

ANNUAL REPORT 1964
COOK INLET AREA
COMMERCIAL FISHERIES DIVISION
ALASKA DEPARTMENT OF FISH AND GAME

Area Biologist: Jim D. Rearden
Ass't Area Biologist: Ben Hilliker
Ass't Area Biologist: Allen S. Davis

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INTRODUCTION

The year 1964 will be remembered as "the year of the earthquake". The violent and spectacular upheaval and subsidence of land that occurred on March 27 was unprecedented in recent Alaskan history, and it brought about, in a rather sudden manner, many changes, from the loss of spawning area in the Outer District (see section dealing with the earthquake), to enforced changes in processing plants. Although the sole salmon cannery in Seldovia operated during the summer of 1964, the danger of losing canning equipment from high water was such that the equipment was moved to Snug Harbor and to Anchorage at the end of the season, leaving Seldovia without a salmon cannery. Emard's cannery in Anchorage was forced to erect a new building immediately after the quake in order to be ready to operate during the 1964 season. The two major crab canneries at Seldovia face an unknown future, for both are susceptible to damage from high tides -- because land in the vicinity has subsided several feet.

The Halibut Producers Cooperative plant at Seward was totally destroyed, and of course, was not replaced in time for the 1964 season. It appears that it will be replaced and back in use by the 1965 salmon season, however.

Two small plants on the Homer Spit were affected -- one had to move to another location, another had to build up to get itself above the level of high waters.

Small boat harbors at Homer and Seward were destroyed, the one at Seldovia damaged. All three are being replaced, and each is a bigger and better installation that was destroyed by the earthquake. Docks at Homer and Seward were destroyed, and are being replaced with better docks. Docks at Seldovia,

none too good prior to the quake, have yet to be replaced, but plans have been made to re-build portions of the town through the federal Urban Renewal plan.

The year 1964 might also be remembered in Cook Inlet as "the year of too many fish", when the few remaining canneries of the Inlet could not or did not choose to process all the fish that were available. (See "Cannery Problems".)

This year also saw, for the first time on Cook Inlet, as complete a closure as possible on king salmon. This closure was bitterly fought with reason, emotions, and politics -- but the Board of Fish and Game stood firm on its action. They reaffirmed their stand during early December, continuing the closure through the 1965 salmon season. The closure, and some of its repercussions, is discussed under king salmon.

This was also a year of flux in the salmon processing industry. Prior to the earthquake -- which intensified this flux -- one operator (Pacific American Fisheries) withdrew from Cook Inlet, and those fishermen who had been aligned with this company were turned over to Alaska Packers. During the season Alaska Packers apparently suffered from a lack of tenders, and many former P.A.F. fishermen had little or no market for their catch. The destinies of the Seldovia-Port Graham Consolidation at Seldovia, and Emard's Cannery at Anchorage, were linked economically due to the death of Henry Emard and the subsequent purchase of a part of the cannery by those interested in the Seldovia cannery. During the season tenders for both canneries cooperated the full length of the Inlet -- when one cannery was overloaded with fish, the other assisted.

And last, the fall and winter of 1964 set records for cold, and for snow depth. It is probable that the deep snows kept freezing damage to salmon eggs and fry to a minimum.

COMMERCIAL FISHING LICENSE SALES - COOK INLET - 1964

	<u>RESIDENT</u>	<u>NON-RESIDENT</u>	<u>TOTAL</u>
Commercial	1,522	372	1,894
Beach Seine	5	2	7
Clam Digging	5	-	5
Hand Purse Seine	102	6	108
Drift Gill Net	323	145	468
Set Net	596	35	631
Fresh Water Permit	4	-	4
Shellfish Pots	63	4	67
Troll	3	-	3
Otter Trawl	3	1	4
Long Line	30	5	35
Vessel	400	152	552
Tenders	7	5	12
Dory	<u>497</u>	<u>24</u>	<u>521</u>
Total	3,560	751	4,311

GEAR COUNTS BY AERIAL SURVEYS

Tables on the following two pages give counts of set net and drift gear actually in use, as tabulated on aerial surveys. Normally these counts were made at high tide. The ratio between gear fished and gear licensed appears to be about the same each year.

AERIAL SURVEY COUNT OF UNITS OF GEAR FISHING
(SET NETS AND DRIFT BOATS) COOK INLET - 1964

SET NETS

<u>DATE</u>	<u>NINILCHIK- CLAM GULCH</u>	<u>CLAM GULCH- CAPE KASILOF</u>	<u>KASILOF RIVER- KENAI RIVER</u>	<u>KENAI RIVER- E. FORELAND</u>
June 25	46	7	2	30
June 29	112	38	46	60
July 2	120	46	23	71
July 6	168	69	84	74
July 9	192	57	68	62
July 13	203	79	91	87
July 16	155	78		
July 22	105.			
	<u>KALGIN ISLAND</u>	<u>HARRIET PT.- SNUG HARBOR</u>	<u>SOUTH SIDE TUXEDNI BAY</u>	<u>CHISIK ISLAND</u>
June 29	110	34	10	12
July 2	112			
July 6	122	50	17	14
July 9	130			
July 16		40		

Continued on following page

AERIAL SURVEY COUNT OF UNITS OF GEAR FISHING
(SET NETS AND DRIFT BOATS) COOK INLET - 1964

Continued from previous page

SET NETS

<u>DATE</u>	<u>NORTHERN DISTRICT</u>
June 26	176
July 2	189
July 6	281
July 9	172
July 13	443
July 20	402
July 24	402

DRIFT BOATS

June 29	40
July 2	121
July 6	225
July 9	261

<u>NAME AND BUSINESS ADDRESS</u>	<u>SUPERINTENDENT</u>	<u>PLANT LOCATION</u>	<u>NO. OF LINES</u>	<u>PRODUCT</u>
Alaska Fish & Farm Products, Inc. Box 74, Anchorage, Alaska	K. C. Britt	Anchorage	Fresh & Frozen	Salmon, Halibut
Alaska Sea Foods Box 152, Homer, Alaska	Eugene V. Browning	Homer Spit	Fresh & Frozen	Dungeness Crab, King Crab, Halibut
Alaska Seafoods Box 216, Seward, Alaska	Ray N. James	Seward	Fresh & Frozen Bait, Pickled	Salmon, Halibut,
Alaskan Smokey Joes Inc. Box 1381 SRA Anchorage, Alaska	William E. McBride	Mile 7 Seward Hiway	Smoking	Salmon
Alaska Star, Inc. 1206 W. 29th Place Spenard, Alaska	Walter B. Swanson	Beluga River	1 lb. Talls $\frac{1}{2}$ lb. Flats Mild-cured	Salmon
Alcan Fisheries North Star Route, Kenai, Alaska	C. E. Gage	N. Kenai & Seward	Fresh & Frozen Mild-cured & Smoked	Salmon, King Crab, Halibut, Herring
Alida's Alaskan Gifts Mile 163, Sterling Hiway	Peggy A. Charlton	Mile 163, Sterling Hiway	Fresh, Frozen, Mild- Cured, Smoked	Salmon, Halibut
Joe L. Aprill Box 127, Anchor Point, Alaska	Joe L. Aprill	Mile 159 Sterling	1 lb. Talls, $\frac{1}{2}$ lb. Flat, 1 lb. Flat Hand Canned, Fresh Mild-cured, Hard Salt, Smoked	Salmon
B and K Fisheries Box 486, Soldotna, Alaska	Wayne E. Bell	West Side Cook Inlet 8 mi. S Chisik I.	Hard salt	Salmon

<u>NAME AND BUSINESS ADDRESS</u>	<u>SUPERINTENDENT</u>	<u>PLANT LOCATION</u>	<u>NO. OF LINES</u>	<u>PRODUCT</u>
Berman Packing Co., Inc. 6736 24th Ave. N. W. Seattle, Washington	Earl Simonds	Ninilchik	1 lb. Talls $\frac{1}{2}$ lb. Flats	Salmon
Carlson Bros. Enterprises Box 702, Wasilla, Alaska	Knuce Carlson	N. Kalgin Island	Hand-operated Mild-cured	Salmon
Columbia Wards Fisheries P. O. Box 30, University Station Seattle, Washington	A. R. Pearmain	Rt. 2, Kenai	1 lb. Talls (2) $\frac{1}{2}$ lb. Flats (1) $\frac{1}{2}$ lb. Flats (1)	Salmon
D. P. Davila P. O. Box 4721 Anchorage, Alaska	D. P. Davila	DeArmoun Road,	1 lb. Talls $\frac{1}{2}$ lb. Flats Hand Pack-Smoked	Salmon
Ekren Packing Co. Kasitsna Bay, via Seldovia Box 76, Alaska	John A. Ekren, Sr.	Kasitsna Bay	Hand Cannery	King Crab, Dungeness Crab, Clams
Emard Packing Co., Inc. Box 599, Anchorage, Alaska	Glenn Bergen	Anchorage	1 lb. Talls $\frac{1}{2}$ lb. Flats	Not specified
Dan Garrouette P. O. Box 204, Ninilchik, Alaska	Dannie Garrouette	Ninilchik	Frozen Bait	Salmon, Halibut Herring
Deep Creek Sport Shop (James A. Garrouette) Box 173 Ninilchik, Alaska	James A. Garrouette	Ninilchik	Smoked	Salmon
Halibut Producers Co-Operative 4501 Shilshole Ave. N. W. Seattle, Washington 98107	T. S. Schenk	Seward	4 $\frac{1}{2}$ oz. Fresh, Frozen, Mild-cured Salmon Fresh, Frozen	Shrimp Shrimp, King Crab, Halibut
Vern Harrington Anchor Point, Alaska	Vern Harrington	Anchor Point	1 lb. Talls $\frac{1}{2}$ lb. Flats, Smoked Smoked Custom Canning	Salmon, Halibut Herring

<u>NAME AND BUSINESS ADDRESS</u>	<u>SUPERINTENDENT</u>	<u>PLANT LOCATION</u>	<u>NO. OF LINES</u>	<u>PRODUCT</u>
Norton Seafoods Box 1257, Seward, Alaska		Mile 3½, Seward	1 lb. Talls ½ lb. Flats Fresh, Frozen, Hard salt	Salmon, Halibut
Torvald Jensen and Co. Box 23, Ninilchik, Alaska	Torvald Jensen	1 Mi. S. Ninilchik	Smoked	Salmon
Frank C. Johnson Box 456, Homer, Alaska	Frank C. Johnson	Homer	Fresh	Shrimp
Kenai Packers 455 N. Northlake Place Seattle, Washington 98103	H. A. Daubenspeck	Kenai	1 lb. Talls ½ lb. Flats 1 Other (unspecified)	Salmon
Kenneth R. Lyon Box 732, Homer, Alaska	Polly S. Lyon	Homer	Fresh	Shrimp
Osmar's Ocean Specialties Clam Gulch, Alaska	Per E. Osmar	Mile 121½ Sterling Hiway, Clam Gulch	1 lb. Talls ½ lb. Flats, Smoked	Salmon, Halibut
R-Lee Company Route 2, Soldotna, Alaska	R. L. Schmidt	Upper Kalifonsky Beach	Hard salt, Smoked	Salmon
Pacific Alaskan Seafoods Box 487, Homer, Alaska	Royal DeVaney	Homer Spit	Mild cured, Hard salt Frozen, Cold pack Frozen, Other	Salmon Shrimp, Dungeness Crab, King Crab Halibut
Pacific Fish Company Box 487, Homer, Alaska	Royal DeVaney	Homer Spit	Fresh, Frozen	Salmon, Shrimp, Dungeness Crab, King Crab, Halibut
Rosnes Enterprises Box 2175, Anchorage, Alaska	Arnchild Rosnes	Chinitna Bay	Hard salt, Smoked	Salmon

<u>NAME AND BUSINESS ADDRESS</u>	<u>SUPERINTENDENT</u>	<u>PLANT LOCATION</u>	<u>NO. OF LINES</u>	<u>PRODUCT</u>
Seldovia-Port Graham Consolidation 2360 W. Commodore Way Seattle, Washington 98199	J. J. Lind	Seldovia	1 lb. Talls, ½ lb. Flats - Salmon 1 lb. Flats, ½ lb. Flats (2)	King Crab
Charles L. Simon Sr. Route 2, Kasilof, Alaska	Charles L. Simon Sr.	Kalifonski Beach Road, 1 mi. N. Kasilof R.	Hand pack, Smoked	Salmon, Halibut
Snug Harbor Packing Company Fishermen's Terminal Seattle, Washington	J. R. Fribrock	Snug Harbor	1 lb. Talls 1 lb. Flats	Not specified
Sutterlin & Wendt, Inc. Box 80, Seldovia, Alaska	Richard H. Sutterlin	Seldovia	4½ oz. Flat Frozen	Shrimp, Dungeness Crab
Tee Pee Cold Storage Star Route, Kenai, Alaska	Bill Roark	7 miles N. Kenai	Fresh, Frozen	Salmon, Halibut
Tidewater Packing Company P. O. Box 1842, Anchorage, Alaska	Ray Coffin	Port of Anchorage	½ lb. Flats	Not specified
Wakefield Fisheries Port Wakefield, Alaska	Charles Hendrix	Seldovia	Frozen	Halibut, King Crab

COOK INLET PACK BY WEEK - 1964

BERMAN PACKING COMPANY

<u>WEEK ENDING</u>	<u>KINGS</u>	<u>REDS</u>	<u>COHOS</u>	<u>PINKS</u>	<u>CHUMS</u>	<u>TOTAL</u>
June 28		56				56
July 5		221			65	286
July 12	6	660	6	12	409	1,093
July 19	16	1,018	91	192	335	1,652
July 26		1,003	245	574	444	2,266
August 2		69	391	986	204	1,650
August 9		108	70	2,178	16	2,372
August 16		126	237	2,780	22	3,165
August 23			186	279		465
August 30		26	197	97	42	362
September 6			85			85
September 13			173			173
September 20			<u>81</u>			<u>81</u>
Totals	22	3,287	1,762	7,098	1,537	13,706
Corrected Totals Taken from Cannery Annual Reports	22	3,328	2,002	7,197	1,485.5	14,034.5

COOK INLET PACK BY WEEK - 1964

COLUMBIA WARDS FISHERIES

<u>WEEK ENDING</u>	<u>KINGS</u>	<u>REDS</u>	<u>SOLOS</u>	<u>PINKS</u>	<u>CHUMS</u>	<u>TOTAL</u>
July 5		93	2		151	246
July 12	27	4,796	249	246	5,975	11,293
July 19	55	6,912	423	1,704	3,926	13,020
July 26	53	2,376	1,583	6,201	9,040	19,253
August 2	86	852	691	3,111	2,444	7,184
August 9	65	200	624	16,390	1,018	18,297
August 16	28	31	420	12,629	103	13,211
August 23	<u>11</u>	<u>13</u>	<u>307</u>	<u>4,335</u>	<u>0</u>	<u>4,666</u>
Totals	325	15,273	4,299	44,616	22,657	87,170
Corrected Totals						
Taken from Cannery						
Annual Reports	328	15,382.5	4,300	42,578	22,628.5	85,217

