

Characteristics of Vessels Participating in the Alaska Peninsula Salmon Purse Seine and Drift Gillnet Fisheries, 1978 to 1999

CFEC Report 00-10N
December 2000

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Introduction and Purpose

This report was prepared for the Alaska Board of Fisheries at the request of the Department of Fish and Game. The report examines fishing vessels that participated in the Alaska Peninsula salmon purse seine and drift gillnet fisheries from 1978 to 1999, and provides time series data on selected physical characteristics of these vessels.

Data Sources and Issues

The following analyses were created from data gathered from the Commercial Fisheries Entry Commission's (CFEC) fish ticket database and vessel license file. Fish ticket landings recorded by Alaska Peninsula salmon purse seine (S01M) and drift gillnet (S03M) permits from 1978 through 1998 were selected. Only legal commercial landings made on valid CFEC permits were retained. From this subset of fish tickets, a list of ADFG vessel license numbers was compiled for each year and fishery. These ADFG numbers were merged to the CFEC vessel license file to obtain vessel length, hold tank capacity, gross and net tonnage and vessel horsepower observations.

The data obtained from the vessel license file were not always reliable. Missing data pervaded the vessel characteristic fields and dubious entries were also prevalent. Each vessel characteristic field required editing before descriptive statistics could be calculated. Missing data and data that appeared to be erroneous were omitted from the analyses.

Missing data occur for two principal reasons. First, fish tickets may indicate a vessel made a landing, but the vessel may not appear on the vessel license file. This may occur because a fish ticket was filled out incorrectly or a data entry error occurred when the electronic fish ticket file was created. It can also occur if the vessel owner failed to properly license the vessel for the year.

The other principal cause of missing data is when applicants fail to completely fill out their vessel license applications. CFEC collects vessel attribute data so that fleets can be examined and described as needed. However, CFEC will issue a vessel license even if some of the fields are left blank. The fields that *are* required to be filled out are: 1) ADFG number; 2) year the vessel was built; and, 3) overall vessel length.

Erroneous data may occur on the vessel license file if the applicant supplies inaccurate information. While CFEC has required evidence on vessel length when questions arise,¹ corroborating evidence on other vessel attributes has not been collected. Therefore, errors may be common in fields such as gross and net tonnage, hold capacity, vessel horsepower, and live tank capacity. In addition, vessel

¹ Since 1996, Alaska vessel license fees have been based upon vessel length.

characteristics are pre-printed on vessel license renewal forms. Unless an applicant makes corrections on the renewal form, erroneous observations are retained in each succeeding year.

Vessel Characteristics

This report provides descriptive statistics of vessel characteristics in both the Alaska Peninsula salmon purse seine and drift gillnet fisheries. Vessel length, horsepower, gross tonnage, and net tonnage are each examined. The following paragraphs provide a brief background on each attribute and describe what data were excluded from each.

Vessel Length

The United States Coast Guard (USCG) allows measurements of documented vessels to be done using either a “simplified” system, or by more complicated, but precise systems that must be completed by certified professionals. In either case, there are two principal means of determining vessel length: the “overall length,” and the “registered length.” The overall length is basically the length of the buoyant portion of the hull from the stem to the stern, excluding bowsprits, outboard motor brackets, or other rigging. Under the simplified system, the registered length and the overall length are the same. Under the other systems, the registered length is: *“95% of the length of a waterline at 85% of the least molded depth.”* Again, these measurements made outside the simplified system must be done by a professional.

Prior to 1989, the definition of registered length was different. Under the simplified system, it was still equal to the overall length; however, under the other systems, it was basically a length measurement from the foremost part of the stem to the after part of the rudderpost.

Although the USCG changed their method for measuring registered length, they did not require existing documented vessels to be re-measured. Vessels were allowed to keep their existing registered length, provided nothing substantially changed on the vessel.

Through 1994, CFEC vessel license applications asked for “registered length.” Beginning in 1995, the applications changed and asked for “overall length.” For this reason, it is likely that the CFEC data on length represents an unknown blend of these definitions.

In 1996, CFEC implemented a new fee schedule for vessel licenses. Fees for vessel licenses are now based upon the vessel’s overall length in one of six distinct vessel length categories.

The maximum vessel length allowed in the seine fishery is 58 feet. However, fish ticket records indicate that vessels as large as 107 feet made landings in the fishery. Observations such as this, and other observations where the vessel is greater than 58 feet, are likely recording errors. Because of the maximum length restriction, it is an easy decision to remove these observations from an analysis of vessel length in the purse seine fishery. However, there are no length restrictions in the drift gillnet fishery and determining between dubious and real observations is more difficult. In addition, it is also difficult to establish a minimum size boundary for purse seine and gillnet vessels because these fisheries are characterized by a wide range of vessel types, from 58-foot limit seiners to small, outboard-powered skiffs used in hand purse seine and setnet operations. Extreme observations were removed, but without

a complete exploration of the data, it is possible that some inaccurate observations have been included in the analysis.

