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**The Economic Structure of  
California's Commercial Fisheries  
1982**

**by**

**Dennis M. King**

**and**

**Virginia G. Flagg**

**with assistance from**

**Harry A. Bateman  
James Liedke-Konow  
Paul J. Reid  
Jeffrey Wooldridge**

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**Working Paper No. P-T-32**

**A California Sea Grant College Program Working Paper**

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1982**

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THE ECONOMIC STRUCTURE OF  
CALIFORNIA'S COMMERCIAL FISHERIES  
1982

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1982 Production, Cost, and Market Information  
for vessels in 20 California-based fishing  
fleets.

SECTION II

A 1982 Input-Output model of the California  
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SECTION III

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## PREFACE

There is a shortage of economic data about west coast fisheries and widespread concern that fishery management measures are being proposed and implemented without adequate information about how fishing and seafood industries are affected or how they will respond. There is also a great deal of concern expressed by industry and government leaders about the potential indirect and induced economic impacts of fishery management decisions.

This report contains fundamental economic statistics related to California fisheries and seafood markets. Statistics are presented in a format that facilitates the analysis of individual fisheries and can be used to show how changes in fisheries and fish markets affect California fishermen and seafood processors and other segments of the California economy. The report contains production, cost and market data and Employment, Income and Output multipliers for 20 California-based fishing fleets and 9 California-based fish processing activities. Information is also presented to show how California fishing industries are linked through their purchases and sales with the rest of the California economy.

All of the data and analysis presented in this report were developed from the results of an economic survey of California fisheries conducted during 1981-1982 by the California Sea Grant College Program (CSG). The survey was conducted in cooperation with the Pacific Coast Federation of Fishermen's Associations



(PCFFA) which helped coordinate the survey of fish harvesters, and the California Seafood Institute (CSI) which helped coordinate the survey of fish processors.<sup>1</sup> Data were collected for calendar year 1980, but the numerical data presented here<sup>2</sup> have been updated to show conditions during calendar year 1982. The report has three sections.

#### Section I - Vessel Operation and Financial Performance Data

This section contains vessel operating data and summary statistics showing fixed and operating costs, revenues, revenue sources and fleet characteristics for twenty separate California fishing fleets. Data presented in this section are useful to researchers concerned with fish harvesting and the costs, revenues, and operating procedures of various California fishing fleets. Data are presented with sufficient detail to allow the analysis of individual fleets or "typical" vessels within fleets without violating the relatively strict confidentiality agreements between Sea Grant and cooperating fishermen's organizations.

#### Section II - The 1982 California Interindustry Fisheries (CIF) Model (An Input-Output Model of California Fisheries)

This updated version of the 1980 CIF model is fully documented with references for all primary survey data and secondary sources used to construct the model. It contains a 68 Sector Transactions table and Technical Coefficients table and instructions for interpreting input-output data.

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<sup>1</sup>  
PCFFA and CSI contributed by identifying industrial activities and aggregating them into fish harvesting and processing sectors and by arranging interviews with industry specialists and administering mail surveys. Additional assistance was provided by the California Sea Grant Industry Advisory Committee and the NMFS Southwest Fisheries Center.

<sup>2</sup>  
Preliminary results from that survey were made available during 1982 in two papers: Sea Grant Working Paper P-T-5, "The California Interindustry Fisheries Model," and Sea Grant Working Paper P-T-6, "An Economic Impact Calculator for California Fisheries."

### Section III - Employment, Income, and Output Multipliers for California Fish Harvesters and Processors

This section contains Type 1 and Type 2 economic multipliers for each of the twenty California fish harvesting sectors and nine California fish processing sectors included in the study. The multipliers presented in this section are the most often cited results from input-output studies. Type 1 and Type 2 multipliers are presented for each fish harvesting and fish processing sector along with estimated values of the jobs, household incomes, and sales generated in California per dollar increase in exvessel or processed fish sales.

## INTRODUCTION

### Background

The economic survey of California fisheries was undertaken by Sea Grant during 1981/1982 at the request of industry organizations representing California fishermen and seafood processors. Sea Grant researchers and industry leaders recognized the need for more reliable economic information about California fisheries and cooperated in designing and implementing a broad reaching economic survey of California's fisheries. The cooperative effort resulted in an exceptionally thorough and reliable set of economic data that can be used to evaluate the financial performance and economic impacts of California's commercial fisheries.

Sea Grant researchers involved in the project were primarily interested in the economic data-bases that would result from the survey which had many useful applications. Industry leaders were interested primarily in the results of an interindustry analysis of survey data which generated economic "multipliers" and showed how California fishing and seafood processing industries generate benefits throughout the California economy. With the interests of both participating groups and a variety of potential users in mind, the 1981/82 Sea Grant project had two primary goals:

- 1) To develop an economic data base that could be used to improve empirical studies of California fisheries
- 2) To develop a mathematical model showing economic interdependencies associated with California fisheries which could be used to describe how policies affecting California fishermen and seafood processors affect overall economic conditions in the state.

## General Approach

Economic data were collected from government and industry sources to develop profiles of purchases and sales by 20 separate Fish Harvesting Sectors and nine separate Fish Processing Sectors. For developing economic "multipliers" all other industrial activities in the state of California were aggregated into 35 Non-Fishery Sectors.

Data for the fish harvesting and fish processing sectors came primarily from three sources: a review of previous economic studies, a mail survey of harvestors and processors (100% coverage) and extensive face-to-face interviews with "subject area specialists" for each harvesting and processing sector.

Data for non-fishery sectors are based primarily on a 398 sector "input-output model" of the 1980 California economy which was developed during 1981 by the U.S. Dept. of Interior.

## The Survey of Fish Harvesters

The vessel operating statistics and cost and revenue data presented in Section I are based primarily on the Sea Grant mail survey of fish harvesters.<sup>3</sup> The sampling universe for the survey is approximately 3800 commercial fishing vessels and the mail survey was aimed at a 100% sample. The initial mailing was sent with a cover letter from the Pacific Coast Federation of

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The CIF model presented in Section II shows purchases and sales within the California economy. In that model all transactions with firms or households located outside California are treated as imports/exports. To provide a full accounting of production and cost relationships, the purchase and sales data presented in Section I include all costs, landings and sales inside and outside California.

Fishermen's Associations (PCFFA) and a three page survey instrument which are both presented in Appendix A-1. A mailing was sent with a prepaid return envelope to the owners of 3200 California-based commercial fishing vessels with carrying capacities over 5 tons (registered with the U.S. Coast Guard) and an additional 350 commercial fishing vessels with carrying capacities less than 5 tons (not registered with the U.S. Coast Guard). The owners of the smaller vessels were identified from membership lists of cooperating industry organizations.<sup>4</sup>

With the help of PCFFA, the survey effort was publicized at industry organization meetings and in industry newsletters and coastal newspapers during the winter of 1980-81 and the initial mailing was sent to owners of 3550 vessels in mid-March, 1981 (corresponding with 1980 tax preparation time). A follow-up letter and a second survey instrument was mailed in early May and since all responses to the initial mailing were returned anonymously to PCFFA offices this follow-up mailing had to be sent to the entire fleet list including those who had already responded. The PCFFA cover letter included in the follow-up mailing thanked

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<sup>4</sup> U.S. Coast Guard records document all commercial vessels over 5 GRT (gross registered tonnage). On December 31, 1979, this list included 3200 commercial fishing vessels and all of those were sampled. Most of the commercial fishing vessels less than 5 GRT which were not included on the Coast Guard list were small trollers, gillnetters, hook and line boats, harpoon boats and diveboats. Cooperating fishermen groups provided what were thought to be complete lists of these vessels but our final sample list of 3550 vessels was less than the 3800 California commercial fishing vessels estimated by NMFS. The 250 vessel discrepancy has not been reconciled, but any vessels not included in the CIF mail survey are assumed to be small relatively unproductive vessels from CIF Sectors 6, 8, 13, 29 and 20.

those who had responded and encouraged non-respondents to cooperate by filling in the survey instrument and returning it.

The overall response from the survey of fish harvesters was 18% with 13-15% apparently responding to the first mailing and 3-5% apparently responding to the follow-up mailing. Of the 652 returns, 564 contained usable data.

Cooperating industry organizations identified two "subject area specialists" for each major California fishing fleet who were interviewed by Sea Grant researchers during January-June, 1981. These fishing and fish market experts provided "subjective" estimates of costs, sales, etc. for various vessel-types and offered their own estimates of market linkages, trade channels, etc. In June, after the results of the mail survey and the interview process had been tallied, eight of these industry experts and Sea Grant researchers attended a two-day data review session at PCFFA headquarters in Sausalito, California. The purpose of the review session was to reconcile differences in the distributions of vessel costs, revenues and markets from the various sources before the development of the economic data-base

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Most respondents provided useful data in all categories (vessel characteristics, vessel costs, species caught, market distribution) and some provided useful data in some, but not all areas. The 88 returns that were not included as observations in any of the CIF data-bases were those that contained garbled or inconsistent data that could not be reconciled by researchers or industry advisors.

and final specification of the analytical (input-output) model. <sup>6</sup>

In general, researchers and industry representatives at the data review sessions were satisfied with the results of the mail survey. The data-base developed from the mail survey was more thorough and more current than what was available from secondary sources and interpretations of mail survey data were consistent with the impressions of subject area specialists. The production, cost and sales data presented in Section I and the economic data-base used in the fishery portion of the analytical model described in Section II came almost exclusively from the mail survey. <sup>7</sup>

#### Survey of Fish Processors

The sampling universe of California fish buyers and processors was taken from a list of 760 California-based firms with licenses from the California Department of Fish and Game to buy fresh fish for resale. This group includes bait shops, aquaculture firms, and zoos as well as the fish processors, wholesalers, and restaurants that were the prime target of the survey but the available list of licensees offered no criteria

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<sup>6</sup>

This data review workshop was not part of the original plan for the 1981 Sea Grant Project. Funds to cover organization expenses and travel costs for workshop participants were provided by the National Marine Fisheries Service, Southwest Regional Center under a separate grant.

<sup>7</sup>

Through related studies, Sea Grant researchers acquired some detailed economic data related to tuna and wetfish purse-seining and these were used to specify input-output coefficients for sectors 4 and 5. All other data presented for California fish harvesters originated with the 1981 mail survey.

for distinguishing firms by resale function. Recognizing that some oversampling would occur, the decision was made to contact all firms on the list and in early March, 1981, a mailing went to each of the 760 licensees. The mailing included a cover letter from the California Seafood Institute (CSI) and a survey instrument which are both shown in Appendix A-2.

Because many of the firms receiving the survey instrument were not processing for human consumption and did not purchase significant quantities of fish, the percentage of useful respondents was predictably low. A month after the follow-up mailing which was sent on April 15, 64 survey instruments had been returned, a response rate of only 9%. Based on sales figures presented by respondents and information from CSI, however, the firms that did respond appear to account for 70-80% of non-tuna exvessel fish purchases in the state of California.

#### The CIF Model

Input-output models and "interindustry" analysis are described thoroughly in several good economic text books and the technical aspects of the model developed for this project are described in Sea Grant Technical Report P-T-5.<sup>8</sup> The fishery-related "input-output" model which was developed for this project has been called the California Interindustry Fisheries (CIF)

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For a complete discussion of Input-Output analysis, see "The Elements of Input-Output Analysis" by W.H. Miernyk, Random House, New York, 1965 or "Input-Output and Regional Economics" by H.W. Richardson, Weidenfeld and Nicholson, London, 1972. The 1981 Sea Grant report describing the CIF model is available from the Publications Office of California Sea Grant, A-032, La Jolla, California 92093.



Model. It is based on economic data from the survey of fish harvesters and processors and the 398 sector input-output model of the 1980 California economy constructed by the U.S. Dept. of Interior (U.S. Forest Service). The California model was developed from the most recent Dept. of Commerce input-output model of the U.S. economy (1972) and the most recent California census data from the U.S. Bureau of the Census (1979).<sup>9</sup> The original Department of Interior model contained only four fisheries sectors (fishing, tuna canning, other fish canning and other fish packing) which were replaced for our purposes with 20 fish harvesting sectors and 9 fish processing sectors to develop the CIF model. The remaining 385 non-fishery industrial sectors of the Department of Interior were then aggregated into 35 broader industrial categories using Standard Industrial Classification (SIC) procedures.<sup>10</sup> The 64 industrial sectors and 2 primary sectors of the CIF model and the results of the input-output analysis are described in Section II and economic "multipliers" based on the input-output analysis are described in

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The 1972 national input-output model was published by the Dept. of Commerce in April of 1981 and the 1977 California census data were published in March of 1981. The California state model was developed from the national model using RIMS (Regional Impact Multiplier System) developed by the U.S. Department of Commerce (See Sea Grant Technical Report P-T-6.)

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The "Standard Industrial Classification Manual" is published every 5-7 years by the U.S. Dept. of Commerce. It contains descriptions of U.S. industries and aggregates industrial activities into 4 digit, 3 digit and 2 digit SIC's and broad industrial divisions. The nonfishery sections of the CIF model are based on the 1977 SIC Manual and define sectors to around 2 digit SIC codes.

Section III.

SECTION I

VESSEL AND FLEETWIDE  
COST AND REVENUE DATA

SECTION I  
VESSEL OPERATING AND  
FLEET-WIDE COST AND REVENUE DATA

This section contains 1982 cost, landings and revenue statistics for each of the 20 California fish harvesting sectors. (See Table 2-1.) These 1982 figures reflect 1980 survey results adjusted to account for input and product price changes to 1982. No adjustments have been made here to account for changes in the abundance or availability of various species of fish between 1980 and 1982 so estimates for each sector reflect production technologies and catch rates for 1980 at 1982 input and exvessel fish prices.

PART I of each data sheet describes the fleet in terms of the criteria used to aggregate survey responses. (See Appendix B-2.) The 20 fish harvesting sectors are mutually exclusive and information presented here summarizes how survey responses were grouped on the basis of primary and secondary gear, home port and catch information.

PART II provides summary statistics about vessel revenues and the source of vessel revenues for sample vessels in each fleet class. The sub-sample of vessels in each sector reporting at least some catch of each species is reported (column 1) and vessel revenues from landings of each species are reported as an average for the entire sample (column 4) and for those vessels reporting at least some catches (column 5). The contribution of each species to the revenues of all sample vessels can be compared to the contribution of each species to the revenues of sample vessels that appear to have fished for that species. The minimum and maximum contribution of each species to vessel revenues (columns 8 and 9) are based on sample vessels reporting at least some catches of species listed along the row.

PART III provides summary statistics about fixed and operating costs reported by sample vessels in each fleet class. The sub-sample of vessels reporting at least some costs in each category are shown (column 10) along with the dollar expenses reported in each category by all sample vessels (column 11). Average vessel costs based on all sample vessels (column 13) and based only on vessels reporting at least some costs in each category (column 14) are shown along with the minimum and maximum shares of total expenses by category (column 17 and 18).

GROUND FISH TRAWLERS, NORTH  
(n = 13)

## I. DESCRIPTION OF THE FLEET

Primary gear: Trawl  
Home port: From Monterey - north  
Value of catch: Crustaceans less than or equal to any other species (used to eliminate shrimpers)

## II. SUMMARY OF VESSEL REVENUES

Species	1	2	3	4	5	6	7	8	9
	# Vessels Reporting Catch > 0	Sample Revenues	% Revenues by Vessels Reporting Catch > 0	Average Revenues based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Revenues All Vessels	Harvesting Vessels	Minimum % of Total Revenues	Maximum % of Total Revenues
Crustaceans	1	28000	1.47	2154	28000	7461	0	5.98	5.98
Flatfish	10	1320305	69.50	101562	132031	97514	91318	19.20	100.00
Sable/Rock	6	538420	28.34	41417	89737	53842	44102	19.23	53.85
Sharks/Rays/Skates	2	748	0.04	58	374	165	242	0.51	24.13
Salmon	6	11319	0.60	871	1887	1955	2523	0.23	100.00
Tuna	1	800	0.04	62	800	213	0	100.00	100.00
Cod	1	100	0.01	8	100	27	0	18.28	18.28
TOTAL	13	1899692	100.00	146130	146130	138449	138449	100.00	100.00

## III. SUMMARY OF VESSEL COSTS

Cost Category	10	11	12	13	14	15	16	17	18
	# Vessels Reporting Cost > 0	Total Expenses by Vessels Reporting	% of Total Expenses	Average Vessel Cost based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Costs All Vessels	Reporting Vessels	Minimum % of Total Costs	Maximum % of Total Costs
Dockage	8	8146	0.73	879	1018	617	475	0.18	35.26
Interest	7	69846	6.25	5821	9978	8463	9017	0.45	12.74
Depreciation	6	124149	11.11	10346	20692	14934	15230	1.68	20.08
Capital Expenditure	6	185691	16.62	15474	30949	28007	33013	1.22	43.30
Insurance	8	78823	7.06	6569	9853	5938	4531	3.95	23.11
Taxes	8	10875	0.97	906	1359	1043	1008	1.01	2.38
Other Fixed (gear, etc)	3	11163	1.00	930	3721	2158	2872	1.83	5.54
Total Fixed	11	488693	43.74	40724	44427	46899	47276	26.13	56.77
Fuel	12	155219	13.89	12935	12935	9967	9967	3.27	100.00
Repairs & Maintenance	11	113705	10.18	9475	10337	10889	10974	3.54	60.45
Crewshares & Wages	8	309586	27.71	25799	38698	21727	14453	20.69	45.66
Other Variable (ice, bait, etc)	8	50034	4.48	4170	6254	3673	2683	2.30	9.65
Total Variable	12	628544	56.26	52379	52379	43070	43070	43.23	100.00
TOTAL	12	1117237	100.00	93103	93103	87756	87756	100.00	100.00

Source: 1980 CIF Survey; Sector 1

California vessels only; updated to 1982 using input and product price adjustments.

GROUNDFISH TRAWLERS, SOUTH  
(n = 5)

## I. DESCRIPTION OF THE FLEET

Primary gear: Trawl  
Home port: From Santa Barbara - south  
Value of catch: Crustaceans less than or equal to any other species (used to eliminate shrimpers)

## II. SUMMARY OF VESSEL REVENUES

Species	1	2	3	4	5	6	7	8	9
	# Vessels Reporting Catch > 0	Sample Revenues	% Revenues by Vessels Reporting Catch > 0	Average Revenues based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Revenues All Vessels	Vessels Harvesting	Minimum % of Total Revenues	Maximum % of Total Revenues
Crustaceans	2	7280	0.35	1456	3640	2641	3080	0.24	27.41
Flatfish	4	173250	8.30	34650	43313	48955	51191	2.71	12.64
Sable/Rock	4	1585800	76.01	317160	396450	555586	595326	19.58	91.57
Sharks/Rays/Skates	2	88880	4.26	17776	44440	35114	43560	0.64	68.16
Salmon	1	42	0.00	8	42	17	0	0.03	0.03
Billfish	1	13000	0.62	2600	13000	5200	0	53.02	53.02
Tuna	2	8000	0.38	1600	4000	2479	2400	1.24	2.69
Other	1	210000	10.07	42000	210000	84000	0	88.25	88.25
TOTAL	5	2086252	100.00	417250	417250	573494	573494	100.00	100.00

## III. SUMMARY OF VESSEL COSTS

Cost Category	10	11	12	13	14	15	16	17	18
	# Vessels Reporting Cost > 0	Total Expenses by Vessels Reporting	% of Total Expenses	Average Vessel Cost based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Costs All Vessels	Vessels Reporting	Minimum % of Total Costs	Maximum % of Total Costs
Dockage	2	1574	0.44	315	787	417	253	0.52	1.33
Interest	4	50507	13.97	10101	12627	6653	4842	6.67	19.34
Depreciation	2	33235	9.19	6647	16618	8154	718	18.27	21.43
Capital Expenditure	2	7289	2.02	1458	3645	1883	945	4.84	21.73
Insurance	4	35246	9.75	7049	8812	4322	2797	6.74	11.82
Taxes	1	26	0.01	5	26	10	0	0.21	0.21
Other Fixed (gear, etc)	0	0	0.00	0	0	0	0	0.00	0.00
Total Fixed	5	127876	35.37	25575	25575	16707	16707	17.33	54.26
Fuel	5	63294	17.51	12659	12659	7647	7647	11.18	28.17
Repairs & Maintenance	5	53333	14.75	10667	10667	5018	5018	8.77	40.24
Crewshares & Wages	5	105284	29.12	21057	21057	13819	13819	9.66	53.33
Other Variable (ice, bait, etc)	1	11749	3.25	2350	11749	4700	0	11.52	11.52
Total Variable	5	233658	64.63	46732	46732	22417	22417	45.74	82.67
TOTAL	5	361534	100.00	72307	72307	31666	31666	100.00	100.00

Source: 1980 CIF Survey; Sector 2  
 California vessels only; updated to 1982 using input and product price adjustments.

## 1982 SUMMARY ECONOMIC DATA FOR

SHRIMP TRAWLERS  
(n = 2)

## I. DESCRIPTION OF THE FLEET

Primary gear: TrawlValue of catch: Crustaceans greater than or equal to any other species

## II. SUMMARY OF VESSEL REVENUES

Species	1	2	3	4	5	6	7	8	9
	# Vessels Reporting Catch > 0	Sample Revenues	% Revenues by Vessels Reporting Catch > 0	Average Revenues based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Revenues All Vessels	Standard Deviation of Vessel Revenues Vessels Harvesting	Minimum % of Total Revenues	Maximum % of Total Revenues
Crustaceans	2	181440	100.00	90720	90720	77280	77280	100.00	100.00
TOTAL	2	181440	100.00	90720	90720	77280	77280	100.00	100.00

## III. SUMMARY OF VESSEL COSTS

Cost Category	10	11	12	13	14	15	16	17	18
	# Vessels Reporting Cost > 0	Total Expenses by Vessels Reporting	% of Total Expenses	Average Vessel Cost based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Costs All Vessels	Standard Deviation of Vessel Costs Vessels Reporting	Minimum % of Total Costs	Maximum % of Total Costs
Dockage	1	1627	0.83	814	1627	814	0	3.33	3.33
Interest	1	2000	1.02	1000	2000	1000	0	1.36	1.36
Depreciation	1	8487	4.34	4244	8487	4244	0	17.39	17.39
Capital Expenditure	1	4314	2.21	2157	4314	2157	0	8.84	8.84
Insurance	1	4008	2.05	2004	4008	2004	0	8.21	8.21
Taxes	1	18	0.01	9	18	9	0	0.04	0.04
Other Fixed (gear, etc)	1	441	0.23	221	441	221	0	0.90	0.90
Total Fixed	2	20896	10.68	10448	10448	8448	8448	1.36	38.71
Fuel	2	27244	13.93	13622	13622	7378	7378	12.79	14.31
Repairs & Maintenance	2	25437	13.00	12719	12719	6082	6082	12.81	13.60
Crewshares & Wages	2	114205	58.38	57103	57103	47898	47898	18.86	71.53
Other Variable (ice, bait, etc)	1	7827	4.00	3914	7827	3914	0	16.04	16.04
Total Variable	2	174712	89.32	87356	87356	57444	57444	61.29	98.64
TOTAL	2	195608	100.00	97804	97804	48996	48996	100.00	100.00

Source: 1980 CIF Survey; Sector 3

California vessels only; updated to 1982 using input and product price adjustments.

## 1982 SUMMARY ECONOMIC DATA FOR

TUNA SEINERS  
(n = 4)

## I. DESCRIPTION OF THE FLEET

Primary gear: Purse-seine  
Holding capacity: Greater than 900 short tons  
Value of catch: Exclusively tuna

## II. SUMMARY OF VESSEL REVENUES

Species	1 # Vessels Reporting Catch > 0	2 Sample Revenues	3 % Revenues by Vessels Reporting Catch > 0	4 Average Revenues based on: All Vessels	5 Vessels Reporting	6 Standard Deviation of Vessel Revenues All Vessels	7 Harvesting	8 Minimum % of Total Revenues	9 Maximum % of Total Revenues
Tuna	4	13334200	100.00	3333550	3333550	725492	725492	100.00	100.00
TOTAL	4	13334200	100.00	3333550	3333550	725492	725492	100.00	100.00

## III. SUMMARY OF VESSEL COSTS

Cost Category	10 # Vessels Reporting Cost > 0	11 Total Expenses by Vessels Reporting	12 % of Total Expenses	13 Average Vessel Cost based on: All Vessels	14 Vessels Reporting	15 Standard Deviation of Vessel Costs All Vessels	16 Vessels Reporting	17 Minimum % of Total Costs	18 Maximum % of Total Costs
Dockage	3	2582	0.03	646	861	437	262	0.03	0.03
Interest	2	438998	4.61	109750	219499	110612	19499	7.39	15.21
Depreciation	1	258377	2.71	64594	258377	111881	0	7.99	7.99
Capital Expenditure	0	0	0.00	0	0	0	0	0.00	0.00
Insurance	4	681194	6.94	165299	165299	34728	34728	4.75	11.73
Taxes	2	718243	7.54	179561	359122	188722	82146	8.56	13.74
Other Fixed (gear, etc)	1	77024	0.81	19256	77024	33352	0	2.38	2.38
Total Fixed	4	2156419	22.64	539105	539105	310621	310621	11.76	31.10
Fuel	4	2050371	21.52	512593	512593	170914	170914	12.60	45.63
Repairs & Maintenance	4	831855	8.73	207964	207964	134113	134113	2.83	30.42
Crewshares & Wages	3	3575459	37.53	893865	1191820	632438	422132	34.00	48.43
Other Variable (ice, bait, etc)	3	912108	9.57	228027	304036	244519	237928	0.80	34.40
Total Variable	4	7369792	77.36	1842448	1842448	610418	610418	68.90	88.24
TOTAL	4	9526211	100.00	2381553	2381553	856709	856709	100.00	100.00

Source: 1980 CIF Survey; Sector 4  
 California vessels only; updated to 1982 using input and product price adjustments.



