

# **2011 Kotzebue Sound Salmon Fisheries Management Plan**

by

**Jim Menard**

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**2011 KOTZEBUE SOUND SALMON FISHERIES MANAGEMENT PLAN**

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# TABLE OF CONTENTS

	<b>Page</b>
LIST OF TABLES.....	i
LIST OF FIGURES.....	i
ABSTRACT.....	1
INTRODUCTION.....	1
HISTORICAL FISHING EFFORT.....	1
Subsistence Fishery.....	1
Commercial Fishery.....	1
2011 RUN OUTLOOK.....	2
MANAGEMENT STRATEGIES.....	2
ESCAPEMENT OBJECTIVES.....	3
TABLES AND FIGURES.....	5

## LIST OF TABLES

<b>Table</b>	<b>Page</b>
1. Kotzebue District chum salmon fishery historical information, 1962–2010.....	6

## LIST OF FIGURES

<b>Figure</b>	<b>Page</b>
1. Kotzebue salmon subdistrict boundaries.....	7



## ABSTRACT

This management plan provides the expected run outlooks and harvest strategies for Kotzebue Sound salmon fisheries in 2011. Chum salmon *Oncorhynchus keta* are the dominant salmon species in the Kotzebue District most of which are produced in the Kobuk and Noatak Rivers. No closures in subsistence fishing are expected in 2011. Because of an expected limited market the department will open the commercial fishery to limited fishing periods based on buyer capacity. The department will restrict commercial fishing time if commercial catches or test fish catches indicate a weak run or if a more orderly fishery is necessary to prevent waste.

Key words: Kotzebue Sound, Kobuk, Noatak, chum salmon, *Oncorhynchus keta*, subsistence, commercial, fishing, escapement, strategy.

## INTRODUCTION

This Kotzebue District salmon fisheries management plan will inform fishermen, processors and other interested people of the management strategies for the commercial salmon fishery. The Kotzebue District includes all waters from Cape Prince of Wales to Point Hope. The Kotzebue District is divided into three subdistricts and all are open to commercial fishing. Most fishing occurs in Subdistrict 1, which is subdivided into six statistical areas to help managers determine catch location (Figure 1). Within the Kotzebue District chum salmon *Oncorhynchus keta* are the most abundant anadromous fish. Other salmon species (Chinook *O. tshawytscha*, pink, *O. gorbuscha*, coho, *O. kisutch*, and sockeye *O. nerka*) occur in lesser numbers, as do Dolly Varden *Salvelinus malma*, and sheefish (inconnu sheefish *Stenodus leucichthys*).

## HISTORICAL FISHING EFFORT

### Subsistence Fishery

Subsistence fishing has long been an important food gathering activity for people of the Kotzebue Sound drainages. The most recent subsistence survey of salmon harvests in 2004, excluding city of Kotzebue residents, estimated a total of 20,604 chum salmon were harvested from the Kobuk River and 3,997 chum salmon were harvested from the Noatak River. Over 90% of the subsistence salmon harvests are chum salmon. Subsistence salmon surveys were not done in 2010. Previous surveys in the 2000s indicate that Kotzebue residents harvest approximately the same amount of salmon as all the other villages combined.

### Commercial Fishery

The historical commercial chum salmon harvests are listed in Table 1. Commercial chum salmon harvests during the 20 years when there was a major buyer (1982-2001) ranged from 55,907 to 521,406 fish, the 20-year average being 220,720. The 5-year (1997-2001) average catch was 141,741. This significant decrease reflects the lack of demand for salmon on the open market that began in the mid-1990s as buyers began to purchase less salmon. Fishing effort during 1982–2001 ranged from 45 to 199 fishermen. The 20-year average was 129 fishermen; the 5-year average from 1997–2001 was 61 fishermen. The decrease in participation was likely due to substantial price declines and declining market.

In 2002, the last significant buyer in the commercial fishery decided to not purchase fish in Kotzebue. Because there was no major buyer only 3 permit holders fished in 2002. Likewise, in 2003 there were only 4 permit holders. In both 2002 and 2003, one permit holder became a licensed agent for a buyer outside of Kotzebue, and worked with other permit holders to provide product for that market.

