

SANTA MONICA BAY SEAFOOD CONSUMPTION STUDY

**Final Report
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EXECUTIVE SUMMARY

The presence of chemically contaminated fish and invertebrates in Santa Monica Bay has generated public concern regarding the safety of consuming seafood organisms from the Bay. Several studies have examined the spatial and temporal patterns of chemical contaminants of fishes collected in Santa Monica Bay. However, in addition to information on contaminant levels, the determination of health risks from the consumption of chemically contaminated seafood requires data on the consumption rates of anglers that utilize the Bay.

The objectives of this study were to describe the demographic characteristics of recreational anglers that fish in Santa Monica Bay, California, to assess their seafood consumption patterns, to identify ethnic subgroups of the population that may have high rates of consumption, and to determine the species that are being caught and consumed at the highest rates. The study lasted for one year, from September 1991 to August 1992 and consisted of a census and questionnaire that was administered to randomly selected anglers utilizing four different fishing modes: piers and jetties, private boats, party boats, or beaches and intertidal zones. Answers to the questionnaire were numerically coded, entered into a computer database, and analyzed.

A total of 113 surveys was conducted at 29 sites on 99 days of sampling, and over 1,200 successful interviews were obtained. Several ethnic groups were identified: whites, blacks, Hispanics, Asians (which consisted of Japanese, Korean, Chinese, Filipino, Vietnamese, and Cambodians). The majority of the anglers were white (43%), males (93%), between the ages of 21 and 40 years (54%), and that had an annual household income of \$25,000 to \$50,000 (39%). The second most abundant ethnic group was Hispanics, followed by Asians, blacks, and others. Hispanics were the most abundant ethnic group on piers and jetties, whereas whites were the most abundant group on party boats and private boats. Pier and jetty anglers had lower household incomes than party boat and private boat anglers. The demographic characteristics of the anglers in 1991-1992 were similar to those obtained in a seafood study conducted in Santa Monica Bay in 1980. Relative to the ethnic composition of Los Angeles County, there were more whites and Asians and fewer Hispanics in the recreational fishing population of Santa Monica Bay in the early 1990s.

During the study, interviewers observed at least 67 species of fish, two species of crustaceans, two species of mollusks, and one species of echinoderm taken from the Bay by recreational anglers and foragers. The most abundant species taken were chub mackerel (*Scomber japonicus*), barred sand bass (*Paralabrax nebulifer*), kelp bass (*Paralabrax clathratus*), white croaker (*Genyonemus lineatus*), Pacific barracuda (*Sphyraena argentea*), and Pacific bonito (*Sarda chiliensis*). The most abundant species taken by recreational anglers in 1980 was similar, except that white croaker was more abundant in 1980 than in 1991-1992. Most anglers in 1991-1992 were unable to give the correct common name for a fish species but many were able to give correct generic common names (e.g., barracuda, mackerel, etc.).

INTRODUCTION

Santa Monica Bay is an embayment of the Southern California Coast that borders the Los Angeles metropolitan area, one of the largest urban areas in the nation. The Bay serves as a depository for municipal and industrial wastewater and stormwater runoff, as well as cooling-water discharges (MBC and AMPG 1994). The Bay is also the major marine recreational area for Los Angeles and surrounding communities. Recreational use of the Bay includes swimming, surfing, sunbathing, fishing, diving, and boating. These uses of Santa Monica Bay potentially conflict with each other, particularly when contaminants discharged to the ocean affect human health or the health of marine life.

The presence of chemically contaminated fish and invertebrates in Santa Monica Bay has generated public concern regarding the safety of consuming seafood organisms from the Bay. Several studies have examined the spatial and temporal patterns of chemical contaminants in fishes collected in Santa Monica Bay (Young et al. 1978, Gossett et al. 1983), Risebrough 1987, Pollock et al. 1991, SCCWRP et al. 1992; see MBC 1993 for review of literature). However, in addition to information on contaminant levels, the determination of health risks from the consumption of chemically contaminated seafood requires data on the consumption rates of anglers that utilize the Bay.

White croaker (*Genyonemus lineatus*) has been a source of concern in recent years because it is frequently caught by recreational anglers that fish in Santa Monica Bay (Pinkas et al. 1967, 1968; Wine 1979b; Puffer et al. 1982) and it is known to be highly contaminated with anthropogenic pollutants (Castle and Woods 1972; MacGregor 1972; Stout and Beezhold 1982; Gossett et al. 1983; Malins et al. 1987; Pollock et al. 1990, 1991). In particular, high levels of DDT and PCBs have been found in the tissues of white croaker taken in Santa Monica Bay and the Palos Verdes Shelf (Gossett et al. 1983; MBC 1988; Pollock et al. 1990, 1991; SCCWRP et al. 1992; MBC and AMPG 1994). In 1985, the Los Angeles County Department of Health Services (LACDHS) under the direction of the California Department of Health Services, Office of Environmental Health Hazard Assessment (CDHS, OEHHA) posted warnings along the shore throughout Santa Monica Bay and the Palos Verdes Shelf to reduce consumption of white croaker. By the late 1980s, the recreational catch of white croaker dropped in the Santa Monica Bay/Palos Verdes area, possibly as a result (MBC 1985, Stull et al. 1987). However, the effectiveness of the warnings in reducing the consumption of white croaker or promoting consumption of less contaminated fishes from the Bay has not been completely analyzed.

Seafood consumption studies have been conducted in other areas of the United States, such as San Diego Bay (SDG,DHS 1990), Puget Sound (Landolt et al. 1985, 1987), and the Great Lakes area (Humphrey 1988). According to the United States Environmental Protection Agency (USEPA), the U. S. population consumes an average (median) of 30 g/day of fish and shellfish from marine, estuarine, and fresh waters (USEPA 1990). However, local seafood consumption rates can be substantially above the national average (Humphrey 1988).

Thus extrapolation can underestimate risk if national averages are used instead of applying local consumption patterns. In addition, the demographic characteristics of the local population must be considered to assure that analyses are representative of the entire population.

The only study of fish and shellfish consumption rates by recreational anglers in the Los Angeles metropolitan area (including Santa Monica Bay) was funded by USEPA and was conducted by the University of Southern California in 1980 (Puffer et al. 1981, 1982). This study determined the demographic characteristics of the recreational fishing population, fishing frequency, catch (species, number, weight), cooking method, and consumption rates of the anglers and their families or living groups. Anglers were interviewed using a questionnaire on piers and jetties, and commercial passenger fishing vessels (CPFVs or party boats) from Santa Monica Pier south to Belmont Beach Pier.

Although the seafood consumption study conducted in 1980 (Puffer et al. 1981, 1982) was comprehensive and involved interviews with over 1,000 anglers, only English-speaking anglers were interviewed. In addition, seafood consumption patterns may have changed in the last decade due to changes in species availability, angler preferences, and the ethnic composition of the fishing population. Since risk analyses require species-specific consumption rates as well as contamination levels, it is important to regularly update seafood consumption patterns of recreational anglers utilizing Santa Monica Bay. The most recent seafood consumption risk analysis for southern California (Pollock et al. 1991) was based on theoretical consumption rates.

Because of the need to update seafood consumption patterns in Santa Monica Bay, the Santa Monica Bay Restoration Project (SMBRP) funded MBC Applied Environmental Sciences and the Southern California Coastal Water Research Project to conduct a study to determine present seafood consumption patterns and rates of recreational anglers that utilize the Santa Monica Bay area. Combined with information on contaminant levels in seafood, these findings will be used in a future study to assess potential health risks associated with the consumption of seafood organisms from the Bay.

The objectives of this study were to describe the demographic characteristic of recreational anglers that fish in Santa Monica Bay, to assess their consumption patterns, to identify subgroups of the population that may have high rates of consumption, and to determine the species that are being caught and consumed at the highest rates. Partial results of this study are presented in MBC (1993).

METHODS

QUESTIONNAIRE

In May 1991, a pilot seafood consumption study was conducted in Santa Monica Bay, using a tentative survey form designed by the SMBRP Task Force, Eco Analysis, Inc., and

MBC Applied Environmental Sciences. The pilot study was conducted to identify potential problems with the surveys, such as language barriers, species identification, survey protocol, and whether or not the length and type of questions were appropriate. After reviewing the results of the pilot study, SMBRP Task Force members and MBC personnel revised several questions in the survey to clarify their intent and to obtain more specific information from the anglers. The revised questionnaire (Appendix 1) included a map of the study area. Spanish and Vietnamese versions of the questionnaire were generated in anticipation of anglers speaking these languages; these were used during the survey period from September 1991 to August 1992.

The revised survey form consisted of a census and a questionnaire (Appendix 1). The census was used to collect information prior to the interviews on site characteristics (location, time, weather conditions, and sea state), the number of anglers (i.e., individuals with fishing gear) at the survey site, and some basic demographic characteristics of the observed fishing population (ethnicity, gender, and age). The questionnaire consisted of a series of questions addressed to individual anglers. Questions 1 through 6 were used to obtain basic information on site characteristics. Questions 7 through 14 referred to the angler's fishing history in Santa Monica Bay, such as how long they had been fishing in the Bay, where else they had fished in the Bay, and what seasons they had fished. Questions 15 through 19 dealt with seafood consumption patterns. Question 18 was asked only of anglers with fish in hand at the time of the survey and addressed what the angler planned to do with the fish, what parts would be consumed, how it was going to be prepared, and how much would be consumed. In Question 19, the angler was asked the same questions as in Question 18, but the angler was asked to refer to photographs of fishes that he did not have in his catch at the time of the interview. All anglers were asked Question 19, whether they had fish or not. Questions 20 through 23 dealt with health warning awareness. The remainder of the questions were used to obtain specific demographic information, such as age, gender, ethnic background, and annual household income.

STUDY AREA

The study was conducted along the shores of Santa Monica Bay and at sites where fishing trips depart to fish the open waters of the Bay. Santa Monica Bay is defined here as extending from Point Dume to Point Fermin; however, Cabrillo Pier and Boat Ramp were also surveyed because fish from the Palos Verdes Shelf may move between the two areas. The study area was divided into four geographical regions: 1) North Bay -- Paradise Cove to Malibu Pier; 2) Central Bay -- Santa Monica Municipal Pier to Playa Del Rey Beach; 3) South Bay -- Manhattan Beach to Redondo Beach; and 4) Los Angeles Harbor -- Cabrillo Fishing Pier and Cabrillo Boat Ramp. Each geographical region was further divided by fishing mode: piers and jetties, party boats, private boats, beaches, and rocky intertidal.

FIELD TECHNIQUES

All field and analytical techniques were carried out according to a Quality Assurance, Quality Control Plan (MBC 1993), which was established in October 1990.

The study was conducted between September 1991 and August 1992 by MBC Applied Environmental Sciences. The sampling period was separated into summer (September 1991 and June through August 1992) and nonsummer (October 1991 through May 1992) months. During summer months, surveys were conducted on two weekend/weekday sets (a set is one sample on a weekday plus one sample on a weekend) per month for each of the three major fishing modes (piers and jetties, private boats, and party boats), for a total of 12 surveys per month. In nonsummer months, surveys were conducted on one weekend day and one weekday day per month for each of the major fishing modes, for a total of six surveys per month.

To minimize sampling bias, a stratified-random approach was used to schedule and conduct the surveys. Fishing modes, geographical regions, and specific sites within each region were selected prior to the study to maximize spatial coverage of the Bay. For each month of the study, a sampling sequence was established at random for the four geographical regions and for the sites within each region, using a random numbers table; each site was surveyed in the established sequence. If a site could not be sampled, the next site on the list was used. For the three major fishing modes, sampling times were also chosen at random. Surveys were conducted by one or two individuals depending on the expected number of anglers. Sampling protocol varied somewhat by mode (see below).

Interview teams included an interviewer that could speak both English and Spanish and usually one that could speak Vietnamese; one of the interviewers spoke English, Vietnamese, Chinese, and Filipino. Interviewers wore t-shirts with insignia indicating that they were a scientific survey team.

If anglers had fish at the time of the interview, the interviewers asked permission to measure the fish. Total lengths (anterior end of the head to posterior end of caudal fin) were measured for most fish, but fork lengths (anterior end of head to end of caudal fin at midline of body) were measured for scombrids, carangids, and atherinids; fish were measured to the nearest centimeter with a tape measure.

Photographs of species of interest were used to help anglers identify fish when the angler did not have a particular species in hand. Photographs of eight species were carried by the interviewers during all surveys: bocaccio (*Sebastes paucispinis*), barred sand bass (*Paralabrax nebulifer*), kelp bass (*Paralabrax clathratus*), white croaker, queenfish (*Seriphus politus*), California corbina (*Menticirrhus undulatus*), chub (= Pacific) mackerel (*Scomber japonicus*), and California halibut (*Paralichthys californicus*).

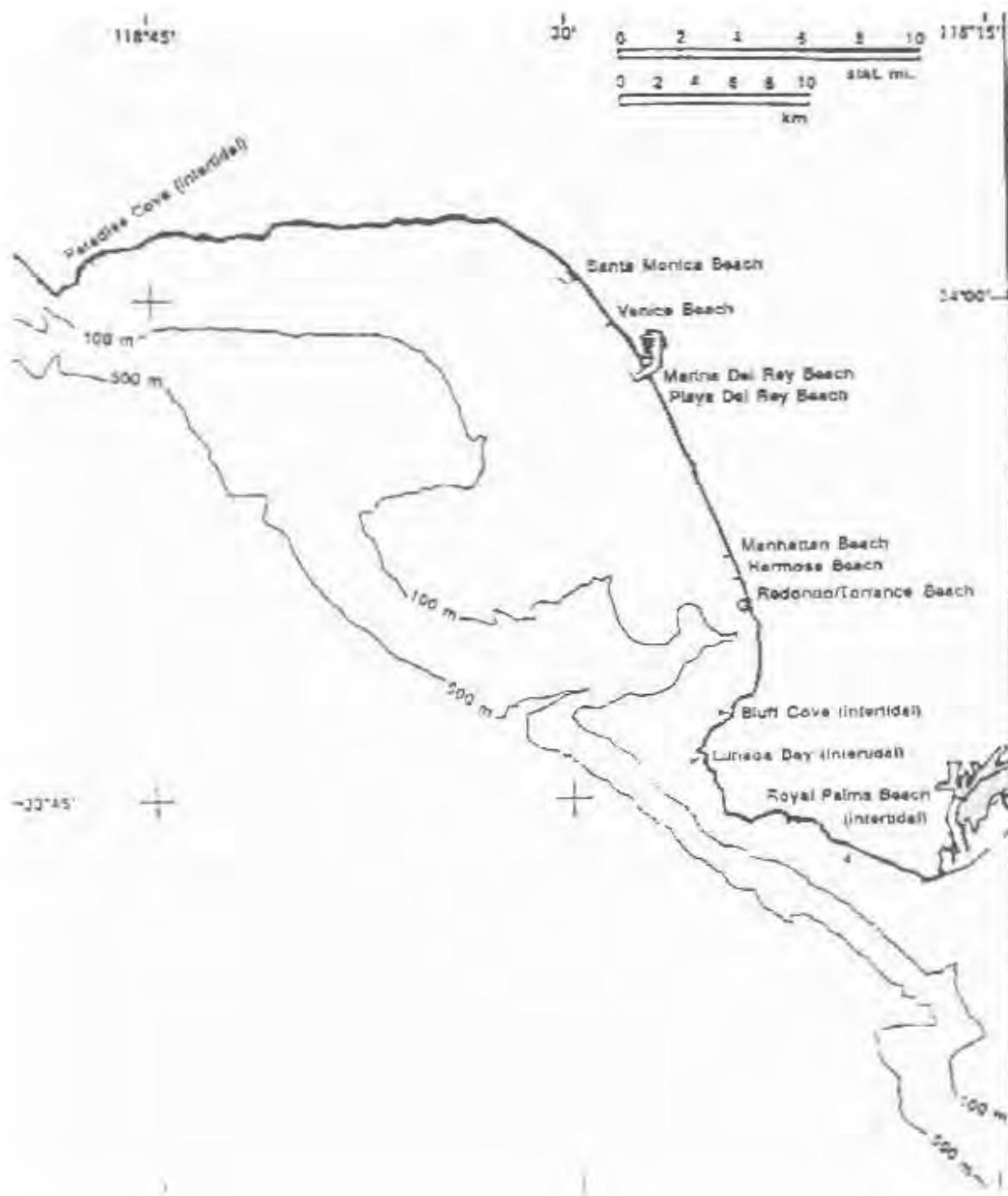


Figure 1. Pier and jetty sites sampled in surveys of recreational anglers, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

Piers and Jetties

Surveys were conducted at 11 pier and jetty sites between Paradise Cove Pier and Cabrillo Fishing Pier: eight piers, two jetties, and one breakwater (Figure 1). Surveys were not conducted at San Pedro breakwater because of hazardous sea conditions, nor at Venice and Manhattan Piers because they were closed to the public at the time of the surveys.

Pier and jetty anglers were surveyed in the morning (0800-1200 hrs), afternoon (1200-1600 hrs), and evening (1600-2000 hrs). Usually, roving surveys were conducted, but interviews were attempted with exiting individuals whenever possible. For roving surveys, every second or third angler was systematically selected while they were fishing. If there were fewer than 40 anglers on a pier, an attempt was made to interview all of them.

Party Boats

Party boat anglers were surveyed on half-day boats that fished within the study area. These included boats from Malibu, Marina Del Rey, Redondo (boat and barge), and Los Angeles Harbor (Figure 2). Surveys were conducted on morning (0700 hrs to 1200 hrs) or afternoon (1230 hrs to 1730 hrs) fishing trips. Twilight trips were not surveyed because they were not selected in the random sequence on the nights that they occurred. Full-day trips were also not sampled because most of them fished outside of the study area. Malibu Sportfishing did not allow the interviewers to board their boats but interviews were conducted with anglers before they boarded and as they disembarked. Twenty-second Street Landing was not surveyed because the boats fished outside of the study area on the scheduled days.

Anglers were censused and interviewed while waiting to board the boat and on the outgoing trip. If there were 20 or fewer anglers, an attempt was made to interview all of them; otherwise, as many anglers as possible were interviewed. Surveys were not conducted while the anglers were fishing. On the return trip, the interviewers asked permission to measure the fish before they were filleted. Fish were kept in numbered bags that corresponded to each angler. One team member measured the catch while the other recorded the measurements and determined the expected fate of each species (Question 18, Appendix 1).

Private Boats

Private boat surveys were conducted at Marina del Rey Boat Ramp, Cabrillo Boat Ramp, and King Harbor Boat Hoist (Figure 3) in late morning (1000 hrs to 1400 hrs) or afternoon (1400 hrs to 1800 hrs) as the anglers returned from fishing trips. Interviews were conducted as the anglers brought the boat along the dock; usually only one of the anglers could be surveyed during the time the boat was at the ramp. Anglers were first asked if they had been fishing within the study area; a map was used to help anglers identify the location (Figure 3). The number of boats that did not fish within the study area was recorded, but anglers from these boats were not interviewed nor included in the census (Appendix 1).



Figure 2. Party boat sites sampled in surveys of recreational anglers, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.



Figure 3. Private boat launch and hoist sites sampled in surveys of recreational anglers, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

Beaches

Beach surveys were conducted at seven sites between Santa Monica and Redondo Beach, adjacent to a pier or jetty being sampled (Figure 4). Beach surveys were conducted prior to the pier and jetty surveys for a duration of approximately one hour. Interviews were attempted on all anglers in sight. Paradise Cove was not surveyed because beach fishing was prohibited.

Rocky Intertidal

Rocky intertidal surveys were conducted at four sites: Paradise Cove in northern Santa Monica Bay and Bluff Cove, Lunada Bay, and Royal Palms Beach on the Palos Verdes Peninsula (Figure 4). Surveys were conducted in November and December 1991 on randomly selected afternoons (between 1300 hrs and 1700 hrs) when the tide was below zero Mean Lower Low Water (MLLW). Surveys lasted two hours. The intertidal surveys were conducted in November and December because the lowest tides of the year occurred during these months.

ANALYTICAL METHODS

Answers to questions in the census and questionnaire were numerically coded (see MBC 1993 for answer codes) and entered into a computer database (Paradox 4) at MBC Applied Environmental Sciences. The numbers were tabulated and summarized using computer software programs (Paradox 4 and Excel).

Based on answers to Question 27, which dealt with the angler's ethnic background (Appendix 1), the angler population was broken down into nine ethnic groups: black, Korean, Filipino, Vietnamese, Chinese, Hispanic, Japanese, white, and other. In most analyses, Koreans, Filipinos, Vietnamese, Chinese, and Japanese were grouped together as "Asians".

Estimates of Seafood Consumption

Two estimates of seafood consumption were made. The first was based on anglers' answers to Questions 18 and 19 (Appendix 1). The angler was asked how much of a species he consumed per meal compared to a balsa wood model of a fish fillet. The fillet model was approximately 10 cm long x 7 cm wide x 2 cm thick, and represented 150 g (0.33 lb.), the standard size of a fish meal (USEPA 1989). An angler with fish in hand was asked in Question 18 about the consumption of that species relative to the fillet model. If the angler did not have one of the eight species shown in photographs were carried (see above), he was asked about the consumption of those species relative to the fillet model in Question 19. In this way, all respondents were questioned about all eight



Figure 4. Beach and intertidal sites sampled in surveys of recreational anglers, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

species for which photographs were carried. For Question 19, only those anglers that had eaten the species shown in the photographs in the previous four weeks were included in the estimate of consumption rate.

Consumption rates (kg/individual/mo or g/indiv./day) were calculated by multiplying the angler's estimate of the typical meal size of a species relative to the fillet model (e.g., twice as much, three times as much, half as much, etc.) by the frequency of consumption of that species in the four weeks prior to the interview. Thus the "month" used in calculating consumption rates refers to 28 days. For anglers with fish in hand, 1 was added to the frequency of consumption in the previous four weeks to account for consumption of the species present at the time of the interview. For each respondent, consumption rates were calculated by species and from the total consumption for that individual (i.e., the sum of the amount of each species consumed in the previous four weeks). Mean consumption rates for each ethnic group were calculated for the species consumed in greatest quantity from the sum of the amount of a species consumed by anglers within an ethnic group, divided by the number of anglers within that group.

The second estimate of seafood consumption rate was based on anglers' answers to Question 18 regarding the frequency of consumption during the previous four weeks of species in hand at the time of the interview. Only the anglers that had fish in hand at the time of the interview and allowed interviewers to examine and measure their catch were used for this estimate of consumption rate. Fish lengths from Question 18 were converted to estimated weights using the following equation from The Marine Fisheries Statistics Survey (Steve Crooke, California Department of Fish and Game, Long Beach, CA, pers. comm.):

$$W = a(L^b)$$

where:
W= total weight in grams
L = total length in millimeters
"a" and "b" are species-specific coefficients

Total weights were then converted to weights of consumable portions (fillets) using a "consumable portion coefficient" (Appendix 2). If a species did not have an assigned coefficient, one for a similar species was used. To obtain the per capita household consumption rate (kilograms per individual per month or grams per individual per day), the sum of the consumable portion weights of the species in hand at the time of the interview was multiplied by the consumption frequency of that species in the previous four weeks and divided by the number of consumers in the angler's household (Question 18). Mean consumption rates for each ethnic group were calculated as above.

More extensive statistical analyses on these data were conducted by the Southern California Coastal Water Research Project. The original data base was converted to dBASE IV, version 2.0. In this analysis, the data base used for estimating consumption rates consisted of the combined responses to Questions 18 and 19. The data set included the

anglers response to the fish they caught that day and what the anglers may eat (based on their past experience). The estimate then included the sum of the amount (relative to the fillet model) of each species that the angler normally consumes during a month (based upon what they had consumed during the past 4 wk), divided by 28 days, to give a consumption rate in grams per individual per day.

Frequency distributions of consumption rates were determined for various categories (e.g., ethnicity, age, income) and species (all species caught or specific species) with 50th (median) and 90th (upper decile) percentiles delineated. Means and 95% confidence limits were also calculated. Differences in consumption rates between the different categories were tested using t-tests, one-way analysis of variance (ANOVA), or two-way ANOVAs using SYSAT (Wilkenson 1990). Prior to conducting these tests, the raw and log transformed data were tested for homogeneity of variance, using Bartlett's Test. If there were too few cells with sufficient data for an adequate characterization of variances, ANOVAs were not conducted. If the data used in two-way ANOVAs were sufficient but not homogeneous, outliers (identified by SYSTAT as having greater than 2.6 studentized residuals) were removed. All data required log transformations.

Ethnic categories analyzed in these analyses included white, black, Asian, Hispanic, and other. The Pacific Islanders were sometimes analyzed as a separate group because of very high consumption rates for individuals within this group. The Pacific Islanders consisted of three Samoans, three Hawaiians, three Indonesians, one Guamanian, and one Malaysian. The "other" group consisted of one Thailander and one East Indian. Anglers in the "other" category and Chinese, Korean, Japanese, Filipino, and Vietnamese anglers were analyzed as separate groups and collectively under the category "Asians combined."

Income categories used in the ANOVAs included <\$10,000; \$10,000-\$25,000; >\$25,000. Species categories included all and the 10 most commonly consumed fish species.

Because data used in two-way ANOVAs were usually insufficient, resulting in different numbers of cells used in each analysis or in no analysis being conducted, these analyses were dropped from the study.

RESULTS

Survey characteristics are summarized by fishing site in Appendix 3 and by month in Appendix 4; sampling success is summarized in Appendix 5; and answers to the questionnaire are summarized by question in Appendix 6.

SAMPLING SUCCESS

A total of 113 surveys was conducted at 29 sites (Figures 1 through 4) on 99 days from 3 September 1991 to 30 August 1992 (Table 1, Appendices 3 and 4). A total of 2,376 anglers was censused (Table 1): 977 on party boats, 884 on piers, 481 on private boats, 22 on beaches, and 12 at rocky intertidal sites (Appendix 5). Interviews were attempted with

Table 1. Sampling success in surveys of recreational anglers by site, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

Mode	Number						Percent*			
	Survey	Censused	Attempted	Successful	Refused	Consumers	Attempted	Successful	Refused	Consumers
PIERS										
Weekday	16	313	333	221	112	97	106	66	34	44
Weekend	16	571	453	298	155	113	79	66	34	38
TOTAL	32	884	786	519	267	210	89	66	34	40
PARTY BOATS										
Weekday	16	365	264	190	74	100	72	72	28	53
Weekend	16	612	366	260	106	132	60	71	29	51
TOTAL	32	977	630	450	180	232	64	71	29	52
PRIVATE BOATS										
Weekday	16	131	87	75	12	29	66	86	14	39
Weekend	16	350	217	183	34	77	62	84	16	42
TOTAL	32	481	304	258	46	106	63	85	15	41
BEACH										
Weekday	8	14	8	7	1	5	57	88	13	71
Weekend	5	8	7	4	3	1	88	57	43	25
TOTAL	13	22	15	11	4	6	68	73	27	55
INTERTIDAL										
Weekday	4	12	5	5	0	0	42	100	0	0
GRAND TOTAL	113	2376	1740	1243	497	554	73	71	29	45

* For attempted, this is percent of those censused; for consumption rates, this is a percent of successful interviews; for others, it is percent of those attempted. Some individuals arrived at piers following the census. When these were interviewed, the number of attempted interviews was greater than the number of individuals censused.

1,740 anglers, 73% of those censused. Of those, 1,243 (71%) agreed to be interviewed while 497 (29%) refused or had a language barrier. Of the successful interviews, 554 anglers (45%) provided information that could be used for calculating consumption rates; these anglers were regarded as consumers. The success rate was lowest (66%) on piers, where the most interviews were attempted, and highest (100%) at intertidal sites, where the fewest interviews were attempted.

ANGLER CHARACTERISTICS

Gender

Ninety percent of the anglers censused were male and 10% were female, but of those that agreed to be interviewed, 93% were male and 7% were female (Appendix 6, Question 6). The male and female populations were similar in ethnic background and age structure.

Age Structure

Anglers ranged in age from 8 to 86 years old, with the majority (54%) between 21 and 40 years old (Figure 5; Appendix 6, Question 26). Less than 10% of the anglers were under 21 years old. Anglers under 21 were probably underestimated because only heads of households were interviewed when a family was present; hence they were eliminated from age-class distribution. More individuals of anglers less than 60 years old fished on weekends and holidays whereas more anglers greater than 60 years old fished during the week (Figure 6). Relative to the age structure of the population of Los Angeles County in 1990, the Santa Monica Bay fishing population in 1991-1992 had a greater proportion of persons in the 25 to 54 year-old age range and a lower proportion in other age classes (Figure 7) (USBC 1990).

Ethnicity

Ethnically, 43% of the anglers were white, 25% were Hispanic, 18% were Asian, 10% were black, and 2% were "other" (which consisted of middle easterners, Samoans, and Cambodians). (Table 2; Appendix 6, Question 27). Asians were further separated into Filipino (6%), Japanese (5%), Koreans (4%), Chinese (2%), and Vietnamese (1%). The total number of respondents was similar in nonsummer (571 anglers) and summer (672 anglers) months (Table 2), and there was no evidence of seasonal differences in the ethnic background of the anglers.

Relative to the ethnic composition of Los Angeles County (USBC 1990), Santa Monica Bay anglers were represented by a greater proportion of Asians, white, and other ethnicities and a much lower proportion of Hispanic anglers (Figure 8). The proportion of blacks in the fishing population was about the same as for Los Angeles County.

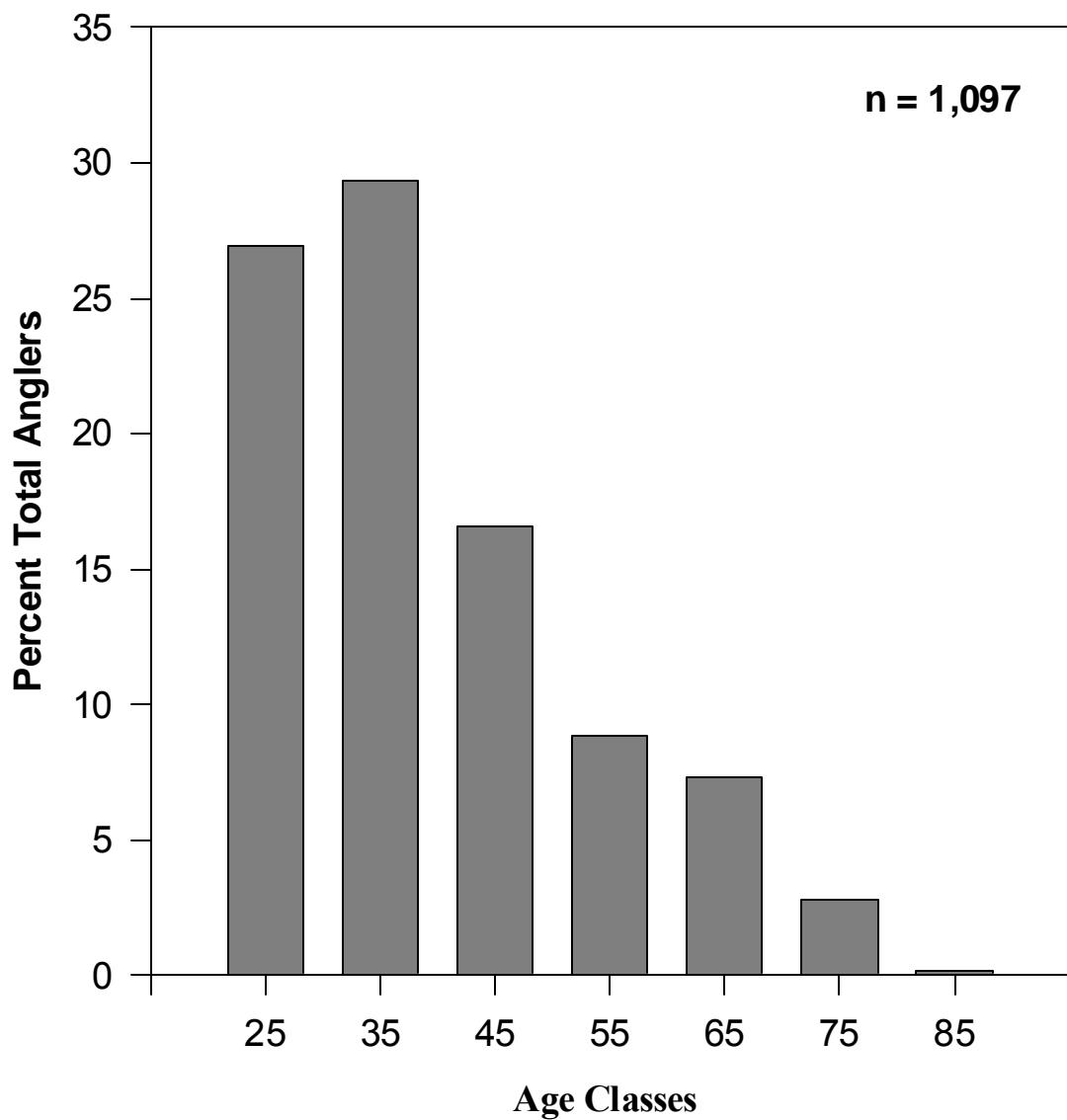


Figure 5. Age distribution of recreational anglers of 21 years or older interviewed in Santa Monica Bay (based on responses to survey questionnaire question 26), Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

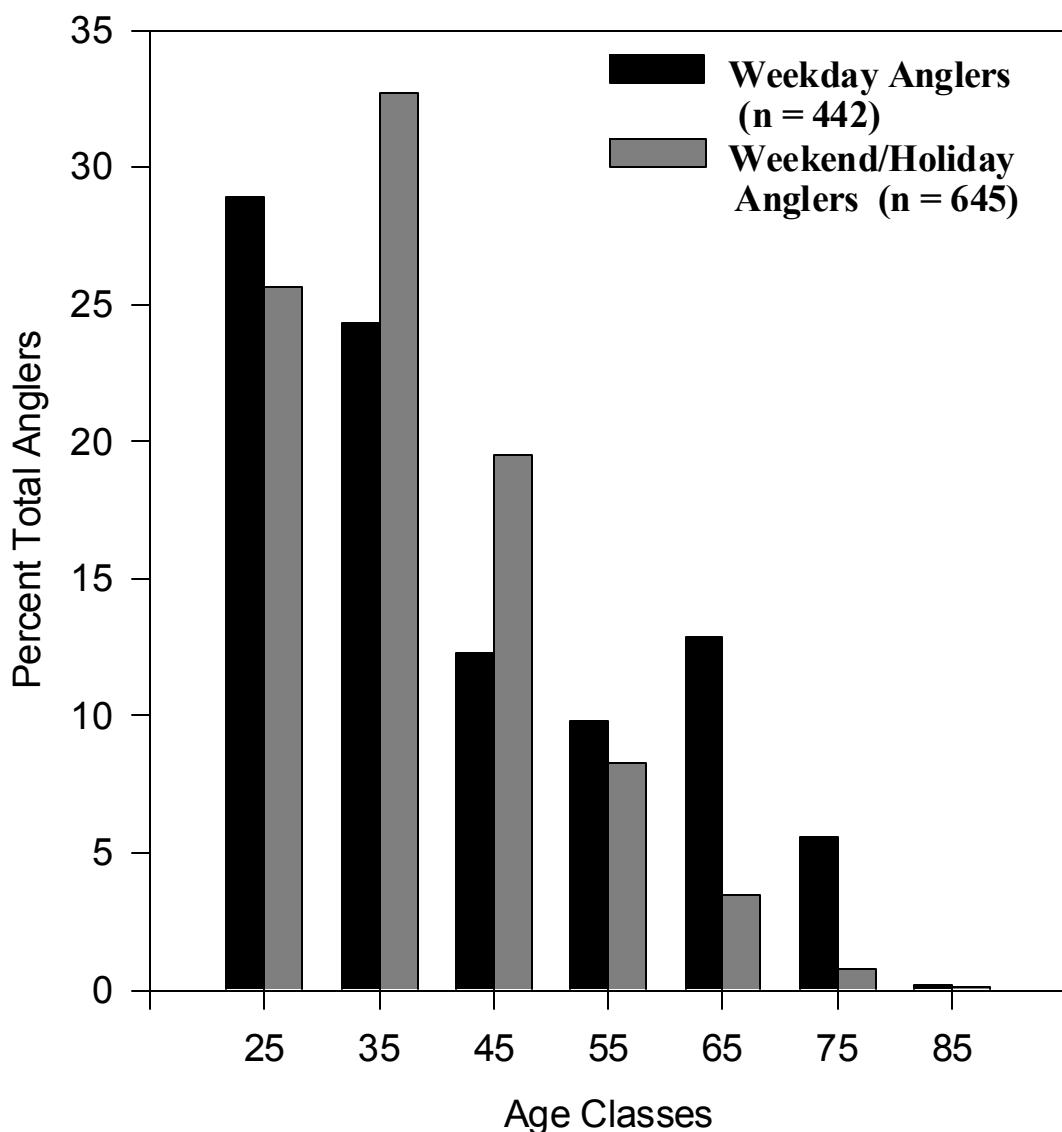


Figure 6. Age distribution of Santa Monica Bay anglers interviewed on weekdays and weekend/holidays, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

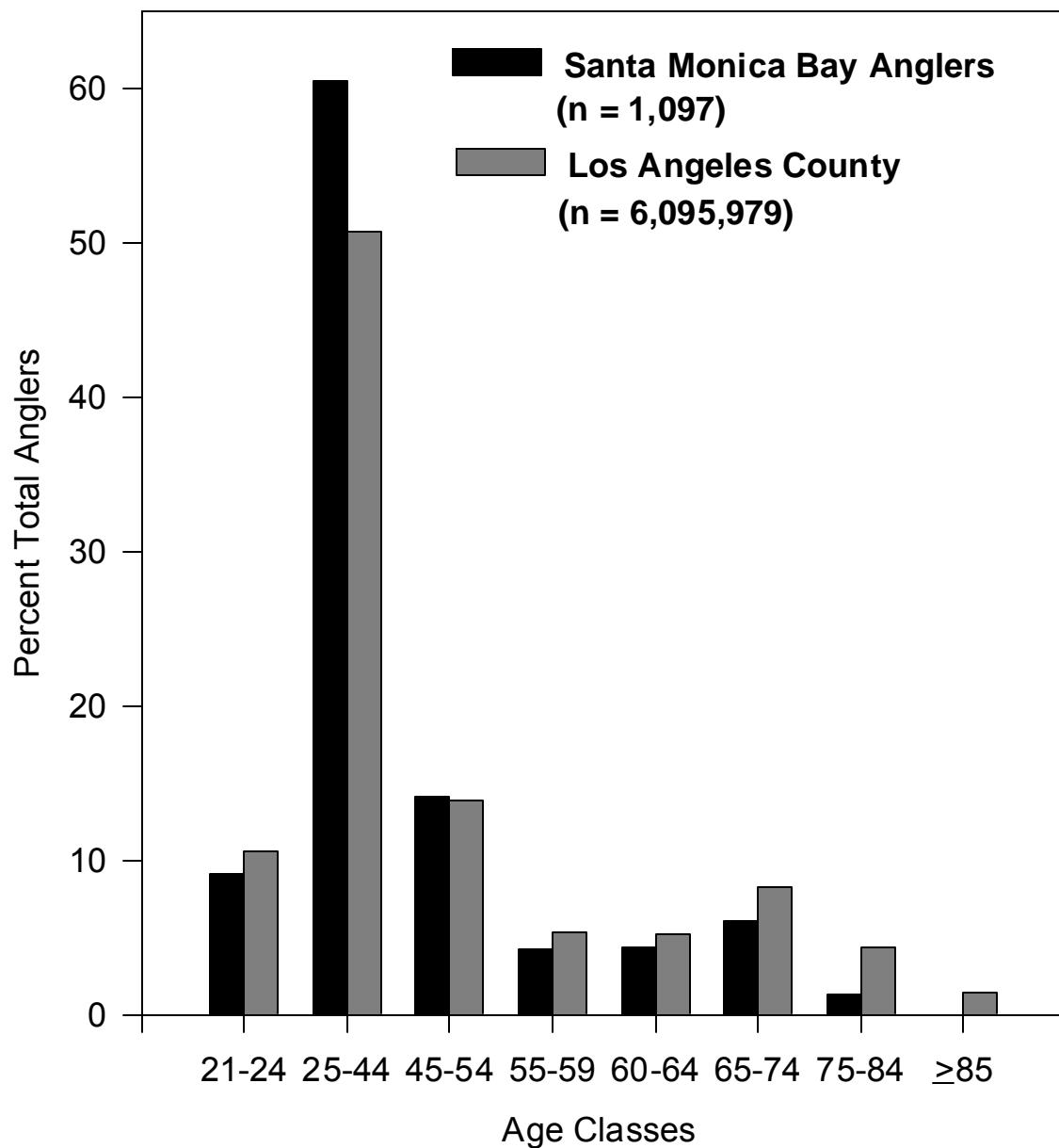


Figure 7. Age distribution of population of 21 years and older for Los Angeles County and of Santa Monica Bay anglers, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992 (Los Angeles County data from USBC 1990).

Table 2. Distribution of Santa Monica Bay recreational anglers by ethnic group, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

a) Overall distribution

Ethnic Category	San Monica Bay Anglers		Los Angeles County (1990)	
	n	%	n	%
White	540	43.4	3,618,850	40.8
Hispanic	306	24.6	3,351,242	37.8
Asian	226	18.2	907,810	10.2
Black	124	10.0	934,776	10.5
Other	28	2.3	50,486	0.6
Unrecorded	19	1.5		
Total	1243			

b) Seasonal distribution

Ethnic Category	n	Percent	
		Non Summer	Summer
White	540	51.7	48.3
Hispanic	306	46.1	53.9
Asian	226	36.3	63.7
Black	124	35.5	64.5
Others	28	50.0	50.0
Unrecorded	19	57.9	42.1
Total	1243	45.9	54.1

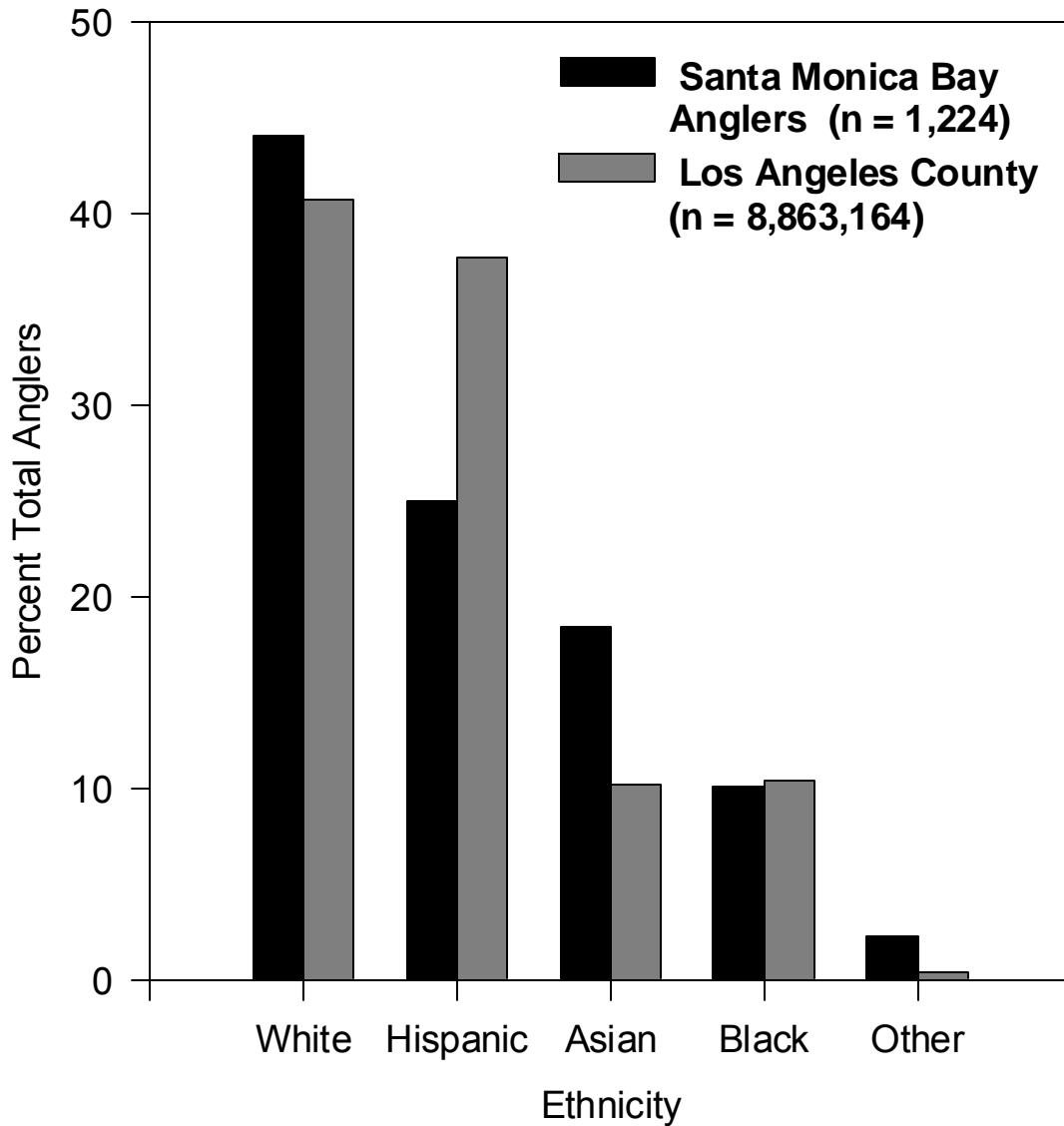


Figure 8. Ethnic distribution of population of Los Angeles County and of Santa Monica Bay anglers, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992 (Los Angeles County data from USBC 1990).

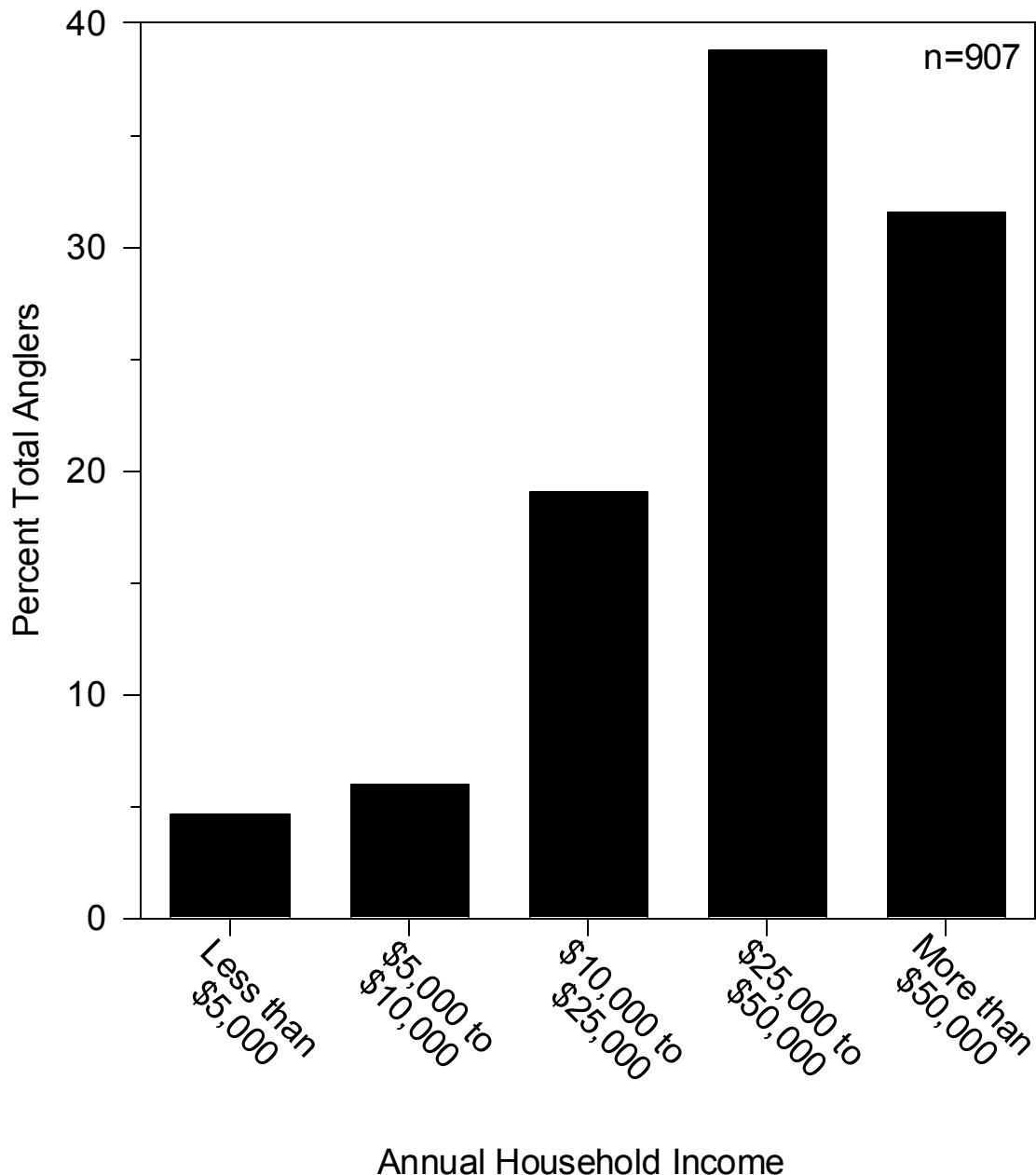


Figure 9. Annual household income distribution of recreational anglers interviewed in Santa Monica Bay (based on responses to survey questionnaire question 30), Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

Household Income

On the question concerning annual household income (Appendix 9, Question 30), approximately 27% of the anglers did not respond or were unrecorded. Of those that did respond, the majority (39%) had an annual household income between \$25,000 and \$50,000 or greater than \$50,000 (32%) (Figure 9). Only 5% earned less than \$5,000 annually.

Annual household income varied by ethnic type (Table 3). For most ethnic groups the majority of respondents had an annual household income of between \$25,000 and \$50,000. However, the majority of the Korean (52%) and Chinese (54%) anglers had annual household incomes of greater than \$50,000. The Japanese and white anglers also had slightly higher annual household incomes than the other ethnic groups. Hispanic anglers had the lowest annual household income of any group, with the most earning between \$10,000 and \$50,000, annually.

Fishing Mode

The ethnic background of the anglers varied by fishing mode, but since most of the anglers interviewed were whites and Hispanics, these two groups accounted for most of the anglers for all three of the major fishing modes. Hispanics were the most numerous ethnic group on piers and jetties, accounting for 39% of the angler population (Table 4, Figure 10). Whites were the second most abundant group on piers and jetties (26%), followed by Asians (19%), and blacks (13%). Whites were much more abundant than any other ethnic group on party boats and private boats, where they accounted for 54 and 65% of the anglers surveyed, respectively. Asians were the second most abundant ethnic group surveyed on party boats, accounting for 21% of the anglers surveyed, followed by Hispanics (16%), and blacks (8%). Hispanics were the second most abundant group on private boats (13%), followed by Asians (12%), and blacks (8%). At beach and intertidal sites the number of anglers interviewed was small. Of the 11 successful interviews at beach sites, 45% were Asian, (36%) were white, and (18%) were Hispanic; of the Asians, one (9%) Korean, two (18%) were Chinese, and two (18%) were Japanese. Of the five successful intertidal interviews, one (20%) respondent was Hispanic and four (80%) respondents were in the “other” group, which consisted of one Cambodian and three Samoans. A site-specific ethnic breakdown is provided in Appendix 7.

Based upon the distribution of their home zip codes, recreational anglers fishing in the Bay live in over a broad area of Los Angeles County (Appendix 8). The residences of pier and jetty anglers were most densely concentrated in the central Los Angeles area and near Los Angeles/Long Beach Harbors. Party boat anglers were more densely concentrated in the Santa Monica/Marina Del Rey area, while private boat anglers were most concentrated in Redondo and Manhattan Beaches.

Table 3. Distribution of annual household incomes of Santa Monica Bay recreational anglers by ethnic group, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992. (Based on responses to survey questionnaire question 30).

Ethnic Category	Percent				
	Less than \$5,000 (n=42)	\$5,000 to \$10,000 (n=54)	\$10,000 to \$25,000 (n=173)	\$25,000 to \$50,000 (n=352)	More than \$50,000 (n=286)
White	1.8	1.8	14.2	42.0	40.2
Hispanic	7.9	13.8	33.3	33.3	11.6
Black	7.3	10.4	15.6	44.8	21.9
Asian	7.7	4.4	19.8	30.8	37.3
Other	0.0	0.0	18.2	54.5	27.3

Table 4. Distribution of ethnic group by fishing mode, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

Fishing Mode	Percent				
	White (n=535)	Hispanic (n=305)	Black (n=124)	Asian (n=226)	Other (n=28)
Pier/Jetty	26.2	39.1	13.4	19.0	2.3
Party Boats	53.6	15.7	7.8	21.3	1.6
Private Boat	65.4	12.5	8.3	11.7	2.1
Beach	36.4	18.2	0.0	45.4	0.0
Intertidal	0.0	20.0	0.0	0	80.0

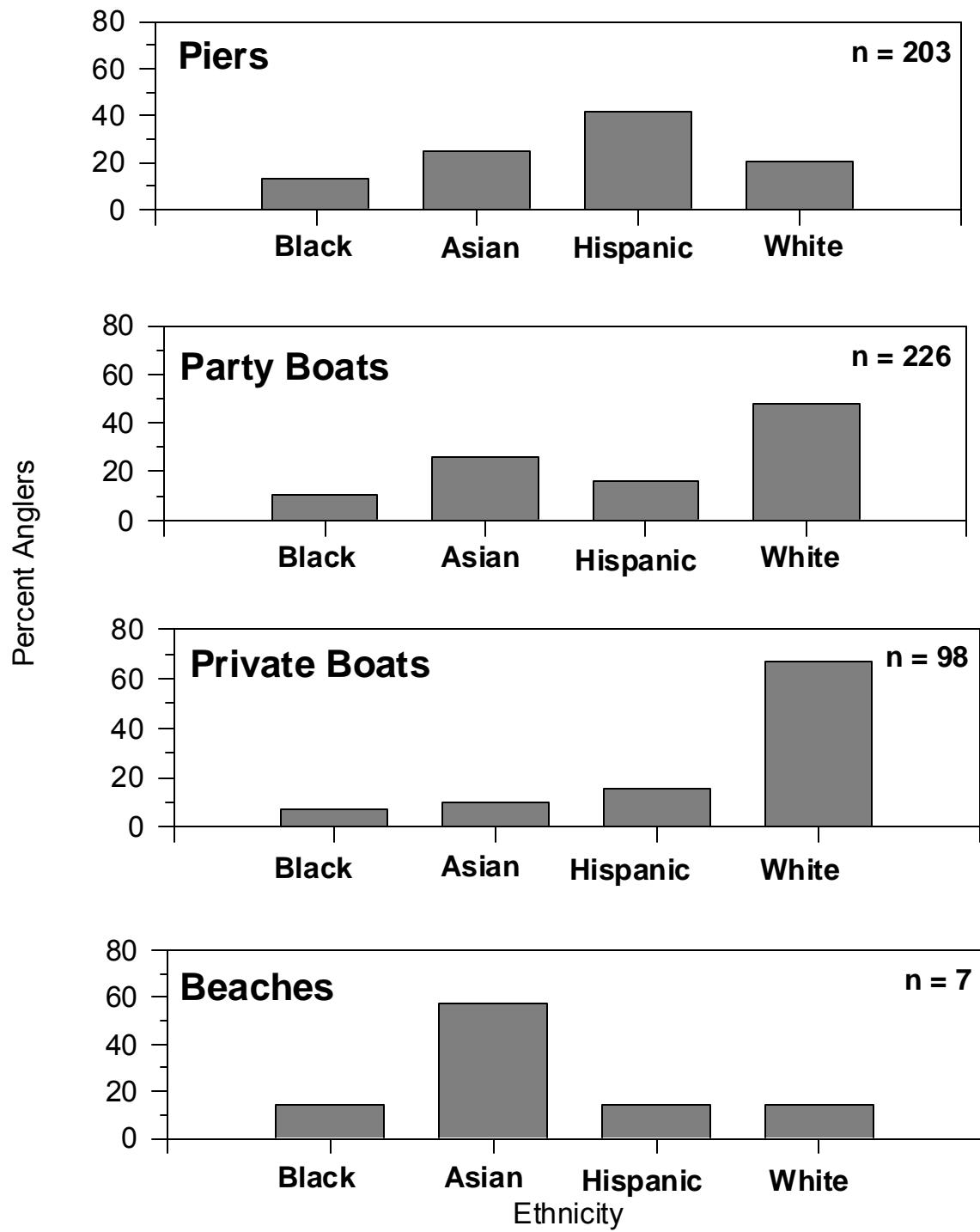


Figure 10. Ethnic distribution of Santa Monica Bay anglers by fishing mode, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

Table 5. Distribution of annual household income of Santa Monica Bay recreational anglers by fishing mode as a) percentage of all incomes within a fishing mode and b) as percentage within an income category across fishing modes, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992. (Based on responses to survey questionnaire question 30).

a) Percentage by each fishing mode

Annual Household Income	Pier/ Jetty (n=329)	Party Boat (n=368)	Private Boat (n=203)	Beach/ Intertidal (n=7)	Percent Total (n=907)
Less than \$5,000	7.9	1.9	3.4	28.6	4.6
\$5,000 to \$10,000	9.7	4.9	1.5	14.3	6.0
\$10,000 to \$25,000	28.3	14.9	12.3	0.0	19.1
\$25,000 to \$50,000	39.2	37.5	40.4	42.9	38.8
More than \$50,000	14.9	40.8	42.4	14.3	31.5
Percent Total	100.0	100.0	100.0	100.0	100.0

b) Percentage by income category

Annual Household Income	n	Pier/ Jetty	Party Boat	Private Boat	Beach/ Intertidal
Less than \$5,000	84	61.9	16.7	16.7	4.8
\$5,000 to \$10,000	108	59.3	33.3	5.6	1.9
\$10,000 to \$25,000	346	53.8	31.8	14.5	0.0
\$25,000 to \$50,000	704	36.6	39.2	23.3	0.9
More than \$50,000	572	17.1	52.4	30.1	0.3
Percent Total		36.3	40.6	22.4	0.8

Refused or Unrecorded = 336 individuals

Household income also varied by fishing mode. Of the anglers that responded to the question on income, the majority of pier and jetty anglers had annual household incomes of \$10,000 to \$25,000 (28%) or \$25,000 to \$50,000 (39%) (Table 5a). In contrast, the majority of the party boat and private boat anglers had annual household incomes between \$25,000 and \$50,000 (38 and 40%, respectively) or greater than \$50,000 (41 and 42%, respectively). Most of the beach and intertidal anglers had annual household incomes of \$25,000 to \$50,000, but nearly 30% of these anglers had annual household incomes of less than \$5,000. Comparing across fishing modes. (Table 5b) most of the first three income categories (less than \$5,000, \$5,000 to \$10,000, and \$10,000 to \$25,000) fished on piers and jetties, while most of the \$25,000 to \$50,000 and the greater than \$50,000 categories fished on party boats.

FISHING FREQUENCY AND EFFORT

Most of the respondents had fished in Santa Monica Bay between 0 and 5 years (46%) or between 6 and 10 years (14%) (Question 11, Appendix 6). Only 7% of the respondents had fished in the area for more than 30 years, although one individual said that he had been fishing in the area for 67 years.

Most respondents (63%) fished the Bay during all seasons (Appendix 6, Question 12). Nineteen percent fished exclusively in the summer, but only 0.4% fished only in the winter. About 60% of the anglers fished on weekends and holidays whereas 40% fished during the week (Figure 6). A mean of 69 anglers per month were interviewed during summer and 30 per month in nonsummer months.

Thirty-three percent of the respondents had not fished in the Bay during the four weeks prior to the interview, although a small population (2% of the respondents) appeared to fish there nearly every day (Appendix 9, Question 13).

FISHES AND INVERTEBRATES OBSERVED

Over the course of the study, interviewers observed one echinoderm species, two species of crustaceans, two species of mollusks, and at least 67 species of fish that had been taken from the Bay by recreational anglers (Appendix 9). Overall, the most abundant species taken were chub mackerel, barred sand bass, kelp bass, white croaker, Pacific barracuda (*Sphyraena argentea*), and Pacific bonito (*Sarda chiliensis*) (Tables 6 and 7, Appendix 10). Together these species accounted for 73% of the overall catch. Chub mackerel accounted for 30% of the total catch and was the most abundant species taken on piers and jetties, party boats, and private boats. Barred sand bass and kelp bass accounted for 11 and 9% of the total catch, respectively and were most abundant on party boats and private boats, but virtually absent from piers and jetties. White croaker accounted for 9% of the total catch and was most abundant from piers and jetties and private boats, but nearly absent from party boats. Pacific barracuda and Pacific bonito each accounted for about 7% of the total catch and were most abundant from party boats and private boats.

