

Hello Chairman Morisky and the Board,

My name is Elbridge Walker and I want to talk about Proposals 103 and 125. With concerns of Northern District stocks easing, we need to establish a fair and workable Management Plan for all groups and I feel Proposals 103 and 125 work well together to accomplish this. Please note the Lake comparisons on the wall I want to show you. When we look at huge area differences alone comparing the Kenai system of 40,000 acres to other lakes in the Bristol Bay area such as Becharof at 290,000 acres, and Naknek at 155,000 acres. It is very apparent we are putting far too many spawners in the Kenai system. Becharof is over 7 times larger, Naknek 4 times larger, both have clearer water, both with escapement goals of 800,000 – 2,000,000 fish. When looking at the Kenai, Becharof and Naknek systems by satellite, Kenai has far less sun penetration capability, as the satellite imagery shows. Common sense should tell us we are putting far too many spawners in the Kenai System just by a sheer area, water clarity and temperature comparison. Historical data I have provided you shows that far less spawners in the 70's produced more than we do now. Small, Kenai 2 year exiting juvenile's are now the new norm. Gone are the years of the large 1 year exiting juvenile's. Size from every study I have found shows decreasing juvenile size at river exit, thus making them much more vulnerable in the ocean and smaller at maturity. Gone are the 5+ Return Per Spawner days. Using the Didson converted numbers, it shows 800,000 spawners as the top of the yield curve (sMax), as, in 1977 951,000 spawners was a bust in '81. Then 1982 and 1983, with between 750,000-800,000 spawners shows to be the maximum yield possible by extra large returns from 1987-1989. Spawner Escapements in '78 and '79 of 373,000 and 511,000 return big from 1982-1984, which, shows the bottom of the sustainable yield curve (sMsy) at 400,000. Therefore, I would like to propose that a new Optimum Spawning Goal/Range of 400,000-800,000 sockeyes be established for the Kenai Late-Run Sockeye ending August 15th, and managed accordingly to accomplish the largest returns that will benefit all user groups. Angler participation can't catch surpluses that are too large and only in the river for a short period. It is past time to stop trying to create impossible miracles from a system that is far too small to continually put over a million spawners in. Millions of fish have been wasted. Last we need to move the mile 19 Sonar to

somewhere around RM 4-6 and add sonars before Kenai and Skilak Lakes to understand the rivers diversity. (End of Testimony)

### Amendments to Proposal 103

With Sport catch data provided at the meeting showing the average yearly sockeye sport catch from RM 19 upstream is approximately 285,000 sockeye annually. Knowing that, the Kenai in-river escapement goals need to be slightly altered.

In Proposal 103 for runs under 3.5 million sockeye, amend (c) (1) (A) to: "The Department shall manage for an in river goal above RM19 of 750,000-950,000 sockeye, with a target of 850,000 in river sockeye.

With projected runs above 3.5 million sockeye, amend (c) (2) (A) to read: The Department shall manage for an in-river goal above RM 19 of 850,000-1,100,000, with a target escapement of 1,000,000 sockeye.

### Amendment to Proposal 125

In proposal 125 change f), in its entirety, to read: from August 3<sup>rd</sup>, until August 15<sup>th</sup> or closed by EO, the drift fishery will be open every Thursday from 7:00am until 7:00pm in Area 1 and the Kenai and Kasilof expanded sections. On Mondays the drift fishery will be open in Area 3 and/or 4, and the Kenai and Kasilof Expanded Sections. This section may be amended to allow additional fishing time by EO if over 1,000,000 spawners have passed RM 19.

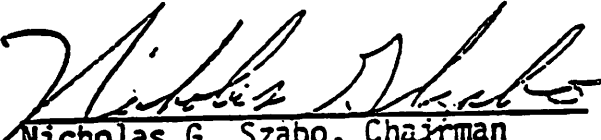
COMPREHENSIVE MANAGEMENT POLICY  
FOR THE UPPER COOK INLET

The dramatically increasing population of the Cook Inlet area has resulted in increasing competition between recreational and commercial fishermen for the Cook Inlet salmon stocks. Concurrently, urbanization and associated road construction has increased recreational angler effort and may adversely affect fisheries habitat. As a result the Board of Fisheries has determined that a policy must now be determined for the long-term management of the Cook Inlet salmon stocks. This policy should rest upon the following considerations:

