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UPPER COOK INLET COMMERCIAL HERRING AND SMELT FISHERIES, 1998

Report for the Alaska Board of Fisheries

By

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[1] *Contribution 98-29 from the Soldotna area office. The Regional Information Report Series was established in 1987 to provide an information access system for all unpublished divisional reports.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.*

TABLE OF CONTENTS

Page

LIST OF FIGURES

LIST OF TABLES

Herring

The Upper Cook Inlet management area consists of that portion of Cook Inlet north of the latitude of Anchor Point (Figure 1). Commercial herring fishing began in Upper Cook Inlet in 1973 with a modest harvest of bait-quality fish along the east side of the Central District and expanded in the late 1970's to include small-scale sac roe fisheries in Chinitna and Tuxedni bays along the west side (Table 1). All herring harvested in Upper Cook Inlet are taken during the sac-roe season (April 15 to June 30). Herring harvested in Chinitna Bay and Tuxedni Bay have been sold primarily for sac-roe, while most herring harvested from the east side are still utilized as bait.

Gillnets are the only legal herring gear in Upper Cook Inlet, except in Chinitna Bay where only set gillnets can be used. Mesh size in this fishery is restricted to at least 2.125 inches but no more than 2.5 inches. In the set gillnet fishery no net may exceed 35 fathoms (210 feet). Each set gillnet fisherman is allowed to operate a total of 105 fathoms of gear in the aggregate. In the drift gillnet fishery no net may exceed 150 fathoms. Historically few drift gillnets are used in these herring fisheries and most have generally been confined to Tuxedni Bay. Herring harvests along the east side are generally concentrated in the Clam Gulch area with only moderate effort north of the Kasilof River. Prior to the action taken at the 1992 Board of Fisheries meeting (BOF) the herring fishery was open from April 15 to June 30 along the east side, seven days per week, 24 hours per day. Since 1982 this area has closed by emergency order by the end of May each year with harvests ranging from 6 tons in 1975 to 179 tons in 1986. In the west side fisheries herring harvests are primarily from the Snug Harbor and Magnetic Island areas of Tuxedni Bay and Clam Cove and Camp Point in Chinitna Bay. Again prior to the action taken at the 1992 BOF meeting the west side herring fisheries were open from April 22 to June 30, seven days per week, 24 hours per day. Approximately 100 interim use permits have been sold for this fishery each year with 30 being used each year along the east side.

Herring fisheries management in Upper Cook Inlet is complicated by the glacial turbidity of the Inlet waters, which precludes the use of aerial surveys to determine stock strength.

Therefore it is necessary to use the catch per unit of effort and age class composition from the commercial fishery to estimate stock strength. Beginning in the mid 1980's informal guideline harvest levels were established in each area. Estimates of stock status using catch per unit of effort and age class composition of the harvest were then used to adjust the guideline harvest level up or down in small increments to try and achieve a long-term harvest level that could be sustained in each area.

In 1991 in Tuxedni Bay a trend of sharply decreasing herring abundance and a shift towards older age class herring was observed resulting in the closure of Tuxedni Bay by emergency order for the 1992 season. In Chinitna Bay and along the eastside beaches similar, although less severe trends began to materialize by the end of the 1992 season. As a result of these apparent declines a department proposal to the BOF to open the Upper Cook Inlet herring fishery by emergency order only, was submitted. This proposal passed and became regulation for the 1993 season, ending a long period with fixed opening dates of April 15 on the east side and April 22 on the west side of Cook Inlet. This action effectively closed this fishery until the herring stocks recovered to a level that further harvests could occur. The 1997 season was the fifth year of a total closure of the east side and Chinitna Bay areas and the sixth season of the Tuxedni Bay area.