## 1982 SUMMARY ECONOMIC DATA FOR

WETFISH SEINERS

(n = 6)

## I. DESCRIPTION OF THE FLEET

Primary gear: Purse-seine  
Holding capacity: Less than 500 short tons  
Value of catch: Mollusks (squid), wetfish (mackerel and anchovy), tuna

## II. SUMMARY OF VESSEL REVENUES

Species	1	2	3	4	5	6	7	8	9
	# Vessels Reporting Catch > 0	Sample Revenues	% Revenues by Vessels Reporting Catch > 0	Average Revenues based on: All Vessels	Reporting Vessels	Standard Deviation of Vessel Revenues All Vessels	Harvesting Vessels	Minimum % of Total Revenues	Maximum % of Total Revenues
Mollusks	2	63360	2.73	10560	31680	22835	29920	3.71	44.13
Wetfish	4	208213	8.98	34702	52053	34333	29410	55.87	100.00
Tuna	2	2046000	88.28	341000	1023000	484292	77000	100.00	100.00
TOTAL	6	2317573	100.00	386262	386262	454164	454164	100.00	100.00

## III. SUMMARY OF VESSEL COSTS

Cost Category	10	11	12	13	14	15	16	17	18
	# Vessels Reporting Cost > 0	Total Expenses by Vessels Reporting	% of Total Expenses	Average Vessel Cost based on: All Vessels	Reporting Vessels	Standard Deviation of Vessel Costs All Vessels	Reporting Vessels	Minimum % of Total Costs	Maximum % of Total Costs
Dockage	6	6874	0.31	1146	1146	709	709	0.05	5.77
Interest	2	18822	0.86	3137	9411	4437	89	0.91	15.57
Depreciation	1	37288	1.70	6215	37288	13896	0	3.66	3.66
Capital Expenditure	2	93540	4.26	15590	46770	32463	41271	8.64	9.01
Insurance	5	184445	7.49	27408	32889	31518	31808	4.73	63.27
Taxes	3	62077	2.83	10346	20692	22904	28899	0.20	6.16
Other Fixed (gear, etc)	1	1098	0.05	183	1098	409	0	2.94	2.94
Total Fixed	6	384924	17.53	64154	64154	78233	78233	10.57	69.03
Fuel	6	317105	14.44	52851	52851	75277	75277	2.74	21.79
Repairs & Maintenance	6	391927	17.85	65321	65321	79352	79352	9.75	40.98
Crewshares & Wages	5	1098713	50.05	183119	219743	241900	249341	25.25	71.88
Other Variable (ice, bait, etc)	1	1893	0.09	316	1893	705	0	5.06	5.06
Total Variable	6	1810418	82.47	301736	301736	380143	380143	30.97	89.43
TOTAL	6	2195342	100.00	365890	365890	455379	455379	100.00	100.00

Source: 1980 CIF Survey; Sector 5

California vessels only; updated to 1982 using input and product price adjustments.

HERRING GILLNETTERS

(n = 24)

## I. DESCRIPTION OF THE FLEET

Primary gear: Gillnet  
Home port: From Monterey - north  
Value of catch: Herring (wetfish) greater than any other species

## II. SUMMARY OF VESSEL REVENUES

Species	1	2	3	4	5	6	7	8	9
	# Vessels Reporting Catch > 0	Sample Revenues	% Revenues by Vessels Reporting Catch > 0	Average Revenues based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Revenues All Vessels	Standard Deviation of Vessel Revenues Harvesting Vessels	Minimum % of Total Revenues	Maximum % of Total Revenues
Crustaceans	7	49568	4.47	2065	7081	6955	11416	0.14	32.94
Mollusks	1	70400	6.35	2933	70400	14068	0	24.24	24.24
Flatfish	1	3500	0.32	146	3500	699	0	3.27	3.27
Wetfish	24	591960	53.38	24665	24665	22335	22335	31.37	100.00
Sable/Rock	5	477	0.04	20	95	51	74	0.13	1.29
Sharks/Rays/Skates	1	13200	1.19	550	13200	2638	0	12.32	12.32
Salmon	22	222848	20.10	9285	10129	6761	6428	3.14	46.67
Tuna	11	56459	5.09	2352	5133	3509	3550	0.07	27.85
Cod	2	100500	9.06	4188	50250	19979	49750	4.14	34.44
TOTAL	24	1108912	100.00	46205	46205	55372	55372	100.00	100.00

## III. SUMMARY OF VESSEL COSTS

Cost Category	10	11	12	13	14	15	16	17	18
	# Vessels Reporting Cost > 0	Total Expenses by Vessels Reporting	% of Total Expenses	Average Vessel Cost based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Costs All Vessels	Standard Deviation of Vessel Costs Reporting Vessels	Minimum % of Total Costs	Maximum % of Total Costs
Dockage	17	16616	1.07	722	977	868	878	0.43	18.87
Interest	10	58058	3.73	2524	5806	4705	5645	2.31	24.60
Depreciation	13	75954	4.88	3302	5843	3860	3393	1.01	29.60
Capital Expenditure	14	140388	9.02	6104	10028	12452	14676	2.75	63.04
Insurance	12	38156	2.45	1659	3180	2075	1849	0.70	19.37
Taxes	18	40278	2.59	1751	2238	2348	2441	0.04	22.63
Other Fixed (gear, etc)	9	23414	1.50	1018	2602	1453	1129	2.16	37.74
Total Fixed	22	392864	25.23	17081	17857	17876	17895	7.80	84.91
Fuel	23	124343	7.99	5406	5406	13695	13695	0.83	100.00
Repairs & Maintenance	22	150457	9.66	6542	6839	12358	12555	2.25	50.63
Crewshares & Wages	20	833937	53.55	36258	41697	122433	130429	0.54	75.99
Other Variable (ice, bait, etc)	15	55584	3.57	2417	3706	3699	4026	1.08	33.56
Total Variable	23	1164317	74.77	50622	50622	147170	147170	15.09	100.00
TOTAL	23	1557181	100.00	67704	67704	157641	157641	100.00	100.00

Source: 1980 CIF Survey; Sector 6  
California vessels only; updated to 1982 using input and product price adjustments.

OTHER GILLNETTERS  
(n = 38)

## I. DESCRIPTION OF THE FLEET

Primary gear: Gillnet

Value of catch: Herring (wetfish) less than any other species

## II. SUMMARY OF VESSEL REVENUES

Species	1	2	3	4	5	6	7	8	9
	# Vessels Reporting Catch > 0	Sample Revenues	% Revenues by Vessels Reporting Catch > 0	Average Revenues based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Revenues All Vessels	Vessels Harvesting	Minimum % of Total Revenues	Maximum % of Total Revenues
Crustaceans	9	23411	0.94	616	2601	1814	2954	0.27	47.83
Mollusks	4	211306	8.52	5561	52827	20629	39319	0.30	53.36
Flatfish	11	56348	2.27	1483	5123	2983	3478	2.87	70.28
Wetfish	5	93192	3.76	2452	18638	7229	9773	4.65	53.39
Sable/Rock	14	100476	4.05	2644	7177	8266	12366	0.19	58.93
Sharks/Rays/Skates	31	431796	17.41	11363	13929	13486	13683	2.13	100.00
Salmon	5	155610	6.27	4095	31122	22838	55882	3.11	100.00
Billfish	19	445689	17.97	11729	23457	16608	16629	7.81	92.66
Tuna	6	189680	7.65	4992	31613	14434	21860	5.18	62.61
Bass	12	685446	27.63	18038	57121	46912	68823	3.99	94.18
Other	9	87498	3.53	2303	9722	7315	12403	0.82	90.85
TOTAL	38	2480452	100.00	65275	65275	63980	63980	100.00	100.00

## III. SUMMARY OF VESSEL COSTS

Cost Category	10	11	12	13	14	15	16	17	18
	# Vessels Reporting Cost > 0	Total Expenses by Vessels Reporting	% of Total Expenses	Average Vessel Cost based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Costs All Vessels	Vessels Reporting	Minimum % of Total Costs	Maximum % of Total Costs
Dockage	30	30625	1.98	851	1021	685	624	0.39	32.43
Interest	16	103454	6.70	2874	6466	8381	11611	0.54	93.85
Depreciation	12	60275	3.91	1674	5023	3222	3785	3.15	24.40
Capital Expenditure	19	344918	22.35	9581	18154	26471	34235	0.13	73.10
Insurance	21	58957	3.82	1638	2807	2047	1975	1.41	38.96
Taxes	18	50440	3.27	1401	2802	2900	3591	0.12	14.17
Other Fixed (gear, etc)	11	105532	6.84	2931	9594	5450	5768	6.39	40.98
Total Fixed	35	754200	48.87	20950	21549	34104	34401	3.18	100.00
Fuel	35	213143	13.81	5921	6090	5431	5414	1.06	64.44
Repairs & Maintenance	31	208906	13.54	5803	6739	7134	7266	1.41	72.73
Crewshares & Wages	17	298211	19.32	8284	17542	13632	15203	4.47	88.34
Other Variable (ice, bait, etc)	21	68889	4.46	1914	3280	2633	2721	0.88	27.29
Total Variable	35	789150	51.13	21921	22547	23869	23914	20.57	100.00
TOTAL	36	1543350	100.00	42871	42871	48310	48310	100.00	100.00

Source: 1980 CIF Survey; Sector 7

California vessels only; updated to 1982 using input and product price adjustments.

SMALL SALMON TROLLERS  
(n = 72)

## I. DESCRIPTION OF THE FLEET

Primary gear: Troll and a few pole and line  
Secondary gear: Not pots and traps  
Vessel length: Less than or equal to 32 feet  
Value of catch: Salmon greater than zero; greater than any other species

## II. SUMMARY OF VESSEL REVENUES

Species	1	2	3	4	5	6	7	8	9
	# Vessels Reporting Catch > 0	Sample Revenues	% Revenues by Vessels Reporting Catch > 0	Average Revenues based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Revenues All Vessels	Vessels Harvesting	Minimum % of Total Revenues	Maximum % of Total Revenues
Crustaceans	2	2162	0.40	30	1081	178	39	34.78	46.05
Flatfish	4	980	0.18	14	245	68	164	2.90	37.63
Wetfish	1	215	0.04	3	215	25	0	33.86	33.86
Sable/Rock	11	7826	1.44	109	711	648	1523	0.13	47.49
Sharks/Rays/Skates	1	440	0.08	6	440	51	0	27.59	27.59
Salmon	72	516551	94.81	7174	7174	17390	17390	30.11	100.00
Tuna	5	12880	2.36	179	2576	848	2043	1.39	21.05
Cod	8	3801	0.70	53	475	199	394	0.91	55.94
TOTAL	72	544855	100.00	7567	7567	17727	17727	100.00	100.00

## III. SUMMARY OF VESSEL COSTS

Cost Category	10	11	12	13	14	15	16	17	18
	# Vessels Reporting Cost > 0	Total Expenses by Vessels Reporting	% of Total Expenses	Average Vessel Cost based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Costs All Vessels	Vessels Reporting	Minimum % of Total Costs	Maximum % of Total Costs
Dockage	58	70222	11.91	1018	1211	3898	4224	0.98	72.09
Interest	11	8234	1.40	119	749	318	403	1.71	24.04
Depreciation	28	87332	14.81	1266	3119	2466	3034	7.97	58.68
Capital Expenditure	34	99241	16.83	1438	2919	2579	3030	5.06	80.32
Insurance	19	15853	2.69	230	834	519	688	1.34	90.00
Taxes	32	20421	3.46	296	638	1252	1778	0.07	25.26
Other Fixed (gear, etc)	13	11298	1.92	164	869	508	869	4.13	30.77
Total Fixed	66	312599	53.00	4530	4736	6179	6240	0.29	94.86
Fuel	67	75494	12.80	1094	1127	1699	1714	1.35	62.62
Repairs & Maintenance	61	103119	17.48	1494	1690	2016	2065	1.50	81.93
Crewshares & Wages	18	37148	6.30	538	2064	1715	2850	1.58	57.11
Other Variable (ice, bait, etc)	37	61461	10.42	891	1661	1731	2075	1.00	100.00
Total Variable	69	277222	47.00	4018	4018	3994	3994	5.14	100.00
TOTAL	69	589820	100.00	8548	8548	8587	8587	100.00	100.00

Source: 1980 CIF Survey; Sector 8  
 California vessels only; updated to 1982 using input and product price adjustments.

LARGE SALMON TROLLERS  
(n = 124)

## I. DESCRIPTION OF THE FLEET

Primary gear: Troll and a few pole and line  
Secondary gear: Not pots and traps  
Vessel length: Greater than 32 feet  
Value of catch: Salmon greater than zero; greater than any other species

## II. SUMMARY OF VESSEL REVENUES

Species	1	2	3	4	5	6	7	8	9
	# Vessels Reporting Catch > 0	Sample Revenues	% Revenues by Vessels Reporting Catch > 0	Average Revenues based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Revenues All Vessels	Vessels Harvesting	Minimum % of Total Revenues	Maximum % of Total Revenues
Crustaceans	2	4480	0.21	36	2240	316	1120	7.67	21.05
Flatfish	5	2555	0.12	21	511	140	488	0.57	20.00
Wetfish	12	77437	3.62	624	6453	2395	4656	0.03	41.67
Sable/Rock	36	79068	3.70	638	2196	1980	3176	1.10	74.07
Sharks/Rays/Skates	3	352	0.02	3	117	24	104	1.85	9.48
Salmon	124	1682248	79.14	13647	13647	48037	48037	25.30	100.00
Billfish	2	26650	1.25	215	13325	2326	12675	1.76	40.45
Tuna	43	240140	11.23	1937	5585	3845	4719	1.06	48.98
Cod	8	4217	0.20	34	527	207	633	0.06	15.46
Other	1	11200	0.52	90	11200	1002	0	25.48	25.48
TOTAL	124	2138347	100.00	17245	17245	48766	48766	100.00	100.00

## III. SUMMARY OF VESSEL COSTS

Cost Category	10	11	12	13	14	15	16	17	18
	# Vessels Reporting Cost > 0	Total Expenses by Vessels Reporting	% of Total Expenses	Average Vessel Cost based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Costs All Vessels	Vessels Reporting	Minimum % of Total Costs	Maximum % of Total Costs
Dockage	99	80990	3.71	669	818	502	432	0.44	61.20
Interest	34	184425	8.44	1524	5424	4567	7285	1.43	51.30
Depreciation	50	217952	9.98	1801	4359	3275	3849	3.12	76.96
Capital Expenditure	67	450650	20.63	3724	6726	10278	13061	0.83	81.94
Insurance	49	130557	5.98	1079	2664	2047	2474	1.32	37.90
Taxes	66	55154	2.52	456	836	1158	1463	0.10	65.77
Other Fixed (gear, etc)	32	47385	2.17	392	1481	1178	1906	1.41	27.71
Total Fixed	119	1167261	53.44	9647	9809	14364	14429	0.82	95.32
Fuel	121	252360	11.55	2086	2086	2459	2459	0.70	100.00
Repairs & Maintenance	113	313657	14.36	2592	2776	3688	3749	1.04	91.99
Crewshares & Wages	48	219001	10.03	1810	4563	4583	6355	0.71	68.50
Other Variable (ice, bait, etc)	77	232080	10.62	1918	3014	4999	5998	1.00	91.44
Total Variable	121	1017095	46.56	8406	8406	11366	11366	4.68	100.00
TOTAL	121	2184355	100.00	18053	18053	22010	22010	100.00	100.00

Source: 1980 CIF Survey; Sector 9  
California vessels only; updated to 1982 using input and product price adjustments.

SALMON - CRABBER  
(n = 38)

## I. DESCRIPTION OF THE FLEET

Primary gear: Troll  
Secondary gear: Pots and traps  
Value of catch: a) Crustaceans greater than sablefish  
 b) Salmon greater than zero  
 c) Salmon greater than all other species except crustaceans

## II. SUMMARY OF VESSEL REVENUES

Species	1	2	3	4	5	6	7	8	9
	# Vessels Reporting Catch > 0	Sample Revenues	% Revenues by Vessels Reporting Catch > 0	Average Revenues based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Revenues All Vessels	Harvesting Vessels	Minimum % of Total Revenues	Maximum % of Total Revenues
Crustaceans	30	265354	25.05	6983	8845	25147	28010	0.85	49.45
Flatfish	2	595	0.06	16	298	72	123	0.46	10.00
Wetfish	2	27600	2.61	726	13800	3229	4200	22.88	23.60
Sable/Rock	8	9250	0.87	243	1156	1294	2625	0.31	40.50
Salmon	38	706937	66.72	18604	18604	49440	49440	31.50	100.00
Tuna	8	48254	4.55	1270	6032	4185	7381	3.83	31.47
Cod	3	1500	0.14	39	500	135	0	4.07	20.92
Bass	3	0	0.00	0	0	0	0	0.00	0.00
TOTAL	38	1059490	100.00	27881	27881	74743	74743	100.00	100.00

## III. SUMMARY OF VESSEL COSTS

Cost Category	10	11	12	13	14	15	16	17	18
	# Vessels Reporting Cost > 0	Total Expenses by Vessels Reporting	% of Total Expenses	Average Vessel Cost based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Costs All Vessels	Reporting Vessels	Minimum % of Total Costs	Maximum % of Total Costs
Dockage	35	25204	4.62	663	720	498	478	0.38	81.80
Interest	11	29196	5.35	768	2654	1661	2127	1.16	21.40
Depreciation	16	55537	10.19	1462	3471	2559	2928	7.12	59.44
Capital Expenditure	24	80233	14.72	2111	3343	4221	4909	1.47	60.94
Insurance	16	35458	6.50	933	2216	1447	1460	2.05	29.62
Taxes	14	12329	2.26	324	881	777	1072	0.09	40.56
Other Fixed (gear, etc)	14	30120	5.52	793	2151	1820	2463	0.08	47.68
Total Fixed	36	268080	49.17	7055	7447	8278	8332	5.99	100.00
Fuel	36	69303	12.71	1824	1925	1915	1917	2.65	71.43
Repairs & Maintenance	34	83681	15.35	2202	2461	2659	2695	2.24	85.47
Crewshares & Wages	16	80290	14.73	2113	5018	5462	7502	2.14	71.93
Other Variable (ice, bait, etc)	22	43754	8.03	1151	1989	1758	1917	0.24	64.59
Total Variable	37	277131	50.83	7293	7490	7838	7850	4.90	100.00
TOTAL	38	545211	100.00	14348	14348	13309	13309	100.00	100.00

Source: 1980 CIF Survey; Sector 10  
 California vessels only; updated to 1982 using input and product price adjustments.

SALMON - ALBACORE  
(n = 30)

## I. DESCRIPTION OF THE FLEET

Primary gear: Troll  
Secondary gear: Not pots and traps  
Value of catch: a) Salmon greater than zero  
 b) Tuna greater than zero and greater than any other species except salmon

## II. SUMMARY OF VESSEL REVENUES

Species	1	2	3	4	5	6	7	8	9
	# Vessels Reporting Catch > 0	Sample Revenues	% Revenues by Vessels Reporting Catch > 0	Average Revenues based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Revenues All Vessels	Vessels Harvesting	Minimum % of Total Revenues	Maximum % of Total Revenues
Crustaceans	3	1604	0.14	53	535	181	267	0.91	4.74
Flatfish	1	8	0.00	0	8	1	0	0.03	0.03
Wetfish	2	43800	3.89	1480	21900	5967	9300	25.91	29.65
Sable/Rock	4	10390	0.92	346	2598	1518	3382	0.94	17.34
Salmon	30	332190	29.48	11073	11073	7983	7983	3.65	55.56
Tuna	30	738802	65.57	24627	24627	16461	16461	29.72	95.41
TOTAL	30	1126794	100.00	37560	37560	24403	24403	100.00	100.00

## III. SUMMARY OF VESSEL COSTS

Cost Category	10	11	12	13	14	15	16	17	18
	# Vessels Reporting Cost > 0	Total Expenses by Vessels Reporting	% of Total Expenses	Average Vessel Cost based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Costs All Vessels	Vessels Reporting	Minimum % of Total Costs	Maximum % of Total Costs
Dockage	26	29699	3.27	1024	1142	1051	1047	0.33	16.34
Interest	14	53765	5.92	1854	3840	3527	4260	0.42	29.45
Depreciation	18	109784	12.08	3786	6099	3460	2276	5.33	64.10
Capital Expenditure	18	98685	10.86	3403	5483	7105	8362	2.49	70.21
Insurance	21	80687	8.88	2782	3842	2246	1702	3.81	36.86
Taxes	18	33609	3.70	1159	1867	2222	2575	0.08	11.61
Other Fixed (gear, etc)	10	15447	1.70	533	1545	820	622	1.80	8.59
Total Fixed	29	421680	46.40	14541	14541	9504	9504	26.00	85.24
Fuel	29	169347	18.64	5840	5840	2775	2775	7.14	42.72
Repairs & Maintenance	28	120364	13.25	4150	4299	3320	3283	1.65	43.08
Crewshares & Wages	15	123603	13.60	4262	8240	8202	9864	1.90	43.03
Other Variable (ice, bait, etc)	18	73755	8.12	2543	4098	2402	1710	2.70	22.52
Total Variable	29	487066	53.60	16795	16795	12919	12919	14.76	74.00
TOTAL	29	908746	100.00	31336	31336	19429	19429	100.00	100.00

Source: 1980 CIF Survey; Sector 11  
 California vessels only; updated to 1982 using input and product price adjustments.

LONGLINERS

(n = 6)

## I. DESCRIPTION OF THE FLEET

Primary gear: Longlines

## II. SUMMARY OF VESSEL REVENUES

Species	1	2	3	4	5	6	7	8	9
	# Vessels Reporting Catch > 0	Sample Revenues	% Revenues by Vessels Reporting Catch > 0	Average Revenues based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Revenues All Vessels	Vessels Harvesting	Minimum % of Total Revenues	Maximum % of Total Revenues
Wetfish	1	5913	1.31	986	5913	2204	0	25.28	25.28
Sable/Rock	4	380490	84.31	63415	95123	137639	159376	19.35	100.00
Sharks/Rays/Skates	1	220	0.05	37	220	82	0	42.31	42.31
Salmon	1	21000	4.65	3500	21000	7826	0	49.07	49.07
Tuna	1	4800	1.06	800	4800	1789	0	11.21	11.21
Cod	3	21200	4.70	3533	7067	5134	5267	18.89	100.00
Bass	1	17480	3.87	2913	17480	6514	0	74.72	74.72
Other	1	175	0.04	29	175	65	0	37.63	37.63
TOTAL	6	451278	100.00	75213	75213	133118	133118	100.00	100.00

## III. SUMMARY OF VESSEL COSTS

Cost Category	10	11	12	13	14	15	16	17	18
	# Vessels Reporting Cost > 0	Total Expenses by Vessels Reporting	% of Total Expenses	Average Vessel Cost based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Costs All Vessels	Vessels Reporting	Minimum % of Total Costs	Maximum % of Total Costs
Dockage	5	3773	3.49	629	755	394	302	1.64	12.62
Interest	1	13456	12.44	2243	13456	5015	0	30.37	30.37
Depreciation	3	14369	13.29	2395	4790	3668	3932	19.42	25.94
Capital Expenditure	5	3213	2.97	536	643	625	633	0.40	58.62
Insurance	3	5544	5.13	924	1848	1526	1718	9.58	10.34
Taxes	5	18205	16.84	3034	3641	6354	6800	0.30	68.20
Other Fixed (gear, etc)	2	1384	1.28	231	692	363	275	2.37	12.42
Total Fixed	6	59943	55.43	9991	9991	10543	10543	11.05	75.86
Fuel	6	19092	17.66	3182	3182	1683	1683	7.01	43.69
Repairs & Maintenance	5	7013	6.49	1169	1403	785	641	4.67	18.63
Crewshares & Wages	2	10069	9.31	1678	5035	2429	894	9.35	33.74
Other Variable (ice, bait, etc)	4	12016	11.11	2003	3004	2229	2108	2.04	30.21
Total Variable	6	48191	44.57	8032	8032	5292	5292	24.14	88.95
TOTAL	6	108134	100.00	18022	18022	13763	13763	100.00	100.00

Source: 1980 CIF Survey; Sector 12

California vessels only; updated to 1982 using input and product price adjustments.



## 1982 SUMMARY ECONOMIC DATA FOR

Table 1-13

HOOK AND LINE  
(n = 7)

## I. DESCRIPTION OF THE FLEET

Primary gear: Hook and line

## II. SUMMARY OF VESSEL REVENUES

Species	1	2	3	4	5	6	7	8	9
	# Vessels Reporting Catch > 0	Sample Revenues	% Revenues by Vessels Reporting Catch > 0	Average Revenues based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Revenues All Vessels	Vessels Harvesting	Minimum % of Total Revenues	Maximum % of Total Revenues
Flatfish	2	875	2.27	125	438	242	263	1.52	10.45
Sable/Rock	6	21760	56.38	3109	3627	2696	2569	58.60	100.00
Salmon	1	1443	3.74	206	1443	505	0	25.04	25.04
Billfish	2	4518	11.71	645	2259	1239	1316	16.36	30.95
Cod	1	10000	25.91	1429	10000	3499	0	100.00	100.00
TOTAL	7	38596	100.00	5514	5514	3946	3946	100.00	100.00

## III. SUMMARY OF VESSEL COSTS

Cost Category	10	11	12	13	14	15	16	17	18
	# Vessels Reporting Cost > 0	Total Expenses by Vessels Reporting	% of Total Expenses	Average Vessel Cost based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Costs All Vessels	Vessels Reporting	Minimum % of Total Costs	Maximum % of Total Costs
Dockage	3	2196	4.04	366	732	493	466	0.56	100.00
Interest	2	5690	10.48	948	2845	1345	166	15.21	16.99
Depreciation	4	12920	23.79	2153	3230	1637	737	20.72	53.04
Capital Expenditure	2	5380	9.90	897	2690	1660	1856	12.03	28.82
Insurance	5	2249	4.14	375	450	213	144	1.98	27.27
Taxes	3	226	0.42	38	75	48	42	0.23	9.09
Other Fixed (gear, etc)	1	108	0.20	18	108	40	0	1.56	1.56
Total Fixed	6	28769	52.96	4795	4795	4270	4270	8.93	78.55
Fuel	6	17373	31.98	2896	2896	2689	2689	8.16	80.35
Repairs & Maintenance	5	5054	9.30	842	1011	1139	1177	2.15	80.35
Crewshares & Wages	0	0	0.00	0	0	0	0	10.72	10.72
Other Variable (ice, bait, etc)	4	3123	5.75	521	781	421	250	4.10	40.91
Total Variable	6	25549	47.04	4258	4258	3868	3868	21.45	91.07
TOTAL	6	54318	100.00	9053	9053	6581	6581	91.07	100.00

Source: 1980 CIF Survey; Sector 13

California vessels only; updated to 1982 using input and product price adjustments.