1. The ultimate management goal for the Cook Inlet stocks must be their protection and, where feasible, rehabilitation and enhancement. To achieve this biological goal, priorities must be set among beneficial uses of the resource.
2. The commercial fishing industry in Cook Inlet is a valuable long-term asset of this state and must be protected, while recognizing the legitimate claims of the non-commercial user.
3. Of the salmon stocks in Cook Inlet, the king and silver salmon are the target species for recreational anglers while the chum, pink, and red salmon are the predominant commercial fishery.
4. User groups should know what the management plan for salmon stocks will be in order that they can plan their use consistent with that plan. Thus, commercial fishermen must know if they are harvesting stocks which in the long-term will be managed primarily for recreational consumption so that they may plan appropriately. Conversely, as recreational demands increase the recreational user must be aware of what stocks will be managed primarily for commercial harvest in order that he not become overly dependent on these fish for recreational purposes.
5. Various agencies should be aware of the long-term management plan so that salmon management needs will be considered when making decisions in areas such as land use planning and highway construction.
6. It is imperative that the Department of Fish and Game receive long-range direction in management of these stocks rather than being called upon to respond to annually changing Board directives. Within the Department, divisions such as F.R.E.D., must receive such long-term direction.

Therefore, the Board establishes priorities on the following Cook Inlet stocks north of Anchor Point. In so doing it is not the Board's intent to establish exclusive uses of salmon stocks; rather its purpose is to define the primary beneficial use of the stock while permitting secondary uses of the stock to the extent it is consistent with the requirements of the primary user group.

1. Stocks which normally move in Cook Inlet to spawning areas prior to June 30, shall be managed primarily as a non-commercial resource.
2. Stocks which normally move in Cook Inlet after June 30, shall be managed primarily as a non-recreational resource until August 15; however existing recreational target fish shall only be harvested incidental to the non-recreational use; thereafter stocks moving to spawning areas on the Kenai Peninsula shall be managed primarily as a non-commercial resource. Other stocks shall continue to be managed primarily as a non-recreational resource.
3. The Susitna coho, the <sup>late</sup> Kenai king, and the <sup>early</sup> Kenai coho runs cannot be separated from other stocks which are being managed primarily as non-recreational resources; however, efforts shall be made, consistent with the primary management goal, to minimize the non-recreational catch of these stocks.

  
Nicholas G. Szabo, Chairman  
Alaska Board of Fisheries

ADOPTED: December 13, 1977

VOTED: 5-0

COOK INLET COMMERCIAL SALMON CATCH, BY SPECIES AND YEAR

Thousands of Fish

Alaska Department of Fish and Game  
Division of Commercial Fisheries  
P.O. Box 3-2000; Juneau, AK 99802  
Compiled 02-Feb-84 (907)455-4210