Table 6. Abundance of seafood species caught by Santa Monica Bay recreational anglers, calculated as a) percentage of all species within a fishing mode and b) as percentage of each species across fishing modes, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

a) Percentage by fishing mode

Common Name	Scientific Name	Total Number	Total Percent (n=3363)	Percent		
				Pier (n=917)	Party Boat (n=1527)	Private Boat (n=896)
chub mackerel	<i>Scomber japonicus</i>	1047	31.1	51.9	23.3	24.0
barred sand bass	<i>Paralabrax nebulifer</i>	388	11.5	0.1	20.2	8.8
kelp bass	<i>Paralabrax clathratus</i>	328	9.8	0.1	16.4	8.5
white croaker	<i>Genyonemus lineatus</i>	319	9.5	18.2	0.2	16.6
Pacific barracuda	<i>Sphyraena argentea</i>	258	7.7	0.4	13.2	5.9
Pacific bonito	<i>Sarda chiliensis</i>	250	7.4	2.7	8.1	11.3
rockfish combined*	<i>Sebastes</i> spp.	198	5.9	0.4	10.9	3.1
jacksmelt	<i>Atherinopsis californiensis</i>	73	2.2	7.0	0.1	0.9
California scorpionfish	<i>Scorpaena guttata</i>	65	1.9	0.3	2.2	3.1
California halibut	<i>Paralichthys californicus</i>	62	1.8	1.3	1.5	3.0
halfmoon	<i>Medialuna californiensis</i>	56	1.7	0.0	2.1	2.7
opaleye	<i>Girella nigricans</i>	52	1.6	3.4	0.0	1.3
surfperch, unid.	<i>Embiotocidae</i> , unid.	27	0.8	2.0	0.0	1.0
black perch	<i>Embiotoca jacksoni</i>	26	0.8	0.5	0.0	2.3
yellowfin croaker	<i>Umbrina roncador</i>	20	0.6	1.7	0.0	0.1
California sheephead	<i>Semicossyphus pulcher</i>	16	0.5	0.1	0.3	1.1
salema	<i>Xenistius californiensis</i>	14	0.42	1.5	0.0	0.0
queenfish	<i>Seriphis politus</i>	12	0.4	1.3	0.0	0.0
cabezon	<i>Scorpaenichthys marmoratus</i>	11	0.3	0.0	0.2	0.9
other species combined**		141	4.0	6.9	1.3	5.2
Percent Total		3363	100	100	100	100

b) Percentage across fishing modes

Common Name	Scientific Name	Total Number	Percent			
			Pier	Party Boat	Private Boat	Percent Total
chub mackerel	<i>Scomber japonicus</i>	1047	45.5	34.0	20.5	0.0
barred sand bass	<i>Paralabrax nebulifer</i>	388	0.3	79.4	20.4	0.0
kelp bass	<i>Paralabrax clathratus</i>	328	0.3	76.5	23.2	0.0
white croaker	<i>Genyonemus lineatus</i>	319	52.4	0.9	46.7	0.0
Pacific barracuda	<i>Sphyraena argentea</i>	258	1.6	77.9	20.5	0.0
Pacific bonito	<i>Sarda chiliensis</i>	250	10.0	49.6	40.4	0.0
rockfish combined*	<i>Sebastes</i> spp.	198	2.0	83.8	14.1	100
jacksmelt	<i>Atherinopsis californiensis</i>	73	87.7	1.4	11.0	0.0
California scorpionfish	<i>Scorpaena guttata</i>	65	4.6	52.3	43.1	0.0
California halibut	<i>Paralichthys californicus</i>	62	19.4	37.1	43.5	0.0
halfmoon	<i>Medialuna californiensis</i>	56	0.0	57.1	42.9	0.0
opaleye	<i>Girella nigricans</i>	52	59.6	0.0	23.	7.3
surfperch, unid.	<i>Embiotocidae</i> , unid.	27	66.7	0.0	33.3	0.0
black perch	<i>Embiotoca jacksoni</i>	26	19.2	0.0	80.8	0.0
yellowfin croaker	<i>Umbrina roncador</i>	20	80.0	0.0	5.0	1
California sheephead	<i>Semicossyphus pulcher</i>	16	6.3	31.3	62.5	0.0
salema	<i>Xenistius californiensis</i>	14	100.0	0.0	0.0	100
queenfish	<i>Seriphis politus</i>	12	100.0	0.0	0.0	100
cabezon	<i>Scorpaenichthys marmoratus</i>	11	0.0	27.3	72.7	0.0
other species combined**		141	44.7	14.2	33.3	7.8
Total		3363	25.8	43.0	25.2	6.0

See appendix 12 for complete list of species caught by mode.

* Total of 15 identified rockfish species and 1 unidentified rockfish species.

n=number of individual organisms

Table 7. Frequency of occurrence of seafood species among anglers by season, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

Common Name	Scientific Name	Total Number	Percent		
			Summer	Non-Summer	Difference
chub mackerel	<i>Scomber japonicus</i>	73	49.3	50.7	-1.4
barred sand bass	<i>Paralabrax nebulifer</i>	63	50.8	49.2	1.6
kelp bass	<i>Paralabrax clathratus</i>	61	34.4	65.6	-31.2
white croaker	<i>Genyonemus lineatus</i>	44	72.7	27.3	45.3
Pacific barracuda	<i>Sphyraena argentea</i>	41	75.6	24.4	51.2
Pacific bonito	<i>Sarda chiliensis</i>	38	84.2	15.8	68.4
rockfish combined*	<i>Sebastes</i> spp.	37	27.0	73.0	-46.0
jacksmelt	<i>Atherinopsis californiensis</i>	20	70.0	30.0	40.0
California scorpionfish	<i>Scorpaena guttata</i>	19	42.1	57.9	-15.8
California halibut	<i>Paralichthys californicus</i>	11	54.5	45.5	9.0
halfmoon	<i>Medialuna californiensis</i>	13	7.7	92.3	-84.6
opaleye	<i>Girella nigricans</i>	8	37.5	62.5	-25.0
surfperch, unid.	Embiotocidae, unid.	5	60.0	40.0	20.0
black perch	<i>Embiotoca jacksoni</i>	6	50.0	50.0	0.0
yellowfin croaker	<i>Umbrina roncador</i>	9	88.9	11.1	77.8
California sheephead	<i>Semicossyphus pulcher</i>	6	50.0	50.0	0.0
salema	<i>Xenistius californiensis</i>	1	100.0	0.0	100.0
queenfish	<i>Seriphus politus</i>	3	100.0	0.0	100.0
cabezon	<i>Scorpaenichthys marmoratus</i>	3	100.0	0.0	100.0
other species combined**		51	49.0	51.0	-2.0

Summer = June - September

Nonsummer = October - May

n=number of anglers

Salema (*Xenistius californiensis*), queenfish (*Seriphus politus*), and cabezon (*Scorpaenichthys marmoratus*) were only taken in summer (Table 7). In addition more anglers caught yellowfin croaker (*Umbrina roncador*), and Pacific bonito. Pacific barracuda, and white croaker and surfperches in summer than in nonsummer. Halfmoon (*Medialuna californiensis*), rockfishes (*Sebastodes* spp.), opaleye (*Girella nigricans*), kelpbass were caught more frequently during the winter. Chub mackerel, barred sand bass, black perch (*Embiotoca jacksoni*), and California sheephead (*Semicossyphus pulcher*) were caught by about equal numbers of anglers in both periods (Table 7).

Anglers frequently call fish by different common names than the standard names accepted by the American Fisheries Society (AFS) (Robins et al. 1991) (Table 8). White croaker was called by six different names and kelp bass, halfmoon, and black perch by five names each. None of the names were correct for white croaker, kelp bass, and halfmoon but one individual gave black perch a correct name. The target species were most commonly known by the following names: bocaccio — “rockcod”; barred sand bass — “sand bass”; kelp bass — “calico bass”; white croaker — “tomcod”; queenfish — “herring”; California corbina — “corbina”; chub mackerel — “mackerel”; and California halibut — “halibut.”

Anglers were most likely to get half the name correct (usually the last part of the name) or give no response than to give correct or incorrect names (Table 9). However, all of the anglers that caught yellowtail (*Seriola lalandi*), lingcod (*Ophiodon elongatus*), and blue shark (*Prionace glauca*) correctly identified these species.

Seafood Consumers

Thirty-nine percent of the respondents had eaten fish from the Bay in the four weeks prior to the interview; similar values were obtained for all three major fishing modes (Table 10). Out of 1,186 respondents to Question 16 (Appendix 9), 63% had caught fish during the day of the interview. The percentage of party boat (76%) and private boat (74%) anglers that caught fish on the day of the interview was much greater than that of the pier and jetty anglers (47%). Of the anglers who caught fish, 64% allowed interviewers to examine their catch. In many private boat surveys, the anglers claimed to have already filleted the fish so it could not be examined. In other cases, the fish had been given away or thrown back before it could be examined. Most anglers (63%) planned to eat the fish they had caught that day (Appendix 6, Question 18), with the greatest percentage for private boat anglers (70%) and the lowest for pier and jetty anglers (58%).

Of the primary species, Pacific bonito, Pacific barracuda, and California halibut were the species that were most frequently eaten if caught (Table 11). White croaker, chub mackerel, and queenfish were the species that were most frequently thrown back. Pacific barracuda, Pacific bonito, and chub mackerel were the most frequently given away.

Table 8. Names of fish and invertebrate species used by Santa Monica Bay anglers, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

Common Name	Scientific Name	Angler Common Names	No. Anglers	%
chub mackerel	<i>Scomber japonicus</i>	mackerel	149	72.3
		Spanish mackerel	1	0.5
		no response	56	27.2
Pacific barracuda	<i>Sphyraena argentea</i>	Pacific barracuda	1	1.1
		barracuda	60	63.2
		no response	34	35.8
kelp bass	<i>Paralabrax clathratus</i>	calico	36	29.0
		calico bass	44	35.5
		short bass	1	0.8
		sugar bass	1	0.8
		bass	11	8.9
		unknown	1	0.8
		no response	30	24.2
spotted sand bass	<i>Paralabrax maculatofasciatus</i>	unknown	1	100.0
barred sand bass	<i>Paralabrax nebulifer</i>	sand bass	65	51.6
		bay bass	1	0.8
		bass	11	8.7
		unknown	2	1.6
		no response	47	37.3
ocean whitefish	<i>Caulolatilus princeps</i>	oceanic whitefish	1	20.0
		whitefish	4	80.0
yellowtail	<i>Seriola lalandi</i>	yellowtail	2	100.0
jack mackerel	<i>Trachurus symmetricus</i>	Spanish mackerel	3	100.0
sargo	<i>Anisotremus davidsonii</i>	sargo	3	50.0
		Japanese croaker	1	16.7
		no response	2	33.3
salema	<i>Xenistius californiensis</i>	salina	2	66.7
		no response	1	33.3
white seabass	<i>Atractoscion nobilis</i>	white sea bass	1	33.3
		sea bass	1	33.3
		unknown	1	33.3
white croaker	<i>Genyonemus lineatus</i>	croaker	5	6.6
		yellowfin croaker	1	1.3
		kingfish	16	21.1
		mackerel	1	1.3
		perch	1	1.3
		tomcod	24	31.6
		unknown	5	6.6
		no response	23	30.3
California corbina	<i>Menticirrhus undulatus</i>	corbina	1	100.0
queenfish	<i>Seriphus politus</i>	queenfish	1	14.3
		kingfish	1	14.3
		herring	3	42.9
		no response	2	28.6

Table 8 (continued)

Common Name	Scientific Name	Angler Common Names	No. Anglers	%
yellowfin croaker	<i>Umbrina roncador</i>	yellowfin croaker yellowfin no response	9 1 2	75.0 8.3 16.7
halfmoon	<i>Medialuna californiensis</i>	blue perch Catalina blue perch blue fish mojarra perch unknown no response	8 7 1 1 1 1 5	33.3 29.2 4.2 4.2 4.2 4.2 20.8
California lizardfish	<i>Synodus lucioceps</i>	lizardfish unknown no response	3 3 2	37.5 37.5 25.0
jacksmelt	<i>Atherinopsis californiensis</i>	jacksmelt lingcod mackerel smelt unknown no response	6 1 1 6 9 10	18.2 3.0 3.0 18.2 27.3 30.3
flatfish, unidentified	Pleuronectiformes, unid.	flounder sole	2 2	50.0 50.0
sanddab, unidentified	<i>Citharichthys</i> spp.	sanddab no response	5 1	83.3 16.7
California halibut	<i>Paralichthys californicus</i>	halibut no response	53 4	93.0 7.0
olive rockfish	<i>Sebastodes serranoides</i>	Johnny bass	1	100.0
grass rockfish	<i>Sebastodes rastrelliger</i>	grass rockfish rockfish no response	1 1 1	33.3 33.3 33.3
greenstriped rockfish	<i>Sebastodes elongatus</i>	unknown no response	3 1	75.0 25.0
copper rockfish	<i>Sebastodes caurinus</i>	rockfish chucklehead	1 2	33.3 66.7
flag rockfish	<i>Sebastodes rubrivinctus</i>	barber pole unknown no response	1 2 3	16.7 33.3 50.0
treefish	<i>Sebastodes serriceps</i>	rockfish	1	100.0
blue rockfish	<i>Sebastodes mystinus</i>	rockfish no response	1 1	50.0 50.0
squarespot rockfish	<i>Sebastodes hopkinsi</i>	squarespot rockfish unknown no response	1 2 1 1	20.0 40.0 20.0 20.0

Table 8 (continued)

Common Name	Scientific Name	Angler Common Names	No. Anglers	%
bocaccio	<i>Sebastodes paucispinis</i>	grouper	1	6.7
		salmon grouper	1	6.7
		red snapper	1	6.7
		rock cod	3	20.0
		unknown	1	6.7
		no response	8	53.3
vermillion rockfish	<i>Sebastodes miniatus</i>	cod	1	25.0
		red snapper	2	50.0
		rockfish	1	25.0
rockfish, unidentified	<i>Sebastodes</i> spp.	greenspeckled rockfish	1	5.9
		red snapper	1	5.9
		rock cod	2	11.8
		rockfish	4	23.5
		whitefish	1	5.9
		unknown	4	23.5
chilipepper	<i>Sebastodes goodei</i>	no response	4	23.5
		no response	2	100.0
		unknown	2	100.0
		rockfish	1	14.3
		red rock	1	14.3
		unknown	3	42.9
California scorpionfish	<i>Scorpaena guttata</i>	no response	2	28.6
		scorpionfish	1	2.3
		sculpin	36	81.8
		orange fish	1	2.3
		unknown	1	2.3
		no response	5	11.4
gopher rockfish	<i>Sebastodes carnatus</i>	rockfish	1	100.0
		rockfish	1	100.0
lingcod	<i>Ophiodon elongatus</i>	lingcod	1	100.0
cabezon	<i>Scorpaenichthys marmoratus</i>	cabezon	8	80.0
		rockfish	1	10.0
		bass	1	10.0
		perch	8	61.5
		surfperch	2	15.4
		black perch	1	7.7
surfperch, unidentified	Embiotocidae spp.	no response	2	15.4
		barred surfperch	1	25.0
		mojarra	1	25.0
		perch	1	25.0
		white perch	1	25.0
		black perch	1	10.0
barred surfperch	<i>Amphistichus argenteus</i>	buttermouth	5	50.0
		buttermouth perch	1	10.0
		buttermouth surfperch	1	10.0
		perch	1	10.0
		no response	1	10.0
black perch	<i>Embiotoca jacksoni</i>			

Table 8 (continued)

Common Name	Scientific Name	Angler Common Names	No. Anglers	%
shiner perch	<i>Cymatogaster aggregata</i>	perch seven eleven unknown no response	2 1 1 1	40.0 20.0 20.0 20.0
white seaperch	<i>Phanerodon furcatus</i>	perch	1	100.0
walleye surfperch	<i>Hyperprosopon argenteum</i>	perch walleye perch white perch	4 1 1	66.7 16.7 16.7
pile perch	<i>Rhacochilus vacca</i>	mojarra mojarra/perch	2 1	66.7 33.3
rainbow seaperch	<i>Hypsurus caryi</i>	barred perch mojarra rainbow perch	1 1 1	33.3 33.3 33.3
blacksmith	<i>Chromis punctipinnis</i>	treefish	1	100.0
rock wrasse	<i>Halichoeres semicinctus</i>	wrasse unknown	1 1	50.0 50.0
senorita	<i>Oxyjulis californica</i>	no response	1	100.0
California sheephead	<i>Semicossyphus pulcher</i>	sheephead sheepshead	9 1	90.0 10.0
Pacific sardine	<i>Sardinops sagax</i>	no response	2	100.0
triggerfish, unidentified	Balistidae, unidentified	no response	2	100.0
shark, unidentified	<i>Chondrichthyes</i> , unid.	shark	4	100.0
leopard shark	<i>Triakis semifasciata</i>	sand shark tigar shark shark	1 1 1	33.3 33.3 33.3
brown smoothhound	<i>Mustelus henlei</i>	sand shark shark tiburon	2 1 1	50.0 25.0 25.0
gray smoothhound	<i>Mustelus californicus</i>	shark	1	100.0
blue shark	<i>Prionace glauca</i>	blue shark	1	100.0
horn shark	<i>Heterodontus francisci</i>	shark	1	100.0
ray, unidentified	Rajiformes, unid.	ray	1	100.0
bat ray	<i>Myliobatis californica</i>	stingray unknown	1 1	50.0 50.0
stingray, unidentified	<i>Myliobatoidei</i> , unid.	sting ray	2	100.0
shovelnose guitarfish	<i>Rhinobatos productus</i>	shovelnose	1	100.0
octopus, unidentified	<i>Octopus</i> spp.	octopus	3	100.0
sea mussel, unidentified	<i>Mytilus</i> spp.	no response	1	100.0
Pacific purple urchin	<i>Strongylocentrotus purpuratus</i>	urchin	3	100.0
rock crab, unidentified	<i>Cancer</i> spp.	cangrejo	1	100.0
California spiny lobster	<i>Panulirus interruptus</i>	lobster	1	100.0
other fish		bass sand	1 1	50.0 50.0

Table 9. Percentage of Santa Monica Bay anglers with correct species identifications by fish species, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

Common Name	Scientific Name	Correct	Half Correct	Incorrect	Unknown/ No Response	n
chub mackerel	<i>Scomber japonicus</i>	0.0	72.8	0.0	27.2	206
Pacific barracuda	<i>Sphyraena argentea</i>	1.1	63.2	0.0	35.8	95
kelp bass	<i>Paralabrax clathratus</i>	0.0	46.0	29.0	25.0	124
spotted sand bass	<i>Paralabrax maculatofasciatus</i>	0.0	0.0	0.0	100.0	1
barred sand bass	<i>Paralabrax nebulifer</i>	0.0	61.1	0.0	38.9	126
ocean whitefish	<i>Caulolatilus princeps</i>	20.0	80.0	0.0	0.0	5
yellowtail	<i>Seriola lalandi</i>	100.0	0.0	0.0	0.0	2
jack mackerel	<i>Trachurus symmetricus</i>	0.0	100.0	0.0	0.0	3
sargo	<i>Anisotremus davidsonii</i>	50.0	0.0	16.7	33.3	6
salema	<i>Xenistius californiensis</i>	0.0	0.0	66.7	33.3	3
white seabass	<i>Atractoscion nobilis</i>	33.3	33.3	33.3	0.0	3
white croaker	<i>Genyonemus lineatus</i>	0.0	7.9	55.3	36.8	76
California corbina	<i>Menticirrhus undulatus</i>	0.0	100.0	0.0	0.0	1
queenfish	<i>Seriphis politus</i>	14.3	0.0	57.1	28.6	7
yellowfin croaker	<i>Umbrina roncador</i>	75.0	8.3	0.0	16.7	12
halfmoon	<i>Medialuna californiensis</i>	0.0	0.0	75.0	25.0	24
California lizardfish	<i>Synodus lucioceps</i>	0.0	37.5	0.0	62.5	8
jacksmelt	<i>Atherinopsis californiensis</i>	18.2	18.2	6.1	57.6	33
flatfish, unidentified	Pleuronectiformes, unid.	0.0	0.0	0.0	100.0	2
sanddab, unidentified	<i>Citharichthys</i> spp.	83.3	0.0	0.0	16.7	6
California halibut	<i>Paralichthys californicus</i>	93.0	0.0	0.0	7.0	57
olive rockfish	<i>Sebastodes serranoides</i>	0.0	0.0	100.0	0.0	1
grass rockfish	<i>Sebastodes rastrelliger</i>	33.3	33.3	0.0	33.3	3
greenstriped rockfish	<i>Sebastodes elongatus</i>	0.0	0.0	0.0	100.0	4
copper rockfish	<i>Sebastodes caurinus</i>	0.0	33.3	66.7	0.0	3
flag rockfish	<i>Sebastodes rubrivinctus</i>	0.0	0.0	16.7	83.3	6
treefish	<i>Sebastodes serviceps</i>	0.0	100.0	0.0	0.0	1
blue rockfish	<i>Sebastodes mystinus</i>	0.0	50.0	0.0	50.0	2
squarespot rockfish	<i>Sebastodes hopkinsi</i>	0.0	50.0	25.0	25.0	4
bocaccio	<i>Sebastodes paucispinis</i>	0.0	0.0	40.0	60.0	15
vermillion rockfish	<i>Sebastodes miniatus</i>	0.0	25.0	75.0	0.0	4
rockfish, unidentified	<i>Sebastodes</i> spp.	0.0	23.5	29.4	47.1	17
chilipepper	<i>Sebastodes goodei</i>	0.0	0.0	0.0	100.0	2
greenspotted rockfish	<i>Sebastodes chlorostictus</i>	0.0	0.0	0.0	100.0	2
starry rockfish	<i>Sebastodes constellatus</i>	0.0	14.3	14.3	71.4	7
gopher rockfish	<i>Sebastodes carnatus</i>	0.0	100.0	0.0	0.0	1
brown rockfish	<i>Sebastodes auriculatus</i>	0.0	100.0	0.0	0.0	1
California scorpionfish	<i>Scorpaena guttata</i>	0.0	2.3	84.1	13.6	44
lingcod	<i>Ophiodon elongatus</i>	100.0	0.0	0.0	0.0	1
cabezon	<i>Scorpaenichthys marmoratus</i>	80.0	0.0	20.0	0.0	10
surfperch, unidentified	Embiotocidae spp.	0.0	84.6	0.0	15.4	13
barred surfperch	<i>Amphistichus argenteus</i>	33.3	33.3	33.3	0.0	3
black perch	<i>Embiotoca jacksoni</i>	10.0	20.0	60.0	10.0	10
shiner perch	<i>Cymatogaster aggregata</i>	0.0	40.0	20.0	40.0	5
white seaperch	<i>Phanerodon furcatus</i>	0.0	100.0	0.0	0.0	1

Table 9 (continued)

Common Name	Scientific Name	Correct	Half Correct	Incorrect	Unknown/ No Respn	n
walleye surfperch	<i>Hyperprosopon argenteum</i>	16.7	83.3	0.0	0.0	6
rock wrasse	<i>Halichoeres semicinctus</i>	0.0	50.0	0.0	50.0	2
senorita	<i>Oxyjulis californica</i>	0.0	0.0	0.0	100.0	1
California sheephead	<i>Semicossyphus pulcher</i>	0.0	100.0	0.0	0.0	10
Pacific sardine	<i>Sardinops sagax</i>	0.0	0.0	0.0	100.0	2
triggerfish, unidentified	Balistidae, unid.	0.0	0.0	0.0	100.0	2
shark, unidentified	<i>Chondrichthyes</i> , unid.	0.0	100.0	0.0	0.0	4
leopard shark	<i>Triakis semifasciata</i>	0.0	100.0	0.0	0.0	3
brown smoothhound	<i>Mustelus henlei</i>	0.0	100.0	0.0	0.0	4
gray smoothhound	<i>Mustelus californicus</i>	0.0	100.0	0.0	0.0	1
blue sharks	<i>Prionace glauca</i>	100.0	0.0	0.0	0.0	1
horn shark	<i>Heterodontus francisci</i>	0.0	100.0	0.0	0.0	1
ray, unidentified	Rajiformes, unid.	0.0	100.0	0.0	0.0	1
bat ray	<i>Myliobatis californica</i>	0.0	50.0	0.0	50.0	2
stingray, unidentified	<i>Myliobatoidei</i> , unid.	0.0	100.0	0.0	0.0	2
shovelnose guitarfish	<i>Rhinobatos productus</i>	0.0	100.0	0.0	0.0	1
octopus, unidentified	<i>Octopus</i> spp.	0.0	100.0	0.0	0.0	3
sea mussel, unidentified	<i>Mytilus</i> spp.	0.0	0.0	0.0	100.0	1
Pacific purple urchin	<i>Strongylocentrotus purpuratus</i>	0.0	100.0	0.0	0.0	3
rock crab, unidentified	<i>Cancer</i> spp.	0.0	100.0	0.0	0.0	1
California spiny lobster	<i>Panulirus interruptus</i>	0.0	100.0	0.0	0.0	1
other fish		0.0	0.0	100.0	0.0	2

Table 10. Percentage of anglers answering “Yes” to questions concerning catch and consumption in last 4 weeks. Santa Monica Bay Seafood Consumption Study 1993.

Question	n	Percentage that answered “yes”			
		Pier/ Jetty	Party Boat	Private Boat	Total Percent
15. Have you eaten fish from S.M.B. in last 4 wks?	1198	39	40	39	39
16. Have you caught any fish today?	1186	47	76	74	63
17. May we examine your catch?	742	66	69	51	64
18. Do you plan to eat this fish?	634	58	63	70	3

Table 11. Fate of common fish species caught and eaten by Santa Monica Bay recreational anglers, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

Species	n	Percentage of anglers for each fate			
		Eat	Throw Back	Give Away	Never Catch
California halibut	913	69.6	7.1	1.6	0.0
barred sand bass	898	65.9	9.4	5.7	0.2
kelp bass	897	63.7	8.8	3.6	0.1
rockfish	754	52.7	10.6	1.6	0.0
chub mackerel	943	39.7	43.3	7.3	6.3
white croaker	872	26.0	52.8	3.8	0.8
California corbina	701	17.5	17.0	1.0	0.0
queenfish	733	15.4	34.9	1.9	3.4
Pacific bonito*	178	77.5	3.9	14.6	3.9
Pacific barracuda*	163	74.2	9.2	15.3	1.2
Percent Total		46.7	22.3	4.0	1.5
					25.5

*Pacific bonito and Pacific barracuda not included in photographs used for question 19.

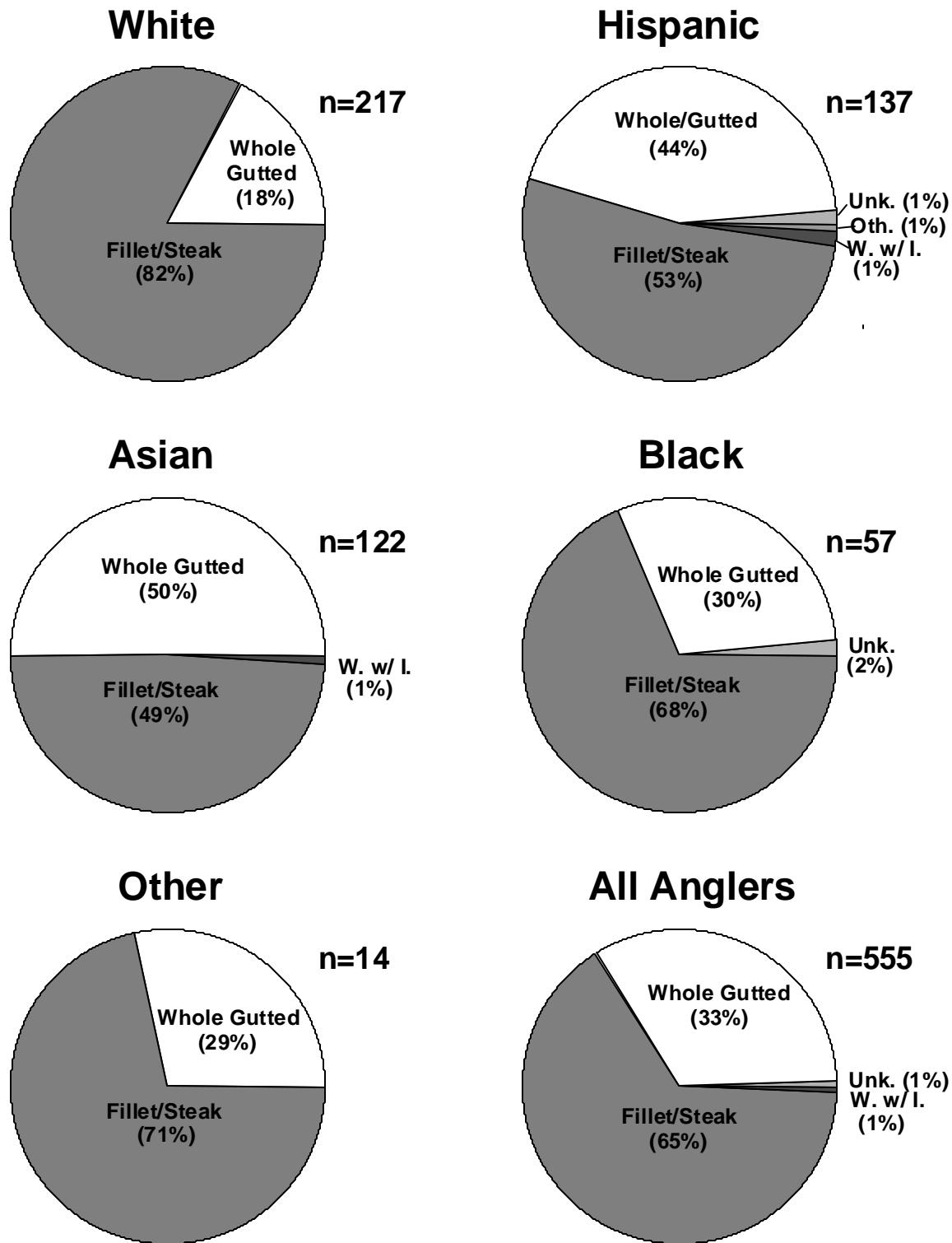


Figure 11. Parts of fish eaten by anglers of different ethnic groups, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992. Abbreviations:

Preparation and Cooking Methods

Anglers were asked whether they ate their fish whole with intestines, whole/gutted, as steaks/fillets, or in some other manner. About 65% of the anglers ate steaks/fillets of fish while about 33% ate their fish whole/gutted (Figure 11); only 1% ate whole fish with intestines. More whites, blacks, Hispanics, and other miscellaneous ethnic groups ate fish as steaks/fillets than as whole/gutted whereas Asians ate fish in that manner or as whole/gutted at about an equal rate. Whites had the highest percentage of anglers that ate fish as steaks/fillets and the lowest that ate fish as whole/gutted. About 1% of Hispanic and Asian anglers ate fish whole with intestines.

Anglers were also asked how they cooked their fish. About 47% of the anglers fried their fish, about 27% cooked their fish in a combination of methods, and 17% broiled/barbecued their fish (Figure 12). At least 50% of the Hispanic, black, and other anglers fried their fish, with a combination of methods being the second largest category of these ethnic groups. Whites were more equally divided among those that fried, used a combination of methods, or broiled/barbecued their fish. Asians were similar to whites but fewer Asians broiled/barbecued fish. The ethnic group that most preferred each cooking method was as follows: fry — Hispanics; combination — Asians (and others); broiling/barbecue — white; bake/boil/steam — Asian, blacks, and others; raw/smoked/ceviche — Hispanic; and soups — Hispanics.

CONSUMPTION RATES

As noted above, two estimates of consumption rates were determined; one based on the angler's fillet model estimate of meal size and the other based on the amount of fish in hand at the time of the interview. The latter was based on "consumable portions" of fish caught by anglers multiplied by the angler's consumption frequency and divided by the number of consumers in the family or living group. This calculation fails to take into account the responses to Questions 18 and 19 (Appendix 1) regarding the angler's estimate of meal size and assumes that the fish in the angler's catch at the time of the interview equals the amount consumed by the household each meal. Thus, estimates of consumption based on "consumable portion" calculations may be inappropriate. For this reason, estimates of consumption rates based on fillet model estimates, which included anglers with and without fish in hand, were more appropriate and representative of the actual consumption rates.

Consumption rates are presented for all anglers in Appendix 11. Estimates of seafood consumption based on "consumable portions" are presented in Appendix 12 and summarized by ethnic group and fishing mode in Appendix 13.

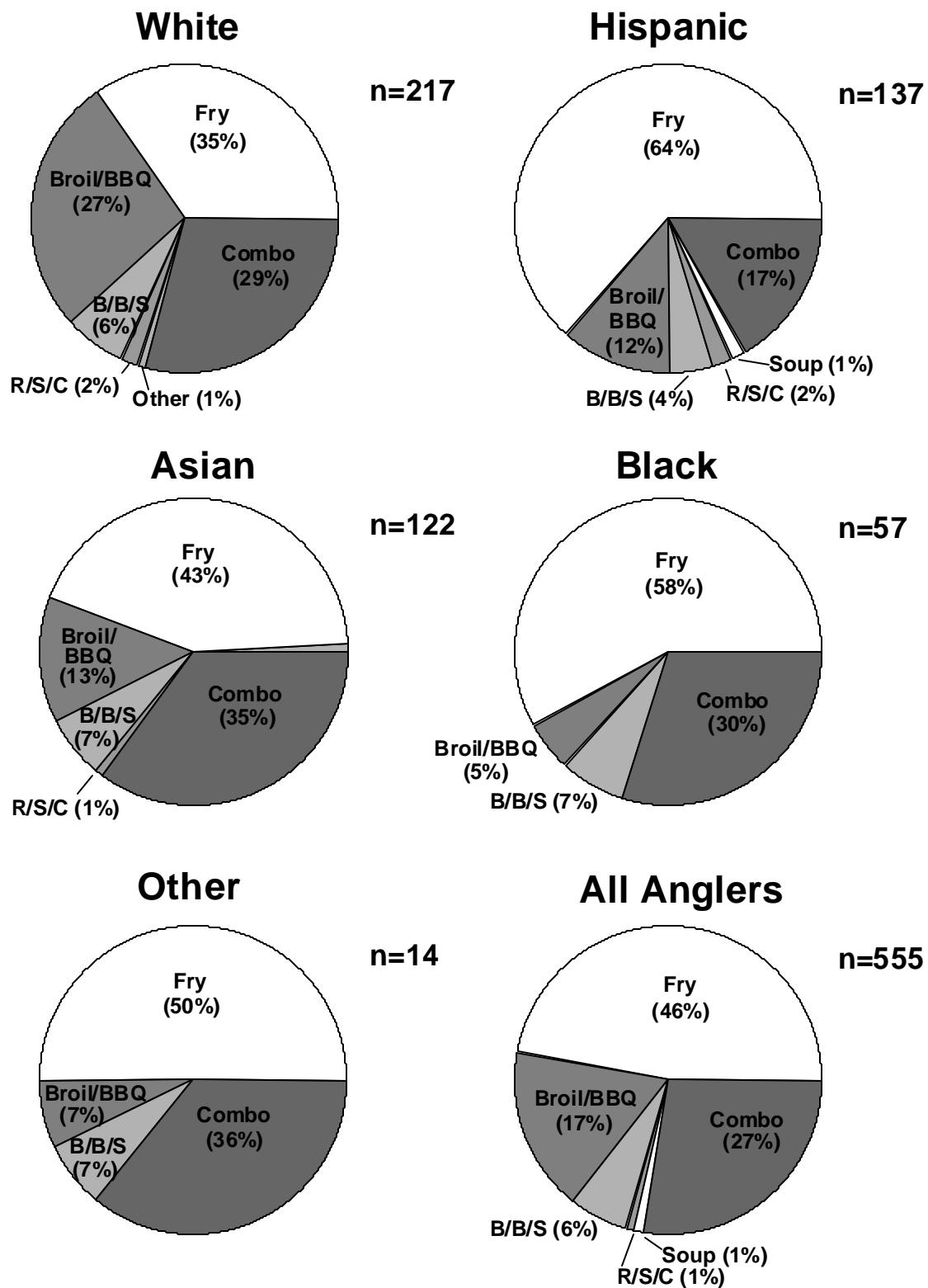


Figure 12. Method of preparation by anglers of different ethnic groups, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992. Abbreviations:

Table 12. Seafood consumption rates of all fish by ethnic and income groups of Santa Monica Bay anglers, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

Category	n	Consumption Rate							
		g/ind./day				kg/ind./mo.*			
		Mean	C.L.	Md	U.D.	Mean	C.L.	Md	U.D.
Ethnicity									
White	217	58.1	19.1	21.4	112.5	1.627	0.534	0.600	3.2
Hispanic	137	28.2	5.9	16.1	64.3	0.790	0.164	0.450	1.8
Black	57	48.6	18.9	24.1	85.7	1.361	0.529	0.675	2.4
Asian	122	51.1	18.7	21.4	115.7	1.432	0.524	0.600	3.2
Other	14	137.3	92.2	85.7	173.6	3.844	2.581	2.400	4.9
Income									
<\$5,000	20	42.1	18.0	32.1	64.3	1.178	0.505	0.900	1.8
\$5,000-\$10,000	27	40.5	29.1	21.4	48.2	1.133	0.815	0.600	1.4
\$10,000-\$25,000	90	40.4	9.3	21.4	80.4	1.131	0.261	0.600	2.3
\$25,000-\$50,000	149	46.9	10.5	21.4	113.0	1.313	0.293	0.600	3.2
>\$50,000	130	58.9	20.6	21.4	128.6	1.649	0.576	0.600	3.6
Total									
All Anglers	555	49.6	9.3	21.4	107.1	1.389	0.259	0.600	3.0

Md = Median (50%)

U.D. = Upper Decile (90%)

C.L. = \pm Confidence Limit (95%)

* 1 month = 28 days

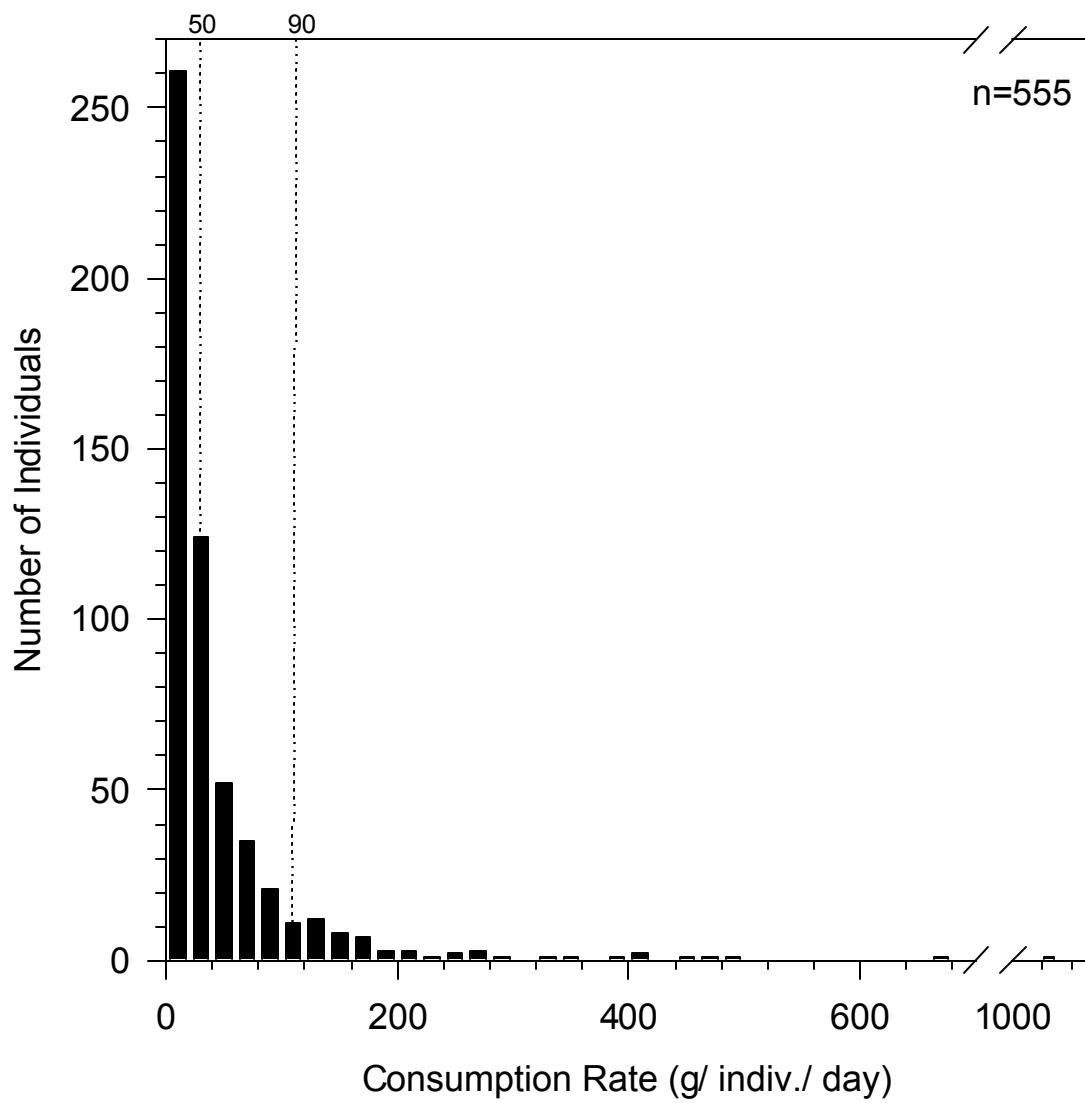


Figure 13. Consumption rate distribution with 50th (median) and 90th percentiles of all species by Santa Monica Bay anglers, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

Fillet Model Estimates

Frequency distributions of seafood consumption rates of Santa Monica Bay anglers were strongly skewed to the right. The median consumption rate of all species combined by all anglers was 21.4 g/ind/day (0.60 kg/ind/mo) (Table 12, Figure 13). However, within the upper decile (U.D.; i.e., above the 90th percentile) of 107.1 g/ind/day (3.0 kg/ind/day) was five times the median rate. One white individual (not included in Figure 13) had an extremely high (and questionable) consumption rate of 1,821 g/day. The "other" ethnic group had the highest median and upper decile consumption rates (85.7 and 173.6 g/ind/day, respectively) (Table 12). Of the primary ethnic groups, blacks had the highest median (24.1 g/ind/day) but Asians had the highest upper decile consumption rate (115.7 g/ind/day). Hispanics had the lowest median and upper decile consumption rates. All Hispanic consumption rates were less than 240 g/ind/day but some blacks and whites had rates of greater than 440 g/ind/day (Figure 14). Although the lowest income group (<\$5,000) had the highest median consumption rate (32.1 g/ind/day), the upper decile of consumption rates increased with increasing income. Anglers with an annual household incomes of less than \$5,000 had upper deciles of 64.3 g/ind/day whereas those with incomes greater than \$50,000 had upper deciles of 128.6 g/ind/day (Table 12, Figure 15). Except for the questionable individual mentioned above (who refused to give income), the highest individual consumption rates were found in the highest income group.

In general, median consumption rates and upper deciles for the most important species were similar with the greatest difference being among the outlying high consumers for each species (Figure 16). Medians ranged from 10.7 to 16.1 g/ind/day (0.30 to 0.45 kg/ind/mo) (Table 13a; Figures 17-19). Upper decile values were highest for kelp bass, barred sand bass, and rockfishes at 80.4, 78.2, and 62.7 g/ind/day. Upper decile values were lowest for surfperch, jacksmelt, and white croaker.

The most abundant species caught by recreational anglers were generally also those that were consumed at the highest rates (Tables 6 and 13). For the primary species, medians ranged from 10.7 to 32.1 g/ind/day for whites, 8.0 to 16.1 g/ind/day for Hispanics, 5.4 to 21.4 g/ind/day for Asians, and 8.0 to 28.1 g/ind/day for blacks; however, for other ethnic categories, medians range from 10.7 to 72.3 g/ind/day (Table 13b-f, Figures 20-29). Median consumption rates of whites were highest for Pacific barracuda, of Hispanics for barred sand bass, of Asians for rockfishes, and of blacks for Pacific bonito (Table 13). However, upper decile values of whites were highest for barred sand bass, of Hispanics for chub mackerel, of Asians for chub mackerel and kelp bass, of blacks for California halibut, and of other ethnic groups for chub mackerel.

Of the various groups comprising "Asians", Filipinos and Japanese had the highest median consumption rates (21.4 g/ind/day or 0.60 kg/ind/day (Table 14). Filipinos consumed Pacific barracuda at higher rates than other species; similarly, Japanese and Vietnamese ate

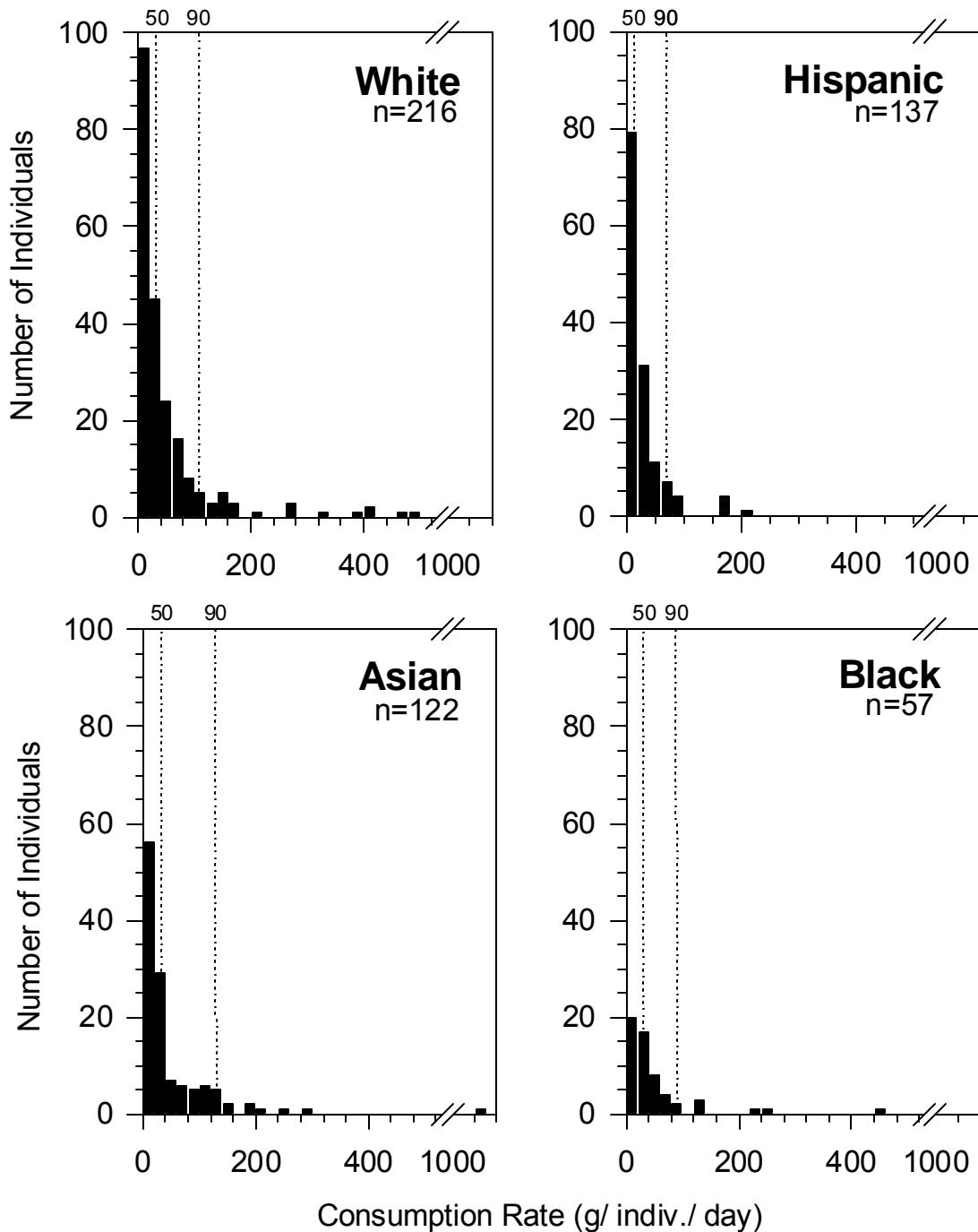


Figure 14. Consumption rate distribution with 50th (median) and 90th percentiles of all fish species by Santa Monica Bay anglers of different ethnicities, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

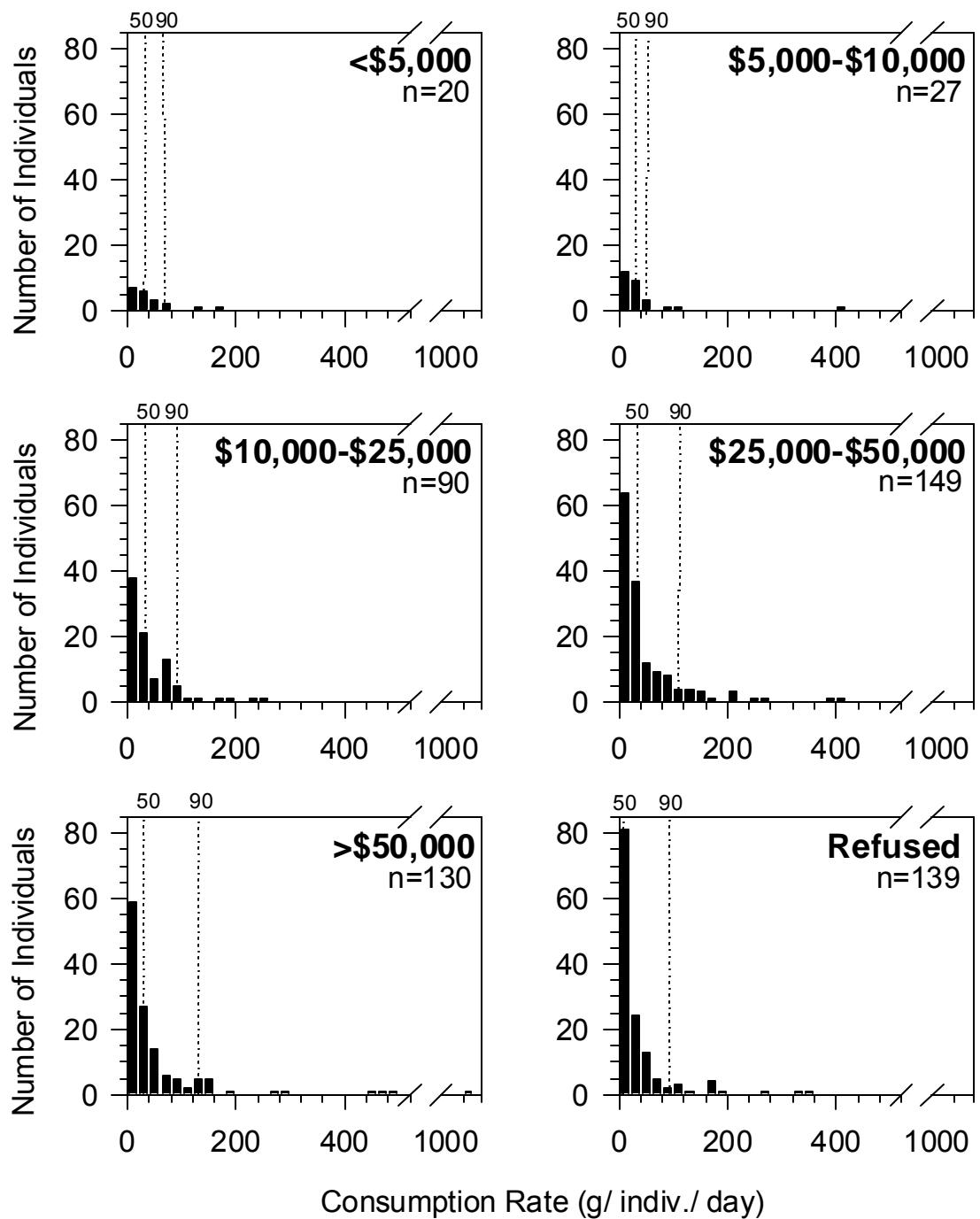


Figure 15. Consumption rate distribution with 50th (median) and 90th percentiles of all fish species by Santa Monica Bay anglers of different household income categories, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

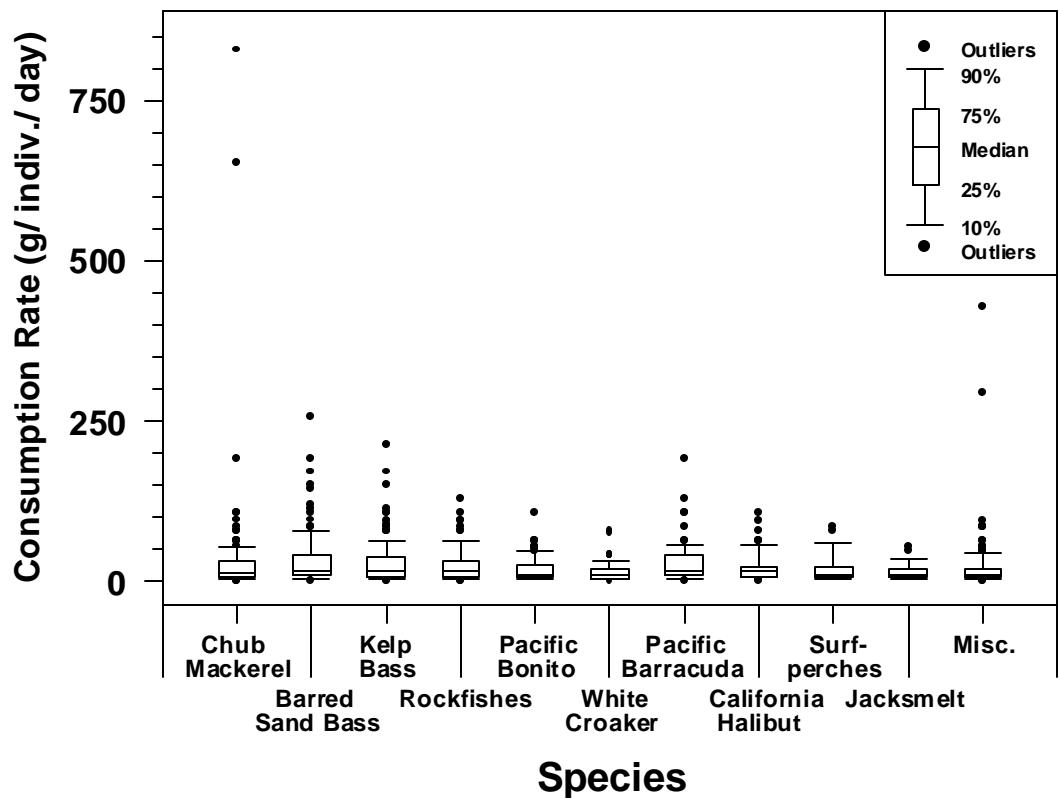


Figure 16. Box plots (with medians, quartiles, deciles, and outliers) of consumption rates of major fish species by all Santa Monica Bay anglers, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

Table 13. Consumption rates of Santa Monica Bay anglers of different ethnic groups by fish species, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

A) All Anglers

Fish Species	n	Consumption Rate										
		g/ind./day					kg/ind./mo.*					
		Mean	C. L.	Md	U.D.	U.D./Md	Mean	C. L.	Md	U.D.	U.D./Md	
chub mackerel	147	33.7	14.4	13.4	54.4	4.1	0.943	0.402	0.375	1.5	4.1	
barred sand bass	144	31.9	6.7	16.1	78.2	4.9	0.893	0.187	0.450	2.2	4.9	
kelp bass	140	28.5	5.6	16.1	80.4	5.0	0.797	0.156	0.450	2.3	5.0	
rockfishes	101	25.5	4.8	16.1	62.7	3.9	0.715	0.135	0.450	1.8	3.9	
Pacific bonito	77	19.6	4.3	10.7	44.5	4.2	0.549	0.120	0.300	1.2	4.2	
white croaker	72	15.8	3.5	10.7	32.1	3.0	0.443	0.099	0.300	0.9	3.0	
Pacific barracuda	71	28.8	7.8	16.1	53.6	3.3	0.807	0.218	0.450	1.5	3.3	
California halibut	62	22.7	5.6	16.1	51.4	3.2	0.636	0.158	0.450	1.4	3.2	
surfperches	20	21.1	10.2	10.7	26.8	2.5	0.590	0.285	0.300	0.8	2.5	
jacksmelt	23	16.4	5.9	10.7	32.1	3.0	0.460	0.165	0.300	0.9	3.0	

B) White Anglers

Fish Species	n	Consumption Rate										
		g/ind./day					kg/ind./mo.*					
		Mean	C. L.	Md	U.D.	U.D./Md	Mean	C. L.	Md	U.D.	U.D./Md	
chub mackerel	30	22.1	6.5	13.4	48.2	3.6	0.620	0.181	0.375	1.4	3.6	
barred sand bass	72	38.6	11.3	18.8	85.7	4.6	1.080	0.316	0.525	2.4	4.6	
kelp bass	75	27.8	7.3	16.1	54.9	3.4	0.779	0.203	0.450	1.5	3.4	
rockfishes	50	24.6	6.4	16.1	42.9	2.7	0.690	0.179	0.450	1.2	2.7	
Pacific bonito	24	16.6	4.8	10.7	30.0	2.8	0.466	0.133	0.300	0.8	2.8	
white croaker	9	10.7	5.5	10.7	12.9	1.2	0.300	0.155	0.300	0.4	1.2	
Pacific barracuda	42	31.1	10.8	21.4	53.6	2.5	0.870	0.303	0.600	1.5	2.5	
California halibut	39	21.5	6.1	10.7	42.9	4.0	0.602	0.171	0.300	1.2	4.0	
surfperches	6	27.0	24.0	18.8	50.4	2.7	0.755	0.671	0.525	1.4	2.7	
jacksmelt	5	25.7	15.4	32.1	40.2	1.3	0.720	0.430	0.900	1.1	1.3	

Table 13 (continued)**C) Hispanic Anglers**

Fish Species	n	Consumption Rate									
		g/ind./day			kg/ind./mo.						
Mean	C. L.	Md	U.D.	U.D./Md	Mean	C. L.	Md	U.D.	U.D./Md		
chub mackerel	53	21.8	5.9	12.1	42.9	3.6	0.610	0.166	0.338	1.2	3.6
barred sand bass	20	21.3	11.1	16.1	32.1	2.0	0.595	0.310	0.450	0.9	2.0
kelp bass	14	19.1	9.1	10.7	37.0	3.5	0.536	0.255	0.300	1.0	3.5
rockfishes	13	21.3	18.1	8.0	24.1	3.0	0.597	0.505	0.225	0.7	3.0
Pacific bonito	23	17.3	6.1	10.7	35.9	3.4	0.483	0.171	0.300	1.0	3.4
white croaker	41	15.0	4.5	10.7	31.6	3.0	0.420	0.125	0.300	0.9	3.0
Pacific barracuda	8	19.4	11.2	10.7	36.4	3.4	0.544	0.314	0.300	1.0	3.4
California halibut	5	13.4	8.0	10.7	22.8	2.1	0.375	0.223	0.300	0.6	2.1
surfperches	4	10.7	4.3	10.7	13.9	1.3	0.300	0.120	0.300	0.4	1.3
jacksmelt	9	8.3	2.4	8.0	11.3	1.4	0.233	0.067	0.225	0.3	1.4

D) Asian Anglers

Fish Species	n	Consumption Rate									
		g/ind./day			kg/ind./mo.						
Mean	C. L.	Md	U.D.	U.D./Md	Mean	C. L.	Md	U.D.	U.D./Md		
chub mackerel	42	47.5	39.0	16.1	64.3	4.0	1.331	1.092	0.450	1.8	4.0
barred sand bass	30	26.3	10.8	10.7	53.6	5.0	0.736	0.302	0.300	1.5	5.0
kelp bass	30	24.8	9.0	10.7	64.3	6.0	0.694	0.251	0.300	1.8	6.0
rockfishes	25	28.7	9.3	21.4	56.3	2.6	0.804	0.259	0.600	1.6	2.6
Pacific bonito	19	20.7	11.4	10.7	43.9	4.1	0.580	0.319	0.300	1.2	4.1
white croaker	5	23.6	26.5	5.4	50.9	9.5	0.660	0.741	0.150	1.4	9.5
Pacific barracuda	16	25.4	14.3	10.7	54.6	5.1	0.713	0.400	0.300	1.5	5.1
California halibut	8	20.1	13.3	16.1	30.0	1.9	0.563	0.371	0.450	0.8	1.9
surfperches	6	17.0	11.4	10.7	31.6	3.0	0.475	0.319	0.300	0.9	3.0
jacksmelt	3	16.1	10.5	10.7	22.0	2.1	0.450	0.294	0.300	0.6	2.1

