

SOUTHWEST FISHERIES CENTER

NATIONAL MARINE FISHERIES SERVICE

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April 1984

A SUMMARY OF THE STUDY A COST EARNINGS STUDY OF THE LONGLINE AND HANDLINE FISHING FLEETS IN HAWAII

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A SUMMARY OF THE SURVEY

A COST EARNINGS STUDY OF THE LONGLINE AND
HANDLINE FISHING FLEETS IN HAWAII

Contract Number: 81-ABC-00267

Prepared for:

National Marine Fisheries Service

Prepared by:

Hawaii Opinion, Inc.
March, 1984

PREFACE

This report was prepared under contract (81-ABC-00267) by Hawaii Opinion, Inc. of Honolulu, Hawaii. The purpose of the project was to compile current financial and operating information on Hawaii's longline and handline fleets. This report presents the results from the field survey of these fleets. Another report will present an economic analysis of fleet operations.

The longline fleet has been frequently studied in Hawaii. This report presents new and updated information on the subject but the results cannot be considered comprehensive. Hawaii's longline fleet is undergoing significant changes, including a number of new operators, new types of vessels, and new operating patterns. This report concentrates on the more traditional sampan style of longline fishing.

On the other hand, the handline fleets in Hawaii have seldom been studied. This report marks a major advance in knowledge about deep-sea handline fishing for bottom fish and large tunas. One hundred vessel owners, representing a wide cross section of the fleets, were interviewed. The study emphasized vessels which operate in the main Hawaiian Islands, as compared with those which operate in the Northwestern Hawaiian Islands. As such, the report concentrates on a mode of fishing which has become increasingly attractive and accessible to local commercial and part-time fishers.

Collecting cost and revenue information from a wide spectrum of vessel classes is a difficult process. Hawaii Opinion, Inc. took appropriate precautions to insure unbiased and reliable results in their survey. However, readers should utilize the results with care. As usual, the statements, findings, conclusions, and recommendations represented by this report are those of the contractor and do not necessarily represent the views of the National Marine Fisheries Service.

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Industry Economist

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I. INTRODUCTION

Since the early 1970's there has been an increasing interest in the the state's fisheries, and various government agencies have taken an active role in promoting their growth and development. Hawaii Opinion, Inc., was contracted by the U. S. Department of Commerce, NOAA, National Marine Fisheries Service (NMFS) for a cost earnings study of the longline and handline fishing fleets in Hawaii, as a means to better understand fiscal and other concerns of these fisheries and to project the financial impacts of various management policies on individual longline and handline fishermen.

The methodology used to collect data for this study was an in-person survey of most longline captains or boat owners on Oahu, and subsequent in-person interviews with 100 handline fishermen throughout the state. The data were used to create prototypes of each fishery in order to test a number of management and development policies as they impact on these fisheries. This report describes the survey component of the research in detail, and includes relevant materials documenting the conduct of the research along with narrative writeups of responses to selected questions. Although similar in many respects, the longline and handline surveys contain sufficient differences that each will be treated separately in this report. The following pages present the detailed work plan which guided the longline and handline surveys from initial preparation through final reporting.

II. DETAILED WORK PROGRAM

RFP Response

- . Review RFP to analyze issue and make preliminary assessment of information needs
- . Review relevant existing information to corroborate preliminary assessments
- . Draw preliminary work plan, sampling frame, questionnaire for proposal
- . Consult with client on proposal, adjust as necessary for approval

Project Development

- . Finalize questionnaire
- . Sample frames (develop vessel inventory)
- . Detail preliminary supplemental information needs
- . Consult with sub-contractors to assign work items
- . Coordinate with client on introductory letter to respondents
- . Hire and train interviewers, researchers; develop fielding program
- . Pretest questionnaire
- . Consult with client and adjust as necessary

Data Gathering

- . Print questionnaire
- . Mail introductory letter to respondents
- . Conduct interviews in sampled fisheries, as vessel inventory is completed (longline first, then full-time handlines)
 1. longline ahi
 2. handline bottomfish palu ahi
 3. handline tuna night-fishing ika-sibi
 4. part-time handline palu ahi and ika-sibi

Data Gathering (cont.)

- . Begin supplemental information gathering:
 - a) fuel, bait, ice prices
 - b) vessel sale listings
 - c) licenses and fees (excise, commercial fishing, boat registration, moorage, unloading, auction)

Processing

- . Edit and code interviews (by batch)
- . Program interview processing
- . Clean program run, process data (by batch)
- . Establish results
- . Develop unified data base (with questionnaire results and supplemental information)

Reporting

- . Develop drafts of historical trends and economic performance as information is collected
- . As information gathering is completed and analyzed, pre-finalize drafts of historical trends and economic performance
- . Consult with client on format, coverage, and consistency
- . Submit pre-final report of all three components
- . Print and deliver 35 copies of final report

III. LONGLINE SURVEY

The longline tuna fishery is Hawaii's second most important commercial pelagic fishery. In this survey of Oahu longliners, trained Hawaii Opinion interviewers were directed to interview captains and owners of longline vessels. A review of the preparation for and execution of this survey follows.

Sample

The sample for the longline survey was provided by NMFS staff. A total of 38 vessel names and owners represented the universe for the study and was assumed to contain all members of Oahu's longline fleet. This included both "flagline," part-time, and small scale vessels using modified longline gear.

Survey Instrument

The survey instrument (attached) for the longline survey was developed cooperatively by staff members at NMFS and Hawaii Opinion, with NMFS contributing detailed information concerning the fishery and Hawaii Opinion providing direction in format and design. The survey instrument was divided into six major component parts:

- . vessel information
- . trip data
- . crew and wages
- . catch and revenue
- . costs
- . demographics

Tables reporting key variables in each group are appended to this report.

Vessel Information

This section was designed to collect basic descriptive information on the boat itself, as well as ownership arrangements and sources of original financing.

Trip Data. This section describes fishing trip movement during the previous year. Busy and slow months, length of trips and distance to fishing grounds were reported as average figures. Respondents were also asked to describe a typical trip, step by step. Interviewers recorded the answers verbatim, and prompted respondents to cover all of the key items outlined for them in the survey instrument.

Crew and Wages. Typical crew size and wage/percentage-of-catch payment questions were asked.

Catch and Revenue. For six selected species of fish plus any other species for which there was a substantial catch, data were collected on the size of catch, pounds sold and revenue for the past year. Respondents were also asked about where the catch is landed and how it is sold.

Costs. An itemized account of fixed and variable costs to operate the boat and conduct business as a longliner. Included in this section were three openended questions which asked the respondent to describe changes in the nature of the fishery and problems evident in the longline fishery today.

Demographics. Basic demographic information concerning the respondent's income, extent of involvement in longlining, age, sex, and ethnicity.

A complete copy of the survey instrument is included in the appendix to this report.

Data Collection

Two of Hawaii Opinion's staff members, one of them fluent in English and Japanese, conducted the longline interviews. Prior to the fielding, a training session was held to review in-person interviewing techniques, explain each questionnaire item, and present an overview of the longline industry. Data collection was conducted from June 30, 1982, to July 30, 1982. Most interviews were accomplished through direct contact at the piers, since the comings and goings of each vessel are irregular and depend on the success of the catch.

A total of 13 interviews were completed. Additional attempts were made to recontact respondents between December 7, 1982, and December 15, 1982, in those cases where editing revealed incomplete or missing information. Completed interviews were edited, coded, and keypunched onto magnetic tape. This tape was used for the construction of frequency tables as a final check on data quality, before it was used for development of the prototype and associated policy testing. The results of the fielding process are as follows:

38-total number of vessels

13-interviews completed

12-unable to contact during the length of the study

13-vessels based off-island, unable to contact

It is important to note that certain questionnaire items in particular received a poor response from the longline fishermen. Most notable were those questions dealing with fixed and variable costs, and revenues from landed catches. Any respondent might be expected to have some difficulty in recalling a particular answer such as the exact year in which a boat was built; asking respondents to speculate on answers to questions about the current value of their boat and other such speculative items might also prove too difficult for some captains. Still other missing answers have quite logical explanations. For example, asking the cost of the boat engine proved unanswerable when the purchase price of the boat was a single figure which included the engine.

While the above examples explain some instances of missing information, it was the interviews' impression that the longline captains, in general, were reluctant to reveal a detailed, economic profile of their operation. It is impossible to say with certainty when a non-response represents information which has been purposely withheld, but it is clear from past experience in fisheries research that fishermen prefer to be somewhat elusive in their answers, not only in regards to the economics of their operations, but also the location of fishing grounds and any techniques employed which might give them an edge over the

competition. Since we had to rely on the longline captains' willingness to comply with this study, i.e., their "goodwill," to enable us to conduct the research, a respondent who was unwilling to answer a question could in no way be coerced to do so. The interviewers were skilled in probing, gathering complete answers and establishing a friendly rapport with the fishermen. It is our feeling that the information which could not be collected was largely due to the reluctance of the respondents.

IV. SELECTED TABLES: LONGLINE SURVEY

LONGLINE
LENGTH OF BOAT

Q. What is the length of your boat?

	<u>number</u>
less than 35 feet	--
35 feet to 44 feet	--
45 feet to 54 feet	3
55 feet to 64 feet	5
65 feet to 74 feet	4
75 feet plus	1
	<hr/>
total	13
range: 45 feet to 75 feet	
mean: 61.2 feet	

LONGLINE
TONNAGE

Q. What is the capacity or tonnage of your boat?

	<u>number</u>
less than 1,000 lbs.	1
1,000 to 1,999 lbs.	6
2,000 to 2,999 lbs.	2
3,000 to 3,999 lbs.	--
4,000 to 4,999 lbs.	1
5,000 to 5,999 lbs.	1
6,000 plus lbs.	1
don't know/refuse	1
	<hr/>
total	13

range: 700 to 6,500 lbs.

mean: 2,550.0 lbs.

standard deviation: 1,794.7 lbs.

LONGLINE
YEARS OWNED

Q. How many years have you owned your present boat?

	<u>number</u>
less than five years	3
five to nine years	2
10 to 19 years	3
20 to 29 years	4
30 plus years	1
total	<u>13</u>

range: two to 32 years

mean: 14.8 years

LONGLINE
YEAR BUILT

Q. When was the boat built?

	<u>number</u>
prior to 1940	1
1940 to 1949	5
1950 to 1959	2
1960 to 1969	3
1970 to 1979	1
1980 on	1
	<hr/>
total	13

range: 1925 to 1980

mean: 1956.5

standard deviation: 14.9 years

LONGLINE
PURCHASE PRICE

Q. What was the cost of the boat when you purchased it?

	<u>number</u>
less than \$10,000	2
\$10,000 to \$29,999	4
\$30,000 to \$49,999	--
\$50,000 to \$69,999	--
\$70,000 to \$89,999	--
\$90,000 to \$109,999	2
\$110,000 to \$149,999	--
\$150,000 to \$199,999	2
\$200,000 to \$499,999	1
don't know/refuse	2
	<hr/>
total	13

range: \$5,500 to \$443,406

mean: \$94,536.9

standard deviation: \$129,257.4

LONGLINE
CURRENT VALUE

Q. What would you say is the value of the boat today?

	<u>number</u>
less than \$50,000	2
\$50,000 to \$99,999	4
\$100,000 to \$199,999	1
\$200,000 to \$299,999	1
\$300,000 to \$399,999	2
\$400,000 to \$499,999	--
\$500,000	1
don't know/refuse	2
total	<u>13</u>

range: \$29,000 to \$500,000

mean: \$170,318.2

standard deviation: \$155,761.1

LONGLINE
OWNERSHIP

Q. Do you own this boat by yourself, in partnership, by a corporation, or do you have another form of ownership?

	<u>number</u>
sole proprietorship	8
partnership	1
corporation	2
other	2
	<hr/>
total	13

METHOD OF FINANCING

Q. How was the boat originally financed?

	<u>number*</u>
personal funds	8
other investors	11
bank loan	6
government guaranteed loan	2
other	1

*mentions sum to more than 13 due to multiple methods of financing

LONGLINE
PERCENT COST FROM PERSONAL FUNDS

Q. What percentage of the total cost of your boat was paid for by personal funds?

	<u>number</u>
none	5
1 to 20 percent	2
21 to 40 percent	3
41 to 60 percent	1
61 to 80 percent	--
81 to 100 percent	2
total	<u>13</u>

range: 12 to 100 percent

mean*: 47 percent

*excludes those who did not use personal funds

LONGLINE
PERCENT COST FROM REGULAR BANK LOAN

Q. What percentage of the total cost of your boat was paid for by a regular loan from a bank?

	<u>number</u>
none	7
zero to 24 percent	--
25 to 49 percent	--
50 to 74 percent	1
75 to 100 percent	5
total	<u>13</u>

range: 67 to 100 percent

mean*: 45 percent

*excludes those without regular loan financing

DOLLARS BORROWED

Q. How much money did you borrow?

	<u>1st loan</u>	<u>2nd loan</u>	<u>3rd loan</u>
no loan	2	9	9
less than \$25,000	4	0	0
\$25,000 - \$49,999	0	0	0
\$50,000 - \$74,999	2	0	0
\$75,000 - \$99,999	0	0	0
\$100,000 - \$249,999	1	0	0
\$250,000 - \$499,999	1	0	0
don't know/other	<u>3</u>	<u>4</u>	<u>4</u>
	13	13	13

range: \$5,500 - \$388,000

LONGLINE
ELECTRONIC EQUIPMENT VALUE (ESTIMATED)

Q. What do you think all of the electronic equipment on board your boat is worth?

	<u>number</u>
Less than \$5,000	2
\$5,000 to \$9,999	5
\$10,000 to \$24,999	2
\$25,000 to \$49,999	1
don't know/other	3
	—
total	13
range: \$2,000 to \$30,000	
mean: \$9,300	

LONGLINE
ENGINE HORSEPOWER

Q. What horsepower is your boat's engine?

	<u>number</u>
less than 150 hp.	3
150 to 199 hp.	2
200 to 249 hp.	1
250 to 499 hp.	5
500 plus hp.	2
	—
total	13
range: 115 to 671 hp.	
mean: 297 hp.	

