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**The California Interindustry Fisheries (CIF) Model:
An Input-Output Analysis of California Fisheries
and Seafood Industries**

Volume II

Working Paper No. P-T-6

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A California Sea Grant College Program Working Paper

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The California Sea Grant College Program is a statewide multi-university program of marine research, education, and advisory services, administered by the University of California, Institute of Marine Resources. Sea Grant-sponsored research contributes to the growing body of knowledge about our coastal and oceanic resources that is necessary to solve contemporary problems in the marine sphere. Through its Marine Advisory Program, Sea Grant transfers information and technology developed in research efforts to a wide community of users in California, the region and the nation. Sea Grant also supports a broad range of educational programs for university students, public school teachers and students, and the general public so our coastal and oceanic resources may be understood and judiciously used by this and future generations.

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An Input-Output Analysis of California Fisheries
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1982. We invite your comments and suggestions.

Preface:

During 1980-81, the California Sea Grant College Program and fishing industry trade organizations sponsored an economic study of California fisheries and seafood industries. The purpose of the study was to identify and examine economic activities that link California fisheries with each other and with the rest of the state economy. The study resulted in an "input-output" model of California fisheries which has been called the California Interindustry Fisheries (CIF) Model. The results of the study are summarized in The California Interindustry Fisheries (CIF) Model: An Economic Impact Calculator for California Fisheries, Volume I.

Volume II describes the CIF model in nontechnical language and explains how it can be used by government and industry decision-makers.

Chapter I describes input-output analysis and illustrates how it is used.

Chapter II describes the California Interindustry Fisheries (CIF) Model and how it was developed.

Chapter III contains the results of an input-output analysis using the CIF model and presents output, income, and employment multipliers for each of 19 fish harvesting sectors and 9 fish processing sectors.

Chapter IV provides guidelines for using the CIF model to forecast direct, indirect, and induced economic impacts of changes that affect California fisheries and seafood industries. The CIF model and related technical information are presented in Appendices.

The California Sea Grant Working Paper Series was established to make preliminary data, techniques, and reports under publication consideration available to government agencies, industries, fishermen, and the public. In a working paper, neither the research results presented nor the publication itself has undergone critical peer review according to the guidelines of the publications policy of the California Sea Grant College Program. This report is being made available to determine the CIF model's validity and potential applicability in determining the economic value of our fisheries resources.

OUTLINE

<u>CHAPTER I</u>	<u>The Basics of Input-Output Analysis</u>	2
	TABLE 1 Illustrative Transaction Table	31
	TABLE 2 Illustrative Technical Coefficient Table	31
	TABLE 3 Illustrative Interdependency Coefficients Table	31
 <u>CHAPTER II</u>	 <u>The California Interindustry Fisheries (CIF) Model</u>	 6
	TABLE 4 An Outline of the CIF \$ Transaction Table	32
	TABLE 5 List of Industrial Sectors for CIF Model	33
 <u>CHAPTER III</u>	 <u>Results of the CIF Model</u>	 8
	TABLE 6 Species Production "Make" Table	34
	TABLE 7 Species Processing "Use" Table	35
	TABLE 8 Economic Multipliers for Fish Harvesters	36
	a. Output Multipliers	
	b. Income Multipliers	
	c. Employment Multipliers	
	TABLE 9 Economic Multipliers for Fish Processors	37
	a. Output Multipliers	37
	b. Income Multipliers	38
	c. Employment Multipliers	39
 <u>CHAPTER IV</u>	 Instructions for using the CIF Model	 10

LIST OF APPENDICES

Appendix A	A Mathematical Description of the CIF Model	12
Appendix B	Procedures for Estimating the CIF Model	18
Appendix C	The CIF Model: Transactions Table, Technical Coefficients Table and Leontief (I-A) Inverse Table	43

LIST OF ATTACHMENTS

Number	Title	
1	Schematic Diagram of Procedures to Develop the CIF Model	70
2	Standard Industrial Classifications (SIC) used in the 1977 National and State 389 Sector I-0 Model	71
3	Survey Instrument for Fish Harvesters	75
4	Summary of Survey Results from Fish Harvesters	79
5	Survey Instrument for Fish Processors	80
6	Protocol for Interview Sessions with Industry Advisors for Fish Harvesting Sectors	83
7	Agenda for Fishing Industry Review of Data - PCFFA Offices - April 28, 29, 1981	84

CHAPTER ONE

The Basics of I-O Analysis

General Background

Firms in every industry are linked through their purchases and sales with firms in other industries and with households. Inter-industry linkages and the impact of industrial activities on incomes, employment, and overall economic conditions are important but not always apparent. The purpose of an input-output model is to display direct and indirect economic linkages and measure impacts of changes or proposed changes in industrial activity. The CIF model is designed to show the economic linkages and impacts of California's fish harvesting and fish processing industries.

The theoretical foundation for input-output analysis rests with eighteenth century French economists but the technique was developed and refined during the 1950's by a Harvard University economist, Wassily Leontief, who won the 1962 Nobel Prize for his work on I-O analysis. Since then I-O models that describe economic linkages in national economic systems have been developed routinely by industrialized and developing countries; they are used to assess the impacts of economic policies and to identify "bottlenecks" in industrial development plans. Special-purpose State and regional I-O models like the one described here for California fisheries are also common; they are usually designed to show the economic impact of specific industries and are used by policy analysts to evaluate economic trade-offs.

The purpose of an I-O model determines which industrial activities and economic linkages are emphasized, but all I-O models are fundamentally the same. The basic approach is to collect as much purchase and sales information as possible from each industry, describe where each industry buys inputs and sells outputs, and evaluate how changes in one industry will work their way through the economic system. The best way to understand I-O analysis is to consider the interindustry linkages in a very simple economy.

An Illustration of I-O Analysis

Consider a simple regional economy with only three industrial activities which we can call Sector A, Sector B, and Sector C. Table 1 describes such an economy by showing the dollar value of transactions among the three industries and between each of them and households in the region.

Reading down the column for each sector shows the value of goods and services purchased by the sector listed above the columns from each of the sectors listed along the rows. Reading across the row for each sector shows the value of goods and services sold by the sector listed along the row to each of the sectors listed above the columns. Imports, exports, and transactions with households are also shown in the I-O model.

The shaded row, for example, shows that Sector B sold \$3 to firms in Sector A, \$9 to other firms in Sector B, and \$8 to Sector C. It also shows that Sector B sold \$4 to households and exported \$1; total sales by Sector B were \$25.

The shaded column for Sector B shows the firms in that sector purchased \$5 from firms in Sector A, \$9 from other firms in Sector B,

and \$4 from firms in Sector C. Sector B also purchased \$2 from outside the region (imports) and \$5 from households. In this model some of the \$5 paid to households is in the form of profits (payments to the households that own businesses) as well as wages, rents, etc.. As a result the total purchases for Sector B are shown here to equal total sales.

Table 1 is referred to as a Transactions Table and it is the foundation of I-0 analysis. It is also a useful starting point for production and marketing studies since it identifies where industries buy and sell and where economic activities are "leaking" outside the region because of imports.

From the Transactions Table it is a simple step to develop what is called a Technical Coefficients Table. It shows the direct dollar purchases which are required from each row sector for each dollar sales by each column sector. Table 2 shows the technical coefficients derived from Table 1. The numbers in the shaded columns show that per \$1 of sales, Sector B directly purchases \$.20 from Sector A, \$.36 from Sector B, and \$.16 from Sector C. Based on the assumption that an n-fold increase in the output by a given sector requires an n-fold increase in the purchase of inputs by that sector, the technical coefficients permits the determination of indirect input-output requirements.

The third table shown, Table 3, is called an Interdependency Coefficients Table. It shows the amount of sales generated directly and indirectly in each row sector by each dollar of sales by the column sector. Note from the above illustration that the purchase of \$.16 by Sector B from Sector C would also call for an additional

production of \$.04 (.16 x .25) by Sector C as well as \$.05 (.16 x .33) by Sector B, and so on. There are many additional rounds of indirect economic impacts and these are what are reflected in Table 3. It shows, for instance, that the end result of \$1 sales by Sector B is not just a \$.16 increase in sales by Sector C, as shown in Table 2, but a \$.69 increase. Given the input-output relationships in our illustrative economy, Table 3 shows that each \$1 of sales by Sector A, B, and C respectively increases total regional economic production by \$3.29, \$3.45, and \$3.42.

The direct, indirect, and induced economic impacts of changes in industrial activity can be expressed simply through MULTIPLIERS. Output Multipliers and Income Multipliers can be developed directly from the Interdependency Coefficients Table 3 and additional employment statistics can be used to estimate Employment Multipliers. In each case there are two types of multipliers. Type I Multipliers which show the impact of interindustry transactions and Type II Multipliers which include those impacts and the effects of transactions with households. Because Type II Multipliers include an additional "round" of household spending, they are larger than Type I output, income and employment multipliers; both are normally presented with the results of an I-O analysis.

CHAPTER TWO

The CIF Model

An Overview

In most ways the CIF model is an enlarged version of the model in the illustration. The region under consideration is California and purchases and sales outside California are included in other value added and other final demand (Sector 65). The CIF model has 63 industrial sectors including 19 fish harvesting sectors, nine fish processing sectors, and 35 other industrial sectors which represent all nonfishery related industries in the state. An outline of the CIF model is presented in Table 4 and a list of the industrial sectors specified in the CIF model is shown in Table 5.

Sources of Data for the CIF Model

A 389-sector 1977 I-O model of the California economy was acquired from researchers involved in a project for the U.S. Forest Service; it included only four fishery related sectors (Fishing, Tuna canning, Other Fish canning, Other Fish packing). This model was updated to reflect 1980 transactions and the four fishery related sectors were replaced by the 19 fish harvesting and nine fish processing sectors. These were defined on the basis of interviews with industry representatives and state and federal fishery agency personnel. The nonfisheries sectors were then aggregated into 35 sectors using standard industrial classification (SIC) grouping procedures. (See Appendix B)

Detailed data about purchases and sales for each fish harvesting and fish processing sector were acquired from published sources, from

interviews with industry experts, and from an extensive mail survey of California fisheries and seafood industries. The Pacific Coast Federation of Fishermen's Associations (PCFFA) contributed to the study by administering a mail survey of fishing firms and by arranging interview with fishing industry experts for Sea Grant researchers. The California Seafood Institute (CSI) contributed by administering a mail survey of California fish processors, wholesalers, distributors, and restaurants and by arranging interviews for researchers to discuss survey results and market data with fish market experts.

At the final stage of data collection a two-day review session was attended by researchers and industry representatives at the offices of PCFFA. The purpose of the session was to summarize and evaluate the mail survey and interview results and compare them with published data and the subjective impressions of industry experts. In general the mail survey results from each sector were considered reasonable by researchers and industry representatives and unless otherwise specified, the transactions values and technical coefficients presented here were developed from mail survey data. Interview data and information from review sessions helped in the interpretation of mail survey data and ensured that it was used properly in developing the model.

The procedures for developing the CIF model are described in Appendix B which also contains copies of the survey instruments and itineraries used for data collection.

CHAPTER THREE
Results of the CIF Model

Intermediate Results

From survey results and extensive interviews with fishing industry representatives it was possible to develop tables which show the purchases and sales of fish and seafood by species group as well as by industrial sector. Tables 6, 7 and 8 were developed from catch statistics provided by fish harvesters and fish purchase data provided by fish processors. Table 6 shows the value of 1980 fish landings in California by species for each of the 19 harvesting sectors and Table 7 shows the value of 1980 fish purchases by species for each major fish buying group. Table 8 was derived from Tables 6 and 7 and shows the dollar transactions between each of the 19 fish harvesting sectors and each of the nine fish processing sectors.

Final Results

The CIF transactions table, technical coefficients table, and interdependency coefficients table are presented in Appendix C. However, most users will be more interested in the income, output, and employment multipliers that are presented for harvesting sectors in Tables 9a, 9b and 9c and for processing sectors in Tables 10a, 10b and 10c.

Interpretation of Results

Two issues should be emphasized before the multipliers are used to assess economic impacts: First, I-0 multipliers reflect interdependencies associated primarily with the use of inputs by each sector. Primary producing sectors, such as fish harvesting sectors,

however, create economic activity not so much by purchasing inputs, but by providing essential raw materials to fish processors, restaurants, etc. In order to fully describe California fisheries, it was necessary to separate harvesting from processing industries in a way that isolates the impact of each harvesting sector as a purchaser of inputs. However, the overall impact of fish harvesting activities in California is more appropriately measured using the multipliers for fish processors shown in Tables 10a, 10b and 10c which reflect backward linkages of fish harvesters and fish processors. The selection and appropriate use of CIF multipliers depends on what circumstances and what issues are being evaluated and guidelines are provided in the following chapter.

CHAPTER FOUR

Instructions for Using the CIF Model

The CIF model shows direct, indirect, and induced changes in economic production, personal income, and employment per \$ million in sales by each sector. To forecast the economic impact of specific changes in biological, economic, political, or regulatory conditions, the user is required to estimate how the planned or expected change will directly affect sales in one or more industrial sectors. The procedure for using the CIF model has four basic steps:

- Step 1 Estimate the expected change in direct sales for each relevant sector.
- Step 2 Look up output, income, and employment entries for each relevant sector using the per \$ million sales columns in Tables 9 and 10 (Columns 3, 4).
- Step 3 Multiply the expected change in sales for each sector (Step 1) by the appropriate entries obtained from Tables 9 and 10 (Step 2).

An Example

Suppose that increased fishing by the northern California salmon/albacore vessels was expected to increase albacore landings by 2,000 tons. At 1980 prices, this means an increase in direct sales by Sector 11 of \$3.5 million. If this is not expected to have any impact on the value of landings by any other California fishery, the sequence of steps for evaluating economic impacts is as follows:

- Step 1 Determines direct impact
(+ \$3.5 million sales by Sector 11)

Step 2 Find appropriate entries in Tables 9a, 9b, 9c:

Type of Impact	Output (\$ million)	Income (\$ million)	Employment (# jobs)
Direct (D)	1.00000	.43754	76.90
Direct & Indirect (D & I)	1.71981	.64096	85.51

Step 3 Find economic impact by multiplying direct impact from Step 1 by entries in Step 2:*

Estimated Impact of +\$3.5 sales in Sector 11

Type of Impact	Output (\$ million)	Income (\$ million)	Employment (# jobs)
Direct	3.5	1.5314	269
Direct & Indirect	6.0193	2.2434	299
Direct, Indirect & Induced	12.440	3.1140	344

* If there is more than one direct effect, perform Step 2 and 3 for each sector and add results.

INTERPRETATION

If direct, indirect, and induced economic impacts are considered, a 2000-ton increase in albacore landings by California salmon/albacore trollers generates:

\$12,440,000 in increased economic production in California

\$ 3,114,000 in increased personal income in California

344 new jobs in California

A Note of Caution: Garbage In - Garbage Out

The CIF calculator forecasts indirect and induced impacts on the basis of changes in sales that the user specifies in Step 1. If these changes in direct sales are inaccurate or incomplete, the CIF calculator will produce unreliable forecasts. Results from any specific application of the CIF calculator are only as dependable as the assumptions or estimates used in Step 1.

APPENDIX A

Mathematical Description of the CIF Model

The CIF model is a Leontief type static open input-output model. The estimated parameters in the CIF model are based upon survey data of 19 fish harvesting sectors and nine fish processing sectors. The balance of the model's parameters were estimated from secondary data. This appendix describes the CIF model in mathematical terms; the methods used to estimate the parameters of the model are presented in Appendix B. In combination, this appendix and Appendix B describe the technical aspects of what was discussed in general terms in the text.

The CIF model can be expressed in two balance equations which say essentially the same thing.

$$(1) \quad X_i = \sum_{j=1}^{63} X_{ij} + C_i + F_i \text{ for } i = 1, 2 \dots 63$$

$$(2) \quad X_j = \sum_{i=1}^{63} X_{ij} + Y_j + M_j \text{ for } j = 1, 2 \dots 63$$

Where $i = j$, $X_i = X_j$.

Definitions of terms in equations (1) and (2):

X_i is total output (sales) by each of 63 industries designated by the subscript i .

X_j is total inputs (purchases) by the same 63 industries designated by the subscript j . When subscripts i , and j are used in combination, i represents the selling industry and j designates the

purchasing industry. X_{ij} therefore denotes the value of sales by industry i to industry j . When i and j refer to the same industry (i.e., $i = j$) $X_j = X_i$. That is, total inputs equal total outputs in each industry. (This is accomplished by assigning profits and losses to the household sector.) In the static Leontief model, X_{ij} includes only those sales which are "used up" in the current production period. Capital goods transactions are all included with F_i which is exogenous in the model. F_i also includes all government purchases except the endogenous government enterprises (sectors 61 and 62), and exports from California. C_i is California households' purchases from sector i . Y_j in equation (2) is income to California households received from sector j (where $j = 1, 2, \dots, 63$ industrial sectors). M_j is all other inputs to each of the 63 sectors j , and includes, taxes, retained corporate profits and imports from outside California.