Table 13 (continued)**E) Black Anglers**

Fish Species	n	Consumption Rate									
		g/ind./day				kg/ind./mo.					
		Mean	C. L.	Md	U.D.	U.D./Md	Mean	C. L.	Md		
chub mackerel	12	15.6	5.9	10.7	23.6	2.2	0.438	0.164	0.300	0.7	2.2
barred sand bass	16	25.9	14.8	16.1	57.9	3.6	0.724	0.415	0.450	1.6	3.6
kelp bass	16	31.0	14.0	18.8	64.3	3.4	0.867	0.393	0.525	1.8	3.4
rockfishes	10	24.6	16.2	16.1	32.1	2.0	0.690	0.453	0.450	0.9	2.0
Pacific bonito	4	31.5	28.8	28.1	57.9	2.1	0.881	0.806	0.788	1.6	2.1
white croaker	14	19.1	7.3	13.4	37.0	2.8	0.535	0.205	0.375	1.0	2.8
Pacific barracuda	4	39.5	46.5	24.1	79.3	3.3	1.106	1.303	0.675	2.2	3.3
California halibut	8	40.2	25.3	21.4	85.7	4.0	1.125	0.709	0.600	2.4	4.0
surfperches	3	31.3	48.1	8.0	58.7	7.3	0.875	1.348	0.225	1.6	7.3
jacksmelt	4	15.4	6.9	16.1	21.4	1.3	0.431	0.193	0.450	0.6	1.3

F) Other Anglers

Fish Species	n	Consumption Rate									
		g/ind./day				kg/ind./mo.					
		Mean	C. L.	Md	U.D.	U.D./Md	Mean	C. L.	Md		
chub mackerel	8	116.9	151.9	30.8	207.9	6.7	3.272	4.254	0.863	5.8	6.7
barred sand bass	5	35.8	29.9	16.1	72.3	4.5	1.002	0.836	0.450	2.0	4.5
kelp bass	4	92.9	89.9	72.3	173.6	2.4	2.603	2.516	2.025	4.9	2.4
rockfishes	3	35.7	30.5	32.1	54.6	1.7	1.000	0.854	0.900	1.5	1.7
Pacific bonito	4	42.2	22.7	46.9	60.0	1.3	1.181	0.636	1.313	1.7	1.3
white croaker	1	21.4	0.0	21.4	0.0	0.0	0.600	0.000	0.600	0.0	0.0
Pacific barracuda	0	0.0	0.0	0.0	0.0	0.0	0.000	0.000	0.000	0.0	0.0
California halibut	1	10.7	0.0	10.7	0.0	0.0	0.300	0.000	0.300	0.0	0.0
surfperches	1	21.4	0.0	21.4	0.0	0.0	0.600	0.000	0.600	0.0	0.0
jacksmelt	2	32.1	42.0	32.1	45.0	1.4	0.900	1.176	0.900	1.3	1.4

C.L. = \pm Confidence Limit (95%)

Md = Median (50%)

U.D. = Upper Decile (90%)

* 1 month = 28 days

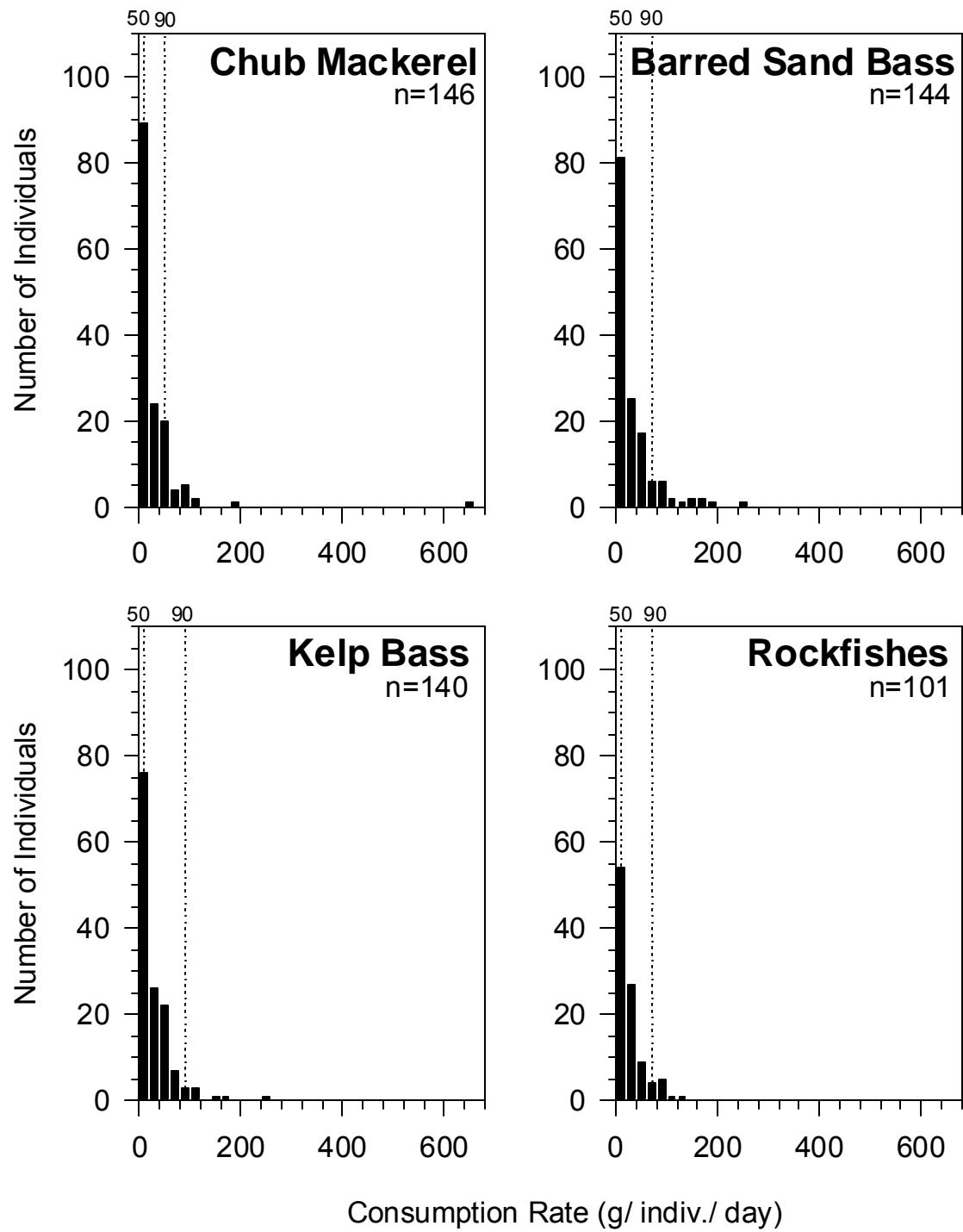


Figure 17. Consumption rate distribution with 50th (median) and 90th percentiles of chub mackerel (*Scomber japonicus*), barred sand bass (*Paralabrax nebulifer*), kelp bass (*Paralabrax clathratus*), and rockfishes (*Sebastes* spp.) by all Santa Monica Bay anglers, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

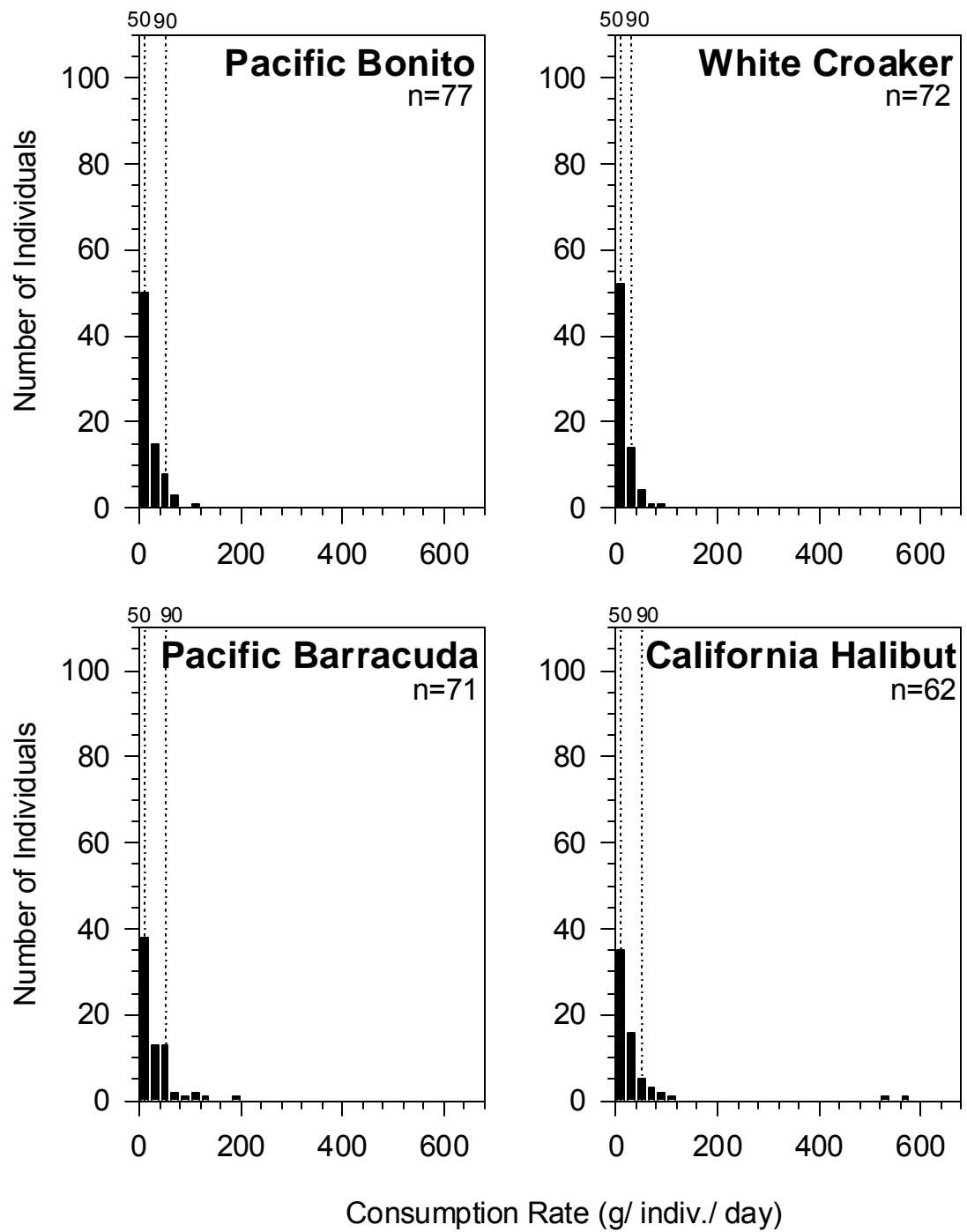


Figure 18. Consumption rate distribution with 50th (median) and 90th percentiles of Pacific bonito (*Sarda chiliensis*), white croaker (*Genyonemus lineatus*), Pacific barracuda (*Sphyraena argentea*), and California halibut (*Paralichthys californicus*) by all Santa Monica Bay anglers, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

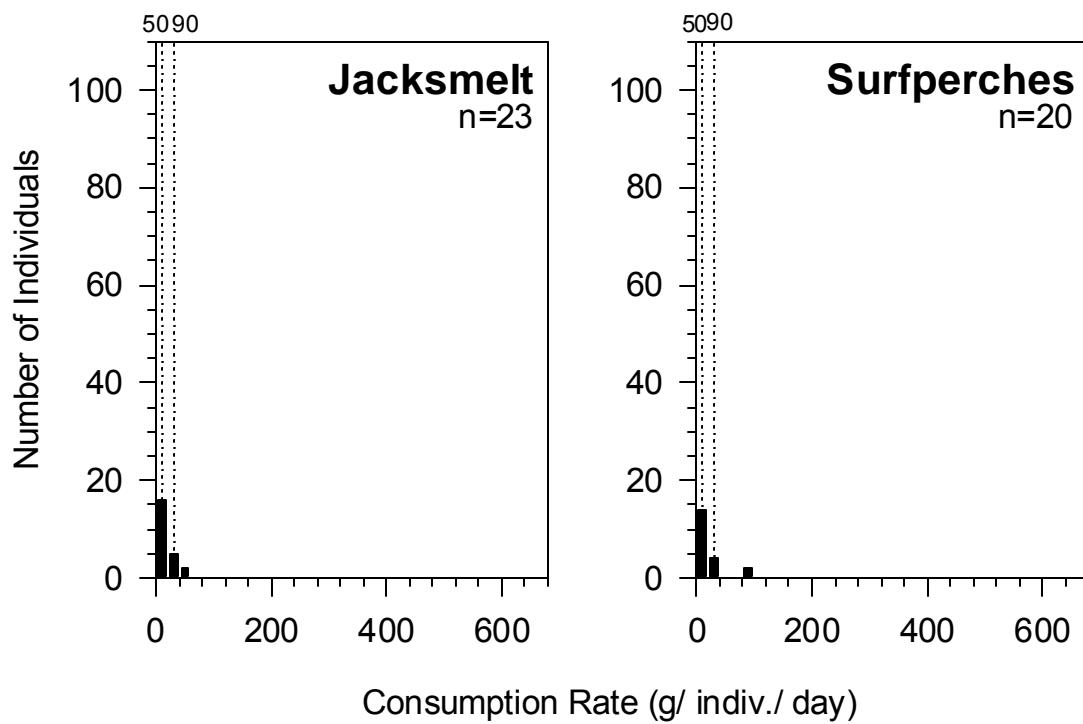


Figure 19. Consumption rate distribution with 50th (median) and 90th percentiles of jacksmelt (*Atherinopsis californiensis*) and surfperches (Embiotocidae spp.) by all Santa Monica Bay anglers, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

Table 14. Median consumption rates (fillet model estimate) of the most abundantly caught fish species by ethnic groups of Asian anglers, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

a) Consumption rate (g/ind/day)

Fish Species	Filipino		Japanese		Korean		Chinese		Vietnamese	
	n	Md	n	Md	n	Md	n	Md	n	Md
chub mackerel	18	32.1	10	13.4	6	6.7	4	6.7	4	16.1
barred sand bass	2	8.0	8	10.0	12	34.8	6	10.7	2	14.8
Pacific barracuda	2	85.7	4	5.4	8	13.4	2	10.7	-	—
kelp bass	5	5.4	9	10.7	10	29.5	6	32.1	-	—
rockfish spp.	5	21.4	10	26.8	4	13.4	5	32.1	1	85.7
Pacific bonito	9	32.1	2	8.0	4	8.0	3	8.0	1	5.4
white croaker	1	26.8	-	—	2	40.2	1	5.4	1	5.4
surfperch spp.	2	24.1	2	10.7	1	8.0	1	24.1	-	—
otherspecies	7	21.4	6	9.4	5	21.4	5	80.4	-	—
all species	39	21.4	30	21.4	28	16.1	18	16.1	7	16.1

b) Consumption rate (kg/ind/mo)

Fish Species	Filipino		Japanese		Korean		Chinese		Vietnamese	
	n	Md	n	Md	n	Md	n	Md	n	Md
chub mackerel	18	0.90	10	0.38	6	0.19	4	0.19	4	0.45
barred sand bass	2	0.23	8	0.28	12	0.98	6	0.30	2	0.41
Pacific barracuda	2	0.24	4	0.15	8	0.38	2	0.30	-	—
kelp bass	5	0.15	9	0.30	10	0.83	6	0.90	-	—
rockfish spp.	5	0.60	10	0.75	4	0.38	5	0.90	1	2.40
Pacific bonito	9	0.90	2	0.23	4	0.23	3	0.23	1	0.15
white croaker	1	0.75	-	—	2	1.13	1	0.15	1	0.15
surfperch spp.	2	0.68	2	0.30	1	0.23	1	0.68	-	—
otherspecies	7	0.60	6	0.26	5	0.60	5	2.25	-	—
all species	39	0.60	30	0.60	28	0.45	18	0.45	7	0.45

Total column 'n's' do not equal 'n's' for all species because many anglers ate more than one species.

Md = median; n = number of anglers; spp. = species

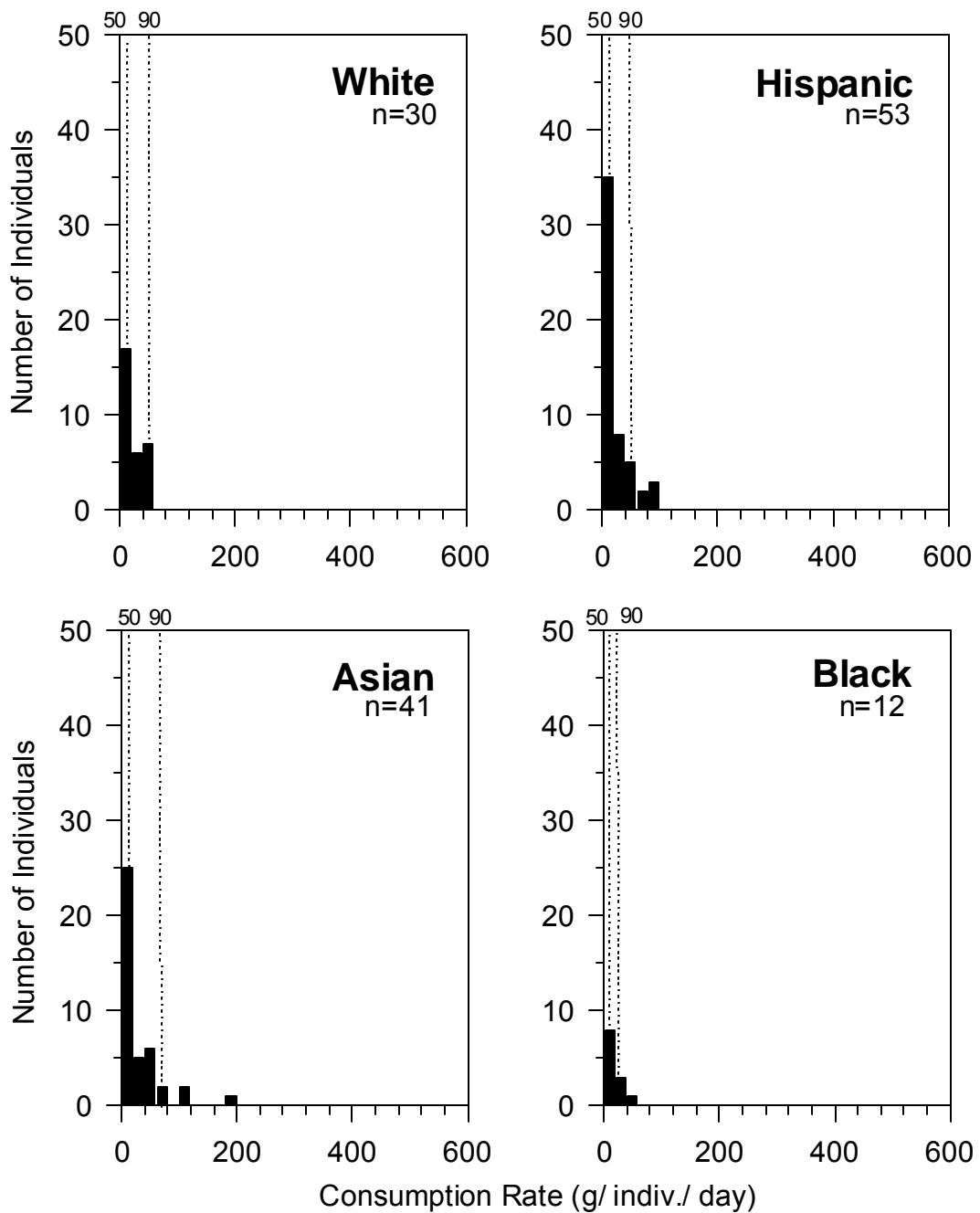


Figure 20. Consumption rate distribution with 50th (median) and 90th percentiles of chub mackerel (*Scomber japonicus*) by Santa Monica Bay anglers of different ethnicities, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

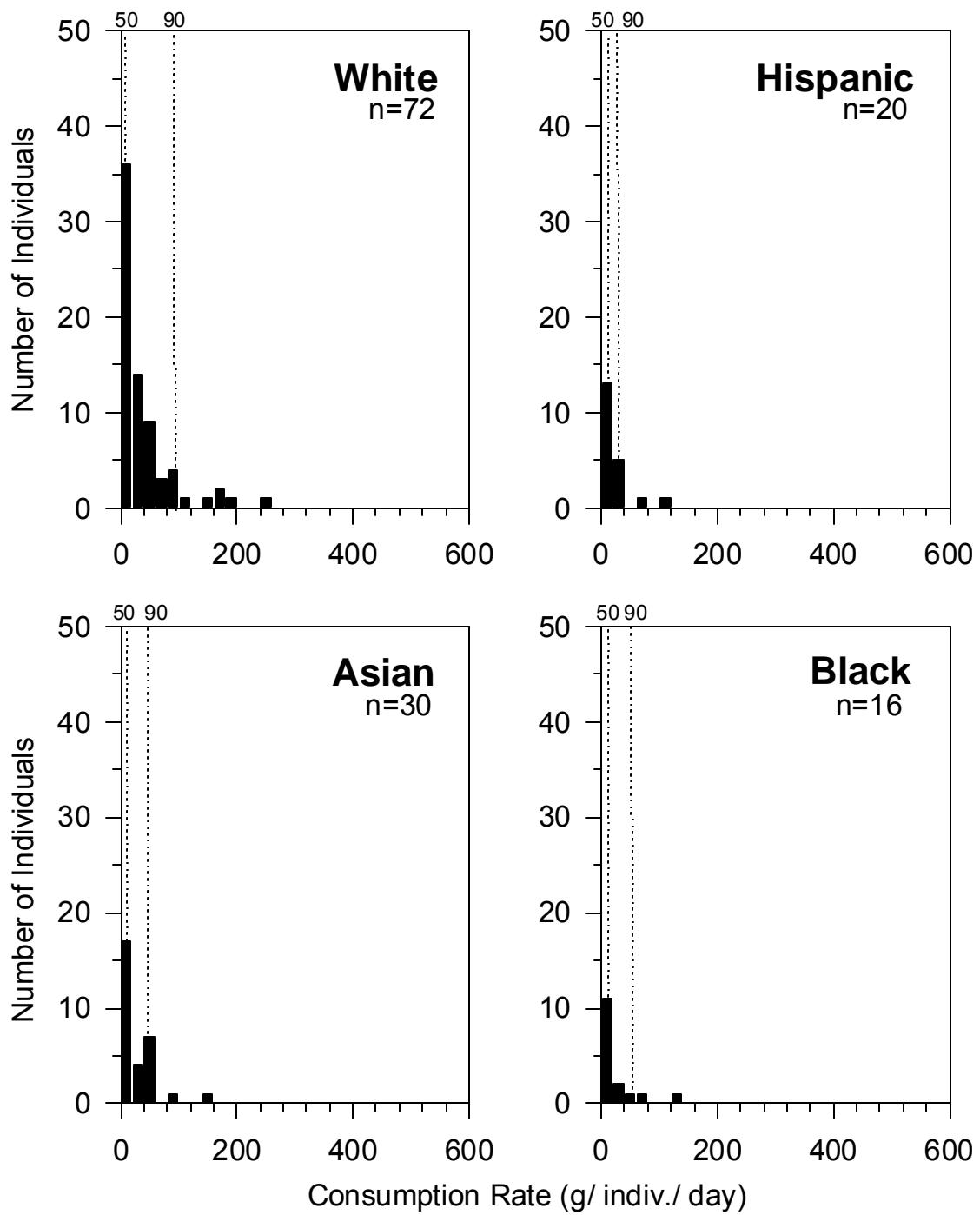


Figure 21. Consumption rate distribution with 50th (median) and 90th percentiles of barred sand bass (*Paralabrax nebulifer*) by Santa Monica Bay anglers of different ethnicities, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

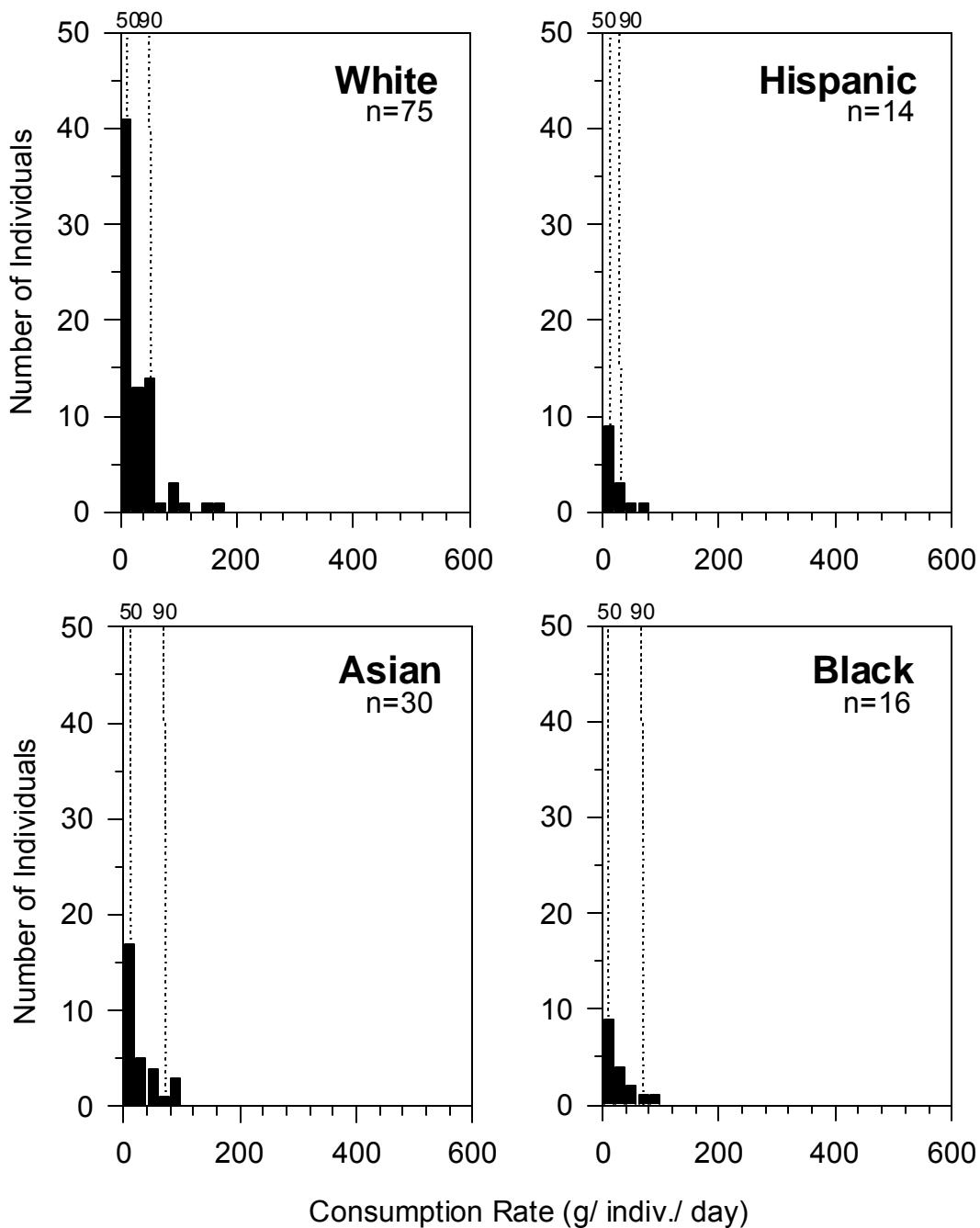


Figure 22. Consumption rate distribution with 50th (median) and 90th percentiles of kelp bass (*Paralabrax clathratus*) by Santa Monica Bay anglers of different ethnicities, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

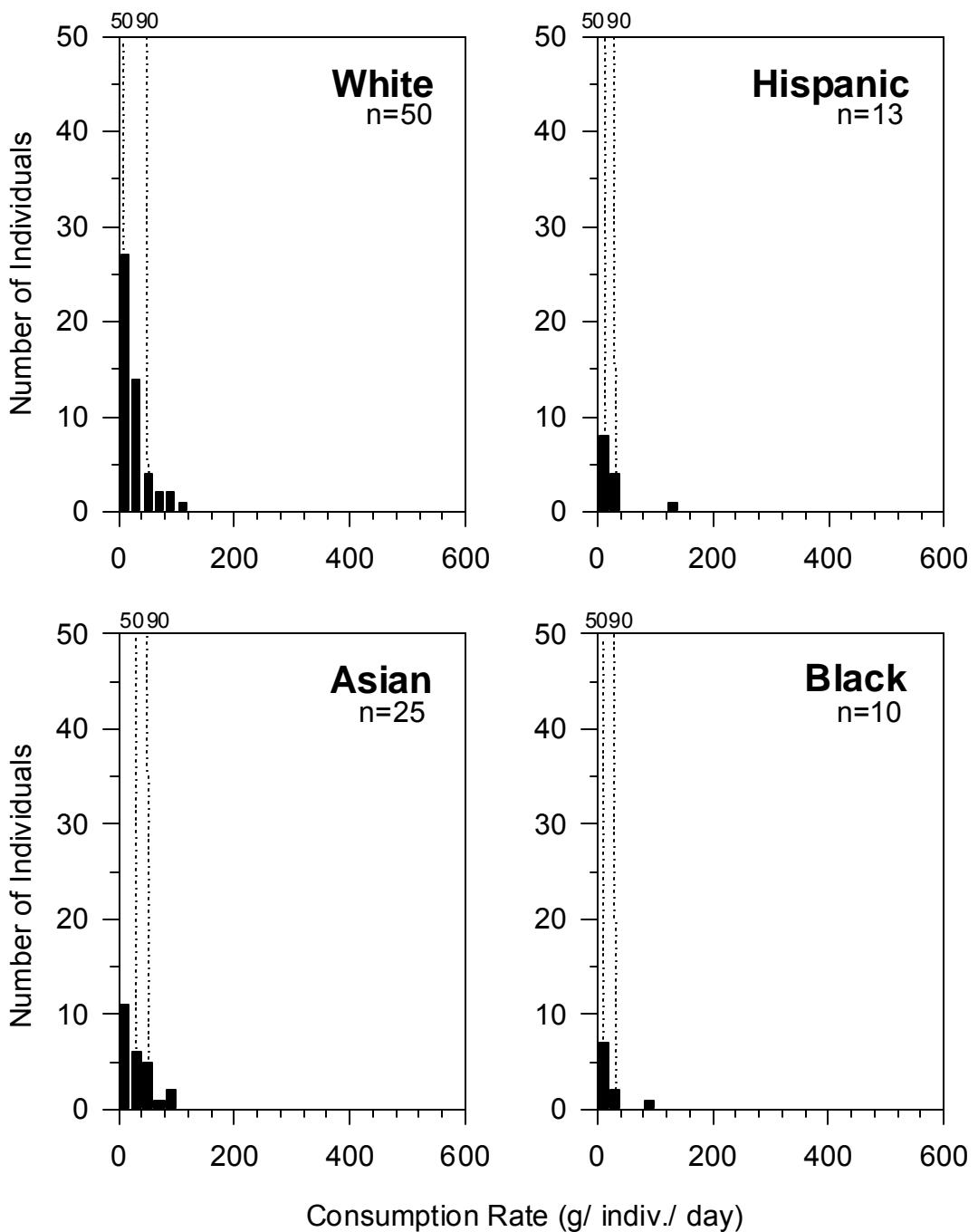


Figure 23. Consumption rate distribution with 50th (median) and 90th percentiles of rockfishes (*Sebastodes* spp.) by Santa Monica Bay anglers of different ethnicities, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

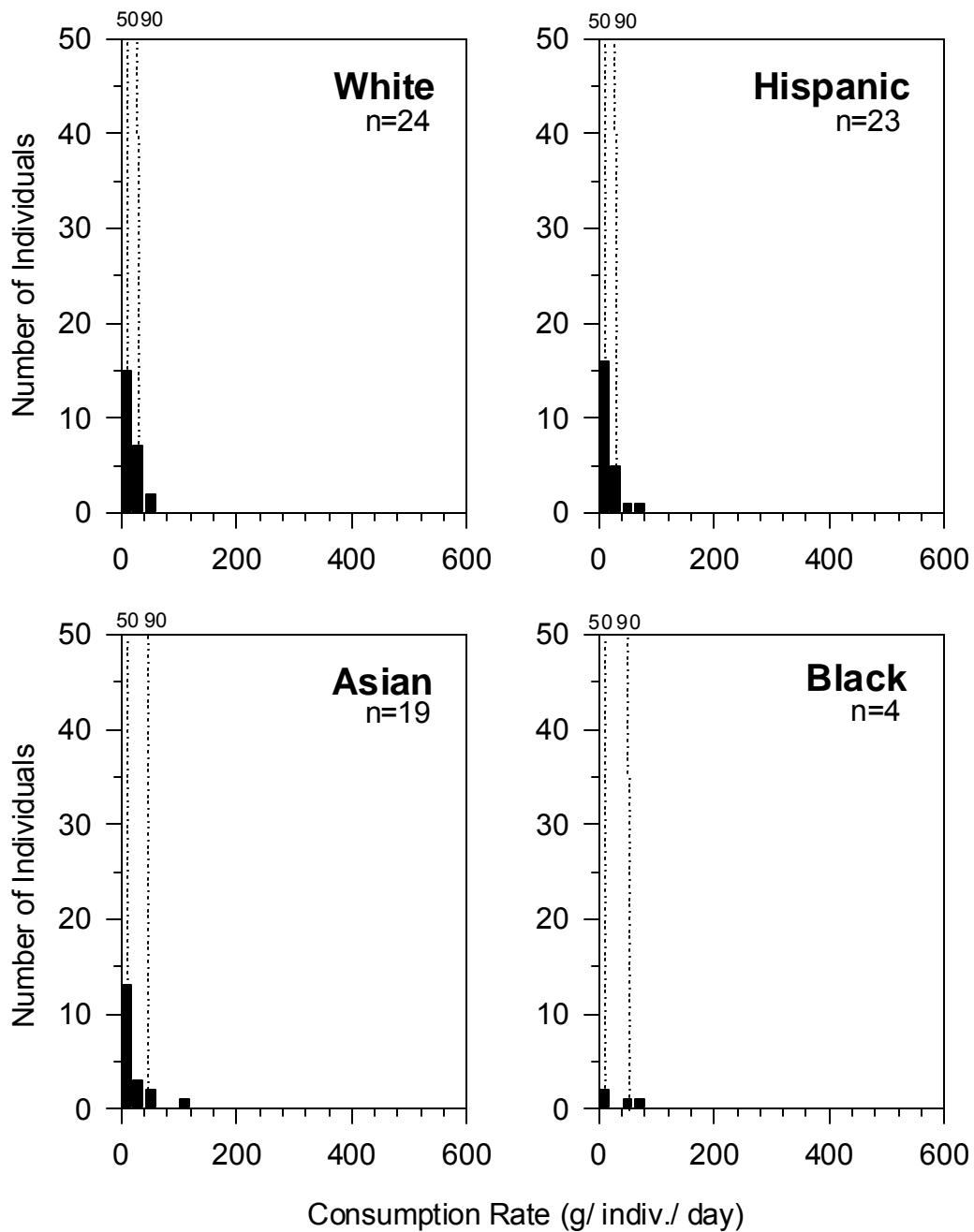


Figure 24. Consumption rate distribution with 50th (median) and 90th percentiles of Pacific bonito (*Sarda chiliensis*) by Santa Monica Bay anglers of different ethnicities, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

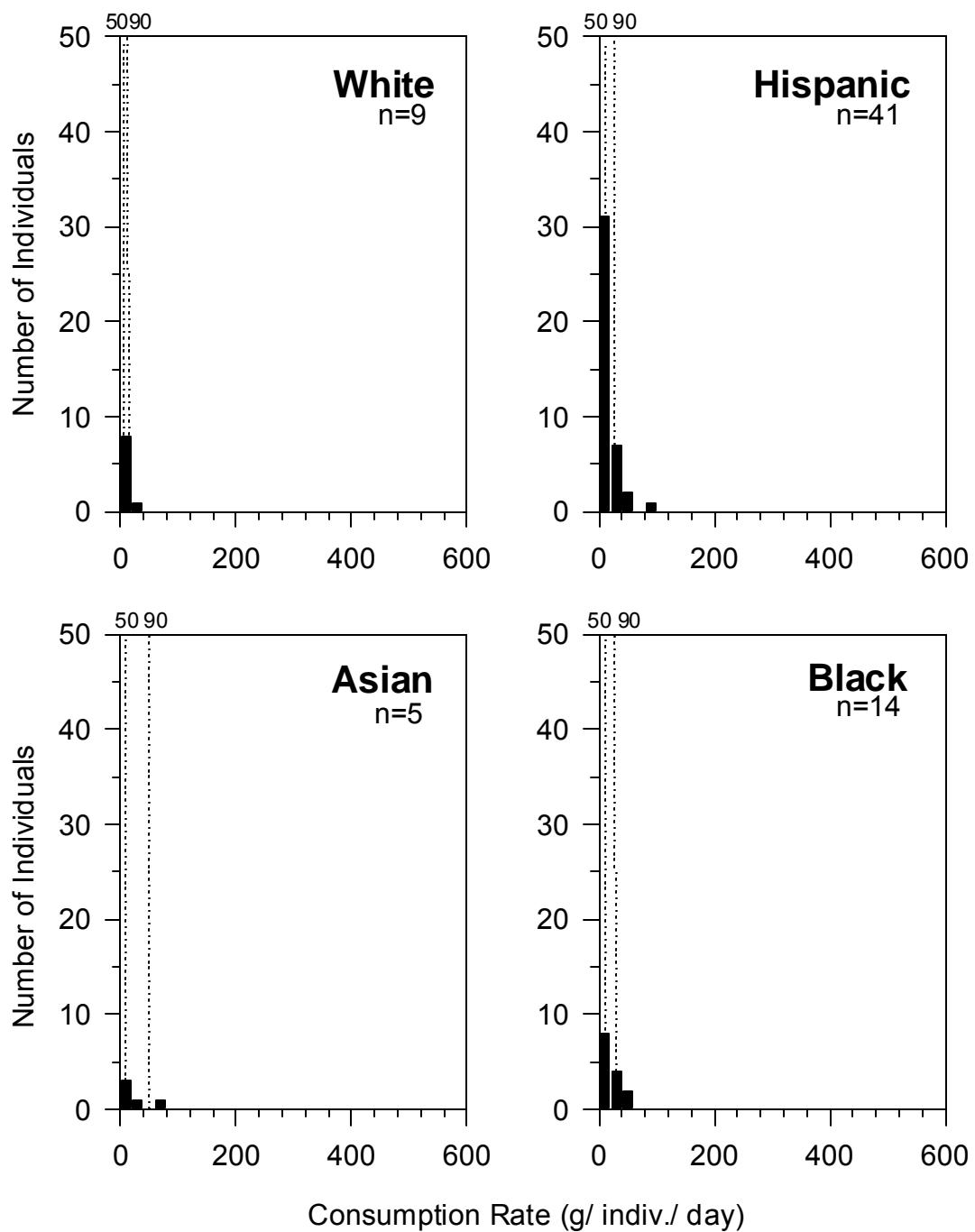


Figure 25. Consumption rate distribution with 50th (median) and 90th percentiles of white croaker (*Genyonemus lineatus*) by Santa Monica Bay anglers of different ethnicities, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

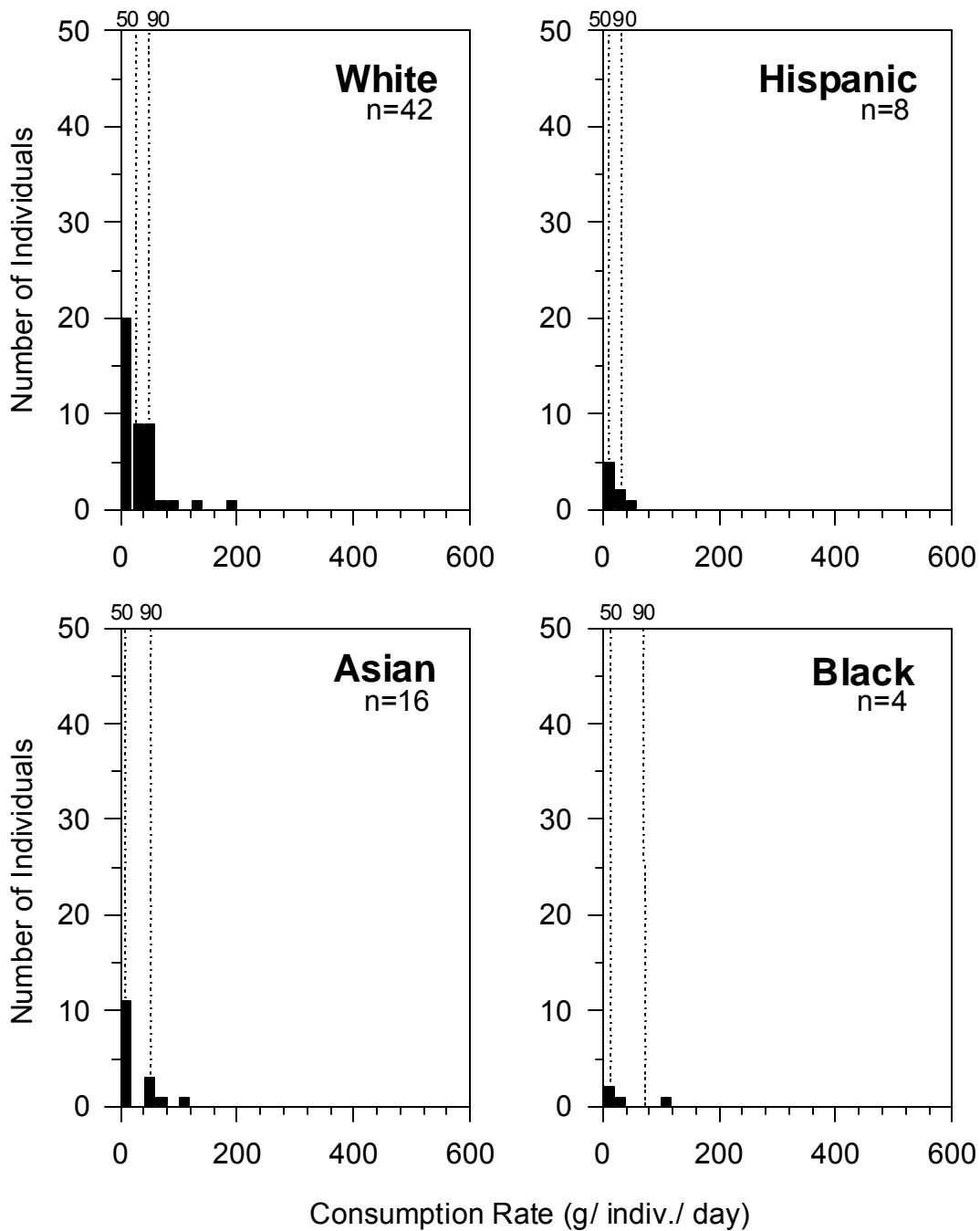


Figure 26. Consumption rate distribution with 50th (median) and 90th percentiles of Pacific barracuda (*Sphyraena argentea*) by Santa Monica Bay anglers of different ethnicities, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

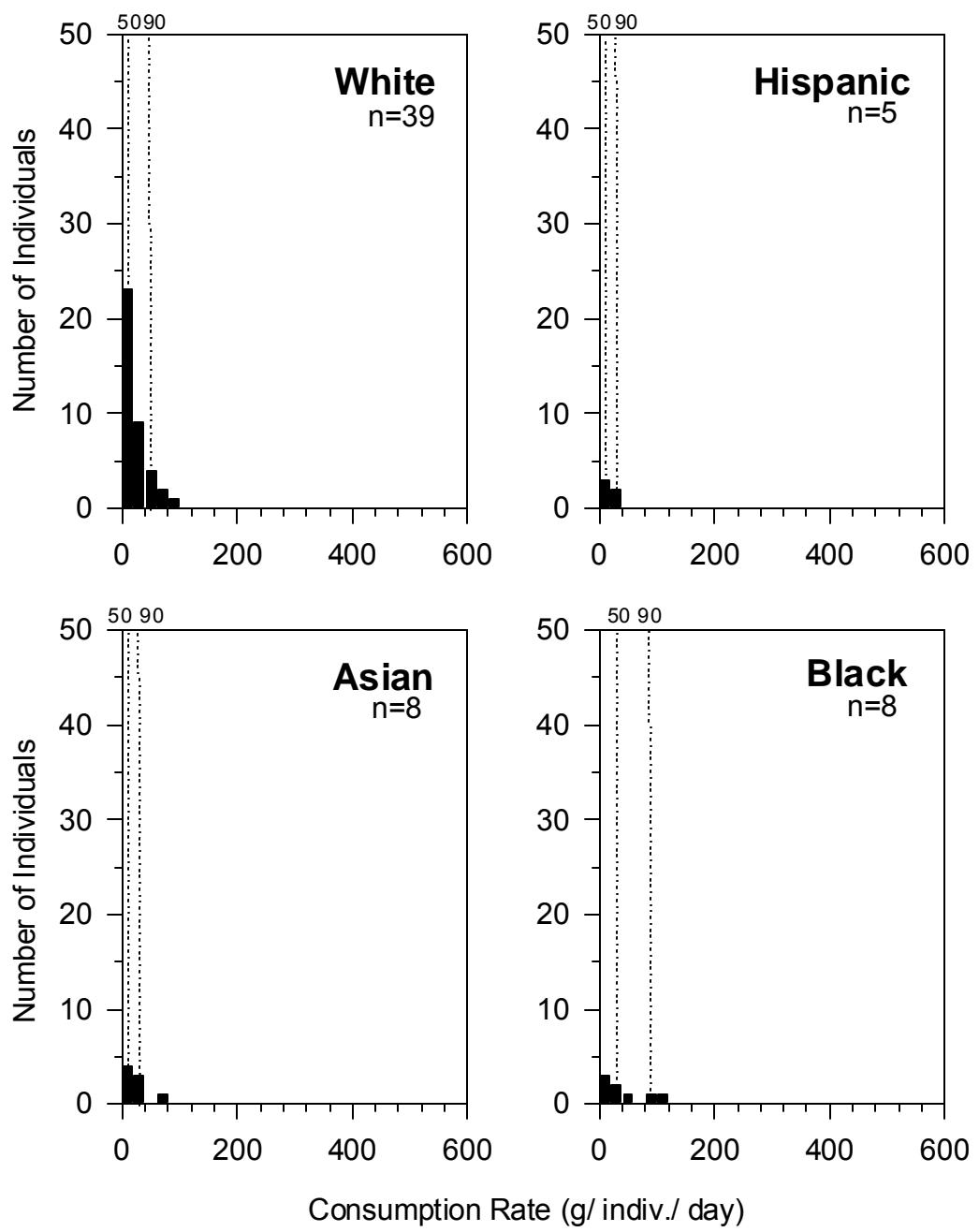


Figure 27. Consumption rate distribution with 50th (median) and 90th percentiles of California halibut (*Paralichthys californicus*) by Santa Monica Bay anglers of different ethnicities, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

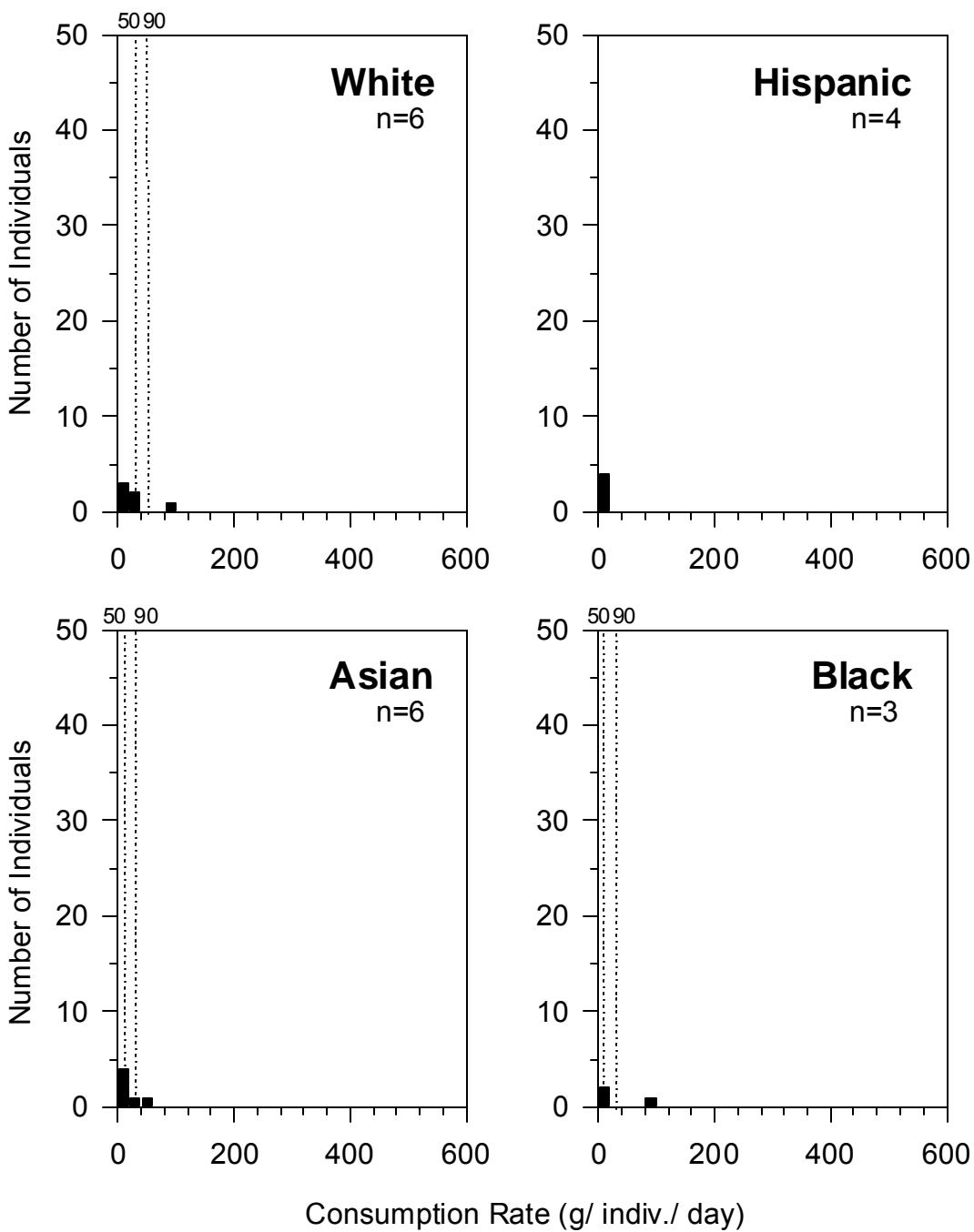


Figure 28. Consumption rate distribution with 50th (median) and 90th percentiles of surfperches (*Embiotocidae* spp.) by Santa Monica Bay anglers of different ethnicities, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

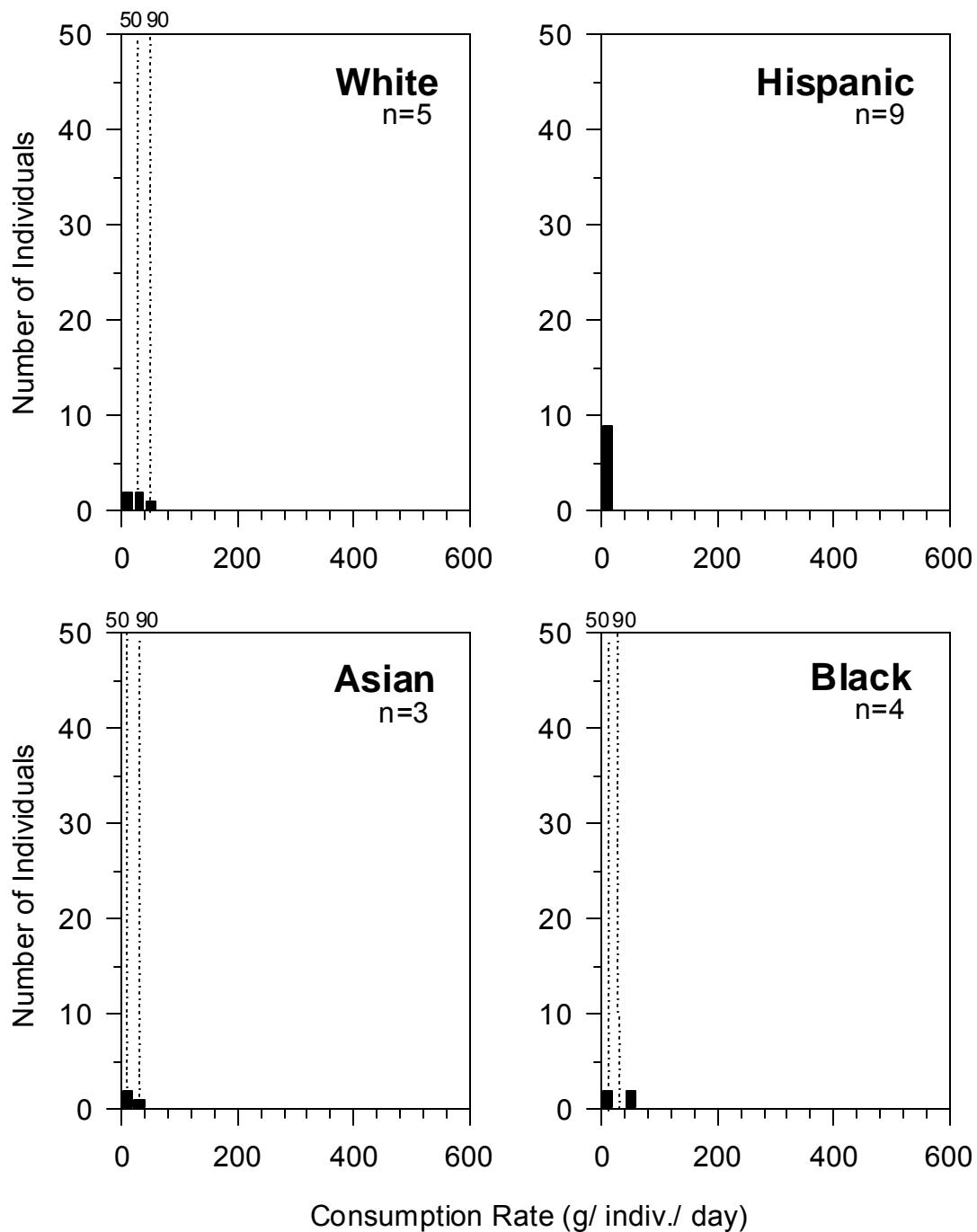


Figure 29. Consumption rate distribution with 50th (median) and 90th percentiles of jacksmelt (*Atherinopsis californiensis*) by Santa Monica Bay anglers of different ethnicities, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

mostly rockfish species, Koreans ate mostly white croaker, and Chinese ate other species at high rates (Table 14).

Median consumption rates for the major ethnic groups varied by fishing mode (Table 15). The overall median consumption rates were higher for party boat anglers (21.4 g/ind/day or 0.60 kg/ind/mo) than for pier and jetty and private boat anglers (16.1 g/ind/day or 0.45 kg/ind/mo). Consumption rates of the different ethnic groups varied by fishing mode. "Others", including Pacific Islanders, had high consumption rates for all three modes, but their median rates were much higher on piers and jetties (115 g/ind/day, or 3.23 kg/ind/mo) than on party boats (96.4 g/ind/day or 2.70 kg/ind/mo) and private boats (42.9 g/ind/day or 1.20 kg/ind/mo). Of the major ethnic groups, Asians had the second highest mean consumption rate from piers and jetties (21.4 g/ind/day or 0.60 kg/ind/mo) whereas blacks had the highest median consumption rates on party boats (48.2g/ind/day or 1.35 kg/ind/mo) and private boats (32.1 g/ind/day or 0.90 kg/ind/mo). Of the Asians, Filipinos had the highest consumption rates from piers and jetties and Chinese had the highest from party boats; however Chinese anglers fishing from private boats had lower consumption rates than the other Asian groups (Table 16).

Species-specific consumption rates also varied by fishing mode (Tables 15 and 16). For instance, consumption rates of chub mackerel were about twice as high for pier and jetty anglers than for party boat anglers. In contrast, consumption rates of barred sand bass and kelp bass were much higher for party boat anglers than for pier and jetty and private boat anglers. Median consumption rates of white croaker were highest (32.1 g/ind/day or 0.90 kg/ind/mo) for blacks fishing from private boats.

For the primary species, medians ranged from 10.7 to 53.6 g/ind/day for anglers with incomes less than \$5,000; 5.4 to 34.8 g/ind/day for those of \$5,000-\$10,000; 8.0 to 24.1 g/ind/day for \$10,000-\$25,000; 8.0 to 21.4 g/ind/day for \$25,000-\$50,000; and 6.7 to 21.4 for \$50,000 (Table 17, Figures 30-39). Upper decile values of anglers with incomes less than \$5,000 were highest for chub mackerel, of \$5,000-\$10,000 for barred sand bass and kelp bass, of \$10,000-\$25,000 for rockfish, of \$25,000-\$50,000 for barred sand bass, and of greater than \$50,000 for kelp bass. Asians had the highest upper decile of chub mackerel, whites of barred sand bass.

A one-way ANOVA comparing consumption rates among ethnicities showed significant differences, with whites being significantly different from Hispanics, and "others" being significantly different from Filipino, Hispanic, Japanese, and whites (Table 18).