COOK INLET PACK BY WEEK - 1964

EMARD PACKING COMPANY

<u>WEEK ENDING</u>	<u>KINGS</u>	<u>REDS</u>	<u>COHOS</u>	<u>PINKS</u>	<u>CHUMS</u>	<u>TOTAL</u>
June 28		36	10		109	155
July 5		139	15		5	159
July 12		1,158	708	236	1,950	4,052
July 19		5,855	4,183	6,722	3,365	20,125
July 26		2,178	3,715	10,112	1,554	17,559
August 2		571	2,736	6,806	1,269	11,382
August 9		190	1,793	3,210	605	5,798
August 16		<u>9</u>	<u>356</u>	<u>92</u>	<u>141</u>	<u>598</u>
Totals		10,136	13,516	27,178	8,998	59,828
Corrected Totals Taken from Cannery Annual Reports		10,305	13,404	27,077	8,533	59,319

COOK INLET PACK BY WEEK - 1964

KENAI PACKERS

<u>WEEK ENDING</u>	<u>KINGS</u>	<u>REDS</u>	<u>COHOS</u>	<u>PINKS</u>	<u>CHUMS</u>	<u>TOTAL</u>
June 28		102				102
July 5		382.5			556	938.5
July 12	54	5,863	559	295	8,484	15,255
July 19	90	11,622.5	1,196	2,995	6,441	22,344.5
July 26		3,000	1,000	8,980	7,000	19,980
August 2	171	7,163.5	4,908	7,926	7,049	27,217.5
August 9	90	1,143	2,137.5	11,820	2,510	17,700.5
August 16		306	1,402.5	13,931.5		15,640
August 23	<u>120</u>	<u>121.5</u>	<u>1,162</u>	<u>9,503.5</u>		<u>10,907</u>
Totals	525	29,704	12,365	55,451	32,040	130,085
Corrected Totals Taken from Cannery Annual Reports	468	29,570	12,292	55,346	32,040	129,716

COOK INLET PACK BY WEEK - 1964

SELDOVIA - PORT GRAHAM CONSOLIDATION

<u>WEEK ENDING</u>	<u>KINGS</u>	<u>REDS</u>	<u>COHOS</u>	<u>PINKS</u>	<u>CHUMS</u>	<u>TOTAL</u>
June 14		72			1	73
June 21		139		4	50	193
June 28		126		24	34	184
July 5		383	8	512	767	1,670
July 12		1,695	82	3,289	12,779	17,845
July 19		3,385	368	7,713	9,062	20,528
July 26		1,791	1,421	10,087	7,520	20,819
August 2		717	1,162	9,370	10,455	21,704
August 9		39	297	7,307	2,481	10,124
August 16		17	192	4,270	3,355	7,834
August 23		<u>3</u>	<u>80</u>	<u>1,009</u>	<u>580</u>	<u>1,672</u>
Totals		8,367	3,610	43,585	47,084	102,646
Corrected Totals Taken from Cannery Annual Reports		8,341	3,584	43,620	47,085	102,630

COOK INLET PACK BY WEEK - 1964

SNUG HARBOR PACKING COMPANY

<u>WEEK ENDING</u>	<u>KINGS</u>	<u>REDS</u>	<u>COHOS</u>	<u>PINKS</u>	<u>CHUMS</u>	<u>TOTAL</u>
June 28		306	2		29	337
July 5		893	23	1	714	1,631
July 12		2,726	236.5	95.5	3,462	6,520
July 19		2,204	542.5	1,945	2,474	7,165.5
July 26		1,078	972	3,393.5	5,829	11,272.5
August 2		338	848	2,381	4,550	8,117
August 9		61	612	1,262	5,397	7,332
August 16		<u>14</u>	<u>429</u>	<u>1,662</u>	<u>1,035</u>	<u>3,140</u>
Totals		7,620	3,665	10,740	23,490	45,515
Corrected Totals Taken from Cannery Annual Reports		7,624	3,682	10,665	23,556	45,527

COOK INLET PACK BY WEEK - 1964

TIDEWATER PACKING COMPANY

<u>WEEK ENDING</u>	<u>KINGS</u>	<u>REDS</u>	<u>COHOS</u>	<u>PINKS</u>	<u>CHUMS</u>	<u>TOTAL</u>
September 6		310	170	116	105	701
Corrected Totals Taken from Cannery Annual Reports	13	488.5	226.5	74	58.5	860.5

COOK INLET PACK BY WEEK - 1964

MISCELLANEOUS*

<u>CANNERY</u>	<u>KINGS</u>	<u>REDS</u>	<u>COHOS</u>	<u>PINKS</u>	<u>CHUMS</u>	<u>TOTAL</u>
Alaska Smokey Joe's	42.5		235	80	60	417.5
Alaska Star Inc.		1	7	1	11.5	20.5
Alida's Alaskan Gifts	2.5	1	8			11.5
Horton's Sales & Seafood		27.5				27.5
Osmar's Ocean Specialties	20	829	342	1,733		2,924
Charles L. Simon Seafoods	<u>20</u>	<u> </u>	<u>8</u>	<u> </u>	<u> </u>	<u>28</u>
Totals	85	858.5	600	1,814	71.5	3,429

*These figures taken from Annual Reports of Canneries.

TOTAL CUMULATIVE PACK COOK INLET - 1964

<u>WEEK ENDING</u>	<u>KINGS</u>	<u>REDS</u>	<u>COHOS</u>	<u>PINKS</u>	<u>CHUMS</u>	<u>TOTAL</u>
June 14	0	72	0	0	1	73
June 21	0	211	0	4	51	266
June 28	0	837	12	28	223	1,100
July 5	0	2,948.5	60	541	2,481	6,030.5
July 12	87	19,846.5	1,900.5	4,714.5	35,540	62,088.5
July 19	248	50,843	8,704	25,985.5	61,143	146,923.5
July 26	301	62,269	17,640	65,333	92,530	238,073
August 2	558	71,979.5	28,376.5	95,913	118,501	315,328
August 9	713	73,720.5	33,909.5	138,080	130,528	376,951
August 16	741	74,223.5	36,946	173,444.5	135,184	420,539
August 23	872	74,361	38,681	188,571	135,764	438,249
August 30	872	74,387	38,878	188,668	135,806	438,611
September 6	872	74,387	38,963	188,668	135,806	438,696
September 13	872	74,697	39,306	188,784	135,911	439,570
September 20	872	74,697	39,387	188,784	135,911	439,651
Corrected Totals Taken from Cannery Annual Reports	916	75,897.5	40,090.5	188,371	135,458	440,733

PRICES PAID AND FISH PER CASE, COOK INLET, BY CANNERY, 1964
 (Price in Parenthesis)

<u>KINGS</u>	<u>REDS</u>	<u>COHOS</u>	<u>PINKS</u>	<u>CHUMS</u>	<u>CANNERY</u>
--	12.457 (1.43)	13.322 (.97)	22.037 (.35)	9.254 (.60)	Emard Packing Co.
--	14.3 (1.47)	9.5 (1.00)	20.3 (.35)	9.3 (.60)	Berman Packing Co.
3.85 (5.00)	14. (1.47)	9.65 (1.00)	20.3 (.35)	8.85 (.58)	Columbia-Wards Fisheries
3.276 (5.00)	12.997 (1.47)	11.72 (1.00)	21.924 (.35)	9.564 (.60)	Kenai Packers
--	12.37 (1.47)	12.53 (1.00)	22.62 (.35)	9.27 (.62)	Seldovia-Port Graham Con.
--	12.25 (1.45)	11.37 (1.00)	21.02 (.35)	9.55 (.60)	Snug Harbor Packing Co.
9.0 (5.00)	16.2 (1.50)	9.1 (1.05)	21.4 (.45)	--	Osmar's Ocean Specialties

SALMON CATCH BY STATISTICAL AREA AND GEAR
1964

<u>AREA</u>	<u>GEAR</u>	<u>KINGS</u>	<u>REDS</u>	<u>COHOS</u>	<u>PINKS</u>	<u>CHUMS</u>	<u>TOTAL</u>
231	Hand Purse Seine	--	19	9	296	11	335
232	Hand Purse Seine	--	35	7	23,776	11	23,829
241	Hand Purse Seine	79	651	7,329	240,554	9,557	258,170
241	Set Gill Net	5	16,632	1,576	25,935	1,972	46,120
242	Hand Purse Seine	2	1,335	424	743,620	269,501	1,014,882
242	Set Gill Net	--	71	--	105	3	179
243	Hand Purse Seine	--	32	--	2,950	2,677	5,659
244	Hand Purse Seine	--	26	--	--	22	48
244	Drift Gill Net	214	359,325	102,633	1,043,154	767,187	2,272,513
244	Set Gill Net	3,987	299,941	89,582	1,485,578	6,507	1,885,595
245	Hand Purse Seine	--	2	460	4,845	23,996	29,303
245	Drift Gill Net	9	66,110	9,593	36,210	85,847	197,769
245	Set Gill Net	53	45,123	47,260	36,592	64,446	193,474
246	Drift Gill Net	--	1,428	763	2,263	1,911	6,365
246	Set Gill Net	100	37,768	34,435	37,399	2,210	111,912
247	Set Gill Net	168	160,264	167,928	586,386	126,958	1,041,704
248	Hand Purse Seine	<u>5</u>	<u>1,947</u>	<u>115</u>	<u>17,769</u>	<u>39,603</u>	<u>59,439</u>
Totals		4,622	990,709	462,114	4,287,432	1,402,419	7,147,296

SALMON - GENERAL

THE 1964 PACK

The salmon pack for 1964 nearly equalled the all-time record of 1962. Distribution of the pack among species was about the same for the two years -- the large pack of both years can be attributed to the simultaneous peak of runs of both pinks and chums during the same year.

CHUM

For unknown reasons the chum pack for Cook Inlet has been markedly increasing in recent years. The 1964 chum pack was the largest ever packed in the Inlet with a total of nearly 136,000 cases. In the late 1930's the chum pack was approximately 20,000 cases. Between 1940 and 1950 it averaged something over 30,000 cases. From 1950 to date it has rapidly increased with large packs being made in 1954, 1957, 1962 and the final large pack of 1964. It is difficult to determine whether the increase in pack size is due to an increase in salmon or an increase in interest in catching this species. During the 1940's and shortly thereafter the price paid for chum salmon was very low. Since 1950 the price has been well worth catching this fish for. There has unquestionably been an increase in the numbers of this species in certain areas, as, for example, at Port Dick Creek, which at one time supported runs of pink salmon only. Old time fishermen familiar with that area report that the chums have started to dominate the early runs at Port Dick, and they object to this species and would far rather catch pink salmon than chum salmon. The dominance of chum salmon in the gillnet fishery, particularly the drift fishery of the Inlet, and in the west side and Northern District set net catches overshadowed that of every other species except for pinks during 1964 run. Quality of the Cook Inlet chums has been reported by processors of the Inlet to be excellent.

PINKS

Pink salmon, like the chum salmon, were relatively unimportant in the Cook Inlet pack of the late 1930's, with about 40,000 cases average during those years. In 1940 a peak of over 120,000 cases was established, but between that date and 1952 the pack ran somewhere between 60,000 and 80,000 cases with highs and lows above and below these figures. However, since 1952, the even year pink pack has increased steadily. In 1958 a pack of over 160,000 cases was put up, and in 1962 the record pack of 210,000 cases was put up in Cook Inlet. The 1964 pink salmon pack compared very favorably with the high year of 1962, with 188,800 cases.

Pink salmon appeared to cause much of the trouble during the peak of the 1964 season in Cook Inlet. The trouble being that of canneries being overburdened with large numbers of fish. As a result of the large pack of 1962, and the low prices obtained for this pack, packers on the Inlet were understandably reluctant to put up a large pack of pinks in 1964. Quality control in 1964 was very evident in all operations. In the seine fishery one packer required that all dark pinks be thrown overboard -- he would not accept delivery of such fish. A cannery at Kenai put on extra trucks and extra tenders and made a special effort to get pink salmon to the cannery as soon after they had been caught as possible. The pinks in the Inlet were somewhat larger in 1964 than in 1962, and, because of the efforts to increase the quality, the pack was reported by various processors as being one of the finest ever put up in Cook Inlet. However, the farther north in the Inlet salmon move, the poorer the average quality appears to be. The cannery at

Anchorage reported that their pink pack was not particularly good and they were among those canneries that appear to be reluctant to put up a large pack of this species. An interesting facet to the pink salmon runs is that the even year runs appear to be increasing while the odd year, or the off year, run appears to be growing smaller. It is impossible to determine at this time whether this is due to smaller runs in the odd years, or whether this is due to more stringent regulations imposed by the Department based on escapement. Despite the extremely large packs in recent years the full potential of the Cook Inlet pink salmon harvest has not been realized. Large numbers of pinks have gone unharvested from the Kamishak Bay District each year. It is probable that somewhat larger harvests could be taken in the gill-net fishery of the Inlet. Since escapement figures are very difficult to obtain in the Inlet and no actual knowledge is available of the numbers of fish that escape into the silty streams during the time that the fishery is going on, management has to be based on estimations.

REDS

The trend of the red salmon pack in Cook Inlet appears to be downward. In 1935 the pack was over 100,000 cases and from that date until 1941 the pack averaged about 140,000 cases. Between 1940 and 1945 the pack ran about 120,000 cases. In 1944 a peak of 159,000 cases was established and by 1950 the highest figure since 1935 was reached, with 207,000 cases. Since 1950 the decline has been obvious. The 1950 pack can be attributed largely to the large numbers of drift boats that appeared in the Inlet during that time. Since 1960 the pack has been in the neighborhood of 80,000 to 90,000 cases. The pack of 1964 was 74,700 cases, which is quite low when considered next to packs of other years. It is difficult to ascertain whether the red salmon

pack for Cook Inlet is low because of scarcity of red salmon or because of the drastic reduction in fishing time in recent years. The two day week went into effect in 1952, which coincides with the drop in the size of the pack; and the two day week and the packs of slightly over 100,000 cases to as low as about 39,000 cases (which occurred in 1958) coincide with the short fishing time. More information is needed on escapement to determine whether a larger harvest of this species is possible.

COHOS

The coho pack for Cook Inlet for 1964 was the highest since 1950, with 39,300 cases packed. In 1950, 63,000 cases were packed and the previous high was 1942, when about 60,000 cases were packed. During the late 1930's the average coho pack was about 45,000 cases. From 1939 until 1952 the pack averaged about 40,000 cases. After 1952 the pack gradually diminished to a low of about 9,000 cases in 1959. Since that date it has gradually climbed until the 1964 season. An interesting aspect to the coho runs of Cook Inlet is that they appear to be cyclic, with the odd years being the years of low catch and the even years being the years of high catch. This is an almost invariable fact. It is impossible to determine whether this is due to the variance in numbers of cohos or due to the variance in fishing pressure. During even years there is considerably more fishing pressure in Cook Inlet because of the existence of the obviously cyclic pink salmon. If there are more fishermen fishing for pink salmon, they are going to catch more coho salmon; therefore, it is impossible to determine whether the apparent cyclic behaviour of the coho in Cook Inlet is due to the fluctuation of the species or fluctuation in fishing pressure. The coho salmon in the Inlet run far later than any other species, with fresh cohos appearing as late as

December. Each year the Department has attempted to encourage commercial fishermen to fish late for cohos in an attempt to harvest more of this species. However, when the major canneries close most of the fishermen stop fishing and go home. A few that do remain have managed to catch enough cohos some years to make it worth while and they have sold them to the fresh market or to operators with freezers in the areas in which they fish.

