

ALASKA LEGISLATURE SPECIAL COMMITTEE / SUBJECT FILE 8672

1259 SCOMM 48: HOUSE SPEC. COMMITTEE ON FISHERIES 1985-86 / 726

Table 6. Sizes of sockeye salmon fry collected from Tustumena Lake tow netting, 1984.

	Age 0		Age 1	
	07/23-08/14	09/18-10/04	07/23-08/17	09/18-10/04
Sample size	413	388	287	186
Mean length (mm)	49.28	60.68	74.03	78.03
(S.D.)	(6.81)	(4.58)	(3.37)	(3.70)
Mean weight (g)	1.48	2.47	4.66	5.28
(S.D.)	(0.69)	(0.56)	(0.79)	(0.77)

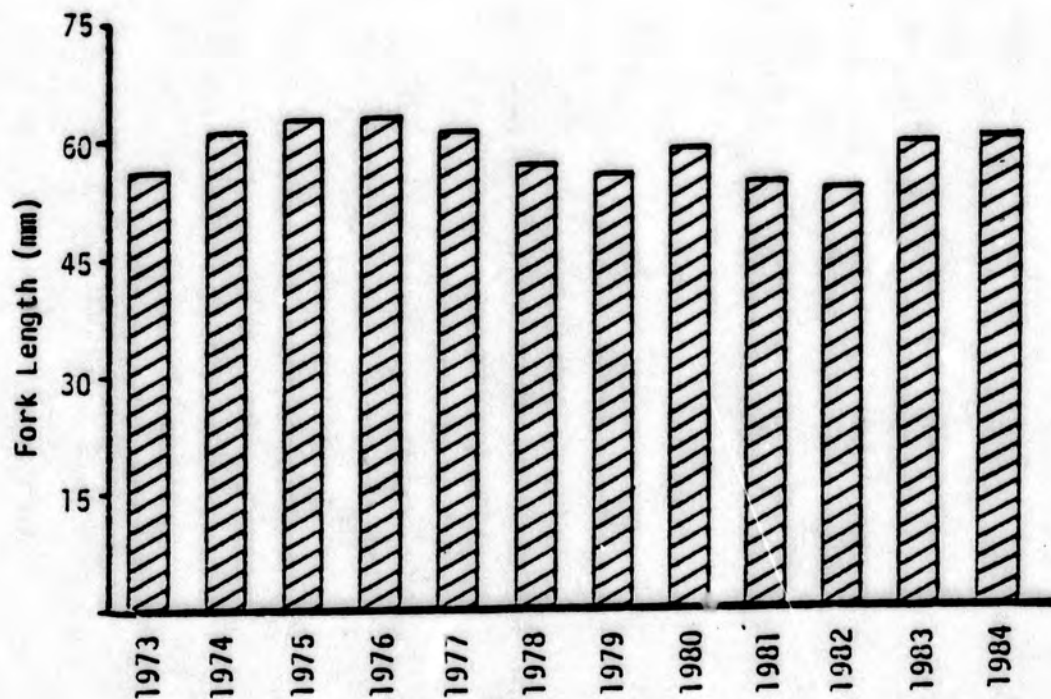
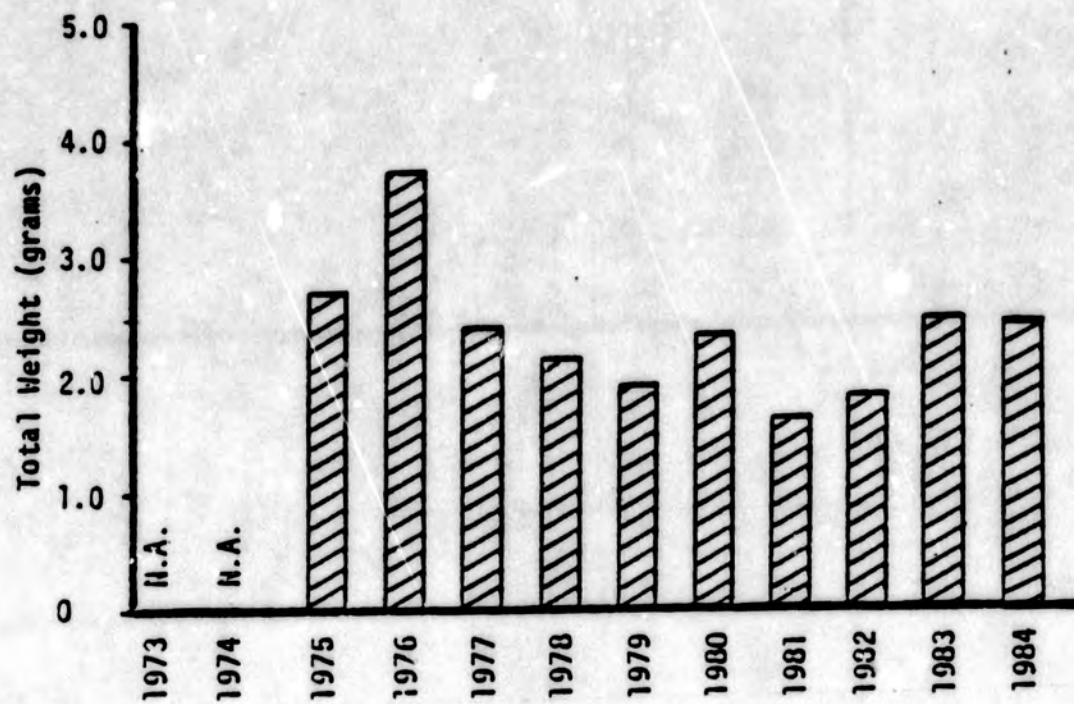


Figure 8. Length and weight of Age 0.0 sockeye salmon in Tustumena Lake, Alaska, 1973-1984 (September sampling via tow net).

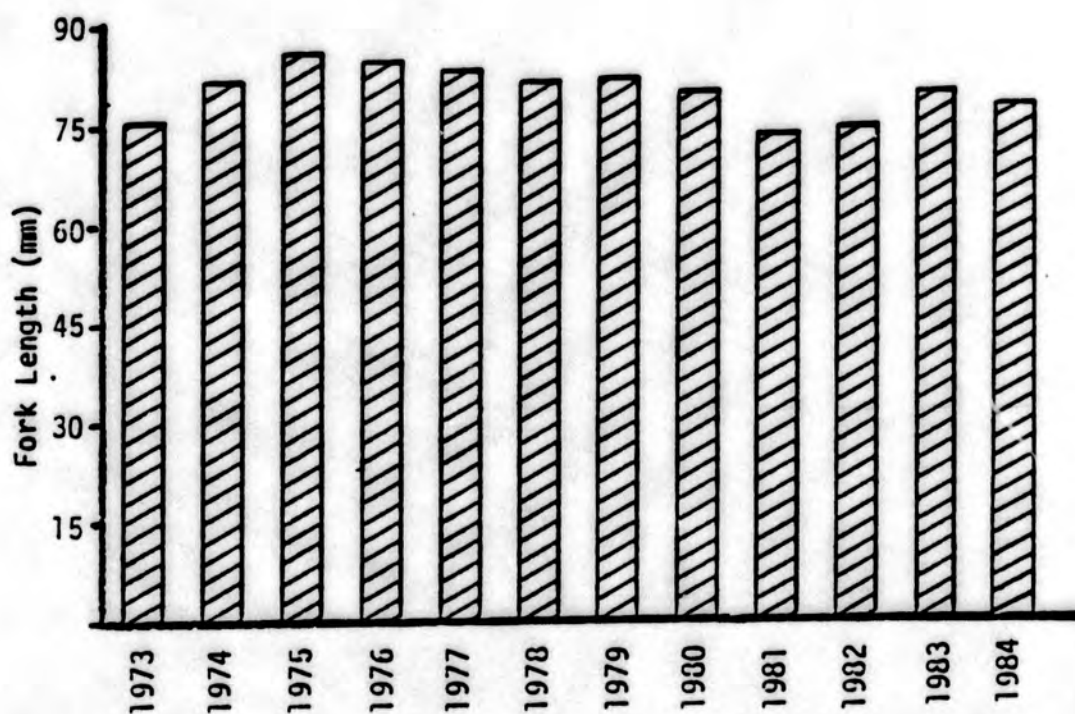
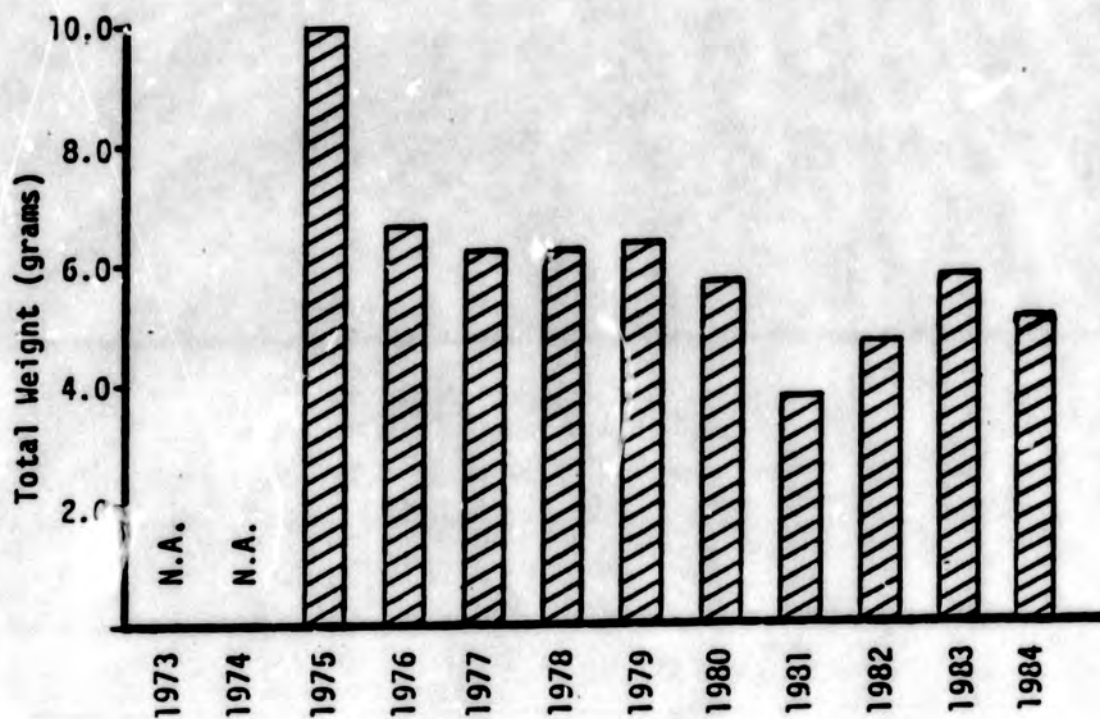


Figure 9. Length and weight of Age 1.0 sockeye salmon in Tustumena Lake, Alaska, 1973-1984. (September sampling via tow net).

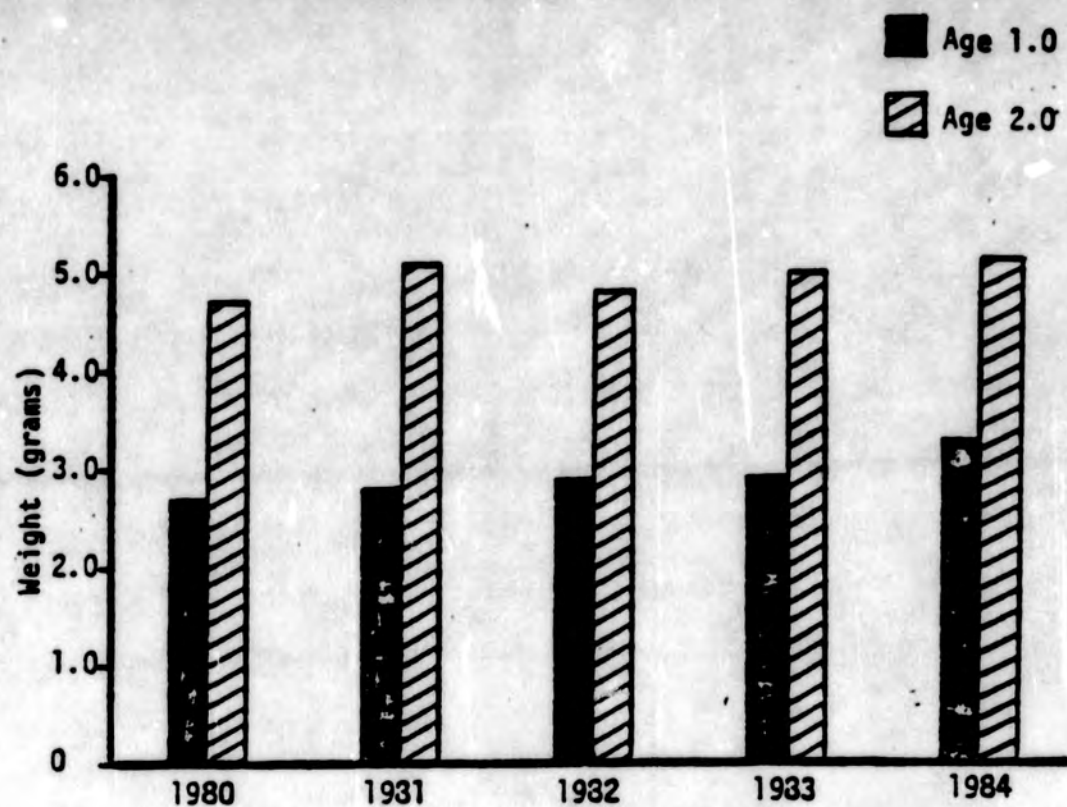


Figure 10. Mean weight (grams) of Age 1.0 and Age 2.0 sockeye salmon smolt in Kasilof River, Alaska, sampling years 1980-1984.

