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KODIAK AREA COMMERCIAL SALMON FISHERY
HARVEST STRATEGY, 1994

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INTRODUCTION

In 1994, commercial salmon fisheries in the Kodiak Management Area (Area K) will be managed according to a harvest strategy which emphasizes three criteria:

- (1) **To ensure that 1994 salmon escapement occurs in the proper magnitude and distribution so that the potential for maximum production of future returns is established.**

The results of ADF&G's 1994 management activities will directly affect the following future returns:

- 1996 pink salmon
- 1997 - 1998 coho salmon
- 1997 - 1999 chum salmon
- 1997 - 2000 sockeye and chinook salmon

- (2) **To provide for orderly fisheries on the highest quality salmon by maximizing harvest opportunities during each fishing period.**

This requires a species oriented approach.

- For sockeye and coho salmon from major systems, management emphasizes the use of inseason weir escapement data to determine fishing time by geographical area.
- Fishing time on minor sockeye and coho systems without fish weirs is determined by ADF&G's perception of run strength for these systems.
- Managing pink and chum salmon runs, initially uses preseason forecasts to determine fishing time and then adjusts fishing time inseason as the actual run strength becomes more apparent.

- (3) **To adhere to the biological and allocative requirements of all State Board of Fisheries (BOF) Management Plans.**

This harvest strategy is an overview of how ADF&G expects to manage the 1994 salmon fishery. Along with this overview, a basic management chronology (Figure 1) can be used as a guide to clarify why inseason adjustments in harvest strategy are needed, as dictated by species specific management requirements. For example, sockeye salmon management requires escapement information from up to nine salmon weirs. This information is used to regulate fishing time and areas open to fishing. Prorating fishing time for sockeye salmon solely on the basis of preseason expectations, other than for the June 9 commercial test fisheries, is generally not an acceptable method of managing Kodiak's sockeye salmon stocks.

For pink salmon management, initial fishing periods are based upon preseason expectations and are necessary for prosecuting a successful fishery. This can be done with little chance of adverse effects on future production and is the most acceptable way of managing the harvest of Kodiak's relatively large pink salmon runs.

Chum and coho salmon require a blend of these two management approaches. Both species are initially harvested as a bycatch in directed pink or sockeye salmon fisheries. Specific fisheries targeting on chum and coho salmon, requires proper run strength assessment before these fisheries can occur. This requires a combination of weir and aerial assessment of escapement. Escapement data along with inseason assessment of the bycatch rate determines if the chum and coho salmon returns can support additional near terminal harvests.

Although not targeted in specific fisheries, chinook salmon are harvested as a bycatch in fisheries directed toward sockeye and pink salmon.

HARVEST PROJECTIONS

Initial projections for the 1994 Kodiak commercial salmon fishery are for a harvest of approximately 17,100,000 salmon (Table 1). This harvest includes approximately 25,000 chinook, 325,000 coho, 620,000 chum, 13,700,000 pink, and 2,440,000 sockeye salmon.

In addition to the 1,400,000 pink salmon produced at the Kitoi Bay Hatchery, enhancement projects conducted by the Kodiak Regional Aquaculture Association (KRAA) and ADF&G's Commercial Fisheries Management and Development Division (CFMDD) should contribute coho, sockeye, and chum salmon to the common property fisheries of the Kodiak Area. This supplemental production may allow for approximately 158,000 sockeye, 20,000 chum, and 75,000 coho salmon to be harvested (Table 2). (All supplemental production numbers are included in the total harvest projections.)

A good tool for illustrating the timing and magnitude of salmon harvests are the projected harvest graphs (Appendix A.1 - A.3). A curve can be drawn, based on the historical average cumulative salmon catch by date, that is scaled to the current preseason harvest projection. By keeping track of the actual salmon harvest by date, and plotting these on the graphs, a comparison of expected and actual return can be made. These graphs are used for planning purposes by both ADF&G and industry to identify if management strategies need to be modified inseason because of unexpected deviations in actual run strength.

FISHING PERIODS

All fishing periods will be established by emergency order (EO) and will generally be based upon inseason assessment of actual run strength (Table 3).

Opening Times

All regular fishing periods will begin at 12:00 Noon and end at 9:00 P.M., except:

- The Cape Igvak fisheries will usually open at 12:01 A.M. and close at 12:01 A.M. during the period of June 6 through July 25.
- The Inner Ayakulik Section fisheries will usually begin at approximately low tide. These will be daylight openings, and will be initiated by ADF&G "flare openings"; fishing will start when a "flare" is launched by ADF&G personnel. When such openings occur, the opening time for the Outer Ayakulik Section may be adjusted to coincide with the Inner Ayakulik Section.
- Beginning on August 16, all fishing periods will end at 6:00 P.M. instead of 9:00 P.M.

Advance Notice for Each Fishing Period

- All advance notice times will be based upon the initial announcements being made on SSB frequency 4125 Khz, following the 6:00 P.M. daily marine weather broadcasts.
- For the Cape Igvak fishery, the initial fishing period will have at least a **36 hour advance notice**. All subsequent fishing periods will have at least **18 hours advance notice**, unless it is an extension of an ongoing fishing period.
- For the **June sockeye fisheries** in the Alitak, S.W. Kodiak, and N.W. Kodiak Districts, **the initial fishing periods** will have at least a **42 hour advance notice**; this includes the normal June 9 fishing period for the Alitak and N.W. Kodiak Districts and the approximate June 14 fishing period for the N.W. Kodiak District.
- **All subsequent fishing periods for the Kodiak Area prior to July 6 will have at least 18 hours advance notice.**
- For the **initial pink/chum salmon fisheries**, at least **42 hours advance notice** will be provided, with the fishery starting at 12:00 noon on July 6.
- **All subsequent fishing periods for the Kodiak Area after the July 6 fishing period will have at least 18 hours advance notice.**
- **All extensions in fishing time from a previously announced fishing period will have at least 3 hours advance notice.**

Inperiod Closures

- During the period July 6 through July 25 inperiod closures of "Seaward Zones" designated in the North Shelikof Strait Sockeye Salmon Management Plan may occur. Fishers who are fishing in management units covered by this plan are advised that inperiod closures of "Seaward Zones" are possible and that such closures will be announced on SSB frequency 4125 at 8:00 A.M., 10:00 A.M., 2:00 P.M., or 6:00 P.M.

with the effective closure time occurring three hours following the initial announcement time.

Length of Fishing Periods

Sockeye Salmon

In general, each fishing period targeting early and late sockeye salmon runs to major systems will be dependent upon weir escapement counts. This will also apply to minor weired systems targeted by the commercial fishery. The exceptions to this will be the June 9 commercial test fisheries in the Alitak Bay and N.W. Kodiak Districts. The first period will extend from 12:00 Noon Thursday June 9 through 9:00 P.M. Friday June 10, a 33 hour period. A second 33 hour commercial test fishery will occur in the N.W. Kodiak District on approximately June 14 depending upon when this fishery can be coordinated with other terminal sockeye fisheries in order to spread the fishing effort. Additional fishing time in the Alitak Bay District will depend on the results of the June 9 commercial test fishery, the ADF&G test fishery, weir escapements and sockeye buildups (see Alitak Bay District Management Plan).

In conjunction with the second commercial test fishing period in the N.W. Kodiak District, there will be a 33 hour fishing period for healthy minor sockeye salmon systems (Afognak Lake, Saltery, etc.). Specific management units (sections) open for this fishery will be dependent upon the strength of the runs associated with these units. The E.O. announcement for this opening will specify which sections are to be opened.

Fishing periods in the Cape Igvak Section will be in 24 hour increments running from 12:01 A.M. to 12:01 A.M.. Fishing time will be dependent upon evaluation of the Chignik System sockeye salmon run strength, the predominant contributing stock harvested in this section. A review of the Cape Igvak Management Plan should clarify the biological and allocative requirements. For the 1994 season, fishing time will initially be allocated in the Cape Igvak Section based upon the criteria listed in paragraph (c) of the plan.

For most late run sockeye salmon stocks, a portion of the harvestable surplus is taken as bycatch during targeted pink salmon fishing periods. Consequently, a "blended" management strategy is needed to insure escapements are achieved by species with the upper escapement requirements not being exceeded.

Pink Salmon

The total projected pink salmon harvest is 13,700,000 fish, which includes Kitoi Bay Hatchery's projected contribution of 1,400,000 pinks, represents an above average "even year" harvest.

Preemergent pink salmon fry sampling of the Kodiak Management Area index streams was conducted in March and April of 1993. The sampling indicated generally good over winter survival of the eggs and sac fry. These fry were from a fair brood year escapement of 1992; the indexed escapement estimate was 3.5 million pink salmon. Sampling resulted in an unweighted live fry index of 205.84 live fry per square meter of spawning area. This live fry index is the

sixth highest even year index on record. Early spring conditions in 1993 may not have been entirely favorable for outmigration and rearing of fry in the nearshore ocean environment. Ambient air temperatures, as measured in Kodiak, were well above the average for March through June, but cloudy and rainy conditions predominated on the east side of Kodiak and Afognak Islands during April and May. Cloudy weather and cool water temperatures delayed the spring plankton bloom, and may have negatively affected marine survival(Tim Joyce, Kitoi Bay Hatchery, personal communication). **For planning purposes, the actual 1994 harvest, of hatchery and wild production combined, is likely to approach the lower end of the forecast range at 12.2 million pink salmon and likely will not exceed the point estimate of 13.7 million pink salmon.**

In addition to the three management criteria identified in the introduction of this document, the harvest strategy for pink salmon utilizes: 1) a fixed opening date (July 6), 2) a reliable pink salmon forecasting program to set the length of the initial fishing periods, and 3) coordinates specific fisheries whenever possible to allow for dispersion of the purse seine fleet.

In consideration of the forecasted pink salmon run, the pattern of fishing periods for those management units where pink salmon are the targeted management species is expected to vary. Fishing periods will range from 2½ to 3½ days per week from July 6 through approximately August 25. During the peak harvest period of late July to mid August fishing periods may be extended to seven days per week.

Listed below are projected fishing period scenarios which can be used for planning purposes by both ADF&G and industry.

First Period: 2½ days (57 hours) - 12:00 Noon July 6 through 9:00 P.M. July 8. In recent years this initial fishing period has varied between 2-1/2 to 4-1/2 days in duration. This period provides harvest data important for early run strength assessment for Area K's pink salmon run as well as for specific chum salmon stocks. No extensions in fishing time based on pink or chum salmon harvests would occur during this period. The increased closed water area will remain in effect in the East Arm of Uganik Bay.

Second Period: 3½ days (81 hours) - 12:00 Noon July 12 through 9:00 P.M. July 15. This second period will help ensure that early run pink salmon stocks and several major chum salmon stocks are adequately harvested and escapements are ensured. Assessment of run strength for both species (pink and chum) emphasize harvest data. No extensions in fishing time based on pink or chum salmon harvests would occur during this period.

Third Period: 3½ days (81 hours) - 12:00 Noon July 19 through 9:00 P.M. July 22. This third period will occur following a 3½ day closure, allowing an influx of pink and chum salmon into terminal areas which will enhance the build-up of potential escapement. At this time a combination of harvest and early escapement/build-up information will provide indications of the actual run strength for major pink salmon fisheries. No extensions in fishing time are expected during this period.

Fourth Period: 3½ days (81 hours) - 12:00 Noon July 26 through 9:00 P.M. July 29. This fourth period is a very critical period in that harvest should increase substantially and a fairly

accurate assessment of total run strength should be evident by period's end. Extensions in fishing time commonly occur off of this period, during years when the pink and chum salmon runs are equal to or stronger than expected. The initial pink salmon opening for the Kitoi Bay Section should occur at the beginning of this fishing period.

Fifth Period: 3½ days (81 hours) - 12:00 Noon August 2 through 9:00 P.M. August 5. This fifth period should yield the peak harvest day and should be the peak harvest period, provided normal run timing occurs. If preseason expectations appear valid, extensions in fishing time could occur in portions of the management area. This period commonly yields the first significant announcement of differential fishing time by management unit as heavy production areas are targeted for extensions, while moderate or lower production areas are not.

Sixth Period: 3½ days (81 hours) - 12:00 Noon August 9 through 9:00 P.M. August 12. This sixth period should be the first postpeak period and is important from the standpoint that returns to major late production systems should be evident by period's end. This is a critical period for considering increases in closed water sanctuaries to enhance escapement levels. Furthermore, a final evaluation of run strength is used to determine if further reductions in fishing time are needed for the remaining periods to ensure adequate escapement. A strategy for "topping off" escapement for all systems is developed from this period.

Seventh Period: 3½ days (78 hours) - 12:00 Noon August 16 through 6:00 P.M. August 19. During this seventh period, a blended multi-species management approach is used for those sections where pink salmon were the targeted species for the previous six periods. Emphasis will still be on harvesting excess, good quality pink salmon and on achieving pink salmon escapement goals. Major concerns, however, will be directed toward the run strength of late run sockeye and chum salmon.

Eighth Period: 3½ days (78 hours) - 12:00 Noon August 23 through 6:00 P.M. August 26. This eighth period will be primarily a cleanup period for most pink salmon stocks. Escapement requirements should be assured at this point. Excess pink salmon of acceptable quality should be available for harvest in near terminal areas. Again, this period will require a major emphasis on multi-species management; it is a critical management period for late run sockeye and chum salmon stocks, as well as early run coho salmon stocks.

Changes in these scenarios should be expected if significant deviations in the actual pink salmon return occurs. Less fishing time should be expected in management units where chum salmon are the targeted management species.

Chum and Coho Salmon

A large portion of the 1994 Kodiak chum and coho salmon harvest will occur as bycatch in nonterminal locations during major pink salmon fisheries. System specific chum and coho salmon fisheries, which occur during the pink salmon fishery, will commonly result in pertinent management units having less fishing time than management units targeting primarily pink salmon stocks. This approach emphasizes the use of more terminally located management units for targeted chum and coho salmon management (i.e. Inner Kukak Section, Zachar Bay Section, Kizhuyak Section, etc.)

**EMERGENCY ORDER INSEASON ANNOUNCEMENTS
("GETTING THE WORD")**

Fishing period announcements may not always be predictable because the fishery is managed on data evaluation which is compiled daily. Data used to make fishery decisions includes (1) escapements via weir counts and/or aerial surveys, (2) harvest trends (total catch and catch per unit effort) and (3) information on fish buildups in closed water sanctuaries.

Once enough information has been collected to determine fishing time needed to harvest surplus fish an emergency order and a fishery announcement are issued in the following manner:

- 1) A news release is constructed detailing:
 - a) The date, time, and number of the emergency order announcement.
 - b) The length of the fishing period.
 - c) The opening and closing times and dates of the fishing period.
 - d) The areas open to fishing.
 - e) The areas closed to fishing (those sections not listed as being open).
 - f) The location of "closed water" marker adjustments.
- 2) The news release is posted at the entrance of the Kodiak ADF&G office.
- 3) Copies of the news release are made available at the Kodiak office. For after hours availability, copies are stored at the main entrance.
- 4) The news release is recorded on a 24 hour recorded message phone (Number 486-4559).
- 5) The news release is made available to three local radio stations (KVOK, KMXT, and KGTL) to be played by these stations.
- 6) The news release is announced over SSB channel 4125 Khz following the marine weather broadcasts. Commonly, the first reading of a news release occurs after the 6:00 P.M. weather broadcast, but occasionally the initial reading comes after the 8:00 A.M. weather broadcast.
- 7) The news release is distributed to all processors either by hand, verbally on the telephone, by tele-fax, or through the ADF&G recorded message phone.
- 8) Information on the most current news release or emergency order can also be obtained by calling the Kodiak ADF&G office during working hours, or by calling Dave Prokopowich (486-6007), Kevin Brennan (486-6475), or Dennis Gretsch (486-3031) after working hours or on weekends.
- 9) Copies of emergency orders are mailed to a current listing of required and interested recipients.

- 10) Many fishers, ADF&G vessels and camps, and Fish and Wildlife Protection vessels use a small tape recorder to document the exact wording of each announcement as it is broadcasted. This is an advisable thing to do when considering the complicated nature of each announcement.

NEW REGULATIONS

In March of 1994 the Alaska Board of Fisheries addressed two issues. These included 1) the set gillnet attachment points in the Moser-Olga Bay Section and 2) the harvest of Cook Inlet bound sockeye in the Kodiak Area.

No regulation changes were adopted for the 1994 season.

In regards to the harvest of Cook Inlet bound sockeye in the Kodiak Area, the Board of Fisheries appointed a special study group to address this complex issue during the next year. The Board of Fisheries is scheduled to address this issue again prior to the 1995 salmon season (tentatively in March of 1995).

The Board of Fisheries did adopt a new regulation pertaining to the shoreward attachment point for a set gillnet operated in the Moser-Olga Bay Section. This regulation will become effective for the 1995 season and is listed below.

5AAC 18.331. Gillnet Specifications and Operation.

(i) Effective January 1, 1995, in the Moser-Olga Bay Section the shoreward end attachment point of the set gillnet must be attached to a point of land or rock that is within 2.1 feet of the surface of the water at mean lower low water at Alitak Bay. The shoreward end attachment point of a set gillnet in the Moser-Olga Bay Section that is not above the surface of the water at all times, must be certified to be no more than 2.1 feet below the water at mean lower low water and marked with a permanent survey monument by a registered land surveyor, and the attachment point may not be below the survey monument and may not be more than two feet horizontally from the survey monument. A set gillnet may not be attached to the beach inside closed waters. For the purpose of this subsection a "registered land surveyor" is a land surveyor registered by the state under AS 08.48 and 12 AAC 36.

MISCELLANEOUS REGULATORY CLARIFICATIONS

Closed Water Adjustments

As a result of conflicting interpretations of Alaska Statute 16.05.785 (failure to remove markers) there will be no inseason adjustments of closed waters unless ADF&G personnel are able to remove old markers and install new markers, or unless inseason adjustments of closed waters are made to a specific stream terminus. All adjustments to closed waters listed in 5AAC 18.350 will be made by emergency order.