LONGLINE
ORIGINAL ENGINE COST

Q. How much did the engine cost?

	<u>number</u>
less than \$25,000	2
\$25,000 to \$49,999	2
\$50,000 and over	--
don't know/other	9
	—
total	13
range: \$4,000 to \$35,000	
mean: \$20,750	

LONGLINE
CURRENT ENGINE COST

Q. What do you think the engine value is today?

	<u>number</u>
less than \$25,000	6
\$25,000 to \$49,999	1
\$50,000 and over	2
don't know/other	4
	—
total	13
range: \$6,000 to \$76,000	
mean: \$28,889	

LONGLINE
AVERAGE TRAVELING SPEED

Q. When you're in transit, what is your average speed?

	<u>number</u>
five knots	1
six knots	2
seven knots	3
eight knots	4
nine knots	2
10 knots	1
	—
total	13
mean: 7.5 knots	

LONGLINE
ENGINE FUEL CONSUMPTION

Q. What is your engine's fuel consumption--how many gallons per hour do your engines require?

	<u>number</u>
five gallons per hour	3
six to nine gallons per hour	4
10 to 14 gallons per hour	--
15 to 19 gallons per hour	2
don't know/refuse	4
	—
total	13
mean: 8.4 gallons per hour	

LONGLINE

REPLACEMENT VALUE OF LINES AND HOOKS

Q. How much would it cost to replace all of the ropes, hooks, swivels, leaders, weights, and floats you have at this time?

	<u>number</u>
less than \$10,000	1
\$10,000 to \$19,999	2
\$20,000 to \$29,999	4
\$30,000 to \$39,999	1
\$40,000 to \$49,999	--
\$50,000 to \$59,999	1
\$60,000 to \$69,999	1
\$70,000 to \$79,999	1
\$80,000 to \$89,999	--
\$90,000 to \$99,999	2
	<hr/>
total	13
mean: \$30,682	

LONGLINE

NUMBER OF REELS AND WINCHES, GURDIES AND LINEHAULERS

Q. How many reels and winches, gurdies and linehaulers do you have?

	<u>reel & winches</u>	<u>gurdies & linehaulers</u>
no items	10	0
one item	1	10
seven items	0	1
don't know/refuse	<u>2</u>	<u>2</u>
total	13	13

LONGLINE

BASKETS OF LINE

Q. How many baskets do you have?

	<u>number</u>
less than 25 baskets	3
25 to 49 baskets	1
50 to 74 baskets	5
75 to 99 baskets	1
don't know/refuse	3
total	<u>13</u>

range: 0 to 90 baskets

mean: 43.7 baskets

standard deviation: 27.1 baskets

LONGLINE
MILES OF LINE

Q. How many miles of line do you have?	<u>number</u>
less than 10 miles	1
10 to 19 miles	3
20 to 29 miles	2
don't know/refused	7
	<hr/>
total	13
range: 3 to 22 miles	
mean: 14.2 miles	
standard deviation: 7.7 miles	

LONGLINE

AVERAGE TRIPS PER MONTH

Q. For the average month in the last year, could you tell me approximately how many fishing trips you took?

	<u>number</u>
one trip	1
two trips	4
three trips	5
four trips	3
	<hr/>
total	13

range: 1-4 trips

mean: 2.8 trips

standard deviation: 0.9 trips

LONGLINE
DURATION OF TRIP

Q. What was the average duration of each of your fishing trips in the last year?

	<u>number</u>
three days	1
four days	1
five days	2
six days	2
seven days	4
eight days	3
	—
total	13

range: 3 to 8 days

mean: 6.2 days

standard deviation: 1.6 days

LONGLINE
NUMBER OF HOOKS USED PER SET

Q. How many hooks do you use on each set?

	<u>number</u>
less than 200 hooks	2
200 to 399 hooks	4
400 to 599 hooks	--
600 to 799 hooks	3
800 to 999 hooks	4
	—
total	13

range: 120 to 660 hooks

mean: 369 hooks

LONGLINE
DISTANCE OF SETS LAID

Q. Now I would like you to think of the distances you traveled last year in your boat to reach various fishing grounds. Please look at the distances listed on this card. First, tell me which of these distances from shore represent fishing grounds that you use. Then I need to know what percent of your total fishing time for the year was spent in each of the areas you used.

distance to fishing grounds	number of mentions*	percent of total fishing time									
		10	20	30	40	50	60	70	80	90	
0 to 3 miles	1	1	-	-	-	-	-	-	-	-	-
4 to 12 miles	3	-	1	1	-	1	-	-	-	-	
13 to 50 miles	12	1	3	1	-	2	2	1	0	2	
51 to 100 miles	6	-	3	2	-	1	-	-	-	-	
101 to 200 miles	6	-	1	1	1	2	1	-	-	-	
200 plus miles	2	-	1	-	-	-	-	1	-	-	

*multiple mentions allowed for this item

LONGLINE
NUMBER OF SETS LAID

Q. When you fish ___ to ___ miles out, how many sets do you lay on each trip?

distance to fishing grounds	number of mentions*	number of sets				
		one to three	four to seven	40	60	don't know/refused
0 to 3 miles	1	-	-	-	-	1
4 to 12 miles	3	1	2	-	-	-
13 to 50 miles	12	4	4	2	-	2
51 to 100 miles	6	1	3	-	1	1
101 to 200 miles	6	3	1	-	1	1
200 plus miles	2	-	-	1	-	1

*multiple mentions allowed for this item

LONGLINE
PEOPLE PER TRIP

Q. What is the average or usual number of people aboard your boat on a fishing trip?

<u>number people</u>	<u>boats reporting</u>
two	1
three	3
four	3
five	4
six	1
seven	1
total	<u>13</u>

mean: 4.3 people

LONGLINE
WHO CAPTAINS BOAT

Q. Do you captain the boat on fishing trips or does someone else?

	<u>number</u>
owner	8
hired captain	<u>5</u>
total	13

LONGLINE
HOW CREW IS PAID

Q. Do you pay your crew only in wages, do you pay them by giving them a percentage of the catch, or do you do both?

	<u>number</u>
wages	0
share of catch	11
share and wages	1
don't know/refuse	<u>1</u>
total	13

LONGLINE
PERCENTAGE OF CATCH TO CREW

Q. When you share the proceeds from the catch as part or all of the wages paid to crew members, what percentage of the total catch is given to the crew members?

	<u>number</u>
30 percent	2
42 percent	1
50 percent	5
60 percent	3
don't know/refuse	<u>2</u>
total	13

LONGLINE
SPECIES CAUGHT

Q. Now we need to get some information about your fish catches for the past year. I would like to ask you about your catches of bigeye, yellowfin, albacore, ono, mahimahi, marlin and any other species of fish which you might have caught in 1981. Did you catch any (NAME) during 1981?

	<u>no. answering yes</u>
bigeye	12
yellowfin	12
albacore	12
ono	12
mahimahi	12
marlin	13
pake	0
onaga	0
ehu	0
barracuda	2
aleu	1
bluefin	2
shark	3
moonfish	3
blackdisk	1
seabass	0
taape	0
uku	0
opelu	0
akule	0
other	2

LONGLINE
FIXED COSTS

Q. In this set of questions, I would like to ask you about your fishing expenses for 1981?

	<u>frequency*</u>	<u>range</u>	<u>mean</u>	<u>standard deviation</u>
boat mortgage payments	10	0 to \$80,000	\$16,456	\$26,660
other loans for fishing purposes	9	0 to \$26,000	\$4,556	\$8,676
licenses and fees	8	\$12 to \$12,000	\$2,241	\$4,191
administrative assistance	7	\$75 to \$2,500	\$1,182	\$1,050
total			\$24,435	

*excludes "don't know/refused" responses

LONGLINE
VARIABLE COSTS

Q. In this set of questions, I would like to ask you about your fishing expenses for 1981?

	<u>frequency*</u>	<u>range</u>	<u>mean</u>	<u>standard deviation</u>
engine repairs	7	0 to \$20,000	\$10,928	\$ 8,238
hull repairs	8	\$800 to \$6,500	\$4,412	\$1,876
electronics repairs	8	0 to \$2,000	\$919	\$894
fishing gear repairs	7	\$500 to \$10,000	\$4,671	\$3,223
fuel and oil	9	\$650 to \$27,360	\$11,561	\$8,257
fishing gear	7	\$1,000 to \$26,000	\$8,871	\$10,068
bait	10	\$1,200 to \$29,700	\$12,798	\$9,627
ice	10	\$363 to \$9,600	\$4,692	\$2,858
food and beverages	10	\$200 to \$20,400	\$8,320	\$5,731
auction, sales, and unloading fees	4	\$4,560 to \$40,000	\$21,390	\$16,449
salaries	6	-- --	--	--
commissions	6	-- --	--	--
share of fish	4	\$11,300 to \$97,500	\$57,200	\$37,401
total			\$145,762	

*excludes "don't know/refused" responses

LONGLINE

REPAIRS

Q. Do you personally do any of your own repairs and maintenance on your boat or fishing equipment? About how many hours would you say you worked on boat related repairs and maintenance in 1981?

A. Yes, 9 of the 13 respondents said they do their own repairs.

	<u>number</u>
less than 100 hours	2
100 to 499 hours	0
500 to 599 hours	2
600 to 699 hours	1
700 to plus hours	1
don't know/other	3
	<hr/>
total	9

range: 6 to 756 hours

mean: 417 hours

LONGLINE
WHERE REPAIRS MADE

Q. Where do you normally make your repairs?

	<u>number</u>
at Pier 17	3
at Pier 15	1
at Kewalo	3
at Hawaii Tuna Packers	1
other	5
	—
total	13

LONGLINE
YEARS FISHING COMMERCIALY

Q. For how many years have you been fishing commercially?

	<u>number</u>
less than 10 years	3
10 to 19 years	2
20 to 29 years	3
30 to 39 years	3
40 plus years	2
total	<hr/> 13

range: 1 to 40 years

mean: 21.4 years

LONGLINE
YEARS FISHING LONGLINE

Q. How many years have you been longline fishing?

	<u>number</u>
less than 10 years	6
10 to 19 years	3
20 to 29 years	0
30 to 39 years	3
40 plus years	1
	<hr style="width: 10%; margin: 0 auto;"/>
total	13

range: 1 to 40 years

mean: 15.4 years

LONGLINE
YEARS THIS VESSEL

Q. How many years have you been longline fishing with this vessel?

	<u>number</u>
less than 10 years	8
10 to 19 years	1
20 to 29 years	4
30 to 39 years	0
40 plus years	0
	<hr/>
total	13

range: 1 to 27 years

mean: 9.9 years

LONGLINE
YEARS PREVIOUS VESSEL

Q. How many years have you been longline fishing with a previous vessel?

	<u>number</u>
less than 10 years	4
10 to 19 years	3
20 to 29 years	0
30 to 39 years	0
40 plus years	0
don't know/other	6
total	<u>13</u>

range: 0 to 12 years

mean: 6 years

LONGLINE
PRIMARY OCCUPATION

- Q. Do you consider fishing your primary occupation?
- A. Yes, 11 of 13 respondents said fishing is their primary occupation.
-

LONGLINE
HOURS PER WEEK FISHING

- Q. How many hours each week would you say you work at fishing, including preparation, actual fishing, selling your catch, and so on?

	<u>number</u>
less than 25 hours	3
25 to 49 hours	2
50 to 74 hours	1
75 to 99 hours	4
100 plus hours	1
don't know/other	2
	<hr/>
total	13
range: 0 to 100 hours	
mean: 54.4 hours	

LONGLINE
ANNUAL INCOME

Q. I would like you to look at this card and tell me in which category your annual income from fishing falls into.

	<u>number</u>
under \$5,000	1
\$5,000 to \$10,000	0
\$10,001 to \$15,000	3
\$15,001 to \$20,000	1
\$20,001 to \$25,000	2
\$25,001 to \$30,000	0
\$30,001 to \$40,000	0
\$40,001 to \$50,000	2
over \$50,000	3
don't know/refuse	1
total	<u>13</u>

estimated mean: \$29,792

LONGLINE

RESIDENCE

Q. Are you a lifetime resident of the State? (IF NO,ASK:) How many years have you lived in Hawaii?

	<u>number</u>
lifetime	7
less than two years	0
two to five years	0
six to 10 years	3
more than 10 years	3
	—
total	13

LONGLINE

ETHNICITY

Q. What is your ethnic background?

	<u>number</u>
Caucasian	2
Chinese	0
Filipino	0
Hawaiian/part-Hawaiian	1
Japanese	7
other/mixed	3
	—
total	13

LONGLINE

GENDER

All 13 respondents to the longline survey were male.

LONGLINE

AGE

Q. Is your age ...

	<u>number</u>
under 25 years	0
25 to 34 years	1
35 to 44 years	2
45 to 54 years	2
55 to 64 years	7
65 years or older	1
total	<u>13</u>

estimated mean: 55.6 years

V. OPENENDED RESPONSES: LONGLINE SURVEY

LONGLINE - CHANGES AND PROBLEMS IN THE LONGLINE FISHERY
(Q.50, 51 AND 52)

Respondents in the longline study, a combination of boat captains and owners, were asked to describe the changes they have made and seen take place in that fishery since they began longlining. In addition, they were asked to describe any problems they see today in the longline fishery. Verbatim answers were transcribed by Hawaii Opinion's interviewers. Only those fishermen who said they have been longlining for more than five years were asked these questions.

Certain answers arose repeatedly when the topic of industry changes was discussed. Both on a personal level and industry wide, the need to fish deeper topped the list of items mentioned. Respondents stated that less fish and smaller fish were being caught, and that fishing deeper has been the solution, along with setting more hooks. There has also been an obvious shift from the old days of tending the lines manually to the use of mechanical linehaulers and coilers, although one captain remarked that these automatic pullers reduce the life of the lines.

The other major change in the industry, which was also expressed as a problem, is that there is less new blood entering the work force on the local level. An increase of Korean fishermen in the longline fleet was mentioned as a growing source of new recruits. One respondent felt that more local boys would be attracted to the industry if proper training were available. He suggested that government assistance for training programs similar to those in Korea, Japan and the Philippines would present longlining as a successful career option to youthful candidates. This would offset the trend mentioned by some respondents of bringing in foreign contract fishermen from Korea who fill job openings and go on to operate new boats in the fleet.

Competition and low selling prices for the catch were the major problems these fishermen found in today's longline fishery. Competition from Japanese boats fishing within 200 miles of Oahu was specifically mentioned. The lack of boats supplying the Hawaiian market was also mentioned, thus making the point that the competition is more an international issue, since the respondents feel that local demands are not being met.

Locally, a variety of other problems were cited, without any particular stress on the degree of importance. One respondent speculated that aggregation buoys placed in waters off Hawaii to attract fish may encourage the depletion of "small fry" or hang up longlines. Another fisherman complained of porpoises that eat the longline bait and divers who "wipe out the resource." Yet another complained of naval exercises on fishing grounds.