BLACK COD POTS  
(n = 3)

## I. DESCRIPTION OF THE FLEET

Primary gear: Pots and traps  
Value of catch: a) Sablefish greater than any other species  
 b) Crustaceans equal to zero

## II. SUMMARY OF VESSEL REVENUES

Species	1	2	3	4	5	6	7	8	9
	# Vessels Reporting Catch > 0	Sample Revenues	% Revenues by Vessels Reporting Catch > 0	Average Revenues based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Revenues All Vessels	Harvesting	Minimum % of Total Revenues	Maximum % of Total Revenues
Sable/Rock	3	202246	69.70	67415	67415	33081	33081	53.31	99.39
Sharks/Rays/Skates	1	528	0.18	176	528	249	0	0.61	0.61
Salmon	1	4200	1.45	1400	4200	1980	0	16.73	16.73
Tuna	1	83200	28.87	27733	83200	39221	0	46.69	46.69
TOTAL	3	290174	100.00	96725	96725	62890	62890	100.00	100.00

## III. SUMMARY OF VESSEL COSTS

Cost Category	10	11	12	13	14	15	16	17	18
	# Vessels Reporting Cost > 0	Total Expenses by Vessels Reporting	% of Total Expenses	Average Vessel Cost based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Costs All Vessels	Vessels Reporting	Minimum % of Total Costs	Maximum % of Total Costs
Dockage	2	1870	2.78	623	935	763	763	1.22	3.93
Interest	2	6401	9.52	2134	3201	19025	1465	10.80	12.35
Depreciation	2	11213	16.68	3738	5607	4686	4739	6.17	23.96
Capital Expenditure	3	17528	26.07	5843	5843	3956	3956	3.71	100.00
Insurance	2	4368	6.50	1456	2184	1819	1837	2.47	9.31
Taxes	1	289	0.43	98	289	136	0	0.67	0.67
Other Fixed (gear, etc)	0	0	0.00	0	0	0	0	0.00	0.00
Total Fixed	3	41671	61.97	13890	13890	10328	10328	25.92	100.00
Fuel	2	15414	22.92	5138	7707	5016	4236	24.69	27.66
Repairs & Maintenance	1	4861	7.23	1620	4861	2291	0	34.57	34.57
Crewshares & Wages	1	1736	2.58	579	1736	818	0	12.35	12.35
Other Variable (ice, bait, etc)	2	3560	5.29	1187	1780	1440	1433	2.47	7.44
Total Variable	2	25571	38.03	8524	12786	6330	2370	35.09	74.08
TOTAL	3	67242	100.00	22414	22414	14779	14779	100.00	100.00

Source: 1980 CIF Survey; Sector 14  
 California vessels only; updated to 1982 using input and product price adjustments.

CPAB - LOBSTER, NORTH  
(n = 35)

## I. DESCRIPTION OF THE FLEET

Primary or secondary gear: Pots and traps  
Primary gear: Net gillnet  
Home port: From Santa Barbara - north  
Value of catch: Crustaceans greater than any other species

## II. SUMMARY OF VESSEL REVENUES

Species	1	2	3	4	5	6	7	8	9
	# Vessels Reporting Catch > 0	Sample Revenues	% Revenues by Vessels Reporting Catch > 0	Average Revenues based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Revenues All Vessels	Vessels Harvesting	Minimum % of Total Revenues	Maximum % of Total Revenues
Crustaceans	34	1610558	74.19	47369	47369	49400	49400	31.25	100.00
Mollusks	1	18	0.00	1	18	3	0	0.04	0.04
Flatfish	3	68958	3.18	2028	22989	8137	16386	0.28	21.50
Wetfish	1	10800	0.50	318	10800	1825	0	22.32	22.32
Sable/Rock	7	4276	0.20	126	611	510	984	0.05	2.05
Sharks/Rays/Skates	1	5009	0.23	147	5009	846	0	7.32	7.32
Salmon	29	368297	16.97	10832	12700	10503	10277	0.02	49.37
Tuna	10	100878	4.65	2967	10088	5670	6123	3.67	26.70
Cod	1	2000	0.09	59	2000	338	0	12.35	12.35
TOTAL	34	2170804	100.00	63847	63847	54084	54084	100.00	100.00

## III. SUMMARY OF VESSEL COSTS

Cost Category	10	11	12	13	14	15	16	17	18
	# Vessels Reporting Cost > 0	Total Expenses by Vessels Reporting	% of Total Expenses	Average Vessel Cost based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Costs All Vessels	Vessels Reporting	Minimum % of Total Costs	Maximum % of Total Costs
Dockage	27	18586	1.91	547	688	466	420	0.40	100.00
Interest	11	56970	5.86	1676	5179	3527	4507	0.65	31.25
Depreciation	13	71940	7.40	2116	5534	3183	2754	7.83	47.85
Capital Expenditure	14	101564	10.44	2987	7255	6544	8547	4.66	40.77
Insurance	21	77699	7.99	2285	3700	2620	2424	3.17	24.07
Taxes	19	39565	4.07	1164	2082	1746	1882	0.23	29.60
Other Fixed (gear, etc)	12	32652	3.36	960	2721	1818	2138	1.94	47.05
Total Fixed	33	398975	41.02	11735	12090	11154	11130	3.45	100.00
Fuel	32	116021	11.93	3412	3626	3770	3785	1.70	96.55
Repairs & Maintenance	31	139203	14.31	4094	4490	5817	5944	2.12	100.00
Crewshares & Wages	24	251599	25.87	7400	10483	12672	13970	3.98	72.87
Other Variable (ice, bait, etc)	21	66783	6.87	1964	3180	2319	2201	2.60	30.91
Total Variable	33	573605	58.98	16871	17382	18856	18906	23.96	100.00
TOTAL	34	972580	100.00	28605	28605	25385	25385	100.00	100.00

Source: 1980 CIF Survey; Sector 15  
 California vessels only; updated to 1982 using input and product price adjustments.

CRAB - LOBSTER, SOUTH  
(n = 19)

## I. DESCRIPTION OF THE FLEET

Primary or secondary gear: Pots and traps  
Primary gear: Not gillnet  
Home port: From Santa Barbara - south  
Value of catch: Crustaceans greater than any other species

## II. SUMMARY OF VESSEL REVENUES

Species	1	2	3	4	5	6	7	8	9
	# Vessels Reporting Catch > 0	Sample Revenues	% Revenues by Vessels Reporting Catch > 0	Average Revenues based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Revenues All Vessels	Vessels Harvesting	Minimum % of Total Revenues	Maximum % of Total Revenues
Crustaceans	19	228648	82.32	12034	12034	12417	12417	49.60	100.00
Flatfish	4	1017	0.37	54	254	161	268	0.10	3.06
Wetfish	3	1920	0.69	101	640	360	690	1.41	13.41
Sable/Rock	3	3450	1.24	182	1150	668	1310	0.39	48.98
Sharks/Rays/Skates	3	11633	4.19	612	3878	2353	4733	9.44	27.43
Salmon	1	14700	5.29	774	14700	3282	0	21.25	21.25
Billfish	1	3250	1.17	171	3250	726	0	38.68	38.68
Tuna	1	12800	4.81	674	12800	2858	0	18.51	18.51
Cod	1	200	0.07	11	200	45	0	8.25	8.25
Other	1	140	0.05	7	140	31	0	5.78	5.78
TOTAL	19	277759	100.00	14619	14619	17090	17090	100.00	100.00

## III. SUMMARY OF VESSEL COSTS

Cost Category	10	11	12	13	14	15	16	17	18
	# Vessels Reporting Cost > 0	Total Expenses by Vessels Reporting	% of Total Expenses	Average Vessel Cost based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Costs All Vessels	Vessels Reporting	Minimum % of Total Costs	Maximum % of Total Costs
Dockage	12	9757	3.18	542	813	585	542	0.45	9.43
Interest	8	13275	4.32	738	1659	1407	1711	0.96	15.08
Depreciation	9	26127	8.50	1452	2903	2499	2878	5.28	54.85
Capital Expenditure	12	81961	26.68	4553	6830	8229	9274	7.37	63.90
Insurance	9	6062	1.97	337	674	598	699	1.20	7.47
Taxes	7	17245	5.61	958	2464	2034	2633	0.37	17.46
Other Fixed (gear, etc)	5	13162	4.28	731	2632	1329	1164	14.81	26.74
Total Fixed	18	167589	54.55	9311	9311	10592	10592	3.91	88.24
Fuel	18	44872	14.61	2493	2493	1562	1562	5.10	43.75
Repairs & Maintenance	17	38980	12.69	2166	2293	1886	1864	3.21	50.88
Crewshares & Wages	9	29298	9.54	1628	3255	2015	1679	2.14	60.26
Other Variable (ice, bait, etc)	9	26469	8.62	1471	2941	1858	1607	3.78	32.07
Total Variable	18	139618	45.45	7757	7757	5137	5137	11.76	96.09
TOTAL	18	307207	100.00	17067	17067	13973	13973	100.00	100.00

Source: 1980 CIF Survey; Sector 16  
California vessels only; updated to 1982 using input and product price adjustments.

BAITBOATS  
(n = 7)

## I. DESCRIPTION OF THE FLEET

Primary gear: Pole and line or rod and reel  
Value of catch: a) Tuna greater than any other species  
 b) Rockfish equal to zero

## II. SUMMARY OF VESSEL REVENUES

Species	1 # Vessels Reporting Catch > 0	2 Sample Revenues	3 % Revenues by Vessels Reporting Catch > 0	4 Average Revenues based on: All Vessels	5 Vessels Reporting	6 Standard Deviation of Vessel Revenues All Vessels	7 Harvesting	8 Minimum % of Total Revenues	9 Maximum % of Total Revenues
Mollusks	1	41360	2.33	5909	41360	14473	0	68.30	68.30
Sable/Rock	1	7200	0.41	1029	7200	2519	0	10.84	10.84
Salmon	1	19740	1.11	2820	19740	6908	0	33.04	33.04
Tuna	7	1704104	96.15	243443	243443	277567	277567	31.70	100.00
TOTAL	7	1772404	100.00	253201	253201	270332	270332	100.00	100.00

## III. SUMMARY OF VESSEL COSTS

Cost Category	10 # Vessels Reporting Cost > 0	11 Total Expenses by Vessels Reporting	12 % of Total Expenses	13 Average Vessel Cost based on: All Vessels	14 Vessels Reporting	15 Standard Deviation of Vessel Costs All Vessels	16 Vessels Reporting	17 Minimum % of Total Costs	18 Maximum % of Total Costs
Dockage	4	8030	0.74	1147	2008	2001	2298	0.26	9.20
Interest	2	52000	4.76	7429	26000	11794	2000	6.12	14.31
Depreciation	5	82473	7.55	11782	16495	11396	10203	2.92	21.92
Capital Expenditure	1	8794	0.80	1256	8794	3077	0	2.53	2.53
Insurance	5	70550	6.46	10079	14110	8033	5785	4.27	27.54
Taxes	4	4162	0.38	595	1041	836	871	0.24	3.25
Other Fixed (gear, etc)	3	18751	1.72	2679	6250	3314	1818	1.53	9.55
Total Fixed	7	244760	22.40	34966	34966	29693	29693	0.24	40.23
Fuel	7	146706	13.43	20958	20958	15369	15369	8.15	30.82
Repairs & Maintenance	6	105447	9.65	15064	17575	13149	12553	7.65	14.83
Crewshares & Wages	7	536723	49.13	76675	76675	84662	84662	17.80	75.00
Other Variable (ice, bait, etc)	5	58819	5.38	8403	11764	10557	10793	3.03	7.86
Total Variable	7	847696	77.60	121099	121099	120870	120870	59.77	99.76
TOTAL	7	1092456	100.00	156065	156065	146442	146442	100.00	100.00

Source: 1980 CIF Survey; Sector 17  
 California vessels only; updated to 1982 using input and product price adjustments.

JIGBOATS  
(n = 31)

## I. DESCRIPTION OF THE FLEET

Primary gear: Troll  
Value of catch: a) Tuna greater than any other species  
 b) Salmon equal to zero

## II. SUMMARY OF VESSEL REVENUES

Species	1	2	3	4	5	6	7	8	9
	# Vessels Reporting Catch > 0	Sample Revenues	% Revenues by Vessels Reporting Catch > 0	Average Revenues based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Revenues All Vessels	Vessels Harvesting	Minimum % of Total Revenues	Maximum % of Total Revenues
Crustaceans	2	14324	1.14	494	7162	1886	1953	9.50	25.10
Mollusks	3	126368	10.04	4358	42123	19405	45270	7.81	55.00
Wetfish	1	8600	0.68	297	8600	1569	0	21.20	21.20
Sable/Rock	2	18030	1.43	622	9015	3284	8985	13.51	100.00
Billfish	2	10725	0.85	370	5363	1365	488	25.83	64.64
Tuna	28	1033965	82.13	35654	36927	35323	35288	32.43	100.00
Cod	2	40000	3.18	1379	20000	5708	10000	40.98	87.57
Other	1	7000	0.56	241	7000	1277	0	12.73	12.73
TOTAL	29	1259012	100.00	43414	43414	45669	45669	100.00	100.00

## III. SUMMARY OF VESSEL COSTS

Cost Category	10	11	12	13	14	15	16	17	18
	# Vessels Reporting Cost > 0	Total Expenses by Vessels Reporting	% of Total Expenses	Average Vessel Cost based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Costs All Vessels	Vessels Reporting	Minimum % of Total Costs	Maximum % of Total Costs
Dockage	22	31191	1.80	1040	1418	929	801	0.67	16.09
Interest	10	96129	5.54	3204	9613	6052	6948	2.45	37.54
Depreciation	13	187359	10.81	6245	14412	10405	11495	0.13	50.00
Capital Expenditure	19	189295	10.92	6310	9963	17878	21639	1.24	39.06
Insurance	18	168748	9.73	5625	9375	12873	15525	0.00	33.76
Taxes	19	48874	2.82	1629	2572	5183	6323	0.00	44.37
Other Fixed (gear, etc)	10	15596	0.90	520	1560	975	1110	0.79	22.40
Total Fixed	30	748792	43.19	24960	24960	33257	33257	8.00	77.90
Fuel									
Repairs & Maintenance	30	230188	13.28	7673	7673	7163	7163	1.57	60.00
Crewshares & Wages	28	431952	24.92	14398	15427	43181	44519	2.26	78.12
Other Variable (ice, bait, etc)	19	224100	12.93	7470	11795	13078	14801	2.35	50.00
Total Variable	16	98616	5.89	3287	6164	7717	9692	1.29	48.88
TOTAL	30	984856	56.81	32829	32829	55107	55107	22.10	92.00
TOTAL	30	1733648	100.00	57788	57788	84525	84525	100.00	100.00

Source: 1980 CIF Survey; Sector 18

California vessels only; updated to 1982 using input and product price adjustments.

DIVEBOATS  
(n = 33)

## I. DESCRIPTION OF THE FLEET

Primary gear: Scuba or hooka

## II. SUMMARY OF VESSEL REVENUES

Species	1	2	3	4	5	6	7	8	9
	# Vessels Reporting Catch > 0	Sample Revenues	% Revenues by Vessels Reporting Catch > 0	Average Revenues based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Revenues All Vessels	Harvesting	Minimum % of Total Revenues	Maximum % of Total Revenues
Crustaceans	1	3360	0.25	102	3360	576	0	17.63	17.63
Mollusks	31	289528	21.68	8774	9340	10677	10773	2.33	100.00
Flatfish	3	7105	0.53	215	2368	835	1600	4.37	36.80
Sharks/Rays/Skates	2	6600	0.49	200	3300	833	1100	23.08	23.13
Salmon	4	421050	31.53	12759	105263	71991	181714	0.44	97.67
Billfish	2	53632	4.02	1625	26816	6417	1960	43.03	73.12
Tuna	3	14800	1.11	448	4933	1623	2620	8.39	44.44
Other	15	539489	40.39	16348	35968	33901	42695	11.54	100.00
TOTAL	33	1335564	100.00	40472	40472	76360	76360	100.00	100.00

## III. SUMMARY OF VESSEL COSTS

Cost Category	10	11	12	13	14	15	16	17	18
	# Vessels Reporting Cost > 0	Total Expenses by Vessels Reporting	% of Total Expenses	Average Vessel Cost based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Costs All Vessels	Vessels Reporting	Minimum % of Total Costs	Maximum % of Total Costs
Dockage	24	32351	4.02	1011	1348	2049	2268	1.04	37.85
Interest	13	36560	4.54	1143	2812	1695	1541	1.72	22.31
Depreciation	17	63204	7.85	1975	3718	2624	2546	2.07	42.28
Capital Expenditure	15	83518	10.37	2610	5568	5684	7242	3.47	75.00
Insurance	15	20216	2.51	632	1348	986	1054	0.92	9.65
Taxes	17	14799	1.84	462	871	750	839	0.09	10.81
Other Fixed (gear, etc)	6	8346	1.04	261	1391	783	1302	0.45	26.87
Total Fixed	32	258993	32.15	8094	8094	7822	7822	2.50	79.62
Fuel	32	155834	19.35	4870	4870	3736	3736	7.36	90.91
Repairs & Maintenance	30	95387	11.84	2981	3180	3647	3682	1.61	67.44
Crewshares & Wages	21	226869	28.17	7090	10803	11703	12984	5.24	66.91
Other Variable (ice, bait, etc)	21	68412	8.49	2138	3258	2696	2725	0.87	54.37
Total Variable	32	546502	67.85	17078	17078	14210	14210	20.38	97.50
TOTAL	32	805495	100.00	25172	25172	18415	18415	100.00	100.00

Source: 1980 CIF Survey; Sector 19

California vessels only; updated to 1982 using input and product price adjustments.

HARPOON BILLFISH  
(n = 42)

## I. DESCRIPTION OF THE FLEET

Primary gear: Harpoon

Value of catch: Billfish greater than any other species

## II. SUMMARY OF VESSEL REVENUES

Species	1	2	3	4	5	6	7	8	9
	# Vessels Reporting Catch > 0	Sample Revenues	% Revenues by Vessels Reporting Catch > 0	Average Revenues based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Revenues All Vessels	Vessels Harvesting	Minimum % of Total Revenues	Maximum % of Total Revenues
Crustaceans	5	120275	10.03	3165	24055	10945	20198	7.11	37.01
Mollusks	3	17088	1.43	450	5696	2561	7296	0.34	30.61
Flatfish	1	35	0.00	1	35	6	0	0.42	0.42
Sable/Rock	2	9600	0.80	253	4800	1441	4200	7.22	30.87
Sharks/Rays/Skates	6	24376	2.03	641	4063	1999	3378	2.12	34.03
Billfish	38	1018340	84.94	26798	26798	24422	24422	62.99	100.00
Tuna	2	8000	0.67	211	4000	912	800	11.65	12.33
Cod	1	1200	0.10	32	1200	192	0	4.41	4.41
TOTAL	38	1198914	100.00	31550	31550	33462	33462	100.00	100.00

## III. SUMMARY OF VESSEL COSTS

Cost Category	10	11	12	13	14	15	16	17	18
	# Vessels Reporting Cost > 0	Total Expenses by Vessels Reporting	% of Total Expenses	Average Vessel Cost based on: All Vessels	Vessels Reporting	Standard Deviation of Vessel Costs All Vessels	Vessels Reporting	Minimum % of Total Costs	Maximum % of Total Costs
Dockage	33	48385	3.94	1131	1406	967	881	0.60	43.73
Interest	13	79791	6.78	1946	6138	5524	8397	0.17	33.14
Depreciation	17	145758	12.38	3555	8574	6474	7618	5.39	77.30
Capital Expenditure	18	181245	15.39	4421	10069	17861	25881	3.43	77.69
Insurance	28	69780	5.93	1702	2492	2577	2785	0.83	21.99
Taxes	19	14901	1.27	363	784	894	1181	0.07	35.20
Other Fixed (gear, etc)	6	24098	2.05	588	4016	2086	3994	1.99	13.87
Total Fixed	39	561954	47.73	13706	14409	22426	22773	1.56	92.18
Fuel	40	175558	14.91	4282	4389	3715	3698	0.88	50.00
Repairs & Maintenance	39	126655	10.76	3089	3248	4263	4311	1.33	69.93
Crewshares & Wages	34	230293	19.56	5617	6773	6206	6214	2.93	53.33
Other Variable (ice, bait, etc)	17	83010	7.05	2025	4883	5535	7741	3.09	91.71
Total Variable	41	615521	52.27	15013	15013	12616	12616	7.82	100.00
TOTAL	41	1177475	100.00	28719	28719	28677	28677	100.00	100.00

Source: 1980 CIF Survey; Sector 20

California vessels only; updated to 1982 using input and product price adjustments.



SECTION II

THE 1982 CALIFORNIA INTERINDUSTRY FISHERIES  
(CIF) MODEL

## SECTION II

### THE 1982 CALIFORNIA INTERINDUSTRY FISHERIES MODEL

#### Model Specifications

The 1982 CIF model contains 64 industrial sectors, including 20 fish harvesting sectors, 9 fish processing sectors, and 35 non-fishery sectors. A list of these industrial sectors is presented as Table 2-1.

The column entries for the Household Sector (Sector 65) show all payments made to California households by each industrial sector including wages, salaries, rents or profits and the row entry for Sector 65 shows all wholesale or retail sales made directly to California households by each industrial sector.

The import/export sector (Sector 66) accounts for all transactions between California-based firms in each industrial sector and all firms and households located outside California. Imports are shown as column entries (Sector 66) and exports are shown as row entries (Sector 66).<sup>11</sup>

#### SPECIAL CATCH-EFFORT RELATIONSHIPS

Input-output models are based on the assumption that the quantities of each input required in a production process change proportionately with changes in output quantities. A 10%

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In input-output analysis it is convenient to treat returns to capital and management as payments to households in the same sense that salaries, wages and rents are payments to households. For this reason, the Total Purchases by each industrial sector shown in the last row of the Transactions Table is identical to the Total Sales shown in the last column.

increase in sales by a given industrial sector, for example, is assumed to cause a 10% increase in purchases of all inputs by that industrial sector. Commercial fisheries, however, are a somewhat special case because fishermen are engaged in a unique type of search and capture activity. The use of inputs by a given fishing fleet is related to fishing time (or fishing effort) and in fisheries input-output relationships as reflected in catch per unit fishing effort statistics depend primarily on the abundance and/or availability of fish and the skills, intentions and luck of fishermen.

Procedures to test the stability of input-output relationships under changing biological, economic and regulatory conditions and methods to update the technical coefficients of the CIF model are discussed in Sea Grant Technical Report P-T-10. It should be noted here, however, that the stability of coefficients depends primarily on whether observed or estimated changes in outputs (catches) result from changes in the application of inputs (fishing effort) or changes in the condition of the fishery (catch per unit fishing effort).<sup>12</sup>

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An increase in the catch by a given fishing fleet may result from an increase in the abundance/availability of fish and no change in fishing effort or from an increase in fishing effort and no change in the abundance/availability of fish. In the first case, the increase in revenues to fishermen should enter the CIF model as increased payments to Households in the form of increased fishermen's profits. In the second case, the increase in revenues should be associated with a proportionate increase in the purchase of all inputs and a proportionate increase in payments to Households in the form of fishermen's profits. The need to adjust transactions data and technical coefficients to account for changes in the availability of a free input is unusual and required special treatment (See Sea Grant Technical Report P-T-10).

## SPECIES "MAKE" AND "USE" TABLES

All input-output models are based on estimates of dollar transactions between industrial sectors and sales to Households. To develop the CIF model, detailed transactions data were collected to estimate the dollar value of sales by each fish harvesting sector (Sectors 1-20) to each fish processing sector (Sectors 21-30). One option for collecting this kind of data was to ask fishermen the dollar value of their sales to various types of fish processors and/or to ask fish processors the dollar value of their purchases from various fishing fleets. A second option was to ask fish harvesters what products (species) they produce and where they sell various products and/or to ask processors what products (species) they buy and where they buy various products. This roundabout method of determining interindustry transactions is promoted by the U.S. Department of Commerce which used it to develop the most recent national input-output table. This method of developing a product "make" table and a product "use" table results in more reliable transactions data when firms are engaged in multiproduct enterprise.

It can be seen from the survey instruments (Appendix A-1 and A-2) that a "make" and "use" approach was taken to estimate transactions between California fish harvesters and fish processors. Information was requested about the range of products sold by various harvesting sectors and the range of products purchased by various processors and the dollar transactions between harvesters and processors were estimated on the basis "proportionality." If survey results showed, for instance,

that a particular fish harvesting sector accounted for 10% of California landings of a given species of fish, processors were assumed to make 10% of their in-state purchases of that species from that harvesting sector and so on.

A product "make" table showing the dollar value of each species group that was produced and sold by each harvesting sector and a product "use" table showing the dollar value of each species group was purchased and used by each processing sector are presented as Tables 2-2 and 2-3. The combination of data from both tables was used to estimate dollar transactions between California fish harvesters and fish processors, but Tables 2-2 and 2-3 are useful apart from the input-output analysis.<sup>13</sup> Dollar values in these tables can be adjusted quite simply to account for changes in the product mix decision of fishermen, regulatory changes, and other factors that affect the species composition of landings by various California fleets.

### Input-Output Tables

Input-output (I-0) tables are vastly underutilized as sources of cost and market data. Once "multipliers" are generated through I-0 analysis the information contained in the I-0 tables themselves are frequently forgotten until they are needed to update "multipliers." In this section the Transactions

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The matrix showing the dollar transactions between California fish harvesters and fish processors is a 20 x 9 matrix developed from manipulating the "make" table (20 x 13) and the "use" table (13 x 9). It appears in the CIF transactions Table (Table 2-4, Rows 1-20, Columns 21-29).

table and Technical Coefficients table of the CIF model are presented in their entirety. The fundamental value of each of these tables is summarized below.

#### The CIF Transactions Table (Table 2-4)

Table 2-4 shows the estimated dollar value of 1982 transactions among California fish harvesters, fish processors and non-fishery industries.

