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PROCEDURES TO BE FOLLOWED IN PREPARING WEEKLY AND MONTHLY REPORTS ON SKIPJACK TUNA LANDINGS IN HAWAII

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INTRODUCTION

The National Marine Fisheries Service, Southwest Fisheries Center, Honolulu Laboratory prepares weekly and monthly estimates of skipjack tuna landings as part of its routine monitoring of fisheries in Hawaii. The purpose of this report is to document the procedures used in making these estimates.

AN OVERVIEW

The weekly and monthly reports contain information on the skipjack tuna landings made at the cannery (Hawaiian Tuna Packers, Bumble Bee Seafoods, Inc.) and from these, estimates of the statewide skipjack tuna landings. The cannery landings provide the raw data for making such statewide estimates.

Statewide estimates are based on the relationship between the amount of catch reported to the Hawaii Division of Aquatic Resources (HDAR) (statewide landings) and the landings made at the cannery by the Tuna Boat Owners Cooperative (TBOC) vessels. This relationship is computed using data from 1964 through the latest year for which complete data are available, in this case 1979. The resulting relationship is

$$L_T = 1.4121\ L_C + 133{,}880\ D. \qquad \text{Equation 1}$$

This regression procedure is described in Appendix I.

The remainder of this report will consist of the computational procedures used in preparing the weekly and monthly reports as well as various tables, worksheets, and forms.

TABLES, WORKSHEETS, AND FORMS

Appendix II contains two tables, two worksheets, and four forms. The tables are used to make comparisons with past landings, the worksheets are used to obtain information on the current year's landings, and the forms are used to collect the raw data and to present summaries of current weekly and monthly landings and estimates.

Tables 1 and 2 contain landings recorded in metric tons (MT). Worksheet 1 contains landings recorded in both pounds and metric tons, while Worksheet 2 contains landings recorded in pounds except when noted as metric tons. Landings are recorded in pounds on Form 1 and in metric tons on Forms 2, 3, and 4.

Generally, the terminology used on these tables, worksheets, and forms is easily understood or is explained elsewhere in this report. However, two terms require definitions. On Worksheet 2, "days fishing" simply refers to

the number of vessels fishing during a particular week. Similarly, on Form 2, "trips" refers to the number of vessels fishing during the week with "effective" indicating trips where skipjack tuna were landed and "zero catch" indicating trips where no skipjack tuna were landed.

DATA COLLECTION

Data on cannery landings of skipjack tuna are collected each Monday and recorded on Form 1 (Aku boat landings at Hawaiian Tuna Packers). The reporting week is 7 days from Monday through Sunday.

All sales to the cannery are recorded. This may include both TBOC vessels and United Fishing Agency (UFA) vessels. The "control number," which identifies this data set in the Honolulu Laboratory's data management system, is 36. (It should be noted that the control numbers are being replaced by a new index code being set up by Data Management and Technical Services.) The "boat" codes currently used are presented below along with, in parentheses, the affiliation of the boats:

34 Anela (UFA)
51 Angel (UFA)
52 Bluefin (TBOC)
57 Corsair (TBOC)
58 Kula Kai (TBOC)
62 Kilohana (UFA)
64 Marlin (TBOC)
66 Neptune (TBOC)
70 Sea Queen (TBOC)
72 Lehua (UFA)
74 Tradewind (TBOC)
75 Yellowfin (TBOC)

Although they are not used in preparing weekly and monthly reports, UFA catches which are not sold to the cannery are recorded on a separate Form 1. These catches are found at the bottom of the cannery data sheet (obtained from cannery personnel) and usually catch by size is not provided.

PREPARING THE WEEKLY SKIPJACK TUNA LANDINGS REPORT

Form 2 (Weekly skipjack tuna landings report) consists of two sections. The first deals with actual cannery landings of skipjack tuna and the second with our estimates of statewide landings.

Section I includes all landings made directly at the tuna cannery by TBOC and UFA boats as well as UFA landings returned to the cannery from the market (UFA auction). Landings from the neighbor islands and UFA market sales are excluded. The "landings per trip" and "size composition" responses use a different set of landings, namely the TBOC vessel landings exclusively. This procedure is followed because UFA boats do not always land their entire catch at the cannery.

Section II presents estimates obtained by using only cannery landings by TBOC boats in Equation 1. The neighbor island landings, UFA returns, and UFA market sales are not considered cannery landings in this estimation procedure.

Procedures for Completing Section I

The procedures followed in completing this section are described below. Except as noted in steps 4, 5, and 6, UFA returns and TBOC landings should be used.

1. From Form 1, add the weights of each size group to check the boat total.

2. Using Form 1, obtain the total landings for the week by adding all the boat totals for the week and then convert this sum to metric tons by multiplying by 0.0004536. Record on Form 2, accurate to one decimal place.

3. Using Form 1, determine the number of effective trips and zero-catch trips. Add these to obtain the total number of trips. Record these on Form 2.

4. Calculate the total landings in pounds for TBOC vessels only. (Use Form 1.) Divide this by the number of total trips by TBOC vessels. Convert this to metric tons. Record this on Form 2, accurate to one decimal place.

5. Using Form 1, calculate for the entire week the total weight landed by TBOC vessels for each size group (large, medium, small, and extra-small). Do not differentiate extra-small from extra-extra-small. There is no small-medium size group presently. Make weekly entries on Worksheet 2. Convert landings to metric tons and record on Form 2, accurate to one decimal place.

6. For size-composition percentages, divide the total weight in pounds of each size group by the total landings for the week (in pounds) to obtain the percentages for each size group. (Use only TBOC vessel landings.) As a check, all the percentages should add up to 100%. Record on Form 2 as whole percentages.

7. For comments, note all dates when no fishing effort was expended and other pertinent information concerning weather conditions, bait supply, neighbor island landings, and changes in calculation procedures.

Procedures for Completing Section II

The procedures followed in completing this section are described below. Only the TBOC landings should be used in the statewide estimations.

1. To estimate total State landings for the week, take the total landings in pounds by TBOC vessels (calculated in step 4 above) and multiply this by 1.4121 (see Equation 1). If the fishing week is contained fully in the period January through May or October through December, simply convert the above product to metric tons and record on Form 2. For example, cannery landings of 10,000 lb × 1.4121 = 14,121 lb, and then 14,121 lb × 0.0004536 MT/lb = 6.4 MT. However, if some of the days fall in the period June through September, an adjustment must be added to the product calculated above. The general form of this adjustment is:

$$\left(\frac{\text{Number of fishing days falling in month}}{\text{Total days in month}}\right) \times 133{,}880.$$

For example, a fishing week of September 28, 1981 through October 4, 1981 would result in an addition of (3/30) × (133,880) = 13,388 prior to the conversion to metric tons (13,388 lb + 14,121 lb = 27,509 lb; then 27,509 lb × 0.0004536 MT/lb = 12.5 MT). Similarly, a fishing week of June 29, 1981 through July 5, 1981 would result in an addition of (2/30) × (133,880) + (5/31) × (133,880) = 30,518.9 where 2 is the number of fishing days in June, 5 is the number of fishing days in July, 30 is the number of days in June, and 31 is the number of days in July. Simply add this adjustment to the (1.4121 × TBOC landings) figure and convert to metric tons. Record the statewide landings estimate on Form 2, accurate to one decimal place.