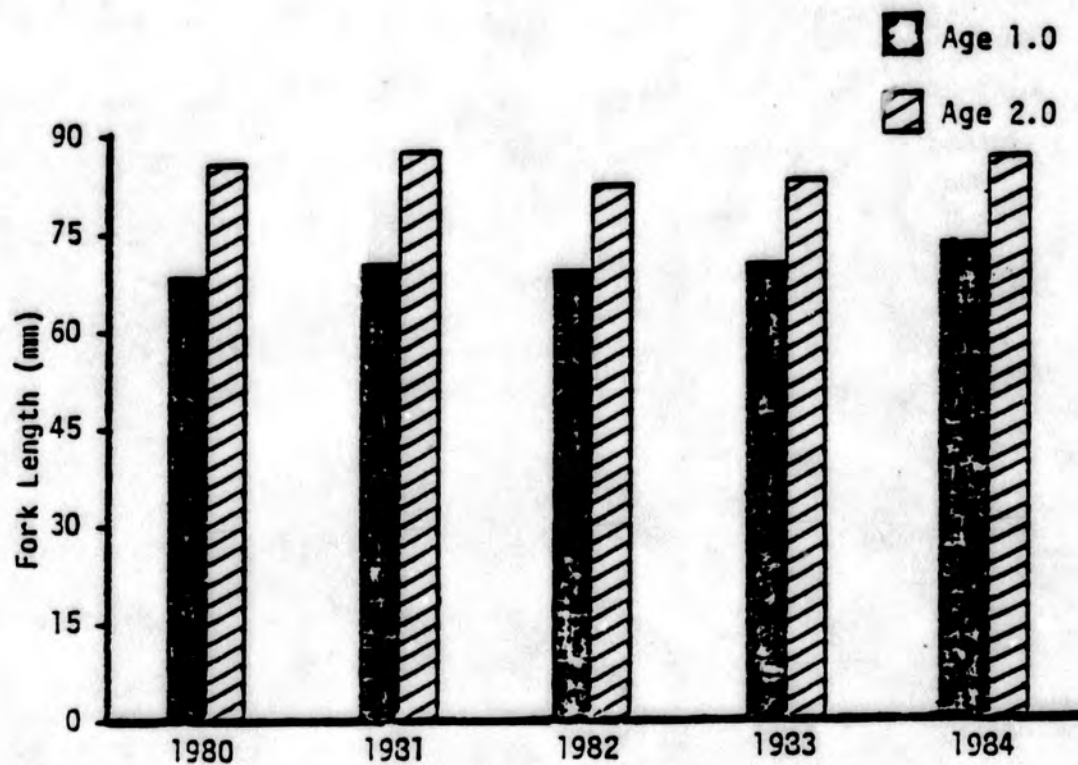


Figure 11. Mean fork length of Age 1.0 and Age 2.0 sockeye salmon smolt in Kasilof River, Alaska, sampling years 1980-1984.

In 1984, age 1.0 and 2.0 sockeye salmon weighed 3.3 and 5.2 g, respectively. Mean fork lengths were 72.7 and 84.5 mm for the same age classes.

Comparison of adult sockeye salmon length data collected during 1976-1984 indicated very little year to year variation within age class or by sex (Table 7). The average lengths for age 1.2 fish in 1984 were 480 mm for males and 478 mm for females. For age 1.3 fish average lengths were 539 mm for males and 533 mm for females. Weights of the major age classes of sockeye salmon collected in 1984 are presented in Table 8. Average weights for male 1.2 and 1.3 were 1.86 and 2.67 kg, respectively.

Sockeye Salmon Age Composition

Within Tustumena Lake, age 0.0 sockeye salmon have comprised greater than 90% of the September tow net catches since 1976. However, in 1973, 1974 and 1975, this age class accounted for 49%, 62%, and 86% of the catch, respectively. Age 1.0 sockeye salmon constitute the remainder of the tow net catches. In 1984, age 0.0 sockeye salmon comprised 91.4% of the tow net catches (Figure 12). However, it should be noted that tow nets may be selective against age 1.0 sockeye salmon and, therefore, the percentage of this class may be low (Thorne and Thomas 1982).

Examination of data on sockeye salmon smolt age composition indicates that 80% of the smolt migrating in 1984 were age 1.0 and 20% were age 2.0. This age composition was similar to previous years, especially the 1981 and 1982 smolt years (Figure 13). Examination of smolt production by brood

Table 7. Length composition of the major age classes of sockeye salmon collected in the Kasilof River, 1976-1984.

Year	Age Class	Male			Female			Total			Ratio Male-Female
		Average Length (mm) ^{1/}	Standard Error	Sample Size	Average Length (mm) ^{1/}	Standard Error	Sample Size	Average Length (mm) ^{1/}	Standard Error	Sample Size	
1976	1.2	486	3.9	26	472	10.9	40	478	--	66	0.7:1
1978		--	--	69	--	--	70	501	3.1	139	1.0:1
1979		489	2.0	175	487	2.0	139	488	1.5	314	1.3:1
1980		474	2.4	189	464	1.2	376	467	--	565	0.5:1
1981		503	2.0	241	492	2.5	146	499	--	387	1.7:1
1982		481	2.2	285	466	1.8	235	474	2.0	475	1.2:1
1983		493	1.9	113	491	2.5	78	492	1.5	191	1.4:1
1984		480	1.2	544	478	1.1	428	479	0.8	972	2.6:1
1976	1.3	528	13.4	5	547	7.5	4	536	--	9	1.3:1
1978		--	--	47	--	--	55	554	2.4	102	0.9:1
1979		578	3.2	82	562	3.3	99	569	2.4	181	0.8:1
1980		531	6.8	35	516	2.4	115	520	--	150	0.3:1
1981		566	1.2	422	558	1.4	369	562	--	791	1.1:1
1982		549	1.4	377	542	1.1	428	545	1.2	805	0.9:1
1983		558	1.9	170	547	1.9	187	552	1.3	357	0.9:1
1984		539	1.4	304	533	1.3	383	535	0.9	687	0.8:1

^{1/}Lengths are mid-eye to fork of tail (ME-FT).

Table 7, continued. Length composition of the major age classes of sockeye salmon collected in the Kasilof River, 1976-1984.

Year	Age Class	Male			Female			Total			Ratio Male-Female
		Average Length (mm) 1/	Standard Error	Sample Size	Average Length (mm)	Standard Error	Sample Size	Average Length (mm)	Standard Error	Sample Size	
1976	2.2	485	6.1	12	487	3.1	34	486	--	46	0.4:1
1982		479	3.2	65	472	2.7	81	475	2.9	146	0.8:1
1984		484	1.8	202	482	1.4	223	483	1.1	425	0.9:1
1982	2.3	548	4.3	41	543	3.8	40	546	4.1	86	1.0:1
1984		533	2.6	102	526	3.0	80	530	2.0	182	1.3:1

1/ Lengths measured from mid-eye to fork of tail.

Table 8. Weight composition of the major age classes of sockeye salmon collected in the Kasilof River, 1981-1984.

Year	Age Class	Male			Female			Total		
		Average Weight (kg)	Standard Error	Sample Size	Average Weight (kg)	Standard Error	Sample Size	Average Weight (kg)	Standard Error	Sample Size
1981	1.2	2.2	0.05	241	1.9	0.03	146	2.1	--	387
1982		1.8	0.03	235	1.5	0.02	240	1.7	0.03	475
1983		2.04	0.06	113	1.84	0.03	78	1.96	0.04	191
1984		1.86	0.03	101	1.81	0.04	39	1.85	0.02	140
1981	1.3	3.0	0.04	422	2.9	0.03	369	3.0	--	791
1982		2.7	0.02	377	2.44	0.02	428	2.56	0.02	805
1983		2.78	0.03	168	2.47	0.02	187	2.62	0.02	355
1984		2.67	0.03	146	2.53	0.03	182	2.59	0.02	328
1981	2.2	2.3	0.08	40	2.0	0.07	33	2.2	--	73
1982		1.7	0.05	65	1.6	0.04	81	1.7	0.04	146
1984		2.07	0.10	31	1.79	0.05	27	1.95	0.06	58
1982	2.3	2.6	0.07	41	2.3	0.5	34	2.5	0.06	75
1984		2.72	0.10	32	2.63	0.14	31	2.68	0.09	63

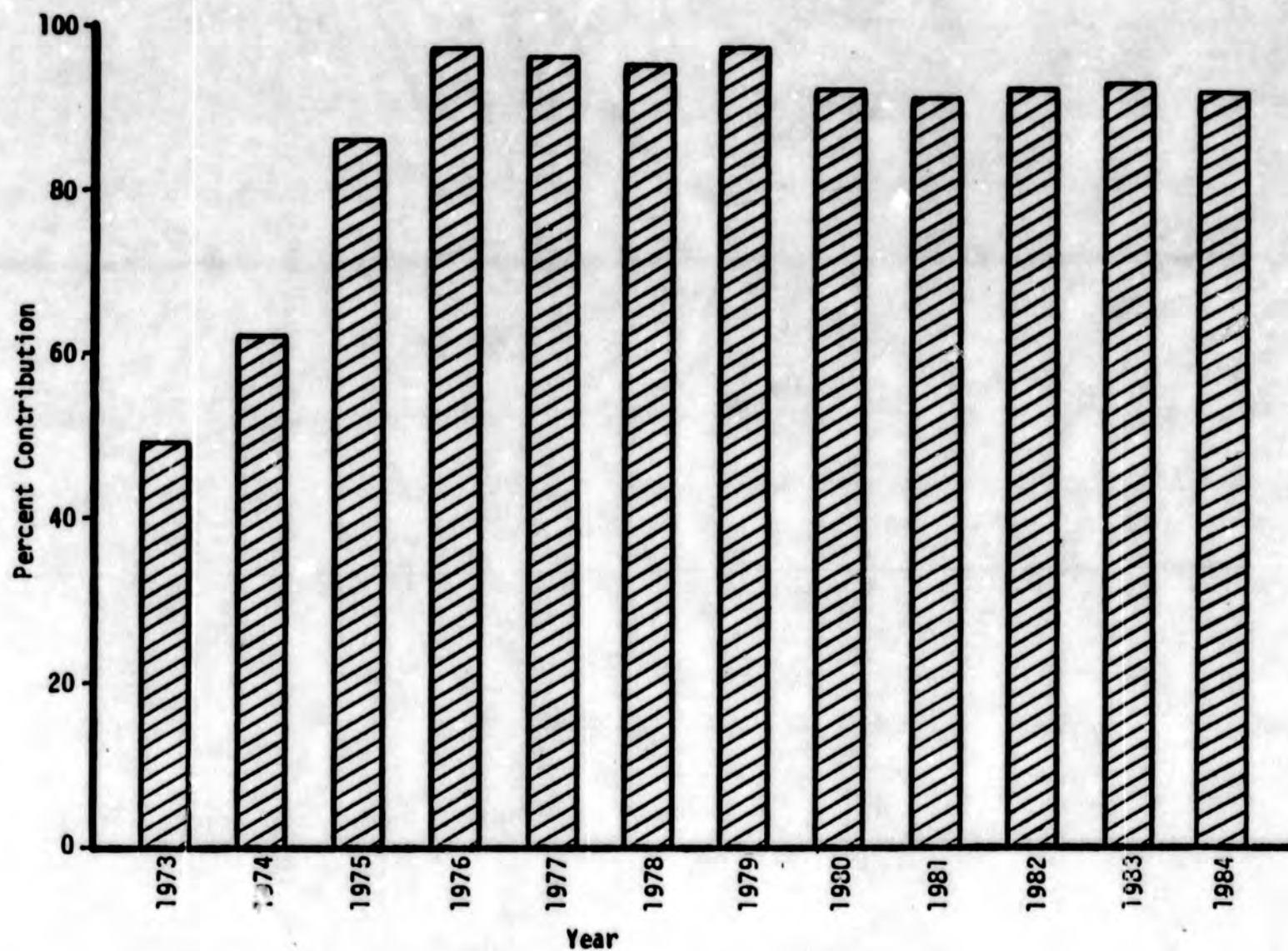


Figure 12. Percent contribution of Age 0.0 sockeye salmon in September tow net survey of Tustumena Lake, Alaska, 1973-1984.