YEAR	SPECIES					ALL	COMMENTS
	CHINOOK	SOCKEYE	COHO	PINK	CHUM		
1891							
1892							
1893	30.0	170.0	34.0			234.0	
1894	15.5	406.3	19.0			441.3	
1895	25.2	324.3				349.5	
1896	13.1	309.9	27.6	37.8		393.3	
1897	14.1	354.3	23.0			396.9.	
1898	16.4	551.2	83.4			651.0	
1899	17.1	553.5	54.9			630.5	
1900	25.7	535.3	20.0			632.0	
1901	34.3	482.4	9.0	5.6		531.3	
1902	49.0	710.3	54.9	79.2		893.4	
1903	65.0	564.2	59.0			689.2	
1904	30.1	489.3	23.3			543.2	
1905	17.7	95.5				113.2	
1906	22.4	225.5	93.5	64.1		405.5	
1907	62.9	460.6	177.3	6.4		707.3	
1908	33.3	570.8	94.9	375.1		1,174.6	
1909	59.6	532.6	88.4	3.7		734.3	
1910	49.0	840.2	79.7	217.7	1.3	1,187.9	
1911	55.3	1,249.2	87.9	70.7	.7	1,464.3	
1912	47.9	1,194.9	70.6	1,661.9	121.6	3,096.8	
1913	63.7	1,369.2	81.5	10.9	10.8	1,536.1	
1914	47.6	1,472.8	138.3	1,255.3	39.9	3,004.4	
1915	83.8	1,860.7	122.0	19.3	27.8	2,113.6	
1916	62.9	1,699.3	210.0	1,682.7	128.3	3,733.2	
1917	65.5	1,659.9	60.8	54.3	78.5	1,913.9	
1918	34.9	1,668.4	251.2	721.2	108.2	2,733.9	
1919	23.8	943.7	172.9	43.4	54.3	1,238.1	
1920	39.6	1,314.9	302.4	445.5	97.5	2,199.9	
1921	13.9	933.6	20.5	4.7	42.4	1,065.2	
1922	31.0	860.0	199.9	637.4	74.4	1,802.8	
1923	29.9	1,099.5	142.9	39.1	23.5	1,334.9	
1924	27.0	1,056.1	187.7	752.0	36.8	2,059.5	
1925	51.0	1,510.9	198.1	11.8	15.1	1,786.9	
1926	75.6	1,999.7	353.2	586.1	118.5	3,133.0	
1927	87.4	1,459.1	387.7	251.9	59.4	2,245.5	
1928	69.9	1,173.0	522.5	568.1	101.1	2,434.5	Est. from canned; excludes Resurrection Bay
1929	67.7	1,049.9	184.9	376.9	134.6	1,813.9	Est. from canned; excludes Resurrection Bay
1930	72.3	917.9	493.5	1,022.7	99.6	2,611.0	Est. from canned; excludes Resurrection Bay
1931	51.4	805.5	323.3	472.2	62.6	1,720.1	Estimated from canned production
1932	70.9	1,132.0	375.0	441.1	64.7	2,033.7	Estimated from canned production
1933	59.3	1,336.1	188.0	113.2	57.2	1,753.8	Estimated from canned production
1934	72.4	1,815.3	251.3	930.0	91.3	3,160.2	Estimated from canned production
1935	75.1	1,355.8	170.4	430.5	161.4	2,193.3	No Resurrection Bay fishery
1936	81.1	2,390.3	328.5	852.9	264.9	3,917.7	No Resurrection Bay fishery
1937	36.0	1,581.2	215.7	487.7	148.9	2,519.4	Res. Bay contribution est. from canned prod.
1938	57.7	2,425.3	213.8	848.7	191.3	3,736.8	Res. Bay contribution est. from canned prod.
1939	52.7	2,334.9	163.0	319.3	231.6	3,101.6	Res. Bay contribution est. from canned prod.
1940	63.0	1,649.0	478.1	2,604.2	230.8	5,075.1	Estimated from canned production
1941	104.3	1,293.2	359.2	715.2	272.3	2,744.8	
1942	95.2	1,540.2	644.3	965.5	401.0	3,646.7	
1943	111.4	1,468.3	279.9	1,457.2	301.9	3,613.6	
1944	35.2	1,939.9	256.6	1,815.4	258.8	4,356.0	
1945	59.2	1,556.7	329.3	1,368.0	305.9	3,629.6	
1946	64.3	1,474.5	581.4	1,333.7	333.6	3,342.4	
1947	106.3	1,474.0	443.9	681.7	279.2	2,985.6	
1948	105.0	2,035.3	403.1	1,660.1	439.3	4,648.8	
1949	111.3	2,153.2	279.7	433.0	233.6	3,215.3	
1950	162.9	2,642.4	351.4	1,132.2	463.5	4,752.4	
1951	137.5	2,481.3	284.7	417.5	292.3	3,563.4	
1952	74.5	1,510.2	233.3	2,277.0	450.6	4,546.1	
1953	89.4	1,490.1	227.6	550.1	536.6	2,893.3	
1954	55.3	1,246.7	336.7	2,460.1	775.7	4,884.4	
1955	46.5	1,064.1	180.5	1,286.0	317.1	2,894.1	

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# MEMORANDUM

# STATE OF ALASKA

## DEPARTMENT OF FISH AND GAME

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To: Denby Lloyd  
Director  
Division of Commercial Fisheries

Date: 26 September 1991

File/Disk: MEMO.sum

Phone: (907) 262-9368

From: Kenneth E. Tarbox ~~KAT~~  
Research Project Leader  
Commercial Fisheries Division  
Soldotna

Subject: 1991 Season Summary

The 1991 Upper Cook Inlet (UCI) salmon season can be characterized as one of regulatory confusion, court ordered fishery closures, reduced volume of fish from previous years, lower prices, and a strike by fishermen. In spite of these perturbations, escapement goals were met and the available harvestable surplus taken by the various user groups.

### COMMERCIAL FISHERIES

The 1991 commercial salmon harvest was approximately 2.9 million fish, which is below the long term average harvest of 3.8 million fish (Table 1). In 38 years of records, the 1991 salmon harvest ranked 21st in total fish. The approximate exvessel value of the fishery was 14.6 million dollars.

