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INCREASING THE USE OF UNDERUTILIZED RECREATIONAL
FISH AND FISHING OPPORTUNITIES IN CALIFORNIA

FINAL REPORT

October 1, 1986 - December 31, 1987

Saltonstall-Kennedy Project NA-86-ABH-00029

Prepared by: Christopher M. Dewees, Sea Grant Extension Program
Greg Guagnano, Department of Applied Behavioral
Sciences
Elizabeth M. Strange, Sea Grant Extension Program

University of California, Davis

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1.0 EXECUTIVE SUMMARY

California's commercial passenger-carrying fishing vessel (CPFV) industry has been faced with generally poor economic performance and negative angler attitudes about the abundant Pacific mackerel. To address these problems, 965 anglers and 294 CPFV owner/operators were surveyed with mail questionnaires. The questionnaires collected data on information sources, decision-making behavior, perceptions of target fish, perceptions of the primary fisheries, and ideas for CPFV improvements. A total of 473 usable angler surveys and 76 owner/operator surveys were received. Separate, but similar, surveys were done for northern and southern California because of the major differences between the fisheries.

We found that the CPFV industry is competing with many other recreational activities. Anglers use a wide range of information sources to gather CPFV information, but many rate interpersonal sources (friends, co-workers) more important than mass media. Anglers based their decision to go CPFV fishing on a combination of fish catching and aesthetic (relaxation, etc.) factors. These aesthetic factors could be incorporated into CPFV marketing efforts.

Improved service and facilities were the primary CPFV improvements suggested by anglers and owner/operators. Improved crews, smaller loads, and more comfort for passengers were often cited. The emphasis on service should also extend to the use of "relationship marketing" to increase customer loyalty and repeat business.

Mackerel are held in low esteem by both anglers and owner/operators primarily because of their low food quality. Steps to improve their quality through improved onboard handling practices (chilling) and angler education could lead to improved acceptance of mackerel. Emphasis on the most desirable attribute of mackerel, their hard fighting ability, could also raise anglers' acceptance of mackerel.

The second phase of the project will involve use of the survey results to design and test strategies to increase angler participation in CPFV fisheries and improve anglers' perceptions of mackerel as a target or supplemental catch.

2.0 INTRODUCTION

In recent years, California's commercial passenger fishing vessel fleet has experienced economic decline. Many of the fish species targeted by California's commercial passenger fishing vessels (CPFV) are not always available due to changes in abundance, migratory patterns, or poor weather on the fishing grounds. By contrast, nontarget species, such as Pacific mackerel, are caught in significant numbers but are generally discarded, wasted, or ignored because anglers perceive them to be inferior and undesirable. These problems can be attacked by developing educational programs and marketing strategies based on an understanding of the demographic characteristics, motivations, preferences, and sources of satisfaction of California's CPFV anglers.

3.0 PURPOSE

3.1 Problem Description

3.1.1. Trends in Regional Catch Rates for Target and Nontarget Fish

Anglers on commercial passenger carrying fishing vessels harvest a substantial proportion of California's marine recreational fisheries landings, accounting for about 40 percent and 16 percent of the total 1986 marine recreational catch in southern and northern California, respectively (NMFS, 1987). In 1986, 459,369 CPFV anglers landed some 2,835,021 fish in southern California, while 200,925 CPFV anglers landed 1,240,100 fish in central and northern California (CDFG, 1987).

In the central-northern California region, traditionally targeted species include salmon, striped bass, rockfish, lingcod, and sturgeon (Young, 1969). Although landings of rockfish species have remained at high levels, landings of most other target species in central and northern California are declining. Salmon landings have shown large fluctuations. In 1986, 88,192 salmon were landed in central and northern California by CPFV passengers, an increase from the 1983 statewide low of 55,560, but down significantly from the 1985 statewide total of 108,343. Statewide landings of lingcod remained relatively steady during the period from 1947 to 1965, averaging about 27,000 annually, then climbed sharply to as high as 103,965 in 1972, before showing declines since 1982. In central and northern California, only 22,416 lingcod were landed in 1986 (CDFG, 1987).

South of Santa Barbara, historically important species such as barracuda, bonito, and yellowtail are also showing declines. Since

the 1970s, barracuda landings have failed to reach historical levels of several hundred thousand annually, reaching only 88,115 in southern California in 1986. Bonito catches have also dropped, declining from statewide levels as high as 1,298,804 in 1964 to only 340,476 in southern California in 1986. From a dramatic El Nino-related rise to 178,688 fish statewide in 1983, the southern California yellowtail catch dropped to only 42,005 fish three years later (CDFG, 1987).

Although rockfish, albacore, salmon, and bonito still account for the highest proportion of California's CPFV fish catch, nontarget species have become increasingly important. In 1985, 695,708 Pacific mackerel were caught on CPFVs, ranking second only to the rockfish group in numbers caught statewide (CDFG, 1987). In southern California, CPFV anglers caught 593,717 Pacific mackerel in 1986 (or about 21 percent of the region's total CPFV catch) (CDFG, 1987). In central and northern California, the Pacific mackerel catch amounted to 22,416 in 1986, following only rockfish and salmon as the species most often caught by the region's CPFV anglers (CDFG, 1987).

Data from the NMFS Marine Recreational Fishery Statistics Surveys for the years 1981 through 1986 indicate that 49% to 70% of the mackerel caught in southern California are released and northern California anglers release 13% to 38% of their mackerel catch (personal communication, Mark Helvey, NMFS). This indicates that mackerel is held in low esteem as a food fish by anglers.

3.1.2 Regional Trends in Numbers of Commercial Passenger Fishing Vessels (CPFV) and CPFV Anglers

Along with these shifts in the relative importance of target and nontarget species to the overall CPFV catch, there have been declines both in the number of active vessels and the total number of anglers.

In southern California, the fleet has decreased from 197 active vessels in 1963 (Young, 1969) to 170 in 1986 (CDFG, 1987). Loads have also decreased from a total of 505,459 anglers in southern California in 1963 (Young, 1969) to a total of 459,369 anglers in 1986 (CDFG, 1987). This occurred during a period of large increases in California's population and marine recreation activity.

Declines are also apparent in the northern California fleet, which primarily operates from the San Francisco Bay Area and targets salmon. In 1963, 111 public sportfishers were active in the Bay-Delta fleet, logging 77,641 anglers (Young, 1969), but by 1986 the fleet had declined to 97 vessels carrying a total of 81,331 anglers (CDFG, 1987). Angler trips from San Francisco declined from the 1971-1975 annual average of 89,100 to an annual average of 70,000 trips from 1980-1982 (PFMC, 1983).

3.2 Review of Potential Solutions

3.2.1 The Motivations, Satisfactions, and Preferences of Recreational Fishermen

Some of the problems caused by these changes in fish abundances and angler participation in CPFV fishing can be mitigated by encouraging the use of underutilized species that are currently landed in large numbers. By understanding the social and demographic characteristics, motivations, preferences, and sources of satisfaction of California's CPFV anglers, educational programs can be developed to increase the use of underutilized species and improve the economic performance of the fleet.

Social and behavioral studies of the motivations, sources of satisfaction, and preferences of recreational fishermen indicate that a variety of factors contribute to the decisions fishermen make about fishing and to their overall enjoyment of the fishing experience (see review in Dawson and Wilkins, 1980).

Motivation studies show that the decision to go fishing is based on more than simply the desire to catch fish, with factors such as getting away to relax, enjoying the natural surroundings, and having fun with friends generally rated as more important motivators than catch-related factors (e.g., Ditton et al., 1978; Dawson and Wilkins, 1981; Ditton and Arneson, 1986; De Young, 1987). Studies focusing on overall satisfaction also suggest that social, psychological, and environmental factors are often more important to the overall quality of the angling experience than simply catching fish (e.g., Moeller and Engelken, 1972; Smith, 1980; Holland, 1985).

Other studies show that the decision to go fishing is strongly influenced by past catch success (Stevens, 1966; Steinnes and Raab, 1983; Andrews, 1986). In a study of the within-season relationship between catch and effort in the California salmon CPFV fishery, Andrews (1986) found that effort (measured in angler trips per week) was significantly correlated with angler success in the previous week.

Consumption of the catch also appears to be important to anglers. A recent study by Matlock et al. (1988) showed that when faced with a possible prohibition on retention of fish, fishermen indicated that keeping and eating their catch are of paramount importance.

These apparently contradictory findings on the importance of catch-related factors may be due to the fact that motivation studies have not always distinguished between the decision to participate in fishing and overall satisfaction with the fishing experience. Although past satisfaction undoubtedly influences future motivation, the factors related to the decision to participate in fishing may not

be the same, or have the same relative importance, as those which contribute to overall satisfaction. For example, Carls (1980) found that Long Island charterboat anglers base their decision to go fishing primarily on the likelihood of catching fish, but rate environmental factors as more important to their overall enjoyment of the fishing experience. Panek and Lamson (1980) also found that while recreational fishermen consider catching fish for sport to be the best reason for fishing, the quality of the natural environment contributes most to the enjoyment of a fishing trip. Only 26 percent of Panek and Lamson's (1980) sample considered either the size or number of fish caught to be important to overall satisfaction.

Although the size and number of fish caught may not significantly influence overall satisfaction, qualitative aspects of the catch such as excitement, challenge, and adventure appear to be important (Ditton et al., 1978; Ditton and Arneson, 1986). Few studies have explored these and other qualitative factors. In addition, little is known about how species preferences may influence fishermen's motivations and overall satisfaction, or what makes certain species preferable.

3.2.2 Species Preferences and Perceptions of Underutilized Species

In one of the few studies of the characteristics which determine species preferences, Johnson and Griffith (1985) found that fishermen tend to group fish by perceived family or genetic relationships and categorize fishes into broad groupings according to edibility, sporting or fighting qualities, and range or habitat. Fish that are relatively easy to handle, store, and cook rank higher as food. Species with dark meat, a strong taste or smell, or bloody flesh tend to be rejected. The most important sporting quality is being a challenge to catch, and if a fish is prized for its sporting qualities it is often preferred even if it is perceived to have poor eating qualities. Using this information, the University of North Carolina Sea Grant Extension Program developed a successful educational program in the southeastern United States to improve fishermen's attitudes about underutilized fishes by emphasizing similarities with desirable species. A similar approach in California could benefit California's CPFV fleet by encouraging anglers to decrease waste of underutilized species and to perceive of them more favorably as a target species.

3.2.3 Marketing Recreational Fishing Opportunities in the CPFV Industry

In addition to encouraging the use of underutilized species, improvement in industry performance can be accomplished by successful marketing strategies. Research on anglers' motivations, preferences, and sources of satisfaction can provide important information for improving marketing practices. For example, De Young (1987) found

that the criteria that anglers ranked as most important in judging the quality of a CPFV service were not related to catch success. Factors such as the responsiveness, competence, courtesy, and communication of captain and crew, the reliability and availability of service, the quality and condition of vessel equipment and facilities, and the captain's concern with providing security from physical or financial danger or risk were most important. De Young also indicates that CPFV business success is most dependent upon client loyalty and business referrals, which are not significantly influenced by media promotion but rather by attracting, maintaining, and enhancing on-going relationships, a strategy known as "relationship marketing."

3.3 Objectives of the Project

This work is the first part of a two-step process. The overall goal of the first phase is to collect the information necessary for the industry to use for developing strategies to increase the utilization of underutilized species (e.g., mackerel) and to increase angler CPFV participation. Specific objectives are listed below.

1. Measure the perceptions and preferences of California CPFV anglers, skippers, and crews about underutilized species.
2. Measure the demographics, information sources, decision-making behavior, and CPFV perceptions of anglers, skippers, and crews.
3. Recommend strategies to decrease waste of underutilized species and improve desirability of these species, based on our survey research results.
4. Recommend strategies for industry to market their recreational product, based on our survey research results.
5. Evaluate the project results and recommend future activities by industry and future research needs.

4.0 APPROACH/METHODOLOGY

4.1 The Sample

4.1.1. General Design

The data presented in this report were gathered from four separate and distinct sampling arenas. In both northern and southern California, one sample was drawn from commercial passenger fishing vessel anglers and another from the owners, skippers, and crew. Due to difficulties with securing passenger lists from owners in both northern and southern California, slightly different procedures were used to survey anglers in each of these areas. Although continuity among sampling procedures is desirable, comparing the various techniques has proved to be helpful in understanding successful sampling strategies for future angler surveys.

4.1.2 Northern California Anglers

In northern California, the angler sample was gathered from questionnaires distributed onboard six CPFVs on November 7, 1987. Anglers were asked to complete and return the questionnaires prior to departure. This procedure resulted in 48 returned and usable questionnaires.

In addition to this onboard procedure, five participating skippers were presented 15 questionnaires each to be distributed on a future weekday trip. Self-addressed, postage-paid return envelopes were supplied, and skippers were asked to return the completed questionnaires. The purpose of this procedure was to reduce the possibility for bias resulting from the initial sample gathered on a weekend. Of the 75 questionnaires supplied for this weekday procedure, 61 (81.3%) were returned and usable.

In all, the 109 respondents included in the sample of northern California anglers were predominantly male (87.4%), with an average age of 47 years and 13.8 years of schooling. Tables 1 through 4 present northern and southern California angler comparisons of specific demographic characteristics.

TABLE 1 Employment Status Comparisons of Northern and Southern California Anglers (in percents)

	Northern (N = 97)	Southern (N = 362)
Employed full-time	68.0	70.7
Employed part-time	3.1	3.0
Retired	28.9	24.6
Unemployed	--	0.8
Student	--	0.8
	100.0	100.0

TABLE 2 Income Comparisons of Northern and Southern California Anglers (in percents)

Thousands of Dollars	Northern (N = 87)	Southern (N = 354)
5 to < 10	--	0.8
10 to < 20	11.5	4.8
20 to < 30	20.7	11.9
30 to < 40	19.5	17.5
40 to < 50	18.4	16.9
50 to < 60	11.5	15.3
> 60	18.4	32.8
	100.0	100.0

TABLE 3 Comparisons of Selected Characteristics of Northern and Southern California Anglers (mean values)

	Northern (N = 109)	Southern (N = 364)
Age	47.0	51.0
Percent male	87.4	96.1
Years of education	13.8	15.1
Years fishing	14.9	36.7

4.1.3 Southern California Anglers

In contrast to the procedure utilized in northern California, the sample of southern California anglers was gathered by mail questionnaire. The Sportfishing Association of California assisted in supplying the names of 1570 anglers who had fished with the southern California CPFV fleet. These questionnaires were mailed to 800 anglers selected randomly from the SAC list during the week of March 31 to April 7, 1987. A postage-paid, self-addressed return envelope was included in the mailing.