2. Complete the weekly entries on Worksheet 1. The last column will provide the figure for cumulative landings to date. Record on Form 2, accurate to one decimal place.

3. The remainder of the weekly report figures can be obtained by comparing this cumulative landings figure (step 2) with the appropriate weekly figures in Tables 1 and 2. Record on Form 2, accurate to one decimal place. Be sure to fill in the dates used for the long-term average calculation and be sure to circle the word "above" or "below."

PREPARING THE MONTHLY SKIPJACK TUNA LANDINGS REPORT

Prepare the monthly report 5 working days before the end of the month. Section I uses TBOC vessel landings only. Section II estimates are obtained from weekly estimates which are based on TBOC vessel landings only.

Procedures for Completing Section I

1. From Form 1, find the range of vessel landings for TBOC vessels for the current month (including zero catches). Using only the TBOC vessel landings for the month, calculate the landings per trip by dividing the sum of all TBOC vessel total landings by the total trips made by those vessels during the month. Convert the range and landings per trip figures to metric tons and record on Form 3, accurate to one decimal place. (Note: Worksheet 2 may be helpful for this step. Use as much of the monthly data as is available. The entire monthly data will not be available.)

2. From Form 2, determine neighbor island landings for this month. Convert these to metric tons if necessary and record on Form 3, accurate to one decimal place.

3. For the size composition for the month, using Worksheet 2, calculate the total weight in pounds of each size group and divide each of these totals by the total landings for the month (in pounds) to obtain the percentages of the total landings contributed by each size group. As a check, the percentages should add up to 100%. Record on Form 3 as whole percentages.

Procedures for Completing Section II

1. To obtain estimated skipjack tuna landings for the month, use Worksheet 2. Using the most recent value in the "cumulative total" column, calculate the estimated statewide landings for the portion of the month for which you have landings data. First, multiply this value by 1.4121. Call this value A. If the month is June, July, August, or September, multiply 133,880 by the number of days that have passed in the month and divide by the number of days in the month. Call this value B. For any other month, B equals zero. Add values A and B to obtain the estimated statewide landings for this period. Multiply this value by the number of days in the month and divide by the number of days in the period. Convert this to metric tons and record on Form 3, accurate to one decimal place.

2. Compare the estimated monthly landings in metric tons (step 1) with appropriate estimates of monthly landings from Tables 1 and 2. Perform the necessary subtractions and record on Form 3, accurate to one decimal place. Be sure to circle the word "above" or "below."

3. Add the monthly landings estimate (step 1) to the cumulative monthly landings estimate (CMLE) for prior month in metric tons (Worksheet 2). Record this on Form 3, accurate to one decimal place.

4. Compare the cumulative monthly statewide landings estimate (step 3) with appropriate cumulative landings figures from Tables 1 and 2. Perform the necessary subtractions and record on Form 3, accurate to one decimal place. Be sure to circle the word "above" or "below."

5. Using Worksheet 2 and the results of step 3, plot the year's estimated statewide cumulative landings on the graphs found on Forms 3 and 4.

6. This step is to done after all data for the month are obtained, not 5 working days prior to the end of the month. Enter the remaining data needed to determine the monthly landings estimate on Worksheet 2.

UPDATING

The skipjack tuna landings report procedure will require periodic updating as the result of the availability of new data or change of calendar year. The following portions of the procedure require such updating:

1. Table 1.--Mean weekly State skipjack tuna landings (1964-79 mean).

2. Table 2.--1981 weekly State skipjack tuna landings.

3. Equation 1. The regression of the HDAR reported catch on TBOC cannery landings.

Table 1 should be updated as additional yearly data are made available by the HDAR. Computer Program 1 (see Appendix III) provides the 12 monthly long-term average catch values (AMFCATMT) needed for the revision of Table 1. These values should be put in the "19__-__ monthly mean landings" column. The remainder of the revisions to Table 1 are based on these new values.

Table 2 should be updated near the end of the calendar year so that landings comparisons may continue with the start of a new calendar year. Use Worksheet 2 to update Table 2. The new values for the "landings" column will be the "monthly landings estimates" (MLE) values in metric tons found in the last column of Worksheet 2. The remainder of the revisions to Table 2 are based on these new values.

The updating of the regression is done at the same time Table 1 is updated. Indeed, Computer Program 1 which provides the new values for Table 1, also creates a time share option (TSO) data file which may be used in the revision of the regression. This data set will contain information identifying the year and month, dummy variables representing the month (all zeros represent December), monthly TBOC vessel landings in pounds, monthly catch in pounds as reported to the HDAR, average TBOC vessel landings in pounds over all years for that month, and average catch in pounds over all

years for that month as reported to the HDAR. The dummy variables allow for the inclusion of a seasonal effect on the relationship between the independent and dependent variable. The inclusion of the "average monthly" landings and catch values allows for a monthly long-term adjustment. The regression used at this time makes use of the dummy variables but does not include any long-term monthly adjustment.

The regression analysis of this data set may use any existing regression analysis package. However, SHAZAM, a program package for econometric methods, was used in establishing the current regression relationship.

Computer Program 2, the program used to determine the appropriate regression equation, can be found in Appendix III. The information needed to access the data set created by Computer Program 1 and used in Computer Program 2 is represented in Appendix IV. Again, it should be stressed that it is not necessary to use every available variable in the TSO data set. Likewise, it is not necessary to use the same regression analysis as that used in Computer Program 2. Computer Program 2 is only an example of the procedure used to obtain the existing regression equation.

APPENDIX I

The regression used in making the estimates of statewide skipjack tuna landings is:

$$L_T = 1.4121\ L_C + 133{,}880\ D$$

where:

L_T is the estimate for monthly statewide skipjack tuna landings in pounds,

L_C is the monthly skipjack tuna landings by TBOC vessels at the cannery in pounds, and

D is a dummy variable with value 1 in June through September and value 0 for all other months.

This relationship was derived by regressing the amount of catch reported to the HDAR on the landings made at the tuna cannery by TBOC vessels. The data used in this document covered a period from 1964 through 1979. Regressions were tried with and without intercepts and with various monthly and seasonal dummy variables. The above regression was chosen as the best. The t-value associated with L_C was 63.731 (d.f. = 190) and the t-value associated with the seasonal dummy variable, D, was 5.4475 (d.f. = 190). The regression accounted for nearly 96% of the variability in L_T.