Finally, one interviewee cited the lack of better state loans, the fuel tax, and a scarcity of berths as elements which hindered the success and growth of longlining in Hawaii. The Harbor Board was also criticized for being unresponsive and ignorant of the fishery's needs and that the Board was too vulnerable to "the well connected."

These, then, are the changes and problems which our sample of 13 longliners mentioned during the interview. To reiterate their major points, increased competition and scarcity of fish are seen as the primary problems, and that laying deeper lines was the change mentioned most often.

LONGLINE - TYPICAL TRIP (Q.27)

Respondents to the longline survey, captains and owners, were asked to describe a typical fishing trip (Q.27). As a guide to the interviewer, the basic components of a trip (e.g., loading, transit to fishing grounds) appeared in outline form on the questionnaire along with items on which the interviewer was required to probe if the respondent did not remember to cover all pertinent points, such as time spent on a task, specific items loaded, and so on.

The following is a composite picture of a typical trip, assembled from interviews with 13 respondents. Many of the items are handled similarly in all cases; where there is wide variation in the responses, the exceptions are noted as such.

Respondents were asked to begin their descriptions by recounting the loading process. Most respondents spoke of loading as part of general preparation, which begins two or three days before the trip. The boat is checked over for repairs; engine, lights, lines, the hold and hauling equipment are checked in order to prevent malfunctions at sea. It's not until the day the captain plans to leave, or the day before, that the actual loading begins. Fuel, ice, and bait are brought on board at this time. Most captains go directly to the suppliers for these items since this avoids waiting for deliveries. Loading fuel, ice and bait takes about 30 minutes for each item, although this time will increase if the suppliers are busy with other boats. Although the consensus was to go directly to suppliers, one respondent waits for ice deliveries and, if they arrive late (after noon in this instance) the order is canceled. The order is placed for the following day when, hopefully, the delivery will arrive on time. Several respondents mentioned delays caused by ice being unavailable. Groceries are purchased in advance as part of the preparation, and loaded along with the other supplies.

Depending on the size of the boat, and length of the trip, different quantities of ice and bait are loaded. Reports ranged from 40 to 180 blocks of ice loaded, with 50 blocks as the most often mentioned amount. Total time spent loading all supplies ranged from one and a half hours to a maximum of 12. The most frequently mentioned time was six hours, and variations may be accounted for by the number of hands helping to load the boat and whether supplies are picked up or delivered.

Bait is purchased frozen in winter time and fresh (when available) or frozen during the rest of the year. UFA, Otani, Nakazato and Maeda were the particular suppliers

mentioned, and quantities purchased ranged from 15 to 50 cases of bait per trip. Purchases of frozen bait (sama) or fresh bait are supplemented by fish caught before reaching the fishing grounds or once the lines have been laid. Live bait (akule and opelu) is caught at night, since these fish can be drawn to the boat by their attraction to light. One captain explained that on a seven day trip, enough bait is purchased to meet his needs completely for the first two days at sea and half of what he will need for the rest of the trip. In one instance, imported bait from Japan is used and stored at U. S. cold storage. Another captain stated that Japanese herring did not work well as bait, and that the frozen akule was not very good either.

Transit time to the fishing grounds is dependent, of course, on the distance traveled and speed. Average speed was reported to be almost eight knots and travel time ranged from three and a half hours to two and a half days. The final destination is chosen by the captain, based on his experience. The crew take turns at the wheel, usually at one and half to two hour intervals, and in their free time tie fishing lines, prepare other gear, pack any fish caught while underway, or simply rest.

At the fishing grounds, if the seas are not too rough, the lines are laid. Starting around 5:00 a.m., the mainline is played out in lengths of approximately 1,000 feet. Usually, there are four branchlines attached to each segment of mainline. The branchlines hang vertically from the mainline which floats horizontally (with varying degrees of sag) and is kept afloat by floatlines. Floatlines are connected at each mainline juncture and run vertically from the submerged mainline to a float on the surface. It is the branchlines which carry the hooks for catching fish. It takes about two hours to bait the branch lines and set the mainline which can total 10 or more miles in length. Branchlines are baited and attached to the mainline as it is dropped. Joining of the mainline segments is marked by the floatlines, which end in floats and marker flags. Lines are left for three to seven hours; in the meantime, the line is patrolled. One captain described his method which consisted of "running up" to the first drop point, killing the engine, and waiting to drift to the end point. Usually one crew member operates a mechanical line hauler to retrieve the mainline, and the branchlines along with any fish that are caught, are gaffed and hauled on board manually by one or two crew members. Hauling in the lines can take between five and 10 hours, which has the crew working well into the evening.

Based on response to our survey, the busiest month of the year for longline fishing is December (average three trips per month) with January and December being almost equally rated as the second busiest months.

During the winter months, lines are laid deeper and are left out longer than in the summer. Since there is no guarantee that a particular site will be productive, three or four days can pass before any catch is taken, in which time the lines may be reset in several locations. One boat reported a highly mechanized operation with three separate machines for taking the main line in and out of storage, line hauling, and coiling the branch lines. This setup facilitates resetting the lines and also keeps the crew size to a minimum.

Those fishermen who described the icing method for keeping the catch explained that once the lines are laid, the previous day's catch is first bled, then packed in ice. One captain spoke of refrigerated brine for holding the fish and refrigerated icebox for packing/storage, but in general, insulated brine tanks and crushed ice in ice boxes are used for holding and packing the fish.

Depending on currents and how far a boat must travel to locate fertile fishing grounds, the length of the return trips to port are usually comparable to the trip out. All boats were met at the pier by auction trucks. Unloading takes between 30 minutes and one and a half hours. A crane is used to unload the packed fish.

All fish are sold at auction with 10 percent of sales going to the auction to cover overhead, fuel, ice, unloading, trucking and auctioning of the fish. With approximately 35 percent of the sale of catch allotted for boat related expenses, the remainder of the proceeds are divided between the captain, owner (if he is not also the captain) and the crew.

The last item covered in this portion of the questionnaire dealt with repairs. In general, minor repairs are handled by the captain and crew, either at sea or in port. Specialized repairs of electronic equipment usually require that a technician come aboard or else the equipment is taken to a shop. Major repairs are handled at drydock on an annual basis, usually during the summer for a period of one to three weeks.

IV. HANDLINE SURVEY

For the purposes of this study, Hawaii's handline fishery was stratified by full and part-timers using 40 hours per week as the dividing point. Full-timers were further divided into bottom fishers and tuna handliners. This survey of handline fishermen was conducted statewide; completed interviews were categorized by part-time, full-time tuna and full-time bottom fishing for analysis purposes, as requested by NMFS.

Sample

Sample was provided by NMFS and was drawn from the state's listing of boat owners licensed for commercial fishing. A total of 644 names and addresses were drawn, using a systematic skip to field 100 successful interviews. It was anticipated that many of these names would appear as duplicates (due to multiple boat ownership and outdated records) and that many owners would not be active handliners, since the commercial license file includes longline, troll, and net fishing gear types as well as handline.

The next step in refining the sample involved sending a short mailout survey (see Appendix) to sampled boat owners. This brief survey instrument asked whether or not the respondent was indeed an active handline fisherman and updated telephone and address information. Included with the survey were an introductory cover letter and stamped return envelope. Those respondents who said they were not handliners were eliminated from the sample.

Survey Instrument

The survey instrument for the handline survey was essentially the same as the longline questionnaire, with only slight modifications due to the differences between the two fisheries in terms of equipment, types of fish caught, and a small number of fishery related questions. A copy of the survey instrument is included in the appendix to this report.

Data Collection

A team of eight interviewers, representing Oahu, Maui, Kauai, and Hawaii were trained at Hawaii Opinion's office on Oahu in preparation for the fielding. Training included an item-by-item review of the survey instrument plus practice sessions to sharpen in-person interview techniques.

Fielding took place between November 15, 1982, and January 18, 1983. Interviews were conducted weekdays and weekends, day or evening, at the convenience of the respondents. Up to four attempts were made to contact respondents in the sample. The following is an account of the data collection effort:

644 total sample

100 interviews completed

202 duplicate owner names

136 not active handliners

28 known handliners, but refused or not available for interview

178 unable to contact

Of the 100 handline interviews completed, the breakdown by island and type of fishing is as follows:

	<u>Oahu</u>		<u>Hawaii</u>		<u>Kauai</u>		<u>Maui</u>	
	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>
tuna handline	15	62	31	62	9	53	3	33
bottomfish handline	4	17	13	26	4	24	6	67
mixed-handlines	<u>5</u>	<u>21</u>	<u>6</u>	<u>12</u>	<u>4</u>	<u>23</u>	<u>0</u>	<u>0</u>
	<u>24</u>	<u>100</u>	<u>50</u>	<u>100</u>	<u>17</u>	<u>100</u>	<u>9</u>	<u>100</u>

It is not possible to create a similar profile of the entire survey sample. Of the original 644 names, there were 206 potential respondents (28 refused or not available, 178 unable to contact) who might have produced completed interviews. One might assume that the same distribution of handline type would have been similar had we been able to gather this information on all qualified respondents.

All completed instruments were edited, coded, and keypunched onto magnetic tape. The data tape was used to generate frequency tables and crosstabulations as a final check on data quality. All data entered was 100 percent keypunch verified.

VII. SELECTED TABLES: HANDLINE SURVEY

HANDLINE
ISLAND BASE

	all handline (#)	tuna* (#)	bottom* (#)	mixed* (#)
Oahu	24	15	4	5
Hawaii	50	31	13	6
Maui	9	3	6	0
Kauai	17	9	4	4
	100	58	27	15

*All handline fishermen (n=100) responding to this survey were categorized into three subgroups to permit further analysis. Type of fishery was based on respondent's reported catch for the last trip. Those whose catch was predominantly (75% or more) tunas (aku, yellowfin, and bigeye) were classed as tuna handliners; bottomfish handliners primarily caught opakapaka, onaga, ehu, uku, and taape; and those who caught comparable amounts of tuna and bottomfish or other types of fish were placed in the "mixed" category.

HANDLINE
LENGTH OF BOAT

Q: What is the length of your boat?

	<u>all handline</u> (#)	<u>tuna</u> (#)	<u>bottom</u> (#)	<u>mixed</u> (#)
16 to 18 feet	8	6	2	0
19 to 21 feet	30	18	8	4
22 to 24 feet	31	18	8	5
25 to 27 feet	17	12	2	3
28 to 30 feet	4	0	2	2
31 to 33 feet	3	0	2	1
34 to 36 feet	4	2	2	0
37 to 39 feet	1	0	1	0
40 feet and over	2	2	0	0
total	<u>100</u>	<u>58</u>	<u>27</u>	<u>15</u>
range:	16'/56'	16'/56'	18'/38'	19'/32'
mean:	23.9'	23.7'	24.2'	24.3'
standard deviation:		7.3'	5.6'	3.8'

HANDLINE

TONNAGE

Q: What is the capacity or tonnage of your boat?

<u>tons</u>	<u>all handline (#)</u>	<u>tuna (#)</u>	<u>bottom (#)</u>	<u>mixed (#)</u>
less than 50	10	6	4	0
50 to 99	12	10	2	0
100 to 149	34	19	8	7
150 to 199	10	5	3	2
200 to 249	16	10	3	3
250 to 499	7	2	2	3
500 to 999	5	3	2	0
1000 or more	4	3	1	0
don't know	2	0	2	0
total	100	58	27	15

range (tons):	25/3000	25/3000	30/2500	100/400
mean (tons):	229.8	231.4	261.2	171.7
standard deviation (tons):		433.6	492.7	90.1

HANDLINE
YEARS OWNED BOAT

Q: How many years have you owned your present boat?

	<u>all handline</u> (#)	<u>tuna*</u> (#)	<u>bottom*</u> (#)	<u>mixed*</u> (#)
one year	20	11	5	4
two years	21	14	4	3
three years	12	8	3	1
four years	7	5	2	0
five years	12	7	4	1
six to nine years	21	10	6	5
10 or more years	6	2	3	1
don't know	1	1	0	0
total	<u>100</u>	<u>58</u>	<u>27</u>	<u>15</u>

range: 1 to 35 years

mean: 4.4 years

HANDLINE
YEAR BUILT

Q: When was the boat built?

	<u>all handline (#)</u>	<u>tuna (#)</u>	<u>bottom (#)</u>	<u>mixed (#)</u>
prior to 1940	1	0	1	0
1940 to 1949	2	0	1	1
1950 to 1959	4	3	1	0
1960 to 1969	10	6	3	1
1970 to 1979	69	41	17	11
1980 to date	14	8	4	2
	—	—	—	—
total	100	58	27	15

range (years):	1939/1982	1958/1982	1939/1982	1945/1982
mean (years):	1973.7	1974.3	1972.0	1974.3
standard deviation (years):	--	5.8	10.2	8.8

HANDLINE

PURCHASE PRICE AND CURRENT VALUE

Q: What was the cost of the boat when you purchased (p) it?
What would you say is the value (v) of the boat today?

	all handline (#)		tuna (#)		bottom (#)		mixed (#)	
	p	v	p	v	p	v	p	v
	less than \$1000	4	0	3	0	1	0	0
\$1000 to \$2499	4	6	4	6	0	0	0	0
\$2500 to \$4999	13	5	7	2	4	2	2	1
\$5000 to \$7499	15	13	8	8	5	4	2	1
\$7500 to \$9999	7	4	5	1	2	2	0	1
\$10,000 to \$12,499	11	13	6	6	3	4	2	3
\$12,5000 to \$14,999	7	1	3	1	4	0	0	0
\$15,000 to \$17,499	5	10	2	5	1	3	2	2
\$17,500 to \$17,999	5	5	2	1	1	1	2	3
\$20,000 to \$29,999	15	19	7	12	3	5	5	2
\$30,000 or more	11	20	8	13	3	5	0	2
don't know/refuse	3	4	3	3	0	1	0	0
total	100	100	58	58	27	27	15	15

	tuna	bottom	mixed
range (p):	\$700/200,000	\$800/60,000	\$4,000/23,000
(v):	\$1,000/300,000	\$3,000/60,000	\$4,000/40,000
mean (p):	\$19,710.9	\$14,685.2	\$14,933.3
(v):	\$29,394.5	\$18,153.0	\$17,166.7
standard deviation (p):	\$36,021.3	\$13,969.1	\$6,997.1
(v):	\$52,539.2	\$13,982.0	\$10,160.6

HANDLINE

OWNERSHIP

Q: Tell me, do you own this boat by yourself? (IF NO:) How is it owned--in partnership, by a corporation, or do you have another form of ownership?