In all, 364 (45.5%) of the questionnaires were returned and usable. In contrast to the northern California sample, the southern California anglers were represented by more males (96.1%), with a higher average age (51 years) and more years of schooling (15.1 years).

4.1.4 Northern and Southern California Owners, Skippers, and Crew

In a procedure similar to that employed for the southern California anglers, data for the northern and southern California owners, skippers, and crew samples were gathered by mail survey. The northern and southern California samples were comprised of the 59 members of the Golden Gate Fishermen's Association and the 235 members of the Sportfishing Association of California. The northern California surveys were mailed directly to the Golden Gate Fishermen's Association members on February 17, 1987, while the southern California surveys were included in the March newsletter of the Sportfishing Association of California. A postage-paid, self-addressed return envelope was included in each of these mailings.

In all, the northern California procedure resulted in 22 (37.3%) returned and usable questionnaires, while the southern California procedure produced a 54 (23%) return rate. Characteristics of the samples are listed in Tables 5 and 6.

TABLE 4 Ethnic Comparisons of Northern and Southern California Anglers (in percents)

	Northern (N = 93)	Southern (N = 357)
Hispanic	6.5	1.4
Black	2.2	1.7
Japanese	4.3	4.5
Chinese	1.1	0.6
American Indian	2.2	--
Caucasian	82.8	90.2
Other	<u>1.1</u>	<u>1.7</u>
	100.0	100.0

TABLE 5 Composition of the Sample of Northern and Southern California Owners, Skippers, and Crew (in percents)

	Northern (N = 22)	Southern (N = 54)
Owner and skipper	81.8	63.0
Owner only	18.2	27.8
Skipper only	--	5.6
Crew member	<u>--</u>	<u>3.7</u>
	100.0	100.0

TABLE 6 Comparisons of Selected Characteristics of Northern and Southern California Owners, Skippers, and Crew (mean values)

	Northern (N = 22)	Southern (N = 54)
Length of vessel	50.0 feet	66.0 feet
Years in industry	20.2	20.3
Years of education	14.5	14.1
Age	50.0	41.0
Percent of bookings as charters	46.4	46.2

4.2 Questionnaires

4.2.1 Anglers

The northern and southern California angler questionnaires were identical except for a few questions that demanded geographic specificity relating to a type of fishing or to particular species of fish. The survey instrument was nine pages in length and contained questions designed to assess the following:

- 1) Personal fishing history and current fishing activity.
- 2) Frequency of various recreational activities.
- 3) Sources of information about the CPFV industry.
- 4) Factors influencing the decision to go fishing on a CPFV.
- 5) Perceptions of the CPFV industry.
- 6) Perceptions of various sportfish.
- 7) Demographic characteristics.

4.2.2. Owners, Skippers, and Crew

As was the case with the anglers, the survey distributed to owners, skippers, and crew required slightly different wording for the northern and southern California versions to incorporate different operating procedures and species differences. The instrument was six pages in length and contained questions designed to assess the following:

- 1) Aspects of the respondent's business operation.
- 2) Perceptions of various sportfish.
- 3) Perceptions of how clients view the CPFV industry.
- 4) Demographic characteristics.

All the survey instruments were pretested for purposes of perfecting item wording, improving questionnaire flow and quality of response, and correcting questionnaire length. In all, 45 questionnaires were pretested between November 15 and December 7, 1986. Data were stored on a Digital Electronics Vax 6800 minicomputer at the University of California at Davis, and were analyzed using the Statistical Package for the Social Sciences (SPSSx).

5.0 FINDINGS

5.1 Southern California Vessel Owner/Operators

The 54 respondents with home ports between Morro Bay and San Diego participated in a diversity of fisheries (Tables 7 and 8). Inshore freelance fishing is the primary fishery, with winter rockfish as a steady supplement for many vessels. The albacore fishery participation is dependent upon the highly variable migrations of the fish each year (1987 was a poor year). Several vessels specialize in long-range trips of one or two weeks.

TABLE 7 Primary Port of Southern California CPFV Owners/Operators in Survey

Port	Number	(Percent)
San Diego	21	(39)
Oceanside / Dana Point / Newport	13	(26)
Los Angeles / Long Beach area	10	(19)
Santa Barbara / Oxnard	5	(9)
Morro Bay / Port San Luis	4	(7)

TABLE 8 Participation by Southern California CPFVs in Major Types of Fisheries

Fishery	Number Participating	Mean Number of Days Participation	(SD)
Albacore	32	47.9	(28.2)
Rockfish	35	69.3	(78.7)
Inshore freelance	43	134.0	(106.6)
Multi-day trips	24	22.7	(21.1)
Long-range trips	9	68.0	(91.0)

5.1.1 Perceptions of Characteristics of Five Target Fish

The perceptions of vessel owners and operators of the angling and utilization characteristics of five target fish (albacore tuna, Pacific mackerel, Pacific bonito, rockfish, and kelp bass) are summarized in Tables 9 and 10. Albacore is highly regarded for both its challenge as a sportfish and its eating characteristics. The only potentially negative perceptions were that many owners and operators felt that albacore tended to spoil quickly and needed special handling to preserve quality.

In contrast, Pacific mackerel was generally held in low regard, especially in terms of utilization. Few felt that it was good to eat and almost all respondents agreed that mackerel spoiled quickly and needed special handling. Only four owners said that they usually eat mackerel. As a sportfish, the majority of vessel owners and operators agreed that mackerel fights hard but few perceived mackerel as challenging or enjoyable to catch. There appear to be major barriers to acceptance of Pacific mackerel as a desirable target species among vessel owners and operators.

Bonito, which is closely related to the smaller Pacific mackerel, is more highly regarded. More respondents agree that bonito are harder fighting, more enjoyable, and more challenging to catch than mackerel. While the majority of owner/operators agree that bonito are good to eat, many respondents perceived utilization problems of rapid spoilage, special handling, and preparation difficulty similar to the mackerel.

Rockfish and kelp bass are perceived quite similarly in terms of utilization, but quite differently in angling characteristics. Both are highly esteemed by owner/operators for eating quality, keeping ability, and ease of preparation. Although these two types of fish are of similar size, the kelp bass is perceived as being much harder fighting and more challenging to catch. Nearly half the respondents considered kelp bass a trophy fish, while only six percent felt that way about rockfish.

5.1.2 Perceptions of Five Types of Fishing

The owner/operators were asked how they think their customers perceive of five types of CPFV fishing (albacore, rockfish, inshore freelance, multi-day, and long-range) (Table 11). For several dimensions, such as crew politeness, availability of information, and enjoyment of the marine environment, the respondents had similar perceptions across all five fisheries. There were some interesting differences on other dimensions.

The owner/operators felt that their customers perceived of fishing for highly-prized albacore as more intense and less enjoyable than other fisheries. Only a minority agreed that their customers

TABLE 9 Southern California Owners/Operators' Perceptions of Five Target Species' Angling Characteristics

	ALBACORE TUNA		PACIFIC MACKEREL		PACIFIC BONITO		ROCKFISH		KELP BASS	
	Percent Agree ^a	Mean ^b	Percent Agree	Mean	Percent Agree	Mean	Percent Agree	Mean	Percent Agree	Mean
This fish fights hard when hooked.	100	1.3	67	2.3	98	1.5	8	3.3	49	2.5
This fish is easy to catch.	49	2.5	98	1.4	83	1.9	93	1.7	60	2.4
I consider this a trophy fish.	78	2.0	0	3.5	12	3.1	6	3.2	49	2.6
I enjoy catching these.	100	1.3	21	3.1	85	2.0	91	1.9	96	1.4
I know little about catching this fish.	0	3.5	4	3.5	4	3.5	0	3.5	6	3.5
This fish is a challenge to catch.	83	1.8	6	3.4	43	2.6	27	2.9	80	2.1
I would rather release these unharmed.	4	3.3	59	2.3	33	2.7	4	3.3	35	2.7

^a includes both those who agree and those who strongly agree

^b measured on Likert-scale: 1 = strongly agree; 2 = agree; 3 = disagree; 4 = strongly disagree

TABLE 10 Southern California Owner/Operators' Perceptions of the Utilization Characteristics of Five Target Species

	ALBACORE TUNA		PACIFIC MACKEREL		PACIFIC BONITO		ROCKFISH		KELP BASS	
	Percent Agree ^a	Mean ^b	Percent Agree	Mean	Percent Agree	Mean	Percent Agree	Mean	Percent Agree	Mean
This fish is good to eat.	100	1.3	24	3.1	66	2.3	98	1.2	100	1.3
This fish needs special handling onboard to preserve eating quality.	89	1.7	82	1.6	96	1.5	55	2.3	63	2.3
This fish spoils quickly.	74	2.1	92	1.5	94	1.6	25	2.8	22	2.8
This fish is difficult to prepare at home.	9	3.2	52	2.4	31	2.8	4	3.4	4	3.4
This fish is difficult to clean.	22	3.0	14	3.1	13	3.1	13	3.1	8	3.1
I usually eat these fish.	94	1.7	8	3.4	50	2.6	96	1.5	94	1.7
This fish is too small to bother with.	4	3.4	36	2.6	8	3.0	0	3.2	4	3.2

^a includes both those who agree and those who strongly agree

^b measured on Likert-scale: 1 = strongly agree; 2 = agree; 3 = disagree; 4 = strongly disagree

TABLE 11 Southern California CPFV Owner/Operators' Perceptions of Five Types of CPFV Fishing

	ALBACORE		ROCKFISH		INSHORE FREELANCE		MULTI-DAY (1-3 days)		LONG-RANGE (> 3 days)	
	Percent Agree ^a	Mean ^b	Percent Agree	Mean	Percent Agree	Mean	Percent Agree	Mean	Percent Agree	Mean
Compared to other types of outdoor recreation I participate in, this type of fishing is expensive.	72	2.1	30	2.8	11	2.9	61	2.3	71	2.0
These techniques are simple to learn.	70	2.3	94	1.8	87	2.0	72	2.3	53	2.5
Chances of catching these fish are high.	45	2.5	98	1.8	86	2.1	100	1.9	98	1.7
The weather is usually pleasant on these trips.	37	2.7	50	2.5	96	2.0	68	2.3	72	2.3
This type of fishing is relaxing and reduces stress.	32	2.8	89	2.0	96	1.8	92	2.0	85	2.0
I enjoy the other passengers on these trips.	74	2.2	93	2.0	94	1.9	96	1.9	92	1.9
Skipper and crew are helpful and polite.	90	1.9	96	1.9	92	1.8	98	1.7	98	1.6
I enjoy this style of fishing (gear and techniques).	96	1.6	74	2.1	94	1.9	96	1.7	90	1.8
The bag limit (number of fish permitted) is too low in this fishery.	0	3.3	26	2.8	10	3.0	10	3.0	8	3.1

^a includes both those who agree and those who strongly agree
^b measured on Likert-scale: 1 = strongly agree; 2 = agree; 3 = disagree; 4 = strongly disagree

TABLE 11 (continued)

	ALBACORE		ROCKFISH		INSHORE FREELANCE		MULTI-DAY (1-3 days)		LONG-RANGE (> 3 days)	
	Percent Agree ^a	Mean ^b	Percent Agree	Mean	Percent Agree	Mean	Percent Agree	Mean	Percent Agree	Mean
The time of departure is convenient.	77	2.2	92	2.0	98	1.9	98	2.0	100	1.9
I can't afford to go as often as I would like.	80	2.1	62	2.4	63	2.4	86	1.9	88	1.8
The boat is usually too crowded on these trips.	64	2.3	29	2.7	59	2.4	8	3.1	10	3.1
It is easy to find information about these fishing trips.	94	1.9	93	1.9	96	1.9	92	1.9	96	1.9
The fishing gear is physically difficult for me to use.	2	3.2	32	2.8	4	3.2	2	3.2	14	3.1
The boat trip is too long in this fishery.	52	2.5	14	3.0	2	3.2	18	2.9	35	2.7
The fish I catch are handled well onboard to preserve their eating quality.	73	2.2	89	2.0	78	2.2	94	1.9	94	1.7
The marine environment and scenery add significantly to my enjoyment on these trips.	77	2.1	85	1.9	92	1.8	92	1.8	90	1.8
This type of fishing usually pays for itself in terms of the amount of fish taken home to eat.	51	2.5	92	1.8	32	2.6	82	2.1	77	2.0

^a includes both those who agree and those who strongly agree
^b measured on Likert-scale: 1 = strongly agree; 2 = agree; 3 = disagree; 4 = strongly disagree

felt that the chances of catching fish were good, the weather was good, and that albacore fishing was relaxing. Compared to most other fisheries, the respondents perceived of albacore fishing as relatively expensive, crowded, too long of a trip, less convenient, and the customers found each other less enjoyable.

A rockfish trip is generally perceived as being less expensive, easy to learn, pays for itself, and having high likelihood of fishing success. Compared to the perceptions of other fisheries, it appears that the only negative perception is that the fishing gear is physically more difficult and less enjoyable to use.

The owner/operators generally felt that their customers perceive of inshore freelance fishing as inexpensive, relaxing, easy to learn, and blessed with good weather. However, only a minority felt that their customers perceived inshore freelance fishing as paying for itself in terms of fish caught, and a majority felt that the trips were too crowded.