Closed Water Sanctuaries

5AAC 18.350 Closed Waters

Karluk Closed Water Sanctuary

Due to the problems encountered in the past with the closed water sanctuary seaward of Karluk Lagoon, as currently described in regulation 5AAC 18.350., the following closed water sanctuary will be in effect, by emergency order, near the entrance to Karluk Lagoon, stream #255-101 (Figure 2):

5AAC 18.350 CLOSED WATERS (2) Southwest Kodiak District

(E) That portion of the Southwest Kodiak District (off of the entrance to Karluk Lagoon (stream #255-101)) enclosed by a line from 57°34'28" N. lat., 154°28'18" W. long. to 57°34'32" N. lat., 154°26'42" W. long. (NOAA Chart #16598).

Buskin River Closed Water Sanctuary

The stream mouth of the Buskin River (stream #259-211) has moved considerably over the past several years. The markers which were present were not providing adequate protection to salmon migrating into the stream. The north shore marker has been moved and an offshore point is designated to aid in triangulation of the closed water area. The offshore point is at the reef directly east of the spit, and may be marked with a buoy. The location of the closed waters will be described in the first salmon emergency order as follows (Figure 3):

5AAC 18.350 CLOSED WATERS (6) Northeast Kodiak District

(E) Buskin River: all waters inside of a line running from a marker on the bluff north of the mouth of the Buskin River at approximately 57°45'48" N. lat., 152°28'23" W. long. to a point offshore at 57°45'21" N. lat., 152°28'09" W. long. to a marker located onshore south of the river mouth at approximately 57°45'09" N. lat., 152°28'39" W. long. (NOAA Chart #16595)

Ayakulik River #256-201 Closed Water Sanctuary

ADF&G regulatory markers will be placed in such a manner as to better define the "stream terminus" of the Ayakulik River. The intent of this closed water sanctuary is to prevent seines from being set which completely block fish access to the river (Figure 4).

East Arm of Uganik Increased Closed Water Sanctuary

In anticipation of additional fishing in the Northwest Kodiak District due to early run Karluk sockeye, the closed water sanctuary in the East Arm of Uganik (stream #253-122) will be enlarged to provide for increased protection for sockeye bound to Uganik Lake beginning June 9. This increased closed water sanctuary includes all waters east of a line from Mink Point (153°30'57" W. long. 57°43'06" N. lat) to Packers Spit at (153°30'06" W. long. 57°44'00" N. lat) and will remain in effect for the entire salmon season (Figure 5).

Remainder of the Kodiak Area

In areas where ADF&G has deployed regulatory markers to establish waters closed to fishing, a straight line closure is in effect provided that **no portion of that line is less than 500 yards from the seaward extremities of the exposed tideland banks which designates the stream mouth.** Consequently, common closed water configurations will be areas of various shapes, depending upon the nature of each individual stream mouth extending between the two regulatory markers. In areas where ADF&G has deployed regulatory markers to establish waters closed to fishing in bays a straight line closure is in effect.

In the Mainland District, ADF&G is expanding its stream marker program. Fishers participating in salmon fisheries located in the Mainland District should be aware that closed water sanctuaries may be larger in some areas due to the placement of markers, to protect salmon buildups.

Boundary Determinations

When determining the location of a particular district, section boundary, or any inseason emergency order boundary, the latitude and longitude as plotted on a NOAA navigational chart, NAD 1927, approximate scale 1:80,000, will represent the **correct** boundary locations. Boundaries plotted on NOAA navigational charts using NAD 1983 may not correspond to the correct locations. Latitude and longitude as determined by Loran or Global Positioning System (GPS) bearings may represent **incorrect** boundary locations. District and Section boundaries are depicted on the current Kodiak salmon statistical area chart (available at Kodiak ADF&G office).

Section Boundaries

The Raspberry Straits Section **is not** part of the Southwest Afognak Section.

Purse Seine Leads

Minimum mesh size is seven (7) inches. Double panels of web overlapped in the lead are not legal.

Set Gillnets - Operation of Gear

Leads

"Seine webbing" used as a lead for set gillnets is not intended to "gill salmon". Set gillnet leads which have similar mesh size and web construction to the actual set gillnet gear are not considered legal gear.

Operation of Set Gillnets

Set gillnets must be operated in substantially a straight line, except that no more than 25 fathoms of a set gillnet may be used as a hook. A hook may be used in any configuration. When a set gillnet is being operated primarily as a "hook in any configuration" it will be considered illegal to actively operate that gillnet as a purse or beach seine (such as "round hauling").

FISH TICKETS

All fishers should check the statistical area recorded on each of their fish tickets. It is required that the correct harvest location(s) be shown on each ticket and it is the responsibility of each fisher to ensure tender operators or the cannery personnel record the correct harvest location on each ticket. This information is extremely useful in evaluating inseason harvest levels, stock contribution, and effort distribution.

Seiners

Please provide estimates of harvest by area to tender operators. For example "1/3 of my reds were from Cape Alitak (257-20) and the rest were from Red River (256-20). The rest of my fish were 1/2 and 1/2 from each of these areas". Prior to signing your tickets, check to make sure the proper harvest information by **STATISTICAL AREA** has been entered.

Of particular importance will be the accurate recording of the harvest from that portion of the Shelikof Strait regulated by the Shelikof Strait sockeye salmon management plan. In order to provide an accurate accounting of sockeye salmon harvests in this area, ADF&G and Fish and Wildlife Protection will conduct extra monitoring of harvest activity and tendering operations in this area during the July 6 to July 25 time period of this plan.

Gillnetters

Because of the fixed nature of this gear, each permit holder's reporting area (statistical area) should be consistent between landings. In the event that gillnet fishers move into a new statistical area, please provide the tender operator with that information. Prior to signing your tickets, ensure that the proper harvest information by STATISTICAL AREA has been entered.

MANAGEMENT PLANS

Currently there are seven (7) Board of Fisheries approved management plans which direct management activities for specific portions of the Kodiak Management Area. Each management plan affects several management units through part or all of the salmon fishing season (Table 4). As with any good plan, the test of time and a continued review process will determine its effectiveness at accomplishing the desired biological and allocative goals.

Proper implementation of these plans in 1994 will require a major communication effort between ADF&G and the industry. As with any of these plans, if there is a need for plan clarification, all inquiries, suggestions, and concerns are encouraged to be directed to ADF&G, Kodiak. A discussion of each plan follows.

Cape Igvak

The Cape Igvak Management Plan covers the time period from June 5 through July 25 for salmon fishing in the Cape Igvak Section of the Mainland District (Table 5). This plan has been in effect since 1978 and allocates approximately 15% of the available Chignik sockeye salmon for harvesting to Kodiak permit holders if specific biological and harvest criteria are met in the Chignik Management Area. The 1994 forecast for Chignik sockeye salmon runs indicate that early production should be above average, and that late production should be near average. Fishing time after July 25 in the Cape Igvak Section will be targeted toward pink, chum, and coho salmon bound to spawning streams in the Cape Igvak Section and in the Wide Bay Section.

Alitak Bay District

This plan covers the entire commercial salmon fishing season, and identifies the primary management species by management unit throughout the season (Table 6). The plan affects the sockeye salmon stocks returning to the Frazer, Upper Station, and Akalura systems, and the pink and coho salmon stocks returning to Dog Salmon, Upper Station, Akalura, Humpy Cove, Deadman, Horse Marine, and Silver Salmon systems. This plan has been in effect since 1988.

The management chronology for Olga Bay stocks identifies the targeted management stocks by approximate time period. In situations where two or more targeted stocks overlap in run timing a blended management approach will occur. Adequate fishing time will be provided to ensure

that the upper escapement goals are not exceeded for the dominant stock(s), while still attempting to ensure that the lower escapement goals for the non-dominant stock(s) are achieved. As outlined in this management plan, fishing time directed on these stocks will occur simultaneously in the traditional management units for harvesting these stocks, namely the Cape Alitak Section and the Moser-Olga Bay Section. Management for these stocks will emphasize an aggressive strategy to contain the harvest to these traditional harvest units; this strategy also applies to the remainder of the stocks in the Alitak Bay District.

The regulatory wording for implementing this management plan appears in the 1994 Commercial Finfish Regulation Book under 5AAC 18.361. Dates listed in the plan are approximate and may vary with changes in run timing. The June 9 commercial test fishery, however, is a firm date.

The specifics for managing the 1994 returns need to consider the expected magnitude of the targeted stocks returning to the Olga Bay systems. The sockeye salmon returns to Alitak are expected to yield relatively strong sockeye salmon production from the early run Frazer system.

Some specific points to stress this year are:

- The approximate June 12 through June 24 period is identified as an aggressive management time for Frazer sockeye salmon run.
- To maintain equitable and orderly harvest opportunities for all gear types, and to insure that escapement requirements are achieved for the 1994 season, the lower biological escapement goal for Frazer sockeye salmon (140,000) will be targeted.
- The biological pink salmon escapement requirement for the Dog Salmon system ranges from 50,000 to 150,000 fish.
- In the event fishing time is required in the Upper Olga Bay management units, there will be minimal advance notice time.
- Sockeye returning to Akalura will be managed in the Inner Akalura Section, so that sockeye escapement does not exceed 60,000 fish. The lower biological escapement goal of 40,000 sockeye will be targeted.

Westside Kodiak

The Board of Fisheries, at their December 1989 meeting in Kodiak, adopted into regulation the **Westside Kodiak Management Plan**. This plan identifies a management chronology for the major Westside Kodiak salmon stocks (Table 7).

This plan was submitted as a proposed regulation to the Board of Fisheries by the Kodiak Management Staff in order to allow industry the opportunity to comment on existing harvest strategies and to clarify their intent. Kodiak fishers frequently expressed concerns over how the department would manage the Westside management units (sections) into the 1990's, when local sockeye stocks are projected to be near maximum production, since this will affect the traditional harvest opportunities between fixed and mobile gear. The annual harvest strategy has traditionally

invoked a blend of fishing time between the 17 management units covered by this plan. At times this blend has not been totally understood by industry and has resulted in enough allocative uneasiness that future management stability could be jeopardized. Guidelines for this blend needed to occur in regulatory form to specifically identify inseason harvest strategy and dispel any concern or confusion. Again, the previous regulatory structure prior to this management plan did not provide the information needed by industry to evaluate inseason management decisions which affect allocation concerns of the three gear types.

The goal of this management plan is to achieve escapement and harvest objectives of sockeye salmon returning to the Karluk, Ayakulik, and other Westside minor systems. Further it details management of pink, chum, and coho salmon returning to systems in the Southwest Afognak, Central, North Cape, Anton Larsen Bay, Sheratin Bay, Kizhuyak Bay, Terror Bay, Inner Uganik Bay, Spiridon Bay, Zachar Bay, Uyak Bay, Outer Karluk, Inner Karluk, Sturgeon Bay, Halibut Bay, Outer Ayakulik and Inner Ayakulik Sections. The intent of the Board is to insure salmon bound to these systems are harvested to the extent possible by the traditional fisheries located in all 17 sections. The plan directs the department to manage the Northwest Kodiak and the Southwest Kodiak Districts and the Southwest Afognak Section in accordance with the guidelines set out in this plan.

This management plan reflects the realization of long term management goals and identifies current management practices both of which were initially implemented in 1971. The basis for these goals and practices was primarily to rebuild depleted Karluk and depressed Ayakulik sockeye salmon stocks. This plan provides a predictable management framework for these rebuilt stocks, as well as major pink, chum and coho salmon stocks of westside Kodiak. It also helps to stabilize fishing opportunities between the three gear types on the highest quality fish in these districts and sections.

The regulatory wording of this plan appears in the 1994 Commercial Finfish Regulation Book under 5AAC 18.362.

North Shelikof Strait Sockeye Salmon

The Board of Fisheries in December 1989 created the North Shelikof Strait Sockeye Salmon Management Plan in response to their concerns that the fishing patterns and quantities of sockeye harvested by Area K seiners in 1988 represented the onset of an expansion of the interception of Cook Inlet bound sockeye in Kodiak Area waters. This plan was meant to contain this interception by not exceeding estimated historical interception levels and still providing for traditional opportunities to harvest high quality local pink and chum salmon stocks. **The major impact of this plan was to create "sockeye harvest caps" for portions of the North Shelikof which encompasses eight (8) management units. After these sockeye harvest caps are met, commercial salmon fishing is restricted in these 8 management units to inshore waters (Figure 6).**

During the January 1993 Board of Fisheries meeting in Kodiak, a modification of the management plan was made to allow for the traditional near shore seine fisheries to continue in the Southwest

Afognak Section, in the event the sockeye harvest cap was reached. After the harvest cap is met, fishing will be restricted in waters inside of a ½ mile corridor (Figure 6).

The regulatory wording for this management plan is listed below and under 5AAC 18.363.

From July 6 through July 25 in the Dakavak Bay, Outer Kukak Bay, Inner Kukak Bay, Hallo Bay, and Big River Sections of the Mainland District, and in the Shuyak Island and Northwest Afognak Sections of the Afognak District, the department shall manage the fishery as follows:

- **Management of the fishery must be based on local stocks;**
- **the fishery may remain open during normal fishing periods until the harvest exceeds 15,000 sockeye salmon;**
- **when the harvest exceeds 15,000 sockeye salmon, the department shall restrict the fishery by emergency order to waters of the shoreward zones, as described below:**
 - **Dakavak Bay, Outer Kukak Bay, Inner Kukak Bay, Hallo Bay. and Big River Sections west of a line from Cape Douglas at 58°51'06" N. lat, 153°14'54" W. long, to a point at 58°42'40" N. lat, 153°26'18" W. long, to a point east of Swikshak River at 58°38'06" N. lat., 153°35'24" W. long., to Cape Chiniak at 58°31' N. lat., 153°54'21" W. long., to Cape Nukshak at 58°23'30" N. lat., 153°57' W. long., to Cape Ugyak at 58°16'36" N. lat., 154°06'03" W. long., to Cape Gull at 58°13' N. lat, 154°08'30" W. long., to Cape Kuliak at 58°08'11" N. lat., 154°12'34" W. long., to Cape Atushagvik at 58°05' N. lat., 154°18'48" W. long., to Cape Iktugitak at 58°01'12" N. lat., 154°34'48" W. long to the southern entrance of Dakavak Bay at 58°01' N. lat., 154°43'30" W. long.**
 - **Shuyak Island and Northwest Afognak Sections south and east of a line from Point Banks at 58°38' N. lat., 152°18'54" W. long., to Dark Island at 58°38'45" N. lat., 152°33'05" W. long., to Gull Island at 58°35'48" N. lat., 152°38'45" W. long., to the northern entrance of Big Bay at 58°34'06" N. lat., 152°40'12" W. long., to the western entrance of Blue Fox Bay at 58°27'41" N. lat., 152°43'42" W. long., to Black Cape at 58°24'33" N. lat., 152°53'09" W. long., to Cape Paramanof at 58°18'21" N. lat., 153°02'45" W. long.**

From July 6 through July 25 in the Southwest Afognak Section of the Afognak District, the department shall manage the fishery as follows:

- **management of the fishery must be based on local stocks;**
- **the fishery may remain open during normal fishing periods until the harvest exceeds 50,000 sockeye salmon;**
- **when the harvest exceeds 50,000 sockeye salmon, the department shall restrict the fishery by emergency order to waters of the Southwest Afognak Section Shoreward Zones east of a line from one-half nautical mile west of Cape Paramanof at 58°18'21" N. lat., 153°02'45" W. long., to one-half nautical mile west of Tanaak Cape at 58°15'36" N. lat.,**

153°06'09" W. long., to one-half nautical mile west of Steep Cape at 58°12'05" N. lat.,
153°12'33" W. long., to one-half nautical mile west of a point at 5 at 58°08'25" N. lat.,
153°18'52" W. long., to one-half nautical mile west of Raspberry Cape at 58°03'35" N. lat.,
153°25'06" W., long.

All fishers and tender operators should familiarize themselves with the boundaries of these "seaward" and "shoreward" zones in each of these eight management units. Also, it will be the responsibility of both the permit holder and the tender operator to insure fish tickets for fish harvested in the geographical area covered by this plan properly reflect the poundage and quantities of salmon by species. If there are questions on this management plan feel free to contact ADF&G Kodiak staff.

Crescent Lake

The Crescent Lake Management Plan is associated with a relatively small coho enhancement project which could impact the subsistence fishery in the vicinity of Port Lions. This plan clarifies the harvest priorities for coho salmon returning to the Settler Cove area near Port Lions. This plan was slightly modified by the Board of Fisheries, during the January 1993 meeting in Kodiak. Previously the plan allowed commercial harvest inside the breakwater at Port Lions only after September 16; the date is now September 10. In addition, the time period that this plan is in effect was changed from the entire salmon season to the time period July 15 through October 31. The wording of the regulations guiding this plan are listed below as well as in the 1994 Commercial Finfish Regulation Book under 5AAC 18.364.

5AAC 18.364. Crescent Lake Coho Salmon Management Plan.

- (a) From July 15 through October 31, the Department shall manage the commercial, sport, and subsistence fisheries in Settler Cove to provide for full utilization of the enhanced stock of coho salmon returning to Crescent Lake in accordance with the Crescent Lake Coho Salmon Management Plan in this section.
- (b) Sport and subsistence fisheries are allowed in all waters of Settler Cove consistent with 5AAC 64 and 5AAC 01.
- (c) The department may open, by emergency order, those waters of Settler Cove between the causeway and a line from the seaward end of the Port Lions breakwater to a department marker located directly across Settler Cove from the breakwater, to the commercial taking of salmon only as follows:
 - (1) the department may not allow the commercial taking of salmon before September 10; and
 - (2) before opening the fishery, the department shall determine that 500 or more coho salmon are available in Settler Cove for harvest.

Eastside Afognak

For the past several years the commercial salmon fisheries of the eastside of Afognak Island have been managed under an informal management plan formulated by Kodiak Area management biologists and Kitoi Bay hatchery managers. The Board of Fisheries, during the January 1993 meeting in Kodiak, adopted the Eastside Afognak Management Plan into regulation. The goal of this plan is to achieve broodstock requirements for the hatchery, escapement requirements for local stocks, and specify the requirements for fishing time in the Southeast Afognak, Duck Bay, Izhut Bay, and Kitoi Bay Sections (Table 8). The wording of the regulations guiding this plan are listed below as well as in the 1994 Commercial Finfish Regulation Book.

5AAC 18.365. Eastside Afognak Management Plan.

