

1991 MANAGEMENT PLAN
FOR THE
CHIGNIK MANAGEMENT AREA
COMMERCIAL SALMON FISHERY

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¹The Regional Information Report Series was established in 1987 to provide an information access system for all unpublished divisional reports. These reports frequently serve diverse ad hoc informational purposes or archive basic uninterpreted data. To accommodate timely reporting of recently collected information, reports in this series undergo only limited internal review and may contain preliminary data; this information may be subsequently finalized and published in the formal literature. Consequently, these reports should not be cited without prior approval of the author or the Division of Commercial Fisheries.

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1991 CHIGNIK AREA
SALMON MANAGEMENT PLAN

INTRODUCTION

The Chignik Commercial Salmon Management Area encompasses all coastal waters and inland drainages of the northwest Gulf of Alaska between Kilokak Rocks and Kupreanof Point (Figure 1). The area includes the Chignik River system and approximately 100 other salmon producing streams.

The management area is divided into five districts which are, from east to west: the Eastern, Central, Chignik Bay, Western, and Perryville Districts (Figure 2). The Alaska Department of Fish and Game manages all districts to achieve escapement goals for anadromous salmon species while allowing for the orderly harvest of fish surplus to spawning requirements.

For 1991, waters closed to salmon fishing are described in the 1990-91 commercial finfish regulation booklet. Please be aware of three closed water changes made by the Board of Fisheries in 1987 and a boundary change made in 1989. These changes increased the closed water areas in Ivanof Bay, Portage Bay, Kujulik Bay and moved the district boundary line between the Western and Central Districts.

Purse and hand seines are the only legal gear types for the Chignik Area commercial salmon fishery. In the Eastern, Central, Western, and Perryville Districts, no seine less than 100 fathoms or more than 225 fathoms in length may be used. In the Chignik Bay District seines may not be less than 100 fathoms or more than 125 fathoms in length. This document provides the rationale for management of the Chignik salmon fisheries. In-season fishing time will be established by emergency order as relative run strength of salmon stocks are assessed.

SOCKEYE SALMON

The total sockeye salmon run is forecast to be approximately 3.90 million fish¹. The early run, projected to be one of the largest documented with a 2.76 million fish return, has an escapement goal of 400,000 fish with a forecasted harvest of 2.36 million sockeye. The late run return is expected to be smaller than the early run at 1.14 million fish, has an escapement goal of 250,000 which should allow a commercial harvest of approximately 0.89 million fish. From the total projected harvest for both runs of 3.25 million sockeye, approximately 2.66 million are expected to be caught in the Chignik Area and the remainder intercepted.

The first commercial fishing period can occur by regulation on June 1, however based on the most recent 10 years of data the first fishing period usually occurs after June 9. However, due to the return run strength predicted for the first run of sockeye, the first opening may occur earlier than June 9.

Requirements for the first opening includes passing a minimum of 40,000 sockeye salmon through the weir and test fishing indicates a strong buildup of fish in the lagoon. Other openings will be determined from several factors including: escapement counts, commercial catches, and test fishing results (Table 1).

During June, commercial fishing will be allowed only in the Chignik Bay, Central, and Eastern Districts. Commercial salmon fishing will open and close simultaneously in the Eastern, Chignik Bay, and Central Districts as outlined by the Board of Fisheries Eastern District Management Plan. During June and early July the Eastern District may close until the Chignik Lake stock's run strength can be determined. After July 15 the Eastern District will close to commercial salmon fishing as mandated by the Board of Fisheries to

¹All harvest projections are based on mid-point projections.

evaluate local pink and chum salmon run strength. If it is determined that stocks being harvested within the Eastern District are not primarily Chignik stocks, the fishery in this district will be closed by emergency order as directed by the Board of Fisheries in the Eastern District Management Plan.

The fisheries in the Cape Igvak Section of the Kodiak management Area and the Southeastern District of the Alaska Peninsula Management Area intercept Chignik sockeye salmon. The Cape Igvak Management Plan and the Southeastern District Management Plan as adopted by the Alaska Board of Fisheries will be used to manage these fisheries (Appendix 1 and 2).

PINK AND CHUM SALMON

The 1991 forecast for the total pink salmon return is estimated at 1.90 million fish with an escapement goal of 0.70 million fish. The projected return is based on the average return per spawner for odd years from 1966 to 1989 and the level of the 1989 escapements.

The first opening in the Western and Perryville Districts (includes all waters south and west of Jack's Point excluding the waters of Chignik Lagoon to Kupreanof Point) are tentatively scheduled for July 6.

Pink and chum management in the Eastern District will be based on the following management plan:

5 AAC 15.360. EASTERN DISTRICT SALMON MANAGEMENT PLAN

(a) The Department shall open and close the Eastern District for commercial salmon fishing concurrently with the Chignik Bay and Central Districts. The Department may close the Eastern District for the period between the first (Black Lake) and second (Chignik Lake) sockeye salmon runs.