Equations (1) and (2) therefore account for all sales and all purchases in the California economy by each of the 63 industries, by California households and by all other buyers and sellers.

Analytical Properties of the CIF Model

Various levels of potential analytical capabilities can be obtained from the transactions described in equations (1) and (2). Each application requires assumptions which introduce limitations concerning the accuracy of analytical predictions. The simplest applications, which we have made in the text discussion assumes:

- (1) that the interindustry input-output relationships are linear and homogeneous and;
- (2) that in applications involving "induced" effects, the household income payments are linear and homogeneous with respect to the output of the income-paying industry.

(3) that household consumption expenditures are linear and homogenous with respect to total household income. These are standard assumptions in regional input-output analysis and are accepted as being viable.

The simplest form of the model uses equations (1) and (2), and closes the model only to X_{ij} with respect to the first assumption (equation (3) below) and to X_{ij} , Y_j and C_i under assumptions (2) and (equation (4) below); then, equation (1) can be rewritten as:

$$(3) \quad X_i - \sum_{j=1}^{63} A_{ij} X_j = C_i + F_i$$

Where $A_{ij} = \frac{X_{ij}}{X_j}$ are the elements of a 63 x 63 Technical Coefficients, Matrix A.

In Matrix algebra notation, equation (3) can thus be stated as

$$(4) \quad X - AX = C + F$$

and solving for X,

$$(5) \quad X = (I - A)^{-1}(C + F)$$

Introducing the assumptions regarding household consumption C_i and household income, Y_j , equation (3) can be restated as:

$$(3a) \quad X_i = \sum_{j=1}^{64} A'_{ij} X_j + F_i$$

Where the 64th row and column of a_{ij} is households income and expenditures respectively, defined as $A'_{64j} = \frac{Y_j}{X_j}$ and A'_{64i} is $\frac{C_i}{PI}$ where PI is total California personal income. In this case, the technical coefficients Matrix A is augmented to include households and is denoted as A'.

Then equation (4) can be rewritten as

$$(4a) X - A'X = F$$

and solving for X, equation (5) is rewritten as

$$(5a) X = (I - A)^{-1}F$$

Given the assumptions, a generalized solution for a unit change in the exogeneous terms (ie. in equation (5) the exogeneous terms are C + F, and in equation (5a) the exogeneous term is F) is given by $(I - A)^{-1}$ and $(I - A')^{-1}$ respectively.

Specifically, the row sums of each column of $(I - A)^{-1}$ are called Type I sector specific output multipliers; and the row sums of each column of $(I - A')^{-1}$ are called Type II sector specific output multipliers. These values were shown in text tables 9a and 10a respectively.

Using these two forms of generalized solutions $(I - A)^{-1}$ and $(I - A')^{-1}$, along with the assumption that sector specific income/output relationships and employment/output relationships are linear and homogeneous, the equations can be used to develop Type I and Type II income and employment multipliers. By multiplying both sides of equations (5) and (5a) respectively by a diagonal Matrix of income output ratios, $\frac{\hat{Y}_j}{X_j}$, we obtain

$$(6) \frac{\hat{Y}}{X} X = \frac{\hat{Y}}{X} (I-A)^{-1} (C+F) = Y$$

and

$$(6a) \frac{\hat{Y}}{X} X = \frac{\hat{Y}}{X} (I-A')^{-1} F = Y$$

In this case, the row sums of each column of the Matrices obtained by the operations $\frac{\hat{Y}}{X} (I - A)^{-1}$ and $\frac{\hat{Y}}{X} (I - A')^{-1}$ are, respectively, the total direct and indirect, and the total direct, indirect, and induced income changes per unit (dollar) change in the exogeneous terms (C + F, and F respectively). By dividing these sums by the direct $\frac{Y}{X}$ ratio, Type I and Type II income multipliers are obtained. This simply changes the base of the calculations from a unit change in the exogenous term, to a unit change in direct income. The effect is the same, ie. it derives the total direct, indirect (and induced) income changes from an given exogeneous direct income change. Type I and Type II income multipliers are shown in text tables 9b and 10b.

Similarly, by multiplying both sides of equations (5) and (5a) respectively by a diagonal matrix of employment/output ratios, $\frac{\hat{E}}{X}$, we obtain

$$(7) \quad \frac{\hat{E}}{X} X = \frac{\hat{E}}{X} (I-A)^{-1} (C+F) = E$$

and

$$(7a) \quad \frac{\hat{E}}{X} X = \frac{\hat{E}}{X} (I-A')^{-1} F = E$$

In this case, the row sums of each column of the matrices obtained by the operations $\frac{\hat{E}}{X} (I - A)^{-1}$ and $\frac{\hat{E}}{X} (I-A')^{-1}$ are, respectively, the total direct and indirect, and the total direct, indirect and induced employment changes per unit (dollar) change in the exogeneous terms (C + F, and F respectively).

As with income, these values can be recast to change the base from a unit of direct change in the exogeneous term to a unit change in direct employment by dividing the aforementioned row sums by the column heading direct ratio. This results in what are called Type I and Type II employment multipliers. These values are in text tables 9c and 10c.

APPENDIX B

Procedures for Estimating the CIF Model

I. Data Collection and Analysis

Input-output models require an enormous amount of economic data and the cost of acquiring primary data to estimate a model the size of the CIF model is prohibitive. As a result, primary data were collected to estimate only those transactions that involved fish harvesting and fish processing sectors; secondary sources were used to develop transaction figures for the nonfisheries sectors. Attachment B-1 is a schematic diagram of the procedures used to develop the CIF model.

Model Specifications

The aggregation of fishing and fish processing activities into industrial sectors was made with the cooperation of industry advisors and on the basis of interviews with staff from the National Marine Fisheries Service (NMFS) and California Division of Fish and Game (CF and G). The current version of the CIF model contains 28 fishery oriented sectors (19 fish harvesting sectors and nine fish processing sectors) and can be respecified to provide more detail or more accuracy as data become available.

A 1977 I-O model of the California economy was being developed during the spring of 1981 by Engineering-Economics Associates under a contract with the U.S. Forest Service. The CIF model was developed first with an updated 1972 model provided by Cal-Div-Of Water Resources and was then respecified using the Forest Service model when

it became available. That model contained four fishery related sectors (fishing, tuna canning, other fish canning, and other fish packaging) which were replaced by our own 28 fishery oriented sectors. The other industrial sectors in the Forest Service model were aggregated into 35 nonfishery sectors using Standard Industrial Classification (SIC) grouping procedures, then updated to 1980.

The current version of the CIF model contains 19 fish harvesting sectors, 9 fish processing sectors and 35 nonfishery sectors. An additional row and column displays transactions with California Households and there is an "Other" Column and an "Other" Row to account for purchases and sales outside California and other exogenous transactions.

Data Collection - Nonfishery Sectors

The 1977 I-0 model of the California economy was derived from the U.S. Forest Service Project which updated the 1972 national I-0 model prepared by the U.S. Department of Commerce Bureau of Economic Analysis based on data from the U.S. Bureau of Labor Statistics (BLS) and the U.S. Department of Commerce (DOC). The sectors specified in the 1977 model are listed in Attachment 2 and the procedure for updating the 1977 model to reflect 1980 conditions is described below. All aggregation and update routines used price, output, and employment data from BLS and DOC.

Data Collection - Fishery Sections

Data used to develop transaction figures for the fishery sectors were collected from both primary and secondary sources. There were three main sources: a mail survey of California fish harvesters and fish processors, interviews with industry experts, and a review of published data and government publications.

The Mail Survey

For the survey of fish harvesters, a pair of fleet lists (computer tapes) was obtained from NMFS and the U.S. Coast Guard; these were used to develop a list of all commercial fishing vessels greater than 5 GRT. Fleet lists for fisheries with vessels less than 5 GRT were obtained from cooperating industry trade organizations.

In total, the names and addresses of owners of 3,500 commercial fishing vessels were compiled and each of them was mailed a copy of the survey instrument shown as Attachment 3 along with a cover letter from the Pacific Coast Federation of Fishermen's Associations and a return envelope. A follow-up letter and duplicate survey instrument was mailed after one month. The response rate for the mail survey of fish-harvesters was 20% and 630 usable questionnaires were received back for processing. The current version of the CIF model is based on 557 completed questionnaires; the rest fell outside the 19 sectors listed and will need special treatment to be incorporated into the CIF model. [1]

For the mail survey of fish processors a list of all firms with California fish-buying licenses was obtained from California Fish and Game. This included many small bait shops, aquaculture farms, etc., as well as fish processors, wholesalers, restaurants, etc. Attempts to distinguish between firms in each sector on the basis of industry lists and firm names were unsuccessful so all 750 firms on the fish-buying list were sent initial and follow-up copies of the survey

[1] Approximately 73 usable questionnaires from fish harvesters were classified in an "other" category and were not processed. It has been determined that these are primarily rod and reel fishing vessels, hooker boats, squid light-broilers, but these could not be included in this version of the CIF model. (See Attachment 4)

instrument shown in Attachment 5, along with a cover letter from the California Seafood Institute. The decision to mail to all 750 firms lowered the response rate for the survey of fish processors. The 68 returned questionnaires represented 9% of the total number mailed, but responding firms accounted for approximately 40-60% of 1980 raw-fish purchases in California.

Interviews

While the mail surveys were underway, researchers conducted face-to-face interviews with industry experts representing each fishery section. Cooperating industry representatives identified two experts for each fish harvesting and fish processing sector and arranged interview sessions where researchers obtained additional purchase and sales data and other relevant information to supplement the mail survey and secondary data. The protocol used to conduct these interviews is outlined in Attachment 6.

Data Processing

A private surveying company, Copley International Corporation (CIC), was contracted to code, edit, and collate the returned questionnaires. The summary of procedures used by CIC is provided as Attachment 7.

The mail surveys, interviews, and the review of secondary sources provided an extensive and sometimes conflicting data base for estimating interindustry transactions. After preliminary data analysis, a "data review session" was organized where researchers and government and industry representatives evaluated data from the three sources and reconciled conflicts. The two-day session was held at PCFFA offices in Sausalito and was funded with a supplemental grant

Figure B-1

Nine Basic Components of the CIF Transactions Table

	Purchases by 19 Fish Harvesting Sectors	Purchases by 9 Fish Processing Sectors	Purchases by The Remainder of 36 Sectors of The Economy	Other Final Demand
19 Fish Harvesting Sectors to all Sectors	19 x 19 Sales by 19 Fish Harvesters to 19 Fish Harvesters T-1	19 x 9 Sales by 19 Fish Harvesters to 9 Fish Processors T-2	19 x 36 Sales by 19 Fish Harvesters to 36 Remaining Sectors of The California Economy including Households T-3	Sales by 19 Fish Harvesters to all other buyers
9 Fish Processing Sectors Sales to all Sectors	9 x 19 Sales by 9 Fish Processing Sectors to 19 Fish Harvesting Sectors T-4	9 x 9 Sales by 9 Fish Processors to 9 Fish Processors T-5	9 x 36 Sales by 9 Fish Harvesters to 36 Remaining Sectors of the California buyers including Households T-6	Sales by 9 Fish Processors to all other buyers
36 Remaining Economic Sectors Sales to All Sectors	36 x 19 Purchased Inputs by 19 Fish Harvesters from 36 Remaining Sectors of the California Economy including Households T-7	36 x 9 Purchased Inputs by 9 Fish Processors from 36 Remaining Sectors of the California Economy including Households T-8	36 x 36 Interindustry Transactions Between the Remaining 36 Sectors of the California Economy including Households T-9	Sales by 36 Remain- ing Sec- tors of California Economic to all other buyers
Other Value Added	All other purchased inputs by 19 Fish Harvesters including Taxes and Imports	All other purchased inputs by 9 Fish Processors including Taxes and Imports	All other purchased inputs by 9 Fish Processors including Taxes and Imports	

from the National Marine Fisheries Service; the agenda for the review session is presented as Attachment 8.

The judgement of the researchers and the results of the data review session indicated that the mail survey data provided the most reliable transactions information for all but a few sectors. Computer programs for sorting and aggregating questionnaire data and converting "expense" estimates from the questionnaires into transactions figures for the CIF model are available from California Sea Grant or the Center for Marine Studies at San Diego State University. [2]

II. Constructing the Model

In constructing the CIF model, the transactions table (a 65 x 65 matrix) was viewed as a set of nine smaller sub-matrices, as shown in Figure B-1. The way the CIF model was specified, the output by each fish harvesting sector is shown to reach the ultimate consumer through one or more of the fish processing sectors. As a result T-1 (a 19 x 19 matrix) and T-3 (a 19 x 36 matrix) are assumed to be null matrices; that is all zeros. All direct sales by fish harvesters appear in T-2 (a 19 x 9 matrix) which shows California fish purchases by fish processors. The sale of California seafood to households and outside California is shown in T-6 (a 9 x 36 matrix) which shows sales by California fish processors.

The development of each of the nine sub-matrices took place as follows:

[2] Survey questions dealing with input costs were asked in familiar cost accounting expense categories to encourage respondents to provide as much detail as possible; these responses were then translated into input purchase data for the CIF model. Computer programs are available that translate raw survey data into input purchase/sales data and aggregate by sector to provide sample averages and totals which can be scaled up to full transactions estimates using Sector Control Totals.

T-1 Fish Harvesting Sector Sales to Other Fish Harvesting

Sectors (19 x 19)

In the current version of the CIF Model, fish harvesting sectors are shown to make all direct fish sales to one or more of the fish processing sectors (See T-2). T-1 is therefore a 19 x 19 Null Matrix.

T-2 Fish Harvesting Sector Sales to Fish Processing Sectors

(19 x 9)

This sub-matrix shows the major interindustry linkages between fish harvesters and fish processors and is assumed to be the first stage in the distribution of harvested fish to the ultimate consumer. Estimating each element of this 19 x 9 section of the model was a major component of the overall study. It involved the following steps.

Step (1) Survey 19 fish harvesting groups to estimate each group's purchases of the 13 species.

Step (2) Survey nine fish processing groups to estimate each group's purchases of the 13 species.

Step (3) Array information from Step (1) into a 19 x 13 "Make" Table (Harvester/Specie) according to the mean value species harvested from the sample survey responses on tons of fish purchased weighted by \$ value per ton from secondary data.

Step (4) Array information from Step (2) into a 13 x 9 "Use" Table (Specie/Processor) according to the mean value (specie purchase) from sample survey responses on tons of fish purchased weighted by \$ value per ton from secondary data.

Step (5) Expand the mean values in the "Make" Table to total specie landings based on NMFS data.

Step (6) Expand the mean value of specie purchases to the total species landings based on NMFS data.

Step (7) Derive harvester to processor transactions by assuming a constant proportion of species landed by harvester to a constant proportion of the specie purchased by the processor. (i.e. if the harvester (1) caught 40% of specie A and harvester (2) caught the other 60%, then each processor purchasing specie A was assumed to buy 40% from harvester (1) and 60% from harvester (2).

Mathematically the three stages of development of the T-2 Section are as follows:

- (1) Q_{ik} = The mean quantity of the kth specie landed by the ith harvester based on the harvester survey responses where $i = 1, 2, \dots, 19$ and $k = 1, 2, \dots, 13$.
- (2) Q_{kj} = The quantity of the kth specie purchased by the jth processor based on the processor survey responses.
- (3) P_k = The average price per ton of specie k.

Transformation of Mean Quantity to Mean Dollar Values

- (4) $X_{ik} = P_k Q_{ik}$ = Mean value of specie k landed by harvester i.
- (5) $X_{kj} = P_k Q_{kj}$ = Mean value of specie k purchased by processor j.

Expansion of Mean Values by Specie Control Totals, C_k

- (6) $X_{ik} = P_k Q_{ik} \cdot C_k$ For $k = 1, 2, \dots, 13$, = "Make" Table
- (7) $X_{kj} = P_k Q_{kj} \cdot C_k$ For $k = 1, 2, \dots, 13$, = "Use" Table

Transformation of "Make" and "Use" Tables to Harvester Sales to

Processors, X_{ij} .

- (8) $X_{ij} = X_{ik} \cdot X_{kj}$ For $i = 1, 2, \dots, 19$ and $j = 1, 2, \dots, 9$, and $k = 1, 2, \dots, 13$.

T-3 Fish Harvesting Sector Sales to Nonfishery Sectors,
Households and outside California (19 x 36)

In the current version of the CIF model fish harvesting sectors are shown to make all direct sales to one or more of the fish processing sectors (See T-2). Therefore, T-3 is a 19 X 36 Null Matrix.

T-4 Fish Processing Sector Sales to Fish Harvesting Sectors
(9 x 19)

Estimates of bait purchases by lobsters/crabbers (Sectors 14, 15) from wholesaler, processors, distributors (Sectors 20-22) were obtained from the mail survey (See Section 9 of Attachment B-1) and from interviews with industry experts. The distribution of bait sales by various size wholesalers, processors and distributors was based on the distribution of sample sales for Sectors 20-22. With the exception of these bait sales T-4 is a null matrix; that is $X_{ij} = 0$ where $i = 20, 21, 22$ and $j = 14, 15$

T-5 Fish Processing Sector Sales to Other Fish Processing
Sectors (9 x 9)

Data for estimating sales among fish processing sectors (Sectors 20-28) were obtained from the mail survey (See Section 3) of Attachment B-2) and from interviews with industry experts.