Beginning in 2004 one buyer provided a limited market for permit holders. The fishing effort (permits fished) over the last 5 years has been one-quarter the fishing effort of 20 years ago. From 2004–2008 there were less than 50 permit holders participating in the commercial fishery each year with the average being 44 permit holders. In 2009 there was an increase to 62 permit holders participating in the fishery and in 2010, 67 permit holders fished. The 2010 harvest of 270,343 chum salmon was the best harvest since 1995. Also, harvested for personal use in 2010 were 13 Chinook salmon, 6 sockeye salmon, 557 pink salmon, 7 coho salmon, 1,323 Dolly Varden and 302 sheefish.

## **2011 RUN OUTLOOK**

The outlook for the 2011 season is based on the parent-year returns and returning age classes observed in the test fish samples from the Kobuk and Noatak Rivers in 2010. The 4-year-old component of the run is expected to be above average based on the 3-year-old return in 2010. The 5-year-old component of the run is expected to be above average based on the 4-year-old return this past season. The 3-year-old and 6-year-old age classes are much smaller components of the run and are expected to be average. The commercial harvest is expected to fall within the range of 230,000 to 260,000 chum salmon, if market conditions can accept that level of harvest.

## **MANAGEMENT STRATEGIES**

Primary commercial fishery management objectives are to provide adequate chum salmon passage through the commercial fishery: (1) to ensure sustained runs by allowing adequate escapement, and (2) to meet subsistence harvest uses. Fishery management will be dependent on comparing period and cumulative season catch rates to prior years and test fishing results on the Kobuk and Noatak rivers.

Age composition of commercial salmon catches will be closely monitored to determine the strength of age classes in the run. If there is a low abundance of older salmon, which tend to migrate into freshwater first, catch rates will likely be weak early in the season. A strong 4-year-old return may cause midseason catches to rise.

Demand for chum salmon during the 2011 season is expected to be the same as 2010 as the same buyer is returning. However, the buyer may decide to purchase fish from a limited number of permit holders who are willing to provide a higher quality salmon by taking care of the fish after harvest.

If the commercial fishery is similar to last year there will be 6 to 8 hour fishing periods on any day of the week, except Sunday. If the buyer opts for longer fishing periods similar to the 12-hour periods in the late 1990s and early 2000s then there will likely be a one day closure midweek.

In order to allow the buyer flexibility and an orderly fishery the department plans to open the commercial fishery to the hours requested by the buyer. If poor run strength necessitates fishing restrictions, the department will establish periodic closures of the fishery.

During the last 5 years, the commercial fishing schedule has been set by the buyer. However, only in 2006 did the department restrict fishing time to allow for more salmon passage through the commercial fishing district. The department will consult with the buyer if concern arises about salmon runs and the need to reduce commercial fishing time.

The department intends to open the commercial fishery anytime after July 10 when the buyer is ready or permit holders indicate they are ready to fish and a market is available. By regulation the commercial season closes after August 31.

If commercial catches indicate a weak run, and are in agreement with test fish catches in the Kobuk River, the department will consider reducing fishing time in late July to two short duration periods per week or less. If commercial catches indicate sufficient run strength the department will allow commercial fishing to continue based on market conditions and escapement indicators. Likewise, in August as the Noatak River chum salmon run passes through the district the department will consider restrictions if commercial catches indicate a weak run, and are in agreement with department test fish catches. No time restrictions on subsistence fishing are expected in 2011.

## **ESCAPEMENT OBJECTIVES**

Inseason escapement-based management will consist of one test fish project on the Kobuk River, limited test fishing on the Noatak River, and reports from subsistence fishermen. The test fishing project on the Kobuk River, in the vicinity of Kiana, will provide an inseason index of chum salmon passage. The department has an index objective of 600 for the season at the test fish project. If the index is projected to fall short of 600 then restriction in commercial fishing time will be necessary to make sure adequate escapement is moving into the Kobuk River. Test fishing is also likely to occur in August on the Noatak River and comparisons made to previous season's catches. If there are poor test fish catches on the Noatak River and there are poor catches in the commercial fishery, then restriction in commercial fishing time may be necessary.