(b) The Department shall close the Eastern District on July 15 to evaluate run strength of the pink and chum salmon runs.

(c) The Department shall close the Eastern District if it is determined that the salmon being harvested in that district are from stocks not originating from spawning areas located in the Chignik Area.

The projected chum salmon harvest for Chignik waters is 90 thousand fish. Aerial surveys will be conducted throughout the area to monitor chum salmon buildups. Area specific openings are possible and a 24 hour notice will be given prior to a commercial opening. Openings and closures will be broadcast over 4125 SSB and CH 6 VHF.

Processors within the Chignik Area primarily freeze fish for the higher quality fresh frozen market. As a consequence, greater demands are placed on management to harvest fish in optimum condition. Management strategies will be adjusted to harvest fish as they migrate to their home streams, i.e. increased early fishing effort when a harvestable surplus is available.

Because of the economic importance placed on Chignik sockeye salmon, run timing and strength of the Chignik River runs, i.e. Black Lake (early run) and Chignik Lake (late run) will directly affect commercial fishing time in the Eastern, Western, and Perryville Districts.

If early sockeye run strength (Black Lake) is weaker than forecast, and the 400,000 fish escapement goal through the Chignik River weir is not achieved, then the early July openings in all waters which sockeye would be intercepted may be curtailed. Commercial openings during the transition period between the two sockeye runs (June 26 to July 9) will also be closely monitored to allow evaluation of the Chignik Lake run strength to assure the 250,000 fish escapement goal.

COHO SALMON

Fisheries for late run sockeye and coho salmon will begin in mid August through September, providing escapement goals can be met for the late sockeye run to Chignik Lake. The coho salmon harvest in 1991 is projected to be 125,000 fish with the majority caught in Chignik Lagoon. The average coho harvest for the last 10 years is 159,400 fish.

Chignik Bay District coho management will be similar to recent years. Management of smaller systems, particularly in the Eastern District, will continue to be conservative to prevent overharvest during the initial openings.

TENDER AND PROCESSOR REPORTING REQUIREMENTS

- a. 5 AAC 15.355. The operator of a floating salmon processing vessel or tender, or a shorebased processing operation, and a company employing aircraft used for transporting salmon, shall report in person, or by radio or telephone, to a local representative of the department located in the management area of intended operation before the start of processing or buying operations. The report must include the location and the date of intended operation, and identify and describe each vessel or other method of transport employed in hauling or processing salmon.

- (b) All processors and tender operators will be required to report daily catch information to ADF&G. This can be accomplished by radio (SSB) or telephone. The Chignik ADF&G office will stand by on 4125 SSB and VHF CH 6 frequencies, between 0800 and 1000 hours and 2000 and 2200 hours. The call sign for Chignik is KGB 76 "Chignik Weir" and the telephone number is 845-2243. If unable to contact ADF&G Chignik, your catch information should be given to ADF&G Sand Point or Kodiak via telephone

or 4125 SSB. The call signs for Kodiak and Sand Point are WHM 20 and WIM 77, respectively. Failure to report is a violation of commercial fishing regulations (5 AAC 27.590 (2)); vigorous enforcement of this regulation should be expected.

- (c) Individual code sheets will be given to each tender/processor for the purpose of reporting catch and statistical area of catch.

Table 1. Chignik River System sockeye salmon escapement goals for Black Lake (early) and Chignik Lake (late runs), by time period.

The numbers of fish presented in the escapement tables below were derived from averages over several years of escapements of various timing and magnitude. It should be noted that daily escapement levels will fluctuate considerably throughout the run. THE TABLES LISTED SERVE ONLY AS A GUIDE FOR ACHIEVING THE TOTAL ESCAPEMENT FOR EACH RUN. In-season variations from the figures listed may be due to variations in actual run timing and/or strength of the run.

EARLY RUN - 400,000 ESCAPEMENT

June 12		40,000
June 14	50 -	65,000
June 16	75 -	100,000
June 18	125 -	150,000
June 20	175 -	200,000
June 22	225 -	250,000
June 25	275 -	325,000
June 30	350 -	400,000

LATE RUN - 250,000 ESCAPEMENT

EARLY ESCAPEMENT IS ACHIEVED

EARLY ESCAPEMENT IS NOT ACHIEVED

July 6	-		40,000
July 8	-		45 - 50,000
July 10		40,000	55 - 65,000
July 12	50 -	60,000	70 - 75,000
July 14	65 -	75,000	75 - 80,000
July 16	80 -	90,000	80 - 90,000
July 19	100 -	115,000	100 - 115,000
July 21	125 -	135,000	125 - 135,000
July 23	145 -	160,000	150 - 160,000
July 26	170 -	180,000	170 - 180,000
July 29	185 -	195,000	190 - 195,000
July 31	195 -	200,000	195 - 200,000