Consumable Portion Estimates

Estimates of consumption rates based on "consumable portions" are presented in Appendices 11 and 12. For most species, mean consumption rates based on fillet model estimates were about half of those based on consumable portions (Appendix 13). However, for white

Table 15. Median consumption rates (fillet model estimate) of the most abundantly caught fish species by major ethnic groups of Santa Monica Bay anglers, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

a) Consumption rate (g/ind/day)

Fish Species	White		Hispanic		Asian		Black		Other		All	
	n	Md	n	Md	n	Md	n	Md	n	Md	n	Md
PIERS/JETTIES												
chub mackerel	14	16.1	41	13.4	31	16.1	3	10.7	5	80.4	95	16.1
barred sand bass	4	37.5	4	1.6	2	11.4	5	10.7	1	12.9	16	12.5
Pacific barracuda	3	53.6	-	-	11	07.1	1	10.7	-	-	5	53.6
kelp bass	6	13.4	1	2.7	2	8.0	1	10.7	1	12.9	11	10.7
rockfish spp.	6	32.1	3	5.4	4	48.2	1	10.7	1	64.3	17	32.1
Pacific bonito	1	32.1	9	21.4	8	21.4	-	-	1	64.3	20	26.8
white croaker	6	5.4	38	10.7	4	16.1	11	10.7	-	-	59	10.7
surfperch spp.	5	16.1	3	10.7	4	9.4	2	4.2	-	-	14	10.7
other species	20	10.7	18	10.7	12	16.1	12	10.7	2	32.1	64	10.7
all species	42	18.8	84	16.1	50	21.4	27	16.1	61	15.2	260	16.1
PARTY BOATS												
chub mackerel	10	9.4	10	8.0	7	8.0	7	10.7	1	40.2	35	8.0
barred sand bass	45	21.4	11	16.1	26	16.1	8	20.1	3	64.3	93	21.4
Pacific barracuda	31	16.1	6	10.7	14	10.7	3	37.5	-	-	55	16.1
kelp bass	46	21.4	10	13.4	25	21.4	13	21.4	31	12.5	98	21.4
rockfish spp.	31	16.1	7	21.4	19	21.4	7	16.1	2	21.4	66	16.1
Pacific bonito	13	10.7	10	8.0	9	8.0	4	28.1	3	40.2	40	10.7
white croaker	1	10.7	2	8.0	-	-	-	-	-	-	3	10.7
surfperch spp.	-	-	-	-	1	24.1	-	-	-	-	1	24.1
other species	31	21.4	5	8.0	9	10.7	9	16.1	1	10.7	55	16.1
all species	108	22.8	37	16.1	58	21.4	23	48.2	5	96.4	233	21.4
PRIVATE BOATS												
chub mackerel	6	37.5	2	25.5	3	5.4	2	16.1	2	13.4	16	13.4
barred sand bass	23	16.1	5	8.0	2	6.7	3	16.1	1	5.4	35	16.1
Pacific barracuda	8	21.4	2	13.4	1	10.7	-	-	-	-	11	21.4
kelp bass	23	10.7	3	10.7	3	10.7	2	30.8	-	-	31	10.7
rockfish spp.	13	10.7	3	8.0	2	6.7	-	-	-	-	18	8.0
Pacific bonito	10	10.7	4	9.4	2	8.0	-	-	-	-	17	10.7
white croaker	2	21.4	1	16.1	1	5.4	3	32.1	1	21.4	10	16.1
surfperch spp.	1	85.7	-	-	-	-	1	80.4	1	21.4	3	80.4
other species	24	13.4	5	10.7	1	10.7	3	21.4	1	42.9	35	16.1
all species	66	21.4	15	16.1	10	10.7	7	32.1	3	42.9	106	16.1

B) Consumption rate (kg/ind/mo)

Fish Species	White		Hispanic		Asian		Black		Other		All	
	n	Md	n	Md	n	Md	n	Md	n	Md	n	Md
PIERS/JETTIES												
chub mackerel	14	0.45	41	0.38	31	0.45	3	0.30	5	2.25	95	0.45
barred sand bass	4	1.05	4	0.50	2	0.32	5	0.30	1	0.36	16	0.35
Pacific barracuda	3	1.50	-	—	1	3.00	1	0.30	-	—	5	1.50
kelp bass	6	0.38	1	0.80	2	0.23	1	0.30	1	0.36	11	0.30
rockfish spp.	6	0.90	3	0.15	4	1.35	1	0.30	1	1.80	17	0.90
Pacific bonito	1	0.90	9	0.60	8	0.60	-	—	1	1.80	20	0.75
white croaker	6	0.15	38	0.30	4	0.45	11	0.30	-	—	59	0.30
surfperch spp.	5	0.45	3	0.30	4	0.26	2	0.12	-	—	14	0.30
other species	20	0.30	18	0.30	12	0.45	12	0.30	2	0.90	64	0.30
all species	42	0.53	84	0.45	50	0.60	27	0.45	6	3.23	260	0.45
PARTY BOATS												
chub mackerel	10	0.26	10	0.23	7	0.23	7	0.30	1	1.13	35	0.23
barred sand bass	45	0.60	11	0.45	26	0.45	8	0.56	3	1.80	93	0.60
Pacific barracuda	31	0.45	6	0.30	14	0.30	3	1.05	-	—	55	0.45
kelp bass	46	0.60	10	0.38	25	0.60	13	0.60	3	3.15	98	0.60
rockfish spp.	31	0.45	7	0.60	19	0.60	7	0.45	2	0.60	66	0.45
Pacific bonito	13	0.30	10	0.23	9	0.23	4	0.79	3	1.13	40	0.30
white croaker	1	0.30	2	0.23	-	—	-	—	-	—	3	0.30
surfperch spp.	-	—	-	—	1	0.68	-	—	-	—	1	0.68
other species	31	0.60	5	0.23	9	0.30	9	0.45	1	0.30	55	0.45
all species	108	0.64	37	0.45	58	0.60	23	1.35	5	2.70	233	0.60
PRIVATE BOATS												
chub mackerel	6	1.05	2	0.71	3	0.15	2	0.45	2	0.38	16	0.38
barred sand bass	23	0.45	5	0.23	2	0.19	3	0.45	1	0.15	35	0.45
Pacific barracuda	8	0.60	2	0.38	1	0.30	-	—	-	—	11	0.60
kelp bass	23	0.30	3	0.30	3	0.30	2	0.86	-	—	31	0.30
rockfish spp.	13	0.30	3	0.23	2	0.19	-	—	-	—	18	0.23
Pacific bonito	10	0.30	4	0.26	2	0.23	-	—	-	—	17	0.30
white croaker	2	0.60	1	0.45	1	0.15	3	0.90	1	0.60	10	0.45
surfperch spp.	1	2.40	-	—	-	—	1	2.25	1	0.60	3	2.25
other species	24	0.38	5	0.30	1	0.30	3	0.60	1	1.20	35	0.45
all species	66	0.60	15	0.45	10	0.30	7	0.90	3	1.20	106	0.45

Table 16. Median consumption rates (fillet model estimate) of the most abundantly caught fish species by ethnic groups of Asian anglers by fishing mode, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

a) Consumption rate (g/ind/day)

Fish Species	Filipino		Japanese		Korean		Chinese		Vietnamese	
	n	Md	n	Md	n	Md	n	Md	n	Md
PIERS/JETTIES										
chub mackerel	15	21.4	6	24.1	5	5.4	2	4.0	3	16.1
barred sand bass	1	10.7	1	12.1	-	-	-	-	-	-
Pacific barracuda	1	107.1	-	-	-	-	-	-	-	-
kelp bass	-	-	2	8.0	-	-	-	-	-	-
rockfish spp.	-	-	4	48.2	-	-	-	-	-	-
Pacific bonito	7	32.1	3	10.7	-	-	-	-	-	-
white croaker	1	26.8	-	-	2	40.2	1	5.4	-	-
surfperch spp.	2	24.1	1	10.7	1	8.0	-	-	-	-
other species	7	21.4	3	10.7	1	26.8	1	10.7	-	-
all species	25	21.4	11	16.1	7	10.7	4	10.7	3	16.1
PARTY BOATS										
chub mackerel	3	56.3	2	5.4	1	8.0	1	8.0	-	-
barred sand bass	-	-	6	14.8	12	34.8	6	10.7	2	14.8
Pacific barracuda	1	64.3	4	5.4	7	16.1	2	10.7	-	-
kelp bass	3	5.4	6	9.4	10	29.5	6	32.1	-	-
rockfish spp.	4	22.8	5	10.7	4	13.4	5	32.1	1	85.7
Pacific bonito	1	32.1	1	5.4	4	8.0	2	14.8	1	5.4
white croaker	-	-	-	-	-	-	-	-	-	-
surfperch spp.	-	-	-	-	-	-	1	24.1	-	-
other species	-	-	3	5.4	4	16.1	2	83.0	-	-
all species	11	21.4	14	21.4	20	20.1	10	45.5	3	8.0
PRIVATE BOATS										
chub mackerel	-	-	2	6.7	-	-	-	-	1	5.4
barred sand bass	1	5.4	1	8.0	-	-	-	-	-	-
Pacific barracuda	-	-	-	-	1	10.7	-	-	-	-
kelp bass	2	8.0	1	10.7	-	-	-	-	-	-
rockfish spp.	1	5.4	1	8.0	-	-	-	-	-	-
Pacific bonito	1	10.7	-	-	-	-	1	5.4	-	-
white croaker	-	-	-	-	-	-	-	-	1	5.4
surfperch spp.	-	-	-	-	-	-	-	-	-	-
other species	-	-	-	-	-	-	1	10.7	-	-
all species	3	10.7	3	10.7	1	10.7	2	8.0	1	10.7

B) Consumption rate (kg/ind/mo)

Fish Species	Filipino		Japanese		Korean		Chinese		Vietnamese	
	n	Md	n	Md	n	Md	n	Md	n	Md
PIERS/JETTIES										
chub mackerel	15	0.60	6	0.68	5	0.15	2	0.11	3	0.45
barred sand bass	1	0.30	1	0.34	-	-	-	-	-	-
Pacific barracuda	1	3.00	-	-	-	-	-	-	-	-
kelp bass	-	-	2	0.23	-	-	-	-	-	-
rockfish spp.	-	-	4	1.35	-	-	-	-	-	-
Pacific bonito	7	0.90	3	0.30	-	-	-	-	-	-
white croaker	1	0.75	-	-	2	1.13	1	0.15	-	-
surfperch spp.	2	0.68	1	0.30	1	0.23	-	-	-	-
other species	7	0.60	3	0.30	1	0.75	1	0.30	-	-
all species	25	0.60	11	0.45	7	0.30	4	0.30	3	0.45
PARTY BOATS										
chub mackerel	3	1.58	2	0.15	1	0.23	1	0.23	-	-
barred sand bass	-	-	6	0.41	12	0.98	6	0.30	2	0.41
Pacific barracuda	1	1.80	4	0.15	7	0.45	2	0.30	-	-
kelp bass	3	0.15	6	0.26	10	0.83	6	0.90	-	-
rockfish spp.	4	0.64	5	0.30	4	0.38	5	0.90	1	2.40
Pacific bonito	1	0.90	1	0.15	4	0.23	2	0.41	1	0.15
white croaker	-	-	-	-	-	-	-	-	-	-
surfperch spp.	-	-	-	-	-	-	1	0.68	-	-
other species	-	-	3	0.15	4	0.45	2	2.33	-	-
all species	11	0.60	14	0.60	20	0.56	10	1.28	3	0.23
PRIVATE BOATS										
chub mackerel	-	-	2	0.19	-	-	-	-	1	0.15
barred sand bass	1	0.15	1	0.23	-	-	-	-	-	-
Pacific barracuda	-	-	-	-	1	0.30	-	-	-	-
kelp bass	2	0.23	1	0.30	-	-	-	-	-	-
rockfish spp.	1	0.15	1	0.23	-	-	-	-	-	-
Pacific bonito	1	0.30	-	-	-	-	1	0.15	-	-
white croaker	-	-	-	-	-	-	-	-	1	0.15
surfperch spp.	-	-	-	-	-	-	-	-	-	-
other species	-	-	-	-	-	-	1	0.30	-	-
all species	3	0.30	3	0.30	1	0.30	2	0.23	1	0.30

Table 17. Consumption rates of Santa Monica Bay anglers of different income groups by fish species, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

A) <\$5000

Fish Species	n	Consumption Rate									
		g / ind / day			kg / ind / mo						
		Mean C.	L.	Md	U.D.U.D./Md	Mean C.	L.	Md	U.D.U.D./Md		
chub mackerel	5	35.4	25.4	32.1	61.6	1.9	0.99	0.71	20.90	1.7	1.9
barred sand bass	4	10.7	4.3	10.7	13.9		1.30	0.30	00.12	00.30	0.4
kelp bass	5	13.4	4.7	10.7	18.8	1.8	0.37	50.13	10.30	00.5	1.8
rockfishes	3	19.6	12.6	16.1	27.3	1.7	0.55	00.35	30.45	00.8	1.7
Pacific bonito	1	53.6	0.0	53.6	0.0	0.0	1.50	00.00	01.50	00.0	0.0
white croaker	8	26.1	16.3	18.8	41.8	2.2	0.73	10.45	60.52	51.2	2.2
Pacific barracuda	0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	00.00	00.00	0.0
California halibut	1	16.1	0.0	16.1	0.0		0.00	0.45	00.00	00.45	0.0
surfperches	1	10.7	0.0	10.7	0.0	0.0	0.30	00.00	00.30	00.0	0.0
jacksmelt	1	48.2	0.0	48.2	0.0	0.0	1.35	00.01	3500.0	00.0	0.0

B) \$5000-\$10,000

Fish Species	n	Consumption Rate									
		g / ind / day			kg / ind / mo						
		Mean C.	L.	Md	U.D.U.D./Md	Mean C.	L.	Md	U.D.U.D./Md		
chub mackerel	8	15.4	8.5	10.7	25.7	2.4	0.43	10.23	70.30	00.7	2.4
barred sand bass	5	45.5	61.9	16.1	96.4		6.01	1.27	51.73	20.45	02.7
kelp bass	4	47.5	67.0	16.1	96.4	6.0	1.33	11.87	70.45	02.7	6.0
rockfishes	4	38.2	35.9	29.5	70.7	2.4	1.06	91.00	50.82	52.0	2.4
Pacific bonito	3	5.4	0.0	5.4	5.4	1.0	0.15	00.00	01.50	00.2	1.0
white croaker	8	22.8	7.6	21.4	34.3	1.6	0.63	80.21	30.60	01.0	1.6
Pacific barracuda	1	21.4	0.0	21.4	0.0		0.00	0.60	00.00	00.60	0.0
California halibut	2	34.8	57.7	34.8	52.5		1.50	0.97	51.61	70.97	51.5
surfperches	1	5.4	0.0	5.4	0.0	0.0	0.15	00.00	1500.0	00.0	0.0
jacksmelt	2	9.4	2.6	9.4	10.2	1.1	0.26	30.73	00.26	30.03	1.1

Table 17 (continued)**C) \$10,000 - \$25,000**

Fish Species	n	Consumption Rate							
		g/ind./day				kg/ind./mo.			
		Mean	95% C. L.	Md	U.D.	Mean	95% C. L.	Md	U.D.
chub mackerel	34	25.6	7.7	18.8	48.2	0.717	0.215	0.525	1.4
barred sand bass	24	26.3	12.8	16.1	46.1	0.738	0.357	0.450	1.3
kelp bass	19	24.0	10.5	10.7	46.6	0.671	0.295	0.300	1.3
rockfish	12	36.6	21.3	24.1	122.1	1.025	0.597	0.675	2.4
Pacific bonito	16	13.7	4.9	10.7	23.6	0.384	0.138	0.300	0.7
white croaker	12	17.2	8.6	8.0	38.6	0.481	0.240	0.225	1.1
Pacific barracuda	7	20.7	16.6	10.7	45.5	0.579	0.465	0.300	1.3
California halibut	10	20.4	6.6	18.8	32.1	0.570	0.185	0.525	0.9
surfperch	9	14.3	7.8	10.7	23.6	0.400	0.219	0.300	0.7
jacksmelt	6	14.3	8.4	10.7	25.7	0.400	0.236	0.300	0.7

D) \$25,000 -\$50,000

Fish Species	n	Consumption Rate							
		g/ind./day				kg/ind./mo.			
		Mean	95% C. L.	Md	U.D.	Mean	95% C. L.	Md	U.D.
chub mackerel	36	20.8	6.2	13.4	50.4	0.583	0.172	0.375	1.4
barred sand bass	44	36.3	14.3	18.8	78.2	1.016	0.401	0.525	2.2
kelp bass	42	25.6	7.2	16.1	53.6	0.717	0.201	0.450	1.5
rockfish	28	21.3	5.9	18.8	35.4	0.597	0.165	0.525	1.0
Pacific bonito	17	26.0	9.4	21.4	53.0	0.728	0.264	0.600	1.5
white croaker	11	14.1	7.5	8.0	41.8	0.395	0.210	0.225	1.2
Pacific barracuda	24	34.4	17.3	18.8	53.6	0.963	0.483	0.525	1.5
California halibut	17	23.8	10.8	10.7	56.8	0.666	0.303	0.300	1.6
surfperch	5	28.6	26.5	21.4	53.6	0.801	0.741	0.600	1.5
jacksmelt	6	21.9	14.8	16.1	40.7	0.613	0.413	0.450	1.1

E) >\$50,000

Fish Species	n	Consumption Rate							
		g/ind./day				kg/ind./mo.			
		Mean	95% C. L.	Md	U.D.	Mean	95% C. L.	Md	U.D.
chub mackerel	16	64.1	100.4	6.7	45.0	1.795	2.810	0.188	1.3
barred sand bass	47	30.2	9.9	16.1	64.3	0.846	0.277	0.450	1.8
kelp bass	54	31.8	9.2	21.4	73.9	0.890	0.257	0.600	2.1
rockfish	34	24.4	7.3	16.1	46.1	0.683	0.204	0.450	1.3
Pacific bonito	23	17.9	8.8	10.7	28.9	0.502	0.248	0.300	0.8
white croaker	3	16.1	16.0	10.7	25.7	0.450	0.449	0.300	0.7
Pacific barracuda	28	30.2	11.3	16.1	68.6	0.846	0.317	0.450	1.9
California halibut	19	25.4	13.5	10.7	67.2	0.711	0.377	0.300	1.9
surfperch	4	33.5	34.7	20.1	61.1	0.938	0.972	0.563	1.7
jacksmelt	2	21.4	10.5	21.4	24.6	0.600	0.294	0.600	0.7

C.L. = ± Confidence Limit (95%)

Md = Median (50%)

U.D. = Upper Decile (90%)

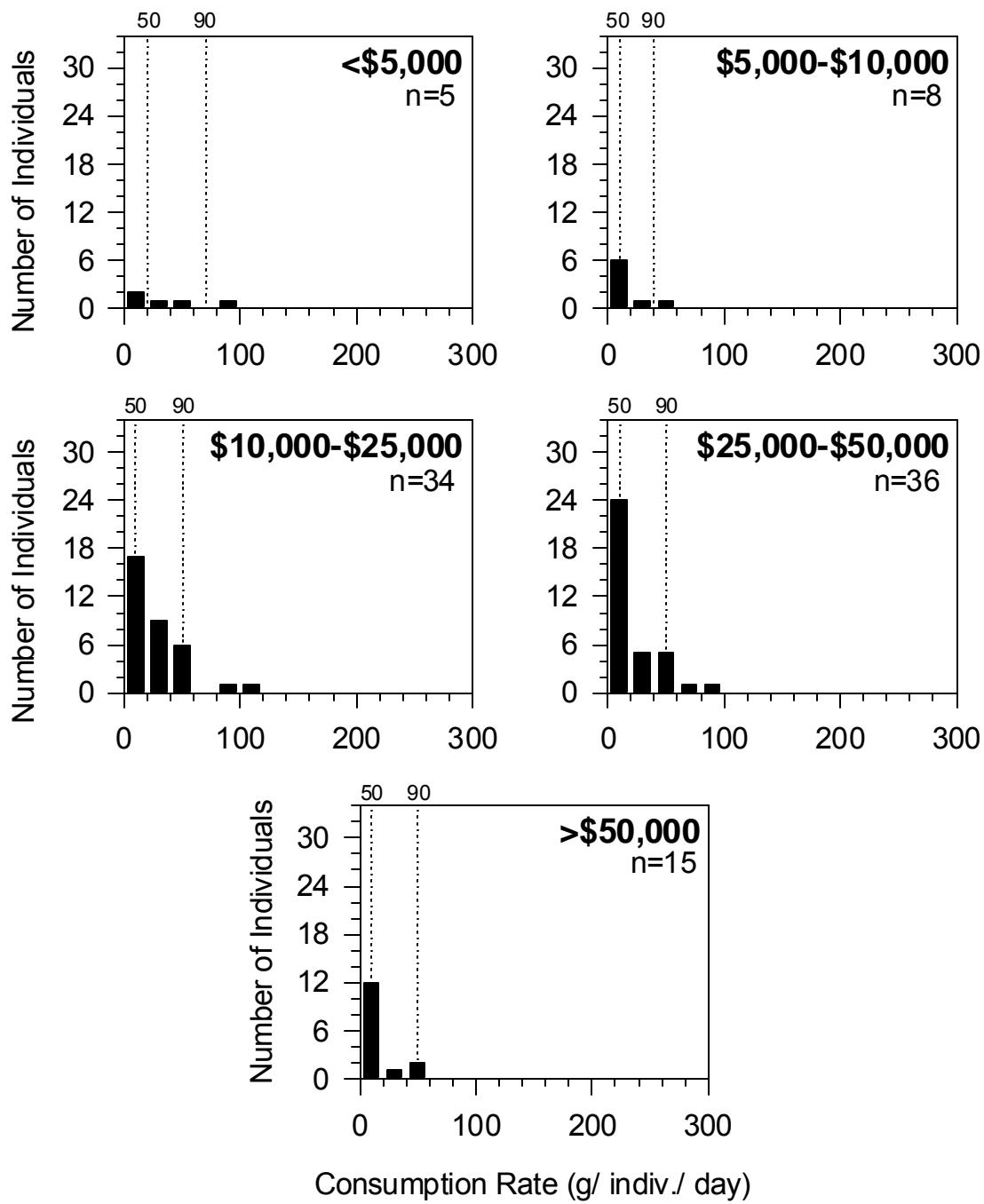


Figure 30. Consumption rate distribution with 50th (median) and 90th percentiles of chub mackerel (*Scomber japonicus*) by Santa Monica Bay anglers of different income, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

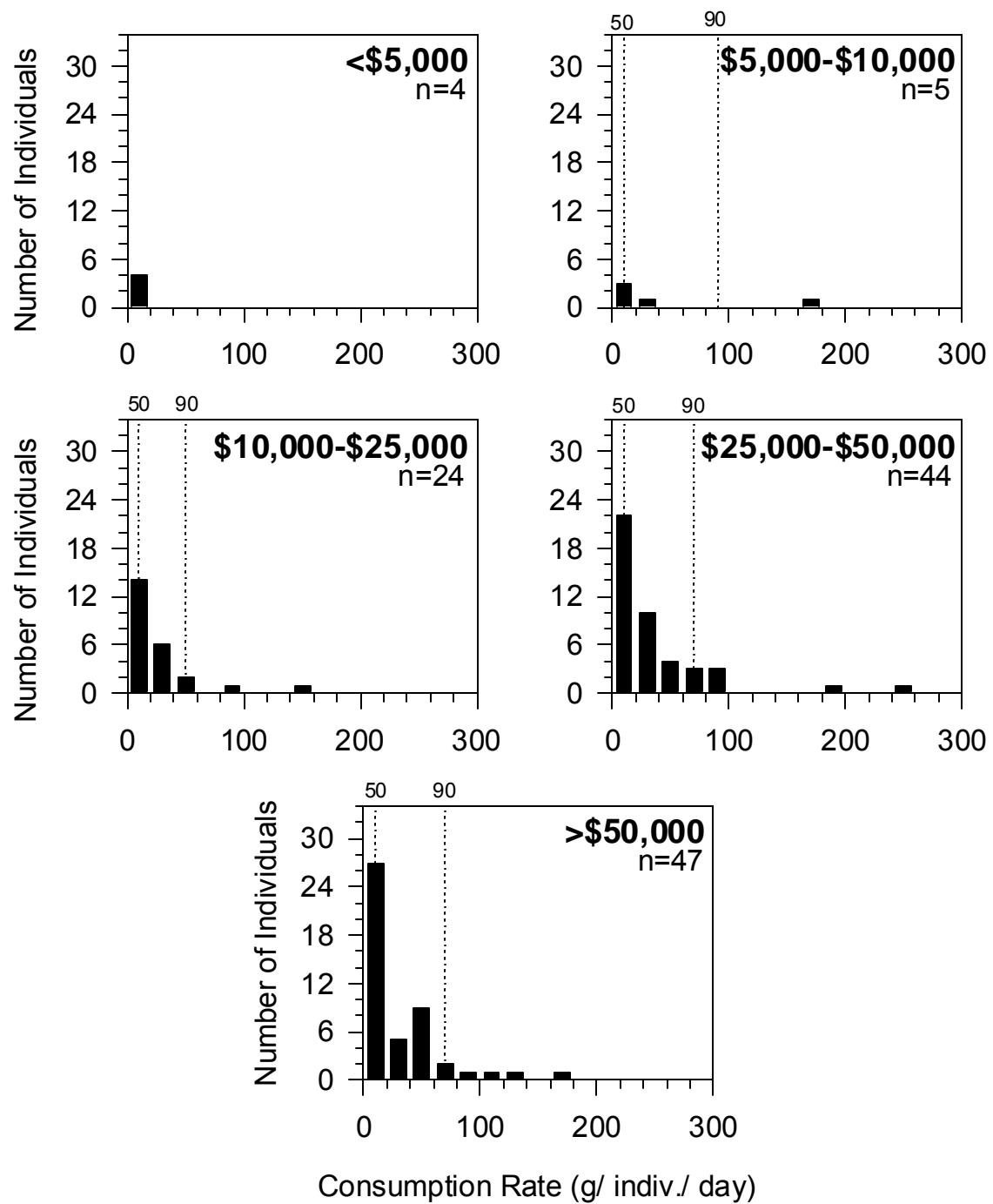


Figure 31. Consumption rate distribution with 50th (median) and 90th percentiles of barred sand bass (*Paralabrax nebulifer*) by Santa Monica Bay anglers of different income, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

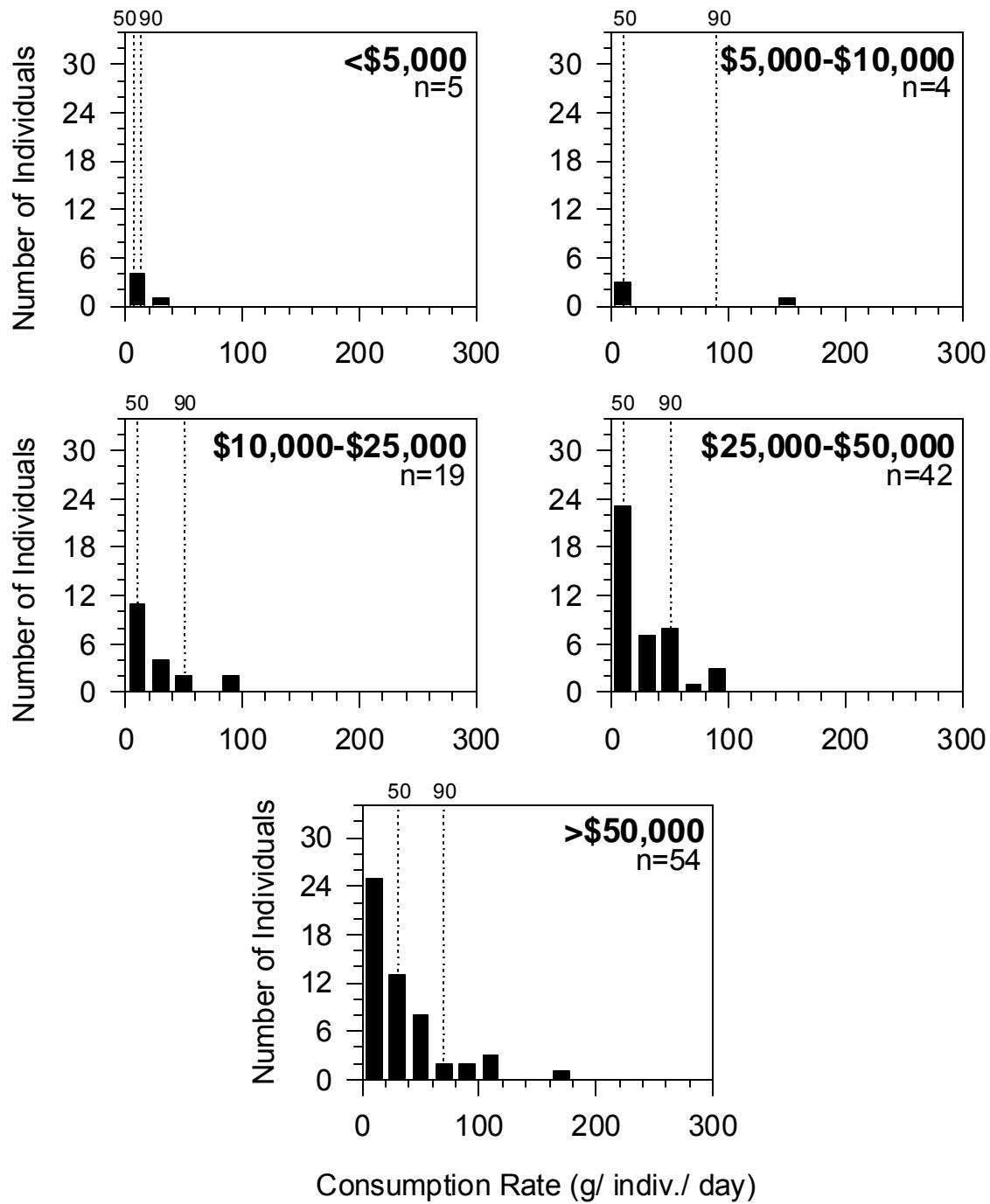


Figure 32. Consumption rate distribution with 50th (median) and 90th percentiles of kelp bass (*Paralabrax clathratus*) by Santa Monica Bay anglers of different income, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

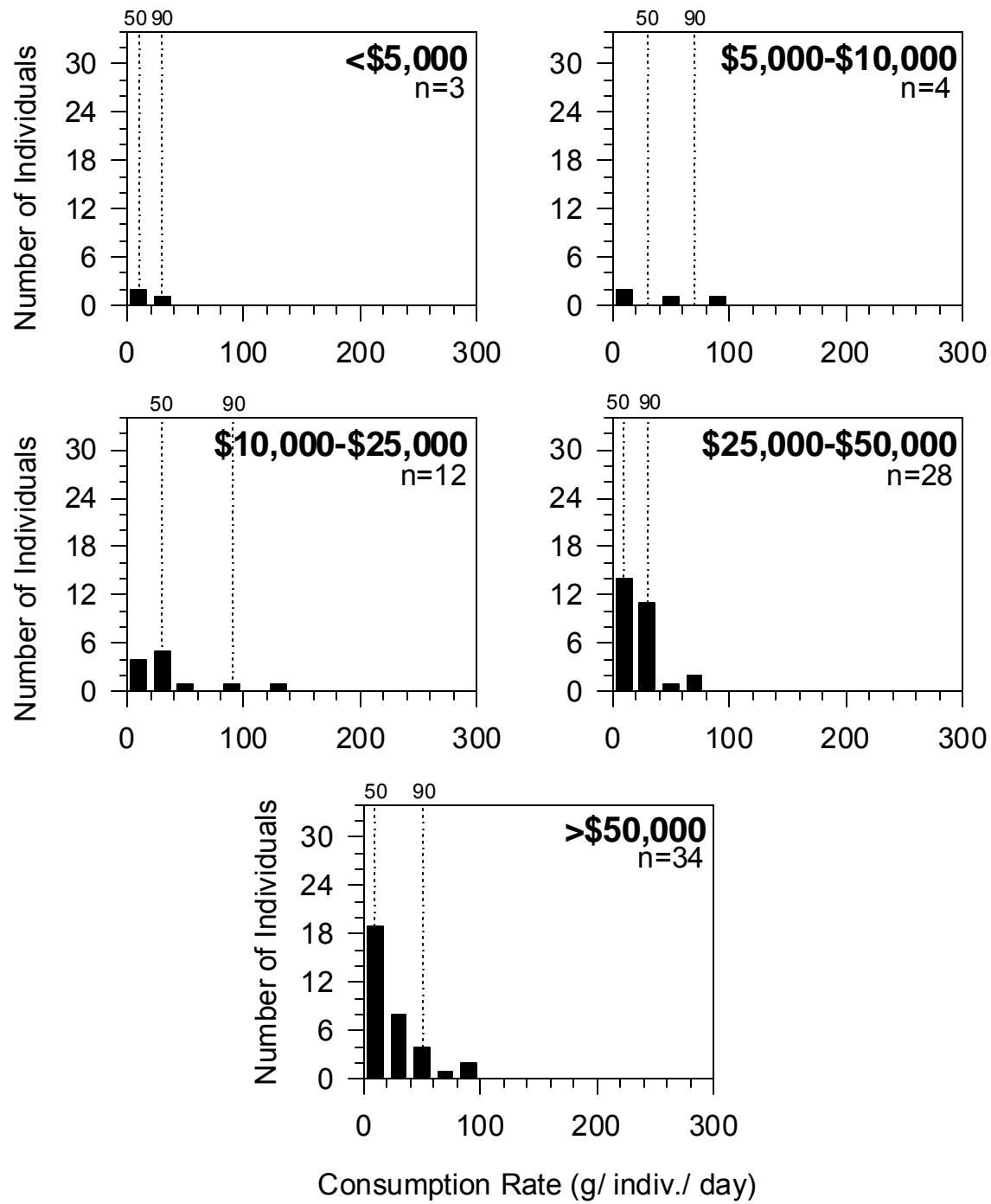


Figure 33. Consumption rate distribution with 50th (median) and 90th percentiles of rockfishes (*Sebastodes* spp.) by Santa Monica Bay anglers of different income, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

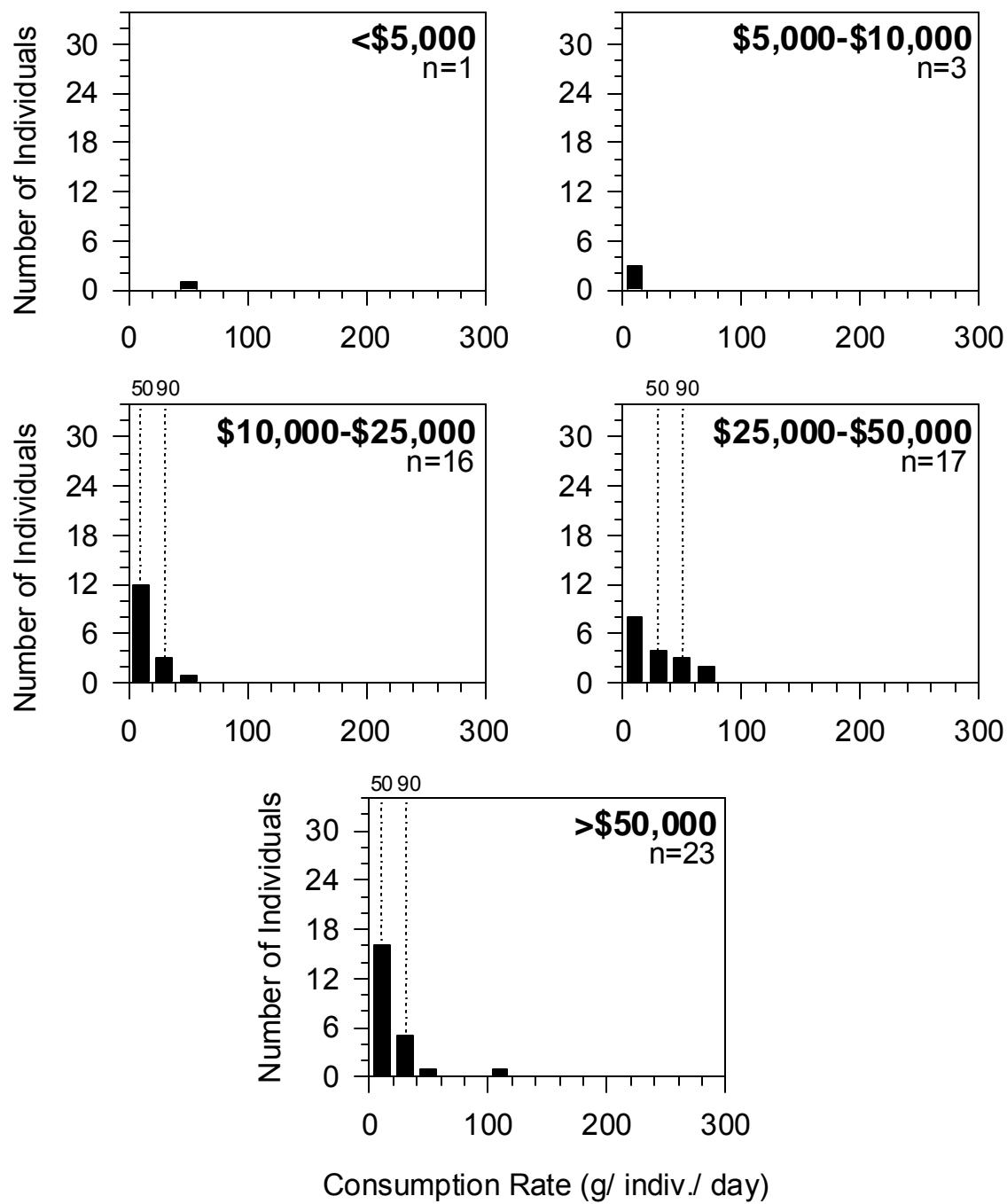


Figure 34. Consumption rate distribution with 50th (median) and 90th percentiles of Pacific bonito (*Sarda chiliensis*) by Santa Monica Bay anglers of different income, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

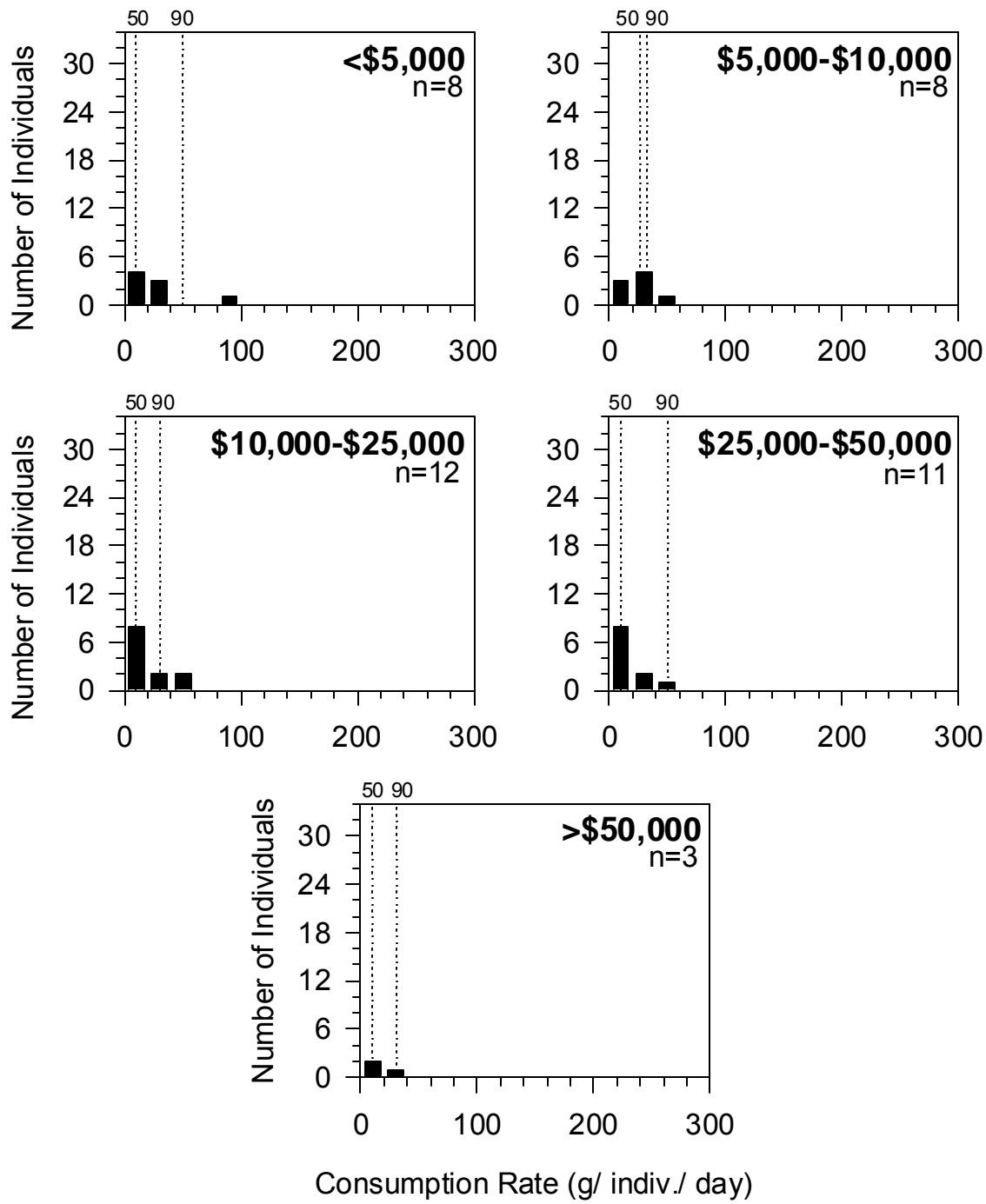


Figure 35. Consumption rate distribution with 50th (median) and 90th percentiles of white croaker (*Genyonemus lineatus*) by Santa Monica Bay anglers of different income, Santa Monica Bay Seafood Consumption Study, September 1991 to August 19925

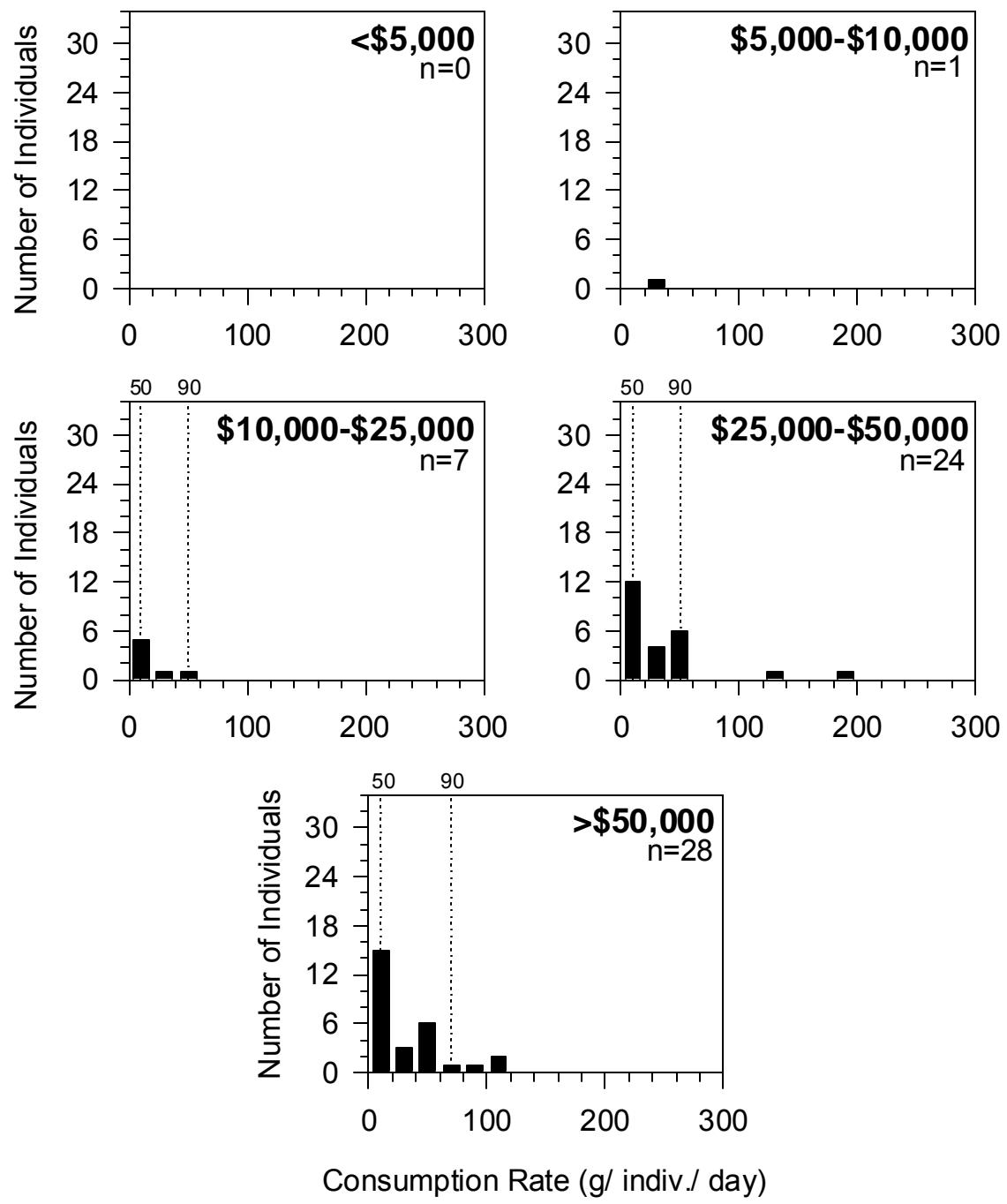


Figure 36. Consumption rate distribution with 50th (median) and 90th percentiles of Pacific barracuda (*Sphyraena argentea*) by Santa Monica Bay anglers of different income, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

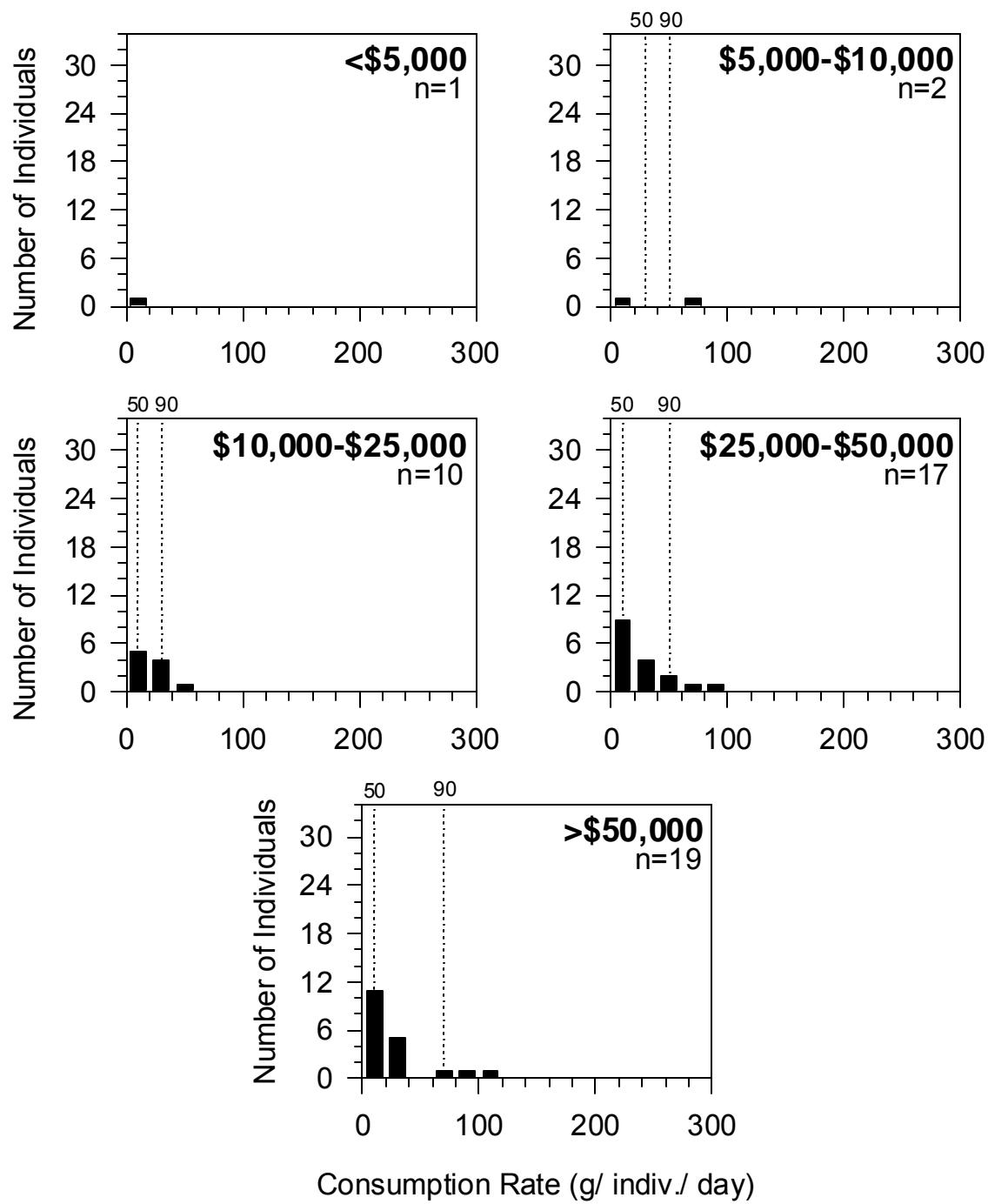


Figure 37. Consumption rate distribution with 50th (median) and 90th percentiles of California halibut (*Paralichthys californicus*) by Santa Monica Bay anglers of different income, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

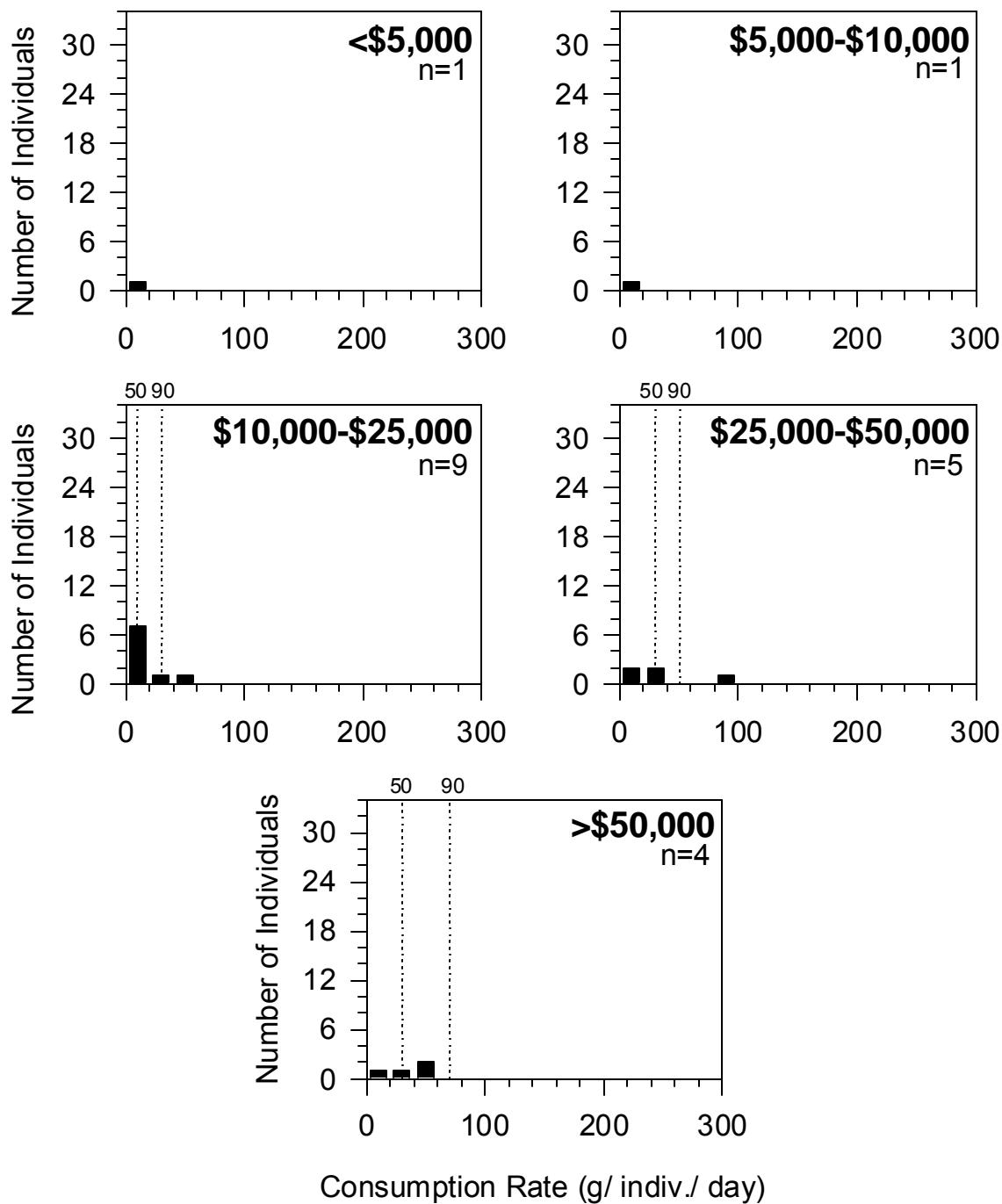


Figure 38. Consumption rate distribution with 50th (median) and 90th percentiles of surfperches (*Embiotocidae* spp.) by Santa Monica Bay anglers of different income, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

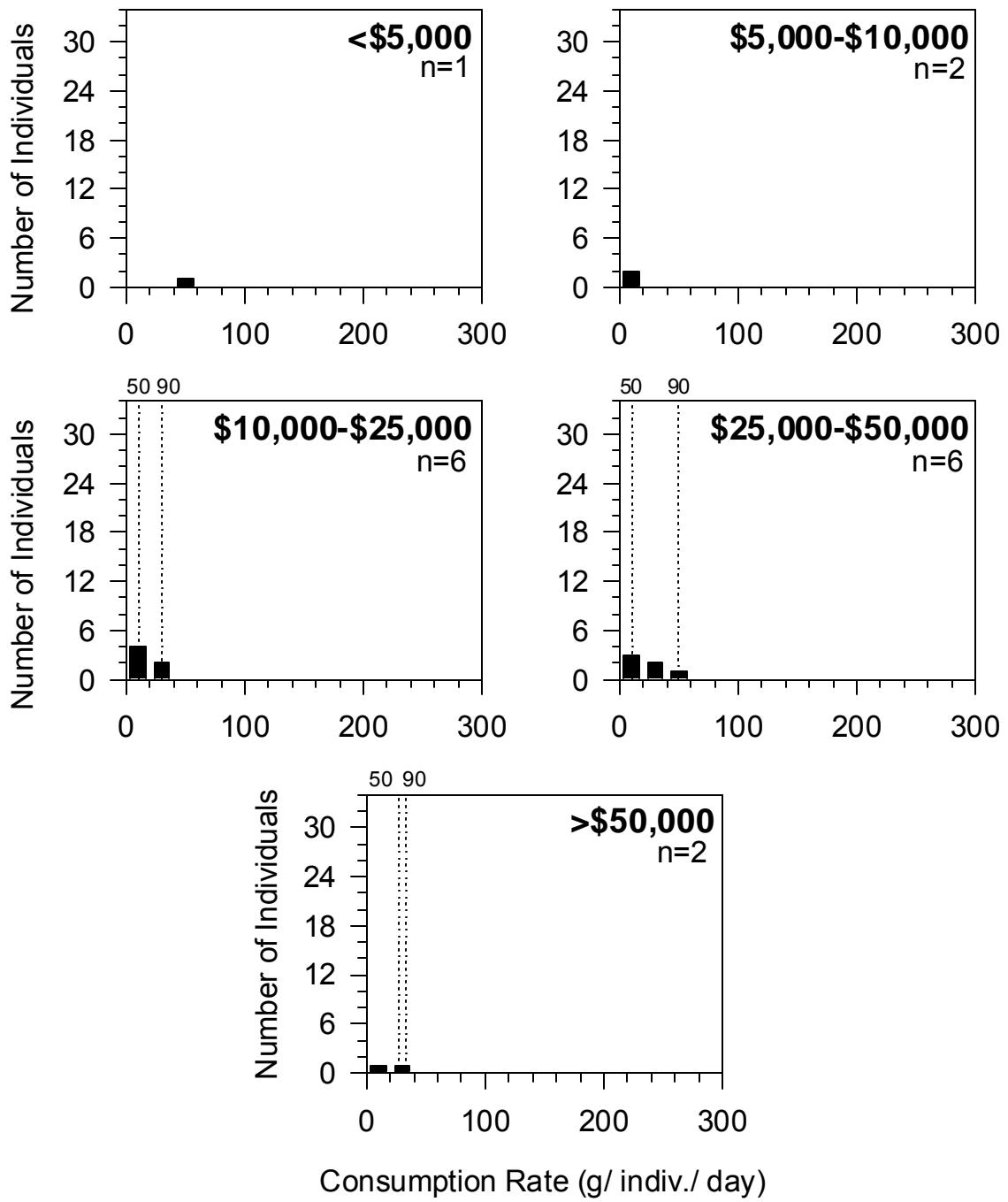


Figure 39. Consumption rate distribution with 50th (median) and 90th percentiles of jacksmelt (*Atherinopsis californiensis*) by Santa Monica Bay anglers of different income, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

croaker, the mean fillet model estimate (0.44 kg/ind/mo or 16 g/ind/day,) was more than twice that of the consumable portion estimate (0.20 kg/ind/mo or 7 g/ind/day), (Appendix 13). In contrast, most of the mean consumption rates for ethnic groups based on fillet model estimates were higher than or similar to those calculated by consumable portions, except for Pacific Islanders, Koreans, and Hispanics; the two anglers in the “other” group (Appendix 13) did not have fish in hand at the time of the interview and were therefore not included in the consumable portion estimates. The largest difference between the two estimates of consumption rate was for Pacific Islanders who had a mean consumption rate based on fillet model estimates of 3.67 kg/ind/mo or 131 g/ind/day and a mean rate based on consumable portions of 12.9 kg/ind/mo or 461 g/ind/day. The overall mean based on consumable portions (1.45 kg/ind/mo or 52 g/ind/day,) was similar to that based on fillet model estimates (1.38 kg/ind/mo or 49.3 g/ind/day).

Effects of Warnings on Consumption Rates

Of the 1,214 anglers that responded to the questions on health warning awareness (Appendix 6, Questions 20 through 23), 77% were aware of health warnings regarding consumption of Santa Monica Bay fish (Table 19). The anglers were then asked to choose from a list of sources regarding the warnings. Of the anglers that were aware of the warnings, 53% of the respondents cited television as the source, 49% cited newspaper or magazine articles, 33% cited signs posted on the beaches or piers, and 23% cited other anglers and friends; nearly 50% of the respondents listed more than one source.

Of those who had heard about the warnings, about 50% did nothing and 50% altered their seafood consumption habits; 23% of aware anglers stopped eating some species, 12% ate less of all species, 9% stopped eating all fish, and 5% ate less of some species (Table 19). About 74% of those who were aware of the warnings considered them to be very important, 19% thought they were somewhat important, and only 6% thought they were not important (Appendix 6, Question 23).

Ethnic groups responded differently to the questions concerning health warnings (Table 19). For instance, only 59% of the Hispanics, 54% of the Koreans, and 52% of the Vietnamese were aware of the warnings, compared to 88% of the whites and 95% of the Japanese. Of those who had heard the warnings, television was the most common source for black, Hispanic, and “other” anglers, whereas newspapers and magazines were the most common sources for Chinese, Japanese, and white anglers. Korean and Vietnamese anglers cited posted signs as the most common source of the warnings. Filipinos cited television, newspapers, and signs equally as sources.

Responses to the effects of the health warnings also varied by ethnic group. The majority of Vietnamese (71%), Filipinos (64%), Koreans (58%), Japanese (58%), and whites (53%) said they were affected by the warnings (Table 19). Among almost all ethnic groups, the largest percent of those effected said they stopped consuming only certain species of fish

Table 18. Results of one-way ANOVAs of consumption rates of Santa Monica Bay anglers by a) ethnicity and b) income, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

a) One Way ANOVA - Ethnicity

Source	df	F	p
Ethnicity	8	3.557	0.000*

Pairwise Comparisons

Group	Filipino	Hispanic	Japanese	White
White		0.031*		
Other**	0.028*	0.000*	0.009*	0.019*

b) One Way ANOVA - Income

Source	df	F	p
Income	4	0.349	0.845

*Test significant at P<0.05.

**"Other" category consists of: 1 Thailander, 1 East Indian, 3 Samoan, 3 Hawaiian, 3 Indonesian, 1 Guamanian and 1 Malaysian.

Table 19. Response to health-risk awareness warnings of Santa Monica Bay Anglers of different ethnic groups, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

a) Percent Concern	Ethnic Category									Percent Total
	Black	Filipino	Chinese	Japanese	Other	White	Korean	Vietnamese	Hispanic	
Heard Warnings?										
Total "No"	23	48	22	46	21	41	5	12	36	23
Total "Yes"	77	52	78	54	79	59	95	88	64	77
Source of Warnings										
Television	61	38	39	43	41	64	57	51	56	54
Newspaper/Mag.	44	38	39	43	55	30	62	59	22	49
Signs Posted	33	42	39	71	36	32	33	32	33	33
Fishermen/Friends	27	17	18	14	27	14	21	28	17	23
Other	6	0	11	14	18	7	8	12	11	10
Warnings Effect										
Total "No" Effect	55	42	37	29	59	56	44	48	67	50
Total "Yes"	45	58	63	71	41	44	56	52	33	50
Eat Less of All Fish	17	17	19	29	5	12	13	11	6	12
Eat Less of Some Fish	3	13	5	14	5	4	2	6	0	5
Stopped Eating All Fish	8	0	11	0	5	8	10	11	6	9
Stopped Eating Some Fish	17	29	28	29	27	19	31	24	22	23

* Respondents could say "yes" to more than one category.

b) Number of individuals

Concern	Ethnic Category									Percent Total
	Black	Filipino	Chinese	Japanese	Other	White	Korean	Vietnamese	Hispanic	
Heard Warnings?										
Total "No"	29	22	16	6	6	126	3	66	10	284
Total "Yes"	95	24	57	7	22	179	61	467	18	930
Source of Warnings										
Television	58	9	22	3	9	115	35	238	10	499
Newspaper/Magazine	42	9	22	3	12	54	38	275	4	459
Signs Posted	31	10	22	5	8	58	20	148	6	308
Fishermen/Friends	26	4	10	1	6	25	13	130	3	218
Other	6	0	6	1	4	12	5	54	2	90
Warnings Effect										
Total "No" Effect	52	10	21	2	13	101	27	224	12	462
Total "Yes"	43	14	36	5	9	78	34	243	6	468
Eat Less of All Fish	16	4	11	2	1	22	8	50	1	115
Eat Less of Some Fish	3	3	3	1	1	8	1	29	0	49
Stopped Eating All Fish	8	0	6	0	1	14	6	51	1	87
Stopped Eating Some Fish	16	7	16	2	6	34	19	113	4	217

from Santa Monica Bay. The next most common reply was “eat less of all fish.”