	<u>all handline</u> (#)	<u>tuna</u> (#)	<u>bottom</u> (#)	<u>mixed</u> (#)
sole proprietor	92	53	25	14
partnership	4	3	1	0
corporation	3	1	1	1
other	1	1	0	0
	<u> </u>	<u> </u>	<u> </u>	<u> </u>
total	100	58	27	15

HANDLINE
METHOD OF FINANCING

Q: And how was the boat originally financed?

	<u>all handline (#)</u>	<u>tuna (#)</u>	<u>bottom (#)</u>	<u>mixed (#)</u>
personal funds	80	46	24	10
other investors	1	1	0	0
regular bank loan	25	13	5	7
government guaranteed loan	3	2	1	0
other	16	10	4	2
base:	(100)	(58)	(27)	(15)

note: responses to this item included multiple mentions

HANDLINE
PERCENT FROM PERSONAL FUNDS

Q: How was the boat originally financed? (continued)

<u>percent personal funds</u>	<u>all handline (#)</u>	<u>tuna (#)</u>	<u>bottom (#)</u>	<u>mixed (#)</u>
none	20	12	3	5
less than 20 percent	2	2	0	0
20 to 29 percent	11	6	3	2
30 to 39 percent	4	2	1	1
40 to 49 percent	1	1	0	0
50 to 59 percent	6	3	3	0
60 to 69 percent	1	1	0	0
70 to 79 percent	1	0	0	0
80 to 99 percent	0	0	0	0
100 percent	54	31	17	6
total	100	58	27	15

range:* 100 percent

mean:* 12.1 percent

*excludes those without financing from personal funds

HANDLINE
PERCENT FROM BANK LOAN

Q: How was the boat originally financed? (continued)

<u>percent bank loans</u>	<u>all handline (#)</u>	<u>tuna (#)</u>	<u>bottom (#)</u>	<u>mixed (#)</u>
none	75	45	22	8
25 to 49 percent	3	2	0	1
50 to 74 percent	6	2	3	1
75 to 99 percent	4	3	0	1
100 percent	11	5	2	4
don't know/refuse	1	1	0	0
total	100	58	27	15

range:* 25 to 100 percent

mean:* 75.5 percent

*excludes those without bank loans

HANDLINE
LOAN TERM FOR FIRST LOAN

Q: For how many years were those loans (to finance the boat)?

	<u>all handline</u> (#)	<u>tuna</u> (#)	<u>bottom</u> (#)	<u>mixed</u> (#)
no loan	56	32	17	7
less than five years	14	6	5	3
five to nine years	20	15	2	3
10 to 15 years	6	2	2	2
don't know/refuse	4	3	1	0
	—	—	—	—
total	100	58	27	15

range:* two to 15 years

mean:* 5.6 years

*excludes those without loans

note: Only one respondent mentioned a second loan to finance his boat (a four year loan of undisclosed amount at 11% interest) and is not represented in this table. No respondents mentioned a third loan.

HANDLINE
RATE OF INTEREST

Q: What were the interest rates (on first loans used to finance the boat)?

	<u>all handline (#)</u>	<u>tuna (#)</u>	<u>bottom (#)</u>	<u>mixed (#)</u>
no loan	56	32	17	7
less than eight percent	6	3	2	1
eight to 10 percent	14	7	5	2
11 to 13 percent	11	7	1	3
14 to 16 percent	3	1	0	2
17 percent and over	4	3	1	0
don't know/refuse	6	5	1	0
total	100	58	27	15

range:* 5 to 20 percent

mean:* 10.8 percent

*excludes those without loans

HANDLINE
ELECTRONIC EQUIPMENT VALUE

Q: What do you think all of the electronic equipment on board your boat is worth?

	<u>all handline</u> (#)	<u>tuna</u> (#)	<u>bottom</u> (#)	<u>mixed</u> (#)
less than \$100	10	6	3	1
\$100 to \$499	13	12	1	0
\$500 to \$999	18	10	7	1
\$1,000 to \$1,499	14	8	4	2
\$1,500 to \$1,999	6	4	2	0
\$2,000 to \$2,999	13	6	1	6
\$3,000 to \$3,999	10	5	4	1
\$4,000 to \$4,999	11	4	3	4
\$5,000 and over	5	3	2	0
	<hr/>	<hr/>	<hr/>	<hr/>
total	100	58	27	15

range: 0 to \$25,000

mean: \$2,061

HANDLINE
BOAT HORSEPOWER

Q: What horsepower is your boat's engine?

	<u>all handline (#)</u>	<u>tuna (#)</u>	<u>bottom (#)</u>	<u>mixed (#)</u>
less than 100 hp.	16	8	5	3
100 to 149 hp.	28	17	8	3
150 to 199 hp.	16	9	5	2
200 to 249 hp.	17	7	6	4
250 to 299 hp.	6	4	1	1
300 to 349 hp.	8	6	0	2
350 to 399 hp.	0	0	0	0
400 hp. and over	6	4	2	0
don't know/refuse	3	3	0	0
	<hr/>	<hr/>	<hr/>	<hr/>
total	100	58	27	15

range: 40 to 700 hp.

mean: 186 hp.

HANDLINE
ENGINE COST AND VALUE

Q: How much did the engine cost (p) and what do you think its value (v) is today?

	all handline (#)		tuna (#)		bottom (#)		mixed (#)	
	p	v	p	v	p	v	p	v
less than \$1,000	3	7	3	5	0	1	0	1
\$1,000 to \$2,499	8	17	6	9	1	4	1	4
\$2,500 to \$4,999	20	19	11	10	6	5	3	4
\$5,000 to \$7,499	20	22	13	14	3	5	4	3
\$7,500 to \$9,999	8	6	6	3	2	3	0	0
\$10,000 and over	7	13	5	9	2	3	0	1
don't know/refuse	34	16	14	8	13	6	7	2
total	100	100	58	58	27	27	15	15

range (p): \$350 to \$33,000
(v): \$250 to \$40,000

mean (p): \$6,386
(v): \$5,896

HANDLINE
AVERAGE SPEED

Q: When you are in transit what is your average speed?

	<u>all handline (#)</u>	<u>tuna (#)</u>	<u>bottom (#)</u>	<u>mixed (#)</u>
less than eight knots	11	6	3	2
eight to 10 knots	30	14	12	4
11 to 13 knots	16	11	2	3
14 to 16 knots	10	7	1	2
17 to 19 knots	14	7	4	3
20 to 29 knots*	8	5	2	1
30 knots and over*	6	4	2	0
don't know/refuse	5	4	1	0
	—	—	—	—
total	100	58	27	15

range: 4 to 48 knots

mean: 14 knots

*responses in these categories represent unusually high values for handline speeds and may be the product of respondent error

HANDLINE
FUEL CONSUMPTION

Q: What is your engine's fuel consumption - how many gallons per hour do your engines require?

	<u>all handline (#)</u>	<u>tuna (#)</u>	<u>bottom (#)</u>	<u>mixed (#)</u>
less than six gallons per hour	68	39	18	11
six to nine gallons per hour	23	11	8	4
10 to 14 gallons per hour	5	5	0	0
15 to 20 gallons per hour	2	2	0	0
don't know/refuse	2	1	1	0
total	<u>100</u>	<u>58</u>	<u>27</u>	<u>15</u>

range: 1 to 20 gallons per hour

mean: 4.6 gallons per hour

HANDLINE

REPLACEMENT COST OF ROPES, HOOKS, ETC.

Q: How much would it cost to replace all of the ropes, hooks, swivels, leaders, and weights, you have at this time.

	<u>all handline</u> (#)	<u>tuna</u> (#)	<u>bottom</u> (#)	<u>mixed</u> (#)
less than \$500	14	10	4	0
\$500 to \$999	18	10	6	2
\$1,000 to \$1,499	18	8	4	6
\$1,500 to \$1,999	10	6	3	1
\$2,000 to \$3,999	29	18	7	4
\$4,000 to \$5,999	4	2	2	0
\$6,000 and over	7	4	1	2
	—	—	—	—
total	100	58	27	15

range: \$100 to \$12,500

mean: \$2,075

HANDLINE
NUMBER LINEHAULERS

Q: How many linehaulers do you have?

<u>number of linehaulers</u>	<u>all handline (#)</u>	<u>tuna (#)</u>	<u>bottom (#)</u>	<u>mixed (#)</u>
none	28	23	2	3
one	18	11	5	2
two	25	10	9	6
three	16	6	8	2
four	11	7	3	1
five or more	2	1	0	1
total	100	58	27	15

range (number of linehaulers):	0 to 7	1 to 5	0 to 4	0 to 7
mean (number of linehaulers):	1.7	1.4	2.2	2.1
standard deviation (number of linehaulers):		1.5	1.1	1.8

HANDLINE
BUSIEST MONTHS

Q: Which months of the year are your (first and second) busiest months?

	all handline (#)		tuna (#)		bottom (#)		mixed (#)	
	1st	2nd	1st	2nd	1st	2nd	1st	2nd
	January	2	6	1	4	0	1	1
February	4	2	2	1	1	0	1	1
March	2	2	2	1	0	0	0	1
April	6	4	3	2	3	1	0	1
May	12	7	8	5	3	2	1	0
June	23	13	16	9	5	4	2	0
July	5	26	0	18	3	5	2	3
August	4	8	1	2	1	3	2	3
September	4	3	3	2	0	0	1	1
October	5	2	4	2	1	0	0	0
November	5	8	0	4	3	3	2	1
December	15	5	10	0	3	3	2	2
don't know/refuse	13	14	8	8	4	5	1	1
total	100	100	58	58	27	27	15	15

HANDLINE

AVERAGE FISHING TRIPS PER MONTH

Q: For the average month in the last year, could you tell me approximately how many fishing trips you took?

<u>number of trips per month</u>	<u>all handline (#)</u>	<u>tuna (#)</u>	<u>bottom (#)</u>	<u>mixed (#)</u>
one to three	17	9	5	3
four to six	34	18	13	3
seven to nine	6	4	1	1
10 to 12	18	8	4	6
13 to 15	5	2	1	2
16 to 18	4	4	0	0
19 to 21	7	7	0	0
22 or more	6	4	2	0
don't know/refuse	3	2	1	0
total	100	58	27	15

range (trips per month): 1 to 25 1 to 25 1 to 25 2 to 25

mean: (trips per month): 9.0 10.0 7.2 8.4

standard deviation (trips per month): 7.2 6.2 4.7

HANDLINE
DURATION OF TRIPS

Q: What would you say was the average duration of each of your fishing trips in the last year?

	<u>all handline</u> (#)	<u>tuna</u> (#)	<u>bottom</u> (#)	<u>mixed</u> (#)
one to eight hours	25	15	8	2
nine to 12 hours	38	23	9	6
13 to 16 hours	12	9	1	2
17 to 24 hours	14	6	6	2
25 to 36 hours	3	0	1	2
48 hours	3	1	1	1
72 hours	2	2	0	0
96 hours	1	0	1	0
216 hours	1	1	0	0
don't know/refuse	1	1	0	0
	—	—	—	—
total	100	58	27	15

range (hours):	4 to 216	4 to 216	4 to 96	4 to 48
mean: (hours):	17.5	17.5	17.4	17.5
standard deviation (hours):		29.7	18.6	11.1

HANDLINE
DISTANCE BOAT TRAILERED

Q: What is the distance you trailer your boat from where it is stored to where it is launched?

	<u>all handline</u> (#)	<u>tuna</u> (#)	<u>bottom</u> (#)	<u>mixed</u> (#)
not trailered	28	13	12	3
one to five miles	38	22	7	9
six to 10 miles	13	10	2	1
11 to 15 miles	8	5	2	1
16 to 20 miles	4	2	2	0
21 to 40 miles	5	2	2	1
41 to 60 miles	2	2	0	0
95 miles	1	1	0	0
	—	—	—	—
total	100	58	27	15

range: 1 to 95 miles

mean: 10.2 miles

HANDLINE
PIER BOAT MOORED

Q: At what pier is your boat moored?

	<u>all handline</u> (#)	<u>tuna</u> (#)	<u>bottom</u> (#)	<u>mixed</u> (#)
not moored	73	46	15	12
Kauai:				
Port Allen	3	0	2	1
Nawiliwili	1	0	1	0
Oahu:				
Kewalo	2	0	2	0
Ala Wai	1	0	0	1
Haleiwa	1	0	1	0
Waianae	3	3	0	0
Maui:				
Maalaea	1	0	1	0
Hawaii:				
Kawaihae	2	1	1	0
Wailoa	7	3	3	1
Honokaa	1	1	0	0
Napoopoo	3	3	0	0
South Point	2	1	1	0
total	100	58	27	15

HANDLINE

DISTANCE TO FISHING GROUNDS

Q: What percent of your total fishing time for the year was spent in each of the areas you used?

<u>distance from shore</u>	conduct any fishing*			<u>overall mean</u>
	<u>no. of fisher- men</u> (#)	<u>range of fishing time spent in area</u> (%)	<u>mean % fishing time spent in area</u> (%)	
one to three miles	46	5/100	61	28
four to 12 miles	64	5/100	61	39
13 to 25 miles	37	5/100	53	20
26 to 50 miles	18	5/100	35	6
over 50 miles (less than 200 miles)	6	5/100	72	4
over 200 miles	3	20/100	50	2

*multiple responses were received for this questionnaire item

**base = 100 for each distance category

HANDLINE

NUMBER OF PEOPLE PER TRIP

Q: What is the average or usual number of people aboard your boat (including yourself) on a fishing trip?

<u>number of people</u>	<u>all handline (#)</u>	<u>tuna (#)</u>	<u>bottom (#)</u>	<u>mixed (#)</u>
one	26	13	9	4
two	49	29	15	5
three	17	12	0	5
four	6	3	2	1
five	1	1	0	0
don't know/refuse	1	0	1	0
total	100	58	27	15

range: 1 to 5 people

mean: 2.1 people

HANDLINE

HOW CREW PAID

Q: How do you pay your crew? Do you pay them wages, a percentage of the catch or does it vary?

	<u>all handline (#)</u>	<u>tuna (#)</u>	<u>bottom (#)</u>	<u>mixed (#)</u>
percent of catch only	62	38	14	10
wages plus percent of catch, but varies	1	1	0	0
income pooled or no crew	37	19	13	5
total	<u>100</u>	<u>58</u>	<u>27</u>	<u>15</u>

HANDLINE
PERCENT OF CATCH TO CREW

Q: How do you pay your crew? What percentage of the catch?