Appendix II Table 1.--Mean weekly State skipjack tuna landings (1964-79 mean).

MONTH	1964-79 MONTHLY MEAN LANDINGS	MEAN DAILY LANDINGS* (MDL)	MEAN WEEKLY LANDINGS** (MWL)	NUMBER OF DAYS IN MONTH		MONTH	WK.	CUM. MEAN WEEKLY LANDINS	MONTH	WK.	CUM. MEAN WEEKLY LANDINGS
JAN	154.9	5.00	35.0	31		JAN	1	35.0		27	2095.0
							2	70.0		28	2262.4
FEB	109.8	3.92	27.4	28			3	105.0		29	2429.8
							4	154.9		30	2501.6
MAR	127.7	4.12	28.8	31		FEB	5	182.3	AUG	31	2633.1
							6	209.7		32	2764.7
APR	211.6	7.05	49.4	30			7	237.1		33	2896.3
							8	264.7		34	3084.5
MAY	490.7	15.83	110.8	31		MAR	9	293.5	SEP	35	3168.5
							10	322.3		36	3252.5
JUN	665.5	22.18	155.3	30			11	351.1		37	3336.5
							12	392.4		38	3420.5
JUL	741.3	23.91	167.4	31		APR	13	441.8		39	3444.7
							14	491.2	OCT	40	3500.5
AUG	583.0	18.81	131.6	31			15	540.6		41	3556.3
							16	590.0		42	3612.1
SEP	360.2	12.01	84.0	30			17	604.0		43	3691.7
						MAY	18	714.8	NOV	44	3735.5
OCT	247.0	7.97	55.8	31			19	825.6		45	3779.3
							20	936.4		46	3823.1
NOV	187.6	6.25	43.8	30			21	1094.7		47	3879.3
						JUN	22	1250.0	DEC	48	3913.7
DEC	152.5	4.92	34.4	31			23	1405.3		49	3948.1
							24	1560.6		50	3982.5
							25	1760.2		51	4016.9
						JUL	26	1927.6		52	4031.8

$$*MDL = \frac{\text{Monthly mean landings}}{\text{Number of days in month}}.$$

$$**MWL = MDL \times 7.$$

Appendix II Table 2.--The 1981 weekly State skipjack tuna landings.

MONTH	LANDINGS	NUMBER OF DAYS IN MONTH	DAILY LANDINGS (DL) *	WEEKLY LANDINGS (WL) **		MONTH	WK	CUM. WEEKLY LANDINGS	MONTH	WK	CUM. WEEKLY LANDINGS
JAN	37.7	31	1.22	8.5		JAN	1	8.5		27	1141.0
							2	17.0		28	1250.1
FEB	37.1	28	1.32	9.3			3	25.5		29	1359.2
							4	37.7		30	1405.9
MAR	98.1	31	3.16	22.2		FEB	5	47.0	AUG	31	1481.0
							6	56.2		32	1556.0
APR	170.2	30	5.67	39.7			7	65.5		33	1631.1
							8	74.8		34	1738.3
MAY	212.1	31	6.84	47.9		MAR	9	97.0	SEP	35	1785.7
							10	119.1		36	1833.0
JUN	367.7	30	12.26	85.8			11	141.3		37	1880.4
							12	172.9		38	1927.8
JUL	483.0	31	15.58	109.1		APR	13	212.6		39	1941.3
							14	252.3	OCT	40	1961.6
AUG	332.4	31	10.72	75.1			15	292.0		41	1982.0
							16	331.8		42	2002.3
SEP	203.0	30	6.77	47.4			17	343.1		43	2031.4
						MAY	18	391.0	NOV	44	2045.9
OCT	90.1	31	2.91	20.3			19	438.9		45	2060.3
							20	486.8		46	2074.8
NOV	62.0	30	2.07	14.5			21	555.2		47	2093.4
						JUN	22	641.0	DEC	48	2116.2
DEC	100.8	31	3.25	22.8			23	726.8		49	2138.9
							24	812.6		50	2161.7
							25	922.9		51	2184.4
						JUL	26	1032.0		52	2194.2

$$*MDL = \frac{\text{Monthly landings}}{\text{Number of days in month}}.$$

$$**WL = DL \times 7.$$

Appendix II Worksheet 1.--The 1982 estimated statewide skipjack tuna landings by week.*

	TBOC BOATS					POUNDS		METRIC TONS	
WEEK	POUNDS	METRIC TONS				ESTIMATED TOTAL STATE LANDINGS	CUM. EST. TOTAL STATE LANDINGS	EST. TOTAL STATE LANDINGS	CUM. EST. TOTAL STATE LANDINGS
1	31636	14.4				44673	44673	20.3	20.3
2	22557	10.2				31853	76526	14.4	34.7
3	34290	15.6				48421	124947	22.0	56.7
4	27853	12.6				39331	164278	17.8	74.5
5	8658	3.9				12226	176504	5.5	80.0
6	13447	6.1				18989	195493	8.6	88.7
7	605	0.3				854	196347	0.4	89.1
8	19515	8.9				27557	223904	12.5	101.6
9	14234	6.5				20100	244004	9.1	110.7
10	33774	15.3				47692	291696	21.6	132.3
11	9888	4.5				13961	305657	6.3	138.6
12	12573	5.7				17756	323413	8.1	146.7
13	14669	6.7				20714	344127	9.4	156.1
14	21547	9.8				30427	374554	13.8	169.9
15	14662	6.7				20704	395258	9.4	179.3
16	39656	18.0				55996	451254	25.4	204.7
17	30755	14.0				43429	494683	19.7	224.4
18	35322	16.0				49880	544563	22.6	247.0
19	55782	25.3				78776	623339	35.7	282.7
20	45404	20.6				64115	687448	29.1	311.8
21	53827	24.4				76009	763457	34.5	346.3
22	43799	19.9				61849	825306	28.1	374.4
23	134027	60.8				216036	1041342	98.0	472.4
24	113333	51.4				191276	1232618	86.8	559.2
25	126025	57.2				209199	1441817	94.9	654.0
26	129132	58.6				213586	1655403	96.9	750.9
27	90473	41.0				158420	1813823	71.9	822.8
28	92037	41.7				160196	1974019	72.7	895.4
29	108599	49.3				183584	2157603	83.3	978.7
30	116311	52.8				194474	2352077	88.2	1066.9
31	144326	65.5				234034	2586111	106.2	1173.1
32	88721	40.2				155514	2741625	70.5	1243.6
33	20245	9.2				58819	2800444	26.7	1270.3
34	93665	42.5				162495	2962939	73.7	1344.0
35	45605	20.7				94630	3057569	42.9	1386.9
36	49014	22.2				100163	3157732	45.4	1432.3
37	68935	31.3				128582	3286314	58.3	1490.7
38	37490	17.0				86508	3372822	39.2	1530.0
39	32591	14.8				77260	3450082	35.0	1565.0
40									
41									
42									
43									
44									

*Use TBOC vessel landings only.