CHARACTERISTICS OF WHITE CROAKER CONSUMERS

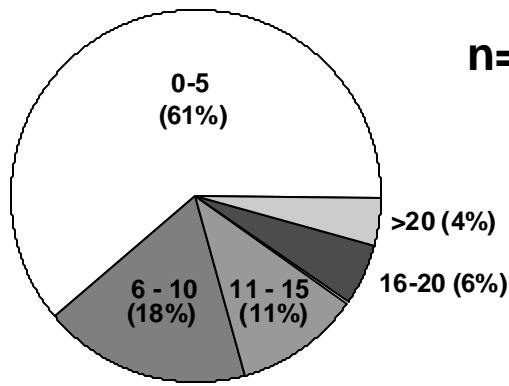
A total of 72 anglers in the survey consumed white croaker. Most were male of ages between 21 and 70 years old, with individuals of 21 to 30 years being most frequent (Figure 40). Most (57%) of these anglers were Hispanic, followed by blacks and then whites. Most (42%) refused to give their household income but of those that did, the \$10,000-\$25,000 class was most frequent. White croaker consumers had generally fished for less than five years. These fishermen generally fished all year round from piers, with Cabrillo Fishing Pier being the primary fishing location. Most had eaten white croaker at least once during the past four weeks. They generally ate white croaker whole/gutted, ate about the same amount as the 150 g fillet model, and generally fried their fish. About half of these anglers were aware of health risk warnings on white croaker (Figure 41). Of those that were aware, they received their awareness from a variety of sources, with television being the primary source. About 63% thought the warnings were very important but in spite of this, the warnings had no effect on 50% of the aware anglers. About 13% stopped eating certain species and the same amount ate less of all species.

Only five anglers ate more than two meals of white croaker per week (43 g/ind/day) (Figure 42). Most were 51-60 years old and Hispanic, but of no particular income class. Most fished on piers, with Cabrillo Fishing Pier being the primary location. Most were not aware of the warnings (Figure 43). The two individuals that were aware of the warnings received their awareness from signs or television. One felt that the warnings were important and the other did not.

DISCUSSION

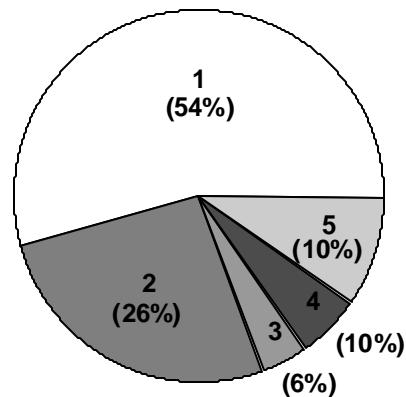
During the course of this study, interviewers conducted over 1,200 surveys on nearly 100 sampling days over a period of an entire year. With such a large data base there are bound to be errors in sampling design, collection, and analysis. Potential sources of error include biases in random sampling, the questionnaire, and the way in which questions were asked; the reliability of angler's responses, particularly regarding estimates of seafood consumption; and technical errors in data input and analyses. However, because of the information gained in the pilot study regarding sampling design and interviewing techniques, the extensive QA/QC procedures that were followed (see MBC 1993), and the randomized nature of the sampling design, we feel that these potential sources of bias have been minimized to the extent that we have control over them. We believe that the data are sufficiently reliable to allow for estimates of the demographics and seafood consumption habits of recreational anglers that use Santa Monica Bay.

Years Fishing

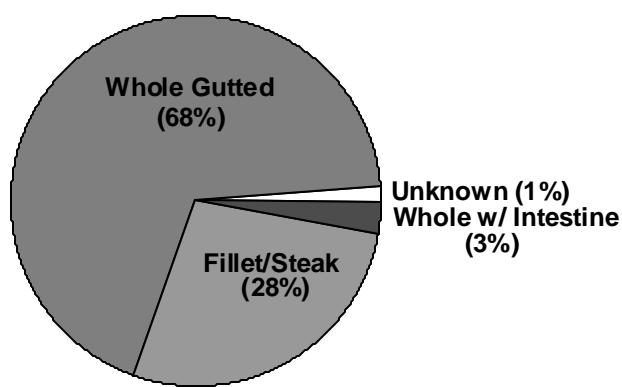


Times Eaten in Last 4 Wk.

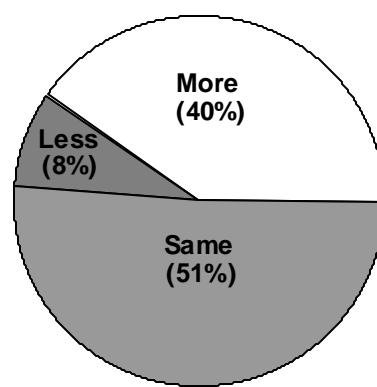
n=72



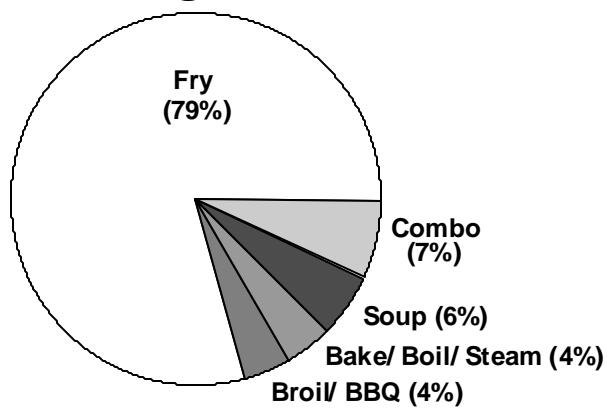
Parts Eaten



Amount Eaten vs. Fillet



Cooking Method



Gender

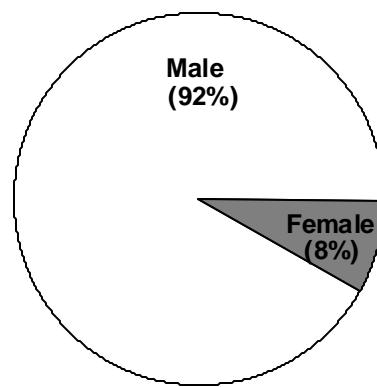
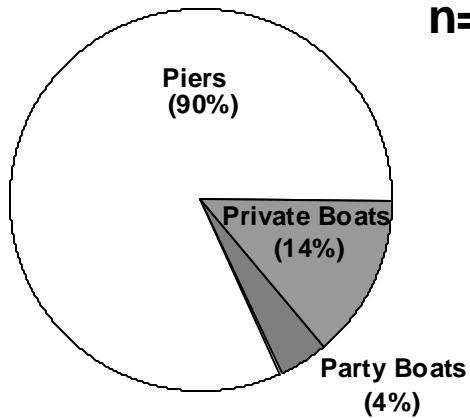


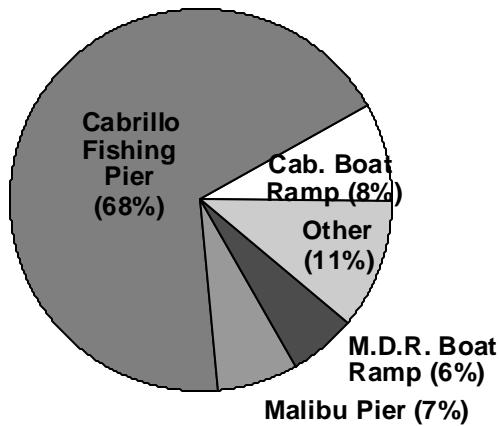
Figure 40. Characteristics of Santa Monica Bay anglers that consumed white croaker (*Genyonemus lineatus*), Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992. Abbreviations: Cab. = Cabrillo; M.D.R. = Marina Del Rey; Unk. = unknown; Oth. = other.

Fishing Mode

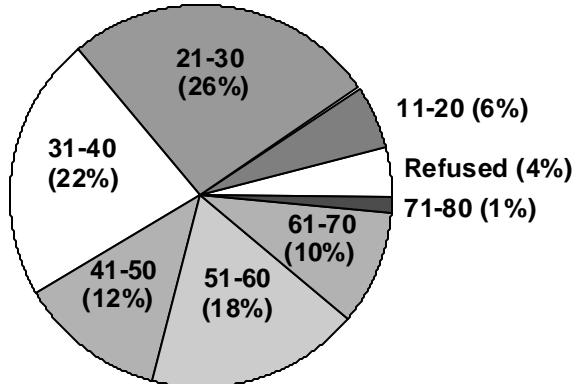
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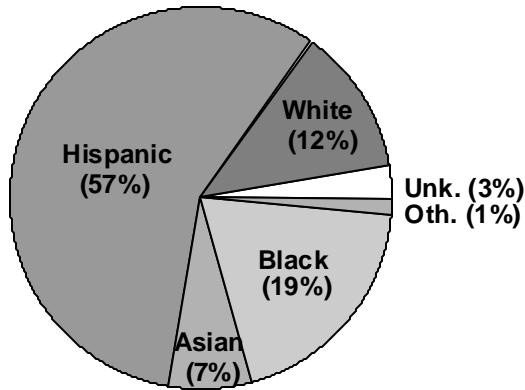
Location



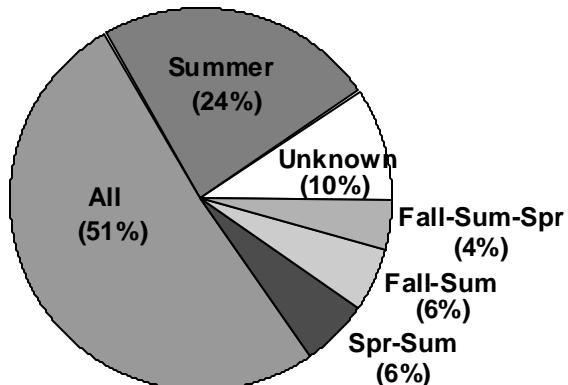
Age



Ethnic Background



Seasons Fished



Family Income (\$1,000)

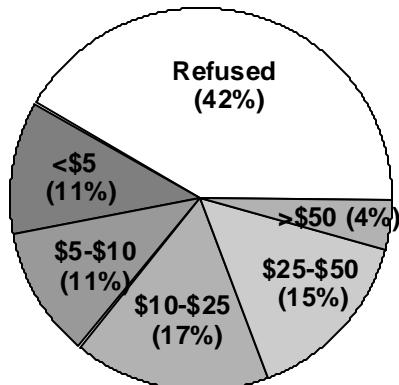


Figure 40 (continued)

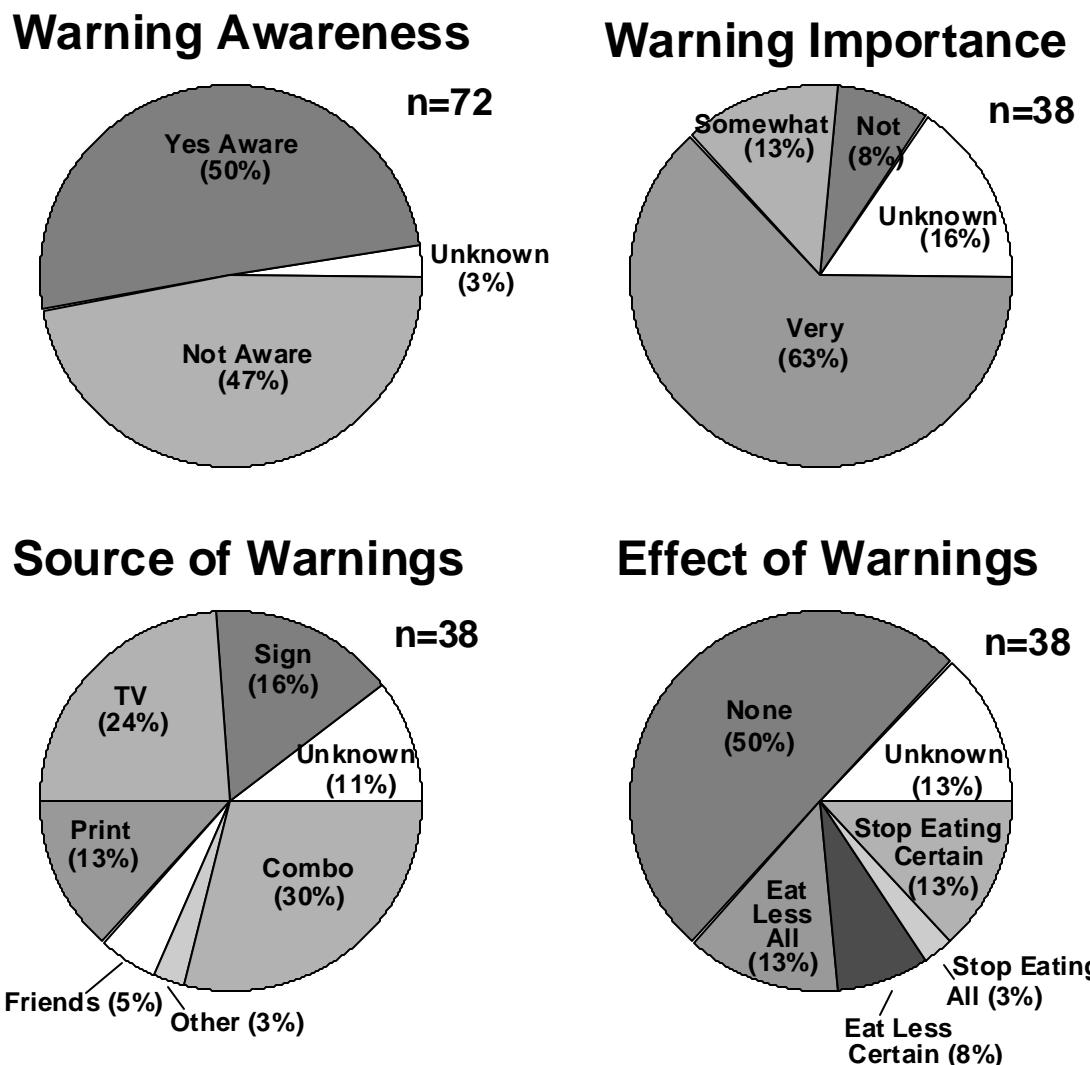
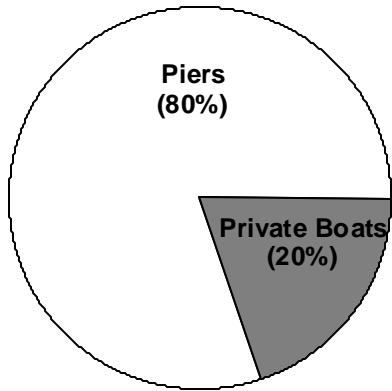


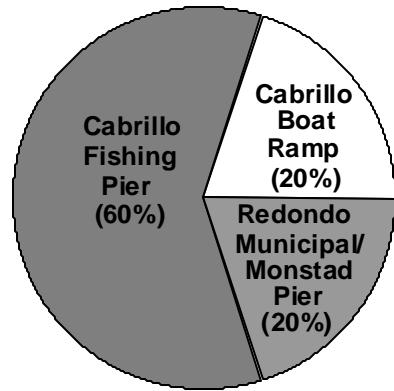
Figure 41. Responses to health risk warnings by Santa Monica Bay anglers that consumed white croaker (*Genyonemus lineatus*), Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

Fishing Mode

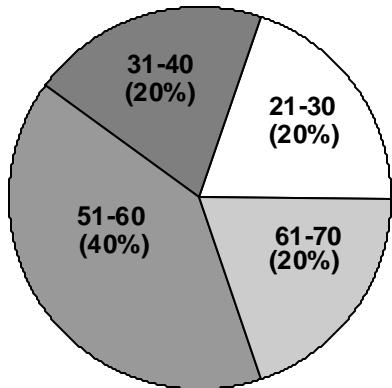
n=5



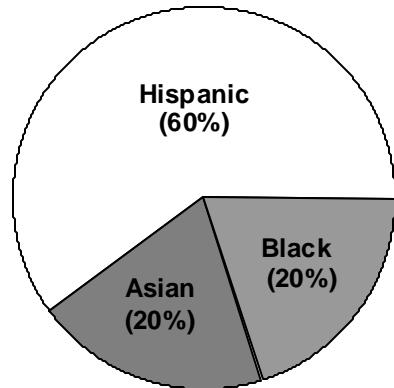
Location



Age



Ethnic Background



Income (\$1,000)

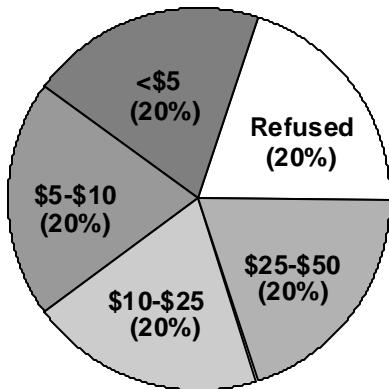
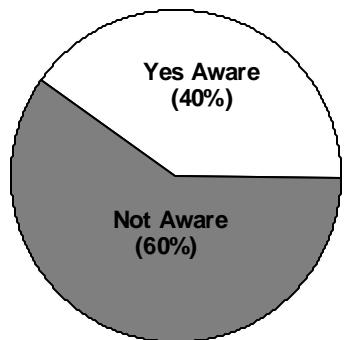
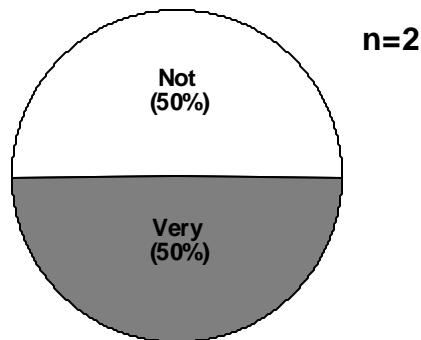


Figure 42. Characteristics of Santa Monica Bay anglers that consumed more than two meals per week (43 g/ind/day) of white croaker (*Genyonemus lineatus*), Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

Warning Awareness



Warning Importance



Source of Warnings

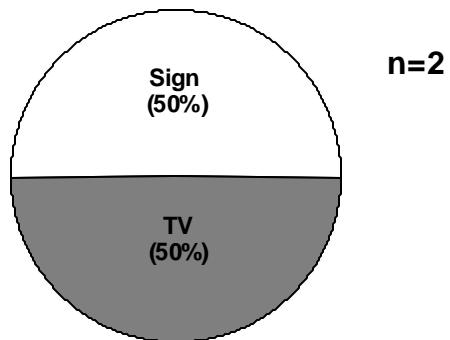


Figure 43. Responses to health risk warnings by Santa Monica Bay anglers that consumed more than two meals per week (43 g/ind/day) of white croaker (*Genyonemus lineatus*), Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

NUMBER OF INTERVIEWS

The July 1991 Progress Report (MBC 1991) estimated that 2,046 interviews could be obtained during the one year study. The 1,243 interviews actually obtained during the year was 61% of the expected number. Bad weather in winter, which limited the number of anglers available to be interviewed, may have accounted for the lower than expected number of interviews. The number of repeated interviews (seven) was small.

LANGUAGE PROBLEMS

Puffer et al. (1981, 1982) only interviewed English-speaking anglers. A strength of the 1991-1992 study was that anglers speaking other languages (principally Spanish) were also interviewed. Interviews were conducted primarily in English, and occasionally in Spanish or Vietnamese (Appendix 6). However, some interviews could not be conducted because of language barriers. The identifiable languages encountered included the following: Korean, Armenian, Chinese, Filipino, and a middle-eastern language. Some individuals did not say enough to enable an assessment of their language. Most of the Korean-speaking anglers were encountered on Marina Del Rey sportfishing boats and a community of non-English speaking Armenians fished regularly at Santa Monica Municipal Pier. Spanish speaking anglers were usually encountered on piers, with Cabrillo Pier having the largest number. Of the successful non-English interviews, 95 were conducted in Spanish and 4 were conducted in Vietnamese (Appendix 9). Spanish was the predominant foreign language encountered with Korean being the second most common.

DEMOGRAPHIC CHARACTERISTICS

One of the objectives of this study was to describe the demographic characteristics of recreational anglers that fish in Santa Monica Bay. Because this information may ultimately be used for a seafood consumption health risk assessment, site- and species-specific patterns were emphasized, as well as the ethnic background of the anglers.

The demographic characteristics of the recreational fishing population of Santa Monica Bay in 1991-1992 differ somewhat from those of Los Angeles County in 1990 (USBC 1990 Figure 7). The age structure of the fishing population had a greater proportion of persons in the 21 to 54 year-old age range and fewer above 74 years than the population of the county (Figure 7); it also had fewer individuals of less than 21 years old. The low numbers of anglers less than 21 years may be an artifact of way that the survey was conducted. If several anglers from the same household were fishing, the head of the household was interviewed. Hence, young individuals were frequently not interviewed. Fishing appears to be an important source of recreation for some elderly persons. The presence of more older anglers (>60 yr) during the week and more younger anglers (< 60 yr) during weekends and

holidays suggests that retired individuals take advantage of the smaller crowds during the week. Younger individuals are presumably occupied with work or school during the week and are less likely to fish.

Relative to the ethnic composition of Los Angeles County in 1990 (USBC 1990), Santa Monica Bay anglers of 1991-1992 were represented by a greater proportion of Asians, white, and other ethnicities and a much lower proportion of Hispanic anglers (Figure 7). The proportion of blacks in the fishing population was about the same as for Los Angeles County.

The results of this study, show that recreational fishing occurs throughout much of Santa Monica Bay, even in areas that have been shown to have chemically-contaminated fish (Pollock et al. 1991). The demography of the angler population appears to have changed little over the last decade. Puffer et al. (1981, 1982) found that recreational anglers in Santa Monica Bay and nearby areas in 1980 were nearly all male (88%), white (42%), and 18 to 40 years old (52%). These results are virtually the same as those in the present study. For instance, our results suggest that the anglers that utilize the Bay are mostly male (93%), white (43%), and between the ages of 21 and 40 years old (54%) (Appendix 6). Minor differences between the two studies suggest that, relative to the total fishing population, more Hispanics and Asians and fewer blacks fished in Santa Monica Bay in 1991-1992 than in 1980.

Differences between the two studies probably reflect the shifting population structure of southern California as a whole rather than changes in recreational fishing habits of different ethnic groups. The age distribution of the Los Angeles county population was similar in 1980 and 1990 but there was a greater proportion of individuals of 25 to 44 years in 1990 (Figure 44) (USBC 1980, 1990). During this period the ethnic population of Los Angeles county shifted somewhat, with a smaller proportion of whites and blacks and a larger proportion of Hispanics and Asians (Figure 45) (USBC 1980, 1990).

Puffer et al. (1981, 1982) did not interview non-English speaking anglers, whereas this study also interviewed Spanish and Vietnamese speaking anglers. This may have contributed to some of the differences between the two periods. In addition, the 1991-1992 study interviewed heads of households and hence children were underrepresented. It is not known how the Puffer et al. (1981, 1982) studies dealt with this issue.

The ethnic background of the anglers varied with fishing mode. Since white and Hispanic anglers comprised nearly 70% of the total fishing population, these two groups were most abundant at all three major fishing modes. However, distinct ethnic differences by fishing mode were apparent. For instance, Hispanics accounted for nearly 39% of the pier and jetty anglers (Table 4). This probably accounted for the lower annual household income of anglers utilizing this fishing mode (Table 5b), since Hispanics generally had a lower household income (Table 3). In contrast, most of the party and private boat anglers were white and had an annual household income of greater than \$50,000. Koreans and Chinese, the two

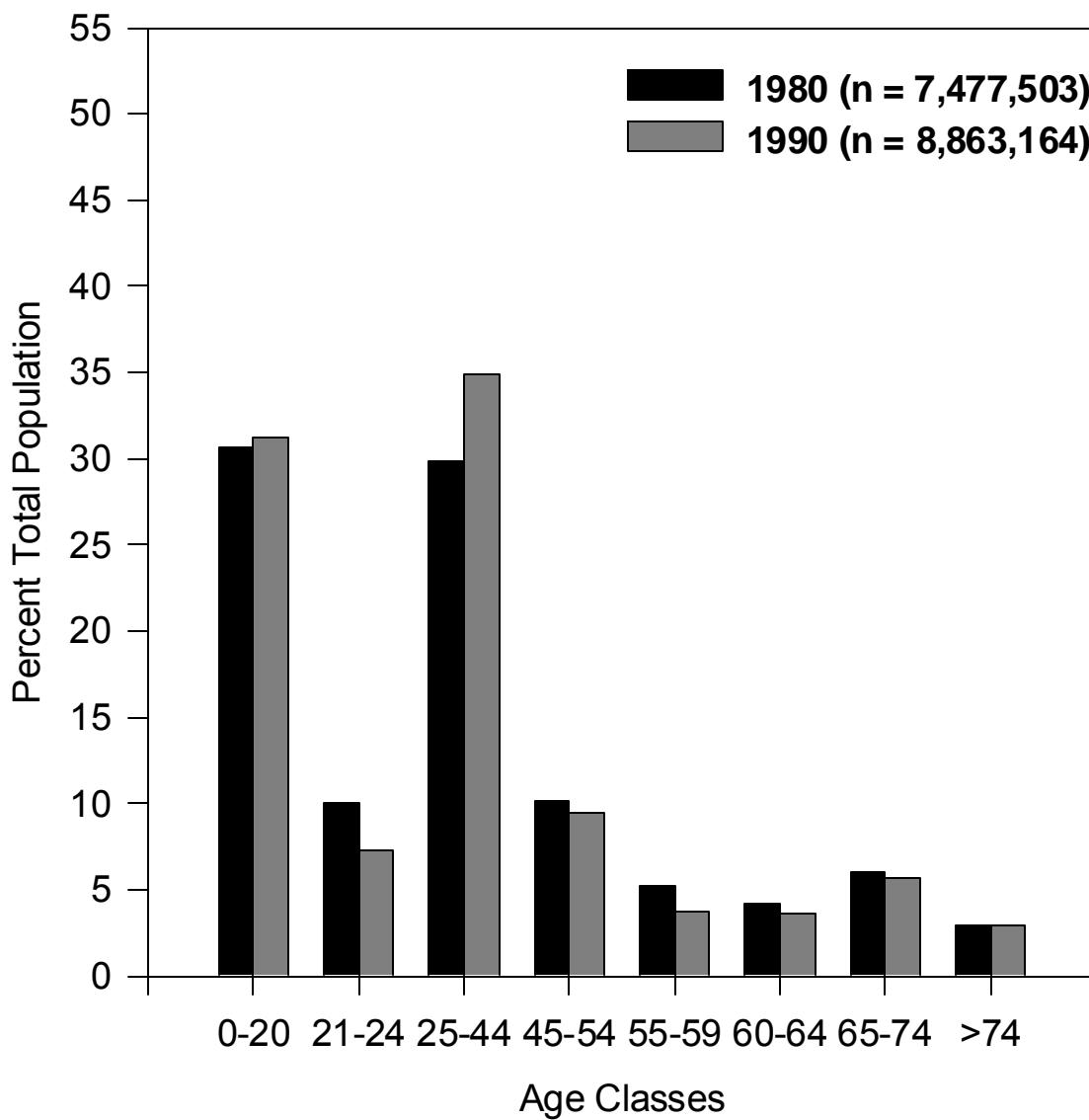


Figure 44. Age distribution of population of 21 years and older of Los Angeles County in 1980 and 1990 (USBC 1980, 1990). (Note: 1980 data classed as 20-24 years are classed here as 21-24 years).

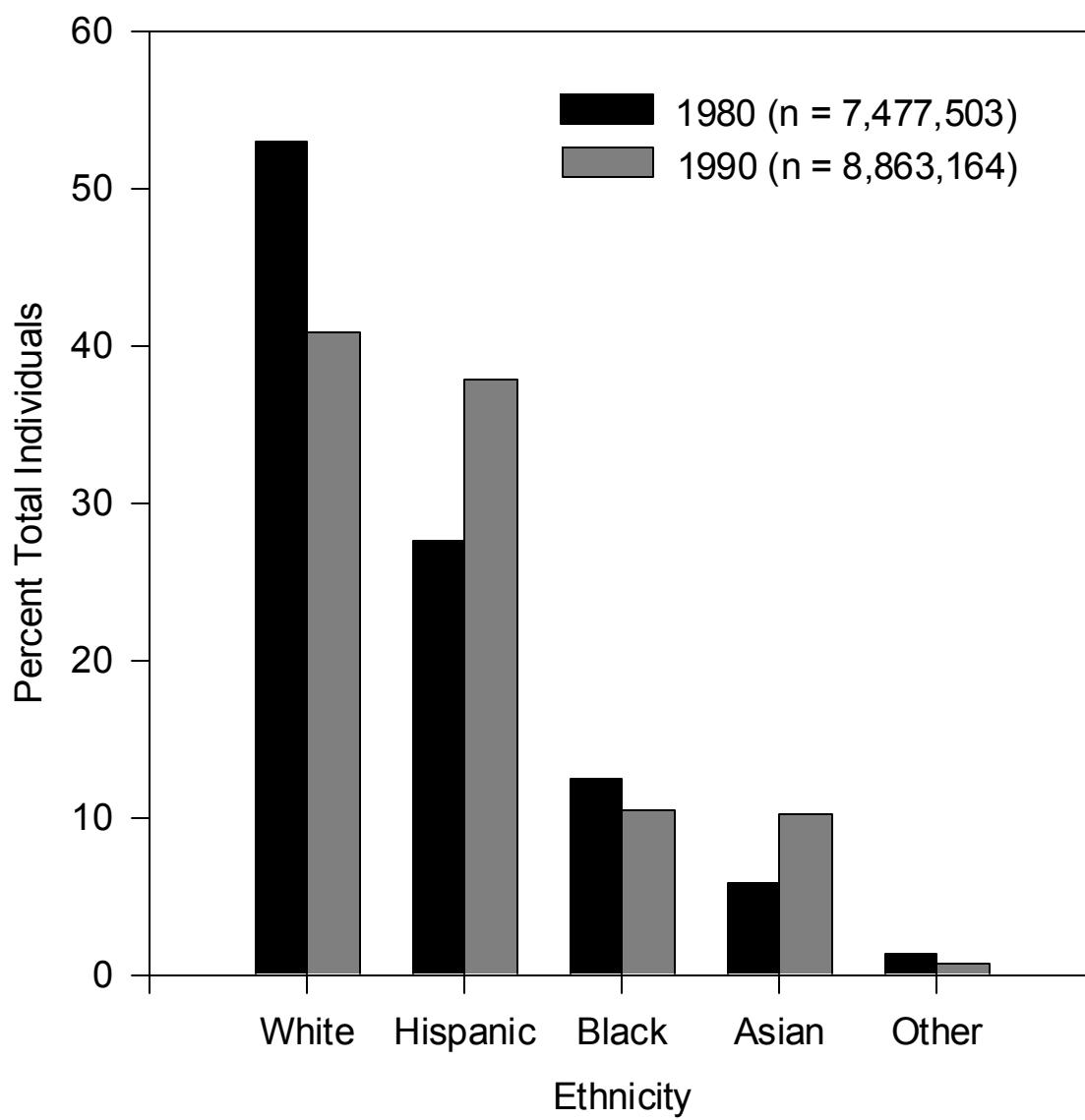


Figure 45. Ethinic distribution of population of Los Angeles County in 1980 and 1990 (USBC 1980, 1990).

ethnic groups with the greatest annual household income, were also most abundant on party boats. These results suggest that in general, the wealthiest ethnic groups fish from boats and the less wealthy fish from piers and jetties.

SPECIES COMPOSITION

The fish species caught by recreational anglers in Santa Monica Bay reflect species availability, angler preference, and fishing mode. In 1980, the most abundant fish caught by recreational anglers in the Los Angeles area was white croaker, which accounted for over 30% of the total catch, followed by chub mackerel (25%), and Pacific bonito (18%) (Puffer et al. 1981, 1982). In the present study, chub mackerel was the most abundant species (31%) followed by Pacific barracuda (12%) and barred sand bass (10%) (Table 6). In contrast to 1980, white croaker accounted for only 10% of the total catch in 1991-1992. Chub mackerel was virtually absent from southern California from the mid-1960s through the late 1970s (Leet et al. 1992). The population increased dramatically in 1978, but it was still less abundant in 1980 than at present (Leet et al. 1992).

It is difficult to establish the reasons for apparent changes in catch rates over time. However, these fluctuations may be significant because chemical contaminant levels in fishes, and the health risks associated with their consumption, are often species-specific. For instance, white croaker is a demersal forager (Allen 1982) and will feed in sediments adjacent to sewage discharges. DDT and PCB levels are often high in white croaker tissue, especially in fish taken from areas with high sediment contaminant levels, such as the Palos Verdes Shelf (Young et al. 1978, Gossett et al. 1983, Risebrough 1987, Pollock et al. 1991, SCCWRP et al. 1992). In contrast, chub mackerel is a pelagic species that may migrate over a large area of the ocean (Eschmeyer et al. 1983); thus, they probably do not spend much time in contaminated nearshore areas. DDT and PCB levels in chub mackerel are usually very low and concentrations do not appear to be site-specific (Pollock et al. 1991).

The low rates of accurate fish identification by anglers is consistent with other studies in the area. The abilities of recreational anglers in Southern California to correctly identify commonly caught species was previously surveyed by Wine (1979a) for private boats and piers and by Hartmann (1980) for party boats. Most anglers were not able to identify more than five or six species from pictures of 18 commonly caught species. Most anglers had no name for the species rather than mistakenly identifying them. The use of nondesignated names was widespread. In the present study, it was apparent that although most anglers were not able to give correct names to the species (i.e., the AFS names; Robins et al. 1991), they were able to get half the name right (generally the common name equivalent of identify the species to genus or family). Thus anglers were generally able to identify a fish as a mackerel or a halibut but not by the full common name. In some cases, anglers were accurate in calling species by common names that are typically used by anglers, even though these were not accepted AFS names. For instance, most anglers refer to kelp bass as calico bass and this is the commonly used name for this species in sportfish catch reports in the news-

paper. Because an angler's ability to give the appropriate name to a species is low, anecdotal accounts of what species they normally eat or have eaten should probably not be regarded as credible for studies of seafood consumption patterns of anglers unless the anglers are shown fish or pictures of the fish of concern.

CONSUMPTION RATES

The frequency distribution of consumption rates was highly skewed to the right. Hence, medians and upper deciles (90th percentile) provide the best description of central tendency and variation. In this study, medians showed little variation across ethnic and income groups but upper deciles varied considerably. The upper decile is the most useful summary statistic for examining consumption distributions for determining health risk and future consumption studies should not emphasize means unless the consumption rates are normally distributed..

In general, the most abundant species caught by recreational anglers in 1991-1992 were consumed at the highest rates: barred sand bass, Pacific barracuda, kelp bass, combined rockfish species, and California halibut. Median consumption rates for these species based on fillet model estimates were 16.1 g/ind/day or 0.45 kg/ind/day for each species (Table 13). All of these species have low to very low PCB and DDT levels in their muscle tissue (Pollock et al. 1991). The median consumption rate for Santa Monica Bay anglers was 21 g/ind/day, which was 70% median of 30 g/ind/day (USEPA 1990).

Puffer et al. (1981, 1982) calculated consumption based upon consumable portion weights of fish that were caught by anglers on the day of interview; these were adjusted by the number of consumers in the household. Consumption rates in this study were based on estimates from a 150g fillet model. Since the angler described only his or her own consumption rate, it was not adjusted for other consumers in the household. Since the calculations used by Puffer *et al.* (1981, 1982) to estimate consumption rates were not based on fillet model estimates, direct comparisons between the two studies can not be made. However, some similarities and differences between the two studies are apparent. For instance, only one of the five species that were consumed at the highest rates in 1991-1992 (California halibut) was also among the top five species consumed by recreational anglers in 1980 (Puffer et al. 1981, 1982). Chub mackerel and white croaker appear to be consumed at relatively high rates in both years. However, consumption rates of some species, such as California halibut and Pacific bonito appeared to have decreased markedly since 1980, while others, such as Pacific barracuda, barred sand bass, and kelp bass appeared to have increased. Most of the apparent changes in consumption rates since 1980 probably reflect species availability, since it is unlikely that angler preference for gamefish such as California halibut, Pacific bonito, barred sand bass, and kelp bass, has changed in the last 10 years.

Angler consumption patterns showed distinct differences among ethnic groups. Apart from anglers in the "other" groups, median consumption rates ranged from 16.1 g/ind/day (0.45kg/

ind/mo) for Hispanic anglers to 24.1 g/ind/day (0.68 kg/ind/mo) for black anglers (Table 12). Upper decile rates ranged from 64.3 g/ind/day (1.8 kg/ind/mo) for Hispanics to 116 g/ind/day (3.2 kg/ind/mo) for Asian, (Table 12). Assuming a meal size of 150 g, a consumption rate of 116 g/ind/day corresponds to approximately three-quarters of a meal of fish from Santa Monica Bay per day for Asians. Asian anglers had very high consumption rates of chub mackerel and kelp bass (Table 13).

Individual consumption rates were sometimes much higher than the median. One Filipino angler, (angler no 1793, Appendix 11) appeared to be consuming large amounts of chub mackerel every day and had an extremely high overall mean consumption rate of 29.3 kg/ind/mo (1046 g/ind/day). A white pier and jetty angler (angler no 1864) consumed large amounts of pile perch (*Rhacochilus vacca*), opaleye, black perch, and sargo (*Anisotremus davidsonii*). This individual had the highest mean overall consumption rate of any angler in the study (51 kg/ind/mo or 1821 g/ind/day) (Appendix 11).

In general, consumption pattern of ethnic groups appear to have changed little since 1980. Puffer et al. (1981, 1982) found that their Oriental/Samoan group had the highest median consumption rate in 1980, followed by whites, Hispanics, and blacks. Since Filipinos were not identified as a separate group in 1980, these results are similar to those found in the present study.

Except for white croaker, (Figure 35, Table 16), consumption rates generally increased with the anglers household income. Anglers with the highest incomes usually consumed the most fish. However, there were low numbers (<50%) of low-income subsistence anglers (Figure 15, Table 12).

HEALTH WARNING AWARENESS

The majority (77%) of anglers that fish in Santa Monica Bay were aware of the posted health warnings regarding consumption of contaminated fish (Table 18). Television, newspapers and magazines were the most common sources of the health warning information. However, many of the Hispanic respondents reasoned that if there was a health risk, they would incur the effects within 24 hr of consuming the fish. Therefore, many did not consider long-term effects to be very relevant. A few anglers at Cabrillo Pier had seen warning signs in the past, but many commented that vandals had repeatedly removed or destroyed them. Interviewers never observed signs concerning white croaker at Cabrillo Pier.

CHARACTERISTICS OF WHITE CROAKER CONSUMERS

White croaker was not as heavily consumed in this study as it had been in the previous survey (Puffer et al. 1981, 1982). However, some of this difference may result from different methods of calculating consumption rates in the two studies. White croaker consumers in 1991-1992 were primarily Hispanic and primarily fished off Cabrillo Pier, a site of where

this species is known to have high levels of contamination (Pollock et al. 1991). However, although more Hispanics consumed white croaker, blacks had the highest median and Asian the highest upper decile consumption rates (Table 13).

RISK ASSESSMENT CAVEATS

The data from this report and from recent seafood contamination studies (Pollock et al. 1991, SCCWRP et al. 1992) can be used for assessing health risks associated with consuming fish caught in Santa Monica Bay. However, scientists conducting a subsequent risk assessment study should be aware of some limitations to this study. Annual consumption rates from the daily consumption rates given in this report without adjusting for seasonal differences in fishing efforts (e.g. some anglers fished only during the summer). Care should also be used in using median consumption rates based on low "n's" (as in Tables 14 and 16). In addition, they should also be aware that the field sampling effort was equally weighted among the three major fishing modes (piers and jetties, party boats, and private boats). Consumption rates were based on this even-weighting of the fishing population. Before extrapolating this information to population values, investigators may wish to examine ways of estimating the size of the strata of the population of anglers in different fishing modes or other pertinent categories and appropriate adjustments to consumption rates given here.

CONCLUSIONS

1. Most of the recreational anglers from Santa Monica Bay in 1991-1992 were male (93%), 21-40 years old (54%), white (43%), and had annual household incomes of \$25,000 to \$50,000.
2. Most anglers fished year-round, but 19% fished only during the summer; about a third did not fish during the month (28 days) prior to the interview, but of those that had, most fished 3-5 times per month and for 2-5 hr at a time.
3. Chub mackerel, barred sand bass, and kelp bass were the dominant species caught, while chub mackerel, barred sand bass, and Pacific barracuda were consumed at the highest rates.
4. The median consumption rate for Santa Monica Bay anglers was 21 g/ind/day, which was 70% at the national median of 30 g/ind/day.
5. Of the identified ethnic groups, blacks had the highest median consumption rates, but Asians had the highest upper decile consumption rates.

6. Anglers with annual household incomes less than \$5,000 had the highest median consumption rates but those with incomes greater than \$50,000 had the highest upper decile consumption rates.
7. About 77% of the anglers were aware of health warnings regarding consumption of seafood species from Santa Monica Bay; 50% said they altered their fish consumption behavior as a result of these warnings by eating less or no fish.
8. Anglers that consumed white croaker were primarily Hispanic and most caught this species at Cabrillo Pier, a site where white croaker are known to be highly contaminated.
9. Although more Hispanics consumed white croaker, blacks had the highest median and Asians had the highest upper decile consumption rates.
10. The data from this report and recent seafood contamination studies can be used for assessing health risks associated with consuming fish caught in Santa Monica Bay.

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APPENDIX 1

**Census and Questionnaire
Santa Monica Bay Seafood Consumption Study, 1991-1992**

Santa Monica Bay Seafood Consumption Survey

Census Form

08/23/91

Census ID _____

CIRCLE LOCATION ON MAP ON BACK OF THIS PAGE. FOR PARTY BOAT. CIRCLE START TIME AND FISHING LOCATIONS.

1. Location: _____

2. Interviewer Team: _____

3. Interviewer Conducting Census: _____

4. Date: Mo__ Day__ Yr__

5. Day: Mon__ Tues__ Wed__

Thur__ Fri__ Sat__ Sun__

6. Time of Day: Start ____ End ____

7. Temperature: ____°F

8. Weather Conditions:

	Start	End
Sunny	<input type="checkbox"/>	<input type="checkbox"/>
Partly Cloudy/Overcast	<input type="checkbox"/>	<input type="checkbox"/>
Foggy	<input type="checkbox"/>	<input type="checkbox"/>
Santa Ana Conditions	<input type="checkbox"/>	<input type="checkbox"/>
Rainy/Cloudy	<input type="checkbox"/>	<input type="checkbox"/>

9. Wind Strength:

- Strong
- Weak

10. Surf Conditions:

- None
- 1-2 feet
- 3-5 feet
- 5 + feet

11. High Tide: Time: _____
Feet: _____

12. Low Tide: Time: _____
Feet: _____

13. Fishing Mode:

- | | |
|---------------------------------------|---|
| <input type="checkbox"/> Pier | <input type="checkbox"/> Jetty |
| <input type="checkbox"/> Beach | <input type="checkbox"/> Rocky Shore |
| <input type="checkbox"/> Private Boat | <input type="checkbox"/> Other (Describe) _____ |
| <input type="checkbox"/> Party Boat | _____ |

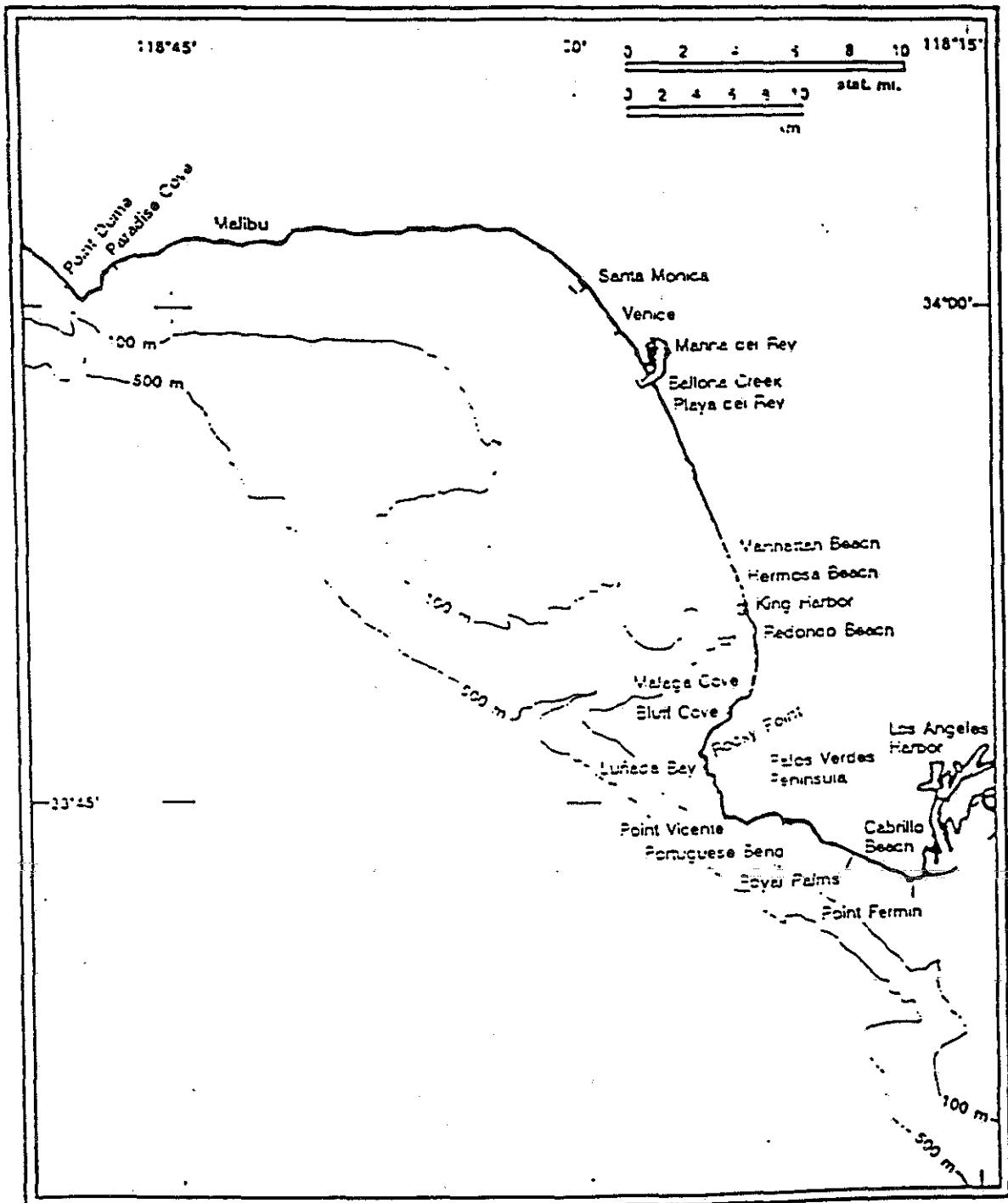
14. Approximate Number of Fishermen

No. of Private Boats Missed: _____

No. of Private Boats Not Fishing in Bay: _____

Race/Ethnic Group	Sex/Age						Total
	Male < 18	Male 18-45	Male 45+	Female < 18	Female 18-45	Female 45+	
Asian							
Black							
Hispanic							
White							
Totals							

15. Comments _____



**Santa Monica Bay Seafood Consumption Survey
Questionnaire — 08/23/91**

Census ID _____
Respondent ID _____

1. Interviewers: _____
2. Date: _____
3. Location: _____
4. Time: _____
Begin _____ End _____

**IDENTIFY FISHING GROUP, - INTERVIEW
EACH PERSON SEPARATELY
FOLLOWING ESTABLISHED SAMPLING
PROCEDURE**

NOTE FOLLOWING OBSERVATIONS:

5. Fishing Technique:

- Hook & Line No. _____
 Other _____

6. Observed Sex: Male Female

7. We are doing a survey for the Santa Monica Bay Restoration Project. We're trying to gather information on how often people fish and what types of fish they catch and what they keep. May we talk to you for a few minutes about your fishing experience?

- No Yes

IF INTERVIEW WAS NOT OBTAINED:

A. Reason For No Interview:

- 1 No Time
 2 Language Barrier
 3 Appeared Threatening
 4 Not Eligible
 5 Other _____
 6 Unknown

Explain _____

B. Observed Ethnic Group:

- 1 Asian or Pacific Islander
 2 Black
 3 Latino/Hispanic
 4 White, Non-Hispanic
 5 Other _____
 6 Unknown

C. Language (Non-English Speaking):

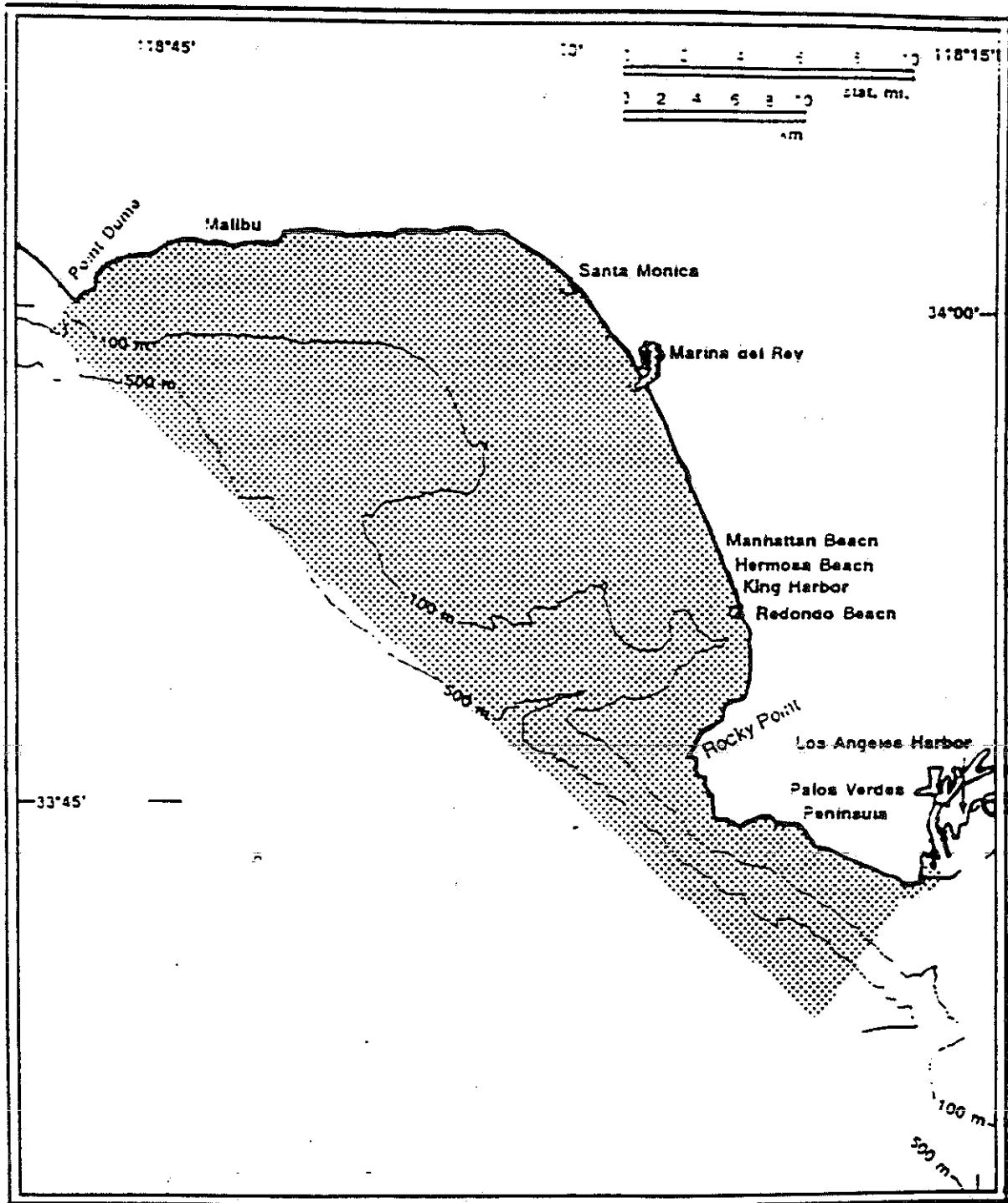
- | | |
|---------------------------------------|--|
| <input type="checkbox"/> 1 Spanish | <input type="checkbox"/> 2 Filipino |
| <input type="checkbox"/> 3 Vietnamese | <input type="checkbox"/> 4 Other (Specify) _____ |
| <input type="checkbox"/> 5 Korean | <input type="checkbox"/> 6 Undetermined |
| <input type="checkbox"/> 7 Chinese | |

D. Estimate Age: _____ Years

E. Observed Catch Est. Num.

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

IF YES, GO TO NEXT PAGE →



Santa Monica Bay Seafood Consumption Survey.
Questionnaire — 08/23/91

Census ID _____
Respondent ID _____

8. Have you been interviewed before for this Seafood Consumption study?

No Mo Yr
 Yes → How long ago? _____

9. How long have you been fishing here today? _____ Hr _____ Min.

Boat Fishermen - Actual Fishing Time _____

10. How much longer do you intend to stay? (Does not apply to boat fishermen.)

_____ Hr _____ Min.

We call "Santa Monica Bay" anywhere from Malibu (or Point Dume) to Cabrillo Beach (near Long Beach). SHOW MAP ON BACK OF PRECEDING PAGE.

11. How many years (or months) have you been fishing in Santa Monica Bay?

_____ Yr _____ Mo

12. In what seasons do you fish?

Spring Fall
 Summer Winter

**WHEN A FOUR-WEEK PERIOD IS USED,
SPECIFY MONTH AND DAY ONE MONTH
PRIOR TO SURVEY**

13. How many times have you fished in this area in the last four weeks, i.e., since

_____ ?

Mo Day

No. of Times _____

14. Excluding today, how many times have you fished in other areas in Santa Monica Bay, for example piers, beaches, party boats, or private boats in the last four weeks?

ASK EACH OF THE FOLLOWING

Other Piers
No. of Times _____ Site _____

Yes, From Beaches
No. of Times _____ Site _____

Yes, From Party Boats
No. of Times _____ Site _____

Yes, From Private Boats
No. of Times _____ Site _____

Yes, Other
No. of Times _____ Site _____

15. In the last four weeks, have you eaten fish caught in Santa Monica Bay, fish caught by you, your friends, or relatives, but NOT fish bought at the store?
No. of Times _____

16. Have you caught any fish today?

Yes GO TO QUESTION 17.

No GO TO QUESTION 19.

17. May we examine your catch?

No - Why? _____
Estimate Number of Fish

Yes - GO TO QUESTION 18.

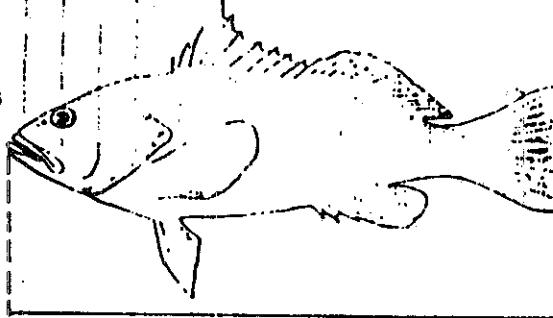
TOTAL LENGTH

On all species except those listed at right.

SPINY DOGFISH



BARRID SAND BASS



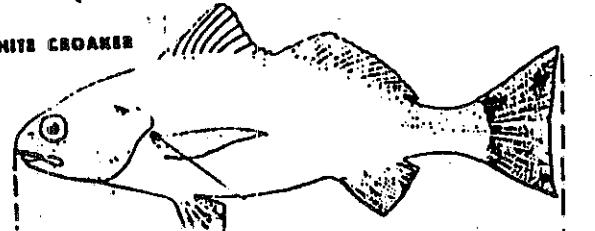
BARRACUDA



CALIFORNIA HALIBUT

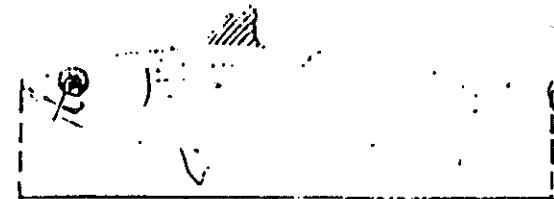


WHITE CROAKER

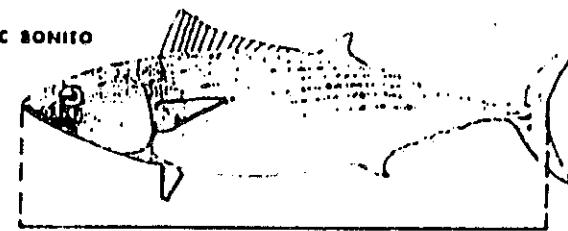


FORK LENGTH

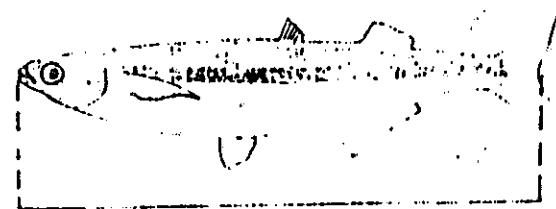
PACIFIC MACKEREL



PACIFIC BONITO



JACKMELT



Also: Jack Mackerel
Yellowtail
Albacore
Tunas
Mexican Scad

**Santa Monica Bay Seafood Consumption Survey
Questionnaire — 08/23/91**

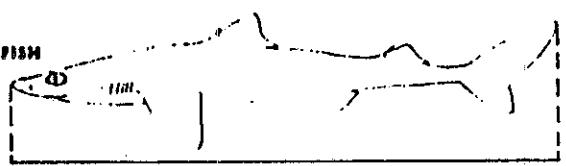
Census ID _____
Respondent ID _____

18. Now I am going to ask you several questions about the fish you have caught. POINT OUT OR HOLD UP A PARTICULAR FISH - ASK THE FOLLOWING QUESTIONS FOR EACH SPECIES CAUGHT:

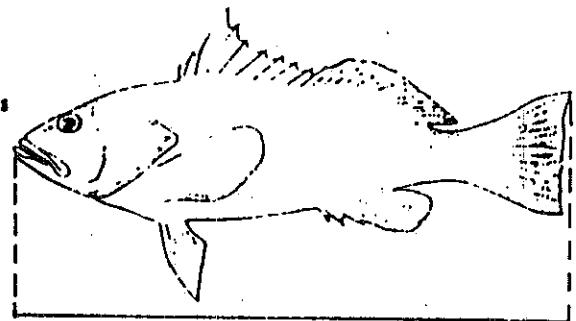
TOTAL LENGTH

On all species except those listed at right.

