

SUMMARY OF COST AND NET RETURN INFORMATION  
FOR THE BRISTOL BAY DRIFT GILL-NET FISHERY

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## INTRODUCTION

The following tables and figures present the results of a survey designed to obtain information on the operating costs of fishermen in the Bristol Bay drift gill-net fishery in 1976, and summarize fishing gross earnings, price and catch information for that fishery from 1969 to 1976. Estimates of catch size were made from fish tickets, and prices were derived from processor's annual reports and estimates by the Commercial Fisheries Entry Commission (CFEC). The operating cost survey was carried out by mail in the late summer and fall of 1977. Two-hundred and forty-three fishermen, or 18% of the 1,370 fishermen who used their permanent or interim-use permits in the Bristol Bay drift gill-net fishery in 1976 provided completed questionnaires. Using this information, average net returns in 1976 were estimated for the total sample fleet as well as for members of the sample falling into four graduated increments of gross earnings. The cost and net return information for the sample fleet is also presented for Bristol Bay residents and non-residents. A pair of tables summarizes the average prices for entry permits from 1975 to the first part of 1978, and outlines the status of permanent and interim-use permits through 1977.

This paper has been prepared to report the survey results to fishermen who responded to the operating cost survey mentioned above. We hope it will be useful to them. The Commission will appreciate any comments or suggestions on the data or on the method of presentation.

OPERATING COSTS

The cost information summarized in Tables 1 and 2 was obtained in the late summer and fall of 1977 with a survey of the drift gill-net fishermen operating in the Bristol Bay area.

Column A of Table 1 lists the average cost in each category for all of the boats sampled (243); the number of responses on which each average is based is listed in parentheses. Columns B-E of Table 1 give the average of the survey responses for all the respondents who grossed \$30,000 or over; \$20,000-29,999; \$10,000-19,999; and under \$10,000, respectively. The cost information summarized in Table 2 lists the average for each cost category for fishermen who were residents of Bristol Bay area and for fishermen who were not residents of the Bristol Bay area in 1976. A comparison of Figure 1 and 2 immediately following the notes to Table 1 and 2 shows 77% of the total Bristol Bay drift gill-net fleet grossed under \$20,000 (figure 1), while 74% of the sampled fleet grossed under \$20,000 (figure 2). This indicates that the sampled drift gillnet fleet is representative of the total fleet with respect to fishing gross earnings of under \$20,000 and over \$20,000. When reviewing the working draft of this report, Mr. Andrew Golia from the Bristol Bay Native Association mentioned that we may not be representative in the lower fishing gross earning increment for the sample fleet due to the fact that questionnaires may have been disregarded, if the fishermen could not understand or read the questions. Many of these fishermen are Yup'ik Eskimo people. This may be the reason the total fleet (figure 1) shows 17.5% of the fishermen made under \$5,000, while the sample fleet shows only 6.6% of the fishermen made under \$5,000 from their drift gill-netting in the Bristol Bay area. Also it was found that the average horsepower for the sample and total Bristol Bay drift gill-net fleet is 141.5 and 155.5, respectively.

In a real sense, the cost of any action is the opportunities for other actions that are given up. The cost of gas or a new leadline is the opportunity of doing something else with the money: buying a new hunting rifle, going to a good restaurant for dinner, or purchasing new buoys for crab pots. In this respect so-called "opportunity costs" are costs like any other, a lost opportunity. Those interested in the amount of "ready cash" available to the average fishermen at the end of the season should use Table A-1 found in the Appendix to this report. Table A-1 does not include any opportunity costs.

Insurance costs and the costs for dues, moorage, administration, vessel repairs, rental/leasing, and depreciation obtained in response to questions on the survey were assumed to be for the operation of the vessel in all of its fisheries. The average fisherman sampled earned 98% of his gross fishing income from salmon drift gill-netting, therefore these costs were prorated according to the proportion of gross earnings that each fishing vessel derived from drift gill-net salmon fishing to determine what part of these costs should be assigned to the drift gill-netting activities. When the respondents to the survey noted that certain costs were shared by their crew, these were deducted in the cost categories.

Please note that interest payments have not been included in Table 1 and 2. The objective of this report is to provide operating cost information to the fishermen so that they may compare their performance with that of others in the fishery. Interest payments vary widely reflecting the unique financial position of each individual fisherman. Therefore to attain comparability of the costs of actual fishing operations, interest is not included as a cost category.

If the purpose of this report was strictly to determine the average net returns to the fishing business including relevant opportunity costs and interest payments, please refer to Table A-2 found in the Appendix to this report.

The notes following Table 2 are essential to an interpretation of the categories and estimates contained in Tables 1 and 2. The average net return may be underestimated due to the reasons mentioned in paragraph 18 and 19 in the notes.

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TABLE 1\*

SUMMARY OF AVERAGE COSTS FOR DRIFT GILL-NET FISHING  
FOR SALMON IN THE BRISTOL BAY AREA IN 1976.

Cost Category	Averages for the Sampled Fleet				
	(A) Total Vessels	(B) Grossed \$30,000 and Over	(C) Grossed \$20,000-29,000	(D) Grossed \$10,000-19,999	(E) Grossed Under \$10,000
1. Insurance	\$ 225 (201)	\$ 467 ( 7)	\$ 348 (46)	\$ 206 ( 88)	\$ 132 (60)
2. Dues	78 (218)	102 ( 9)	78 (47)	78 ( 96)	75 (66)
3. Moorage & Storage	48 (178)	40 ( 6)	50 (38)	68 ( 72)	24 (62)
4. Administration	253 (199)	339 ( 7)	396 (40)	246 ( 90)	160 (62)
5. Vessel Repairs	774 (221)	899 ( 9)	940 (50)	809 ( 94)	588 (68)
6. Depreciation	626 (229)	772 (10)	938 (49)	657 ( 97)	355 (73)
7. License Fees	107 (243)	109 (10)	105 (53)	108 (104)	106 (76)
8. Fuel	295 (231)	423 (10)	418 (52)	276 ( 99)	213 (70)
9. Galley Expenses	274 (208)	474 ( 8)	357 (43)	272 ( 90)	200 (67)
10. Gillnetting Equip- ment Repairs	509 (162)	1,198 ( 7)	610 (36)	477 ( 67)	478 (52)
11. Borough Fish Tax	247 (137)	342 ( 6)	327 (26)	280 ( 58)	154 (47)
12. Travel & Freight	448 (210)	409 ( 8)	647 (44)	410 ( 88)	376 (70)
13. Special Clothes	123 (221)	123 ( 9)	148 (49)	127 ( 95)	115 (68)
14. Rental & Leasing	484 (151)	223 ( 7)	650 (34)	622 ( 56)	271 (54)
15. Crewshare	4,804 (238)	8,579 (10)	8,462 (53)	4,498 (101)	2,091 (74)
16. Opportunity Cost of Investment	1,372 (219)	1,754 ( 9)	1,979 (49)	1,411 ( 91)	847 (70)
17. Opportunity Cost of Holding a Permit	304	304	304	304	304
18. TOTAL COSTS	\$10,971	\$16,557	\$16,757	\$10,849	\$ 6,489
19. Average Gross Earnings	\$15,143 (243)	\$36,245 (10)	\$24,031 (53)	\$14,459 (104)	\$ 6,817 (76)
20. NET RETURN TO LABOR AND MANAGEMENT	\$ 4,172	\$19,688	\$ 7,274	\$ 3,610	\$ 328

\*Does not include Interest payments.