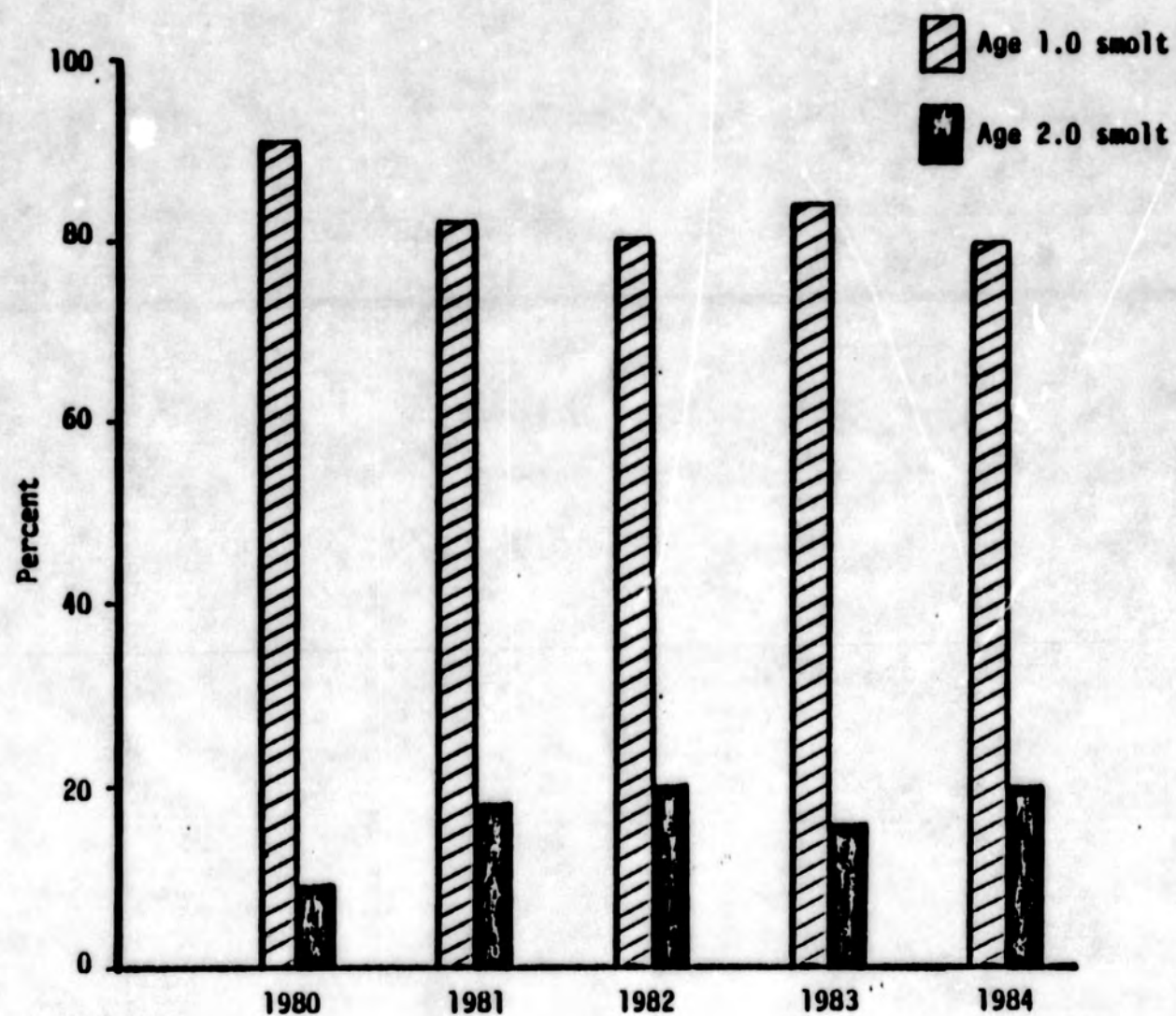


Figure 13. Percent age composition of sockeye salmon smolt in the Kasilof River, Alaska, 1980-1984.

year indicated that 31%, 34%, 24%, and 30% of the total smolt produced by the 1978, 1979, 1980, and 1981 brood years, respectively, are age 2.0 fish.

There appears to be a difference in age composition between hatchery and naturally produced sockeye fry by brood year. Hatchery reared sockeye from the 1979, 1980, and 1981 brood years smolted at a ratio of 17.1:1, 4.3:1, and 4.7:1, age 1.0 to age 2.0, respectively. In contrast, naturally produced sockeye smolted at a ratio of 1.6:1.0, 2.1:1, and 2.0:1 for the same years, respectively. These differences may be due to the fact that all hatchery released fry enter the lake in mid-June while wild fry input occurs over a broader range of time. Also, hatchery fry at time of release tend to be slightly larger than wild fry (Table 5).

Five-year old sockeye salmon have been the predominant or codominant age class in the total adult return since 1968. Age 1.3 fish comprise the greatest percentage of the returns in 50% of the years; age 2.2 in 25% of the years; and age 1.2 in 25% of the years. In 1984, age 1.2 fish comprised 48.7% of the escapement (Table 9).

Spawning Ground Distribution of Sockeye Salmon

The distribution of spawning adults between the tributary streams has varied considerably during the period of record (Table 10). Bear Creek, a significant sockeye salmon spawning area, has accounted for 33.6% to 73.1% of index area counts since 1975. Nikolai Creek contribution has ranged from 5.1% in 1984 to 34.3% in 1978. Glacier Flats and Moose Creeks have

Table 9. Age composition of sockeye salmon collected in the Kasilof River, 1969-1984.^{1/}

Sample Period	Percentage by age group							Other	Sample Size
	1.1	1.2	1.3	1.4	2.1	2.2	2.3		
6/18 - 7/04/84		27.3	48.3			12.7	11.7		945
7/05 - 7/15/84		42.3	28.1			21.4	8.0		477
7/16 - 7/18/84		53.3	12.7			29.2	4.8		520
7/19 - 7/25/84		71.9	9.2			15.6	2.7		327
Seasonal Summary									
1969		14.0	39.0	1.0		30.0	16.0		399
1970	tr	32.0	37.0	2.0		16.0	11.0	1.0	297
1971		6.0	69.0			8.0	16.0		153
1972	tr	42.0	36.0	1.0	tr	3.0	18.0	tr	668
1973		20.0	57.0			19.0	4.0		374
1974		35.0	59.0		tr	4.0	2.0		254
1975	1.0	29.0	7.0			53.0	4.0	1.0	931
1976	tr	32.0	20.0		tr	35.0	12.0		755
1977	tr	30.0	30.0		1.0	28.0	11.0		1,209
1978		42.0	35.0			14.0	9.0		967
1979 ^{1/}		52.2	37.2		tr	8.4	1.7	tr	590
1980 ^{1/}		58.7	27.8			8.0	4.5	1.0	399
1981 ^{1/}		30.2	62.2			6.0	1.6		1,479
1982 ^{1/}	1.0	34.0	49.5		0.1	10.7	4.7	0.1	1,518
1983 ^{1/}		48.4	34.3			12.8	4.5		1,997
1984 ^{1/}		48.7	24.6	tr	0.2	19.7	6.3		2,269

^{1/} Percentages weighted by total numbers in escapement.

Table 10. Distribution (percent)¹ of sockeye salmon in the major index tributary systems of Tustumena Lake. 1975-1984.

Year	Nikolai	Moose	Bear	Glacier Flats	Other
1975	10.2	5.9	49.9	25.9	8.1
1976	13.8	16.2	59.8	8.2	2.0
1977	25.8	14.7	51.5	5.1	2.9
1978	34.3	15.9	43.5	4.7	1.6
1979	27.1	11.5	51.0	7.9	2.5
1980	5.8	9.1	73.1	9.0	3.0
1981	21.0	7.6	43.8	23.3	4.3
1982	15.8	12.6	48.2	16.3	7.1
1983	12.0	13.5	43.4	27.1	4.0
1984	5.1	8.6	33.6	47.1	5.6

¹Percent of total index count.

exhibited similar variations. In 1984, 33.6% of the peak escapement counts was recorded in Bear Creek, 47.1% in Glacier Flats, 8.6% in Moose Creek, 5.1% in Nikolai Creek, and the remainder in minor systems. Actual peak escapement counts are presented in Table 11.

Adult Run Timing

Daily escapement and seasonal entry pattern of sockeye salmon varied considerably during the period 1968-1984. The midpoint (50 percent date) of the run varied from 2 July in 1969 to 23 July in 1972, and averaged 13 July. In 1984, the mid point of the run was 15 July and the run duration was typical of previous years (Table 12).

Spawning ground tag recovery data collected in 1984 are summarized on Figure 14. When the number of tags recovered in each tributary was expressed as a percentage of the total recovered and grouped into tagging periods, some general trends were noted (tag recovery effort was variable due to weirs on Bear and Glacier Flats Creeks). It appears that individual tributary returns generally overlap in timing at the sonar site, but peaks may vary slightly with a sequence of Nikolai, Bear, and Glacier Flats Creeks as the season progresses.

Tag recovery data in 1984 were also analyzed for mean residence time of fish in the lake bound for Bear and Glacier Flats Creeks (Table 13). There was a trend of shorter residence time for fish entering the river as the season progressed. For example, Bear Creek sockeye salmon tagged 10 June-6 July averaged 33.4 days between the sonar site and weir while those fish

Table 11. Peak sockeye salmon escapement counts in seven index areas, Kasilof River drainage, 1975-1984¹.

Year	Nikolai	Crystal	Clear	System Flats	Seepage	Moose	Bear	Total index count
1975	5,700	400	300	14,400	3,700	3,300	27,700	55,500
1976	12,000	800	300	7,100	800	14,000	51,800	86,800
1977	29,100	600	1,800	5,800	800	16,600	58,000	112,700
1978	34,200	200	200	4,700	1,100	15,900	43,400	99,700
1979	19,100	500	400	5,600	800	8,100	35,900	70,400
1980	10,000	1,000	2,100	15,500 ²	1,800	15,600	125,000 ²	171,400
1981	36,000	860	2,978	40,071 ²	3,376	12,968	75,117 ²	171,400
1982	16,800	1,785	4,183	17,348 ²	1,638	13,400	51,350 ²	106,500
1983	17,100	1,657	860	38,776 ²	3,305	19,245	61,957 ²	142,900
1984	8,300	140	2,600	76,200 ²	6,250	14,000	54,300	161,800

¹Counts standardized to common unit for years entire stream was not surveyed. Relative abundance per section (when entire stream system surveyed) was used to extrapolate for years when only a portion of stream was surveyed. Numbers rounded to nearest hundred fish.

²FRED Division weir count.

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Spawning ground tag recovery data collected in 1984 are summarized on Figure 14. When the number of tags recovered in each tributary was expressed as a percentage of the total recovered and grouped into tagging periods, some general trends were noted (tag recovery effort was variable due to weirs on Bear and Glacier Flats Creeks). It appears that individual tributary returns generally overlap in timing at the sonar site, but peaks may vary slightly with a sequence of Nikolai, Bear, and Glacier Flats Creeks as the season progresses.

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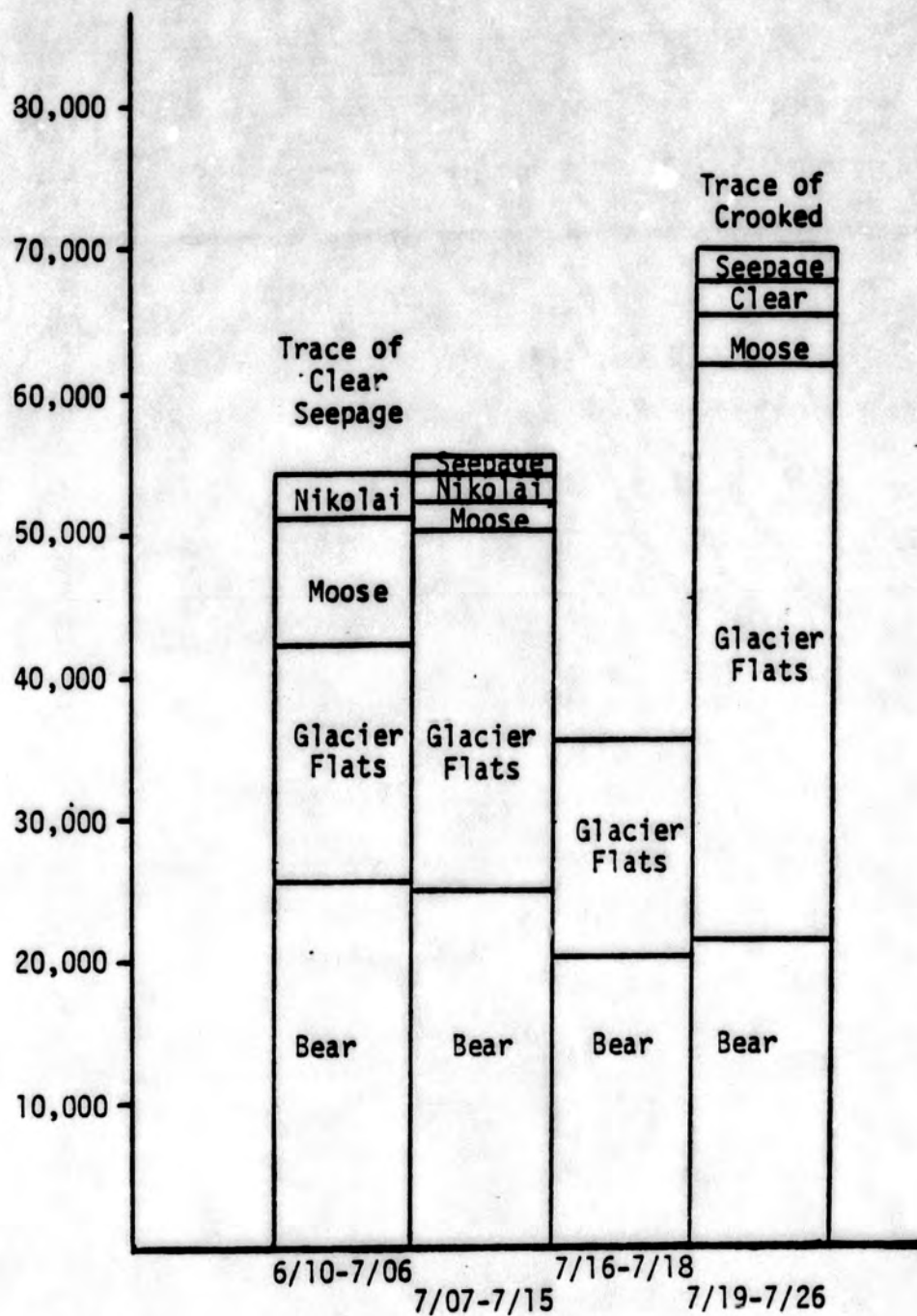


Figure 14. Percent of total tags recovered by spawning area (grouped by date of tagging at the Kasilof River sonar site) expressed in the number of fish enumerated by sonar during each tagging period. Note: a small proportion of tags were recovered in spawning areas outside of Tustumena Lake. (1984)

Table 12. Date of cumulative percent of sockeye salmon counts recorded in the Kasilof River, 1968-1984.