Owner/operators generally felt that their customers perceived of multi-day and long-range trips similarly. The only differences appear to be the relative complexity and difficulty of the gear and techniques, and the length of the long-range trip. Compared to the other fisheries, respondents thought their customers felt that multi-day and long-range trips were not crowded and that the fish were handled well onboard the vessel.

5.1.3 Owner/operators' Ideas for Improvements and for Attracting More Customers

The vessel owner/operators' ideas for improvements and for attracting more customers are summarized in Tables 12 and 13. Improved crew seems to be foremost in many owner/operators' minds. They see a need for crew training and for crews that will provide polite and helpful services. The other commonly mentioned improvement was the need for improved facilities. About ten percent of the respondents mentioned limiting loads as being the most important.

When asked how more customers could be attracted, increased advertising was mentioned most often. This included more mass media exposure and increased use of promotions. Numerous respondents mentioned a need for emphasizing the non-fish-catching benefits (relaxation, fun, health) in future marketing activities. Providing more angler education about fishing methods, fish preparation and toxics in fish was another marketing concept mentioned by six respondents. Lowering fares and improved fishing were the other commonly mentioned ideas.

Other concerns of the owner/operators (Table 14) focused on restricting commercial fishing and lowering operating costs.

**TABLE 12 Southern California Vessel Owners' and Operators'
Suggestions for Most Important CPFV Improvements
(N = 54)**

Suggestion	Number Mentioning
Improved crew (training, service, politeness)	25
Improved facilities (comfort, bait, etc.)	15
Limit loads	6
Improved enforcement of regulations onboard	5
Improved onboard handling of fish	3
Restrict commercial fishing	3
Increase fish stocks	2
Other	5

**TABLE 13 Southern California Vessel Owners' and Operators'
Ideas for Attracting More CPFV Customers**

Idea	Number Mentioning
Increased advertising and promotion	19
Market recreational benefits (relaxation, fun, etc.)	9
Lower cost (fares, license)	8
Improved fishing	7
Angler education (methods, utilization, toxics)	6
Improve crews	5
Restrict gillnets	4
Improve onboard handling of fish	2
Other	4

TABLE 14 Southern California Vessel Owners' and Operators' Other Concerns and Comments

Concern/Comment	Number Mentioning
Restrict commercial fishing	5
Need better, steadier crew	4
Operating costs rising	3
Public education needed	3
Other	7

5.2 Southern California CPFV Anglers

5.2.1 Recreational Activities, Information Sources, and Angling Decision-Making

Table 15 indicates that the southern California CPFV industry is competing with many other recreational industries for their customers. Other forms of fishing, boating, and sports appear to be the primary competition. Even saltwater angling participation appears to be quite diverse, with southern California anglers, on average, spending more time fishing from private boats than on charter or open-load fishing vessels (Table 16).

The respondents' participation on CPFVs (Tables 17 and 18) shows that the inshore freelance fishery is the most heavily utilized. On average, the respondents took about 11 inshore trips, 4 rockfish trips, and 1 or 2 albacore, multi-day, or long-range trips during 1986. Approximately 70 percent of the respondents participated in the inshore freelance and albacore fisheries, while only 30 to 50 percent participated in the other three fisheries (Table 18).

When asked to list their information sources about CPFV fishing, anglers often cited magazines such as Western Outdoor News and the Los Angeles Times (Table 19). Anglers then were asked to rank the importance of their information sources (Table 20). Newspapers appear to be the most important, perhaps for their timely catch reports. Interpersonal networks (friends, other fishermen) were also important. Radio, television, and tourist information were seldom mentioned.

TABLE 15 Days Spent Annually on Recreational Activities by Southern California Anglers

Activity	Mean Number of Days	(SD)
CPFV fishing	18.2	(19.0)
Other saltwater fishing	17.6	(21.3)
Freshwater fishing	12.6	(16.0)
Backpacking	1.5	(4.2)
Skiing	2.0	(4.4)
Hunting	5.8	(12.4)
Boating	21.0	(25.8)
Camping	12.1	(18.0)
Spectator sports	12.6	(19.0)
Team sports	8.8	(20.1)
Nature trips	4.3	(11.2)

TABLE 16 Days Spent Annually on Different Types of Saltwater Angling by Southern California Anglers

Activity	Mean Number of Days	(SD)
Fishing from shore or pier	7.2	(14.6)
Fishing from own boat	14.0	(22.4)
Fishing from friend's boat	7.4	(13.0)
Charterboat CPFV fishing	7.4	(10.1)
Open-load CPFV fishing	12.8	(17.4)

TABLE 17 Mean Number of Days of Participation in Major CPFV Fisheries by Southern California Anglers

Fishery	Mean	(SD)
Albacore fishing	4.2	(7.2)
Rockfish	3.8	(8.5)
Inshore freelance	10.8	(15.8)
Multi-day trips (1-3 days)	3.2	(4.1)
Long-range trips (>3 days)	4.4	(9.0)
Other	5.0	(12.4)

TABLE 18 Distribution of Effort by Southern California Anglers in Major Fisheries (percent)

Days	Albacore	Rock-fish	Inshore free-lance	Multi-day trips	Long-range trips	Other
no answer	14	28	17	28	32	65
0	18	24	13	22	35	22
1	10	11	4	5	5	1
2	17	13	9	15	1	2
3-10	35	16	33	28	19	5
over 10	6	8	24	2	8	5

TABLE 19 Media Used by Southern California Anglers for CPFV Information

Media	Number of Anglers Mentioning
<u>Magazines</u>	
Western Outdoor News	197
South Coast Sport Fisherman	109
California Angler	27
Saltwater Sportsman	16
Other	22
<u>Newspapers</u>	
Los Angeles Times	77
San Diego Union	16
Santa Ana / Orange County Register	13
Long Beach Press-Telegram	11
San Diego Tribune	5
Other	12
<u>Television and Radio</u>	
ESPN	8
WTBS	4
Other	13
<u>Other Sources</u>	
Friends	10
Fishing clubs	8
Fish landings	8
Tuna phone	3
Observations	3

TABLE 20 Southern California Anglers' Rankings of Sources of Information About CPFV Fishing

Source	First Most Important	Second Most Important	Third Most Important
Newspapers	112	53	34
Other fishermen	47	53	47
Magazines	38	56	30
Friends	36	42	47
Landing dock	31	38	49
Bait & tackle shops	19	36	44
Telephone call-in	8	12	17
Co-workers	2	9	9
Relatives	2	3	5
Cable & network TV	1	0	7
Radio	3	0	2
Tourist information	0	1	2
Other sources	10	5	2

Tables 21 and 22 summarize the importance of considerations that could influence anglers' decisions on whether to go CPFV fishing. There appear to be two groups of important considerations. One group is related to catching fish (recent catch reports, anticipation of catches) and the other is more related to aesthetics (relaxation, ocean environment, weather, friends, etc.). Cost seems to be of secondary importance compared to anticipation of catching fish and enjoying the outing.

5.2.2 Perceptions of Characteristics of Five Target Fish

The southern California anglers' perceptions of the angling and utilization characteristics of five important target fish (albacore tuna, Pacific mackerel, Pacific bonito, rockfish, and kelp bass) are summarized in Tables 23 and 24. Like the owner/operators, the anglers rated albacore highly on nearly all characteristics. They consider it to be a challenging, hard-fighting, good-eating fish. The only possibly negative consideration was that a majority of respondents believe that albacore spoils quickly and needs special handling to preserve quality.

Anglers tend to perceive of mackerel as a poor food fish. Few felt that it was good to eat, and even fewer ate mackerel (7 percent). Most respondents agreed that mackerel spoiled quickly and needed special handling. A large majority would rather release than utilize mackerel. While few anglers felt that mackerel were a challenge to catch, many felt that they fought hard and were enjoyable to catch. Compared to the owner/operators, anglers appear to rate mackerel's utilization characteristics even lower and the angling characteristics slightly higher.

While anglers generally rate bonito higher than its smaller relative the mackerel, the perceptions follow a similar pattern. Anglers perceive of bonito as enjoyable to catch and hard-fighting, but only a minority consider them to be good food fish.

In direct contrast, southern California anglers perceive of rockfish as a good food fish with poor angling characteristics. Utilization as food seems to be important to anglers targeting rockfish. Kelp bass is nearly identical to rockfish in acceptance as a food fish, but it is also perceived as an excellent sportfish. Most anglers find kelp bass enjoyable and challenging to catch as well as hard-fighting.

**TABLE 21 Southern California Anglers' Ranking of Considerations
When Deciding on CPFV Fishing**

Consideration	First Most Important	Second Most Important	Third Most Important
Reports of recent catches	80	30	31
Desire to get away & relax	62	38	29
Anticipation of catching fish	31	38	46
Time available	27	32	20
Fishing with friends/co-workers	25	27	28
Enjoying ocean environment	22	38	42
Anticipated weather conditions	17	25	24
Cost of fishing	11	29	20
Past experiences on similar trips	7	11	25
Type of gear used	7	17	20
Time of year	6	6	8
Fishing with relatives	5	14	9
Learning more about fishing	3	7	8
Other fishermen's opinions you respect	2	4	5

TABLE 22 Relative Importance to Southern California Anglers of Considerations in Deciding About CPFV Fishing

Consideration	Very Important	Somewhat Important	Somewhat Unimportant	Not a Consideration	Don't Know	Mean	(SD)**
1. Reports of recent catches	200	135	13	10	--	1.5	(0.7)
2. Cost of going fishing	51	141	78	75	1	2.5	(1.0)
3. Style/gear used	112	128	60	47	3	2.1	(1.0)
4. My time available	136	125	39	55	1	2.0	(1.1)
5. Learning more about fishing	54	121	72	102	3	2.6	(1.1)
6. Fishing with friends/co-workers	99	168	51	37	9	2.1	(0.9)
7. Fishing with relatives	46	122	63	120	2	2.7	(1.1)
8. Anticipated weather conditions	154	128	46	26	1	1.8	(0.9)
9. Desire to get away and relax	196	101	34	24	--	1.7	(0.9)
10. Anticipation of catching fish	145	162	35	14	--	1.8	(0.8)
11. Time of year	54	147	81	71	--	2.5	(1.0)
12. Enjoying ocean environment	205	127	13	8	1	1.5	(0.7)
13. Opinions of respected fishermen	57	180	67	42	4	2.3	(0.9)
14. Past experiences on similar trips	110	189	35	20	1	1.9	(0.8)

** Measured on Likert-scale: 1 = very important; 2 = somewhat important; 3 = somewhat important; 4 = not a consideration

TABLE 23 Southern California Anglers' Perceptions of Five Target Species' Angling Characteristics

	ALBACORE TUNA		PACIFIC MACKEREL		PACIFIC BONITO		ROCKFISH		KELP BASS	
	Percent Agree ^a	Mean ^b	Percent Agree	Mean	Percent Agree	Mean	Percent Agree	Mean	Percent Agree	Mean
This fish fights hard when hooked.	99	1.3	75	2.1	99	1.5	4	3.3	65	2.3
This fish is easy to catch.	35	2.7	98	1.5	95	1.7	98	1.6	73	2.2
I consider this a trophy fish.	68	2.1	0	3.4	9	3.1	4	3.2	23	2.9
I enjoy catching these.	98	1.3	40	2.7	78	2.0	70	2.2	96	1.7
I know little about catching these.	9	3.2	4	3.3	4	3.3	12	3.2	7	3.3
This fish is a challenge to catch.	94	1.5	7	3.2	35	2.7	14	3.0	65	2.2
I would rather release these unharmed.	9	3.2	82	1.8	70	2.1	10	3.1	26	2.9

^a includes both those who agree and those who strongly agree

^b measured on Likert-scale: 1 = strongly agree; 2 = agree; 3 = disagree; 4 = strongly disagree

TABLE 24 Southern California Anglers' Perceptions of the Utilization Characteristics of Five Target Species

	<u>ALBACORE TUNA</u>		<u>PACIFIC MACKEREL</u>		<u>PACIFIC BONITO</u>		<u>ROCKFISH</u>		<u>KELP BASS</u>	
	Percent Agree ^a	Mean ^b	Percent Agree	Mean	Percent Agree	Mean	Percent Agree	Mean	Percent Agree	Mean
This fish is good to eat.	99	1.3	12	3.3	43	2.7	99	1.4	98	1.5
This fish needs special handling onboard to preserve eating quality.	92	1.7	73	1.9	86	1.6	75	2.1	74	2.1
This fish spoils quickly.	60	2.2	78	1.9	84	1.8	39	2.6	38	2.6
This fish is difficult to prepare at home.	8	3.2	53	2.3	42	2.6	2	3.3	3	3.3
This fish is difficult to clean.	11	3.1	15	3.0	13	3.1	10	3.1	7	3.2
I usually eat these fish.	95	1.5	7	3.4	35	2.8	93	1.6	94	1.6
This fish is too small to bother with.	1	3.5	60	2.2	22	2.9	8	3.1	11	3.1

^a includes both those who agree and those who strongly agree

^b measured on Likert-scale: 1 = strongly agree; 2 = agree; 3 = disagree; 4 = strongly disagree

5.2.3 Perceptions of Five Types of CPFV Fishing

When asked about their perceptions of the characteristics of five types of southern California fishing (albacore, rockfish, inshore freelance, multi-day, and long-range), anglers had similar perceptions across all five fisheries on seven characteristics (Table 25). They generally found the passengers enjoyable, bag limits reasonable, gear easy to use, information accessible, and the ocean environment enjoyable in all fisheries. Almost all anglers felt that the skipper and crew were polite, but the inshore freelance fishery rated lowest on politeness. Although almost all anglers felt that the departure times were convenient, 18 percent of the anglers felt that the albacore departures were not convenient.

Anglers perceived of albacore fishing as less relaxing and having less chance of catching fish than the other fisheries. They rate albacore fishing as more expensive and less affordable than the rockfish and inshore freelance fisheries. Like the inshore fishery, most anglers agreed that albacore trips were too crowded and seldom paid for themselves in terms of fish taken home. Compared to the owner/operators, anglers tended to perceive of the weather, relaxation, and trip length characteristics more positively and to crowding and paying for itself in fish attributes less positively.