When the proposal to alter the herring fishery was submitted in 1992 the BOF was informed that this closure would be for a minimum of three years. The department delayed any reopening until 1998 to give the herring stocks one full spawning cycle of protection. Herring caught in these gillnet fisheries are generally at least 5 years old, (Table 2) so any recruitment as a result of these closures would first be seen as 5-year-old herring caught in the 1998 season. The department made a commitment to discuss this fishery with interested advisory committees prior to reopening this fishery by emergency order. This discussion was scheduled in January of 1998 in the Central Peninsula and Kenai/Soldotna advisory committees and was publicly noticed by these committees. The department planned to limit the possible fishing time to no more than 48 hours per week, a fishing intensity thought to be sustainable by this herring stock while allowing a limited harvest and the collection of biological samples necessary to judge the status of this stock. The main purpose of these

discussions was to inform the public of the department's plan and seek input on how fishermen would like this fishing time structured. From the input we received at these meetings, the staff elected to open two 24-hour fishing periods per week, beginning at 7:00 a.m. Mondays and Thursdays along the east side of Cook Inlet only. Staff elected to wait for any openings in Chinitna and Tuxedni bays until more stringent reporting requirements could be instituted in regulation. This also allowed a more thorough monitoring program to be fielded for the east side fishery. The east side season was shortened from April 15 to May 20 instead of June 30 to prevent any significant overlap with early-run chinook salmon. In addition the first 300 feet from the mean high tide mark south of the Kenai River was kept closed to reduce the incidental harvest of Dolly Varden char. Each fishing period was monitored by at least two department observers.

The results of the 1998 season were encouraging with a harvest of nearly 19.5 tons. Age composition of the herring samples taken was composed of primarily 5- and 6-year-old fish with very few herring older than 8 years. Department personnel observed many smaller herring, likely those less than 5 years old going through the nets uncaught, providing an anecdotal indication of recruitment in the future. There was no incidental harvest of chinook salmon, sockeye salmon or Dolly Varden char observed, however from interviews with participating fishermen 7 Dolly Varden and one sockeye salmon were caught and released as required by regulation. The incidental catch observed in the east side fishery included Pacific Sandfish (*Trichodon trichodon*), Starry Flounder (*Platichthys stellatus*) and Spiny Dogfish (*Squalus acanthias*). These non-target fish were released, however the rate of survival was not estimated.

Personal use herring fishing is also allowed in Cook Inlet. The season is from April 1 through May 31 in the Northern and Central Districts. Only gillnets may be used and may not exceed 20 feet in length and 2 inches in mesh size. Staff has no documentation of either the level of participation or harvest. A permit in not required nor is harvest data collected during the statewide harvest survey.

The Board has five proposals at this meeting that seek changes to the herring fisheries in Upper Cook Inlet. Proposals 49 would close both commercial and personal use herring fisheries in Upper Cook Inlet. Proposal 50 would close only the commercial herring fishery. Proposal 51 is a department proposal to clarify regulations by removing the mention of season dates under gear. Proposal 52 is again a department proposal that seeks to add registration and reporting requirements for the Upper Cook Inlet herring fishery. The last proposal in this section is proposal number 53, which would open the personal use herring fishery during the same periods as established for the commercial fishery.

Unless altered by the BOF at this meeting, plans for the 1999 season would be for a fishery similar to the 1998 season along the east side of Cook Inlet. The fishery will be shortened by approximately one week, beginning on April 22 instead of April 15 and ending on May 21. Daily fishing periods may change slightly to try and accommodate the tide series experienced during this time of year. One likely scenario would be for two 28-hour periods per week on Mondays and Thursdays beginning at approximately 6:00 a.m. and ending the following day at 10:00 a.m., instead of two 24-hour periods per week. In addition if proposals submitted by the department for reporting requirements and registration are passed by the BOF we will also open Chinitna Bay during the same time periods as established for the east side fishery for the 1999 season. Tuxedni Bay will remain closed for the 1999 season.

Smelt Fisheries

Smelt returns to Upper Cook Inlet occur in many of the larger river systems with particularly large returns to the Susitna River. Both longfin smelt (*Spirinchus thaleichthys*) and eulachon (*Thaleichthys pacificus*) are documented in Cook Inlet. Eulachon begin returning to spawning areas in Cook Inlet generally from mid May to mid June and return in quantities large enough to support commercial fisheries. Longfin smelt return to Cook Inlet in the fall of the year and are not likely to be targeted for commercial purposes due to much smaller numbers of fish.