Three additional assumptions were used to allocate intersectoral transactions in submatrix T-5; they are

- (1) Retail markets, seafood restaurants and other eating and drinking places (Sectors 25-27) purchase California fish from wholesalers, processors and distributors and brokers (Sectors 20-23) in proportion to the relative size of sample sales by

those sectors and do not buy directly from fish harvestors.

(2) California-based tuna canners (Sector 24) buy all their nonimported fish supplies directly from California fish harvesters.

(3) The California canned tuna market is supplied totally by California-based tuna canners (Sector 24).

T-6 Fish Processing Sector Sales to Nonfishery Sectors,
California Households and Outside California and other Final Demand
(9 x 37)

Data for estimating T-6 were obtained from the mail survey (See Section 3 of Attachment B-4) and from interviews with industry experts.

Three additional assumptions were used to allocate sector sales in T-6. They are:

(1) All sales by fish processors, wholesalers and distributors (Sectors 20 -22) that are not made to other fish processing sectors within California (Sectors 23-28) are sold outside California. That is $X_{ij} = 0$ where $i = 20...22$ and $j = 29...63$.

(2) Seafood restaurants (Sector 25) serve the same percentage of out-of-state consumers as other eating and drinking establishments in California (Sector 26).

(3) Seafood markets (Sector 27) sell the same percentage to out-of-state residents as other Retail Traders (Sector 57)

T-7 Fish Harvesting Sector Purchases From Nonfishery Sectors,
Households and From Outside California and Other Value Added

Data for estimating T-7 were obtained from the mail survey (See

Attachment B-4). Survey data were converted from standard accounting (expense) categories to input purchase distributions using the procedure described in Attachment B-5.

Secondary data from previous studies were used as a check against survey results but were only used in the estimating procedure for the tuna purse seiner sector (Sector 5).

Cost Distribution estimates from mail survey data were reviewed by industry and government representatives before they were used to develop T-7.

T-8 Fish Processing Sector Purchases From Nonfishery Sectors, Households and From Outside California and other value added

Data for estimating T-8 were obtained from the mail survey (See Attachment B-5). Survey data were converted from accounting (expense) categories to input purchase described in Attachment B-5.

Secondary data from previous studies were used as a check against survey results but were only used in estimating procedures for tuna canners (Sector 25).

Transaction estimates for other eating and drinking establishments (Sector 26) and food and kindred processors were available from the 1977 I-0 model updated to 1980. The update procedures are described in the following section (T-9).

T-9 Nonfishery Interindustry Transactions

The balance of the CIF model was developed using the 1972 476 sector National input-output model, updated to 1977 using the RAS Technique (Richard Stone) with 1977 economic census data developed specifically for this purpose in a project by the U.S. Forest Service. The Forest Service project also developed a state summary tape file

which included all final demand and value added components of the National Model disaggregated to the state level. This file also included state level employment by sector.

The 1977 California Model was derived from this information using the simple location quotient (SLQ) technique. The SLQ technique obtains balanced subnational models from National technical coefficients and ratios of the relative shares of subnational area employment to National employment.

The 1977 476 sector California input-output model was updated to 1980 using the following procedure.

(1) The 1977 California Transactions Table sectors were aggregated to 38 sectors to conform to sector definitions we judged most useful in the CIF context.

(2) The 38 sector 1977 transaction data were updated to 1980 for price and real production changes that occurred between 1977 and 1980.

(3) The four fish harvesting and processing activities were then deleted from the 1980 38 sector model so that it could be merged with the survey estimates of fish harvesting and processing without double counting, resulting in the 34 nonfishing sectors to be added to the 19 fish harvesters and nine fish processing sectors to arrive at the final transactions table.

The final step in the overall procedure involved merging the nine components to the single transactions table described in the text. Standard row/column checks were performed on the merged components to make sure everything in the model balanced. Then the procedures described in Appendix A were performed to derive the analytical input-output tables from which the multipliers were obtained.

Mathematical Description of the Update Procedure

Definitions

(1) Sales by industry i to industry j, X_{ij} in 1977 (based upon the aggregated 1977 California I-0 model) equals price in 1977 dollars of the ith good P_i^{77} times the quantity of the ith good sold to sector j in 1977, Q_{ij}^{77} .

Update Procedure

$$(2) \quad X_{ij}^{80} = \left(\frac{P_i^{80}}{P_i^{77}} \right) * \left(\frac{Q_j^{80}}{Q_j^{77}} \right) * (X_{ij}^{77})$$

For $i, j = 1, 2, \dots, 38$

where $\frac{P_i^{80}}{P_i^{77}}$ is a price index for commodity i with base year $P_i^{77} = 1.0$ and $\frac{Q_j^{80}}{Q_j^{77}}$ is a production index for commodity j with base year $Q_j^{77} = 1.0$.

The production index was based in part on California employment data and national productivity data. The following formula was used to derive a production index from these related data.

$$(3) \quad \frac{\text{Cal } Q_j^{80}}{\text{Cal } Q_j^{77}} = \left(\frac{NQ_j^{80}/NE_j^{80}}{NQ_j^{77}/NE_j^{77}} \right) * \frac{\text{Cal } E_j^{80}}{\text{Cal } E_j^{77}}$$

Which is to say, the California Production Index for Commodity j, $\frac{\text{Cal } Q_j^{80}}{\text{Cal } Q_j^{77}}$, was approximated using an index of change in National labor productivity, $\left(\frac{NQ_j^{80}/NE_j^{80}}{NQ_j^{77}/NE_j^{77}} \right)$, times an index of employment change in California from 1977 to 1980 for sector j.

The components of the nonfishery sectors and the classifications used in the aggregation procedures are shown in Attachment 1.

Table 1.

Illustrative Input-Output Transactions Table
(in Millions of Dollars)

	Processing Sector			Exports	House- Holds	Total Sales
	Industry A	Industry B	Industry C			
Processing Sector						
Industry A	10	5	3	1	12	31
Industry B	3	9	8	1	4	25
Industry C	8	4	6	3	3	24
Payments Sector						
Imports	6	2	1	0	4	13
Households	4	5	6	0	4	19
Total Purchases	31	25	24	5	27	112

Table 2

**Illustrative Input-Output
Technical Coefficients Table**

	Industry A	Industry B	Industry C
Industry A	.32	.20	.13
Industry B	.10	.36	.33
Industry C	.26	.26	.25

Table 3

**Illustrative Input-Output
Interdependency Coefficients Table**

	Industry A	Industry B	Industry C
Industry A	1.82	.73	.64
Industry B	.69	2.03	1.01
Industry C	.78	.69	1.77
Total	3.29	3.45	3.42

TABLE 4

OUTLINE OF THE CALIFORNIA INDUSTRY FISHERIES (CIF) MODEL

	FISH HARVESTING SECTORS 1.....19	FISH PROCESSING SECTORS 20.....28	CALIFORNIA NON-FISHERY INDUSTRIES 29.....63	CALIFORNIA HOUSEHOLDS 64	EXPORT SALES 65	TOTAL SALES 66
<u>FISH HARVESTING SECTORS</u>						
1.						
.						
.						
.						
.						
.						
19.						
<u>FISH PROCESSING SECTORS</u>						
20.						
.						
.						
.						
.						
28.						
<u>CALIFORNIA NON-FISHERY SECTORS</u>						
29.						
.						
.						
.						
.						
.						
63.						
<u>PURCHASES FROM CALIFORNIA HOUSEHOLDS</u>						
64.						
<u>PURCHASES FROM OUTSIDE CALIFORNIA</u>						
65.						
<u>TOTAL PURCHASES</u>						
66.						

TABLE 5 : LIST OF INDUSTRIAL SECTORS IN THE CIF MODELFISH HARVESTING SECTORS

<u>SECTOR #</u>		<u>SECTOR #</u>	
1.	Groundfish Trawlers, N.	11.	Salmon/Albacore
2.	Groundfish Trawlers, S.	12.	Long-Liners
3.	Shrimp Trawlers	13.	Black Cod Pots
4.	Tuna Purse-Seiners	14.	Crab/Lobster, N.
5.	Wetfish Seiners	15.	Crab/Lobster, S.
6.	Herring Gillnetters	16.	Baitboats, Tuna
7.	Other Gillnetters	17.	Jigboats, Tuna
8.	Small Salmon Trollers	18.	Diveboats
9.	Large Salmon Trollers	19.	Harpoon, Billfish
10.	Salmon/Crabbers		

FISH PROCESSING SECTORS

<u>SECTOR #</u>		<u>SECTOR #</u>	
20.	Fish Whsl., Proc., Dist., Sm.	25.	Seafood Restaurants
21.	Fish Whsl., Proc., Dist., Med.	26.	Other Eat And Drink
22.	Fish Whsl., Proc., Dist., Lg.	27.	Seafood Markets
23.	Fish Import/Export Brokers	28.	Other Food and Kindred Products
24.	Tuna Cannery		

NON-FISHERY SECTORS

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

TABLE 6: 1980 California Landings by Species & Harvesting Sector (000\$)

SPECIES	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
CRUSTACEANS	10,876	101,695	2,483,711	0,000	0,000	247,993	289,082	0,000	51,426	683,974
MOLLUSCS	0,000	0,000	0,000	0,000	2,450,367	0,000	2524,509	0,000	0,000	0,000
FLATFISH	7067,739	640,177	177,163	0,000	0,000	31,421	341,933	1,612	0,010	0,446
WETFISH	0,000	0,000	0,000	0,000	15750,020	23425,070	0,000	0,000	63,657	401,754
SABLE/ROCK FISH	3373,356	979,892	0,000	0,000	0,000	18,986	295,938	9,771	70,592	22,357
SHARK/RAY/SKATE	6,416	1376,835	0,000	0,000	0,000	205,838	5219,191	1,949	1,559	0,000
SALMON	193,210	166,056	0,257	0,000	0,000	4116,614	143,112	1309,708	3674,715	1391,233
BILLFISH	0,000	129,446	0,000	0,000	0,000	28,479	455,394	2,662	243,934	0,000
TUNA	4,626	91,167	0,000	196667,594	1963,531	1028,826	1125,625	31,881	1320,277	381,080
COD	0,000	0,419	0,000	0,000	0,000	2,092	0,000	0,000	5,750	3,564
BASS	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
PERCH	0,000	0,000	0,000	0,000	0,000	0,000	1527,915	0,000	0,000	0,000
OTHER	0,000	1,596	0,000	0,000	0,000	0,000	0,180	0,000	0,010	0,000
TOTAL	10656,223	3487,283	2661,131	196667,594	20163,920	29105,319	11922,880	1362,582	5431,930	2884,410

SPECIES	11.	12.	13.	14.	15.	16.	17.	18.	19.	TOTAL
CRUSTACEANS	5,635	0,000	0,000	1966,152	1463,871	0,000	90,911	16,674	165,999	7578,000
MOLLUSCS	0,000	0,000	0,000	0,230	0,000	0,000	18,868	3939,646	7,379	8941,000
FLATFISH	0,001	0,000	197,010	166,503	11,275	0,000	0,000	64,618	0,092	8700,000
WETFISH	0,000	0,000	0,000	0,000	142,736	0,000	649,764	0,000	0,000	40433,000
SABLE/ROCK FISH	1,350	20,634	8610,683	29,537	3,037	40,281	162,263	0,000	23,320	13662,000
SHARK/RAY/SKATE	0,000	0,913	12,732	139,842	15,481	0,000	0,000	29,506	110,740	7121,000
SALMON	569,224	53,727	979,708	325,299	0,186	115,199	59,151	5,205	45,393	13148,000
BILLFISH	0,000	0,000	0,000	0,000	29,885	0,000	21,748	428,595	2166,858	3507,000
TUNA	2244,766	12,360	1,308	167,337	0,000	10430,910	2162,522	75,640	13,532	21773,000
COD	0,000	0,000	1,430	0,482	0,000	0,000	43,868	0,000	1,463	87,500
BASS	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
PERCH	0,000	0,000	0,000	0,000	9,085	0,000	0,000	0,000	0,000	1537,000
OTHER	0,000	0,000	0,001	0,001	0,000	0,000	0,014	3,199	0,000	5,000
TOTAL	2820,976	111,017	9802,921	2795,383	1675,557	10586,380	3209,109	4563,083	2554,776	322442,230

HARVESTING SECTOR

1. Groundfish Trawl M.	11. Salmon/Albacore Troller
2. Groundfish Trawl S.	12. Long-Liners
3. Shrimp Trawler	13. Black Cod Pots
4. Tuna Purse-Seiner	14. Crab/Lobster, Northern
5. Wetfish Seiner	15. Crab/Lobster, Southern
6. Herring Gillnetter	16. Baitboats
7. Other Gillnetter	17. Jigboats
8. Salmon Troller/Small	18. Diveboats Misc.
9. Salmon Troller/Large	19. Harpoon-Billfish
10. Salmon Troller/Crabber	

TABLE 7 : PROCESSOR/SPECIES USE TABLE

California Fish Purchases by Species for Fish Processing Sectors (in Thousands of Dollars)
(Includes only direct purchases from California Harvestors)

SPECIES	FISH PROCESSING SECTORS (by Number)						TOTAL PURCHASES
	20.	21.	22.	23.	24.	25-28*	
CRUSTACEANS	267.500	2352.200	4958.300	0.000	0.000	0.000	7578.000
MOLLUSKS	313.100	2753.200	5803.500	71.200	0.000	0.000	8941.000
FLATFISH	307.100	2700.500	5692.400	0.000	0.000	0.000	8700.000
JETFISH	0.000	0.000	0.000	19081.000	21352.000	0.000	40433.000
SABLE/ROCK FISH	445.600	3917.900	8258.500	1040.000	0.000	0.000	13662.000
SHARK/RAYS/SKATES	251.400	2210.400	4659.200	0.000	0.000	0.000	7121.000
SALMON	464.100	4081.200	8602.700	0.000	0.000	0.000	13148.000
BILLFISH	123.800	1088.600	2294.600	0.000	0.000	0.000	3507.000
TUNA	1.960	984.900	681.100	0.000	216055.094	0.000	217723.000
COD	3.090	27.160	57.250	0.000	0.000	0.000	87.500
BASS	0.700	6.200	13.100	0.000	0.000	0.000	20.000
PERCH	54.200	477.100	1005.700	0.000	0.000	0.000	1537.000
OTHER	0.200	1.500	8.300	0.000	0.000	0.000	5.000
TOTAL	2232.750	20600.859	42029.660	20192.199	237407.094	0.000	322462.500

FISH PROCESSING SECTORS

- | | |
|--|-------------------------------------|
| 20. Small Wholesalers, Processors, Distributors | 25. Seafood Restaurants |
| 21. Medium Wholesalers, Processors, Distributors | 26. Other Eat and Drink |
| 22. Large Wholesalers, Processors, Distributors | 27. Seafood Markets |
| 23. Import/Export Brokers | 28. Other Food and Kindred Products |
| 24. Tuna Cannery | |

* NOTE: It is assumed for the CIF Model that Other Fish Processors (Sectors 25-28) buy all fish products from Wholesalers, Processors, Distributors and Import/Export Brokers (Sectors 20-23).