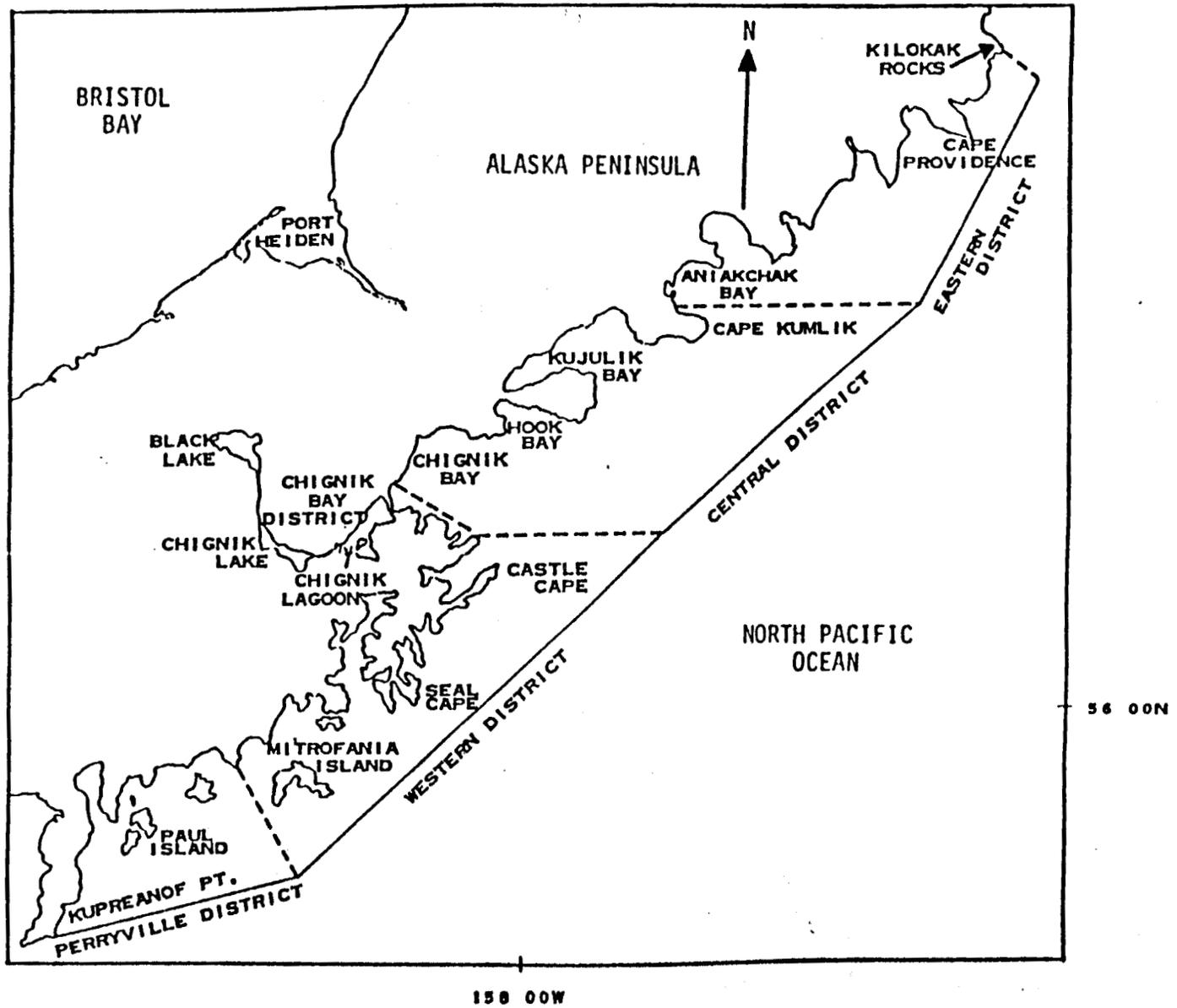


Figure 1. Map of the Chignik Management Area illustrating district boundaries, 1989.