For this report, vessels with lengths greater than 60 feet or less than 10 feet were removed from the analysis of vessel length for both fisheries. Note these observations are different than observations with missing values, which were explained above and were also excluded from the analysis.

Vessel Horsepower

Vessel horsepower data were widely distributed. A few vessels listed engine size in excess of 2,000 horsepower, despite the fact that the vessel length was listed as less than 30 feet. These obvious errors were omitted from the analysis. Specifically, all horsepower values less than 10 or greater than 1,000 were excluded from the analysis.

Vessel Hold Capacity

On the vessel license file, it is sometimes difficult to distinguish between missing data and accurate data. For example, if someone does not fill out the hold capacity field on their application, this field can be recorded with a zero on the electronic license file. However, zero is also an acceptable and accurate value for hold capacity, particularly for small hand purse seine boats. Many of these small boats do not have fish holds and deliver their catch directly to tender boats or other large boats. Therefore, in the hold capacity column, the zero can represent either a missing value or an accurate value. Determining one from the other is impossible. For these reasons, vessel hold capacity data were considered too unreliable and therefore were not included in the analysis.

Gross and Net Tonnage

Gross and net tonnages are volumetric measurements of the size of a vessel. One ton, in this case, is equal to 100 cubic feet. As with vessel lengths, the USCG allows measurements of gross and net tonnage to be done using either the “simplified” system or the other more precise systems. The gross tonnage of a vessel is the internal capacity of all space in and on the vessel which is permanently enclosed, with the possible exception of certain permissible exemptions. Net tonnage is the remainder of the gross tonnage after deducting the tonnage of crew spaces, master’s accommodations, navigation spaces, allowance for propelling power, etc. Under the USCG simplified measurement system, the net tonnage is 80% of the gross tonnage for ship-shaped boats with their engine in the hull, which is typical of nearly all drift gill net and large purse seine vessels. If the boat has no engine, or it’s engine is outside the hull, for example a setnet or hand purse seine skiff, the net tonnage is equal to the gross tonnage.

On the vessel license file, a “zero” value for either the gross or net tonnage indicates missing data. These observations were excluded from the analysis. Gross and net tonnage values over 250 tons were also removed.

Table 1
Alaska Peninsula Salmon Purse Seine Vessels
Vessel Length

<i>Year</i>	<i>Mean Length</i>	<i>Median Length</i>	<i>Minimum Length</i>	<i>Maximum Length</i>	<i>Number of Observations Included</i>	<i>Number of Observations Excluded</i>
1978	33	32	14	58	98	19
1979	35	35	14	58	118	21
1980	37	37	14	58	132	22
1981	39	40	14	58	130	19
1982	40	41	14	58	133	32
1983	42	46	14	58	117	21
1984	42	47	14	58	116	19
1985	43	47	14	58	126	12
1986	42	47	14	58	125	6
1987	41	44	14	58	127	2
1988	42	44	14	58	132	6
1989	44	48	14	58	125	4
1990	44	48	18	58	135	16
1991	45	49	17	58	124	7
1992	46	49	19	58	124	2
1993	47	49	17	58	126	5
1994	46	49	17	58	130	5
1995	46	49	20	58	128	11
1996	50	53	20	58	102	3
1997	51	53	20	58	82	2
1998	46	50	15	58	96	26
1999	51	53	21	58	73	28

Table 2
Alaska Peninsula Salmon Purse Seine Vessels
Number of Vessels by Length Category and Year

<i>Year</i>	<i>Length Category (feet)</i>						<i>Excluded</i>	<i>Total</i>
	<i>10-15</i>	<i>16-19</i>	<i>20-29</i>	<i>30-39</i>	<i>40-49</i>	<i>50-59</i>		
1978	2	1	35	38	20	2	19	117
1979	3	3	30	44	33	5	21	139
1980	4	4	25	41	50	8	22	154
1981	3	2	18	42	54	11	19	149
1982	2	3	20	36	61	11	32	165
1983	1	3	13	26	59	15	21	138
1984	1	3	12	21	64	15	19	135
1985	2	3	11	23	70	17	12	138
1986	2	3	14	17	70	19	6	131
1987	2	3	15	27	61	19	2	129
1988	3	2	9	32	68	18	6	138
1989	1	2	9	23	67	23	4	129
1990	0	2	10	22	76	25	16	151
1991	0	2	7	16	72	27	7	131
1992	0	1	7	15	71	30	2	126
1993	0	2	5	13	71	35	5	131
1994	0	1	6	13	78	32	5	135
1995	0	0	7	17	66	38	11	139
1996	0	0	3	9	29	61	3	105
1997	0	0	2	4	22	54	2	84
1998	2	3	5	15	23	48	26	122
1999	0	0	1	6	18	48	28	101
Total	28	43	264	500	1,203	561	288	2,887

Note: Some observations were excluded from the analyses in Tables 1 and 2 because of missing data or because existing data were believed to be inaccurate. Specifically, observations less than 10 feet and observations greater than 60 feet were excluded from the analyses.