Year	Date by 10% Interval									
	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
1968	7/04	7/06	7/08	7/11	7/12	7/14	7/17	7/20	7/23	7/31
1969	6/25	6/25	6/30	7/02	7/02	7/06	7/11	7/18	7/25	8/09
1970	6/27	7/03	7/07	7/09	7/12	7/14	7/17	7/23	7/27	8/06
1972	7/15	7/21	7/22	7/22	7/23	7/23	7/24	7/24	7/25	8/03
1973	7/04	7/09	7/11	7/13	7/15	7/18	7/20	7/23	7/26	8/05
1974	7/04	7/05	7/06	7/08	7/11	7/13	7/17	7/23	7/28	8/07
1975	7/05	7/07	7/09	7/13	7/16	7/19	7/21	7/24	7/28	8/07
1976	7/06	7/07	7/10	7/13	7/16	7/19	7/20	7/22	7/28	8/09
1977	7/04	7/08	7/11	7/12	7/14	7/15	7/17	7/20	7/25	8/04
1978	6/30	7/03	7/06	7/09	7/16	7/17	7/17	7/18	7/20	8/06
1979	6/28	7/02	7/05	7/07	7/12	7/15	7/19	7/23	7/27	8/14
1980	6/30	7/02	7/05	7/11	7/16	7/18	7/21	7/25	8/03	8/14
1981	6/18	6/24	6/28	7/01	7/04	7/07	7/10	7/14	7/20	<u>2/</u>
1982	7/03	7/13	7/16	7/17	7/19	7/20	7/21	7/27	<u>3/</u>	
1983	7/01	7/07	7/12	7/14	7/16	7/17	7/18	7/22	<u>4/</u>	
1984	6/29	7/05	7/08	7/10	7/15	7/17	7/19	7/21	7/24	7/31 ^{5/}

1/ Date on which percentage level equaled or exceeded.

2/ Estimated 2% of the escapement occurred after 31 July (end of enumeration period).

3/ Estimated 11% of the escapement occurred after 3 August (end of enumeration period).

4/ Estimated 12% of the escapement occurred after 31 July (end of enumeration period).

5/ Estimated 6% of the escapement occurred after 31 July (end of enumeration period).

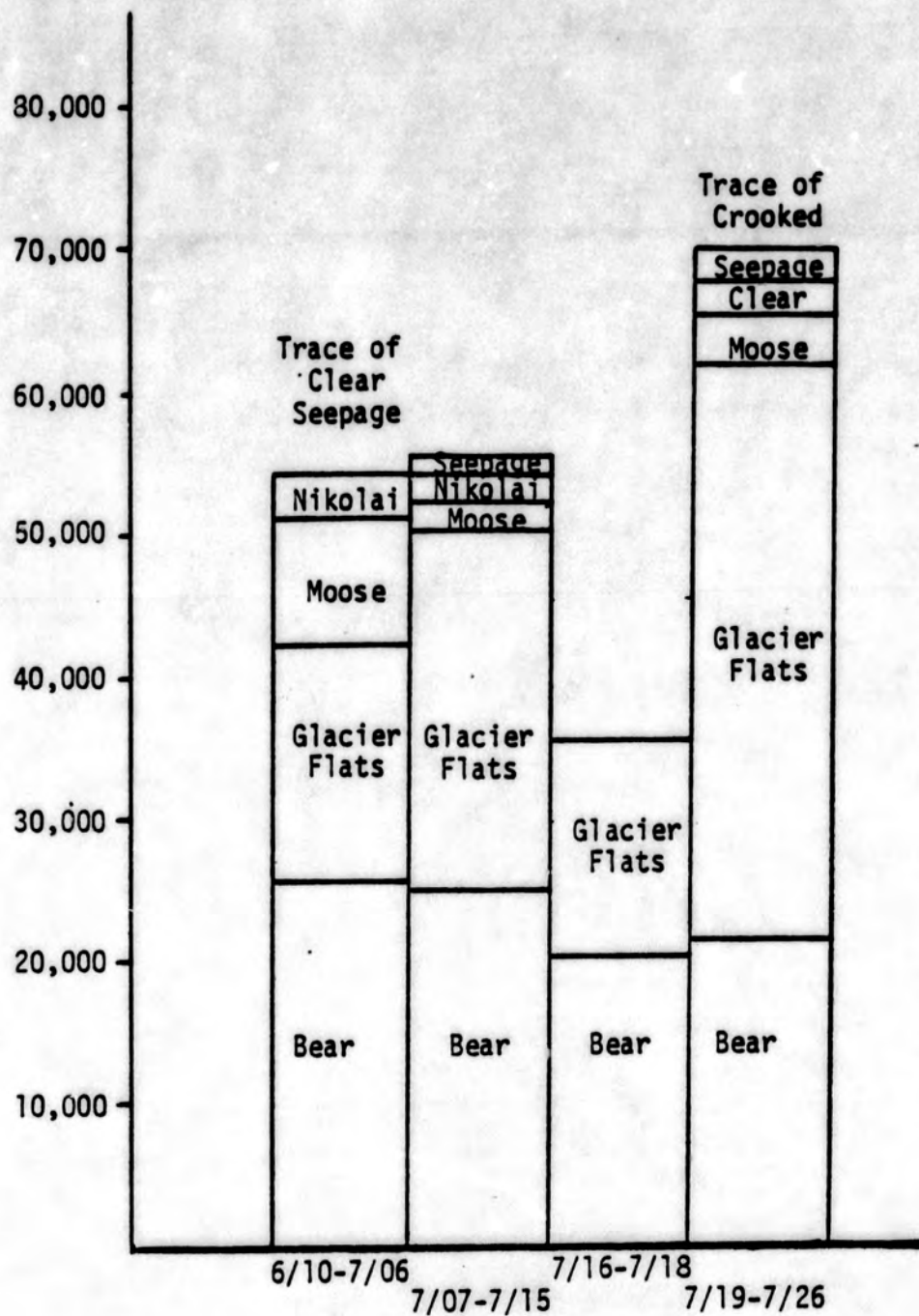


Figure 14. Percent of total tags recovered by spawning area (grouped by date of tagging at the Kaslof River sonar site) expressed in the number of fish enumerated by sonar during each tagging period. Note: a small proportion of tags were recovered in spawning areas outside of Tustumena Lake. (1984)

Table 13. Mean residence time in Tustumena Lake of sockeye salmon bound for Glacier Flats and Bear Creek, 1982-1984.^{1/}

Year	Tributary	Tagging Period	Tags Recovered	Mean Residence Time	Range
1982	Glacier Flats Creek	7/01-7/12	6	36.2	
		7/13-7/24	54	28.3	
		7/25-8/03	17	21.7	
1983		6/17-6/30	0	--	--
		7/01-7/12	9	32.1	24-41
		7/13-7/18	41	25.2	19-37
		7/19-7/27	13	19.4	7-28
1984		6/10-7/06	33	48.6	33-62
		7/07-7/15	76	37.9	24-48
		7/16-7/18	6	33.2	25-39
		7/19-7/26	60	26.5	15-37
1982	Bear Creek	6/19-6/30	3	32.3	
		7/01-7/12	26	25.7	
		7/13-7/24	154	21.7	
		7/25-8/03	8	18.5	
1983		6/17-6/30	26	34.8	31-40
		7/01-7/12	52	27.8	22-39
		7/13-7/18	30	23.3	14-30
		7/19-7/27	9	18.6	12-24
1984		6/10-7/06	55	33.4	23-51
		7/07-7/15	77	26.8	13-48
		7/16-7/18	8	22.9	12-33
		7/19-7/26	33	24.2	13-32

^{1/} Fish tagged at Kasilof River slackwater sonar site in 1982 and at Kasilof River Bridge sonar site in 1983 and 1984.

tagged between 19 July and 26 July had a mean residence time in the lake of 24.2 days. This is consistent with results observed in 1983.

Sockeye Salmon Fecundity

Since 1974, fecundity data has been gathered on Kasilof River sockeye salmon as part of the Crooked Creek Hatchery operation. A low of 2,857 eggs per female was recorded in 1974 from Glacier Flats Creek spawners while the high of 3,710 eggs per female was also of Glacier Flats Creek origin in 1977 (Table 14). Average fecundity for the system since 1974 is 3,308 eggs per female. Glacier Flats and Bear creek sockeye salmon had a fecundity of 3,164 and 2,994 eggs per female in 1984, respectively.

Table 14. Fecundity of sockeye salmon in the Tustumena Lake system, Alaska, as determined during eggs takes for the Crooked Creek Hatchery.

Brood year	Source	Fecundity
1974	Glacier Flats Creek	2,857
1975	Glacier Flats Creek	3,499
1976	Glacier Flats Creek	3,134
	Bear Creek	3,095
	Seepage Creek	3,291
1977	Glacier Flats Creek	3,710
1978	Glacier Flats Creek	3,523
	Bear Creek	3,502
1979	Glacier Flats Creek	3,522
	Bear Creek	3,503
1980	Glacier Flats Creek	N.A.
	Bear Creek	N.A.
1981	Glacier Flats Creek	3,233
	Bear Creek	3,071
1982	Glacier Flats Creek	3,246
	Bear Creek	3,123
1983	Glacier Flats Creek	3,530
	Bear Creek	3,226
1984	Glacier Flats Creek	3,164
	Bear Creek	2,994

APPENDIX

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Appendix A. Kasilof River smolt migration summary, 1980-1984.

Sample year	Total smolt migration (millions)	Percent age composition		Mean size of age 1.0 smolt		Percent hatchery contribution
		1.0	2.0	Length (mm)	Weight (g)	
1980	1.0	91	9	68	2.7	3
1981	2.3	82	18	70	2.8	13
1982	5.1	80	20	69	2.9	17
1983	8.3	84	16	70	2.9	25
1984	14.2	80	20	73	3.3	22

Appendix B. Tustumena Lake stream surveys, 1984.

Date	Stream	Total ² observed	Clips	Numbers of fish			Total
				Dead	Bear killed	Live	
08/06	Moose	1,700	2 RV	996	577	13,003	13,999
08/29 ¹	Moose	1,184	0	3,019	--	2,485	5,504
08/08	Crystal	71	0	3	3	138	141
08/21	Crystal	61	0	16	3	92	108
08/08	Clear	97	0	116	35	673	789
08/21	Clear	215	0	286	--	2,333	2,619
08/09	Seepage	0	0	2	84	1,657	1,743
08/21	Seepage	629	1 RV	1,719	--	4,531	6,250
08/30	Shantatalik	0	0	0	0	0	0
08/30	Canyon	4	0	0	4	0	4
08/30	Pipe	75	0	2	978	19	999
08/09	Nikolai	0	0	229	21	1,229	1,479
08/30	Nikolai	50	0	75	--	13	88

¹Heavy flooding the previous week flushed live and dead fish out of creek into lake.

²Observed for fin clips.

Appendix C. Tustumena Lake, Glacier Flats Creek sockeye salmon weir escapement, egg take, and number number of ventral fin clips observed, 1984.

Date	Passed weir	Observed fin clips	Number fin clips		Egg take		Green females	Number ¹ of eggs
			LV	RV	Females	Males		
08/07	Weir installed							
08/08	17,000 ²	0	--	--				
08/09	2,700	1,000	0	2				
08/10	1,000	1,000	0	1				
08/11	3,346	1,000	0	0				
08/12	2,700	2,700	0	3				
08/13	500	0	--	--				
08/14	500	0	--	--				
08/15	500	0	--	--				
08/16	2,500	0	--	--				
08/17	0	1,105	0	7	660	430	15	2,112,000
08/18	0	1,204	0	5	660	523	21	2,112,000
08/19	0	1,125	0	6	660	445	20	2,112,000
08/20	0	1,209	0	4	660	535	14	2,112,000
08/21	9,615	1,000	0	1	540	450	10	1,728,000
08/22	5,782	0	--	--				
08/23	4,588	116	0	0				
08/24	2,365	408	0	3				
08/25	5,610	0	--	--				
08/26	2,279	0	--	--				
08/27	1,464	0	--	--				
08/28	1,635	855	0	2				
08/29	4,200 ³	232	0	2				
	68,284	12,954	0	36	3,180	2,383	80	10,176,000

¹Number of eggs based on average of 3,200 eggs per female.

²Surveyed from above weir on August 08.

³Estimated when weir was removed.

Appendix D. Tustumena Lake, Bear Creek sockeye salmon weir escapement, egg take, and number of ventral fin clips observed, 1984.