KING SALMON

In 1964 the king salmon pack for Cook Inlet was 870 cases. In December, 1963, the Board of Fish and Game established an opening date for salmon for Cook Inlet of June 25. This is the latest date that the salmon fishery of the Inlet has ever opened. The Board wished to protect remnant stocks of king salmon that still existed in the Inlet. From catch data and other information it is estimated that the June 25 date was a 90% closure of the king salmon fishery of the Inlet. At the time of the Board's action it was realized that a certain number of kings would be taken while fishing for other species. In order to make it possible to utilize these kings, and yet to keep them off of the market, the Board had provided that king salmon accidentally caught while fishing for other species could be utilized for subsistence or welfare purposes only. Following the Board action various attempts were made by many interests to change, upset, or overthrow the king salmon closure, including attempts to obtain legislative action, letters to the Commissioner, and others. Finally, during July, a court action was instituted, and the court decided that fishermen who caught king salmon accidentally while fishing for other species could sell such kings. The court action did not affect the closure and the Commercial Regulations for Cook Inlet still read that king salmon could not be taken. After the court determined in July that

king salmon could legally be sold those taken by commercial fishermen, of course, were delivered to various canneries, and the 870 cases were packed.

Because of the precarious status of Cook Inlet's king salmon, special attempts are made each year to study the remnant populations to determine their exact status. In 1964 a test fishing program was commenced May 19 in the Susitna River and continued until August 1. Joe Reddington, a long-time resident of the area, and a professional set net fisherman, was recommended to the Department by the Cook Inlet Fishermen's Association. Reddington ran the project on the Susitna River. He concluded from his own experience - past experience in fishing on the river when fishing was legal there -- that the run was extremely low. The run did arrive late. Water in the river remained choked with ice, and temperatures were low until well into June. Another study consisted of a tabulation of kings taken by set net fishermen on the beach between Ninilchik and the Kenai River from the opening of the season until mid-August. A total of 3,868 king salmon were recorded as having been caught by fishermen in this area. This compares favorably with the estimate made by the Department of the numbers that would be caught, should the season be opened June 25, when such recommendation was made to the Board. It is estimated that approximately 5,000 kings were taken throughout the Inlet after the season opened June 25. Further efforts to determine the status of the king included aerial and ground surveys of 51 Susitna River Basin streams. This included several wet-suit surveys of Alexander Creek and the Talachulitna River. The general concensus at the end of the season was that the closure by the Board came at a fortuitous moment. If there had been a commercial fishery on king salmon, opening June 7, 8 or 9, the commercial fishery would have taken an undue proportion of a weak run of female kings.

It is believed that such a commercial fishery would have further endangered the species, which is already in extreme trouble.

Fishermen and others who are still opposed to the closure of king salmon fisheries on the Inlet use several arguments against the closure. Some of these include the belief that the Department catch records are incorrect. However, if the catch records for the areas in which these records are questioned -- that is, the beaches along the east side from Boulder Point to Ninilchik -- are doubled, it still appears that the king salmon is tremendously reduced and in considerable danger.

Another argument used by those opposed to the closure is that the traps went out in 1959 -- that is, the last year they fished was 1958 -- and that, therefore, the traps did not catch their large number of king salmon in 1959, and escapement in 1959, therefore, must have been very good and the return should start appearing in approximately 5 years, or during the 1964 season. This does not stand up, because the traps did not catch a large proportion of the kings. Further, no traps were allowed to fish north of Cape Kasilof until after June 25 for as far back as records exist on the Cook Inlet fishery.

Another rather illogical argument is that fishermen are worried about over-escapement, therefore, they wish to have a small fishery that would act as a test to determine the strength of the run. Other fishermen claim that the king salmon runs are increasing, and, in fact, their catch records appear to prove this. However, the fact that a few fishermen's records indicate that they are catching more kings actually means nothing when the total catch records for the Inlet are viewed. Total records, of course, give the true picture, and even though there is some question as to the accuracy of the catch records that the Department has, even if these figures should be adjusted to double the figures reported by fishermen the trend of king salmon is still

downward, and downward to such a degree that it is obvious that the species is in trouble.

Another argument is that the king salmon run comes in before May 25, and gets by and gets into the streams for spawning. There is no support for this claim. Records of the early 1950's, when the season was opened early, indicate that early catches were always small, and the peak occurred well after May 25. Test fishing in the Susitna River in 1964 commencing May 19 proved that, in that year at least, no migration peaks appeared in the river until well into late May and in early June.

Another argument is that closure of the king fishery has resulted in economic catastrophe -- that the loss of the early red salmon catch, plus the loss of kings, has resulted in a disaster for the area involved. Actually, kings have comprised about 5% of the set net catch in past years. The red salmon lost -- that is, the reds that would have been caught prior to June 25 -- total from 20,000 to 58,000 fish for the entire Inlet. Approximately half of these were probably bound for the Kasilof River, which does have an early run of red salmon. Fishermen in the area of the Kasilof River, on the beaches above and below it, are, of course, affected out of proportion, and these are the fishermen who have been objecting to the economic catastrophe. Among these fishermen are those on Kalifonsky Beach, which lies between the Kenai and Kasilof Rivers, and the average catch of fishermen in that area is well above the average for the remainder of the Inlet.

It is still obvious that the king salmon is in dire straits in Cook Inlet, and it will be some time before this species can recover, even with full protection.

SALMON ECONOMICS, 1964

The major earthquake of March 27 had little influence on fishing pressure for the season, or on canning capacity. A few boats were lost at Seward from the tidal wave that followed the earthquake. However, a number of Seward fishermen successfully went to Seattle and replaced their boats by fishing season. Not over eight or ten drift boats, and perhaps five seine boats were lost that were not replaced.

Emard's in Anchorage suffered damage to the cannery building, but a new building was erected to replace it by fishing season.

Set netters found their beaches had dropped in some areas by a foot or two, but this had little influence on catch. Seiners found more drastic changes in the Outer District, where the land mass dropped several feet, and possibly as much as seven or eight feet in specific localities, such as Nuka Bay and Aialik Bay.

Delight and Desire Lakes, in the east arm of Nuka Bay, both of which support red salmon runs, became silty, and extensive changes occurred at their outlets. It was impossible to determine escapement into either lake during the entire 1964 salmon season because of the silt.

The subsidence of land reduced the amount of available spawning area in Port Dick and somewhat at Rocky Bay and other streams in the Outer, Eastern and Southern Districts. (For a more complete evaluation of this, see the section in this report dealing with earthquake loss.)

It is probable that the greatest damage to the salmon fishery of Cook Inlet will be the loss of spawning area for pinks and chums in the Southern, Outer and Eastern Districts. Destruction of emerging fry and of viable eggs

still in the gravel, due to scouring action of the tidal wave, may reduce the odd year return of pinks in the Outer District seriously, and it may be years before this cycle can recover. In the affected areas the same can be said for one year class of chums, which are apparently dominated by a four year life cycle in Cook Inlet.

The main problem confronting fishermen, packers, and management in Cook Inlet during 1964 was the inability of the canneries to handle all of the fish caught. A small segment of the seine fleet that was entirely dependent upon tenders from Kodiak lost much of the season waiting for tender service. All fishermen in the Northern District were placed on limits for several weeks (during the peak of the run), and on several occasions the cannery they fished for announced that they would not purchase fish for a day or two until they could catch up. This at a time when fishing was open three to five days a week, and salmon were unusually abundant.

As the salmon season neared there was no price settlement between fishermen and the packers. As late as June 29 there was no price settlement, and this was four days after the season commenced, and many of the set net fishermen of the beaches between the Kenai and Kasilof Rivers loaded their catches in trucks, hauled them to Anchorage and gave them away in a rather spectacular public demonstration of their problems with the packers. This did draw attention. Whether it had a bearing or not is unknown, but shortly thereafter a price settlement was made.

Another change that occurred in 1964 was the opening time for the gillnet fishery. In the past several years this time has been 6:00 a.m.; however, the majority of fishermen in the area appeared to prefer a 9:00 a.m. opening and this was recommended to the Board, and the Board did change the time.

Therefore, during 1964, opening time and closing time was at 9:00 a.m. This has proven to be popular with the drift fishermen and the set net fishermen.

CANNERY PROBLEMS

An incident that occurred during the week starting July 20 was of enough significance to call for a detailed accounting here. Management policies of the State are involved, and decisions made on this incident and on other similar situations, will have far reaching effects on the fishermen, the packers, and the State.

On Monday, July 20, the Inlet gillnet fishery made outstanding catches, and on that one day nearly as many fish were caught as were caught for the entire previous week. The catch was heavy on chums, and pinks, with about 75% of the catch of the Northern District made up of pinks. During the previous week pinks comprised about 40% to 50% of the drift catch, and the pink run was still building.

On Tuesday evening, July 21, the superintendent of Emard's cannery at Anchorage requested that fishing not be allowed on Wednesday, July 22, because his cannery couldn't handle any more fish. His request was refused. He then requested that we announce on our regular daily broadcast to the fishermen that Emard's cannery would not buy any fish on Wednesday. This the Department agreed to. Commencing July 15, the Northern District was open to fishing three days a week (MWF), while the other gill net areas of the Inlet continued to fish on Monday and Thursday.

Emard's also reported that their fishermen were on a limit of 750 fish each for July 20, but most of the fishermen ignored the limit and delivered as many fish as they could catch. A request by Emard's to Kenai Packers and to Columbia Ward Cove canneries, at Kenai, to help process fish was refused.

The owner-manager of Kenai Packers informed the Department on Tuesday that his cannery had brine storage capacity for 200,000 salmon more than they expected to receive from the Monday fishing period. This individual also felt that Columbia Ward had more capacity, but wanted to hold in reserve this space and capacity in event of a big catch on Thursday.

On this same day the owner-operator of Snug Harbor Packing Company indicated on the radio to the Department that he would like to see more fishing time. The comptroller of Berman Packing Company at Ninilchik also indicated that his company would like to have more fishing time.

And on Tuesday, July 21, Kenai Packers, though they were aware that it was the peak of the season, and they could expect heavy runs of fish, ran quarter and half pound size cans and no #1 talls. The owner-operator later estimated the cannery could have processed an additional 50,000 fish by processing the larger size cans.

During the entire week prior, the Department made daily broadcasts on an Anchorage commercial radio station (KENI), as has been the custom for five years during salmon season, and on several of these broadcasts it was announced that it appeared that further time would be granted to the fishery soon, for the 1964 run appeared to be unusually strong.

At 8:00 p.m. Tuesday evening, July 21, it was determined that the percentage of red salmon in the drift catch had dropped to about 14%. Earlier it had run to as high as 60%. This indicated that reds had reached beach areas preparatory to entering the rivers. This trait is most commonly observed in the Kenai and Kasilof River areas where probably the greatest concentrations of red salmon occur in Cook Inlet.

Based on:

1. The size of the pack to date compared with other seasons.
2. A stream survey flight along the Kenai River from Russian River to the mouth on which evidence indicated fair to good escapement of red salmon.
3. Test fishing data from the Kenai, Kasilof, and Susitna Rivers.
4. Counts of salmon at the Lower Russian Lake counting tower site, and at Fish Creek on Knik Arm.
5. The obvious strength of the pink and chum run from the tremendous catches reported.

the announcement was made that fishing would be allowed three days a week (MWF) instead of Mondays and Thursdays, for the North Central and South Central Districts. The change was to be effective immediately, and fishing was to recommence at 9:00 a.m. Wednesday, about 12 hours after the change was announced.

The change was announced by radio and telephone. The owner-operator of Kenai Packers flew into a tirade over it. His first thought was that he should have been consulted before a decision was made. His second complaint was that it was not sufficient advance warning. Then he decided that there was not sufficient escapement of red salmon into the Kenai River to warrant more fishing time. He contacted the superintendent of Columbia Ward cannery, who hurried to the Kenai Packers' telephone, and repeated the sentiments of the owner-operator of Kenai Packers. The Department staff who had made the decision to extend fishing time was accused of being irresponsible, drunk, and attempting to destroy the fishery.

Both men then stated they were going to refuse to buy fish on the following day, even though the season would be legally open. Both gave as their reason the poor escapement of red salmon (in their belief) into the Kenai River.

Early the next morning both canneries had announcements broadcast over commercial radio stations in Anchorage to the effect that they would not buy fish, giving as a reason the short notice of the extension of fishing time.

On Wednesday morning the superintendent of the Seldovia-Port Graham Consolidation said that he could not handle the glut of fish that he expected, and that he had no choice but to close. He could not or would not put his fishermen on limits (and Kenai Packers and Columbia Ward also refused to impose limits on their fishermen). The superintendent of the Consolidation became abusive, stating that he should have been consulted before more fishing time was announced.

It appeared from statements of Emard's, Kenai Packers, Columbia Wards, and the Seldovia-Port Graham Consolidation that there was considerable likelihood of wastage of salmon if the announced Wednesday fishing period were allowed to run its course. After consulting with Commissioner Kirkness, the announcement was made that fishing would cease at 6:00 p.m. Wednesday in order to prevent waste.

That evening a policy statement was broadcast by the Department over several news broadcasts, as well as the daily "Fishermen's Corner". This statement is given in its entirety below:

TEXT OF FISHERMEN'S CORNER, JULY 22, 1964, KENI RADIO (ALSO BROADCAST OVER
KHAR AND KBYR, 6:10 P.M.)

This is Jim Rearden, of the Department of Fish and Game, speaking from Homer.

Last night at 8:30, that is Tuesday night, we announced that three days a week commercial salmon fishing would be allowed in the North Central and South Central Districts of Cook Inlet -- these are the areas between Boulder Point near the Forelands and Anchor Point. The three days were to be Monday, Wednesday, and Friday, for 24 hours each period. The change went into effect at 9:00 a.m., this morning. We based our decision on data that we have been collecting all of this salmon season. The fact that the season opened late, June 25th, has allowed for a certain amount of salmon escapement before the fishing started. There is slightly less gear fishing the Inlet this year than last year and we have had advance notice from high seas work, and we have broadcast this advance notice, that we can expect probably a heavy run of pinks throughout the Inlet this year. The pink run in fact has been strong to date. The pack at the end of last week was almost equal to that of the same date in 1962 with about 26,000 cases. In 1962 on this date the pack was about 28,000 cases, and 1962, of course, was the record year for pink salmon in Cook Inlet.

We publicly announced last Friday and Saturday that we believed more fishing time would be possible as soon as we were satisfied that we had achieved the bulk of red salmon escapement into our major red salmon streams -- the Kenai River, the Kasilof River, and the Susitna River. We have test fishing crews working on all three of these rivers sampling the run with small gill nets as they go in. We have a counting tower on the Russian River, counting fish into that system, which is on the Kenai River drainage. We also have a

counting tower at Fish Creek on Knik Arm, and this we believe is a fair indicator of the red salmon escapement in the Northern District which is in the area above the Forelands, or above Boulder Point. Escapement of red salmon, we believe, at this point, in Cook Inlet is adequate.

Last night when all the figures and facts were put together and compared, it was apparent that more fishing time could be allowed in the Inlet.

In reviewing past actions we have found that in 1962 we went from a two-day fishery to three days a week on July 23rd, just one day later than we did this year. Last night we had reports from all of the major canneries in the Inlet giving us a known total catch for the entire Inlet for Monday's fishing period of between 750,000 and 800,000 fish which, of course, indicated that there are many fish present. This is a big catch for Cook Inlet. These fish were mostly pink salmon and chums with a strong showing of cohos. Red salmon were heavy on the beaches and they were rather weak in the drift net fishery. Actually, probably, about 15 per cent of the drift catch was red salmon.

As all Inlet fishermen know, the Northern District has been on a three-day a week schedule and this started on July 15th. The remainder of the Inlet has been on a two-day a week schedule.

Yesterday afternoon Emard's Cannery in Anchorage informed the Department of Fish and Game that they had all the fish they could possibly handle and they were not going to buy any fish from their fishermen from today's catch. They requested we announce this to the Inlet Fishermen on the radio, which of course we did, last night.