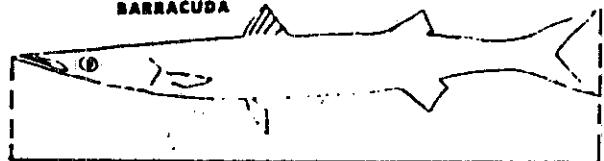
SPINY DOGISH



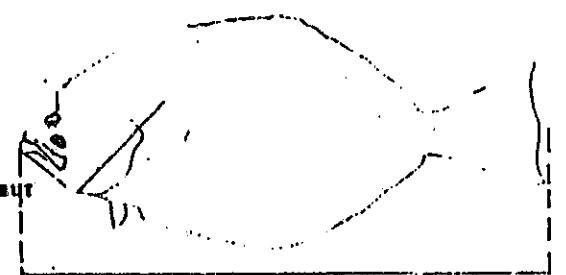
BARRED SAND BASS



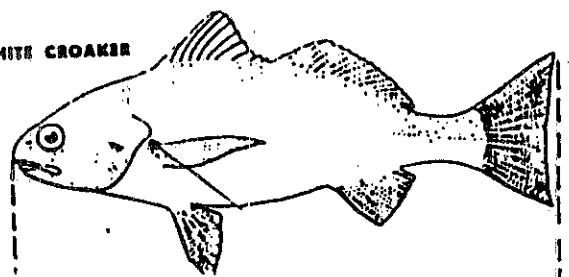
BARRACUDA



CALIFORNIA HALIBUT



WHITE CROAKER

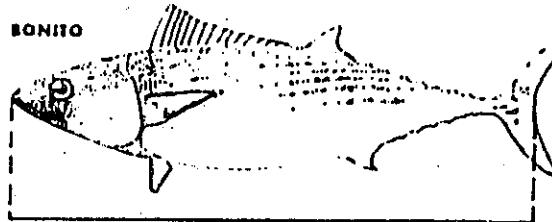


FORK LENGTH

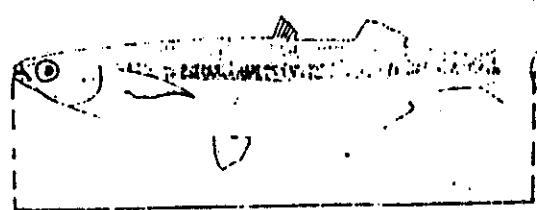
PACIFIC MACKEREL



PACIFIC BONITO



JACKMELT



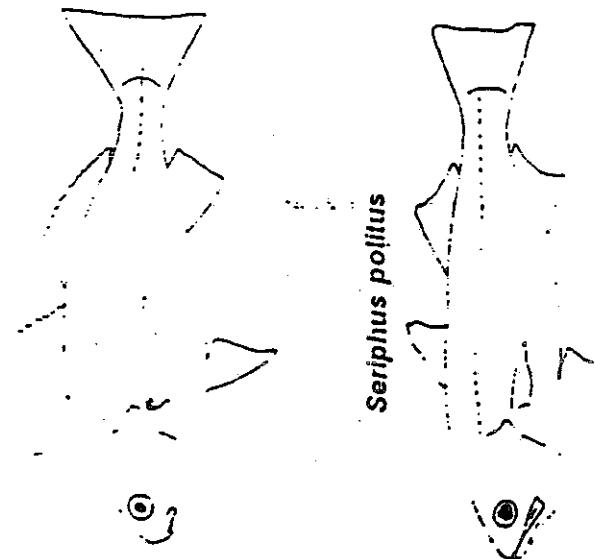
Also: Jack Mackerel
Yellowtail
Albacore
Tunas
Mexican Scad

**Santa Monica Bay Seafood Consumption Survey
Questionnaire — 08/23/91**

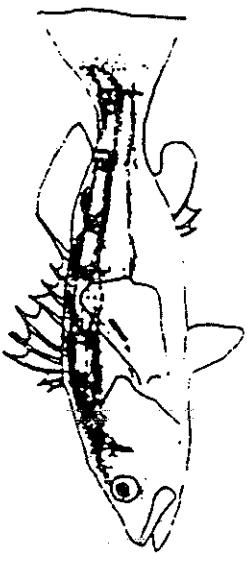
Census ID _____
Respondent ID _____

18. CONTINUED

Genyonemus lineatus



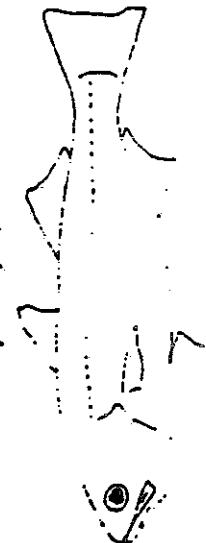
Paralabrax clathratus



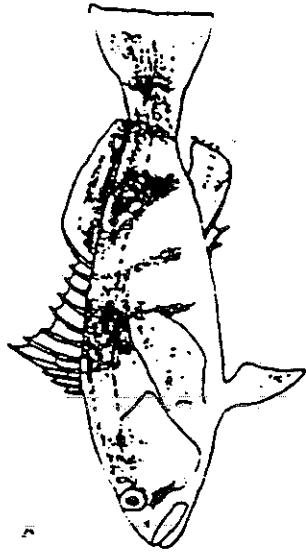
Scomber japonicus



Seriplus politus



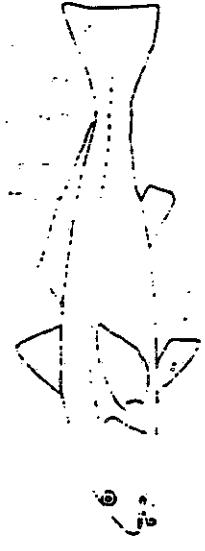
Paralabrax nebulosus



Cymatogaster aggregata



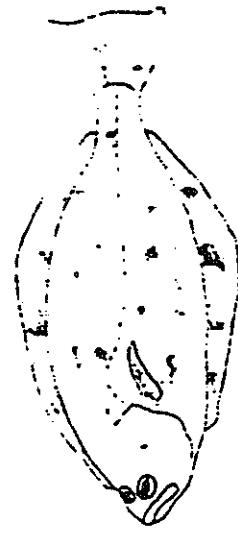
Menidiichthys undulatus



Sebastes paucispinis



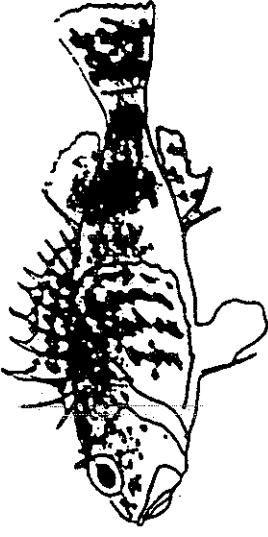
Paralichthys californicus



Cheilotrema saturnum



Scopæna guttata



Santa Monica Bay Seafood Consumption Survey

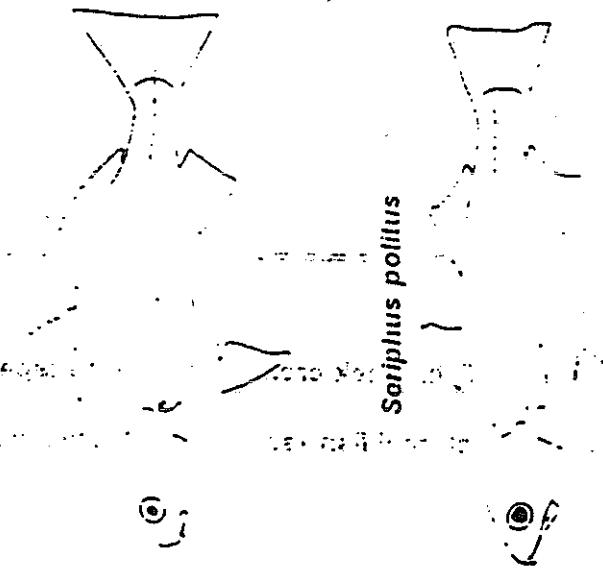
Questionnaire — 08/23/91

Census ID _____
Respondent ID _____

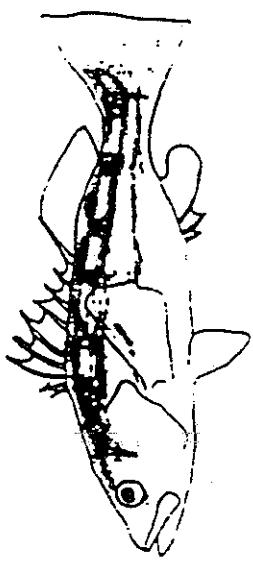
19. Now I am going to ask you the same questions about the fish you may catch and eat. SHOW PICTURE OF FISHES AND ASK IF THEY NORMALLY EAT ANY OF THESE FISHES.

SPECIES OF INTEREST: White croaker, California corbina, queenfish, black croaker, surfperch (specify), California scorpionfish, kelp bass, barred sand bass, chub mackerel, rockfish (specify), California halibut

Gymnophorus lineatus



Paralabrax clathratus



Scomber japonicus



Cymatogaster aggregata



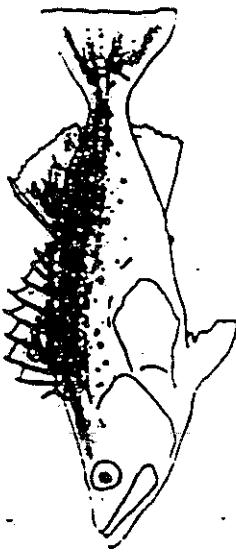
Paralabrax nebulifer



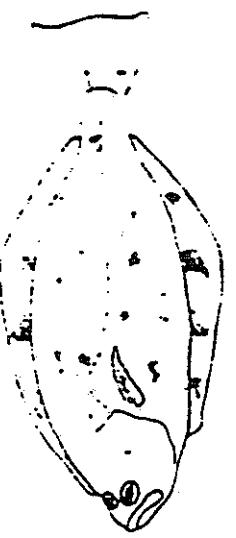
Menticirrhus undulatus



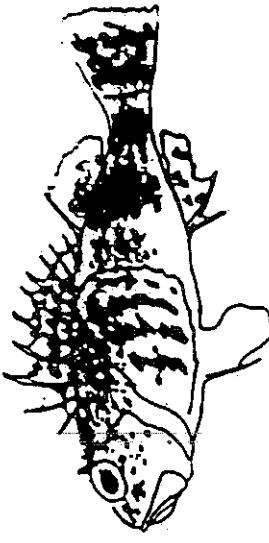
Sebastes paucispinis



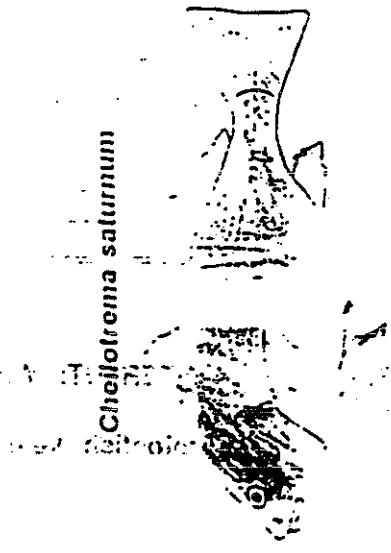
Paralichthys californicus



Scorpaena guttata



Cirrhitichthys saturnus



**Santa Monica Bay Seafood Consumption Survey
Questionnaire — 08/23/91**

Census ID _____
Respondent ID _____

19. CONTINUED

SPECIES OF INTEREST: White croaker, California corbina, queenfish, black croaker, surfperch (specify), California scorpionfish, kelp bass, barred sand bass, chub mackerel, rockfish (specify), California halibut

**Santa Monica Bay Seafood Consumption Survey
Questionnaire— 08/23/91**

Census ID _____
Respondent ID _____

20. Are you aware of any health warnings about eating fish from Santa Monica Bay?

- 1 No 2 Yes

**IF YES, ASK QUESTIONS 21-23.
IF NO, GO TO QUESTION 24.**

21. Where did you hear or read about the health warnings?

- 1 Signs Posted at Piers or Beaches
 2 T.V.
 3 Newpaper/Magazine Article
 4 Other Fisherman/Friends
 5 Other _____

22. Did the warnings affect the amount or type of fish that you eat?

- 1 No
 2 Yes

- a Eat Less Fish:
 All Species _____
 Certain Species _____
 b Stopped Eating Fish:
 All Species _____
 Certain Species _____

23. How important do you think these warnings are?

- 1 Not Important
 2 Somewhat Important
 3 Very Important

NOW I AM GOING TO ASK YOU A FEW QUESTIONS ABOUT YOURSELF.

24. What town do you live in?

_____ Zip _____

25. What is your current or usual occupation?

26. How old are you? _____ Years

27. Which group best describes your racial/ethnic background?

- 1 African American/Black
 2 Korean
 3 Filipino
 4 Vietnamese
 5 Chinese
 6 Latino/Hispanic
 7 Japanese
 8 White, non-Hispanic
 9 Other (Specify) _____

Santa Monica Bay Seafood Consumption Survey

Questionnaire -- 08/23/91

Census ID _____

Respondent ID _____

28. Are other family members from your household fishing here today?

No

Yes How many _____

29. Other than yourself, how many people do you live with? How old are they?
(SEE CATEGORIES BELOW)

How many people do you live with who are ...		Do they eat the fish you or your friends catch?	Do they eat fish caught from the Bay more often, less often or the same as you?	Do they eat the same amount, or more or less fish than this? SHOW FILLET		
Less than 1 year old		<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	<input type="checkbox"/> Same <input type="checkbox"/> More <input type="checkbox"/> Less	<input type="checkbox"/> Same	<input type="checkbox"/> More	<input type="checkbox"/> Less
1-5 years		<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	<input type="checkbox"/> Same <input type="checkbox"/> More <input type="checkbox"/> Less	<input type="checkbox"/> Same	<input type="checkbox"/> More	<input type="checkbox"/> Less
6-17 years		<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	<input type="checkbox"/> Same <input type="checkbox"/> More <input type="checkbox"/> Less	<input type="checkbox"/> Same	<input type="checkbox"/> More	<input type="checkbox"/> Less
(18+)/adult		<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	<input type="checkbox"/> Same <input type="checkbox"/> More <input type="checkbox"/> Less	<input type="checkbox"/> Same	<input type="checkbox"/> More	<input type="checkbox"/> Less

30. Would you mind pointing to the category that describes your annual family income?

- Less than 5,000
- 5,000-10,000
- 10,000-25,000
- 25,000-50,000
- +50,000

31. We may be conducting an additional survey. May we call you for more information?

No Yes

32. What is the best time of day to call?

Before ____ : ____ AM PM (circle)

After ____ : ____ AM PM (circle)

33. What is your phone number?

() _____ - _____
 Work Home

34. Would you mind providing your name?

Santa Monica Bay Seafood Consumption Survey
Questionnaire — 08/23/91

Census ID _____
Respondent ID _____

INTERVIEWER OBSERVATIONS

Interview Impression of Quality of Interview:

- 1 Very Reliable
- 2 Fairly Reliable
- 3 Not Very Reliable
- 4 Mostly Unreliable

Survey Type: Roving Exit

Other Comments:

Language in Which Interview Was Conducted: _____

APPENDIX 2

**Fish Length-weight Conversion Tables
Santa Monica Bay Seafood Consumption Study, 1991-1992**

Appendix 2. Parameters used to convert fish lengths to consumable weight for species encountered in surveys of recreational anglers, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

Seafood Species in Surveys		Weight-Length & Consumable Portion Coefficients *			Similar Species with Known Consumable Portion Coefficients	
Scientific Name	Common Name	a	b	c	Common Name	Scientific Name
<i>Amphistichus argenteus</i>	barred surperch	0.0000107000	3.10250	0.38	sunfish	Centrarchidae, unid.
<i>Anisotremus davidsonii</i>	sargo	0.0000019648	3.39220	0.38	porgy	Sparidae, unid.
<i>Atherinopsis californiensis</i>	jacksnelt	0.0000009882	3.35360	0.50	tuna	Scomberesocidae, unid.
<i>Atractoscion nobilis</i>	white seabass	0.0000154900	2.92167	0.50	sea trout	Cynoscion sp.
Balistidae, unid.	triggerfish, unid.	-	-	0.38	triggerfish	Balistidae, unid.
<i>Cancer</i> sp.	rock crab	-	-	0.24	Dungeness crab	<i>Cancer magister</i>
<i>Caulolatilus princeps</i>	ocean whitefish	0.0000030400	3.22000	0.35	ocean whitefish	<i>Caulolatilus princeps</i>
<i>Chromis punctipinnis</i>	blacksmith	0.0002910000	2.94640	0.38	sunfish	Centrarchidae, unid.
<i>Citharichthys</i> sp.	candab	0.0000026600	3.29530	0.21	candab	Citharichthys sp.
<i>Cymatogaster aggregata</i>	shiner perch	0.0000047350	3.21000	0.38	sunfish	Centrarchidae, unid.
<i>Dasyatidae</i> , unid.	stingray, unid.	-	-	0.23	skate	Rajidae, unid.
Elaeombranchiomorpha, unid.	shark, unid.	-	-	0.40	shark	Carcharhinidae, unid.
<i>Embiotoca jacksoni</i>	black perch	0.0002910000	2.49640	0.38	sunfish	Centrarchidae, unid.
Embiotocidae, unid.	surfperch, unid.	-	-	0.38	sunfish	Centrarchidae, unid.
<i>Genyonemus lineatus</i>	white croaker	0.0000070850	3.08328	0.35	Atlantic croaker	<i>Micropogonias undulatus</i>
<i>Girella nigricans</i>	opaleye	0.0000144830	3.04927	0.38	sunfish	Centrarchidae, unid.
<i>Halichoeres semicinctus</i>	rock wrasse	0.0000045000	3.16000	0.50	smelt	Osmeridae, unid.
<i>Heterodontus francisci</i>	horn shark	0.0000085500	3.00000	0.40	shark	Carcharhinidae, unid.
<i>Hyperoplus argenteum</i>	walleye surfperch	0.0000030358	3.71700	0.38	sunfish	Centrarchidae, unid.
<i>Hypsurus caryi</i>	rainbow seaperch**	0.0000046899	3.22700	0.38	sunfish	Centrarchidae, unid.
<i>Medialuna californiensis</i>	halimoon	0.0000736755	2.73384	0.38	sunfish	Centrarchidae, unid.
<i>Menticirrhus undulatus</i>	California corbina	0.0000038260	3.16000	0.50	king whiting	<i>Menticirrhus litoralis</i>
<i>Mustelus californicus</i>	gray smoothhound	0.0000208900	2.88000	0.40	shark	Carcharhinidae, unid.
<i>Mustelus henlei</i>	brown smoothhound	0.0000208900	2.68000	0.40	shark	Carcharhinidae, unid.
<i>Myliobatis californica</i>	bat ray	0.0000105440	3.09289	0.23	skate	Rajidae, unid.
<i>Mytilus</i> sp.	sea mussel, unid.	-	-	0.29	sea mussel	<i>Mytilus</i> sp.
<i>Octopus</i> sp.	octopus, unid.	-	-	0.50	octopus	<i>Octopus</i> sp.
<i>Ophiodon elongatus</i>	lingcod	0.0000115700	2.99000	0.50	lingcod	<i>Ophiodon elongatus</i>
Osteichthyes, unid.	bony fish, unid.	-	-	0.50	fish	Osteichthyes, unid.
<i>Oxyjulis californica</i>	senorita	0.0000045000	3.16000	0.50	smelt	Osmeridae, unid.
<i>Panulirus interruptus</i>	California spiny lobster	-	-	0.23	spiny lobster	Palinuridae, unid.
<i>Paralabrax clathratus</i>	kelp bass	0.000027160	3.27000	0.50	sand bass	<i>Paralabrax nebulifer</i>
<i>Paralabrax maculatofasciatus</i>	spotted sand bass	0.0000182660	2.96730	0.50	sand bass	<i>Paralabrax nebulifer</i>
<i>Paralabrax nebulifer</i>	barred sand bass	0.0000068440	3.11269	0.50	sand bass	<i>Paralabrax nebulifer</i>
<i>Paralichthys californicus</i>	California halibut	0.0000084900	3.03300	0.38	summer flounder	<i>Paralichthys dentatus</i>
<i>Phanerodon luciferus</i>	white seaperch	0.000001366	2.978	0.38	sunfish	Centrarchidae, unid.
Pleuronectiformes, unid.	flatfish, unidentified	0.0000030560	3.24000	0.45	flounder	Pleuronectidae, unid.
<i>Prionace glauca</i>	blue shark	0.0000098256	3.20000	0.40	shark	Carcharhinidae, unid.
Rajiformes, unid.	ray, unid.	-	-	0.23	skate	Rajidae, unid.
<i>Rhacochilus vacca</i>	pile perch	0.0000092550	3.09900	0.38	sunfish	Centrarchidae, unid.
<i>Rhinobatos productus</i>	shovelnose guitarfish	0.0000051060	2.96780	0.40	sawfish	Pristidae, unid.
<i>Sarda chilensis</i>	Pacific bonito	0.0000076270	3.08960	0.43	bonito	<i>Sarda</i> sp.
<i>Sardinops sagax</i>	Pacific sardine	0.0000032000	3.15000	0.50	Pacific sardine	<i>Sardinops sagax</i>
<i>Scomber japonicus</i>	chub mackerel	0.0000013660	3.39360	0.43	Pacific mackerel	<i>Scomber japonicus</i>
<i>Scorpaena guttata</i>	California scorpionfish	0.0000140604	3.06300	0.38	rockfish	<i>Sebastodes</i> sp.
<i>Scorpaenichthys marmoratus</i>	cabezon	0.00000882322	2.72030	0.23	sculpin	Cottidae, unid.
<i>Sebastodes auriculatus</i>	brown rockfish	0.0000260129	2.93360	0.38	rockfish	<i>Sebastodes</i> sp.
<i>Sebastodes carnatus</i>	gopher rockfish	0.0000204731	2.95730	0.38	rockfish	<i>Sebastodes</i> sp.
<i>Sebastodes caurinus</i>	copper rockfish	0.0000164814	3.01800	0.38	rockfish	<i>Sebastodes</i> sp.
<i>Sebastodes chlorostictus</i>	greenspotted rockfish	0.0000204731	2.95730	0.38	rockfish	<i>Sebastodes</i> sp.
<i>Sebastodes constellatus</i>	starry rockfish	0.0000053123	3.19500	0.38	rockfish	<i>Sebastodes</i> sp.
<i>Sebastodes elongatus</i>	greenstriped rockfish	0.0000047582	3.15310	0.38	rockfish	<i>Sebastodes</i> sp.
<i>Sebastodes goodei</i>	chilipepper	0.0000028395	3.24380	0.38	rockfish	<i>Sebastodes</i> sp.
<i>Sebastodes hopkinsi</i>	squarespot rockfish	0.0000032400	3.25050	0.38	rockfish	<i>Sebastodes</i> sp.
<i>Sebastodes miniatus</i>	vermillion rockfish	0.0000267700	2.91650	0.38	rockfish	<i>Sebastodes</i> sp.
<i>Sebastodes mystinus</i>	blue rockfish	0.0000162467	2.98849	0.38	rockfish	<i>Sebastodes</i> sp.
<i>Sebastodes paucispinis</i>	bocaccio	0.0000058332	3.08410	0.38	rockfish	<i>Sebastodes</i> sp.
<i>Sebastodes rastrelliger</i>	grass rockfish	0.0000057580	3.23500	0.38	rockfish	<i>Sebastodes</i> sp.
<i>Sebastodes rubrivinctus</i>	flag rockfish	0.0000234675	2.94310	0.38	rockfish	<i>Sebastodes</i> sp.
<i>Sebastodes serranoides</i>	olive rockfish	0.0000052102	3.15410	0.38	rockfish	<i>Sebastodes</i> sp.
<i>Sebastodes terriceps</i>	treefish	0.0124040000	1.89000	0.38	rockfish	<i>Sebastodes</i> sp.
<i>Sebastodes</i> sp.	rockfish, unid.	0.0000052102	3.15410	0.38	rockfish	<i>Sebastodes</i> sp.
<i>Semicossyphus pulcher</i>	California sheephead	0.00000295200	2.90660	0.42	parrotfish	Scaridae, unid.
<i>Seriola</i> islandi	yellowtail	0.00000337430	2.85000	0.33	yellowtail	<i>Seriola</i> islandi
<i>Seriphis politus</i>	queenfish	0.00000154900	2.92200	0.35	Atlantic croaker	<i>Micropogonias undulatus</i>
<i>Sphyraena argentea</i>	Pacific barracuda	0.0000041202	2.98300	0.45	barracuda	<i>Sphyraena</i> sp.
<i>Strongylacanthus purpuratus</i>	Pacific purple urchin	-	-	0.17	sea urchin	Echinoidae, unid.
<i>Synodus lucioceps</i>	California lizardfish	0.0000033100	3.16000	0.50	smelt	Osmeridae, unid.
<i>Trechurus symmetricus</i>	jack mackerel	0.0000033100	3.22320	0.43	Pacific mackerel	<i>Scomber japonicus</i>
<i>Triakis semifasciatus</i>	leopard shark	0.00000208900	2.88000	0.40	shark	Carcharhinidae, unid.
<i>Umbrina tomentosa</i>	yellowfin croaker	0.0000016640	2.94440	0.35	Atlantic croaker	<i>Micropogonias undulatus</i>
<i>Xenistius californiensis</i>	selema	0.0000107000	2.91000	0.35	Atlantic croaker	<i>Micropogonias undulatus</i>

* a and b are coefficients for $W = a(L^b)$, where W = total weight in grams and L = total length in millimeters (Calif. Dep. Fish Game, data).

** c = proportion consumed for C = cW, where C = consumable weight in grams and W = total weight in grams for species in National Marine Fisheries Service list (Nat. Mar. Fish. Serv. data).

APPENDIX 3

**Survey Characteristics by Site
Santa Monica Bay Seafood Consumption Study, 1991-1992**

Appendix 3. Characteristics of surveys of recreational anglers by fishing mode and site, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

Census	Site	Date	Day Type	Time (Hrs)
PARTY BOATS				
2009	Marina Del Rey Sportfishing Boat	05 SEP 91	Weekday	1230 - 1700
2010	Redondo Sportfishing Boat	12 SEP 91	Weekday	1200 - 1700
2011	Malibu Sportfishing Boat	14 SEP 91	Weekend	0800 - 1200
2012	Redondo Sportfishing Barge	29 SEP 91	Weekend	0700 - 1130
2013	Malibu Sportfishing Boat	06 OCT 91	Weekend	1230 - 1700
2014	Marina Del Rey Sportfishing Boat	16 OCT 91	Weekday	0730 - 1200
2015	L.A. Harbor Sportfishing Boat	08 NOV 91	Weekday	0900 - 1230
2016	Redondo Sportfishing Barge	16 NOV 91	Weekend	1130 - 1600
2017	L.A. Harbor Sportfishing Boat	14 DEC 91	Weekend	0630 - 1200
2018	Marina Del Rey Sportfishing Boat	18 DEC 91	Weekday	1230 - 1700
2019	Malibu Sportfishing Boat	13 JAN 92	Weekday	1230 - 1700
2020	Redondo Sportfishing Boat	25 JAN 92	Weekend	0700 - 1200
2021	Malibu Sportfishing Boat	19 FEB 92	Weekday	0800 - 1200
2022	Marina Del Rey Sportfishing Boat	29 FEB 92	Weekend	1230 - 1700
2023	L.A. Harbor Sportfishing Boat	12 MAR 92	Weekday	0930 - 1630
2024	Redondo Sportfishing Boat	28 MAR 92	Weekend	0630 - 1230
2025	Malibu Sportfishing Boat	13 APR 92	Weekday	1200 - 1700
2026	L.A. Harbor Sportfishing Boat	25 APR 92	Weekend	0600 - 1200
2027	Redondo Sportfishing Barge	06 MAY 92	Weekday	0730 - 1130
2028	Marina Del Rey Sportfishing Boat	16 MAY 92	Weekend	0730 - 1200
2029	Redondo Sportfishing Boat	02 JUN 92	Weekday	1200 - 1700
2030	Marina Del Rey Sportfishing Boat	11 JUN 92	Weekday	0730 - 1230
2031	Malibu Sportfishing Boat	13 JUN 92	Weekend	1300 - 1700
2032	Redondo Sportfishing Barge	27 JUN 92	Weekend	0800 - 1200
2033	Malibu Sportfishing Boat	02 JUL 92	Weekday	0800 - 1230
2034	Marina Del Rey Sportfishing Boat	12 JUL 92	Weekend	1230 - 1730
2035	Redondo Sportfishing Boat	20 JUL 92	Weekday	1200 - 1730
2036	Marina Del Rey Sportfishing Boat	26 JUL 92	Weekend	0730 - 1200
2037	Malibu Sportfishing Boat	01 AUG 92	Weekend	1300 - 1700
2038	L.A. Harbor Sportfishing Boat	05 AUG 92	Weekday	0630 - 1200
2039	Malibu Sportfishing Boat	21 AUG 92	Weekday	1300 - 1730
2040	Marina Del Rey Sportfishing Boat	30 AUG 92	Weekend	0600 - 1200
PIERS				
1009	Redondo Municipal/Monstad Pier	03 SEP 91	Weekday	1600 - 2000
1010	Paradise Cove Pier	07 SEP 91	Weekend	1200 - 1600
1011	Marina Del Rey Fishing Dock	15 SEP 91	Weekend	0800 - 1200
1012	Cabrillo Fishing Pier	18 SEP 91	Weekday	1200 - 1600
1013	Cabrillo Fishing Pier	04 OCT 91	Weekday	0800 - 1200
1014	Marina Del Rey Jetty	26 OCT 91	Weekend	0800 - 1200
1015	Malibu Pier	03 NOV 91	Weekend	1200 - 1600
1016	Redondo Municipal/Monstad Pier	22 NOV 91	Weekday	1200 - 1600
1017	Malibu Pier	07 DEC 91	Weekend	0800 - 1200
1018	Marina Del Rey Fishing Dock	20 DEC 91	Weekday	1200 - 1600
1019	Cabrillo Fishing Pier	11 JAN 92	Weekend	1200 - 1600
1020	Hermosa Beach Pier	29 JAN 92	Weekday	0800 - 1200
1021	King Harbor Breakwater	17 FEB 92	Weekend	1200 - 1600
1022	Cabrillo Fishing Pier	27 FEB 92	Weekday	0800 - 1200
1023	Marina Del Rey Jetty	07 MAR 92	Weekend	0800 - 1200
1024	Paradise Cove Pier	24 MAR 92	Weekday	1200 - 1600
1025	Cabrillo Fishing Pier	05 APR 92	Weekend	1200 - 1600
1026	Paradise Cove Pier	23 APR 92	Weekday	0800 - 1200
1027	Santa Monica Municipal Pier	09 MAY 92	Weekend	0800 - 1200
1028	Redondo Sportfishing Pier	21 MAY 92	Weekday	1200 - 1600
1029	Cabrillo Fishing Pier	05 JUN 92	Weekday	0800 - 1200
1030	Ballona Creek Jetty	18 JUN 92	Weekday	1200 - 1600
1031	Malibu Pier	20 JUN 92	Weekend	0800 - 1200
1032	Redondo Municipal/Monstad Pier	21 JUN 92	Weekend	1200 - 1600
1033	Paradise Cove Pier	04 JUL 92	Weekend	0800 - 1200
1034	Marina Del Rey Jetty	16 JUL 92	Weekday	1200 - 1600
1035	Cabrillo Fishing Pier	25 JUL 92	Weekend	1200 - 1600
1036	King Harbor Breakwater	28 JUL 92	Weekday	0800 - 1200
1037	Malibu Pier	09 AUG 92	Weekend	1200 - 1600
1038	Hermosa Beach Pier	17 AUG 92	Weekday	1600 - 2000
1039	Marina Del Rey Fishing Dock	22 AUG 92	Weekend	0800 - 1200
1040	Cabrillo Fishing Pier	26 AUG 92	Weekday	1200 - 1600

Appendix 3 (continued)

Census	Site	Date	Day Type	Time (Hrs)
PRIVATE BOATS				
3009	Cabrillo Boat Ramp	10 SEP 91	Weekday	1000 - 1400
3010	King Harbor Boat Hoist	21 SEP 91	Weekend	1400 - 1800
3011	Marina Del Rey Boat Ramp	28 SEP 91	Weekday	1000 - 1400
3012	Cabrillo Boat Ramp	28 SEP 91	Weekend	1400 - 1800
3013	King Harbor Boat Hoist	12 OCT 91	Weekend	1400 - 1800
3014	Marina Del Rey Boat Ramp	21 OCT 91	Weekday	1000 - 1400
3015	Cabrillo Boat Ramp	09 NOV 91	Weekend	1000 - 1400
3016	King Harbor Boat Hoist	15 NOV 91	Weekday	1400 - 1800
3017	Marina Del Rey Boat Ramp	02 DEC 91	Weekday	1400 - 1800
3018	Cabrillo Boat Ramp	08 DEC 91	Weekend	1000 - 1400
3019	Marina Del Rey Boat Ramp	07 JAN 92	Weekday	1000 - 1400
3020	King Harbor Boat Hoist	26 JAN 92	Weekend	1400 - 1800
3021	Cabrillo Boat Ramp	05 FEB 92	Weekday	1000 - 1400
3022	King Harbor Boat Hoist	22 FEB 92	Weekend	1400 - 1800
3023	Marina Del Rey Boat Ramp	22 MAR 92	Weekend	1400 - 1800
3024	Cabrillo Boat Ramp	27 MAR 92	Weekday	1000 - 1400
3025	Cabrillo Boat Ramp	18 APR 92	Weekend	1400 - 1800
3026	Marina Del Rey Boat Ramp	28 APR 92	Weekday	1000 - 1400
3027	King Harbor Boat Hoist	19 MAY 92	Weekday	1000 - 1400
3028	Marina Del Rey Boat Ramp	31 MAY 92	Weekend	1400 - 1800
3029	King Harbor Boat Hoist	06 JUN 92	Weekend	1000 - 1400
3030	Cabrillo Boat Ramp	07 JUN 92	Weekend	1400 - 1800
3031	King Harbor Boat Hoist	26 JUN 92	Weekday	1400 - 1800
3032	Marina Del Rey Boat Ramp	30 JUN 92	Weekday	1000 - 1400
3033	Cabrillo Boat Ramp	05 JUL 92	Weekend	1000 - 1400
3034	Marina Del Rey Boat Ramp	06 JUL 92	Weekday	1400 - 1800
3035	King Harbor Boat Hoist	18 JUL 92	Weekend	1000 - 1400
3036	Cabrillo Boat Ramp	23 JUL 92	Weekday	1400 - 1800
3037	Marina Del Rey Boat Ramp	07 AUG 92	Weekday	1400 - 1800
3038	Cabrillo Boat Ramp	11 AUG 92	Weekday	1000 - 1400
3039	King Harbor Boat Hoist	15 AUG 92	Weekend	1000 - 1400
3040	Cabrillo Boat Ramp	23 AUG 92	Weekend	1400 - 1800
BEACH				
4005	Manhattan Beach	03 SEP 91	Weekday	1500 - 1600
4006	Redondo/Torrance Beach	03 SEP 91	Weekday	1500 - 1600
4007	Playa Del Rey Beach	15 SEP 91	Weekend	0700 - 0800
4008	Venice Beach	26 SEP 91	Weekday	0900 - 1000
4009	Venice Beach	26 OCT 91	Weekend	0700 - 0800
4010	Playa Del Rey Beach	20 DEC 91	Weekday	1100 - 1200
4011	Hermosa Beach	29 JAN 92	Weekday	0700 - 0800
4012	Marina Del Rey Beach	07 MAR 92	Weekend	0700 - 0800
4013	Santa Monica Beach	09 MAY 92	Weekend	0700 - 0800
4014	Playa Del Rey Beach	18 JUN 92	Weekday	1100 - 1200
4015	Redondo/Torrance Beach	21 JUN 92	Weekend	1100 - 1200
4016	Marina Del Rey Beach	18 JUL 92	Weekday	1100 - 1200
4017	Hermosa Beach	17 AUG 92	Weekday	1500 - 1600
INTERTIDAL				
5001	Paradise Cove	20 NOV 91	Weekday	1315 - 1515
5002	Royal Palms Beach	22 NOV 91	Weekday	1440 - 1640
5003	Lunada Bay	05 DEC 91	Weekday	1410 - 1610
5004	Bluff Cove	19 DEC 91	Weekday	1310 - 1510

APPENDIX 4

Survey Characteristics by Month
Santa Monica Bay Seafood Consumption Study, 1991-1992

Appendix 4. Characteristics of surveys of recreational anglers by month, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

Date	Site	Mode	Time (Hrs)	Number Censused	Number of Interviews			Percent*		
					Attempted	Successful	Refused	Attempted	Successful	Refused
April 1992										
05 APR 92	Cabrillo Fishing Pier	P	1200 - 1600	68	60	38	24	91	50	40
13 APR 92	Malibu Sportfishing Boat	PB	1200 - 1700	23	13	11	2	57	85	15
18 APR 92	Cabrillo Boat Ramp	BL	1400 - 1800	27	17	14	3	63	82	18
23 APR 92	Paradise Cove Pier	P	0800 - 1200	1	1	1	0	100	100	0
25 APR 92	L.A. Harbor Sportfishing Boat	PB	0600 - 1200	39	31	28	3	79	90	10
28 APR 92	Marina Del Rey Boat Ramp	BL	1000 - 1400	14	10	9	1	71	90	10
May 1992										
06 MAY 92	Redondo Sportfishing Barge	PB	0730 - 1130	27	24	17	7	89	71	29
09 MAY 92	Santa Monica Beach	B	0700 - 0800	0	0	0	0	0	0	0
09 MAY 92	Santa Monica Municipal Pier	P	0800 - 1200	43	53	29	24	123	55	45
16 MAY 92	Marina Del Rey Sportfishing Boat	PB	0730 - 1200	32	29	21	8	91	72	28
19 MAY 92	King Harbor Boat Hoist	BL	1000 - 1400	0	0	0	0	0	0	0
21 MAY 92	Redondo Sportfishing Pier	P	1200 - 1600	24	24	16	8	100	67	33
31 MAY 92	Marina Del Rey Boat Ramp	BL	1400 - 1800	46	37	25	12	80	58	32
June 1992										
02 JUN 92	Redondo Sportfishing Boat	PB	1200 - 1700	22	22	18	4	100	82	18
05 JUN 92	Cabrillo Fishing Pier	P	0800 - 1200	28	27	20	7	96	74	26
06 JUN 92	King Harbor Boat Hoist	BL	1000 - 1400	24	14	14	0	58	100	0
07 JUN 92	Cabrillo Boat Ramp	BL	1400 - 1800	16	11	9	2	69	82	18
11 JUN 92	Marina Del Rey Sportfishing Boat	PB	0730 - 1230	24	24	13	11	100	54	46
13 JUN 92	Malibu Sportfishing Boat	PB	1300 - 1700	23	17	10	7	74	59	41
18 JUN 92	Playa Del Rey Beach	B	1100 - 1200	0	0	0	0	0	0	0
18 JUN 92	Ballona Creek Jetty	P	1200 - 1600	8	22	13	9	275	59	41
20 JUN 92	Malibu Pier	P	0800 - 1200	75	39	30	9	52	77	23
21 JUN 92	Redondo/Torrance Beach	B	1100 - 1200	0	0	0	0	0	0	0
21 JUN 92	Redondo Municipal/Monstad Pier	P	1200 - 1600	37	51	28	23	138	55	45
26 JUN 92	King Harbor Boat Hoist	BL	1400 - 1600	7	5	5	0	71	100	0
27 JUN 92	Redondo Sportfishing Barge	PB	0600 - 1200	56	36	26	10	64	72	28
30 JUN 92	Marina Del Rey Boat Ramp	BL	1000 - 1400	4	3	3	0	0	0	0
July 1992										
02 JUL 92	Malibu Sportfishing Boat	PB	0800 - 1230	32	12	9	3	38	75	25
04 JUL 92	Paradise Cove Pier	P	0800 - 1200	0	0	0	0	0	0	0
05 JUL 92	Cabrillo Boat Ramp	BL	1000 - 1400	16	13	11	2	81	85	15
06 JUL 92	Marina Del Rey Boat Ramp	BL	1400 - 1600	20	13	12	1	65	82	8
12 JUL 92	Marina Del Rey Sportfishing Boat	PB	1230 - 1730	61	37	18	19	61	49	51
16 JUL 92	Marina Del Rey Beach	B	1100 - 1200	2	2	1	1	100	50	50
16 JUL 92	Marina Del Rey Jetty	P	1200 - 1600	6	4	3	1	67	75	25
18 JUL 92	King Harbor Boat Hoist	BL	1000 - 1400	14	10	7	3	71	70	30
20 JUL 92	Redondo Sportfishing Boat	PB	1200 - 1730	27	15	9	8	58	60	40
23 JUL 92	Cabrillo Boat Ramp	BL	1400 - 1800	8	5	5	0	63	100	0
25 JUL 92	Cabrillo Fishing Pier	P	1200 - 1600	104	59	39	20	57	66	34
26 JUL 92	Marina Del Rey Sportfishing Boat	PB	0730 - 1200	56	11	10	1	20	91	9
28 JUL 92	King Harbor Breakwater	P	0600 - 1200	1	1	1	0	100	100	0
August 1992										
01 AUG 92	Malibu Sportfishing Boat	PB	1300 - 1700	29	9	9	0	31	100	0
05 AUG 92	L.A. Harbor Sportfishing Boat	PB	0630 - 1200	15	15	9	6	100	60	40
07 AUG 92	Marina Del Rey Boat Ramp	BL	1400 - 1800	11	10	7	3	91	70	30
09 AUG 92	Malibu Pier	P	1200 - 1600	41	28	17	11	68	61	39
11 AUG 92	Cabrillo Boat Ramp	BL	1000 - 1400	5	2	2	0	40	100	0
15 AUG 92	King Harbor Boat Hoist	BL	1000 - 1400	16	11	11	0	69	100	0
17 AUG 92	Hermosa Beach	B	1500 - 1600	0	0	0	0	0	0	0
17 AUG 92	Hermosa Beach Pier	P	1600 - 2000	41	38	17	21	93	45	55
21 AUG 92	Malibu Sportfishing Boat	PB	1300 - 1730	26	10	7	3	38	70	30
22 AUG 92	Marina Del Rey Fishing Dock	P	0800 - 1200	31	27	14	13	87	52	48
23 AUG 92	Cabrillo Boat Ramp	BL	1400 - 1800	14	10	10	0	71	100	0
26 AUG 92	Cabrillo Fishing Pier	P	1200 - 1600	34	35	22	12	103	63	34
30 AUG 92	Marina Del Rey Sportfishing Boat	PB	0600 - 1200	46	24	10	14	52	42	58

B = beach; BL = private boat launch; I = intertidal; P = pier; PB = party boat

* For attempted, this is percent of those censused; for others, it is percent of those attempted.

Appendix 4 (continued)

Date	Site	Mode	Time (Hrs)	Number Censused	Number of Interviews			Percent*		
					Attempted	Successful	Refused	Attempted	Successful	Refused
April 1992										
05 APR 92	Cabrillo Fishing Pier	P	1200 - 1600	68	60	36	24	91	60	40
13 APR 92	Malibu Sportfishing Boat	PB	1200 - 1700	23	13	11	2	57	85	15
18 APR 92	Cabrillo Boat Ramp	BL	1400 - 1600	27	17	14	3	63	82	18
23 APR 92	Paradise Cove Pier	P	0800 - 1200	1	1	1	0	100	100	0
25 APR 92	L.A. Harbor Sportfishing Boat	PB	0600 - 1200	39	31	28	3	79	90	10
28 APR 92	Marina Del Rey Boat Ramp	BL	1000 - 1400	14	10	9	1	71	90	10
May 1992										
06 MAY 92	Redondo Sportfishing Barge	PB	0730 - 1130	27	24	17	7	89	71	28
09 MAY 92	Santa Monica Beach	B	0700 - 0800	0	0	0	0	0	0	0
09 MAY 92	Santa Monica Municipal Pier	P	0800 - 1200	43	53	29	24	123	55	45
16 MAY 92	Marina Del Rey Sportfishing Boat	PB	0730 - 1200	32	29	21	8	91	72	28
19 MAY 92	King Harbor Boat Hoist	BL	1000 - 1400	0	0	0	0	0	0	0
21 MAY 92	Redondo Sportfishing Pier	P	1200 - 1600	24	24	16	8	100	67	33
31 MAY 92	Marina Del Rey Boat Ramp	BL	1400 - 1600	46	37	25	12	80	68	32
June 1992										
02 JUN 92	Redondo Sportfishing Boat	PB	1200 - 1700	22	22	18	4	100	82	18
05 JUN 92	Cabrillo Fishing Pier	P	0800 - 1200	28	27	20	7	98	74	26
06 JUN 92	King Harbor Boat Hoist	BL	1000 - 1400	24	14	14	0	58	100	0
07 JUN 92	Cabrillo Boat Ramp	BL	1400 - 1600	16	11	9	2	69	82	18
11 JUN 92	Marina Del Rey Sportfishing Boat	PB	0730 - 1230	24	24	13	11	100	54	46
13 JUN 92	Malibu Sportfishing Boat	PB	1300 - 1700	23	17	10	7	74	59	41
18 JUN 92	Playa Del Rey Beach	B	1100 - 1200	0	0	0	0	0	0	0
18 JUN 92	Ballona Creek Jetty	P	1200 - 1600	8	22	13	9	275	59	41
20 JUN 92	Malibu Pier	P	0800 - 1200	75	39	30	9	52	77	23
21 JUN 92	Redondo/Torrance Beach	B	1100 - 1200	0	0	0	0	0	0	0
21 JUN 92	Redondo Municipal/Monstad Pier	P	1200 - 1600	37	51	28	23	138	55	45
26 JUN 92	King Harbor Boat Hoist	BL	1400 - 1800	7	5	5	0	71	100	0
27 JUN 92	Redondo Sportfishing Barge	PB	0800 - 1200	58	36	26	10	64	72	28
30 JUN 92	Marina Del Rey Boat Ramp	BL	1000 - 1400	4	3	3	0	0	0	0
July 1992										
02 JUL 92	Malibu Sportfishing Boat	PB	0800 - 1230	32	12	9	3	38	75	25
04 JUL 92	Paradise Cove Pier	P	0800 - 1200	0	0	0	0	0	0	0
05 JUL 92	Cabrillo Boat Ramp	BL	1000 - 1400	16	13	11	2	81	85	15
06 JUL 92	Marina Del Rey Boat Ramp	BL	1400 - 1800	20	13	12	1	65	92	8
12 JUL 92	Marina Del Rey Sportfishing Boat	PB	1230 - 1730	61	37	18	19	61	49	51
16 JUL 92	Marina Del Rey Beach	B	1100 - 1200	2	2	1	1	100	50	50
16 JUL 92	Marina Del Rey Jetty	P	1200 - 1600	8	4	3	1	67	75	25
18 JUL 92	King Harbor Boat Hoist	BL	1000 - 1400	14	10	7	3	71	70	30
20 JUL 92	Redondo Sportfishing Boat	PB	1200 - 1730	27	15	9	8	56	60	40
23 JUL 92	Cabrillo Boat Ramp	BL	1400 - 1800	8	5	5	0	63	100	0
25 JUL 92	Cabrillo Fishing Pier	P	1200 - 1600	104	59	39	20	57	66	34
26 JUL 92	Marina Del Rey Sportfishing Boat	PB	0730 - 1200	58	11	10	1	20	91	9
28 JUL 92	King Harbor Breakwater	P	0800 - 1200	1	1	1	0	100	100	0
August 1992										
01 AUG 92	Malibu Sportfishing Boat	PB	1300 - 1700	29	9	9	0	31	100	0
05 AUG 92	L.A. Harbor Sportfishing Boat	PB	0630 - 1200	15	15	9	6	100	80	40
07 AUG 92	Marina Del Rey Boat Ramp	BL	1400 - 1800	11	10	7	3	91	70	30
09 AUG 92	Malibu Pier	P	1200 - 1600	41	28	17	11	68	61	39
11 AUG 92	Cabrillo Boat Ramp	BL	1000 - 1400	5	2	2	0	40	100	0
15 AUG 92	King Harbor Boat Hoist	BL	1000 - 1400	16	11	11	0	69	100	0
17 AUG 92	Hermosa Beach	B	1500 - 1600	0	0	0	0	0	0	0
17 AUG 92	Hermosa Beach Pier	P	1800 - 2000	41	38	17	21	93	45	55
21 AUG 92	Malibu Sportfishing Boat	PB	1300 - 1730	28	10	7	3	38	70	30
22 AUG 92	Marina Del Rey Fishing Dock	P	0800 - 1200	31	27	14	13	87	52	48
23 AUG 92	Cabrillo Boat Ramp	BL	1400 - 1800	14	10	10	0	71	100	0
26 AUG 92	Cabrillo Fishing Pier	P	1200 - 1600	34	35	22	12	103	63	34
30 AUG 92	Marina Del Rey Sportfishing Boat	PB	0800 - 1200	46	24	10	14	52	42	58

B = beach; BL = private boat launch; I = intertidal; P = pier; PB = party boat

* For attempted, this is percent of those censused; for others, it is percent of those attempted.

APPENDIX 5

**Survey Sampling Success by Site
Santa Monica Bay Seafood Consumption Study, 1991-1992**

**Appendix 5. Sampling success in surveys of recreational anglers by fishing mode,
Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.**

Site	Number				Percent*		
	Censused	Attempted	Successful	Refused	Attempted	Successful	Refused
PARTY BOATS							
Weekday							
Marina Del Rey Sportfishing Boat	39	29	17	12	74	59	41
Redondo Sportfishing Boat	17	16	12	4	94	75	25
Marina Del Rey Sportfishing Boat	13	13	9	4	100	69	31
L.A. Harbor Sportfishing Boat	16	14	14	0	88	100	0
Marina Del Rey Sportfishing Boat	14	13	11	2	93	85	15
Malibu Sportfishing Boat	24	10	6	4	42	60	40
Malibu Sportfishing Boat	9	8	6	2	89	75	25
L.A. Harbor Sportfishing Boat	37	26	22	4	70	85	15
Malibu Sportfishing Boat	23	13	11	2	57	85	15
Redondo Sportfishing Barge	27	24	17	7	89	71	29
Redondo Sportfishing Boat	22	22	18	4	100	82	18
Marina Del Rey Sportfishing Boat	24	24	13	11	100	54	46
Malibu Sportfishing Boat	32	12	9	3	38	75	25
Redondo Sportfishing Boat	27	15	9	6	56	60	40
L.A. Harbor Sportfishing Boat	15	15	9	6	100	60	40
Malibu Sportfishing Boat	26	10	7	3	38	70	30
Weekend							
Malibu Sportfishing Boat	43	16	13	3	37	81	19
Redondo Sportfishing Barge	53	28	28	0	53	100	0
Malibu Sportfishing Boat	39	20	12	8	51	60	40
Redondo Sportfishing Barge	36	32	20	12	89	63	38
L.A. Harbor Sportfishing Boat	13	14	12	2	108	86	14
Redondo Sportfishing Boat	31	27	20	7	87	74	26
Marina Del Rey Sportfishing Boat	22	19	10	9	86	53	47
Redondo Sportfishing Boat	33	16	13	3	48	81	19
L.A. Harbor Sportfishing Boat	39	31	28	3	79	90	10
Marina Del Rey Sportfishing Boat	32	29	21	8	91	72	28
Malibu Sportfishing Boat	23	17	10	7	74	59	41
Redondo Sportfishing Barge	56	36	26	10	64	72	28
Marina Del Rey Sportfishing Boat	61	37	18	19	61	49	51
Marina Del Rey Sportfishing Boat	56	11	10	1	20	91	9
Malibu Sportfishing Boat	29	9	9	0	31	100	0
Marina Del Rey Sportfishing Boat	46	24	10	14	52	42	58
TOTAL	977	630	450	180	64	71	29
PIERS							
Weekday							
Redondo Municipal/Monstad Pier	63	51	35	16	81	69	31
Cabrillo Fishing Pier	52	40	31	9	77	78	23
Cabrillo Fishing Pier	11	26	21	5	236	81	19
Redondo Municipal/Monstad Pier	24	23	11	12	96	48	52
Marina Del Rey Fishing Dock	4	4	4	0	100	100	0
Hermosa Beach Pier	5	8	7	1	160	88	13
Cabrillo Fishing Pier	10	29	18	11	290	62	38
Paradise Cove Pier	1	1	1	0	100	100	0
Paradise Cove Pier	1	1	1	0	100	100	0
Redondo Sportfishing Pier	24	24	15	8	100	67	33
Cabrillo Fishing Pier	28	27	20	7	96	74	26
Ballona Creek Jetty	8	22	13	9	275	59	41
Marina Del Rey Jetty	6	4	3	1	67	75	25
King Harbor Breakwater	1	1	1	0	100	100	0
Hermosa Beach Pier	41	38	17	21	93	45	55
Cabrillo Fishing Pier	34	34	22	12	100	65	35
Weekend							
Paradise Cove Pier	16	15	12	3	94	80	20
Marina Del Rey Fishing Dock	26	29	21	8	112	72	28
Marina Del Rey Jetty	8	6	6	0	75	100	0
Malibu Pier	41	41	31	10	100	76	24
Malibu Pier	11	16	14	2	145	88	13
Cabrillo Fishing Pier	58	14	11	3	24	79	21
King Harbor Breakwater	11	12	9	3	109	75	25
Marina Del Rey Jetty	3	3	1	2	100	33	67
Cabrillo Fishing Pier	66	60	38	24	91	60	40
Santa Monica Municipal Pier	43	53	29	24	123	55	45
Malibu Pier	75	39	30	9	52	77	23
Redondo Municipal/Monstad Pier	37	51	26	23	138	55	45
Paradise Cove Pier	0	0	0	0	0	0	0
Cabrillo Fishing Pier	104	59	39	20	57	66	34
Malibu Pier	41	28	17	11	68	61	39
Marina Del Rey Fishing Dock	31	27	14	13	87	52	48
TOTAL	884	786	519	267	89	66	34

Appendix 5 (continued)

Site	Number			Percent*		
	Censused	Attempted	Successful	Attempted	Successful	Refused
PRIVATE BOATS						
Weekday						
Cabrillo Boat Ramp	2	1	1	0	50	100
Marina Del Rey Boat Ramp	21	16	10	6	76	63
Marina Del Rey Boat Ramp	11	8	8	0	73	100
King Harbor Boat Hoist	2	2	2	0	100	100
Marina Del Rey Boat Ramp	19	7	6	1	37	86
Marina Del Rey Boat Ramp	0	0	0	0	0	0
Cabrillo Boat Ramp	5	3	3	0	60	100
Cabrillo Boat Ramp	2	2	2	0	100	100
Marina Del Rey Boat Ramp	14	10	9	1	71	80
King Harbor Boat Hoist	0	0	0	0	0	0
King Harbor Boat Hoist	7	5	5	0	71	100
Marina Del Rey Boat Ramp	4	3	3	0	75	100
Marina Del Rey Boat Ramp	20	13	12	1	65	92
Cabrillo Boat Ramp	8	5	5	0	63	100
Marina Del Rey Boat Ramp	11	10	7	3	91	70
Cabrillo Boat Ramp	5	2	2	0	40	100
TOTAL	481	304	258	46	63	85
BEACH						
Weekday						
Manhattan Beach	0	0	0	0	0	0
Redondo/Torrance Beach	5	1	1	0	20	100
Venice Beach	4	2	2	0	50	100
Playa Del Rey Beach	0	0	0	0	0	0
Hermosa Beach	3	3	3	0	100	100
Playa Del Rey Beach	0	0	0	0	0	0
Marina Del Rey Beach	2	2	1	1	100	50
Hermosa Beach	0	0	0	0	0	0
TOTAL	22	15	11	4	68	73
INTERTIDAL						
Weekday						
Paradise Cove (Intertidal)	0	0	0	0	0	0
Royal Palms Beach (Intertidal)	10	5	5	0	50	100
Lunada Bay (Intertidal)	0	0	0	0	0	0
Bluff Cove (Intertidal)	2	0	0	0	0	0
TOTAL	12	5	5	0	42	100
GRAND TOTAL	2376	1740	1243	497	73	29

* For attempted, this is percent of those censused; for others, it is percent of those attempted.

APPENDIX 6

**Answers to Questionnaire
Santa Monica Bay Seafood Consumption Study, 1991-1992**

Appendix 6. Summary of answers to questionnaire used in survey of recreational anglers, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

SANTA MONICA BAY SEAFOOD CONSUMPTION SURVEY QUESTIONNAIRE

NOTE FOLLOWING OBSERVATIONS:

5. Fishing Technique:	1991												1992		% Total
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total		

Hook & Line	285	89	122	66	64	78	52	131	167	271	180	217	1722	99
Other	-	1	4	-	-	-	-	1	-	-	2	-	8	0
Unrecorded	4	3	2	-	-	-	-	-	-	-	-	-	10	1

5A. Number of Poles Fished:

One Line	264	79	116	54	61	63	46	106	136	242	173	209	1549	89
Two Lines	17	8	5	2	3	7	2	8	8	24	7	6	97	6
Three Lines	2	1	1	5	-	-	3	2	11	5	-	1	31	2
Four Lines	-	1	-	3	-	-	-	-	6	-	-	-	10	1
Five Lines	-	-	-	-	-	-	-	-	-	-	-	1	1	0
Unrecorded	6	-	-	2	-	8	1	15	6	-	-	1	39	2

6. Observed Sex:

Male	254	90	112	62	60	74	50	125	151	259	169	201	1607	92
Female	29	3	16	4	4	4	2	7	16	12	13	17	127	7
Unrecorded	6	-	-	-	-	-	-	-	-	-	-	-	6	0

7. We are doing a survey for the Santa Monica Bay Restoration Project. We're trying to gather information on how often people fish and what types of fish they catch and what they keep. May we talk to you for a few minutes about your fishing experience?

Total Attempts	289	93	128	66	64	78	52	132	167	271	182	218	1740	
No	48	12	23	6	8	19	6	24	40	62	46	54	348	20
Yes	223	73	91	56	49	52	43	99	108	189	125	135	1243	71
Language Barrier	18	8	14	4	7	7	3	9	19	20	11	29	149	9

Language (Non-English Speaking) of persons not interviewed due to language barriers.

Korean	11	8	7	2	6	5	2	4	5	13	7	10	80	54
Armenian	-	-	-	-	-	-	-	-	8	-	-	-	8	5
Other	-	-	6	1	-	2	-	-	2	3	1	2	17	11
Spanish	2	-	-	-	1	-	1	5	2	1	3	6	21	14
Chinese	5	-	1	1	-	-	-	-	2	-	-	1	10	7
Filipino	-	-	-	-	-	-	-	-	-	3	-	5	8	5
Vietnamese	-	-	-	-	-	-	-	-	-	-	-	5	145	3
Total	18	8	14	4	7	7	3	9	19	20	11	29	149	

Appendix 6 (continued)

8. Have you been interviewed before for this Seafood Consumption study?

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total	% Total
No	201	69	89	53	48	48	42	96	107	183	117	133	1186	95
Yes	9	4	-	1	1	-	1	1	1	4	2	1	25	2
Unrecorded	13	-	2	2	-	4	-	2	-	2	6	1	32	3

We call "Santa Monica Bay" anywhere from Malibu (or Point Dume) to Cabrillo Beach (near Long Beach).
SHOW MAP ON BACK OF PRECEDING PAGE.

11. How many years have you been fishing in Santa Monica Bay?

0 - 5	113	31	43	28	31	19	17	48	55	93	44	54	576	46
6 - 10	28	8	11	5	5	8	6	13	13	36	17	30	180	14
11 - 15	20	5	10	8	4	4	5	7	10	13	19	11	116	9
16 - 20	24	8	8	5	2	5	7	8	8	19	16	20	130	10
21 - 30	18	11	9	8	2	8	2	13	11	14	20	17	133	11
More than 30	16	8	9	2	4	7	6	7	9	11	9	2	90	7
Unrecorded	4	2	1	-	1	1	-	3	2	3	-	1	18	1

12. In what seasons do you fish?

All Seasons	118	39	67	53	40	43	31	56	68	108	81	77	781	62.8
Summer	58	-	-	1	-	-	2	19	10	63	29	48	230	18.5
Spring & Summer	4	1	1	-	-	1	1	11	19	10	1	2	51	4.1
Spring, Summer & Fall	9	6	8	-	-	2	2	3	4	-	6	3	43	3.5
Summer & Fall	5	11	4	-	-	-	-	-	1	1	1	-	23	1.9
Spring	-	3	-	-	-	1	-	2	-	1	-	-	7	0.6
Summer & Winter	-	-	-	-	2	-	-	-	-	2	-	2	6	0.5
Winter	-	-	-	-	2	1	2	-	-	-	-	-	5	0.4
Fall & Winter	-	-	1	-	-	1	1	-	-	-	-	-	3	0.2
Spring & Fall	2	-	-	-	-	-	1	-	-	-	-	-	3	0.2
Fall	1	-	1	-	-	-	-	-	-	-	1	-	3	0.2
Unrecorded	26	13	9	2	5	3	3	8	6	4	6	3	88	7.1

SPECIFY MONTH AND DAY ONE MONTH PRIOR TO SURVEY

13. How many times have you fished in this area in the last four weeks?

None	56	19	34	11	15	15	15	50	38	63	44	45	405	33
One Time	29	5	8	13	9	3	6	9	9	29	9	12	141	11
Two Times	36	11	9	7	7	9	5	13	14	18	22	19	170	14
3-5 Times	56	19	20	14	10	12	7	17	31	44	30	30	290	23
6-10 Times	27	9	10	4	6	12	9	6	9	26	9	20	147	12
11-15 Times	9	5	4	6	-	1	1	3	5	5	3	5	47	4
16-20 Times	6	-	2	1	1	-	-	-	1	-	3	1	15	1
21-25 Times	-	2	-	-	-	-	-	-	-	1	-	1	4	0
26+ Times	3	2	4	-	-	-	-	-	1	3	5	2	20	2
Unrecorded	1	1	-	-	1	-	-	1	-	-	-	-	4	0

Appendix 6 (continued)

15. In the last four weeks, have you eaten fish caught in Santa Monica Bay, fish caught by you, your friends, or relatives, but NOT fish bought at the store?