Reading across the row for a given sector shows the dollar value of sales by the row sector to each other California sector (columns 1-65), sales to California households (column 66), and sales to firms and households outside California (column 67). The last value in each row (column 68) shows the total dollar sales by firms in the row sector during 1982.

Reading down the column for a given sector shows the purchases by the column sector from all other industrial sectors (rows 1-64), purchases from California households (row 65) and purchases from firms and households outside California (row 66). The second to last entry in each column (row 67), shows total costs for each sector which is the same as the total sales value shown for that sector in column 67. The last entry in each column is a residual.

Each row of Table 2-4 provides an overview of the market distribution, level of wholesale and retail sales, and export activities by fishery and non-fishery sectors of the CIF model. Each column of Table 2-4 provides an overview of the inputs used by various fishery and non-fishery sectors of the CIF model and shows whether they are purchased inside or outside of California.

#### The CIF Technical Coefficients Table (Table 2-5)

Table 2-5 shows the dollar value of purchases by each column sector from each of the row sectors per dollar of direct sales by the column sector.

Reading down the column shows the fraction of each dollar spent by firms in the column sector that involves direct purchases from firms in each row sector. The coefficient of .11898215 in row 34, column 9 for example, shows that every dollar worth of sales by large California salmon trollers (Sector 9) requires approximately \$.1189 worth of direct purchases from California shipyards and boatyards (Sector 34).<sup>14</sup>

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Because coefficients are calculated on the basis of purchases per unit sales by a particular sector, reading or summarizing coefficients across rows is not useful.

TABLE 2-1

SECTORS OF THE 1982  
CALIFORNIA INTERINDUSTRY FISHERIES MODEL

Fish Harvesting Sectors (1-20)

Sector Number	Title	Sector Number	Title
1	Groundfish Trawlers, North	11	Salmon-Albacore
2	Groundfish Trawlers, South	12	Long-Liners
3	Shrimp Trawlers	13	Hook & Line
4	Tuna Purse-Seiners	14	Black Cod Pots
5	Wetfish Seiners	15	Crab/Lobster, North
6	Herring Gillnetters	16	Crab/Lobster, South
7	Other Gillnetters	17	Baitboats
8	Small Salmon Trollers	18	Jigboats
9	Large Salmon Trollers	19	Diveboats
10	Salmon-Crabbers	20	Harpoon Billfish

Fish Processing Sectors (21-29)

Sector Number	Title	Sector Number	Title
21	Fish Whsl., Proc., Dist., Small	26	Seafood Restaurants
22	Fish Whsl., Proc., Dist., Medium	27	Other Eat & Drink
23	Fish Whsl., Proc., Dist., Large	28	Seafood Markets
24	Fish Import/Export Brokers	29	Other Food & Kindred Products
25	Tuna Cannerys		

Non-Fishery Sectors (30-64)

Sector Number	Title	Sector Number	Title
30	Forestry & Other Fishing	48	Textiles
31	Forestry/Fish Services	49	Apparel
32	Petfood	50	Paper
33	Animal & Marine Fats	51	Printing
34	Ship & Boat	52	Chemical
35	Motor Freight	53	Petroleum
36	Agricultural	54	Rubber & Plastics
37	Mining	55	Leather
38	Construction	56	Telephone & Public Utilities
39	Lumber	57	Wholesale Traders
40	Furniture	58	Retail Traders
41	Glass, Stone, Clay	59	Insurance
42	Metal	60	Finance
43	Non-Electric Machines	61	Services
44	Electric Equipment	62	Federal Government
45	Transportation Equipment	63	State & Local Governments
46	Instruments	64	Scrap Industries
47	Miscellaneous Mfg. Goods		

Primary Sectors (65-66)

Sector Number	Title
65	California Households
66	Imports/Exports



TABLE 2-2

THE CIF PRODUCT "MAKE" TABLE  
(DOLLAR VALUE OF 1982 CALIFORNIA FISH LANDINGS)

Harvesting Sectors	Crustaceans	Mollusks	Flatfish	Wetfish	Sable/ Rockfish	Shark/Rays/ Skates	Salmon	Billfish	Tuna	Cod/Bass/ Perch/Other	Total
1) Groundfish Trawlers, N	17,576	0	7,750,541	0	10,874,594	2,608	293,402	0	2,442	3,591	18,944,755
2) Groundfish Trawlers, S	164,221	0	702,023	0	3,158,852	559,699	252,166	187,379	48,137	139,089	5,211,566
3) Shrimp Trawlers	4,007,571	0	194,279	0	0	0	390	0	0	0	4,202,240
4) Tuna Purse-Seiners	0	0	0	0	0	0	0	0	111,068,621	0	111,068,621
5) Wetfish Seiners	0	2,082,833	0	11,753,029	0	0	0	0	1,108,915	0	14,944,777
6) Herring Gillnetters	423,482	0	34,468	11,824,589	22,796	83,678	6,251,361	41,226	543,260	17,921	19,242,778
7) Other Gillnetters	606,091	3,494,662	375,065	0	355,948	2,121,662	217,325	3,492,174	594,378	201,849	11,459,155
8) Small Salmon Trollers	0	0	1,777	0	11,753	792	1,672,483	3,853	16,836	42,831	1,750,335
9) Large Salmon Trollers	111,331	0	121	32,133	84,906	634	5,263,918	353,107	697,163	49,288	6,592,600
10) Salmon/Crabbers	1,168,535	0	0	202,800	26,891	0	2,429,070	0	201,221	30,536	4,059,053
11) Salmon/Albacore	11	0	0	0	1,624	0	1,180,793	0	1,185,322	0	2,367,751
12) Long-Liners	0	0	0	0	17,813	155	81,590	0	6,247	200,325	306,129
13) Hook and Line	0	0	322,185	0	554,905	0	0	0	0	0	877,090
14) Black Cod Pots	0	0	216,151	0	1,559,273	5,178	1,487,755	0	691	12,682	3,281,727
15) Crab/Lobster, N	3,356,568	319	182,687	0	35,568	56,847	493,988	0	88,356	4,129	4,218,462
16) Crab/Lobster, S	3,069,999	0	12,364	72,052	3,652	6,293	282	43,260	0	1,198	3,209,100
17) Baitboats, Tuna	0	0	0	0	48,448	0	174,937	0	5,423,681	0	5,647,067
18) Baitboats, Tuna	191,930	26,119	0	327,991	198,898	0	89,824	31,481	1,141,902	375,880	2,384,023
19) Diveboats	35,122	1,760,165	70,853	0	0	11,995	7,905	620,414	39,939	6,184,519	8,730,911
20) Harpoon-Billfish	348,246	10,214	100	0	28,049	45,017	68,933	303,667	7,145	12,537	823,909
Total	13,500,652	7,374,313	9,862,655	24,212,591	16,983,968	2,894,555	19,966,136	5,076,559	122,174,248	7,276,373	229,322,050

This table shows the dollar value of 1982 landings by each of California's major fishing fleets. READING DOWN A COLUMN shows the 1982 dollar value of landings of a given species by each major fleet class. READING ACROSS A ROW shows the 1982 dollar value of landings of each species by a given fleet class.

TABLE 2-3

DOLLAR VALUE OF 1982 FISH PURCHASES BY CALIFORNIA FISH PROCESSORS  
CIF SPECIES "USE" TABLE

Species	21		22		23		24		25		26-29		Total
	Fish, Whsl Proc, Dist	Small	Fish, Whsl Proc, Dist	Medium	Fish, Whsl Proc, Dist	Large	Fish Imp/Exp Brokers	Tuna Cannery	Other Fish Buyers				
Crustaceans	476,600	4,190,600	8,833,500	0	0	0	0	0	0	13,500,700			
Mollusks	257,400	2,263,200	4,770,400	83,300	0	0	0	0	0	7,374,300			
Flatfish	348,200	3,061,400	6,453,100	0	0	0	0	0	0	9,862,700			
Wetfish	0	0	0	0	11,425,900	12,786,700	0	0	0	24,212,600			
Sable/Rock	553,700	4,869,300	10,268,500	1,292,500	0	0	0	0	0	16,984,000			
Sharks/Rays/Skates	102,200	898,500	1,893,900	0	0	0	0	0	0	2,894,600			
Salmon	704,800	6,197,500	13,063,800	0	0	0	0	0	0	19,966,100			
Billfish	179,200	1,575,800	3,321,600	0	0	0	0	0	0	5,076,600			
Tuna	0	549,800	378,700	0	0	0	121,245,700	0	0	122,174,200			
Cod	26,500	232,700	490,500	0	0	0	0	0	0	749,700			
Bass	4,700	42,000	88,700	0	0	0	0	0	0	135,400			
Perch	7,200	62,900	132,600	0	0	0	0	0	0	202,600			
Other	211,000	1,935,800	4,041,800	0	0	0	0	0	0	6,188,700			
TOTAL	2,871,300	25,879,300	53,737,200	12,801,700	134,032,400	0	229,322,100						

This table shows the 1982 dollar value of California fish purchases by various types of fish buyers. Reading down a column shows the dollar value of purchases of each species group by a given type of fish buyer. Reading across a row shows the dollar value of a given species group purchased by each type of fish buyer.

TABLE 2-4

1982 CIF TRANSACTIONS TABLE

ROW/COL	1	2	3	4	5	6	7	8
1	GROUND FISH TRAWLERS, N	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	GROUND FISH TRAWLERS, S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	SHRIMP TRAWLERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	TUNA PURSE-SEINERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	WET FISH SEINERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	HERRING GILLNETTERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	OTHER GILLNETTERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	SMALL SALMON TROLLERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	LARGE SALMON TROLLERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	SALMON/CRABBERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	SALMON/ALBACORE	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	LONG-LINERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	HOOK AND LINE	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	BLACK GOD POTS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	CRAB/LOBSTER, N	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	CRAB/LOBSTER, S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	BAITBOATS, TUNA	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	JIGBOATS, TUNA	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	DIVEBOATS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	HARPOON, BILLFISH	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	FISH WHSL, PROC, DIST, SM	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	FISH WHSL, PROC, DIST, MED	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	FISH WHSL, PROC, DIST, LG	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	FISH IMP/EXP, BROKERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	TUNA CANNERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	SEAFOOD RESTAURANTS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	OTHER EAT & DRINK	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	SEAFOOD MARKETS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	OTHER FOOD & KINDRED PROC	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	FORESTRY & OTHER FISHING	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	FORESTRY/FISH SERVICES	0.00	0.00	0.00	0.00	0.00	0.00	0.00
32	PETFOOD	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33	ANIMAL & MARINE FATS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34	SHIP & BOAT	1.22	0.45	0.32	0.96	2.29	1.11	0.27
35	MOTOR FREIGHT	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36	AGRICULTURE	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37	MINING	0.00	0.00	0.00	0.00	0.00	0.00	0.00
38	CONSTRUCTION	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39	LUMBER	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40	FURNITURE	0.00	0.00	0.00	0.00	0.00	0.00	0.00
41	GLASS, STONE, CLAY	0.00	0.00	0.00	0.00	0.00	0.00	0.00
42	METAL	0.98	0.02	0.12	0.35	1.19	1.07	0.13
43	NON-ELECTRIC MACHINES	0.30	0.01	0.04	0.00	0.21	1.05	0.03
44	ELECTRIC EQUIPMENT	0.03	0.00	0.00	0.00	0.00	0.04	0.00
45	TRANSPORTATION EQUIP	0.01	0.00	0.00	0.00	0.00	0.02	0.00
46	INSTRUMENTS	0.10	0.00	0.01	0.00	0.00	0.12	0.01
47	MISC MNGG GOODS	0.10	0.00	0.01	0.00	0.00	0.11	0.01
48	TEXTILES	0.00	0.00	0.00	0.00	0.00	0.00	0.00
49	APPAREL	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	PAPER	0.00	0.00	0.00	0.00	0.00	0.00	0.00
51	PRINTING	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52	CHEMICAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00
53	PETROLEUM	0.88	0.17	0.15	0.00	1.71	0.39	0.05
54	RUBBER & PLASTIC	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	LEATHER	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	TELEPHONE/PUB UTIL	0.12	0.00	0.02	13.73	0.09	0.44	0.05
57	WHOLESALE TRADERS	0.55	0.11	0.11	9.20	1.01	0.31	0.08
58	RETAIL TRADERS	0.76	0.15	0.15	12.87	0.27	0.44	0.11
59	INSURANCE	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	FINANCE	0.75	0.28	0.08	7.31	1.20	0.62	0.03
61	SERVICES	0.00	0.00	0.00	0.00	1.18	0.00	0.00
62	FED GOVERNMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00
63	ST & LOC GOVERNMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	SCRAP MATERIALS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
65	HOUSEHOLDS	5.89	2.71	2.00	140.69	13.78	7.85	0.61
66	IMPORTS/EXPORTS	0.89	0.14	0.08	12.06	0.32	0.85	0.22
67	TOTALS	11.98	4.03	3.10	231.85	23.19	14.44	1.60
68	RESIDUALS	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 2-4 (continued)

TRANSACTIONS TABLE

ROW/COL	9	10	11	12	13	14	15	16
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34	0.74	0.23	0.37	0.13	0.04	1.32	0.63	0.95
35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
41	0.24	0.11	0.17	0.00	0.00	0.00	0.00	0.00
42	0.07	0.04	0.06	0.00	0.00	1.26	0.29	0.13
43	0.01	0.00	0.01	0.00	0.00	0.43	0.05	0.03
44	0.00	0.00	0.00	0.00	0.00	0.05	0.01	0.00
45	0.02	0.01	0.02	0.00	0.00	0.02	0.00	0.00
46	0.02	0.01	0.02	0.00	0.00	0.14	0.03	0.01
47	0.00	0.00	0.00	0.00	0.00	0.13	0.03	0.01
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
53	0.21	0.09	0.20	0.11	0.30	0.48	0.15	0.12
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.10	0.10	0.11	0.00	0.00	0.00	0.00	0.00
57	0.23	0.09	0.16	0.11	0.00	0.43	0.14	0.18
58	0.32	0.13	0.22	0.12	0.00	0.58	0.19	0.17
59	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00
60	0.32	0.10	0.21	0.38	0.00	0.67	0.09	0.05
61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
65	3.32	1.49	1.42	0.54	0.29	3.80	0.54	0.54
66	0.63	0.35	1.42	0.00	0.29	1.38	0.28	0.25
67	6.24	2.78	3.27	1.48	0.83	11.12	2.60	1.97
68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 2-4 (continued)

TRANSACTIONS TABLE

ROW/COL	17	18	19	20	21	22	23	24
1	0.00	0.00	0.00	0.00	0.64	5.62	11.85	0.83
2	0.00	0.00	0.00	0.00	0.17	1.53	3.22	0.24
3	0.00	0.00	0.00	0.00	0.15	1.30	2.75	0.00
4	0.00	0.00	0.00	0.00	0.00	0.50	0.34	0.00
5	0.00	0.00	0.00	0.00	0.07	0.64	1.35	0.00
6	0.00	0.00	0.00	0.00	0.24	2.14	4.80	5.57
7	0.00	0.00	0.00	0.00	0.31	2.76	5.82	5.58
8	0.00	0.00	0.00	0.00	0.06	0.54	1.13	0.07
9	0.00	0.00	0.00	0.00	0.20	1.72	3.62	0.02
10	0.00	0.00	0.00	0.00	0.13	1.13	2.39	0.10
11	0.00	0.00	0.00	0.00	0.04	0.38	0.78	0.00
12	0.00	0.00	0.00	0.00	0.01	0.08	0.20	0.00
13	0.00	0.00	0.00	0.00	0.03	0.28	0.55	0.04
14	0.00	0.00	0.00	0.00	0.11	0.28	0.55	0.12
15	0.00	0.00	0.00	0.00	0.15	1.28	2.97	0.00
16	0.00	0.00	0.00	0.00	0.11	0.97	2.05	0.03
17	0.00	0.00	0.00	0.00	0.01	0.09	0.16	0.00
18	0.00	0.00	0.00	0.00	0.03	0.28	0.59	0.00
19	0.00	0.00	0.00	0.00	0.30	2.71	5.67	0.17
20	0.00	0.00	0.00	0.00	0.03	0.25	0.53	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	0.00	0.00	0.00	0.00	0.00	1.72	0.20	1.81
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34	1.00	1.21	0.73	0.30	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00	0.10	2.84	2.52	0.69
36	0.00	0.00	0.00	0.00	0.00	0.00	3.54	0.00
37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
42	0.02	0.22	0.00	0.30	0.00	0.00	0.00	0.00
43	0.00	0.06	0.00	0.10	0.00	0.00	0.00	0.00
44	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00
45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
46	0.00	0.02	0.00	0.03	0.00	0.00	0.00	0.00
47	0.00	0.02	0.60	0.03	0.11	0.14	0.02	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	0.00	0.00	0.00	0.00	0.05	2.33	1.27	0.00
51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
53	0.46	0.14	0.52	0.18	0.05	0.00	1.05	0.05
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.80	0.00	0.00	0.00
56	0.36	0.21	0.00	0.07	0.33	0.00	0.00	0.00
57	0.34	0.14	0.00	0.14	0.02	2.58	2.62	0.55
58	0.48	0.20	0.21	0.19	0.03	0.44	0.42	0.06
59	0.00	0.00	0.18	0.19	0.28	0.63	0.59	0.09
60	0.50	0.27	0.25	0.14	0.45	1.48	1.82	0.55
61	0.00	0.00	0.00	0.00	0.25	5.42	12.52	2.74
62	0.00	0.01	0.13	0.00	0.51	6.06	3.01	0.48
63	0.00	0.00	0.18	0.00	0.21	1.97	3.08	2.21
64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
65	7.93	1.03	2.55	1.09	0.00	0.00	0.00	0.00
66	1.24	0.28	0.00	0.34	0.17	5.89	22.57	23.59
67	12.33	3.84	5.35	2.84	6.11	3.68	108.07	175.69
68	0.00	0.00	0.00	0.00	0.00	61.16	108.07	221.41
69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 2-4 (continued)

TRANSACTIONS TABLE

ROW/COL	25	26	27	28	29	30	31	32
1 GROUND FISH TRAWLERS, N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2 SHRIMP TRAWLERS	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3 TUNA PURSE-SEINERS	110.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4 WET FISH SEINERS	7.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5 HERRING GILNETTERS	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6 OTHER GILNETTERS	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7 SMALL SALMON TROLLERS	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8 LARGE SALMON TROLLERS	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 SALMON/CRABBERS	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10 SALMON/CRABBERS	1.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11 LONG-LINERS	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12 HOOK AND LINE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13 BLACK COD POTS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14 CRAB/LOBSTER, N	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15 CRAB/LOBSTER, S	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16 BAITBOATS, TUNA	5.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17 JIGBOATS, TUNA	1.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18 DIVEBOATS	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19 HARPOON, BILFISH	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20 FISH WHSL, PROC, DIST, SM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21 FISH WHSL, PROC, DIST, MED	0.00	0.95	19.04	3.80	21.82	0.00	0.00	0.00
22 FISH WHSL, PROC, DIST, LG	0.00	3.94	29.88	5.10	44.84	0.00	0.00	0.00
23 FISH IMP/EXP, BROKERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24 TUNA CANNERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25 SEAFOOD RESTAURANTS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26 OTHER EAT & DRINK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27 SEAFOOD MARKETS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28 OTHER FOOD & KINDRED PROC	8.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29 FORESTRY & OTHER FISHING	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30 FORESTRY/FISH SERVICES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31 PETFOOD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
32 ANIMAL & MARINE FATS	0.00	0.00	1.19	0.00	4.23	0.00	0.00	0.00
33 SHIP & BOAT	0.00	0.00	1.78	0.00	32.81	0.00	0.01	0.00
34 MOTOR FREIGHT	0.13	1.78	215.53	0.37	779.82	2.65	0.03	0.00
35 AGRICULTURE	0.00	0.45	346.73	0.00	5074.42	0.68	8.83	10.80
36 MINING	0.00	0.00	0.35	0.00	5.16	0.20	1.11	0.08
37 CONSTRUCTION	0.00	0.00	69.05	0.00	70.76	0.00	20.64	0.08
38 LUMBER	0.00	0.00	0.21	0.00	20.99	0.00	2.73	0.02
39 FURNITURE	0.00	0.00	0.50	0.00	1.64	0.01	0.06	0.02
40 GLASS, STONE, CLAY	0.00	0.00	0.00	0.00	0.00	0.04	0.05	0.02
41 METAL	68.36	6.64	14.21	0.00	578.21	0.00	2.77	0.36
42 NON-ELECTRIC MACHINES	0.00	0.00	11.08	0.00	1323.05	0.08	7.94	57.28
43 ELECTRIC EQUIPMENT	0.00	0.00	8.56	0.00	44.07	0.54	5.38	0.56
44 TRANSPORTATION EQUIP	0.00	0.00	1.93	0.00	6.03	0.09	3.18	0.04
45 INSTRUMENTS	0.00	0.00	0.24	0.00	2.20	0.03	0.32	0.03
46 MISC MNGG GOODS	0.22	0.00	0.49	0.00	7.70	0.39	0.37	0.14
47 TEXTILES	0.00	0.00	18.78	0.46	24.80	0.30	0.37	0.14
48 APPAREL	0.00	0.00	0.66	0.00	1.17	1.52	1.97	0.09
49 PAPER	0.00	0.00	2.91	0.00	10.84	1.62	1.77	0.14
50 PRINTING	3.72	0.00	162.26	0.00	848.29	0.02	38.95	29.98
51 CHEMICAL	1.57	0.00	72.90	0.00	507.58	0.54	32.32	24.95
52 PETROLEUM	0.00	0.00	50.30	0.00	137.94	2.30	32.32	10.73
53 RUBBER & PLASTIC	0.00	0.00	12.39	0.09	303.50	18.15	89.47	6.90
54 LEATHER	0.00	0.00	61.63	0.00	343.14	0.31	0.94	3.84
55 TELEPHONE/PUB UTIL	13.09	0.00	290.57	0.00	0.15	1.07	1.07	26.42
56 WHOLESALE TRADERS	0.00	0.00	13.13	0.26	811.70	1.96	59.60	40.93
57 RETAIL TRADERS	0.00	0.00	1096.86	0.02	1879.79	6.77	39.05	40.93
58 INSURANCE	2.63	1.84	69.84	0.03	13.71	0.05	10.28	0.21
59 FINANCE	3.46	4.52	1098.80	0.16	62.04	1.92	9.78	2.73
60 FED GOVERNMENT	3.33	3.38	1098.80	1.33	347.80	3.35	59.89	6.39
61 ST & LOC GOVERNMENT	7.16	4.08	870.38	0.43	785.82	9.00	148.67	18.00
62 SCRAP MATERIALS	0.00	0.00	19.60	0.29	27.76	0.05	2.21	0.55
63 HOUSEHOLDS	0.00	0.00	85.76	0.09	49.52	0.13	3.32	1.17
64 IMPORTS/EXPORTS	100.97	102.03	5477.27	4.49	17.67	0.24	0.14	0.22
65 TOTALS	141.91	46.84	886.66	11.30	5093.84	43.90	491.98	160.44
66 RESIDUALS	488.36	217.33	2160.49	28.84	2929.95	24.90	253.85	179.96
67	0.00	0.00	0.00	0.00	25198.25	139.30	1449.02	713.21
68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 2-4 (continued)

TRANSACTIONS TABLE

ROW/COL	33	34	35	36	37	38	39	40
1 GROUND FISH TRAWLERS, N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2 GROUND FISH TRAWLERS, S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3 SHRIMP TRAWLERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4 TUNA PURSE-SEINERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5 WET FISH SEINERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6 HERRING GILLETTERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7 OTHER GILLETTERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8 SMALL SALMON TROLLERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 LARGE SALMON TROLLERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10 SALMON/CORBACRE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11 SALMON/ALBACORE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12 LONG-LINERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13 HOOK AND LINE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14 BLACK COD POTS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15 CRAB/LOBSTER, N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16 CRAB/LOBSTER, S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17 BAITBOATS, TUNA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18 JIGBOATS, TUNA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19 DIVEBOATS,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20 HARPOON, BILLFISH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21 FISH WHSL, PROC, DIST, SM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22 FISH WHSL, PROC, DIST, MED	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23 FISH WHSL, PROC, DIST, LG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24 FISH IMP/EXP, BROKERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25 TUNA CANNERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26 SEAFOOD RESTAURANTS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27 OTHER EAT & DRINK	0.62	15.85	0.00	0.00	0.00	0.00	0.00	0.00
28 SEAFOOD MARKETS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29 OTHER FOOD & KINDRED PROC	12.12	0.35	0.57	0.00	728.79	0.00	0.00	0.00
30 FORESTRY & OTHER FISHING	1.28	0.28	0.00	0.00	0.00	0.00	0.00	0.00
31 FORESTRY/FISH SERVICES	0.00	0.28	0.00	0.00	0.00	0.00	0.00	0.00
32 PETFOOD	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33 ANIMAL & MARINE FATS	68.28	0.00	0.00	0.00	11.87	0.00	0.00	0.00
34 SHIP & BOAT	0.00	0.00	0.00	0.00	1.40	0.00	0.00	0.00
35 MOTOR FREIGHT	2.72	12.92	0.04	0.06	0.51	0.06	0.02	0.00
36 AGRICULTURE	1.71	0.17	2.34	2613.13	18.82	4.38	0.07	0.03
37 MINING	0.09	0.35	4.58	16.52	0.24	215.28	0.00	0.18
38 CONSTRUCTION	0.72	4.47	20.12	124.17	325.00	13.72	2.33	0.25
39 LUMBER	0.00	20.46	0.74	63.79	388.85	15.72	16.20	5.20
40 FURNITURE	0.00	15.61	0.04	0.62	1.97	1860.46	1023.30	150.96
41 METAL	0.02	14.65	0.48	5.91	0.11	118.87	1.77	21.53
42 NON-ELECTRIC MACHINES	0.74	187.17	2.67	23.46	4.67	2335.57	26.58	15.37
43 ELECTRIC EQUIPMENT	0.28	86.71	5.10	80.12	111.31	4621.30	200.52	193.27
44 TRANSPORTATION EQUIP	0.03	60.31	8.61	7.07	189.24	382.10	30.98	5.69
45 INSTRUMENTS	0.01	6.84	15.55	2.83	8.99	1061.25	9.36	5.44
46 INSTRUMENTS	0.00	17.56	0.47	0.38	6.99	33.97	7.05	0.96
47 MISC MFG GOODS	0.01	3.02	1.65	2.46	5.35	198.61	2.62	1.83
48 TEXTILES	0.00	4.99	0.04	3.20	0.11	51.36	5.08	6.53
49 APPAREL	0.01	3.29	4.10	10.16	0.65	158.09	1.41	33.29
50 PAPER	0.02	0.75	7.57	26.38	0.11	8.05	2.57	8.45
51 PRINTING	0.29	5.17	9.73	29.13	3.76	88.70	7.92	36.60
52 CHEMICAL	1.98	31.89	4.81	814.64	49.32	17.91	21.71	36.60
53 PETROLEUM	8.72	32.99	609.88	1037.99	210.74	615.79	54.83	28.73
54 RUBBER & PLASTIC	0.04	5.41	36.94	60.39	6.57	2108.79	279.87	24.08
55 LEATHER	0.03	0.04	0.06	1.60	0.11	399.99	33.88	143.07
56 TELEPHONE/PUB UTIL	8.76	25.24	194.85	244.23	1726.45	518.12	141.12	4.48
57 WHOLESALE TRADERS	12.77	60.48	163.75	685.84	198.31	1824.77	210.56	70.68
58 RETAIL TRADERS	0.08	2.03	79.79	90.48	7.46	1928.66	9.32	118.21
59 INSURANCE	0.68	3.57	130.08	128.55	30.10	1928.66	9.32	1.02
60 FINANCE	2.77	18.23	123.97	1269.06	1726.45	176.84	18.38	10.92
61 SERVICES	5.96	61.77	561.90	123.97	1269.06	529.23	77.23	57.28
62 ST & LOG GOVERNMENT	0.24	2.01	9.12	5.40	7.69	3005.24	153.11	74.87
63 SCRAP MATERIALS	0.54	2.26	12.24	31.38	34.19	30.12	3.39	3.21
64 HOUSEHOLDS	1.49	1.51	0.31	0.00	7.55	39.30	10.18	4.87
65 IMPORTS/EXPORTS	58.48	588.94	3285.53	2009.76	1655.35	19288.71	1243.18	0.58
66 TOTALS	28.80	287.23	1872.53	1872.53	5439.78	9729.73	885.68	276.90
67 RESIDUALS	204.36	1573.25	8056.84	18888.80	10926.45	62444.42	4999.83	2162.49
68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 2-4 (continued)