Appendix II Worksheet 1.--Continued.

	TBOC BOATS					POUNDS		METRIC TONS	
WEEK	POUNDS	METRIC TONS				ESTIMATED TOTAL STATE LANDINGS	CUM. EST. TOTAL STATE LANDINGS	EST. TOTAL STATE LANDINGS	CUM. EST. TOTAL STATE LANDINGS
45									
46									
47									
48									
49									
50									
51									
52									

Appendix II Worksheet 2.--The 1982 worksheet to obtain monthly catch/effort, size composition, and landings estimates information.*

MONTH	WEEK	DATES	DAYS FISHING	LARGE	MEDIUM	SMALL	EXTRA SMALL	TOTAL	CUM. TOTAL
Jan	1	1-3	0	0	0	0	0	0	0
	2	4-10	8	2630	8741	10587	599	22557	22557
	3	11-17	22	3523	23712	7196	859	34290	56847
	4	18-24	12	5387	16748	4724	994	27853	84700
	5	25-31	9	75	3492	4419	672	8658	93358
			51	10615	52693	26926	3124	93358	
	Monthly Landings Estimate (MLE) = 1.4121(93358) + 0(133880) =								131831 lbs
								=	59.8 MT
	Cumulative Montly Landings Estimate (CMLE)							=	131831 lbs
								=	59.8 MT
Feb	6	1-7	16	4784	3614	3877	1172	13447	13447
	7	8-14	3	0	110	495	0	605	14052
	8	15-21	15	138	5878	9303	4196	19515	33567
	9	22-28	13	3472	1760	1551	7451	14234	47801
			47	8394	11362	15226	12819	47801	
	MLE = 1.4121(47801) + 0(133880) =								67500 lbs
								=	30.6 MT
							CMLE	=	199331 lbs
								=	90.4 MT
Mar	10	1-7	19	2691	9594	11367	10122	33774	33774
	11	8-14	11	49	1594	2023	6222	9888	43662
	12	15-21	18	0	3972	3062	5539	12573	56235
	13	22-28	10	151	7253	5317	1448	14669	70904
	14	29-31	11	127	6024	3194	1002	10347	81251
			69	3018	28937	24963	24333	81251	
	MLE = 1.4121(81251) + 0(133880) =								114735 lbs
								=	52.0 MT
							CMLE	=	314066 lbs
								=	142.5 MT
Apr	14	1-4	10	112	5162	4316	1610	11200	11200
	15	5-11	23	430	2254	1426	10552	14662	25862

*Use TBOC vessel landings only.

Appendix II Worksheet 2.--Continued.

MONTH	WEEK	DATES	DAYS FISHING	LARGE	MEDIUM	SMALL	EXTRA SMALL	TOTAL	CUM. TOTAL
Apr	16	12-18	22	1120	21157	10379	7000	39656	65518
	17	19-25	20	3410	12917	5333	9095	30755	96273
	18	26-30	17	2340	5409	5518	10251	23518	119791
			92	7412	46899	26972	38508	119791	
					MLE = 1.4121 (119791) + 0 (133880)			=	169157 lb
								=	76.7 MT
							CMLE	=	483223 lb
								=	219.2 MT
May	18	1-2	5	913	2592	4857	3037	11804	11804
	19	3-9	25	6043	19604	21730	8405	55782	67586
	20	10-16	22	8960	11941	13825	10678	45404	112990
	21	17-23	25	17313	6120	18035	12359	53827	166817
	22	24-30	29	10333	6370	14191	12905	43799	210616
	23	31	6	4464	316	1801	3948	10529	221145
			112	48026	47348	74439	51332	221145	
					MLE = 1.4121 (221145) + 0 (133880)			=	312279 lb
								=	141.6 MT
							CMLE	=	795502 lb
								=	360.8 MT
Jun	23	1-6	24	101570	727	12998	8202	123498	123498
	24	7-13	30	95253	9671	6391	2018	113333	236831
	25	14-20	23	110442	790	4899	9894	126025	362856
	26	21-27	27	96012	6843	22137	4140	129132	491988
	27	28-30	13	13948	11146	35513	11823	72430	564418
			117	417225	29177	81939	36077	564418	
					MLE = 1.4121 (564418) + 1 (133880)			=	930895 lb
								=	422.3 MT
							CMLE	=	1726397 lb
								=	783.1 MT
Jul	27	1-4	9	3069	3547	9117	2370	18043	18043
	28	5-11	21	51594	5872	21484	13087	92037	110080

Appendix II Worksheet 2.--Continued.

MONTH	WEEK	DATES	DAYS FISHING	LARGE	MEDIUM	SMALL	EXTRA SMALL	TOTAL	CUM. TOTAL
Jul	29	12-18	25	58432	13566	26564	10037	108599	218679
	30	19-25	25	75896	11613	18562	10240	116311	334990
	31	26-31	20	112090	4700	8082	13791	138663	473653
			100	301021	39298	83809	49525	473653	
				MLE =	1.4121 (473653) +	1 (133880)		=	802725 lb
								=	364.1 MT
							CMLE	=	2529122 lb
								=	1147.2 MT
Aug	31	1	1	0	2328	2786	349	5663	5663
	32	2-8	22	65001	2395	10974	10351	88721	94384
	33	9-15	9	230	3396	5142	11477	20245	114629
	34	16-22	26	57486	6144	15933	14102	93665	208294
	35	23-29	16	37137	0	1952	6516	45605	253899
	36	30-31	4	2742	111	1383	1870	6106	260005
			78	162596	14574	38170	44665	260005	
				MLE =	1.4121 (260005) +	1 (133880)		=	501033 lb
								=	2273 MT
							CMLE	=	3030155 lb
								=	1374.5 MT
Sep	36	1-5	21	18082	2711	12523	9592	42908	42908
	37	6-12	23	19145	17388	25091	7311	68935	111843
	38	13-19	23	22066	2584	6487	6353	37490	149333
	39	20-26	14	2925	5883	10066	13717	32591	181924
	40	27-30							
				MLE =	1.4121 ( ) +	1 (133880)		=	lb
								=	MT
							CMLE	=	lb
								=	MT
Oct	40	1-3							
	41	4-10							

Appendix II Worksheet 2.--Continued.

MONTH	WEEK	DATES	DAYS FISHING	LARGE	MEDIUM	SMALL	EXTRA SMALL	TOTAL	CUM. TOTAL
Oct	42	11-17							
	43	18-24							
	44	25-31							
				MLE =	1.4121 (	) +	0 (133880)	=	[illegible]
								=	MT
							CMLE	=	[illegible]
								=	MT
Nov	45	1-7							
	46	8-14							
	47	15-21							
	48	22-28							
	49	29-30							
				MLE =	1.4121 (	) +	0 (133880)	=	[illegible]
								=	MT
							CMLE	=	[illegible]
								=	MT
Dec	49	1-5							
	50	6-12							
	51	13-19							
	52	20-26							
	1 (83)	27-31							
				MLE =	1.4121 (	) +	0 (133880)	=	[illegible]
								=	MT
							CMLE	=	[illegible]
								=	MT

Appendix II Form 1.--Aku boat landings at Hawaiian Tuna Packers.

