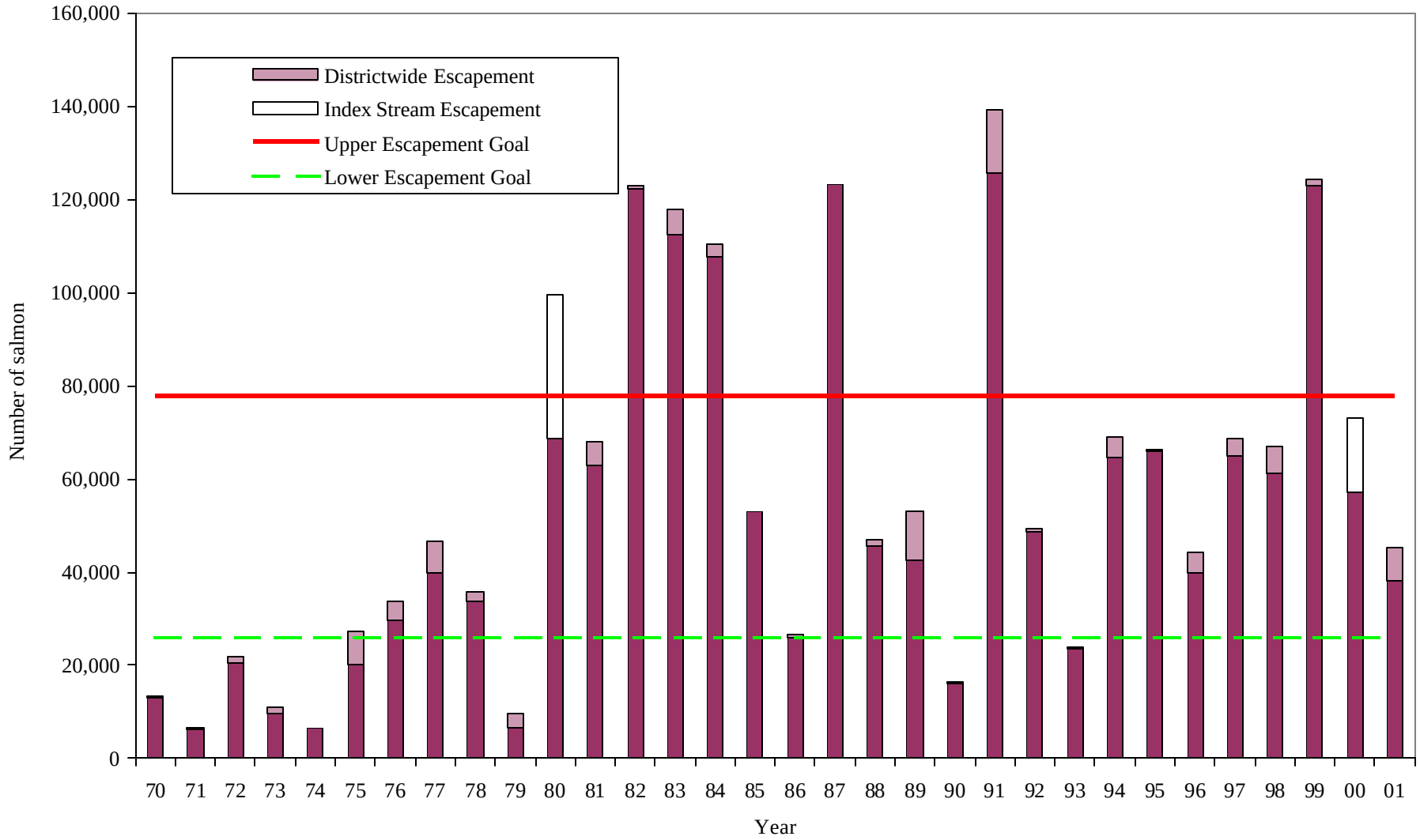


Figure 8. Chum salmon escapement, districtwide and in index streams, and current indexed escapement goals for the Alitak Bay District, 1970 to 2001.