TRANSACTIONS TABLE

ROW/COL	41	42	43	44	45	46	47	48
1 GROUND FISH TRAWLERS, N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2 SHRIMP TRAWLERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3 TUNA PURSE-SEINERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4 WE FISH SEINERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5 HERRING GILLNETTERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6 OTHER GILLNETTERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7 SMALL SALMON TROLLERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8 LARGE SALMON TROLLERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 SALMON/CRABBERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10 SALMON/ALBACORE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11 LONG-LINERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12 HOOK AND LINE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13 BLACK COD POTS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14 CRAB/LOBSTER, N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15 CRAB/LOBSTER, S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16 BAITBOATS, TUNA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17 BAITBOATS, TUNA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18 DIVEBOATS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19 HARPOON, BILLFISH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20 FISH WHSL, PROC, DIST, SM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21 FISH WHSL, PROC, DIST, MED	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22 FISH WHSL, PROC, DIST, LG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23 FISH IMP/EXP, BROKERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24 TUNA CANNERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25 SEAFOOD RESTAURANTS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26 OTHER EAT & DRINK	21.27	289.79	82.38	536.01	358.47	82.30	19.15	3.80
27 SEAFOOD MARKETS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28 OTHER FOOD & KINDRED PROC	1.21	7.59	2.53	12.18	7.59	7.31	2.40	1.47
29 FORESTRY & OTHER FISHING	0.01	0.00	0.00	0.01	0.01	0.00	0.06	0.07
30 FORESTRY/FISH SERVICES	1.73	7.30	0.85	3.83	1.52	0.62	0.25	0.07
31 PETFOOD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
32 ANIMAL & MARINE FATS	0.04	0.00	0.00	0.01	0.01	0.01	0.01	0.00
33 SHIP & BOAT	0.04	0.00	1.20	0.33	1.50	0.07	0.05	0.00
34 MOTOR FREIGHT	228.60	206.93	73.48	185.36	149.40	77.58	33.76	16.89
35 AGRICULTURE	0.89	2.43	0.70	3.21	2.14	1.46	2.82	31.68
36 MINING	193.26	250.91	3.33	6.55	1.92	1.32	1.86	1.09
37 CONSTRUCTION	45.28	140.80	35.46	89.33	59.38	26.32	8.29	2.84
38 LUMBER	34.05	70.89	2.38	32.28	218.54	17.35	70.97	1.44
39 FURNITURE	1.15	4.39	1.09	46.74	81.59	2.01	1.58	0.09
40 GLASS, STONE, CLAY	513.94	76.53	34.51	185.96	95.10	35.89	11.98	1.31
41 METAL	29.07	358.61	1446.61	2383.48	1882.68	574.55	168.66	1.16
42 NON-ELECTRIC MACHINES	6.13	493.76	1006.76	303.92	518.01	84.26	11.81	3.56
43 ELECTRIC EQUIPMENT	1.00	722.66	182.82	811.83	1298.84	452.89	27.98	0.47
44 TRANSPORTATION EQUIP	5.43	94.82	19.42	38.96	2658.00	8.44	1.76	0.15
45 INSTRUMENTS	12.41	19.18	9.64	155.86	180.61	32.63	3.58	0.87
46 MISC MFG GOODS	1.82	2.31	9.01	3.44	22.41	277.00	112.35	1.57
47 TEXTILES	1.20	10.01	4.02	11.11	69.36	15.97	10.85	159.40
48 APPAREL	126.96	114.47	39.16	214.02	72.89	70.27	7.20	6.29
49 PAPER	17.47	108.66	28.26	220.06	27.12	57.81	90.69	15.73
50 PRINTING	106.23	340.34	38.16	342.00	115.06	85.00	39.47	9.94
51 CHEMICAL	175.91	343.75	285.40	344.69	212.46	148.43	85.58	66.93
52 PETROLEUM	61.28	168.17	89.01	677.92	233.05	191.60	74.77	29.34
53 RUBBER & PLASTIC	0.10	0.75	0.28	1.09	0.87	0.33	134.82	22.99
54 TELEPHONE/PUB UTIL	352.20	878.35	272.86	949.15	472.79	184.16	80.10	42.63
55 WHOLESALE TRADERS	128.83	710.61	384.75	1113.77	845.06	232.22	116.87	71.23
56 RETAIL TRADERS	3.85	38.51	11.36	45.38	33.87	8.71	2.13	0.32
57 INSURANCE	12.41	59.39	17.79	55.94	28.70	16.07	4.44	1.42
58 FINANCE	123.65	481.14	282.25	1435.37	258.98	190.70	99.73	26.43
59 SERVICES	163.04	1015.90	370.25	2016.38	892.69	412.43	129.20	33.64
60 ST & LOC GOVERNMENT	6.29	49.48	17.51	76.00	36.60	18.83	8.30	1.67
61 FED GOVERNMENT	22.03	66.54	16.54	68.38	30.26	13.77	8.89	4.60
62 SCRAP MATERIALS	10.88	267.71	36.98	62.60	13.85	35.38	2.67	3.45
63 HOUSEHOLDS	1766.30	8896.09	4880.63	15383.72	6373.95	3390.57	803.47	331.01
64 IMPORTS/EXPORTS	1039.10	6177.80	2763.00	5265.43	5369.06	2738.65	1055.02	534.37
65 TOTALS	5272.67	26311.67	12501.03	40318.40	22713.03	9497.72	3235.63	1429.80
66 RESIDUALS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



TABLE 2-4 (continued)

TRANSACTIONS TABLE

ROW/COL	48	80	51	52	53	54	55	56
1	GROUND FISH TRAWLERS, N	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	SHRIMP TRAWLERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	TUNA PURSE-SEINERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	WET FISH SEINERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	HERRING GILLNETTERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	OTHER GILLNETTERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	SMALL SALMON TROLLERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	LARGE SALMON TROLLERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	SALMON/CRABBERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	SALMON/ALBACORE	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	LONG-LINERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	HOOK AND LINE	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	BLACK GOD POTS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	CRAB/LOBSTER, N	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	CRAB/LOBSTER, S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	BAITBOATS, TUNA	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	JIGBOATS, TUNA	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	DIVEBOATS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	HARBOR, BILLFISH	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	FISH WHSL, PROC, DIST, SM	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	FISH WHSL, PROC, DIST, MED	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	FISH WHSL, PROC, DIST, LG	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	FISH IMP/EXP, BROKERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	TUNA CANNERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	SEAFOOD RESTAURANTS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	OTHER EAT & DRINK	19.26	15.90	107.77	105.30	25.07	23.15	277.70
28	SEAFOOD MARKETS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	OTHER FOOD & KINDRED PROC	1.64	0.00	2.30	61.51	8.59	0.94	48.76
30	FORESTRY & OTHER FISHING	1.44	0.02	0.00	0.58	0.00	0.00	0.12
31	FORESTRY/FISH SERVICES	0.02	0.41	1.30	2.27	0.54	0.06	42.58
32	PETFOOD	0.00	0.00	0.00	0.17	0.00	0.01	0.02
33	ANIMAL & MARINE FATS	0.00	0.03	0.01	32.81	2.89	0.00	0.03
34	SHIP & BOAT	0.00	0.12	0.00	0.06	0.01	0.00	163.95
35	MOTOR, FREIGHT	39.51	73.64	71.65	140.14	79.57	58.37	236.57
36	AGRICULTURE	1.96	3.75	0.88	15.58	0.00	0.37	1.03
37	MINING	0.28	2.49	1.31	19.86	2.86	4.76	1797.32
38	CONSTRUCTION	2.88	33.30	38.69	70.10	42.42	28.62	1255.13
39	LUMBER	1.59	15.59	0.09	4.82	1.83	16.71	2.91
40	FURNITURE	0.76	0.52	0.08	1.47	0.17	1.64	0.37
41	GLASS, STONE, CLAY	1.11	3.91	4.27	79.62	24.86	26.43	4.38
42	METAL	5.64	23.80	30.84	291.90	102.46	88.92	88.42
43	NON-ELECTRIC MACHINES	2.01	15.15	18.63	56.58	16.36	42.29	1.43
44	ELECTRIC EQUIPMENT	1.73	2.02	12.67	7.46	2.86	10.79	0.51
45	TRANSPORTATION EQUIP	0.30	0.43	0.47	1.78	0.53	2.39	0.08
46	INSTRUMENTS	0.59	3.16	35.40	18.10	7.43	0.21	324.41
47	MISC MFG GOODS	14.33	4.98	27.75	32.04	5.74	12.39	0.21
48	TEXTILES	244.55	10.98	3.16	0.67	1.29	10.44	2.82
49	APPAREL	395.10	1.57	3.19	0.28	0.35	4.73	4.49
50	PAPER	38.14	739.39	406.81	213.44	44.05	118.69	5.38
51	PRINTING	17.11	22.08	898.84	537.67	58.36	118.69	33.43
52	CHEMICAL	5.13	146.97	113.99	1360.61	203.62	740.57	2.56
53	PETROLEUM	30.62	134.25	70.55	910.26	3063.77	122.46	248.86
54	RUBBER & PLASTIC	17.90	88.94	50.85	306.15	17.39	9.04	35.19
55	LEATHER	27.08	0.09	0.73	306.15	17.39	19.96	33.69
56	TELEPHONE/PUB UTIL	86.20	205.11	436.45	0.77	0.27	63.58	0.38
57	WHOLESALE TRADERS	201.52	190.88	238.61	672.37	891.20	228.22	6384.03
58	RETAIL TRADERS	2.43	1.74	11.14	327.86	99.25	139.17	359.64
59	INSURANCE	6.75	5.63	38.54	8.40	3.53	2.60	0.09
60	FINANCE	114.67	113.25	517.22	24.10	17.77	9.29	37.22
61	FED GOVERNMENT SERVICES	150.62	136.22	638.50	423.53	209.19	100.84	0.69
62	ST & LOG GOVERNMENT	13.81	5.21	122.17	738.80	192.93	150.93	1550.37
63	SCRAP MATERIALS	5.47	14.75	19.45	17.32	9.82	4.60	11.10
64	HOUSEHOLDS	1.41	26.22	2.36	40.27	30.40	18.68	120.74
65	IMPORTS/EXPORTS	1374.99	1301.16	3370.90	12.59	0.07	4.08	1.04
66	TOTALS	1478.16	1756.14	2157.93	2288.00	873.44	1600.03	14858.01
67	RESIDUALS	4301.92	5243.20	9152.95	3215.42	20061.86	1342.67	12283.09
68	RESIDUALS	0.00	0.00	0.00	11943.18	31002.71	5188.75	46667.11

TABLE 2-4 (continued)

TRANSACTIONS TABLE

ROW/CDL	57	58	59	60	61	62	63	64
1	GROUND FISH TRAWLERS, N	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	GROUND FISH TRAWLERS, S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	SHRIMP TRAWLERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	TUNA PURSE-SEINERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	WEEFISH SEINERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	HERRING GILNETTERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	OTHER GILNETTERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	SMALL SALMON TROLLERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	LARGE SALMON TROLLERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	SALMON/CRABBERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	SALMON/ALBACORE	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	LONG-LINERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	HOOK AND LINE	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	BLACK COD POTS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	CRAB/LOBSTER, N	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	CRAB/LOBSTER, S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	BAITBOATS, TUNA	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	DIVEBOATS, TUNA	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	DIVEBOATS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	HARPOON, BILLFISH	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	FISH WHSL, PROC, DIST, SM	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	FISH WHSL, PROC, DIST, MED	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	FISH WHSL, PROC, DIST, LG	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	FISH IMP/EXP, BROKERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	TUNA CANNERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	SEAFOOD RESTAURANTS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	OTHER EAT & DRINK	865.98	167.87	306.06	359.48	1366.32	9.88	22.47
28	SEAFOOD MARKETS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	OTHER FOOD & KINDRED PROC	19.76	3.57	5.51	7.37	349.75	0.37	0.00
30	FORESTRY & OTHER FISHING	4.91	0.00	0.11	0.01	0.26	0.00	0.02
31	FORESTRY/FISH SERVICES	25.00	0.00	0.04	0.04	73.96	0.00	0.00
32	PETFOOD	2.41	0.00	0.00	281.31	73.96	0.00	6.29
33	ANIMAL & MARINE FATS	0.01	0.00	0.00	0.00	28.45	0.00	0.00
34	SHIP & BOAT	0.00	0.00	0.00	0.01	0.15	0.00	0.00
35	MOTOR FREIGHT	0.00	0.02	0.04	0.11	0.77	0.57	0.00
36	AGRICULTURE	613.08	116.13	28.18	118.66	567.04	73.32	37.43
37	MINING	8.64	2.15	1.19	97.81	267.08	0.29	1.93
38	CONSTRUCTION	8.03	7.27	0.95	8.11	24.76	0.52	4.13
39	LUMBER	108.81	219.78	32.85	5816.58	1242.17	16.57	815.05
40	FURNITURE	14.66	0.15	0.09	0.20	23.94	0.01	0.00
41	GLASS, STONE, CLAY	0.39	0.20	0.12	0.61	6.29	0.05	0.00
42	METAL	12.33	7.11	0.48	0.98	148.58	0.44	0.00
43	NON-ELECTRIC MACHINES	9.13	12.27	1.48	11.02	333.63	3.29	4.21
44	ELECTRIC EQUIPMENT	18.69	6.28	0.11	5.24	245.97	0.61	9.26
45	TRANSPORTATION EQUIP	23.88	12.79	5.12	27.68	779.61	2.91	10.35
46	INSTRUMENTS	6.14	3.10	1.41	4.03	868.11	1.74	11.38
47	MISC MFG GOODS	6.95	2.52	2.40	7.88	767.05	1.13	2.30
48	TEXTILES	44.81	43.48	11.22	41.02	369.12	1.16	1.77
49	APPAREL	1.23	1.57	0.04	0.27	22.80	0.28	0.60
50	PAPER	15.51	4.60	0.08	9.33	174.14	0.26	5.36
51	PRINTING	196.84	196.54	40.64	52.59	278.60	4.27	4.19
52	CHEMICAL	525.87	615.50	179.78	628.13	1073.85	11.42	14.14
53	PETROLEUM	17.56	18.55	1.18	29.06	916.37	10.70	45.58
54	RUBBER & PLASTIC	1108.37	808.48	119.63	927.26	2241.89	48.44	358.56
55	LEATHER	78.84	57.31	6.30	94.75	632.65	6.40	3.42
56	LEATHER	0.86	0.83	0.63	0.94	35.66	0.63	0.03
57	TELEPHONE/PUB UTIL	0.88	1186.07	0.63	1209.06	3738.98	171.45	466.82
58	WHOLESALE TRADERS	1469.93	1186.07	631.74	1209.06	3738.98	171.45	466.82
59	RETAIL TRADERS	650.90	231.10	57.31	223.39	1866.65	9.73	40.30
60	INSURANCE	148.53	78.30	34.35	130.12	368.44	0.27	10.85
61	FINANCE	244.71	274.25	6801.05	1418.88	989.45	3.61	14.63
62	SERVICES	1358.25	3289.44	770.37	1033.47	8258.00	134.54	933.77
63	FED GOVERNMENT	2952.73	1633.28	1181.16	3866.22	14729.50	149.68	176.10
64	ST & LOG GOVERNMENT	119.95	230.33	116.74	841.05	710.04	7.63	12.56
65	SCRAP MATERIALS	110.07	131.86	22.06	160.03	361.21	9.99	79.26
66	HOUSEHOLDS	1.32	0.95	0.00	0.00	32.47	0.00	0.03
67	IMPORTS/EXPORTS	16714.01	18862.02	4755.87	11457.43	80285.29	2592.61	1335.91
68	TOTALS	14226.63	13271.22	8776.85	95285.76	30973.72	313.70	1660.46
69	RESIDUALS	41627.34	41506.44	20891.01	133414.07	125032.69	3692.46	5251.77
70		0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 2-4 (continued)

TRANSACTIONS TABLE

ROW/COL	65	66	67	68	
1	GROUND FISH TRAWLERS, N	0.00	0.00	18.84	0.00
2	GROUND FISH TRAWLERS, S	0.00	0.00	5.22	0.00
3	SHRIMP TRAWLERS	0.00	0.00	4.20	0.00
4	TUNA PURSE-SEINERS	0.00	0.00	112.84	0.00
5	WET FISH SEINERS	0.00	1.77	14.94	0.00
6	MERRING GILLNETTERS	0.00	0.00	21.61	0.00
7	OTHER GILLNETTERS	0.00	2.37	9.55	0.00
8	SMALL SALMON TROLLERS	0.00	0.00	1.75	0.00
9	LARGE SALMON TROLLERS	0.00	0.01	6.28	0.00
10	SALMON/CRABBERS	0.00	0.04	4.10	0.00
11	SALMON/ALBACORE	0.00	0.02	2.40	0.00
12	LONG-LINERS	0.00	0.00	0.31	0.00
13	HOOK AND LINE	0.00	0.00	0.88	0.00
14	BLACK COD POTS	0.00	0.00	3.28	0.00
15	CRAB/LOBSTER, N	0.00	0.00	4.22	0.00
16	CRAB/LOBSTER, S	0.00	0.00	3.22	0.00
17	BAITBOATS, TUNA	0.00	0.02	3.22	0.00
18	BAITBOATS, TUNA	0.00	0.00	5.65	0.00
19	DIVEBOATS	0.00	0.04	2.42	0.00
20	HARPOON, BILLFISH	0.00	0.00	8.73	0.00
21	FISH WHSL, PROC, DIST, SM	0.00	0.00	0.52	0.00
22	FISH WHSL, PROC, DIST, MED	1.15	0.00	6.48	0.00
23	FISH WHSL, PROC, DIST, LG	0.51	0.00	5.44	0.00
24	FISH IMP/EXP, BROKERS	10.18	0.00	97.62	0.00
25	TUNA CANNERS	0.00	3.68	217.00	0.00
26	SEAFOOD RESTAURANTS	204.96	217.00	217.00	0.00
27	SEAFOOD EAT & DRINK	178.93	336.66	540.62	0.00
28	SEAFOOD MARKETS	10262.86	24.38	202.98	0.00
29	OTHER FOOD & KINDRED PROC	27.53	5182.77	20682.03	0.00
30	FORESTRY & OTHER FISHING	12215.76	0.00	27.53	0.00
31	FORESTRY/FISH SERVICES	25.79	0.00	24762.13	0.00
32	PEFFOOD	50.52	0.00	110.08	0.00
33	ANIMAL & MARINE FATS	434.04	58.68	1497.29	0.00
34	SHIP & BOAT	2.46	181.48	682.88	0.00
35	MOTOR FREIGHT	346.38	1176.57	197.23	0.00
36	AGRICULTURE	2162.53	641.87	1756.94	0.00
37	MINING	1582.80	6288.80	8981.61	0.00
38	CONSTRUCTION	91.49	4802.60	16629.18	0.00
39	LUMBER	0.00	42023.99	12993.73	0.00
40	FURNITURE	75.78	128.40	63066.94	0.00
41	METAL	1281.61	589.56	4353.80	0.00
42	GLASS, STONE, CLAY	220.62	191.41	2154.33	0.00
43	NON-ELECTRIC MACHINES	388.46	7382.58	4696.05	0.00
44	ELECTRIC EQUIPMENT	109.26	6402.34	26068.20	0.00
45	TRANSPORTATION EQUIP	1428.08	24937.77	12188.89	0.00
46	INSTRUMENTS	5123.97	16039.87	39267.60	0.00
47	MISC MING GOODS	341.71	7337.38	24970.18	0.00
48	TEXTILES	1700.24	619.17	9543.96	0.00
49	APPAREL	540.36	38.64	3356.89	0.00
50	PAPER	3286.13	375.41	1373.66	0.00
51	PRINTING	617.35	129.68	4466.92	0.00
52	CHEMICAL	1229.24	2318.94	5108.37	0.00
53	PETROLEUM	2285.89	1977.64	9199.33	0.00
54	RUBBER & PLASTIC	7929.48	448.18	10905.84	0.00
55	LEATHER	612.14	672.92	28137.61	0.00
56	TELEPHONE/PUB UTIL	285.69	0.00	5408.39	0.00
57	WHOLESALE TRADERS	11551.22	18196.25	444.31	0.00
58	RETAIL TRADERS	10293.32	14690.38	51213.68	0.00
59	INSURANCE	28789.75	9860.19	39154.14	0.00
60	FINANCE	7057.42	3802.57	41795.60	0.00
61	SERVICES	51852.53	46410.23	21518.63	0.00
62	FED GOVERNMENT	37812.57	48377.28	132935.90	0.00
63	ST & LOC GOVERNMENT	1092.81	0.00	126304.24	0.00
64	SCRAP MATERIALS	2207.49	1342.53	3769.36	0.00
65	HOUSEHOLDS	728.22	0.00	5311.98	0.00
66	IMPORTS/EXPORTS	1136.01	85882.54	1272.63	0.00
67	TOTALS	92742.46	0.00	300985.11	0.00
68	RESIDUALS	300369.29	361809.11	1419105.66	0.00
		0.00	0.00	0.00	0.00

TABLE 2-5

## 1982 CIF TECHNICAL COEFFICIENTS TABLE

ROW/COL	1	2	3	4	5	6	7	8
1	GROUND FISH TRAWLERS, N	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
2	SHRIMP TRAWLERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
3	TUNA FISH SEINERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
4	WE FISH SEINERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
5	HERING GILLNETTERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
6	OTHER GILLNETTERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
7	SMALL SALMON TROLLERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
8	LARGE SALMON TROLLERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
9	SALMON/CRABBERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
10	SALMON/ALBACORE	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
11	LONG-LINERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
12	HOOK AND LINE	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
13	BLACK COD POTS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
14	CRAB/LOBSTER, N	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
15	CRAB/LOBSTER, S	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
16	BATBOATS, TUNA	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
17	JIGBOATS, TUNA	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
18	DIVEBOATS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
19	HARBOON, BILLFISH	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
20	FISH WHSL, PROC, DIST, SM	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
21	FISH WHSL, PROC, DIST, MED	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
22	FISH WHSL, PROC, DIST, LG	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
23	FISH IMP/EXP, BROKERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
24	TUNA CANNERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
25	SEAFOOD RESTAURANTS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
26	OTHER EAT & DRINK	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
27	SEAFOOD MARKETS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
28	OTHER FOOD & KINDRED PROC	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
29	FORESTRY & OTHER FISHING	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
30	FORESTRY/FISH SERVICES	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
31	PETFOOD	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
32	ANIMAL & MARINE FATS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
33	SHIP & BOAT	0.1043853	0.11084893	0.10204705	0.09038642	0.07998893	0.06735867	0.07707457
34	MOTOR FREIGHT	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
35	AGRICULTURE	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
36	MINING	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
37	CONSTRUCTION	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
38	LUMBER	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
39	FURNITURE	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
40	GLASS, STONE, CLAY	0.00019814	0.0001084	0.00009063	0.00000359	0.00000000	0.00000000	0.00015571
41	METAL	0.08050848	0.00485293	0.03808258	0.00180922	0.00000000	0.00000000	0.06543000
42	NON-ELECTRIC MACHINES	0.02820168	0.00187476	0.01288700	0.00000000	0.00000000	0.00000000	0.07412241
43	ELECTRIC EQUIPMENT	0.00280168	0.00018024	0.00139848	0.00000000	0.00000000	0.00000000	0.07312772
44	TRANSPORTATION EQUIP	0.00106777	0.00008081	0.00062570	0.00000000	0.00000000	0.00000000	0.00282949
45	INSTRUMENTS	0.00795860	0.00053740	0.00416093	0.00000000	0.00000000	0.00000000	0.00126867
46	MISC MFG GOODS	0.00000000	0.00049567	0.00040374	0.00000000	0.02876174	0.00204746	0.00843673
47	TEXTILES	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00778630	0.00519566
48	APPAREL	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
49	PAPER	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
50	PRINTING	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
51	CHEMICAL	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
52	PETROLEUM	0.04838862	0.04252592	0.04713170	0.06330454	0.07382867	0.01515834	0.03848427
53	RUBBER & PLASTIC	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
54	LEATHER	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
55	TELEPHONE/PUB UTIL	0.00970837	0.00013822	0.00533768	0.00000000	0.00000000	0.00000000	0.00000000
56	WHOLESALE TRADERS	0.04868483	0.02632621	0.03850940	0.03988877	0.01861115	0.02962451	0.04036907
57	RETAIL TRADERS	0.00346923	0.031764514	0.06022479	0.08583614	0.00307681	0.04163206	0.06748745
58	INSURANCE	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
59	FINANCE	0.06272683	0.06869661	0.02540616	0.03150760	0.01098844	0.03836995	0.00000000
60	SERVICES	0.00000000	0.00000000	0.00000000	0.00000000	0.05107371	0.00000000	0.02070472
61	FED GOVERNMENT	0.00001713	0.00000575	0.00018374	0.00000178	0.00000000	0.00000395	0.00000000
62	ST & LOC GOVERNMENT	0.00000000	0.00000000	0.00000000	0.00000000	0.00304288	0.00000000	0.00000000
63	SCRAP MATERIALS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
64	HOUSEHOLDS	0.49167982	0.67176173	0.64865790	0.60814672	0.59403746	0.58600257	0.54444842
65	IMPORTS/EXPORTS	0.05032902	0.03447828	0.02601070	0.05200985	0.01400088	0.14053146	0.13853664
67	TOTALS	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000