Table 3
Alaska Peninsula Salmon Purse Seine Vessels
Vessel Horsepower

<i>Year</i>	<i>Mean Horsepower</i>	<i>Median Horsepower</i>	<i>Minimum Horsepower</i>	<i>Maximum Horsepower</i>	<i>Number of Observations Included</i>	<i>Number of Observations Excluded</i>
1978	166	165	33	365	94	23
1979	193	180	20	671	107	32
1980	215	200	15	671	114	40
1981	235	230	20	671	115	34
1982	226	223	20	565	122	43
1983	262	265	20	565	115	23
1984	265	270	20	604	113	22
1985	269	280	20	520	123	15
1986	276	290	20	620	123	8
1987	268	270	20	620	125	4
1988	276	290	20	900	130	8
1989	292	305	20	900	124	5
1990	311	318	35	900	134	17
1991	329	340	35	900	124	7
1992	339	350	35	900	123	3
1993	352	355	35	900	123	8
1994	356	350	35	1,000	122	13
1995	361	353	35	900	124	15
1996	363	360	35	900	97	8
1997	363	360	35	900	81	3
1998	326	330	25	700	93	29
1999	352	350	35	800	74	27

Table 4
Alaska Peninsula Salmon Purse Seine Vessels
Number of Vessels by Horsepower Category and Year

<i>Year</i>	<i>Horsepower Category</i>										<i>Excluded</i>	<i>Total</i>
	<i>10-99</i>	<i>100-199</i>	<i>200-299</i>	<i>300-399</i>	<i>400-499</i>	<i>500-599</i>	<i>600-699</i>	<i>700-799</i>	<i>800-899</i>	<i>900-1000</i>		
1978	19	46	18	11	0	0	0	0	0	0	23	117
1979	19	43	24	17	2	1	1	0	0	0	32	139
1980	18	36	29	25	4	1	1	0	0	0	40	154
1981	16	28	33	30	5	2	1	0	0	0	34	149
1982	17	32	36	31	3	3	0	0	0	0	43	165
1983	12	19	35	42	3	4	0	0	0	0	23	138
1984	12	17	33	42	5	3	1	0	0	0	22	135
1985	11	20	35	46	7	4	0	0	0	0	15	138
1986	13	14	37	47	6	5	1	0	0	0	8	131
1987	14	18	37	44	6	5	1	0	0	0	4	129
1988	14	14	39	50	7	5	0	0	0	1	8	138
1989	11	12	34	52	8	6	0	0	0	1	5	129
1990	10	12	34	56	8	9	3	0	1	1	17	151
1991	9	9	27	51	11	12	3	0	1	1	7	131
1992	6	10	24	53	10	15	3	0	1	1	3	126
1993	7	8	22	50	12	18	3	0	2	1	8	131
1994	7	7	24	50	10	17	3	0	2	2	13	135
1995	5	9	20	51	14	19	2	1	1	2	15	139
1996	3	4	16	45	10	15	2	0	1	1	8	105
1997	2	4	13	38	8	13	2	0	0	1	3	84
1998	4	8	24	34	9	11	2	1	0	0	29	122
1999	1	5	13	34	9	10	1	0	1	0	27	101
Total	230	375	607	899	157	178	30	2	10	12	387	2,887

Note: Some observations were excluded from the analyses in Tables 3 and 4 because of missing data or because existing data were believed to be inaccurate. Specifically, observations where horsepower was less than 10 or in excess of 1000 were excluded from the analyses.

Table 5
Alaska Peninsula Salmon Purse Seine Vessels
Gross Tonnage

<i>Year</i>	<i>Mean</i>	<i>Median</i>	<i>Maximum</i>	<i>Minimum</i>	<i>Number Included</i>	<i>Number Excluded</i>
1978	24	15	89	1	59	58
1979	29	20	113	1	76	63
1980	37	34	113	1	85	69
1981	39	35	113	1	91	58
1982	42	40	160	1	93	72
1983	47	46	160	1	94	44
1984	48	48	113	1	93	42
1985	48	46	113	1	106	32
1986	49	46	113	1	101	30
1987	44	45	113	3	101	28
1988	45	44	113	5	108	30
1989	46	45	113	5	105	24
1990	47	46	113	5	113	38
1991	52	49	129	5	107	24
1992	53	50	113	5	107	19
1993	54	50	130	5	112	19
1994	52	49	113	2	113	22
1995	53	47	180	2	112	27
1996	54	50	99	14	89	16
1997	56	52	99	18	73	11
1998	47	45	99	5	82	40
1999	56	51	197	12	68	33

Table 6
Alaska Peninsula Salmon Purse Seine Vessels
Number of Vessels by Year and Gross Tonnage Category