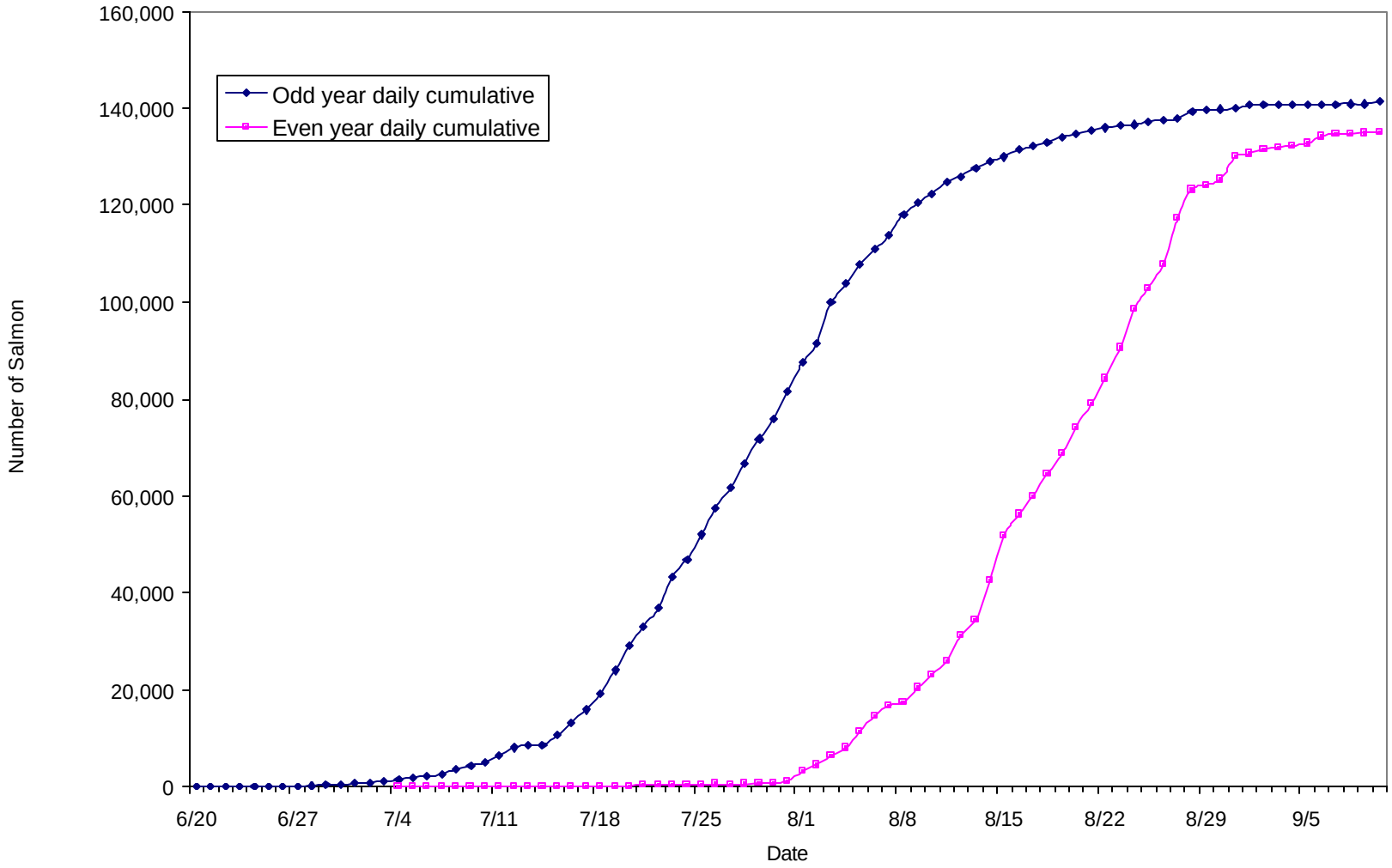


Figure 9. Average daily pink salmon escapement in Dog Salmon River depicting the run timing difference between even and odd years.