TABLE 8: HARVESTER-PROCESSOR TRANSACTIONS

1980 Sales by Harvesting Sectors to Processing Sectors (in Thousands of Dollars)

DIRECT PURCHASE PROCESSING SECTORS (by Number)

HARVESTING SECTORS	20	21	22	23	24	25-28 *	TOTAL
1) GROUNDFISH TRAWLERS, N.	366.939	3226.593	6801.308	256.792	4.591	0.000	10456.223
2) GROUNDFISH TRAWLERS, S.	117.266	1031.41	2173.547	74.593	90.469	0.000	3487.285
3) SHRIMP TRAWLERS	93.937	826.012	1741.182	0.000	0.000	0.000	2661.131
4) TUNA PURSE-SEINERS	1.77	889.653	615.232	0.000	195161	0.000	196667.653
5) WETFISH SEINERS	85.826	763.423	1596.648	7452.208	10265.81	0.000	20163.915
6) HERRING GILLNETTERS	164.147	1448.028	3045.686	11056.12	13391.34	0.000	29105.321
7) OTHER GILLNETTERS	379.614	3343.38	7040.254	42.631	1117.002	0.000	11922.881
8) SMALL SALMON TROLLERS	46.945	412.969	870.286	.744	31.636	0.000	1362.58
9) LARGE SALMON TROLLERS	142.71	1260.821	2649.204	35.414	1343.779	0.000	5431.928
10) SALMON/CRABBERS	74.126	653.53	1375.137	191.296	590.32	0.000	2884.409
11) SALMON/ALBACORE	20.356	188.981	383.968	.103	2227.549	0.000	2820.977
12) LONG-LINERS	3.428	30.192	63.561	1.571	12.263	0.000	111.017
13) BLACK COD POTS	322.884	2038.992	5984.272	655.476	1.298	0.000	9802.922
14) CRAB/LOBSTER, N.	92.691	815.804	1718.583	2.23	166.055	0.000	2793.383
15) CRAB/LOBSTER, S.	54.1	475.714	1002.776	67.591	75.376	0.000	1675.557
16) BAITBOATS	5.474	94.495	132.354	3.066	10351	0.000	10586.389
17) JIGBOATS	13.587	129.076	258.224	319.137	2489.085	0.000	3209.109
18) DIVEBOATS	157.314	1383.483	2915.853	31.373	75.061	0.000	4563.084
19) HARPOON-BILLFISH	88.937	782.103	1648.472	1.834	13.429	0.000	2534.775
TOTAL	2232.051	20594.659	42016.547	20192.199	237407.085	0.000	322442.541

FISH PROCESSING SECTORS

- | | |
|--|-------------------------------------|
| 20. Small Wholesalers, Processors, Distributors | 25. Seafood Restaurants |
| 21. Medium Wholesalers, Processors, Distributors | 26. Other Eat and Drink |
| 22. Large Wholesalers, Processors, Distributors | 27. Seafood Markets |
| 23. Import/Export Brokers | 28. Other Food and Kindred Products |
| 24. Tuna Cannery | |

It is assumed for the CIF Model that Other Fish Processors (25-28) buy all fish products from Wholesalers, Processors, Distributors and Import-Export Brokers (20-23).

TABLE 9. DIRECT, INDIRECT AND INDUCED CALIFORNIA PRODUCTION
PER \$ SALES AND TYPE I & TYPE II OUTPUT
MULTIPLIERS FOR FISH HARVESTING SECTORS (IN \$)

#	SECTOR TITLE	CALIFORNIA \$ OUTPUT PER \$ OF EXVESSEL FISH SALES			CALIF. OUTPUT MULTIPLIERS	
		D	D+I	D+I+IN	TYPE I	TYPE II
		Col. 1	Col. 2	Col. 3	Col. 4	Col. 5
1	GROUND FISH TRAWLERS, N	1.00000	1.70599	3.70070	1.70599	3.70070
2	GROUND FISH TRAWLERS, S	1.00000	1.43814	3.69672	1.43814	3.69672
3	SHRIMP TRAWLERS	1.00000	1.50688	3.78667	1.50688	3.78667
4	TUNA PURSE-SEINERS	1.00000	1.51361	3.66256	1.51361	3.66256
5	WET FISH SEINERS	1.00000	1.63639	3.77111	1.63639	3.77111
6	HERRING GILLNETTERS	1.00000	1.41686	3.46268	1.41686	3.46268
7	OTHER GILLNETTERS	1.00000	1.57921	3.70386	1.57921	3.70386
8	SMALL SALMON TROLLERS	1.00000	1.75444	3.53162	1.75444	3.53162
9	LARGE SALMON TROLLERS	1.00000	1.56205	3.56410	1.56205	3.56410
10	SALMON/CRABBERS	1.00000	1.44542	3.54335	1.44542	3.54335
11	SALMON/ALBACORE	1.00000	1.71981	3.55432	1.71981	3.55432
12	LONG-LINERS	1.00000	1.89111	4.02240	1.89111	4.02240
13	BLACK COD POTS	1.00000	1.83778	3.53063	1.83778	3.53063
14	CRAB/LOBSTER, N	1.00000	1.85756	3.69648	1.85756	3.69648
15	CRAB/LOBSTER, S	1.00000	1.92803	3.54341	1.92803	3.54341
16	BAITCATS, TUNA	1.00000	1.28374	3.53314	1.28374	3.53314
17	JIGBOATS, TUNA	1.00000	2.04611	3.75166	2.04611	3.75166
18	DIVEBOATS	1.00000	1.47159	3.91117	1.47159	3.91117
19	HARPOON, GILLFISH	1.00000	1.80203	3.53327	1.80203	3.53327

LEGEND:

D - DIRECT OUTPUT GENERATED PER \$ SALES
I - INDIRECT OUTPUT GENERATED PER \$ SALES
IN - INDUCED OUTPUT GENERATED PER \$ SALES

TYPE I MULTIPLIER - $(D+I)/D$, i.e. the direct and indirect output generated by \$1 additional sales. (in \$)

TYPE II MULTIPLIER - $(D+I+IN)/D$, i.e. the direct, indirect and induced output generated by \$1 additional sales. (in \$)

TABLE 96 DIRECT, INDIRECT AND INDUCED CALIFORNIA INCOME
PER \$ SALES AND TYPE I & TYPE II INCOME
MULTIPLIERS FOR FISH HARVESTING SECTORS (IN \$)

#	SECTOR TITLE	CALIFORNIA INCOME PER \$ OF EXVESSEL FISH SALES			CALIF. INCOME MULTIPLIERS	
		D Col. 1	D+I Col. 2	D+I+IN Col. 3	TYPE I Col. 4	TYPE II Col. 5
1	GROUND FISH TRAWLERS, N	.49294	.69693	0.96741	1.41383	1.96253
2	GROUND FISH TRAWLERS, S	.67580	.78913	1.09539	1.16770	1.62088
3	SHRIMP TRAWLERS	.64918	.79654	1.10567	1.22699	1.70318
4	TUNA PURSE-SEINERS	.61134	.75082	1.04222	1.22816	1.70481
5	WET FISH SEINERS	.59010	.74585	1.03531	1.26394	1.75447
6	HERRING GILLNETTERS	.58986	.71479	0.99220	1.21179	1.68209
7	OTHER GILLNETTERS	.57328	.74233	1.03042	1.29488	1.79742
8	SMALL SALMON TROLLERS	.38715	.62093	0.86191	1.60385	2.22630
9	LARGE SALMON TROLLERS	.53656	.69950	0.97099	1.30368	1.80965
10	SALMON/CRABBERS	.60276	.73300	1.01748	1.21607	1.68803
11	SALMON/ALBACORE	.43754	.64095	0.88971	1.46490	2.03343
12	LONG-LINERS	.54830	.74466	1.03366	1.35812	1.88521
13	BLACK COD POTS	.34522	.59147	0.82102	1.71332	2.37826
14	CRAB/LOBSTER, N	.38040	.64247	0.89181	1.68892	2.34440
15	CRAB/LOBSTER, S	.26389	.56440	0.79345	1.98810	2.75969
16	BAITCATS, TUNA	.64666	.75099	1.04244	1.15133	1.61204
17	JIGCATS, TUNA	.28052	.59591	0.82718	2.12430	2.94875
18	DIVECATS	.71350	.85237	1.18318	1.18583	1.64605
19	HARPOON, BILLFISH	.37070	.60460	0.83925	1.63096	2.26395

LEGEND

D - DIRECT INCOME GENERATED PER \$ SALES
I - INDIRECT INCOME GENERATED PER \$ SALES
IN - INDUCED INCOME GENERATED PER \$ SALES

TYPE I MULTIPLIER - $(D+I)/D$, i.e. the direct and indirect income generated by \$1 additional direct income, (in \$).

TYPE II MULTIPLIER - $(D+I+IN)/D$, i.e. the direct, indirect and induced income generated by \$1 additional direct income, (in \$)

TABLE 9c. DIRECT, INDIRECT AND INDUCED CALIFORNIA EMPLOYMENT
PER \$ MILLION SALES AND TYPE I & TYPE II EMPLOYMENT
MULTIPLIERS FOR FISH HARVESTING SECTORS (IN NUMBER OF JOBS)

SECTOR	TITLE	* OF JOBS CREATED IN CALIFORNIA PER \$ MILLION OF EXVESSEL FISH SALES			CALIF. EMPLOYMENT MULTIPLIERS	
		D	D+I	D+I+IN	TYPE I	TYPE II
#		Col. 1	Col. 2	Col. 3	Col. 4	Col. 5
1	GROUND FISH TRAWLERS, N	77.30	85.77	100.76	1.10962	1.30355
2	GROUND FISH TRAWLERS, S	10.10	15.06	32.04	1.49179	3.17242
3	SHRIMP TRAWLERS	23.10	29.34	46.47	1.26999	2.01171
4	TUNA PURSE-SEINERS	6.00	11.86	28.01	1.97594	4.66770
5	WET FISH SEINERS	58.60	66.18	82.22	1.12927	1.40305
6	HERRING GILLNETTERS	28.10	33.25	48.62	1.18326	1.73042
7	OTHER GILLNETTERS	79.30	86.24	102.21	1.08754	1.28890
8	SMALL SALMON TROLLERS	362.50	372.29	385.65	1.02701	1.06386
9	LARGE SALMON TROLLERS	53.40	60.31	75.35	1.12935	1.41112
10	SALMON/CRABBERS	127.90	153.31	149.07	1.04228	1.16555
11	SALMON/ALBACORE	76.00	84.51	98.30	1.11201	1.29342
12	LONG-LINERS	358.30	366.74	382.75	1.02355	1.06825
13	BLACK COD POTS	11.00	21.13	33.85	1.92047	3.07708
14	CRAB/LOBSTER, N	34.20	55.18	79.00	1.20261	1.45739
15	CRAB/LOBSTER, S	200.10	211.72	223.36	1.05309	1.11876
16	BAITBOATS, TUNA	44.40	48.85	65.01	1.10031	1.46413
17	JIGBOATS, TUNA	48.10	51.65	74.46	1.29155	1.54814
18	DIVEBOATS	180.50	186.09	204.43	1.03099	1.13257
19	HARPOON, BILLFISH	89.50	99.14	112.14	1.10768	1.25298

LEGEND

D - DIRECT EMPLOYMENT GENERATED PER MILLION \$ SALES
I - INDIRECT EMPLOYMENT GENERATED PER MILLION \$ SALES
IN - INDUCED EMPLOYMENT GENERATED PER MILLION \$ SALES

TYPE I MULTIPLIER = (D+I)/D, i.e. the direct and indirect employment generated by each additional direct job created.
TYPE II MULTIPLIER = (D+I+IN)/D, i.e. the direct, indirect and induced employment generated by each additional direct job created.

TABLE 10a: DIRECT, INDIRECT AND INDUCED CALIFORNIA PRODUCTION
PER \$ SALES AND TYPE I & TYPE II OUTPUT
MULTIPLIERS FOR FISH PROCESSING SECTORS (IN \$)

SECTOR		CALIFORNIA \$ OUTPUT PER \$ OF PROCESSED FISH SALES			CALIF. OUTPUT MULTIPLIERS	
#	TITLE	D	D+I	D+I+IN	TYPE I	TYPE II
		Col. 1	Col. 2	Col. 3	Col. 4	Col. 5
20	FISH WHSL. PROC. DIST. SM	1.00000	2.26487	4.13263	2.26487	4.13263
21	FISH WHSL. PROC. DIST. MED	1.00000	2.33640	3.98757	2.33640	3.98757
22	FISH WHSL. PROC. DIST. LG	1.00000	2.23159	4.10813	2.23159	4.10813
23	FISH IMP/EXP. BROKERS	1.00000	1.21727	1.76964	1.21727	1.76964
24	TUNA CANNERS	1.00000	1.98388	3.67403	1.98388	3.67403
25	SEAFOOD RESTAURANTS	1.00000	1.55783	3.38266	1.55783	3.38266
26	OTHER EAT & DRINK	1.00000	1.63165	2.78581	1.63165	2.78581
27	SEAFOOD MARKETS	1.00000	1.96610	3.15354	1.96610	3.15354
28	OTHER FOOD & KINDRED PROC	1.00000	2.26058	3.64215	2.26058	3.64215

LEGEND:

D - DIRECT OUTPUT GENERATED PER \$ SALES
I - INDIRECT OUTPUT GENERATED PER \$ SALES
IN - INDUCED OUTPUT GENERATED PER \$ SALES

TYPE I MULTIPLIER - $(D+I)/D$, i.e. the direct and indirect output generated by \$1 additional sales, (in \$)

TYPE II MULTIPLIER - $(D+I+IN)/D$, i.e. the direct, indirect and induced output generated by \$1 additional sales, (in \$).

TABLE 106: DIRECT, INDIRECT AND INDUCED CALIFORNIA INCOME
PER \$ SALES AND TYPE I & TYPE II INCOME
MULTIPLIERS FOR FISH PROCESSING SECTORS (IN \$)

SECTOR #	TITLE	CALIFORNIA INCOME PER \$ OF PROCESSED FISH SALES			CALIF. INCOME MULTIPLIERS	
		D Col. 1	D+I Col. 2	D+I+IN Col. 3	TYPE I Col. 4	TYPE II Col. 5
20	FISH WHSL, PROC, DIST, SM	16624	65260	0.90587	3.92564	5.44919
21	FISH WHSL, PROC, DIST, MED	09922	57691	0.80082	5.81450	8.07112
22	FISH WHSL, PROC, DIST, LG	21579	65565	0.91011	3.03837	4.21757
23	FISH IMP/EXP, BROKERS	10170	19300	0.26790	1.89769	2.63419
24	TUNA CANNERS	16051	59054	0.81973	3.67915	5.10704
25	SEAFOOD RESTAURANTS	47057	63758	0.88502	1.35490	1.88074
26	OTHER EAT & DRINK	24878	40325	0.55976	1.62092	2.25000
27	SEAFOOD MARKETS	15277	41489	0.57591	2.71579	3.76980
28	OTHER FOOD & KINDRED PROC	19176	48271	0.67005	2.51725	3.49420

LEGEND:

D - DIRECT INCOME GENERATED PER \$ SALES
I - INDIRECT INCOME GENERATED PER \$ SALES
IN - INDUCED INCOME GENERATED PER \$ SALES

TYPE I MULTIPLIER - $(D+I)/D$, i.e. the direct and indirect income generated by \$1 additional direct income, (in \$).

TYPE II MULTIPLIER - $(D+I+IN)/D$, i.e. the direct, indirect and induced income generated by \$1 additional direct income, (in \$).

TABLE 10c: DIRECT, INDIRECT AND INDUCED CALIFORNIA EMPLOYMENT
PER \$ MILLION SALES AND TYPE I & TYPE II EMPLOYMENT
MULTIPLIERS FOR FISH PROCESSING SECTORS, (IN NUMBER OF JOBS)

SECTOR	TITLE	# OF JOBS CREATED IN CALIFORNIA PER \$ MILLION OF PROCESSED FISH SALES			CALIF. EMPLOYMENT MULTIPLIERS	
		D	D+I	D+I+IN	TYPE I	TYPE II
#		Col. 1	Col. 2	Col. 3	Col. 4	Col. 5
20	FISH WHSL, PROC, DIST, SM	16.50	60.24	74.27	3.65066	4.50140
21	FISH WHSL, PROC, DIST, MED	7.30	48.19	60.59	6.60082	8.30075
22	FISH WHSL, PROC, DIST, LG	12.10	55.42	69.52	4.58011	5.74566
23	FISH IMP/EXP, BROKERS	2.50	8.34	12.50	3.33795	4.99851
24	TUNA CARRIERS	10.20	23.21	35.91	2.27545	3.52078
25	SEAFOOD RESTAURANTS	54.00	62.84	76.55	1.16364	1.41761
26	OTHER EAT & DRINK	54.20	64.50	73.17	1.19444	1.35508
27	SEAFOOD MARKETS	15.20	35.75	44.68	2.35200	2.93932
28	OTHER FOOD & KINDRED PROC	29.02	45.05	55.43	1.80926	2.22626

LEGEND:

D - DIRECT EMPLOYMENT GENERATED PER MILLION \$ SALES

I - INDIRECT EMPLOYMENT GENERATED PER MILLION \$ SALES

IN - INDUCED EMPLOYMENT GENERATED PER MILLION \$ SALES

TYPE I MULTIPLIER = $(D+I)/D$, i.e. the direct and indirect employment generated by each additional direct job created.

TYPE II MULTIPLIER = $(D+I+IN)/D$, i.e. the direct, indirect and induced employment generated by each additional direct job created.