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total	% Total
None	103	39	67	27	26	28	25	66	78	114	73	89	735	59
1 - 5	88	23	19	26	18	22	15	26	23	57	37	40	394	32
6 - 10	11	2	4	2	4	2	2	5	4	8	7	4	55	4
11 - 15	4	2	1	-	-	-	1	-	1	4	4	2	19	2
16 - 20	2	-	-	1	-	-	-	-	1	-	3	-	7	1
More than 20	-	-	-	-	-	-	-	1	-	1	1	-	3	0
Unrecorded	15	7	-	-	1	-	-	1	1	5	-	-	30	2

16. Have you caught any fish today?

Yes	138	42	48	28	28	21	27	71	68	109	92	83	755	61
No	79	24	43	27	17	25	13	20	39	77	31	52	447	36
Unrecorded	6	7	-	1	4	6	3	8	1	3	2	-	41	3

17. May we examine your catch?

No	43	21	21	6	7	5	9	27	29	43	27	34	272	36
Yes	95	20	27	22	21	16	17	44	39	65	65	49	480	64
Unrecorded	-	1	-	-	-	-	1	-	-	1	-	-	3	0

20. Are you aware of any health warnings about eating fish from Santa Monica Bay?

No	63	16	17	11	17	9	7	29	17	40	25	34	285	23
Yes	157	56	73	45	30	43	36	67	90	147	99	99	942	76
Unrecorded	3	1	1	-	2	-	-	3	1	2	1	2	16	1

Appendix 6 (continued)

21. Where did you hear or read about the health warnings?

- 1 Signs Posted (total 314 "yes")
- 2 T.V. (total 499 "yes")
- 3 Newspaper/Magazine Article (total 462 "yes")
- 4 Other Fishermen/Friends (total 220 "yes")
- 5 Other (total 77 "yes")
- 6 Radio (Specified by Respondent) (total 16 "yes")

Combination													% Total	
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total	Total
2	22	8	6	5	7	7	6	14	17	29	22	27	170	18.0
3	21	11	12	7	3	5	4	13	9	13	16	16	130	13.8
2,3	15	14	14	8	5	9	4	12	9	18	11	11	130	13.8
1	20	3	4	3	1	3	3	5	17	15	10	9	93	9.9
4	10	4	3	5	5	5	3	2	9	15	8	6	75	8.0
1,2,3,4	11	3	10	5	4	2	4	4	3	7	8	3	64	6.8
1,2,3	7	2	4	6	1	1	1	4	3	7	5	3	44	4.7
1,2	10	1	7	-	-	2	3	1	4	8	2	3	41	4.4
5	7	1	1	2	2	1	1	2	4	7	3	7	38	4.0
1,3	7	3	2	-	1	1	-	2	3	3	6	3	31	3.3
1,4	5	1	-	-	-	-	3	-	3	5	1	2	20	2.1
3,4	4	-	1	2	-	3	-	-	1	2	3	2	18	1.9
2,3,4	2	2	4	-	1	-	1	2	2	-	1	1	16	1.7
2,4	3	1	1	-	-	2	-	-	1	3	1	2	14	1.5
1,5	5	-	-	-	-	-	-	-	1	1	1	-	8	0.8
2,3,5	2	-	-	1	-	-	-	2	-	2	-	-	7	0.7
3,5	1	-	-	1	-	2	-	-	-	2	-	-	6	0.6
2,5	2	-	-	-	-	-	-	-	1	2	-	-	5	0.5
4,5	1	1	-	-	-	-	1	1	-	-	-	-	4	0.4
6	-	-	-	-	-	-	1	-	1	1	-	1	4	0.4
1,3,4	-	-	-	-	-	-	-	1	-	1	-	2	4	0.4
2,3,6	-	1	2	-	-	-	-	-	-	-	-	-	3	0.3
1,3,5	2	-	-	-	-	-	-	1	-	-	-	-	3	0.3
1,2,3,4,5	-	-	1	-	-	-	-	-	-	1	-	-	2	0.2
3,6	-	-	-	-	-	-	1	-	-	1	-	-	2	0.2
1,6	-	-	1	-	-	-	-	-	-	1	-	-	2	0.2
1,2,5	-	-	-	-	-	-	-	1	-	-	-	-	1	0.1
3,4,6	-	-	-	-	-	-	-	-	-	1	-	-	1	0.1
1,2,5,6	-	-	-	-	-	-	-	-	-	-	1	-	1	0.1
2,6	-	-	-	-	-	-	-	-	-	-	-	1	1	0.1
2,3,4,5	-	-	-	-	-	-	-	-	1	-	-	-	1	0.1
4,6	-	-	-	-	-	-	-	-	-	1	-	-	1	0.1
5,6	-	-	-	-	-	-	-	-	-	1	-	-	1	0.1
Unrecorded	-	-	-	-	-	-	-	-	1	-	-	-	1	0.1
Total	157	56	73	45	30	43	36	67	90	147	99	99	942	
% Total	17	6	8	5	3	5	4	7	10	16	11	11	100	

Appendix 6 (continued)

21. Where did you hear or read about the health warnings?

- 1 Signs Posted
- 2 T.V.
- 3 Newpaper/Magazine Article
- 4 Other Fishermen/Friends
- 5 Other
- 6 Radio (Specified by Respondent)

Percent

Combination	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
2	2.3	0.8	0.6	0.5	0.7	0.7	0.6	1.5	1.8	3.1	2.3	2.9	18.0
3	2.2	1.2	1.3	0.7	0.3	0.5	0.4	1.4	1.0	1.4	1.7	1.7	13.8
2,3	1.6	1.5	1.5	0.8	0.5	1.0	0.4	1.3	1.0	1.9	1.2	1.2	13.8
1	2.1	0.3	0.4	0.3	0.1	0.3	0.3	0.5	1.8	1.6	1.1	1.0	9.9
4	1.1	0.4	0.3	0.5	0.5	0.5	0.3	0.2	1.0	1.6	0.8	0.6	8.0
1,2,3,4	1.2	0.3	1.1	0.5	0.4	0.2	0.4	0.4	0.3	0.7	0.8	0.3	6.8
1,2,3	0.7	0.2	0.4	0.6	0.1	0.1	0.1	0.4	0.3	0.7	0.5	0.3	4.7
1,2	1.1	0.1	0.7	-	-	0.2	0.3	0.1	0.4	0.8	0.2	0.3	4.4
5	0.7	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.4	0.7	0.3	0.7	4.0
1,3	0.7	0.3	0.2	-	0.1	0.1	-	0.2	0.3	0.3	0.6	0.3	3.3
1,4	0.5	0.1	-	-	-	-	0.3	-	0.3	0.5	0.1	0.2	2.1
3,4	0.4	-	0.1	0.2	-	0.3	-	-	0.1	0.2	0.3	0.2	1.9
2,3,4	0.2	0.2	0.4	-	0.1	-	0.1	0.2	0.2	-	0.1	0.1	1.7
2,4	0.3	0.1	0.1	-	-	0.2	-	-	0.1	0.3	0.1	0.2	1.5
1,5	0.5	-	-	-	-	-	-	-	0.1	0.1	0.1	-	0.8
2,3,5	0.2	-	-	0.1	-	-	-	0.2	-	0.2	-	-	0.7
3,5	0.1	-	-	0.1	-	0.2	-	-	-	0.2	-	-	0.6
2,5	0.2	-	-	-	-	-	-	-	0.1	0.2	-	-	0.5
4,5	0.1	0.1	-	-	-	-	0.1	0.1	-	-	-	-	0.4
6	-	-	-	-	-	-	0.1	-	0.1	0.1	-	0.1	0.4
1,3,4	-	-	-	-	-	-	-	0.1	-	0.1	-	0.2	0.4
2,3,6	-	0.1	0.2	-	-	-	-	-	-	-	-	-	0.3
1,3,5	0.2	-	-	-	-	-	-	0.1	-	-	-	-	0.3
1,2,3,4,5	-	-	0.1	-	-	-	-	-	-	0.1	-	-	0.2
3,6	-	-	-	-	-	-	0.1	-	-	0.1	-	-	0.2
1,6	-	-	0.1	-	-	-	-	-	-	0.1	-	-	0.2
1,2,5	-	-	-	-	-	-	-	0.1	-	-	-	-	0.1
3,4,6	-	-	-	-	-	-	-	-	-	0.1	-	-	0.1
1,2,5,6	-	-	-	-	-	-	-	-	-	-	0.1	-	0.1
2,6	-	-	-	-	-	-	-	-	-	-	-	0.1	0.1
2,3,4,5	-	-	-	-	-	-	-	-	0.1	-	-	-	0.1
4,6	-	-	-	-	-	-	-	-	-	0.1	-	-	0.1
5,6	-	-	-	-	-	-	-	-	-	0.1	-	-	0.1
Unrecorded	-	-	-	-	-	-	-	-	0.1	-	-	-	0.1
Total	16.7	5.9	7.7	4.8	3.2	4.6	3.8	7.1	9.6	15.6	10.5	10.5	100.0

Appendix 6 (continued)

22. Did the warnings affect the amount or type of fish that you eat?

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total	% Total
No	80	28	39	26	10	18	22	35	46	71	43	45	463	49
Yes	75	27	34	18	19	25	14	31	44	76	56	53	472	50
a: Eat Less Fish:														
2 All Species	18	7	11	7	3	3	6	11	8	20	16	7	117	12
3 Certain Species	15	3	1	1	3	1	1	-	7	13	1	4	50	5
b: Stopped Eating Fish:														
4 All Species	15	7	6	5	3	3	1	5	9	12	10	12	88	9
5 Certain Species	27	10	16	5	10	18	6	15	20	31	29	30	217	23
Unrecorded	2	1	-	1	1	-	-	1	-	-	-	1	7	1

23. How important do you think these warnings are?

Not Important	7	6	3	5	1	5	1	4	5	8	8	4	57	6
Somewhat Important	23	7	12	9	7	15	8	9	20	28	18	24	180	19
Very Important	124	43	58	30	22	22	27	53	64	110	72	70	695	74
Unrecorded	3	-	-	1	-	1	-	1	1	1	1	1	10	1

26. How old are you?

1-10	-	-	-	-	-	1	1	-	-	-	2	-	4	0
1-20	20	2	5	5	3	5	3	10	9	14	6	10	92	7
21-30	49	20	22	16	15	10	10	20	27	64	31	37	321	26
31-40	60	23	19	15	16	10	11	37	30	52	35	42	350	28
41-50	41	8	19	8	7	13	6	11	23	19	21	22	198	16
51-60	23	6	8	7	1	3	3	9	9	14	18	6	107	9
61-70	21	7	5	3	2	7	4	5	5	11	8	9	87	7
71-80	4	4	1	2	1	3	4	1	3	6	3	1	33	3
81-90	-	-	-	-	-	-	-	-	-	2	1	-	3	0
Unrecorded	5	3	12	-	4	-	1	6	2	7	-	8	48	4

27. Which group best describes your racial/ethnic background?

White, non-Hispanic	76	40	49	29	20	22	26	44	49	75	54	56	540	43
Latino/Hispanic	47	21	18	9	12	13	9	33	26	48	39	31	306	25
African American/Black	31	4	8	5	3	6	2	6	10	22	12	15	124	10
Filipino	23	-	3	1	4	2	-	3	8	17	6	7	74	6
Japanese	17	4	4	3	1	6	3	2	2	9	1	13	65	5
Korean	12	2	2	6	2	1	-	-	3	8	7	3	46	4
Other	7	-	5	-	-	1	1	3	4	1	3	3	28	2
Chinese	7	-	-	2	3	1	1	5	2	3	1	3	28	2
Vietnamese	2	1	-	-	1	-	1	1	2	3	1	1	13	1
Unrecorded	1	1	2	1	3	-	-	2	2	3	1	3	19	2

Appendix 6 (continued)

28. Are other family members from your household fishing here today?

		Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total	%	Total
No		131	56	60	44	38	35	33	60	74	121	77	84	813	65	
Yes	1 Member	62	16	23	10	5	13	5	19	25	46	31	29	284	23	
	2 Members	17	-	5	1	4	4	3	14	3	17	12	11	91	7	
	3 Members	11	-	2	1	2	-	1	3	1	1	3	3	28	2	
	4 Members	-	-	-	-	-	-	-	1	-	1	1	1	3	0	
	5 Members	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	More than 5	-	-	-	-	-	-	-	-	-	1	-	-	1	0	
	Unrecorded	2	1	1	-	-	-	1	3	4	3	1	7	23	2	

30. Would you mind pointing to the category that describes your annual family income?

Refused to Answer	8	4	4	-	4	1	3	9	5	15	8	16	77	6	
Less than 5,000	8	3	3	2	4	2	-	2	3	6	9	-	42	3	
5,000-10,000	13	3	6	3	2	3	2	2	5	8	3	4	54	4	
10,000-25,000	27	12	6	9	7	4	8	13	21	34	17	15	173	14	
25,000-50,000	52	23	32	13	14	11	8	31	31	64	38	35	352	28	
+50,000	50	13	17	16	8	15	14	20	23	36	36	38	286	23	
Unrecorded	65	15	23	13	10	16	8	22	20	26	14	27	259	21	

31. We may be conducting an additional survey. May we call you for more information?

No	54	20	23	15	19	16	12	25	31	64	46	42	367	30	
Yes	135	38	60	39	23	36	28	56	61	112	73	85	746	60	
Unrecorded	34	15	8	2	7	-	3	18	16	13	6	8	130	10	

34. Would you mind providing your name?

Name Given	198	66	81	54	40	48	40	90	96	166	113	115	1107	89	
Refused or Unrecorded	25	7	10	2	9	4	3	9	12	23	12	20	136	11	

Appendix 6 (continued)

INTERVIEWER OBSERVATIONS

Interviewer impression of quality of interview:

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total	% Total
Very Reliable	142	57	80	53	41	46	33	82	92	140	111	127	1004	81
Fairly Reliable	47	15	9	1	4	5	9	15	9	37	12	7	170	14
Not Very Reliable	11	1	-	1	2	-	-	-	1	4	1	-	21	2
Mostly Unreliable	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unrecorded	23	-	2	1	2	1	1	2	6	8	1	1	48	4

Survey Type:

Roving	178	55	79	39	47	44	36	76	81	163	85	106	989	80
Exit	45	18	11	16	2	8	7	23	27	25	40	29	251	20
Unrecorded	-	-	1	1	-	-	-	-	-	1	-	-	3	0

Language in which survey was conducted:

English	207	63	66	55	46	45	41	89	97	174	119	122	1144	92.0
Spanish	15	9	4	1	3	7	2	10	10	15	6	13	95	7.6
Vietnamese	1	1	1	-	-	-	-	-	1	-	-	-	4	0.3

APPENDIX 7

**Demographic Grouping by Fishing Location
Santa Monica Bay Seafood Consumption Study, 1991-1992**

Appendix 7. Demographic classification of recreational anglers by fishing location, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

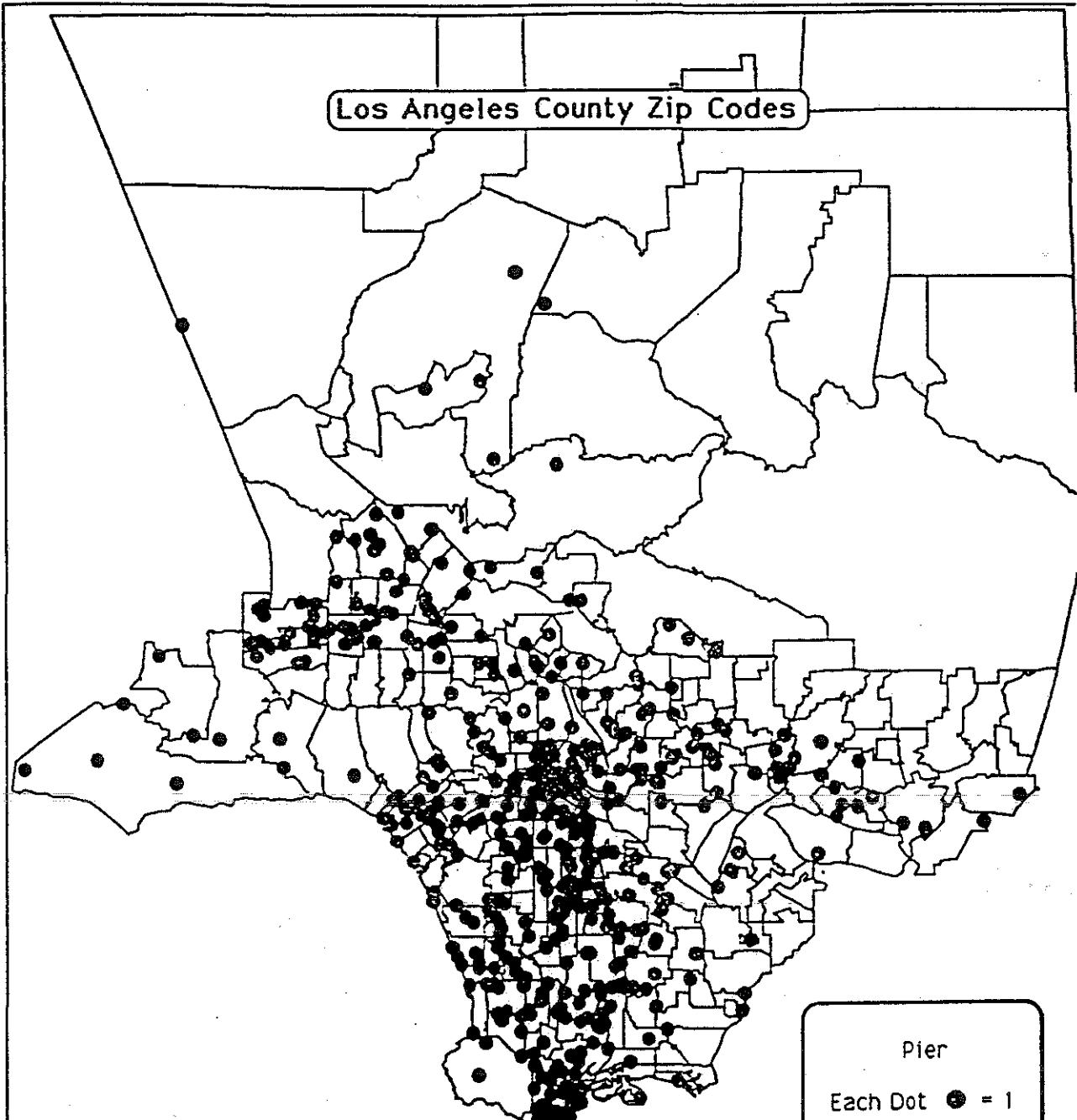
Location	Black (n=124)	Korean (n=46)	Filipino (n=74)	Vietnamese (n=13)	Chinese (n=28)	Hispanic (n=306)	Japanese (n=65)	White (n=539)	Total (n=1185)
North Bay									
Paradise Cove Pier	0.8	2.2	-	-	-	1.0	-	1.7	1.2
Malibu Pier	2.4	19.6	4.1	15.4	3.6	7.2	7.7	8.5	7.6
Malibu Sportfishing Boat	4.8	8.7	1.4	7.7	7.1	2.0	6.2	10.4	6.7
Central Bay									
Santa Monica Pier	4.8	-	5.4	-	-	4.2	-	1.1	2.4
Venice Beach	-	-	-	-	3.6	-	1.5	-	0.2
Marina Del Rey Beach	-	-	-	-	3.6	-	-	-	0.1
Marina Del Rey Boat Ramp	3.2	2.2	1.4	15.4	3.6	1.3	1.5	11.7	6.4
Marina Del Rey Fishing Dock	4.8	2.2	5.4	-	7.1	1.6	-	1.3	2.1
Marina Del Rey Jetty	0.8	2.2	-	-	-	1.6	-	0.7	0.9
Marina Del Rey Sportfishing	9.7	32.6	4.1	-	14.3	3.6	18.5	13.5	10.9
Ballona Creek Jetty	5.6	2.2	1.4	-	-	1.3	-	-	1.1
Playa Del Rey Beach	-	-	-	-	-	0.3	-	0.4	0.3
South Bay									
Hermosa Beach	-	-	-	-	-	-	1.5	0.4	0.3
Hermosa Pier	1.6	-	4.1	-	-	3.6	-	1.3	1.9
King Harbor Boat Hoist	3.2	2.2	4.1	7.7	7.1	4.2	10.8	9.1	6.7
King Harbor Breakwater	0.8	-	-	-	-	0.3	3.1	1.1	0.8
Redondo Beach	-	-	-	-	-	0.3	-	-	0.1
Redondo Mun./Monstad Pier	4.8	-	29.7	15.4	7.1	6.9	-	2.8	5.7
Redondo Sportfishing Barge	8.1	10.9	13.5	7.7	14.3	7.5	6.2	6.1	7.5
Redondo Sportfishing Boat	2.4	10.9	5.4	7.7	14.3	3.3	12.3	6.7	5.9
Redondo Sportfishing Pier	0.8	-	1.4	7.7	-	1.6	-	1.3	1.3
L.A. Harbor									
Cabrillo Boat Ramp	9.7	-	4.1	7.7	3.6	4.6	4.6	9.1	6.9
Cabrillo Fishing Pier	25.8	4.3	10.8	7.7	3.6	36.6	18.5	4.5	16.1
L.A. Harbor Sportfishing	5.6	-	4.1	-	7.1	6.5	7.7	8.3	6.9
Palos Verdes									
Royal Palms Beach	-	-	-	-	-	0.3	-	-	0.1



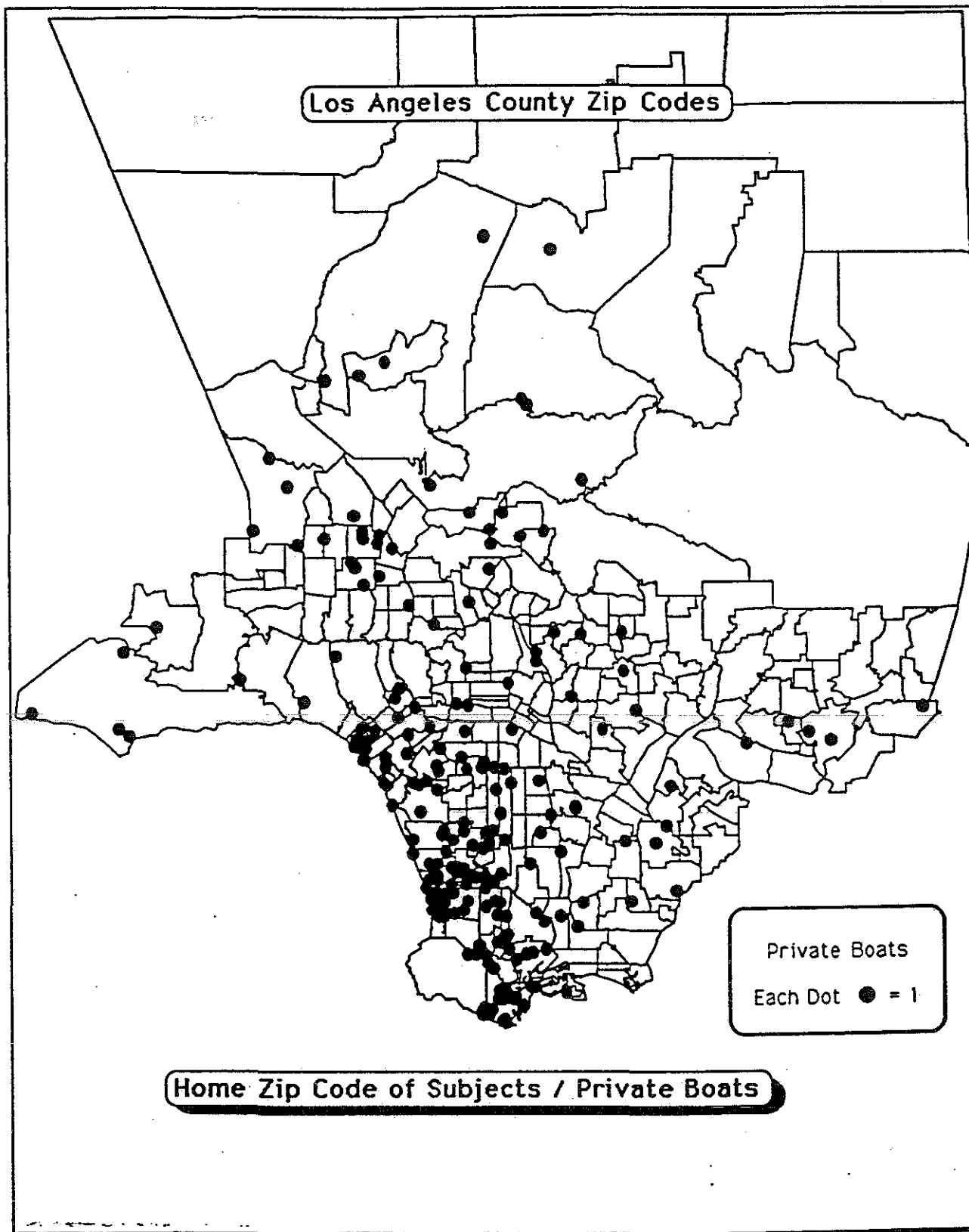
APPENDIX 8

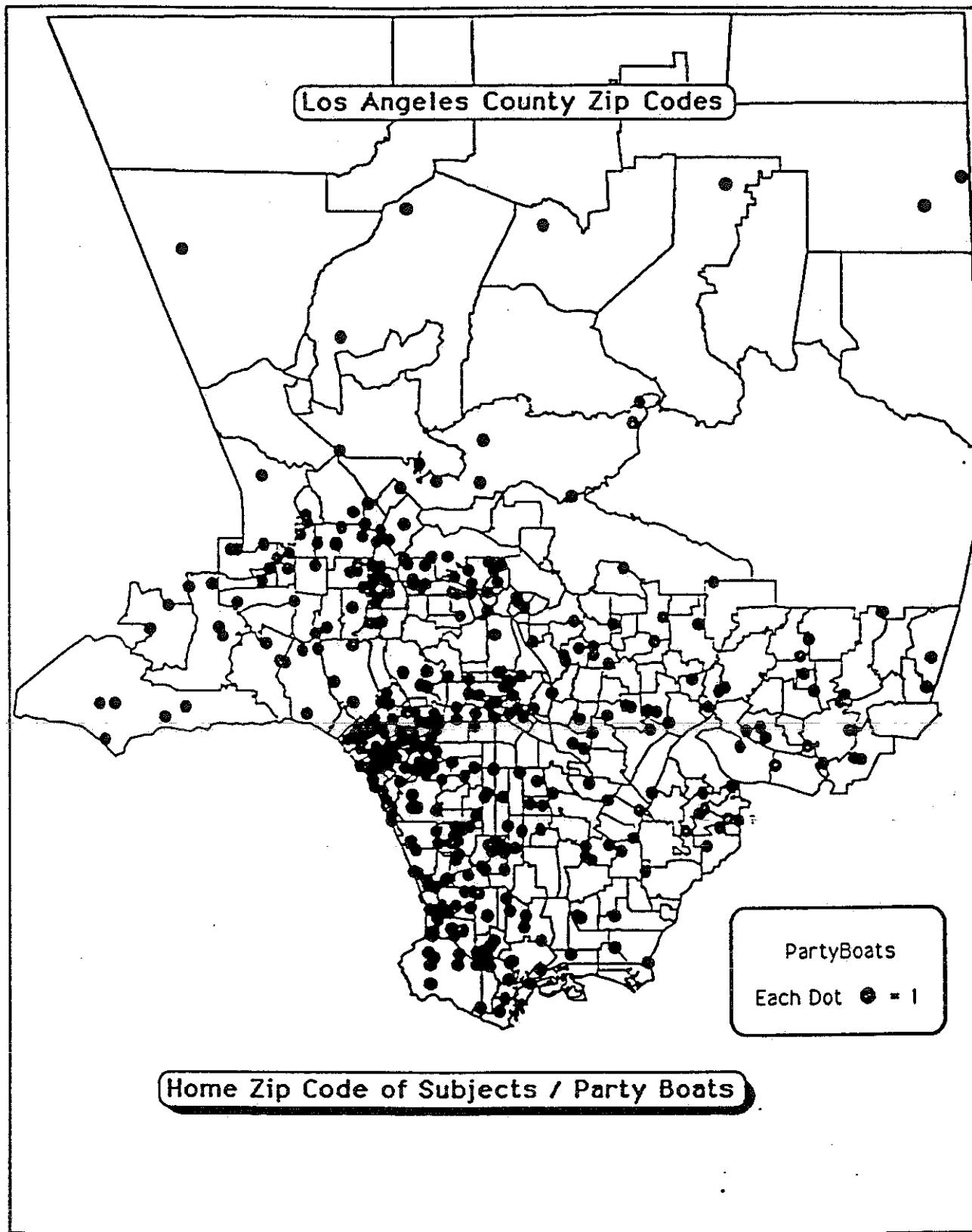
**Maps of Respondents' Home Zip Codes by Fishing Mode
Santa Monica Bay Seafood Consumption Study, 1991-1992**

Los Angeles County Zip Codes



Home Zip Code of Subjects / Pier Anglers





APPENDIX 9

Fish and Invertebrate Species List Santa Monica Bay Seafood Consumption Study, 1991-1992

Appendix 9. Taxonomic classification, and common and scientific names of species mentioned in seafood consumption surveys of recreational anglers, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

SPECIES	COMMON NAME	SPECIES	COMMON NAME
MOLLUSCA		Actinopterygii (cont.)	
Bivalvia		Atherinidae	
Mytilidae		<i>Atherinopsis californiensis</i>	jacksmelt
<i>Mytilus</i> sp.	sea mussel, unid.	Scorpaenidae	
Cephalopoda		<i>Scorpaena guttata</i>	California scorpionfish
Octopodidae		<i>Sebastes</i> sp.	rockfish, unid.
<i>Octopus</i> sp.	octopus, unid.	<i>Sebastes auriculatus</i>	brown rockfish
CRUSTACEA		<i>Sebastes camatus</i>	gopher rockfish
Malacostraca		<i>Sebastes caurinus</i>	copper rockfish
Panuliridae		<i>Sebastes chlorostictus</i>	greenspotted rockfish
<i>Panulirus interruptus</i>	California spiny lobster	<i>Sebastes constellatus</i>	starry rockfish
Cancridae		<i>Sebastes elongatus</i>	greenstriped rockfish
<i>Cancer</i> sp.	rock crab, unid.	<i>Sebastes goodei</i>	chilipepper
ECHINODERMATA		<i>Sebastes hopkinsi</i>	squarespot rockfish
Echinoidea		<i>Sebastes miniatus</i>	vermillion rockfish
Strongylocentrotidae		<i>Sebastes mystinus</i>	blue rockfish
<i>Strongylocentrotus purpuratus</i>	Pacific purple urchin	<i>Sebastes paucispinis</i>	bocaccio
CHORDATA		<i>Sebastes rastrelliger</i>	grass rockfish
Chondrichthyes		<i>Sebastes rubrivinctus</i>	flag rockfish
Chondrichthyes sp.	shark, unid.	<i>Sebastes serranoides</i>	olive rockfish
Rajiformes sp.	ray, unid.	<i>Sebastes serviceps</i>	treefish
Myliobatoidei sp.	stingray, unid.	Hexagrammidae	
Heterodontidae		<i>Ophiodon elongatus</i>	lingcod
<i>Heterodontus francisci</i>	horn shark	Cottidae	
Triakidae		<i>Scorpaenichthys marmoratus</i>	cabezon
<i>Mustelus californicus</i>	California smoothhound	Serranidae	
<i>Mustelus henlei</i>	brown smoothhound	<i>Paralabrax clathratus</i>	kelp bass
<i>Triakis semifasciata</i>	leopard shark	<i>Paralabrax maculatofasciatus</i>	spotted sand bass
Carcharhinidae		<i>Paralabrax nebulifer</i>	barred sand bass
<i>Prionace glauca</i>	blue shark	Malacanthidae	
Rhinobatidae		<i>Caulolatilus princeps</i>	ocean whitefish
<i>Rhinobatos productus</i>	shovelnose guitarfish	Carangidae	
Myliobatidae		<i>Seriola lalandi</i>	yellowtail
<i>Myliobatis californica</i>	bat ray	Haemulidae	
Actinopterygii		<i>Anisotremus davidsonii</i>	sargo
Actinopterygii sp.	ray-finned fish, unid.	<i>Xenistius californiensis</i>	salema
Pleuronectiformes sp.	flatfish, unid.	Sciaenidae	
Clupeidae		<i>Atractoscion nobilis</i>	white seabass
<i>Sardinops sagax</i>	Pacific sardine	<i>Genyonemus lineatus</i>	white croaker
Synodontidae		<i>Menticirrhus undulatus</i>	Califomia corbina
<i>Synodus lucioceps</i>	California lizardfish	<i>Seriphus politus</i>	queenfish
		<i>Umbrina roncador</i>	yellowfin croaker

Appendix 9 (continued)

SPECIES	COMMON NAME	SPECIES	COMMON NAME
CHORDATA (cont.)		Actinopterygii (cont.)	
Actinopterygii (cont.)		Labridae	
Kyphosidae		<i>Halichoeres</i>	
<i>Girella nigricans</i>	opaleye	<i>semicinctus</i>	rock wrasse
<i>Medialuna californiensis</i>	halfmoon	<i>Semicossyphus</i>	
Embiotocidae		<i>pulcher</i>	California sheephead
<i>Embiotocidae</i> sp.	surfperch, unid.	Sphyraenidae	
<i>Amphistichus argenteus</i>	barred surfperch	<i>Sphyraena argentea</i>	Pacific barracuda
<i>Cymatogaster aggregata</i>	shiner perch	Scombridae	
<i>Embiotoca jacksoni</i>	black perch	<i>Sarda chiliensis</i>	Pacific bonito
<i>Hyperprosopon argenteum</i>	walleye surfperch	<i>Scomber japonicus</i>	chub mackerel
<i>Hypsurus caryi</i>	rainbow seaperch	Paralichthyidae	
<i>Phanerodon furcatus</i>	white seaperch	<i>Citharichthys</i> sp.	sanddab, unid.
<i>Rhacochilus vacca</i>	pile perch	<i>Paralichthys californicus</i>	California halibut
Pomacentridae		Balistidae	
<i>Chromis punctipinnis</i>	blacksmith	<i>Balistidae</i> sp.	triggerfish, unid.

sp. = species; unid. = unidentified

Classification of fishes from Nelson (1994); scientific and common names of fishes from Robins et al. (1991).

APPENDIX 10

**Abundance of Species Caught by Recreational Anglers
Santa Monica Bay Seafood Consumption Study, 1991-1992**

Appendix 10. Seafood species caught by recreational anglers by fishing mode, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

Common Name	Scientific Name	Total Number	Percent			
			Total (n=3553)	Pier (n=917)	Party Boat (n=1527)	Private Boat (n=896)
chub mackerel	<i>Scomber japonicus</i>	1047	29.47	51.9	23.3	24.0
barred sand bass	<i>Paralabrax nebulosus</i>	388	10.92	0.1	20.2	8.8
kelp bass	<i>Paralabrax clathratus</i>	328	9.23	0.1	16.4	8.5
white croaker	<i>Genyonemus lineatus</i>	319	8.98	16.2	0.2	16.6
Pacific barracuda	<i>Sphyraena argentea</i>	258	7.26	0.4	13.2	5.9
Pacific bonito	<i>Sarda chilensis</i>	250	7.04	2.7	8.1	11.3
sea mussel, unid.	<i>Mytilus sp.</i>	100	2.81	—	—	46.9
Pacific purple urchin	<i>Strongylocentrotus purpuratus</i>	90	2.53	—	—	42.3
jacksmelt	<i>Atherinopsis californiensis</i>	73	2.05	7.0	0.1	0.9
California scorpionfish	<i>Scorpaena guttata</i>	65	1.83	0.3	2.2	3.1
bocaccio	<i>Sebastodes paucispinis</i>	62	1.75	—	3.0	1.8
California halibut	<i>Paralichthys californicus</i>	62	1.75	1.3	1.5	3.0
halfmoon	<i>Medialuna californiensis</i>	56	1.58	—	2.1	2.7
opaleye	<i>Girellula nigricans</i>	52	1.46	3.4	—	1.3
rockfish, unid.	<i>Sebastodes</i> , unid.	36	1.01	—	2.2	0.3
squarespot rockfish	<i>Sebastodes hopkinsi</i>	29	0.82	—	1.9	—
surfperch, unid.	<i>Embiotocidae</i> , unid.	27	0.76	2.0	—	1.0
black perch	<i>Embletopterus jacksoni</i>	26	0.73	0.5	—	2.3
starry rockfish	<i>Sebastodes constellatus</i>	24	0.68	—	1.2	0.7
yellowfin croaker	<i>Umbrina roncador</i>	20	0.56	1.7	—	0.1
California sheephead	<i>Semicossyphus pulcher</i>	16	0.45	0.1	0.3	1.1
salmon	<i>Xenistius californiensis</i>	14	0.39	1.5	—	—
queenfish	<i>Seriola politus</i>	12	0.34	1.3	—	—
cabezon	<i>Scorpaenichthys marmoratus</i>	11	0.31	—	0.2	0.9
shiner perch	<i>Cymatogaster aggregata</i>	10	0.28	0.8	—	0.1
sanddab, unid.	<i>Citharichthys</i> sp.	9	0.25	—	0.3	0.4
pile perch	<i>Rhacochilus vacca</i>	9	0.25	1.0	—	—
ocean whitefish	<i>Caulolatilus princeps</i>	9	0.25	—	0.2	0.7
rainbow seaperch	<i>Hypsurus caryi</i>	8	0.23	0.9	—	—
sargo	<i>Anisotremus davidsonii</i>	7	0.20	0.4	—	0.3
California spiny lobster	<i>Panulirus interruptus</i>	7	0.20	—	—	0.8
chilipepper	<i>Sebastodes poederi</i>	7	0.20	—	0.5	—
flag rockfish	<i>Sebastodes rubrinctus</i>	7	0.20	—	0.4	0.1
walleye seaperch	<i>Hyperprosopon argenteum</i>	7	0.20	0.4	—	0.3
California lizardfish	<i>Synodus lucioceps</i>	7	0.20	0.7	—	0.1
barred surfperch	<i>Amphistichus argenteus</i>	6	0.17	0.4	—	0.9
greenstriped rockfish	<i>Sebastodes elongatus</i>	5	0.14	—	0.3	—
senorita	<i>Oxyjulis californica</i>	5	0.14	—	—	2.3
grass rockfish	<i>Sebastodes rastrelliger</i>	5	0.14	0.4	0.1	—
copper rockfish	<i>Sebastodes caurinus</i>	4	0.11	—	0.3	—
jack mackerel	<i>Trachurus symmetricus</i>	4	0.11	0.2	—	0.2
blue rockfish	<i>Sebastodes mystinus</i>	4	0.11	—	0.2	0.1
shark, unid.	<i>Chondrichthyes</i> , unid.	4	0.11	0.2	0.1	0.1
vermillion rockfish	<i>Sebastodes miniatus</i>	4	0.11	—	0.3	—
triggerfish, unid.	<i>Balistidae</i> , unid.	3	0.08	—	0.2	—
Pacific sardine	<i>Sardinops sagax</i>	3	0.08	0.3	—	—
gopher rockfish	<i>Sebastodes camalus</i>	3	0.08	—	0.2	—
white seabass	<i>Atractoscion nobilis</i>	3	0.08	—	0.1	0.2
greenspotted rockfish	<i>Sebastodes chlorostictus</i>	3	0.08	—	0.2	—
ray-finned fish, unid.	<i>Actinopterygii</i> , unid.	3	0.08	—	0.2	—
brown smoothhound	<i>Mustelus henlei</i>	3	0.08	0.1	0.1	0.1
octopus, unid.	<i>Octopus</i> sp.	3	0.08	0.2	—	0.1
leopard shark	<i>Triakis semifasciata</i>	3	0.08	0.3	—	—
rock crab	<i>Cancer</i> sp.	2	0.06	0.2	—	—
stingray, unid.	<i>Myliobatoidei</i> , unid.	2	0.06	—	—	0.2
bat ray	<i>Myliobatis californica</i>	2	0.06	0.2	—	—
blacksmith	<i>Chromis punctipinnis</i>	2	0.06	—	0.1	—
treefish	<i>Sebastodes semiceps</i>	2	0.06	—	0.1	—
olive rockfish	<i>Sebastodes serranus</i>	2	0.06	—	0.1	—
ray, unid.	<i>Rajiformes</i> , unid.	2	0.06	0.2	—	—
rock wrasse	<i>Halichoeres semicinctus</i>	2	0.06	—	0.1	—
California corbina	<i>Menticirrhus undulatus</i>	2	0.06	—	—	0.9
flatfish, unidentified	<i>Pleuronectidae</i> , unid.	5	0.14	—	—	0.6
yellowtail	<i>Seriola lalandi</i>	2	0.06	—	—	0.2
shovelnose guitarfish	<i>Rhinobatos productus</i>	1	0.03	—	—	0.1
lingcod	<i>Ophiodon elongatus</i>	1	0.03	—	—	0.1
white seaperch	<i>Phanerodon furcatus</i>	1	0.03	0.1	—	—
horn shark	<i>Heterodontus francisci</i>	1	0.03	—	—	0.1
blue shark	<i>Prionace glauca</i>	1	0.03	—	—	0.1
gray smoothhound	<i>Mustelus californicus</i>	1	0.03	—	—	0.1
brown rockfish	<i>Sebastodes auriculatus</i>	1	0.03	—	—	0.1
spotted sand bass	<i>Paralabrax maculatus</i>	1	0.03	0.1	—	—

Total

3553

100

100

100

100

100



APPENDIX 11

**Seafood Consumption Rates Based on Fillet Model Estimates
Santa Monica Bay Seafood Consumption Study, 1991-1992**

**Appendix 11. Estimated seafood consumption rates based on fillet model estimates for anglers with
and without fish in hand at the time of the interview. Santa Monica Bay Seafood Consumption
Study, September 1991 to August 1992.**

Census	Survey	Date	Location	Mode	Ethnic	Species	Consumption Frequency (Times/mo)	Meal Size (gm)	Species Consumption Rate (kg)	Total Consumption (kg/Ind/mo)
1009	1241	03-Sep-91	RMMMP	PJ	Hisp.	Chub Mackerel	1	150	0.15	0.15
1009	1248	03-Sep-91	RMMMP	PJ	Fili.	Chub Mackerel	2	800	0.20	1.20
1009	1249	03-Sep-91	RMMMP	PJ	Hisp.	Chub Mackerel	2	225	0.45	0.45
1009	1250	03-Sep-91	RMMMP	PJ	Fili.	Chub Mackerel	4	150	0.60	0.60
1009	1253	03-Sep-91	RMMMP	PJ	Viet.	Chub Mackerel	1	450	0.45	0.45
1009	1255	03-Sep-91	RMMMP	PJ	Fili.	Chub Mackerel	5	75	0.38	
1009	1255	03-Sep-91	RMMMP	PJ	Fili.	Pacific Bonito	3	75	0.23	0.60
1009	1258	03-Sep-91	RMMMP	PJ	Fili.	Chub Mackerel	5	75	0.38	
1009	1258	03-Sep-91	RMMMP	PJ	Fili.	Pacific Bonito	3	75	0.23	0.60
1009	1259	03-Sep-91	RMMMP	PJ	Other	Chub Mackerel	8	300	2.70	
1009	1261	03-Sep-91	RMMMP	PJ	Hisp.	Chub Mackerel	5	150	0.75	0.75
1009	1263	03-Sep-91	RMMMP	PJ	Fili.	Pacific Bonito	1	150	0.15	0.15
1009	1267	03-Sep-91	RMMMP	PJ	Fili.	Chub Mackerel	3	150	0.45	0.45
1009	1278	03-Sep-91	RMMMP	PJ	Fili.	Chub Mackerel	2	113	0.23	0.23
1009	1285	03-Sep-91	RMMMP	PJ	Hisp.	Rockfish, unidentified	1	150	0.15	
1010	1290	07-Sep-91	PCP	PJ	White	Walleye Surfperch	1	750	0.75	
1010	1290	07-Sep-91	PCP	PJ	White	Grass Rockfish	1	750	0.75	1.50
1010	1291	07-Sep-91	PCP	PJ	White	Chub Mackerel	4	225	0.90	
1010	1291	07-Sep-91	PCP	PJ	White	California Halibut	2	225	0.45	
1010	1291	07-Sep-91	PCP	PJ	White	Cabezon	2	225	0.45	
1010	1291	07-Sep-91	PCP	PJ	White	Striped Bass	1	225	0.23	2.03
1010	1292	07-Sep-91	PCP	PJ	White	Chub Mackerel	1	75	0.08	
1010	1292	07-Sep-91	PCP	PJ	White	Leopard Shark	1	75	0.08	
1010	1300	07-Sep-91	PCP	PJ	Hisp.	White Croaker	1	75	0.08	
1010	1300	07-Sep-91	PCP	PJ	Hisp.	Kelp Bass	1	75	0.08	
1010	1300	07-Sep-91	PCP	PJ	Hisp.	Chub Mackerel	5	75	0.38	
1010	1300	07-Sep-91	PCP	PJ	Hisp.	California Scorpionfish	1	75	0.08	0.60
1011	1302	15-Sep-91	MDRFD	PJ	Fili.	Queenfish	1	150	0.15	0.15
1011	1305	15-Sep-91	MDRFD	PJ	Fili.	Walleye Surfperch	1	150	0.15	
1011	1305	15-Sep-91	MDRFD	PJ	Fili.	Yellowfin Croaker	2	150	0.30	
1011	1305	15-Sep-91	MDRFD	PJ	Fili.	Salema	1	150	0.15	0.60
1011	1309	15-Sep-91	MDRFD	PJ	White	Barred Sand Bass	1	150	0.15	
1011	1309	15-Sep-91	MDRFD	PJ	White	White Croaker	2	150	0.30	0.45
1011	1312	15-Sep-91	MDRFD	PJ	White	Queenfish	1	188	0.19	
1011	1312	15-Sep-91	MDRFD	PJ	White	Walleye Surfperch	1	180	0.18	0.37
1011	1315	15-Sep-91	MDRFD	PJ	Black	Opaleye	1	150	0.15	
1011	1315	15-Sep-91	MDRFD	PJ	Black	Yellowfin Croaker	1	150	0.15	
1011	1315	15-Sep-91	MDRFD	PJ	Black	Rockfish, unidentified	2	150	0.30	0.60
1011	1318	15-Sep-91	MDRFD	PJ	Hisp.	Queenfish	1	300	0.30	
1011	1321	15-Sep-91	MDRFD	PJ	Black	Barred Sand Bass	1	450	0.45	
1011	1328	15-Sep-91	MDRFD	PJ	Black	Barred Sand Bass	1	300	0.30	
1012	1338	18-Sep-91	CP	PJ	Japa.	Jack Mackerel	1	225	0.23	0.23
1012	1338	18-Sep-91	CP	PJ	Black	White Croaker	1	300	0.30	0.30
1012	1339	18-Sep-91	CP	PJ	Black	White Croaker	3	300	0.90	
1012	1340	18-Sep-91	CP	PJ	Hisp.	White Croaker	2	150	0.30	
1012	1344	18-Sep-91	CP	PJ	Black	White Croaker	1	150	0.15	0.15
1012	1345	18-Sep-91	CP	PJ	Black	Surperch, unidentified	1	225	0.23	
1012	1345	18-Sep-91	CP	PJ	Black	California Lizardfish	1	225	0.23	0.45
1012	1347	18-Sep-91	CP	PJ	Black	White Croaker	1	450	0.45	
1012	1351	18-Sep-91	CP	PJ	Black	White Seaperch	1	225	0.23	
1012	1351	18-Sep-91	CP	PJ	Black	White Croaker	1	225	0.23	0.45
1012	1355	18-Sep-91	CP	PJ	Black	White Croaker	2	75	0.15	0.15
1012	1358	18-Sep-91	CP	PJ	Black	White Croaker	5	225	1.13	1.13
1012	1357	18-Sep-91	CP	PJ	Black	White Croaker	1	150	0.15	0.15
1012	1360	18-Sep-91	CP	PJ	Hisp.	Pacific Bonito	1	225	0.23	
1012	1360	18-Sep-91	CP	PJ	Hisp.	Chub Mackerel	1	225	0.23	0.45
1012	1361	18-Sep-91	CP	PJ	White	White Croaker	1	150	0.15	
1012	1361	18-Sep-91	CP	PJ	White	Jacksmelt	1	150	0.15	0.30
1012	1362	18-Sep-91	CP	PJ	Hisp.	White Croaker	6	75	0.45	
1012	1367	18-Sep-91	CP	PJ	Hisp.	White Croaker	4	150	0.60	
1012	1367	18-Sep-91	CP	PJ	Hisp.	Queenfish	3	150	0.45	1.05
1012	1368	18-Sep-91	CP	PJ	Hisp.	White Croaker	4	150	0.60	0.60
1012	1370	18-Sep-91	CP	PJ	Hisp.	White Croaker	1	150	0.15	0.15
1013	1375	04-Oct-91	CP	PJ	Hisp.	White Croaker	1	150	0.15	0.15
1013	1378	04-Oct-91	CP	PJ	Hisp.	White Croaker	1	150	0.15	0.30
1013	1384	04-Oct-91	CP	PJ	Black	White Croaker	2	150	0.30	
1013	1384	04-Oct-91	CP	PJ	Black	Other fish	1	225	0.23	0.45
1013	1385	04-Oct-91	CP	PJ	White	Surperch, unidentified	1	150	0.15	
1013	1385	04-Oct-91	CP	PJ	White	White Croaker	1	150	0.15	0.30
1013	1392	04-Oct-91	CP	PJ	White	White Croaker	2	150	0.30	
1013	1394	04-Oct-91	CP	PJ	Hisp.	White Croaker	1	150	0.15	0.15
1013	1395	04-Oct-91	CP	PJ	Hisp.	White Croaker	1	150	0.15	
1013	1396	04-Oct-91	CP	PJ	Hisp.	White Croaker	1	150	0.15	
1014	1397	26-Oct-91	MDRJ	PJ	White	California Halibut	1	225	0.23	0.23
1014	1398	26-Oct-91	MDRJ	PJ	White	California Halibut	2	150	0.30	0.30
1014	1404	26-Oct-91	MDRJ	PJ	White	Olive Rockfish	1	150	0.15	0.15
1015	1417	03-Nov-91	MP	PJ	White	Chub Mackerel	3	225	0.90	
1015	1422	03-Nov-91	MP	PJ	White	Chub Mackerel	1	300	0.15	0.90
1015	1431	03-Nov-91	MP	PJ	Hisp.	Jacksmelt	1	300	0.30	0.15
1015	1431	03-Nov-91	MP	PJ	Hisp.	White Croaker	1	300	0.30	0.80

Appendix 11 (continued)

Census	Survey	Date	Location	Mode	Ethnic	Species	Consumption Frequency (Times/mo)	Meal Size (gm)	Species Consumption Rate (kg)	Total Consumption (kg/ind/mo)
1018	1450	22-Nov-91	RMMP	PJ	Black	California Halibut	1	150	0.15	0.15
1018	1452	22-Nov-91	RMMP	PJ	Unk.	Pacific Bonito	1	150	0.15	
1018	1452	22-Nov-91	RMMP	PJ	Unk.	Chub Mackerel	1	150	0.15	0.30
1018	1455	22-Nov-91	RMMP	PJ	Hisp.	Pacific Sardine	1	300	0.30	
1018	1455	22-Nov-91	RMMP	PJ	Hisp.	Chub Mackerel	1	300	0.30	0.60
1018	1456	22-Nov-91	RMMP	PJ	Hisp.	Chub Mackerel	2	900	1.80	1.80
1017	1472	07-Dec-91	MP	PJ	Kore.	Chub Mackerel	1	150	0.15	0.15
1017	1479	07-Dec-91	MP	PJ	Kore.	Chub Mackerel	1	150	0.15	
1017	1479	07-Dec-91	MP	PJ	Kore.	Octopus, unidentified	1	150	0.15	0.30
1017	1480	07-Dec-91	MP	PJ	Kore.	Surperch, unidentified	1	225	0.23	0.23
1017	1483	07-Dec-91	MP	PJ	Japa.	Chub Mackerel	3	450	1.35	
1017	1483	07-Dec-91	MP	PJ	Japa.	California Scorpionfish	1	450	0.45	
1017	1483	07-Dec-91	MP	PJ	Japa.	Rockfish, unidentified	2	450	0.90	2.70
1017	1484	07-Dec-91	MP	PJ	Japa.	California Scorpionfish	1	450	0.45	
1017	1484	07-Dec-91	MP	PJ	Japa.	Chub Mackerel	3	450	1.35	
1017	1484	07-Dec-91	MP	PJ	Japa.	Rockfish, unidentified	2	450	0.90	2.70
1018	1488	20-Dec-91	MDRFD	PJ	Fili.	Sargo	4	225	0.90	0.90
1019	1489	11-Jan-92	CP	PJ	Chin.	Chub Mackerel	1	150	0.15	
1019	1489	11-Jan-92	CP	PJ	Chin.	White Croaker	1	150	0.15	0.30
1019	1490	11-Jan-92	CP	PJ	Hisp.	Chub Mackerel	4	300	1.20	
1019	1490	11-Jan-92	CP	PJ	Hisp.	White Croaker	4	300	1.20	2.40
1019	1494	11-Jan-92	CP	PJ	Kore.	White Croaker	7	300	2.10	
1019	1494	11-Jan-92	CP	PJ	Kore.	Chub Mackerel	6	300	1.60	3.90
1019	1495	11-Jan-92	CP	PJ	Hisp.	Chub Mackerel	1	450	0.45	
1019	1495	11-Jan-92	CP	PJ	Hisp.	White Croaker	1	450	0.45	
1019	1495	11-Jan-92	CP	PJ	Hisp.	Pacific Bonito	1	450	0.45	
1019	1495	11-Jan-92	CP	PJ	Hisp.	Barred Sand Bass	1	450	0.45	1.80
1019	1496	11-Jan-92	CP	PJ	White	Chub Mackerel	2	300	0.60	
1019	1496	11-Jan-92	CP	PJ	White	Brown Smoothhound	1	300	0.30	0.90
1019	1499	11-Jan-92	CP	PJ	Hisp.	White Croaker	2	150	0.30	0.30
1019	1500	11-Jan-92	CP	PJ	Black	Jacksnelt	1	300	0.30	
1019	1500	11-Jan-92	CP	PJ	Black	Chub Mackerel	1	300	0.30	
1019	1500	11-Jan-92	CP	PJ	Black	California Halibut	2	300	0.60	1.20
1020	1505	29-Jan-92	HP	PJ	Hisp.	Black Perch	2	150	0.30	0.30
1020	1506	29-Jan-92	HP	PJ	Hisp.	Barred Surperch	1	150	0.15	0.15
1020	1509	29-Jan-92	HP	PJ	White	Surperch, unidentified	2	225	0.45	0.45
1021	1511	17-Feb-92	KHB	PJ	White	California Scorpionfish	1	300	0.30	
1021	1511	17-Feb-92	KHB	PJ	White	Socaccio	2	300	0.60	0.90
1021	1512	17-Feb-92	KHB	PJ	White	Socaccio	3	300	0.90	
1021	1512	17-Feb-92	KHB	PJ	White	California Scorpionfish	1	300	0.30	1.20
1021	1513	17-Feb-92	KHB	PJ	White	Kelp Bass	1	300	0.30	
1021	1513	17-Feb-92	KHB	PJ	White	Surperch, unidentified	1	300	0.30	
1021	1513	17-Feb-92	KHB	PJ	White	California Scorpionfish	3	300	0.90	1.50
1021	1515	17-Feb-92	KHB	PJ	Hisp.	Opaleye	3	450	1.35	
1021	1516	17-Feb-92	KHB	PJ	Black	Opaleye	1	300	0.30	
1021	1516	17-Feb-92	KHB	PJ	Black	California Sheepshead	1	300	0.30	0.60
1021	1517	17-Feb-92	KHB	PJ	Japa.	California Scorpionfish	3	300	0.90	
1021	1517	17-Feb-92	KHB	PJ	Japa.	Socaccio	3	300	0.90	1.80
1021	1518	17-Feb-92	KHB	PJ	Japa.	California Scorpionfish	1	150	0.15	0.15
1021	1519	17-Feb-92	KHB	PJ	White	Opaleye	1	300	0.90	
1021	1519	17-Feb-92	KHB	PJ	White	Jacksnelt	1	300	0.90	1.80
1022	1525	27-Feb-92	CP	PJ	Hisp.	California Scorpionfish	1	150	0.15	
1022	1525	27-Feb-92	CP	PJ	Hisp.	White Croaker	5	150	0.75	0.90
1022	1526	27-Feb-92	CP	PJ	Hisp.	White Croaker	1	150	0.15	0.15
1022	1527	27-Feb-92	CP	PJ	Hisp.	Pile Perch	1	225	0.23	
1022	1528	27-Feb-92	CP	PJ	Hisp.	Pile Perch	1	225	0.23	0.23
1022	1530	27-Feb-92	CP	PJ	Hisp.	Chub Mackerel	3	150	0.45	0.45
1022	1533	27-Feb-92	CP	PJ	Hisp.	White Croaker	1	300	0.30	
1022	1533	27-Feb-92	CP	PJ	Hisp.	Chub Mackerel	6	300	1.80	
1022	1533	27-Feb-92	CP	PJ	Hisp.	Pile Perch	1	150	0.15	
1022	1533	27-Feb-92	CP	PJ	Hisp.	Opaleye	2	150	0.30	2.55
1022	1544	27-Feb-92	CP	PJ	Hisp.	White Croaker	2	150	0.30	0.30
1022	1548	27-Feb-92	CP	PJ	Hisp.	Rock Crab	1	75	0.08	0.08
1022	1550	27-Feb-92	CP	PJ	Hisp.	White Croaker	2	225	0.45	0.45
1022	1551	27-Feb-92	CP	PJ	Fill.	Chub Mackerel	1	600	0.60	0.60
1025	1557	05-Apr-92	CP	PJ	Hisp.	White Croaker	2	75	0.15	0.15
1025	1558	05-Apr-92	CP	PJ	Hisp.	Chub Mackerel	1	150	0.15	
1025	1558	05-Apr-92	CP	PJ	Hisp.	White Croaker	1	150	0.15	0.30
1025	1561	05-Apr-92	CP	PJ	Black	Chub Mackerel	1	225	0.23	
1025	1562	05-Apr-92	CP	PJ	Fill.	California Halibut	2	300	0.60	0.60
1025	1563	05-Apr-92	CP	PJ	Fill.	California Halibut	2	300	0.60	0.60
1025	1568	05-Apr-92	CP	PJ	White	Jacksnelt	3	450	1.35	1.35
1025	1569	05-Apr-92	CP	PJ	Chin.	Chub Mackerel	1	75	0.08	0.08
1025	1570	05-Apr-92	CP	PJ	Other	Jacksnelt	2	750	1.50	
1025	1570	05-Apr-92	CP	PJ	Other	Chub Mackerel	3	750	2.25	3.75
1025	1572	05-Apr-92	CP	PJ	Hisp.	Chub Mackerel	2	225	0.45	0.45
1025	1573	05-Apr-92	CP	PJ	Other	Rockfish, unidentified	4	450	1.80	
1025	1573	05-Apr-92	CP	PJ	Other	Chub Mackerel	1	450	0.45	
1025	1574	05-Apr-92	CP	PJ	Hisp.	Chub Mackerel	1	450	1.80	4.05
1025	1577	05-Apr-92	CP	PJ	White	Jacksnelt	6	150	0.90	0.23

Appendix 11 (continued)