Kenai Packers and Columbia-Wards Fisheries at Kenai also informed the Department that they had all the fish that they could handle and they would not buy any fish today. The fishermen from these canneries were informed of this by the canneries. The Seldovia-Port Graham Consolidation stated that if the 24 hours scheduled for today were to be allowed they could not handle all the fish and that there would be tremendous waste. This cannery could not find another cannery on the Inlet to help them take care of their fish.

It appeared then that the large quantity of salmon on hand, plus that expected to be caught today, would lead to great waste from one end of the Inlet to the other. Based on this fact, and based on this fact alone, the Department of Fish and Game issued an emergency field announcement this morning and closed today's fishing period effective 6:00 p.m. this evening.

This is unfair to two other canneries on the Inlet who have a modest amount of gear and who were prepared to handle all of the fish their fishermen could take. It is unfair to the fishermen who expected to fish and who wanted to fish. It imposes an unjust burden on the fishermen of the Inlet.

This type of situation does occur in other fishing districts of Alaska, and in fact is the case in Kodiak right now where each boat has a limit of 750 fish per man per day. In such situations the canneries normally put their fishermen on limit.

I would like to make clear at this point that the policy of Fisheries Management for Cook Inlet has always been to allow fishing when the resource is available. It is the responsibility of the State to insure escapement and to make available fish when the escapement is achieved. It is not the responsibility of the Department of Fish and Game to close the season in order to curtail the catch because some canneries are unable to take care of all of the fish that they collect.

I would also like to make clear that we do not intend to again close fishing season in the Inlet because some canneries have taken on so many fish that they cannot take care of them. From this day on, this season, and in the future, when fish are available in quantities for harvest in the Inlet the season will be open. It will be the responsibility of the canneries of Cook Inlet to see that they do not accept more fish than they can logically expect to handle.

This is not to say that we are not concerned with the economic well-being of the canneries or that we will not cooperate with them. It is simply that the situation that developed today put an unfair burden on some canneries that wanted to fish and were prepared to, and it put an unfair burden on the Department of Fish and Game. Our job is to manage the fishery to the best interests of all Alaskans. It is to achieve a maximum sustained pack and to do this we simply adjust the season so that we are certain of our escapement. We believe that the entire portion of the run not used for escapement should be made available for harvest. The Department on occasion has manipulated fishing time so as to make possible a larger pack which will benefit all interested fishermen, the State and the packers. And this is the degree that the Department is willing to cooperate when it is warranted and when the conditions are all such that this can be worked out.

Now I have a field announcement. Today's fishing period was closed at 6:00 p.m., tonight, as I have discussed. On Friday, July 24, fishing will commence again at 9:00 a.m., in the Northern, North Central, and South Central Districts, and it will continue open in all of these Districts until Midnight, Saturday, July 25. This will give the canneries that are plugged with fish an opportunity to prepare for the longer fishing period scheduled for Friday and Saturday.

This is Jim Rearden, of the Department of Fish and Game, speaking from Homer.

End of "Fishermen's Corner" text.

During the next day a policy letter was mailed to all of the major canneries on Cook Inlet, commenting on the problem, and establishing the policy that will be followed by the State in the future. The following is a copy of this letter:

Commercial Fisheries Division
Cook Inlet Area Office
P. O. Box 234
Homer, Alaska

July 24, 1964

(Address to various canneries)

This is a policy letter, informing you of the type of fisheries management that you can expect to be followed in Cook Inlet.

It is the responsibility of the state to attain and maintain the maximum sustained production of the renewable natural resources: with salmon, once we have satisfied ourselves that we either have or will achieve the desired escapement, we intend to allow as much fishing time as we believe possible consistent with sustained production or the size of the run.

It is not the responsibility of the Department of Fish and Game to close the season in order to curtail the catch because some canneries (or even all canneries) are unable to take care of all the fish that they collect, or because a cannery states that they have a contract with fishermen that will break them because too many fish will be caught.

I wish to make very clear that we do not intend to again close the fishing season as we did on Wednesday, July 22, because some canneries have so many fish or expect to get so many fish that they cannot take care of them.

When fish are available in Cook Inlet in quantities sufficient for harvest, the season will be opened to the maximum time we judge compatible with escapement needs. It will be the responsibility of each cannery operator to adjust the volume of landings from his fishermen to his own ability to care for them.

We are concerned with the economic well being of all of the canneries on the Inlet, and we will continue to cooperate with the industry in every way possible to make a smooth and efficient operation. We will continue to keep you informed via the daily "Fishermen's Corner" radio broadcast and with personal telephone and radio calls. It is apparent that some operators have not been taking advantage of the information reported on "Fishermen's Corner", for

on Friday and Saturday of last week we announced that as soon as we were satisfied that we had the bulk of the red salmon escapement for this year we would be extending fishing time, and that the situation looked similar to the 1962 picture. In 1962 fishing time went from two days to three days a week for the entire Inlet on July 23.

Further, we have continually, since early July, reported the findings of the high seas test fishery on pink salmon, and have announced that we expected a heavy run of pinks in the Inlet. The addition of more fishing time on Wednesday should not have come as a surprise.

I would like to remark that we have often given 12 hour notice of additional fishing time during the past few years, and have never met with objections. We attempt to give as much advance notice of changes, or of contemplated changes, as possible. This is where the value of the "Fishermen's Corner" lies, for we do discuss changes, or proposed changes, on this broadcast quite often.

It is true that we were still comparing information as late as 8:00 p.m. Tuesday night, and we realize that the heavy catch from Monday did glut some canneries. It did not plug all of them, however, and the fact that fishing was stopped at 6:00 p.m., on the 22nd, was grossly unfair to the canneries that were prepared to operate. Needless to say, it was an economic loss and a great disappointment to the fishermen of the Inlet. It also may tend to depress the total pack of the Inlet for this season.

I want to thank you personally for your very cooperative attitude in providing me with catch information as well as other information as I have requested it. I also wish to thank you for providing equipment and living quarters for my temporary employees for the last three seasons: this service is very much appreciated. The information these people gather is and has been of inestimable value in the management of the fishery. Data collected is being shared with the Fisheries Research Institute, the Fish and Wildlife Service, and the Canadian fisheries people: eventually it may lead to an accurate forecast of the strength of the Inlet's runs, a month or two before the season opens.

We will continue to cooperate with you in every way we can, as we have attempted to for the past several years. We draw the line, however, at closing fishing season because there are too many fish.

Sincerely,

ALASKA DEPARTMENT OF FISH AND GAME

/s/ Jim Rearden

Jim Rearden, Area Management Biologist

Following this incident Governor Egan directed Commissioner of Labor Johnson to investigate charges made by fishermen that the Cook Inlet canneries were dragging their feet, and that they apparently preferred not to pack too many pink salmon. Mr. Johnson traveled to various canneries on the Inlet, talking with fishermen and cannery workers about it. No report was ever received on Mr. Johnson's conclusions.

Employees were reported quitting Emard's cannery in protest at the slow rate of canning: the catch of 129,089 fish on Monday included 88,500 pinks. The previous week, when the catch was mostly chums, silvers and reds, utilization of 100,000 fish did not slow the cannery or fishing operations. Only one shift was allowed to work at Emard's on July 21, and ice was "unavailable" to fishermen who wished to use it to help preserve their catches until they could be picked up.

At Columbia Ward's, on Wednesday at 6:30 p.m., there were probably not enough fish to keep the cannery busy through the evening. This was confirmed by a member of the Department staff who visited the cannery at that time.

This problem resulted from an unusually heavy run of fish, from the fact that some canneries have so much gear fishing for them, and from poor planning. For a cannery to run half and quarter pound lines in the face of such a run indicated that they were either not desirous of buying a large quantity of fish, or they were simply not planning ahead.

There are strong indications that the heavy percentage of pink salmon in the catch had the canneries worried: they apparently feared to refuse to buy the fish because of agreements with fishermen, and yet they did not wish to can a large number of pinks because they were afraid that the market conditions would be poor.

The State should make every effort to adjust fishing periods so that the canneries are able to can the maximum number of fish. At the same time the State should never allow itself to get into a position of adjusting fishing seasons at the behest of canneries that are over-gearred, and to the detriment of the smaller operators who need and will buy all the fish their fishermen are capable of delivering. In short, when fish are available in sufficient numbers to plug the canneries, and there is no biological reason to close the season, overburdened canneries should limit their purchases of salmon rather than having the State close the season.

#

KING SALMON BEACH SURVEY PROJECT

One man was assigned to contact all set net fishermen from Ninilchik to the Kenai River during the 1964 salmon season in order to determine the number of king salmon caught by these fishermen.

Forms were left with fishermen and individual contacts were made at least weekly to pick up the filled in forms and to talk with the fishermen.

During the season 3,868 king salmon were reported taken by all set net fishermen from Ninilchik to the Kenai River. Of these, 356 weighed under five pounds, 390 weighed between five and fifteen pounds, and 3,122 weighed over fifteen pounds.

It is estimated that 5,000 king salmon were caught by all gear and in all Districts of Cook Inlet during 1964.

COOK INLET DISTRICT PINK SALMON FORECAST STUDIES

PRE-EMERGENT FRY PROGRAM

Introduction

The Commercial Fisheries Division of the Alaska Department of Fish and Game initiated a pre-emergent fry sampling program in the spring of 1963. The initial purpose of the program was to determine the feasibility of sampling pre-emergent fry in the Kenai Peninsula streams. Ten major pink salmon producing streams were selected for sampling in the study area. Figure 1 shows the study stream locations. The 1963 sampling results were presented in the Alaska Department of Fish and Game Informational Leaflet No. 36. It was concluded from the 1963 program that pre-emergent fry sampling was feasible and would eventually provide estimates of returning adult pink salmon for the study area.

Following the March 27, 1964, earthquake and tsunami, pre-emergent fry sampling was conducted in seven of the ten study streams, using the hydraulic sampler described by McNeil (1962). Gravel shift and freezing level indicators which had been placed in the gravel following the completion of spawning in the fall of 1963, were checked. Observations of these two mortality factors were accomplished by burying perforated ping pong balls and waterfilled and capped glass vials in vertical columns in the spawning gravel. The balls were painted six different colors to indicate burial depth, and vials were placed at the top and bottom of the ping pong ball column.

Broken vials indicate freezing conditions, and missing balls indicate gravel shift. The depth of gravel shift is determined by the number of missing balls.

Discussion

Gravel shift and freezing mortality results are presented in Table I. Freezing level vials indicated that freezing conditions in the spawning gravel did not occur in the areas studied. Gravel shift was noted in the Port Dick Bay area. The gravel movement was attributed to the tsunami immediately following the March 27, 1964, earthquake.

The pre-emergent fry sampling in the spring of 1964 indicated that mortality had occurred in the Port Dick area. Very low levels of fry abundance were found in Port Dick Creek, Middle Creek, and Island Creek in Port Dick. The complete fry sampling results for 1964 are presented in Table II. Pink salmon streams located in the Kachemak Bay area contained low levels of pre-emergent pink salmon fry.

Conclusions

The Cook Inlet pre-emergent pink salmon sampling program lacks sufficient years data to predict a numerical return for 1965. More information is needed concerning parent escapement-pre-emergent fry densities-adult return relationships. The probable magnitude of the 1965 adult return of pink salmon to the lower Cook Inlet area is indicated by the observed fry densities presented in this report.

From zero fry densities to fair fry densities were observed in the study streams. None of the streams contained what is considered good or excellent pre-emergent fry levels of abundance.

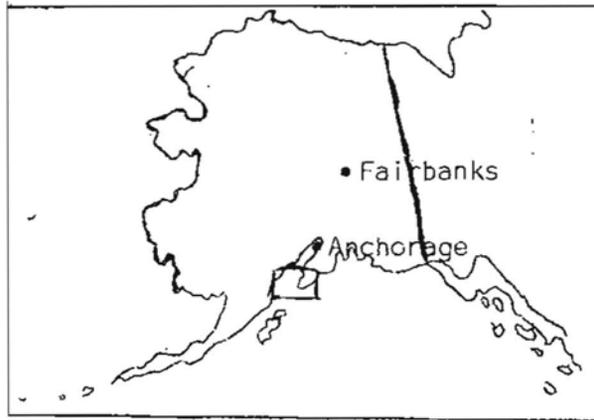
Literature Cited

- McNeil, William J. 1962. Mortality of pink and chum salmon eggs and larvae in Southeast Alaska Streams. PhD. Thesis, University of Washington, 270 p.
- Noerenberg, Wallace H. and others. 1964. Forecast research on 1964 Alaskan pink salmon fisheries, Alaska Department of Fish and Game, Informational Leaflet No. 36, 52 p. (Processed).

TABLE 1

STREAMS, SAMPLE DATES AND NUMBER OF PING PONG BALL SETUPS FOR EACH STREAM STUDIED

<u>STREAM</u>	<u>NUMBER SETUPS</u>	<u>PLANTING DATE</u>	<u>RECOVERY DATE</u>	<u>RESULTS</u>
1. Humpy	23	12/30/63	4/8/64	Indicators showed no gravel shift or freezing.
2. Tutka	20	12/15/63	4/23/64	Indicators showed minor gravel shift (1-2 inches) in one area, no freezing.
3. Seldovia	0			
4. Port Graham	0			
5,6 Windy Bay	0			
7. Rocky	17	12/18/63	4/17/64	Indicator showed no gravel shift or freezing in the sampled time period. Extreme high water occurred before the indicators were placed in the gravel.
8. Port Dick Creek	15	12/16/63	4/14/64	Indicators showed lower Intertidal zone sustained gravel deposition. Upstream areas had gravel scouring.
9. Middle Creek	0			
10. Island Creek	20	12/16/63	4/15/64	Intertidal indicators not located. Upstream setups covered by 2-3 inches of gravel.