Source: 1977 Bristol Bay Drift Gill-net Operating Cost Survey, conducted by Commercial Fisheries Entry Commission; CFEC 1976 Gross Earnings by ADF&amp;G by specific salmon species dated 12/78; Table 4.

TABLE 2\*

SUMMARY OF AVERAGE COSTS AND NET RETURNS  
FOR THE BRISTOL BAY AREA DRIFT GILL-NET  
FISHERY BY RESIDENT OR NON-RESIDENT  
OF BRISTOL BAY IN 1976.

	Averages for the Sampled Fleet	
	Resident of Bristol Bay	Non-Resident of Bristol Bay
1. Insurance	\$ 170 (77)	\$ 259 (124)
2. Dues	53 (82)	93 (136)
3. Moorage	50 (72)	47 (106)
4. Administration	187 (75)	292 (124)
5. Vessel Repairs	954 (85)	662 (136)
6. Depreciation	567 (86)	661 (143)
7. License Fees	66 (94)	134 (149)
8. Fuel	380 (89)	242 (142)
9. Galley Expenses	335 (76)	239 (132)
10. Gillnetting Equip- ment Repairs	510 (62)	503 (101)
11. Borough Fish Tax	102 (54)	334 ( 83)
12. Travel & Freight	294 (68)	523 (142)
13. Special Clothes	133 (83)	121 (138)
14. Rental & Leasing	282 (60)	618 ( 91)
15. Crewshare	4,815 (92)	4,790 (146)
16. Opportunity Cost of Investment	1,228 (84)	1,461 (135)
17. Opportunity Cost of Holding an Entry Permit	304	304
18. TOTAL COSTS	\$10,430	\$11,283
19. Average Gross Earnings	\$15,622 (94)	\$14,841 (149)
20. NET RETURN TO LABOR AND MANAGEMENT	\$ 5,192	\$ 3,558

\* Excludes interest payments. The average interest payments for the residents and non-residents of the sampled Bristol Bay drift gill net fleet are \$109 and \$144 respectively.

Source: CFEC Alpha List dated 2/1/78; CFEC 1977 Bristol Bay Drift Gill Net Operating Cost Survey, and CFEC 1976 Gross Earnings by ADF&G by specific salmon species dated 12/3/78.

INFORMATION ON THE DIFFERENT COST CATEGORIES USED IN TABLES 1 AND 2.

1. This cost category consists of insurance payments
2. This cost category consists of union and association dues.
3. This category includes moorage and storage charges and moorage related utility charges.
4. Administrative costs include costs such as telephone, legal services, bookkeeping, bank charges, and property taxes, but did not include interest charges and repayments on loans for purchase of the vessel or gear. One of the interviewers working for the Entry Commission on this survey in the Prince William Sound area reported that the fishermen being interviewed there sometimes had trouble thinking of the type of costs that went to make up this category, and questions from the interviewer were necessary to obtain the information. In a mail survey this prompting would have been unavailable, and the administrative costs might have been underestimated.
5. This category includes vessel and engine repairs, and repairs to gear such as anchors, lines and electronics. It was found from 220 questionnaires with responses that 14 years was the average age of the vessel used by these fishermen.
6. Depreciation was based on the vessels' market value and was calculated using the straight line method over 15 years, assuming that the vessel would have no resale value. The depreciation was calculated for the vessel, which is a long-lived asset, but not for the drift gill-net fishing gear. If it was noted on the survey response that the vessel was owned by a processor/cannery, a zero value was used for the depreciation cost of that vessel. Based on 202 questionnaires with responses, it was found that the average 1976 market value of the vessel for the five gross earning increment groups (columns A-E) shown in Table 1 was: \$10,535; \$13,661; \$10,591, and \$6,438 respectively.
7. This cost was not taken from the survey responses, but was estimated for each fisherman on the assumption that one vessel license, one gear license, one commercial license and one entry permit would be required for the operation of each vessel. The vessel and commercial license costs were prorated among the various fisheries in which the vessel was operated. Distinctions were made between the costs for resident and non-resident licenses and between permit fees for poverty level and non-poverty level permit holders. It was assumed that the cost of commercial and gear licenses for crewmembers were borne by the crewmembers themselves and did not enter into the costs of the vessel operator. The cost of an entry permit was assumed to be its renewal fee.



INFORMATION ON THE DIFFERENT COST CATEGORIES USED IN TABLES 1 AND 2 (CONT.)

8. This category includes the costs of fuel and engine lubricants.
9. This category includes the galley expenses.
10. This category includes the costs involved in purchase of and repairs to drift gill-net gear. Based on 200 questionnaires with responses, it was found that the average market value of drift gill-net gear for the five gross earning increment groups (column A-E) shown in Table 1 was \$2,411; \$3,367; \$3,085; \$2,226, and \$1,603 respectively. Also from the 200 respondents grouped by resident or non-resident of Bristol Bay, (Table 2) the average market value of drift gill-net gear was \$2,231 and \$2,393 respectively.
11. This category includes the borough fish tax assessment taken from the survey response.
12. This category includes the costs of travel and freight.
13. This category includes the costs of special items of clothing.
14. This category includes the costs of renting or leasing the vessel or gear. It was found from 243 questionnaires with responses that 11% were vessels owned by processors.
15. This category consists of payments to crewmembers. On the basis of the responses received it was found that an average of 1 crewmember per vessel was used in addition to the operator in the Bristol Bay drift gill-net fishery. From 238 questionnaires with responses it was found that 31% was the average percent of gross earnings paid to crewmembers.
16. The opportunity cost of investment was calculated at a 12% yearly rate over a year on the market value of the vessel and drift gill-net gear. The market values on the survey were assumed to be the market values in 1977, the year the survey was conducted and were discounted by 6% to obtain an estimate of the market values in 1976. The value of the vessel was prorated according to the percentage of the gross earnings earned with that vessel in the salmon drift gill-net fishery. It was assumed that if the vessel was owned by a processor, the investment cost was zero for that vessel.
17. The Entry Commission asks everyone buying or selling an entry permit to indicate the price at which the transfer is made. This survey of permit transfer prices is voluntary, and the responses are kept completely anonymous. The opportunity cost of owning a permit is assumed to be 12% of \$2,536. That price, estimated from the permit transfer survey responses, was the average value of permits sold during 1976. In November and December of 1976 after the referendum election on Limited Entry, the value of a Bristol Bay drift gill-net permit rose to \$3,332, implying that the average price of the whole year was undervalued due to uncertainty about

INFORMATION ON THE DIFFERENT COST CATEGORIES USED IN TABLES 1 AND 2 (CONT.)

the election. (For more information on entry permit prices turn to Table 4.