TABLE 2-5 (continued)

TECHNICAL COEFFICIENTS TABLE

ROW/COL	9	10	11	12	13	14	15	16
1 GROUND FISH TRAWLERS, N	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
2 GROUND FISH TRAWLERS, S	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
3 SHRIMP TRAWLERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
4 TUNA PURSE-SEINERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
5 WE FISH SEINERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
6 HERRING GILNETTERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
7 OTHER GILNETTERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
8 SMALL SALMON TROLLERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
9 LARGE SALMON TROLLERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
10 SALMON/CRABBERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
11 SALMON/ALBACORE	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
12 LONG-LINERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
13 HOOK AND LINE	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
14 BLACK COD POTS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
15 CRAB/LOBSTER, N	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
16 CRAB/LOBSTER, S	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
17 BAITBOATS, TUNA	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
18 BAITBOATS, TUNA	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
19 DIVEBOATS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
20 HARPOON, BILLFISH	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
21 FISH WHSL. PROC. DIST. SM	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
22 FISH WHSL. PROC. DIST. MED	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
23 FISH WHSL. PROC. DIST. LG	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
24 FISH IMP./EXP. BROKERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
25 TUNA CANNERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
26 SEAFOOD RESTAURANTS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
27 OTHER EAT & DRINK	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
28 SEAFOOD MARKETS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
29 OTHER FOOD & KINDRED PROC	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
30 FORESTRY & OTHER FISHING	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
31 FORESTRY/FISH SERVICES	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
32 PET FOOD	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
33 ANIMAL & MARINE FATS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
34 SHIP & BOAT	0.11898215	0.08358465	0.11371175	0.08819715	0.04639235	0.11840787	0.24401588	0.1752512
35 MOTOR FREIGHT	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
36 AGRICULTURE	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
37 MINING	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
38 CONSTRUCTION	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
39 LUMBER	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
40 FURNITURE	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
41 GLASS, STONE, CLAY	0.00009085	0.00010889	0.00010889	0.00002258	0.00000000	0.00037781	0.00026150	0.00015474
42 METAL	0.03868839	0.04173077	0.08163040	0.01862888	0.00000000	0.03856092	0.10952774	0.06574575
43 NON-ELECTRIC MACHINES	0.00116888	0.01297893	0.01139876	0.00000000	0.00000000	0.00000000	0.03862232	0.01454222
44 ELECTRIC EQUIPMENT	0.00082310	0.00082627	0.00082627	0.00082627	0.00000000	0.00426624	0.00369374	0.01454222
45 TRANSPORTATION EQUIP	0.00346195	0.00416475	0.00533585	0.00000000	0.00000000	0.01272070	0.01163107	0.00070171
46 INSTRUMENTS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.01182376	0.0100428	0.00430698
47 MISC MFG GOODS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
48 TEXTILES	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
49 APPAREL	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
50 PAPER	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
51 PRINTING	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
52 CHEMICAL	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
53 PETROLEUM	0.0343134	0.03121284	0.06262174	0.07333741	0.36337350	0.04341363	0.05614786	0.06030890
54 RUBBER & PLASTIC	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
55 LEATHER	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
56 TELEPHONE/PUB UTIL	0.1857938	0.03769838	0.03405584	0.00088530	0.00000000	0.03827498	0.04854188	0.09310876
57 WHOLESALE TRADERS	0.03686343	0.03182828	0.05033070	0.07575911	0.00000000	0.03836462	0.05244532	0.06125182
58 RETAIL TRADERS	0.05064303	0.04876930	0.06811817	0.07881244	0.00000000	0.05285920	0.07401171	0.08639177
59 INSURANCE	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
60 FINANCE	0.05191256	0.03781607	0.06378821	0.25707941	0.00000000	0.06026040	0.03575852	0.02610246
61 SERVICES	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
62 FED GOVERNMENT	0.00009750	0.00002303	0.00008611	0.00009565	0.00000000	0.00001851	0.00025382	0.00031449
63 ST & LOG GOVERNMENT	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
64 SCRAP MATERIALS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
65 HOUSEHOLDS	0.83180891	0.63940976	0.63361376	0.42827568	0.38042972	0.34178514	0.20932378	0.27654001
66 IMPORTS/EXPORTS	0.10041148	0.12642423	0.09240947	0.00000000	0.00000000	0.12400131	0.10932011	0.12899548
67 TOTALS	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000

TABLE 2-5 (continued)

TECHNICAL COEFFICIENTS TABLE

ROW/COL	17	18	19	20	21	22	23	24
1	0.00000000	0.00000000	0.00000000	0.00000000	0.10458351	0.09189907	0.10968935	0.00373767
2	0.00000000	0.00000000	0.00000000	0.00000000	0.02844044	0.02600038	0.02983131	0.00108872
3	0.00000000	0.00000000	0.00000000	0.00000000	0.02427070	0.02132526	0.02544056	0.00000000
4	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00817171	0.00318595	0.00000000
5	0.00000000	0.00000000	0.00000000	0.00000000	0.01189393	0.01053265	0.01249926	0.02515606
6	0.00000000	0.00000000	0.00000000	0.00000000	0.03969763	0.03491895	0.04162671	0.02521012
7	0.00000000	0.00000000	0.00000000	0.00000000	0.01000725	0.00874403	0.05383052	0.00030070
8	0.00000000	0.00000000	0.00000000	0.00000000	0.03197612	0.02814690	0.01049012	0.00000404
9	0.00000000	0.00000000	0.00000000	0.00000000	0.02109402	0.01854892	0.03357664	0.00009766
10	0.00000000	0.00000000	0.00000000	0.00000000	0.00688433	0.00613607	0.02211663	0.00004148
11	0.00000000	0.00000000	0.00000000	0.00000000	0.00173230	0.00152254	0.00728016	0.00000056
12	0.00000000	0.00000000	0.00000000	0.00000000	0.00482076	0.00423611	0.00181603	0.00000612
13	0.00000000	0.00000000	0.00000000	0.00000000	0.01826139	0.01604629	0.00909490	0.00019072
14	0.00000000	0.00000000	0.00000000	0.00000000	0.02285023	0.02094477	0.01914659	0.00053593
15	0.00000000	0.00000000	0.00000000	0.00000000	0.01810902	0.01591135	0.02498151	0.00012224
16	0.00000000	0.00000000	0.00000000	0.00000000	0.00126885	0.00151393	0.01898190	0.00015482
17	0.00000000	0.00000000	0.00000000	0.00000000	0.00518226	0.00463751	0.00148574	0.00016655
18	0.00000000	0.00000000	0.00000000	0.00000000	0.04886752	0.04425015	0.05242856	0.00076876
19	0.00000000	0.00000000	0.00000000	0.00000000	0.00470282	0.00413265	0.00492880	0.00001015
20	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
21	0.00000000	0.00000000	0.00000000	0.00000000	0.00004089	0.00000000	0.00000000	0.00000000
22	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
23	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
24	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
25	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
26	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
27	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
28	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
29	0.00000000	0.00000000	0.00000000	0.00000000	0.00004089	0.00000000	0.00000000	0.00000000
30	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
31	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
32	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
33	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
34	0.08089570	0.31688803	0.13688154	0.10362182	0.00000000	0.00000000	0.00000000	0.00000000
35	0.00000000	0.00000000	0.00000000	0.00000000	0.01621230	0.04644591	0.02329352	0.00312831
36	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
37	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
38	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
39	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
40	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
41	0.00000382	0.00013740	0.00000000	0.00024518	0.00000000	0.00000000	0.00000000	0.00000000
42	0.00160376	0.05773688	0.00000000	0.10302510	0.00000000	0.00000000	0.00000000	0.00000000
43	0.00000000	0.01613651	0.00000000	0.03568050	0.00000000	0.00000000	0.00000000	0.00000000
44	0.00000000	0.00173857	0.00000000	0.00383958	0.00000000	0.00000000	0.00000000	0.00000000
45	0.00000000	0.00077863	0.00000000	0.00172170	0.00000000	0.00000000	0.00000000	0.00000000
46	0.00000000	0.00517797	0.01144936	0.01144936	0.00000000	0.00000000	0.00000000	0.00000000
47	0.000003129	0.00486396	0.01148977	0.01069969	0.01812772	0.00222158	0.00015440	0.00000000
48	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
49	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
50	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
51	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
52	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
53	0.03716589	0.03678102	0.09638114	0.05959062	0.00000000	0.01306835	0.00973654	0.00022205
54	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
55	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
56	0.02904739	0.05481562	0.00000000	0.00000000	0.02281639	0.00536847	0.02425113	0.00024795
57	0.02745481	0.03723876	0.00000000	0.00000000	0.04687708	0.00726894	0.00388064	0.00027996
58	0.03982742	0.05252293	0.03937815	0.06579268	0.00349101	0.01025237	0.00547339	0.00003948
59	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.02422363	0.01681233	0.00293682
60	0.04030509	0.07054752	0.04757338	0.04889064	0.07355344	0.08854544	0.11588014	0.01238135
61	0.00000000	0.00000000	0.00000000	0.00000000	0.04016678	0.09900997	0.12788076	0.00218637
62	0.00005855	0.00215427	0.03289467	0.00004253	0.08389604	0.03222048	0.02849070	0.00996455
63	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
64	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
65	0.64301756	0.26892648	0.47713274	0.36987167	0.15872819	0.09633271	0.20880487	0.10652769
66	0.10058904	0.07365747	0.00000000	0.00000000	0.11626468	0.06015363	0.02526052	0.79349407
67	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000

TABLE 2-5 (continued)

TECHNICAL COEFFICIENTS TABLE

ROW/COL	25	26	27	28	29	30	31	32
1	0.00000494	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
2	0.000009782	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
3	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
4	0.22570196	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
5	0.0496276	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
6	0.01389020	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
7	0.00120783	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
8	0.00003421	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
9	0.00145145	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
10	0.00628223	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
11	0.00240869	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
12	0.00001269	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
13	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
14	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
15	0.00017985	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
16	0.00007791	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
17	0.0102143	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
18	0.0267513	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
19	0.00088116	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
20	0.00001452	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
21	0.000000000	0.00435344	0.00008828	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
22	0.000000000	0.04857705	0.00081966	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
23	0.000000000	0.01814775	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
24	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
25	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
26	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
27	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
28	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
29	0.01385443	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
30	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
31	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
32	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
33	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
34	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
35	0.00028176	0.00818078	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
36	0.000000000	0.00208542	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
37	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
38	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
39	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
40	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
41	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
42	0.13987977	0.03058604	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
43	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
44	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
45	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
46	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
47	0.00044907	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
48	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
49	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
50	0.00782688	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
51	0.00321993	0.06941251	0.000336707	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
52	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
53	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
54	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
55	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
56	0.02680809	0.06043162	0.01342088	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
57	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
58	0.000000000	0.00470943	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
59	0.00743136	0.00048948	0.000322601	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
60	0.00708597	0.02080698	0.00322601	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
61	0.00681489	0.01540698	0.04881196	0.04261095	0.00000000	0.00000000	0.00000000	0.00000000
62	0.01468467	0.01877397	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
63	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
64	0.000000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
65	0.20676218	0.46947802	0.25296510	0.15828054	0.20218032	0.31512832	0.33952591	0.22494928
66	0.29069006	0.20953544	0.40907450	0.39183308	0.11627576	0.17873430	0.17818489	0.25293305
67	1.000000000	1.000000000	1.000000000	1.000000000	1.000000000	1.000000000	1.000000000	1.000000000





TABLE 2-5 (continued)

TECHNICAL COEFFICIENTS TABLE

ROW/COL	41	42	43	44	45	46	47	48
1 GROUND FISH TRAWLERS, N	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
2 GROUND FISH TRAWLERS, S	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
3 SHRIMP TRAWLERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
4 TUNA PURSE-SEINERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
5 WEFFISH SEINERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
6 HERRING GILNETTERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
7 OTHER GILNETTERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
8 SMALL SALMON TROLLERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
9 LARGE SALMON TROLLERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
10 SALMON/CRABBERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
11 SALMON/ALBACORE	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
12 LONG-LINERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
13 HOOK AND LINE	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
14 BLACK COD POTS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
15 CRAB/LOBSTER, N	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
16 CRAB/LOBSTER, S	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
17 BAITBOATS, TUNA	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
18 JIGBOATS, TUNA	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
19 DIVEBOATS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
20 HARPOON, BILLFISH	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
21 FISH WHSL, PROC, DIST, SM	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
22 FISH WHSL, PROC, DIST, MED	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
23 FISH WHSL, PROC, DIST, LG	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
24 FISH IMP/EXP, BROKERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
25 TUNA CANNERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
26 SEAFOOD RESTAURANTS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
27 OTHER EAT & DRINK	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
28 SEAFOOD MARKETS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
29 OTHER FOOD & KINDRED PROC	0.00022982	0.00000000	0.00022982	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
30 FORESTRY & OTHER FISHING	0.00000248	0.00000000	0.00000248	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
31 FORESTRY/FISH SERVICES	0.00000264	0.00000000	0.00000264	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
32 ANIMAL & MARINE FAIS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
33 SHIP & BOAT	0.00000683	0.00000000	0.00000683	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
34 MOTOR FISHING	0.04336501	0.00000000	0.04336501	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
35 AGRICULTURE	0.00016831	0.00009254	0.00009254	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
36 MINING	0.03668056	0.00972605	0.00972605	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
37 CONSTRUCTION	0.00858859	0.00535115	0.00535115	0.00283694	0.00000000	0.00000000	0.00000000	0.00000000
38 LUMBER	0.00648875	0.00269431	0.00269431	0.00195000	0.00000000	0.00000000	0.00000000	0.00000000
39 FURNITURE	0.00021843	0.00016685	0.00016685	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
40 GLASS, STONE, CLAY	0.09747179	0.00290857	0.00290857	0.00276825	0.00486043	0.00486043	0.00486043	0.00486043
41 METAL	0.01092509	0.14542413	0.14542413	0.11571945	0.08053443	0.08053443	0.08053443	0.08053443
42 NON-ELECTRIC MACHINES	0.00515256	0.01465855	0.01465855	0.01462432	0.00753799	0.00753799	0.00753799	0.00753799
43 ELECTRIC EQUIPMENT	0.00116376	0.01876580	0.01876580	0.00288996	0.00198411	0.00198411	0.00198411	0.00198411
44 TRANSPORTATION EQUIP	0.00018894	0.02746847	0.02746847	0.00388996	0.00198411	0.00198411	0.00198411	0.00198411
45 INSTRUMENTS	0.00102954	0.00363038	0.00363038	0.00185381	0.00388996	0.00388996	0.00388996	0.00388996
46 MISG MFG GOODS	0.00236399	0.00072890	0.00072890	0.00077122	0.00153086	0.00153086	0.00153086	0.00153086
47 TEXTILES	0.00034825	0.00008789	0.00008789	0.00072090	0.00028564	0.00028564	0.00028564	0.00028564
48 APPAREL	0.00022725	0.00038045	0.00038045	0.00027135	0.00027564	0.00027564	0.00027564	0.00027564
49 PAPER	0.02407992	0.00435047	0.00435047	0.00313271	0.00119417	0.00119417	0.00119417	0.00119417
50 PRINTING	0.00331299	0.00412955	0.00412955	0.00226071	0.00530818	0.00530818	0.00530818	0.00530818
51 CHEMICAL	0.02014691	0.01293477	0.01293477	0.00309216	0.00489283	0.00489283	0.00489283	0.00489283
52 PETROLEUM	0.03336202	0.01306440	0.01306440	0.02362967	0.00959580	0.00959580	0.00959580	0.00959580
53 RUBBER & PLASTIC	0.01162217	0.00639185	0.00639185	0.00712024	0.01333385	0.01333385	0.01333385	0.01333385
54 LEATHER	0.00001861	0.00002839	0.00002839	0.00002220	0.00001131	0.00001131	0.00001131	0.00001131
55 TELEPHONE/PUB UTIL	0.06679758	0.03338261	0.03338261	0.02182655	0.02354148	0.02354148	0.02354148	0.02354148
56 WHOLESALE TRADERS	0.02443332	0.00770033	0.00770033	0.00277759	0.01725244	0.01725244	0.01725244	0.01725244
57 RETAIL TRADERS	0.00027302	0.00134945	0.00134945	0.00090870	0.00125554	0.00125554	0.00125554	0.00125554
58 INSURANCE	0.00230429	0.00221935	0.00221935	0.00142288	0.00138740	0.00138740	0.00138740	0.00138740
59 FINANCE	0.02345117	0.01752603	0.01752603	0.02565834	0.03560097	0.03560097	0.03560097	0.03560097
60 SERVICES	0.03092111	0.03861028	0.03861028	0.02956834	0.05001131	0.05001131	0.05001131	0.05001131
61 FED GOVERNMENT	0.00119343	0.00118808	0.00118808	0.00140069	0.00188453	0.00188453	0.00188453	0.00188453
62 ST & LOG GOVERNMENT	0.00417798	0.00252900	0.00252900	0.00154695	0.00164632	0.00164632	0.00164632	0.00164632
63 SCRAP MATERIALS	0.00206381	0.01017451	0.01017451	0.00267793	0.00180431	0.00180431	0.00180431	0.00180431
64 HOUSEHOLDS	0.33499238	0.32810421	0.32810421	0.38801898	0.38153436	0.38153436	0.38153436	0.38153436
65 IMPORTS/EXPORTS	0.19707381	0.23479333	0.23479333	0.22102148	0.13059624	0.13059624	0.13059624	0.13059624
66 TOTALS	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000

TABLE 2-5 (continued)

TECHNICAL COEFFICIENTS TABLE

ROW/COL	49	50	51	52	53	54	55	56
1	GROUND FISH TRAWLERS, N	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
2	GROUND FISH TRAWLERS, S	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
3	SHRIMP TRAWLERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
4	TUNA PURSE-SEINERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
5	WEFISH SEINERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
6	HEERING GILNETTERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
7	OTHER GILNETTERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
8	SMALL SALMON TROLLERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
9	LARGE SALMON TROLLERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
10	SALMON/CRABBERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
11	SALMON/ALBACORE	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
12	LONG-LINERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
13	HOOK AND LINE	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
14	BLACK COD POTS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
15	CRAB/LOBSTER, N	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
16	CRAB/LOBSTER, S	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
17	BALBOATS, TUNA	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
18	JIGBOATS, TUNA	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
19	DIVEBOATS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
20	HARPOON, BILLFISH	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
21	FISH WHSL, PROG, DIST, SM	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
22	FISH WHSL, PROG, DIST, MED	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
23	FISH WHSL, PROG, DIST, LG	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
24	FISH IMP/EXP, BROKERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
25	TUNA CANNERS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
26	SEAFOOD RESTAURANTS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
27	OTHER EAT & DRINK	0.00447700	0.00303187	0.01177435	0.00881701	0.00080868	0.00446215	0.00036861
28	SEAFOOD MARKETS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
29	OTHER FOOD & KINDRED PROC	0.00038041	0.00070000	0.00025118	0.00150839	0.00027723	0.00018021	0.00104488
30	FORESTRY & OTHER FISHING	0.00033514	0.00000448	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
31	FORESTRY/FISH SERVICES	0.00000470	0.00000000	0.00000000	0.00019024	0.00011758	0.00000000	0.00000000
32	PETFOOD	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
33	ANIMAL & MARINE FATS	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
34	SHIP & BOAT	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
35	MOTOR FREIGHT	0.00918405	0.00023378	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
36	AGRICULTURE	0.00046653	0.01404460	0.00071605	0.00782775	0.01133889	0.01124889	0.01358572
37	MINING	0.00006445	0.00071605	0.00009630	0.00130048	0.00001371	0.00007214	0.00217295
38	CONSTRUCTION	0.00066939	0.00047525	0.00047525	0.00035445	0.15087697	0.00091811	0.00056260
39	LUMBER	0.00036882	0.02967528	0.00001014	0.00586974	0.00720653	0.00551609	0.00162133
40	FURNITURE	0.00017854	0.00010012	0.00001014	0.00040381	0.00000000	0.00022075	0.00325768
41	GLASS, STONE, CLAY	0.00025881	0.00074540	0.00046629	0.00012266	0.00000534	0.00031526	0.00072658
42	METAL	0.00131015	0.00453973	0.00336892	0.02444080	0.00080175	0.00947945	0.00108055
43	NON-ELECTRIC MACHINES	0.00046725	0.00289567	0.00214455	0.00473747	0.00052769	0.01713764	0.00189477
44	ELECTRIC EQUIPMENT	0.00040326	0.00038857	0.00138455	0.00069450	0.00052334	0.00207954	0.00302247
45	TRANSPORTATION EQUIP	0.00006973	0.00008167	0.00005124	0.00014858	0.00001714	0.00046026	0.00108012
46	INSTRUMENTS	0.00013621	0.00060186	0.00086737	0.00165156	0.00023978	0.00046026	0.00045908
47	MISC MFG GOODS	0.00333114	0.00095006	0.00303201	0.00269268	0.00018530	0.00238700	0.00598314
48	TEXTILES	0.05884658	0.00209504	0.00034676	0.00005643	0.00004149	0.00201269	0.00597463
49	PAPER	0.09184199	0.00029910	0.00034831	0.00003630	0.00001140	0.00057891	0.00010265
50	PRINTING	0.08401891	0.14101900	0.04444628	0.01787118	0.00142075	0.02228713	0.01131677
51	CHEMICAL	0.00397718	0.00421187	0.06540414	0.02827312	0.00188238	0.00535233	0.00533271
52	PETROLEUM	0.00119315	0.02795430	0.01245374	0.11397370	0.00665684	0.14272644	0.00533271
53	RUBBER & PLASTIC	0.00711719	0.02560410	0.00770758	0.07621613	0.08688742	0.02360012	0.01907704
54	LEATHER	0.00416180	0.01696309	0.00855527	0.02564221	0.00056093	0.04696178	0.04211745
55	TELEPHONE/PUB UTIL	0.00629504	0.00001668	0.00007981	0.00004223	0.00000883	0.00000541	0.00000000
56	WHOLESALE TRADERS	0.02003709	0.03911963	0.04768410	0.05629780	0.02228474	0.04340539	0.01788497
57	RETAIL TRADERS	0.04684308	0.03640478	0.02666875	0.02745198	0.00320144	0.02682196	0.04365081
58	INSURANCE	0.00056388	0.00033199	0.00121708	0.00070313	0.00011394	0.00050116	0.00019730
59	FINANCE	0.00157295	0.00107398	0.00421016	0.00201760	0.00057439	0.00179039	0.00145703
60	SERVICES	0.02685595	0.02159963	0.05680840	0.03546173	0.00674739	0.01943430	0.02023634
61	FED GOVERNMENT	0.02680954	0.02697874	0.06978936	0.06189952	0.00622318	0.02908768	0.02343528
62	ST & LOG GOVERNMENT	0.00220917	0.00089285	0.01334788	0.00146031	0.00031669	0.00088596	0.00295849
63	HOUSEHOLDS	0.00172746	0.00281980	0.00212534	0.00032111	0.00008053	0.00030213	0.00095727
64	SCRAP MATERIALS	0.00032736	0.00050007	0.00050007	0.00105436	0.00000223	0.00078708	0.00060892
65	IMPORTS/EXPORTS	0.31862161	0.24816084	0.36818707	0.19187381	0.02817317	0.30836584	0.31862161
66	TOTALS	0.34290770	0.33493730	0.23576335	0.26922684	0.64710013	0.25876525	0.23409384
67	TOTALS	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000



TABLE 2-5 (continued)

TECHNICAL COEFFICIENTS TABLE

ROW/COL	65	66	67
1	0.00000000	0.00000000	0.00001335
2	0.00000000	0.00000000	0.00000367
3	0.00000000	0.00000000	0.00000296
4	0.00000000	0.00000490	0.00007951
5	0.00000000	0.00000000	0.00001053
6	0.00000000	0.00000655	0.00001523
7	0.00000000	0.00000000	0.00000673
8	0.00000000	0.00000000	0.00001123
9	0.00000000	0.00000003	0.00000443
10	0.00000000	0.00000000	0.00000289
11	0.00000000	0.00000005	0.00000169
12	0.00000000	0.00000000	0.00000022
13	0.00000000	0.00000000	0.00000062
14	0.00000000	0.00000000	0.00000231
15	0.00000000	0.00000001	0.00000297
16	0.00000000	0.00000004	0.00000227
17	0.00000000	0.00000000	0.00000398
18	0.00000000	0.00000011	0.00000171
19	0.00000000	0.00000000	0.000000615
20	0.00000000	0.00000000	0.000000058
21	0.00000384	0.00000000	0.00000457
22	0.00000170	0.00000000	0.00003906
23	0.00003391	0.00001010	0.00006879
24	0.00000000	0.00059978	0.00015291
25	0.00068236	0.00092772	0.00038096
26	0.00059437	0.00006729	0.00014296
27	0.03416747	0.00000000	0.01457389
28	0.00009165	0.00000000	0.00001940
29	0.04066914	0.01428990	0.01744911
30	0.00008585	0.00000000	0.00007758
31	0.00016820	0.00016211	0.00108509
32	0.00144502	0.00050151	0.00048121
33	0.00000814	0.00012374	0.00013806
34	0.00115320	0.00335191	0.00123806
35	0.00719956	0.00177407	0.00632900
36	0.00526952	0.01738156	0.01171808
37	0.00030459	0.01385024	0.00915628
38	0.00000000	0.11614962	0.03735436
39	0.00026224	0.00035488	0.00306799
40	0.00416690	0.00162848	0.00151809
41	0.00073450	0.00083902	0.00330916
42	0.00129327	0.02040462	0.01835945
43	0.00056375	0.02322314	0.00838681
44	0.00478770	0.06892521	0.02767066
45	0.01705890	0.04186852	0.01759572
46	0.00113764	0.02027974	0.00672633
47	0.00566051	0.00171131	0.00235557
48	0.00179899	0.00010680	0.00086798
49	0.01094032	0.00103759	0.00314770
50	0.00205532	0.00039841	0.00369971
51	0.00409241	0.00640101	0.00648249
52	0.00751038	0.00546597	0.00768501
53	0.02639910	0.00123871	0.01982770
54	0.00203796	0.00189987	0.00381113
55	0.00096111	0.00000000	0.00031308
56	0.03845673	0.04478463	0.03609009
57	0.03426888	0.04060257	0.02759071
58	0.09584482	0.02725246	0.02945200
59	0.02349582	0.00968072	0.01516352
60	0.17286219	0.12550881	0.09367583
61	0.12588694	0.13370940	0.08900270
62	0.00363823	0.00000000	0.00266618
63	0.00734926	0.00037061	0.00374318
64	0.00242442	0.00000000	0.00089679
65	0.00378205	0.23654059	0.21208083
66	0.30876145	0.00000000	0.25402121
67	1.00000000	1.00000000	1.00000000

SECTION III

OUTPUT, INCOME AND EMPLOYMENT MULTIPLIERS

FOR

CALIFORNIA FISH HARVESTERS

CALIFORNIA FISH PROCESSORS

## SECTION III

### OUTPUT, INCOME AND EMPLOYMENT MULTIPLIERS FOR CALIFORNIA FISH HARVESTERS AND FISH PROCESSORS

#### Background

Firms in every industry are linked through their purchases and sales with firms in other industries and with households. As a result changes in sales by firms in one industrial sector have indirect and induced impacts on sales by firms in other industrial sectors and generate "ripples" of economic change that spread throughout the economy. Input-output models, such as the CIF model, can be used to simulate how changing sales in one industrial sector filter through the economy. They provide the only reliable method of tracing indirect and induced economic impacts and generating economic "multipliers." The "multipliers" generated from the CIF model show the indirect and induced impacts on jobs, incomes, and overall level of economic activity that result from direct changes in exvessel sales by California fish harvesters or processed fish sales by California fish processors.