#### Sockeye Salmon

Sockeye salmon dominated the harvest with a catch of 2.185 million fish (75 percent of total harvest). The value of the fishery was estimated at 13.0 million dollars or 89 percent of the total salmon exvessel value. The number of fish harvested ranked 10th in the 38 years on record (Table 1).

Escapement objectives were met in all systems in UCI with the exception of Crescent River which fell short of the minimum goal by a few thousand fish (Table 2).

The main season started with essentially all drift gill net fishermen and a large portion of the set gill fishermen on strike because of reduced prices. However, with the settlement of the price dispute in Bristol Bay, increasing numbers of salmon entering UCI, and higher prices the fishery commenced in full on 8 July. Before this, escapement rates into the Kasilof River had exceeded those necessary to achieve escapement objectives and additional fishing time was granted south of the Blanchard line (Table 3). As the season progressed it was obvious that the total sockeye salmon return was lower than expected. Therefore, restrictions on the commercial salmon fishery would be necessary to meet escapement

Table 1. Upper Cook Inlet commercial salmon harvest by species, 1954-1991.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1954	63,780	1,207,046	321,525	2,189,207	510,068	4,291,726
1955	45,926	1,027,528	170,777	101,680	248,343	1,594,254
1956	64,977	1,258,789	198,189	1,595,375	782,051	3,899,381
1957	42,158	643,712	125,434	21,228	1,001,470	1,834,002
1958	22,727	477,392	239,765	1,648,548	471,697	2,860,129
1959	32,651	612,676	106,312	12,527	300,319	1,064,485
1960	27,512	923,314	311,461	1,411,605	659,997	3,333,889
1961	19,737	1,162,303	117,778	34,017	349,628	1,683,463
1962	20,210	1,147,573	350,324	2,711,689	970,582	5,200,378
1963	17,536	942,980	197,140	30,436	387,027	1,575,119
1964	4,531	970,055	452,654	3,231,961	1,079,084	5,738,285
1965	9,741	1,412,350	153,619	23,963	316,444	1,916,117
1966	8,544	1,852,114	289,837	2,005,745	532,756	4,688,996
1967	7,859	1,380,062	177,729	32,229	296,837	1,894,716
1968	4,536	1,104,904	469,850	2,278,197	1,119,114	4,976,601
1969	12,407	692,244	100,962	34,030	269,842	1,109,485
1970	8,358	746,634	279,989	826,639	800,829	2,662,449
1971	19,765	636,798	100,636	35,624	327,029	1,119,852
1972	16,086	879,724	80,933	628,576	630,016	2,235,335
1973	5,194	670,025	104,373	326,183	667,561	1,773,336
1974	6,586	497,160	200,125	484,035	396,938	1,584,844
1975	4,773	678,736	221,739	335,629	950,981	2,191,858
1976	10,867	1,664,131	208,710	1,256,743	469,806	3,610,257
1977	14,792	2,052,511	192,599	553,855	1,233,722	4,047,479
1978	17,302	2,621,667	219,360	1,689,098	571,959	5,119,386
1979	13,738	924,415	265,166	72,982	650,357	1,926,658
1980	13,795	1,573,637	271,378	1,786,430	390,810	4,036,050
1981	12,240	1,439,235	485,148	127,169	833,549	2,897,341
1982	20,870	3,259,864	793,937	790,648	1,433,866	6,299,185
1983	20,634	5,049,733	516,322	70,327	1,114,858	6,771,874
1984	10,041	2,105,860	449,903	617,298	680,089	3,860,839
1985	24,086	4,060,260	667,213	87,828	772,829	5,612,216
1986	39,240	4,787,982	756,830	1,299,360	1,134,173	8,017,585
1987	39,661	9,500,186	451,404	109,801	349,132	10,450,184
1988	29,060	6,834,342	560,022	469,972	708,573	8,601,969
1989	26,742	5,010,698	339,201	67,430	122,027	5,566,098
1990	16,105	3,604,064	500,026	603,630	351,197	5,075,022
*1991	13,890	2,185,641	410,526	16,367	280,544	2,906,968
Average	20,754	2,042,062	312,076	779,423	635,950	3,790,206

\* Preliminary inseason values through 8/26.

Table 2. Escapement goals and counts of sockeye salmon in selected streams of Upper Cook Inlet, 1968-1991.