- (a) The goal of the Eastside Afognak Management Plan is to achieve escapement and harvest objectives of sockeye, pink, coho, and chum salmon returning to natural spawning systems in the Southeast Afognak, Duck Bay, Izhut Bay, and Kitoi Bay Sections, and broodstock to Kitoi Bay hatchery. It is the intent of the board that salmon bound for these systems be harvested by the commercial fisheries located in these sections.
- (b) The Southeast Afognak Section shall be managed on sockeye salmon returning to Afognak Lake during the period from June 9 through July 5. From July 6 through August 24, fishing opportunities will be based on pink salmon returning to major systems in Afognak, Kazakof (Danger), and Marka Bays. After August 24, fishing time will be dependent on coho salmon returning to this section.
- (c) The Duck Bay Section shall be managed on early chum or sockeye salmon returns to Kitoi Bay hatchery during the period June 9 through July 18. From July 19 through August 24, fishing time will be based on returning mixed wild and hatchery pink salmon. After August 24, this section shall be managed on local coho salmon runs.
- (d) The Izhut Bay Section shall be managed on the early chum or sockeye salmon returning to Kitoi Bay hatchery during the period June 9 through July 18. From July 19 through August 1, this section may remain closed to fishing to assure that pink salmon cost recovery goals are achieved at Kitoi Bay hatchery. If hatchery cost recovery harvests are not required, fishing time in this section will depend on returning wild and hatchery pink salmon from July 19 through August 24. After August 24, fishing time will be dependent on returns of local coho salmon and late hatchery sockeye salmon runs.
- (e) The Kitoi Bay Section shall be managed on early run chum or sockeye salmon returning to the Kitoi Bay hatchery, from June 9 through July 20. From July 3 through July 3 through July 20, fishing opportunities will not occur until chum salmon broodstock requirements for the hatchery are assured. After July 20 through August 20, this section will be managed for pink salmon cost recovery and broodstock requirements. If there is no pink salmon cost recovery, the section may be managed to harvest pink salmon that exceed broodstock needs. After August 20, fishing opportunities may be provided to harvest returning late sockeye and coho that exceed broodstock needs.

Spiridon Bay Sockeye Salmon

The Kodiak Regional Aquaculture Association, in conjunction with ADF&G, has developed a supplemental run of sockeye salmon in Spiridon Bay. Sockeye fry are stocked in Spiridon Lake to rear and then released into Spiridon Bay. Because of the steep topography of the creek leading to the lake the returning sockeye can not ascend to naturally spawn. All returning sockeye are intended for common property fisheries. ADF&G, KRAA, and the U.S. Fish and Wildlife Service developed a management plan which attempts to fully utilize these salmon while protecting local stocks. The Spiridon Bay Sockeye Salmon Management Plan was adopted into regulation by the Board of Fisheries at the January 1993 meeting in Kodiak. The plan identifies a Special Harvest Area inside the normally closed waters area of the Spiridon Bay Section (Figure 7). Openings shall be no more than 6 hours, during daylight hours, and will begin with a flare launched by ADF&G. The only legal gear type is seine. The harvest area may be adjusted or the harvest foregone entirely if local natural stocks are in jeopardy. The regulatory wording of the plan follows, and is listed in the 1994 Commercial Finfish Regulation Book.

5AAC 18.366. Spiridon Lake Sockeye Salmon Management Plan.

- (a) The department shall manage the commercial, sport, and subsistence fisheries in Spiridon Bay to provide for full use of the enhanced stock of sockeye salmon returning to Spiridon Lake.
- (b) The purpose of the Spiridon Bay harvest strategy is to allow for the orderly harvest of sockeye salmon returning to Telrod Cove from the Spiridon Lake enhancement project while providing adequate protection for local natural salmon stocks returning to other streams of the bay. The intent of the enhancement project is for the harvest of returning enhanced salmon to occur in traditional commercial fishing areas of the Northwest Kodiak District during openings directed at harvesting Karluk sockeye and westside pink and chum salmon stocks.
- (c) The Spiridon Bay Special Harvest Area is that area in Spiridon Bay west of a line from 153°37'21" W. long., 57°38'54" N. lat., to the opposite shore at 153°38'27" W. long., 57°38' N. lat., and east of 153°42'24" W. long.
- (d) Only purse seine and beach seines may be operated in the Spiridon Bay Special Harvest Area.
- (e) If a harvestable surplus of enhanced sockeye salmon is in the special harvest area, emergency order openings, not to exceed six hours per day and only during daylight hours, will be announced. The openings will be started by an aerial flare launched by an ADF&G representative. When possible, openings will be coordinated to occur at the beginning of openings in the Northwest Kodiak District.

Eastside Kodiak

The Eastside Kodiak Salmon Management Plan shows which species effect fishing time in management units located in the Northeast and Eastside Kodiak Districts throughout the season (Table 9). Although not in regulation, this plan reflects fishing opportunities which have been implemented annually since 1978.

SOCKEYE SALMON ESCAPEMENTS GOALS FOR AREA K MAJOR SOCKEYE SALMON SYSTEMS

For targeted sockeye salmon fisheries on systems having fish weirs the total enumeration of upstream migrants can be used to determine the amount of fishing time required to harvest surplus fish. This commonly occurs for the Karluk, Ayakulik, Upper Station, and Frazer systems (major systems) and for the Akalura, Saltery, Buskin, Litnik, Pauls, and Thorsheim systems (minor systems). For sockeye salmon systems without weirs, fishing time is generally conservative and occurs at the discretion of ADF&G, in proportion to the perceived system specific run strength.

Upper and lower biological escapement requirements have been identified for each river's sockeye salmon stocks (Table 10). A basic management function is to achieve at least the lower escapement goals for stocks exploited by targeted fisheries, even if it means that directed fishing time on those stocks does not occur. When the possibility exists that the upper escapement goals may be exceeded and significant deviations from optimum production could occur because of that excess; maximum directed fishing time on these stocks would be allowed, even if it requires continuous stream terminus fishing to contain the escapement at or near the upper levels. These are the extreme scenarios occasionally needed for managing Kodiak Area's sockeye salmon runs. More commonly only a moderate amount of directed fishing time is required to harvest sockeye salmon surplus and to provide escapement which approaches desired levels.

As with the preseason harvest projections, a good tool for illustrating escapements are escapement graphs by stream (Appendix B.1. - B.5.). These are curves drawn based on historical average cumulative escapement by day, scaled to the upper and lower biological escapement goal for each particular system. Actual escapements can be plotted on these graphs to compare with the projected cumulative count. Since fishing time is strongly tied to escapement levels, these graphs can be valuable aids in understanding current ADF&G management actions, and in planning for future fisheries. Actual inseason escapement counts can be heard daily at 8:10 A.M. on SSB channel 3230 Khz.

Table 1. Commercial salmon harvest in 1993 and harvest projections for the Kodiak Management Area, 1994.

	CHINOOK	SOCKEYE	COHO	PINK	CHUM	TOTAL
1993 Projected Harvest	21,000	2,208,000	290,000	21,575,000	1,200,500	25,294,500
1993 Actual Harvest	42,200	4,377,700	313,400	34,019,400	588,300	39,341,000
1994 Projected Harvest	25,000	2,443,100	325,000	13,700,000	620,000	17,113,100

FISHERY	1993 HARVEST ^a		1994 HARVEST ^{a,b}
	Projection	Actual ^c	Projection as of 5/24/94
Early Run Sockeye Salmon Fisheries (6/9-7/15)			
Cape Igvak	230,000	340,500	262,500
Karluk	350,000	1,366,300	400,000
Ayakulik	138,000	588,500	105,000
Frazer	232,000	624,800	420,000
Upper Station	35,000	58,700	70,000
Minor Systems	50,000	144,700	70,000
Other	70,000	187,600	100,000
SubTotal	1,105,000	3,311,100	1,427,500
Late Run Sockeye Salmon Fisheries (7/16-9/15)			
Afognak (Hatchery)	18,000	20,900	20,000
Cape Igvak	95,000	71,600	140,600
Karluk	325,000	464,400	175,000
Ayakulik	92,000	500	65,000
Frazer	58,000	58,200	105,000
Upper Station	410,000	258,300	250,000
Spiridon	-	-	135,000
Minor Systems	75,000	13,800	75,000
Other	30,000	178,900	50,000
SubTotal	1,103,000	1,066,600	1,015,600
TOTAL SOCKEYE	2,208,000	4,377,700	2,443,100
Coho Salmon Fisheries (8/1-10/1)			
Afognak (Hatchery)	5,000	16,000	75,000
Afognak (Natural)	35,000	55,700	40,000
Westside	135,000	95,600	85,000
Alitak	25,000	19,200	20,000
Eastside/Northend Kodiak	50,000	101,400	75,000
Mainland	40,000	25,500	30,000
SubTotal	290,000	313,400	325,000
Pink Salmon Fisheries (7/6-9/5)			
Afognak (Hatchery)	6,500,000	12,076,700	1,400,000
Afognak (Natural)	850,000	2,618,400	700,000
Westside Kodiak	4,750,000	9,079,700	5,000,000
Alitak	2,870,000	3,465,500	2,000,000
Eastside/Northend Kodiak	5,750,000	5,413,400	3,500,000
Mainland	855,000	1,365,700	1,100,000
SubTotal	21,575,000	34,019,400	13,700,000

-Continued-

Table 1. (page 2 of 2)

FISHERY	1993 HARVEST ^a		1994 HARVEST ^{a,b}
	Projection	Actual ^c	Projection as of 05/24/94
Chum Salmon Fisheries (6/6-9/5)			
Afognak (Hatchery)	500	600	20,000
Afognak (Natural)	60,000	73,000	50,000
Westside Kodiak	390,000	248,100	250,000
Alitak	70,000	53,700	50,000
Eastside/Northend Kodiak	275,000	128,700	150,000
Mainland	405,000	84,200	100,000
SubTotal	1,200,500	588,300	620,000
<hr/>			
GRAND TOTAL	25,294,500^d	39,340,900^e	17,113,100^f

- a Numbers of fish.
- b 1994 harvest projections as of 5/24/94.
- c Actual harvest estimates by fishery as of 12/13/93.
- d Includes 21,000 chinook - projected harvest.
- e Includes 42,200 chinook - actual harvest.
- f Includes 25,000 chinook - projected harvest.

Table 2. Expected harvest from supplemental salmon production, by system and species for the Kodiak Management Area, 1994.^a

System	Sockeye	Pink	Coho	Chum
Kitoi Bay Hatchery Complex ^b	23,000 ^c	1,400,000	65,000	20,000
Spiridon Lake ^d	135,000	0	0	0
Hidden Lake ^e	0	0	0	0
Waterfall Lake ^e	0	0	0	0
Malina Lake ^e	0	0	0	0
Crescent Lake ^f	0	0	5,000	0
Katmai Lake ^e	0	0	2,000	0
Kodiak Road System Lakes ^e	0	0	3,000	0

^a Harvest estimates by KRAA and Kitoi Bay Hatchery staff.

^b See Eastside Afognak Salmon Management Plan.

^c Harvest is expected to occur during fisheries targeting pink salmon.

^d See Spiridon Lake Sockeye Salmon Management Plan.

^e Have received fry plants but no returns expected this year.

^f See Crescent Lake Salmon Management Plan.

Table 3. Commercial salmon season opening times and dates by species for the Kodiak Area, 1994.

FISHERY	EARLIEST OPENING TIME/DATE	
	Firm Time/Date	Approximate Time/Date
Early Run Sockeye Salmon Fisheries		
Cape Igvak Section ^a	-	12:01 A.M. June 5-9
N.W. Kodiak District ^b	12:00 Noon June 9	
Inner Ayakulik and Outer Ayakulik Sections ^c	-	Low tide June 7-9
Alitak District ^b	12:00 Noon June 9	
Minor Systems ^d		
Uganik	-	12:00 Noon June 14
Paramanof	-	12:00 Noon June 14
Pauls/Perenosa	-	12:00 Noon June 14
Litnik	-	12:00 Noon June 9-14
Saltery	-	12:00 Noon June 14
Kafliia/Swikshak	-	12:00 Noon June 14
Pink/Chum Salmon Fisheries ^e		
Mainland District	12:00 Noon July 6	-
Afognak District	12:00 Noon July 6	-
N.W. Kodiak District	12:00 Noon July 6	-
S.W. Kodiak District	12:00 Noon July 6	-
Alitak District	12:00 Noon July 6	-
Eastside Kodiak District	12:00 Noon July 6	-
N.E. Kodiak District	12:00 Noon July 6	-
Late Run Sockeye Salmon Fishery		
Cape Igvak Section ^f	-	12:01 A.M. July (?)
All remaining late run sockeye fisheries ^g	-	12:00 Noon July 15
System Specific Coho Salmon Fisheries ^h		
Mainland District	-	12:00 Noon Sept. 1
Afognak District	-	12:00 Noon Aug. 15
N.W. Kodiak District	-	12:00 Noon Sept. 1
S.W. Kodiak District	-	12:00 Noon Sept. 1
Alitak District	-	12:00 Noon Sept. 1
Eastside Kodiak District	-	12:00 Noon Sept. 5
N.E. Kodiak District	-	12:00 Noon Sept. 5

-Continued-

Table 3. (page 2 of 2)

- a Actual opening date will be determined by sockeye escapement levels into the Chignik River system. Fishing time will be in 24 hour increments.
- b Actual opening time/date is as shown. This opening is considered a commercial test fishery; fishing time for this initial period will be 33 hours (12:00 noon 6/9 through 9:00 P.M. 6/10).
- c Actual opening date will be determined by the sockeye escapement level into Ayakulik River and opening time by low tide timing during daylight hours.
- d Actual opening time will be determined by sockeye escapement levels into minor systems. Fishing time for this period will be 33 hours (12:00 noon through 9:00 P.M.)
- e Actual opening time/date is as shown. Fishing time for this initial period will be 105 hours (12:00 noon 7/6 through 9:00 P.M. 7/10). See section on Fishing Periods for additional information.
- f Actual opening date will be determined by sockeye escapement levels into the Chignik River System. Fishing time will be in 24 hour increments.
- g Actual opening date for system specific fishing time will be determined by sockeye escapement levels into major systems. All fishing periods will begin at 12:00 noon and end at 9:00 P.M. prior to 8/16 and end at 6:00 P.M. from 8/16 to season's end.
- h Actual opening date for system specific fishing time will be determined by overall coho run strength evaluation and by escapement levels into major systems and minor systems with reliable escapement data.

Table 4. Board of Fisheries approved fishery management plans for the Kodiak Management Area, 1994.

MANAGEMENT PLAN	YEAR INITIATED	MGMT. UNITS AFFECTED	DATES IN EFFECT
Cape Igvak Salmon Management Plan	1978	Cape Igvak Section Wide Bay Section	6/5 - 7/25
Alitak Bay District Salmon Management Plan	1987	Alitak Bay District	6/9 - 10/1
Westside Kodiak Management Plan	1990	N.W. Kodiak District S.W. Kodiak District S.W. Afognak Section	6/9 - 10/1
Crescent Lake Coho Salmon Management Plan	1990	Portion of the Central Section in Vicinity of Port Lions	8/1 - 9/15
North Shelikof Strait Sockeye Salmon Management Plan	1990	S.W. Afognak Section N.W. Afognak Section Shuyak Section Big River Section Hallo Bay Section Inner and Outer Kukak Sect. Dakavak Section	7/6 - 7/25
Eastside Afognak Management Plan	1993	Kitoi Bay Section Izhut Bay Section Duck Bay Section	6/9 - 10/1
Spiridon Bay Sockeye Salmon Management Plan	1993	Special Harvest Area in Spiridon Bay Section	6/9 - 10/1

Table 5. Biological and allocative criteria, and the management chronology, of the Cape Igvak Management Plan for the Kodiak Management Area, 1994.

BIOLOGICAL AND ALLOCATIVE CRITERIA FOR MANAGING THE CAPE IGVAK FISHERY ON CHIGNIK BOUND SOCKEYE

BIOLOGICAL REQUIREMENTS			ALLOCATIVE REQUIREMENTS		
REGULATION 5AAC 18.360	ESCAPEMENT NEEDS		REGULATION 5AAC 18.360	CHIGNIK MINIMUM HARVEST	IGVAK %
	CHIGNIK (EARLY RUN)	CHIGNIK (LATE RUN)			
(a) (b) (c)	THROUGH 6/30 350,000-400,000	-	(a)	EXPECTATIONS OF LESS THAN 600,000	CLOSED
-	-	-	(b)	EXPECTATIONS OF 600,000 ARE IN DOUBT	CLOSED
(a) (b) (c)	-	THROUGH 7/30 195,000-200,000	(c)	EXPECTATIONS OF 600,000 OCCUR	OPEN TO ACHIEVE 15%
-	-	-	(d)	CHIGNIK SALMON % INTERCEPTION CALCULATIONS	80% OF CATCH AT IGVAK ARE CHIGNIK SOCKEYE
-	-	-	(e)	ALLOCATION PERIOD 600,000	6/5 - 7/25 % NOT APPLICABLE
(f)	FROM JUNE 26 - JULY 9 CAPE IGVAK SECTION CLOSED OR SEVERLY LIMITED UNTIL CHIGNIK LAKE RUN EVALUATED		-	-	-
-	-	-	(g)	-	ONE DAY ADVANCE NOTICE
	400,000	250,000		600,000 MINIMUM	15 %

MANAGEMENT CHRONOLOGY FOR CHIGNIK BOUND SOCKEYE AND KODIAK SALMON

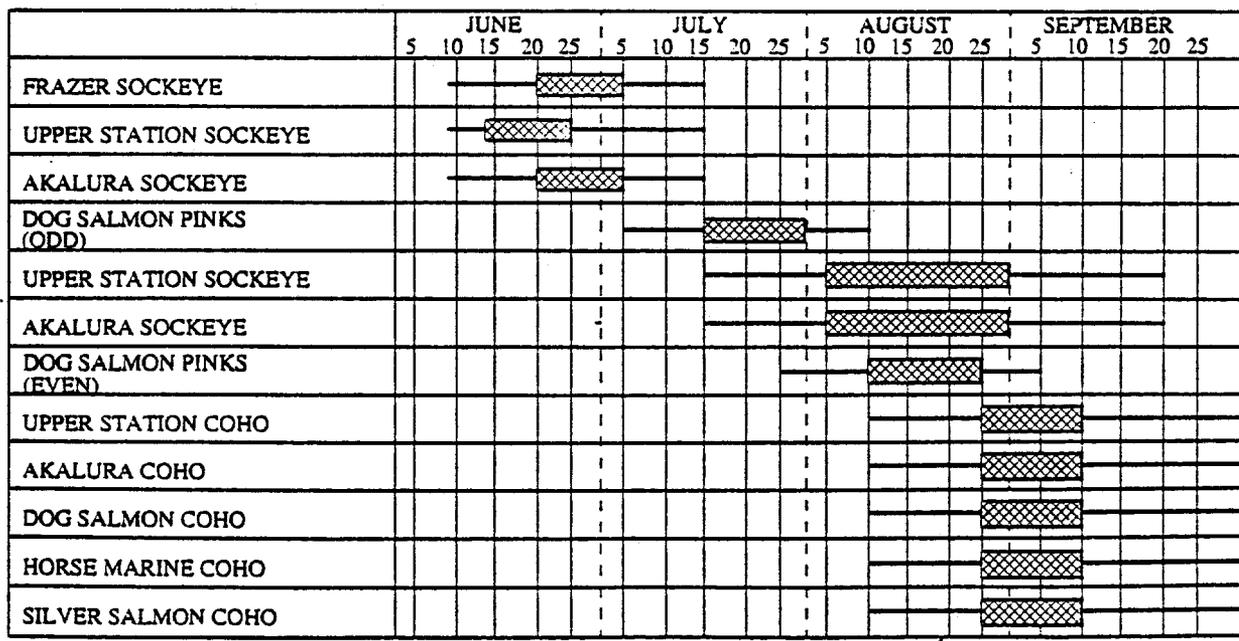
CLOSED	CHIGNIK SOCKEYE STOCKS (EARLY RUN)	CLOSED OR SEVERLY LIMITED	CHIGNIK SOCKEYE STOCKS (LATE RUN)	KODIAK BOUND STOCKS AND/OR CHIGNIK LATE RUN STOCKS
6/1	6/5	6/26	7/9	7/25
				9/5

Table 6. Primary management species and fishery chronology of the Alitak Bay District Salmon Management Plan for the Kodiak Management Area, 1994.