	<u>all handline (#)</u>	<u>tuna (#)</u>	<u>bottom (#)</u>	<u>mixed (#)</u>
none	37	19	13	5
one to 19 percent	1	1	0	0
20 to 29 percent	8	6	2	0
30 to 39 percent	18	10	5	3
40 to 49 percent	4	3	0	1
50 to 59 percent	3	2	1	0
60 to 69 percent	3	2	0	1
70 to 79 percent	1	0	1	0
80 to 89 percent	0	0	0	0
don't know/refuse	25	15	5	5
total	<u>100</u>	<u>58</u>	<u>27</u>	<u>15</u>

range:* 14 to 75 percent

mean:* 35.8 percent

*excludes those who do not pay crew

HANDLINE
SPECIES CAUGHT LAST TRIP

Q. Now we need to get some information about the fish catch for your last trip. I would like to ask you about your catch of bigeye, yellowfin, opakapaka, onaga, ono, ehu, and any other species of fish which you might have caught on your last trip.

	<u>number of respondents catching any fish</u>			
	<u>all handline*</u> (#)	<u>tuna*</u> (#)	<u>bottom*</u> (#)	<u>mixed*</u> (#)
opakapaka	38	9	20	9
yellowfin	35	28	3	4
ehu	22	4	11	7
akule	22	16	2	4
onaga	19	3	10	6
ono	19	14	2	3
opelu	18	16	0	2
mahimahi	12	10	2	0
uku	11	4	5	2
taape	10	3	4	3
sea bass	8	3	3	2
marlin	5	3	0	2
albacore	2	2	0	0
bigeye	2	1	0	1
other	39	18	12	9

*column totals reflect multiple species catches

HANDLINE

POUNDS CAUGHT AND SOLD LAST TRIP

Q: How many pounds did you catch?...did you sell?

		number of respondents catching and selling fish							
		all handline*		tuna*		bottom*		mixed*	
		(#)		(#)		(#)		(#)	
lbs.		caught	sold	caught	sold	caught	sold	caught	sold
bigeye.....	none	--	5	--	4	--	1	--	0
yellowfin....	<100	9	10	7	8	2	2	0	0
	100/199	12	7	9	5	1	0	2	2
	200/500	9	8	8	7	0	0	1	1
	>500	4	4	4	4	0	0	0	0
	dk/refused	1	1	0	0	0	0	1	1
albacore.....	<100	2	2	2	2	0	0	0	0
ono.....	none	--	4	--	4	--	0	--	0
	<100	12	9	10	7	2	2	0	0
	100/300	6	5	4	3	0	0	2	2
	dk/refused	1	1	0	0	0	0	1	1
mahimahi.....	none	--	0	--	3	--	0	--	0
	<100	9	6	8	5	1	1	0	0
	100/300	3	3	2	2	1	1	0	0
marlin.....	none	--	1	--	0	--	0	--	1
	<200	2	1	0	0	0	0	2	1
	200/500	2	2	2	2	0	0	0	0
	>500	1	1	1	1	0	0	0	0
opakpaka.....	none	--	8	--	2	--	5	--	1
	<100	27	21	9	7	13	9	5	5
	100/200	9	7	0	0	6	5	3	2
	dk/refused	2	2	0	0	1	1	1	1
onaga.....	none	--	4	--	1	--	3	--	0
	<50	10	8	3	2	5	3	2	2
	50/150	7	6	0	0	4	3	3	3
	dk/refused	2	2	0	0	1	1	1	1

*column totals reflect multiple species catches

POUNDS CAUGHT AND SOLD LAST TRIP (continued)

		number of respondents catching and selling fish							
		all handline*		tuna*		bottom*		mixed*	
		(#)		(#)		(#)		(#)	
	lbs.	caught	sold	caught	sold	caught	sold	caught	sold
ehu.....	none	--	6	--	2	--	4	--	0
	<50	15	9	3	1	9	5	3	3
	50/100	5	5	1	1	1	1	3	3
	dk/refused	2	2	0	0	1	1	1	1
sea bass.....	none	--	1	--	1	--	0	--	0
	6/100	5	4	3	2	1	1	1	1
	dk/refused	3	3	0	0	2	2	1	1
taape.....	none	--	6	--	3	--	2	--	1
	<100	8	2	3	0	2	1	3	1
	100/500	2	1	0	0	2	1	0	0
uku.....	<100	5	5	2	2	3	3	0	0
	100/300	3	3	0	0	1	1	2	2
	dk/refused	3	3	2	2	1	1	0	0
opelu.....	none	--	4	--	4	--	0	--	0
	<100	10	7	9	6	0	0	1	1
	100/250	6	5	5	4	0	0	1	1
	dk/refused	2	2	2	2	0	0	0	0
akule.....	none	--	4	--	2	--	2	--	0
	<100	17	12	11	9	2	0	4	3
	100/300	3	3	3	3	0	0	0	0
	2000	1	1	1	1	0	0	0	0
	dk/refused	1	2	1	1	0	0	0	-1
other.....	none	--	15	--	9	--	3	--	3
	<50	19	7	8	1	5	3	6	3
	50/100	5	4	4	3	0	0	1	1
	101/600	10	8	4	3	5	4	1	1
	>2000	1	1	1	1	0	0	0	0
	dk/refused	4	4	1	1	2	2	1	1

*column totals reflect multiple species catches

HANDLINE
CATCH SALES FOR 1981

Q. What was the total amount you sold this species of fish for in 1981?

<u>\$</u>	number of respondents reporting sales for 1981			
	all handline (#)	tuna (#)	bottom (#)	mixed (#)
yellowfin.<1,000	9	5	2	2
1,000/4,999	17	13	1	3
5,000/9,999	2	1	0	1
>10,000	8	7	0	1
dk/refused	51	29	16	6
ono.....<500	14	8	4	2
500/999	3	2	0	1
1,000/5,000	12	7	0	5
18,200	1	1	0	0
dk/refused	53	31	17	5
opakapaka.<1,000	17	8	5	4
1,000/4,999	9	2	4	3
5,000/9,999	0	0	0	0
10,000/50,000	0	1	1	1
dk/refused	50	34	11	5
onaga.....<500	10	5	3	2
500/999	4	0	2	2
1,000 and over	7	0	3	4
dk/refused	52	33	14	5
ehu.....<500	19	7	6	6
500/3,000	4	0	2	2
dk/refused	57	36	15	6

note: sales not reported for sea bass, taape, uku, opelu, akule, albacore, mahimahi and marlin

HANDLINE
WEIGHT OF AVERAGE CATCH

Q: What is the weight of your average catch on a fishing trip?
(Asked of respondents with atypical last trips.)

	<u>all handline (#)</u>	<u>tuna (#)</u>	<u>bottom (#)</u>	<u>mixed (#)</u>
last trip typical	49	28	13	8

under 50 pounds	5	2	3	0
50 to 99 pounds	7	4	2	1
100 to 199 pounds	15	10	4	1
200 to 299 pounds	12	7	3	2
300 to 399 pounds	2	0	0	2
400 to 499 pounds	1	1	0	0
500 to 599 pounds	5	3	2	0
600 to 899 pounds	0	0	0	0
900 to 999 pounds	2	1	0	1
don't know/refuse	2	2	0	0
	-----	-----	-----	-----
total	51	30	14	7
range (pounds):	25/975	35/975	25/500	75/950
mean (pounds):	215.8	215.8	165.0	317.9
standard deviation (pounds):		201.6	157.3	293.2
base:	(49)	(28)	(14)	(7)

HANDLINE
PORT WHERE CATCH LANDED

Q: At which port do you land most of your catch?

	<u>all handline</u> (#)	<u>tuna</u> (#)	<u>bottom</u> (#)	<u>mixed</u> (#)
Kauai:				
Port Allen	7	3	3	1
Nawiliwili	5	4	1	0
Kukuiula	5	2	0	3
Oahu:				
Waianae	13	11	0	2
Maui:				
Maalaea	4	2	2	0
Hawaii:				
Hilo	15	6	7	2
Kawaihae	4	2	2	0
Honokahau	11	6	2	3
Keauhou	5	5	0	0
South Point	6	5	1	0
other (ports with three mentions or less	25	12	9	4
total	<u>100</u>	<u>58</u>	<u>27</u>	<u>15</u>

HANDLINE
SELL TO WHOLESALER

Q: How do you sell (your catch) to a wholesaler?

<u>percent of catch to wholesaler</u>	<u>all handline (#)</u>	<u>tuna (#)</u>	<u>bottom (#)</u>	<u>mixed (#)</u>
none	39	15	16	8
less than 25 percent	4	3	0	1
25 to 49 percent	6	5	0	1
50 to 74 percent	11	7	2	2
75 to 99 percent	3	3	0	0
100 percent	32	23	6	3
don't know/refuse	5	2	3	0
	<hr/>	<hr/>	<hr/>	<hr/>
total	100	58	27	15
range:*	2/100%	10/100%	50/100%	2/100%
mean:*	75.8%	75.6%	87.5%	63.9%
standard deviation:*	--	32.2%	23.1%	39.8%

*excludes those selling "none" to wholesalers

HANDLINE
SELL TO RETAILER

Q: How do you sell (your catch) to a retailer?

<u>percent of catch to retailer</u>	<u>all handline (#)</u>	<u>tuna (#)</u>	<u>bottom (#)</u>	<u>mixed (#)</u>
none	61	34	16	11
less than 25 percent	4	3	0	1
25 to 49 percent	2	1	0	1
50 to 74 percent	13	8	3	2
75 to 99 percent	6	5	1	0
100 percent	9	5	4	0
don't know/refuse	5	2	3	0
	<hr/>	<hr/>	<hr/>	<hr/>
total	100	58	27	15
range:*	5/100%	5/100%	50/100%	20/50%
mean:*	64.4%	64.1%	79.4%	36.3%
standard deviation:*	--	30.3%	23.4%	16.0%

*excludes those selling "none" to retailers

HANDLINE
SELL AT AUCTION

Q: How do you sell (your catch) at auction?

<u>percent of catch at auction</u>	<u>all handline (#)</u>	<u>tuna* (#)</u>	<u>bottom (#)</u>	<u>mixed (#)</u>
none	59	42	13	4
less than 25 percent	4	4	0	0
25 to 49 percent	4	1	2	1
50 to 74 percent	5	3	0	2
75 to 99 percent	6	3	0	3
100 percent	18	4	9	5
don't know/refuse	5	2	3	0
	<hr/>	<hr/>	<hr/>	<hr/>
total	100	58	27	15
range:*	10/100%	10/100%	25/100%	30/100%
mean:*	76.2%	63.6%	87.7%	80.7%
standard deviation:*	--	34.3%	27.5%	25.7%

*excludes those selling "none" at auction

HANDLINE
WHERE CATCH SOLD

Q: Where do you sell the catch that you land?

<u>percent of catch to wholesaler</u>	<u>all handline (#)</u>	<u>tuna* (#)</u>	<u>bottom (#)</u>	<u>mixed (#)</u>
auction (Suisan)	23	7	9	7
markets	12	8	3	1
Hilo	8	8	0	0
hotels, restaurants	7	5	1	1
Kona	6	5	0	1
Honolulu	5	2	2	1
unspecified wholesaler	4	2	2	0
Maalaea	3	1	2	0
not sold	2	1	1	0
other/refuse	30	19	7	5
total	100	58	27	15

HANDLINE
FIXED COSTS

Q: In this set of questions, I would like to ask you about your fishing expenses for the last year.

	all handline		tuna		bottom		mixed							
	#	mean	#	range	mean	s.d.	#	range	mean	s.d.				
boat mortgage payments	100	\$1345	58	0/\$37,000	\$1790	\$5259	27	0/\$4,000	\$520	\$1242	15	0/\$6000	\$1111	\$1862
trailer mortgage payments	99	\$20	57	0/\$2000	\$35	\$265	27	--	--	--	15	--	--	--
other loans for fishing purposes	100	\$295	58	0/\$1800	\$507	\$2449	27	--	--	--	15	--	--	--
interest rate on "other" loans	5	14.4%	5	12/18%	14.4%	3.3%	--	--	--	--	--	--	--	--
licenses and fees	98	\$161	56	0/\$6000	\$193	\$858	27	\$12/\$970	\$100	\$207	15	\$10/\$703	\$156	\$237
boat insurance	92	\$365	52	0/\$5700	\$474	\$1091	26	0/\$1600	\$226	\$451	14	0/\$1075	\$217	\$318
trailer insurance	90	\$5	51	0/\$200	\$6	\$31	26	0/\$100	\$4	\$20	13	0/\$50	\$6	\$15
total		\$2191			\$3005				\$850					\$1490

HANDLINE
VARIABLE COSTS

Q: In this set of questions, I would like to ask you about your fishing expenses for the last year.

	all handline		tuna			bottom			mixed					
	#	mean	#	range	mean	s.d.	#	range	mean	s.d.	#	range	mean	s.d.
engine repairs	99	\$1014	58	0/\$1000	\$819	\$1594	26	0/\$20,000	\$1287	\$3895	15	0/\$4000	\$1297	\$1150
hull repairs	99	\$269	58	0/\$5000	\$271	\$755	26	0/\$3000	\$298	\$804	15	0/\$2500	\$210	\$640
electronic equipment repairs	99	\$105	57	0/\$2000	\$63	\$271	27	0/\$1800	\$177	\$363	15	0/\$1200	\$132	\$302
fishing equipment repairs	98	\$263	56	0/\$4500	\$289	\$812	27	0/\$1000	\$99	\$215	15	0/\$3000	\$459	\$804
fuel and oil	93	\$3298	51	\$40/\$1800	\$3730	\$4395	27	\$150/\$9600	\$2320	\$2690	15	\$56/10800	\$3590	\$2795
fishing gear	96	\$1520	54	0/\$1500	\$1692	\$2871	27	0/\$4000	\$1072	\$1118	15	0/\$11,640	\$1707	\$3058
bait	95	\$1259	53	0/\$30,000	\$1423	\$4318	27	\$18/\$4800	\$799	\$1356	15	0/\$7200	\$1504	\$2184
ice	92	\$848	51	0/\$8640	\$1023	\$1680	26	0/\$2300	\$512	\$590	15	0/\$2376	\$838	\$718
food and beverages	86	\$846	48	0/\$8000	\$982	\$1571	24	0/\$1800	\$323	\$437	14	0/10000	\$1275	\$2573
unloading fees	78	\$1252	43	0/\$10000	\$1024	\$2374	22	0/\$2600	\$300	\$636	13	0/\$30000	\$3619	\$8159
salaries	99	--	57	--	--	--	27	--	--	--	15	--	--	--
commissions	100	--	58	--	--	--	27	--	--	--	15	--	--	--
share of fish	80	\$2573	43	0/\$50000	\$3609	\$9109	25	0/\$6000	\$768	\$1608	12	0/\$15000	\$2621	\$4492
total		\$13247			\$14925				\$7955				\$17252	