Year	Kenai River		Kasilof River		Fish Creek	
	Escapement Goal	Escapement Estimate <sup>1</sup>	Escapement Goal	Escapement Estimate <sup>1</sup>	Escapement Goal	Escapement Estimate <sup>2</sup>
1968	0	88,000	0	93,000	0	19,616
1969	150,000	53,000	75,000	46,000	0	12,456
1970	150,000	73,000	75,000	37,000	0	25,000
1971	150,000	--	75,000	--	0	31,900
1972	150,000-250,000	318,000	75,000-150,000	112,000	0	6,981
1973	150,000-250,000	367,000	75,000-150,000	40,000	0	2,705
1974	150,000-250,000	161,000	75,000-150,000	64,000	0	16,225
1975	150,000-250,000	142,000	75,000-150,000	48,000	0	29,882
1976	150,000-250,000	380,000	75,000-150,000	140,000	0	14,032
1977	150,000-250,000	708,000	75,000-150,000	155,000	0	5,183
1978	350,000-500,000	399,000	75,000-150,000	117,000	0	3,555
1979	350,000-500,000	285,000	75,000-150,000	152,000	0	68,739
1980	350,000-500,000	464,000	75,000-150,000	187,000	0	62,828
1981	350,000-500,000	408,000	75,000-150,000	257,000	0	50,479
1982	350,000-500,000	620,000	75,000-150,000	180,000	50,000	28,164
1983	350,000-500,000	630,000	75,000-150,000	210,000	50,000	118,797
1984	350,000-500,000	345,000	75,000-150,000	232,000	50,000	192,352
1985	350,000-500,000	501,000	75,000-150,000	503,000	50,000	68,577
1986	350,000-500,000	501,000	150,000-250,000	276,000	50,000	29,800
1987	400,000-700,000	1,597,000	150,000-250,000	249,000	50,000	91,215
1988	400,000-700,000	1,021,500	150,000-250,000	202,000	50,000	71,603
1989	400,000-700,000	1,599,959	150,000-250,000	158,206	50,000	67,224
1990	400,000-700,000	658,908	150,000-250,000	144,289	50,000	50,000
1991	400,000-700,000	645,000	150,000-250,000	238,000	50,000	50,500

Year	Susitna River		Crescent River		Packers Creek	
	Escapement Goal	Escapement Estimate <sup>1</sup>	Escapement Goal	Escapement Estimate <sup>1</sup>	Escapement Goal	Escapement Estimate <sup>2</sup>
1978	200,000	94,000	0	N/C	0	N/C
1979	200,000	157,000	50,000	87,000	0	N/C
1980	200,000	191,000	50,000	91,000	0	16,477
1981	200,000	340,000	50,000	41,000	0	13,024
1982	200,000	216,000 <sup>3</sup>	50,000	59,000	0	15,687
1983	200,000	112,000 <sup>4</sup>	50,000	92,000	0	18,403
1984	200,000	194,000 <sup>5</sup>	50,000	118,000	0	30,684
1985	200,000	228,000 <sup>5</sup>	50,000	129,000	0	36,850
1986	200,000	92,000 <sup>6</sup>	50,000-100,000	N/A	0	29,604
1987	200,000	66,000 <sup>6</sup>	50,000-100,000	119,000	0	35,401
1988	100,000-150,000 <sup>6</sup>	52,347 <sup>6</sup>	50,000-100,000	57,716	15,000-25,000	18,607
1989	100,000-150,000 <sup>6</sup>	96,269 <sup>6</sup>	50,000-100,000	71,064	15,000-25,000	22,304
1990	100,000-150,000 <sup>6</sup>	140,379 <sup>6</sup>	50,000-100,000	52,180	15,000-25,000	29,154
1991	100,000-150,000 <sup>6</sup>	105,000 <sup>6</sup>	50,000-100,000	44,500	15,000-25,000	36,389

<sup>1</sup> Derived from sonar counters unless otherwise noted.

<sup>2</sup> Weir counts.

<sup>3</sup> Poor field conditions make this a minimum estimate; mark/recapture estimate from Su-Hydro studies was 265,000.

<sup>4</sup> Minimum estimate. Combining Yentna sonar with Sunshine Station mark/recapture estimate yields 176,000.

<sup>5</sup> Yentna River sonar count combined with Sunshine Station mark/recapture estimate.

<sup>6</sup> Yentna River only.