AKU BOAT LANDINGS AT HAWAIIAN TUNA PACKERS

ROW	1 2 CONTROL	10 11 LANDING DAY	12 13 LANDING MONTH	14 15 LANDING YEAR	4 5 BOAT	16 17 18 19 TIME	23 24 25 26 27 WEIGHT IN WHOLE POUNDS LARGE	30 31 32 33 34 WEIGHT IN WHOLE POUNDS MEDIUM	38 39 40 41 42 WEIGHT IN WHOLE POUNDS SM.-MEDIUM	45 46 47 48 49 WEIGHT IN WHOLE POUNDS SMALL	54 55 56 57 58 WEIGHT IN WHOLE POUNDS EXTRA SMALL	60 61 62 63 64 BOAT TOTAL	67 68 69 AREA OF CATCH	71 72 * RATIO	76 77 SCH.	79 80 ACT.
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
13																
14																
15																
16																
17																
18																
19																
20																
21																
22																
23																
24																

* RATIO IF FISH WERE MEASURED

Vessel code:
(Columns 4-5)

50 Amberjack
51 Angel
52 Bluefin
53 Bonito
54 Broadbill
55 Buccaneer
56 Constance C
57 Corsair
58 Darling Dot
59 Dolphin
60 Electa
61 Holokahana II
62 Kilohana
63 Makanani
64 Marlin
65 Momi
66 Neptune
67 Olympic
68 Orion
69 Sailfish
70 Sea Queen
71 Skipjack
72 Sooty Tern
73 Sunfish
74 Tradewind
75 Yellowfin

School size:
(Columns 76-77)

Put the number of schools in as given by boat. If the number is unknown, use 99.

Activity code:
(Columns 79-80)

01 Length frequencies
02 Length frequencies, weights, stomachs, and gonads
03 Length frequencies and blood
04 Blood

05 Boat landed before working hours
06 Boat landed after working hours
07 Boat landed on a weekend or holiday
08 Boat landed fish at another port
09 Boat with fish from an outside island
10 Missed boat because of work with another boat
11 Water fish
12 Other reasons; reason listed on original data sheet
13 Split catch; fish wholesalers take part of catch before work can be done
14 United Fishing Agency; no work possible; exact weight of catch
15 United Fishing Agency; no work possible; estimate of total catch
16 United Fishing Agency; no work possible; Bumble Bee Seafoods, Inc. weight (cannery fish only)
17 Catch too small to get data from
18 Fish wrong size to bleed

Ratio code
(Columns 71-72)

01 All
02 1/2
03 1/3
04 1/4
05 1/5
06 1/10
07 1/15
08 1/20
09 1/25
10 50 fish
11 Other; on Remarks column

ROW	REMARKS

Appendix II Form 2.--Weekly skipjack tuna report.

Date _____

I. Cannery Landings

Total Landings _____ Metric Tons

Trips: Effective ____

Zero-catch ____

Total ____

Landings Per Trip _____ Metric Tons *

Size Composition: *

	Metric Tons	Percent
Large	_____	_____
Medium	_____	_____
Small	_____	_____
Extra Small	_____	_____

Comments: _____

_____

II. Statewide Estimations **

The estimated total State landings last week was _____ metric tons (MT), bringing the cumulative landings to date to _____ MT. This is _____ MT ABOVE BELOW the long-term average (19__-__) for the same period and _____ MT ABOVE BELOW last year's landings.

---

* Based solely on TBOC vessel trips and landings. UFA returns to cannery are excluded.

** Current-year estimate and last-year comparison figure based on regression of Hawaii Division of Aquatic Resources reported catch on TBOC cannery landings. Long-term comparison figure based solely on Aquatic Resources reported catch.

Appendix II Form 3.--Monthly skipjack tuna landings report.

MONTH _____ YEAR _____

I. Cannery Landings

Landings of Oahu-based vessels ranged from _____ to _____ metric tons (MT); their landings per trip was _____ MT. *

Landings shipped to the tuna cannery from neighboring islands were:

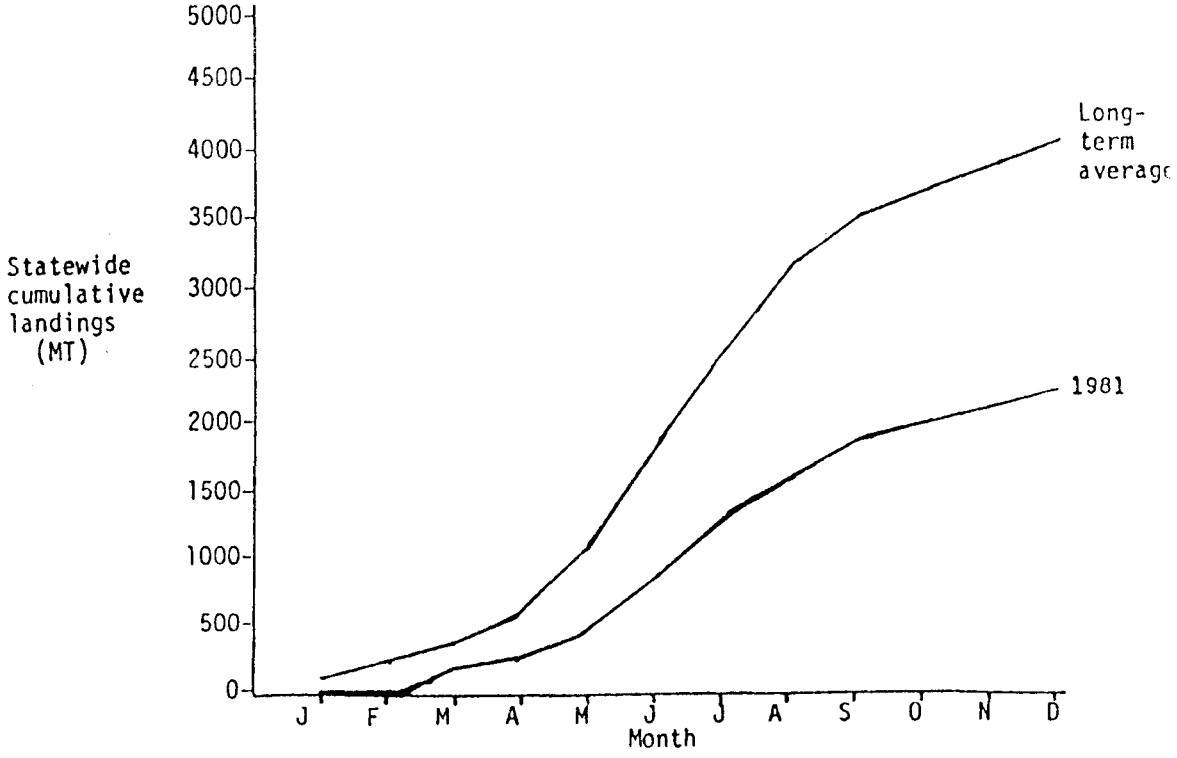
Hawaii _____ Maui _____ Unidentified _____