ALITAK BAY DISTRICT MANAGEMENT PLAN							
CAPE ALITAK SECTION (SEINE)	CLOSED	XXXXXX	FRAZER SOCKEYE (AGGRESSIVE MANAGEMENT STRATEGY)	FRAZER SOCKEYE (CONSERVATIVE MANAGEMENT STRATEGY)	ODD YEAR CYCLE FRAZER PINK SALMON	ODD YEAR CYCLE UP.STATION SOCKEYE	ALL ALITAK DISTRICT COHO SYSTEMS
					EVEN YEAR CYCLE UP.STATION SOCKEYE (LATE RUN)	EVEN YEAR CYCLE UP.STATION SOCKEYE & FRAZER PINK SALMON	
MOSER/OLGA BAY SECTION (GILLNET) (TRADITIONAL)	CLOSED	XXXXXX	FRAZER SOCKEYE (AGGRESSIVE MANAGEMENT STRATEGY)	FRAZER SOCKEYE (CONSERVATIVE MANAGEMENT STRATEGY)	ODD YEAR CYCLE FRAZER PINK SALMON	ODD YEAR CYCLE UP.STATION SOCKEYE	ALL OLGA BAY COHO SYSTEMS
					EVEN YEAR CYCLE UP.STATION SOCKEYE (LATE RUN)	EVEN YEAR CYCLE UP.STATION SOCKEYE & FRAZER PINK SALMON	
OUTER UPPER & INNER UPPER STATION (GILLNET) (NON-TRADITIONAL)	CLOSED	CLOSED	UPPER STATION SOCKEYE (EARLY RUN)		UPPER STATION SOCKEYE (LATE RUN)	UP. STATION SOCK & COHO	UPPER STATION COHO
OUTER AKALURA & IN. AKALURA SECTIONS (GILLNET) (NON-TRADITIONAL)	CLOSED	CLOSED	AKALURA SOCKEYE (EARLY RUN)		AKALURA SOCKEYE (LATE RUN)	AKALURA SOCK & COHO	AKALURA COHO
DOG SALMON FLATS SECTION (GILLNET) (NON-TRADITIONAL)	CLOSED	CLOSED	FRAZER SOCKEYE (MOP UP FISHERY)		FRAZER PINK SALMON	FRAZER AND HORSE MARINE COHO	
HUMPY/DEADMAN SECTION (SEINE)	CLOSED	XXXXXX	FRAZER SOCKEYE (AGGRESSIVE MANAGEMENT STRATEGY)	FRAZER SOCKEYE (CONSERVATIVE MANAGEMENT STRATEGY)	ALITAK BAY PINK, CHUM, AND COHO		

6/1 6/9-10 6/24 7/9 7/15 8/9 8/20 8/26 9/25
 xx = Commercial Test Fisheries

ALITAK BAY DISTRICT - PRIMARY MANAGEMENT SPECIES BY STREAM BY TIME



AVAILABLE TO FISHERY
 CRITICAL MGMT. PERIOD

Table 7. Primary management species and fishery chronology of the Westside Kodiak Management Plan for the Kodiak Management Area, 1994.

		6/1	6/9	6/16	6/23	7/6	7/16	8/1	8/16	8/25	9/6	10/31
AFOG. DIST.	S.W.AFOGNAK	CLOSED			E.R.KARLUK SOCKEYE	LOCAL AND MIXED PINK			L.R.KARLUK SOCKEYE/LOCAL & MIXED PINK	L.R.KARLUK SOCKEYE	LOCAL COHO	
	NORTH CAPE: CENTRAL	CLOSED			E.R.KARLUK SOCKEYE	LOCAL AND MIXED PINK			L.R.KARLUK SOCKEYE/LOCAL & MIXED PINK	L.R.KARLUK SOCKEYE	LOCAL COHO	
	ANTON LARSEN											
	SHERATIN											
	KIZHUYAK											
	TERROR											
	IN. UGANIK	CLOSED			LOCAL SOCKEYE AND E.R. CHUM	LOCAL SOCKEYE, E.R. CHUM & PINK	LOCAL PINK & L.R. CHUM	LOCAL PINK/ L.R. CHUM/ COHO	LOCAL COHO			
	SPIRIDON											
	ZACHAR UYAK											
SOUTHWEST KODIAK DISTRICT	OUT.KARLUK	CLOSED		E.R. KARLUK SOCKEYE			ODD-YEAR CYCLE: L.R. KARLUK SOCKEYE		L.R. KARLUK SOCKEYE	KARLUK COHO		
	IN.KARLUK	CLOSED		E.R. KARLUK SOCKEYE			EVEN-YEAR CYCLE: L.R. KARLUK SOCKEYE/PINK		L.R. KARLUK SOCKEYE	KARLUK COHO		
	STURGEON	CLOSED		E.R.KARLUK & AYAKULIK SOCKEYE & STURGEON CHUM		ODD-YEAR CYCLE: L.R. KARLUK SOCKEYE		L.R. KARLUK SOCKEYE	LOCAL COHO			
	HALIBUT	CLOSED		E.R.KARLUK AND AYAKULIK SOCKEYE		EVEN-YEAR CYCLE: L.R. KARLUK SOCKEYE/PINK		L.R. KARLUK SOCKEYE	LOCAL COHO			
	OUT.AYAKULIK	CLOSED		E.R. AYAKULIK SOCKEYE			ODD-YEAR CYCLE: L.R. AYAKULIK SOCKEYE		AYAKULIK COHO			
	IN.AYAKULIK	CLOSED		E.R. AYAKULIK SOCKEYE			EVEN-YEAR CYCLE: L.R. AYAKULIK SOCKEYE/PINK		AYAKULIK COHO			

 COMMERCIAL TEST FISHERIES
 E.R. = EARLY RUN STOCKS
 L.R. = LATE RUN STOCKS

Table 8. Primary management species and fishery chronology of the Eastside Afognak Management Plan for the Kodiak Management Area, 1994.

TARGETED SPECIES BY SYSTEM AND TIME FOR SPECIFIC MANAGEMENT UNITS ^{1/}

S.E. AFOGNAK SECTION (Seine)	LITNIK SOCKEYE	LITNIK SOCKEYE	LITNIK SOCKEYE	LOCAL PINK	LOCAL COHO										
DUCK BAY SECTION (Seine)	EARLY HATCHERY CHUM AND/OR SOCKEYE			HATCHERY & LOCAL PINK	LOCAL COHO										
IZHUT BAY SECTION (Seine)	EARLY HATCHERY CHUMS AND/OR SOCKEYE			CLOSED UNTIL COST RECOVERY ASSURED	HATCHERY & LOCAL PINK LOCAL COHO & HATCHERY SOCKEYE										
KITOI BAY SECTION ^{2/} (Seine) Broodstock				a											
	PINK: Cost Recovery			b											
Common Property				c											
CHUM &/OR EARLY SOCKEYE	Broodstock			d											
	Common Property			e											
COHO & SOCKEYE:	Broodstock				f										
	Common Property				g										
	6/9	6/14	6/20	7/1	7/3	7/6	7/18	7/20	7/25	8/1	8/8	8/15	8/20	8/24	9/1

⊗ - fishing time dependant upon sockeye escapement into Litnik system.

- Included in this management plan are the harvest strategies for current natural and hatchery production as well as future hatchery production.
- The management plan required for the Kitoi Bay Section is rather complicated in order to achieve broodstock, cost recovery, and common harvest requirements. This is further complicated by the multispecies production currently occurring at Kitoi Bay hatchery. The diagram shown attempts to approximate dates for when specific management strategies should be implemented to insure achievement of hatchery goals and an orderly harvest of quality common property fish.
 - Hatchery pink salmon broodstock captured.
 - Hatchery pink salmon cost recovery fishery when necessary.
 - Hatchery pink salmon common property fishery.
 - Hatchery chum and/or early sockeye salmon broodstock captured.
 - Hatchery chum and/or early sockeye salmon common property fishery.
 - Hatchery coho and late sockeye salmon broodstock captured.
 - Hatchery coho and late sockeye salmon common property fishery.

Table 9.

**EASTSIDE KODIAK MANAGEMENT PLAN
MANAGEMENT CHRONOLOGY BY MANAGEMENT UNIT FOR EASTSIDE SALMON STOCKS**

DATE		6/1	6/14	6/21	7/6	7/10	8/25	9/6	10/31
MANAGEMENT UNIT									
NORTHEAST KODIAK DISTRICT	Outer Chiniak Bay	CLOSED			LOCAL AND MIXED PINK		LOCAL PINK COHO	LOCAL COHO	
	Inner Chiniak Bay	CLOSED			LOCAL AND MIXED PINK AND CHUM		LOCAL PINK COHO	LOCAL COHO	
	Buskin River	CLOSED			LOCAL PINK BUSKIN SOCKEYE	LOCAL PINK AND CHUM	LOCAL PINK COHO, CHUM	LOCAL COHO	
	Monashka/Mill Bay	CLOSED			LOCAL AND MIXED PINK		LOCAL PINK COHO	LOCAL COHO	
EASTSIDE KODIAK DISTRICT	Seven Rivers	CLOSED	CLOSED	CLOSED	LOCAL AND MIXED PINK AND CHUM		LOCAL PINK COHO	LOCAL COHO	
	Two Headed	CLOSED	CLOSED	CLOSED	LOCAL AND MIXED PINK AND CHUM		LOCAL PINK COHO	LOCAL COHO	
	Sitkalidak	CLOSED	CLOSED	CLOSED	LOCAL AND MIXED PINK AND CHUM		LOCAL PINK, CHUM, COHO	LOCAL COHO	
	Outer Ugak Bay	CLOSED	CLOSED	PASAGSHAK SOCKEYE	LOCAL AND MIXED PINK AND CHUM		LOCAL PINK, CHUM, COHO	LATE CHUM COHO	
	Inner Ugak Bay	CLOSED	CLOSED	SALTRY SOCKEYE	LOCAL PINK & CHUM SALTRY SOCKEYE	LOCAL PINK AND CHUM	LOCAL PINK COHO	COHO	

Local and mixed sockeye 33 hour fishing period.

Table 10. Sockeye salmon escapement goals for major and minor systems in millions of fish. for the Kodiak Management Area, 1994.^a

	Early Run (Before 7/15)		Late Run (After 7/15)		Total	
	Minimum	Desired	Minimum	Desired	Min.	Des.
Major Systems						
Karluk ^b	.150	.250	.400	.550	.550	.800
Ayakulik	.160	.220	.040	.080	.200	.300
Upper Station ^b	.050	.075	.150	.200	.200	.275
Frazer ^c	.140	.200	-	-	.140	.200
Subtotal	.500	.745	.590	.830	1.090	1.575
Minor Systems						
Akalura ^b	.010	.015	.030	.045	.040	.060
Saltery ^c	.020	.040	-	-	.020	.030
Buskin ^c	.010	.015	-	-	.010	.015
Litnik ^c	.040	.060	-	-	.040	.060
Pauls ^c	.020	.040	-	-	.020	.040
Thorsheim ^c	.005	.010	-	-	.005	.010
Subtotal	.015	.180	.030	.045	.120	.205
GRAND TOTAL	.605	.925	.620	.875	1.225	1.790

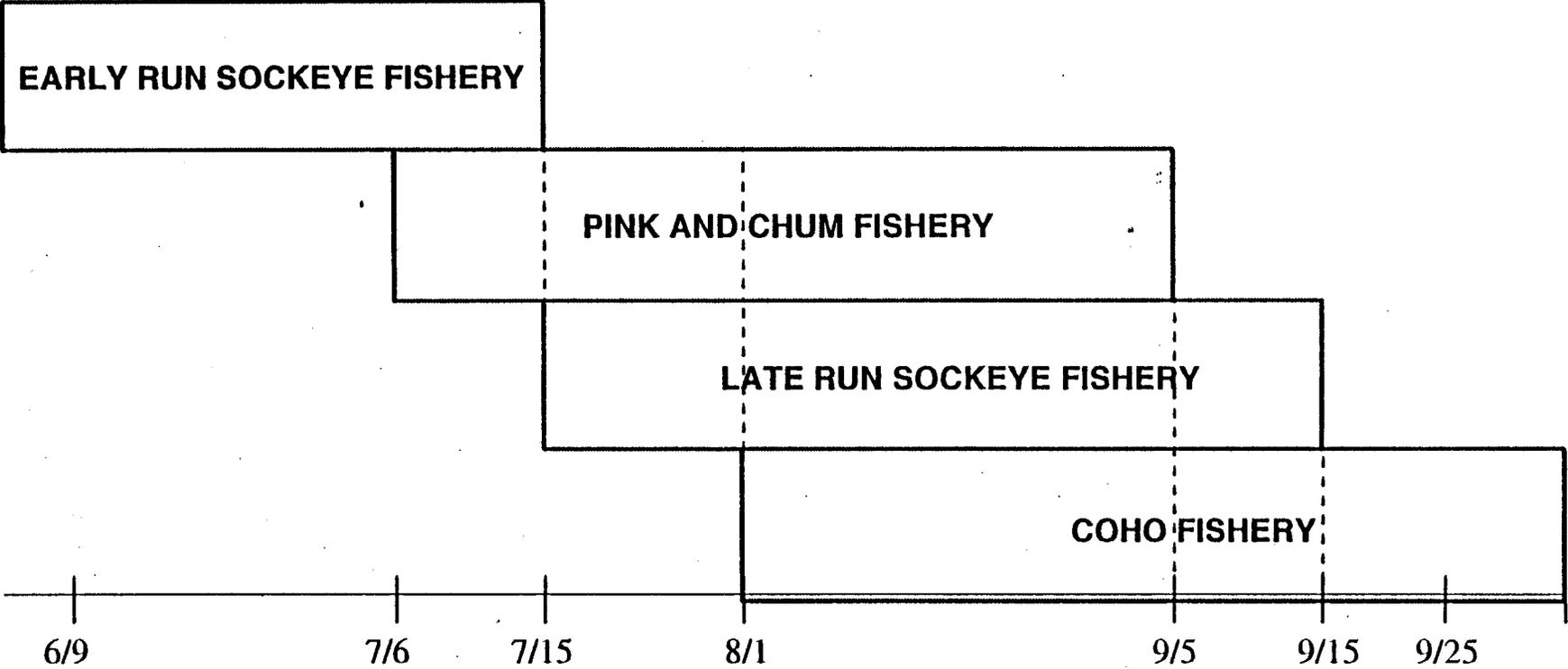
^a This listing of systems identifies only those systems whose escapement is monitored by fish weir total escapement counts. The escapement into these systems represents approximately 85% of the Kodiak Area's total sockeye escapement.

^b Sockeye escapement into these systems characterized by two distinct stocks as identified by bimodal escapement pattern, i.e. an early stock where the cumulative escapement occurs through July 15 and a late stock where the cumulative escapement occurs primarily from July 16 through season's end.

^c Sockeye escapement into these systems characterized by one distinct escapement pattern and where escapement is essentially completed by approximately July 25. Escapement goals for Pauls Bay are currently being reevaluated.

MANAGEMENT CHRONOLOGY

AVERAGE DURATION
120 DAYS
JUNE 9 - OCTOBER 7



32

Figure 1. Commercial salmon fishery chronology, by species, in the Kodiak Management Area.