Location Map, Cook Inlet Study Streams

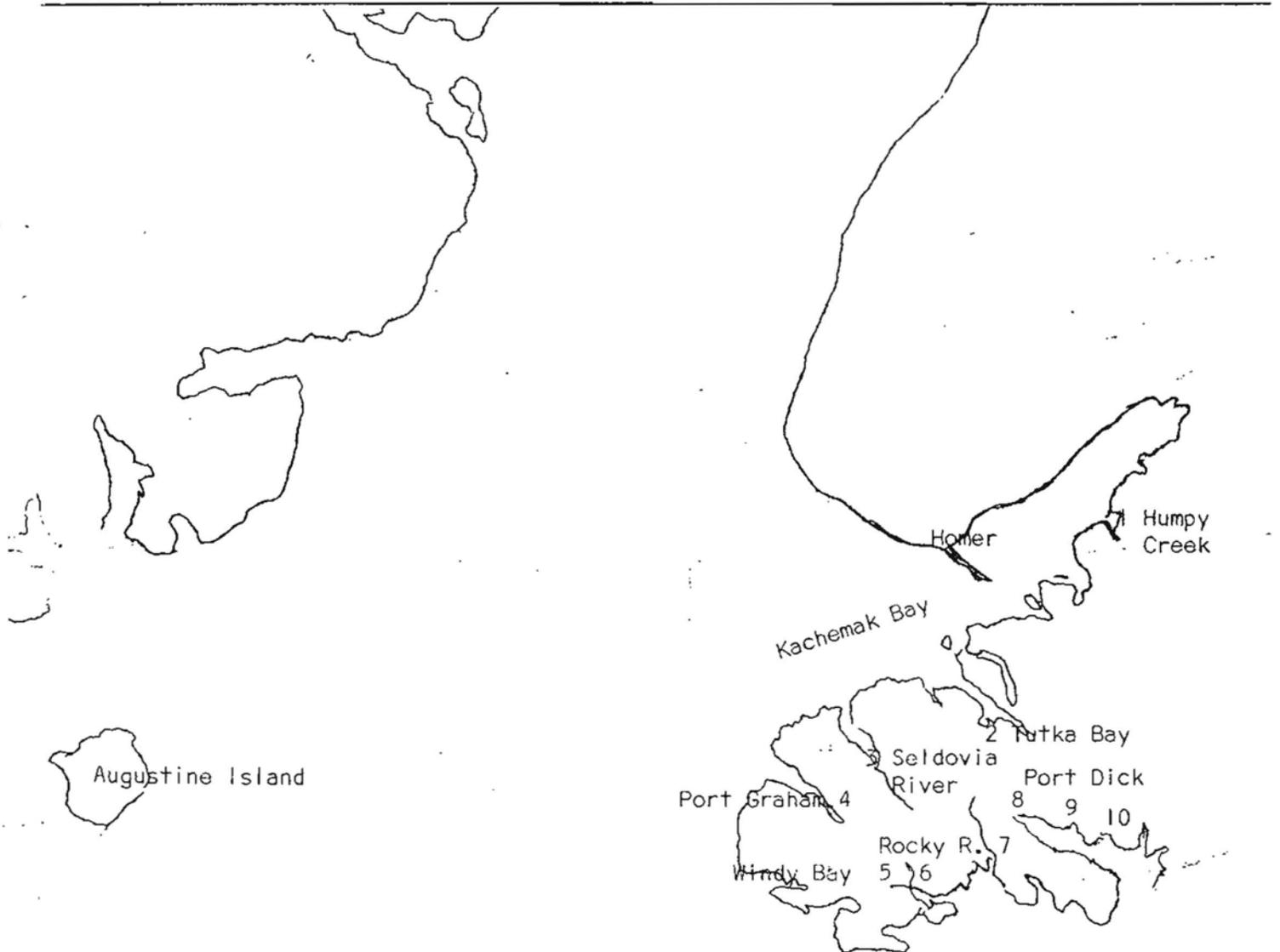


Figure 1. Cook Inlet Pink Salmon Study Streams

TABLE II

<u>STREAM</u>	<u>PARENT ESCAPEMENT</u>	<u>AREA*** SAMPLED</u>	<u>#.186 SQ.M SAMPLES</u>	<u>MEAN FRY DENSITY PER 1 M²</u>	
				<u>PINK</u>	<u>CHUM</u>
1. Humpy Creek*	34,689 18,250 ♀	19,700 M ²	86	86.4	0
2. Tutka	10,000	4,600	26	72.3	0**
3. Seldovia	15,000	12,000	35	84.3	0**
4. Pt. Graham	2,000		0		
5. Windy	3,000	4,500	0		
6. Windy	3,000	4,900	0		
7. Rocky	12,000		26	0	0
8. Port Dick	16,000	7,600	18	5.4	31.2
9. Middle	1,000	1,500	31	0	9.5
10. Island	4,000	3,600	33	0	60.0

*Weir Counts.

**Chum Fry were observed migrating downstream during fry sampling operation.

***Area sampled was measured after the tsunami.

EFFECTS OF THE MARCH 27TH EARTHQUAKE
ON COOK INLET SALMON STREAMS

INTRODUCTION

Major detrimental effects of the March 27th earthquake to the fish stocks and habitat in the Cook Inlet District occurred in the area from Kachemak Bay to Cape Fairfield. The most important salmon producing streams in this area include Humpy Creek, Tutka Bay Lagoon, Seldovia River, Port Graham River, Windy Bay (2 streams), Rocky River, Island Creek, Middle Creek, and Port Dick Creek. (FIGURE I) Limited research of pink and chum salmon spawning grounds on these streams has been conducted since 1963.

Studies completed on the streams include:

Pre-emergent Fry Sampling

Escapement Estimates

Measurements of Utilized Spawning Area

Fry Mortality Caused by Gravel Shift and Freezing

AIRCRAFT AND VESSEL SURVEYS

During the month of August 1964 aerial surveys were conducted in the affected area to determine the salmon escapement and changes in spawning habitat. In the ten streams closely observed, portions of intertidal areas that had been used in previous years by the salmon were no longer utilized.

The M/V TEAL and the M/V HUMPY were used for transportation to map the ten study streams. These survey trips were conducted during and after the peak of spawning. Table IV summarizes the vessel survey running hours.

TABLE III-AERIAL SURVEYS

STREAM	DATE
Desire Lake	August 7
Delight Lake	August 7
Nuka Island	August 7
Taylor Bay	August 7
Island Creek	August 7
Middle Creek	August 6, 7
Port Dick Creek	August 6, 7, 10
Rocky River	August 6, 10
Windy Bay	August 6
Chugach Bay	August 6
Portlock Bay	August 6
Dogfish Bay	August 6
Port Graham River	August 1, 6
Seldovia River	August 1, 6
Barabara River	August 6
Tutka Bay	August 6, 10
Humpy Creek	August 10

AERIAL SURVEY FLYING HOURS

DATE	HOURS
August 1	3
August 6	6
August 7	4.5
August 10	3
August 12*	2
August 15*	3
August 17*	2.18
August 20*	3
August 24**	3
	<hr/> 29.68

*Survey flights conducted these days hampered by inclement weather.

**Equipment resupply to M/V TEAL during earthquake survey.

TABLE IV - VESSEL SURVEY RUNNING HOURS

M/V TEAL

<u>DATE</u>	<u>LOCATION</u>	<u>RUNNING TIME</u>
August 24	Seldovia/Port Graham/Portlock	8 hr 10 min
August 25	Portlock/Windy & Rocky Bay	2 hr 40 min
August 26	Rocky Bay/Port Dick	4 hr 05 min
August 28	Port Dick/Portlock/Seldovia	9 hr 39 min
	Total	34 hr 34 min

M/V HUMPY

<u>DATE</u>	<u>LOCATION</u>	<u>RUNNING TIME</u>
August 20	Homer/Humpy Creek/Homer	2 hr 40 min
August 21	Homer/Humpy Creek/Halibut Cove	2 hr 40 min
September 15	Homer/Tutka Bay Lagoon/Halibut Cove	4 hr 20 min
	Total	9 hr 40 min

In order to estimate the number of future outmigrating pink and chum fry as determined by the pre-emergent sampling program it was necessary to measure the amount of spawning area utilized in the individual study streams. The spawning area lost due to land mass sinking was estimated.

Table v lists the streams, 1964 spawning area, and area lost.

The most extensive loss of spawning area occurred in the Port Dick area. The three streams which have been sampled in the bay lost a total of over 200,000 square feet of spawning gravel. This bay is a major pink and chum salmon producing district with a limited number of silver salmon utilizing the streams.

Observations on the study streams during the 1964 spawning season indicated that salmon moved farther upstream to complete their spawning than they had in years before the earthquake. In some cases these upstream areas are more susceptible to low water levels and freezing conditions than are the intertidal areas during the freshwater life of the young salmon.

TABLE 1 - SPAWNING AREAS

<u>STREAM</u>	<u>1964 UTILIZED SPAWNING AREA</u>	<u>LOST AREA</u>
	ft ²	ft ²
Port Dick Creek	82,275	175,000
Middle Creek	16,000	8,750
Island Creek	38,500	27,500
Rocky River	Not surveyed	
Windy Bay (Right)	52,500	0
Windy Bay (Left)	48,800	0
Port Graham	Not surveyed	
Seldovia River	128,875	30,000
Tutka Bay	49,375	20,800
Humpy Creek	<u>212,000</u>	<u>8,800</u>
Totals	628,325	270,850

PERSONNEL TIME

Permanent personnel time used for the earthquake study amounted to two man months. Temporary personnel time totaled one man month. The time was spent conducting aerial surveys, ground surveys, stream mapping, and data evaluation.

EFFECTS OF LAND MASS ELEVATION CHANGES ON SCHOOLING AND MIGRATION PATTERN OF SALMON

The sinking of the land mass in the affected area has caused some changes in the schooling habits of salmon. One observation of a change occurred in Port Dick Bay.

At the head end of the bay the shallow tide flat extends out for a quarter of a mile. In seasons before 1964 salmon tended to school up on these flats at high tide and then move off the flats at low tide. With the present tide levels the salmon stayed on the flats at all times. The markers for the Commercial Fishing boundaries were adjusted during the salmon season to compensate for the fact that fish were not backing off the tide flats.

At the mouth of Humpy Creek in Kachemak Bay, maturing salmon tend to remain in the immediate vicinity of the freshwater stream during estuarine life before the earthquake. Closed fishing markers were quite effective in protecting the fish lying in saltwater. At the present high tide levels, the fish do not remain in the stream mouth, but wander away from the protected area into open fishing waters.

SPAWNING AREA CHANGES

In December of 1963, gravel shift and freezing level indicators were placed in five of the study streams. Measurements of these two mortality factors were accomplished by burying perforated ping pong balls and water-filled and capped glass vials in vertical columns in the spawning gravel. The balls were painted six different colors to indicate burial depth, and vials were placed at the top and bottom of the ping pong ball column.

Broken vials indicate freezing conditions, and missing balls indicate gravel shift. The depth of gravel shift is determined by the number of missing balls. Table VI lists the streams, sample dates and number of ping pong ball setups for each stream studied.

The indicators were checked during the pre-emergent fry sampling program in the spring immediately following the earthquake.

The 1964 pre-emergent fry sampling program was conducted two weeks after the Good Friday earthquake. The original purpose of this work was to determine fry abundance levels of pink and chum salmon in the ten study streams. After the earthquake, the sampling program was extended to determine if mortality occurred directly from the shock waves or tidal action.

Table VII lists the 1964 pre-emergent fry sampling results with the 1963 results included for comparison.

TABLE VI - 1963-64 FREEZING LEVEL AND GRAVEL SHIFT

<u>STREAM</u>	<u>NO. SETUPS</u>	<u>PLANTING DATE</u>	<u>RECOVERY DATE</u>
Tutka Bay	20	12/15/63	4/23/64
Island Creek (Port Dick)	20	12/16/63	4/15/64
Port Dick Creek	15	12/16/63	4/14/64
Rocky River	17	12/18/63	4/17/64
Humpy Creek	23	12/30/63	4/8/64

TABLE VII-A COMPARISON OF 1963 & 1964 PRE-EMERGENT FRY SAMPLING

<u>STREAM</u>	<u>1964 POINTS SAMPLED</u>	<u>PINK FRY/ft²</u>		<u>REMARKS</u>
		<u>1963</u>	<u>1964</u>	
Humpy Creek	86	11.0	8.03	
Tutka Bay	26	13.0	6.75	
Seldovia	35	21.5	7.84	
Port Dick	18	22.3	1.0	Tidal wave changed channel. Moved large quantities of gravel.
Island Creek (Port Dick)	33	10.5	0 Pink 5.56 Chum Fry	5.18/ft ² dead chum fry.
Middle Creek (Port Dick)	31	*	0 Pink .54 Chum Fry	1.27/ft ² dead chum fry.
Rocky River	26	*	0	No gravel shift or freezing. Report of flooding in fall after spawning. River is long, sampling not over complete spawning area.
Windy Bay (2 streams)		*	**	

*Not sampled in 1963.

**Not sampled in 1964.

RESULTS

ISLAND CREEK (PORT DICK) FIGURE II

The creek flows through a grassy tide flat for approximately one-half mile. The setups in this area were marked along the stream bank. Tidal action removed the markers and the first 15 setups were not located. There were no fry present in the gravel in this portion of the stream, even though fish did spawn in the area. The assumption in this case is that gravel shift did occur.

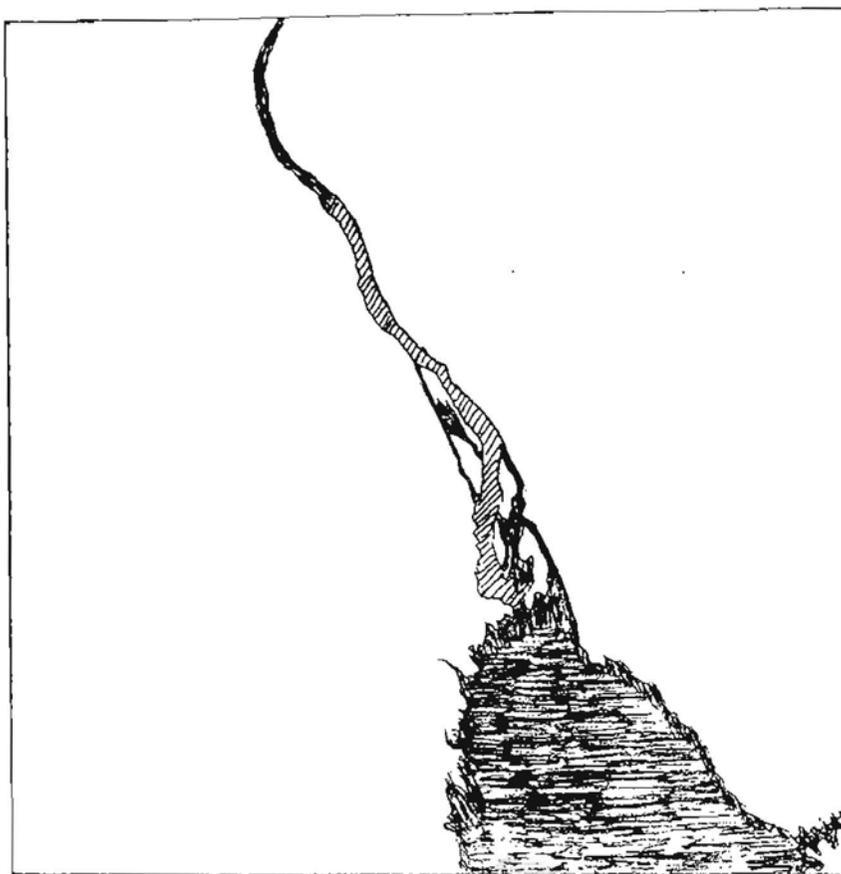
In the upstream area, away from the tide flats, the setups were located and two inches to three inches of gravel was deposited over the top balls. The plastic stream markers were all lying in an upstream position, indicating that an upstream current occurred which deposited the gravel. A possible cause of the deposition is the tidal wave following the earthquake on March 27, 1964. Fry mortality in the upstream area was much lower than the more exposed tidal flat.

PORT DICK CREEK

This creek lies at the head of a tapering bay and indications showed that a surge of water passed through the creek. One observation on this creek was a log, two feet in diameter and about 15 feet long, lodged in a spruce tree approximately 15 feet above the extreme high tide mark.

Ping pong ball and freezing vial setups in the lower portion of the main spawning area were covered by as much as two feet of gravel. In the upstream area, where larger gravel is located, the missing ping pong balls indicate that scouring occurred. There was heavy fry mortality throughout the entire creek.

FIGURE II



PORT DICK CREEK (HEAD OF WEST ARM, PORT DICK BAY)
June 23, 1964
Scale: 1:15,000

 Spawning area lost due to land mass sinking
(approximately 175,000 Sq. Ft.)

ROCKY RIVER

No gravel shift or freezing occurred in the area studied. This stream is long and spawning does occur above the sampled area.

HUMPY CREEK

No gravel shift or freezing occurred in this stream. Levels of fry abundance were average.