HANDLINE

HOURS SPENT ON REPAIRS

Q. About how many hours would you say you worked on boat related repairs and maintenance in the last year?

	<u>all handline (#)</u>	<u>tuna (#)</u>	<u>bottom (#)</u>	<u>mixed (#)</u>
others repair	7	4	2	1
one to 24 hours	12	6	5	1
25 to 48 hours	13	7	5	1
49 to 72 hours	11	7	3	1
73 to 96 hours	5	3	2	0
97 to 120 hours	15	9	2	4
121 to 200 hours	10	5	4	1
201 to 500 hours	12	8	1	3
501 to 1,000 hours	8	4	2	2
don't know/refuse	<u>7</u>	<u>5</u>	<u>1</u>	<u>1</u>
total	100	58	27	15

range:* 5 to 960 hours

mean:* 179.1 hours

*excludes those who do not make repairs

HANDLINE
WHERE REPAIRS DONE

Q. Where do you normally make your repairs?

	<u>all handline (#)</u>	<u>tuna (#)</u>	<u>bottom (#)</u>	<u>mixed (#)</u>
at home	66	41	16	9
other	<u>34</u>	<u>17</u>	<u>11</u>	<u>6</u>
total	100	58	27	15

HANDLINE

YEARS FISHED COMMERCIALY

Q. For how many years have you been fishing commercialy?

	<u>all</u> <u>handline</u> <u>(#)</u>	<u>tuna</u> <u>(#)</u>	<u>bottom</u> <u>(#)</u>	<u>mixed</u> <u>(#)</u>
zero to three years	23	12	8	3
four to six years	23	13	7	3
seven to 10 years	25	14	6	5
11 to 20 years	10	8	2	0
21 to 30 years	10	6	2	2
30 years and over	8	5	2	1
don't know/refuse	<u>1</u>	<u>0</u>	<u>0</u>	<u>1</u>
total	100	58	27	15

range: 0 to 45 years

mean: 10.9 years

HANDLINE
YEARS HANDLINING

Q. How many years have you been handline fishing?

	<u>all handline</u> (#)	<u>tuna</u> (#)	<u>bottom</u> (#)	<u>mixed</u> (#)
one to two years	17	8	7	2
three to five years	16	13	3	3
six to nine years	22	12	7	3
10 to 14 years	15	9	1	5
15 to 19 years	7	2	5	0
20 to 30 years	17	11	3	3
30 years or more	4	3	1	0
don't know/refuse	<u>2</u>	<u>0</u>	<u>0</u>	<u>2</u>
total	100	58	27	15

range: 1 to 40 years

mean: 10.9 years

HANDLINE
FISHING AS PRIMARY OCCUPATION

Q. Do you consider fishing your primary occupation?

	<u>all handline (#)</u>	<u>tuna (#)</u>	<u>bottom (#)</u>	<u>mixed (#)</u>
yes	44	31	9	4
no	<u>56</u>	<u>27</u>	<u>18</u>	<u>11</u>
total	100	58	27	15

HANDLINE
HAVE ANOTHER OCCUPATION

Q. Do you have another occupation?

	<u>all handline (#)</u>	<u>tuna (#)</u>	<u>bottom (#)</u>	<u>mixed (#)</u>
yes	59	30	18	11
no	<u>41</u>	<u>28</u>	<u>9</u>	<u>4</u>
total	100	58	27	15

HANDLINE
HOURS PER WEEK FISHING

Q. How many hours each week would you say you work at fishing, including preparation, actual fishing, selling your catch, and so on?

	<u>all handline (#)</u>	<u>tuna (#)</u>	<u>bottom (#)</u>	<u>mixed (#)</u>
less than 10 hours	10	7	3	0
10 to 19 hours	17	8	7	2
20 to 29 hours	18	8	6	4
30 to 39 hours	6	3	1	2
40 to 49 hours	8	3	4	1
50 to 59 hours	7	5	2	0
60 to 69 hours	14	9	2	3
70 to 79 hours	3	2	0	1
80 to 89 hours	5	3	1	1
90 to 100 hours	5	5	0	0
don't know/refuse	<u>7</u>	<u>5</u>	<u>1</u>	<u>1</u>
total	100	58	27	15

range:	0/100 hrs.	2/84 hrs.	10/80 hrs.
mean:	42.7 hrs.	28.9 hrs.	38.9 hrs.
standard deviation:	29.4 hrs.	20.5 hrs.	24.1 hrs.

HANDLINE
ANNUAL INCOME

Q. In which category does your annual income from fishing fall?

	<u>all handline (#)</u>	<u>tuna (#)</u>	<u>bottom (#)</u>	<u>mixed (#)</u>
less than \$5,000	43	26	13	4
\$5,000 to \$10,000	14	5	6	3
\$10,001 to \$15,000	13	6	3	4
\$15,001 to \$20,000	8	4	3	1
\$20,001 to \$25,000	4	4	0	0
\$25,001 to \$30,000	6	4	0	2
\$30,001 to \$40,000	2	0	2	0
\$40,001 to \$50,000	3	3	0	0
\$50,000 plus	5	4	0	1
don't know/refuse	<u>2</u>	<u>2</u>	<u>0</u>	<u>0</u>
total	100	58	27	15

estimated mean: \$12,755

HANDLINE
RESIDENCE IN STATE

Q. Are you a lifetime resident of the state?

	<u>all handline</u> (#)	<u>tuna</u> (#)	<u>bottom</u> (#)	<u>mixed</u> (#)
lifetime	79	45	23	11
less than two years	2	1	1	0
two to five years	3	1	0	2
six to 10 years	2	2	0	0
10 years and over	<u>14</u>	<u>9</u>	<u>3</u>	<u>2</u>
total	100	58	27	15

HANDLINE

ETHNICITY

Q. What is your ethnic background?

	<u>all handline (#)</u>	<u>tuna (#)</u>	<u>bottom (#)</u>	<u>mixed (#)</u>
Caucasian	24	14	4	6
Chinese	1	0	1	0
Filipino	8	5	1	2
Hawaiian	22	17	2	3
Japanese	37	17	17	3
other/mixed	<u>8</u>	<u>5</u>	<u>2</u>	<u>1</u>
total	100	58	27	15

HANDLINE

AGE

Q. What is your age?

	<u>all handline (#)</u>	<u>tuna (#)</u>	<u>bottom (#)</u>	<u>mixed (#)</u>
25 to 34 years	23	15	6	2
35 to 44 years	39	23	9	7
45 to 54 years	17	10	4	3
55 to 64 years	15	8	5	2
65 years and over	<u>6</u>	<u>2</u>	<u>3</u>	<u>1</u>
total	100	58	27	15

estimated mean: 43.7 years

HANDLINE

GENDER

All 100 handline respondents were male.

VIII. OPENEDED RESPONSES: HANDLINE RESPONSES

HANDLINE (Q.45) - WHAT KIND OF CHANGES HAVE YOU MADE IN YOUR FISHING OPERATION SINCE YOU STARTED?

By far, the most noticeable difference in fishing operations over time has been the advent of electric or hydraulic reels and electronic equipment like the depth recorder and other equipment which help to locate fish. Improvements to existing equipment, better boats and synthetic materials have increased the quality of fishing in Hawaii.

On a personal level, the individual fisherman learns and grows from experience. Fishing becomes more efficient because the grounds become better known, crew members are added, signs are recognized (such as following porpoises), choice of bait and the way it is rigged up improves.

Other changes occur on a limited, individual basis as a product of necessity. As fuel has become more expensive, there is a tendency towards more bottom fishing than trolling, since it requires less fuel. A few fishermen mentioned that they no longer drop anchor, but instead float free with their lines out. Many fishermen mentioned the need to fish in deeper waters as the catch size in shallow waters has diminished over the years. Others have expanded on the number of species sought as a way to hedge against small catches for any one type of fish.

Altogether, technology was cited as the major change in handling over the years. Homemade lines, outrigger canoes, and guesswork have given way, in most every case, to the advantages found in modern equipment.

(Q.46) - WHAT CHANGES HAVE YOU SEEN TAKE PLACE IN THE HANDLINE FISHERY SINCE YOU STARTED HANDLINE FISHING?

Most frequent answers to this question centered around the scarcity or apparently reduced numbers of fish, and an increase in the number of fishermen in general. The rise of ika shibi fishing in Hawaii in recent years received the third largest number of mentions, and it is these three points which made any substantial additions to items mentioned in the previous question (Q.45).

The scarcity of fish was expanded on by some respondents by comments about the need to fish deeper, that more small fry are being caught in relation to larger fish, and that fish are not coming to old grounds. Along with the comments about more fishermen came a few observations that there are more weekend handliners and that there has been a shift from tuna handling to trolling and bottom fishing.

One other category of answers not yet mentioned mirrored the responses concerning personal changes, that is, the inroads of technology into commercial handling. Motorized equipment, electronics, improved materials and designs were all seen as major changes for this industry.

(Q.47) - WHAT PROBLEMS DO YOU SEE TODAY IN THE HANDLINE FISHERY?

The two greatest problems mentioned by nearly half of the respondents, were that there are less fish (especially less big fish) to be caught and that porpoises and sharks further reduce the size of the catch. The porpoise is blamed for eating the bait, damaging the lines and chasing fish away. At greater depths, sharks can take both the catch and the line.

The problem of less fish was joined by a variety of ancillary comments. Overfishing, competition from other fishermen, and foreign longliners fishing within the 200 mile limit were one category of answers. A lack of sufficient regulation to limit competition and overfishing were cited, and remedies included putting a minimum weight limit on fish caught, two year minimum residence before a person is eligible for a commercial license, licensing only commercial fishermen as a way to restrict weekend, recreational fishing, or raising the license fee for all but Hawaii residents. Still other responses relating to the scarcity of fish, found fault with Hawaii's fish aggregating buoys. Several respondents felt that the buoys ruin the natural migration patterns of the fish, that buoys kill younger fish (there was no explanation given for this possibility), that there are fewer big tuna since the buoys, and that the buoys are in the wrong locations.

The economics of handlining was the third major target area for comments. All costs, especially fuel costs, appeared to be rising faster than the price of fish. Many captains saw the fish markets, and not the fishermen, as the true profit makers from handlining. Some suggested a set minimum price on tuna; others felt that a better marketing scheme should exist for ahi to handle those times when high volume forces the price down.

Finally, an assortment of lesser complaints, ranging from the weather, to poor launch facilities, to the possibility of Hawaii's waters becoming a whale sanctuary, rounded out the overall picture drawn concerning problems in Hawaii's handline fishery.

HANDLINE - TYPICAL TRIP (Q25)

Handline fishermen were asked to describe a typical fishing trip as part of the handline survey. As in the longline survey, particular components of a trip were prelisted on the questionnaire as a guide to interviewers to gather complete information. In all, 100 handliners were questioned about their typical trips; a composite picture of their answers follows.

Busiest months for handline fishermen are June and July. The two largest groups of respondents made between six and 10 fishing trips during their busiest months (overall mean was 13 trips per month in the busiest month). Slowest months are February and March with nearly half of the respondents making between zero and three trips per month (overall mean was five trips per month in the slowest month).

Loading up takes place at the pier (if the boat is moored) or wherever a trailered boat is stored (usually at home). The equipment loaded includes poles, reels, pullers, radio, bottomfish rigs and depth recorder. Other items loaded are coolers, ice, bait, food and water. The median loading time is roughly one hour. A few respondents replied that most of their equipment is left on the boat between trips, but this appears to be the exception. Fuel is picked up either at the pier or enroute from home.

Because handline operations are on a much smaller scale than longlining, many fishermen will freeze their own ice or use a mixture of homemade and purchased ice. Amounts ranged from 45 pounds to 1200 pounds, depending on the size of the boat and length of the trip. Bait is usually bought at a local market or else the fishermen catch their own. To a lesser extent, bait is purchased from other fishermen, or a combination of purchased and caught bait is used. Bait is usually caught with lures and nets and may be caught fresh for the current trip, or kept frozen for later trips. Baitfish include opelu, akule, cuttlefish, squid, and aku belly (opelu and akule are preferred) and the usual amount of bait per trip is in the range of 25 to 30 pounds.

Transit to the fishing grounds can range from 15 minutes up to four hours, with most trips running around one hour in length. Typically, there is only the captain aboard, and he will spend his time steering the boat and trolling until he reaches the fishing grounds. Other crew members may troll, cut bait, rig lines, or simply rest until they arrive at the fishing grounds.

Depending on the fishing conditions and length of the trip, fishermen may stay in one location or move six or seven times in search of an area where the fishing is good. Bottomfishers and other handliners fishing closer to the shore commonly use chum released underwater at the depth of the hook to attract the fish. The other handline technique used is called "ika shibi." In this night fishery, lights are set out to attract squid which are caught and used for bait on handlines. Once the lines are baited set, boats are allowed to drift with a sea anchor which slows the drift.

The catch is either put directly on ice or kept in brine and then transferred to a cooler or ice box. Fishermen mentioned holding capacities which ranged from as little as 50 pounds up to two tons.

The return trip is generally comparable to the trip out, from one-half to two hours in length, but can take up to six hours. It is common to troll on the return in order to catch bait for the next trip. At the dock, or once the boat has been trailered, it is washed down, and gear and fish are unloaded. Some handliners will keep the entire catch for their own use, sell it, or give it to friends. Most truck the fish to market; trailer owners usually return home first before taking the catch to market, and some will wait until the following day. In some cases, the dock and market are one and the same (e.g., Suisan in Hilo) so the catch can be unloaded and sold at auction without having to truck the catch at all. A few will pack the fish and truck them to the airport for air freighting. Depending upon which procedure is used, and the size of the catch, unloading can take anywhere from 30 minutes to three hours.

This, then, is an overview of the basic components of all handline trips, as described to our interviewers. There is clearly a wide variety within handling operations, although the variations appear to be logical extensions of the type of fish caught, equipment, and time commitment on the part of the fishermen.