Aerial surveys will be attempted beginning in September. Aerial surveys are not a direct count or estimate of the salmon population, but are used as an index for comparison with surveys both in season and in prior years. Surveys are conducted too late to affect present year fisheries decisions, but do provide useful information in evaluating management decisions and help project future salmon returns. Aerial survey data are utilized to: (1) evaluate initial run strength while salmon are traveling to the spawning grounds, and (2) document peak salmon abundance on the spawning grounds as an index to total escapement. These enumeration techniques are best initiated during times of low river water levels, high water clarity, and good sunlight penetration. Unfortunately, these conditions are not always available.

One of the primary fishery management strategies is to provide for escapement within sustainable escapement goal ranges (SEG) for each river system. These ranges developed in 2007 are based on an analysis of historical harvest and escapement information of specific index areas within major drainages. These aerial survey escapement objectives are: (1) subject to continued review, (2) intended to evaluate escapement trends between years, and (3) are not a total count of the salmon escapement. The Noatak and upper Kobuk Rivers are flown annually if personnel and weather conditions permit and other rivers are flown on an opportunistic basis. The chum salmon escapement goals are as follows: Noatak River (mouth to Kelly Bar, including the Eli River) – 42,000 to 91,000, Squirrel River – 4,900 to 10,500, Salmon River – 3,300 to 7,200, Tutuksuk River – 1,400 to 3,000, and upper Kobuk River 9,700 to 21,000.



## **TABLES AND FIGURES**

Table 1.–Kotzebue District chum salmon fishery historical information, 1962–2010.

Year	Total Catch	Number of Permits <sup>a</sup>	Season Catch per Permit Holder	Gross Value of Catch to Permit Holders
1962	129,948	84	1,547	\$4,500
1963	54,445	61	893	\$9,140
1964	76,449	52	1,470	\$34,660
1965	40,025	45	889	\$18,000
1966	30,764	44	699	\$25,000
1967	29,400	30	980	\$28,700
1968	30,212	59	512	\$46,000
1969	59,335	52	1,141	\$71,000
1970	159,664	82	1,947	\$186,000
1971	154,956	91	1,703	\$200,000
1972	169,664	104	1,631	\$260,000
1973	375,432	148	2,537	\$925,000
1974	627,912	185	3,394	\$1,822,784
1975	563,345	267	2,110	\$1,365,648
1976	159,796	220	726	\$580,375
1977	195,895	224	875	\$1,033,950
1978	111,494	208	536	\$575,260
1979	141,623	181	782	\$990,263
1980	367,284	176	2,087	\$1,446,633
1981	677,239	187	3,622	\$3,246,793
1982	417,790	199	2,099	\$1,961,518
1983	175,762	189	930	\$420,736
1984	320,206	181	1,769	\$1,148,884
1985	521,406	189	2,759	\$2,137,368
1986	261,436	187	1,398	\$931,241
1987	109,467	160	684	\$515,000
1988	352,915	193	1,829	\$2,581,333
1989	254,617	165	1,543	\$613,823
1990	163,263	153	1,067	\$438,044
1991	239,923	142	1,690	\$437,948
1992	289,184	149	1,941	\$533,731
1993	73,071	114	641	\$235,061
1994	153,452	109	1,408	\$233,512
1995	290,730	92	3,160	\$316,031
1996	82,110	55	1,493	\$56,310
1997	142,720	68	2,099	\$187,978
1998	55,907	45	1,242	\$70,587
1999	138,605	60	2,310	\$179,781
2000	159,802	64	2,497	\$246,786
2001	211,672	66	3,207	\$322,650
2002	8,390	3	2,797	\$7,572
2003	25,423	4	6,356	\$26,377
2004	51,038	43	1,187	\$64,420
2005	75,971	41	1,853	\$124,820
2006	137,961	42	3,285	\$216,654
2007	147,087	46	3,198	\$243,149
2008	190,550	48	3,970	\$385,270
2009	187,562	62	3,025	\$376,554
Average	195,685	112	1,907	\$580,893
2010	270,343	67	4,035	\$860,125

<sup>a</sup> During 1962-1966 and 1968-1971 figures represent the number of vessels licensed to fish in the Kotzebue District, not the number of fishermen.