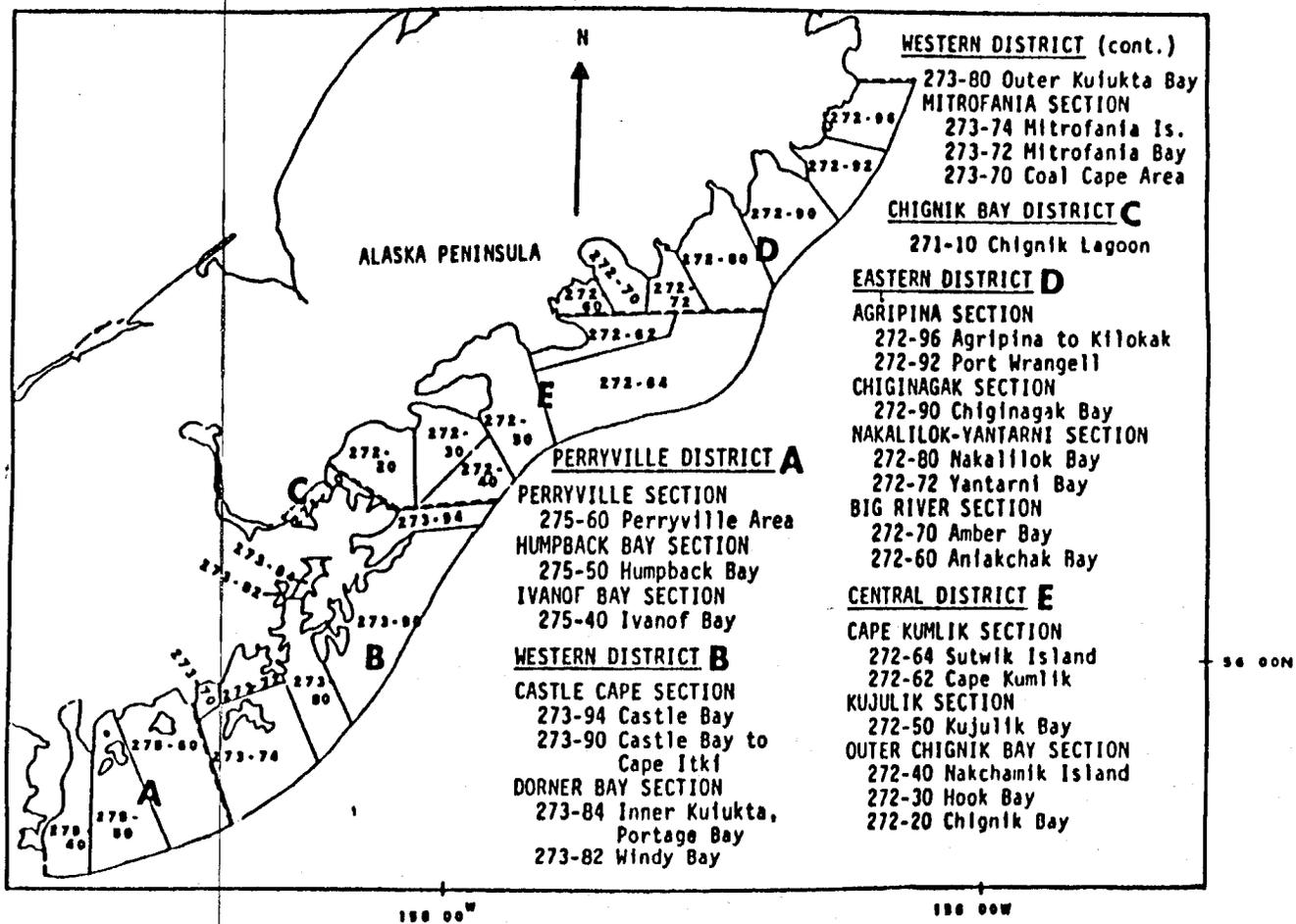


Figure 2. Map of the Chignik Management Area illustrating statistical areas, 1989.

Appendix 1

MANAGEMENT GUIDE FOR THE
1991
CAPE IGVAK FISHERY

The midpoint harvest figures for the 1991 Chignik sockeye runs are forecast to be 2.36 million for the first run and 0.89 million fish for the second run, or a projected total harvest of 3.25 million Chignik bound sockeye.

The department will manage the Cape Igvak fishery according to the plan adopted by the Board of Fisheries. Since the harvestable surplus is expected to be more than 600,000, the fishery at Cape Igvak can open when the fishery opens at Chignik, and it is possible that the first opening could be as early as June 5. Approximately 48 hours notice will be given prior to the Cape Igvak opening. At least a 24 hour notice will be given prior to the opening of any other fishing period, unless it is an extension of a fishing period in progress. Fishing periods will normally be at least 24 hours long and will begin at 12:01 A.M. If the first run fails, the Cape Igvak fishery will be curtailed in order to allow a minimum harvest in the Chignik Area of at least 300,000 sockeye through July if that many are surplus beyond escapement needs.

During the period from approximately June 26 to July 9, the strength of the second run of Chignik River system sockeye salmon cannot be evaluated at Chignik Lagoon. In order to prevent overharvest of the second run, commercial salmon fishing in the Cape Igvak Section will, at the department's discretion, be disallowed or severely restricted during this period.

Fishing time at Cape Igvak after July 8 will be dependent on the strength of the second run and on the Chignik Area catch during the first run.

When the second run appears strong enough for a fishery at Chignik, Cape Igvak could be opened only if at least 300,000 were harvested from the first run in the Chignik Area. The department will then manage the fishery so that the number of sockeye salmon harvested in the Chignik Area for both runs combined will be at least 600,000 and the harvest in the Cape Igvak Section will approach as near as possible 15 percent of the total catch of Chignik bound sockeye, if that many fish are available surplus to the escapement needs.

Appendix 2.