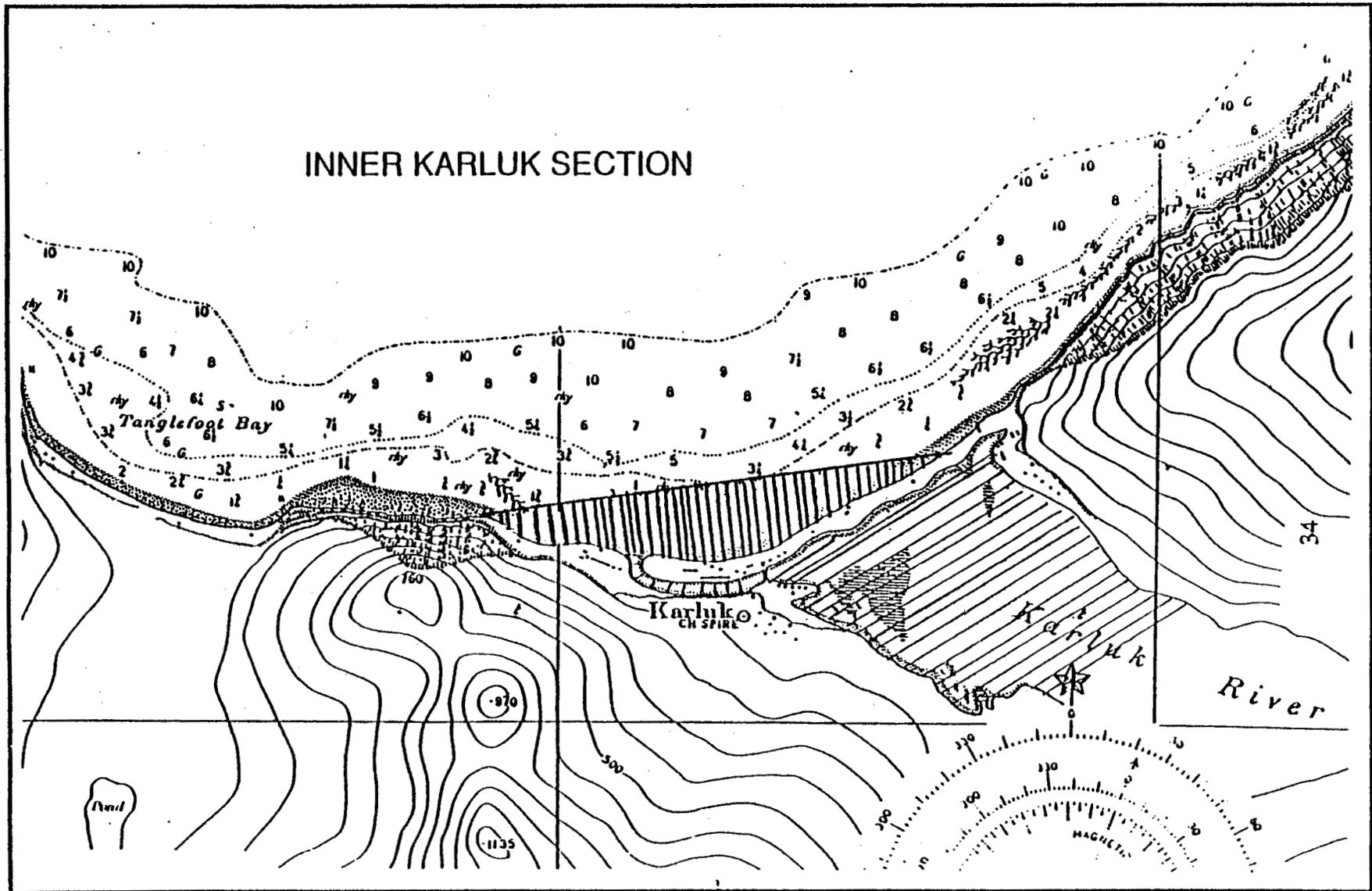


Figure 2. Karluk River closed water sanctuary in the Kodiak Management Area, 1994.

ALASKA DEPARTMENT OF FISH AND GAME
BUSKIN RIVER CLOSED WATER SANCTUARY
FOR THE COMMERCIAL AND SUBSISTENCE
SALMON FISHERY

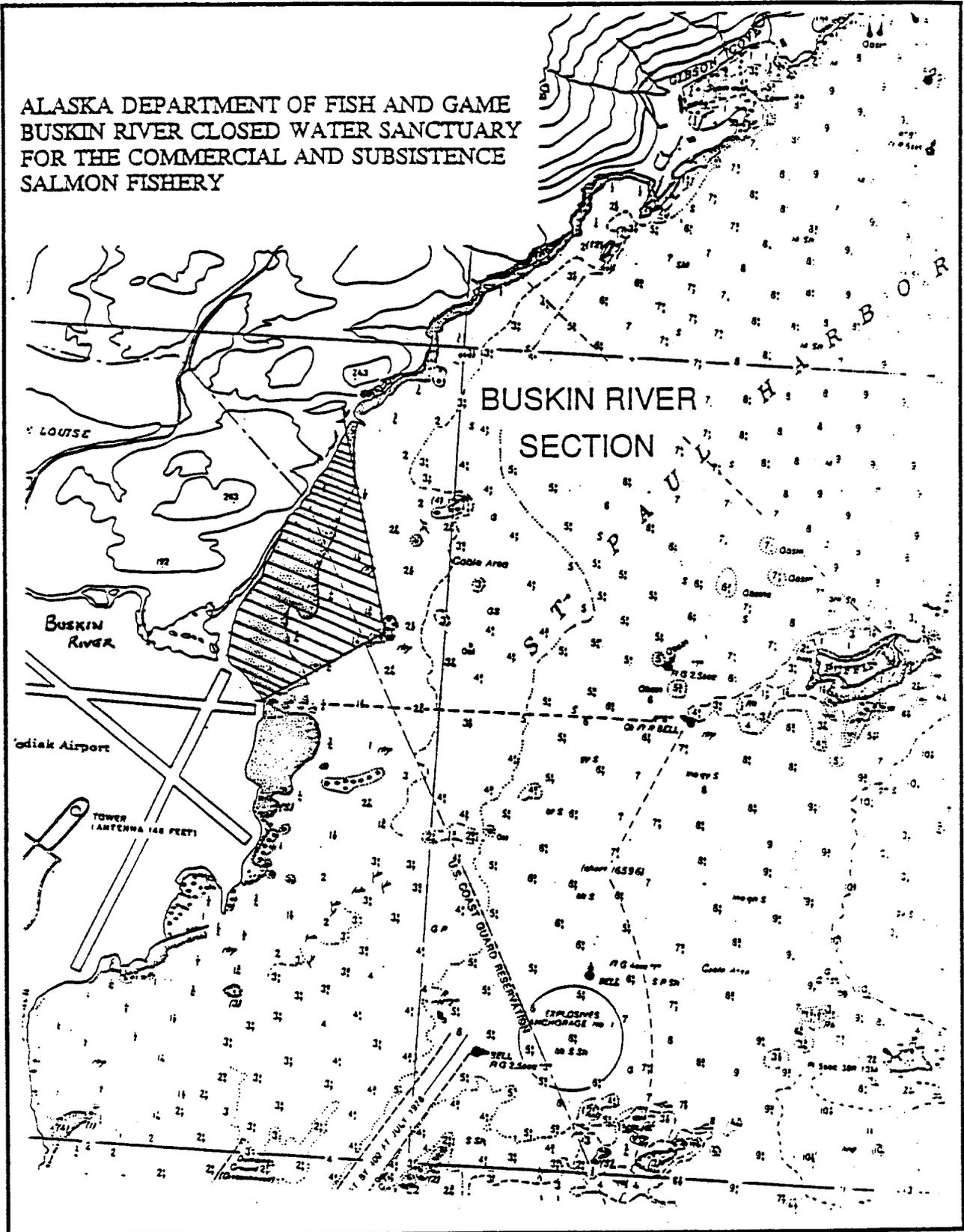


Figure 3. Buskin River closed water sanctuary in the Kodiak Management Area, 1994.

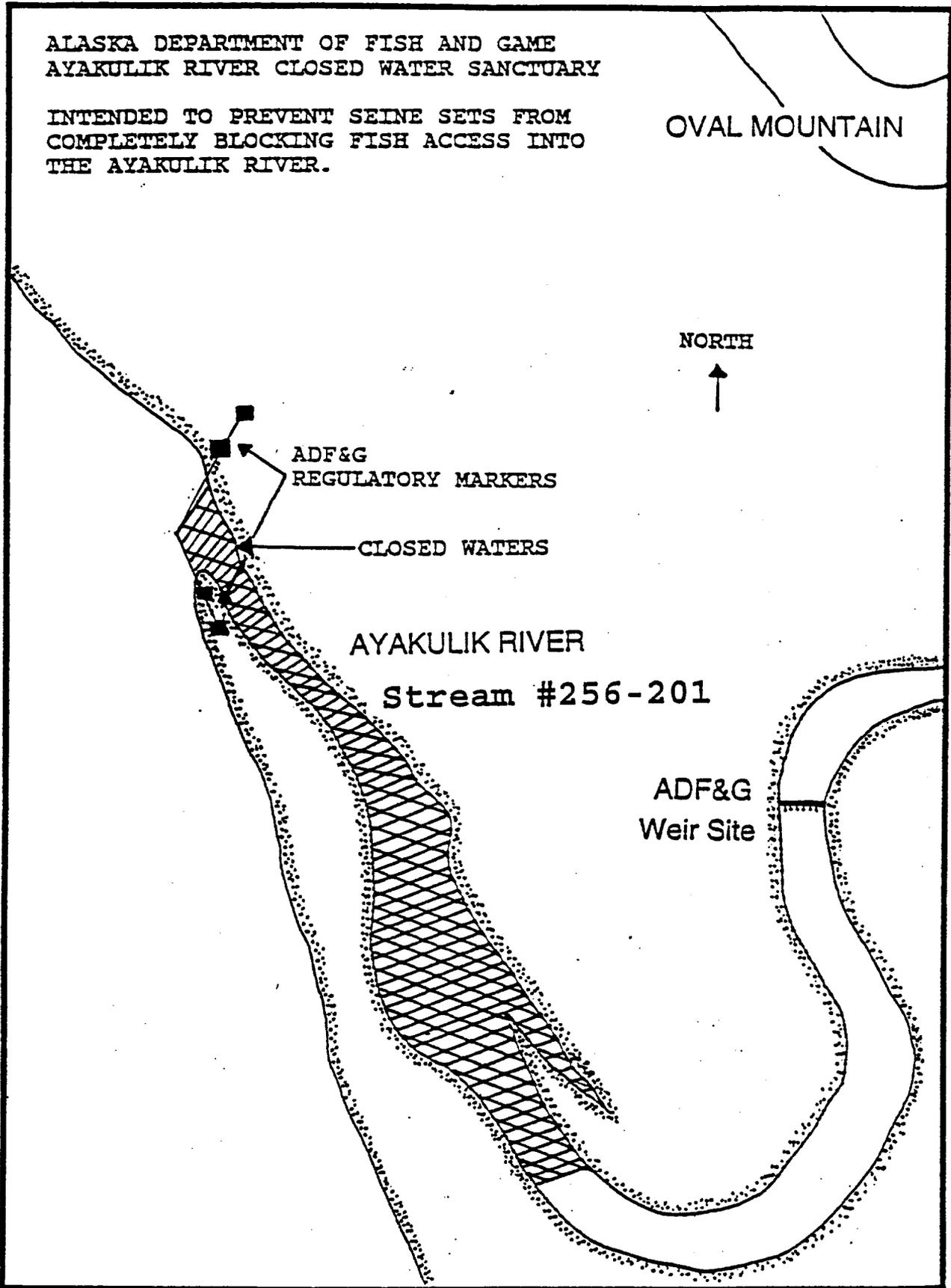


Figure 4. Map depicting the Ayakulik River closed water sanctuary, Kodiak Management Area, 1994.

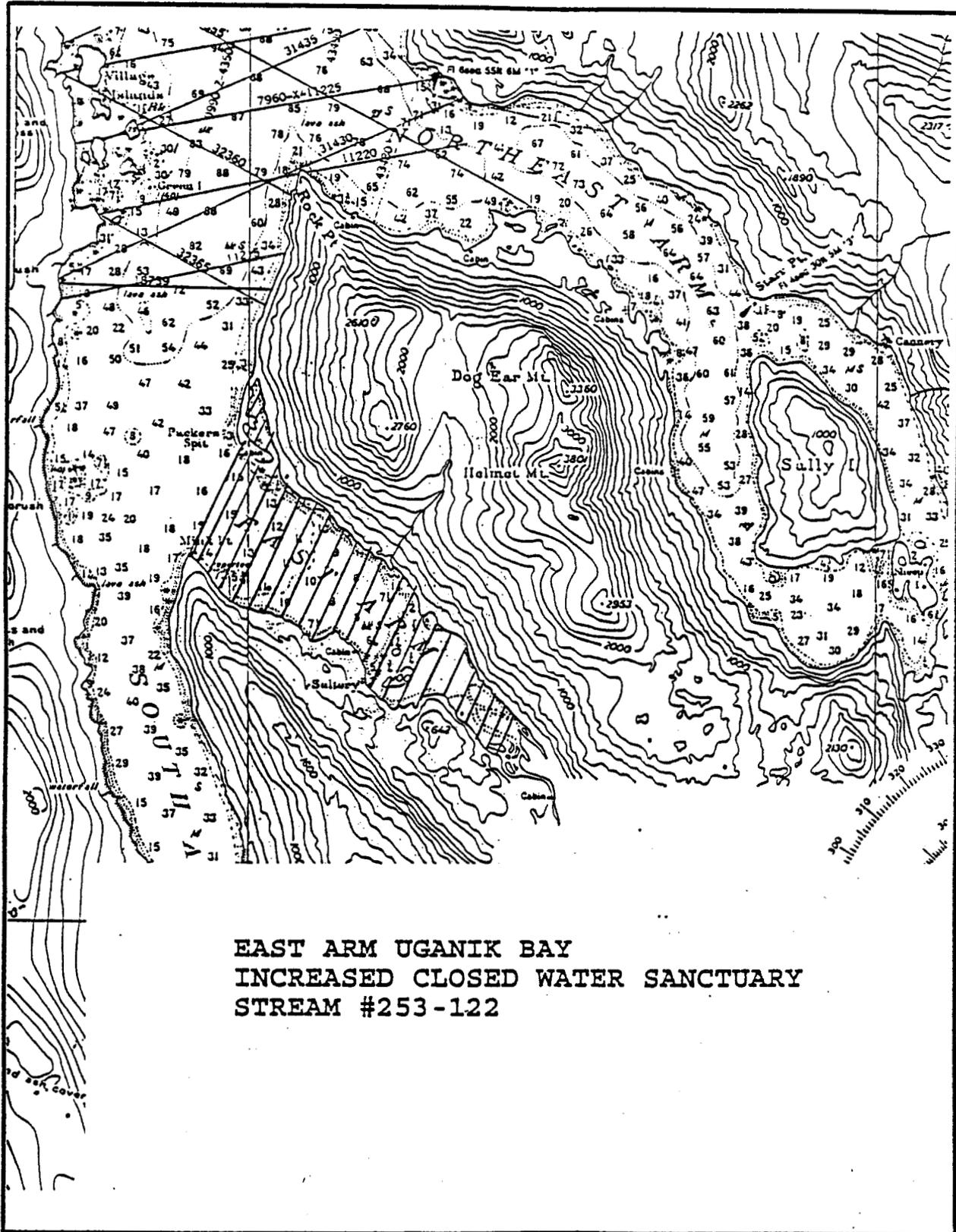


Figure 5. Map depicting the East Arm Uganik Bay increased closed water sanctuary, Kodiak Management Area, 1994.

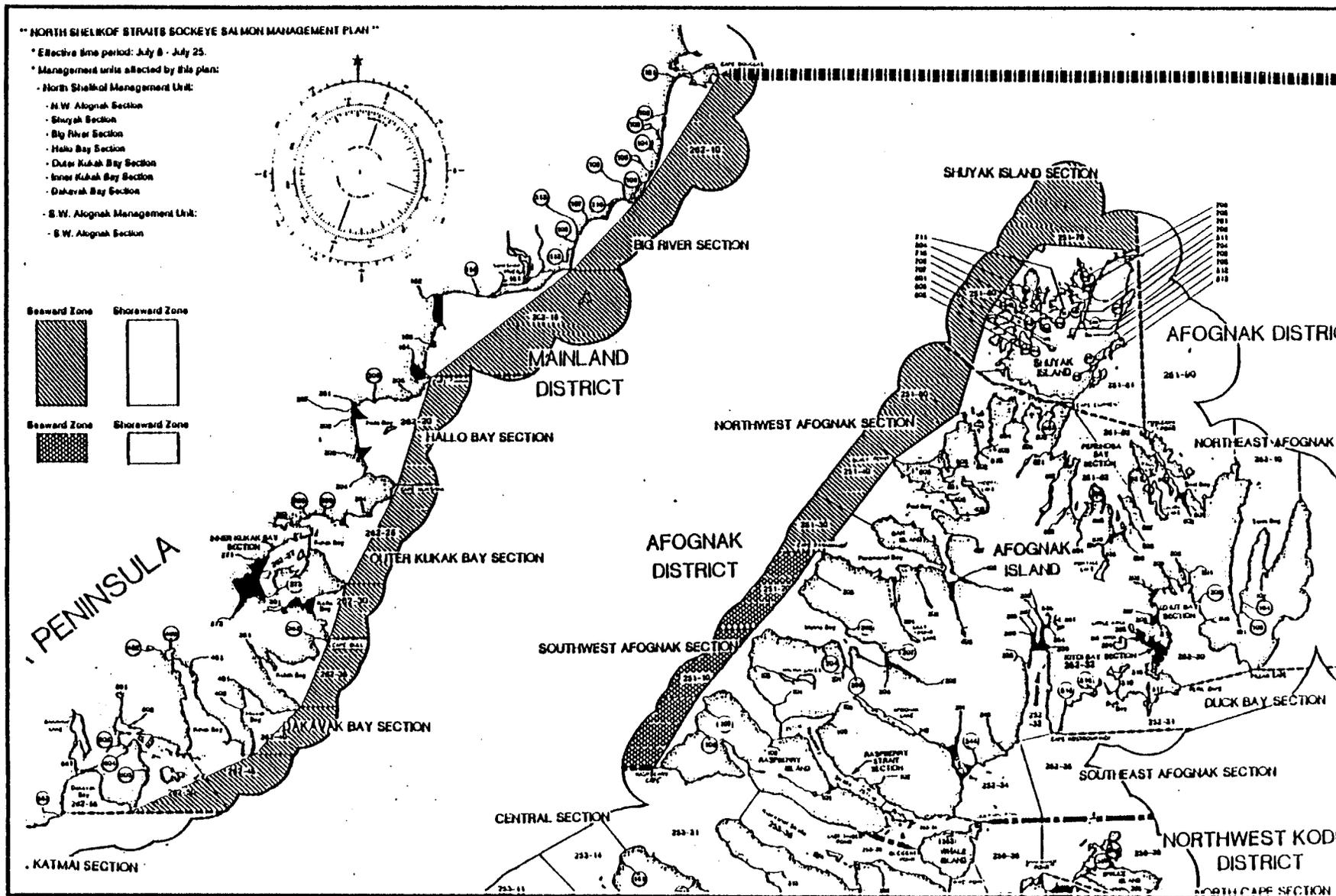


Figure 6. Approximate boundaries of the "North Shelikof Seaward Zone" and the "Southwest Afognak Seaward Zone" of the North Shelikof Strait Sockeye Salmon Management Plan for the Kodiak Management Area, 1994.