APPENDICES

- A. NMFS Cover Letter, Longline and Handline
- B. Mailout Questionnaire
- C. Longline Survey Instrument
- D. Handline Survey Instrument

APPENDIX A
NMFS COVER LETTER
LONGLINE AND HANDLINE



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Fisheries Center
Honolulu Laboratory
P. O. Box 3830
Honolulu, Hawaii 96812

June 14, 1982

Dear

The National Marine Fisheries Service is conducting a fishery assessment study of the longline fishery in Hawaii. We would appreciate your assistance since you understand the costs, the difficulties, and the opportunities of longlining. We would like to utilize your experience to better understand how government policies and programs affect your fishing operations.

We have hired a local research firm, Hawaii Opinion Inc., to help us in interviewing the owners or captains of every longline boat in Hawaii. Someone from their office will be calling you shortly to set up a convenient interview time. We do not want to interfere in your fishing schedule in any way and we can assure you that no one will see these interviews except the researchers. Everything you tell us will be strictly confidential. We sincerely hope you will help Hawaii Opinion in any way you can.

Your kokua would be a valuable part of this study. If you have any questions about this project, please call me or Sam Pooley, our fisheries economist, at 946-2181.

Mahalo.

Sincerely,

A handwritten signature in cursive script, appearing to read "Richard S. Shomura".

Richard S. Shomura
Director



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Fisheries Center
Honolulu Laboratory
P. O. Box 3830
Honolulu, Hawaii 96812

September 30, 1982

Dear

The National Marine Fisheries Service is conducting a fishery assessment study of the handline fishery in Hawaii. Because we do not know whether you are actually engaged in handline fishing, and we will not be able to contact all the owners of handline boats, we will be interviewing a random sample of vessel owners. Consequently, if you are engaged in handline fishing, we would appreciate your assistance since you understand the costs, the difficulties, and the opportunities of commercial fishing in Hawaii. We would like to utilize your experience to better understand how government policies and programs affect your fishing operations.

We have hired a local research firm, Hawaii Opinion, Inc., to help us in interviewing the owners of handline boats in Hawaii. Someone from their office will be calling you shortly to determine if you are engaged in ika-shibi or other types of deep-sea handline fishing and to set up a convenient interview time. We do not want to interfere with your fishing schedule in any way, and we can assure you that no one will see the interview forms except the researchers. Everything you tell us will be strictly confidential.

We sincerely hope you will help Hawaii Opinion in any way you can. Your kokua will be invaluable to this study. If you have any questions about this project, please call me or Sam Pooley, our industry economist, at 946-2181.

Mahalo.

Sincerely,

Richard S. Shomura
Director, Honolulu Laboratory

APPENDIX B
MAILOUT QUESTIONNAIRE

HAWAII OPINION, INC.

1154 Fort Street Mall, Suite 417 • Honolulu, Hawaii 96813 • (808) 536-4975

October 28, 1982

Mr. Robert J. Ventura
RR 1, Box 485-C
Kula, HI 96790

Dear Mr. Ventura:

We plan to begin our study of handline fisheries in the next two weeks. In order to make this as convenient for you as possible, we would appreciate it if you would answer the following questions and return this page to us by no later than November 3, 1982.

Please mail your answers to us, whether or not you are engaged in handline fishing, since this will tell our interviewers whether they should contact you or not. A business reply envelope is enclosed for your convenience.

1. Are you currently engaged in handline fishing?

YES NO

IF YES:

2. What is a current telephone number where we can reach you to set up an interview appointment?

Telephone Number

3. Do we have your correct mailing address? If not, what is the correct address?

Mahalo for your help.

Sincerely,

Ray Soon
Principal

RS:sk

APPENDIX C
LONGLINE SURVEY INSTRUMENT

INTERVIEWER _____
DATE _____

ISLAND
I.D.# _____

LONGLINE AND HANDLINE FISHERY STUDY
Hawaii Opinion, Inc.
June, 1982

Hello, I'm _____ from Hawaii Opinion, Inc., a professional research company. We're working as consultants to the National Marine Fisheries Service of the U. S. Department of Commerce to develop information about the longline fishery in Hawaii. As you may know, there are 22 longline vessels operating out of Hawaii, and we will be interviewing the captains or owners of all of those vessels.

Your frank and open answers will help the National Marine Fisheries Service to develop programs and policies which are beneficial to the local fishing industry. All of your answers will be strictly confidential, and will not be used by or available to any other governmental agency.

First, I'd like to ask you some questions about your boat, its engine, and the gear you use.

(VESSEL NAME _____)

1. What is the length of your boat? _____ feet
2. What is the capacity or tonnage of your boat? . . . _____ net tons
3. How many years have you owned your present boat? . . _____ years
4. When was the boat built? 19
- 5.* What was the cost of the boat when you purchased it? \$ _____
- 6.* What would you say is the value of the boat today? . \$ _____
- 7.* Tell me, do you own this boat by yourself? (IF NO:) How is it owned -- in partnership, by a corporation, or do you have another form of ownership?

- sole proprietorship 1
- partnership 2
- corporation 3
- other (SPECIFY) _____ 4

8.* And how was the boat originally financed? (CHECK ALL APPLICABLE CATEGORIES) What percentage of the total cost was paid for by (EACH CHECKED CATEGORY) ?

- a. personal funds _____ %
- b. other investors _____ %
- c. regular loan from a bank _____ %
- d. government guaranteed loan _____ %
- e. other (SPECIFY) _____ %

9.* (IF LOANS USED TO PURCHASE VESSELS, ASK:) How many years were those loans for and what were the interest rates?

- a. _____ years _____ % \$ _____
- b. _____ years _____ % \$ _____
- c. _____ years _____ % \$ _____

10.* What do you think all of the electronic equipment on board your boat is worth? \$ _____

11. What horsepower is your boat's engine? _____

12. How many years have you been using the engine you are using now? _____ years

13.* How much did the engine cost? \$ _____

14.* And what do you think its value is today? \$ _____

15. When you're in transit--for example, when you are going from port to your fishing grounds--what is your average speed? _____ knots

or

_____ mph

16. What is your engine's fuel consumption--how many gallons per hour do your engines require? _____ gal/hour

Now I'd like to ask you about the gear you use for fishing and how much it would cost to replace each type of gear.

17.* How much would it cost to replace all of the ropes, hooks, swivels, leaders, weights, and floats you have at this time?

\$ _____
replacement cost

18.* How many reels do you have? (REPEAT FOR EACH ITEM)

number _____

a. reels and winches _____

b. gurdies and linehaulers _____

c. baskets and feet of line _____

TRIP

19. For the average month in the last year, could you tell me approximately how many fishing trips you took?

_____ monthly average/number of trips

20. Which months of the year are your busiest months: And about how many trips do you make during each of those months?

_____ to _____ no. of trips/month _____

_____ to _____ no. of trips/month _____

21. Which months of the year are your slowest? And about how many trips do you make during each of those months?

_____	to	_____	no. of trips/month	_____
_____	to	_____	no. of trips/month	_____

22. What would you say was the average duration of each of your fishing trips in the last year? That is, about how many days or hours did you stay out each time?

days _____
or
hours _____

23. On the average, how many hooks do you use on each set?

hooks per set _____

24. At what pier is your boat moored?

_____	1
_____	2
_____	3
_____	4
other (SPECIFY) _____	5

25. Now I would like you to think of the distances you traveled last year in your boat to reach various fishing grounds. (SHOW CARD) Please look at the distances listed on this card. First, tell me which of these distances from shore represent fishing grounds that you use. Then I need to know what percent of your total fishing time for the year was spent in each of the areas you used.

26. (INTERVIEWER: FOR THOSE CATEGORIES CHECKED IN QUESTION 25, ASK:) When you fish _____ to _____ miles out, how many sets do you lay on each trip?

25. distance

26. sets/trip

CHECK
CATEGORIES
USED

<input type="checkbox"/>	zero to three miles	_____ %	_____ sets per trip
<input type="checkbox"/>	four to 12 miles	_____ %	_____ sets per trip
<input type="checkbox"/>	13 to 50 miles	_____ %	_____ sets per trip
<input type="checkbox"/>	51 to 100 miles	_____ %	_____ sets per trip
<input type="checkbox"/>	101 to 200 miles	_____ %	_____ sets per trip
<input type="checkbox"/>	over 200 miles	_____ %	_____ sets per trip

100%

(INTERVIEWER: BE SURE PERCENTAGES TOTAL 100%)

27. Now I'd like to ask you to describe a typical trip, step by step. Start with the loading process.....

(INTERVIEWER: FILL IN THE OUTLINE AS THE RESPONSE DEVELOPS; IF NECESSARY, PROMPT RESPONDENT TO COVER ITEMS IN THE RIGHT HAND COLUMN)

loading _____	items loaded, amounts

_____	time spent

getting bait _____	location(s)
_____	method, gear

_____	time spent
transit to fishing grounds, holoholo _____	time spent
_____	crew activity

fishing _____	individual crew tasks (methods and gear)

_____	time spent, capacity
_____	icing method
return/unloading _____	time spent returning
_____	method of transfer from boat to market

_____	time spent unloading
marketing/accounting _____	percent catch to market
_____	percent catch for overhead
_____	method of crew payment
repairs _____	kind, amount of own maintenance (sepa- rate for hull, engine, electronics and major gear, minor gear)

_____	location of hired maintenance
_____	source of replace- ment supplies

CREWS AND WAGES

28. What is the average or usual number of people aboard your boat on a fishing trip?
(INTERVIEWER: INCLUDE RESPONDENT IF HE IS ON BOARD)

29. Do you captain the boat on fishing trips or does someone else do that?

- owner is captain 1
- someone else is captain 2

30.* Do you pay your crew only in wages, do you pay them by giving them a percentage of the catch, or do you do both?

- all in wages 1
- all in catch 2
- both 3

GO TO Q.31

*30a. What percentage of their pay is in wages? _____ %

*30b. What were your average wages to a crew member in 1981?

- either: \$ _____/trip
- \$ _____/month
- \$ _____/day
- \$ _____/hour

IF PAY CREW PARTIALLY OR TOTALLY IN PERCENTAGE OF CATCH

31.* When you share the proceeds from the catch as part or all of the wages paid to crew members, what percentage of the total catch is given to the crew members?

_____ %

32.* (IF CAPTAIN IS OTHER THAN OWNER) What portion of the catch does the captain receive?

_____ %

33.* (IF CAPTAIN IS OTHER THAN OWNER) What did you pay the captain in wages in 1981?

- either: \$ _____/trip
- \$ _____/month
- \$ _____/day
- \$ _____/hour

34.* Does the remaining percentage of the catch go to you, the owner?

- yes 1
- no 2

*34a. Where does the remainder of the catch go?
paid to . . . _____ %

CATCH AND REVENUE

35.* Now we need to get some information about your fish catches for the past year. I would like to ask you about your catches of bigeye, yellowfin, albacore, ono, mahimahi, marlin, and any other species of fish which you might have caught in 1981. (USE CARD-- GO THROUGH a, b, c, AND d FOR EACH SPECIES OF FISH)

	a. Did you catch any (NAME) during 1981	b. How many total lbs. did you catch?	c. How many lbs. did you sell?	d. What was the total amount you sold your fish for in 1981
bigeye				
yellowfin				
albacore				
ono				
mahimahi				
marlin				

Were there any other species of fish that you caught a lot of in 1981? (REPEAT a, b, c, AND d FOR EACH OF THOSE MENTIONED) (INTERVIEWER: THIS IS NOT CRITICAL)

36. At which port do you land most of your catch? _____

37. About what percent of your total catch would you say you bring in to (ANSWER TO Q.36)? _____ %

38. The catch that you land at (ANSWER TO Q.36) --where do you sell it? _____

39. And how do you sell it -- to a wholesaler, to a retailer, or by auction?

wholesaler 1 _____ %

retailer 2 _____ %

auction 3 _____ %

IF RESPONSE TO Q.37 IS 100%, SKIP TO Q.44

40. (IF LESS THAN 100%) What other port do you land your catch at? _____

41. What percent would you say you bring into (ANSWER TO Q.40) ? _____ %

42. The catch that you land at (ANSWER TO Q.40) --where do you sell it? (INTERVIEWER: THIS IS NOT CRITICAL) _____

43. And how do you sell it -- to a wholesaler, to a retailer, or by auction? (INTERVIEWER: THIS IS NOT CRITICAL)

wholesaler 1

retailer 2

auction 3

COSTS

44.* In this set of questions, I would like to ask you about your fishing expenses for 1981.

FIXED COSTS

a.* (IF LOAN USED TO PURCHASE BOAT, ASK:) How much did you pay in mortgage payments on your boat in 1981?	Boat Payments: total payment \$ _____
--	--

b.* Do you have any other loans taken out for fishing purposes, such as for equipment? (IF NO, GO TO "c"; IF YES, ASK:) How much did you pay in loan payments in 1981? Can you tell me what the interest rate is on that loan?	Other Loans: total \$ _____ interest rate _____%
---	--

c.* What is the total amount you spent for licenses and fees, such as your excise tax license, your commercial fishing license, and your boat registration?	licenses and fees . . . \$ _____
---	----------------------------------

d.* How much did you spend, if anything, for administrative assistance such as accounting legal assistance, etc.?	administrative expenses \$ _____
---	----------------------------------

VARIABLE COSTS

e.* How much did you spend on engine repairs? repairs on the hull? repairs on any electronic equipment? fishing equipment repairs?	engine repairs \$ _____ hull repairs \$ _____ electronic equipment . . . \$ _____ fishing equipment repairs \$ _____
--	---

f.* How much did you spend on fuel and oil for your boat in 1981?	boat fuel and oil \$ _____
---	--------------------------------------

g.* What is the total amount you spent in 1981 for fishing gear such as ropes, floats, hooks, weights, reels, linehaulers, etc.?	gear \$ _____
--	-------------------------

h.* How much did you spend on bait?	bait \$ _____
-------------------------------------	-------------------------

i.* How much did you spend on ice?	ice \$ _____
------------------------------------	------------------------

j.* How much was spent on food and beverages for you and others you may have had aboard?	food and beverages . . . \$ _____
--	-----------------------------------

k.* What were your total auction, sales and unloading fees for 1981?	unloading fees \$ _____
--	-----------------------------------

l.* What is total amount you spent on salaries commissions, and "share-of-fish" to persons who help aboard your boat?	salaries \$ _____ commissions \$ _____ share-of-fish \$ _____
---	---

m.* What is the total amount you spent on FICA and FUTA?	FICA \$ _____ FUTA \$ _____
--	--

estimate total	\$ _____
----------------	----------

- 45. Do you personally do any of your own repairs and maintenance on your boat or fishing equipment?
 - yes 1
 - no 2

(IF YES, ASK:) About how many hours would you say you worked on boat related repairs and maintenance in 1981? _____ hours

- 46. Where do you normally make your repairs?
 - _____ 1
 - _____ 2
 - _____ 3

47. For how many years have you been fishing commercially? _____ years

48. How many years have been longline fishing? _____ years

49. How many years with this vessel? _____ years

Previous vessel? _____ years

(INTERVIEWER; ASK Q. 50, Q. 51 AND Q. 52 ONLY OF THOSE WHO HAVE BEEN LONGLINE FISHING FOR MORE THAN FIVE YEARS)

50. What kinds of changes have you made in your fishing operation since you started?

51. What changes have you seen take place in the longline fishery since you started longline fishing?

52. What problems do you see today in the longline fishery?

DEMOGRAPHICS

Our final set of questions are for classification purposes only.....