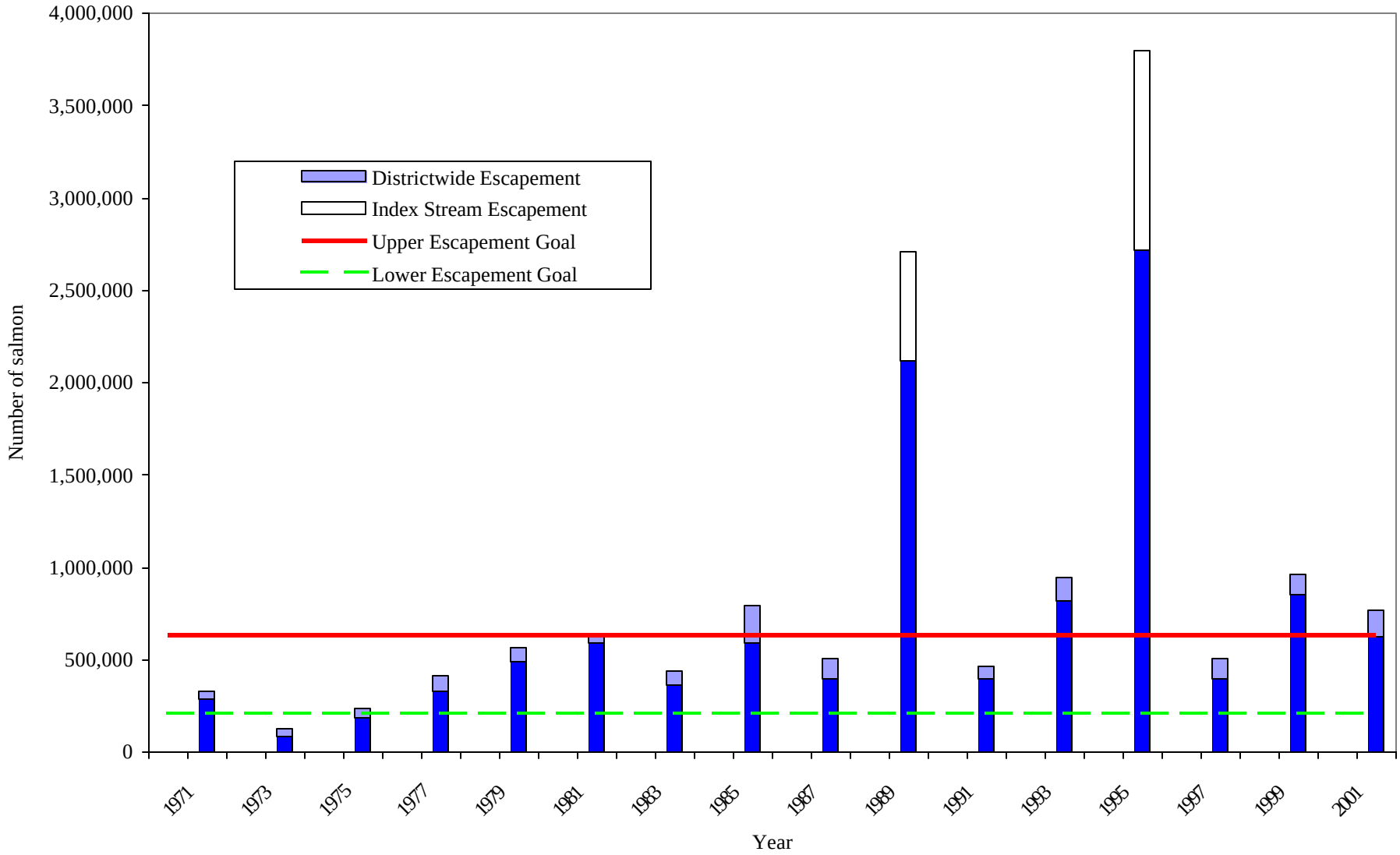


Figure 10. Odd-year pink salmon escapement, districtwide and in index streams, and current indexed escapement goals for the Alitak Bay District, 1971 to 2001.