Size Composition (Percent) *

Large (6.8 kg) ___ Medium (3.6-6.8 kg) ___ Small (1.8-3.6 kg) ___ Extra small (1.8 kg) ___

II. Statewide Estimations **

The Hawaii landings of skipjack tuna during _____ were estimated at ____ MT, which is ____ MT ABOVE BELOW the landings for the same period last year and ____ MT ABOVE BELOW the 19___-___ long term average for the same period. The cumulative landings from January through _____ were estimated at _____ MT, which is _____ MT ABOVE BELOW last year's cumulative landings for the same period and _____ MT ABOVE BELOW the 19___-___ long term average for the same period.



* Based solely on TBOC vessel trips and landings. UFA returns to cannery are excluded.
** Current-year estimate and last-year comparison figure based on regression of Hawaii Division of Aquatic Resources reported catch on TBOC cannery landings. Long-term comparison figure based solely on Aquatic Resources reported catch.

Appendix II Form 4

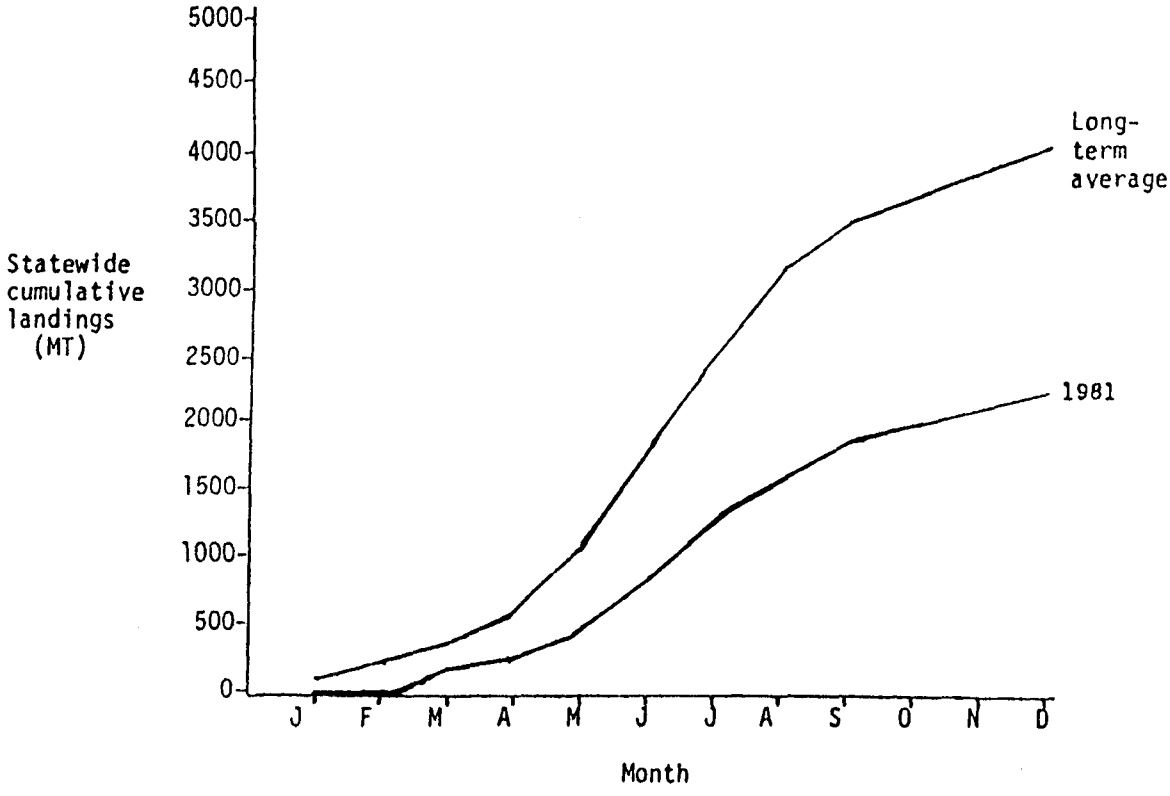


Figure 1.--Cumulative landings in the Hawaiian skipjack tuna fishery.

Appendix III

Computer Program 1

```
//HTPFG JOB (1078,9M,9KI,187F),'GARY KAMER',REGION=700K
// EXEC SETUP
//SYSIN DD *
V=X21811,T=X21811,SZ=H,NORING
V=X21861,T=X21861,SZ=H,NORING
/*
// EXEC SAS,SORT=30,WORK=30
//SAVE DD DSN=T010780.HTPFG,UNIT=TSSDA1,DISP=SHR
*THIS COMPUTER PROGRAM WAS WRITTEN BY GARY KAMER, STATISTICIAN FOR
*THE NATIONAL MARINE FISHERIES SERVICE, SOUTHWEST FISHERIES CENTER,
*HONOLULU LABORATORY.  THIS PARTICULAR FORM OF THIS PROGRAM WAS
*COMPLETED ON 10/18/82 AND IS USED FOR UPDATING THE DATA USED IN THE
*PREPARATION OF THE WEEKLY AND MONTHLY SKIPJACK TUNA REPORTS.
;
DATA HTP1;INFILE OUT1;
*READ DATA COLLECTED FROM HAWAIIAN TUNA PACKERS (ON TAPE).
;
INPUT BOAT 3-4 DAY 5-6 MONTH 7-8 YEAR 9-10 LG 16-20 MED 21-25
SMED 26-30 SML 31-35 XSML 36-40;
*PROCEDURE TO EXCLUDE UFA BOAT LANDINGS.
;
IF BOAT NE 0 AND BOAT NE . AND BOAT NE 34 AND BOAT NE 51 AND
BOAT NE 62;
IF MONTH NE . AND YEAR NE .;
YRMTHDAY=10000*YEAR+100*MONTH+DAY;
IF BOAT=41 AND YRMTHDAY GE 790821 THEN DELETE;
IF BOAT=72 AND YRMTHDAY GE 791006 THEN DELETE;
IF LG=. THEN LG=0;
IF MED=. THEN MED=0;
IF  SMED=. THEN SMED=0;
IF SML=. THEN SML=0;
IF XSML=. THEN XSML=0;
*CALCULATE TOTAL LANDINGS.
;
HCATLB=LG+MED+SMED+SML+XSML;
*CREATE MONTHLY SUMMARY.
;
PROC SORT DATA=HTP1;BY YEAR MONTH;
PROC MEANS SUM DATA=HTP1 NOPRINT;VAR HCATLB;BY YEAR MONTH;
OUTPUT OUT=HTP2 SUM=HCATLB;
*READ DATA FROM HDAR (ON TAPE).
;
DATA FG1;INFILE OUT2;
INPUT MONTH 1-2 YEAR 3-4 SPECIES 5-9 FCATLB 10-19;
*LIMIT TO SKIPJACK TUNA.
;
IF SPECIES=1001;
IF FCATLB=. THEN FCATLB=0;
*CREATE MONTHLY SUMMARY.
;
PROC SORT DATA=FG1;BY YEAR MONTH;
PROC MEANS SUM DATA=FG1 NOPRINT;VAR FCATLB;BY YEAR MONTH;
OUTPUT OUT=FG2 SUM=FCATLB;
PROC SORT DATA=HTP2;BY YEAR MONTH;
PROC SORT DATA=FG2;BY YEAR MONTH;
*MERGE TWO PRIOR MONTHLY SUMMARIES.
;
DATA HTPFG1;MERGE HTP2 FG2;BY YEAR MONTH;
```