APPENDIX C

THE CALIFORNIA INTER-INDUSTRY
FISHERIES (CIF) MODEL

includes

TRANSACTIONS TABLE
TECHNICAL COEFFICIENTS TABLE
LEONTIEFF (I-A) INVERSE TABLE (TYPE II)

Transactions Table (Rows 1-66, Columns 1-8)

ROW/CDL	1	2	3	4	5	6	7	8
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	0.98	0.35	0.25	14.38	1.25	1.74	0.84	0.21
34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	0.87	0.02	0.10	0.00	0.00	0.00	0.93	0.09
42	0.28	0.01	0.04	0.00	0.00	0.21	0.34	0.02
43	0.03	0.00	0.00	0.00	0.00	0.02	0.04	0.00
44	0.01	0.00	0.00	0.00	0.04	0.01	0.01	0.00
45	0.09	0.00	0.01	0.00	0.00	0.07	0.11	0.01
46	0.08	0.00	0.01	0.00	0.49	0.07	0.09	0.01
47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00
51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52	0.35	0.16	0.14	13.61	1.37	0.52	0.36	0.06
53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
54	0.10	0.00	0.01	10.63	0.00	0.00	0.00	0.00
55	0.52	0.10	0.10	8.40	0.22	1.07	0.34	0.05
56	0.68	0.13	0.13	11.09	0.00	1.31	0.28	0.07
57	0.00	0.00	0.00	4.32	1.79	0.00	0.37	0.09
58	0.67	0.24	0.07	4.32	0.14	0.00	0.00	0.00
59	0.00	0.00	0.00	0.00	0.14	1.12	0.53	0.03
60	0.00	0.00	0.00	0.00	0.87	0.00	0.00	0.00
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	5.25	2.36	1.73	121.31	0.00	18.57	6.72	0.53
65	0.54	0.12	0.07	10.40	0.24	4.45	0.72	0.19
66	10.45	3.47	2.68	178.14	17.35	31.47	11.71	1.36

Transactions Table (Rows 1-66, Columns 9-16)

ROW/COL	9	10	11	12	13	14	15	16
1 GROUND FISH TRAILERS, N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2 GROUND FISH TRAILERS, S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3 SHRIMP TRAILERS	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 NET FISH SEINERS	0.00	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	0.00
7 OTHER GILLNETTERS	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/CRABBERS	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 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 JIGBOATS, 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 HADDOCK, BILLFISH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20 FISH WHBL. PROC. DIST. BM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21 FISH WHBL. PROC. DIST. MED	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22 FISH WHBL. 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	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	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00
33 SHIP & BOAT	0.59	0.20	0.30	0.01	1.04	0.30	0.28	0.77
34 MOTOR FREIGHT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35 AGRICULTURE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36 MINING	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37 CONSTRUCTION	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
38 LUMBER	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39 FURNITURE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40 GLASS, STONE, CLAY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
41 METAL	0.21	0.11	0.19	0.00	1.13	0.29	0.11	0.02
42 NON-ELECTRIC MACHINES	0.06	0.03	0.05	0.00	0.39	0.08	0.03	0.00
43 ELECTRIC EQUIPMENT	0.01	0.00	0.01	0.00	0.04	0.01	0.00	0.00
44 TRANSPORTATION EQUIP	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00
45 INSTRUMENTS	0.02	0.01	0.02	0.00	0.12	0.02	0.01	0.00
46 MISC MFG GOODS	0.02	0.01	0.01	0.00	0.11	0.02	0.01	0.00
47 TEXTILES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48 APPAREL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
49 PAPER	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50 PRINTING	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
51 CHEMICAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52 PETROLEUM	0.20	0.09	0.19	0.01	0.46	0.14	0.11	0.43
53 RUBBER & PLASTIC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
54 LEATHER	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55 TELEPHONE/PUB UTIL	0.08	0.08	0.09	0.00	0.34	0.10	0.14	0.28
56 WHOLESALE TRADERS	0.21	0.09	0.15	0.01	0.40	0.12	0.11	0.31
57 RETAIL TRADERS	0.28	0.12	0.20	0.01	0.52	0.16	0.15	0.41
58 INSURANCE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
59 FINANCE	0.29	0.10	0.18	0.03	0.60	0.08	0.04	0.42
60 SERVICES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
61 FED GOVERNMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
62 ST & LOC GOVERNMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
63 SHAP MATERIALS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64 HOUSEHOLDS	0.52	1.76	1.24	0.00	3.30	1.04	0.48	6.75
65 IMPORTS/EXPORTS	0.55	0.30	0.27	0.00	1.21	0.25	0.27	1.06
66 TOTALS	5.44	2.57	7.84	0.07	7.80	7.80	1.69	10.44

Transactions Table (Rows 1-66, Columns 17-24)

ROW/COL	17	18	19	20	21	22	23	24
1	0.00	0.00	0.00	0.37	3.23	4.80	0.26	0.00
2	0.00	0.00	0.00	0.12	1.03	2.17	0.07	0.00
3	0.00	0.00	0.00	0.09	0.83	1.74	0.00	0.00
4	0.00	0.00	0.00	0.00	0.89	0.62	0.00	175.16
5	0.00	0.00	0.00	0.09	0.74	1.60	7.43	17.35
6	0.00	0.00	0.00	0.16	1.45	3.05	11.06	13.39
7	0.00	0.00	0.00	0.38	3.34	7.04	0.04	1.12
8	0.00	0.00	0.00	0.02	0.41	0.87	0.00	0.03
9	0.00	0.00	0.00	0.14	1.26	2.65	0.04	1.34
10	0.00	0.00	0.00	0.07	0.63	1.38	0.19	0.59
11	0.00	0.00	0.00	0.02	0.19	0.38	0.00	2.23
12	0.00	0.00	0.00	0.00	0.03	0.04	0.00	0.01
13	0.00	0.00	0.00	0.32	2.84	5.98	0.66	0.00
14	0.00	0.00	0.00	0.09	0.82	1.72	0.00	0.00
15	0.00	0.00	0.00	0.09	0.48	1.00	0.07	0.08
16	0.00	0.00	0.00	0.01	0.09	0.13	0.00	10.33
17	0.00	0.00	0.00	0.01	0.13	0.26	0.32	2.49
18	0.00	0.00	0.00	0.14	1.38	2.92	0.03	0.08
19	0.00	0.00	0.00	0.09	0.78	1.65	0.00	0.01
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	0.97	0.30	0.24	0.00	0.00	0.00	0.00	0.00
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	0.19	0.15	0.24	0.00	0.00	0.00	0.00	0.00
42	0.06	0.03	0.09	0.00	0.00	0.00	0.00	0.00
43	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	0.02	0.02	0.03	0.00	0.00	0.00	0.00	0.00
46	0.02	0.01	0.03	0.00	0.00	0.00	0.00	0.00
47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00
51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52	0.13	0.21	0.16	0.00	0.00	0.00	0.00	0.00
53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.16	0.07	0.03	0.25	2.00	2.03	0.42	10.11
56	0.13	0.15	0.13	0.02	0.41	0.38	0.06	0.00
57	0.17	0.20	0.17	0.03	0.34	0.51	0.07	0.00
58	0.00	0.00	0.00	0.23	1.49	1.49	0.53	2.99
59	0.23	0.00	0.12	0.39	4.68	10.83	2.37	2.99
60	0.00	0.00	0.00	0.21	3.16	2.57	0.41	2.84
61	0.01	0.00	0.00	0.43	1.69	2.57	1.84	3.99
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	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
65	0.24	0.00	0.00	0.04	3.08	19.46	20.34	87.08
66	1.25	4.23	3.51	4.03	11.51	40.11	131.91	132.70

Transactions Table (Rows 1-66, Columns 25-32)

ROW/COL	25	26	27	28	29	30	31	32
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	0.87	1.76	0.51	1.78	0.00	0.00	0.00	0.00
21	9.73	17.35	3.50	19.96	0.00	0.00	0.00	0.00
22	3.63	27.94	4.70	41.94	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	49.65	0.38	8.85	0.41	0.57
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	0.00	2603.24	0.29	2968.12	2.02	1.24	37.65	11.36
29	0.00	11.40	0.00	1.16	0.09	0.37	1.27	0.18
30	0.00	0.00	0.00	0.41	3.95	29.90	0.00	0.00
31	0.00	1.36	0.00	3.88	2.93	9.41	5.01	0.13
32	0.00	1.10	0.00	29.85	0.00	0.01	20.66	51.45
33	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
34	1.36	145.24	0.28	598.77	2.04	6.77	8.28	2.09
35	0.46	353.15	0.00	5162.89	0.00	83.87	36.47	1.73
36	0.00	0.26	0.00	3.75	0.14	0.80	0.06	0.06
37	0.00	59.91	0.00	43.27	0.00	17.91	1.33	0.62
38	0.00	0.23	0.00	22.27	0.01	2.90	0.02	0.00
39	0.00	0.44	0.00	1.45	0.04	0.05	0.02	0.00
40	0.00	13.81	0.00	561.94	2.70	0.35	0.02	0.02
41	5.78	9.65	0.00	1153.93	0.07	6.91	49.89	0.64
42	0.00	7.62	0.00	39.56	0.48	4.79	0.50	0.25
43	0.00	1.73	0.00	6.03	0.08	2.65	0.04	0.02
44	0.00	0.19	0.00	1.73	0.02	2.83	0.03	0.01
45	0.00	0.42	0.00	6.66	0.34	0.32	0.12	0.00
46	0.00	13.24	0.38	20.87	0.25	1.37	1.12	0.01
47	0.00	0.61	0.00	1.07	1.38	1.60	0.08	0.00
48	0.00	2.42	0.00	9.03	1.35	1.47	0.12	0.01
49	0.00	145.59	0.00	765.52	0.02	34.95	26.90	0.02
50	12.92	62.45	0.00	437.28	0.46	5.33	21.37	0.25
51	0.00	48.14	0.00	132.60	2.20	30.92	10.27	1.87
52	1.56	11.50	0.04	285.37	16.91	83.33	6.42	6.26
53	0.00	51.74	0.00	289.18	0.26	0.79	3.23	0.03
54	0.00	0.01	0.00	0.14	0.01	1.01	0.02	0.03
55	10.16	224.83	0.20	631.40	1.51	46.11	20.44	6.78
56	0.66	1001.97	0.02	1475.08	6.18	35.67	37.39	11.66
57	0.87	0.00	0.02	11.81	0.04	8.79	0.07	0.04
58	1.57	97.47	0.13	52.03	1.58	8.03	2.25	0.54
59	3.91	914.01	1.06	300.97	7.67	51.80	5.53	5.08
60	2.86	742.21	0.37	671.96	2.40	126.78	15.42	2.40
61	3.41	16.39	0.24	25.19	0.04	1.85	0.46	0.20
62	0.60	55.91	0.00	43.50	0.11	2.82	0.99	0.44
63	0.00	0.00	0.00	17.60	0.23	0.13	0.21	0.44
64	40.93	4294.47	3.88	4294.47	37.06	4294.47	4294.47	48.71
65	39.27	2637.67	7.75	2637.67	31.47	210.91	155.19	24.81
66	38.00	10996.14	7.37	2791.74	121.19	1748.31	456.96	181.00

Transactions Table (Rows 1-66, Columns 33-40)

ROW/CD	33	34	35	36	37	38	39	40
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	14.56	22.69	5.98	43.97	180.04	12.22	9.51	19.53
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	0.32	0.52	669.23	1.05	4.84	0.44	7.98	1.11
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
30	0.21	0.00	727.90	0.00	20.74	2.77	0.98	1.47
31	0.00	0.00	10.52	0.00	0.00	0.00	0.00	0.00
32	0.00	0.00	1.29	0.00	0.00	0.02	0.00	0.03
33	10.10	0.03	0.05	0.40	3.42	0.06	0.02	0.03
34	9.31	670.80	119.22	14.43	613.66	31.47	17.89	175.25
35	0.17	2.37	2646.48	0.24	49.42	97.26	0.18	0.90
36	0.26	3.31	11.95	234.91	156.33	1.68	0.18	139.68
37	3.88	17.46	67.48	337.13	11.90	14.06	0.31	36.13
38	21.71	0.79	0.55	2.09	1973.96	1.55	170.78	1.01
39	13.72	0.02	0.74	4.54	104.48	18.92	18.92	499.40
40	14.24	0.47	3.74	96.93	2269.53	25.83	14.93	50.16
41	163.00	2.33	20.43	168.45	4024.47	174.62	168.31	25.87
42	86.08	4.54	44.62	29.71	340.13	27.58	5.95	5.48
43	53.90	5.02	4.32	29.71	948.47	8.37	4.86	0.78
44	5.35	12.15	1.98	7.03	26.56	5.51	0.75	4.68
45	13.13	0.41	0.33	5.15	171.20	2.25	1.57	4.68
46	2.54	1.38	2.04	5.33	43.09	4.36	5.48	10.41
47	4.55	0.03	2.92	0.10	144.17	1.29	30.36	1.66
48	0.67	3.41	8.45	0.54	6.70	2.14	7.02	1.00
49	4.42	6.80	23.67	2.86	76.90	19.48	32.84	113.92
50	30.32	8.34	7.82	3.22	15.34	6.79	9.94	14.96
51	30.73	4.61	47.19	47.19	589.27	52.47	27.50	101.65
52	4.54	568.05	966.83	194.29	1964.22	260.69	22.43	163.85
53	0.04	31.01	42.30	5.91	335.76	28.74	120.10	51.44
54	19.53	0.06	1.52	0.51	0.54	1.00	4.24	0.09
55	55.25	150.77	188.97	153.44	400.90	109.19	54.69	272.52
56	1.74	69.21	77.36	62.30	1666.92	192.35	107.99	117.68
57	15.76	107.02	105.76	24.74	1488.89	7.97	0.87	3.29
58	52.68	470.63	245.70	1493.21	457.73	66.80	49.54	106.95
59	1.40	7.62	4.51	274.31	2562.67	130.56	63.84	139.03
60	1.42	10.41	29.07	6.43	29.19	2.83	2.69	5.26
61	1.42	0.00	29.07	33.56	33.56	3.66	4.14	18.73
62	1.42	0.00	7.31	6.55	6.55	2.06	0.56	10.54
63	379.41	2933.14	133.15	1436.17	16533.93	1072.08	674.67	1523.20
64	93.74	1614.01	6475.00	4891.67	9390.59	763.78	238.79	896.09
65	93.74	1614.01	6475.00	4891.67	9390.59	763.78	238.79	896.09
66	93.74	1614.01	6475.00	4891.67	9390.59	763.78	238.79	896.09

Transactions Table (Rows 1-66, Columns 41-48)

ROW/COL	41	42	43	44	45	46	47	48
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	266.11	75.64	492.21	329.18	75.58	17.59	3.49	17.69
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	6.97	2.33	12.10	6.94	6.71	2.21	1.35	1.50
29	0.00	0.00	0.01	0.01	0.00	0.06	0.00	1.43
30	6.22	0.72	3.24	1.28	0.53	0.21	0.06	0.02
31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
32	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00
33	0.62	0.94	0.26	1.17	0.06	0.04	0.00	0.00
34	198.64	56.33	142.10	114.54	59.53	25.88	12.95	50.29
35	2.47	0.71	3.25	2.17	1.48	2.85	32.09	1.99
36	184.97	2.40	4.73	1.39	0.96	1.35	0.79	0.20
37	122.17	30.77	77.51	51.52	22.84	7.20	2.47	2.50
38	75.22	25.87	34.25	231.87	18.41	75.30	1.53	1.69
39	3.86	0.95	41.08	71.80	1.77	1.39	0.08	0.66
40	74.37	33.63	190.42	92.41	39.84	11.64	1.28	1.08
41	3332.19	1259.79	2058.25	1639.34	300.35	146.88	1.01	4.91
42	543.25	896.18	270.54	461.11	75.00	10.52	3.17	1.79
43	441.29	163.37	7249.82	1160.82	404.76	25.01	0.62	1.55
44	564.89	36.01	30.45	2077.70	6.60	1.38	0.23	0.23
45	81.74	16.74	134.33	195.69	238.77	3.09	0.75	0.51
46	16.09	8.04	48.31	16.80	27.37	94.27	1.28	12.02
47	2.11	8.22	3.14	63.25	19.48	9.90	145.36	223.01
48	8.52	3.34	9.24	60.61	2.25	5.99	9.23	328.54
49	102.71	39.14	192.03	24.34	63.05	81.37	14.12	32.43
50	93.07	24.21	188.51	78.82	49.52	33.81	8.51	14.44
51	329.48	36.51	327.27	110.10	81.34	81.89	64.05	4.91
52	320.18	275.14	321.06	197.89	138.26	69.44	27.33	28.52
53	141.17	74.72	485.12	195.62	160.83	113.17	19.30	15.03
54	0.71	0.26	1.03	0.82	0.31	6.63	0.01	25.60
55	679.63	211.12	736.41	365.82	142.50	61.98	32.98	66.70
56	649.03	331.47	1017.42	771.95	104.76	63.07	63.07	184.08
57	50.35	9.71	38.60	28.95	7.44	1.82	0.27	2.07
58	48.05	14.63	46.02	23.61	13.22	3.63	1.17	5.57
59	378.84	284.12	1241.46	283.99	164.94	86.25	22.86	99.18
60	866.89	316.27	1719.43	761.53	351.67	110.18	28.68	128.61
61	41.88	14.64	63.33	30.61	15.75	9.27	1.40	11.55
62	56.58	14.32	56.44	25.73	11.70	5.10	3.91	4.45
63	259.21	34.03	50.93	13.51	34.25	7.58	1.36	1.36
64	2621.65	4103.07	13265.97	5466.48	2893.91	692.87	283.45	1185.74
65	3212.54	2340.71	4540.73	4630.09	2361.22	505.81	460.87	1272.13
66	27203.60	10874.89	33095.47	19510.40	8326.88	2815.95	1252.64	3714.40