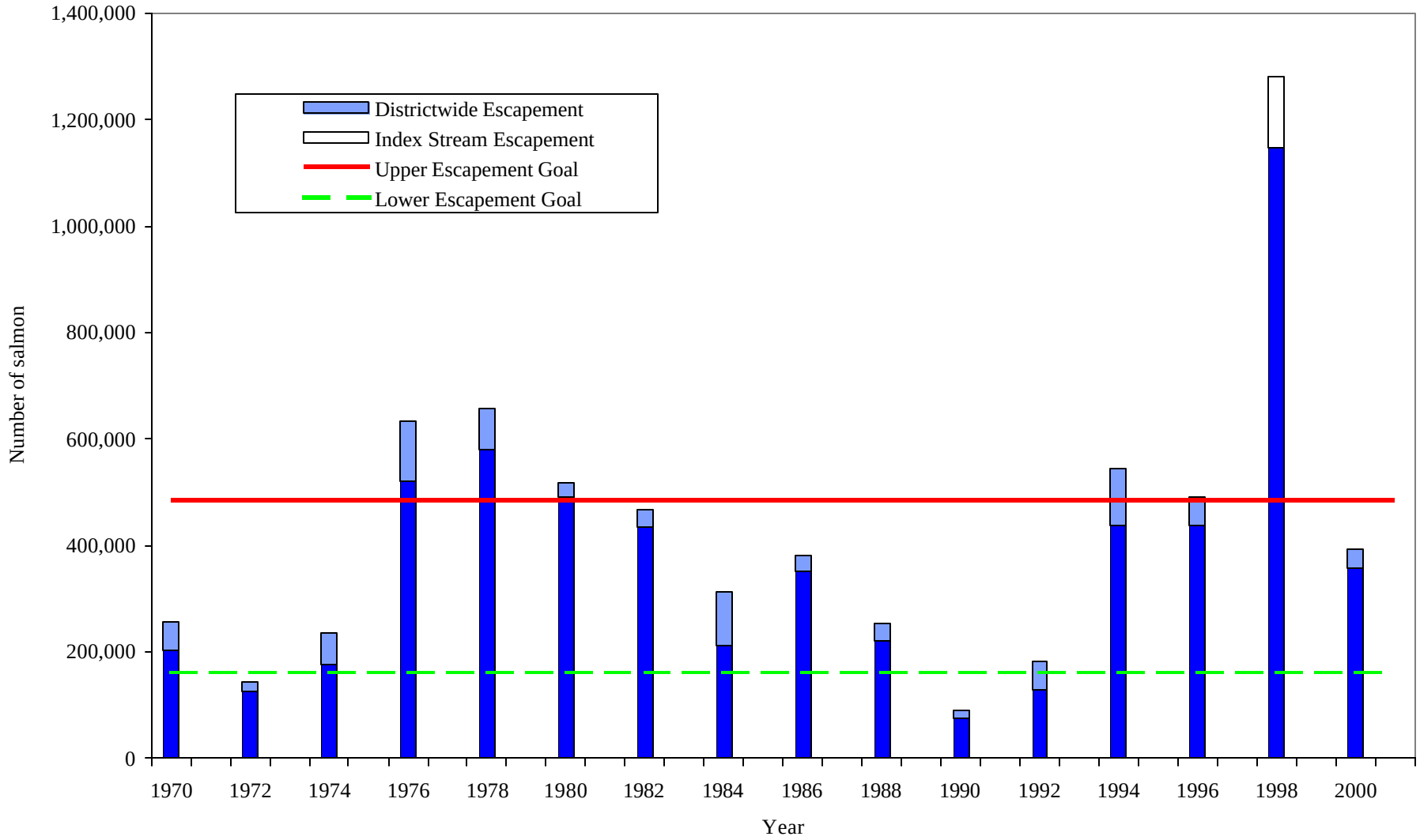


Figure 11. Even-year pink salmon escapement, districtwide and in index streams, and current indexed escapement goals for the Alitak Bay District, 1970 to 2001.