Commercial smelt fisheries in Upper Cook Inlet are open by regulation from October 1 to June 1. Any gear listed in 5 AAC 39.105 may be used to take smelt in Upper Cook Inlet. Gillnet specifications for this fishery are similar to herring gillnet fisheries with set gillnets limited to 35 fathoms in length. Each fishermen is allowed to operate 105 fathoms of set gillnet in the aggregate. Drift gillnets are restricted to no more than 150 fathoms in length. Mesh size is restricted to no more than 2.5 inches. There are no limitations on any other type of gear except as provided in 5 AAC 39.105.

The only documented harvests in the Cook Inlet area occurred in 1978, 1980 and 1998 with catches of 300 pounds, 4,000 pounds and 18,900 pounds respectively. The 1998 harvest was taken in the Northern District just south of the Susitna River. The only other harvests of smelt in Upper Cook Inlet occur in the personal use dip net fishery in Turnagain Arm with an annual catch of approximately 30,000 pounds and smaller quantities taken primarily from the Kenai and Susitna rivers.

Primary commercial markets for these smelt are as food for human consumption, as bait for the sturgeon sport fishery in the Pacific Northwest, and as food for captive marine mammals. The BOF has one smelt proposal at this meeting, proposal number 54 that seeks a complete closure of all personal use and commercial smelt fisheries using gillnets. Unless altered by the BOF, plans for the 1999 season would be for a restriction of the commercial smelt fishery to the General Subdistrict of the Northern District.