TUTKA BAY

This stream lies in a protected lagoon and did not receive any obvious tidal wave damage. The gravel shift and freezing level indicators were virtually intact. In one minor spawning area gravel deposition (one to two inches) did occur.

The fry counts in the gravel were average.

SELDOVIA RIVER

There were no gravel shift or freezing level indicators located in this stream, but visual observation indicated no tidal wave damage or channel changes occurred on the stream.

The inter-tidal portion of the spawning area contained above average numbers of fry. The area above the inter-tidal zone contained below average numbers of fry.

MIDDLE CREEK (PORT DICK)

There were no gravel shift or freezing vial indicators located in this stream, but visual observation indicated some gravel movement occurred, possibly caused by the tidal wave. The fry sampling indicated very low densities of either pink or chum salmon present in the gravel.

This stream has very fine loose gravel. A rapid water fluctuation would cause considerable channel damage.

RED SALMON SMOLT STUDIES

Adult red salmon scales have been collected in the Cook Inlet fishery and spawning grounds during years past. The samples contain many variable scale patterns which could not be tied down to any one race of salmon. In order to determine which river system the fish were headed for when they were caught it is necessary to sample the downstream migrating red salmon smolts and examine their scales.

In the Cook Inlet District there are four major red salmon producing systems. Of these four systems, three were successfully sampled for red salmon smolts in 1964.

The scale samples were turned over to Mr. J. R. Dunn of the U. S. Fish and Wildlife Service for reading. The following table lists the systems, and the numbers of red salmon smolts sampled:

May 31, 1964	Fish Creek (Knik Arm)	318 smolts
June 5, 1964	Kasilof River	222 smolts
June 10, 1964	Kenai River	277 smolts

Figure III shows the comparison of the smolt length frequencies of the individual river systems.

It is anticipated that after several years of data collecting and analysis, it will be possible to separate races of Cook Inlet red salmon. Preliminary results from the scale analysis are encouraging.

Cook Inlet Red Salmon Smolt
Length - Frequency by Area
1964

FIGURE III

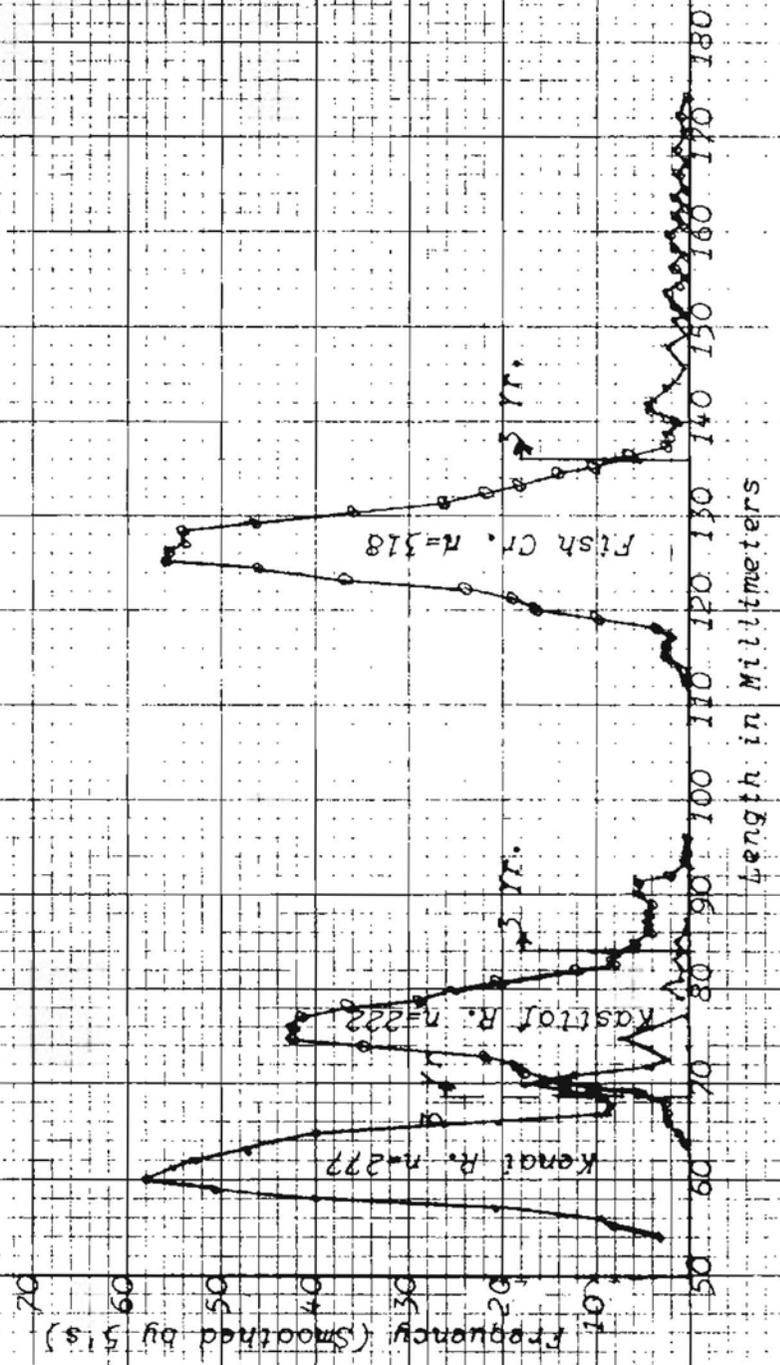


TABLE VII

KASILOF RIVER -- TEMPERATURE READINGS

Taken by Fred Heubsch

<u>APRIL</u>	<u>TIME</u>	<u>TEMPERATURE</u>	<u>MAY</u>	<u>TIME</u>	<u>TEMPERATURE</u>
25	8 a.m.	37 degrees	13	10 a.m.	40 degrees
26	8 a.m.	34 degrees	14	11 a.m.	40 degrees
27	10 a.m.	33 degrees	15	11 a.m.	40 degrees
28	12 a.m.	35 degrees	16	No recording	
29	10 a.m.	34 degrees	17	1 p.m.	44 degrees
30	10 a.m.	34 degrees	18	4 p.m.	46 degrees
<u>MAY</u>			19	4 p.m.	44 degrees
1	11 a.m.	34 degrees	20	4 p.m.	45 degrees
2	12 a.m.	35 degrees	21	5 p.m.	43 degrees
3	No recording		22	6 p.m.	44 degrees
4	10 a.m.	37 degrees	23	6 p.m.	44 degrees
5	5 a.m.	36 degrees	24	6 a.m.	44 degrees
6	5 a.m.	36 degrees	25	7 a.m.	46 degrees
7	6 a.m.	36 degrees	26	7 a.m.	46 degrees
8	6 a.m.	34 degrees	27	No recording	
9	7 a.m.	33 degrees	28	10 a.m.	46 degrees
10	No recording		29	No recording	
11	7 a.m.	34 degrees	30	10 a.m.	48 degrees
12	8 a.m.	36 degrees			

KENAI-KASILOF TEST FISHING

Due to the silty condition of the Kenai and Kasilof Rivers it is necessary to estimate escapement levels and timing by test fishing. The gear used during the 1964 test fishing program was the same as in the past two years; red salmon gill nets, 72 feet long, 10 feet deep, 5½ inch mesh.

The fishing sites on the rivers are located within the intertidal zone. Fishing time is regulated by the tides, and fishing is conducted in the one hour period before flood tide.

TEST FISHING RESULTS ON THE KENAI - (FIGURE IV)

Small numbers of red salmon were taken in the Kenai River when test fishing commenced June 8. The early run of fish peaked about June 14. Commercial fishing in Cook Inlet for the drift and set net fishery was opened June 25, and test catches dwindled from this time until the main run moved in after the 4th of July.

From July 5 numbers of test fish taken increased until a peak of 44 reds per hour was taken on July 15. Test net catches dropped off abruptly after July 15 and then built up to a peak July 27. After August 1, very few red salmon were taken in the test fishing.

The peaks in the redrun compare favorably with previous years as to date, but the total numbers of fish taken was lower. In comparison with previous years' test net catches, the Kenai could be said to have had only fair red salmon escapement.

Pink salmon hit the Kenai in very few numbers starting July 11, and catches remained low until July 27. The pink run then built up until 146 pinks per hour were taken August 6.

Test fishing was concluded on August 10, at which time pink salmon were still entering the river.

A small number of kings were taken on the Kenai. Silver salmon were taken quite regularly during the last part of July and the first part of August, but their numbers appeared small since only one or two per hour were taken at the most.

TEST FISHING RESULTS ON THE KASILOF RIVER (FIGURE V)

Test fishing on the Kasilof River commenced June 6 and stopped August 10.

Red salmon catches began June 20 and increased until a peak was reached July 12. No red salmon were taken in the test fishing after August 1.

Pink salmon catches in the test net were light, but it is possible the peak of the run occurred after August 10.

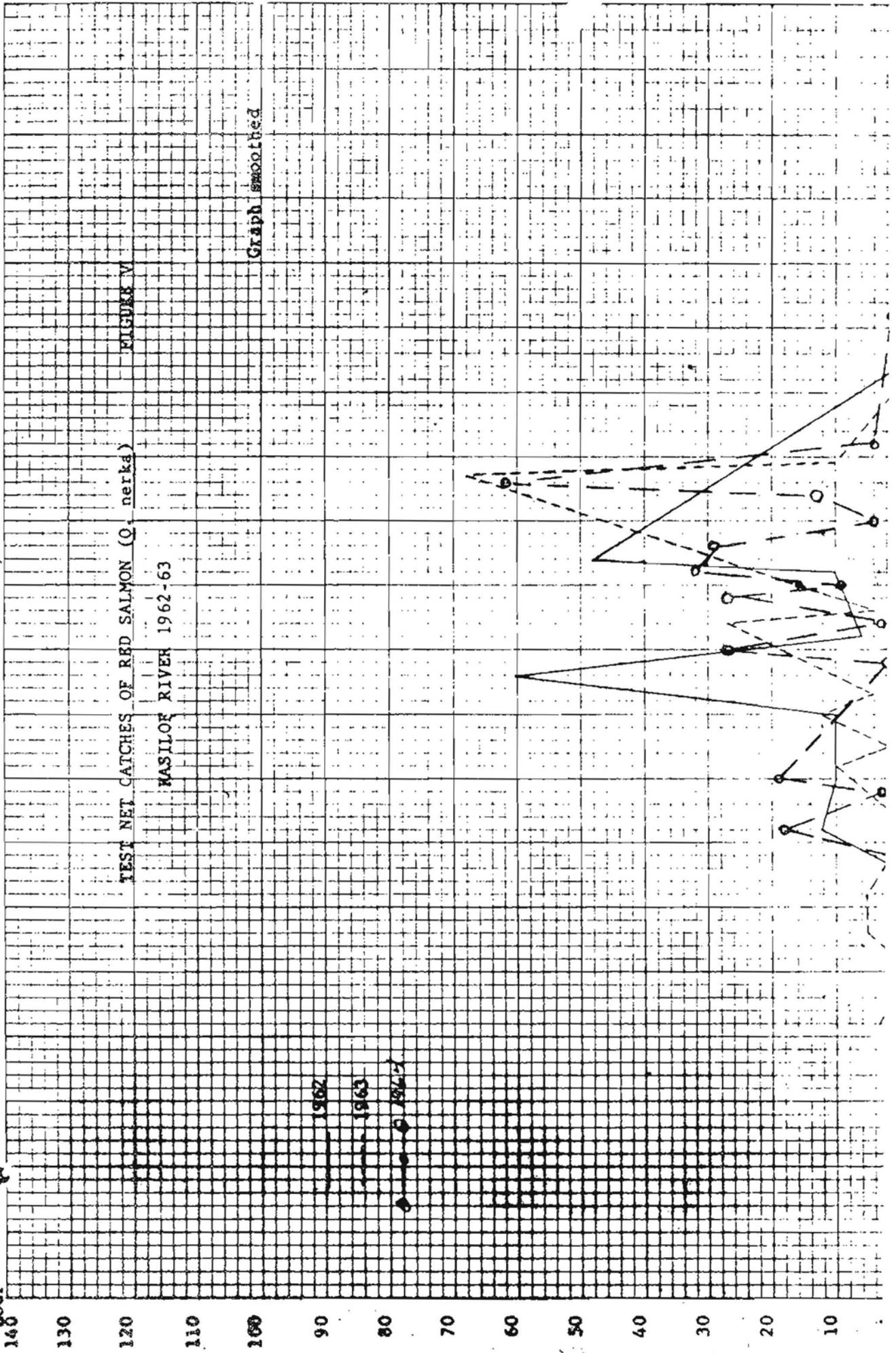
Occasional king and silver salmon were taken in the nets during June and July.

Two spawned out adult steelhead were caught in late June.

12-280
316 N

10 SQUARES TO THE INCH

Fish Per Hour



SUSITNA TEST FISHING

For the second consecutive year the Susitna Test Fishing program was conducted in Upper Cook Inlet's most productive salmon producing system. As in 1963, much emphasis was placed upon gathering king salmon data. The program was initiated just after Spring breakup, which occurred on May 18. For the first two weeks the test fishing crew encountered considerable trouble with drifting ice in the main channel. A net was fished at the mouth of Fish Creek, with little trouble during the heavy ice flow period, and, therefore, data were obtained on the king salmon runs during the time of heavy ice flow.

The king salmon run during 1964 was characterized by two distinct peaks in the spawning migration. The first peak occurred during the period of May 27 to June 1, and the second and major portion of the run entered the Susitna between June 12 and 17. The early portion of the run was dominated by small male kings less than 12 pounds in weight. The second run occurring in mid June was composed of large males and females of about equal sex ratio. This latter run occurred during a time that is usually open for commercial salmon fishing, and had there been the usual June 7 or 8 opening date during 1964, the greatest portion of the Susitna king salmon run would have been available to the fishermen of Upper Cook Inlet for at least three and probably four fishing periods. The late opening of June 25 established by the Board of Fish and Game enabled the major portion of the 1964 Susitna king salmon run to pass through the commercial fishery and reach the spawning tributaries.

Figure VI shows the king salmon take by day and month, commencing May 19, and ending July 31. Table IX shows the king salmon run by month.

All king salmon taken by the Susitna Test Fishing crew were either flown fresh to the Tyonek Indian village, or were filleted, salted, and put in kegs and flown to Tyonek. The latter process was necessary as occasionally inclement weather made the delivery of fresh fish impossible.

It is imperative that the Susitna king salmon test fishing program be continued during 1965. These data from test fishing, combined with the aerial and ground surveys by both the Sports Fish and Commercial Fisheries biologists are the only index now available on the past and future status of the Susitna king salmon resource.

Test fishing continued through the season for red, chum, coho and pink salmon. Daily catches were of value in determining peak run times for each species, and proved of considerable value in management of the fishery.

SUSITNA TEST FISHING

1. Program commenced May 19, 1964.
2. First peak occurred May 27 through June 1; 94 king salmon were taken.
3. Second peak occurred June 12 through June 17; 187 kings were taken.
4. During this 12 day period, May 27 - June 1 and June 12 - June 17, 58.8% of the run occurred.
5. In May, more males than females were taken. Males averaged 22.9 inches in length; females 33.6 inches in length. The catch in May was 68 males and 22 females.
6. In June, more females than males were taken. Females averaged 34.9 inches in length; males 30.9 inches in length. The catch in June was 159 males and 200 females.
7. In July, more males than females were taken. Males averaged 25.5 inches in length; females 31.5 inches in length. The catch in July was 18 males and 2 females.
8. Mean length for males during the year was 28.3 inches in length. The mean length for females was 34.7 inches in length.
9. Prior to June 25, 1964, 414 king salmon or 86.6 per cent of the total run was in the river past the commercial fishery. A June 9 opening would have allowed 25.5 per cent of the run to enter the river before the fishery could have opened.
10. Commercial fisheries biologists surveyed 51 streams, either known or suspected king salmon producers, and counts of 629 king salmon were noted. In many instances, the peak of spawning had occurred and only carcass counts were made. Wet suit surveys were made on two of the four major king producers in the Susitna Basin -- Alexander Creek and Talachulitna River.