18. Total costs is the sum of all cost categories (1-17). Since the survey was conducted through the mail, it was impossible to make sure that each fisherman answered every question. Whenever a blank occurred instead of an answer, that item on the questionnaire involved was ignored for the purpose of computing the average cost. For each cost category the number of responses used is in parenthesis next to the average. Since the total number of questionnaires is always in parentheses next to the average gross earnings, the number of blanks for each question can be readily computed. Note that this method of dealing with blanks gives an upward bias to the estimates of average costs since some the answers that were left blank could in fact be zero's.
19. These are the average gross earnings of those responding to the survey. None of the average gross earnings figures are based on information derived from the survey, but instead on information available to the Commission from fish tickets and estimates of average prices shown in Table 6 and 7. The average gross earnings does not include bonuses, or in-kind payments. This information is unavailable but it should be noted that the average gross earnings is higher than is shown in this report. It was found from 123 questionnaires with responses that 16% of the fishermen received a bonus. From this study and a survey that was done in 1974<sup>1</sup> by CFEC the data indicates that the average bonus for the 123 fishermen was close to 1% of their gross earnings.
20. Care is required in interpreting the "Net Return to Labor and Management" line. This could be a very good or very poor return depending on the amount of effort spent during the season. Some insight into the amount of effort spent during the season can be obtained by estimating the number of separate days or weeks on which a fisherman made landings with his boat. In the following estimates, multiple landings made on one day or during one week are counted as one day or one week of landings. Using this measure of effort, landings were made from the vessels surveyed on an average of:

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CFEC "Cost and Earnings of Alaskan Fishing Vessels - An Economic Survey" by James Owers, September 1974.

INFORMATION ON THE DIFFERENT COST CATEGORIES USED IN TABLES 1 AND 2 (CONT.)

<u>Sample Fleet</u>	<u>Number of Observations</u>	<u>Average Number of Separate Days or Weeks On Which Landings Were Made</u>					
		<u>Total Weeks</u>	<u>Days</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>
TOTAL	243	4.9	13				
Grossing \$30,000 and Over	10	7.4	23				
Grossing \$20,000-\$29,999	53	6.0	16				
Grossing \$10,000-\$19,999	104	4.9	14				
Grossing \$1-\$9,999	76	3.7	9				
Resident of Bristol Bay	94	6.0	16	3.8	10.8	1.1	0.1
Non-resident of Bristol Bay	149	4.2	11	1.7	9.2	0.3	0.0
<u>Total Bristol Bay Drift Gill-Net Fleet</u>							
TOTAL	1,444	4.4	11				

Source: CFEC 1976 Vessel Multiple Listing dated 12/28/78.

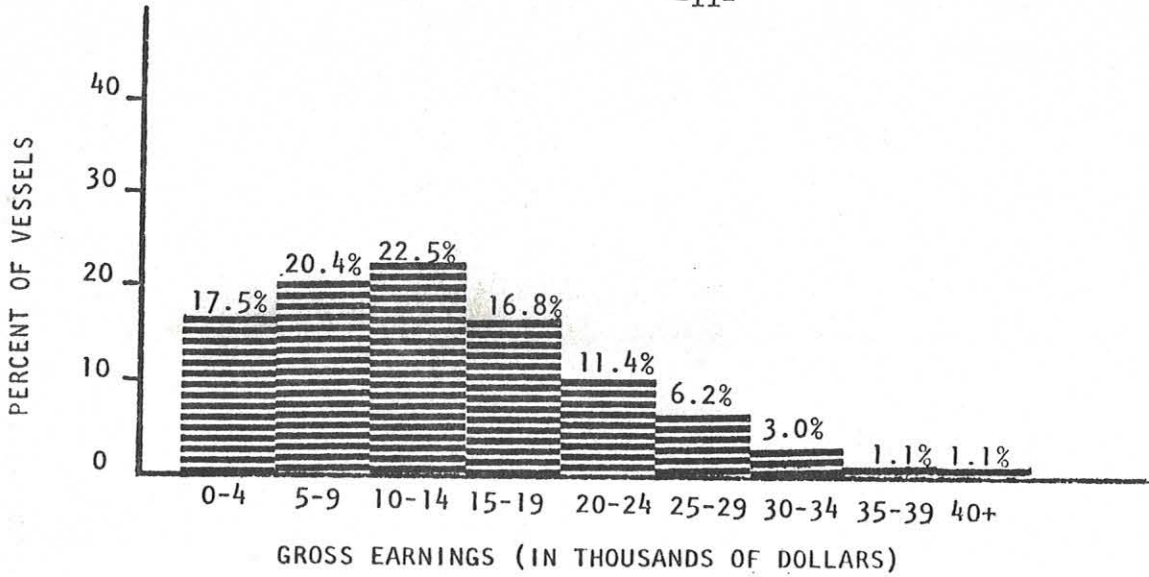


Figure 1.-Percent of the total Bristol Bay drift gill-net fleet per gross earning increments for salmon catch for 1976. (Based on 1444 vessels)

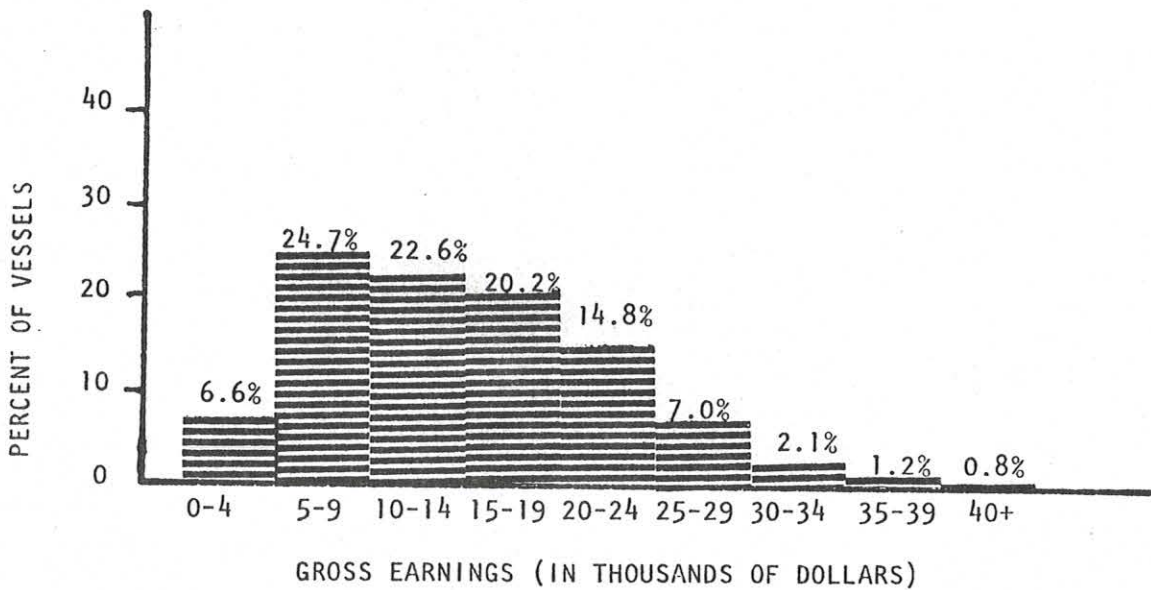


Figure 2.-Percent of the sampled Bristol Bay drift gill-net fleet per gross earning increments for salmon catch for 1976. (Based on 243 vessels)

Source: 1977 Bristol Bay Drift Gill-net Operating Cost Survey, conducted by Commercial Fisheries Entry Commission (CFEC); CFEC 1976 Vessel Multiple Listing dated 12/28/78.

ENTRY PERMITS STATUS AND PRICES

The following table presents some of the important statistics on permit status in the Bristol Bay Drift Gill-net Fishery.