**SOUTHEASTERN DISTRICT MAINLAND (ALASKA PENINSULA AREA)
MANAGEMENT PLAN**

By

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Regional Information Report¹ No. 4K91-5

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MANAGEMENT PLAN

East Stepovak, Southwest Stepovak, Balboa Bay, and Beaver Bay Sections

The Southeastern District Mainland (Balboa-Stepovak) fishery (Figure 1) will be managed according to the Southeastern District Management Plan (Appendix A) as adopted by the Alaska Board of Fisheries.

The East Stepovak, Southwest Stepovak, Balboa Bay, and Beaver Bay Sections will be managed on the basis of the interception of Chignik River sockeye salmon. The Northwest Stepovak and Stepovak Flats Sections will be managed on a local stock basis, the Northwest Stepovak Section on the basis of the Orzinski Lake sockeye salmon stock and the Stepovak Flats Section on the basis of the Stepovak River chum salmon stock.

When possible, fishing time in the Southeastern District Mainland fishery will coincide with other nearby fisheries to avoid concentrating fishing gear. At least 36 hours notice will be given prior to the first commercial fishing period in the fishery. At least 24 hours notice will be given prior to the opening of any other fishing period, unless it is an extension of a fishing period in progress.

For salmon fishing, set gill net gear is the only legal gear type allowed in the Southeastern District Mainland fishery through July 10. After July 10, set gill net, purse seine, and hand purse seine gear types are allowed.

The forecasted midpoint harvest for the Chignik sockeye salmon runs for 1991 are 2,363,000 salmon for the early run and 890,000 salmon for the second run (Appendix B). If the runs come in as expected and the goals of the management plan are achieved, about 180,000 estimated Chignik destined sockeye salmon will be harvested prior to July 26. This compares to the recent five year average of 83,459 and 10 year average of 130,382 (Table 1).

The total Chignik sockeye salmon catch is 100% of those sockeye salmon caught within the Chignik Management Area, plus 80% of those sockeye salmon caught in the Cape Igvak Section of the Kodiak Management Area, plus 80% of those sockeye salmon caught in the Southeastern District Mainland fishery excluding 100% of those sockeye salmon caught in the Suzy Creek to Dent Point area.

Because the harvestable surplus is expected to exceed 600,000 sockeye salmon, the Southeastern District Mainland fishery may open after the first commercial fishing period in the Chignik Area. Based on the 2,363,000 sockeye salmon early run harvest forecast, it is possible that the first opening for the Southeastern District Mainland fishery could be in early to mid June.

If the first run fails to develop as expected, the Southeastern District Mainland fishery will be curtailed in order to allow a minimum harvest in the Chignik Area of at least 300,000 sockeye through July 8, if that many salmon are surplus to escapement requirements.

During the period from about June 26 through July 9, the strength of the second run of Chignik River sockeye salmon cannot be evaluated at Chignik. To prevent