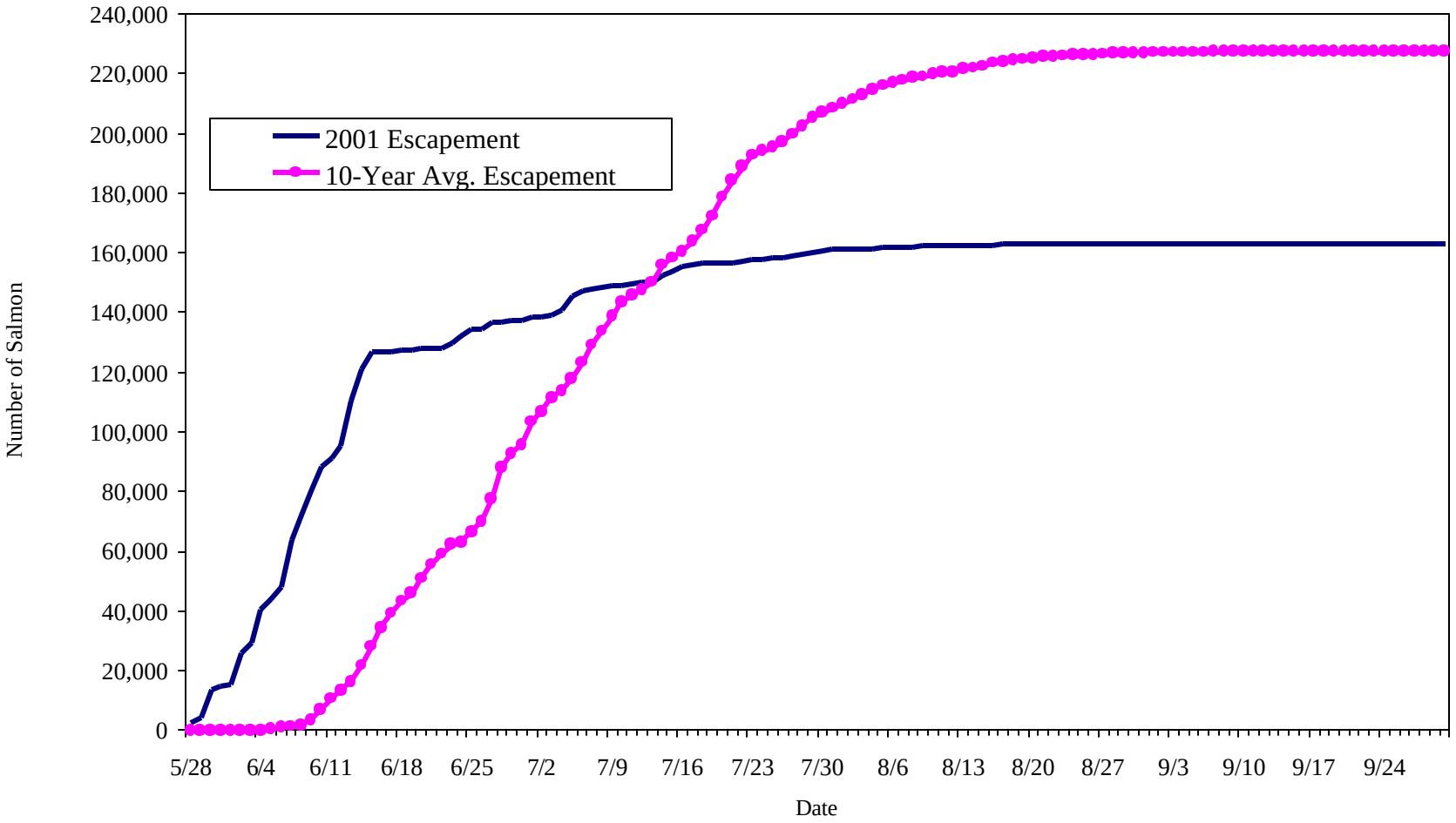


Figure 12. Timing comparison of the 2001 Dog Salmon River sockeye salmon escapement to the 10-year average Dog Salmon River sockeye salmon escapement.