TABLE 3

STATUS OF SALMON DRIFT GILLNET ENTRY PERMITS IN  
THE BRISTOL BAY MANAGEMENT AREA, 1974-1977

Year	Number of Permits				Percent of Total Permits Used To Land Fish
	Permanent	Interim-Use	Total	Used to Land Fish	
1974	0	872	872	*	*
1975	1416	645	2061	1253	60.8%
1976	1621	99	1720	1370	80.0%
1977	1663	65	1728	1355	78.4%

\*Data not available.

Source: CFEC "Number of Permits Fished by Year by Fishery", special computer run data March 1978, for 1977 it was run on December, 1978; CFEC Permit status computer generated files dated December 31st for each of the appropriate years; and CFEC Fishery List dated June, 1978 for 1975-1977.

Estimates of the average prices paid for drift gillnet entry permits around the stat are listed in Table 4. These prices, obtained from the survey of fishermen buying or selling permits mentioned earlier, are averages of the prices which people who bought permits said they paid. The number of individuals who bought permits and who responded to our voluntary survey with price information are given in parentheses. These price estimates have not been converted into constant 1976 dollars.

TABLE 4

COMPARISON OF ALASKA DRIFT GILL-NET ENTRY PERMIT PRICES  
BY AREA. AVERAGE PRICE ESTIMATES FOR 1975-1978.

Area	1975	Average Price For:			1978*	1978* Prices Most Frequently Paid
		1976	1977	1978*		
Southeastern	\$9,625 (28)	\$10,212 (12)	\$16,261 (21)	\$34,604 (24)	\$40,000	
Prince Wm. Sound	3,089 (9)	4,406 (16)	13,750 (28)	27,742 (25)	\$25,000	
Cook Inlet	3,911 (9)	5,552 (29)	10,832 (26)	36,825 (20)	\$45,000	
Peninsula-Aleutians	*	6,333 (3)	10,285 (7)	15,000 (5)	N/A	
Bristol Bay	1,165 (16)	2,536 (25)	6,440 (53)	21,638 (77)	\$25,000	

\*No estimate can be made.

Source: Survey conducted by the CFEC of individuals buying and selling permits; data compiled by Elizabeth Stewart of the CFEC Research Staff.

The gross earnings by species of salmon for each year in Table 5 were estimated using the adjusted salmon prices (adjusted to constant 1976 dollars)<sup>2</sup> in Table 8, and the total yearly catch figures in Table 10. The total gross earnings in Table 6 are drawn from Table 5. Table 5 shows that between 1969 and 1976 gross earnings made from the red salmon catch was highest in 1970; for pink salmon it was highest in 1974, for chum salmon 1976, for coho salmon 1975, and gross earnings made from the king salmon catch was highest in 1971.

The average gross earnings in Table 6 are obtained using estimates of the total number of vessels making landings. The average gross earnings per permit holder who made landings has also been calculated in Table 6 for 1975 and 1976 (shown in parenthesis). Prior to 1975 this data was not available since commercial license numbers were not required on fish tickets; since that time Limited Entry permit numbers have been required and the data for gross earnings by entry permit holders is available from 1975. Table 6 shows (for all species of salmon) that the average gross earnings by vessel was at its highest in 1970 with 1971 following. This is due more to variations in pounds caught in the specified years than to price increases.

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The method used to convert the price received by fishermen into constant 1976 dollars is outlined in the Appendix to this report.

TABLE 5

TOTAL GROSS EARNINGS IN THE BRISTOL BAY MANAGEMENT AREA  
DRIFT GILL-NET FISHERY BY SPECIES FOR 1969-1976,  
EXPRESSED IN CONSTANT 1976 DOLLARS

Gross Earnings in Constant 1976 Dollars					
Year	King	Red	Coho	Pink	Chum
1969	\$833,085	\$14,742,596	\$122,372	\$ 1,096	\$ 383,531
1970	828,977	40,264,450	16,563	209,057	609,129
1971	916,292	22,388,101	17,805	138	768,693
1972	486,698	6,756,978	30,961	55,271	280,769
1973	411,182	3,697,955	120,879	332	1,223,537
1974	572,440	4,057,494	118,602	1,018,927	665,730
1975	215,648	10,205,648	131,906	362	591,176
1976	755,003	15,427,007	52,056	979,060	2,708,699

Source: Tables 8 and 10.



TABLE 6

TOTAL AND AVERAGE GROSS EARNINGS IN THE BRISTOL BAY AREA  
 DRIFT GILL-NET FISHERY BY YEAR (1969-1976)  
 EXPRESSED IN CONSTANT 1976 DOLLARS

Year	Total Fishing Gross Earnings	Number of Different Vessels Making Landings	Average Gross Earnings Per Vessel
1969	\$16,082,680	1,674	\$9,607
1970	41,928,176	1,723	24,334
1971	24,091,029	1,718	14,023
1972	7,610,677	1,544	4,929
1973	5,453,885	1,291	4,225
1974	6,433,193	788	8,164
1975	11,144,740	1,376 (1,253)*	8,099 (\$8,894)**
1976	19,921,825	1,444 (1,370)*	13,796 (14,541)**

\*Figure in parenthesis represents number of separate entry permits which were used to make landings in the Bristol Bay Management area in this year.

\*\*Figure in parenthesis represents the average gross earnings per permit holder who made landings in this year.

Source: Table 5; CFEC "Catch Data Tabulation from Gross Earning File" prepared 11/17/78; CFEC "Number of Permits Fished by Year by Fishery" computer generated for 1975-1977 prepared March 1978.

EX-VESSEL PRICES, 1969-1976

The estimated prices<sup>3</sup> received by the fishermen, shown in Table 7 and Figure 3(a-e), show a consistent pattern across all species. Prices were fairly stable between 1969 and 1972, rose rapidly in 1973 and 1974, fell during 1975, and then rebounded in 1976.

In Table 8 and Figure 4(a-e), the salmon prices have been adjusted into constant 1976 dollars to eliminate the impact of inflation. The price increases in this table and figure are not due to price inflation in the U.S. economy during this period, but to an increase in prices paid to fishermen for salmon relative to prices for other goods. Figure 4 shows that the price for each of the five species of salmon, expressed in constant dollars, has increased over the past eight years. The pattern of price changes has not changed much by inflating the years 1969 to 1975. For most of the species there is a distinct change in the level of prices in 1973; prices are substantially higher between 1973 and 1976 than they were between 1969 and 1972.

The price increases over the past eight years were not unique to the Bristol Bay salmon drift gill-net fishery, but occurred in other salmon producing areas of the state as well. Prices in Cook Inlet and Prince William Sound for drift gill-net caught salmon also show the same general upward trend, with a decline in 1975, and recovery in 1976.

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The price per pound does not include bonuses, or in-kind payments.