1. Do you consider fishing your primary occupation?

- yes 1
- no 2

2. How many hours each week would you say you work at fishing, including preparation, actual fishing, selling your catch, and so on?

_____ hours

3. I would like you to look at this card and tell me in which category your annual income from fishing falls into. (USE CARD) Just give the letter next to the proper category.

- a. under \$5,000 01
- b. \$5,000 to \$10,000 02
- c. \$10,001 to \$15,000 03
- d. \$15,001 to \$20,000 04
- e. \$20,001 to \$25,000 05
- f. \$25,001 to \$30,000 06
- g. \$30,001 to \$40,000 07
- h. \$40,001 to \$50,000 08
- i. more than \$50,000 09
- (don't know/no response) 99

4. Do you have another occupation?

- yes 1
- | | | |
|------------|--------|----------------|
| GO TO Q. 5 | <----- | no 2 |
|------------|--------|----------------|

4a. What is this second occupation? _____

4b. How many hours each week would you say you work in (ANSWER TO 4a)?

_____ hours

5. Are you a lifetime resident of the State? (IF NO, ASK:) How many years have you lived in Hawaii?

- lifetime 1
- less than two years 2
- two to five years 3
- six to ten years 4
- more than ten years 5
- don't know/no response 9

6. What is your ethnic background?

Caucasian	1
Chinese	2
Filipino	3
Hawaiian/part-Hawaiian	4
Japanese	5
other/mixed	6
refused	9

7. Is your age.....(READ CATEGORIES)

under 25	1
25 to 34	2
35 to 44	3
45 to 54	4
55 to 64	5
65 or older	6
(refused)	9

That's all the question I have. I want to thank you very much for all your help and for going all the way through this interview with me.

(RECORD, DO NOT ASK:) Sex of respondent.....

male	1
female	2

APPENDIX D
HANDLINE SURVEY INSTRUMENT

INTERVIEWER _____
DATE _____

ISLAND
I.D.# _____

LONGLINE AND HANDLINE FISHERY STUDY
Hawaii Opinion, Inc.
September, 1982

Hello, I'm _____ from Hawaii Opinion, Inc.. As you know, we are interviewing owners of handline fishing vessels for the National Marine Fisheries Service of the U. S. Department of Commerce. Your answers will help them to develop programs and policies which will benefit the local fishing industry.

All of your answers will be kept strictly confidential and will not be used by any other governmental agency.

First, I'd like to ask you some questions about your boat, its engine, and the gear you use.

(VESSEL NAME _____)

1. What is the length of your boat? _____ feet
2. What is the capacity or tonnage of your boat? . . . _____ net tons
3. How many years have you owned your present boat? . . _____ years
4. When was the boat built? 19
- 5.* What was the cost of the boat when you purchased it? \$ _____
- 6.* What would you say is the value of the boat today? \$ _____
- 7.* Tell me, do you own this boat by yourself? (IF NO:) How is it owned -- in partnership, by a corporation, or do you have another form of ownership?

- sole proprietorship 1
- partnership 2
- corporation 3
- other (SPECIFY) _____ 4

8.* And how was the boat originally financed? (CHECK ALL APPLICABLE CATEGORIES) What percentage of the total cost was paid for by (EACH CHECKED CATEGORY) ?

- a. personal funds _____ %
- b. other investors _____ %
- c. regular loan from a bank _____ %
- d. government guaranteed loan _____ %
- e. other (SPECIFY) _____ %

9.* (IF LOANS USED TO PURCHASE VESSELS, ASK:) How many years were those loans for and what were the interest rates?

- a. _____ years _____ % \$ _____
- b. _____ years _____ % \$ _____
- c. _____ years _____ % \$ _____

10.* What do you think all of the electronic equipment on board your boat is worth? \$ _____

11. What horsepower is your boat's engine? _____

12. How many years have you been using the engine you are using now? _____ years

13.* How much did the engine cost? \$ _____

14.* And what do you think its value is today? \$ _____

15. When you're in transit--for example, when you are going from port to your fishing grounds--what is your average speed? _____ knots

or
_____ mph

16. What is your engine's fuel consumption--how many gallons per hour do your engines require? _____ gal/hour

Now, about the gear you use for fishing

17.* How much would it cost to replace all of the ropes, hooks, swivels, leaders, and weights, you have at this time?

\$ _____
replacement cost

18.* How many linehauliers do you have? _____

TRIP

19. For the average month in the last year, could you tell me approximately how many fishing trips you took?

_____ monthly average/number of trips

20. Which months of the year are your busiest months? And about how many trips do you make during each of those months?

_____ to _____ no. of trips/month _____

_____ to _____ no. of trips/month _____

21. Which months of the year are your slowest? And about how many trips do you make during each of those months?

_____ to _____ no. of trips/month _____

_____ to _____ no. of trips/month _____

22. What would you say was the average duration of each of your fishing trips in the last year? That is, about how many hours did you stay out each time?

no. of hours. _____

23. Is your boat usually moored or is it kept on a trailer?

----- moored 1

----- trailer 2

23a. What is the distance you trailer your boat from where it is stored to where it is launched?
no. of miles _____

23b. At what pier is your boat moored?

_____ 1

_____ 2

_____ 3

_____ 4

other (SPECIFY) _____ 5

24. Now I would like you to think of the distances you traveled last year in your boat to reach various fishing grounds. (SHOW CARD) Please look at the distances listed on this card. First, tell me which of these distances from shore represent fishing grounds that you use. Then I need to know what percent of your total fishing time for the year was spent in each of the areas you used.

CHECK CATEGORIES USED

(INTERVIEWER: BE SURE PERCENTAGES TOTAL 100%)

<input type="checkbox"/>	zero to three miles	_____ %	<input type="checkbox"/>	26 to 50 miles	_____ %
<input type="checkbox"/>	four to 12 miles	_____ %	<input type="checkbox"/>	over 50 miles	_____ %
<input type="checkbox"/>	13 to 25 miles	_____ %	<input type="checkbox"/>	over 200 miles	_____ %

25. Now I'd like to ask you to describe a typical trip, step by step. Start with the loading process.....

(INTERVIEWER: FILL IN THE OUTLINE AS THE RESPONSE DEVELOPS; IF NECESSARY, PROMPT RESPONDENT TO COVER ITEMS IN THE RIGHT HAND COLUMN)

loading _____	items loaded, amounts
_____	_____
_____	time spent
getting bait _____	location(s)
_____	method, gear
_____	_____
_____	time spent
transit to fishing grounds, holoholo _____	time spent
_____	crew activity
_____	_____
fishing _____	time spent, capacity
_____	icing method
_____	_____
return/unloading _____	time spent returning
_____	method of transfer from boat to market
_____	_____
_____	time spent unloading

CREWS AND WAGES

26. What is the average or usual number of people aboard your boat on a fishing trip?
(INTERVIEWER: INCLUDE RESPONDENT IF HE IS ON BOARD)

27. Do you captain the boat on fishing trips or does someone else do that?

owner is captain 1

someone else is captain 2

28.* How do you pay your crew? Do you pay them wages, a percentage of the catch or does it vary?

28a. all wages average wage to a crew member: \$ _____/trip
\$ _____/month

28b. percentage of catch and wages \$ _____/day
\$ _____/hour

28c. method of pay varies

29.* (IF CAPTAIN IS OTHER THAN OWNER) What portion of the catch does the captain receive?
_____ %

30.* (IF CAPTAIN IS OTHER THAN OWNER) What did you pay the captain in wages in the last year?

either: \$ _____/trip
\$ _____/month
\$ _____/day
\$ _____/hour

31.* Does the remaining percentage of the catch go to you, the owner?
yes 1
no 2

*31a. Where does the remainder of the catch go?
paid to . . . _____
_____ %

CATCH AND REVENUE

32.* How we need to get some information about the fish catch for your last trip. I would like to ask you about your catch of bigeye, yellowfin, opakapaka, onaga, ono, ehu, and any other species of fish which you might have caught on your last trip. (USE CARD--GO THROUGH a, b, c, AND d FOR EACH SPECIES OF FISH)

	a. Did you catch any...	b. How many total lbs. did you catch?	c. How many lbs. did you sell?	d. What was the total amount you sold this species of fish for in 199?
bigeye				
yellowfin				
opakapaka				
onaga				
ono				
ehu				

32a. Were there any other species of fish that you caught on your last trip? (REPEAT a, b, AND c FOR EACH OF THOSE MENTIONED) (INTERVIEWER: THIS IS NOT CRITICAL)

33. Compared to all the other trips you take during the year, would you say the size of the catch for this last trip was typical or average?

- GO TO Q.34 ----- yes 1
 ----- no 2



33a. What is the weight of your average catch on a fishing trip?

lbs. _____

34. At which port do you land most of your catch? _____

35. About what percent of your total catch would you say you bring in to (ANSWER TO Q.34)? _____

36. The catch that you land at (ANSWER TO Q.34) --where do you sell it? _____

37. And how do you sell it -- to a wholesaler, to a retailer, or by auction?

- wholesaler 1 _____
 retailer 2 _____
 auction 3 _____

IF RESPONSE TO Q.35 IS 100%, SKIP TO Q.40

38. (IF LESS THAN 100%) What other port do you land your catch at? _____

39. What percent would you say you bring into (ANSWER TO Q.38)? _____%

COSTS

4n.* In this set of questions, I would like to ask you about your fishing expenses for the last year.

FIXED COSTS

a.* (IF LOAN USED TO PURCHASE BOAT, ASK:) How much did you pay in mortgage payments on your boat in the last year?	Boat Payments:	total payment \$ _____
--	----------------	----------------------------------

b.* How much did you pay in mortgage payments on your trailer in the last year?	Trailer Payments:	total payment \$ _____
---	-------------------	----------------------------------

c.* Do you have any other loans taken out for fishing purposes, such as for equipment? (IF NO, GO TO "d"; IF YES, ASK:) How much did you pay in loan payments in the last year? Can you tell me what the interest rate is on that loan?	Other Loans:	total \$ _____ interest rate _____%
--	--------------	--

d.* What is the total amount you spent for licenses and fees, such as your excise tax license, your commercial fishing license, and your boat registration?	licenses and fees . . . \$ _____
---	----------------------------------

e.* How much did you pay for insurance on your boat? on your trailer?	boat insurance \$ _____ trailer insurance . . . \$ _____
---	---

VARIABLE COSTS

f.* How much did you spend on engine repairs? repairs on the hull? repairs on any electronic equipment? fishing equipment repairs?	engine repairs \$ _____ hull repairs \$ _____ electronic equipment . \$ _____ fishing equipment repairs \$ _____
--	---

g.* How much did you spend on fuel and oil for your boat in the last year?	boat fuel and oil \$ _____
--	------------------------------------

h.* What is the total amount you spent in the last year for fishing gear such as ropes, floats, hooks, weights, reels, linehaulers, etc.?	gear \$ _____
---	-------------------------

i.* How much did you spend on bait?	bait \$ _____
-------------------------------------	-------------------------

j.* How much did you spend on ice?	ice \$ _____
------------------------------------	------------------------

k.* How much was spent on food and beverages for you and others you may have had aboard?	food and beverages . . . \$ _____
--	-----------------------------------

l.* What were your total auction, sales and unloading fees for the last year?	unloading fees \$ _____
---	-----------------------------------

m.* What is total amount you spent on salaries commissions, and "share-of-fish" to persons who help aboard your boat?	salaries \$ _____ commissions \$ _____ share-of-fish \$ _____
---	---

estimate total	\$ _____
----------------	----------

41. Do you personally do any of your own repairs and maintenance on your boat or fishing equipment?

- yes 1
- no 2

(IF YES, ASK:) About how many hours would you say you worked on boat related repairs and maintenance in the last year?

_____ hours

42. Where do you normally make your repairs? _____ 1

_____ 2

_____ 3

43. For how many years have you been fishing commercially? _____ years

44. How many years have you been handline fishing? _____ years

(INTERVIEWER; ASK Q.45, Q.46 AND Q.47 ONLY OF THOSE WHO HAVE BEEN HANDLINE FISHING FOR MORE THAN FIVE YEARS)

45. What kinds of changes have you made in your fishing operation since you started?

46. What changes have you seen take place in the handline fishery since you started handline fishing?

47. What problems do you see today in the handline fishery?

DEMOGRAPHICS

Our final set of questions are for classification purposes only.....

1. Do you consider fishing your primary occupation?

- yes 1
- no 2

2. How many hours each week would you say you work at fishing, including preparation, actual fishing, selling your catch, and so on?

_____ hours

3. I would like you to look at this card and tell me in which category your annual income from fishing falls into. (USE CARD) Just give the letter next to the proper category.

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- d. \$15,001 to \$20,000 04
- e. \$20,001 to \$25,000 05
- f. \$25,001 to \$30,000 06
- g. \$30,001 to \$40,000 07
- h. \$40,001 to \$50,000 08
- i. more than \$50,000 09
- (don't know/no response) 99

4. Do you have another occupation?

- yes 1
- GO TO Q.5 <----- no 2

4a. What is this second occupation? _____

4b. How many hours each week would you say you work in (ANSWER TO 4a)?

_____ hours

5. Are you a lifetime resident of the State? (IF NO, ASK:) How many years have you lived in Hawaii?

- lifetime 1
- less than two years 2
- two to five years 3
- six to ten years 4
- more than ten years 5
- don't know/no response 9

6. What is your ethnic background?

Caucasian	1
Chinese	2
Filipino	3
Hawaiian/part-Hawaiian	4
Japanese	5
Other/mixed	6
refused	9

7. Is your age.....(READ CATEGORIES)

under 25	1
25 to 34	2
35 to 44	3
45 to 54	4
55 to 64	5
65 or older	6
(refused)	9

That's all the questions I have. I want to thank you very much for all your help and for going all the way through this interview with me.

(RECORD, DO NOT ASK:) Sex of respondent.....

male	1
female	2