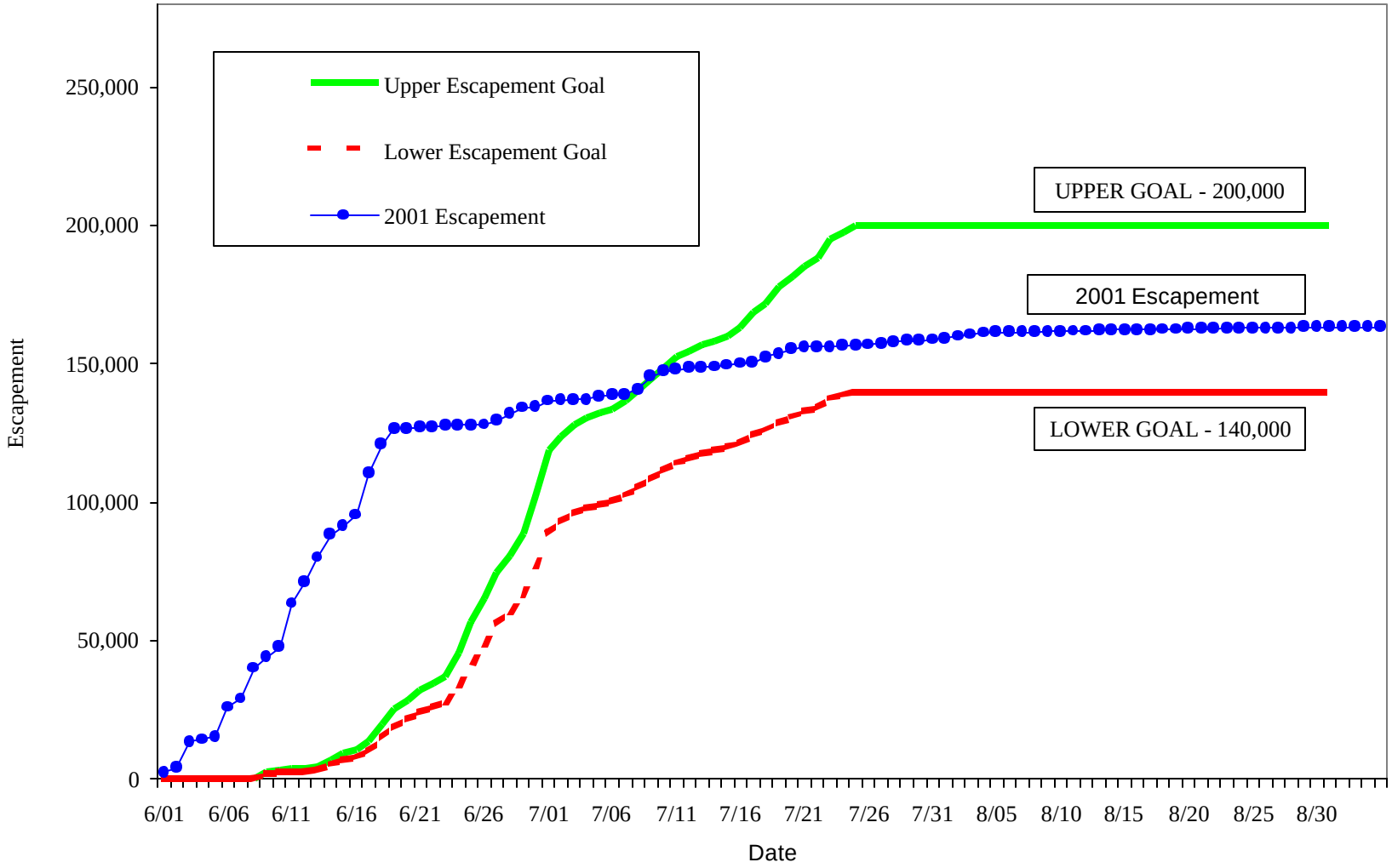


Figure 13. Frazer Lake sockeye salmon daily escapement and escapement goals, 2001.