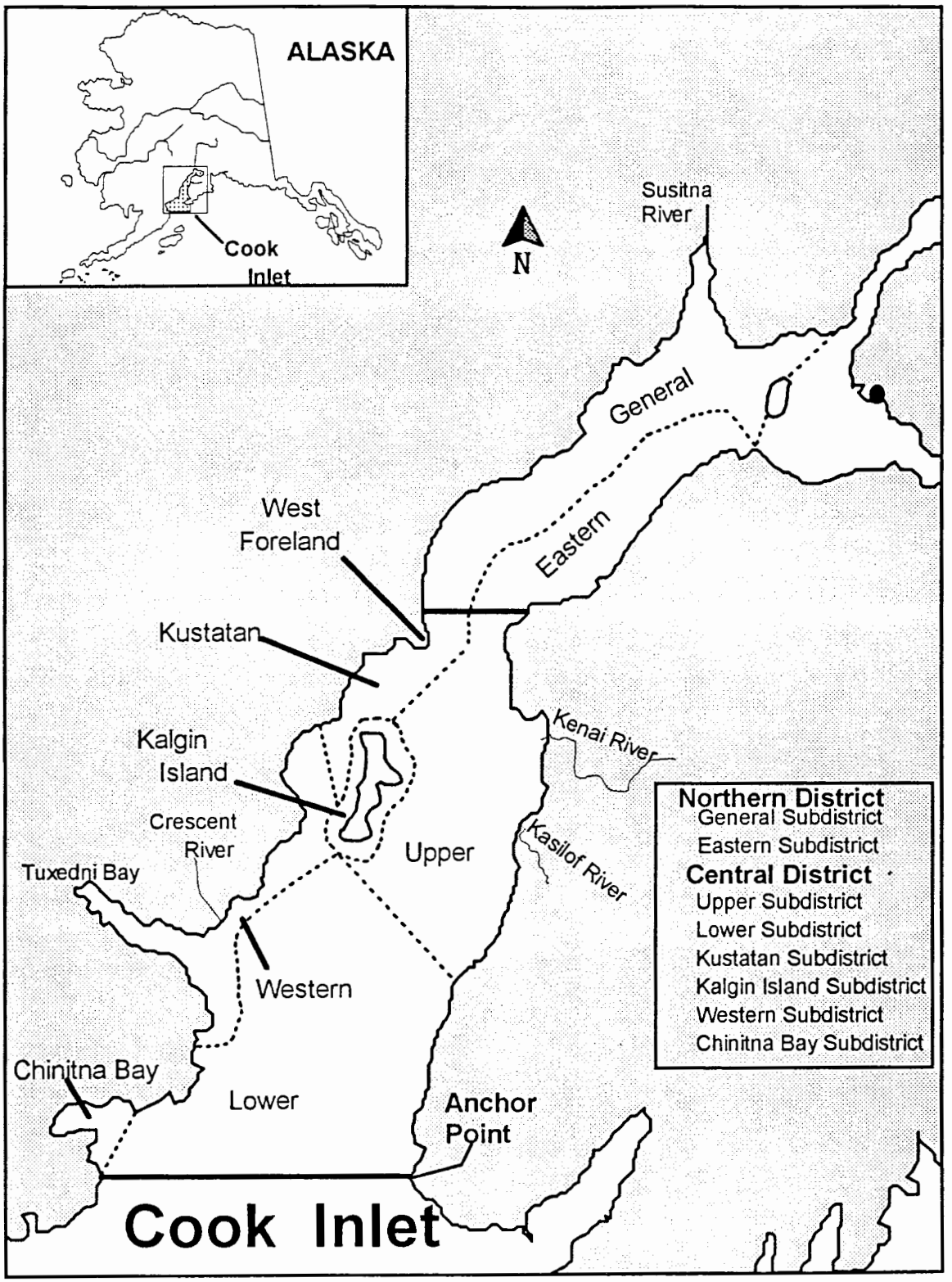

Figure 1. Upper Cook Inlet Salmon Subdistricts

Table 1. Commercial herring harvest by fishery, Upper Cook Inlet, 1973-1998.

	Harvest (Tons)			
Year	Eastside	Chinitna Bay	Tuxedni Bay	Total
1973	13.8			13.8
1974	36.7			36.7
1975	6.2			6.2
1976	5.8			5.8
1977	17.3			17.3
1978	8.3	55.3		63.6
1979	67.3	96.2	24.8	188.3
1980	37.4	20	86.5	143.9
1981	86.2	50.5	84.9	221.6
1982	60.2	91.8	50.2	202.2
1983	165.3	49.2	238.2	452.7
1984	117.5	90.6	159	367.1
1985	121.7	47.4	220.5	389.6
1986	178.9	111.1	191.9	481.9
1987	130.5	65.1	152.5	348.1
1988	50.7	23.4	14.1	88.2
1989	55.2	122.3	34.3	211.8
1990	55.4	55.9	16.1	127.4
1991	13.4	15.7	1.6	30.7
1992	24.7	10.4		35.1
1993				
1994				
1995				
1996				
1997				
1998	19.5			19.5

Table 2 . Age composition of herring harvested in The Upper Subdistrict, Upper Cook Inlet, 1982-1998.

Age	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1998
						Percentage						
3			0.4	0.0	N/A	0.8		0.2		0.7	0.5	
4		2.9	12.9	0.5		13.4	3.6	5.9	1.3	0.0	0.0	1.3
5	12.2	7.3	11.6	7.5		7.6	30.0	31.4	14.0	9.0	2.7	24.9
6	28.6	52.8	50.3	29.4		9.7	10.9	31.1	32.4	34.3	19.6	46.7
7	34.1	22.3	14.3	14.6		22.7	12.7	9.3	37.0	37.0	38.0	12.7
8	16.4	10.5	7.9	38.7		28.6	12.7	6.6	7.1	13.8	27.7	12.5
9	8.6	4.2	2.5	9.3		6.7	14.5	7.6	3.2	1.4	8.7	1.6
10						7.1	5.5	3.9	3.0	2.1	1.6	0.1
11						3.4	10.0	2.7	2.1	1.0	0.5	0.1
12								1.2	0.3	0.3	0.0	
13									0.3	0.3	0.5	