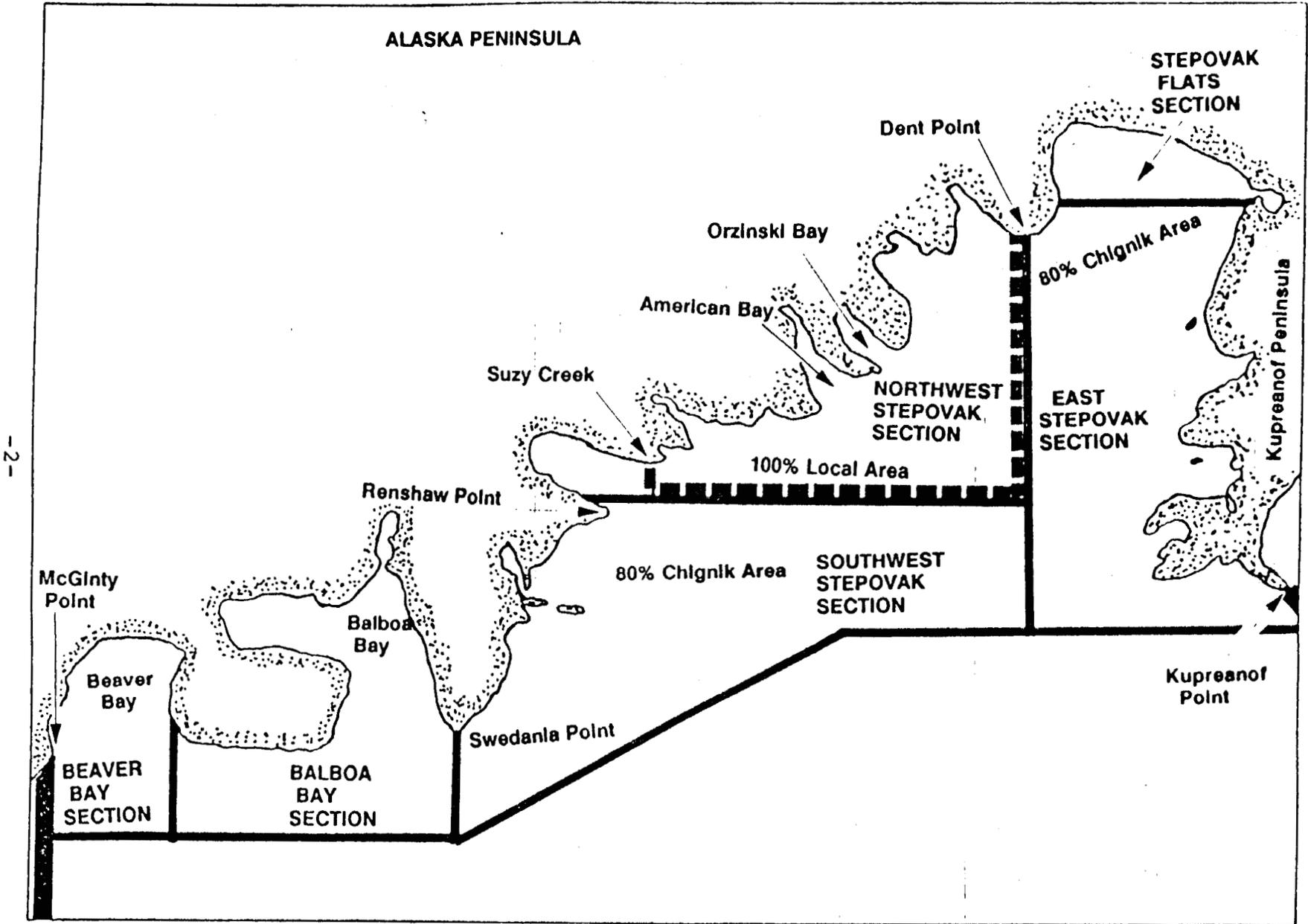


Figure 1. Map of the Southeastern District Mainland fishery from Kupreanof Point to McGinty Point with the salmon sections shown.

Table 1. Southeastern District Mainland fishery catch of Chignik destined sockeye salmon through July 25, 1980-90.¹

Year	Number of Salmon			
	Total Catch	Northwest Stepovak	Total Catch Minus Northwest Stepovak	Chignik Bound Catch ¹
1981	201,711	49,374	152,337	121,870
1982	86,793	8,334	78,459	62,767
1983	300,158	15,918	284,240	227,392
1984	595,043	66,209	528,834	423,067
1985	80,957	16,681	64,276	51,421
1986	206,532	59,025	147,507	118,006
1987	244,895	61,287	183,608	146,886
1988	81,160	57,010	24,150	19,320
1989	89,224	83,618	5,606	4,484
1990	164,028	3,279	160,749	128,599
Average:				
5 Year	157,168	52,844	104,324	83,459
10 Year	205,050	42,074	162,977	130,382

¹ The estimate of sockeye salmon destined for the Chignik River has been determined to be 80% of the sockeye salmon harvested along the mainland from the eastern most tip of McGinty Point to Suzy Creek and from the Stepovak Flats and the East Stepovak Sections.

overharvest of the second run, commercial salmon fishing in the Southeastern District will, in the Department's discretion, be disallowed or severely restricted during this time period.

After July 8, fishing time in the Southeastern District Mainland fishery will be dependent upon the strength of the second run as evaluated at Chignik and on the catch of Chignik bound sockeye during the first run at Cape Igvak, Chignik, and the Southeastern District Mainland fisheries. When the second run appears strong enough for a fishery at Chignik, the Southeastern District Mainland will open if at least 300,000 sockeye salmon were harvested in the Chignik Area. The Department will manage the fishery so that the number of sockeye salmon harvested in the Chignik Area from both runs combined will be at least 600,000 salmon and the harvest in the Southeastern District Mainland will approach as near as possible 6.0% of the total Chignik-bound sockeye salmon catch (Appendix C), if that many sockeye salmon are surplus to escapement requirements.

The fishery shall be managed according to the plan as stated in the 1990-1991 Bristol Bay and Westward Alaska commercial salmon fishing regulation book (Appendix A). No attempt will be made to allow equal fishing time with Chignik, as had been done from 1974 through 1977, but rather the end goal will be to meet the 6.0% allocation level after the conditions of the management plan have been satisfied. To meet the goal of 6.0% by July 25, the percentage may fluctuate above or below 6.0% prior to July 25. Because of the restrictions placed upon the Southeastern District Mainland fishery to protect the Chignik runs, it may not be possible to achieve a 6.0% allocation level even though escapement goals are met and the minimum catch level of 600,000 salmon at Chignik is exceeded.

Local Stocks

The Northwest Stepovak and Stepovak Flats Sections will be managed on a local stock basis. The Northwest Stepovak Section will be managed on the basis of the Orzinski Lake sockeye salmon stock from July 1 through July 25, after July 25 on local sockeye and pink salmon runs. The Stepovak Flats Section will be managed on the basis of the Stepovak River chum salmon stock.