Transactions Table (Rows 1-66, Columns 49-56)

ROW/COL	49	50	51	52	53	54	55	56
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	14.60	98.94	94.70	23.02	21.26	1.60	295.00	611.53
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	3.41	2.11	56.50	7.89	0.86	17.47	48.36	18.19
29	0.02	0.00	0.57	0.00	0.00	0.00	0.12	4.87
30	0.35	1.11	1.92	0.46	0.90	0.00	36.06	21.18
31	0.00	0.00	0.00	0.00	0.00	0.02	0.02	2.21
32	0.03	0.01	30.12	2.43	0.00	0.04	0.03	0.00
33	0.10	0.00	0.05	0.01	0.03	0.00	128.16	0.07
34	56.45	34.93	107.44	61.00	44.75	4.93	181.36	470.18
35	3.80	0.89	0.36	0.43	0.38	1.04	14.67	6.24
36	1.80	0.93	86.63	3400.39	3.44	0.19	1299.11	6.24
37	28.90	30.96	60.83	193.86	24.83	0.67	1089.09	92.68
38	145.09	0.10	1.94	1.94	17.73	1.64	3.09	15.49
39	0.46	0.37	1.29	0.15	1.44	0.30	0.32	0.35
40	3.80	4.13	77.37	34.13	37.43	0.30	4.23	11.78
41	20.73	26.85	294.20	89.17	77.44	5.99	77.00	7.93
42	13.91	17.47	50.37	14.36	37.65	1.27	49.30	16.63
43	1.81	11.33	6.67	2.36	9.64	0.46	216.29	21.34
44	0.33	0.37	1.39	0.42	1.87	0.06	293.58	4.80
45	2.72	30.51	13.60	4.41	7.65	0.18	18.37	5.99
46	4.18	23.28	26.88	4.82	10.39	2.37	26.80	37.59
47	10.02	2.89	0.61	1.17	9.52	4.31	7.74	1.12
48	1.30	2.63	2.32	0.29	2.30	0.40	13.14	12.90
49	663.43	363.02	179.31	39.32	103.81	4.81	29.99	175.69
50	18.92	312.80	289.23	49.99	23.79	2.19	213.18	450.29
51	140.26	109.08	1302.02	194.85	708.68	12.42	33.68	14.81
52	123.04	63.71	847.86	2797.85	114.06	8.42	324.34	1032.39
53	74.66	42.68	256.99	14.60	204.54	16.75	28.28	66.18
54	0.08	0.69	0.73	0.26	0.26	60.11	0.34	0.81
55	158.71	337.71	520.23	334.82	174.26	6.56	4939.67	1137.37
56	174.37	217.94	299.30	90.67	127.13	18.89	328.53	594.59
57	1.49	9.52	7.18	3.02	2.22	0.08	31.82	126.98
58	4.43	31.71	19.83	14.64	7.64	0.00	228.81	201.34
59	97.95	447.04	366.31	180.93	87.23	8.29	1340.92	1173.19
60	114.16	544.47	630.00	164.52	128.70	9.47	1754.54	2317.89
61	4.33	102.17	14.45	8.21	3.84	1.17	100.97	100.06
62	12.97	16.54	34.24	29.83	13.33	0.39	238.34	93.59
63	25.38	5.27	12.19	0.07	1.09	0.20	1.01	1.20
64	1920.07	2906.17	1973.09	730.23	1329.82	139.65	12843.03	14413.60
65	1914.44	1824.93	2772.87	17300.67	1157.87	99.65	10592.55	12348.57
66	4287.93	7452.86	10436.18	26599.34	4541.09	416.69	29631.84	75738.90

Transactions Table (Rows 1-56, Columns 57-64)

ROW/COL.	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	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 GILLNETTERS	0 00	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	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/CRAWBERRIES	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 LOG-LINERS	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
13 BLACK COD POTTS	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 JIGBOATS, TUNA	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
18 DIVERBOATS	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 TRP/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 SNAFOOD RESTAURANTS	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
26 OTHER EAT & DRINK	154 15	281 05	320 07	1243 47	9 07	20 64	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	3 28	5 06	6 77	328 14	0 34	0 54	0 00	0 00
29 FORESTRY & OTHER FISHING	8 06	0 04	238 28	62 65	0 00	3 33	0 00	0 00
30 FORESTRY/FISH SERVICES	0 00	0 00	0 00	26 12	0 00	0 00	0 00	0 00
31 PETFOOD	0 00	0 00	0 01	0 14	0 00	0 00	0 00	0 00
32 ANIMAL & MARINE FATB	0 01	0 03	0 08	0 60	0 44	0 07	2 81	270 76
33 SHIP & BOAT	89 03	21 61	90 97	427 05	34 21	28 69	0 00	1657 87
34 MOTOR FREIGHT	2 18	1 21	99 05	260 36	0 29	1 95	0 00	1603 00
35 AGRICULTURE	3 25	0 69	5 86	17 90	0 38	2 98	0 00	66 13
36 MINING	190 70	28 50	5046 92	1077 81	14 37	707 20	0 00	0 00
37 CONSTRUCTION	0 15	0 09	0 21	25 40	0 01	0 02	0 00	80 39
38 LUMBER	0 18	0 10	0 54	3 52	0 03	0 04	0 00	1100 12
39 FURNITURE	6 91	0 45	0 96	144 38	0 42	1 84	0 00	214 38
40 GLASS, STONE, CLAY	10 59	1 29	3 60	290 54	2 87	3 66	0 00	338 29
41 METAL	5 59	0 09	5 56	218 95	0 54	8 24	10 87	92 26
42 NON-ELECTRIC MACHINES	11 43	4 58	24 74	652 08	2 60	9 25	27 55	1285 26
43 ELECTRIC EQUIPMENT	2 43	1 10	3 15	670 76	1 36	8 90	22 09	4005 29
44 TRANSPORTATION EQUIP	2 17	2 07	6 31	661 20	0 98	1 98	4 45	274 55
45 INSTRUMENTS	36 48	9 41	34 41	309 69	0 97	1 49	1 89	1426 50
46 MISC MFG GOODS	1 43	0 03	0 23	20 79	0 25	0 55	3 49	492 76
47 TEXTILES	3 83	0 06	7 76	144 80	2 71	4 45	0 68	2732 52
48 APPAREL	176 34	36 47	47 19	249 97	3 83	3 76	24 36	553 93
49 PAPER	527 24	194 00	534 35	919 86	9 78	12 12	25 94	1052 97
50 PRINTING	17 75	1 13	27 81	876 91	10 24	43 61	0 00	2158 75
51 CHEMICAL	753 05	111 43	863 69	2088 20	46 06	333 98	11 89	7285 88
52 PETROLEUM	48 11	4 45	79 54	447 12	5 37	2 87	0 95	513 84
53 RUBBER & PLASTIC	0 79	0 60	0 88	33 71	0 59	0 02	3 07	273 91
54 LEATHER	917 73	488 81	938 32	2893 03	132 66	361 20	8 75	8537 81
55 TELEPHONE/PUB UTIL	211 11	49 61	204 07	1696 03	8 89	36 81	0 00	9402 87
56 WHOLESALE TRADERS	66 94	31 93	111 24	314 99	0 23	9 27	0 00	24612 08
57 RETAIL TRADERS	225 67	9975 73	1167 08	797 64	2 77	12 04	0 00	5806 67
58 INSURANCE	284 18	666 29	8937 44	7228 85	116 37	81 10	0 00	44933 86
59 FINANCE	1392 35	1007 21	3288 32	12560 33	127 63	150 17	0 00	32244 03
60 SERVICES	192 68	97 62	703 33	593 78	6 38	10 50	0 00	913 00
61 FID GOVERNMENT	117 11	18 72	136 07	307 13	8 49	67 39	0 00	1876 76
62 STATE GOVERNMENT	0 92	0 00	0 00	31 44	0 00	0 03	0 37	705 10
63 LOCAL GOVERNMENT	14260 97	8101 36	9380 50	43364 34	2235 30	1152 04	0 00	979 66
64 INDIVIDUALS	13441 75	3990 75	82145 36	26216 69	270 57	1431 57	204 13	29977 90
65 INSTITUTIONS/EXPORTS	30741 57	17203 21	114976 10	107704 60	7000 67	4914 66	477 84	299551 00
66 TOTALS								

Transactions Table (Rows 1-66, Columns 65-67)

ROW/COL	65	66	67
1	0.00	10.46	0.00
2	0.00	3.49	0.00
3	0.00	2.66	0.00
4	1.77	198.44	0.00
5	0.00	17.35	-2.81
6	2.37	31.47	0.00
7	0.00	11.71	0.21
8	0.00	1.36	0.00
9	0.01	9.44	0.00
10	0.04	2.92	0.00
11	0.02	2.84	0.00
12	0.00	0.09	0.02
13	0.00	9.80	0.00
14	0.00	2.80	0.00
15	0.01	1.69	0.00
16	0.00	10.44	0.14
17	0.04	3.25	0.00
18	0.00	4.22	0.34
19	0.00	2.53	0.00
20	0.00	5.03	0.95
21	0.00	91.31	-6.16
22	3.37	90.18	0.00
23	200.00	200.00	0.00
24	336.84	542.92	0.00
25	22.44	186.98	0.00
26	4799.20	18986.14	0.00
27	0.00	25.37	0.00
28	4781.95	22917.74	0.00
29	0.00	121.19	-47.99
30	49.68	1248.24	0.00
31	164.39	626.96	0.00
32	41.10	181.08	0.00
33	919.70	1372.41	0.00
34	492.08	6884.49	0.00
35	6349.05	16865.08	0.00
36	3543.62	9391.94	0.00
37	36463.32	46046.61	0.00
38	156.23	4619.42	0.00
39	518.21	1893.60	0.00
40	183.99	4563.33	0.00
41	6429.13	22703.60	0.00
42	7479.39	10846.89	0.00
43	22287.76	35095.47	0.00
44	11736.33	19518.60	0.00
45	6324.79	8226.88	0.00
46	519.48	2815.52	0.00
47	35.24	1282.66	0.00
48	312.17	3714.40	0.00
49	116.35	4587.93	0.00
50	1983.85	7882.86	0.00
51	1892.48	10436.82	0.00
52	417.45	26209.24	0.00
53	564.86	4541.05	0.00
54	0.00	416.99	-3.04
55	12931.92	39631.04	0.00
56	13419.55	35758.90	0.00
57	8429.67	39731.89	0.00
58	2081.93	17703.71	0.00
59	39278.41	114978.10	0.00
60	41252.90	107704.60	0.00
61	0.00	3079.67	-74.36
62	1161.91	6516.69	0.00
63	0.00	477.86	-754.67
64	73093.00	299931.00	0.00
65	0.00	110758.60	0.00
66	311889.20	1256379.00	0.00

Technical Coefficients Table (Rows 1-66, Columns 65-66)

ROW/COL		65	66
1	GRUND FISH TRAMERS, B	0.0000000	0.0000000
2	GRUND FISH TRAMERS, E	0.0000000	0.0000000
3	SHRIMP TRAMERS	0.0000000	0.0000000
4	TUNA PURSE-SLINERS	0.0000000	0.0000000
5	ME FISH SEINERS	0.0000000	0.0000000
6	INDRINO OILNETTERS	0.0000000	0.0000000
7	OTHER OILNETTERS	0.0000000	0.0000000
8	SMALL SALMON TROLLERS	0.0000000	0.0000000
9	LARGE SALMON TROLLERS	0.0000000	0.0000000
10	SALMON/CRABBERS	0.0000000	0.0000000
11	SALMON/ALBACORE	0.0000000	0.0000000
12	LONG-LINERS	0.0000000	0.0000000
13	BLACK COD POTS	0.0000000	0.0000000
14	CRAB/LOBSTER, N	0.0000000	0.0000000
15	CRAB/LOBSTER, S	0.0000000	0.0000000
16	BALBOATS, TUNA	0.0000000	0.0000000
17	JUGBOATS, TUNA	0.0000000	0.0000000
18	DIVERBOATS	0.0000000	0.0000000
19	HARPOON, BILFISH	0.0000000	0.0000000
20	FISH WHSL. PROC. DIST. SM	0.0000000	0.0000000
21	FISH WHSL. PROC. DIST. MED	0.0000000	0.0000000
22	FISH WHSL. PROC. DIST. LG	0.0000000	0.0000000
23	FISH IMP/EXP. BROKERS	0.0000000	0.0000000
24	TUNA CANNERS	0.0000000	0.0000000
25	SEAFOOD RESTAURANTS	0.0000000	0.0000000
26	OTHER EAT & DRINK	0.0000000	0.0000000
27	SEAFOOD MARKETS	0.0000000	0.0000000
28	OTHER FOOD & KINDRED PROC	0.0000000	0.0000000
29	FORESTRY & OTHER FISHING	0.0000000	0.0000000
30	FORESTRY/FISH SERVICES	0.0000000	0.0000000
31	PETFOOD	0.0000000	0.0000000
32	ANIMAL & MARINE FATS	0.0000000	0.0000000
33	SHIP & BOAT	0.0000000	0.0000000
34	MOTOR FREIGHT	0.0000000	0.0000000
35	AGRICULTURE	0.0000000	0.0000000
36	MINING	0.0000000	0.0000000
37	CONSTRUCTION	0.0000000	0.0000000
38	LUMBER	0.0000000	0.0000000
39	FURNITURE	0.0000000	0.0000000
40	GLASS, STONE, CLAY	0.0000000	0.0000000
41	METAL	0.0000000	0.0000000
42	NON-ELECTRIC MACHINES	0.0000000	0.0000000
43	ELECTRIC EQUIPMENT	0.0000000	0.0000000
44	TRANSPORTATION EQUIP	0.0000000	0.0000000
45	INSTRUMENTS	0.0000000	0.0000000
46	MISC MFG GOODS	0.0000000	0.0000000
47	TEXTILES	0.0000000	0.0000000
48	APPAREL	0.0000000	0.0000000
49	PAPER	0.0000000	0.0000000
50	PRINTING	0.0000000	0.0000000
51	CHEMICAL	0.0000000	0.0000000
52	PETROLEUM	0.0000000	0.0000000
53	RUBBER & PLASTIC	0.0000000	0.0000000
54	LEATHER	0.0000000	0.0000000
55	TELEPHONE/PUB UTIL	0.0000000	0.0000000
56	WHOLESALE TRADERS	0.0000000	0.0000000
57	RETAIL TRADERS	0.0000000	0.0000000
58	INSURANCE	0.0000000	0.0000000
59	FINANCE	0.0000000	0.0000000
60	SERVICES	0.0000000	0.0000000
61	FED GOVERNMENT	0.0000000	0.0000000
62	ST & LOC GOVERNMENT	0.0000000	0.0000000
63	SCRAP MATERIALS	0.0000000	0.0000000
64	HOUSEHOLDS	0.0000000	0.0000000
65	IMPORTS/EXPORTS	0.0000000	0.0000000

Leontieff (I-A) Inverse Table (Rows 1-64, Columns 1-8)