Most anglers perceive of rockfish fishing as inexpensive, easy to learn, cost-effective, and having a high chance of catching fish. Compared to most other fisheries, many respondents find the weather less pleasant, gear less enjoyable, and the trips crowded. Compared to the owner/operators, anglers appear to consider rockfish trips more affordable and the gear easier to use, while fewer anglers agreed that the fish are handled well and that the trips are cost effective. More anglers than owner/operators felt that the trips are too crowded.

Anglers perceived of inshore freelance fishing as inexpensive, convenient, relaxing, and blessed with good weather. Compared to most other fisheries, anglers rate the weather best on inshore trips, but find the payoff in fish to take home lowest. Compared to the owner/operators, the anglers appear to consider inshore freelance fishing more expensive and crowded, and consider the other passengers and crew less enjoyable and polite.

There are few differences in anglers' perceptions of multi-day and long-range trips. They generally consider them expensive with enjoyable passengers and polite crew. Compared to other fisheries, the anglers feel that the fish are handled well onboard and crowding is less of a problem. Compared to the owner/operators, anglers consider these trips to be less cost-effective in terms of fish taken home, more crowded, and having better weather.

TABLE 25 Southern California Anglers' Perceptions of Five Types of CPFV Fishing

	ALBACORE		ROCKFISH		INSHORE FREELANCE		MULTI-DAY (1-3 days)		LONG-RANGE (> 3 days)	
	Percent Agree ^a	Mean ^b	Percent Agree	Mean	Percent Agree	Mean	Percent Agree	Mean	Percent Agree	Mean
Compared to other types of outdoor recreation I participate in, this type of fishing is expensive.	82	1.8	32	2.7	30	2.7	78	2.0	84	1.7
These techniques are simple to learn.	65	2.3	91	1.8	76	2.1	64	2.3	53	2.5
Chances of catching these fish are high.	29	2.8	96	1.5	77	2.1	89	1.9	94	1.6
The weather is usually pleasant on these trips.	72	2.2	51	2.5	94	2.0	84	2.1	83	2.1
This type of fishing is relaxing and reduces stress.	58	2.3	83	1.9	94	1.8	90	1.8	88	1.8
I enjoy the other passengers on these trips.	78	2.1	84	2.1	78	2.1	96	1.8	96	1.7
Skipper and crew are helpful and polite.	91	1.9	92	1.9	83	2.0	98	1.6	98	1.5
I enjoy this style of fishing (gear and techniques).	96	1.5	61	2.4	93	1.7	97	1.5	94	1.5
The bag limit (number of fish permitted) is too low in this fishery.	9	3.2	21	2.9	16	3.0	13	3.1	12	3.1

^a includes both those who agree and those who strongly agree
^b measured on Likert-scale: 1 = strongly agree; 2 = agree; 3 = disagree; 4 = strongly disagree

TABLE 25 (continued)

	ALBACORE		ROCKFISH		INSHORE FREELANCE		MULTI-DAY (1-3 days)		LONG-RANGE (> 3 days)	
	Percent Agree ^a	Mean ^b	Percent Agree	Mean	Percent Agree	Mean	Percent Agree	Mean	Percent Agree	Mean
The time of departure is convenient.	82	2.1	90	2.0	94	2.0	94	1.9	94	1.9
I can't afford to go as often as I would like.	71	2.0	44	2.5	44	2.5	76	2.0	80	1.7
The boat is usually too crowded on these trips.	79	1.9	61	2.2	82	1.8	41	2.5	30	2.7
It is easy to find information about these fishing trips.	90	1.9	91	1.9	90	1.9	92	1.9	91	1.9
The fishing gear is physically difficult for me to use.	1	3.3	8	3.2	1	3.4	3	3.3	5	3.3
The boat trip is too long in this fishery.	36	2.7	14	2.9	7	3.1	18	2.9	30	2.8
The fish I catch are handled well onboard to preserve their eating quality.	70	2.2	69	2.3	64	2.4	88	1.9	93	1.7
The marine environment and scenery add significantly to my enjoyment on these trips.	91	1.7	88	1.8	94	1.7	95	1.6	96	1.6
This type of fishing usually pays for itself in terms of the amount of fish taken home to eat.	31	2.8	64	2.3	29	2.8	50	2.5	52	2.4

^a includes both those who agree and those who strongly agree

^b measured on Likert-scale: 1 = strongly agree; 2 = agree; 3 = disagree; 4 = strongly disagree

5.2.4 Southern California Anglers' Comments on CPFV Fishing

Southern California anglers were asked several open-ended questions about CPFV fishing. When asked what would motivate them to take more CPFV trips, anglers most often mentioned more money available, more time available, and less crowding on the boats (Table 26). Better fishing conditions and better services/facilities were also mentioned frequently.

When asked for the most important improvement that could be made to CPFVs, limiting loads and improved service were predominant (Table 27). Treatment of the customers and improved fish preservation on board were services often mentioned as being in need of improvement.

Other angler comments (Table 28) concentrated on resource issues of gillnetting, enforcement, and pollution. Service and politeness again were mentioned frequently.

TABLE 26 Southern California Anglers' Reasons/Needs Which Would Allow Them to Fish on CPFVs More Often

Reason/Need	Number of Anglers Mentioning
If less expensive / I had more money	133
Had more time	129
Boats less crowded	105
Better fishing conditions	36
Better/cleaner facilities (toilets, seating, food, parking, etc.)	23
Better service from skippers and crews	18
If friends/relatives could go more often	18
More variety/flexibility in trips	18
Better personal health	15
If unable to go on private boat	15
Less travel time to boat	12
Less rude fishermen	8
Other	6

TABLE 27 Southern California Anglers' Suggestions for CPFV Improvements

Suggestion	Number of Anglers Mentioning
Limit loads	142
Improved service	141
treat customers better (44)	
better/politer deckhands (29)	
improved fish handling/preservation (27)	
rotate fishing spots (20)	
help novices more (17)	
other (4)	
Improved facilities	88
toilets, bunks, seating, galley, etc. (41)	
better bait (18)	
cheaper/better food & beverages (12)	
faster boats (9)	
other (8)	
Don't let crew fish	20
Limit gillnets / conservation concerns	16
Lower prices	12
Less alcohol/drugs	7
More catch & release fishing	6
Less littering	6
Other	23

TABLE 28 Additional Comments by Southern California Anglers

Comment	Number of Anglers Mentioning
Limit commercial fishing/gillnetting	70
Improve CDFG enforcement	24
Need resource conservation & enhancement	15
Don't give preferential treatment to some passengers	15
Concern about pollution/toxics/habitats	14
Control rude passengers & deckhands	14
This is a useful survey	10
Need cheaper licenses	6
CDFG too commercially oriented	5
Sportsfishing lacks political clout	5
Provide incentives/discounts	4
Other	30

5.3 Northern California Vessel Owner/Operators

The 22 northern California CPFV owner/operators who responded to the survey operate out of ports between Monterey and Eureka (Tables 29 and 30). The primary fishery is for salmon with at least half the boats participating in the rockfish fishery or nature trips.

TABLE 29 Primary Port of Northern California CPFV Owners/Operators in Survey (N = 22)

Port	Number
San Francisco Bay Area	12
Monterey Bay Area	6
North of San Francisco Bay	4

TABLE 30 Participation by Northern California CPFVs in Major Types of Fisheries (N = 22)

	Number Participating	Mean Number of Days Participation	(SD)
Salmon trolling	21	133.3	(57.6)
Potluck (striped bass, halibut, etc.)	4	18.8	(27.9)
Rockfish	15	81.5	(114.4)
Sturgeon	1	2.0	--
Albacore	5	30.6	(23.6)
Nature trips	11	25.5	(28.6)

5.3.1 Perceptions of the Characteristics of Five Target Fish

Northern California CPFV owner/operators' perceptions of the angling and utilization characteristics of five primary target fish (salmon, Pacific mackerel, striped bass, rockfish, and sturgeon) are summarized in Tables 31 and 32. Owner/operators prize salmon, striped bass, and sturgeon for both their angling and utilization characteristics. The only apparent differences between the fish are the owner/operators' lower level of knowledge about sturgeon and bass and lower likelihood of eating sturgeon and bass (because they would rather release them or perhaps have some concern about toxics). The owner/operators also consider sturgeon to be considerably more difficult to catch and to clean.

While the owner/operators consider rockfish enjoyable and easy to catch, they generally rate rockfish angling characteristics lowly. However, they perceive of rockfish very positively as a food fish. Pacific mackerel, which is quite different from the other four fish types, is generally held in low esteem both as a sportfish and a food fish by CPFV owner/operators. Few owner/operators feel that they are good to eat, enjoy catching them, or find them challenging to catch. While most respondents consider mackerel too small to bother with, 53 percent agree that they fight hard.

5.3.2 Perceptions of Three Types of CPFV Fishing

The majority of respondents agreed that their customers perceive of all three types of fishing (salmon trolling, potluck, and rockfish) as being relatively inexpensive, relaxing, simple to learn, enjoyable, convenient, having a high chance of catching fish, and paying off in fish to take home (Table 33). Almost all owner/operators felt that anglers consider the crew polite, the fish handled well onboard, and the marine environment enjoyable.

Generally, the owner/operators felt that their customers have more positive perceptions about salmon and potluck fishing than the rockfish fishing. While they rated the simplicity and chances of catching fish higher for rockfish, the CPFV people think that their customers find rockfish fishing less relaxing, less enjoyable, more crowded, with more difficult gear and too long a trip. Most also thought that customers find potluck trips too crowded.

TABLE 31 Northern California CPFV Owner/Operators' Perceptions of Five Target Species

	SALMON		PACIFIC MACKEREL		STRIPED BASS		ROCKFISH		STURGEON	
	Percent Agree ^a	Mean ^b	Percent Agree	Mean	Percent Agree	Mean	Percent Agree	Mean	Percent Agree	Mean
This fish fights hard when hooked.	100	1.6	53	2.5	88	1.5	5	3.2	93	1.8
This fish is easy to catch.	57	2.5	94	1.5	53	2.5	91	1.6	6	3.3
I consider this a trophy fish.	81	1.8	0	3.6	67	2.2	5	3.2	67	1.9
I enjoy catching these.	96	1.4	30	3.0	89	1.7	80	2.0	80	2.0
I know little about catching these.	0	3.6	16	3.2	30	2.9	0	3.4	42	2.6
This fish is a challenge to catch.	91	1.6	0	3.4	83	2.0	24	2.8	94	1.4
I would rather release these unharmed.	10	3.2	41	2.6	25	2.9	0	3.3	44	2.6

^a includes both those who agree and those who strongly agree

^b measured on Likert-scale: 1 = strongly agree; 2 = agree; 3 = disagree; 4 = strongly disagree

TABLE 32 Northern California Owner/Operators' Perceptions of the Utilization Characteristics of Five Target Species

	SALMON		PACIFIC MACKEREL		STRIPED BASS		ROCKFISH		STURGEON	
	Percent Agree ^a	Mean ^b	Percent Agree	Mean	Percent Agree	Mean	Percent Agree	Mean	Percent Agree	Mean
This fish is good to eat.	100	1.1	35	2.5	85	1.8	100	1.4	94	1.5
This fish needs special handling onboard to preserve eating quality.	95	1.6	50	2.4	65	2.3	55	2.4	57	2.4
This fish spoils quickly.	62	2.2	60	2.3	50	2.7	40	2.7	50	2.6
This fish is difficult to prepare at home.	0	3.6	31	2.8	0	3.5	0	3.6	7	3.2
This fish is difficult to clean.	0	3.6	7	3.3	13	3.2	10	3.4	64	2.5
I usually eat these fish.	96	1.4	19	3.3	68	2.0	95	1.5	67	2.2
This fish is too small to bother with.	5	3.5	63	2.3	10	3.3	10	3.2	6	3.4

^a includes both those who agree and those who strongly agree

^b measured on Likert-scale: 1 = strongly agree; 2 = agree; 3 = disagree; 4 = strongly disagree

TABLE 33 Northern California CPFV Owner/Operators' Perceptions of Three Types of CPFV Fishing

	SALMON TROLLING		POTLUCK		ROCKFISH	
	Percent Agree ^a	Mean ^b	Percent Agree	Mean	Percent Agree	Mean
Compared to other types of outdoor recreation I participate in, this type of fishing is expensive.	36	2.6	40	2.6	31	2.7
These techniques are simple to learn.	77	2.0	75	2.1	91	1.8
Chances of catching these fish are high.	82	2.2	79	2.2	96	1.5
The weather is usually pleasant on these trips.	81	2.1	94	1.8	52	2.5
This type of fishing is relaxing and reduces stress.	100	1.6	84	1.9	77	2.0
I enjoy the other passengers on these trips.	100	1.6	95	1.8	82	2.1
Skipper and crew are helpful and polite.	100	1.5	100	1.6	100	1.7
I enjoy this style of fishing (gear and techniques).	96	1.7	100	1.7	91	2.0
The bag limit (number of fish permitted) is too low in this fishery.	27	2.8	29	2.8	18	2.9

^a includes both those who agree and those who strongly agree
^b measured on Likert-scale: 1 = strongly agree; 2 = agree; 3 = disagree; 4 = strongly disagree

TABLE 33 (continued)

	SALMON TROLLING		POTLUCK		ROCKFISH	
	Percent Agree ^a	Mean ^b	Percent Agree	Mean	Percent Agree	Mean
The time of departure is convenient.	82	2.0	100	1.8	82	2.0
I can't afford to go as often as I would like.	77	2.2	74	2.2	59	2.4
The boat is usually too crowded on these trips.	24	3.0	56	2.5	71	2.3
It is easy to find information about these fishing trips.	95	1.8	95	1.8	95	1.9
The fishing gear is physically difficult for me to use.	18	3.0	21	2.8	36	2.6
The boat trip is too long in this fishery.	5	3.1	6	3.0	41	2.5
The fish I catch are handled well onboard to preserve their eating quality.	96	1.7	90	1.8	91	1.9
The marine environment and scenery add significantly to my enjoyment on these trips.	96	1.5	95	1.6	100	1.5
This type of fishing usually pays for itself in terms of the amount of fish taken home to eat.	82	2.0	78	2.1	77	1.8

^a includes both those who agree and those who strongly agree
^b measured on Likert-scale: 1 = strongly agree; 2 = agree; 3 = disagree; 4 = strongly disagree

5.3.3 Owner/Operators' Ideas for Improvements and for Attracting More Customers

The vessel owner/operators' ideas for improvements and for attracting more customers are summarized in Tables 34 and 35. Improved service and improved facilities were the most often mentioned improvements. Respondents expressed the need for politeness, personal service, and honesty by skipper and crew and for cleaner and more comfortable facilities for passengers.