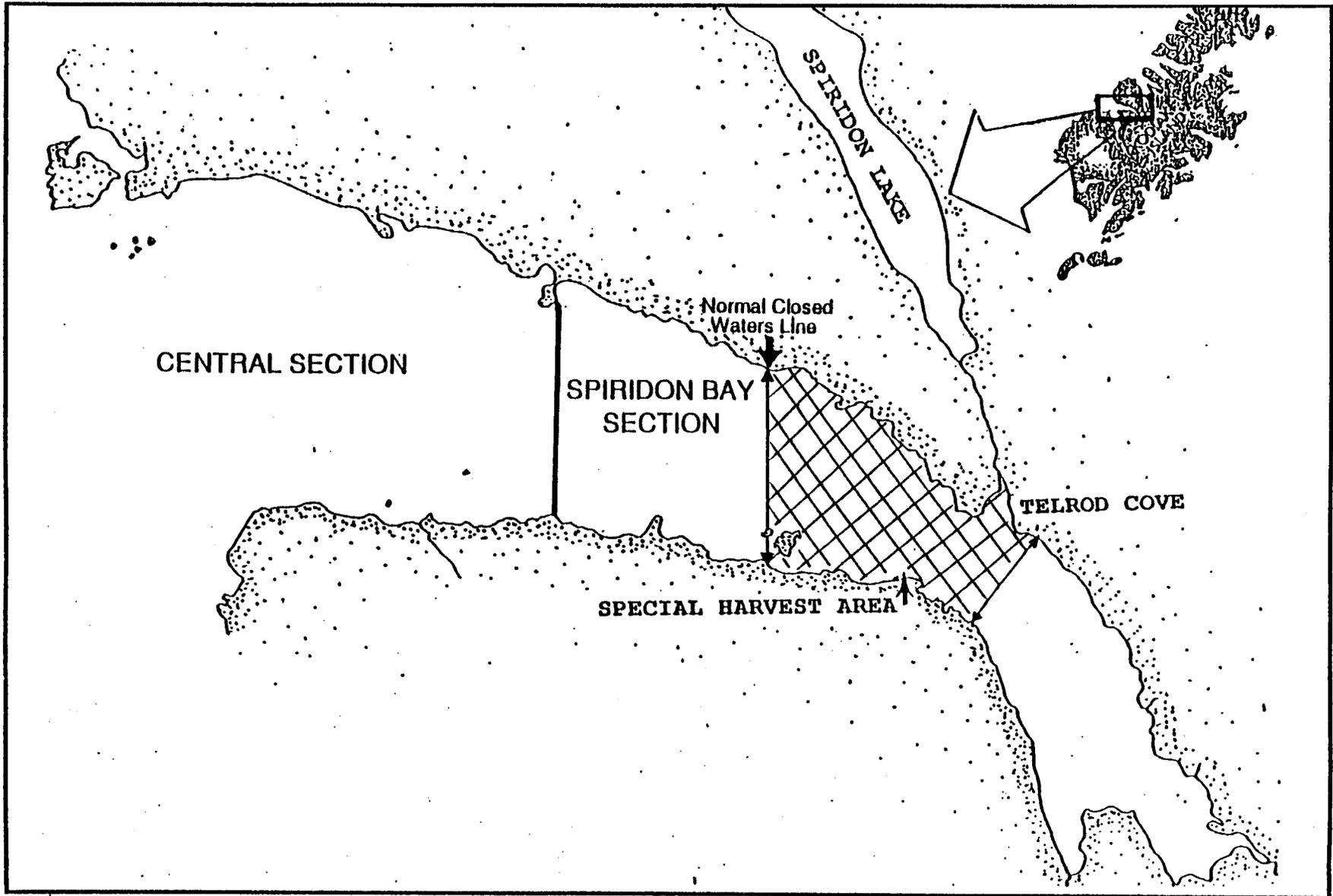
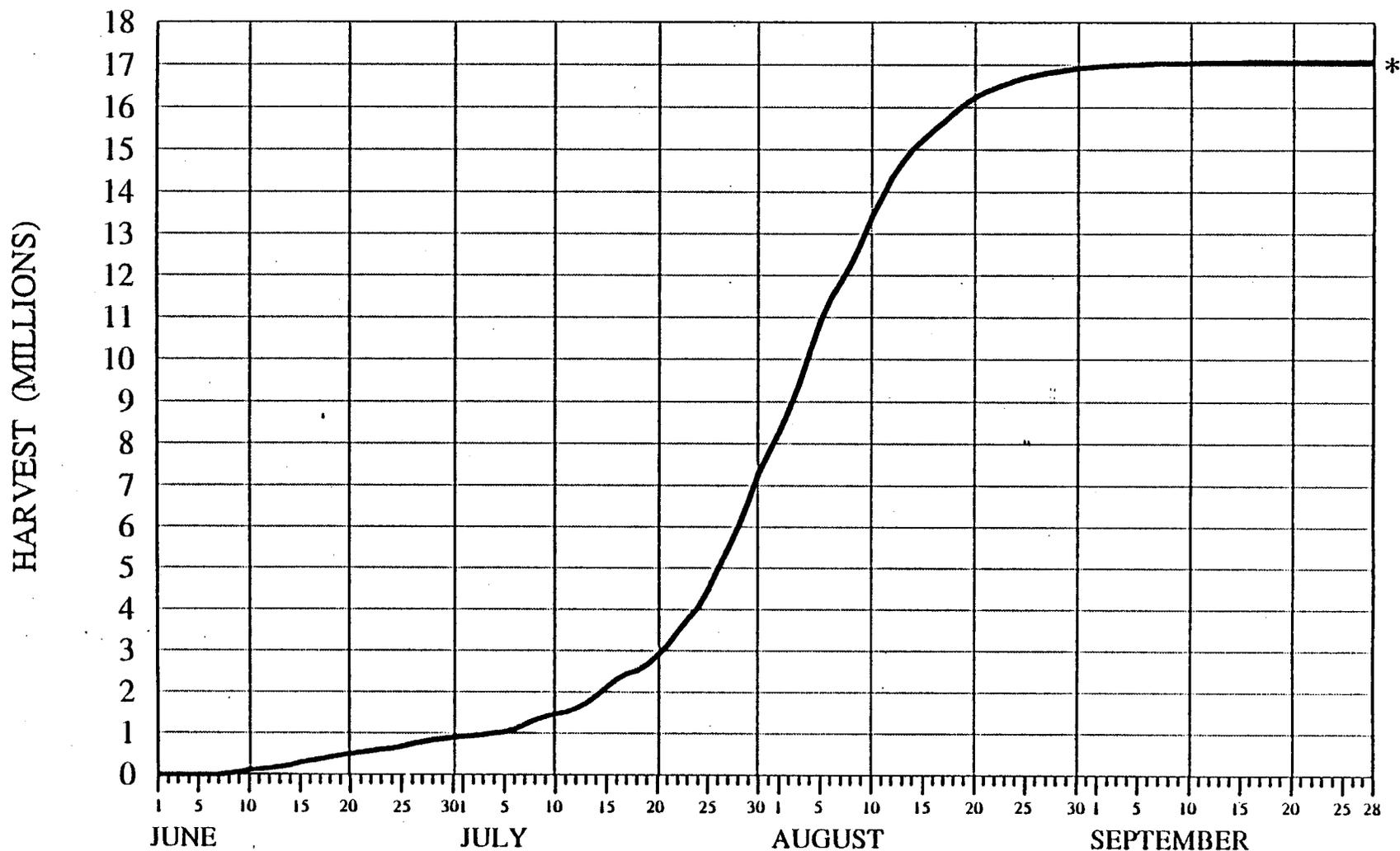


Figure 7. Approximate boundaries of the Special Harvest Area of the Spiridon Bay Sockeye Salmon Management Plan for the Kodiak Management Area, 1994.

APPENDIX

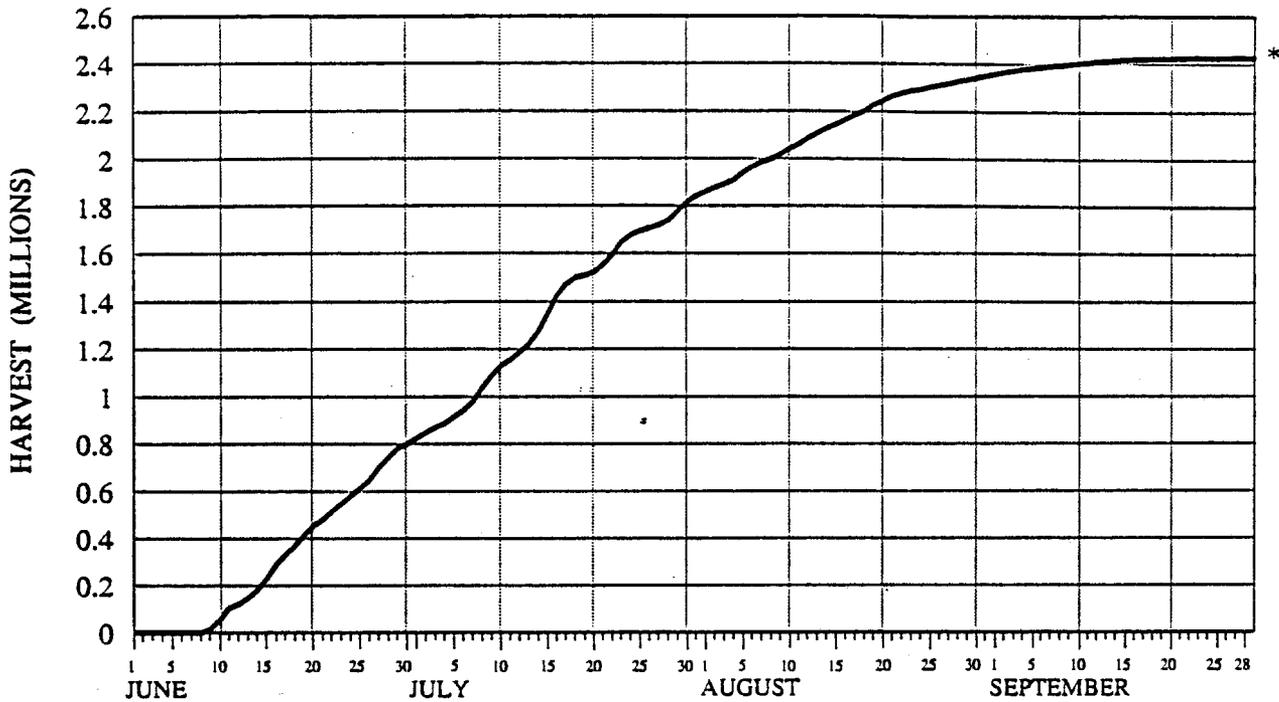
Projected Salmon Harvest by Day, All Species Combined, 1994



* 1994 PROJECTED HARVEST, ALL SPECIES COMBINED = 17,088,100

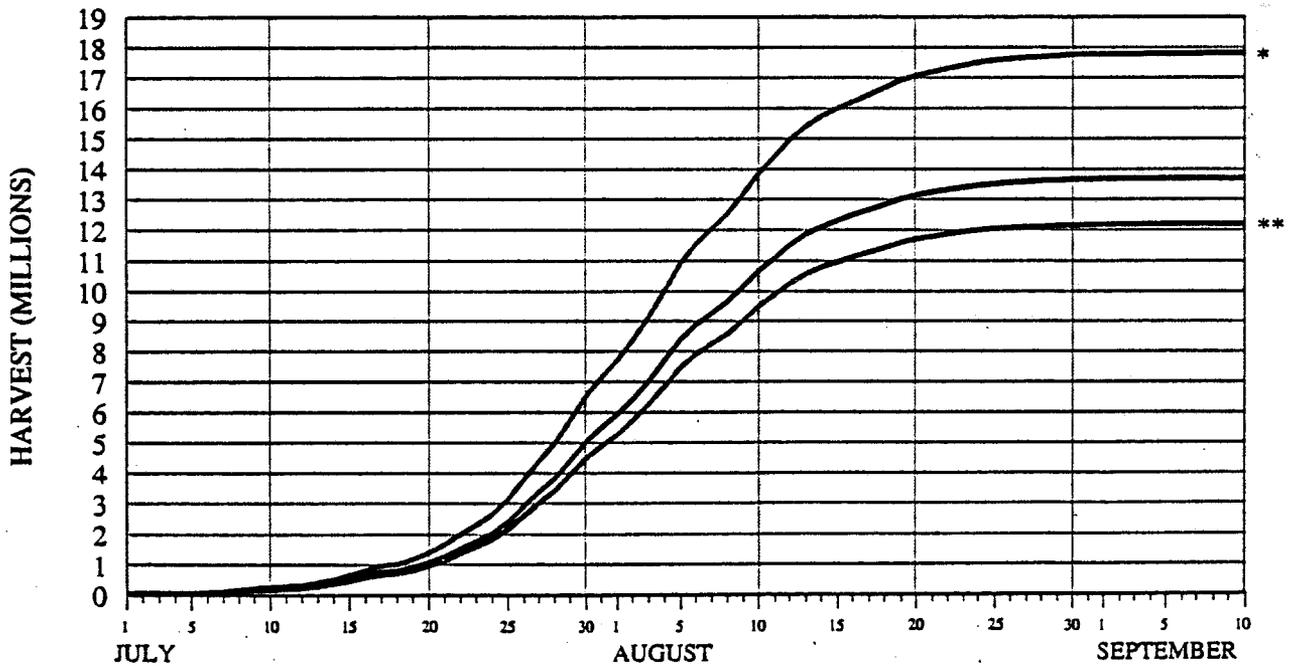
Appendix A.1. Projected salmon harvest curve, all species combined, for the Kodiak Management Area, 1994.

Projected Sockeye Salmon Harvest by Day, 1994



* 1994 SOCKEYE SALMON PROJECTED HARVEST TOTAL = 2,443,100

Projected Pink Salmon Harvest by Day, 1994



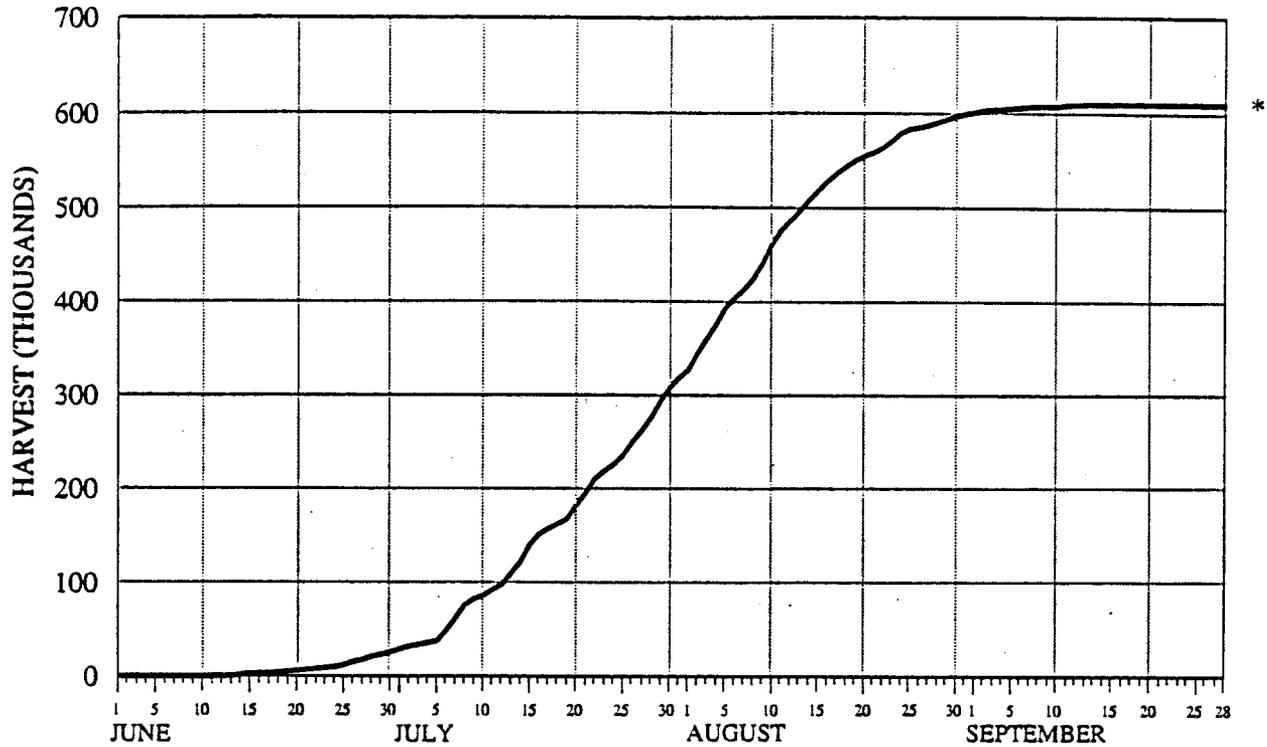
1994 PINK SALMON HARVEST "POINT" PROJECTION = 13,700,000

* PROJECTED HIGH = 17,800,000

** PROJECTED LOW = 12,200,000

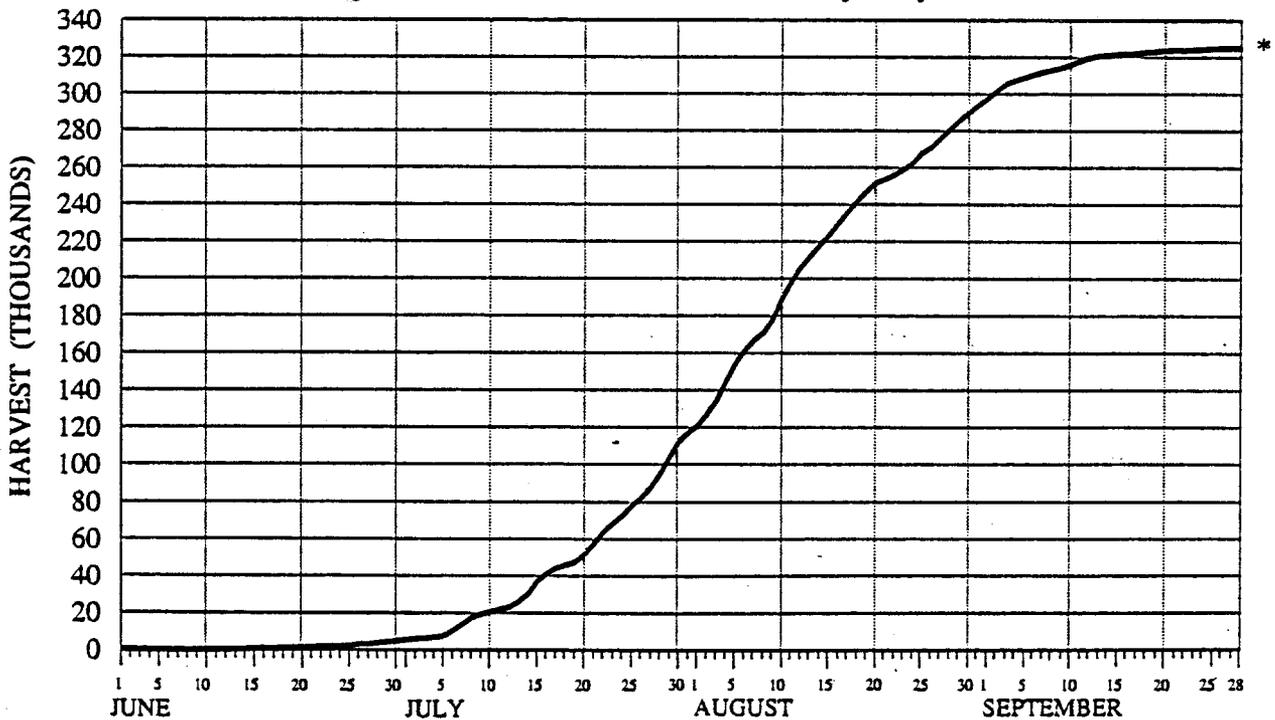
Appendix A.2 Projected salmon harvest curves, sockeye and pink salmon, for the Kodiak Management Area, 1994.