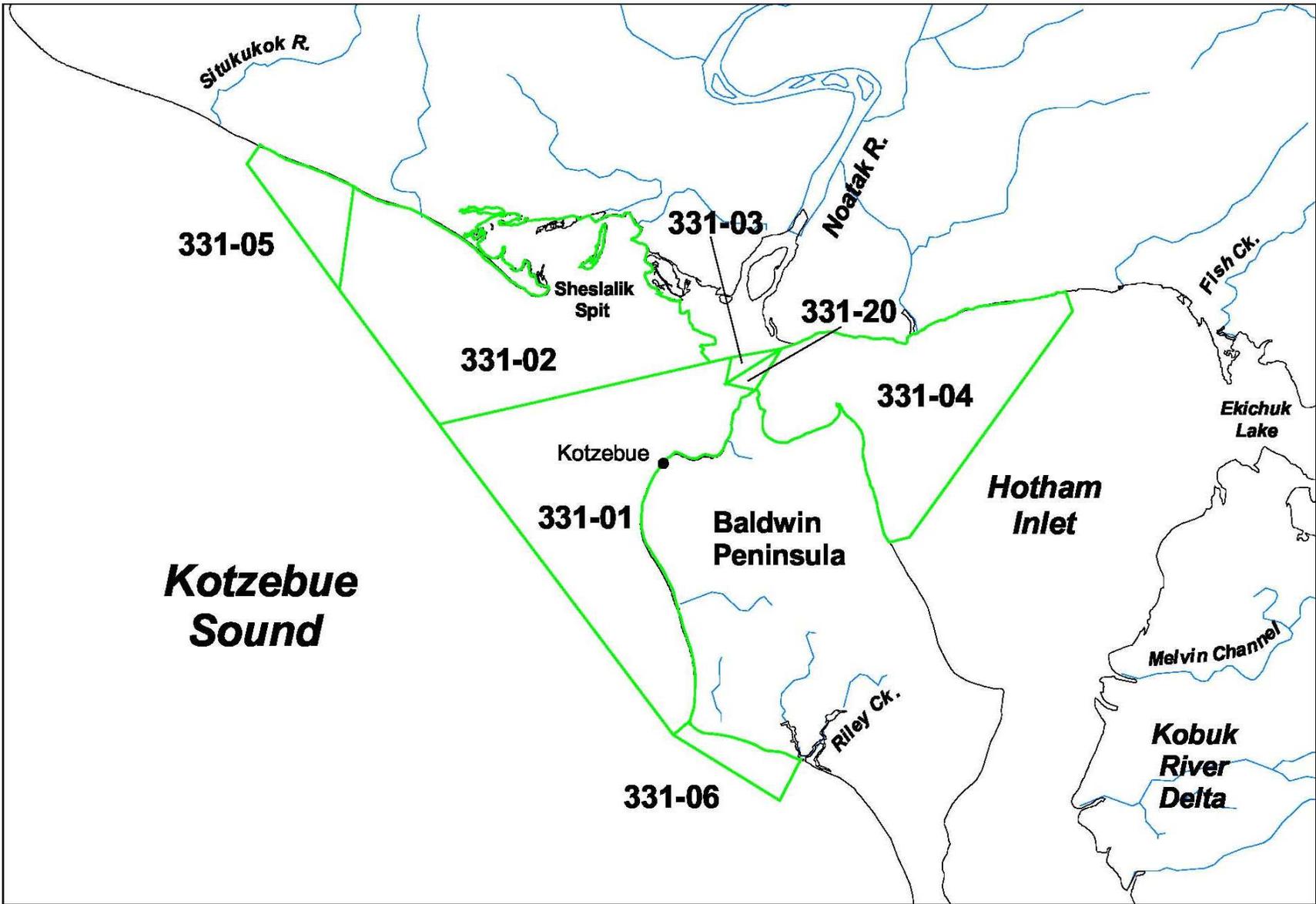


Figure 1.—Kotzebue salmon subdistrict boundaries.