<i>Year</i>	<i>Gross Tonnage Category</i>											<i>Excluded</i>	<i>Total</i>
	<i>1 - 9</i>	<i>10 - 19</i>	<i>20 - 29</i>	<i>30 - 39</i>	<i>40 - 49</i>	<i>50 - 59</i>	<i>60 - 69</i>	<i>70 - 79</i>	<i>80 - 89</i>	<i>90-100</i>	<i>Over 100</i>		
1978	14	23	4	3	5	5	1	2	2	0	0	58	117
1979	12	26	10	7	5	7	1	4	3	0	1	63	139
1980	5	24	9	8	11	13	3	8	3	0	1	69	154
1981	4	22	15	7	12	13	2	11	3	0	2	58	149
1982	6	16	15	8	14	14	2	10	4	0	4	72	165
1983	2	15	13	5	18	11	4	16	8	0	2	44	138
1984	4	11	11	7	16	14	3	16	8	0	3	42	135
1985	4	10	17	8	21	13	3	18	8	0	4	32	138
1986	4	9	15	9	20	13	2	17	8	1	3	30	131
1987	3	17	16	8	18	14	2	14	8	0	1	28	129
1988	2	18	18	10	19	14	1	15	8	0	3	30	138
1989	1	11	20	10	21	15	4	13	8	1	1	24	129
1990	3	11	17	12	23	14	6	17	8	0	2	38	151
1991	2	8	14	10	21	13	4	20	10	1	4	24	131
1992	2	7	12	9	23	14	5	20	10	3	2	19	126
1993	2	7	12	8	25	16	6	19	10	4	3	19	131
1994	4	5	14	10	24	18	4	19	9	5	1	22	135
1995	3	9	16	10	21	14	4	18	8	6	3	27	139
1996	0	4	13	8	18	11	3	18	8	6	0	16	105
1997	0	1	10	8	16	9	1	14	8	6	0	11	84
1998	6	7	11	8	16	9	1	12	8	4	0	40	122
1999	0	4	8	8	13	8	2	11	8	5	1	33	101
Total	83	265	290	181	380	272	64	312	158	42	41	799	2,887

Note: Vessels with gross tonnage values equal to zero or greater than 250 were excluded from the analysis.

Table 7
Alaska Peninsula Salmon Purse Seine Vessels
Net Tonnage

<i>Year</i>	<i>Mean</i>	<i>Median</i>	<i>Maximum</i>	<i>Minimum</i>	<i>Number Included</i>	<i>Number Excluded</i>
1978	15	9	55	1	78	39
1979	18	12	55	1	95	44
1980	23	17	55	1	103	51
1981	24	21	56	1	106	43
1982	27	22	116	1	109	56
1983	31	32	112	1	102	36
1984	31	33	61	1	103	32
1985	32	33	79	1	113	25
1986	32	33	61	1	106	25
1987	29	27	61	1	110	19
1988	29	27	62	1	117	21
1989	30	31	61	1	113	16
1990	32	32	71	1	123	28
1991	36	35	93	1	115	16
1992	38	35	93	1	113	13
1993	39	36	93	1	118	13
1994	37	35	84	1	120	15
1995	37	35	126	1	118	21
1996	39	36	84	1	93	12
1997	40	36	84	1	77	7
1998	34	34	84	1	84	38
1999	40	35	134	1	71	30

Table 8
Alaska Peninsula Salmon Purse Seine Vessels
Number of Vessels by Year and Net Tonnage Category

<i>Year</i>	<i>Net Tonnage Category</i>											<i>Excluded</i>	<i>Total</i>	
	<i>1-9</i>	<i>10-19</i>	<i>20-29</i>	<i>30-39</i>	<i>40-49</i>	<i>50-59</i>	<i>60-69</i>	<i>70-79</i>	<i>80-89</i>	<i>90-100</i>	<i>Over 100</i>			
1978	41	18	7	5	4	3	0	0	0	0	0	0	39	117
1979	38	24	12	10	5	6	0	0	0	0	0	0	44	139
1980	30	24	14	15	10	10	0	0	0	0	0	0	51	154
1981	24	27	14	18	10	13	0	0	0	0	0	0	43	149
1982	23	23	18	19	11	13	0	0	0	0	2	56	165	
1983	12	20	16	21	12	18	2	0	0	0	1	36	138	
1984	13	18	16	22	13	20	1	0	0	0	0	32	135	
1985	10	20	21	25	12	23	1	1	0	0	0	25	138	
1986	8	14	24	24	13	21	2	0	0	0	0	25	131	
1987	15	21	22	23	10	17	2	0	0	0	0	19	129	
1988	13	25	23	25	11	17	3	0	0	0	0	21	138	
1989	9	19	25	28	13	17	2	0	0	0	0	16	129	
1990	10	20	25	28	15	21	3	1	0	0	0	28	151	
1991	7	15	20	27	14	21	7	2	1	1	0	16	131	
1992	3	15	18	29	15	21	7	3	1	1	0	13	126	
1993	4	13	19	30	17	21	6	5	2	1	0	13	131	
1994	6	12	23	31	17	20	5	5	1	0	0	15	135	
1995	5	17	21	26	17	19	4	6	2	0	1	21	139	
1996	1	10	18	21	14	19	4	5	1	0	0	12	105	
1997	1	7	14	21	9	17	2	5	1	0	0	7	84	
1998	7	11	17	19	8	16	2	3	1	0	0	38	122	
1999	2	7	14	17	8	15	2	4	1	0	1	30	101	
Total	282	380	401	484	258	368	55	40	11	3	5	600	2,887	

Note: Vessels with net tonnage values equal to zero or greater than 250 were excluded from the analysis.