Projected Chum Salmon Harvest by Day, 1994



* 1994 CHUM SALMON PROJECTED HARVEST TOTAL = 620,000

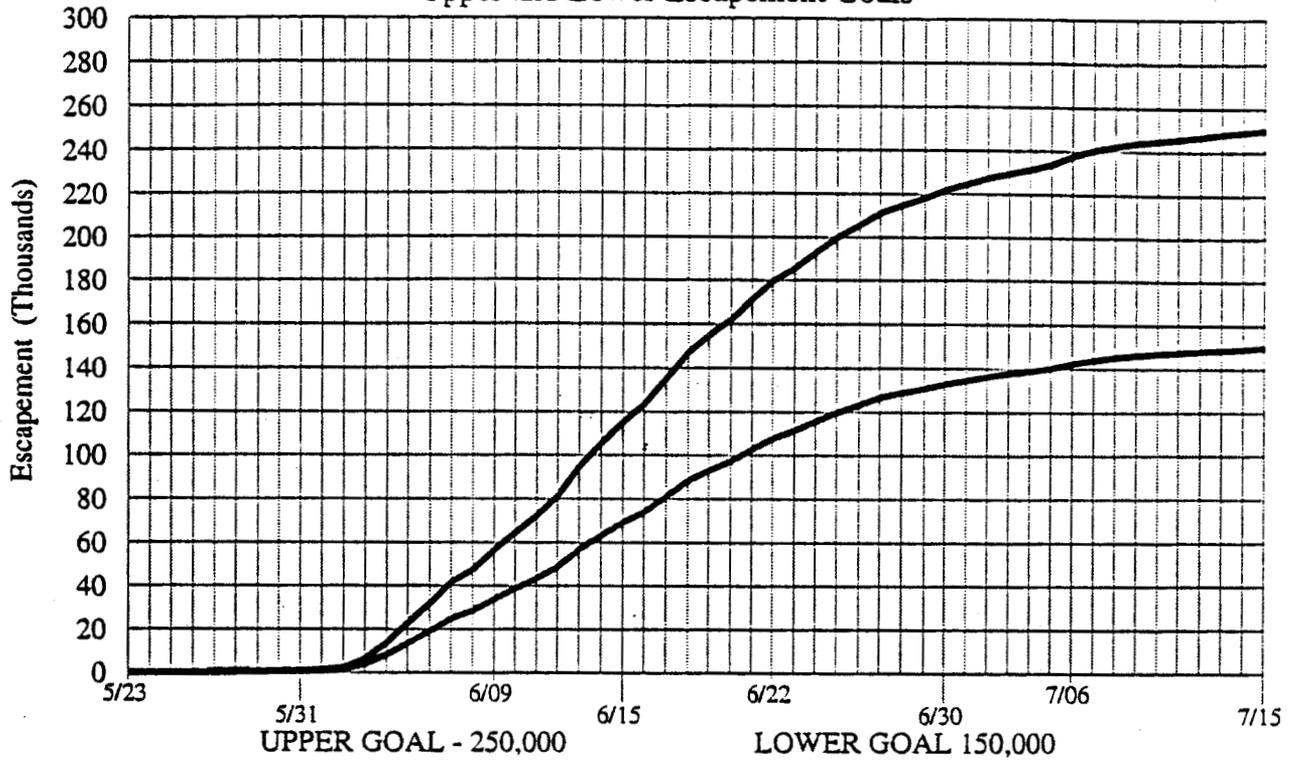
Projected Coho Salmon Harvest by Day, 1994



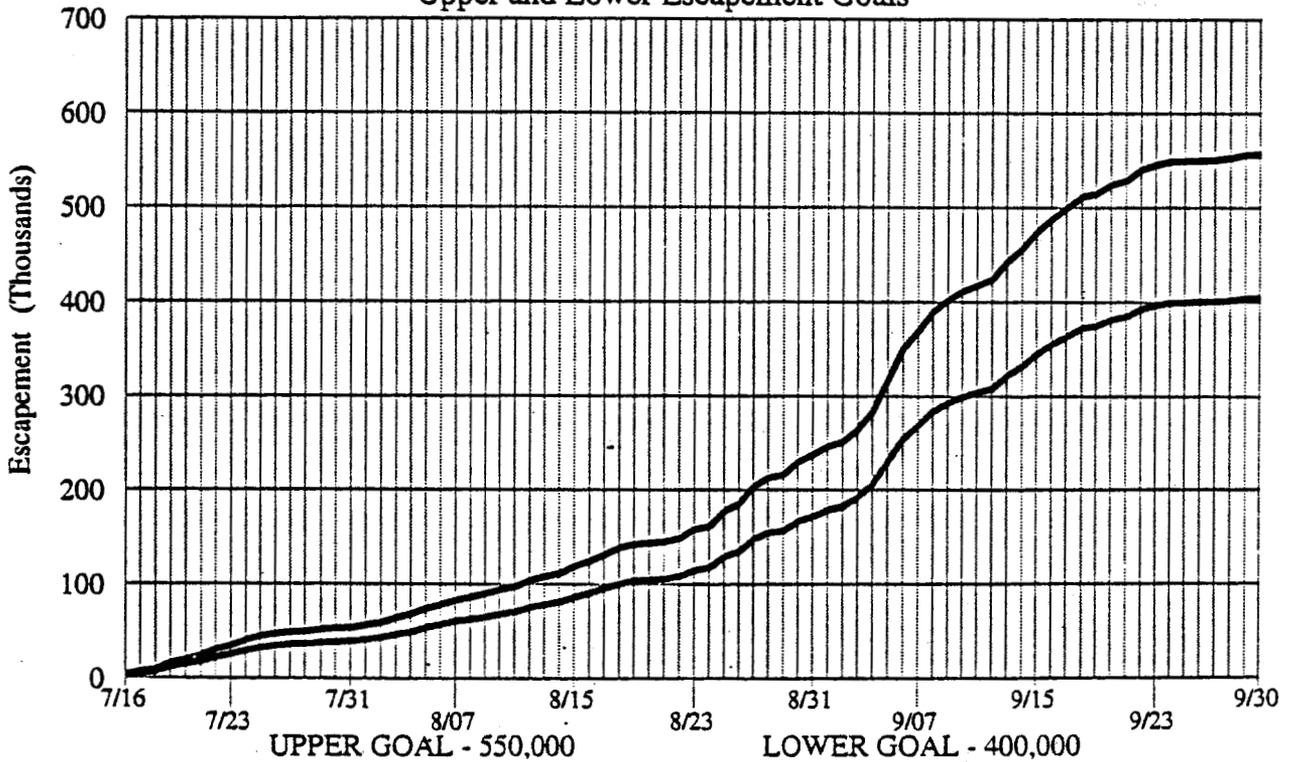
* 1994 COHO SALMON PROJECTED HARVEST TOTAL = 325,000

Appendix A.3. Projected salmon harvest curves, chum and coho salmon, for the Kodiak Management Area, 1994.

KARLUK SOCKEYE SALMON, EARLY RUN
Upper and Lower Escapement Goals

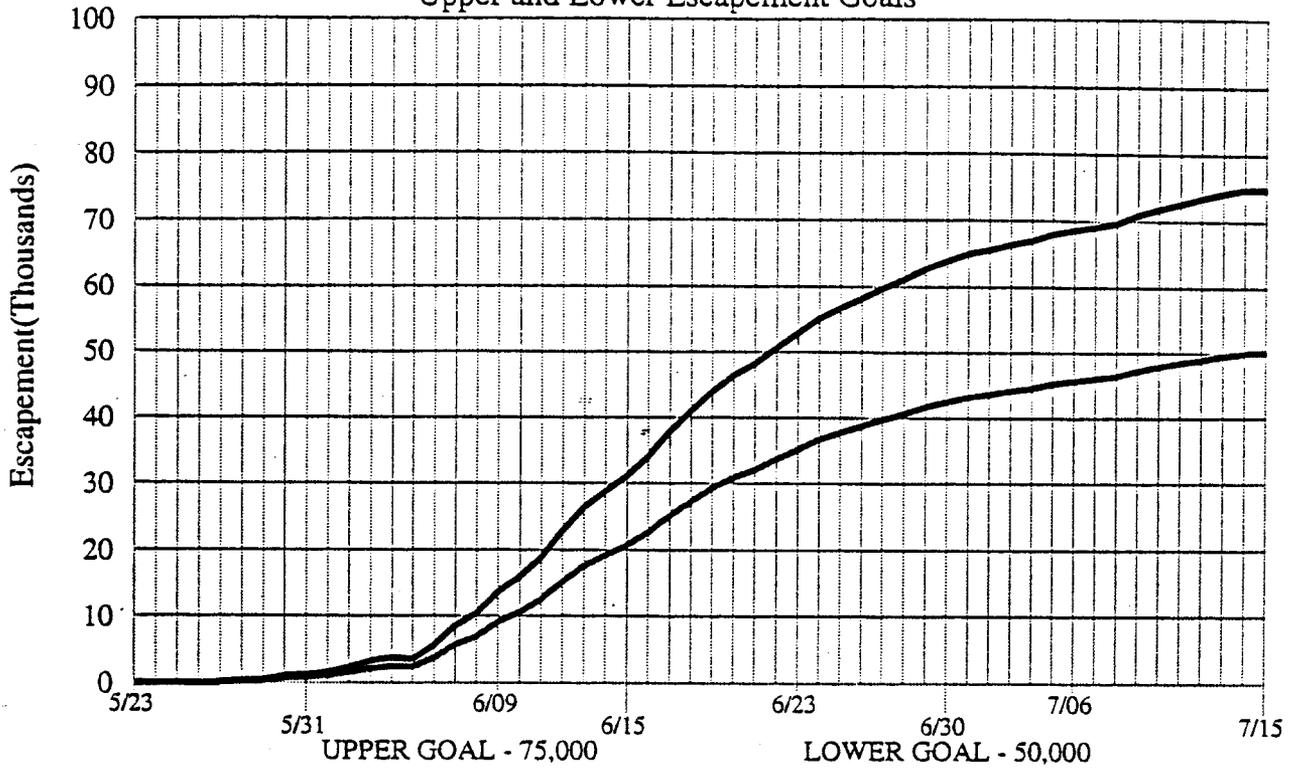


KARLUK SOCKEYE SALMON, LATE RUN
Upper and Lower Escapement Goals

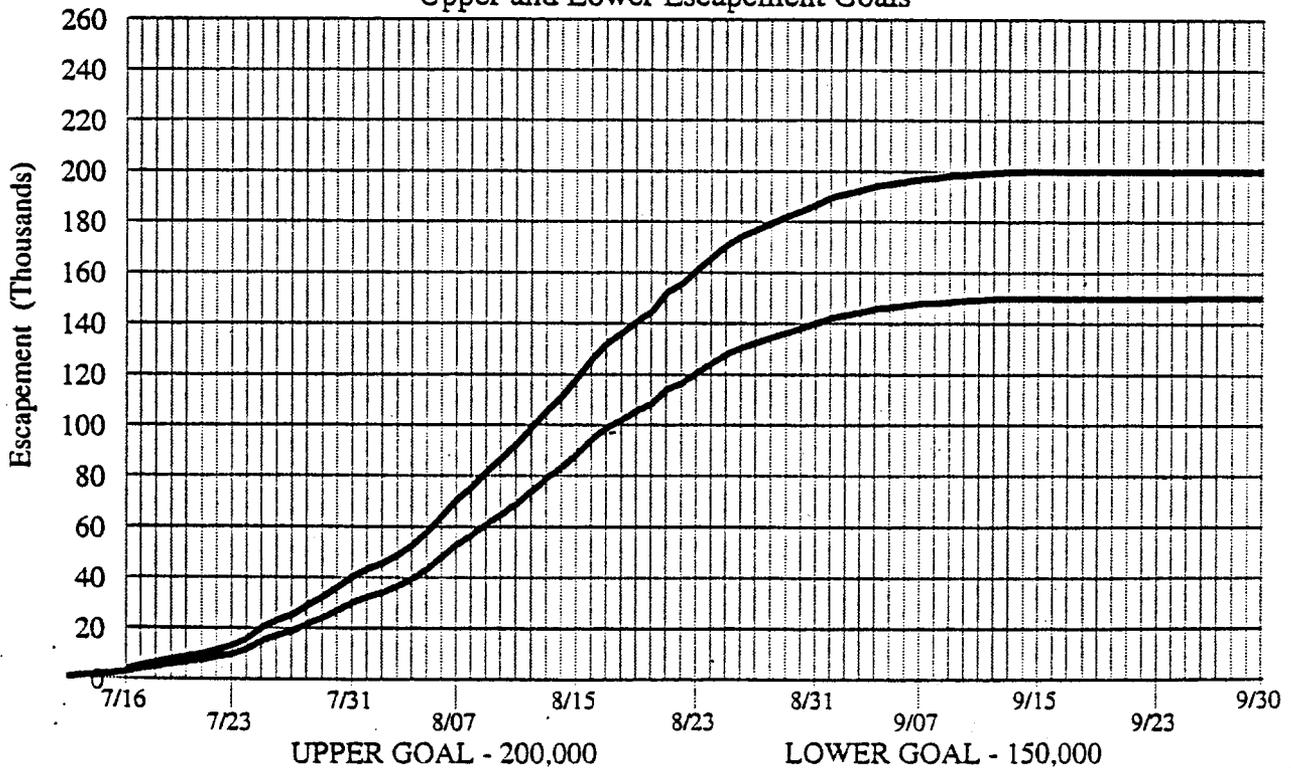


Appendix B1. Upper and lower escapement goal curves for the early and late run of Karluk sockeye salmon in the Kodiak Management Area, 1994.