TABLE 7

PRICES IN CENTS PER POUND, ROUND WEIGHT, TO THE FISHERMEN FOR DRIFT GILL-NET CAUGHT SALMON IN THE BRISTOL BAY MANAGEMENT AREA FROM 1969-1976

Year	King	Red	Coho	Pink	Chum
1969	19	24	18	11	11
1970	18	24	18	11	11
1971	22	26	20	12	12
1972	22	27	20	12	12
1973	31	35	30	17	19
1974	50	49	39	27	31
1975	40	40	38	28	30
1976	49	50	41	31	32

Source: Estimates by the CFEC, State of Alaska

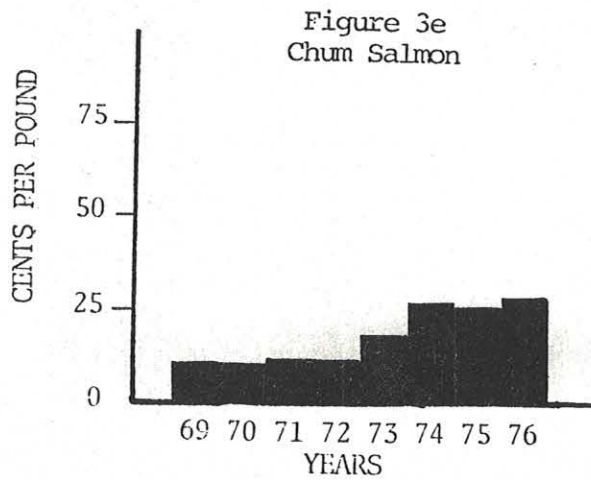
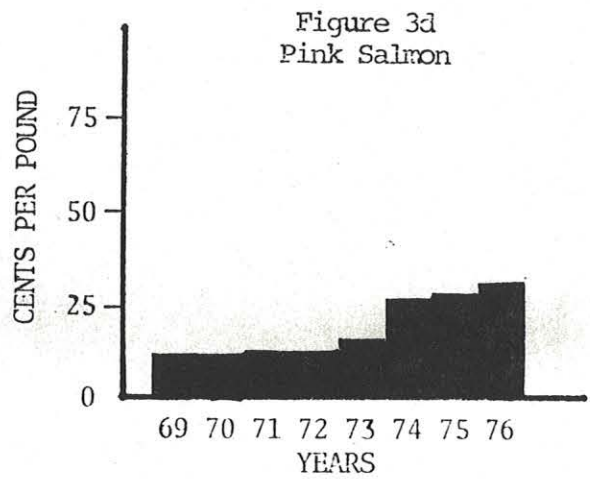
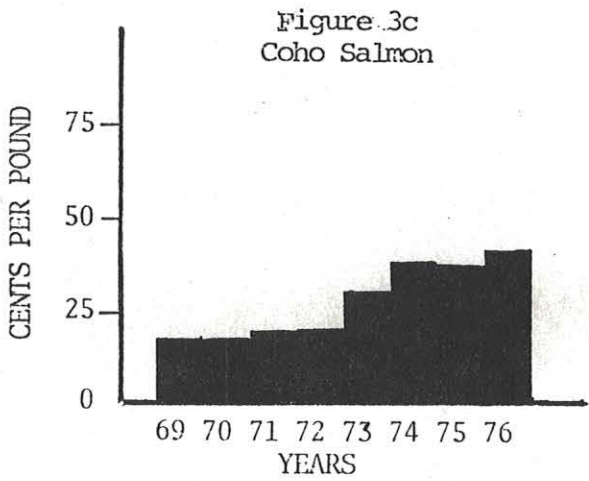
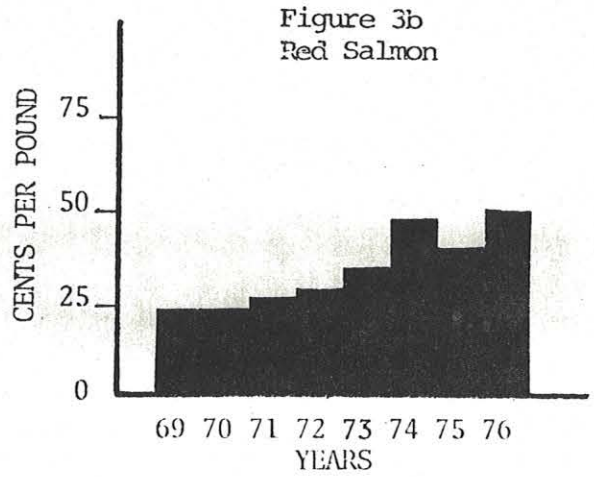
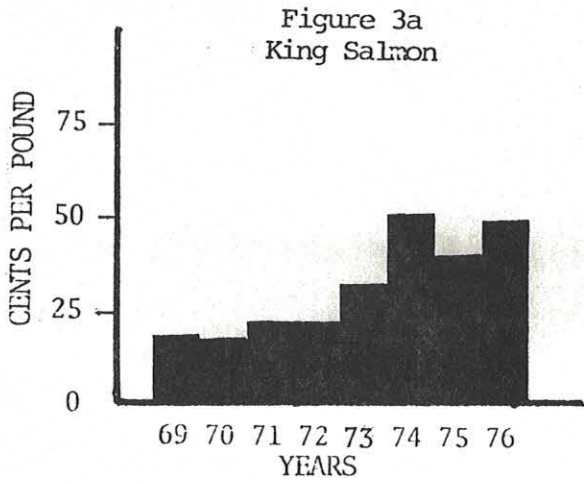


Figure 3(a-e).--Prices in Cents per Pound in the Round to the Fishermen for Drift Gill-net Caught Salmon in the Bristol Bay Area, 1969-1976.

TABLE 8

PRICES IN CENTS PER POUND, ROUND WEIGHT, TO THE FISHERMEN FOR DRIFT GILL-NET CAUGHT SALMON IN THE BRISTOL BAY MANAGEMENT AREA FROM 1969-1976. ADJUSTED INTO CONSTANT 1976 DOLLARS USING THE WHOLESALE PRICE INDEX FOR ALL COMMODITIES.

Adjusted into Constant 1976 Dollars					
Year	King	Red	Coho	Pink	Chum
1969	33	41	31	19	19
1970	30	40	30	18	18
1971	35	42	32	19	19
1972	34	41	31	18	18
1973	42	48	41	23	26
1974	57	56	45	31	35
1975	42	42	40	29	31
1976	49	50	41	31	32

Source: Table 7; U.S. Department of Labor Wholesale Price Index for all commodities, 1967=100.