Northwest Stepovak Section

The sockeye escapement goal for Orzinski (Orzenoi) Lake is 10,000 to 20,000 salmon as estimated from the production potential of the lake (personnel communication, Arnie Shaul, Alaska Department of Fish and Game, Kodiak, Alaska). In 1991, the total estimated sockeye escapement was 15,000 salmon. ADF&G intends to operate a weir on the Orzinski system in 1991, similar to the 1990 weir.

A weir was used to count escapements into the lake from 1935 to 1941, and in 1990. The earliest recorded sockeye escapement occurred on June 11, 1940 (11 salmon), while the usual pattern of first entry into the lake is about June 17. July 17 is the average date of 50% cumulative sockeye escapement, while on the average 99% of the escapement occurs by August 7. Based on aerial surveys and weir counts, sockeye salmon escapement requirements for Orzinski Lake by time periods has been developed (Table 2).

Table 2. Sockeye salmon escapement requirements for Orzinski Lake.

Time Period	Cumulative Escapement Goal
June 15	0
July 1	2,000
July 9	5,000
July 16	10,000
July 23	15,000
August 7	20,000
Season Total	20,000

Through June 30, 1991, the Northwest Stepovak Section (except Orzinski Bay) will be open on a day per day basis with the rest of the Southeastern District Mainland fishery. Sockeye salmon caught within the Northwest Stepovak Section through June 30 will be allocated 100% to the Orzinski Lake run. From July 1 through July 25, fishing time in the Northwest Stepovak Section will be based on the strength of the sockeye salmon run destined to Orzinski Lake. After July 25, fishing time will be based on local sockeye, pink, and chum salmon stocks. If the sockeye salmon escapement into Orzinski Lake, school near the mouth of the Orzinski Lake River and escapement goals are not met, Orzinski Bay will be closed north of a line from Elephant Point (55°41'55" N.lat., 160°03'12"W.long.) to Waterfall Point (55°43'13" N.lat., 160°01'05" W.long.).

Stepovak Flats Section

The Stepovak Flats Section will be managed on the basis of the chum salmon run into Stepovak River (local stock basis). Through July 11, this section will open to commercial salmon fishing on a day per day basis with the remainder of the Southeastern District Mainland fishery. Sockeye harvested in this section will be assigned as 80% Chignik bound and are included as part of the 6.0% allocation of the Southeastern District Mainland fishery. After July 10, the Stepovak Flats Section will be managed on the basis of the chum salmon run into Stepovak River. Fishermen are reminded that most of this section is closed to commercial salmon fishing from July 29 through September 30 (5 AAC 09.350(23)).

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- ADF&G (Alaska Department of Fish and Game). 1990. 1990-1991 Bristol Bay and Westward Alaska commercial fishing regulations salmon and miscellaneous, 1990 edition. Alaska Department of Fish and Game, Division of Commercial Fisheries, Juneau.
- Shaul, A.R., J.N. McCullough, A.J. Quimby, M.E. Stopha, and R.S. Berceci. *In Press*. 1990 Alaska Peninsula and Aleutian Islands Management Areas Salmon and Herring Annual Management Report, Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report, Kodiak.

Appendix A

5 AAC 09.360. SOUTHEASTERN DISTRICT SALMON MANAGEMENT PLAN.

(a) This plan pertains to the management of the interception of Chignik River sockeye salmon caught in the East Stepovak, Southwest Stepovak, Balboa Bay, and Beaver Bay Sections. Before July 11, only set gillnet gear may be used in these sections. For the purpose of this plan, local runs include only those salmon in the waters inside of a line from Renshaw Point to the mouth of Osterback Creek.

(b) In years when a harvestable surplus for the first (Black Lake) and second (Chignik Lake) runs of Chignik River system sockeye salmon is expected to less than 600,000, no commercial salmon fishery is allowed in the East Stepovak, Southwest Stepovak, Balboa Bay, and Beaver Bay Sections, as described in 5 AAC 09.200 (f), until a harvest of 300,000 sockeye salmon in the Chignik Area, as described in 5 AAC 15.100, is achieved. After July 8, after at least 300,000 sockeye salmon have been harvested in the Chignik Area, and if escapement goals are being met, the department shall manage the fishery so that the number of sockeye salmon harvested in the Chignik Area will be at least 600,000 and the East Stepovak, Southwest Stepovak, Balboa Bay, and Beaver Bay Sections approaches as near as possible 6 percent of the total Chignik sockeye salmon catch.

(c) In years when a harvestable surplus beyond escapement goals for the first and second runs of Chignik River system sockeye salmon is expected to be more than 600,000 but the first run fails to develop as predicted and it is determined that a total sockeye salmon harvest in the Chignik Area of 600,000 or more may not be achieved, the commercial salmon fishery in the East Stepovak, Southwest Stepovak, Balboa Bay, and Beaver Bay Sections must be curtailed in order to allow at least a minimum harvest in the Chignik Area of 300,000 sockeye salmon by July 9 if that number of fish are determined to be surplus to the escapement goals of the Chignik River system. After July 8 and after at least 300,000 sockeye salmon have been harvested in the Chignik Area, and if escapement goals are being met, the department shall manage the fishery so that the number of sockeye salmon harvested in the Chignik Area is at least 600,000 and the East Stepovak, Southwest Stepovak, Balboa Bay, and Beaver Bay Sections approaches as near as possible 6 percent of the total Chignik sockeye salmon catch.