When asked about how to attract more customers, over half the respondents mentioned increased advertising including television coverage, and the use of derbies to promote business. Others mentioned improved fishing both in terms of numbers of fish and size of fish.

Other comments by owner/operators focused on concerns about gillnets, restrictive regulations, and economics (Table 36). Respondents were particularly worried about the effects of gillnets on the rockfish resource. Regulatory concerns focus on reduced limits and shortened seasons, while the economic concerns are constantly rising costs of insurance, berthing, and repairs.

TABLE 34 Northern California Vessel Owners/Operators' Suggestions for Most Important CPFV Improvements

Suggestion	Number Mentioning
Improved service (politeness, better crew, etc.)	7
Improved facilities (comfort, safety, cleanliness)	7
Reduce crowds	2
Seasick pill that works	2
Other	5

**TABLE 35 Northern California Vessel Owners/Operators'
Ideas for Attracting More CPFV Customers**

Idea	Number Mentioning
More advertising (television, derbies, etc.)	13
Improved fishing (more fish, larger fish)	8
Improved vessels	3
Reduced fares and license fees	3
Better weather	2
Other	4

**TABLE 36 Northern California Vessel Owners/Operators'
Other Concerns and Comments**

Concern/Comment	Number Mentioning
Gillnets	6
Regulations	4
Economics (costs)	4
Other	3

5.4 Northern California CPFV Anglers

5.4.1 Recreational Activities, Information Sources, and Angling Decision-Making

Table 37 shows that the CPFV fleet competes with numerous other recreational activities, especially freshwater fishing, boating, and spectator sports. Unlike southern California, northern California anglers devote less time to non-CPFV saltwater fishing (Table 38). Salmon trolling dominates the CPFV effort of the respondents (Table 39). On average, the respondents took 14 salmon trips, 1 potluck trip, and 2 rockfish trips (Table 40).

TABLE 37 Days Spent Annually on Recreational Activities by Northern California Anglers

Activity	Mean Number of Days	(SD)
CPFV fishing	16.2	(38.5)
Backpacking	1.1	(2.7)
Skiing	4.4	(13.1)
Hunting	3.9	(13.1)
Boating	13.7	(34.4)
Freshwater fishing	15.8	(21.5)
Camping	7.2	(11.2)
Spectator sports	18.0	(56.6)
Team sports	12.0	(40.1)
Nature trips	2.2	(5.5)
Other saltwater fishing	4.8	(11.6)

TABLE 38 Days Spent Annually on Different Types of Saltwater Fishing by Northern California Anglers

Activity	Mean Number of Days	(SD)
Shore or pier	3.6	(6.2)
From own boat	5.4	(16.5)
From friend's boat	5.5	(21.4)
Charterboat	7.5	(35.3)
Open load	10.8	(32.7)

TABLE 39 Distribution of Effort by Northern California Anglers in Major Fisheries (percent)

Days	Salmon Trolling	Potluck	Rockfish	Sturgeon	Other
no answer	1	1	1	1	1
0	15	83	79	89	90
1	17	5	2	2	1
2	7	5	8	4	3
3-10	40	7	7	4	4
over 10	20	0	3	1	2

TABLE 40 Mean Number of Days of Angler Participation in 1986 Northern California CPFV Fisheries

Fishery	Days	(SD)
Salmon trolling	13.9	(31.9)
Potluck (striped bass, halibut, etc.)	0.5	(1.5)
Rockfish	1.5	(6.8)
Sturgeon	0.5	(2.1)
Other	1.0	(5.4)

When asked to list their information sources about CPFV fishing, anglers cited newspapers and CPFV crews most often (Table 41). When asked to rank the importance of their information sources, anglers ranked interpersonal sources such as friends, co-workers, and other fishermen as most important (Table 42). This differs from the southern California sample, which used newspapers most. Like southern California, radio, television, and tourist information were unimportant to most anglers as information sources.

Tables 43 and 44 summarize the importance of 14 possible considerations that could influence anglers' decision to go CPFV fishing. Like the southern California anglers, both fish catch considerations and non-fish catching considerations (fishing with friends, relaxation) are important. Non-fish catch considerations seem especially important to northern California anglers. Cost appears to be a secondary consideration.

TABLE 41 Media Used by Northern California Anglers for CPFV Information

Media	Number of Anglers Mentioning
<u>Magazines</u>	
Field and Stream	2
Western Outdoor News	1
Saltwater Sportsman	1
<u>Newspapers</u>	
San Francisco Chronicle	9
San Francisco Examiner	3
Sacramento Bee	2
Press Democrat	2
Independent Journal	2
<u>Radio and Television</u>	
KCBS	2
KNEW	2
KGO-TV	2
Other	5
<u>Other Sources</u>	
CPFV skippers and crew	8
Fish landing	1

TABLE 42 Northern California Anglers' Rankings of Sources of Information About CPFV Fishing

Source	Most Important	Second Most Important	Third Most Important
Friends	35	8	11
Bait & tackle shops	8	6	9
Co-workers	7	7	2
Other fishermen	6	14	18
Newspapers	6	6	5
Other sources	4	0	0
Radio	3	1	1
Relatives	2	4	1
Television	1	1	0
Telephone call-in	1	3	0
Magazines	0	2	1
Tourist information	0	1	2
Fish landing docks	0	6	3

**TABLE 43 Northern California Anglers' Ranking of Considerations
When Deciding on CPFV Fishing**

Consideration	Most Important	Second Most Important	Third Most Important
Fishing with friends/ co-workers	18	14	7
Relaxation	15	5	7
Recent catches	15	6	5
Chance to catch fish	8	15	11
Time available	7	6	7
Learning more	4	1	2
Type of gear used	3	2	1
Cost	2	6	4
Fishing with relatives	2	6	1
Enjoy ocean environment	2	6	14
Weather conditions	0	5	8
Time of year	0	2	2
Past experiences	0	0	3

TABLE 44 Relative Importance to Northern California Anglers of Considerations in Deciding About CPFV Fishing

Consideration	Very Important	Somewhat Important	Somewhat Unimportant	Not a Consideration	Don't Know	Mean	(SD)
1. Reports of recent catches	49	32	8	8	12	1.7	(0.9)
2. Cost of going fishing	21	27	20	23	18	2.5	(1.1)
3. Style of fishing	16	27	19	23	24	2.6	(1.1)
4. My time available	45	25	11	12	16	1.9	(1.1)
5. Learning more about fishing	23	26	16	22	22	2.4	(1.1)
6. Fishing with friends/co-workers	49	35	7	11	7	1.8	(1.0)
7. Fishing with relatives	23	31	13	22	20	2.4	(1.1)
8. Anticipated weather conditions	28	39	12	12	18	2.1	(1.0)
9. Get away and relax	49	33	4	11	12	1.8	(1.0)
10. Anticipation of catching fish	50	27	7	10	15	1.8	(1.0)
11. Time of year	13	31	19	24	22	2.6	(1.0)
12. Enjoying ocean environment	44	32	12	6	15	1.8	(0.9)
13. Opinions of respected fishermen	16	37	15	18	23	2.4	(1.0)
14. Past experiences on similar trips	18	35	15	16	25	2.3	(1.0)

measured on Likert-scale: 1 = very important; 2 = somewhat important; 3 = somewhat unimportant; 4 = not a consideration

5.4.2 Perceptions of Characteristics of Five Target Fish

The northern California anglers' perceptions of the angling and utilization characteristics of five target fish (salmon, Pacific mackerel, striped bass, rockfish, and sturgeon) are summarized in Tables 45 and 46. Like the owner/operators, the anglers' perceptions of salmon, striped bass, and sturgeon are very similar and very positive. The only difference appears to be a tendency to consider sturgeon more difficult to catch, clean, and prepare than salmon or bass. Also, anglers tend to know less about catching sturgeon and are less likely to eat sturgeon than bass or salmon. One of the few differences between the owner/operators' and anglers' perceptions of these three species is that anglers appear to be less aware of the need for special handling and the quick spoilage of salmon.

Rockfish is again rated highly as a food fish, but rather lowly for its angling characteristics (challenge, fighting ability). Mackerel continues to be perceived negatively by anglers for most angling and utilization attributes. Over half the anglers know little about mackerel, which shows that some education might help. More anglers consider it a hard-fighting fish compared to rockfish.

5.4.3 Perceptions of Three Types of CPFV Fishing

The anglers had several interesting perceptions across all three fisheries (salmon trolling, potluck, and rockfish) (Table 47). About two-thirds of the respondents agreed that these CPFV trips were expensive compared to their other recreational activities. Only about one-third of the owner/operators thought their customers considered the trips relatively expensive. About 50 percent of the anglers agreed that the bag limit was too low for all three fisheries. This differs considerably from the perceptions of the owner/operators and from both southern California groups. The anglers also generally agreed that all three types of fishing were relaxing, while fewer owner/operators felt that anglers found rockfish fishing relaxing.

The anglers' responses pointed out further differences in perceptions between anglers and the owner/operators. Fewer anglers considered the gear physically difficult to use in all these fisheries than owner/operators. Fewer anglers than owner/operators felt that the rockfish trips were too crowded, too long, and not relaxing. Anglers tended to rate the weather and ease of obtaining information lower on potluck trips than owner/operators. Finally, only about half the anglers agreed that the three fisheries were cost effective in terms of fish landed, while more than 75 percent of the owner/operators thought their customers found the trips cost effective.

TABLE 45 Northern California CPFV Anglers' Perceptions About Five Target Species' Angling Characteristics

	SALMON		PACIFIC MACKEREL		STRIPED BASS		ROCKFISH		STURGEON	
	Percent Agree ^a	Mean ^b	Percent Agree	Mean	Percent Agree	Mean	Percent Agree	Mean	Percent Agree	Mean
This fish fights hard when hooked.	90	1.9	44	2.6	94	1.6	22	2.9	87	1.9
This fish is easy to catch.	48	2.5	65	2.3	44	2.6	91	1.7	6	3.1
I consider this a trophy fish.	58	2.3	7	3.2	53	2.4	11	3.1	63	2.2
I enjoy catching these.	100	1.5	50	2.6	98	1.6	77	2.0	92	1.8
I know little about catching this fish.	24	2.9	55	2.4	20	2.9	25	2.8	56	2.4
This fish is a challenge to catch.	89	1.9	48	2.5	94	1.8	38	2.6	100	1.6
I would rather release these unharmed.	22	2.9	36	2.6	22	2.9	14	3.0	30	2.7

^a includes both those who agree and those who strongly agree

^b measured on Likert-scale: 1 = strongly agree; 2 = agree; 3 = disagree; 4 = strongly disagree

TABLE 46 Northern California Anglers' Perceptions of the Utilization Characteristics of Five Target Species

	SALMON		PACIFIC MACKEREL		STRIPED BASS		ROCKFISH		STURGEON	
	Percent Agree ^a	Mean ^b	Percent Agree	Mean	Percent Agree	Mean	Percent Agree	Mean	Percent Agree	Mean
This fish is good to eat.	99	1.3	31	2.8	91	1.8	96	1.7	92	1.6
This fish needs special handling onboard to preserve eating quality.	67	2.1	61	2.2	63	2.2	51	2.4	66	2.2
This fish spoils quickly.	45	2.4	46	2.5	47	2.4	39	2.5	39	2.5
This fish is difficult to prepare at home.	6	3.2	29	2.7	6	3.1	9	3.0	25	2.8
This fish is difficult to clean.	10	3.1	25	2.8	19	2.9	26	2.8	41	2.6
I usually eat these fish.	96	1.6	36	2.7	86	1.8	89	1.8	74	2.0
This fish is too small to bother with.	7	3.2	38	2.6	12	3.0	22	2.9	14	3.1

^a includes both those who agree and those who strongly agree

^b measured on Likert-scale: 1 = strongly agree; 2 = agree; 3 = disagree; 4 = strongly disagree

TABLE 47 Northern California Anglers' Perceptions of Three Types of CPV Fishing

	SALMON TROLLING		POTLUCK		ROCKFISH	
	Percent Agree ^a	Mean ^b	Percent Agree	Mean	Percent Agree	Mean
Compared to other types of outdoor recreation I participate in, this type of fishing is expensive.	73	2.0	65	2.3	66	2.2
These techniques are simple to learn.	90	1.8	89	1.9	89	1.9
Chances of catching these fish are high.	65	2.3	70	2.3	87	1.8
The weather is usually pleasant on these trips.	73	2.2	69	2.3	71	2.3
This type of fishing is relaxing and reduces stress.	97	1.6	88	1.9	88	1.8
I enjoy the other passengers on these trips.	94	1.8	89	2.0	80	2.1
Skipper and crew are helpful and polite.	100	1.3	95	1.6	86	1.7
I enjoy this style of fishing (gear and techniques).	98	1.6	89	1.8	87	1.9
The bag limit (number of fish permitted) is too low in this fishery.	52	2.4	50	2.5	53	2.4

^a includes both those who agree and those who strongly agree

^b measured on Likert-scale: 1 = strongly agree; 2 = agree; 3 = disagree; 4 = strongly disagree

TABLE 47 (continued)

	SALMON TROLLING		POTLUCK		ROCKFISH	
	Percent Agree ^a	Mean ^b	Percent Agree	Mean	Percent Agree	Mean
The time of departure is convenient.	83	2.0	93	1.9	87	1.9
I can't afford to go as often as I would like.	62	2.2	49	2.4	55	2.4
The boat is usually too crowded on these trips.	33	2.6	47	2.4	50	2.3
It is easy to find information about these fishing trips.	88	1.9	73	2.1	80	2.0
The fishing gear is physically difficult for me to use.	7	3.3	10	3.3	12	3.2
The boat trip is too long in this fishery.	14	3.0	10	3.1	20	2.8
The fish I catch are handled well onboard to preserve their eating quality.	94	1.6	83	1.9	87	1.8
The marine environment and scenery add significantly to my enjoyment on these trips.	92	1.7	90	1.8	92	1.7
This type of fishing usually pays for itself in terms of the amount of fish taken home to eat.	51	2.4	41	2.7	59	2.4

^a includes both those who agree and those who strongly agree

^b measured on Likert-scale: 1 = strongly agree; 2 = agree; 3 = disagree; 4 = strongly disagree

5.4.4. Northern California Anglers' Comments About CPFV Fishing

Northern California anglers were asked several open-ended questions about CPFV fishing. When asked what would motivate them to take more CPFV trips, they most often mentioned "having more time," "if the trips were less costly," and "having more money" (Table 48). Unlike southern California, crowding was cited less frequently.