Figure 4a  
King Salmon

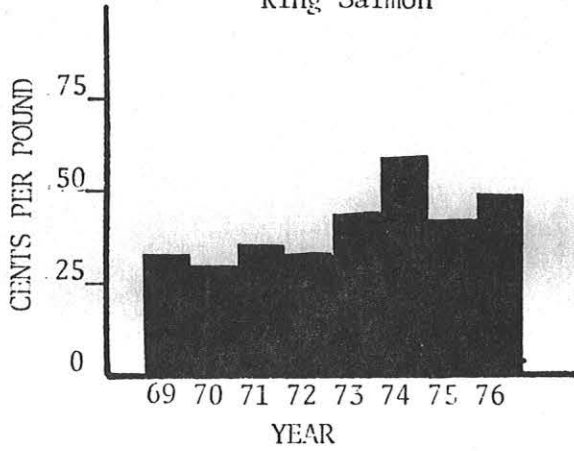


Figure 4b  
Red Salmon

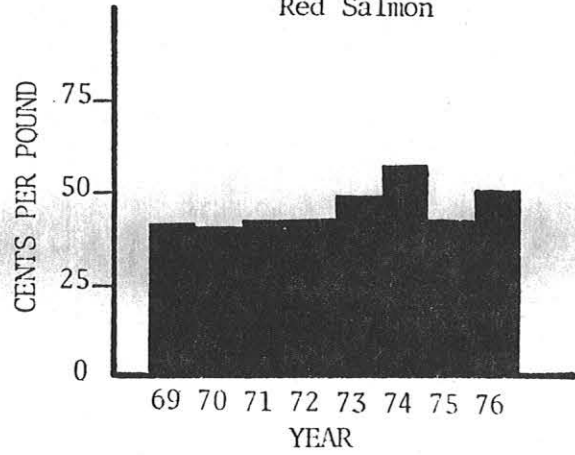


Figure 4c  
Coho Salmon

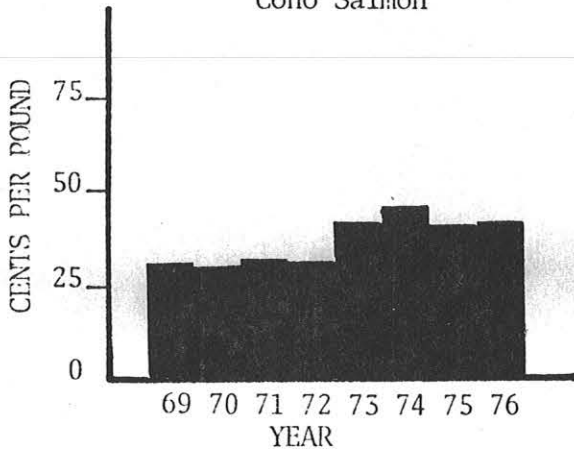


Figure 4d  
Pink Salmon

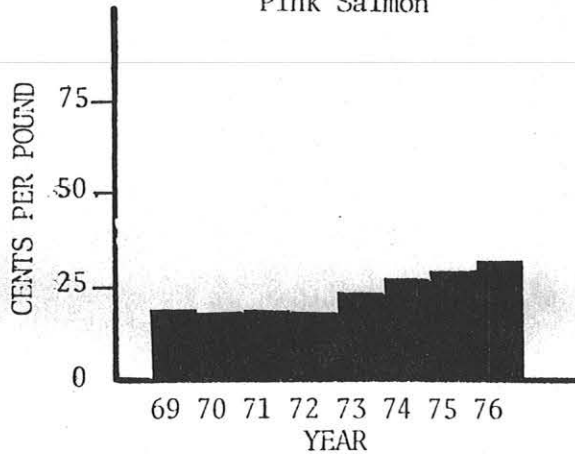


Figure 4e  
Chum Salmon

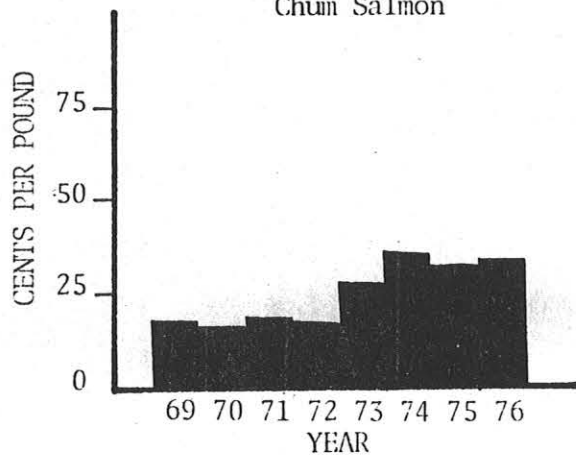


Figure 4(a-e).-Prices in Cents per Pound, Round Weight, to the Fishermen for Drift Gill-net Caught Salmon in the Bristol Bay Management Area from 1969-76. Adjusted into Constant 1976 Dollars Using the Wholesale Price Index for All Commodities.

CATCH BY SPECIES IN POUNDS, 1969-1977

The information in the following tables and figures is based on catch information from fish tickets, summarized in computer printouts from CFEC. Table 9 shows the monthly distribution of total pounds each species of salmon harvested by the total Bristol Bay drift gill-net fleet from 1969-1977, while Table 10 and Figure 5(a-e) show the yearly catch patterns and trends clearly. It was found for the sampled fleet that during July, fishermen who were residents of Bristol Bay fished an average of 11 days while the non-resident fishermen fished an average of 9 days. Combining June, August and September the average number of separate days fished was 5 days for residents and 2 days for non-resident fishermen of Bristol Bay. This difference in the average number of days by month is due to the fact that non-resident fishermen are in the Bay for a short time to fish the peak of the red salmon run, while the resident fishermen of Bristol Bay focus on all species of salmon over a longer period of time, as is shown in Table 11.

TABLE 9

MONTHLY DISTRIBUTION OF TOTAL POUNDS BY EACH SPECIES OF  
SALMON HARVESTED BY THE DRIFT GILLNET FLEET  
IN THE BRISTOL BAY MANAGEMENT AREA  
1969-1977

<u>KING SALMON</u>				
<u>Year</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>Other**</u>
1969	1,527,129	959,647	1,805	35,920
1970	2,113,167	645,127	2,259	2,702
1971	1,817,076	796,317	4,562	21
1972	1,085,612	342,539	2,729	586
1973	795,630	159,908	3,789	19,677
1974	821,024	174,407	1,280	7,570
1975	284,374	227,734	1,299	41
1976	1,089,228	447,812	6,756	1,507
1977*	2,426,160	436,258	1,609	4,830
<u>RED SALMON</u>				
1969	6,213,169	29,716,989	18,181	9,211
1970	31,936,680	68,686,893	24,588	12,964
1971	4,940,718	48,238,998	119,547	5,740
1972	5,116,803	10,893,936	72,774	4,529
1973	1,837,155	5,780,159	86,704	55
1974	180,991	7,004,811	59,651	72
1975	67,008	24,105,999	125,115	1,059
1976	3,005,483	27,903,158	86,717	12,247
1977*	6,966,859	29,788,914	118,578	4,583
<u>COHO SALMON</u>				
1969	6	53,000	271,428	70,313
1970	0	19,286	35,923	0
1971	0	17,060	38,581	0
1972	15	7,803	78,720	13,537
1973	0	57,350	183,106	54,370
1974	30	31,330	192,516	39,883
1975	0	6,781	218,301	104,682
1976	0	8,200	75,031	44,111
1977*	2,123	136,621	446,619	138,023
<u>PINK SALMON</u>				
1969	382	5,308	77	4
1970	180	1,098,203	63,044	0
1971	26	669	30	0
1972	212	266,464	40,386	0
1973	224	1,202	19	0
1974	1,891	2,805,815	479,156	0
1975	0	1,148	97	4
1976	3,205	2,534,778	630,850	4,667
1977*	233	22,973	2,022	151
<u>CHUM SALMON</u>				
1969	40,898	1,876,148	101,267	271
1970	1,097,345	2,249,843	29,656	7,205
1971	370,152	3,427,241	243,507	4,851
1972	30,448	1,297,364	232,014	0
1973	372,560	3,960,239	372,992	122
1974	63,814	1,774,843	63,361	67
1975	385	1,792,954	113,679	0
1976	2,363,947	5,962,263	162,216	1,092
1977*	188,537	2,491,122	241,034	6,467

\*Preliminary figures

\*\*The majority of the catch was made in May and September.

Source: CFEC, "1976 Catch Data Tabulation from Gross Earning File; Computer printout dated 4/10/78, R01-03B-4550, for the specified years. For 1976-77 this printout is dated 12/31/78.