(d) In years when a harvestable surplus beyond the escapement goals for the first and second runs of Chignik River system sockeye salmon is expected to be more than 600,000 and the department determines that the runs are as strong as expected, the department shall manage the fishery so that the number of sockeye salmon taken in the East Stepovak, West Stepovak, Balboa Bay, and Beaver Bay Sections approaches as near as possible 6 percent of the total Chignik sockeye salmon catch.

(e) The estimate of sockeye salmon destined for the Chignik River has been determined to be 80 percent of the sockeye salmon harvested along the mainland from the eastern-most tip of McGinty Point to Suzy Creek and from the Stepovak Flats and the East Stepovak Sections. The remaining sockeye salmon taken in the mainland fishery have been determined to be destined for Orzinski Bay.

(f) The total Chignik sockeye salmon catch constitutes those sockeye salmon caught within the Chignik Area, plus 80 percent of the sockeye salmon caught in

the East Stepovak, Stepovak Flats, Southwest Stepovak, Balboa Bay, and Beaver Bay Sections, as described in 5 AAC 09.200(f), plus 80 percent of the sockeye salmon caught in the Cape Igvak Section of the Kodiak Area. The percentage of Chignik sockeye salmon may be permitted to fluctuate above or below 6 percent at any time before July 25.

(g) This allocation method is in effect through July 25. The first fishing period of the commercial salmon fishing season in the East Stepovak, Southwest Stepovak, Balboa Bay, and Beaver Bay Sections may not occur before the first fishing period of the commercial salmon fishing season in the Chignik Area. After July 25, commercial salmon fishing in the East Stepovak, Southwest Stepovak, Balboa Bay, and Beaver Bay Sections may be allowed on local stocks.

(h) During the period from approximately June 26 to July 9, the strength of the second run of the Chignik River system sockeye salmon cannot be evaluated. In order to prevent overharvest of the second run, the department may disallow or severely restrict commercial salmon fishing in the East Stepovak, Southwest Stepovak, Balboa Bay, and Beaver Bay Section during this period.

(i) The department shall announce commercial salmon fishing periods by emergency order. The department shall give at least one day's notice before the opening of a commercial salmon fishing period, unless it is an extension of a fishing period in progress.

Appendix B

FORECAST AREA: Chignik Management Area

PRELIMINARY FORECAST OF THE 1991 RETURN

<u>Early Run</u> (Black Lake stocks)	<u>Point</u>	<u>80% Prediction Range</u>
Escapement Goal:	400,000	
Harvest Estimate:	2,363,300	
Return Estimate:	2,763,300	2.34 to 3.18 million
<u>Late Run</u> (Chignik Lake stocks)	<u>Point</u>	<u>80% Prediction Range</u>
Escapement Goal:	250,000	
Harvest Estimate:	890,000	
Return Estimate:	1,140,000	0.91 to 1.37 million
<u>Total Chignik Run</u>	<u>Point</u>	<u>80% Prediction Range</u>
Escapement Goal:	650,000	
Harvest Estimate:	3.25 million	
Return Estimate:	3.90 million	3.12 to 4.68 million

FORECAST METHODS:

The estimated return to Black Lake provided above is the summation of the predicted returns of two and three ocean sockeye while the Chignik Lake returns are calculated using all contributing age classes.

The Black Lake forecast is based on the historical relationship between the prior year total return of age 1.2 fish, the average length of prior year age 1.2 male fish and the parent year escapement. These variables provide the framework for the multiple linear regression model used to predict the 1991 return. The Chignik Lake forecast has historically been quite variable in its accuracy and developing a model such as the one used for the first run has been unsuccessful. The forecast for 1991 was derived using an average return per spawner for each age class represented in the return.

DISCUSSION OF THE 1991 FORECAST:

Early Run

The estimated return of Black Lake sockeye salmon in 1991 is 2.76 million fish. This is approximately 1.2 million fish more than the 1980-89 average run of 1.57 million fish. The 1986 parent year escapement was 566,100 fish, 166,100 fish above the 400,000 fish escapement goal. The estimated return of 335,200 age 1.2 fish in 1990 was twice the 10 year average of 160,000. The 1990 1.2 return was also only 53,000 less than the 1983 1.2 return of 388 thousand which preceded the record run of 3.84 million in 1984.

Late Run

The estimated return of second run sockeye salmon in 1991 is 1.14 million fish, 40,000 more than the 1980-89 average of 1.10 million fish. The second run forecast has historically been quite variable when compared to actual returns. The 1985 parent year escapement of 369,200 fish was 119,200 above the 250,000 desired escapement goal. The average return per spawner for each contributing age class was used to forecast the return and it is anticipated that the actual return will fall within the prediction bounds.

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