Date	Passed weir	Observed for ventral fin clips	Number fin clips		Egg take		Green females	Number ¹ of eggs
			LV	RV	Females	Males		
07/27	Weir installed							
07/28	2,000 ²	0	--	--				
07/29	646	500	0	0				
07/30	3,736	500	0	0				
07/31	1,000	1,000	1	0				
08/01	3,214	1,000	0	0				
08/02	2,968	1,000	2	0				
08/03	1,000	1,000	2	0				
08/04	3,343	1,000	1	0				
08/05	2,002	1,000	2	0				
08/06	2,850	1,000	3	0				
08/07	1,500	500	4	1				
08/08	2,500	1,000	5	0				
08/09	708	708	5	0				
08/10	0	0	--	--				
08/11	0	639	6	1	337	282	20	1,078,400
08/12	0	785	11	0	450	300	35	1,440,000
08/13	0	1,011	3	1	660	315	36	2,112,000
08/14	0	1,096	7	0	630	450	46	2,016,000
08/15	0	1,141	7	0	660	440	41	2,112,000
08/16	1,522	796	9	1	450	324	22	1,440,000
08/17	9,507	500	2	0				
08/18	4,850	500	2	1				
08/19	0	0	--	--				
08/20	4,188	0	--	--				
08/21	4,773	19	--	--				
08/22	700 ³	0	--	--				
	44,523	16,695	72	5	3,187	2,111	200	10,198,400

¹Number of eggs based on average of 3,200 eggs per female.

²Aerial survey above weir on July 28.

³Estimated when weir was removed.

Appendix E. Tustumena Lake tow net results, 23 July to 14 August 1984 survey.

Date	Tow number	Transect number	Time	Depth	Number of sockeye		Marks		Other
					Age 0	Age 1	Age 0	Age 1	
07/23	1	--	11:05	S	88	16			1 RV 2 pink fry, 2 coho fry White fish larvae White fish larvae 1 pink fry
	2	--	12:00	S	136	40			
	3	--	13:18	S	94	27			
	4	--	14:15	S	176	40			
07/24	5	--	10:14	S	156	10			
	6	--	11:50	S	260	23	1 AFC		
	7	--	13:25	S	229	39	1 RV		
07/25	8	--	12:05	S	141	5	1 AFC		
	9	--	13:24	S	200	7	1 RV, 1 AFC		1 lake trout
	10	--	15:15	S	46	13			
07/26	11	--	14:39	S	146	24	1 AFC		
07/27	12	--	12:02	S	225	32			
	13	--	14:09	S	64	11			
07/30	1 A	8	20:00	2 F	39	4			
	2 A	7	21:53	2 F	36	2			
	3 A	6	22:55	4 F	44	2			
	4 A	5	23:59	2 F	34	1			
07/31	5 A	5	00:34	6 F	50	1			
	6 A	4	01:51	4 F	20	1			
	7 A	3	02:37	2 F	20	2			
	8 A	2	03:41	2 F	54	6			
	9 A	2	04:12	6 F	37	0			
	10 A	1	05:25	2 F	68	2			
	11 A	1	19:55	6 F	21	1			
	12 A	2	21:00	S	49	6			1 coho smolt

-continued-

Appendix E continued. Tustumena Lake tow net results, 23 July to 14 August 1984 survey.

Date	Tow number	Transect number	Time	Depth	Number of sockeye		Marks		Other
					Age 0	Age 1	Age 0	Age 0	
07/31	13 A	2	21:40	4 F	89	6	1 RV		
	14	2	22:20	2 F	79	10	1 AFC		
	15	3	21:21	S	12	1			1 adult sockeye
08/01	16	5	00:05	4 F	54	2			
	17	4	03:19	S	23	5			
	18	4	03:59	4 F	12	6			
	19	4	04:43	2 F	19	9	1 AFC		2 sculpin
	20	5	05:28	2 F	33	9			1 sculpin
	21	5	05:58	S	57	12	1 AFC		
	22	7	07:07	S	102	36			
	23 A	7	07:47	6 F	16	1			16 sculpin
	23 B	--	20:00	S	10	1			
	24 BL	--	21:21	S	34	5			
	25 BL	--	21:52	2 F	32	0			
	26 BL	--	22:22	6 F	10	1			
	27 BN	--	23:19	S	22	3			
	28 BN	--	23:46	2 F	40	2			
08/02	29 BN	--	00:16	6 F	26	3			
	30 DN	--	02:23	S	29	2			
	31 DN	--	02:55	2 F	27	5			
	32 DN	--	03:35	6 F	28	0			
	33 DL	--	04:08	S	36	1			
	34 DL	--	04:41	2 F	40	2			
	35 DL	--	05:20	6 F	35	4	1 LV		
	36 CL	--	21:19	S	4	2			
	37 CL	--	21:48	2 F	3	4			
	38 CL	--	22:21	6 F	4	0			
	39 CN	--	23:14	S	4	0			
	40 CN	--	23:43	2 F	4	2			

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Appendix E continued. Tustumena Lake tow net results, 23 July to 14 August 1984 survey.

Date	Tow number	Transect number	Time	Depth	Number of sockeye		Marks		Other
					Age 0	Age 1	Age 0	Age 0	
08/03	41 CN	--	00:14	6 F	5	1			
	42 AN	--	01:47	S	4	0			
	43 AN	--	02:22	2 F	16	2			
	44 AN	--	02:55	6 F	41	2	1 RV		4 sculpin
	45 AL	--	04:34	S	14	2	1 AFC		1 sculpin
	46 AL	--	05:09	2 F	44	5			
	47 AL	--	05:38	6 F	24	4			
08/08	48	--	17:31	S	4	3			1 stickleback
08/09	49	--	13:44	S	93	20			1 coho smolt
08/13	50	--	15:11	S	60	20			
	51	--	16:18	S	126	20			
	52	--	17:29	S	150	25	2 AFC, 1 LV		
08/14	53	--	10:43	S	237	52	1 RV		
	54	--	10:50	S	300	45	1 LV		
Totals					4,435	650	10 AFC 5 RV	1 RV	
					5,085			3 LV	

Tow numbers 24 through 47 indicate tows done in specific areas during light or darkness. A, B, C, D designate area, L represents light, and N represents darkness. S represents surface, F represents fathoms. AFC - Adipose fin clip; RV - right ventral; LV - left ventral.

Appendix F. Tustumena Lake tow net results, 18 September to 04 October 1984 survey.

Date	Tow number	Transect number	Time	Depth	Number of sockeye		Marks		Other
					Age 0	Age 1	Age 0	Age 1	
09/18	55	--	09:44	S	281	21	0	0	
	56	--	11:14	S	183	27	1 AFC	0	
	57	--	12:49	S	99	23	0	0	1 Dolly Varden
	58	--	13:57	S	167	20	0	0	
	59	--	15:15	S	114	7	0	0	
09/19	60	--	09:12	S	186	21	0	0	
	61	--	10:34	S	196	14	0	0	2 stickleback
	62	--	12:27	S	145	8	0	0	
	63	--	13:55	S	133	17	0	0	
	64	--	15:02	S	29	1	0	0	
09/20	65	--	09:56	S	42	13	0	0	
	66	--	11:12	S	24	9	0	0	
	67	--	12:35	S	78	24	0	0	
09/21	68	--	09:07	S	156	12	1 AFC	0	
	69	--	10:16	S	185	17	0	0	
	70	--	11:25	S	199	18	0	0	
	71	--	12:32	S	214	18	0	0	1 stickleback
	72	--	14:27	S	116	13	1 AFC, 1 RV	0	
09/25	73	8	20:24	6 F	27	4	0	0	2 stickleback, 1 sculpin
	74	7	21:49	12 F	1	1	0	0	
	75	7	22:30	6 F	35	7	2 AFC	0	1 sculpin
	76	7	23:05	S	9	1	1 RV	0	
09/26	77	5	00:42	8 F	14	2	0	0	
	78	4	01:50	S	3	1	0	0	1 sculpin
	79	3	03:30	8 F	0	0	0	0	
	80	3	04:08	4 F	3	0	0	0	
	81	2	04:48	S	3	3	0	0	

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Appendix F continued. Tustumena Lake tow net results, 18 September to 04 October 1984 survey.

Date	Tow number	Transect number	Time	Depth	Number of sockeye		Marks		Other
					Age 0	Age 1	Age 0	Age 1	
09/26	82	1	05:35	6 F	0	0	0	0	
	83	1	20:02	6 F	3	2	0	0	
09/27	84	3	01:55	6 F	2	0	0	0	
	85	4	02:56	S	14	0	0	0	
	86	5	03:58	8 F	9	0	0	0	
	87	6	05:19	3 F	14	2	1 AFC	0	
	88	6	06:06	6 F	5	1	0	0	
	89	7	06:50	S	42	5	0	0	1 stickleback
	90	8	07:30	6 F	5	1	0	0	
	91	--	17:12	S	34	0	1 AFC		2 stickleback
	92	--	17:44	3 F	21	1			1 stickleback
	93	--	18:13	8 F	2	1			
	94	--	18:40	S	15	1			
	95	--	20:42	S	4	0			1 stickleback, 1 lake trout
	96	--	21:16	3 F	20	4			4 stickleback, 12 sculpin
	97	--	21:47	8 F	23	1			21 sculpin, 1 stickleback
10/02	98	--	09:43	S	125	9	1 AFC	0	1 stickleback
	99	--	10:49	S	11	0			
	100	--	12:28	S	41	4			1 stickleback
	101	--	13:39	S	45	6	1 RV	0	3 stickleback
	102	--	14:46	S	66	1			1 coho
10/03	103	--	09:23	S	140	19			1 Dolly Varden, 1 stickleback
	104	--	11:24	S	96	6			1 coho, 1 stickleback
	105	--	13:03	S	91	4			
	106	--	14:15	S	196	11	1 RV		9 stickleback

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Appendix F continued. Tustumena Lake tow net results, 18 September to 04 October 1984 survey.

Date	Tow number	Transect number	Time	Depth	Number of sockeye		Marks		Other
					Age 0	Age 1	Age 0	Age 1	
10/04	107	--	10:10	S	121	8	1 RV		6 stickleback
	108	--	11:23	S	220	8	2 AFC		4 stickleback
	109	--	12:35	S	224	8			5 stickleback
	110	--	13:42	S	94	5			2 stickleback
	111	--	14:43	S	58	0			
Totals					4,393	411	10 AFC		
							5 RV		
					4,804				

Tow numbers 91 through 97 were conducted in same area. Tow numbers 91 through 94 were done during light, and tow numbers 95 through 97 were done in darkness. S represents surface, F represents fathoms. AFC - adipose fin clip; RV - right ventral; LV - left ventral.

Appendix G. Seasonal mean densities of macro-zooplankters at two stations in Tustumena Lake, 1980-1984.

Year (May-October)	Station	<i>Cyloops columbianus</i>		<i>Diaptomus pribilofensis</i>		<i>Nauplii</i>		Total
		(No/m ²)	Percent	(No/m ²)	Percent	(No/m ²)	Percent	
1980	B	35,041	56.6	13,237	21.4	13,584	22.0	61,862
1981	B	20,858	24.8	30,078	35.7	33,254	39.5	84,190
1982	B	53,736	76.7	720	1.0	15,597	22.3	70,053
1983	B	37,448	60.7	8,609	14.3	15,450	25.0	61,707
1984	B	34,380	43.0	19,601	25.0	25,535	32.0	79,516
1980	C	34,096	73.2	4,853	10.4	7,600	16.4	46,549
1981	C	24,086	39.8	6,828	11.3	29,624	48.9	60,538
1982	C	43,172	83.1	1,618	3.1	7,125	13.8	51,915
1983	C	49,848	60.6	9,091	11.0	23,380	28.4	82,319
1984	C	26,868	56.0	3,078	6.0	18,060	38.0	48,006



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May, 1986

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Jeanie Henry

House Special Committee on Fisheries, 5/7/85, 8:30 am



ALASKA STATE LEGISLATURE
HOUSE OF REPRESENTATIVES
RESEARCH AGENCY

Pouch Y, State Capitol
Juneau, Alaska 99811
(907) 465-3991

April 25, 1985

MEMORANDUM

TO: Representative Peter Goll

FROM: Katherine Hazard *KH*
Legislative Analyst

RE: Salmon Interception by Foreign Fleets
Research Request 85-321

You requested information about the economic value of Alaska-bound salmon intercepted by the foreign fishing fleets. You asked specifically for: 1) the estimated ex-vessel value of the intercepted fish based upon the average weight and price per pound of commercially caught salmon; 2) the estimated wholesale value of the intercepted fish; 3) the estimated revenue which would accrue to the State of Alaska through the Fisheries Business Tax if these fish were processed in Alaska; and 4) the area of origin and number, by species, of salmon intercepted by the foreign fishing fleets.

Steve Pennoyer and Charles Meacham Jr., of the Department of Fish and Game, provided information for these estimates. They are preparing a table of their calculations which will be forthcoming.

SUMMARY

Estimates of the economic loss to Alaska from interception of Alaska-bound salmon by Japanese mothership and landbased driftnet fisheries are:

Ex-vessel value	\$ 16.1 million
First wholesale value	\$ 30.5 million
Fisheries Business Tax Loss	\$643,000

The ex-vessel values for all salmon sold to processors in 1983 was \$320.6 million. The first wholesale value for salmon in the state in 1983 was \$726.4 million. Thus the estimated loss from interception of salmon is approximately 5 percent of the ex-vessel value, and approximately 4 percent of the first wholesale value.

INTRODUCTION

The calculations of estimated losses are based solely on Japanese mothership and landbased driftnet fisheries interceptions. Estimates of the number of Alaska-originating salmon intercepted by the foreign fishing fleets are incomplete because much of the information is still unknown. The greatest number of salmon are caught by the Japanese mothership (MS) and Japanese landbased driftnet (LB) fisheries. It is for these two fisheries that the most data are available. There are two other fisheries of relevance; the Taiwanese fishery and the foreign and joint-venture trawlers.