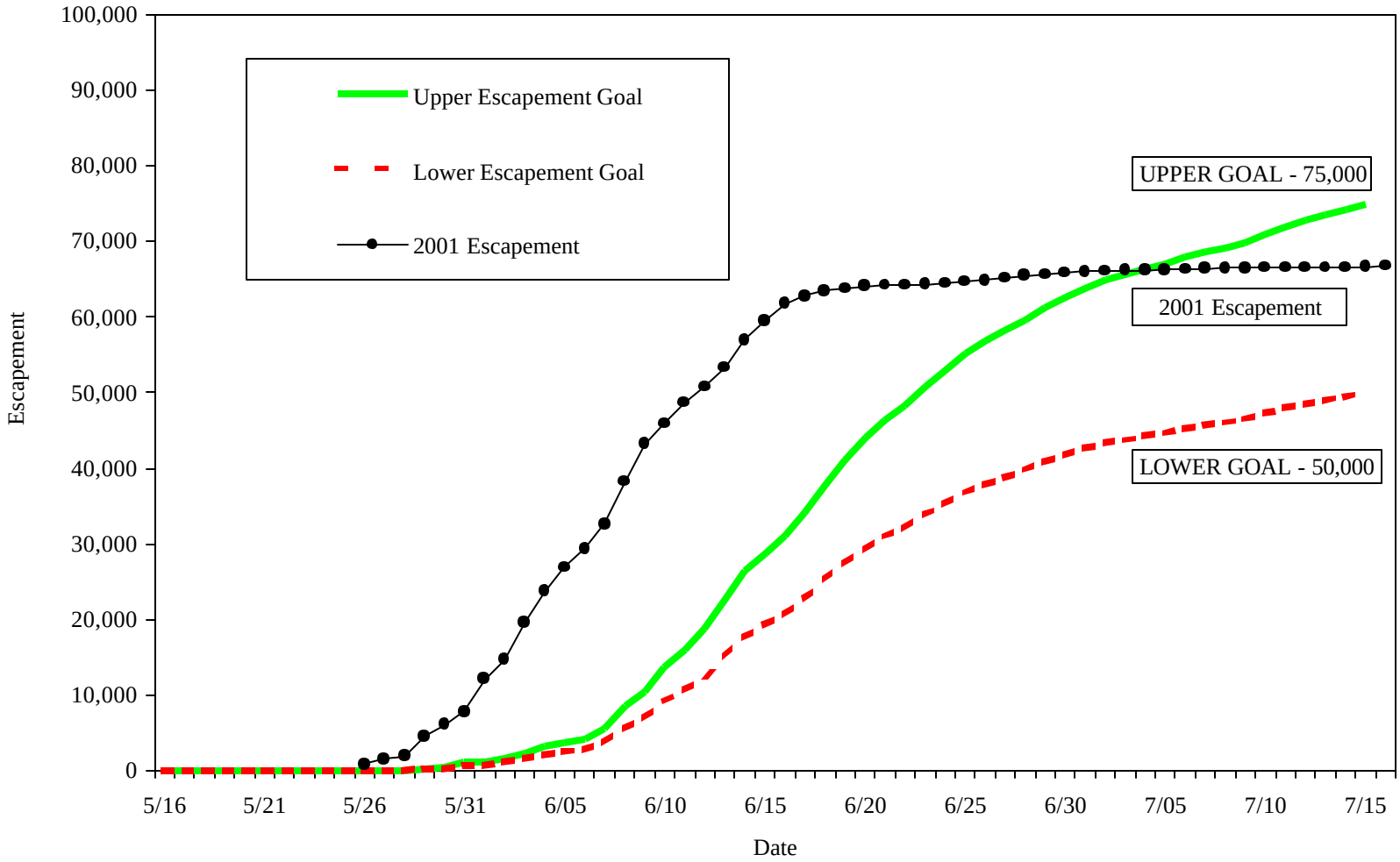


Figure 14. Upper Station early-run sockeye salmon daily escapement and escapement goals, 2001.