Figure 1. Characteristics of vessels participating in the Alaska Peninsula salmon purse seine fishery (1978-1999). A) Mean vessel length; B) Mean horsepower; C) Mean gross tonnage; and D) Mean net tonnage.

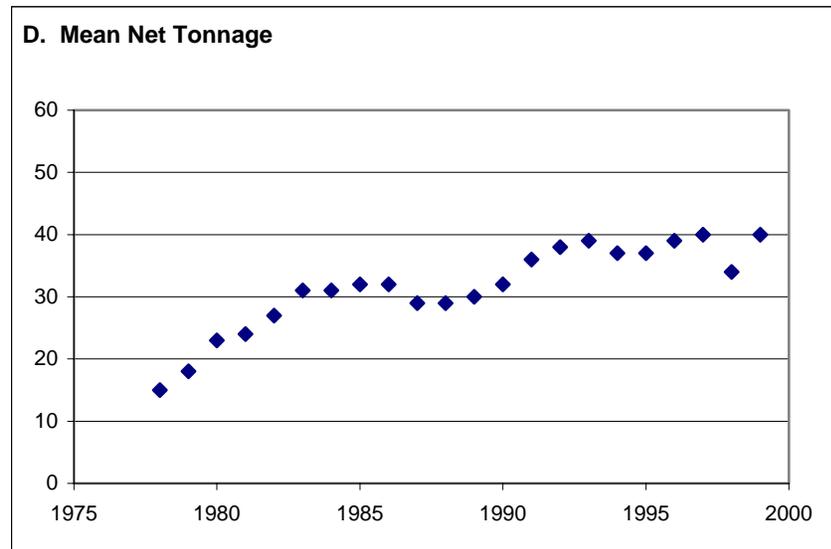
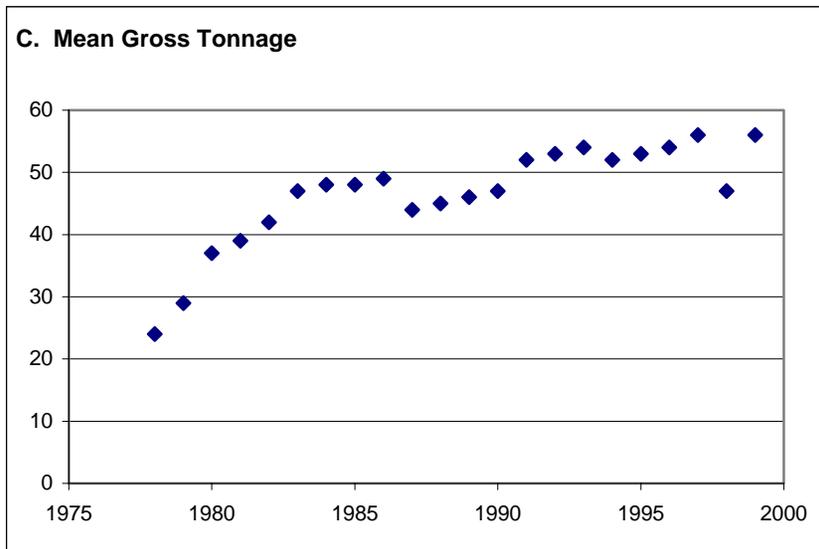
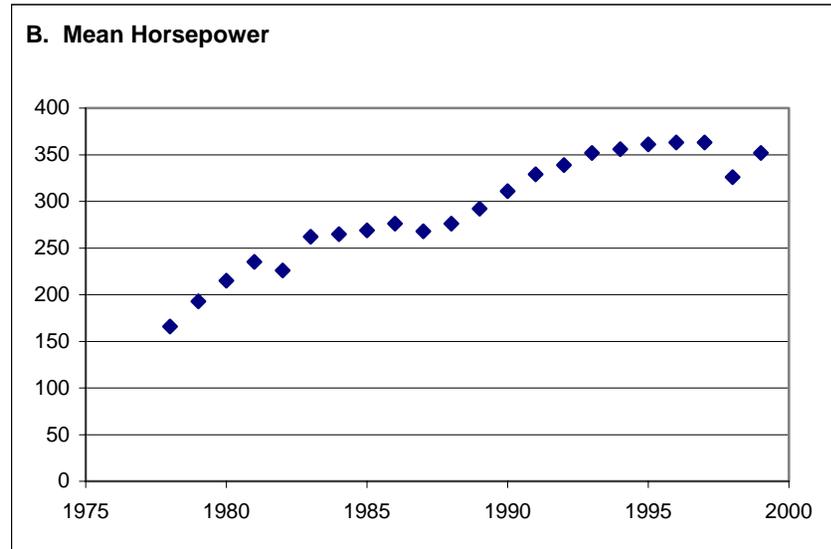
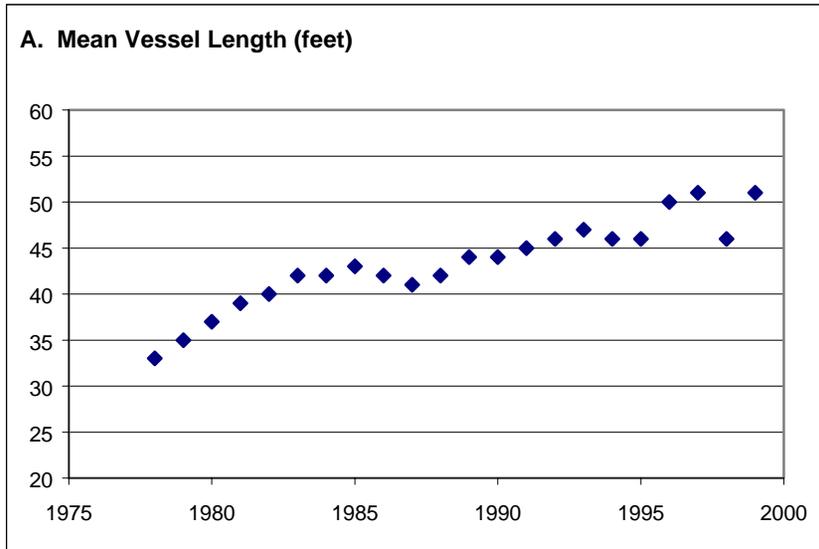