Year	Spawners	Return	R:S	Yield	Harvest Rate	Run	Harvest
1968	115,545	960,169	8.3	844,624	0.88		
1969	72,901	430,947	5.9	358,046	0.83		
1970	101,794	550,923	5.4	449,129	0.82		
1971	406,714	986,397	2.4	579,683	0.59		
1972	431,058	2,547,851	5.9	2,116,793	0.83		
1973	507,072	2,125,986	4.2	1,618,914	0.76		
1974	209,836	788,067	3.8	578,231	0.73		
1975	184,262	1,055,373	5.7	871,111	0.83	485,350	301,088
1976	507,440	1,506,012	3.0	998,572	0.66	1,374,607	867,167
1977	951,038	3,112,620	3.3	2,161,582	0.69	2,268,567	1,317,529
1978	511,781	3,785,040	7.4	3,273,259	0.86	2,096,342	1,584,561
1979	373,810	1,321,039	3.5	947,229	0.72	797,838	424,028
1980	615,382	2,673,295	4.3	2,057,913	0.77	1,481,394	866,012
1981	535,524	2,464,323	4.6	1,928,799	0.78	1,176,410	640,886
1982	755,672	9,587,700	12.7	8,832,028	0.92	2,766,442	2,010,770
1983	792,765	9,486,794	12.0	8,694,029	0.92	3,981,411	3,188,646
1984	446,297	3,859,109	8.6	3,412,812	0.88	1,286,678	840,381
1985	573,761	2,587,921	4.5	2,014,160	0.78	2,496,016	1,922,255
1986	555,207	2,165,138	3.9	1,609,931	0.74	2,945,961	2,390,754
1987	2,011,657	10,356,627	5.1	8,344,970	0.81	9,391,896	7,380,239
1988	1,212,865	2,546,639	2.1	1,333,774	0.52	6,054,519	4,841,654
1989	2,026,619	4,458,679	2.2	2,432,060	0.55	6,656,274	4,629,655
1990	794,616	1,507,693	1.9	713,077	0.47	3,224,183	2,429,567
1991	727,146	4,436,074	6.1	3,708,928	0.84	2,182,082	1,454,936
1992	1,207,382	4,271,576	3.5	3,064,194	0.72	8,235,298	7,027,916
1993	997,693	1,689,779	1.7	692,086	0.41	4,446,195	3,448,502
1994	1,309,669	3,052,634	2.3	1,742,965	0.57	3,886,918	2,577,249
1995	776,847	1,899,870	2.4	1,123,023	0.59	2,628,555	1,851,708
1996	963,108	2,261,757	2.3	1,298,649	0.57	3,696,067	2,732,959
1997	1,365,676	3,626,402	2.7	2,260,726	0.62	4,610,042	3,244,366
1998	929,090	4,465,328	4.8	3,536,238	0.79	1,902,219	973,129
1999	949,276	5,755,063	6.1	4,805,786	0.84	2,984,568	2,035,292
2000	696,899	7,058,333	10.1	6,361,435	0.90	1,814,779	1,117,880
2001	738,229	1,697,957	2.3	959,728	0.57	2,189,670	1,451,441
2002	1,126,616	3,628,712	3.2	2,502,096	0.69	3,466,762	2,340,146
2003	1,402,292	1,919,813	1.4	517,521	0.27	4,439,571	3,037,279
2004	1,690,547	3,236,600	1.9	1,546,053	0.48	5,705,141	4,014,594
2005	1,654,003	4,804,018	2.9	3,150,015	0.66	6,109,173	4,455,170
2006	1,892,090	5,006,280	2.6	3,114,190	0.62	2,848,597	956,507
2007	964,243	4,378,678	4.5	3,414,435	0.78	3,601,777	2,637,535
2008	708,805	3,380,397	4.8	2,671,592	0.79	2,082,431	1,373,626
2009	848,117	3,809,455	4.5	2,961,339	0.78	2,430,414	1,582,297
2010	1,038,302	3,625,388	3.5	2,587,086	0.71	3,596,458	2,558,156
2011	1,280,733	4,513,815	3.5	3,233,082	0.72	6,263,091	4,982,359
2012	1,212,921	1,490,134	1.2	277,212	0.19	4,769,681	3,556,760
2013	980,208					3,628,121	2,647,914
2014	1,218,342					3,404,034	2,185,693
2015	1,400,047					3,819,016	2,418,696
2016	1,118,155					3,711,842	2,593,688
2017	1,056,773					2,595,720	1,538,947
2018	831,096					1,867,998	1,036,902

Note: Shaded area indicates 1968–1978 brood years were used in earlier spawner-recruit analyses.

BRIAN MARSTON