SUMMARY

The May run was composed of mostly male fish and of a small size. The main migration occurred in mid June and was completely protected from commercial exploitation. After June 22, the king salmon run into the Susitna was practically over. Escapement counts would indicate that the Deshka River and tributaries accounted for approximately 57 per cent of the king salmon escapement in the Susitna during 1964.

TABLE IX
 COMMERCIAL FISH TEST FISHING
 SUSITNA BASIN - 1964
 KING SALMON

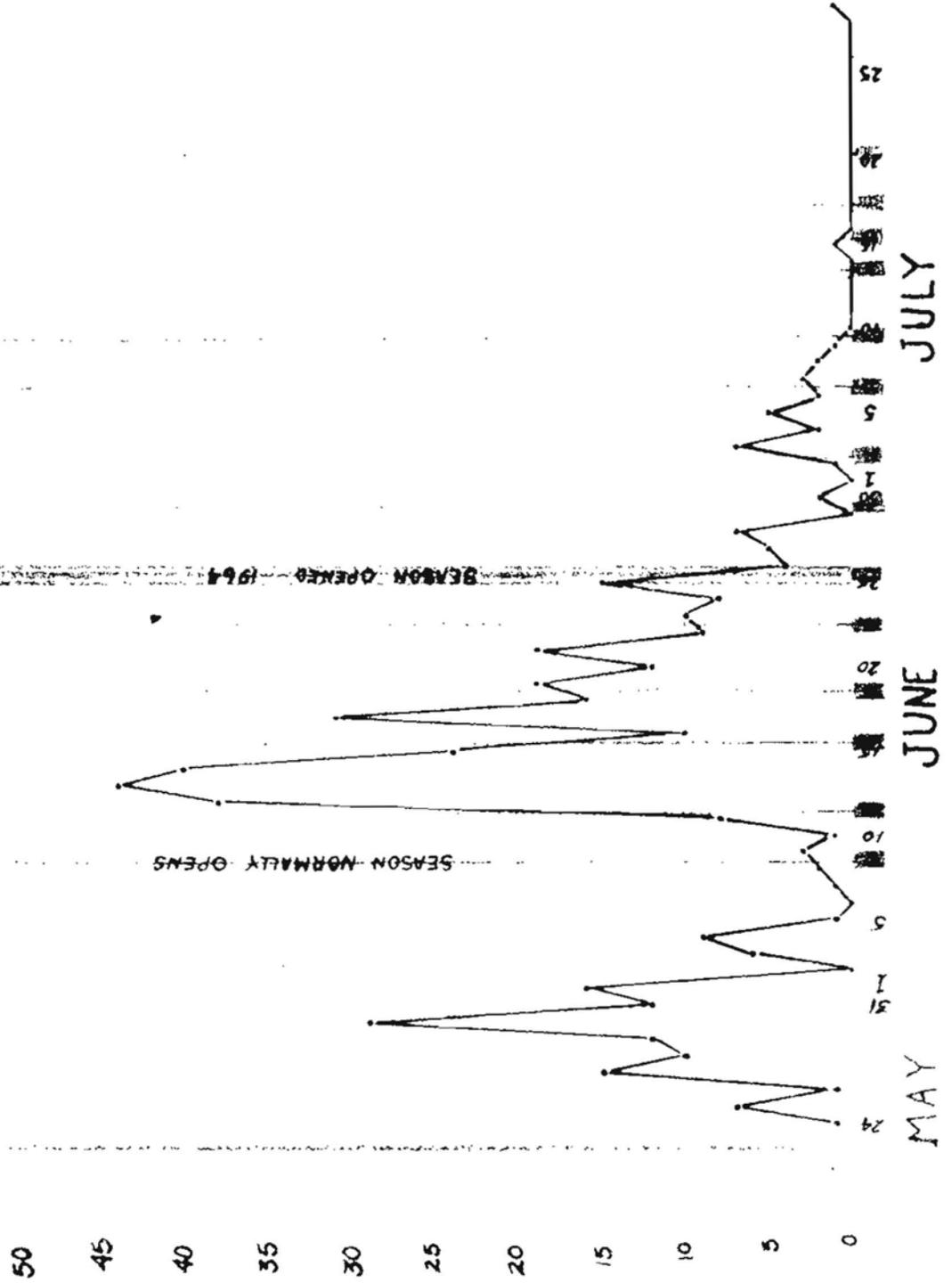
<u>MONTH CAUGHT</u>	<u>NUMBER</u>	<u>PER CENT</u>
May	87	18.2
June	361	75.5
July	<u>30</u>	<u>6.3</u>
Totals	478	100.0
After June 25	64	13.4

June 25 opening allowed approximately 87 per cent escapement into the Susitna before commercial fishing season opened.

In 1964, a June 9 opening would have allowed 28.7 per cent escapement into the Susitna before the commercial season opened.

KING SALMON - SUSITNA TEST FISH PER DAY

FIGURE VI



FISH CREEK COUNTING SITE

The total estimated salmon escapement into Fish Creek on Knik Arm was calculated from tower counts completed from the period July 6 to August 2. The red salmon escapement amounted to 63,128. Figure VII compares the escapement figures from 1936 to 1964. The 1964 escapement is lower than 1963, but is higher than the average escapement since 1949.

The method of estimation is as follows: One 15 minute count is taken every hour for a 12 hour period, and then 16 hours are passed before starting the next 12 hour sequence of counts. The actual count figure is multiplied by eight to project the total estimated escapement.

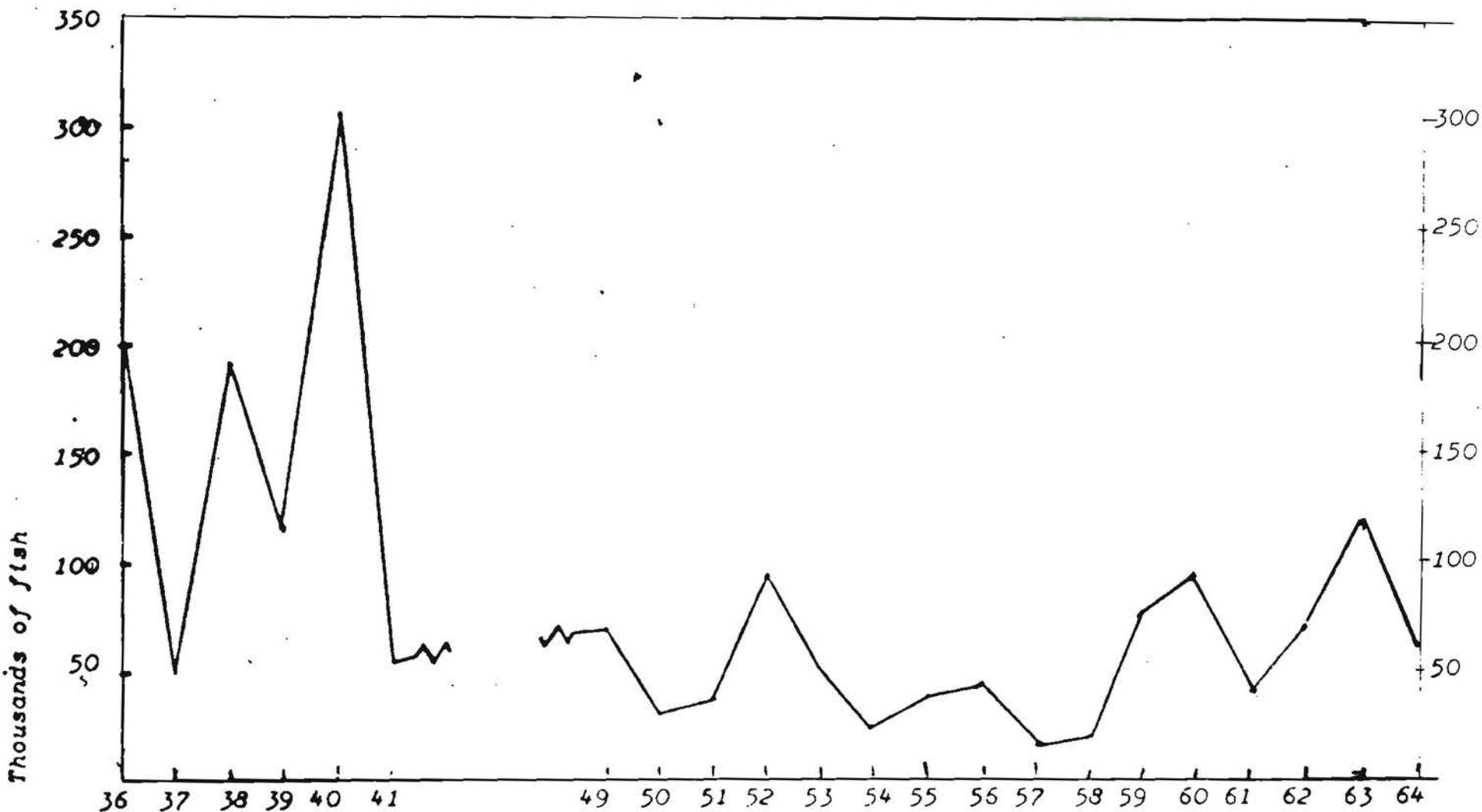
RUSSIAN RIVER COUNTING TOWER

A counting tower has been maintained on the Russian River since 1960. The total escapement is estimated by the same method used at Fish Creek. The 1964 estimate of 52,052 red salmon escapement is above the five year average for the stream. (See Figure VII)

Fish Creek Red Salmon Counts

FIGURE VII

1936 . 1964

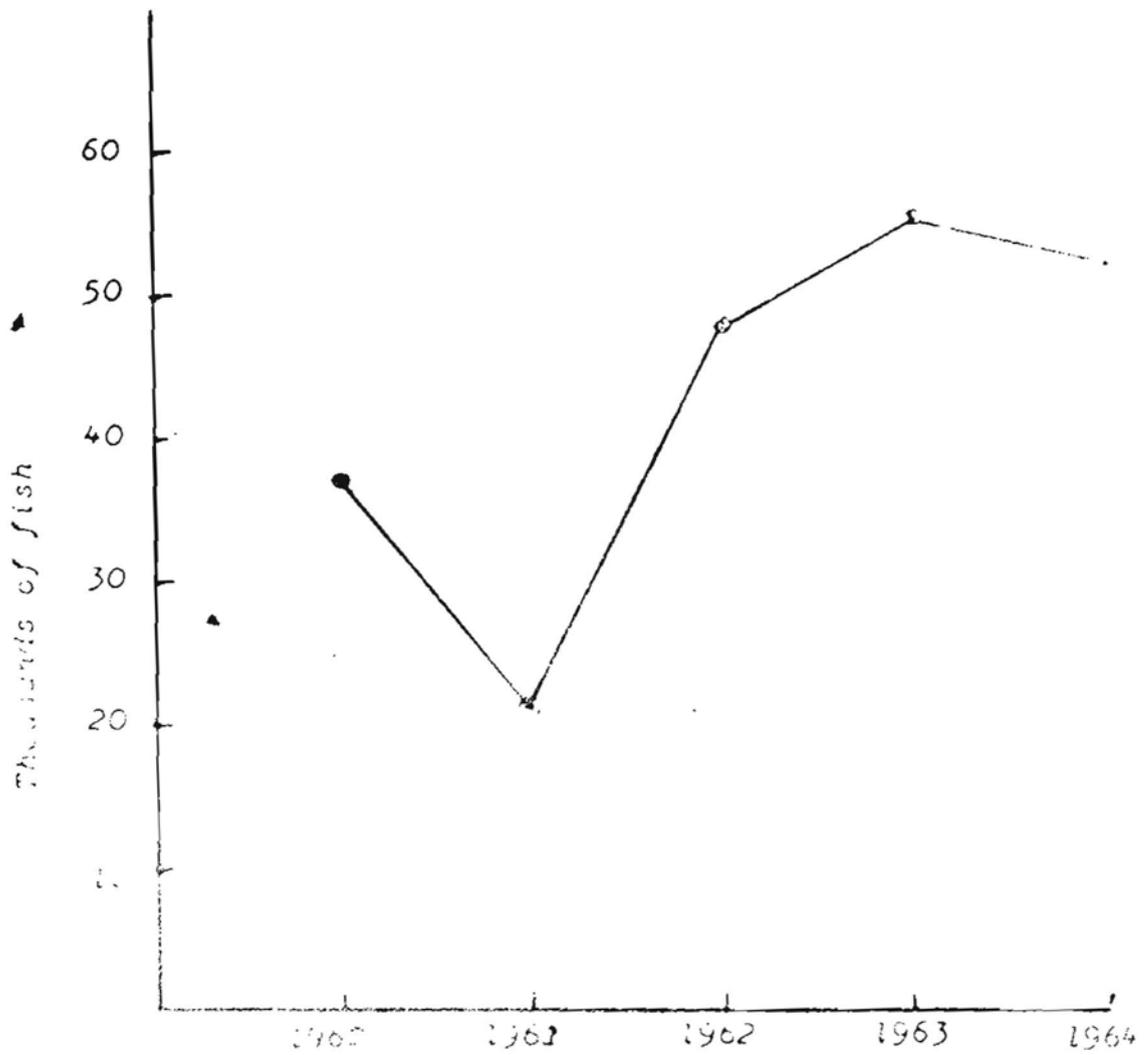


42 - 48 incomplete

• 1936-1959 U.S. Fish and Wildlife Records

Russian River Red Salmon Counts
1960 - 1964

FIGURE VII



FRITZ CREEK

Previous annual reports have detailed the history of transplants into Fritz Creek. Briefly, in 1961, 1962 and 1963, adult pinks were transplanted into Fritz Creek from nearby China Poot.

A return of 185 adults was recorded in 1963, the apparent result of the 1961 transplant. This count is fairly accurate, for the fish were netted and lifted over a fence built in the stream mouth.

In 1964 estimated return was over 100. No fence was constructed, and the return was estimated from counts of fish seen in the stream during ground surveys. Counts were recorded as below:

<u>DATE</u>	<u>NO. ADULT PINKS SEEN</u>
August 12	10
August 15	14
August 17	27 (2 above ladder)
August 21	55
August 27	55
August 30	34 (1 above ladder)
September 2	19
September 5	17
September 12	1

SUBSISTENCE FISHING

A total of 191 permits for salmon subsistence fishing were issued during 1964. Of these permits, 51 were returned reporting no fish taken, 126 permittees reported having taken less than 50 fish, and 6 reported taking a total of more than 50 fish. 2 permittees did not return a report on the total of fish caught, even though three, and in some cases, four follow-up letters were sent. Of these follow-up letters, 1 was returned marked "Addressee Deceased", 2 were returned marked "Unclaimed", 1 was returned marked "No Receptacle Provided for Mail at this Address".