Appendix III Computer Program 1.--Continued.

```
*CREATE DUMMY VARIABLES FOR MONTH.
;
IF MONTH=1 THEN M1=1;ELSE M1=0;
IF MONTH=2 THEN M2=1;ELSE M2=0;
IF MONTH=3 THEN M3=1;ELSE M3=0;
IF MONTH=4 THEN M4=1;ELSE M4=0;
IF MONTH=5 THEN M5=1;ELSE M5=0;
IF MONTH=6 THEN M6=1;ELSE M6=0;
IF MONTH=7 THEN M7=1;ELSE M7=0;
IF MONTH=8 THEN M8=1;ELSE M8=0;
IF MONTH=9 THEN M9=1;ELSE M9=0;
IF MONTH=10 THEN M10=1;ELSE M10=0;
IF MONTH=11 THEN M11=1;ELSE M11=0;
PROC SORT DATA=HTPFG1;BY MONTH;
*CREATE AVERAGE LANDINGS FOR EACH MONTH OVER ALL YEARS.
;
PROC MEANS MEAN DATA=HTPFG1 NOPRINT;VAR HCATLB FCATLB;
BY MONTH;OUTPUT OUT=HTPFG2 MEAN=AVHCATLB AVFCATLB;
PROC SORT DATA=HTPFG1;BY MONTH;
PROC SORT DATA=HTPFG2;BY MONTH;
*MERGE MONTHLY SUMMARY AND AVERAGE LANDINGS VALUES.
;
DATA HTPFG3;MERGE HTPFG1 HTPFG2;BY MONTH;
PROC SORT DATA=HTPFG3;BY YEAR MONTH;
DATA;SET HTPFG3;
*PRINT FINAL DATA SET.
;
FILE PRINT;
PUT YEAR 1-2 MONTH 3-4 M1 5-6 M2 7-8 M3 9-10 M4 11-12 M5 13-14
M6 15-16 M7 17-18 M8 19-20 M9 21-22 M10 23-24 M11 25-26 HCATLB 31-40
FCATLB 41-50 AVHCATLB 51-60 AVFCATLB 61-70;
*SAVE FINAL DATA SET.
;
FILE SAVE;
PUT YEAR 1-2 MONTH 3-4 M1 5-6 M2 7-8 M3 9-10 M4 11-12 M5 13-14
M6 15-16 M7 17-18 M8 19-20 M9 21-22 M10 23-24 M11 25-26 HCATLB 31-40
FCATLB 41-50 AVHCATLB 51-60 AVFCATLB 61-70;
*CALCULATE DATA NEEDED FOR UPDATING TABLE 1.
;
DATA HTPFG4;SET HTPFG3;
AMFCATMT=.0004536*FCATLB;AMFCATLB=FCATLB;
KEEP MONTH AMFCATMT AMFCATLB;
PROC SORT DATA=HTPFG4;BY MONTH;
PROC MEANS MEAN DATA=HTPFG4;BY MONTH;
//OUT1          DD UNIT=(XTRK,,DEFER),VOL=SER=X21811,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=65,BLKSIZE=6500,DEN=3),
// LABEL=(1,SL,,IN),DSN=CD361964
//              DD UNIT=(XTRK,,DEFER),VOL=SER=X21811,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=65,BLKSIZE=6500,DEN=3),
// LABEL=(2,SL,,IN),DSN=CD361965
//              DD UNIT=(XTRK,,DEFER),VOL=SER=X21811,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=65,BLKSIZE=6500,DEN=3),
// LABEL=(3,SL,,IN),DSN=CD361966
//              DD UNIT=(XTRK,,DEFER),VOL=SER=X21811,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=65,BLKSIZE=6500,DEN=3),
// LABEL=(4,SL,,IN),DSN=CD361967
//              DD UNIT=(XTRK,,DEFER),VOL=SER=X21811,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=65,BLKSIZE=6500,DEN=3),
```