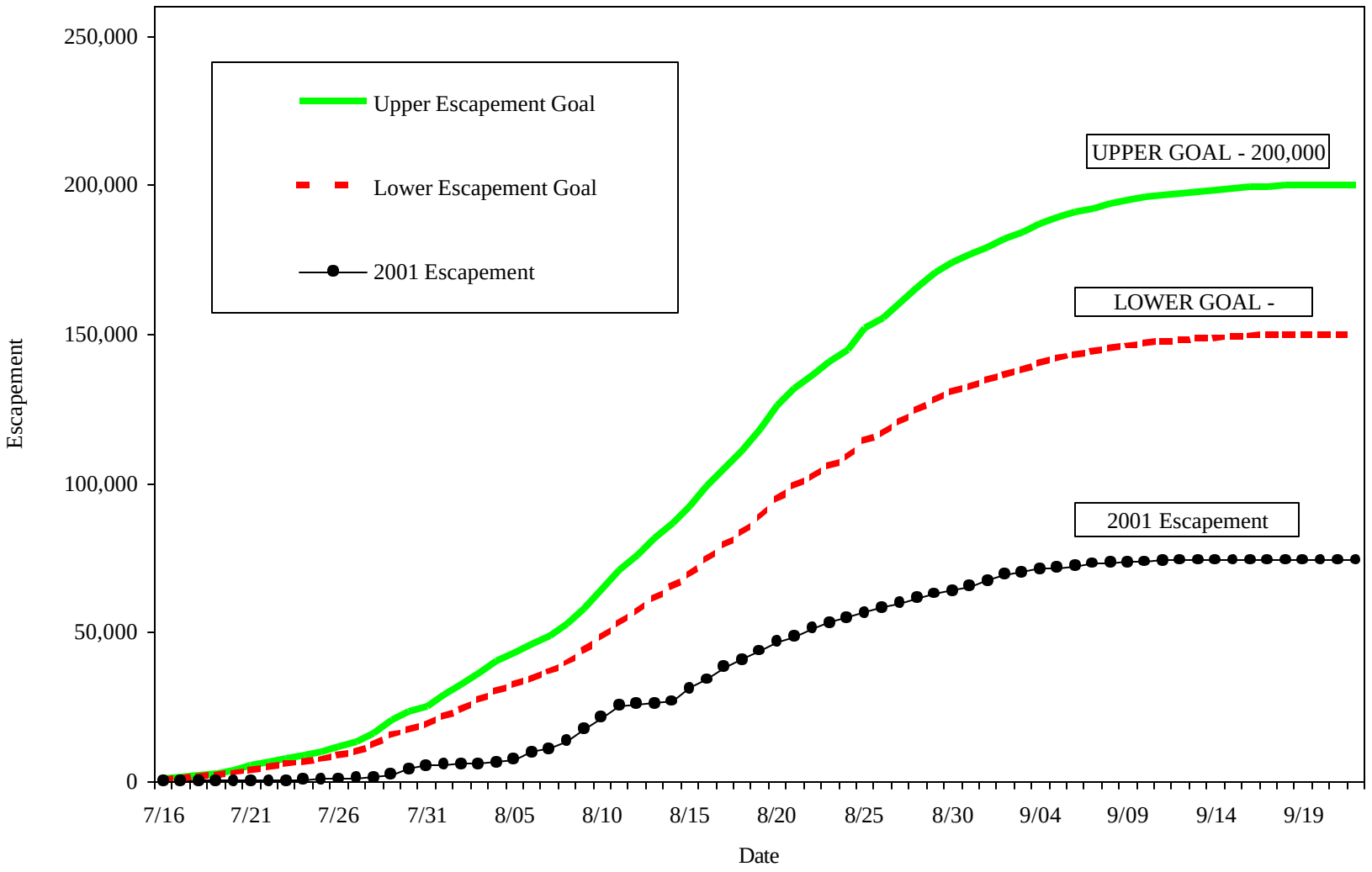


Figure 15. Upper Station late-run sockeye salmon daily escapement and escapement goals, 2001.