UPPER STATION SOCKEYE SALMON, EARLY RUN
Upper and Lower Escapement Goals

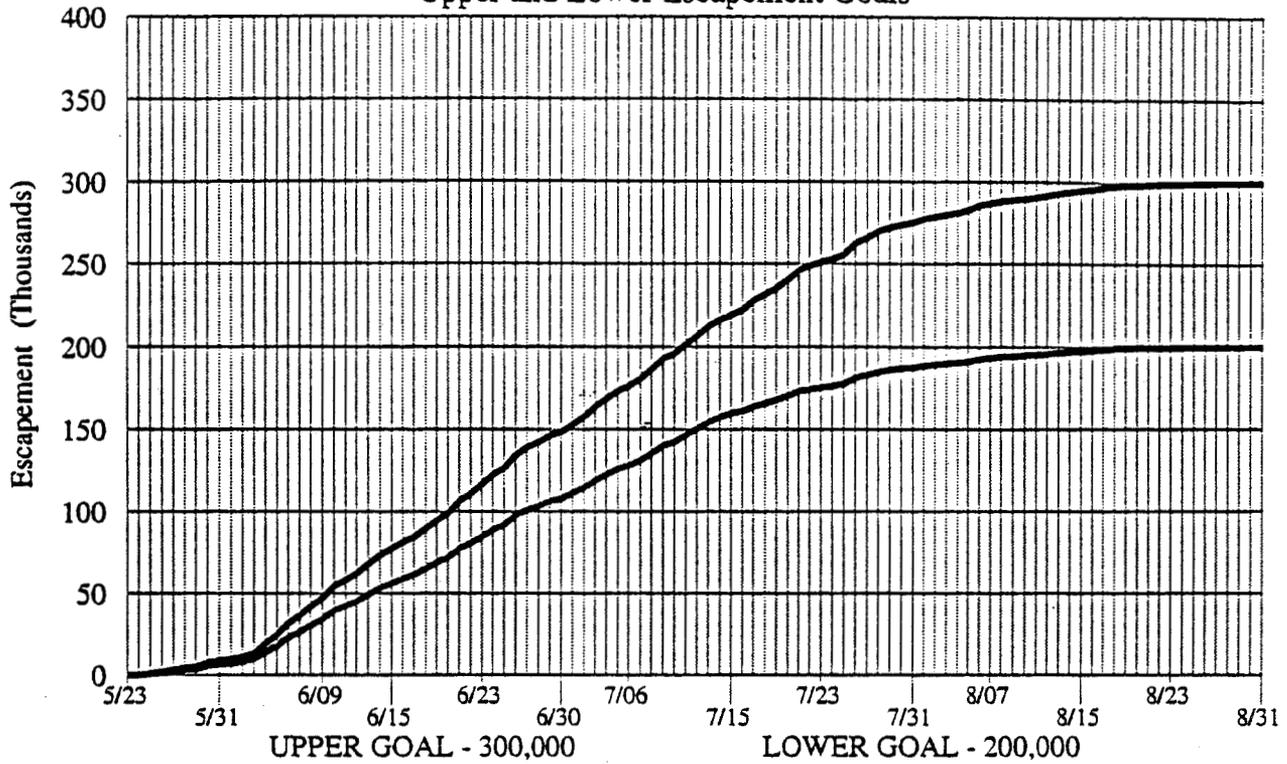


UPPER STATION SOCKEYE SALMON, LATE RUN
Upper and Lower Escapement Goals

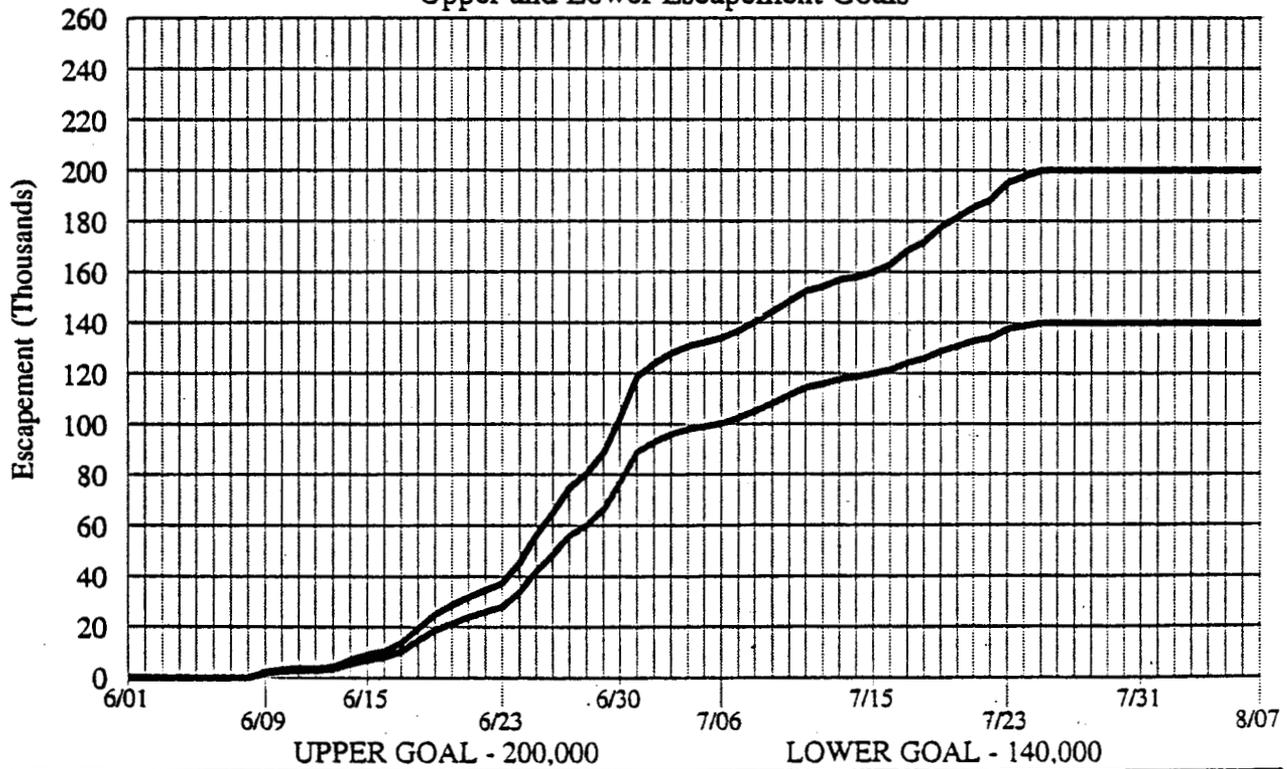


Appendix B.2. Upper and lower escapement curves for the early and late run of Upper Station sockeye salmon in the Kodiak Management Area, 1994.

AYAKULIK SOCKEYE SALMON
Upper and Lower Escapement Goals

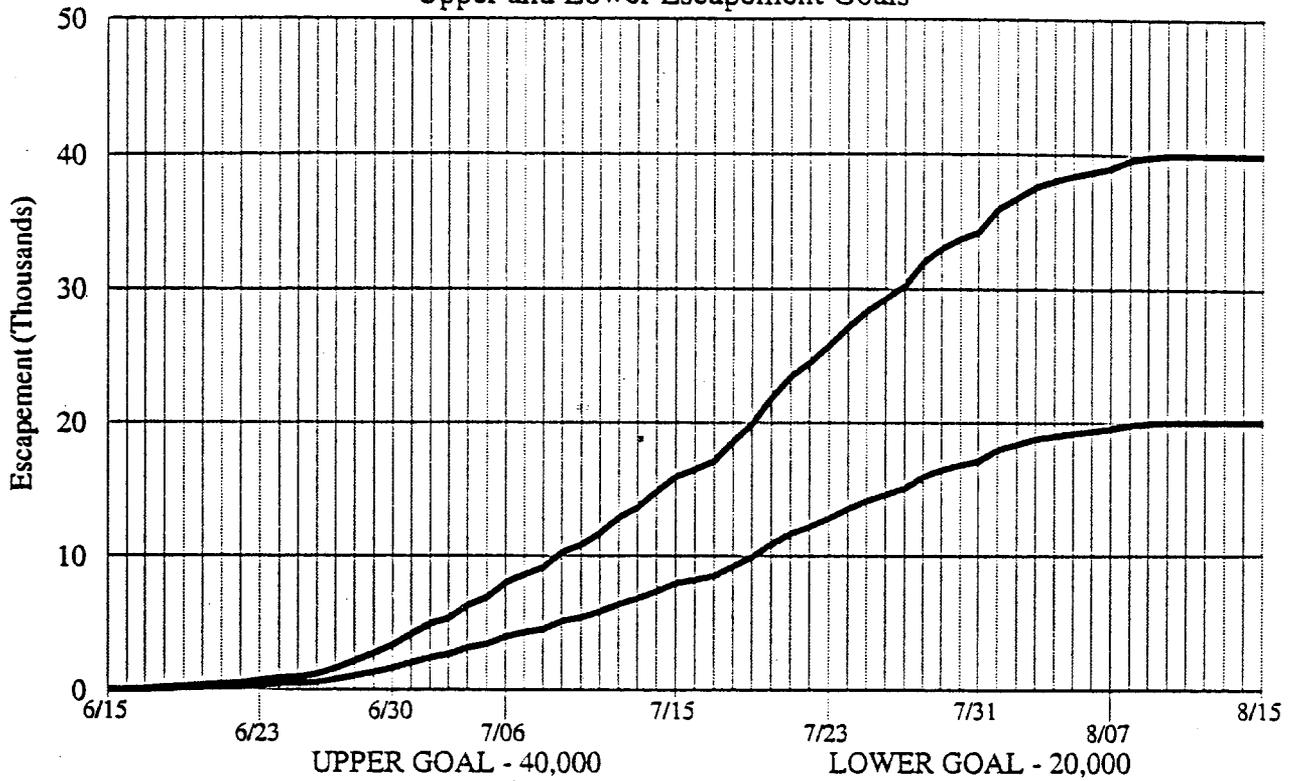


DOG SALMON RIVER SOCKEYE SALMON
Upper and Lower Escapement Goals

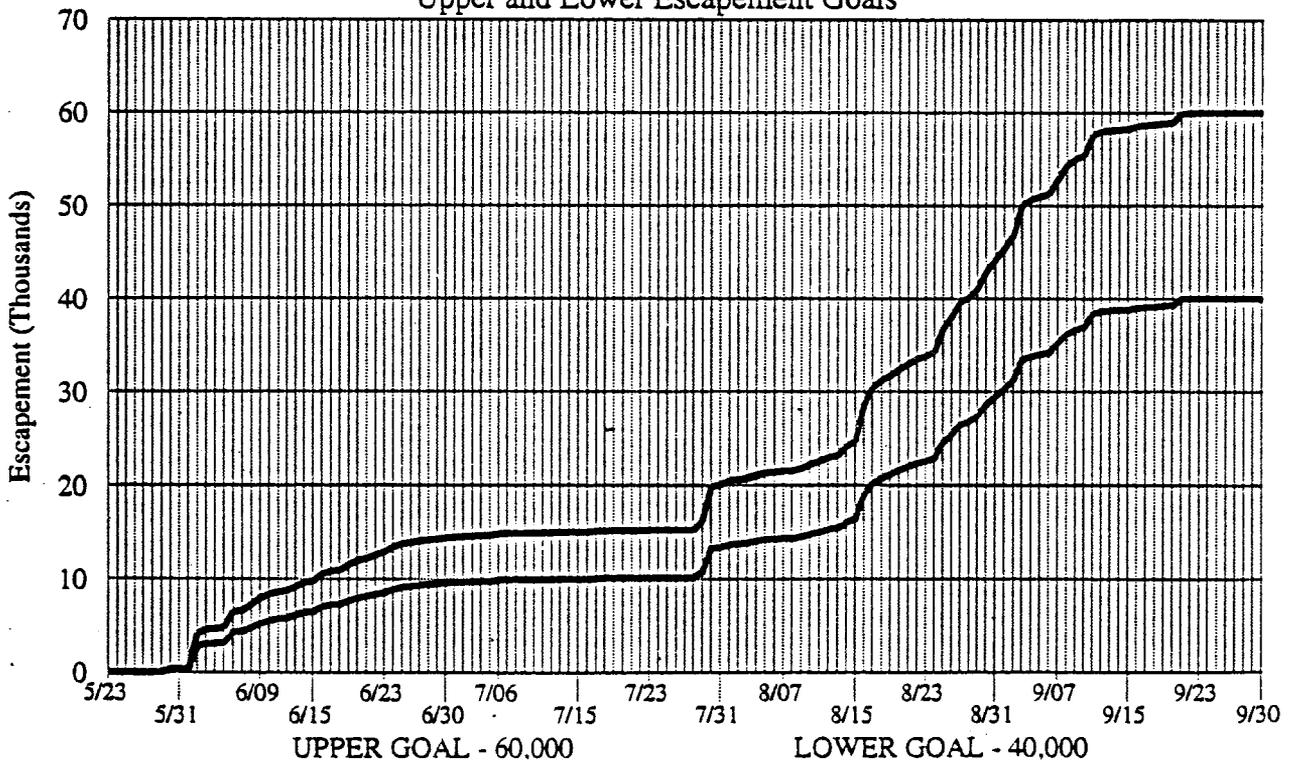


Appendix B3. Upper and lower escapement curves for the Ayakulik and Dog Salmon Rivers sockeye salmon in the Kodiak Management Area, 1994.

SALTERY SOCKEYE SALMON
Upper and Lower Escapement Goals

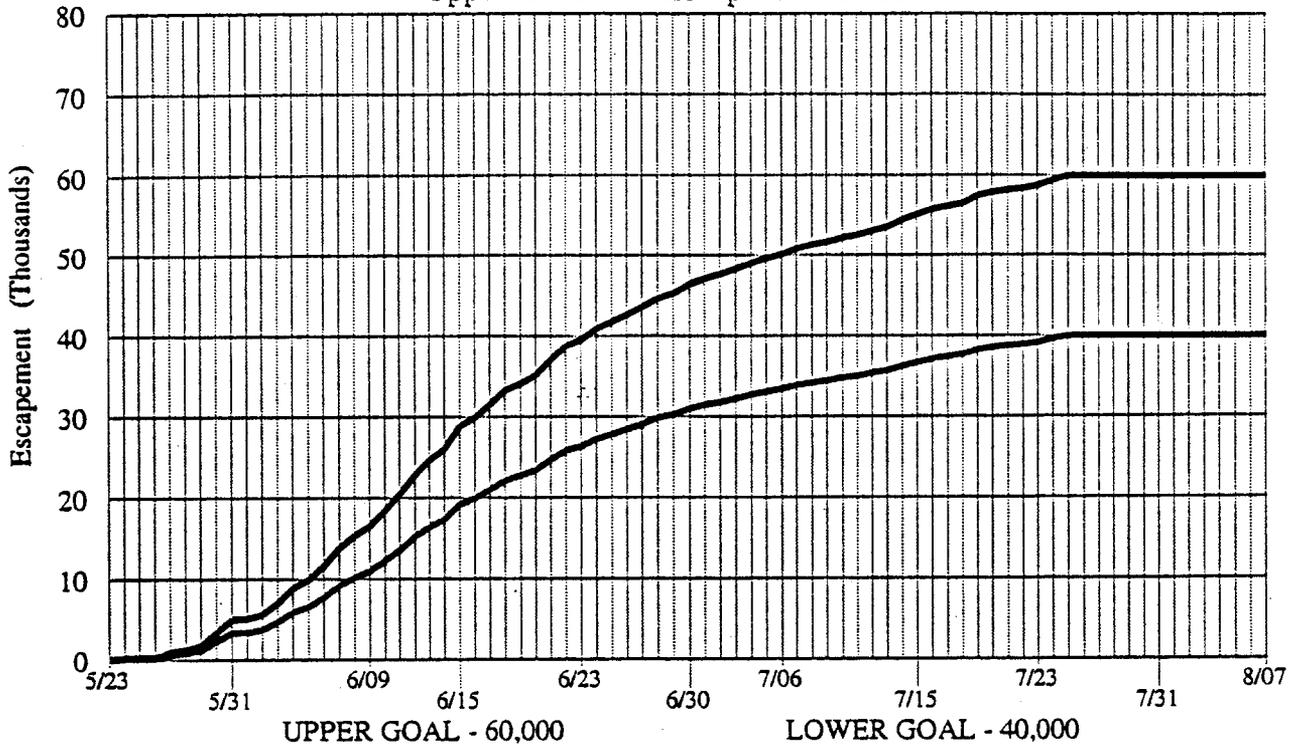


AKALURA SOCKEYE SALMON
Upper and Lower Escapement Goals

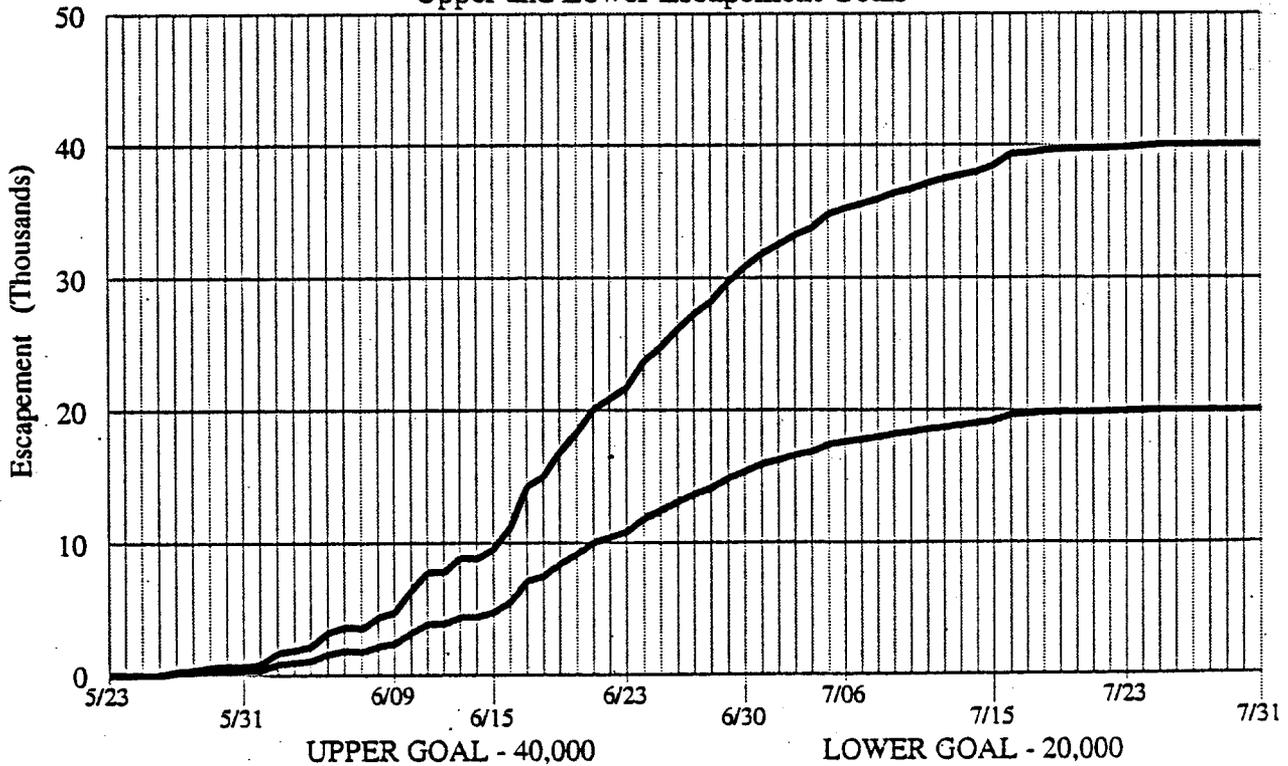


Appendix B.4. Upper and lower escapement curves for the Saitery and Akalura Rivers sockeye salmon in the Kodiak Management Area, 1994.

LITNIK SOCKEYE SALMON
Upper and Lower Escapement Goals



PAULS BAY SOCKEYE SALMON
Upper and Lower Escapement Goals



Appendix B.5. Upper and lower escapement curves for the Litnik and Pauls Bay sockeye salmon in the Kodiak Management Area, 1994.

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