Very little is known about the number of salmon caught by the Taiwanese fishery. There is no information on the species composition or origin of these fish. Foreign and joint-venture trawlers caught an estimated 19,700 chinook, 36,400 chum and 400 other salmon during 1983. Mr. Meacham said that although there are no data on the origin of these fish, probably all of them are Alaska-bound.¹ Nothing is known of the size or age composition of these fish, so for several reasons, there is not currently a reliable means of calculating how many of these fish could, if not intercepted, be caught by Alaska fisheries.

According to Mr. Meacham,² estimates of salmon catches in 1983 for the North Pacific foreign fleets were:

Japanese mothership	9.4 million	> 25.2 million
Japanese landbased	15.8 million	
Taiwan	3.5 to 4 million	
Foreign and Joint-Venture Trawlers	56,500	

¹An outline entitled "High Seas Salmon Interception Fisheries", included in the packet of information submitted to us with your research request, had incorrect figures listed for intercepted salmon. The outline had no source listed. Steve Pennoyer, of the Department of Fish and Game, said that 16,000,000 is the number of salmon caught by the Japanese landbased fisheries, and 8-9,000,000 is the number of salmon caught by the Japanese mothership fisheries. These are not the number of intercepted fish. He did not know the origin of the data for the Taiwanese and Other fisheries.

²Charles Meachum, Alaska Department of Fish and Game in Anchorage: Telephone number, (907) 267-2112.

JAPANESE MOTHERSHIP AND LANDBASED DRIFTNET FISHERIES

Number Caught

Estimates of the number of salmon caught by Japanese mothership and landbased driftnet fisheries fleets are listed in Table 1. These catch data are reported in the International North Pacific Fisheries Commission documents.

Number Intercepted

Estimates of the number of salmon intercepted are also shown in Table 1. The interception figures for sockeye are based on the mean percentage intercepted of the total catches for the years from 1978 to 1981, in which studies were done. These percentages were applied to the 1983 sockeye catch to derive an interception estimate. Estimates for chinook are based on studies done from 1982-84 by the Fisheries Research Institute on contract to Fish and Game.³

Mr. Meacham provided estimates of the number of chums intercepted by the MS fisheries, but there are no estimates of chum intercepted by the LB fisheries. However, Dr. Harris said that essentially none of the chum caught by the LB fisheries are of North American origin.

Although total catch figures are available from the International North Pacific Fisheries Commission documents, there are no estimates of the number of pinks intercepted. Mr. Meacham and Dr. Harris both said that an insignificant amount of the pink salmon caught by the Japanese fleets are of North American origin.

Dr. Colin Harris of the Fisheries Research Institute at the University of Washington, would not make estimates of the number of cohos intercepted.⁴ He said that significant numbers are taken by the mothership fishery, but he did not know of a reliable way to estimate the numbers. Mr. Meacham provided rough estimates of cohos intercepted.

³Rogers, Donald E. et al. 1984, "Origins of Chinook Salmon in the Area of the Japanese Mothership Salmon Fishery", FRI-UW-8408, Final Report to the Alaska Department of Fish and Game, Contract No. 84-0152, Fisheries Research Institute School of Fisheries, University of Washington, Seattle, Washington.

⁴Dr. Colin Harris, Fisheries Research Institute, University of Washington, (206) 543-7281.

Dr. Harris also stated that most of the cohos intercepted by the LB fleet are of western origin. He said, however, that many of the Bristol Bay cohos are unexploited anyway, so that it would be hard to say that cohos intercepted by the Japanese fleet yield an economic loss to Alaska. For this reason cohos are excluded from the values reported in the summary on page one of this memorandum.

Area of Origin

Studies by the Fisheries Research Institute provide estimates of the area of origin for chinook salmon caught by mothership and landbased driftnet fisheries. In 1983, an estimated 200,000 Alaska-bound chinook salmon were intercepted by the Japanese MS and LB fisheries. Of these an estimated 75,000 (37%) were from western Alaska stocks, 106,000 (53%) from central Alaska and 19,000 (9.5%) were of Southeast Alaska or British Columbian stocks.⁵

According to Dr. Harris, the great majority of the 427,000 sockeye, 44,000 chum and the cohos intercepted by the Japanese fleets are of western or central Alaska origin.

Estimated Loss of Salmon to Alaska Due to Interception

An estimated 1,099,000 salmon of Alaska origin are intercepted by Japanese mothership and landbased fisheries. To calculate the pounds of salmon available inshore if these salmon had not been intercepted, the natural mortality, drop-out rate and growth rate must be applied to the numbers intercepted. Together these factors comprise the yield loss multiplier.⁶

Natural Mortality: Not all of the fish caught on the high seas would have survived to return to Alaska waters, particularly since many of the fish intercepted are immature and would have several years on the high seas before returning to their origin.

⁵The Bristol Bay area is in the Central Region, as classified in the Alaska 1983 Catch and Production Commercial Fisheries Statistics, Statistical Leaflet No. 36.

⁶These factors and the formula are described by Richard J. Major in greater detail in the International North Pacific Fisheries Commission Document 2558.

Drop-out Rate: The drop-out rate accounts for fish which are caught in the Japanese fisheries nets, but drop-out as the nets are hauled in. These salmon die as part of the fishery, but are not included in the catch figures. For the drop-out rate, a multiplier of between 1.33 and 2.00 is used by Fish and Game.

Growth Rate: Many salmon caught on the high seas are immature. The growth rate accounts for the estimated increase in size between the time the salmon are caught on the high seas and the time they would have been caught if allowed to progress to inshore waters.

The formula used by Fish and Game is:

interception number x mean wt. on high seas for each species x yield
loss multiplier = total lbs. available inshore.

This formula yields the estimated total pounds of salmon that would be available inshore. These figures are presented in Table 2. Because, as indicated by Dr. Harris, interception of cohos may have no economic effect on the Alaskan fishery, two sets of calculations were made: one without intercepted cohos and one including intercepted cohos. •

There is an estimated loss of 10.14 million lbs. of chinook salmon. Assuming that 90 percent of these are of western or central origin, 9.12 million lbs. of the intercepted chinook were from this region. In 1983 the commercial catch of chinook in central and western Alaska was 11.06 million lbs.

There is an estimated loss of 5.85 million lbs. of sockeye; 296.11 million lbs. were landed by the commercial fleet in central and western Alaska in 1983. For chum, an estimated .72 million lbs. were intercepted by the Japanese fleet; 68.49 million lbs. were landed by the commercial fishery in western and central Alaska.

Ex-vessel Value

The ex-vessel value was calculated by multiplying the estimated number of pounds of each species by the statewide average price in 1983.⁷

⁷Alaska 1983 Catch and Production Commercial Fisheries Statistics, Statistical Leaflet No. 36, December 1984, Alaska Department of Fish and Game.

Wholesale Value

The wholesale value was calculated by multiplying the ex-vessel value by 1.9. The prices to fishermen and the wholesale values vary from year to year. In 1983, the wholesale value for all salmon was 2.26 times greater than the ex-vessel value. Prices to fishermen were low in 1983, and the ratio was higher than usual. Between 1978 and 1983 the ratio has varied from 1.88 to 2.26.

Fisheries Business Tax

The Fisheries Business Tax on salmon ranges from 3 percent to 5 percent of the ex-vessel value, depending upon how the fish are processed. It is not possible to estimate how fish currently intercepted by foreign fleets would be processed if allowed to progress to Alaska waters. Based on the estimates of ex-vessel values, revenue from the Fisheries Business Tax would range from \$482,452 to \$804,086.

In 1983, revenue from the Fisheries Business Tax was \$20,516,686. In 1984 revenue from the Fisheries Business Tax was \$18,979,226. The mean estimated value of lost revenue is 3.3 percent of the mean revenue from 1983 and 1984.

* * * * *

Time constraints for completion of this memorandum precluded more detailed analysis and literature review. Statistics for 1984 are not currently compiled, but could be obtained through further research effort. Please let us know if you have further questions or would like a more detailed analysis.

KH

Attachments

Table 1. Total Catches and Interception of Salmon by Japanese Fleets in Thousands of Fish -- 1983

Species	Japanese Mothership Only		Japanese Landbased Only		Japanese MS and LB		% of Total Catch Intercepted
	Intercepted	Total	Intercepted	Total	Intercepted	Total	
sockeye	336	1,655	91	828	427	2,483	17.2
chinook	67	87	133	178	200	265	75.5
chum	44	3,081	0	2,395	44	5,476	0.8
pink	0	4,324	0	11,308	0	15,632	0.0
coho	74	297	354	1,122	428	1,419	30.2
total	521	9,444	578	15,831	1,099	25,275	4.3

Source: Department of Fish and Game.

Prepared by the House Research Agency, April 1985

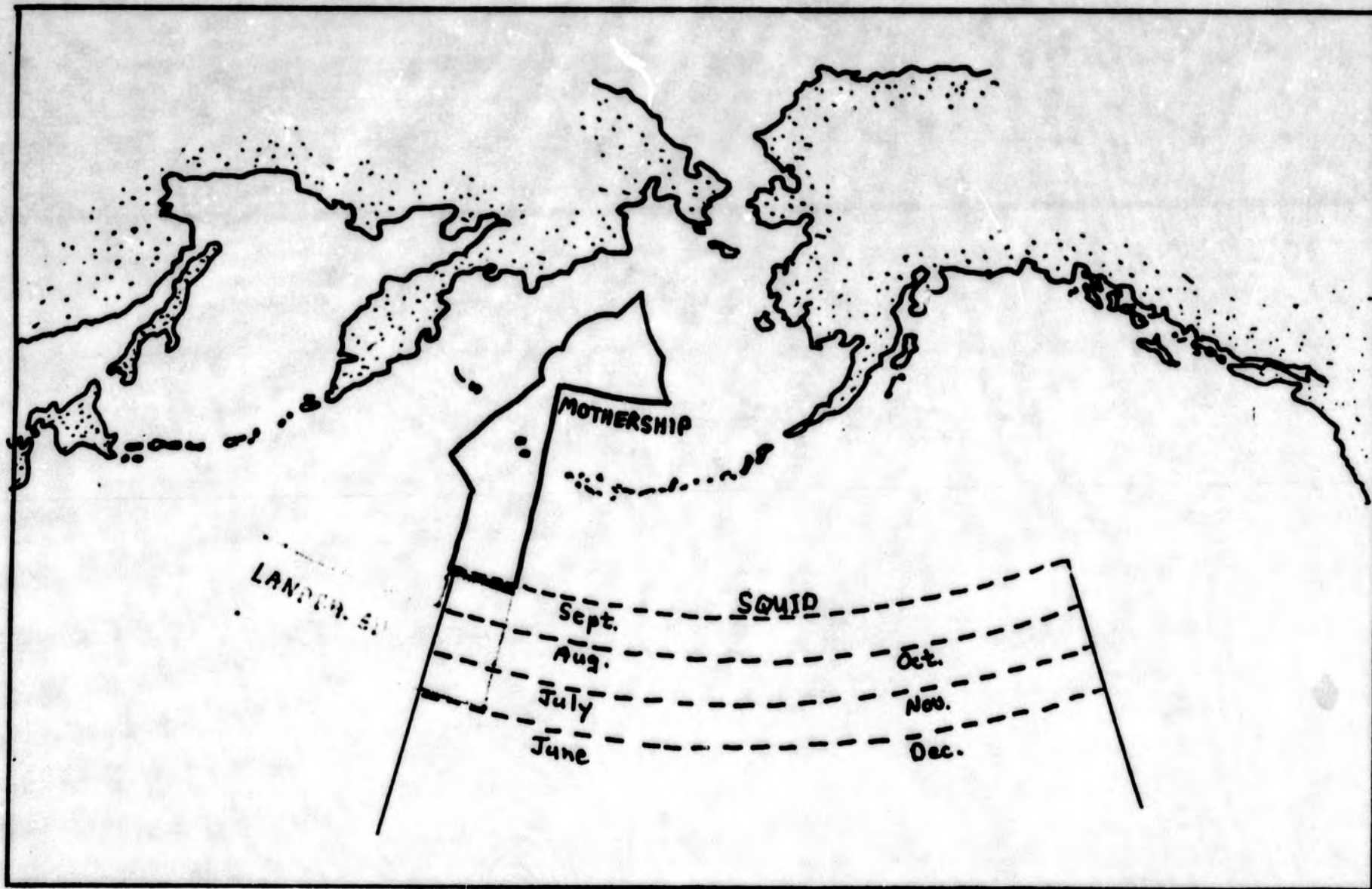
Table 2

Estimated Value of Salmon Intercepted by Japanese Mothership and Land-based Driftnet Fisheries

	Salmon Loss in Pounds			Mean Price Per Pound	Ex-vessel Value	Wholesale Value
	MS	LB	Total			
Sockeye	4,680,000	1,172,000	5,852,000	.70	\$ 4,096,000	\$ 7,782,400
Chinook	3,001,000	7,134,000	10,135,000	1.16	11,756,600	22,337,540
Chum	716,000	NA	716,000	.60	229,120	435,328
Coho	1,162,000	3,907,000	5,069,000	.60	3,041,000	5,777,900
Subtotal (w/out cohos)	8,397,000	8,306,000	16,703,000		\$16,081,720	\$30,555,268
Total (w/ cohos)	9,559,000	12,213,000	21,772,000		\$19,122,720	\$36,333,168