When asked for the most important improvement that could be made, reducing loads and improving onboard facilities were mentioned most often (Table 49). Many respondents expressed satisfaction with the way things are done now. It appears that time and money are barriers to going more often, while reducing loads and improving facilities and services will add to some customers' satisfaction.

TABLE 48 Northern California Anglers' Reasons/Needs That Would Allow Them to Fish on CPFVs More Often

Reason/Need	Number of Anglers Mentioning
Had more time	32
Trips less costly	19
Had more money	16
Less crowded / smaller loads	5
Lived closer	5
Didn't get seasick	2
Higher bag limits	2
Other	10

TABLE 49 Northern California Anglers' Suggestions for CPFV Improvements

Suggestion	Number of Anglers Mentioning
Fine as is / none / don't know	18
Smaller loads / less crowded	14
Better facilities (food, seating, etc.)	6
Better service (deckhands, instruction)	3
Chilling of catch onboard	3
Limit alcohol consumption	2
More fish	2
Other suggestions	7

5.5 Discussion and Recommendations

This study provides the CPFV industry with an indepth market survey which may be used to make changes in their operations. The industry has to compete with many recreational alternatives. Below is listed a series of recommendations that are based on the findings of this study. Most of the findings are consistent with those found with Atlantic and Gulf Coast anglers (especially on anglers' motivations). Several of these recommended strategies will be tested and evaluated with CPFV cooperators during the second year of this project.

5.5.1 Southern California Recommendations

The angler responses to questions about information sources and their decision-making behavior provide several ideas for more effective promotion and marketing.

1. Continue to use newspapers and magazines to create awareness about CPFV. Because magazines are less timely, the non-fish catching attributes of fishing that the anglers identified (relaxation, fun with friends, etc.) should be emphasized.

2. Tourist information was not an important source used by anglers. This indicates either that the CPFV industry isn't utilizing this potential advertising opportunity or that potential anglers don't read those materials. If they aren't currently doing so, CPFV owners might consider making tourists more aware of their service.
3. Friends and co-workers are important sources of information for southern California anglers. Increased use of inter-personal "relationship marketing" as described by De Young (1987) could increase customer loyalty and repeat business. This type of marketing emphasizes service, personal follow-up, and incentives for repeat customers.
4. Because reports of recent catches, relaxation, and fun appear to be much more important than cost in the anglers' decision to go fishing, these attributes should be emphasized in CPFV marketing.

Both owners and anglers hold mackerel in low esteem, especially as a food fish. While many feel that mackerel fight hard, few anglers or owners find them challenging to catch. These negative perceptions make it difficult to attract customers to inshore freelance fishing when mackerel dominate the catch. Some ideas for improving the desirability of mackerel, based on anglers' responses, are listed below.

1. Provide onboard chilling of the catch with either refrigerated seawater or ice. Immediate chilling and bleeding of mackerel onboard will greatly enhance their food quality.
2. Educate anglers about the care and preparation of mackerel using crew demonstrations and leaflets. This information could also be used in magazine and newspaper articles.
3. Encourage the use of and/or provide lighter-weight tackle when mackerel are likely to be caught. This should make mackerel more challenging to catch.
4. Emphasize the desirable, hard-fighting characteristics of mackerel similar to those of bonito. This type of approach is being used successfully in the Southeast (Johnson and Griffith, 1984).
5. Consider sponsoring mini-derbies for mackerel.

The responses of anglers and owner/operators point out several operational changes that could increase customer satisfaction and participation. Most of the CPFV improvements mentioned by anglers and owners focus on improved service. Many anglers indicated strong

dissatisfaction with service. De Young (1987) and others have found the quality of service to be more important than catching fish on fishing trips. According to De Young, improved service will lead to increases in repeat customers.

1. Select crew based on their ability and commitment to providing helpful, polite service to customers.
2. Provide training for crew on working with the public.
3. Devise ways for limiting loads. Many anglers indicated a willingness to pay more for lighter loads. Provide incentives to encourage anglers to fish during the week or other periods when loads are light.
4. Upgrade facilities that add to customers' comfort (clean toilets, seating, bunks, food).
5. Provide improved onboard handling of the catch with ice or refrigeration.
6. Provide improved instruction for new anglers.
7. Use "relationship management" to increase customer loyalty and repeat business.

5.5.2 Northern California

While the northern and southern California anglers have much in common, there are some important differences. In northern California, interpersonal communications seem to be more widely used than mass media to find out about CPFV fishing. Friends are by far the most important source of information, while relaxation and companionship are especially important in the fishing decision. Several recommendations come from these findings.

1. Emphasize the relaxation and fishing-with-friends attributes of CPFV fishing in advertising, newsletters, and magazines.
2. Increase timely daily catch reports in newspapers and on radio. The current unimportance of newspapers in fishing decisions by anglers may be due to a lack of information in newspapers. Andrews (1986) found that CPFV salmon anglers respond quickly to reports of good catches.
3. Because of the importance of interpersonal communication in anglers' decision to go fishing, "relationship marketing" should work well (De Young, 1987).

4. Few anglers cite tourist information or angling magazines as important sources for CPFV information. This could be because no information is available in these media. If that is the case, then promotions in these media could be worthwhile.

Anglers and owners both held rockfish (poor fighting qualities) and mackerel (poor food quality) in relatively low esteem. Rockfish trips were less enjoyable than salmon and potluck fishing. This leads to several recommendations.

1. Consider limiting loads and using lighter tackle on rockfish trips. This may only be feasible on inshore shallow water trips. Lighter gear may help improve anglers' perceptions of the fighting ability of rockfish to match their high appeal as food.
2. If numerous mackerel are encountered some years, consider carrying ice to chill the catch. Leaflets on mackerel preparation might also be useful. Mackerel might be a decent supplemental catch when mooching or jigging for salmon.

Unlike southern California anglers, most of the northern California respondents were pleased with the service onboard the vessels. The primary improvement suggested was to limit the loads and to provide improved comfort (food, seating, etc.). The CPFV owner/operators seemed to be more concerned about improving service (politeness, crew) and facilities than the customers. Several recommendations follow.

1. Try ways to limit loads such as incentives to go at less crowded times or by offering smaller loads at a higher price per angler.
2. Continue emphasis on service. Use "relationship marketing" to increase customer loyalty.
3. Select and train crew with skills important to giving customers good service.

6.0 EVALUATION

6.1 Project Goals and Objectives

1. Measure the perceptions and preferences of California CPFV anglers, skippers, and crews about underutilized species.
2. Measure the demographics, information sources, and perceptions about CPFV angling of recreational anglers.
3. Recommend strategies to decrease waste of underutilized species and to improve desirability of these species. This could include education programs and materials, changes in onboard practices, etc.
4. Recommend strategies for the industry to market their recreational product.
5. Evaluate the project results and recommend future activities by the industry and future research needs.

All of the project goals are measureable, and the results are contained in this report. All of the goals and objectives were attained. The primary modifications were due to difficulties in sampling. We planned to choose random samples taken from CPFV passenger lists in both northern and southern California. When these lists were not forthcoming, we had to devise the best feasible method in each location. For southern California, this involved sending the questionnaire to approximately 800 people drawn randomly from the computerized mailing list of the Sportfishing Association of California. In northern California, we mailed angler questionnaires to vessel owner/operators and asked them to pass them out to anglers. This worked very poorly. The most effective technique turned out to be taking the questionnaires to the skippers at the time of their departure and explaining the project to their passengers. Sets of questionnaires were also left with skippers to be passed out to passengers during weekday trips. The skippers gathered up the questionnaires and mailed them back to us. This worked quite well.

Sampling recreational anglers has been difficult for past researchers. Our samples are adequate but not ideal. We plan to continue sampling the northern California anglers during 1988 to increase our sample size and to lessen any seasonal effects.

6.2 Specific Accomplishments

1. Completed questionnaires were analyzed for 364 southern California anglers, 109 northern California anglers, 64 southern California owner/operators, and 22 northern California owner/operators.
2. Indepth information was gained on angler demographics, information sources, decision-making behavior, perceptions of target fish, perceptions of different fisheries, and ideas for CPFV improvements.
3. Indepth information was gained on CPFV owner/operators' activities, perceptions of target fish, perceptions of different fisheries, and ideas for CPFV improvements.
4. Recommendations were made for industry action to increase angler utilization of mackerel and to attract more anglers to CPFV fishing.
5. A proposal for further research and testing some of the recommendations in cooperation with industry was completed and approved for S-K funding in 1988.
6. A detailed report of the first year's findings was completed.

The primary product of the first year was an indepth market survey which provides the baseline for future CPFV action. The main value of these actions will be increased utilization of mackerel and increased numbers of customers on CPFV trips.

6.3 Benefits to Industry

The two primary CPFV organizations in California, the Sport-fishing Association of California and the Golden Gate Fishermen's Association, were involved in project planning and the actual research. The leadership of these organizations were kept up to date on the project. Summaries of this report will be provided to the members of these organizations during 1988 for use in their individual marketing efforts. CPFV industry leaders will be involved in setting up tests of marketing strategies during 1988.

The project results have not yet been used by the CPFV industry. As the industry becomes aware of the results and observes several tests of marketing strategies during 1988, we expect to see the information put to use.

6.4 Economic Benefits

It is premature to calculate any economic benefits to industry. The present benefits are primarily informational. It will take one or two years for the information to begin to be used by industry. Our 1988 activities should provide some basic information on potential economic benefits.

6.5 Need for Federal Assistance

The CPFV industry has few funds available for research, especially in these times of economic difficulty due to increased costs of insurance, maintenance and repairs, and highly variable fish abundance. The industry should be able to provide support through in-kind services such as consultations, participation in data gathering, and any pilot testing of new on-board practices (e.g., care of fish, chilling systems). It is also anticipated that the industry will help defray the costs of producing educational materials.

7.0 CONCLUSIONS

Several conclusions can be derived from the survey results:

1. The CPFV industry is competing for customers with many other recreational activities.
2. Anglers use a diverse group of CPFV information sources. Mass media are important for creating awareness. Although anglers get important information on recent catches from mass media, they often rate interpersonal sources (friends, co-workers, etc.) as their most important CPFV information source. This indicates that personal service and communication can be effective means of increasing business.
3. CPFV anglers appear to base their decision to go CPFV fishing as much or more on non-fish-catching variables (relaxation, fishing with friends, etc.) as on the desire to catch fish. These aesthetic attributes of CPFV fishing should be incorporated into marketing efforts.
4. Mackerel are held in low esteem by anglers primarily because of their perceived low food quality. Steps to improve mackerel quality through improved onboard handling (chilling) and angler education could lead to a rise in the acceptance of mackerel. Emphasis on the most desirable attribute of mackerel, their hard-fighting ability, should also raise anglers' acceptance of mackerel (e.g., use of lighter gear).
5. Primary improvements in the CPFV industry center on improved service through improved and more polite crews, offering trips with smaller loads, and improved facilities.

While the project didn't solve the problems of underutilization of mackerel and underutilization of CPFV opportunities, we have supplied information in a quantified form that can be used to attack these problems. Data on information sources, angler motivations, angler and owner/operator perceptions of target fish and fisheries, and ideas for improvements can all be used by the CPFV industry to improve their economic situation.

The results now need to be disseminated throughout the CPFV industry so individual businesses can use the information in their marketing strategies. We need to work with industry cooperators during the coming year to test several mutually acceptable marketing strategies and/or changes in onboard practices. We also need to continue to sample northern California anglers to ensure a representative sample.

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APPENDIX

QUESTIONNAIRES

NORTHERN CALIFORNIA OWNER/OPERATORS

COMMERCIAL PASSENGER FISHING VESSEL SURVEY
OWNERS, SKIPPERS AND CREW

Dear Commercial Passenger Fishing Vessel Owners, Skippers and Crew:

The enclosed questionnaire is part of our Saltonstall-Kennedy project targeted at development of your industry. Your answers will be confidential, and will only be used in combination with those of other owners and crew. We will use the results to make recommendations to the CPFV industry of ways to market and diversify your business to try to attract more customers. We are also doing an indepth survey of a random sample of sportsfishing customers at the same time.

Your filling out the questionnaire and returning it to us is critical to the success of this project. A self-addressed postage-paid envelope is enclosed for your convenience (no postage necessary). In return for your completing the questionnaire, we will send you a summary of the survey results. Just check the appropriate boxes below.

Thanks again for your participation. Feel free to contact us if you have any questions about the study (916-752-0328).

• Yes, I would like a summary of the survey.