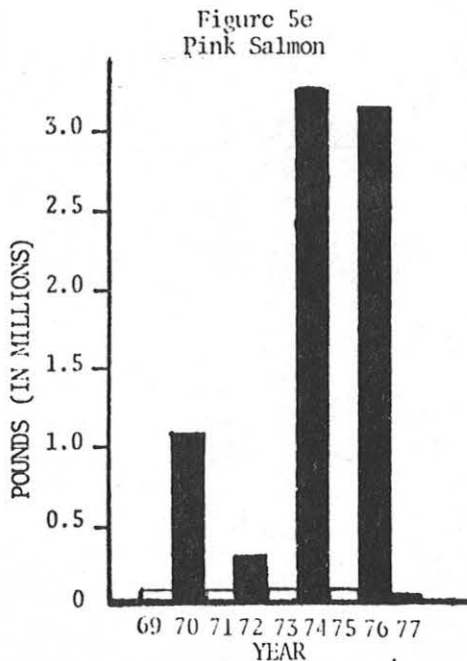
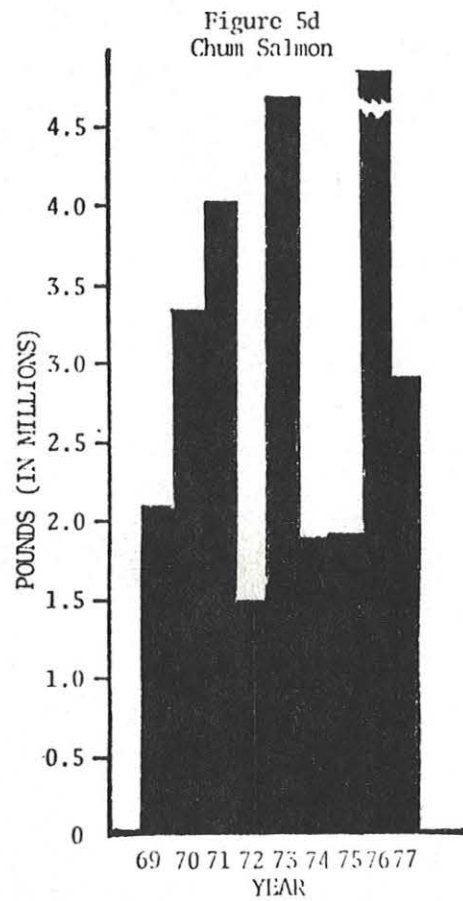
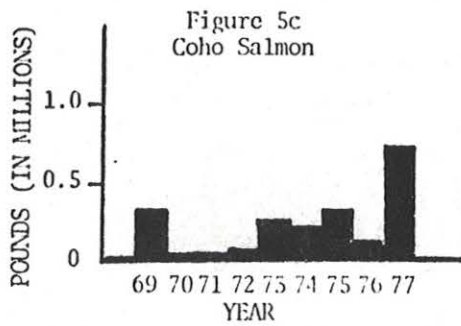
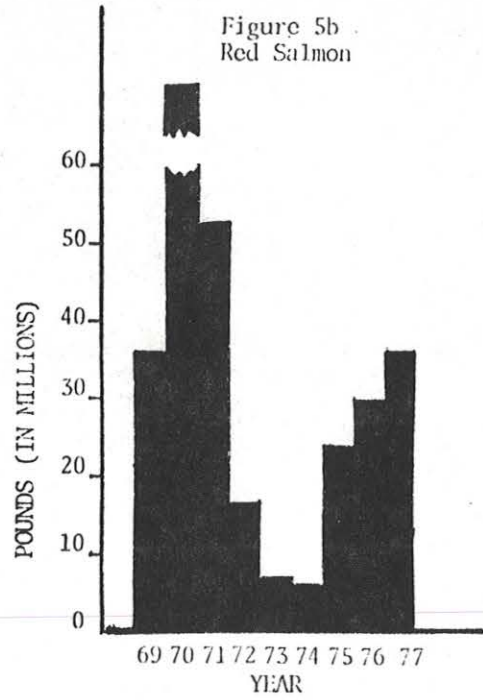
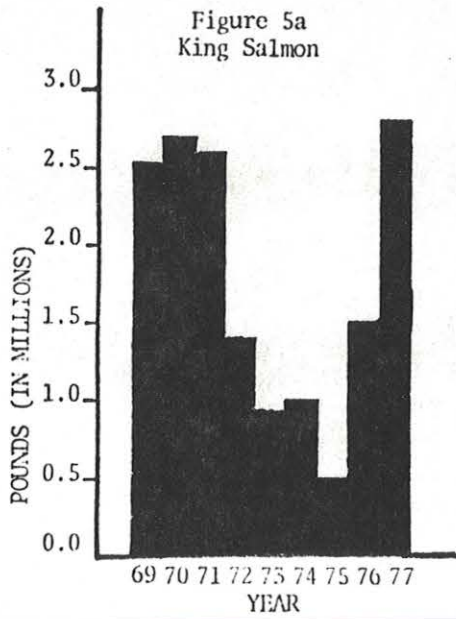
TABLE 10

TOTAL CATCH IN POUNDS BY YEAR FOR EACH SPECIES OF SALMON  
HARVESTED WITH DRIFT GILL-NET GEAR IN THE BRISTOL BAY  
MANAGEMENT AREA, 1969-1977

Year	King	Red	Coho	Pink	Chum
1969	2,524,501	35,957,550	394,747	5,771	2,018,584
1970	2,763,255	100,661,125	55,209	1,161,427	3,384,049
1971	2,617,976	53,305,003	55,641	725	4,045,751
1972	1,431,466	16,088,042	99,875	307,062	1,559,826
1973	979,004	7,704,073	294,826	1,445	4,705,913
1974	1,004,281	7,245,525	263,559	3,286,862	1,902,085
1975	513,448	24,299,161	329,764	1,249	1,907,018
1976	1,540,822	30,854,014	126,967	3,158,260	8,464,683
1977*	2,868,857	36,878,934	723,386	25,379	2,927,160

\*Preliminary figures.

Source: Table 9 (but less 198,525 total pounds of salmon for 1976). This is due to fish ticket errors with gear codes. Table 10 reflects the corrected pounds, while Table 9 does not.



□ = Pounds too small for measurement on this scale.

Figure 5(a-e).-Total Catch of Salmon with Drift Gill-net Gear in The Bristol Bay Area by Species and Year, 1969-1977.

TABLE 11

1976 TOTAL AND AVERAGE CATCH IN POUNDS BY SPECIES OF SALMON  
FOR THE BRISTOL BAY DRIFT GILL-NET SAMPLED FLEET  
BY RESIDENT AND NON-RESIDENT OF BRISTOL BAY

1976 Catch in Pounds by the Sampled Fleet:

Species of Salmon	Resident of Bristol Bay (94 Vessels)		Non-Resident of Bristol Bay (149 Vessels)	
	Total Catch	Average Catch	Total Catch	Average Catch
King	202,499	2,154	96,897	650
Red	2,014,587	21,432	3,673,565	24,655
Coho	18,818	200	6,330	42
Pink	227,040	2,415	304,963	2,047
Chum	886,997	9,436	718,304	4,821

Source: CFEC 1976 Gross Earnings by ADF&G by Specific Salmon Species, dated 12/3/78.