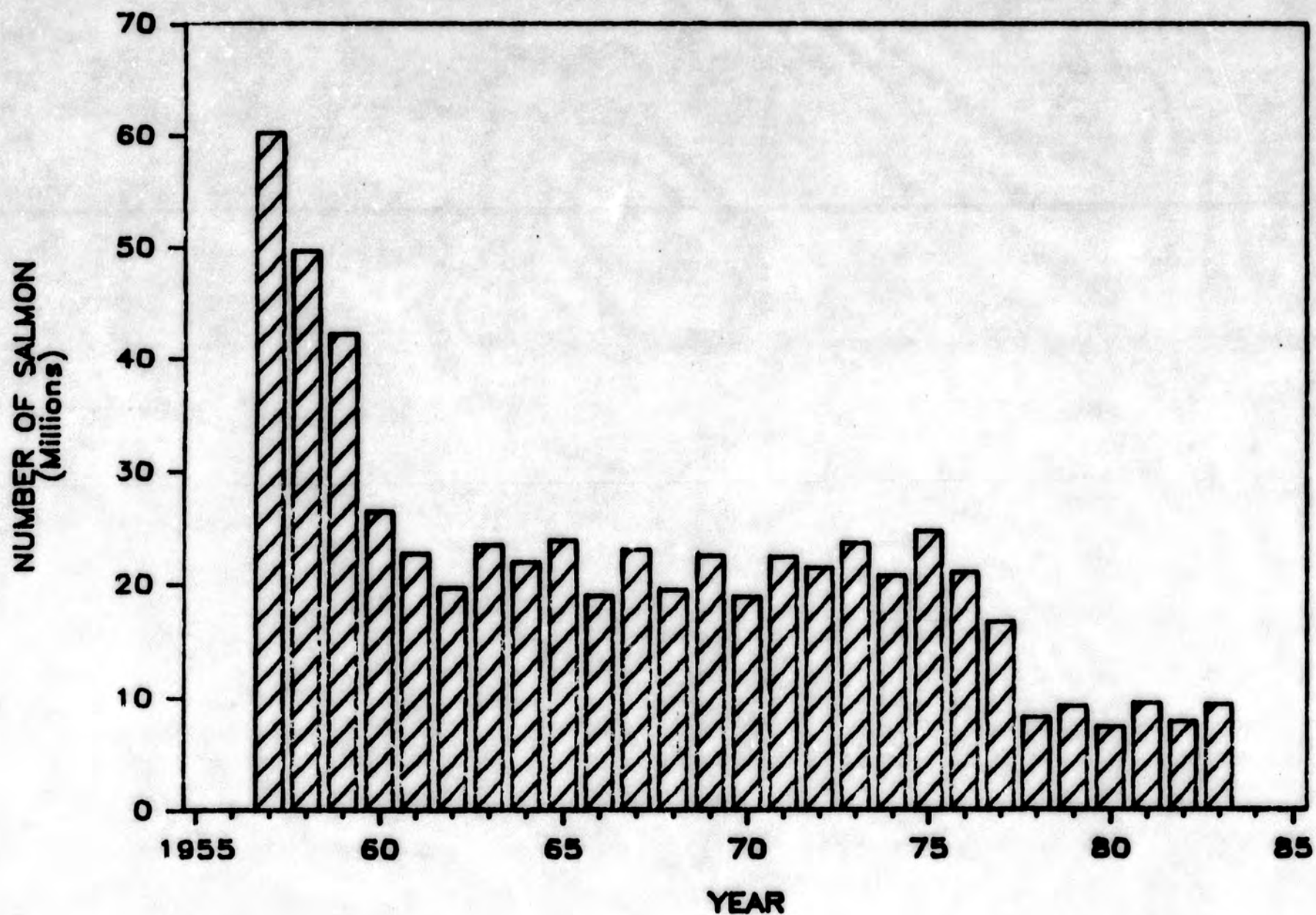
Source: Department of Fish and Game.

Prepared by the House Research Agency, April 1985

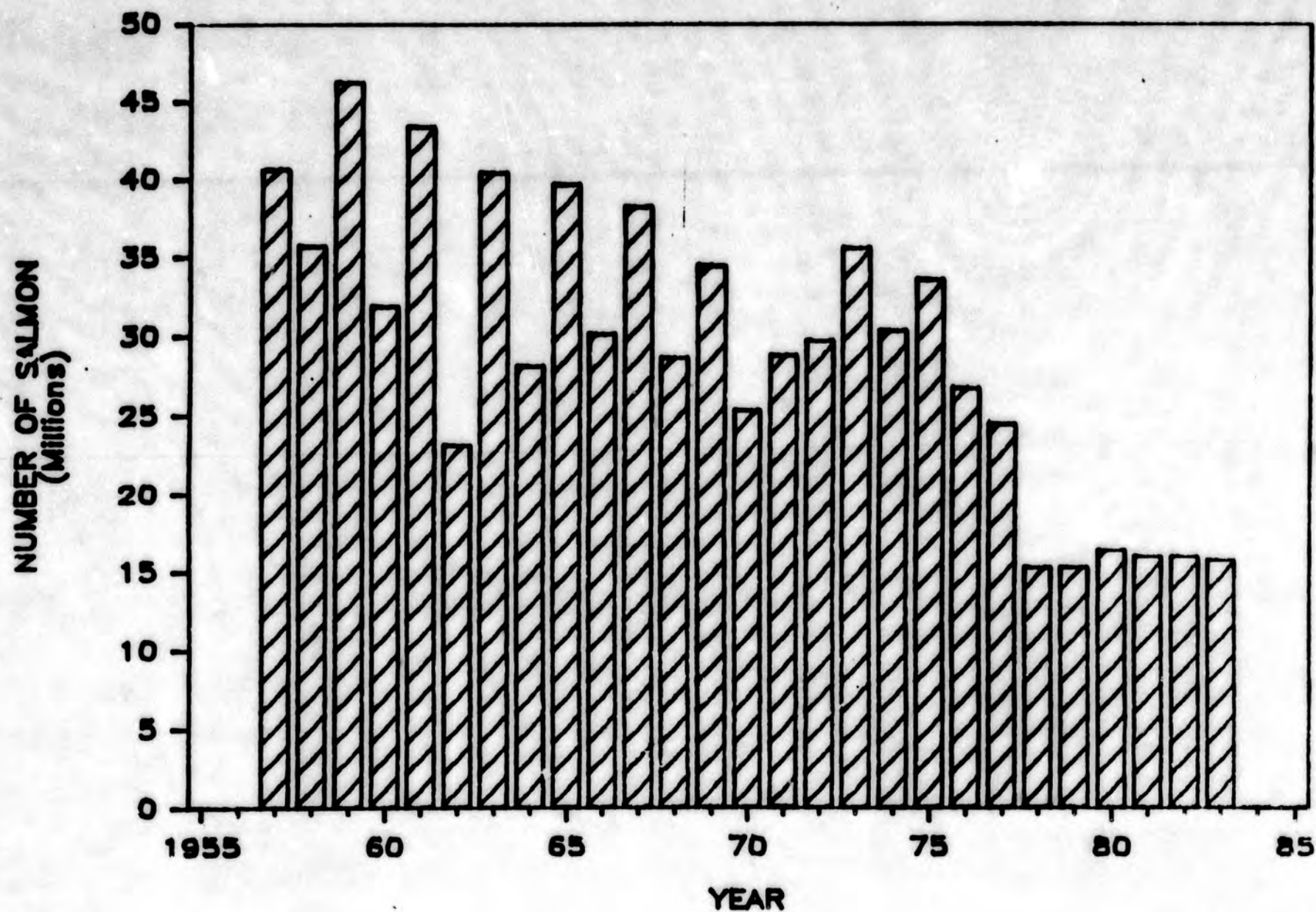


	SQUID GILLNET	SALMON LANDBASED GILLNET	SALMON MOTHERSHIP GILLNET
VESSELS	534	209	172
MESH SIZE	4 1/2 INCH	4 1/2 INCH	4 1/2 INCH
MILES NET (APPROX.)	10,000	3,000	1,500
SEASON	JUNE-DEC.	MAY-JULY	JUNE-JULY
CATCH (1981)	82,000 TONS SQUID	16 MILLION SALMON	10 MILLION SALMON