Christopher M. Dewees
Sea Grant Extension
University of California
Davis, CA 95616

Greg Guagnano
Applied Behavioral Sciences
University of California
Davis, CA 95616

1. Which most accurately describes your involvement in the commercial passenger fishing industry? (Please circle the number below.)

(1) Owner and skipper

(4) Deckhand

(2) Owner only

(5) Other (specify): _____

(3) Skipper only

2. Length of vessel you own or work on: _____ feet

3. Which fisheries and activities did you participate in during 1986? (Circle numbers of all that apply.) Then tell us how many days you participated in each fishery during 1986.

(1) salmon _____ days

(2) potluck (Live bait, striped bass, etc.) _____ days

(3) rockfish _____ days

(4) sturgeon _____ days

(5) albacore _____ days

(6) nature trips _____ days

(7) other _____ days
(please specify): _____

4. The primary port my vessel operates out of is:

(1) Crescent City/Trinidad/Eureka

(5) Monterey Bay Area

(2) Fort Bragg

(6) Morro Bay/Avila

(3) Bodega Bay

(7) other _____
(please specify): _____

(4) San Francisco Bay Area
Half Moon Bay

5. Approximately what percent of your bookings are charters and what percent are open-loads?

_____ percent charters

_____ percent open-load

6. Below are statements about five types of fish. Please fill in what you think about each statement for each type of fish. Please use the symbols in the key.

An example is provided to help you get started. Please fill in all of the boxes even if you have never caught that type of fish.

Key
 ++ Strongly agree
 + Agree
 - Disagree
 -- Strongly disagree
 ? Don't know

	Salmon	Pacific Mackerel	Striped Bass	Rockfish	Sturgeon
EXAMPLE: This fish is attractive.	+	?	++	--	-
This fish fights hard when hooked.					
This fish is good to eat.					
This fish is easy to catch.					
This fish needs special handling onboard to preserve eating quality.					
I consider this a trophy fish.					
I enjoy catching these.					
This fish spoils quickly.					
I know little about catching this fish.					
This fish is difficult to prepare at home.					
This fish is difficult to clean.					
This fish is a challenge to catch.					
I usually eat these fish.					
I would rather release these unharmed.					
This fish is too small to bother with.					

7. Place yourself in the shoes of the customers on your vessel. Please fill in what you feel they think about each of the statements below about different types of charterboat/open-load partyboat sportsfishing. Use the symbols in the key. An example is provided to help you get started.

Please fill in all of the boxes even if you have never done some of these types of fishing.

<p style="text-align: center;">Key</p> <p>++ Strongly agree + Agree - Disagree -- Strongly disagree ? Don't know</p>	Salmon Trolling	Potluck (live bait for striper, halibut, etc.)	Rockfish	Other Please Specify: _____
EXAMPLE: Fishing success is predictable.	-	+	++	?
Compared to other types of outdoor recreation I participate in, this type of fishing is expensive.				
These techniques are simple to learn.				
Chances of catching these fish are high.				
The weather is usually pleasant on these trips.				
This type of fishing is relaxing and reduces stress.				
I enjoy the other passengers on these trips.				
Skipper and crew are helpful and polite.				
I enjoy this style of fishing (gear and techniques).				

Continued on next page

7. (Continued)

Key
++ Strongly agree
+ Agree
- Disagree
-- Strongly disagree
? Don't know

	Salmon Trolling	Potluck (live bait for striper, halibut, etc.)	Rockfish	Other Please Specify: _____
The bag limit (number of fish permitted) is too low in this fishery.				
The time of departure is convenient.				
I can't afford to go as often as I would like.				
The boat is usually too crowded on these trips.				
It is easy to find information about these fishing trips.				
The fishing gear is physically difficult for me to use.				
The boat trip is too long in this fishery.				
The fish I catch are handled well onboard to preserve their eating quality.				
The marine environment and scenery add significantly to my enjoyment on these trips.				
This type of fishing usually pays for itself in terms of the amount of fish taken home to eat.				

8. What do you think would be the best way to attract more customers to fishing on commercial passenger fishing vessels?

JUST A FEW MORE QUESTIONS TO GO

9. How many years have you been working in the commercial passenger fishing industry?

_____ years

10. How many years of schooling have you completed? (Please circle the number below.)

1 2 3 4 5 6 7 8

9 10 11 12

13 14 15 16

17 18 19 20 21+

Grade School

High School

College or
Technical
School

Postgraduate or
Professional
School

11. What year were you born? _____

12. What is your sex? (Please circle the number below.)

(1) Male

(2) Female

13. The most important improvement that could be made on charterboats and open-load partyboats

is _____

14. We would appreciate any other comments you have to add. (use back of page if necessary)

Thank you for giving your time to fill out this questionnaire. Please put this booklet in the enclosed self-addressed envelope and mail it back to us (no postage necessary). Happy fishing in 1987!

NORTHERN CALIFORNIA ANGLERS

SPORTSFISHING SURVEY

Dear Saltwater Angler:

The enclosed questionnaire is designed to collect your ideas on sports fishing. Your answers will be confidential and only used in combination with those of other anglers. We will use the results of this survey to make recommendations to the sportsfishing industry of ways to make your angling experience on board their vessels even more enjoyable.

Your filling out the questionnaire is critical to the success of this project. In return for your completing the questionnaire, we will send you a summary of the survey results and information on handling and preparing your catch. If you would like to receive these materials, please write your name and address on the attached 3 x 5 card.

Thanks again for your participation. Feel free to contact us if you have any questions about the study (916-752-0328).

Greg Guagnano
Applied Behavioral Sciences
University of California
Davis, CA 95616
(916) 752-0328

Christopher M. Dewees
Sea Grant Extension
University of California
Davis, CA 95616
(916) 752-1497

1. How many years have you been fishing on charterboats/openload partyboats? _____ years

2. How often do you do the following recreational activities?

- (1) Backpacking _____ days per year
- (2) Skiing _____ days per year
- (3) Hunting _____ days per year
- (4) Boating _____ days per year
- (5) Freshwater fishing _____ days per year
- (6) Camping _____ days per year
- (7) Spectator sports _____ days per year
- (8) Team sports _____ days per year
- (9) Nature trips _____ days per year
- (10) Charterboat/open-load partyboat fishing _____ days per year
- (11) Other saltwater fishing other than charterboat/open-load partyboat _____ days per year

3. How often do you do each of the following types of saltwater fishing?

- (1) Fishing from shore or pier _____ days per year
- (2) Fishing on your own boat _____ days per year
- (3) Fishing on a friend's boat _____ days per year

4. In 1987, how often did you go fishing on a charterboat or open-load partyboat sportsfishing boat?

- (1) charterboat _____ days
- (2) open-load partyboat sportsfishing boat _____ days
- (3) total trips _____ days

5. In 1987, how often did you do each of the following types of fishing on a charterboat or open-load partyboat?

- (1) salmon trolling _____ days
 - (2) potluck (live bait fishing for striped bass, halibut, etc.) _____ days
 - (3) rockfish _____ days
 - (4) sturgeon _____ days
 - (5) other (please specify): _____ days
- _____

6. Please rank your **three** most important sources of information about charterboat and open-load partyboat sportsfishing.

1=most important, 2=second most important, 3=third most important

- _____ Magazines Which ones? _____
- _____ Newspapers Which ones? _____
- _____ Radio Which stations? _____
- _____ Bait and tackle shops
- _____ Television (other than cable TV) Which stations? _____
- _____ Telephone call-in fish report recordings
- _____ Tourist information
- _____ Cable television Which stations? _____
- _____ Fish landing docks
- _____ Friends
- _____ Co-workers
- _____ Relatives
- _____ Other fishermen
- _____ Other (please specify) _____

7. Below are things you might consider when deciding to go fishing on a charterboat and/or an open-load partyboat. In the space next to each item, please fill in how important each factor is in your decision to go fishing.

Please use the symbols in the key for your answers.

Key	
++	= Very important
+	= Somewhat important
-	= Somewhat unimportant
--	= Not a consideration
?	= Don't know

EXAMPLE:			
To use my new fishing gear.		++	
1. Reports of recent catches.			9. Desire to "get away" and relax.
2. The cost of going fishing.			10. Anticipation of catching fish.
3. Style of fishing (gear and techniques).			11. Time of year.
4. My time available to go fishing.			12. Enjoying the ocean environment.
5. Learning more about fishing.			13. Other fishermen whose opinions you respect.
6. To go fishing with friends or co-workers			14. Past experience(s) on similar trips.
7. To go fishing with relative(s).			15. Other (please specify):
8. Anticipated weather conditions.			

THERE ARE 2 COLUMNS IN THE QUESTION ABOVE. PLEASE CHECK TO SEE IF YOU HAVE ANSWERED QUESTIONS 9-15 IN THE SECOND COLUMN.

8. Now please rank the three most important considerations in your decision to go charterboat/open-load partyboat fishing. Use the numbers from the 15 items, in Question 7 above, to indicate your answer.

- _____ Most important
- _____ Second most important
- _____ Third most important

9. Below we have listed statements about different types of charterboat and open-load partyboat sportsfishing. Please fill in what you think about each statement for each type of fishing. Please use the symbols in the key. An example is provided to help you get started.

Please fill in all of the boxes even if you have never done some of these types of fishing.

<p style="text-align: center;">Key</p> <p>++ Strongly agree + Agree - Disagree -- Strongly disagree ? Don't know</p>	Salmon Trolling	Potluck (live bait for striper, halibut, etc.)	Rockfish	Other Please Specify: _____
EXAMPLE: Fishing success is predictable.	-	+	++	?
Compared to other types of outdoor recreation I participate in, this type of fishing is expensive.				
These techniques are simple to learn.				
Chances of catching these fish are high.				
The weather is usually pleasant on these trips.				
This type of fishing is relaxing and reduces stress.				
I enjoy the other passengers on these trips.				
Skipper and crew are helpful and polite.				
I enjoy this style of fishing (gear and techniques).				

Continued on next page

9. (Continued)

Key
 ++ Strongly agree
 + Agree
 - Disagree
 -- Strongly disagree
 ? Don't know

	Salmon Trolling	Potluck (live bait for striper, halibut, etc.)	Rockfish	Other Please Specify: _____
The bag limit (number of fish permitted) is too low in this fishery.				
The time of departure is convenient.				
I can't afford to go as often as I would like.				
The boat is usually too crowded on these trips.				
It is easy to find information about these fishing trips.				
The fishing gear is physically difficult for me to use.				
The boat trip is too long in this fishery.				
The fish I catch are handled well onboard to preserve their eating quality.				
The marine environment and scenery add significantly to my enjoyment on these trips.				
This type of fishing usually pays for itself in terms of the amount of fish taken home to eat.				

10. Below are statements about five types of fish. Please fill in what you think about each statement for each type of fish. Please use the symbols in the key.

An example is provided to help you get started.

Please fill in all of the boxes even if you have never caught that type of fish.

Key
 ++ Strongly agree
 + Agree
 - Disagree
 -- Strongly disagree
 ? Don't know



	Salmon	Pacific Mackerel	Striped Bass	Rockfish	Sturgeon
EXAMPLE: This fish is attractive.	+	?	++	--	+
This fish fights hard when hooked.					
This fish is good to eat.					
This fish is easy to catch.					
This fish needs special handling onboard to preserve eating quality.					
I consider this a trophy fish.					
I enjoy catching these.					
This fish spoils quickly.					
I know little about catching this fish.					
This fish is difficult to prepare at home.					
This fish is difficult to clean.					
This fish is a challenge to catch.					
I usually eat these fish.					
I would rather release these unharmed.					
This fish is too small to bother with.					

Please fill in the rest of the following sentences:

11. I would take more trips on charterboats and open-load partyboats if

12. The most important improvement that could be made on charterboats and open-load partyboats is _____

JUST A FEW MORE QUESTIONS TO GO

13. How many years of schooling have you completed? (Please circle the number below.)

1 2 3 4 5 6 7 8

9 10 11 12

13 14 15 16

17 18 19 20 21+

Grade School

High School

College or
Technical
School

Postgraduate or
Professional
School

14. What year were you born? _____

15. What is your sex? (Please circle the number below.)

(1) Male

(2) Female

16. What is your employment status? (Please circle the number below.)

(1) Employed full-time

(2) Employed part-time

(3) Retired

(4) Unemployed

(5) Student

17. What is (was) your principal occupation?

18. Which of the following categories best describes your total household income in 1987?
(Please circle the number below.)

- | | |
|--------------------------|--------------------------|
| (1) Less than \$5,000 | (5) \$30,000 to \$39,999 |
| (2) \$5,000 to \$9,999 | (6) \$40,000 to \$49,999 |
| (3) \$10,000 to \$19,999 | (7) \$50,000 to \$60,000 |
| (4) \$20,000 to \$29,999 | (8) More than \$60,000 |

19. Which of the following groups best describes you? (Please circle the number below.)

- (1) Hispanic (Mexican-American, Latino, etc.)
- (2) Black
- (3) Japanese
- (4) Chinese
- (5) Asian (other than Japanese or Chinese)
- (6) American Indian
- (7) Caucasian
- (8) Other (please specify): _____

20. We would appreciate any other comments you have to add.

Thank you for giving your time to fill out this questionnaire.

Happy fishing in 1988!

SOUTHERN CALIFORNIA OWNER/OPERATORS

COMMERCIAL PASSENGER FISHING VESSEL SURVEY
OWNERS, SKIPPERS AND CREW

Dear Commercial Passenger Fishing Vessel Owners, Skippers and Crew:

The enclosed questionnaire is part of our Saltonstall-Kennedy project targeted at development of your industry. Your answers will be confidential, and will only be used in combination with those of other owners and crew. We will use the results to make recommendations to the CPFV industry of ways to market and diversify your business to try to attract more customers. We are also doing an indepth survey of a random sample of sportsfishing customers at the same time.

Your filling out the questionnaire and returning it to us is critical to the success of this project. A self-addressed postage-paid envelope is enclosed for your convenience (no postage necessary). In return for your completing the questionnaire, we will send you a summary of the survey results. Just check the appropriate boxes below.