#### Type I and Type II Multipliers

In the economics literature, it is customary to show "multipliers" that reflect the overall change in a variable per unit of direct change in that variable. Employment multipliers, for instance, show the overall increase in the number of jobs per direct job generated in a given industry and output multipliers show the overall dollar sales generated per dollar of direct

sales in a given industry. Impacts that result from increases in interindustry transactions are usually referred to as "indirect" impacts and multipliers that show "indirect" impacts are usually referred to as TYPE I multipliers. Additional impacts sometimes result because increases in interindustry trade cause increases in household incomes and corresponding increases in household spending that generate additional rounds of economic activity. These impacts that result from increases in household spending are usually referred to as "induced" impacts and multipliers that show "indirect" impacts from interindustry transactions and "induced" impacts from increased household expenditures are usually called TYPE II multipliers. TYPE I and TYPE II output, income, and employment multipliers generated by the 1982 CIF model are presented for each fish harvesting sector in Tables 3-1, 3-2 and 3-3, and for each fish processing sector in Tables 3-4, 3-5 and 3-6.

#### Other Multipliers

Since input-output models are based on assumed proportionality between inputs and outputs, it is possible to convert all multipliers to a common term and present them in terms of dollar sales. The Type I and Type II multipliers described above are the ones most frequently referred to by economists, but many users find it more convenient to have sets of multipliers that show the indirect and induced employment, output, and household income generated per dollar of direct exvessel or processed fish. These are presented in the appropriate tables along with TYPE I and TYPE II multipliers. A

user's guide to CIF multipliers with instructions and examples for applying them in policy analysis is available as Sea Grant Technical Report 83-1 and an abbreviated version is provided here as Appendix C.



TABLE 3-1

1982 CALIFORNIA OUTPUT MULTIPLIERS FOR

## FISH HARVESTING SECTORS

(in dollars)

#	Sector Title	California Dollar Output per Dollar of Exvessel Fish Sales			California Output Multipliers	
		D	D+I	D+I+IN	Type I	Type II
1)	Groundfish Trawlers, N	1.00000	1.71171	3.71761	1.71171	3.71761
2)	Groundfish Trawlers, S	1.00000	1.44931	3.71933	1.44931	3.71933
3)	Shrimp Trawlers	1.00000	1.51358	3.80333	1.51358	3.80333
4)	Tuna Purse-Seiners	1.00000	1.52637	3.68427	1.52637	3.68427
5)	Wetfish Seiners	1.00000	1.66540	3.84751	1.66540	3.84751
6)	Herring Gillnetters	1.00000	1.42647	3.47650	1.42647	3.47650
7)	Other Gillnetters	1.00000	1.63408	3.74547	1.63408	3.74547
8)	Small Salmon Trollers	1.00000	1.76914	3.55519	1.76914	3.55519
9)	Large Salmon Trollers	1.00000	1.57482	3.58517	1.57482	3.58517
10)	Salmon/Crabbers	1.00000	1.52350	3.51451	1.52350	3.51451
11)	Salmon/Albacore	1.00000	1.73302	3.57494	1.73302	3.57494
12)	Long-Liners	1.00000	1.80716	3.56332	1.80716	3.56332
13)	Hook and Line	1.00000	2.06541	3.59701	2.06541	3.59701
14)	Black Cod Pots	1.00000	1.84877	3.55191	1.84877	3.55191
15)	Crab/Lobster, N	1.00000	2.10261	3.68057	2.10261	3.68057
16)	Crab/Lobster, S	1.00000	1.94554	3.56605	1.94554	3.56605
17)	Baitboats, Tuna	1.00000	1.39391	3.55119	1.39391	3.55119
18)	Jigboats, Tuna	1.00000	2.06968	3.77781	2.06968	3.77781
19)	Diveboats	1.00000	1.84131	3.84046	1.84131	3.84046
20)	Harpoon-Billfish	1.00000	1.80829	3.55163	1.80829	3.55163

## Legend:

D - Direct Output Generated per Dollar Sales

I - Indirect Output Generated per Dollar Sales

IN - Induced Output Generated per Dollar Sales

Type I Multiplier -  $(D+I)/D$ , i.e., dollar value of direct and indirect output generated by each \$1 of exvessel fish sales.

Type II Multiplier -  $(D+I+IN)/D$ , i.e. dollar value of direct, indirect and induced output generated by each \$1 of exvessel fish sales.

TABLE 3-2

1982 CALIFORNIA HOUSEHOLD INCOME MULTIPLIERS FOR

## FISH HARVESTING SECTORS

(in dollars)

#	Sector Title	California Income per Dollar of Exvessel Fish Sales			California Income Multipliers	
		D	D+I	D+I+IN	Type I	Type II
1)	Groundfish Trawlers, N	0.49168	0.69944	0.97445	1.42256	1.98188
2)	Groundfish Trawlers, S	0.67176	0.79154	1.10276	1.17830	1.64159
3)	Shrimp Trawlers	0.64666	0.79841	1.11234	1.23468	1.72013
4)	Tuna Purse-Seiners	0.60675	0.75244	1.04829	1.24012	1.72772
5)	Wetfish Seiners	0.59404	0.76088	1.06005	1.28087	1.78449
6)	Herring Gillnetters	0.58600	0.71483	0.99589	1.21983	1.69946
7)	Other Gillnetters	0.54445	0.73622	1.02570	1.35223	1.88391
8)	Small Salmon Trollers	0.38193	0.62278	0.86765	1.63602	2.27175
9)	Large Salmon Trollers	0.53181	0.70099	0.97661	1.31812	1.83639
10)	Salmon/Crabbers	0.53941	0.69425	0.96722	1.28705	1.79310
11)	Salmon/Albacore	0.43361	0.64226	0.89479	1.48118	2.06356
12)	Long-Liners	0.42973	0.61236	0.85313	1.42499	1.98528
13)	Hook and Line	0.35043	0.53405	0.74404	1.52399	2.12321
14)	Black Cod Pots	0.34179	0.59387	0.82737	1.73756	2.42074
15)	Crab/Lobster, N	0.20932	0.55022	0.76656	2.62857	3.66208
16)	Crab/Lobster, S	0.27654	0.56506	0.78723	2.04331	2.84671
17)	Baitboats, Tuna	0.64302	0.75222	1.04799	1.16983	1.62979
18)	Jigboats, Tuna	0.26893	0.59561	0.82980	2.21477	3.08559
19)	Diveboats	0.47713	0.69709	0.97117	1.46099	2.03543
20)	Harpoon-Billfish	0.36957	0.60789	0.84690	1.64485	2.29158

## Legend:

- D - Direct Income Generated per Dollar Sales
- I - Indirect Income Generated per Dollar Sales
- IN - Induced Income Generated per Dollar Sales

Type I Multiplier -  $(D+I)/D$ , i.e., direct and indirect household income generated per dollar of direct income from fish harvesting.

Type II Multiplier -  $(D+I+IN)/D$ , i.e. direct, indirect and induced household income generated per dollar of direct income from fish harvesting.

TABLE 3-3  
1982 CALIFORNIA EMPLOYMENT MULTIPLIERS FOR  
FISH HARVESTING SECTORS

(in dollars)

#	Sector Title	# of Jobs Created in California per Million Dollars of Exvessel Fish Sales			California Employment Multipliers	
		D	D+I	D+I+IN	Type I	Type II
1)	Groundfish Trawlers, N	77.30	85.91	100.86	1.11136	1.30474
2)	Groundfish Trawlers, S	10.10	15.33	32.24	1.51752	3.19242
3)	Shrimp Trawlers	23.10	29.50	46.57	1.27722	2.01590
4)	Tuna Purse-Seiners	6.00	12.10	28.18	2.01634	4.69650
5)	Wetfish Seiners	58.60	66.61	82.87	1.13665	1.41415
6)	Herring Gillnetters	28.10	33.40	48.67	1.18845	1.73212
7)	Other Gillnetters	79.30	87.44	103.18	1.10270	1.30112
8)	Small Salmon Trollers	362.50	372.56	385.87	1.02775	1.06446
9)	Large Salmon Trollers	53.40	60.54	75.53	1.13379	1.41434
10)	Salmon/Crabbers	127.90	134.31	149.15	1.05013	1.16614
11)	Salmon/Albacore	76.90	84.70	98.43	1.11477	1.29508
12)	Long-Liners	358.30	366.21	379.30	1.02208	1.05860
13)	Hook and Line	302.70	310.50	321.91	1.02577	1.06348
14)	Black Cod Pots	11.00	21.33	34.03	1.93942	3.09325
15)	Crab/Lobster, N	54.20	68.44	80.20	1.26273	1.47969
16)	Crab/Lobster, S	200.10	212.01	224.09	1.05952	1.11987
17)	Baitboats, Tuna	44.40	49.05	65.12	1.10464	1.46672
18)	Jigboats, Tuna	48.10	62.06	74.79	1.29026	1.55491
19)	Diveboats	271.90	281.56	296.46	1.03553	1.09033
20)	Harpoon-Billfish	89.50	99.29	112.28	1.10940	1.25456

Legend:

- D - Direct Employment Created per Million Dollar Sales
- I - Indirect Employment Created per Million Dollar Sales
- IN - Induced Employment Created per Million Dollar Sales

Type I Multiplier -  $(D+I)/D$ , i.e., direct and indirect jobs created per direct job in fish harvesting.

Type II Multiplier -  $(D+I+IN)/D$ , i.e. direct, indirect and induced jobs created per direct job in fish harvesting.

TABLE 3-4  
 1982 CALIFORNIA OUTPUT MULTIPLIERS FOR  
 FISH PROCESSING SECTORS  
 (in dollars)

#	Sector Title	California Dollar Output per Dollar of Processed Fish Sales			California Output Multipliers	
		D	D+I	D+I+IN	Type I	Type II
21)	Fish, Whsl, Proc, Dist, Small	1.00000	2.30725	4.17059	2.30725	4.17059
22)	Fish, Whsl, Proc, Dist, Med.	1.00000	2.36610	4.02104	2.36610	4.02104
23)	Fish, Whsl, Proc, Dist, Large	1.00000	2.26796	4.14715	2.26796	4.14715
24)	Fish Imp/Exp, Brokers	1.00000	1.15693	1.64093	1.15693	1.64093
25)	Tuna Cannerys	1.00000	1.80660	3.33856	1.80660	3.33856
26)	Seafood Restaurants	1.00000	1.56107	3.38954	1.56107	3.38954
27)	Other Eat & Drink	1.00000	1.60082	2.76077	1.60082	2.76077
28)	Seafood Markets	1.00000	1.94888	3.12703	1.94888	3.12703
29)	Other Food & Kindred Prod	1.00000	2.21932	3.63875	2.21932	3.63875

Legend:

- D - Direct Output Generated per Dollar Sales
- I - Indirect Output Generated per Dollar Sales
- IN - Induced Output Generated per Dollar Sales

Type I Multiplier -  $(D+I)/D$ , i.e., dollar value of direct and indirect output generated by each \$1 of processed fish sales.

Type II Multiplier -  $(D+I+IN)/D$ , i.e. dollar value of direct, indirect and induced output generated by each \$1 of processed fish sales.

TABLE 3-5

1982 CALIFORNIA HOUSEHOLD INCOME MULTIPLIERS FOR

## FISH PROCESSING SECTORS

(in dollars)

#	Sector Title	California Income per Dollar of Processed Fish Sales			California Income Multipliers	
		D	D+I	D+I+IN	Type I	Type II
21)	Fish, Whsl, Proc, Dist, Small	0.15873	0.64973	0.90519	4.09335	5.70279
22)	Fish, Whsl, Proc, Dist, Med.	0.09633	0.57706	0.80396	5.99030	8.34561
23)	Fish, Whsl, Proc, Dist, Large	0.20880	0.65526	0.91289	3.13812	4.37199
24)	Fish Imp/Exp, Brokers	0.10653	0.16876	0.23512	1.58422	2.20711
25)	Tuna Cannerys	0.20676	0.53418	0.74421	2.58352	3.59933
26)	Seafood Restaurants	0.46948	0.63757	0.88825	1.35804	1.89200
27)	Other Eat & Drink	0.25299	0.40446	0.56349	1.59876	2.22736
28)	Seafood Markets	0.15583	0.41081	0.57234	2.63630	3.67286
29)	Other Food & Kindred Prod	0.20215	0.49494	0.68955	2.44839	3.41106

## Legend:

D - Direct Income Generated per Dollar Sales

I - Indirect Income Generated per Dollar Sales

IN - Induced Income Generated per Dollar Sales

Type I Multiplier -  $(D+I)/D$ , i.e., direct and indirect household income generated per dollar of direct income from fish processing.

Type II Multiplier -  $(D+I+IN)/D$ , i.e. direct, indirect and induced household income generated per dollar of direct income from fish processing.

TABLE 3-6  
 1982 CALIFORNIA EMPLOYMENT MULTIPLIERS FOR  
 FISH PROCESSING SECTORS  
 (in dollars)

#	Sector Title	# of Jobs Created in California per Million Dollars of Processed Fish Sales			California Employment Multipliers	
		D	D+I	D+I+IN	Type I	Type II
21)	Fish, Whsl, Proc, Dist, Small	16.50	72.42	86.30	4.38891	5.23050
22)	Fish, Whsl, Proc, Dist, Med.	7.30	59.53	71.87	8.15521	9.84464
23)	Fish, Whsl, Proc, Dist, Large	12.10	68.76	82.76	5.68224	6.83959
24)	Fish Imp/Exp, Brokers	2.50	6.67	10.28	2.66802	4.11073
25)	Tuna Cannery	10.20	20.37	31.78	1.99685	3.11609
26)	Seafood Restaurants	54.00	63.58	77.21	1.17750	1.42983
27)	Other Eat & Drink	54.20	63.91	72.55	1.18352	1.34359
28)	Seafood Markets	15.20	39.11	47.89	2.57272	3.15033
29)	Other Food & Kindred Prod	29.02	44.35	54.93	1.78112	2.20593

Legend:

- D - Direct Employment Created per Million Dollar Sales
- I - Indirect Employment Created per Million Dollar Sales
- IN - Induced Employment Created per Million Dollar Sales

Type I Multiplier -  $(D+I)/D$ , i.e., direct and indirect jobs created per direct job in fish processing.

Type II Multiplier -  $(D+I+IN)/D$ , i.e. direct, indirect and induced jobs created per direct job in fish processing.

APPENDIX A

A-1 COVER LETTER FOR SURVEY OF CALIFORNIA FISH HARVESTERS

A-2 SURVEY INSTRUMENT FOR CALIFORNIA FISH HARVESTERS

A-3 SURVEY INSTRUMENT FOR CALIFORNIA FISH PROCESSORS

APPENDIX A-1  
COVER LETTER FOR SURVEY OF CALIFORNIA FISH HARVESTERS

**PACIFIC COAST FEDERATION OF FISHERMEN'S  
ASSOCIATIONS, INCORPORATED**

3000 BRIDGEWAY BUILDING, SUITE 104 • (415) 332-5080  
P.O. BOX 1626, SAUSALITO, CA 94965, USA



March 3, 1981

Dear Friend,

We all know how important California's fisheries are to us and we know that they affect the well-being of countless others around the State. At the present time, however, there is no method for us to describe how income, jobs, taxes, and wealth are generated throughout California by fishing activities. This lack of evidence hurts all of us in our attempts to lobby and protect our industry against needless interference.

For this reason, the Pacific Coast Federation of Fishermen's Associations (PCFFA) and other fishery-related trade organizations asked the University of California to study the "rippling effects" and "multipliers" associated with economic activity generated by our fishing activities. The study is being conducted by San Diego State University (SDSU) with Sea Grant funds. PCFFA is assisting SDSU by 1) mailing the enclosed questionnaire to commercial fishermen in California and 2) encouraging members of our industry to answer the questions as best they can and then return the questionnaire promptly in the enclosed self-addressed envelope.

SDSU researchers do not need to know your name or the name of your vessel and all responses will be averaged with others before they are used. PCFFA has required that all questionnaires be mailed back anonymously, and will insure that they are destroyed once summary statistics are calculated.

We recognize that 1980 was an unusual year for California fishermen, and adjustments will be made to account for irregularities. Please provide any specific comments you may have about the difference between the 1980 fishing season and other years; a space has been provided on the questionnaire for this vital input.

We also realize that some of your valuable time will be required to answer these questions; however, without this study there is no way for us to show Federal, State, and local governments that policies affecting us have impacts throughout the California economy. By promptly returning the enclosed questionnaire, you will contribute essential data for accomplishing this purpose.

Your individual response will never be known, but your cooperation will be appreciated and will help us all in many ways.

Sincerely,

Zeke Grader  
Pacific Coast Federation of  
Fishermen's Associations



APPENDIX A-2  
SURVEY INSTRUMENT FOR CALIFORNIA FISH HARVESTERS

QUESTIONNAIRE INSTRUCTIONS

This questionnaire asks for information about your catches and expenses. The questions are self-explanatory and answers which supply the greatest detail possible would be appreciated.

If you own or operate more than one vessel and they are similar, you may pool information. If they are not similar, please telephone collect to Dr. Dennis King at 714/265-6335 or Dr. Kenneth Shellhammer at 714/239-0888 to ask for additional questionnaires. If you have any questions at all about the questionnaire or the overall study, please do not hesitate to telephone collect to Dr. King or Dr. Shellhammer at the above numbers. Your prompt response will help a great deal.

Please indicate the number of vessels for which you are supplying data below. \_\_\_\_\_

QUESTIONNAIRE FOR SEAFOOD HARVESTERS

1) Did you fish full time or part time during 1980?

CHECK ONE ONLY:  
 Full time  
 Part time  
 No fishing

2) Did you fish full time or part time during 1979?

CHECK ONE ONLY:  
 Full time  
 Part time  
 No fishing

If you did not fish at all during either 1979 or 1980, please leave the remaining questions blank and return the questionnaire to us.  
 If you fished in 1979 but not in 1980, please complete the questionnaire using your 1979 figures.

If you fished in both 1979 and 1980, we request that you give us your 1980 figures. We realize that 1980 was not a normal fishing year and will adjust the data provided to account for this fact. Please assist us in making the proper adjustments by explaining how 1979 and/or 1980 differed from previous years when you operated the same business.

3) What size vessel do you operate? (Note each if more than one.)

_____ tons	_____ feet in length
_____ tons	_____ feet in length
_____ tons	_____ feet in length
_____ tons	_____ feet in length

4) What was your principal gear? (check one only)

Seine     Pots/traps  
 Trawl     Scuba  
 Troll     Other (Specify: \_\_\_\_\_)  
 Gillnet

5) What was your secondary gear? (check one only)

Seine     Pots/traps  
 Trawl     Scuba  
 Troll     Other (Specify: \_\_\_\_\_)  
 Gillnet     No secondary gear

STATISTICAL ENTRY CODE

OFFICE USE ONLY

1) \_\_\_\_\_

2) \_\_\_\_\_

3) \_\_\_\_\_

4) \_\_\_\_\_

5) \_\_\_\_\_

6) \_\_\_\_\_

7) \_\_\_\_\_

8) \_\_\_\_\_

9) \_\_\_\_\_

10) \_\_\_\_\_

11) \_\_\_\_\_

12) \_\_\_\_\_

13) \_\_\_\_\_



9) EXPENSES: List your 1980 costs for each of the categories shown below. Use dollar figures or percentage of total costs, but please indicate which you are using. In the right-hand column, please show how much of the amount stated was spent outside California, if any.

Expenses	Total Spent		Spent Outside of California	
	\$	%	\$	%
Gasoline	_____	_____	_____	_____
Diesel Fuel	_____	_____	_____	_____
Repairs/Maintenance	_____	_____	_____	_____
Supplies/Provisions:	_____	_____	_____	_____
Specify: _____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
Dockage	_____	_____	_____	_____
Capital Expenses (vessel or equipment):	_____	_____	_____	_____
From Manufacturers	_____	_____	_____	_____
From Wholesalers	_____	_____	_____	_____
From Retailers	_____	_____	_____	_____
Interest	_____	_____	_____	_____
Depreciation	_____	_____	_____	_____
Specify Any Major Capital Expenditure (by type):	_____	_____	_____	_____
_____	_____	_____	_____	_____
Insurance	_____	_____	_____	_____
Other Expenses:	_____	_____	_____	_____
Specify: _____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
Taxes	_____	_____	_____	_____
Federal	_____	_____	_____	_____
State and Local	_____	_____	_____	_____
Crewshares and Wages	_____	_____	_____	_____
Total 1980 Expenses	_____	_____	_____	_____

STATISTICAL ENTRY CODE

OFFICE USE ONLY

- 41) \_\_\_\_\_
- 42) \_\_\_\_\_
- 43) \_\_\_\_\_
- 44) \_\_\_\_\_
- 45) \_\_\_\_\_
- 46) \_\_\_\_\_
- 47) \_\_\_\_\_
- 48) \_\_\_\_\_
- 49) \_\_\_\_\_
- 50) \_\_\_\_\_
- 51) \_\_\_\_\_
- 52) \_\_\_\_\_
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- 54) \_\_\_\_\_
- 55) \_\_\_\_\_
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- 63) \_\_\_\_\_
- 64) \_\_\_\_\_
- 65) \_\_\_\_\_
- 66) \_\_\_\_\_
- 67) \_\_\_\_\_
- 68) \_\_\_\_\_
- 69) \_\_\_\_\_
- 70) \_\_\_\_\_
- 71) \_\_\_\_\_
- 72) \_\_\_\_\_

REMINDER: THIS IS AN ANONYMOUS QUESTIONNAIRE. PLEASE DO NOT SIGN.

APPENDIX A-3  
SURVEY INSTRUMENT FOR CALIFORNIA FISH PROCESSORS

QUESTIONNAIRE INSTRUCTIONS

This questionnaire asks for information about the economics of your business and we urge you to provide as much detail as possible. Questions refer to business operations during 1980; but if you prefer to give information about other years, please specify which year you are using.

We have assumed that your business falls into one of the industrial sectors listed in Question 1 below. If you operate more than one business in one or more of these sectors, please telephone collect to Dr. Dennis M. King at 714/263-6335 or Dr. Kenneth L. Shellhammer at 714/239-0888 for additional instructions. Also, if you have any questions at all about the questionnaire or the overall study please do not hesitate to telephone collect to either Dr. King or Dr. Shellhammer.

QUESTIONNAIRE FOR SEAFOOD PROCESSORS/DISTRIBUTORS

- 1) What is the primary nature of your business?  
(CHECK ONE ONLY:)

- \_\_\_\_\_ Distributor, Wholesaler, Processor
- \_\_\_\_\_ Broker, Import/Export Business
- \_\_\_\_\_ Restaurant -- Seafood Specialty House
- \_\_\_\_\_ Restaurant -- Other (with California Fish and Game, Fish License)
- \_\_\_\_\_ Seafood Markets (specializing in fresh, semi-processed, or processed fish)
- \_\_\_\_\_ Non-Seafood Markets (supermarket chains, small variety stores, etc.)
- \_\_\_\_\_ Cannery (tuna, salmon, sport-fish, etc.)
- \_\_\_\_\_ Other Businesses, specify by circling (smokers, specialty packers, bait shops, worm farms, fish farms, other)

- 2) For what year are you supplying the data? \_\_\_\_\_

- 3) SALES: Please indicate in the first column below what percentage of your sales were made to each of the types of customer listed. In the second column, indicate what percentage of those sales were made to California-based firms or California residents.