The table below gives the total catch, by species, reported taken by subsistence fishing permittees:

<u>KINGS</u>	<u>REDS SOCKEYE</u>	<u>COHO SILVER</u>	<u>DOGS CHUMS</u>	<u>PINKS HUMPY</u>	<u>OTHER</u>	<u>TOTAL ALL FISH</u>
0	393	2463	207	368	3*	3434

*1 Dolly Varden
1 Whitefish
1 Flounder

RESIDENT-NON-RESIDENT SALMON CATCH

No formal study of actual resident-non-resident salmon catches has ever been made on Cook Inlet. Presented here are three tables for the years 1962-1964 with the actual tabulated catch by gear and species for resident and non-resident fishermen.

The figures were obtained by using reported catch of non-residents by ADF&G number and assigning the balance of the catch to residents.

Three years are too few to determine if a trend exists (catch by ADF&G numbers is not available prior to 1962), but it is interesting to note that 1962 and 1964 were similar years in catch size and amount of gear -- and that the non-resident catch (total) increased from 1962. The 1963 catch of 27.8 per cent of all salmon in the Inlet by non-residents reflects the small seine catch and the unusually high percentage of drift caught fish. The drift fishery, of course, has in it the highest number of non-resident fishermen.

Included also is a presentation showing average income of Cook Inlet salmon fishermen by gear for 1959-1964.

AVERAGE GROSS INCOME OF INDIVIDUAL COOK INLET FISHERMAN, BY GEAR
 (BASED ON PRICES PAID FOR RAW FISH AS REPORTED BY CANNERIES)

1959
 69 Seine \$1,407.41
 370 Drift 995.50
 534 Set Net 1,768.71

1960
 95 Seine 3,496.40
 288 Drift 3,129.08
 540 Set Net 3,586.22

1961
 89 Seine 2,178.39
 372 Drift 3,364.81
 586 Set Net 1,523.24

1962
 91 Seine 12,286.40
 372 Drift 4,142.05
 617 Set Net 4,042.39

1963
 112 Seine 1,782.77
 472 Drift 2,158.79
 655 Set Net 1,377.28

5 year average income - \$3,149.30 (all gear)

1964
 108 Seine 5,537.01
 468 Drift 3,529.74
 631 Set Net 3,328.86

6 year average income - \$3,313.06 (all gear)

PERCENTAGE OF SALMON TAKEN BY RESIDENT AND NON-RESIDENT FISHERMEN, BY GEAR

<u>1962</u>	<u>KINGS</u>	<u>REDS</u>	<u>COHOS</u>	<u>PINKS</u>	<u>CHUMS</u>	<u>TOTAL</u>
Hand Purse Seine - Resident	47	13,826	6,685	2,032,602	164,743	2,217,903
Percentage	100%	99.41%	99.17%	94.29%	94.23%	94.35%
Hand Purse Seine - Non-Resident	0	81	56	122,718	9,844	132,699
Percentage	0%	.58%	.83%	5.69%	5.63%	5.65%
Total Hand Purse Seine Catch	47	13,907	6,741	2,155,320	174,587	2,350,602
Drift Gill Net - Resident	984	315,103	25,747	324,976	446,297	1,113,107
Percentage	93.18%	57.66%	62.65%	64.35%	58.47%	60.19%
Drift Gill Net - Non-Resident	72	228,835	15,350	179,165	312,719	736,141
Percentage	6.82%	41.88%	37.35%	35.48%	40.97%	39.80%
Total Drift Gill Net Catch	1,056	543,938	41,097	504,141	759,016	1,849,248
Set Gill Net - Resident	18,041	585,379	285,803	2,131,941	196,836	3,218,000
Percentage	94.16%	95.74%	92.31%	96.51%	91.14%	95.64%
Set Gill Net - Non-Resident	1,117	25,998	23,601	76,555	19,048	146,319
Percentage	5.83%	4.25%	7.62%	3.47%	8.82%	4.35%
Total Set Gill Net Catch	19,158	611,377	309,404	2,208,496	215,884	3,364,319
Total Catch All Gear	20,261	1,169,222	357,242	4,867,957	1,149,487	7,564,169
Percentage of Total H.P.S	.23%	1.19%	1.88%	44.27%	15.19%	31.07%
Percentage of Total D.G.N.	5.21%	46.52%	11.47%	10.36%	66.03%	24.45%
Percentage of Total Set G.N.	94.55%	52.28%	86.32%	45.36%	18.78%	44.48%
Percentage of Total Caught by Resident Fishermen			86.58%			
Percentage of Total Caught by Non-Resident Fishermen			13.42%			

PERCENTAGE OF SALMON TAKEN BY RESIDENT AND NON-RESIDENT FISHERMEN, BY GEAR

<u>1963</u>	<u>KINGS</u>	<u>REDS</u>	<u>COHOS</u>	<u>PINKS</u>	<u>CHUMS</u>	<u>TOTAL</u>
Hand Purse Seine - Resident	85	6,537	8,094	187,366	129,865	331,947
Percentage	95.5%	96.58%	96.72%	91.05%	87.26%	89.62%
Hand Purse Seine - Non-Resident	4	231	274	18,368	18,825	37,702
Percentage	4.49%	3.41%	3.27%	8.92%	12.65%	10.17%
Total Hand Purse Seine Catch	89	6,678	8,368	205,734	148,690	369,649
Drift Gill Net - Resident	310	245,765	24,737	1,740	140,870	413,422
Percentage	66.81%	46.44%	47.66%	40.88%	45.92%	46.30%
Drift Gill Net - Non-Resident	154	282,839	27,155	2,516	165,805	478,469
Percentage	33.18%	53.45%	52.32%	59.12%	54.05%	53.58%
Total Drift Gill Net Catch	464	528,604	51,892	4,256	306,675	891,891
Set Gill Net - Resident	16,455	404,429	140,344	23,583	68,688	653,499
Percentage	96.34%	95.44%	97.68%	97.98%	97.88%	96.06%
Set Gill Net - Non-Resident	624	18,300	3,272	479	1,484	24,159
Percentage	3.65%	4.31%	2.28%	1.99%	2.14%	3.55%
Total Set Gill Net Catch	17,079	422,729	143,616	24,062	70,172	677,658
Total Catch All Gear	17,632	958,101	203,876	234,052	525,537	1,939,198
Percentage of Total H.P.S.	.50%	.70%	4.10%	87.84%	28.25%	18.85%
Percentage of Total D.G.N.	2.63%	54.97%	25.42%	1.81%	58.27%	45.49%
Percentage of Total Set G.N.	96.85%	43.96%	70.37%	10.27%	13.33%	34.56%
Percentage of Total Caught by Resident Fishermen				72.13%		
Percentage of Total Caught by Non-Resident Fishermen				27.86%		

PERCENTAGE OF SALMON TAKEN BY RESIDENT AND NON-RESIDENT FISHERMEN, BY GEAR

<u>1964</u>	<u>KINGS</u>	<u>REDS</u>	<u>COHOS</u>	<u>PINKS</u>	<u>CHUMS</u>	<u>TOTAL</u>
Hand Purse Seine - Resident	86	4,053	7,605	984,014	315,950	1,311,708
Percentage	100%	99.87%	99.83%	94.46%	91.30%	93.13%
Hand Purse Seine - Non-Resident	0	5	12	50,035	29,426	79,478
Percentage	0%	.12%	.16%	4.80%	8.50%	5.64%
Hand Purse Seine Total Catch	86	4,058	7,617	1,034,049	345,376	1,391,186
Drift Gill Net - Resident	177	233,339	59,779	562,337	451,231	1,306,863
Percentage	79.37%	54.60%	52.54%	51.73%	52.34%	52.27%
Drift Gill Net - Non-Resident	46	193,494	53,927	518,997	403,706	1,170,170
Percentage	20.62%	45.28%	47.40%	47.74%	46.82%	46.80%
Total Drift Gill Net Catch	223	426,833	113,706	1,081,334	854,937	2,477,033
Set Gill Net - Resident	4,014	529,258	323,490	2,044,635	197,275	3,098,672
Percentage	93.06%	94.20%	95.10%	94.05%	97.45%	92.96%
Set Gill Net - Non-Resident	299	30,303	15,902	127,785	5,075	179,364
Percentage	6.93%	5.39%	4.67%	5.87%	2.50%	5.38%
Total Set Gill Net Catch	4,313	559,561	339,392	2,172,420	202,350	3,278,036
Total Catch All Gear	4,622	990,452	460,715	4,287,803	1,402,663	7,146,255
Percentage of Total H.P.S.	1.86%	.41%	1.65%	24.11%	24.52%	19.46%
Percentage of Total D.G.N.	4.82%	42.68%	24.67%	25.22%	60.70%	34.65%
Percentage of Total Set G.N.	93.31%	55.96%	73.65%	50.66%	14.37%	45.86%
Percentage of Total Caught by Resident Fishermen			79.98%			
Percentage of Total Caught by Non-Resident Fishermen			19.99%			

KING CRAB

During 1964, the Kamishak Bay District was again the largest producer of king crab in Cook Inlet. Since 1962, when the Kamishak area was fished for the first time on a year around basis, that district has produced the largest catches of king crab from Cook Inlet each year. This year the Kamishak Bay king crab fishery produced approximately 4,934,366 pounds of king crab, or about 74% of the total Cook Inlet production. The catch is down about 1 million pounds from the record year of 1963. However, the weather has been extremely unfavorable for crab fishing operations. During the fall months, since late August, crab production has been, at best, sporadic.

The Kachemak Bay fishery during 1964 produced approximately 1,731,577 pounds of king crab, or about 26% of the total Cook Inlet production. This catch is also down from 1963, but it follows the general trend since 1960 in that the odd year production is not as high as the even year's. Of particular significance in Kachemak Bay crab production figures is the steady yearly decrease in average weight of crab from this area. Since 1960 there has been a drop of approximately 1.34 pounds in average weight of crabs landed from Kachemak Bay. (See Table X for king crab landings and average weights.)

The figures from Kamishak Bay show the same general trend as do those from Kachemak Bay relative to average weights. That is, there has been a steady yearly decrease in average weights of king crab landed since 1962. In the three years since the fishery has been active in the Kamishak Bay District the average weight of crab landed has dropped just over one-half pound. Although this decrease is not as graphic as that from Kachemak Bay, the decrease has been

noted each year since 1962. The catch during 1961 was from only the latter part of the year, and was, therefore, not representative of what the entire year's fishery production would have been.

The king crab fishery in Cook Inlet is probably indicative of the trend of the entire Alaska king crab fishery in the years to come. A gradual yearly decrease in average size and weight of the king crab stocks until the minimum legal size has been reached. Thereafter, the size and duration of the fishery will depend upon the strength of the age class being fished. It appears quite likely that this particular type of fishery is rapidly approaching for Kachemak Bay, and may not lie too far in the future for Kamishak Bay.

TABLE X - KING CRAB CATCH STATISTICS

<u>YEAR</u>	<u>KAMISHAK BAY</u>		<u>AVERAGE WEIGHT</u>	<u>KACHEMAK BAY</u>		<u>AVERAGE WEIGHT</u>
	<u>CRAB</u>	<u>POUNDS</u>		<u>CRAB</u>	<u>POUNDS</u>	
1960	No Fishing			455,000	4,219,776	9.20
1961	139,300	1,205,679	8.60	349,783	2,988,880	8.50
1962	473,601	4,305,444	9.09	240,852	1,968,980	8.17
1963	635,225	5,538,349	8.71	330,146	2,667,279	8.08
1964	586,010	4,934,366	8.42	220,326	1,731,577	7.86

DUNGENESS CRAB

A limited crab tagging program was initiated in the main crab fishing areas of Kachemak Bay and Port Graham Bay in the spring and summer of 1963. The majority of the returns were obtained in 1963, but four tags were collected during the fishery of 1964. These four tags were recovered in the same location as they had been released.

Data from the tagging program suggests that some portion of the crabs living in the bays are stationary and do not migrate from bay to bay.

Due partly to minimum effort and to lack of processing facilities the Cook Inlet catch for Dungeness crab in 1964 was down from the previous year. Table XI lists the number of individual crab and poundage for the years since 1960.

TABLE XI - DUNGENESS CRAB CATCH, COOK INLET DISTRICT

<u>YEAR</u>	CRAB	POUNDS
1960	No Fishery	
1961		191,588
1962	204,573	460,725
1963		1,677,204
1964	177,708	421,452

SHRIMP

The March 27th earthquake tsunami demolished the shrimp processing facilities in Seward. One shrimp plant operated in Seldovia. Landings of trawler caught shrimp from Cook Inlet for 1964 amounted to 631,411 pounds. These were taken mostly in Kachemak Bay.

SEISMOGRAPHIC EXPLORATIONS, COOK INLET

During 1964, permits were issued for 11 land, 3 conventional marine, and 6 gas exploder operations in the Cook Inlet Area. Inspections of the land work were made on a time-available basis, no inspections were made of the gas exploder work, and a biologist-observer was present during each shot exploded during the marine operations. Summaries of reports of each of the three marine operations are included here.

Seismic Permit 64-98
April 1 - June 1
Middle Ground Shoals Area
United Geophysical Corporation Contractor for Pan American Petroleum Corporation
Observer: Barnel Bragg

Four vessels were used, including the BERNICE, the ROBERT M., the SUNRISE, and the GIZMO. The first three are normally used for king crab fishing, the GIZMO is a 45 foot military type landing barge. Explosive used was Nitramon, maximum weight 100 pounds. Dead fish actually observed from the operation included 1621 herring, 672 tomcod, and 161 bullhead (cottidal). At no time during the operation did the observer have to stop or slow operations due to excessive damage to fish life.

Seismic Permit 64-111
August 15 - November 7
Area: Fire Island to Middle Ground Shoals, at Kalgin Island, Anchor Point,
and Chinitna Bay
United Geophysical Corporation contractor for Union Oil Company of California

Four vessels were used, including the ST. MARIE, a 110' crab vessel from Seattle, the INVINCIBLE, a 70' crab boat from Seldovia, the CELTIC, a 70' boat from Seldovia, and the VIOLET, a 70' cannery tender from Anchorage. Explosive

used was Nitramon, with maximum size charge of 100 pounds. The observed kill included 2,081 tomcod, 5,082 herring, 125 smelt, 150 stickleback, and one porpoise. On one occasion shooting was stopped and a request made to move to another line because of an excessive kill of herring. Observers were Charles Martin and Kenneth Maederer (Martin commenced the work and left to be relieved by Maederer.)

Seismic Permit 64-113

August 21 to December 8

Area: Upper Cook Inlet between Kalgin Island and Fire Island.

United Geophysical contracted to complete this program for Pan American Petroleum Corporation.

Various vessels were used, including the WHITE PLUME, a 150 foot vessel from Seattle, the ROBERT M., 80 foot fishing boat from Port Bailey, the SUNRISE, 80 foot fishing boat from Port Bailey, the GIZMO, a 45 foot landing craft, the CELTIC, 70 foot crab boat of Seldovia, the TWANAH, a 75 foot yacht from Seattle, and the VIOLET RAY, 80 foot crab vessel from Homer.

Vibronite and Nitramon were used, with the maximum charge 100 pounds.

Total observed fish kill was 682, including tom cod, herring and smelt.

A total of 4,155 shots were fired during the operation. At no time was it necessary to halt operations because of excessive fish kill. Phillip Havens was observer.

FISHERMEN'S CORNER

For the fifth consecutive season in late June and July the 6-day a week radio program "Fishermen's Corner" was broadcast over Anchorage radio station KENI. Fishermen throughout the Inlet are continually informed of changes in fishing time, and informed which areas are opened and closed by field announcement. Fishermen of the Inlet have come to rely heavily upon information broadcast over this program -- and they now rely less upon the canneries for information. The program is recorded on tape, via a phone call from Homer to Anchorage, and then the tape is played off the same evening.