Table 9
Alaska Peninsula Salmon Drift Gillnet Vessels
Vessel Length

<i>Year</i>	<i>Mean Length</i>	<i>Median Length</i>	<i>Minimum Length</i>	<i>Maximum Length</i>	<i>Number of Observations Included</i>	<i>Number of Observations Excluded</i>
1978	32	32	16	58	119	14
1979	33	32	15	49	136	23
1980	33	32	14	58	160	33
1981	33	32	15	51	154	40
1982	33	34	15	58	172	43
1983	33	34	14	49	171	38
1984	33	34	14	45	148	32
1985	34	34	15	45	149	18
1986	34	34	15	49	169	19
1987	34	34	15	57	171	11
1988	35	34	16	57	170	16
1989	35	35	14	49	170	9
1990	34	34	13	56	193	36
1991	36	35	14	46	170	20
1992	36	36	14	50	171	9
1993	37	37	14	55	173	21
1994	36	36	13	55	180	14
1995	37	37	16	55	172	14
1996	37	38	14	58	181	12
1997	37	38	16	58	173	13
1998	36	36	14	58	188	88
1999	37	38	17	58	182	53

Table 10
Alaska Peninsula Salmon Drift Gillnet Vessels
Number of Vessels by Length Category and Year

<i>Year</i>	<i>Length Category (feet)</i>						<i>Excluded</i>	<i>Total</i>
	<i>10-15</i>	<i>16-19</i>	<i>20-29</i>	<i>30-39</i>	<i>40-49</i>	<i>50-59</i>		
1978	0	4	25	79	9	2	14	133
1979	1	7	20	90	18	0	23	159
1980	3	3	27	101	23	3	33	193
1981	4	2	27	102	18	1	40	194
1982	4	5	30	112	20	1	43	215
1983	2	3	25	123	18	0	38	209
1984	2	3	15	119	9	0	32	180
1985	1	5	7	124	12	0	18	167
1986	2	3	8	140	16	0	19	188
1987	2	4	7	137	20	1	11	182
1988	0	5	11	129	23	2	16	186
1989	1	3	10	123	33	0	9	179
1990	4	7	18	124	38	2	36	229
1991	1	1	10	115	43	0	20	190
1992	1	1	10	111	47	1	9	180
1993	2	1	9	104	53	4	21	194
1994	4	3	7	109	53	4	14	194
1995	0	4	7	100	58	3	14	186
1996	4	2	11	98	62	4	12	193
1997	0	3	11	95	61	3	13	186
1998	1	4	15	105	58	5	88	276
1999	0	3	11	98	66	4	53	235
Total	39	76	321	2,438	758	40	576	4,248

Note: Some observations were excluded from the analyses in Tables 9 and 10 because of missing data or because existing data were believed to be inaccurate. Specifically, observations less than 10 feet and observations greater than 60 feet were excluded from the analyses

Table 11
Alaska Peninsula Salmon Drift Gillnet Vessels
Vessel Horsepower

<i>Year</i>	<i>Mean Horsepower</i>	<i>Median Horsepower</i>	<i>Minimum Horsepower</i>	<i>Maximum Horsepower</i>	<i>Number of Observations Included</i>	<i>Number of Observations Excluded</i>
1978	188	165	25	660	119	14
1979	198	174	25	671	128	31
1980	214	205	10	890	143	50
1981	219	220	25	520	137	57
1982	226	230	10	671	152	63
1983	236	250	10	640	164	45
1984	238	250	15	500	140	40
1985	247	250	20	500	143	24
1986	266	260	40	870	163	25
1987	275	263	40	870	164	18
1988	289	270	40	870	164	22
1989	295	270	10	870	166	13
1990	292	270	10	870	188	41
1991	330	285	10	1,000	165	25
1992	346	310	10	1,000	167	13
1993	372	315	10	1,000	169	25
1994	366	310	10	1,000	176	18
1995	380	315	15	1,000	167	19
1996	384	320	25	1,000	174	19
1997	393	350	30	1,000	167	19
1998	382	330	15	1,000	183	93
1999	389	320	30	1,000	176	59