HIGHSEAS MOTHERSHIP SALMON CATCH

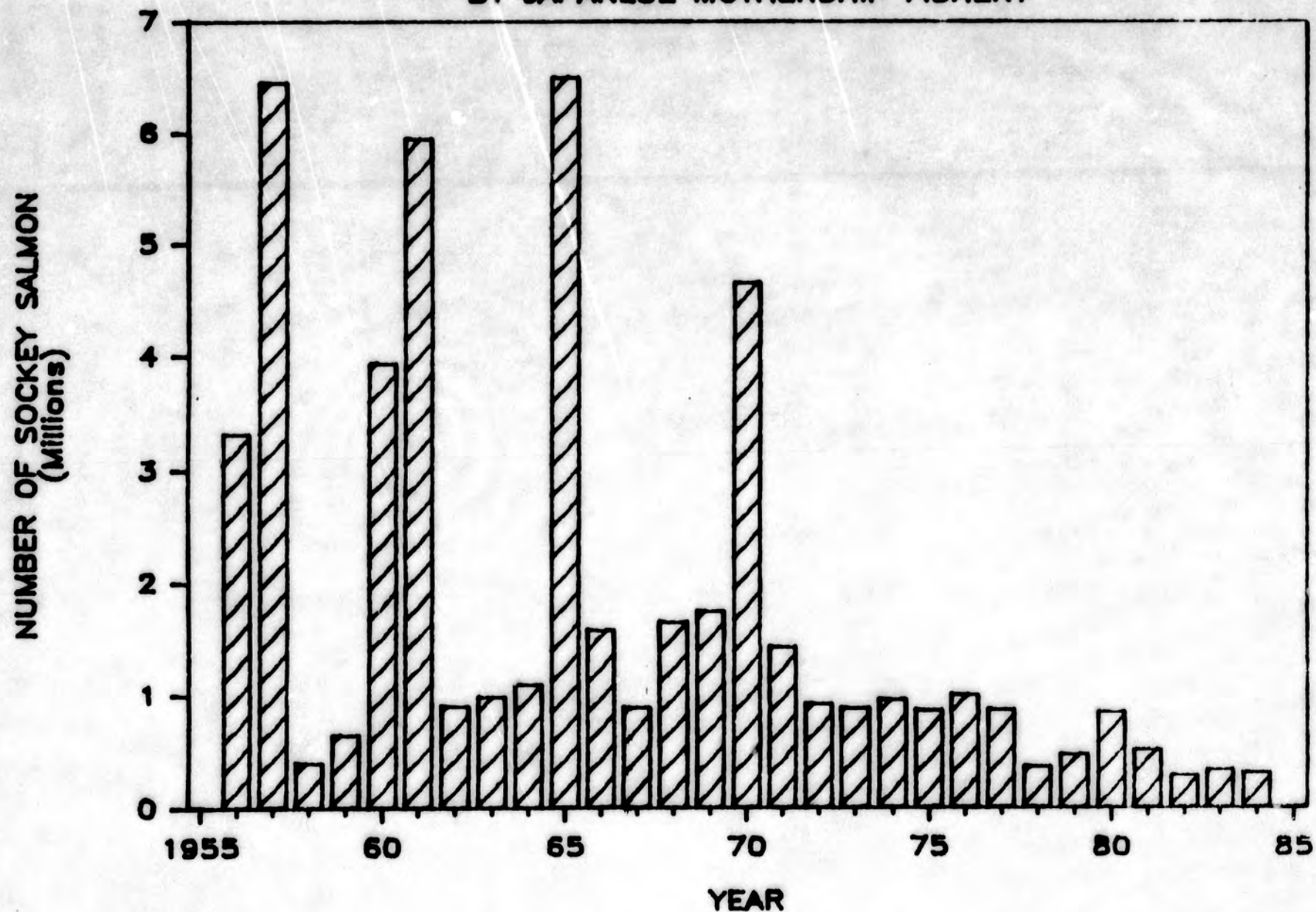


HIGHSEAS "LANDBASED" SALMON CATCH

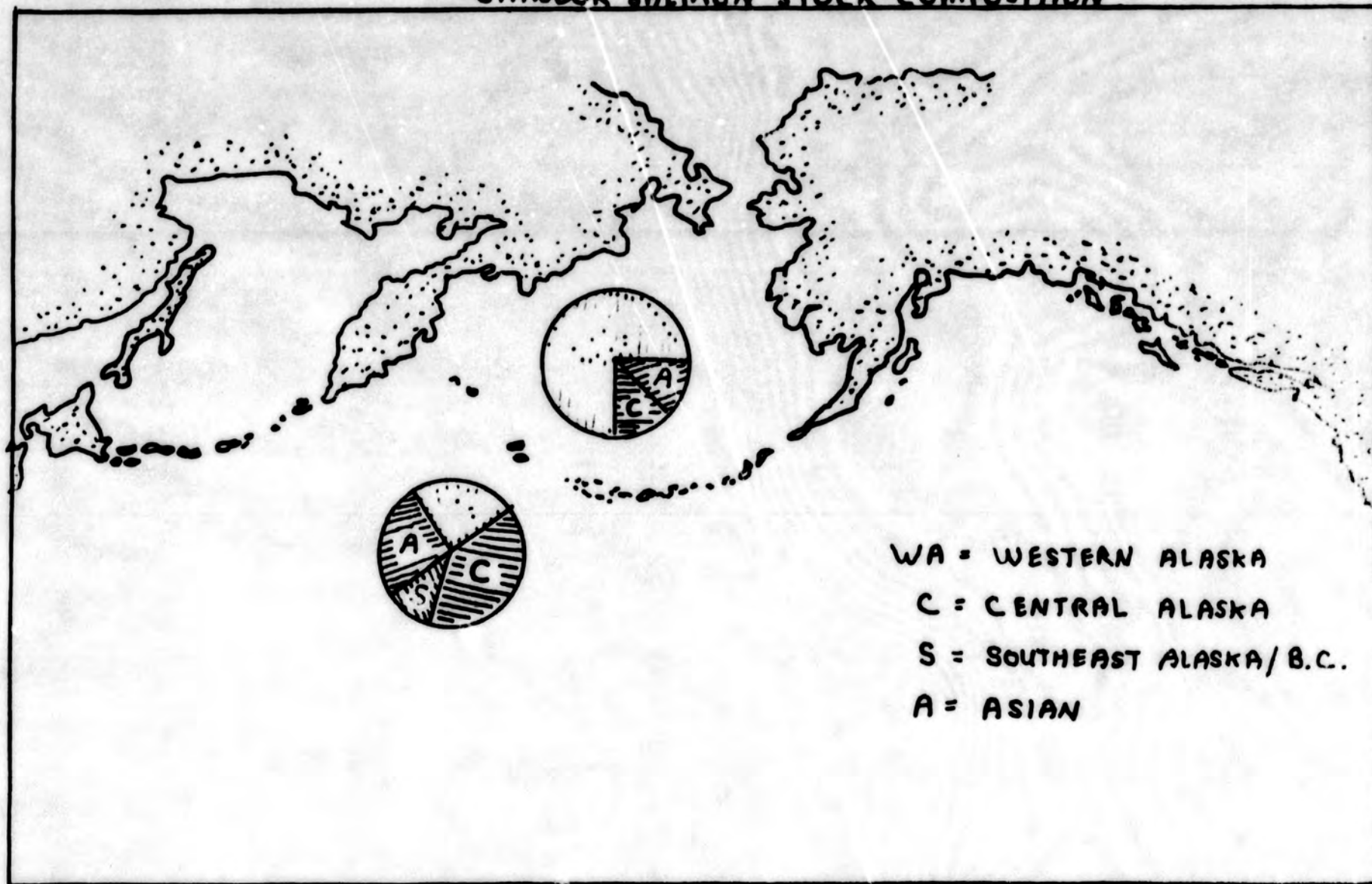


SOCKEYE SALMON INTERCEPTIONS

BY JAPANESE MOTHERSHIP FISHERY



CHINOOK SALMON STOCK COMPOSITION



CENTRAL ALASKA CHINOOK INTERCEPTIONS

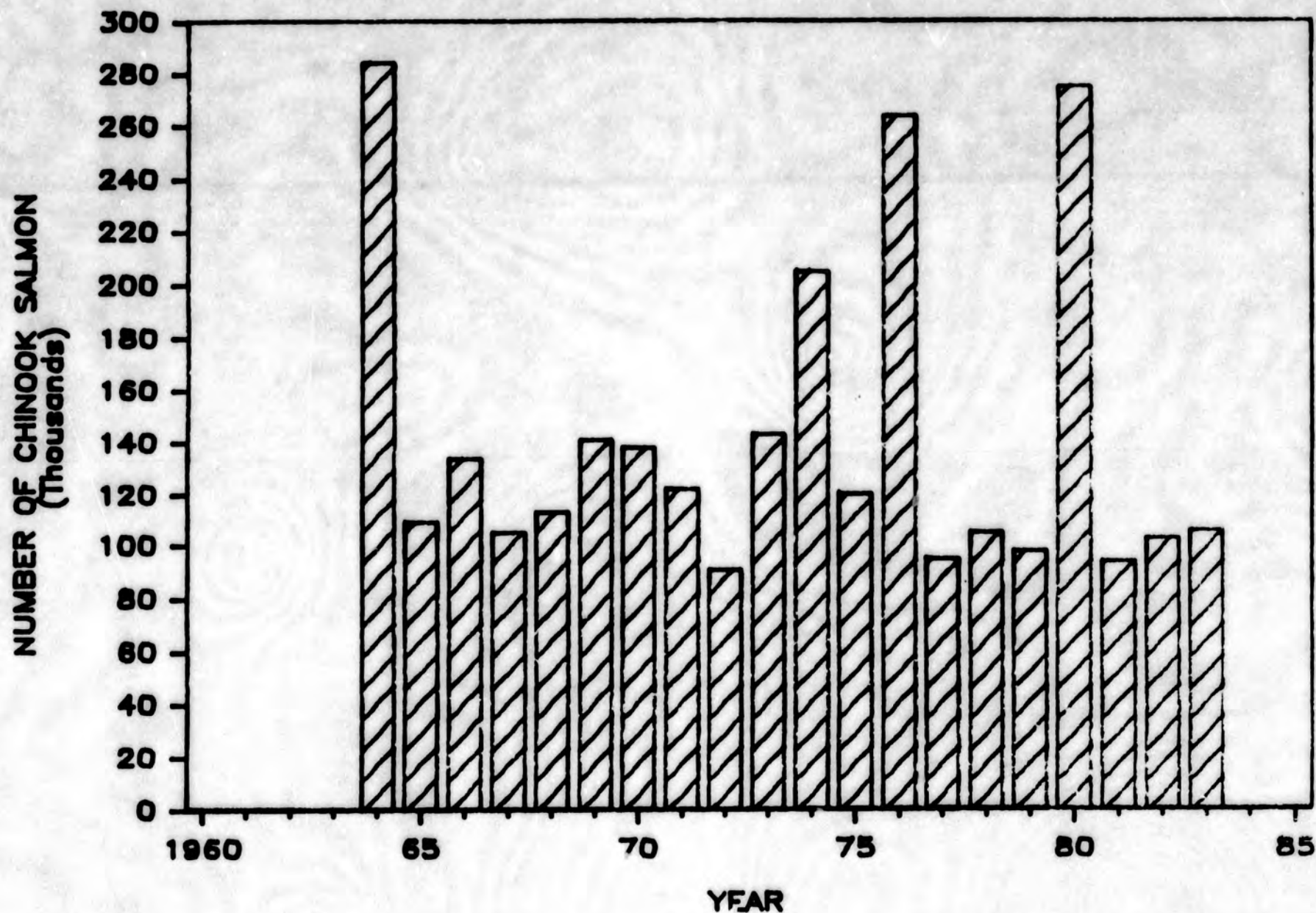


Table . Salmon catch (in thousands) by the Japanese mothership (MS and landbased driftnet (LB) fisheries, 1957-1983.

Year	Sockeye		Chinook		Chum		Pink		Coho		Total	
	MS	LB	MS	LB	MS	LB	MS	LB	MS	LB	MS	LB
1957	20,000	494	31	33	11,908	4,081	27,881	35,551	442	526	60,358	40,685
1958	12,026	888	46	45	18,787	9,155	15,546	24,833	3,393	785	49,798	35,706
1959	9,125	832	68	42	12,859	9,045	18,856	35,129	1,423	1,178	42,331	46,226
1960	12,879	1,601	180	113	10,517	8,684	1,885	20,129	962	1,346	26,423	31,873
1961	12,998	1,173	31	79	6,128	6,104	3,263	34,559	284	1,454	22,704	43,369
1962	10,590	154	122	124	6,372	7,577	1,139	14,021	1,532	1,289	19,755	23,165
1963	8,903	18	87	102	5,858	7,538	6,732	31,255	1,895	1,492	23,475	40,405
1964	7,097	108	410	195	8,641	8,956	2,281	17,247	3,535	1,624	21,964	28,130
1965	12,038	159	185	93	6,036	8,330	4,429	29,142	1,177	1,913	23,865	39,637
1966	7,254	703	208	112	8,562	11,848	2,553	16,032	469	1,458	19,046	30,153
1967	8,087	2,566	128	110	6,837	11,078	7,781	23,051	226	1,329	23,059	38,134
1968	6,373	2,769	362	88	8,107	8,457	3,823	15,899	898	1,421	19,563	28,634
1969	5,935	2,495	554	83	7,721	4,908	6,972	23,610	1,306	3,328	22,488	34,424
1970	6,944	2,966	437	101	9,638	6,585	1,726	13,403	180	2,259	18,925	25,314
1971	3,554	3,026	206	134	9,968	6,250	8,202	16,977	454	2,373	22,384	28,760
1972	3,184	3,711	261	103	13,373	8,598	3,795	14,839	614	2,421	21,421	29,672
1973	2,613	3,308	119	162	7,857	7,614	12,018	20,650	989	3,794	23,596	35,528
1974	2,282	3,155	361	186	9,283	12,179	7,756	11,242	1,085	3,559	20,767	30,321
1975	2,171	2,969	162	135	7,367	11,480	14,654	15,347	356	3,550	24,710	33,481
1976	2,266	3,291	283	201	10,436	10,646	7,207	10,879	828	2,751	21,020	26,690
1977	1,508	1,289	93	146	5,996	6,230	9,100	15,041	79	1,722	16,778	24,428
1978	1,882	1,292	105	210	3,802	3,488	1,853	7,846	609	2,512	8,251	15,349
1979	2,186	756	126	161	3,277	2,661	3,405	11,190	281	1,199	9,275	15,349
1980	2,412	787	704	160	3,098	2,697	561	11,612	656	1,205	7,431	16,461
1981	2,224	859	88	190	2,539	2,509	4,094	11,292	615	1,209	9,560	16,059
1982	1,738	723	107	165	3,217	2,930	1,654	11,035	1,183	1,201	7,899	16,054
1983 1/	1,655	828	87	178	3,081	2,395	4,324	11,308	297	1,122	9,445	15,831

Table 21. Coastal catches and estimated high seas (MS + LBDN = mothership + landbased driftnet) catches of chinook salmon, 1964-83 (in thousands of fish).

Year	Coastal (commercial)				High seas (MS + LBDN)			
	Asia	Alaska			Asia	West	Cent	SEBC
		West	Cent	SE				
1964	160	260	22	357	101	219	285	13
65	107	263	31	287	47	126	109	5
66	93	208	24	308	54	130	134	8
67	91	284	26	301	39	93	105	6
68	83	259	20	332	77	262	113	7
69	122	288	38	314	108	384	141	9
70	141	291	33	322	98	340	138	9
71	183	283	45	334	57	159	122	7
72	197	224	42	287	61	209	91	7
73	210	177	30	344	45	87	143	8
74	172	180	29	347	90	244	205	10
75	223	126	28	301	40	128	120	11
76	196	242	49	242	58	159	264	5
77	310	296	40	310	55	86	95	1
Means	163	242	33	313	66	188	148	8
78	314	350	55	389	69	99	105	42
79	279	410	41	374	74	114	98	0
80	126	320	29	320	96	438	275	55
81	157	503	47	267	86	85	94	13
82	178	503	83	286	65	86	103	18
83	219	481	101	288	65	75	106	19
Means	212	428	59	321	76	149	130	24



Official Business

Alaska State Legislature

House of Representatives

Special Committee on Fisheries

Pouch V
Juneau, Alaska 99811

Phone:
(907) 465-4924

May 7, 1985

Honorable Ted Stevens
United States Senator
522 Hart Building
Washington, D.C. 20510

Dear Senator Stevens:

The House Special Committee on Fisheries is strongly opposed to the imposition of Coast Guard user fees proposed in the current Senate budget.

While some services performed by the Coast Guard may be appropriate for coverage by user fees, the Fisheries Committee believes that the services identified in Senate Concurrent Resolution 32 fall are essential services for which user fees are not appropriate.

Specifically, we strongly object to user fees for services relating navigation aids, vessel inspections and search and rescue.

In addition, the Fisheries Committee strongly objects to the proposed fee schedule. The fees are very discriminatory towards smaller commercial fishing vessels, many of which are involved in marginally economic fisheries.

While the user fees might be considered a nuisance for the larger commercial vessels, (\$1,215 for vessels over 100 gross tons), the \$540 annual fee for commercial fishing vessels under 5 gross tons is very onerous and could put some fishermen out of business.

We respectfully urge you to oppose the Coast Guard user fee proposal. Should you fail to prevent its enactment, please attempt to revise the fee schedule to protect the smaller vessel operators.

Sincerely,

Representative Peter Goll

House Special Committee on Fisheries
Coast Guard User Fees/2-2-2

c.c. Senator Frank Murkowski
 Representative Don Young
 John Katz, Office of the Governor

COMMITTEE REPORT

HOUSE

(7)

5/2/85

FURTHER:

RESOURCES

Date:

HOUSE SPECIAL COMMITTEE
ON FISHERIES

HJR 43

The Committee on _____ has had _____
Relating to the interception of Alaska salmon on the high seas.

under consideration and recommends:

- ☒ do pass ☐ do not pass
- ☐ do pass with attached amendments(s)
- ☐ replace with CS for _____ ☐ same title
☐ new title
- and recommends _____
- ☐ AND attaches a "Letter of Intent" ☐ New Fiscal Note
- ☐ reports it back without recommendation ☐ Zero Fiscal Note Attached
- ☐ referred to the _____ Committee

MEMBERS SIGNING
DO PASS

Koehn L Jenkins
Mike Favara
Katie Hurley
Don Bly
Peter
David W. Thompson

MEMBERS HAVING
OTHER RECOMMENDATIONS:

Al H. Noice

Al H. Noice
CHAIRMAN