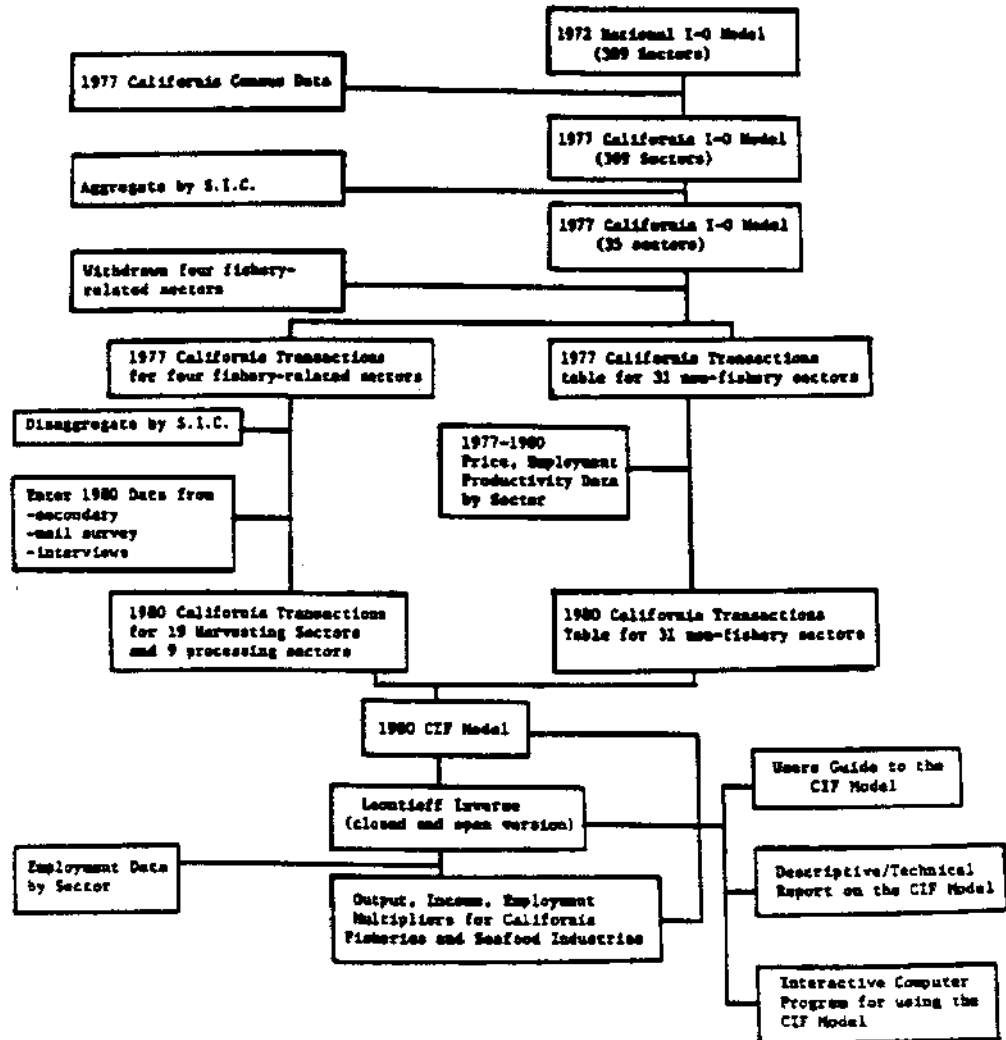
1	GRAIN	0	0	0	0	0	0
2	GRAIN	0	0	0	0	0	0
3	GRAIN	0	0	0	0	0	0
4	GRAIN	0	0	0	0	0	0
5	GRAIN	0	0	0	0	0	0
6	GRAIN	0	0	0	0	0	0
7	GRAIN	0	0	0	0	0	0
8	GRAIN	0	0	0	0	0	0
9	GRAIN	0	0	0	0	0	0
10	GRAIN	0	0	0	0	0	0
11	GRAIN	0	0	0	0	0	0
12	GRAIN	0	0	0	0	0	0
13	GRAIN	0	0	0	0	0	0
14	GRAIN	0	0	0	0	0	0
15	GRAIN	0	0	0	0	0	0
16	GRAIN	0	0	0	0	0	0
17	GRAIN	0	0	0	0	0	0
18	GRAIN	0	0	0	0	0	0
19	GRAIN	0	0	0	0	0	0
20	GRAIN	0	0	0	0	0	0
21	GRAIN	0	0	0	0	0	0
22	GRAIN	0	0	0	0	0	0
23	GRAIN	0	0	0	0	0	0
24	GRAIN	0	0	0	0	0	0
25	GRAIN	0	0	0	0	0	0
26	GRAIN	0	0	0	0	0	0
27	GRAIN	0	0	0	0	0	0
28	GRAIN	0	0	0	0	0	0
29	GRAIN	0	0	0	0	0	0
30	GRAIN	0	0	0	0	0	0
31	GRAIN	0	0	0	0	0	0
32	GRAIN	0	0	0	0	0	0
33	GRAIN	0	0	0	0	0	0
34	GRAIN	0	0	0	0	0	0
35	GRAIN	0	0	0	0	0	0
36	GRAIN	0	0	0	0	0	0
37	GRAIN	0	0	0	0	0	0
38	GRAIN	0	0	0	0	0	0
39	GRAIN	0	0	0	0	0	0
40	GRAIN	0	0	0	0	0	0
41	GRAIN	0	0	0	0	0	0
42	GRAIN	0	0	0	0	0	0
43	GRAIN	0	0	0	0	0	0
44	GRAIN	0	0	0	0	0	0
45	GRAIN	0	0	0	0	0	0
46	GRAIN	0	0	0	0	0	0
47	GRAIN	0	0	0	0	0	0
48	GRAIN	0	0	0	0	0	0
49	GRAIN	0	0	0	0	0	0
50	GRAIN	0	0	0	0	0	0
51	GRAIN	0	0	0	0	0	0
52	GRAIN	0	0	0	0	0	0
53	GRAIN	0	0	0	0	0	0
54	GRAIN	0	0	0	0	0	0
55	GRAIN	0	0	0	0	0	0
56	GRAIN	0	0	0	0	0	0
57	GRAIN	0	0	0	0	0	0
58	GRAIN	0	0	0	0	0	0
59	GRAIN	0	0	0	0	0	0
60	GRAIN	0	0	0	0	0	0
61	GRAIN	0	0	0	0	0	0
62	GRAIN	0	0	0	0	0	0
63	GRAIN	0	0	0	0	0	0
64	GRAIN	0	0	0	0	0	0

Leontieff (I-A) Inverse Table (Rows 1-64, Columns 57-63)

ROW/COL	57	58	59	60	61	62	63
1	0.07090141	0.00000039	0.00000109	0.00000413	0.00000108	0.00000173	0.000000216
2	0.07090141	0.00000176	0.00000043	0.00000132	0.00000033	0.00000062	0.000000049
3	0.07090036	0.00000141	0.00000027	0.00000104	0.00000028	0.00000047	0.000000035
4	0.07090021	0.00000081	0.00000015	0.00000060	0.00000016	0.00000028	0.000000032
5	0.06600033	0.00000130	0.00000025	0.00000097	0.00000026	0.00000043	0.000000031
6	0.00000063	0.00000247	0.00000047	0.00000185	0.00000047	0.00000084	0.000000097
7	0.07000144	0.00000371	0.00000108	0.00000427	0.00000112	0.00000200	0.000000223
8	0.00000018	0.00000071	0.00000013	0.00000053	0.00000014	0.00000023	0.000000028
9	0.00000055	0.00000213	0.00000041	0.00000161	0.00000042	0.00000073	0.000000084
10	0.00000029	0.00000112	0.00000021	0.00000084	0.00000022	0.00000039	0.000000044
11	0.00000008	0.00000031	0.00000006	0.00000024	0.00000006	0.00000011	0.000000012
12	0.00000001	0.00000005	0.00000001	0.00000004	0.00000001	0.00000002	0.000000002
13	0.00000124	0.00000485	0.00000092	0.00000343	0.00000099	0.00000170	0.000000190
14	0.00000036	0.00000139	0.00000026	0.00000104	0.00000027	0.00000049	0.000000054
15	0.00000021	0.00000081	0.00000015	0.00000061	0.00000014	0.00000038	0.000000032
16	0.00000003	0.00000012	0.00000002	0.00000009	0.00000002	0.00000004	0.000000005
17	0.00000005	0.00000021	0.00000004	0.00000016	0.00000004	0.00000007	0.000000008
18	0.00000060	0.00000236	0.00000043	0.00000177	0.00000046	0.00000083	0.000000092
19	0.00000034	0.00000134	0.00000023	0.00000100	0.00000034	0.00000047	0.000000032
20	0.00000071	0.00000279	0.00000053	0.00000200	0.00000034	0.00000097	0.000000107
21	0.00000722	0.00002833	0.00000335	0.00002065	0.00000932	0.00000984	0.00001097
22	0.00001198	0.00001676	0.00000891	0.00003555	0.00001443	0.00001726	0.00003494
23	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
25	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
26	0.00640690	0.02374761	0.00470841	0.01968197	0.00476375	0.00853632	0.00399963
27	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
28	0.0148397	0.00317423	0.00114349	0.00708038	0.00128170	0.00221549	0.00262122
29	0.0002434	0.00041160	0.00009799	0.00031128	0.00001782	0.00015925	0.00011237
30	0.00057379	0.00048681	0.00248681	0.00323268	0.00232524	0.00167726	0.00034994
31	0.0002054	0.0003503	0.0003287	0.0002933	0.00001797	0.00003681	0.00001991
32	0.0002124	0.0002823	0.00001762	0.00007389	0.00003255	0.00009486	0.00007498
33	0.00012547	0.00018849	0.00005041	0.00016245	0.00032855	0.00038618	0.00014783
34	0.00433785	0.00257916	0.00277127	0.00748157	0.02162397	0.01264527	0.00717850
35	0.00608187	0.00501746	0.00322370	0.00723042	0.00407773	0.02110027	0.01176081
36	0.01256204	0.00933890	0.04965498	0.01867478	0.01023431	0.16688237	0.00747939
37	0.00134842	0.00108665	0.00333685	0.00242874	0.00093224	0.01105224	0.00479732
38	0.0005048	0.0005321	0.00013334	0.0014607	0.00038978	0.00044621	0.00050885
39	0.00307094	0.00294229	0.00300717	0.00346025	0.00102441	0.01048243	0.00333647
40	0.00085171	0.00078972	0.00093796	0.00383395	0.00089726	0.02289583	0.00343692
41	0.00177414	0.00231279	0.00237730	0.01129703	0.00255659	0.00958993	0.00861739
42	0.00087302	0.00136540	0.00070738	0.00874875	0.00147461	0.00434166	0.06203117
43	0.00862309	0.00104317	0.00063624	0.00769892	0.00089279	0.00187341	0.01232288
44	0.00142104	0.00132544	0.00062140	0.00373845	0.00054409	0.0104592	0.00516794
45	0.0018123	0.0013470	0.00023840	0.00058241	0.00024929	0.00093033	0.00920629
46	0.00265275	0.00023814	0.00019594	0.00182977	0.00111731	0.00135327	0.00220116
47	0.00757039	0.0062104	0.00172974	0.00974049	0.0029020	0.00374588	0.06774023
48	0.01765194	0.01976752	0.00659993	0.01292304	0.00504534	0.0611464	0.06316935
49	0.00299616	0.00279085	0.00249387	0.01430424	0.00384104	0.01748324	0.01462759
50	0.03217034	0.02114886	0.01620278	0.03643797	0.02780363	0.11037578	0.04981997
51	0.00244477	0.00187987	0.00180710	0.00689307	0.00280451	0.00384520	0.00986706
52	0.00064139	0.00023914	0.00004286	0.00045266	0.00026188	0.00004525	0.00762448
53	0.03637070	0.0431807	0.01340414	0.04284328	0.05066117	1.0601483	0.04940074
54	0.00045316	0.0103210	0.00635229	0.02470331	0.00681578	0.02147651	0.02597053
55	1.00278242	0.00353696	0.00333269	0.00450607	0.00099949	0.00877029	0.00144694
56	0.01213528	1.46549389	0.01741468	0.01530356	0.00404796	0.00806307	0.00388914
57	0.09481407	1.04237821	0.09237821	0.99373195	0.03089582	0.04049387	0.02800936
58	0.03563728	0.10590173	0.04014194	1.14917746	0.03704469	0.06614898	0.04132474
59	0.00681201	0.00962531	0.00757734	0.00757734	0.0030210	0.00378870	0.00258213
60	0.00394681	0.00260146	0.00176906	0.00419730	0.00357623	1.01674743	0.00258094
61	0.00015333	0.00013263	0.00013367	0.00061135	0.00011002	0.00045542	1.00530758
62	1.33224347	1.83925189	1.30170690	1.53857464	1.28501436	1.69894923	1.94986352

ATTACHMENT 1

THE OVERALL PROCEDURE FOR DEVELOPING THE CIF MODEL



ATTACHMENT 2

Industry Classification of the 1977 Input-Output Table¹

The titles in bold face represent the groupings of industries used for the summary version of the 1977 tables.

No.	Industry number and title	Related Census SIC codes (1972 edition)	No.	Industry number and title	Related Census SIC codes (1972 edition)
AGRICULTURE, FORESTRY, AND FISHERIES					
1 Livestock and livestock products					
1	1.01 Dairy farm products	0241, pt. 0191, pt. 0239, pt. 0291	34	9.032 Industrial sand	1446
1	1.02 Poultry and eggs	023 (incl. 0254 and pt. 0239), pt. 0191, pt. 0219, pt. 0291	35	9.040 Brumstone	1452
1	1.03 Meat animals and miscellaneous livestock	021, pt. 0191, 027, pt. 0179, pt. 0239, pt. 0291	36	9.050 Fire clay	1453
2 Other agricultural products					
4	2.01 Cotton	0111, pt. 0191, pt. 0219, pt. 0239, pt. 0291	37	9.060 Fuller's earth	1454
5	2.02 Food feed grains and grass seeds	pt. 011, pt. 0191, pt. 0219, pt. 0239, pt. 0291, pt. 0139	38	9.070 Lumps and ball clay	1455
6	2.03 Tobacco	0131, pt. 0191, pt. 0219, pt. 0239, pt. 0291	39	9.080 Clay, ceramic, and refractory products, n.e.c.	1459
7	2.04 Fruit and tree nuts	pt. 017, pt. 0191, pt. 0219, pt. 0239, pt. 0291, 0173, pt. 0179	40	9.090 Nonmetallic minerals (except fuels) n.e.c.	1481
8	2.05 Vegetables, sugar and miscellaneous crops	0114, 0161, pt. 0119, pt. 0139, pt. 0191, pt. 0219, pt. 0239, pt. 0291, 0133	41	9.100 Gypsum	1482
9	2.06 Oil bearing crops	0116, pt. 0119, pt. 011, pt. 0173, pt. 0219, pt. 0239, pt. 0291	42	9.110 Talc, magnesite, and pyrophyllite	1486
10	2.07 Forest, greenhouse and nursery products	pt. 018, pt. 0191, pt. 0219, pt. 0239, pt. 0291	43	9.120 Nat. nonmetallic minerals, n.e.c.	1499
3 Forestry and fishery products					
11	3.00 Forestry and fishery products	081-4, 091, 097	10 Chemical and fertilizer mineral mining		
4 Agricultural, forestry, and fishery services					
12	4.00 Agricultural, forestry, and fishery services	0254, 07 (incl. 074), 081, 092	44	10.01 Barite	1472
MINING					
5 Iron and ferrous alloy ores mining					
13	5.01 Iron ores	1011	45	10.02 Fluorspar	1473
14	5.02 Ferrous alloy ores except manganiferous	1041	46	10.03 Potash, soda, and borax minerals	1474
6 Nonferrous metal ores mining					
15	6.01 Copper ore mining	1021	47	10.04 Phosphate rock	1475
16	6.021 Lead and zinc ores mining	1011	48	10.05 Rock salt	1476
17	6.022 Gold ores mining	1041	49	10.06 Sulfur	1477
18	6.023 Silver ores mining	1044	50	10.07 Chemical and fertilizer mineral mining, n.e.c.	1479
19	6.024 Bauxite and other aluminum ores mining	1021	11 Non-construction		
20	6.025 Metal mining services	1081	51	11.00 Non-construction	pt. 15, pt. 16, pt. 108, pt. 11, 121, pt. 134, 148
21	6.026 Mercury ores mining	1092	12 Maintenance and repair construction		
22	6.027 Uranium-radium-thorium ores mining	1094	52	12.00 Maintenance and repair construction	pt. 15, pt. 16, pt. 158
23	6.028 Metal ores mining not class. here classified	1099	MANUFACTURING		
7 Coal mining					
24	7.01 Anthracite and anthracite mining services	111	13 Ordnance and accessories		
25	7.02 Bituminous coal and lignite and mining services	121	53	13.010 Complete guided missiles	2761
8 Crude petroleum and natural gas					
26	8.011 Crude petroleum	1311	54	13.020 Ammunition, except for small arms, n.e.c.	2623
27	8.012 Natural gas	1311-1	55	13.030 Tanks and tank components	2773
28	8.02 Natural gas liquids	1321	56	13.040 Small arms	2646
9 Stone and clay mining and quarrying					
29	9.010 Dimension stone	2411	57	13.050 Small arms ammunition	2642
30	9.021 Crushed and broken limestone	2422	58	13.070 Other ordnance and accessories	2647
31	9.022 Crushed and broken granite	2421	14 Food and kindred products		
32	9.023 Crushed and broken stone, n.e.c.	2429	59	14.010 Meat packing plants	2011
33	9.031 Construction sand and gravel	2442	60	14.015 Sausages and other prepared meats	2013
			61	14.020 Poultry dressing plants	2016
			62	14.010 Poultry and egg processing	2017
			63	14.020 Creamery butter	2021
			64	14.030 Cheese, natural and processed	2022
			65	14.040 Condensed and evaporated milk	2023
			66	14.050 Ice cream and frozen desserts	2024
			67	14.060 Fluid milk	2029
			68	14.070 Canned and cured sea foods	2030
			69	14.080 Canned specialties	2032
			70	14.090 Canned fruits and vegetables	2033
			71	14.100 Dehydrated food products	2034
			72	14.110 Protein, monon. and diacid esters	2035
			73	14.120 Fresh or frozen packaged fish	2037
			74	14.130 Frozen fruits and vegetables	2037-4
			75	14.140 Flour and other grain mill products	2041
			76	14.150 Cereal preparations	2043
			77	14.160 Blended and prepared flour	2045
			78	14.130 Dog cat and other pet food	2047
			79	14.140 Prepared feeds, n.e.c.	2048
			80	14.190 Rice milling	2049
			81	14.170 Wet corn milling	2050
			82	14.180 Bread cake and related products	2051
			83	14.190 Cookies and crackers	2052
			84	14.200 Sugar	2053
			85	14.200 Confectionery products	2054
			86	14.200 Chocolate and cocoa products	2055
			87	14.200 Chewing gum	2057
			88	14.210 Malt liquors	2058
			89	14.210 Malt	2059
			90	14.210 Wine, brandy, and brandy spirits	2064
			91	14.210 Distilled liquor, except brandy	2065
			92	14.220 Beated and canned soft drinks	2066
			93	14.230 Flavored syrups and syrups, n.e.c.	2067
			94	14.240 Confectionery, n.e.c.	2068
			95	14.250 Soybean oil, meal	2073

See footnote at end

Industry Classification of the 1977 Input-Output Table - Continued

Table with columns: No., Industry number and title, Related Code SIC codes (1973 edition), No., Industry number and title, Related Code SIC codes (1973 edition). Rows are categorized by industry sectors such as Textiles, Printing and Publishing, Chemicals, and Leather and Other Products.