Table 12
Alaska Peninsula Salmon Drift Gillnet Vessels
Number of Vessels by Horsepower Category and Year

<i>Year</i>	<i>Horsepower Category</i>										<i>Excluded</i>	<i>Total</i>
	<i>10-99</i>	<i>100-199</i>	<i>200-299</i>	<i>300-399</i>	<i>400-499</i>	<i>500-599</i>	<i>600-699</i>	<i>700-799</i>	<i>800-899</i>	<i>900-1000</i>		
1978	8	64	37	6	1	2	1	0	0	0	14	133
1979	9	62	45	7	1	1	3	0	0	0	31	159
1980	7	57	65	9	1	2	1	0	1	0	50	193
1981	10	44	67	8	4	4	0	0	0	0	57	194
1982	13	39	81	9	6	3	1	0	0	0	63	215
1983	10	36	91	16	6	4	1	0	0	0	45	209
1984	5	31	79	17	7	1	0	0	0	0	40	180
1985	6	26	76	22	12	1	0	0	0	0	24	167
1986	5	23	91	30	9	1	1	1	2	0	25	188
1987	5	19	90	34	10	1	2	1	2	0	18	182
1988	5	16	82	39	15	2	2	1	2	0	22	186
1989	5	16	79	40	14	7	3	1	1	0	13	179
1990	13	17	86	38	18	9	3	2	2	0	41	229
1991	4	10	69	41	22	8	6	2	2	1	25	190
1992	6	8	61	44	24	9	7	4	2	2	13	180
1993	5	7	51	44	29	13	9	5	3	3	25	194
1994	8	9	52	45	29	11	9	6	3	4	18	194
1995	5	6	49	45	30	10	7	8	3	4	19	186
1996	5	8	50	42	32	11	10	9	3	4	19	193
1997	6	4	43	44	34	10	10	8	3	5	19	186
1998	8	5	45	54	37	9	11	6	3	5	93	276
1999	3	6	46	53	33	9	10	9	3	4	59	235
Total	151	513	1435	687	374	128	97	63	35	32	733	4,248

Note: Some observations were excluded from the analyses in Tables 11 and 12 because of missing data or because existing data were believed to be inaccurate. Specifically, observations where horsepower was less than 10 or in excess of 1,000 were excluded from the analyses.

Table 13
Alaska Peninsula Salmon Drift Gill Net Vessels
Gross Tonnage

<i>Year</i>	<i>Mean</i>	<i>Median</i>	<i>Maximum</i>	<i>Minimum</i>	<i>Number Included</i>	<i>Number Excluded</i>
1978	14	10	77	1	87	46
1979	14	11	65	1	97	62
1980	15	12	79	1	119	74
1981	16	13	72	1	114	80
1982	15	13	81	1	130	85
1983	15	12	168	1	140	69
1984	15	14	33	1	125	55
1985	15	14	33	1	123	44
1986	16	14	195	3	142	46
1987	16	14	57	1	142	40
1988	16	15	57	3	145	41
1989	17	15	64	1	148	31
1990	17	15	78	1	158	71
1991	17	15	51	1	146	44
1992	18	15	51	1	147	33
1993	19	16	51	1	138	56
1994	19	16	198	1	147	47
1995	19	18	51	3	142	44
1996	20	18	88	1	146	47
1997	19	18	58	3	141	45
1998	21	18	197	1	154	122
1999	20	18	88	3	154	81

Table 14
Alaska Peninsula Salmon Drift Gill Net Vessels
Number of Vessels by Year and Gross Tonnage Category