Appendix III Computer Program 1.--Continued.

```
// LABEL=(5,SL,,IN),DSN=CD361968
//              DD UNIT=(XTRK,,DEFER),VOL=SER=X21811,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=65,BLKSIZE=6500,DEN=3),
// LABEL=(6,SL,,IN),DSN=CD361969
//              DD UNIT=(XTRK,,DEFER),VOL=SER=X21811,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=65,BLKSIZE=6500,DEN=3),
// LABEL=(7,SL,,IN),DSN=CD361970
//              DD UNIT=(XTRK,,DEFER),VOL=SER=X21811,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=65,BLKSIZE=6500,DEN=3),
// LABEL=(8,SL,,IN),DSN=CD361971
//              DD UNIT=(XTRK,,DEFER),VOL=SER=X21811,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=65,BLKSIZE=6500,DEN=3),
// LABEL=(9,SL,,IN),DSN=CD361972
//              DD UNIT=(XTRK,,DEFER),VOL=SER=X21811,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=65,BLKSIZE=6500,DEN=3),
// LABEL=(10,SL,,IN),DSN=CD361973
//              DD UNIT=(XTRK,,DEFER),VOL=SER=X21811,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=65,BLKSIZE=6500,DEN=3),
// LABEL=(11,SL,,IN),DSN=CD361974
//              DD UNIT=(XTRK,,DEFER),VOL=SER=X21811,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=65,BLKSIZE=6500,DEN=3),
// LABEL=(12,SL,,IN),DSN=CD361975
//              DD UNIT=(XTRK,,DEFER),VOL=SER=X21811,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=65,BLKSIZE=6500,DEN=3),
// LABEL=(13,SL,,IN),DSN=CD361976
//              DD UNIT=(XTRK,,DEFER),VOL=SER=X21811,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=65,BLKSIZE=6500,DEN=3),
// LABEL=(14,SL,,IN),DSN=CD361977
//              DD UNIT=(XTRK,,DEFER),VOL=SER=X21811,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=65,BLKSIZE=6500,DEN=3),
// LABEL=(15,SL,,IN),DSN=CD361978
//              DD UNIT=(XTRK,,DEFER),VOL=SER=X21811,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=65,BLKSIZE=6500,DEN=3),
// LABEL=(16,SL,,IN),DSN=CD361979
//OUT2          DD UNIT=(XTRK,,DEFER),VOL=SER=X21861,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=8000,DEN=3),
// LABEL=(16,SL,,IN),DSN=FG1964
//              DD UNIT=(XTRK,,DEFER),VOL=SER=X21861,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=8000,DEN=3),
// LABEL=(17,SL,,IN),DSN=FG1965
//              DD UNIT=(XTRK,,DEFER),VOL=SER=X21861,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=8000,DEN=3),
// LABEL=(18,SL,,IN),DSN=FG1966
//              DD UNIT=(XTRK,,DEFER),VOL=SER=X21861,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=8000,DEN=3),
// LABEL=(19,SL,,IN),DSN=FG1967
//              DD UNIT=(XTRK,,DEFER),VOL=SER=X21861,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=8000,DEN=3),
// LABEL=(20,SL,,IN),DSN=FG1968
//              DD UNIT=(XTRK,,DEFER),VOL=SER=X21861,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=8000,DEN=3),
// LABEL=(21,SL,,IN),DSN=FG1969
//              DD UNIT=(XTRK,,DEFER),VOL=SER=X21861,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=8000,DEN=3),
// LABEL=(22,SL,,IN),DSN=FG1970
//              DD UNIT=(XTRK,,DEFER),VOL=SER=X21861,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=8000,DEN=3),
// LABEL=(23,SL,,IN),DSN=FG1971
```

Appendix III Computer Program 1.--Continued.

```
//                DD UNIT=(XTRK,,DEFER),VOL=SER=X21861,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=8000,DEN=3),
// LABEL=(24,SL,,IN),DSN=FG1972
//                DD UNIT=(XTRK,,DEFER),VOL=SER=X21861,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=8000,DEN=3),
// LABEL=(25,SL,,IN),DSN=FG1973
//                DD UNIT=(XTRK,,DEFER),VOL=SER=X21861,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=8000,DEN=3),
// LABEL=(26,SL,,IN),DSN=FG1974
//                DD UNIT=(XTRK,,DEFER),VOL=SER=X21861,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=8000,DEN=3),
// LABEL=(27,SL,,IN),DSN=FG1975
//                DD UNIT=(XTRK,,DEFER),VOL=SER=X21861,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=8000,DEN=3),
// LABEL=(28,SL,,IN),DSN=FG1976
//                DD UNIT=(XTRK,,DEFER),VOL=SER=X21861,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=8000,DEN=3),
// LABEL=(29,SL,,IN),DSN=FG1977
//                DD UNIT=(XTRK,,DEFER),VOL=SER=X21861,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=8000,DEN=3),
// LABEL=(30,SL,,IN),DSN=FG1978
//                DD UNIT=(XTRK,,DEFER),VOL=SER=X21861,DISP=(OLD,PASS),
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=8000,DEN=3),
// LABEL=(31,SL,,IN),DSN=FG1979
/*
//
```

Appendix III

Computer Program 2

```
//HTPFG JOB (1078,3M,SKI,187F),'GARY KAMER',REGION=500K
// EXEC SHAZAM
//DATA DD DSN=T010780.HTPFG,DISP=SHR
* THIS COMPUTER PROGRAM WAS WRITTEN BY GARY KAMER, STATISTICIAN FOR
* THE NATIONAL MARINE FISHERIES SERVICE, SOUTHWEST FISHERIES CENTER,
* HONOLULU LABORATORY.  THIS PARTICULAR FORM OF THIS PROGRAM WAS
* COMPLETED ON 10/18/82 AND MAKES USE OF THE SHAZAM ECONOMETRICS
* PACKAGE IN PERFORMING REGRESSION ANALYSIS.
SOLOMON 19 192 STATEWIDE SKIPJACK TUNA ESTIMATIONS
* REQUEST CROSS-PRODUCT, CORRELATION, AND CO-VARIANCE MATRICES AND
* REQUEST DOUBLE PRECISSION.
10 CP CR CV DP
* NAME VARIABLES.
NAME 1 JANUARY 2 FEBRUARY 3 MARCH 4 APRIL 5 MAY 6 JUNE 7 JULY 8 AUGUST
NAME 9 SEPTEMBR 10 OCTOBER 11 NOVEMBER 12 HTPCATCH 13 FGCATCH
NAME 14 AVHCATLB 15 AVFCATLB 16 ADHCATLB 17 ADFCATLB 18 ONSEASON
* CREATE NEW VARIABLES FOR USE IN REGRESSION.
GENR X16=X12-X14
GENR X17=X13-X15
GENR X18=X6+X7+X8+X9
* READ DATA FROM DSN=T010780.HTPFG.
DATA FILE(4X,11F2.0,4X,4F10.0)
* PERFORM REGRESSIONS.
OLS 13 12 1 2 3 4 5 6 7 8 9 10 11/FC MAX
OLS  13 12 18/FC MAX
AUTO 13 12 18/FC MAX UT
MERCURY
/*
//
```

Appendix IV

Data Set Name is T010780.HTPFG

Variable name	Variable description	Column (right-justified)
Year	Year of catch	1-2
Month	Month of catch	3-4
M1	Dummy variable--1 if month is January, 0 otherwise	5-6
M2	Dummy variable--1 if month is February, 0 otherwise	7-8
M3	Dummy variable--1 if month is March, 0 otherwise	9-10
M4	Dummy variable--1 if month is April, 0 otherwise	11-12
M5	Dummy variable--1 if month is May, 0 otherwise	13-14
M6	Dummy variable--1 if month is June, 0 otherwise	15-16
M7	Dummy variable--1 if month is July, 0 otherwise	17-18
M8	Dummy variable--1 if month is August, 0 otherwise	19-20
M9	Dummy variable--1 if month is September, 0 otherwise	21-22
M10	Dummy variable--1 if month is October, 0 otherwise	23-24
M11	Dummy variable--1 if month is November, 0 otherwise	25-26
HCATLB	Monthly TBOC vessel landings in pounds	31-40
FCATLB	Monthly catch in pounds as reported to the HDAR	41-50
AVHCATLB	Average TBOC vessel landings in pounds over all years for that month	51-60
AVFCATLB	Average catch in pounds over all years for that month as reported to the HDAR	61-70