<u>Type of Customer</u>	<u>Percent of Total Sales</u>	<u>California-Based Firms or Individuals</u>
Consumers	_____ %	_____ %
Hospitals	_____ %	_____ %
Military Institutions	_____ %	_____ %
Prisons	_____ %	_____ %
Other Institutions (specify: _____)	_____ %	_____ %
Retail Fish Markets	_____ %	_____ %
Other Retail Markets	_____ %	_____ %
Fish Restaurants	_____ %	_____ %
Other Restaurants	_____ %	_____ %
Other Handlers (distributors, wholesalers, processors, brokers)	_____ %	_____ %

APPENDIX A-3 (continued)

4) PURCHASES: Please list below what quantity of each raw fish species you purchased during 1980 and the cost (in dollars) of those purchases. In the last column, indicate what percentage was purchased from firms outside California.

<u>Species Type</u>	<u>Total Amount (\$) Purchased in 1980</u>	<u>Percent (%) Purchased Outside California</u>
Crustaceans (shrimp, crab, lobster)	_____	_____
Mollusks (clams, abalone, squid, oyster)	_____	_____
Flatfish (sole, flounder, halibut)	_____	_____
Wetfish (anchovy, sardine, herring)	_____	_____
Sablefish, Hake, Rockfish	_____	_____
Sharks, Rays, Skates	_____	_____
Salmon (King, Silver, Pink)	_____	_____
Billfish (swordfish, marlin, etc.)	_____	_____
Tuna	_____	_____
Other, circle which species (cod, bass, croaker, perch, etc.)	_____	_____

5) EXPENSES: Please list below what proportion of your total 1980 expenses was made up by each of the items shown. You may report either actual dollar amounts (\$) or percentage of your total 1980 costs (%), but please indicate which measure you are using. In the last column, indicate what proportion was paid to firms outside California. Note: If any individual "Other" type of expense exceeded 3% of your total expenses, please be sure to break it out.

<u>Type of Expenditure</u>	<u>Amount (\$) or Percent of Total Cost</u>	<u>Percent (%) Spent Outside California</u>
<u>A. Material Costs</u>		
Raw Fish Purchased (Total from Question 3)	_____	_____
Other Goods Purchased (specify):		
_____	_____	_____
_____	_____	_____
_____	_____	_____

APPENDIX A-3 (continued)

3) EXPENSES (continued)

<u>Type of Expenditure</u>	<u>Amount or Percent of Total Cost</u>	<u>Percent (%) Spent Outside California</u>
<b><u>B. Expenses</u></b>		
<b>Operating Expenses</b>		
Office Supplies	_____	_____
Freight Charges	_____	_____
Utilities	_____	_____
Telephone	_____	_____
Auto/Truck Expense	_____	_____
Professional Services (e.g., legal, advertising, accounting, etc.)	_____	_____
Other Services (secretarial, janitorial, etc.)	_____	_____
Repairs and Maintenance	_____	_____
Building Depreciation	_____	_____
Building Rental/Lease	_____	_____
Equipment Depreciation	_____	_____
Equipment Rental/Lease	_____	_____
Other (specify):		
_____	_____	_____
_____	_____	_____
_____	_____	_____
<b>Payroll Expenses</b>		
Salaries and Wages	_____	_____
Payroll Taxes	_____	_____
Employee Benefits (health and welfare, insurance, pension)	_____	_____
Other, e.g., commissions, education, etc. (specify):		
_____	_____	_____
_____	_____	_____
_____	_____	_____
<b>Financial Expenses</b>		
Insurance	_____	_____
Licenses and Fees	_____	_____

APPENDIX A-3 (continued)

5) EXPENSES (continued)

<u>Type of Expenditure</u>	<u>Amount (\$) of Percent of Total Cost</u>	<u>Percent (%) Spent Outside California</u>
<b>Financial Expenses (cont'd)</b>		
<b>Taxes</b>		
Federal	_____	_____
State	_____	_____
Local	_____	_____
Dividends and Return to Ownership/ Management	_____	_____
Finance Charges	_____	_____
Bad Debts	_____	_____
Other (specify):		
_____	_____	_____
_____	_____	_____
_____	_____	_____
<b>Miscellaneous Expenses</b>		
Dues and Subscriptions	_____	_____
Conventions, Travel, and Entertainment	_____	_____
Other (specify):		
_____	_____	_____
_____	_____	_____
_____	_____	_____

APPENDIX B

DEFINITION OF SECTORS FOR  
1982 CIF MODEL

- B-1 CALIFORNIA FISH HARVESTING SECTORS (SECTORS 1-20)
- B-2 CALIFORNIA FISH PROCESSING SECTORS (SECTORS 21-29)
- B-3 CALIFORNIA NON-FISHERY SECTORS (SECTORS 30-64)



FISH HARVESTING SECTORS OF CIF MODEL  
(Sectors 1-20)

Sector 1 - Groundfish Trawlers, North

Survey response: 13 returns

Criteria

Primary gear: Trawl

Home port: From Monterey - north

Value of catch: Crustaceans less than or equal to any other species (used to eliminate shrimpers)

Sector 2 - Groundfish Trawlers, South

Survey response: 5 returns

Criteria

Primary gear: Trawl

Home port: From Santa Barbara - south

Value of catch: Crustaceans less than or equal to any other species (used to eliminate shrimpers)

Sector 3 - Shrimp Trawlers

Survey response: 2 returns

Criteria

Primary gear: Trawl

Value of catch: Crustaceans greater than or equal to any other species

Sector 4 - Tuna Seiners

Survey response: 4 returns

Criteria

Primary gear: Purse-seine

Holding capacity: Greater than 900 short tons

Value of catch: Exclusively tuna

Sector 5 - Wetfish Seiners

Survey response: 6 returns

Criteria

Primary gear: Purse-seine

Holding capacity: Less than 500 short tons

Value of catch: Mollusks (squid), wetfish (mackerel and anchovy), tuna

Sector 6 - Herring Gillnetters

Survey response: 24 returns

Criteria

Primary gear: Gillnet

Home port: From Monterey - north

Value of catch: Herring (wetfish) greater than any other species

Sector 7 - Other Gillnetters

Survey response: 38 returns

Criteria

Primary gear: Gillnet

Value of catch: Herring (wetfish) less than any other species

Sector 8 - Small Salmon Trollers

Survey response: 72 returns

Criteria

Primary gear: Troll and a few pole and line

Secondary gear: Not pots and traps

Vessel length: Less than or equal to 32 feet

Value of catch: Salmon greater than zero; greater than any other species

Sector 9 - Large Salmon Trollers

Survey response: 124 returns

Criteria

Primary gear: Troll and a few pole and line

Secondary gear: Not pots and traps

Vessel length: Greater than 32 feet

Value of catch: Salmon greater than zero; greater than any other species

Sector 10 - Salmon - Crabber

Survey response: 38 returns

Criteria

Primary gear: Troll

Secondary gear: Pots and traps

Value of catch: a) Crustaceans greater than sablefish

b) Salmon greater than zero

c) Salmon greater than all other species except crustaceans

Sector 11 - Salmon - Albacore

Survey response: 30 returns

Criteria

Primary gear: Troll

Secondary gear: Not pots and traps

Value of catch: a) Salmon greater than zero

b) Tuna greater than zero and greater than any other species except salmon

Sector 12 - Longliners

Survey response: 6 returns

Criteria

Primary gear: Longlines

Sector 13 - Hook and Line

Survey response: 7 returns

Criteria

Primary gear: Hook and line

Sector 14 - Black Cod Pots

Survey response: 3 returns

Criteria

Primary gear: Pots and traps

Value of catch: a) Sablefish greater than any other species  
b) Crustaceans equal to zeroSector 15 - Crab - Lobster, North

Survey response: 35 returns

Criteria

Primary or secondary gear: Pots and traps

Primary gear: Not gillnet

Home port: From Santa Barbara - north

Value of catch: Crustaceans greater than any other species

Sector 16 - Crab - Lobster, South

Survey response: 19 returns

Criteria

Primary or secondary gear: Pots and traps

Primary gear: Not gillnet

Home port: From Santa Barbara - south

Value of catch: Crustaceans greater than any other species

Sector 17 - Baitboats

Survey response: 7 returns

Criteria

Primary gear: Pole and line or rod and reel

Value of catch: a) Tuna greater than any other species  
b) Rockfish equal to zeroSector 18 - Jigboats

Survey response: 31 returns

Criteria

Primary gear: Troll

Value of catch: a) Tuna greater than any other species  
b) Salmon equal to zeroSector 19 - Diveboats

Survey response: 33 returns

Criteria

Primary gear: Scuba or hooka

Sector 20 - Harpoon Billfish

Survey response: 42 returns

Criteria

Primary gear: Harpoon

Value of catch: Billfish greater than any other species

APPENDIX B-2

FISH PROCESSING SECTORS OF THE CIF MODEL  
(Sectors 21 - 29)

Sector 21 - Small Fish Wholesalers, Processors, & Distributors

- \* Engage in some processing, icing and packing of fish but primarily involved in marketing and distribution of fish for subsequent preparation or retail markets.
- \* Reported gross sales during 1980: Less than \$1 million

Sector 22 - Medium Fish Wholesalers, Processors, & Distributors

- \* Engage in some processing, icing and packing of fish but primarily involved in marketing and distribution of fish for subsequent preparation or retail markets.
- \* Reported gross sales during 1980: \$1 million to \$5 million

Sector 23 - Large Fish Wholesalers, Processors, & Distributors

- \* Engage in some processing, icing and packing of fish but primarily involved in marketing and distribution of fish for subsequent preparation or retail markets.
- \* Reported gross sales during 1980: Greater than \$5 million

Sector 24 - Fish Import/Export Brokers

- \* Firms primarily engaged in the trading of fish and seafood products in international markets; may engage in minor processing, repackaging or storing of fishery products.

Sector 25 - Tuna Cannerys

- \* Primarily engaged in the canning of tuna for human consumption and the canning of tuna by-products for petfood. Also involved in the occasional packing of squid, mackerel and other species and the reduction of fish waste to fish meal and fish oil.

Sector 26 - Seafood Restaurants

- \* White tablecloth and family-size seafood specialty restaurants and eating places attached to seafood markets. (See question 1 of processor questionnaire.)

Sector 27 - Other Eating and Drinking Places

- \* Away-from-home non-institutional eating places as defined in Sector 447 of 1977 National Input-Output Tables.

Sector 28 - Seafood Markets

- \* Retail outlets engaged primarily in selling of fresh and frozen seafood products.

Sector 29 - Other Food and Kindred Products

- \* Processors of food and animal products not covered under Sectors 21-28; as defined in Sector 59 of the 1977 S.I.C. for the National Input-Output Tables.

APPENDIX B-3

NON-FISHERY SECTORS OF THE CIF MODEL  
(Sectors 30-65)

CIF Sector Number -----	CIF Sector Title -----	Corresponding 1977 Industrial Classification Number Used in National I-O Tables -----
		(see Appendix A)
30	Forestry & Freshwater Fisheries	11
31	Forestry & Fishing Services	12
32	Petfood	78
33	Animal & Marine Fats & Oils	97
34	Ship & Boat Yards	383,384
35	Motor Freight	422
36	Agriculture	1
37	Mining	13-25
38	Construction	51,52
39	Lumber	136-149
40	Furniture	150-162
41	Glass, Stone, Clay	29-43
42	Metal	254-303
43	Non-electric Machinery	304-335
44	Electric Equipment	336-375,427
45	Transportation Equipment	376-389,420-426
46	Instruments	390-399
47	Misc. Manufactured Goods	400-419
48	Textiles	107-120
49	Apparel	121-135,221-228
50	Paper	163-175
51	Printing	176-190
52	Chemical	191-210
53	Petroleum	211-213
54	Rubber & Plastic	214-219
55	Leather	220
56	Telephone/Public Utilities	427-431
57	Wholesale Traders	432
58	Retail Traders	433
59	Insurance	437,438
60	Finance	434,435
61	Service	441-457
62	Federal Government	458-461
63	State & Local Government	462-464
64	Scrap Materials	466
65	California Households	
66	Imports/Exports (outside California)	

APPENDIX C

AN ECONOMIC IMPACT CALCULATOR  
FOR CALIFORNIA FISHERIES

# AN ECONOMIC IMPACT CALCULATOR FOR CALIFORNIA FISHERIES

This 'impact calculator' provides an easy reference for identifying economic linkages associated with California fisheries. It can be used to estimate the economic impact of fishery management options when more detailed economic analysis is not possible. The impact calculator contains income, output and employment multipliers for 20 California-based fishing fleets and 9 California-based fish processing activities and instructions for using them.

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Page 1	Introduction and Operating Instructions
Page 2	Table 1 - Dollar Value of 1982 California Fish Landings
Page 3	Table 2 - Income, Output and Employment Multipliers for California Fish Harvesters and Fish Processors
Page 4	Table 3 - Dollar Value of 1982 Fish Purchases by California Fish Processors Table 4 - Dollar Value of 1982 Transactions between California Fish Harvesters and Processors

## INTRODUCTION

Conserving coastal fisheries sometimes requires changes in regulations that must be implemented quickly before there is time to thoroughly assess direct and indirect economic impacts. As California fisheries become more fully utilized, there are more occasions when within-season regulatory changes and immediate changes in season or area closures will be employed to protect fish resources. There is usually more than one management option available for achieving conservation goals, but there is rarely time for conducting special-purpose studies to show how various options can affect the California economy.

The landing of fish by California fishermen and the handling of fish by California processors has a 'rippling' effect that generates jobs, incomes and economic activity throughout the state. The economic impact calculator presented here contains multipliers to estimate the indirect and induced changes in the California economy that result from changes in landings by California fishermen or changes in the amount of fish processed in California.

The values presented here are based on the results of an inter-industry study of California fisheries performed during 1981-1982. The computer simulation developed as part of that study and the methods used to generate the economic multipliers used here are described thoroughly in Sea Grant Publication No. 83-1, The California Interindustry Fisheries (CIF) Model, which is available from the California Sea Grant Office, Scripps Institution of Oceanography, La Jolla, CA 92037.

## INSTRUCTIONS

### Requirements

The user must determine how a change or a proposed change affects the exvessel value of California fish landings. If more than one fleet is affected the direct change in the value of exvessel landings by each fleet must be estimated. Since vessels in each fleet can respond to change by redirecting fishing effort the user must consider the value of landings of all primary and secondary target species in determining the change in the value of landings by each fleet.

### Procedures

- Step 1 - Estimate change in exvessel fish sales by each relevant sector.
- Step 2 - Look up output, income, and employment multipliers in Table 2.
- Step 3 - Multiply change in exvessel fish sales for each relevant sector by the appropriate multiplier.
- Step 4 - Add values calculated for each relevant sector in Step 3. (Note that multipliers for fish processing sectors already include the impact of changes in fish harvesting sectors. Multipliers showing the impact of changes in processed fish sales, when they are used, should not be combined with the impact estimates associated with fish harvesting sectors.)

### Example

Suppose that a regulatory change is expected to increase fishing by California salmon/albacore trollers and result in increased albacore landings of 2000 short tons. At 1982 prices this would mean an increase of \$3.5 million in landings by Sector 11. If the regulatory change is expected to have no other direct impact on California fish harvesters, the expected direct, indirect, and induced impacts on the California economy are:

Increased California Household Income	\$ 3.13 million	(0.89479 x \$3.5 million)
Increased California Economic Activity	\$12.51 million	(3.57494 x \$3.5 million)
Increased California Employment	344 jobs	(98.43 x \$3.5)



TABLE 1

## DOLLAR VALUE OF 1982 CALIFORNIA FISH LANDINGS

Harvesting Sectors	Crustaceans	Mollusks	Flatfish	Wetfish	Sable/ Rockfish	Shark/Rays/ Skates	Salmon	Billfish	Tuna	Cod/Bass/ Perch/Other	Total
1) Groundfish Trawlers, N	17,576	0	7,750,541	0	10,874,594	2,608	293,402	0	2,442	3,591	18,944,755
2) Groundfish Trawlers, S	164,221	0	702,023	0	3,158,852	559,699	252,166	187,379	48,137	139,089	5,211,566
3) Shrimp Trawlers	4,007,571	0	194,279	0	0	0	390	0	0	0	4,202,240
4) Tuna Purse-Seiners	0	0	0	0	0	0	0	0	111,068,621	0	111,068,621
5) Wetfish Seiners	0	2,082,833	0	11,753,029	0	0	0	0	1,108,915	0	14,944,777
6) Herring Gillnetters	423,482	0	34,468	11,824,589	22,796	83,676	6,251,361	41,226	543,260	17,921	19,242,778
7) Other Gillnetters	606,091	3,494,662	375,065	0	355,948	2,121,662	217,325	3,492,174	594,378	201,849	11,459,155
8) Small Salmon Trollers	0	0	1,777	0	11,753	792	1,672,493	3,853	16,836	42,831	1,750,335
9) Large Salmon Trollers	111,331	0	121	32,133	84,906	634	5,263,918	353,107	697,163	49,288	6,592,600
10) Salmon/Crabbers	1,168,535	0	0	202,900	26,891	0	2,429,070	0	201,221	30,536	4,059,053
11) Salmon/Albacore	11	0	0	0	1,624	0	1,180,793	0	1,185,322	0	2,367,751
12) Long-Liners	0	0	0	0	17,813	155	81,590	0	6,247	200,325	306,129
13) Hook and Line	0	0	322,185	0	554,905	0	0	0	0	0	877,090
14) Black Cod Pots	0	0	216,151	0	1,559,273	5,176	1,487,755	0	691	12,682	3,281,727
15) Crab/Lobster, N	3,356,568	0	182,687	0	35,568	56,847	493,988	0	88,356	4,129	4,218,462
16) Crab/Lobster, S	3,069,999	0	12,364	72,052	3,652	6,293	282	43,260	0	1,198	3,209,100
17) Baitboats, Tuna	0	0	0	0	48,448	0	174,937	0	5,423,681	0	5,647,067
18) Jigboats, Tuna	191,930	26,119	0	327,991	198,898	0	89,824	31,481	1,141,902	375,880	2,384,023
19) Oliveboats	35,122	1,760,165	70,853	0	0	11,995	7,905	620,414	39,939	6,184,519	8,730,911
20) Harpoon-Billfish	348,246	10,214	100	0	28,049	45,017	68,933	303,667	7,145	12,537	823,909
Total	13,500,652	7,374,313	9,862,655	24,212,591	16,983,968	2,894,555	19,966,136	5,076,559	122,174,248	7,276,373	229,322,050

This table shows the dollar value of 1982 landings by each of California's major fishing fleets. READING DOWN A COLUMN shows the 1982 dollar value of landings of a given species by each major fleet class. READING ACROSS A ROW shows the 1982 dollar value of landings of each species by a given fleet class.

TABLE 2

INCOME, OUTPUT, AND EMPLOYMENT MULTIPLIERS FOR CALIFORNIA  
FISH HARVESTERS AND FISH PROCESSORS \*

Sector Number & Title	Household Income Generated per Dollar Value of Landings	California Output Generated per Dollar Value of Landings	California Jobs Generated per Million Dollar Value of Landings
<b>Harvesting Sectors</b>			
1) Groundfish Trawlers, Northern	0.97445	3.71761	100.86
2) Groundfish Trawlers, Southern	1.10276	3.71933	32.24
3) Shrimp Trawlers	1.11234	3.80333	46.57
4) Tuna Purse-Seiners	1.04829	3.68427	28.18
5) Wetfish Seiners	1.06005	3.84751	82.87
6) Herring Gillnetters	0.99589	3.47650	48.67
7) Other Gillnetters	1.02570	3.74547	103.18
8) Small Salmon Trollers	0.86765	3.55519	385.87
9) Large Salmon Trollers	0.97661	3.58517	75.53
10) Salmon/Crabbers	0.96722	3.51451	149.15
11) Salmon/Albacore	0.89479	3.57494	98.43
12) Long-Liners	0.85313	3.56332	379.30
13) Hook & Line	0.74404	3.59701	321.91
14) Black Cod Pots	0.82737	3.55191	34.03
15) Crab/Lobster, Northern	0.76656	3.68057	80.20
16) Crab/Lobster, Southern	0.78723	3.56605	224.09
17) Baitboats, Tuna	1.04799	3.55119	65.12
18) Jigboats, Tuna	0.82980	3.77781	74.79
19) Diveboats	0.97117	3.84046	296.46
20) Harpoon-Billfish	0.84690	3.55163	112.28
Sector Number & Title	Household Income Generated per Dollar Value of Fish Sales	California Output Generated per Dollar Value of Fish Sales	California Jobs Generated per Million Dollar Value of Fish Sales
<b>Processing Sectors</b>			
21) Fish, Whsl, Proc, Dist, Small	0.90519	4.17059	86.30
22) Fish, Whsl, Proc, Dist, Med.	0.80396	4.02104	71.87
23) Fish, Whsl, Proc, Dist, Large	0.91289	4.14715	82.76
24) Fish Imp/Exp, Brokers	0.23512	1.64093	10.28
25) Tuna Cannerys	0.74421	3.33856	31.78
26) Seafood Restaurants	0.88825	3.38954	77.21
27) Other Eat & Drink	0.56349	2.76077	72.55
28) Seafood Markets	0.57234	3.12703	47.89
29) Other Food & Kindred Prod	0.68955	3.63875	54.93

\*These show direct, indirect and induced changes per dollar of direct sales and not per unit of direct impact. These are more useful than technically defined multipliers which are measured as:  $[(\text{Direct} + \text{Indirect} + \text{Induced})/\text{Direct}]$ .

TABLE 3

## DOLLAR VALUE OF 1982 FISH PURCHASES BY CALIFORNIA FISH PROCESSORS

Species	21	22	23	24	25	26-29	Total
	Fish,Whsl Proc,Dist Small	Fish,Whsl Proc,Dist Medium	Fish,Whsl Proc,Dist Large	Fish Imp/Exp Brokers	Tuna Canners	Other Fish Buyers*	
Crustaceans	476,600	4,190,600	8,833,500	0	0	0	13,500,700
Mollusks	257,400	2,263,200	4,770,400	83,300	0	0	7,374,300
Flatfish	348,200	3,061,400	6,453,100	0	0	0	9,862,700
Netfish	0	0	0	11,425,900	12,786,700	0	24,212,600
Sable/Rock	553,700	4,869,300	10,268,500	1,292,500	0	0	16,984,000
Sharks/Rays/Skates	102,200	898,500	1,893,900	0	0	0	2,894,600
Salmon	704,800	6,197,500	13,063,800	0	0	0	19,966,100
Billfish	179,200	1,575,800	3,321,600	0	0	0	5,076,600
Tuna	0	549,800	378,700	0	121,245,700	0	122,174,200
Cod	26,500	232,700	490,500	0	0	0	749,700
Bass	4,700	42,000	88,700	0	0	0	135,400
Perch	7,200	62,900	132,600	0	0	0	202,600
Other	211,000	1,935,800	4,041,800	0	0	0	6,168,700
<b>TOTAL</b>	<b>2,871,300</b>	<b>25,879,300</b>	<b>53,737,200</b>	<b>12,801,700</b>	<b>134,032,400</b>	<b>0</b>	<b>229,322,100</b>

This table shows the 1982 dollar value of California fish purchases by various types of fish buyers. Reading down a column shows the dollar value of purchases of each species group by a given type of fish buyer. Reading across a row shows the dollar value of a given species group purchased by each type of fish buyer.

TABLE 4

DOLLAR VALUE OF 1982 TRANSACTIONS BETWEEN CALIFORNIA FISH HARVESTERS AND FISH PROCESSORS  
(thousands of dollars)

Harvesting Sectors	21	22	23	24	25	26-29	Total
	Fish,Whsl Proc,Dist Small	Fish,Whsl Proc,Dist Medium	Fish,Whsl Proc,Dist Large	Fish Imp/Exp Brokers	Tuna Canners	Other Fish Buyers*	
1) Groundfish Trawlers, N	640	5620	11850	830	0	0	18940
2) Groundfish Trawlers, S	170	1530	3220	240	50	0	5210
3) Shrimp Trawlers	150	1300	2750	0	0	0	4200
4) Tuna Purse-Seiners	0	500	340	0	110220	0	111060
5) Netfish Seiners	70	840	1350	5570	7310	0	14940
6) Herring Gillnetters	240	2140	4500	5580	6780	0	19240
7) Other Gillnetters	310	2760	5820	70	590	0	9550
8) Small Salmon Trollers	60	540	1130	0	20	0	1750
9) Large Salmon Trollers	200	1720	3620	20	710	0	6270
10) Salmon/Crabbers	130	1130	2390	100	310	0	4060
11) Salmon/Albacore	40	380	780	0	1180	0	2380
12) Long-Liners	10	90	200	0	10	0	310
13) Hook and Line	30	260	550	40	0	0	880
14) Black Cod Pots	110	980	2070	120	0	0	3280
15) Crab/Lobster, N	150	1280	2700	0	90	0	4220
16) Crab/Lobster, S	110	970	2050	30	40	0	3200
17) Baitboats, Tuna	10	90	160	0	5380	0	5640
18) Jigboats, Tuna	30	280	590	170	1310	0	2380
19) Diveboats	300	2710	5670	20	40	0	8740
20) Harpoon-Billfish	30	250	530	0	10	0	820
<b>TOTAL</b>	<b>2790</b>	<b>25170</b>	<b>52270</b>	<b>12790</b>	<b>134050</b>	<b>0</b>	<b>227070</b>

This table shows the 1982 dollar value of transactions between California fishermen and California-based fish buyers. Reading down a column shows the dollar value of transactions between a given type of fish buyer and operators in each fleet class. Reading across a row shows the dollar value of transactions between operators in a given fleet class and each type of fish buyer.

\* In the analysis used to generate values for this table Sectors 26-29 are shown to buy fish from primary on-shore buyers (Sectors 21-25) and not directly from fishermen (Sectors 1-20). This introduces a small amount of error into the analysis since there are certainly some transactions between fishermen (Sectors 1-20) and other fish buyers (Sectors 26-29).