<i>Year</i>	<i>Gross Tonnage Category</i>										<i>Excluded</i>	<i>Total</i>
	<i>1 - 9</i>	<i>10 - 19</i>	<i>20 - 29</i>	<i>30 - 39</i>	<i>40 - 49</i>	<i>50 - 59</i>	<i>60 - 69</i>	<i>70 - 79</i>	<i>80 - 89</i>	<i>Over 100</i>		
1978	33	44	2	4	1	1	1	1	0	0	46	133
1979	35	46	8	6	0	1	1	0	0	0	62	159
1980	35	57	15	8	2	1	0	1	0	0	74	193
1981	29	60	14	7	2	0	1	1	0	0	80	194
1982	30	73	20	6	0	0	0	0	1	0	85	215
1983	28	86	21	3	0	1	0	0	0	1	69	209
1984	21	78	23	3	0	0	0	0	0	0	55	180
1985	18	82	20	3	0	0	0	0	0	0	44	167
1986	20	97	20	3	0	0	0	1	0	1	46	188
1987	17	94	26	4	0	1	0	0	0	0	40	182
1988	15	97	27	5	0	1	0	0	0	0	41	186
1989	15	90	34	8	0	0	1	0	0	0	31	179
1990	20	88	35	11	1	2	0	1	0	0	71	229
1991	14	81	38	12	0	1	0	0	0	0	44	190
1992	15	78	38	15	0	1	0	0	0	0	33	180
1993	9	74	39	14	1	1	0	0	0	0	56	194
1994	12	77	42	14	0	1	0	0	0	1	47	194
1995	10	70	48	13	0	1	0	0	0	0	44	186
1996	12	68	49	14	0	2	0	0	1	0	47	193
1997	11	70	45	13	0	2	0	0	0	0	45	186
1998	10	82	43	12	2	1	1	1	0	2	122	276
1999	13	74	49	14	2	1	0	0	1	0	81	235
Total	422	1666	656	192	11	19	5	6	3	5	1,263	4,248

Note: Vessels with gross tonnage values equal to zero or greater than 250 were excluded from the analysis.

Table 15
Alaska Peninsula Salmon Drift Gillnet Vessels
Net Tonnage

<i>Year</i>	<i>Mean</i>	<i>Median</i>	<i>Maximum</i>	<i>Minimum</i>	<i>Number Included</i>	<i>Number Excluded</i>
1978	9	8	52	1	108	25
1979	9	8	49	1	119	40
1980	11	9	54	1	134	59
1981	11	10	46	1	134	60
1982	11	10	55	1	145	70
1983	12	10	133	1	150	59
1984	11	10	26	1	134	46
1985	11	11	26	1	135	32
1986	13	11	154	1	153	35
1987	12	11	48	1	155	27
1988	12	11	48	2	154	32
1989	13	11	51	1	157	22
1990	13	11	62	1	167	62
1991	13	12	34	1	158	32
1992	14	12	34	1	155	25
1993	14	12	35	1	147	47
1994	14	12	55	1	154	40
1995	15	13	46	2	150	36
1996	15	14	65	2	152	41
1997	15	14	108	2	147	39
1998	17	13	177	1	163	113
1999	15	14	64	2	159	76

Table 16
Alaska Peninsula Salmon Drift Gillnet Vessels
Number of Vessels by Year and Net Tonnage Category

<i>Year</i>	<i>Net Tonnage Category</i>											<i>Excluded</i>	<i>Total</i>	
	<i>1 - 9</i>	<i>10 - 19</i>	<i>20 - 29</i>	<i>30 - 39</i>	<i>40 - 49</i>	<i>50 - 59</i>	<i>60 - 69</i>	<i>70 - 79</i>	<i>80 - 89</i>	<i>90 - 100</i>	<i>Over 100</i>			
1978	75	26	5	0	1	1	0	0	0	0	0	0	25	133
1979	77	31	9	1	1	0	0	0	0	0	0	0	40	159
1980	73	45	12	2	1	1	0	0	0	0	0	0	59	193
1981	67	52	11	2	2	0	0	0	0	0	0	0	60	194
1982	69	62	12	1	0	1	0	0	0	0	0	0	70	215
1983	68	70	9	2	0	0	0	0	0	0	0	1	59	209
1984	57	66	11	0	0	0	0	0	0	0	0	0	46	180
1985	48	78	9	0	0	0	0	0	0	0	0	0	32	167
1986	50	90	11	0	0	1	0	0	0	0	0	1	35	188
1987	46	94	14	0	1	0	0	0	0	0	0	0	27	182
1988	43	93	17	0	1	0	0	0	0	0	0	0	32	186
1989	43	94	19	0	0	1	0	0	0	0	0	0	22	179
1990	46	95	23	1	1	0	1	0	0	0	0	0	62	229
1991	41	93	21	3	0	0	0	0	0	0	0	0	32	190
1992	39	86	26	4	0	0	0	0	0	0	0	0	25	180
1993	33	83	27	4	0	0	0	0	0	0	0	0	47	194
1994	32	88	29	3	1	1	0	0	0	0	0	0	40	194
1995	28	87	31	3	1	0	0	0	0	0	0	0	36	186
1996	29	87	29	4	2	0	1	0	0	0	0	0	41	193
1997	29	84	27	4	2	0	0	0	0	0	0	1	39	186
1998	29	98	26	4	1	2	0	0	1	0	2	113	276	
1999	29	91	32	5	1	0	1	0	0	0	0	76	235	
Total	1,051	1,693	410	43	16	8	3	0	1	0	6	1,017	4,248	

Note: Vessels with net tonnage values equal to zero or greater than 250 were excluded from the analysis.

Figure 2. Characteristics of vessels participating in the Alaska Peninsula salmon drift gillnet fishery (1978-1999). A) Mean vessel length; B) Mean horsepower; C) Mean gross tonnage; and D) Mean net tonnage.