See footnote at end

Industry Classification of the 1977 Input-Output Table - Continued

Table with 5 columns: No., Industry number and title, Related Comp SIC codes (1973 edition), No., Industry number and title, Related Comp SIC codes (1972 edition). The table lists various industry categories such as Primary nonferrous metal manufacturing, Metal castings, Heating, plumbing, and fabricated structural metal products, and more.

See footnote at end

Industry Classification of the 1977 Input-Output Table¹ —Continued

No.	Industry number and title	Related Census SIC codes (1973 edition)	No.	Industry number and title	Related Census SIC codes (1973 edition)
407	44.000 Sporting and athletic goods, n.e.c.	3900	408	77.000 Educational services	82
408	44.000 Pens and mechanical pencils	3901	409	77.000 Nonprofit organizations	84, 86, 882
409	44.000 Lead pencils and art goods	3902	410	77.000 Residential care	8161
410	44.000 Marking devices	3903	411	77.000 Social services, n.e.c.	8211, 8251, 8211, 8299
411	44.000 Carbon paper and inked ribbons	3904	GOVERNMENT ENTERPRISES		
412	44.000 Artisanal tools and levers	3905	73 Federal Government enterprises		
413	44.000 Sissors	3906	73.000 U.S. Postal Service	4311	
414	44.000 Needles, pins and buttons	3907	73.000 Federal electric utilities	pt. 401	
415	44.000 Brushes and brushes	3908	73.000 Farmmodity Credit Corporation	pt. 113	
416	44.000 Hard surface floor coverings	3909	73.000 Other Federal Government enterprises	several	
417	44.000 Boreal caskets and vests	3910	79 State and local government enterprises		
418	44.000 Signs and advertising displays	3911	79.000 Local government enterprise	pt. 41	
419	44.000 Manufacturing residues, n.e.c.	3999 (incl. 3900)	79.000 State and local electric utilities	pt. 42	
TRANSPORTATION, COMMUNICATION, AND UTILITIES			79.000 Other State and local government enterprises	several	
80 Transportation and warehousing ²			DUMMY AND SPECIAL INDUSTRIES		
420	45.000 Railroads and related services	40, 474, pt. 478	80.000 Noncomparable imports		
421	45.000 Local, suburban, and interurban highway passenger transportation	41	81 Scrap, used, and secondhand goods		
422	45.000 Water freight transportation and warehousing	42, pt. 478	82 Government industry		
423	45.000 Water transportation	44	83 Rest of the world industry		
424	45.000 Air transportation	45	84 Household industry		
425	45.000 Pipe lines, except natural gas	46	85 Inventory valuation adjustment		
426	45.000 Transportation services	47 (incl. 474 and pt. 478)	86 Inventory valuation adjustment		
82 Communications, except radio and TV			VALUE ADDED AND FINAL DEMAND		
427	48.000 Communications, except radio and TV	48 (incl. 480)	70 Employee compensation	472	
83 Radio and TV broadcasting			80 Indirect business taxes	473	
428	47.000 Radio and TV broadcasting	49	70 Property-type income	474	
84 Electric, gas, water, and sanitary services ³			91 Personal consumption expenditures	475	
429	49.000 Electric services (utilities)	491, pt. 495	91.000 Personal consumption expenditures	476	
430	49.000 Gas production and distribution (utilities)	492, pt. 495	92 Gross private domestic fixed investment	477	
431	49.000 Water supply and sanitary services	493-4, pt. 495	92.000 from private domestic fixed investment	478	
WHOLESALE AND RETAIL TRADE			93 Change in business inventories	479	
85 Wholesale and retail trade			94 Exports	479	
432	50.000 Wholesale trade	50, 51 (incl. 500-509)	95 Imports	476	
433	50.000 Retail trade	52-7, 50, 700, 602	96 Federal Government purchases, national defense	477	
FINANCE, INSURANCE, AND REAL ESTATE			96.000 Federal Government purchases, national defense	477	
70 Finance and insurance ³			97 Federal Government purchases, nondefense	478	
434	70.000 Banking	60	98 State and local government purchases, education	479	
435	70.000 Credit services	61 (incl. pt. 610, 617)	99 State and local government purchases, other	480	
436	70.000 Security and commodity brokers	62	OTHER SYMBOLS		
437	70.000 Insurance carriers	63	T.I.U. Total intermediate use	471	
438	70.000 Insurance agents and brokers	64	T.F.D. Total final demand	481	
71 Real estate and rental			T.D.O. Total domestic output	482	
439	71.000 Owner-occupied dwellings	not applicable	Inputs		
440	71.000 Real estate	65-8, pt. 131	T.I.I. Total intermediate inputs	471	
SERVICES			U.A. Value added	475	
72 Health and lodging, personal and repair services (except auto)			T.I.O. Total industry output	476	
441	72.000 Hotels and lodging places	70 (incl. 700)			
442	72.000 Personal and repair services, except auto repair and beauty and barber shops	71 (incl. 710-714, 715-4, pt. 700)			
443	72.000 Beauty and barber shops	72-4			
73 Business services					
444	73.000 Miscellaneous business services	73-5 (incl. 730, 700, 700, pt. 700)			
445	73.000 Advertising	73			
446	73.000 Miscellaneous professional services	81, 80 (incl. 802)			
74 Eating and drinking places					
447	74.000 Eating and drinking places	58, pt. 70			
75 Automobile repair and services					
448	75.000 Automobile repair and services	75			
76 Amusement					
449	76.000 Motion pictures	78			
450	76.000 Amusement and recreation services	79			
77 Health, educational, and social services and nonprofit organizations					
451	77.000 Doctors and dentists	80-3, 804			
452	77.000 Hospitals	80			
453	77.000 Other medical and health services	81-4, 804, 801, 801-2			

1. The 1977 Input-Output table is based on the conversion of the official 1972 BEA "use" and "make" tables to an industry by industry table and then updating this to 1977 using an RAS technique. This work was completed under contract for the U.S. Forest Service.

2. Excluding government enterprises.

3. In the 1972 SIC, government enterprise activities are generally classified with the similar private activity. In I-O activities of enterprises are classified in groups 78 and 79 and the corresponding SIC's are shown except for 78.0400 and 79.0300, each of which includes a number of SIC's and several activities for which no comparable SIC exists.

ATTACHMENT 3

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.

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

- 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)	_____	_____
Bilfish (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):		
_____	_____	_____
_____	_____	_____
_____	_____	_____

5) EXPENSES (continued)

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

5) EXPENSES (continued)

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

ATTACHMENT 4

SECTOR TITLE	SAMPLE #	SAMPLE	REVENUE/	EMPLOY	REVENUE/
Groundfish Trawlers, N	24	22	1,707,949	6	12,939
Groundfish Trawlers, S	3	3	1,782,247	6	99,014
Shrimp Trawlers	5	5	340,089	2-3	43,207
Tuna Purse-seiners	6	6	14,951,696	14-16	166,130
Metfish Seiners	32	32	145,100	7-10	17,059
Herring Gillnetters	9	9	640,144	2	35,944
Other Gillnetters	32	28	1,413,071	4	12,617
Small Salmon Trollers	105	98	540,662	2	2,759
Large Salmon Trollers	97	94	4,167,182	2-3	18,729
Salmon/Crabbers	37	37	867,881	3	7,819
Salmon/Albacore	96	94	2,472,102	2	13,120
Long-Liners	8	7	87,917	4-5	2,791
Black Cod Pots	6	5	1,595,560	3-4	91,175
Crab/Lobster, N	14	13	838,890	3-4	18,437
Crab/Lobster, S	21	21	367,329	3-4	4,998
Baitboats, Tuna	16	16	2,520,630	7	22,306
Jigboats, Tuna	24	24	998,442	2	20,801
Diveboats	8	8	88,654	2	5,541
Harpoon, Bilfish	35	35	781,693	2	11,167
	578	557			

ATTACHMENT 5

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 714/265-6333 or Dr. Kenneth Shellhammer at 714/239-0488 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) _____

6) In which of the following areas is your vessel's home port located?
(Check one only)

- | | |
|---|---|
| <input type="checkbox"/> Eureka area | <input type="checkbox"/> Santa Barbara area |
| <input type="checkbox"/> San Francisco area | <input type="checkbox"/> Los Angeles area |
| <input type="checkbox"/> Monterey area | <input type="checkbox"/> San Diego area |

STATISTICAL ENTRY CODE

OFFICE USE ONLY

7) LANDINGS: List below your 1980 landings in California and outside of California for each species you caught. You may record in pounds or tons, but please indicate which measure you are using.

Species Number	Species Type	Amount Landed in California	Amount Landed Outside of California
1	Crustaceans (shrimp, crab, lobster)	_____ lbs/tons	_____ lbs/tons
2	Mollusks (clams, abalone, squid, oyster)	_____ lbs/tons	_____ lbs/tons
3	Flatfish (sole, flounder, halibut)	_____ lbs/tons	_____ lbs/tons
4	Wetfish (anchovy, sardine, herring)	_____ lbs/tons	_____ lbs/tons
5	Sablefish, Hake, Rockfish	_____ lbs/tons	_____ lbs/tons
6	Sharks, Rays, Skates	_____ lbs/tons	_____ lbs/tons
7	Salmon (King, Silver, Pink)	_____ lbs/tons	_____ lbs/tons
8	Billfish (swordfish, marlin, etc.)	_____ lbs/tons	_____ lbs/tons
9	Tuna	_____ lbs/tons	_____ lbs/tons
	Other (cod, croaker, bass perch, etc.), specify:		
10	_____	_____ lbs/tons	_____ lbs/tons
11	_____	_____ lbs/tons	_____ lbs/tons
12	_____	_____ lbs/tons	_____ lbs/tons

8) SALES: List below the amount of your 1980 sales, by species, to each of the types of purchaser shown. Again please indicate whether you are recording pounds, tons, or dollars of total sales. You may use the species numbers shown in Question 7 for the first column response.

Species Number	Calif. Brokers	California Distributors/Processors	California Restaurants	Other California Purchasers	Sold Outside Calif.	Total 1980 Sales
_____	_____	_____	_____	_____	_____	_____ lbs/tons/\$
_____	_____	_____	_____	_____	_____	_____ lbs/tons/\$
_____	_____	_____	_____	_____	_____	_____ lbs/tons/\$
_____	_____	_____	_____	_____	_____	_____ lbs/tons/\$
_____	_____	_____	_____	_____	_____	_____ lbs/tons/\$
_____	_____	_____	_____	_____	_____	_____ lbs/tons/\$
_____	_____	_____	_____	_____	_____	_____ lbs/tons/\$
_____	_____	_____	_____	_____	_____	_____ lbs/tons/\$

- 14) _____
- 15) _____
- 16) _____
- 17) _____
- 18) _____
- 19) _____
- 20) _____
- 21) _____
- 22) _____
- 23) _____
- 24) _____
- 25) _____
- 26) _____
- 27) _____
- 28) _____
- 29) _____
- 30) _____
- 31) _____
- 32) _____
- 33) _____
- 34) _____
- 35) _____
- 36) _____
- 37) _____
- 38) _____
- 39) _____
- 40) _____

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.

STATISTICAL ENTRY CODE

OFFICE USE ONLY

Expenses	Total Spent		Spent Outside of California		41) _____
	\$	%	\$	%	
Gasoline	_____	_____	_____	_____	42) _____
Diesel Fuel	_____	_____	_____	_____	43) _____
Repairs/Maintenance	_____	_____	_____	_____	44) _____
Supplies/Provisions:	_____	_____	_____	_____	45) _____
Specify: _____	_____	_____	_____	_____	46) _____
_____	_____	_____	_____	_____	47) _____
_____	_____	_____	_____	_____	48) _____
Dockage	_____	_____	_____	_____	49) _____
Capital Expenses (vessel or equipment):	_____	_____	_____	_____	50) _____
From Manufacturers	_____	_____	_____	_____	51) _____
From Wholesalers	_____	_____	_____	_____	52) _____
From Retailers	_____	_____	_____	_____	53) _____
Interest	_____	_____	_____	_____	54) _____
Depreciation	_____	_____	_____	_____	55) _____
Specify Any Major Capital Expenditure (by type):	_____	_____	_____	_____	56) _____
Insurance	_____	_____	_____	_____	57) _____
Other Expenses:	_____	_____	_____	_____	58) _____
Specify: _____	_____	_____	_____	_____	59) _____
_____	_____	_____	_____	_____	60) _____
_____	_____	_____	_____	_____	61) _____
_____	_____	_____	_____	_____	62) _____
_____	_____	_____	_____	_____	63) _____
_____	_____	_____	_____	_____	64) _____
Taxes	_____	_____	_____	_____	65) _____
Federal	_____	_____	_____	_____	66) _____
State and Local	_____	_____	_____	_____	67) _____
Crewshares and Wages	_____	_____	_____	_____	68) _____
Total 1980 Expenses	_____	_____	_____	_____	69) _____
					70) _____
					71) _____
					72) _____

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

ATTACHMENT 6

PROTOCOL FOR INTERVIEW SESSIONS
WITH FISH HARVESTING SECTOR EXPERTS1. Fleet Characteristics

- a. Number of vessels; seasonal/annual fluctuations
- b. Vessel age; mean and distribution
- c. Vessel size; mean and distribution
- d. Crew size; mean and distribution

How do operating procedures and input/output relationships change with a through d?

2. Primary/Secondary Gear

- a. What types of gear are used; how often; why
- b. Significance of gear changes between seasons; between years
- c. Impacts of biological, technical, economic, political changes within seasons, between years

3. Fishing Intensity

- a. How many full-time/part-time fishermen
- b. Average number annual and seasonal fishing days
- c. Relationship of costs/catches to fishing time
- d. Changes in target species affect crew size, cost, etc.

4. Fish Abundance/Availability/Catchability

- a. 1980 vs previous years and outlook
- b. Impact of 4 on 2 and 3, etc.
- c. Distance of fishing areas for primary, secondary species

5. Fish Markets

- a. Ex-vessel market size; number of buyers/sellers; alternative markets
- b. Volume landings; distribution throughout season, seasonal price fluctuations
- c. Stability of ex-vessel prices for primary and secondary species; effect of pricing on fishing activities
- d. 1980 vs earlier years and outlook

6. Federal and State Regulations

- a. Impacts on fishing activities, prices, cost of fishing
- b. Special circumstances during 1980
- c. Stability of regulations and expected changes for 1980 conditions

AGENDA FOR FISHERMEN REVIEW OF INPUT-OUTPUT DATA

Conducted at Headquarters of
Pacific Coast Federation of Fishermen's Association
Sausalito, CA

April 28 and 29, 1981

TUESDAY APRIL 28, 1981

- 10:00 - 11:00 a.m. King/Shellhammer
- a. Outline I-O model of California fisheries
 - b. Discuss methods of data collection, data analysis and uses of I-O model
 - c. Demonstrate use of I-O model using fishery sector of CBARC model
- 11:00 - 12:00 Noon d. Outline information required from reviewers and intended users
- 12:00 - 1:30 p.m. LUNCH
- 1:30 - 3:00 p.m. Review and discussion of each Harvesting Sector including:
- Size and condition of fleets
 - Location of major fleets
 - Primary and secondary gear
 - Primary and secondary target species
 - Market conditions and prices
 - Political and regulatory setting
 - Special industry problems
- 3:00 - 4:30 p.m. Review of Primary Data (Mail Survey)
- Assessment of output/market distribution
 - Assessment of input/cost distribution
 - Criteria for resectoring harvestors
 - 1980 vs past years
 - 1980 vs future years

WEDNESDAY APRIL 29, 1981

- 9:00 - 11:00 a.m. Review of Secondary Data (Published Work)

- Individual reviewers evaluate and rank relevance of published cost and earnings reports with regard to differences in:
 - Operating costs
 - Target species
 - Fishing and sea conditions
 - Market and price conditions
 - Political and regulatory conditions

11:00 - 12:00 Noon

Review of Fish Processing Sectors

- Sector definitions
- Size, location and condition of exvessel markets

12:00 - 1:00 p.m.

Estimate distributions of sales by species/by sector to various categories of fish buyers

1:00 - 2:00 p.m.

LUNCH

2:00 - 3:00 p.m.

Clean up.