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A P P E N D I X

### METHOD OF PRICE ADJUSTMENT

The prices received by the fishermen in any particular year (these are given in Table 7) were inflated by a factor designed to express them in 1976 dollars (shown in Table 8). The "inflation factor" for each year was obtained using the U.S. Department of Labor's Wholesale price index for all commodities. The index for the year whose price it was desired to inflate was subtracted from the index for 1976. The percentage increase in the index was then determined and the price was inflated by that percentage.

The multiplier for 1969 was calculated by finding that the difference between the indices 1969=106.5 and 1976=182.9 was 76.4. The difference meant a 71.4% increase in the index between 1969 and 1976. The multiplier for 1969 was therefore 1.717. The king salmon price received by the fishermen in 1969 was .19, the inflated price was (1.717)(.19) or .326.

The following table shows the work involved in calculating the inflation factors.

Year <sub>i</sub>	WPI <sub>i</sub> *	WPI <sub>76</sub> - WPI <sub>i</sub>	% change in WPI between year <sub>i</sub> and 1976	Inflation multiplier for year <sub>i</sub>
69	106.5	76.4	71.74	1.717
70	110.4	72.5	65.67	1.657
71	113.9	69.0	60.58	1.606
72	119.1	63.8	53.57	1.536
73	134.7	48.2	35.78	1.358
74	160.1	22.8	14.24	1.142
75	174.9	8.0	4.57	1.046
76.	182.9	0.0	0.0	0.000

\*for all commodities, 1967=100

Source: U.S. Department of Labor.

TABLE A-1

SUMMARY OF AVERAGE COSTS (Excluding Opportunity Costs) FOR DRIFT GILLNET  
FISHING FOR SALMON IN THE BRISTOL BAY AREA IN 1976.

Cost Category	Averages for the Sampled Fleet				
	(A) Total Vessels	(B) Grossed \$30,000 and Over	(C) Grossed \$20,000-29,000	(D) Grossed \$10,000-19,999	(E) Grossed Under \$10,000
1. Insurance	\$ 225 (201)	\$ 467 ( 7)	\$ 348 (46)	\$ 206 ( 88)	\$ 132 (60)
2. Dues	78 (218)	102 ( 9)	78 (47)	78 ( 96)	75 (66)
3. Moorage & Storage	48 (178)	40 ( 6)	50 (38)	68 ( 72)	24 (62)
4. Administration	253 (199)	339 ( 7)	396 (40)	246 ( 90)	160 (62)
5. Vessel Repairs	774 (221)	899 ( 9)	940 (50)	809 ( 94)	588 (68)
6. Depreciation	626 (229)	772 (10)	938 (49)	657 ( 97)	355 (73)
7. License Fees	107 (243)	109 (10)	105 (53)	108 (104)	106 (76)
8. Fuel	295 (231)	423 (10)	418 (52)	276 ( 99)	213 (70)
9. Galley Expenses	274 (208)	474 ( 8)	357 (43)	272 ( 90)	200 (67)
10. Gillnetting Equip- ment Repairs	509 (162)	1,198 ( 7)	610 (36)	477 ( 67)	478 (52)
11. Borough Fish Tax	247 (137)	342 ( 6)	327 (26)	280 ( 58)	154 (47)
12. Travel & Freight	448 (210)	409 ( 8)	647 (44)	410 ( 88)	376 (70)
13. Special Clothes	123 (221)	123 ( 9)	148 (49)	127 ( 95)	115 (68)
14. Rental & Leasing	484 (151)	223 ( 7)	650 (34)	622 ( 56)	271 (54)
15. Crewshare	4,804 (238)	8,579 (10)	8,462 (53)	4,498 (101)	2,091 (74)
16. Interest Payments	129 (135)	215 ( 6)	316 (32)	80 ( 49)	48 (48)
17. TOTAL COSTS	\$ 9,424	\$14,714	\$14,790	\$ 9,214	\$ 5,386
18. Average Gross Earnings	\$15,143 (243)	\$36,245 (10)	\$24,031 (53)	\$14,459 (104)	\$ 6,817 (76)
19. NET RETURN TO LABOR AND MANAGEMENT	\$ 5,719	\$21,531	\$ 9,241	\$ 5,245	\$ 1,431

Source: 1977 Bristol Bay Drift Gill-net Operating Cost Survey, conducted by Commercial Fisheries Entry Commission; CFEC 1976 Gross Earnings by ADF&G by specific salmon species dated 12/78; Table 4.

TABLE A-2

SUMMARY OF AVERAGE COSTS (Including Interest) FOR DRIFT GILL-NET  
FISHING FOR SALMON IN THE BRISTOL BAY AREA IN 1976.

Cost Category	Averages for the Sampled Fleet				
	(A) Total Vessels	(B) Grossed \$30,000 and Over	(C) Grossed \$20,000-29,000	(D) Grossed \$10,000-19,999	(E) Grossed Under \$10,000
1. Insurance	\$ 225 (201)	\$ 467 (7)	\$ 348 (46)	\$ 206 (88)	\$ 132 (60)
2. Dues	78 (218)	102 (9)	78 (47)	78 (96)	75 (66)
3. Moorage & Storage	48 (178)	40 (6)	50 (58)	68 (72)	24 (62)
4. Administration	253 (199)	339 (7)	396 (40)	246 (90)	160 (62)
5. Vessel Repairs	774 (221)	899 (9)	940 (50)	809 (94)	588 (68)
6. Depreciation	626 (229)	772 (10)	938 (49)	657 (97)	355 (73)
7. License Fees	107 (243)	109 (10)	105 (53)	108 (104)	106 (76)
8. Fuel	295 (231)	423 (10)	418 (52)	276 (99)	213 (70)
9. Galley Expenses	274 (208)	474 (8)	357 (43)	272 (90)	200 (67)
10. Gillnetting Equip- ment Repairs	509 (162)	1,198 (7)	610 (56)	477 (67)	478 (52)
11. Borough Fish Tax	247 (137)	342 (6)	327 (26)	280 (58)	154 (47)
12. Travel & Freight	448 (210)	409 (8)	647 (44)	410 (88)	376 (70)
13. Special Clothes	123 (221)	123 (9)	148 (49)	127 (95)	115 (68)
14. Rental & Leasing	484 (151)	223 (7)	650 (34)	622 (56)	271 (54)
15. Crewshare	4,804 (238)	8,579 (10)	8,462 (53)	4,498 (101)	2,091 (74)
16. Interest Payments	129 (135)	215 (6)	316 (32)	80 (49)	48 (48)
17. Opportunity Cost of Investment	1,372 (219)	1,754 (9)	1,979 (49)	1,411 (91)	847 (70)
18. Opportunity Cost of Holding a Permit	304	304	304	304	304
19. TOTAL COSTS	\$11,100	\$16,772	\$17,073	\$10,929	\$6,537
20. Average Gross Earnings	\$15,143 (243)	\$36,245 (10)	\$24,031 (53)	\$14,459 (104)	\$6,817 (76)
21. NET RETURN TO LABOR AND MANAGEMENT	\$ 4,043	\$19,473	\$ 6,958	\$ 3,530	\$ 280

Source: 1977 Bristol Bay Drift Gill-net Operating Cost Survey, conducted by Commercial Fisheries Entry Commission; CFEC 1976 Gross Earnings by ADF&G by specific salmon species dated 12/78; Table 4.