Thanks again for your participation. Feel free to contact us if you have any questions about the study (916-752-0328).

Yes, I would like a summary of the survey.

Christopher M. Dewees
Sea Grant Extension
University of California
Davis, CA 95616

Greg Guagnano
Applied Behavioral Sciences
University of California
Davis, CA 95616

1. Which most accurately describes your involvement in the commercial passenger fishing industry?

(Please circle the number below.)

- (1) Owner and skipper
- (2) Owner only
- (3) Skipper only
- (4) Deckhand
- (5) Other (specify): _____

2. Length of vessel you own or work on:

_____ feet

3. Which fisheries and activities did you participate in during 1986? (Circle numbers of all that apply.) Then tell us how many days you participated in each fishery during 1986.

- (1) albacore _____ days
- (2) rockfish _____ days
- (3) inshore freelance _____ days
(less than 24 hours per trip)
- (4) multi-day trips _____ days
(1 to 3 days per trip)
- (5) long range trips _____ days
(3 or more days per trip)
- (6) other (please specify): _____ days

4. The primary port my vessel operates out of is:

5. Approximately what percent of your bookings are charters and what percent are open-loads?

_____ percent charters

_____ percent open-load

6. Below are statements about five types of fish. Please fill in what you think about each statement for each type of fish. Please use the symbols in the key.

An example is provided to help you get started. Please fill in all of the boxes even if you have never caught that type of fish.

Key

++ Strongly agree
 + Agree
 - Disagree
 -- Strongly disagree
 ? Don't know

	Albacore Tuna	Pacific Mackerel	Pacific Bonito	Rockfish	Kelp Bass
EXAMPLE: This fish is attractive.	+	?	++	-	-
This fish fights hard when hooked.					
This fish is good to eat.					
This fish is easy to catch.					
This fish needs special handling onboard to preserve eating quality.					
I consider this a trophy fish.					
I enjoy catching these.					
This fish spoils quickly.					
I know little about catching this fish.					
This fish is difficult to prepare at home.					
This fish is difficult to clean.					
This fish is a challenge to catch.					
I usually eat these fish.					
I would rather release these unharmed.					
This fish is too small to bother with.					

7. (Continued)

Key
 ++ Strongly agree
 + Agree
 - Disagree
 -- Strongly disagree
 ? Don't know

	Albacore	Rockfish	Inshore Freelance (less than 24 hour trips)	Multi-day Trips (1 to 3 days)	Long-range Trips (more than 3 days)	Other (Please Specify) _____
The bag limit (number of fish permitted) is too low in this fishery.						
The time of departure is convenient.						
I can't afford to go as often as I would like.						
The boat is usually too crowded on these trips.						
It is easy to find information about these fishing trips.						
The fishing gear is physically difficult for me to use.						
The boat trip is too long in this fishery.						
The fish I catch are handled well onboard to preserve their eating quality.						
The marine environment and scenery add significantly to my enjoyment on these trips.						
This type of fishing usually pays for itself in terms of the amount of fish taken home to eat.						

7. Place yourself in the shoes of the customers on your vessel. Please fill in what you feel they think about each of the statements below about different types of charterboat/open-load partyboat sportsfishing. Use the symbols in the key. An example is provided to help you get started.

Please fill in all of the boxes even if you have never done some of these types of fishing.

Key
 ++ Strongly agree
 + Agree
 - Disagree
 -- Strongly disagree
 ? Don't know

	Albacore	Rockfish	Inshore Freelance (less than 24 hour trips)	Multi-day Trips (1 to 3 days)	Long-range Trips (more than 3 days)	Other (Please Specify) _____
EXAMPLE:						
Fishing success is predictable.	-	+	++	?	+	-
Compared to other types of outdoor recreation I participate in, this type of fishing is expensive.						
These techniques are simple to learn.						
Chances of catching these fish are high.						
The weather is usually pleasant on these trips.						
This type of fishing is relaxing and reduces stress.						
I enjoy the other passengers on these trips.						
Skipper and crew are helpful and polite.						
I enjoy this style of fishing (gear and techniques).						

Continued on next page

8. What do you think would be the best way to attract more customers to fishing on commercial passenger fishing vessels?

JUST A FEW MORE QUESTIONS TO GO

9. How many years have you been working in the commercial passenger fishing industry?

_____ years

10. How many years of schooling have you completed? (Please circle the number below.)

1 2 3 4 5 6 7 8

9 10 11 12

13 14 15 16

17 18 19 20 21+

Grade School

High School

College or
Technical
School

Postgraduate or
Professional
School

11. What year were you born? _____

12. What is your sex? (Please circle the number below.)

(1) Male

(2) Female

13. The most important improvement that could be made on charterboats and open-load partyboats

is _____

14. We would appreciate any other comments you have to add. (use back of page if necessary)

Thank you for giving your time to fill out this questionnaire. Please put this booklet in the enclosed self-addressed envelope and mail it back to us (no postage necessary). Happy fishing in 1987!

SOUTHERN CALIFORNIA ANGLERS

SPORTSFISHING SURVEY

Dear Saltwater Angler:

You have been randomly selected from lists of anglers who have fished on charterboats or open-load partyboats during 1986. The enclosed questionnaire is designed to collect your ideas on sports fishing. Your answers will be confidential and only used in combination with those of other anglers. We will use the results of this survey to make recommendations to the sportsfishing industry of ways to make your angling experience on board their vessels even more enjoyable.

Your filling out the questionnaire and returning it to us is critical to the success of this project. A self-addressed postage-paid envelope is enclosed for your convenience (no postage necessary). In return for your completing the questionnaire, we will send you a summary of the survey and information on handling and preparing your catch. If you would like these materials, just check the appropriate boxes below.

Thanks again for your participation. Feel free to contact us if you have any questions about the study (916-752-0328).

_____ Yes, I would like a summary of the survey.

_____ Yes, I would like information on handling and preparing my catch.

Greg Guagnano
Applied Behavioral Sciences
University of California
Davis, CA 95616

Christopher M. Dewees
Sea Grant Extension
University of California
Davis, CA 95616

1. How many years have you been fishing? _____ years

2. How often do you do the following recreational activities?

(1) Backpacking _____ days per year

(2) Skiing _____ days per year

(3) Hunting _____ days per year

(4) Boating _____ days per year

(5) Freshwater fishing _____ days per year

(6) Camping _____ days per year

(7) Spectator sports _____ days per year

(8) Team sports _____ days per year

(9) Nature trips _____ days per year

(10) Charterboat/open-load partyboat fishing _____ days per year

(11) Other saltwater fishing other than charterboat/open-load partyboat _____ days per year

3. How often do you do each of the following types of saltwater fishing?

(1) Fishing from shore or pier _____ days per year

(2) Fishing on your own boat _____ days per year

(3) Fishing on a friend's boat _____ days per year

4. In 1986, how often did you go fishing on a charterboat or open-load partyboat sportsfishing boat?

(1) charterboat _____ days

(2) open-load partyboat sportsfishing boat _____ days

(3) total trips _____ days

5. In 1986, how often did you do each of the following types of fishing on a charterboat or open-load partyboat?

- (1) albacore _____ days
- (2) rockfish _____ days
- (3) inshore freelance
(less than 24 hours per trip) _____ days
- (4) multi-day trips
(1 to 3 days per trip) _____ days
- (5) long range trips
(3 or more days per trip) _____ days
- (6) other (please specify): _____ days

6. Please rank your **three** most important sources of information about charterboat and open-load partyboat sportsfishing.

1=most important, 2=second most important, 3=third most important

- _____ Magazines Which ones? _____
- _____ Newspapers Which ones? _____
- _____ Radio Which stations? _____
- _____ Bait and tackle shops
- _____ Television (other than cable TV) Which stations? _____
- _____ Telephone call-in fish report recordings
- _____ Tourist information
- _____ Cable television Which stations? _____
- _____ Fish landing docks
- _____ Friends
- _____ Co-workers
- _____ Relatives
- _____ Other fishermen
- _____ Other (please specify) _____

9. Below we have listed statements about different types of charterboat and open-load partyboat sportsfishing. Please fill in what you think about each statement for each type of fishing. Please use the symbols in the key. An example is provided to help you get started.

Please fill in all of the boxes even if you have never done some of these types of fishing.

<p style="text-align: center;">Key</p> <p>++ Strongly agree + Agree - Disagree -- Strongly disagree ? Don't know</p>	Albacore	Rockfish	Inshore Freelance (less than 24 hour trips)	Multi-day Trips (1 to 3 days)	Long-range Trips (more than 3 days)	Other (Please Specify) _____
<u>EXAMPLE:</u> Fishing success is predictable.	-	+	++	?	+	-
Compared to other types of outdoor recreation I participate in, this type of fishing is expensive.						
These techniques are simple to learn.						
Chances of catching these fish are high.						
The weather is usually pleasant on these trips.						
This type of fishing is relaxing and reduces stress.						
I enjoy the other passengers on these trips.						
Skipper and crew are helpful and polite.						
I enjoy this style of fishing (gear and techniques).						

Continued on next page

7. Below are things you might consider when deciding to go fishing on a charterboat and/or an open-load partyboat. In the space next to each item, please fill in how important each factor is in your decision to go fishing.

Please use the symbols in the key for your answers.

Key	
++	= Very important
+	= Somewhat important
-	= Somewhat unimportant
--	= Not a consideration
?	= Don't know

EXAMPLE:			
To use my new fishing gear.		++	
1. Reports of recent catches.			9. Desire to "get away" and relax.
2. The cost of going fishing.			10. Anticipation of catching fish.
3. Style of fishing (gear and techniques).			11. Time of year.
4. My time available to go fishing.			12. Enjoying the ocean environment.
5. Learning more about fishing.			13. Other fishermen whose opinions you respect.
6. To go fishing with friends or co-workers			14. Past experience(s) on similar trips.
7. To go fishing with relative(s).			15. Other (please specify):
8. Anticipated weather conditions.			

THERE ARE 2 COLUMNS IN THE QUESTION ABOVE. PLEASE CHECK TO SEE IF YOU HAVE ANSWERED QUESTIONS 9-15 IN THE SECOND COLUMN.

8. Now please rank the three most important considerations in your decision to go charterboat/open-load partyboat fishing. Use the numbers from the 15 items, in Question 7 above, to indicate your answer.

- _____ Most important
- _____ Second most important
- _____ Third most important

9. (Continued)

Key
 ++ Strongly agree
 + Agree
 - Disagree
 -- Strongly disagree
 ? Don't know

	Albacore	Rockfish	Inshore Freelance (less than 24 hour trips)	Multi-day Trips (1 to 3 days)	Long-range Trips (more than 3 days)	Other (Please Specify)
The bag limit (number of fish permitted) is too low in this fishery.						
The time of departure is convenient.						
I can't afford to go as often as I would like.						
The boat is usually too crowded on these trips.						
It is easy to find information about these fishing trips.						
The fishing gear is physically difficult for me to use.						
The boat trip is too long in this fishery.						
The fish I catch are handled well onboard to preserve their eating quality.						
The marine environment and scenery add significantly to my enjoyment on these trips.						
This type of fishing usually pays for itself in terms of the amount of fish taken home to eat.						

10. Below are statements about five types of fish. Please fill in what you think about each statement for each type of fish. Please use the symbols in the key.

An example is provided to help you get started. Please fill in all of the boxes even if you have never caught that type of fish.

Key

- ++ Strongly agree
- + Agree
- Disagree
- Strongly disagree
- ? Don't know



	Albacore Tuna	Pacific Mackerel	Pacific Bonito	Rockfish	Kelp Bass
EXAMPLE: This fish is attractive.	+	?	++	--	-
This fish fights hard when hooked.					
This fish is good to eat.					
This fish is easy to catch.					
This fish needs special handling onboard to preserve eating quality.					
I consider this a trophy fish.					
I enjoy catching these.					
This fish spoils quickly.					
I know little about catching this fish.					
This fish is difficult to prepare at home.					
This fish is difficult to clean.					
This fish is a challenge to catch.					
I usually eat these fish.					
I would rather release these unharmed.					
This fish is too small to bother with.					

Please fill in the rest of the following sentences:

11. I would take more trips on charterboats and open-load partyboats if

12. The most important improvement that could be made on charterboats and open-load partyboats is _____

JUST A FEW MORE QUESTIONS TO GO

13. How many years of schooling have you completed? (Please circle the number below.)

1 2 3 4 5 6 7 8

9 10 11 12

13 14 15 16

17 18 19 20 21+

Grade School

High School

College or
Technical
School

Postgraduate or
Professional
School

14. What year were you born? _____

15. What is your sex? (Please circle the number below.)

(1) Male

(2) Female

16. What is your employment status? (Please circle the number below.)

(1) Employed full-time

(2) Employed part-time

(3) Retired

(4) Unemployed

(5) Student

17. What is (was) your principal occupation?

18. Which of the following categories best describes your total household income in 1986?
(Please circle the number below.)

- | | |
|--------------------------|--------------------------|
| (1) Less than \$5,000 | (5) \$30,000 to \$39,999 |
| (2) \$5,000 to \$9,999 | (6) \$40,000 to \$49,999 |
| (3) \$10,000 to \$19,999 | (7) \$50,000 to \$60,000 |
| (4) \$20,000 to \$29,999 | (8) More than \$60,000 |

19. Which of the following groups best describes you? (Please circle the number below.)

- (1) Hispanic (Mexican-American, Latino, etc.)
- (2) Black
- (3) Japanese
- (4) Chinese
- (5) Asian (other than Japanese or Chinese)
- (6) American Indian
- (7) Caucasian
- (8) Other (please specify): _____

20. We would appreciate any other comments you have to add.

Thank you for giving your time to fill out this questionnaire. Please put this booklet in the enclosed self-addressed envelope and mail it back to us (no postage necessary). Happy fishing in 1987!

NATIONAL SEA GRANT DEPOSITORY
FISH BUREAU BUILDING
UNIVERSITY OF MASSACHUSETTS DARTMOUTH CAMPUS
NARRAGANSETT, RI 02882

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