Census	Survey	Date	Location	Mode	Ethnic	Species	Consumption Frequency (Times/mo)	Meal Size (gm)	Species Consumption Rate (kg)	Total Consumption (kg/ind/mo)
1025	1577	05-Apr-92	CP	PJ	White	Chub Mackerel	6	150	0.90	1.80
1025	1578	05-Apr-92	CP	PJ	Other	Chub Mackerel	61	300	18.30	
1025	1578	05-Apr-92	CP	PJ	Other	Jacksnelt	1	300	0.30	18.60
1025	1580	05-Apr-92	CP	PJ	Hisp.	Chub Mackerel	3	150	0.45	0.45
1025	1581	05-Apr-92	CP	PJ	White	Kelp Base	1	225	0.23	0.23
1025	1583	05-Apr-92	CP	PJ	Hisp.	Jacksnelt	1	150	0.15	
1025	1583	05-Apr-92	CP	PJ	Hisp.	Chub Mackerel	1	150	0.15	0.30
1025	1584	05-Apr-92	CP	PJ	White	Chub Mackerel	1	150	0.15	0.15
1025	1585	05-Apr-92	CP	PJ	White	Opailey	1	225	0.23	0.23
1025	1586	05-Apr-92	CP	PJ	Hisp.	Chub Mackerel	1	300	0.30	
1025	1587	05-Apr-92	CP	PJ	Hisp.	Chub Mackerel	4	225	0.90	
1025	1587	05-Apr-92	CP	PJ	Hisp.	Other fish	3	225	0.68	
1025	1587	05-Apr-92	CP	PJ	Hisp.	Flounder, unidentified	1	225	0.23	1.80
1025	1589	05-Apr-92	CP	PJ	White	California Sheepshead	1	600	0.60	
1025	1589	05-Apr-92	CP	PJ	White	Ocean Whitefish	1	600	0.60	
1025	1589	05-Apr-92	CP	PJ	White	Halfmoon	1	600	0.60	1.80
1025	1591	05-Apr-92	CP	PJ	Hisp.	Chub Mackerel	1	150	0.15	
1025	1591	05-Apr-92	CP	PJ	Hisp.	Surperch, unidentified	3	150	0.45	0.60
1027	1618	09-May-92	SMMP	PJ	Black	Rainbow Seaperch	1	150	0.15	
1027	1618	09-May-92	SMMP	PJ	Black	Opailey	1	150	0.15	0.30
1027	1621	09-May-92	SMMP	PJ	Hisp.	Rainbow Seaperch	1	150	0.15	0.15
1027	1622	09-May-92	SMMP	PJ	Fili.	White Croaker	5	150	0.75	0.75
1027	1626	09-May-92	SMMP	PJ	White	California Corbina	1	450	0.45	
1027	1631	09-May-92	SMMP	PJ	Fili.	Surperch, unidentified	4	300	1.20	
1027	1631	09-May-92	SMMP	PJ	Fili.	Pacific Bonito	4	300	1.20	
1027	1631	09-May-92	SMMP	PJ	Fili.	Chub Mackerel	10	300	3.00	5.40
1027	1632	09-May-92	SMMP	PJ	Hisp.	Chub Mackerel	1	150	0.15	
1027	1632	09-May-92	SMMP	PJ	Hisp.	Jacksnelt	2	150	0.30	0.45
1027	1637	09-May-92	SMMP	PJ	White	Chub Mackerel	1	300	0.30	
1027	1637	09-May-92	SMMP	PJ	White	Jacksnelt	1	300	0.30	0.60
1027	1640	09-May-92	SMMP	PJ	Black	Opailey	4	450	1.80	
1027	1640	09-May-92	SMMP	PJ	Black	Sargo	4	450	1.80	3.60
1028	1670	21-May-92	RSP	PJ	Other	Barred Sand Bass	2	180	0.36	
1028	1670	21-May-92	RSP	PJ	Other	Kelp Bass	2	180	0.36	0.72
1028	1672	21-May-92	RSP	PJ	Hisp.	Pacific Bonito	4	450	1.80	1.80
1028	1673	21-May-92	RSP	PJ	Black	Spotted Sand Bass	1	150	0.15	
1028	1673	21-May-92	RSP	PJ	Black	Blacksmith	1	150	0.15	
1028	1673	21-May-92	RSP	PJ	Black	Opailey	1	150	0.15	0.45
1028	1677	21-May-92	RSP	PJ	Fili.	Opailey	8	300	2.40	
1028	1677	21-May-92	RSP	PJ	Fili.	Pacific Bonito	5	300	1.50	3.90
1028	1678	21-May-92	RSP	PJ	White	Pacific Barracuda	2	750	1.50	
1028	1678	21-May-92	RSP	PJ	White	Kelp Bass	2	750	1.50	
1028	1678	21-May-92	RSP	PJ	White	Chub Mackerel	2	750	1.50	
1028	1678	21-May-92	RSP	PJ	White	Barred Sand Bass	2	750	1.50	6.00
1028	1679	21-May-92	RSP	PJ	White	Pacific Barracuda	2	750	1.50	
1028	1679	21-May-92	RSP	PJ	White	Kelp Bass	2	750	1.50	
1028	1679	21-May-92	RSP	PJ	White	Chub Mackerel	2	750	1.50	4.50
1028	1682	21-May-92	RSP	PJ	Hisp.	Pacific Bonito	3	300	0.90	0.90
1028	1684	21-May-92	RSP	PJ	Viet.	Chub Mackerel	3	300	0.90	0.90
1029	1694	05-Jun-92	CP	PJ	Other	Chub Mackerel	2	300	0.60	0.60
1029	1695	05-Jun-92	CP	PJ	Hisp.	White Croaker	1	150	0.15	0.15
1029	1697	05-Jun-92	CP	PJ	Hisp.	California Lizardfish	1	225	0.23	
1029	1697	05-Jun-92	CP	PJ	Hisp.	Chub Mackerel	1	225	0.23	0.45
1029	1701	05-Jun-92	CP	PJ	Hisp.	White Croaker	3	150	0.45	
1029	1702	05-Jun-92	CP	PJ	Hisp.	White Croaker	2	113	0.23	
1029	1702	05-Jun-92	CP	PJ	Hisp.	Chub Mackerel	1	113	0.11	0.34
1029	1703	05-Jun-92	CP	PJ	Hisp.	Chub Mackerel	1	150	0.15	
1029	1703	05-Jun-92	CP	PJ	Hisp.	White Croaker	5	150	0.75	0.90
1029	1705	05-Jun-92	CP	PJ	Fili.	Chub Mackerel	1	113	0.11	0.11
1029	1707	05-Jun-92	CP	PJ	Black	Chub Mackerel	1	600	0.60	
1029	1707	05-Jun-92	CP	PJ	Black	White Croaker	1	600	0.60	1.20
1029	1708	05-Jun-92	CP	PJ	Hisp.	Chub Mackerel	2	150	0.30	0.30
1029	1709	05-Jun-92	CP	PJ	Japa.	Chub Mackerel	6	150	0.90	
1029	1709	05-Jun-92	CP	PJ	Japa.	Barred Surfperch	1	300	0.30	
1029	1709	05-Jun-92	CP	PJ	Japa.	Kelp Bass	1	300	0.30	
1029	1709	05-Jun-92	CP	PJ	Japa.	Pacific Butterfish	2	300	0.60	2.10
1029	1710	05-Jun-92	CP	PJ	Japa.	Chub Mackerel	3	150	0.45	
1029	1710	05-Jun-92	CP	PJ	Japa.	Pacific Butterfish	2	150	0.30	
1029	1710	05-Jun-92	CP	PJ	Japa.	Kelp Base	1	150	0.15	0.90
1029	1711	05-Jun-92	CP	PJ	Japa.	Chub Mackerel	2	150	0.30	0.30
1029	1712	05-Jun-92	CP	PJ	Hisp.	Chub Mackerel	1	150	0.15	0.15
1029	1713	05-Jun-92	CP	PJ	Hisp.	California Halibut	2	300	0.60	
1029	1713	05-Jun-92	CP	PJ	Hisp.	Barred Sand Bass	2	300	0.60	
1029	1713	05-Jun-92	CP	PJ	Hisp.	Chub Mackerel	2	300	0.60	1.80
1030	1724	18-Jun-92	BCJ	PJ	Kore.	Chub Mackerel	1	150	0.15	
1030	1724	18-Jun-92	BCJ	PJ	Kore.	White Croaker	1	150	0.15	0.30
1030	1728	18-Jun-92	BCJ	PJ	Fili.	Barred Sand Bass	2	150	0.30	0.30
1030	1729	18-Jun-92	BCJ	PJ	Black	Jacksnelt	1	600	0.80	0.80
1030	1732	18-Jun-92	BCJ	PJ	Black	Barred Sand Bass	1	300	0.30	
1030	1732	18-Jun-92	BCJ	PJ	Black	Opailey	1	300	0.30	
1030	1732	18-Jun-92	BCJ	PJ	Black	California Scorpionfish	1	300	0.30	0.90

Appendix 11 (continued)

Census	Survey	Date	Location	Mode	Ethnic	Species	Consumption Frequency (Times/mo)	Meal Size (gm)	Species Consumption Rate (kg)	Total Consumption (kg/ind/mo)
1030	1733	18-Jun-92	BCJ	PJ	Black	Barred Sand Bass	1	188	0.19	0.19
1031	1745	20-Jun-92	MP	PJ	Hisp.	Chub Mackerel	4	600	2.40	2.40
1031	1747	20-Jun-92	MP	PJ	White	Pacific Barracuda	2	300	0.60	0.60
1031	1749	20-Jun-92	MP	PJ	White	California Halibut	4	300	1.20	
1031	1749	20-Jun-92	MP	PJ	White	Barred Sand Bass	8	300	2.40	
1031	1749	20-Jun-92	MP	PJ	White	California Corbina	8	300	2.40	
1031	1749	20-Jun-92	MP	PJ	White	Socaccio	6	300	1.80	7.80
1031	1750	20-Jun-92	MP	PJ	Hisp.	White Croaker	2	450	0.90	0.90
1031	1751	20-Jun-92	MP	PJ	Black	White Croaker	2	450	0.90	0.90
1031	1753	20-Jun-92	MP	PJ	Japa.	Barred Sand Bass	3	113	0.34	0.34
1031	1755	20-Jun-92	MP	PJ	White	Queenfish	1	300	0.30	
1031	1755	20-Jun-92	MP	PJ	White	Surperch, unidentified	2	300	0.60	
1031	1755	20-Jun-92	MP	PJ	White	White Croaker	1	150	0.15	
1031	1755	20-Jun-92	MP	PJ	White	Chub Mackerel	1	300	0.30	1.35
1031	1758	20-Jun-92	MP	PJ	White	Yellowfin Croaker	1	300	0.30	0.30
1031	1760	20-Jun-92	MP	PJ	White	Yellowfin Croaker	1	300	0.30	0.30
1031	1761	20-Jun-92	MP	PJ	Viet.	Chub Mackerel	1	450	0.45	0.45
1031	1762	20-Jun-92	MP	PJ	Hisp.	Yellowfin Croaker	1	450	0.45	
1031	1762	20-Jun-92	MP	PJ	Hisp.	Barred Sand Bass	1	450	0.45	0.90
1031	1769	20-Jun-92	MP	PJ	Kore.	Chub Mackerel	1	600	0.60	0.60
1032	1785	21-Jun-92	RMMP	PJ	Hisp.	Pacific Bonito	4	150	0.60	
1032	1785	21-Jun-92	RMMP	PJ	Hisp.	Chub Mackerel	4	150	0.60	1.20
1032	1790	21-Jun-92	RMMP	PJ	Hisp.	Chub Mackerel	2	225	0.45	0.45
1032	1791	21-Jun-92	RMMP	PJ	Fili.	Chub Mackerel	4	300	1.20	
1032	1791	21-Jun-92	RMMP	PJ	Fili.	Pacific Bonito	3	300	0.90	2.10
1032	1793	21-Jun-92	RMMP	PJ	Fili.	Pacific Barracuda	4	750	3.00	
1032	1793	21-Jun-92	RMMP	PJ	Fili.	Chub Mackerel	31	750	23.25	
1032	1793	21-Jun-92	RMMP	PJ	Fili.	Pacific Bonito	4	750	3.00	29.25
1032	1794	21-Jun-92	RMMP	PJ	White	Pacific Bonito	3	300	0.90	
1032	1794	21-Jun-92	RMMP	PJ	White	Chub Mackerel	3	300	0.90	1.80
1032	1798	21-Jun-92	RMMP	PJ	Chin.	Leopard Shark	1	300	0.30	0.30
1032	1797	21-Jun-92	RMMP	PJ	Fili.	Chub Mackerel	1	150	0.15	0.15
1032	1800	21-Jun-92	RMMP	PJ	Fili.	Chub Mackerel	12	450	5.40	
1032	1802	21-Jun-92	RMMP	PJ	White	California Halibut	1	300	0.30	
1032	1802	21-Jun-92	RMMP	PJ	White	Barred Sand Bass	2	300	0.60	0.90
1032	1804	21-Jun-92	RMMP	PJ	White	California Halibut	1	225	0.23	0.23
1032	1806	21-Jun-92	RMMP	PJ	Hisp.	Chub Mackerel	2	113	0.23	
1032	1806	21-Jun-92	RMMP	PJ	Hisp.	California Halibut	2	113	0.23	0.45
1032	1807	21-Jun-92	RMMP	PJ	Hisp.	Pacific Bonito	2	450	0.90	
1032	1807	21-Jun-92	RMMP	PJ	Hisp.	Chub Mackerel	2	450	0.90	1.80
1032	1808	21-Jun-92	RMMP	PJ	Hisp.	Chub Mackerel	2	300	0.60	0.60
1032	1809	21-Jun-92	RMMP	PJ	Hisp.	White Croaker	2	600	1.20	
1032	1809	21-Jun-92	RMMP	PJ	Hisp.	Chub Mackerel	2	600	1.20	2.40
1034	1835	16-Jul-92	MDRJ	PJ	Hisp.	Chub Mackerel	1	150	0.15	0.15
1035	1841	25-Jul-92	CP	PJ	Hisp.	Jacksmelt	1	225	0.23	
1035	1841	25-Jul-92	CP	PJ	Hisp.	White Croaker	1	225	0.23	0.45
1035	1848	25-Jul-92	CP	PJ	Hisp.	White Croaker	3	188	0.56	0.56
1035	1850	25-Jul-92	CP	PJ	Hisp.	White Croaker	1	150	0.15	0.15
1035	1851	25-Jul-92	CP	PJ	Hisp.	Jacksmelt	1	150	0.15	
1035	1851	25-Jul-92	CP	PJ	Hisp.	Chub Mackerel	2	150	0.30	
1035	1851	25-Jul-92	CP	PJ	Hisp.	White Croaker	1	150	0.15	0.60
1035	1855	25-Jul-92	CP	PJ	Hisp.	White Croaker	2	150	0.30	0.30
1035	1864	25-Jul-92	CP	PJ	White	Pile Perch	20	750	15.00	
1035	1864	25-Jul-92	CP	PJ	White	Opleye	16	750	12.00	
1035	1864	25-Jul-92	CP	PJ	White	Black Perch	21	750	15.75	
1035	1864	25-Jul-92	CP	PJ	White	Sargo	11	750	8.25	51.00
1035	1867	25-Jul-92	CP	PJ	Hisp.	White Croaker	5	450	2.25	
1035	1867	25-Jul-92	CP	PJ	Hisp.	Chub Mackerel	5	450	2.25	4.50
1035	1875	25-Jul-92	CP	PJ	Hisp.	Chub Mackerel	3	300	0.90	
1037	1898	09-Aug-92	MP	PJ	Hisp.	Barred Surperch	1	300	0.30	
1037	1898	09-Aug-92	MP	PJ	Hisp.	Yellowfin Croaker	1	300	0.30	0.60
1037	1900	09-Aug-92	MP	PJ	White	Kelp Bass	1	450	0.45	0.45
1037	1904	09-Aug-92	MP	PJ	White	Chub Mackerel	1	150	0.15	
1037	1905	09-Aug-92	MP	PJ	White	California Halibut	1	600	0.60	0.60
1037	1908	09-Aug-92	MP	PJ	Hisp.	Chub Mackerel	2	600	1.20	1.20
1037	1910	09-Aug-92	MP	PJ	Fili.	Walleye Surperch	4	300	1.20	
1037	1910	09-Aug-92	MP	PJ	Fili.	Chub Mackerel	4	300	1.20	
1037	1910	09-Aug-92	MP	PJ	Fili.	Jacksmelt	1	300	0.30	
1037	1910	09-Aug-92	MP	PJ	Fili.	Stingray, unidentified	1	300	0.30	3.00
1037	1911	09-Aug-92	MP	PJ	Kore.	Yellowfin Croaker	1	750	0.75	
1037	1911	09-Aug-92	MP	PJ	Kore.	Jacksmelt	1	750	0.75	1.50
1037	1913	09-Aug-92	MP	PJ	White	Chub Mackerel	1	150	0.15	
1037	1913	09-Aug-92	MP	PJ	White	White Croaker	1	150	0.15	0.30
1038	1925	17-Aug-92	HP	PJ	Black	Pacific Barracuda	1	300	0.30	
1038	1925	17-Aug-92	HP	PJ	Black	Barred Sand Bass	1	300	0.30	
1038	1925	17-Aug-92	HP	PJ	Black	Kelp Bass	1	300	0.30	0.60
1038	1927	17-Aug-92	HP	PJ	Hisp.	Pacific Bonito	1	450	0.45	
1038	1927	17-Aug-92	HP	PJ	Hisp.	Bat Ray	2	450	0.90	1.35
1038	1931	17-Aug-92	HP	PJ	Hisp.	Pacific Bonito	1	150	0.15	
1038	1931	17-Aug-92	HP	PJ	Hisp.	Chub Mackerel	2	150	0.30	0.45
1038	1938	17-Aug-92	HP	PJ	Hisp.	Pacific Bonito	7	150	1.05	

Appendix 11 (continued)

Census	Survey	Date	Location	Mode	Ethnic	Species	Consumption Frequency (Times/mo)	Meal Size (gm)	Species Consumption Rate (kg)	Total Consumption (kg/Ind/mo)
1038	1936	17-Aug-92	HP	PJ	Hisp.	Barred Sand Bass	2	150	0.30	1.35
1038	1937	17-Aug-92	HP	PJ	Fili.	Chub Mackerel	10	300	3.00	3.00
1038	1938	17-Aug-92	HP	PJ	Hisp.	Chub Mackerel	8	150	1.20	1.20
1038	1939	17-Aug-92	HP	PJ	Hisp.	Chub Mackerel	3	113	0.34	0.34
1039	1967	22-Aug-92	MDRS	PJ	Chin.	Yellowfin Croaker	2	750	1.50	1.50
1039	1973	22-Aug-92	MDRS	PJ	Fili.	Yellowfin Croaker	2	300	0.60	0.60
1039	1976	22-Aug-92	MDRS	PJ	Japa.	Pacific Bonito	1	300	0.30	0.30
1040	2	26-Aug-92	CP	PJ	Hisp.	White Croaker	1	150	0.15	0.15
1040	4	26-Aug-92	CP	PJ	Hisp.	White Croaker	1	150	0.15	0.15
1040	4	26-Aug-92	CP	PJ	Hisp.	Queenfish	1	150	0.15	0.15
1040	4	26-Aug-92	CP	PJ	Hisp.	California Lizardfish	1	150	0.15	0.15
1040	4	26-Aug-92	CP	PJ	Hisp.	Jacksmelt	1	150	0.15	0.60
1040	6	26-Aug-92	CP	PJ	Black	Rockfish, unidentified	3	300	0.90	
1040	6	26-Aug-92	CP	PJ	Black	California Halibut	5	300	1.50	2.40
1040	9	26-Aug-92	CP	PJ	Hisp.	White Croaker	2	113	0.23	0.23
1040	1994	26-Aug-92	CP	PJ	Hisp.	White Croaker	1	150	0.15	
1040	1994	26-Aug-92	CP	PJ	Hisp.	Jacksmelt	1	150	0.15	0.30
1040	1997	26-Aug-92	CP	PJ	Hisp.	Chub Mackerel	1	225	0.23	
1040	1997	26-Aug-92	CP	PJ	Hisp.	Spotted Sand Bass	1	225	0.23	
1040	1997	26-Aug-92	CP	PJ	Hisp.	Jacksmelt	1	225	0.23	
1040	1997	26-Aug-92	CP	PJ	Hisp.	Shiner Perch	1	225	0.23	0.90
2009	2171	05-Sep-91	MDRS	PB	Japa.	Barred Sand Bass	4	150	0.60	0.60
2009	2179	05-Sep-91	MDRS	PB	White	California Halibut	4	300	1.20	1.20
2009	2191	05-Sep-91	MDRS	PB	Kore.	Chub Mackerel	1	225	0.23	
2009	2192	05-Sep-91	MDRS	PB	White	Barred Sand Bass	6	450	2.70	
2009	2192	05-Sep-91	MDRS	PB	White	California Halibut	2	450	0.90	3.60
2009	2194	05-Sep-91	MDRS	PB	Black	Barred Sand Bass	1	750	0.75	
2009	2194	05-Sep-91	MDRS	PB	Black	California Halibut	3	750	2.25	
2009	2194	05-Sep-91	MDRS	PB	Black	Kelp Bass	1	750	0.75	3.75
2009	2195	05-Sep-91	MDRS	PB	Black	California Halibut	2	225	0.45	
2009	2195	05-Sep-91	MDRS	PB	Black	Barred Sand Bass	1	225	0.23	0.68
2010	2197	12-Sep-91	RSBT	PB	Japa.	California Scorpionfish	3	450	1.35	1.35
2010	2209	12-Sep-91	RSBT	PB	Hisp.	Kelp Bass	1	300	0.30	
2010	2209	12-Sep-91	RSBT	PB	Hisp.	Barred Sand Bass	10	300	3.00	
2010	2209	12-Sep-91	RSBT	PB	Hisp.	Pacific Barracuda	5	300	1.50	4.80
2010	2210	12-Sep-91	RSBT	PB	Hisp.	Pacific Bonito	1	150	0.15	
2010	2210	12-Sep-91	RSBT	PB	Hisp.	Kelp Bass	1	150	0.15	
2010	2210	12-Sep-91	RSBT	PB	Hisp.	Barred Sand Bass	1	150	0.15	0.45
2010	2211	12-Sep-91	RSBT	PB	Japa.	Barred Sand Bass	1	225	0.23	
2010	2211	12-Sep-91	RSBT	PB	Japa.	Kelp Bass	1	225	0.23	
2010	2211	12-Sep-91	RSBT	PB	Japa.	California Scorpionfish	1	225	0.23	0.68
2011	2212	14-Sep-91	MSB	PB	Other	California Scorpionfish	1	300	0.30	0.30
2011	2213	14-Sep-91	MSB	PB	Kore.	Bocaccio	1	150	0.15	
2011	2213	14-Sep-91	MSB	PB	Kore.	Rockfish, unidentified	1	150	0.15	
2011	2213	14-Sep-91	MSB	PB	Kore.	California Scorpionfish	1	150	0.15	0.45
2011	2216	14-Sep-91	MSB	PB	White	Barred Sand Bass	4	300	1.20	
2011	2216	14-Sep-91	MSB	PB	White	Bocaccio	3	300	0.90	2.10
2011	2218	14-Sep-91	MSB	PB	Other	Barred Sand Bass	5	450	2.25	
2011	2218	14-Sep-91	MSB	PB	Other	Kelp Bass	7	450	3.15	5.40
2011	2219	14-Sep-91	MSB	PB	White	Barred Sand Bass	1	225	0.23	
2011	2219	14-Sep-91	MSB	PB	White	California Sheepshead	1	225	0.23	0.45
2011	2221	14-Sep-91	MSB	PB	White	Barred Sand Bass	1	150	0.15	
2011	2221	14-Sep-91	MSB	PB	White	California Scorpionfish	1	150	0.15	
2011	2221	14-Sep-91	MSB	PB	White	Chub Mackerel	1	75	0.08	0.38
2011	2224	14-Sep-91	MSB	PB	Hisp.	Chub Mackerel	1	150	0.15	
2011	2224	14-Sep-91	MSB	PB	Hisp.	White Croaker	2	150	0.30	0.45
2011	2225	14-Sep-91	MSB	PB	White	California Halibut	2	450	0.90	0.90
2012	2230	29-Sep-91	RSB	PB	Kore.	Pacific Bonito	1	150	0.15	0.15
2012	2234	29-Sep-91	RSB	PB	Japa.	Pacific Bonito	1	150	0.15	0.15
2012	2235	29-Sep-91	RSB	PB	White	Pacific Bonito	1	300	0.30	0.30
2012	2236	29-Sep-91	RSB	PB	Black	Sanddab, unidentified	1	150	0.15	
2012	2236	29-Sep-91	RSB	PB	Black	Pacific Bonito	1	150	0.15	0.30
2012	2237	29-Sep-91	RSB	PB	Chin.	Pacific Bonito	1	225	0.23	0.23
2012	2239	29-Sep-91	RSB	PB	Hisp.	Pacific Bonito	1	150	0.15	0.15
2012	2241	29-Sep-91	RSB	PB	Kore.	Pacific Bonito	1	450	0.45	0.45
2012	2242	29-Sep-91	RSB	PB	Viet.	Pacific Bonito	1	150	0.15	0.15
2012	2245	29-Sep-91	RSB	PB	Hisp.	Pacific Bonito	1	300	0.30	0.30
2012	2249	29-Sep-91	RSB	PB	White	Copper Rockfish	1	600	0.60	
2012	2249	29-Sep-91	RSB	PB	White	Pacific Bonito	1	600	0.60	1.20
2012	2251	29-Sep-91	RSB	PB	Hisp.	Sanddab, unidentified	1	225	0.23	
2012	2251	29-Sep-91	RSB	PB	Hisp.	Pacific Bonito	1	225	0.23	0.45
2012	2252	29-Sep-91	RSB	PB	White	Vermilion Rockfish	1	150	0.15	
2012	2252	29-Sep-91	RSB	PB	White	Starry Rockfish	1	150	0.15	0.30
2012	2253	29-Sep-91	RSB	PB	Hisp.	Pacific Bonito	1	150	0.15	0.15
2012	2254	29-Sep-91	RSB	PB	Hisp.	Pacific Bonito	1	225	0.23	0.23
2012	2255	29-Sep-91	RSB	PB	Hisp.	Pacific Bonito	1	300	0.30	0.30
2013	2263	06-Oct-91	MSB	PB	White	Kelp Bass	3	225	0.68	1.55
2013	2266	06-Oct-91	MSB	PB	Kore.	Pacific Barracuda	2	225	0.45	
2013	2268	06-Oct-91	MSB	PB	Kore.	California Halibut	1	225	0.23	0.68
2013	2273	06-Oct-91	MSB	PB	White	Kelp Bass	5	300	1.50	

Appendix 11 (continued)

Census	Survey	Date	Location	Mode	Ethnic	Species	Consumption Frequency (Times/mo)	Meal Size (gm)	Species Consumption Rate (kg)	Total Consumption (kg/Ind/mo)
2013	2273	06-Oct-91	MSB	PB	White	White Seabass	4	300	1.20	2.70
2013	2274	06-Oct-91	MSB	PB	White	Kelp Bass	11	225	2.48	
2013	2274	06-Oct-91	MSB	PB	White	Barred Sand Bass	7	225	1.58	4.05
2014	2278	16-Oct-91	MDRS	PB	Hisp.	Brown Smoothhound	1	150	0.15	0.15
2014	2279	16-Oct-91	MDRS	PB	White	California Halibut	5	225	1.13	
2014	2279	16-Oct-91	MDRS	PB	White	Barred Sand Bass	5	150	0.75	1.88
2014	2280	16-Oct-91	MDRS	PB	Black	California Scorpionfish	3	150	0.45	
2014	2280	16-Oct-91	MDRS	PB	Black	Kelp Bass	3	150	0.45	
2014	2280	16-Oct-91	MDRS	PB	Black	California Halibut	3	150	0.45	
2014	2281	16-Oct-91	MDRS	PB	White	Barred Sand Bass	1	150	0.15	
2014	2281	16-Oct-91	MDRS	PB	White	California Scorpionfish	1	150	0.15	
2014	2281	16-Oct-91	MDRS	PB	White	Kelp Bass	1	150	0.15	0.45
2014	2283	16-Oct-91	MDRS	PB	White	Pacific Barracuda	1	150	0.15	
2014	2283	16-Oct-91	MDRS	PB	White	Barred Sand Bass	1	150	0.15	
2014	2283	16-Oct-91	MDRS	PB	White	Kelp Bass	1	150	0.15	0.45
2014	2284	16-Oct-91	MDRS	PB	White	Pacific Bonito	1	150	0.15	0.15
2014	2285	16-Oct-91	MDRS	PB	White	California Scorpionfish	2	450	0.90	
2014	2285	16-Oct-91	MDRS	PB	White	Kelp Bass	1	150	0.15	1.05
2014	2286	16-Oct-91	MDRS	PB	White	California Halibut	1	225	0.23	
2014	2286	16-Oct-91	MDRS	PB	White	Kelp Bass	3	225	0.68	
2014	2286	16-Oct-91	MDRS	PB	White	California Scorpionfish	2	180	0.36	1.28
2015	2289	06-Nov-91	LAHS	PB	Japa.	Chub Mackerel	1	150	0.15	
2015	2289	06-Nov-91	LAHS	PB	Japa.	Kelp Bass	1	150	0.15	
2015	2289	06-Nov-91	LAHS	PB	Japa.	White Seabass	1	150	0.15	
2015	2289	06-Nov-91	LAHS	PB	Japa.	Pacific Barracuda	1	150	0.15	0.60
2015	2290	06-Nov-91	LAHS	PB	Japa.	Kelp Bass	1	150	0.15	0.15
2015	2291	06-Nov-91	LAHS	PB	White	Kelp Bass	4	300	1.20	1.20
2015	2292	06-Nov-91	LAHS	PB	Fili.	Kelp Bass	1	150	0.15	0.15
2015	2294	06-Nov-91	LAHS	PB	Hisp.	Halfmoon	1	600	0.60	
2015	2294	06-Nov-91	LAHS	PB	Hisp.	Kelp Bass	1	600	0.60	1.20
2015	2295	06-Nov-91	LAHS	PB	White	Halfmoon	1	150	0.15	0.15
2015	2299	06-Nov-91	LAHS	PB	White	California Scorpionfish	1	300	0.30	0.30
2015	2301	06-Nov-91	LAHS	PB	Hisp.	Barred Sand Bass	4	150	0.60	
2015	2301	06-Nov-91	LAHS	PB	Hisp.	White Croaker	1	150	0.15	0.75
2016	2304	16-Nov-91	RSB	PB	White	White Croaker	1	300	0.30	
2016	2304	16-Nov-91	RSB	PB	White	Chub Mackerel	1	300	0.30	0.60
2016	2313	16-Nov-91	RSB	PB	Hisp.	Rockfish, unidentified	1	225	0.23	
2016	2313	16-Nov-91	RSB	PB	Hisp.	Pacific Bonito	1	225	0.23	
2016	2313	16-Nov-91	RSB	PB	Hisp.	California Scorpionfish	1	225	0.23	0.90
2016	2313	16-Nov-91	RSB	PB	Hisp.	Chub Mackerel	1	225	0.23	
2016	2314	16-Nov-91	RSB	PB	Fili.	Bocaccio	1	300	0.30	
2016	2314	16-Nov-91	RSB	PB	Fili.	Chilipepper	1	300	0.30	0.60
2016	2321	16-Nov-91	RSB	PB	White	Bocaccio	1	75	0.08	0.08
2016	2322	16-Nov-91	RSB	PB	White	Bocaccio	1	300	0.30	
2016	2322	16-Nov-91	RSB	PB	White	Squarespot Rockfish	1	300	0.30	
2016	2322	16-Nov-91	RSB	PB	White	Chilipepper	1	300	0.30	
2016	2322	16-Nov-91	RSB	PB	White	Chub Mackerel	1	300	0.30	1.20
2016	2327	16-Nov-91	RSB	PB	Black	Barred Sand Bass	4	450	1.80	
2016	2327	16-Nov-91	RSB	PB	Black	Pacific Bonito	4	450	1.80	3.60
2016	2329	16-Nov-91	RSB	PB	Black	Shark, unidentified	1	225	0.23	
2016	2329	16-Nov-91	RSB	PB	Black	Pacific Bonito	1	225	0.23	
2016	2329	16-Nov-91	RSB	PB	Black	Chub Mackerel	3	225	0.68	
2016	2329	16-Nov-91	RSB	PB	Black	Barred Sand Bass	3	225	0.68	1.80
2017	2335	14-Dec-91	LAHS	PB	Hisp.	Kelp Bass	5	225	1.13	1.13
2017	2337	14-Dec-91	LAHS	PB	Hisp.	Barred Sand Bass	1	180	0.18	
2017	2337	14-Dec-91	LAHS	PB	Hisp.	Kelp Bass	5	180	0.90	1.08
2017	2338	14-Dec-91	LAHS	PB	White	Kelp Bass	1	150	0.15	
2017	2338	14-Dec-91	LAHS	PB	White	Barred Sand Bass	1	150	0.15	
2017	2338	14-Dec-91	LAHS	PB	White	California Sheepshead	1	150	0.15	0.45
2017	2339	14-Dec-91	LAHS	PB	Black	Lingcod	1	450	0.45	
2017	2339	14-Dec-91	LAHS	PB	Black	Rockfish, unidentified	1	450	0.45	
2017	2339	14-Dec-91	LAHS	PB	Black	Kelp Bass	5	450	2.25	
2017	2339	14-Dec-91	LAHS	PB	Black	California Sheepshead	2	450	0.90	
2017	2339	14-Dec-91	LAHS	PB	Black	Bocaccio	4	450	1.80	
2017	2339	14-Dec-91	LAHS	PB	Black	California Scorpionfish	1	450	0.45	6.30
2017	2340	14-Dec-91	LAHS	PB	White	Barred Sand Bass	1	300	0.30	
2017	2340	14-Dec-91	LAHS	PB	White	California Scorpionfish	1	300	0.30	
2017	2340	14-Dec-91	LAHS	PB	White	Kelp Bass	1	300	0.30	
2017	2340	14-Dec-91	LAHS	PB	White	California Sheepshead	1	300	0.30	
2017	2340	14-Dec-91	LAHS	PB	White	Chub Mackerel	4	300	1.20	2.40
2017	2342	14-Dec-91	LAHS	PB	Chin.	California Halibut	1	225	0.23	
2017	2342	14-Dec-91	LAHS	PB	Chin.	Halfmoon	1	225	0.23	
2017	2342	14-Dec-91	LAHS	PB	Chin.	Other fish	2	225	0.45	
2017	2342	14-Dec-91	LAHS	PB	Chin.	California Scorpionfish	8	225	1.80	
2017	2342	14-Dec-91	LAHS	PB	Chin.	Kelp Bass	10	225	2.25	
2017	2342	14-Dec-91	LAHS	PB	Chin.	Treafish	1	225	0.23	
2017	2342	14-Dec-91	LAHS	PB	Chin.	Black Perch	3	225	0.68	
2017	2342	14-Dec-91	LAHS	PB	Chin.	Barred Sand Bass	1	225	0.23	
2017	2342	14-Dec-91	LAHS	PB	Chin.	Chub Mackerel	1	225	0.23	
2017	2342	14-Dec-91	LAHS	PB	Chin.	Blue Rockfish	1	225	0.23	

Appendix 11 (continued)

Census	Survey	Date	Location	Mode	Ethnic	Species	Consumption Frequency (Times/mo)	Meal Size (gm)	Species Consumption Rate (kg)	Total Consumption (kg/ind/mo)
2017	2342	14-Dec-91	LAHS	PB	Chin.	Opaleye	3	225	0.68	
2017	2342	14-Dec-91	LAHS	PB	Chin.	Ocean Whitefish	3	225	0.68	7.88
2017	2344	14-Dec-91	LAHS	PB	Chin.	Kelp Bass	1	1200	1.20	
2017	2344	14-Dec-91	LAHS	PB	Chin.	California Sheepshead	2	1200	2.40	3.60
2017	2345	14-Dec-91	LAHS	PB	Black	Kelp Bass	1	225	0.23	
2017	2345	14-Dec-91	LAHS	PB	Black	Chub Mackerel	1	225	0.23	
2017	2345	14-Dec-91	LAHS	PB	Black	Gopher Rockfish	1	225	0.23	
2017	2345	14-Dec-91	LAHS	PB	Black	Grass Rockfish	1	225	0.23	
2017	2345	14-Dec-91	LAHS	PB	Black	Halfmoon	1	225	0.23	
2017	2345	14-Dec-91	LAHS	PB	Black	California Scorpionfish	1	225	0.23	1.35
2017	2346	14-Dec-91	LAHS	PB	White	Chub Mackerel	1	1500	1.50	
2017	2346	14-Dec-91	LAHS	PB	White	Kelp Bass	1	1500	1.50	
2017	2346	14-Dec-91	LAHS	PB	White	Halfmoon	1	1500	1.50	
2017	2346	14-Dec-91	LAHS	PB	White	California Scorpionfish	1	1500	1.50	
2017	2346	14-Dec-91	LAHS	PB	White	Barred Sand Bass	1	1500	1.50	
2017	2346	14-Dec-91	LAHS	PB	White	Rockfish, unidentified	1	1500	1.50	9.00
2018	2350	18-Dec-91	MDRS	PB	Kore.	Barred Sand Bass	1	150	0.15	0.15
2018	2352	18-Dec-91	MDRS	PB	Black	Kelp Bass	5	225	1.13	1.13
2018	2354	18-Dec-91	MDRS	PB	White	California Halibut	1	225	0.23	0.23
2018	2355	18-Dec-91	MDRS	PB	White	California Halibut	2	150	0.30	0.30
2018	2356	18-Dec-91	MDRS	PB	Kore.	Kelp Bass	4	450	1.80	
2018	2356	18-Dec-91	MDRS	PB	Kore.	California Halibut	4	450	1.80	3.60
2018	2357	18-Dec-91	MDRS	PB	White	California Halibut	1	225	0.23	
2018	2357	18-Dec-91	MDRS	PB	White	California Scorpionfish	1	225	0.23	
2018	2357	18-Dec-91	MDRS	PB	White	Rockfish, unidentified	1	225	0.23	0.68
2018	2358	18-Dec-91	MDRS	PB	White	California Halibut	2	300	0.60	0.60
2018	2359	18-Dec-91	MDRS	PB	Japa.	California Scorpionfish	2	300	0.60	
2018	2359	18-Dec-91	MDRS	PB	Japa.	Barred Sand Bass	2	300	0.60	
2018	2359	18-Dec-91	MDRS	PB	Japa.	Rockfish, unidentified	2	300	0.60	1.80
2019	2363	13-Jan-92	MSB	PB	Hisp.	Rockfish, unidentified	2	300	0.60	0.60
2019	2368	13-Jan-92	MSB	PB	White	Rockfish, unidentified	1	225	0.23	
2019	2368	13-Jan-92	MSB	PB	White	Olive Rockfish	1	225	0.23	0.45
2019	2367	13-Jan-92	MSB	PB	White	Bocaccio	1	225	0.23	0.23
2020	2374	25-Jan-92	RSBT	PB	White	California Scorpionfish	1	300	0.30	
2020	2374	25-Jan-92	RSBT	PB	White	Copper Rockfish	1	300	0.30	
2020	2374	25-Jan-92	RSBT	PB	White	Bocaccio	1	300	0.30	0.90
2020	2375	25-Jan-92	RSBT	PB	White	Rockfish, unidentified	1	225	0.23	0.23
2020	2378	25-Jan-92	RSBT	PB	Viet.	California Scorpionfish	1	600	0.60	
2020	2378	25-Jan-92	RSBT	PB	Viet.	Rockfish, unidentified	2	600	1.20	
2020	2378	25-Jan-92	RSBT	PB	Viet.	Barred Sand Bass	1	600	0.60	
2020	2378	25-Jan-92	RSBT	PB	Viet.	Bocaccio	1	600	0.60	3.00
2020	2382	25-Jan-92	RSBT	PB	White	Greenstriped Rockfish	1	225	0.23	
2020	2382	25-Jan-92	RSBT	PB	White	Greenspotted Rockfish	1	225	0.23	0.45
2020	2383	25-Jan-92	RSBT	PB	White	Bocaccio	1	225	0.23	
2020	2383	25-Jan-92	RSBT	PB	White	Greenspotted Rockfish	1	225	0.23	
2020	2383	25-Jan-92	RSBT	PB	White	Flag Rockfish	1	225	0.23	0.68
2020	2384	25-Jan-92	RSBT	PB	Chin.	Barred Sand Bass	1	150	0.15	
2020	2384	25-Jan-92	RSBT	PB	Chin.	California Scorpionfish	2	150	0.30	
2020	2384	25-Jan-92	RSBT	PB	Chin.	Kelp Bass	2	150	0.30	0.75
2020	2385	25-Jan-92	RSBT	PB	Chin.	Kelp Bass	2	300	0.60	
2020	2385	25-Jan-92	RSBT	PB	Chin.	Bocaccio	1	300	0.30	
2020	2385	25-Jan-92	RSBT	PB	Chin.	California Scorpionfish	2	300	0.60	
2020	2385	25-Jan-92	RSBT	PB	Chin.	Barred Sand Bass	1	300	0.30	1.80
2020	2389	25-Jan-92	RSBT	PB	Kore.	Bocaccio	1	75	0.08	
2020	2389	25-Jan-92	RSBT	PB	Kore.	Greenstriped Rockfish	1	75	0.08	
2020	2389	25-Jan-92	RSBT	PB	Kore.	Flag Rockfish	1	75	0.08	
2020	2389	25-Jan-92	RSBT	PB	Kore.	Starry Rockfish	1	75	0.08	0.30
2020	2390	25-Jan-92	RSBT	PB	Hisp.	Starry Rockfish	1	225	0.23	
2020	2390	25-Jan-92	RSBT	PB	Hisp.	Bocaccio	1	225	0.23	
2020	2390	25-Jan-92	RSBT	PB	Hisp.	Greenstriped Rockfish	1	225	0.23	
2020	2390	25-Jan-92	RSBT	PB	Hisp.	Kelp Bass	1	225	0.23	0.90
2020	2392	25-Jan-92	RSBT	PB	Chin.	Bocaccio	1	300	0.30	
2020	2392	25-Jan-92	RSBT	PB	Chin.	Flag Rockfish	1	300	0.30	0.60
2020	2394	25-Jan-92	RSBT	PB	Fili.	Flag Rockfish	1	75	0.08	
2020	2394	25-Jan-92	RSBT	PB	Fili.	Copper Rockfish	1	75	0.08	
2020	2394	25-Jan-92	RSBT	PB	Fili.	Bocaccio	9	75	0.68	0.68
2020	2395	25-Jan-92	RSBT	PB	Fili.	Bocaccio	9	75	0.68	
2020	2396	25-Jan-92	RSBT	PB	Hisp.	Starry Rockfish	1	225	0.23	
2020	2396	25-Jan-92	RSBT	PB	Hisp.	Greenstriped Rockfish	1	225	0.23	
2020	2396	25-Jan-92	RSBT	PB	Hisp.	Rockfish, unidentified	1	225	0.23	
2020	2396	25-Jan-92	RSBT	PB	Hisp.	Chub Mackerel	1	225	0.23	0.90
2021	2399	19-Feb-92	MSB	PB	White	Rockfish, unidentified	3	600	1.80	1.80
2021	2401	19-Feb-92	MSB	PB	White	Rockfish, unidentified	2	600	1.20	1.20
2022	2408	29-Feb-92	MDRS	PB	Hisp.	Kelp Bass	2	150	0.30	
2022	2408	29-Feb-92	MDRS	PB	Hisp.	Barred Sand Bass	2	150	0.30	0.60
2022	2409	29-Feb-92	MDRS	PB	White	California Halibut	1	150	0.15	0.15
2022	2411	29-Feb-92	MDRS	PB	White	Kelp Bass	1	150	0.15	
2022	2411	29-Feb-92	MDRS	PB	White	Barred Sand Bass	2	150	0.30	0.45
2022	2417	29-Feb-92	MDRS	PB	Black	Kelp Bass	2	225	0.45	
2022	2417	29-Feb-92	MDRS	PB	Black	California Scorpionfish	2	225	0.45	
2022	2417	29-Feb-92	MDRS	PB	Black	Barred Sand Bass	2	225	0.45	1.35

Appendix 11 (continued)

Census	Survey	Date	Location	Mode	Ethnic	Species	Consumption Frequency (Times/mo)	Meal Size (gm)	Species Consumption Rate (kg)	Total Consumption (kg/ind/mo)
2022	2420	29-Feb-92	MDRS	PB	Other	Pacific Bonito	1	300	0.30	
2022	2420	29-Feb-92	MDRS	PB	Other	California Scorpionfish	3	300	0.90	
2022	2420	29-Feb-92	MDRS	PB	Other	Kelp Bass	3	300	0.90	2.10
2023	2427	12-Mar-92	LAHS	PB	White	Rockfish, unidentified	5	225	1.13	
2023	2427	12-Mar-92	LAHS	PB	White	California Scorpionfish	5	225	1.13	
2023	2427	12-Mar-92	LAHS	PB	White	Sanddab, unidentified	5	225	1.13	
2023	2427	12-Mar-92	LAHS	PB	White	Kelp Bass	1	225	0.23	3.60
2023	2429	12-Mar-92	LAHS	PB	White	Barred Sand Bass	5	150	0.75	
2023	2429	12-Mar-92	LAHS	PB	White	Halfmoon	3	150	0.45	
2023	2429	12-Mar-92	LAHS	PB	White	California Sheephead	3	150	0.45	
2023	2429	12-Mar-92	LAHS	PB	White	Kelp Bass	8	150	0.90	2.55
2023	2433	12-Mar-92	LAHS	PB	Black	Kelp Bass	2	225	0.45	
2023	2432	12-Mar-92	LAHS	PB	Black	Jacksnelt	1	225	0.23	
2023	2435	12-Mar-92	LAHS	PB	Black	Halfmoon	1	225	0.23	0.90
2023	2443	12-Mar-92	LAHS	PB	Hisp.	Halfmoon	1	150	0.15	0.23
2023	2442	12-Mar-92	LAHS	PB	Hisp.	Kelp Bass	1	150	0.15	
2023	2443	12-Mar-92	LAHS	PB	Hisp.	California Scorpionfish	1	150	0.15	0.45
2023	2456	12-Mar-92	LAHS	PB	White	California Scorpionfish	1	225	0.23	
2023	2450	12-Mar-92	LAHS	PB	White	Rockfish, unidentified	1	225	0.23	
2023	2450	12-Mar-92	LAHS	PB	White	Barred Sand Bass	2	225	0.45	
2023	2450	12-Mar-92	LAHS	PB	White	Kelp Bass	3	225	0.68	1.58
2023	2451	12-Mar-92	LAHS	PB	White	Kelp Bass	2	225	0.45	0.45
2024	2452	28-Mar-92	RSBT	PB	Chin.	Barred Sand Bass	1	300	0.30	0.30
2024	2455	28-Mar-92	RSBT	PB	White	Barred Sand Bass	1	450	0.45	
2024	2456	28-Mar-92	RSBT	PB	White	Halfmoon	1	450	0.45	0.90
2024	2457	28-Mar-92	RSBT	PB	White	Halfmoon	1	600	0.60	0.60
2024	2456	28-Mar-92	RSBT	PB	Japa.	Chub Mackerel	1	150	0.15	
2024	2458	28-Mar-92	RSBT	PB	Japa.	California Scorpionfish	1	150	0.15	
2024	2458	28-Mar-92	RSBT	PB	Japa.	Triggerfish, unidentified	1	150	0.15	
2024	2459	28-Mar-92	RSBT	PB	Japa.	Barred Sand Bass	1	150	0.15	
2024	2458	28-Mar-92	RSBT	PB	Japa.	Ocean Whitefish	1	150	0.15	0.75
2024	2459	28-Mar-92	RSBT	PB	Japa.	Barred Sand Bass	1	150	0.15	
2024	2459	28-Mar-92	RSBT	PB	Japa.	California Scorpionfish	1	150	0.15	
2024	2457	28-Mar-92	RSBT	PB	Japa.	Rockfish, unidentified	1	150	0.15	
2024	2459	28-Mar-92	RSBT	PB	Japa.	Halfmoon	1	150	0.15	0.60
2025	2471	13-Apr-92	MSB	PB	White	Pacific Barracuda	1	225	0.23	0.23
2025	2472	13-Apr-92	MSB	PB	White	Rockfish, unidentified	2	150	0.30	
2025	2472	13-Apr-92	MSB	PB	White	Barred Sand Bass	2	150	0.30	
2025	2474	13-Apr-92	MSB	PB	White	Olive Rockfish	2	150	0.30	0.90
2025	2473	13-Apr-92	MSB	PB	White	Rockfish, unidentified	1	300	0.30	0.30
2025	2473	13-Apr-92	MSB	PB	White	Rockfish, unidentified	1	300	0.30	
2025	2474	13-Apr-92	MSB	PB	Chin.	Kelp Bass	2	600	1.20	
2025	2475	13-Apr-92	MSB	PB	Chin.	Bocaccio	1	600	0.60	
2025	2474	13-Apr-92	MSB	PB	Chin.	Barred Sand Bass	2	600	1.20	
2025	2475	13-Apr-92	MSB	PB	Chin.	Squarespot Rockfish	1	600	0.60	3.60
2025	2474	13-Apr-92	MSB	PB	Hisp.	Squarespot Rockfish	1	225	0.23	
2025	2479	13-Apr-92	MSB	PB	Hisp.	Chub Mackerel	1	225	0.23	0.45
2026	2482	25-Apr-92	LAHS	PB	Japa.	Kelp Bass	1	600	0.60	0.60
2026	2483	25-Apr-92	LAHS	PB	White	Barred Sand Bass	1	225	0.23	0.23
2026	2483	25-Apr-92	LAHS	PB	White	Kelp Bass	1	225	0.23	
2026	2487	25-Apr-92	LAHS	PB	White	Kelp Bass	1	300	0.30	
2026	2487	25-Apr-92	LAHS	PB	White	Pacific Barracuda	1	300	0.30	0.60
2026	2482	25-Apr-92	LAHS	PB	White	Barred Sand Bass	1	300	0.30	
2026	2488	25-Apr-92	LAHS	PB	White	Kelp Bass	1	300	0.30	0.60
2026	2486	25-Apr-92	LAHS	PB	White	Kelp Bass	1	150	0.15	0.15
2026	2487	25-Apr-92	LAHS	PB	Black	Kelp Bass	1	150	0.15	0.15
2026	2482	25-Apr-92	LAHS	PB	White	Kelp Bass	1	225	0.23	0.23
2026	2493	25-Apr-92	LAHS	PB	Hisp.	Barred Sand Bass	1	450	0.45	
2026	2494	25-Apr-92	LAHS	PB	White	Barred Sand Bass	1	150	0.15	0.15
2026	2495	25-Apr-92	LAHS	PB	Hisp.	Chub Mackerel	1	450	0.45	0.45
2026	2496	25-Apr-92	LAHS	PB	Hisp.	Kelp Bass	1	450	0.45	0.45
2026	2499	25-Apr-92	LAHS	PB	Fili.	Kelp Bass	1	225	0.23	
2026	2500	25-Apr-92	LAHS	PB	Hisp.	Chub Mackerel	6	450	2.70	
2026	2500	25-Apr-92	LAHS	PB	Hisp.	Pacific Barracuda	2	450	0.90	
2026	2500	25-Apr-92	LAHS	PB	Hisp.	Barred Sand Bass	2	450	0.90	
2026	2500	25-Apr-92	LAHS	PB	Hisp.	Yellowtail	1	450	0.45	4.05
2026	2508	25-Apr-92	LAHS	PB	White	Pacific Barracuda	1	600	0.60	
2026	2506	25-Apr-92	LAHS	PB	White	White Seabass	1	600	0.60	
2026	2506	25-Apr-92	LAHS	PB	White	Barred Sand Bass	1	600	0.60	1.80
2026	2507	25-Apr-92	LAHS	PB	White	Barred Sand Bass	3	450	1.35	
2026	2507	25-Apr-92	LAHS	PB	White	Kelp Bass	4	450	1.80	
2026	2507	25-Apr-92	LAHS	PB	White	Pacific Barracuda	1	450	0.45	3.60
2026	2508	25-Apr-92	LAHS	PB	White	Other fish	2	300	0.60	0.60
2027	2512	06-May-92	RSB	PB	Fili.	Chub Mackerel	8	225	1.80	1.80
2027	2517	06-May-92	RSB	PB	Hisp.	Chub Mackerel	1	225	0.23	0.23
2027	2518	06-May-92	RSB	PB	Black	Chub Mackerel	1	300	0.30	0.30
2027	2520	06-May-92	RSB	PB	Black	Chub Mackerel	1	225	0.23	0.23
2027	2521	06-May-92	RSB	PB	Other	Chub Mackerel	5	225	1.13	
2027	2521	06-May-92	RSB	PB	Other	Pacific Bonito	5	225	1.13	
2027	2521	06-May-92	RSB	PB	Other	Barred Sand Bass	2	225	0.45	2.70
2027	2522	06-May-92	RSB	PB	Fili.	Chub Mackerel	1	150	0.15	0.15

Appendix 11 (continued)

Census	Survey	Date	Location	Mode	Ethnic	Species	Consumption Frequency (Times/mo)	Meal Size (gm)	Species Consumption Rate (kg)	Total Consumption (kg/ind/mo)
2027	2526	06-May-92	RSB	PB	White	Pacific Bonito	1	225	0.23	
2027	2528	06-May-92	RSB	PB	White	Chub Mackerel	1	225	0.23	0.45
2028	2538	16-May-92	MDRS	PB	Hisp.	Pacific Barracuda	1	300	0.30	0.30
2028	2539	16-May-92	MDRS	PB	White	Pacific Barracuda	1	300	0.30	
2028	2539	16-May-92	MDRS	PB	White	Kelp Bass	1	300	0.30	
2028	2539	16-May-92	MDRS	PB	White	Barred Sand Bass	1	300	0.30	0.90
2028	2541	16-May-92	MDRS	PB	Chin.	Kelp Bass	1	300	0.30	
2028	2541	16-May-92	MDRS	PB	Chin.	Pacific Barracuda	1	300	0.30	
2028	2541	16-May-92	MDRS	PB	Chin.	Barred Sand Bass	5	300	1.50	
2028	2541	16-May-92	MDRS	PB	Chin.	Pacific Bonito	2	300	0.60	2.70
2028	2544	16-May-92	MDRS	PB	Hisp.	Pacific Bonito	5	225	1.13	
2028	2544	16-May-92	MDRS	PB	Hisp.	California Halibut	3	225	0.68	
2028	2544	16-May-92	MDRS	PB	Hisp.	Lingcod	2	225	0.45	
2028	2544	16-May-92	MDRS	PB	Hisp.	Barred Sand Bass	9	225	2.03	
2028	2544	16-May-92	MDRS	PB	Hisp.	Kelp Bass	8	225	1.80	6.08
2028	2547	16-May-92	MDRS	PB	White	Kelp Bass	1	150	0.15	
2028	2547	16-May-92	MDRS	PB	White	Pacific Barracuda	1	150	0.15	0.30
2028	2548	16-May-92	MDRS	PB	Kore.	Kelp Bass	5	150	0.75	
2028	2548	16-May-92	MDRS	PB	Kore.	Barred Sand Bass	5	150	0.75	
2028	2548	16-May-92	MDRS	PB	Kore.	Pacific Barracuda	1	150	0.15	1.65
2028	2549	16-May-92	MDRS	PB	Kore.	Barred Sand Bass	18	225	4.05	
2028	2549	16-May-92	MDRS	PB	Kore.	Kelp Bass	10	225	2.25	
2028	2549	16-May-92	MDRS	PB	Kore.	Pacific Barracuda	2	225	0.45	6.75
2028	2551	16-May-92	MDRS	PB	Chin.	Pacific Barracuda	1	300	0.30	0.30
2028	2553	16-May-92	MDRS	PB	White	Kelp Bass	7	600	4.20	
2028	2553	16-May-92	MDRS	PB	White	California Halibut	3	600	1.80	
2028	2553	16-May-92	MDRS	PB	White	Pacific Barracuda	1	600	0.60	
2028	2553	16-May-92	MDRS	PB	White	Barred Sand Bass	8	600	4.80	11.40
2029	2565	02-Jun-92	RSBT	PB	Kore.	Pacific Bonito	1	150	0.15	
2029	2565	02-Jun-92	RSBT	PB	Kore.	Kelp Bass	1	150	0.15	
2029	2565	02-Jun-92	RSBT	PB	Kore.	Squarespot Rockfish	1	150	0.15	0.45
2029	2567	02-Jun-92	RSBT	PB	White	Chub Mackerel	1	150	0.15	
2029	2567	02-Jun-92	RSBT	PB	White	Kelp Bass	1	150	0.15	0.30
2029	2568	02-Jun-92	RSBT	PB	Black	Chub Mackerel	1	300	0.30	
2029	2568	02-Jun-92	RSBT	PB	Black	California Scorpionfish	1	450	0.45	0.75
2029	2569	02-Jun-92	RSBT	PB	Japa.	Barred Sand Bass	5	450	2.25	
2029	2569	02-Jun-92	RSBT	PB	Japa.	Pacific Barracuda	3	450	1.35	
2029	2569	02-Jun-92	RSBT	PB	Japa.	Kelp Bass	5	450	2.25	5.85
2029	2570	02-Jun-92	RSBT	PB	Fili.	Kelp Bass	1	113	0.11	0.11
2029	2571	02-Jun-92	RSBT	PB	White	California Scorpionfish	1	300	0.30	
2029	2571	02-Jun-92	RSBT	PB	White	Kelp Bass	10	300	3.00	
2029	2571	02-Jun-92	RSBT	PB	White	Pacific Barracuda	8	300	2.40	
2029	2571	02-Jun-92	RSBT	PB	White	Barred Sand Bass	3	300	0.90	
2029	2571	02-Jun-92	RSBT	PB	White	California Sheepshead	3	300	0.90	
2029	2571	02-Jun-92	RSBT	PB	White	Pacific Bonito	1	300	0.30	7.80
2029	2572	02-Jun-92	RSBT	PB	White	Kelp Bass	1	150	0.15	0.15
2029	2573	02-Jun-92	RSBT	PB	White	Squarespot Rockfish	1	225	0.23	
2029	2573	02-Jun-92	RSBT	PB	White	Cabezon	1	225	0.23	
2029	2573	02-Jun-92	RSBT	PB	White	Barred Sand Bass	2	225	0.45	
2029	2573	02-Jun-92	RSBT	PB	White	Pacific Bonito	1	225	0.23	
2029	2573	02-Jun-92	RSBT	PB	White	Kelp Bass	3	225	0.68	
2029	2573	02-Jun-92	RSBT	PB	White	California Halibut	1	225	0.23	
2029	2573	02-Jun-92	RSBT	PB	White	Pacific Barracuda	1	225	0.23	2.25
2029	2578	02-Jun-92	RSBT	PB	White	Barred Sand Bass	4	150	0.60	
2029	2576	02-Jun-92	RSBT	PB	White	Kelp Bass	4	150	0.60	1.20
2029	2578	02-Jun-92	RSBT	PB	White	Pacific Bonito	1	150	0.15	0.15
2029	2579	02-Jun-92	RSBT	PB	White	Barred Sand Bass	7	300	2.10	
2029	2579	02-Jun-92	RSBT	PB	White	Kelp Bass	4	300	1.20	
2029	2579	02-Jun-92	RSBT	PB	White	Pacific Bonito	2	300	0.60	
2029	2579	02-Jun-92	RSBT	PB	White	Pacific Barracuda	1	300	0.30	4.20
2029	2580	02-Jun-92	RSBT	PB	White	Pacific Bonito	2	600	1.20	
2029	2580	02-Jun-92	RSBT	PB	White	Barred Sand Bass	8	600	4.80	
2029	2580	02-Jun-92	RSBT	PB	White	Kelp Bass	8	600	4.80	
2029	2580	02-Jun-92	RSBT	PB	White	Pacific Barracuda	8	150	1.20	
2029	2580	02-Jun-92	RSBT	PB	White	California Scorpionfish	2	600	1.20	13.20
2029	2581	02-Jun-92	RSBT	PB	Black	Pacific Bonito	3	450	1.35	1.35
2029	2591	11-Jun-92	MDRS	PB	Black	Chub Mackerel	4	300	1.20	
2030	2587	11-Jun-92	MDRS	PB	Kore.	Kelp Bass	1	150	0.15	
2030	2587	11-Jun-92	MDRS	PB	Kore.	Barred Sand Bass	1	150	0.15	
2030	2587	11-Jun-92	MDRS	PB	Kore.	Pacific Barracuda	1	150	0.15	
2030	2588	11-Jun-92	MDRS	PB	White	Pacific Barracuda	3	225	0.68	0.68
2030	2589	11-Jun-92	MDRS	PB	White	Pacific Barracuda	1	450	0.45	0.45
2030	2590	11-Jun-92	MDRS	PB	White	Pacific Barracuda	1	300	0.30	
2030	2590	11-Jun-92	MDRS	PB	White	Pacific Barracuda	4	300	1.20	1.50
2030	2591	11-Jun-92	MDRS	PB	Black	Kelp Bass, unidentified	1	300	0.30	0.30
2030	2593	11-Jun-92	MDRS	PB	White	Barred Sand Bass	2	300	0.60	
2030	2593	11-Jun-92	MDRS	PB	White	Kelp Bass	2	300	0.60	1.20
2030	2595	11-Jun-92	MDRS	PB	White	Kelp Bass	4	300	2.40	
2030	2595	11-Jun-92	MDRS	PB	White	California Halibut	3	600	1.80	
2030	2595	11-Jun-92	MDRS	PB	White	Pacific Barracuda	2	600	1.20	
2030	2595	11-Jun-92	MDRS	PB	White	Barred Sand Bass	4	600	2.40	7.80

Appendix 11 (continued)

Census	Survey	Date	Location	Mode	Ethnic	Species	Consumption Frequency (Times/mo)	Meal Size (gm)	Species Consumption Rate (kg)	Total Consumption (kg/ind/mo)
2030	2596	11-Jun-92	MDRS	PB	Japa.	Pacific Barracuda	1	150	0.15	0.15
2030	2598	11-Jun-92	MDRS	PB	White	Barred Sand Bass	2	600	1.20	1.20
2030	2599	11-Jun-92	MDRS	PB	Hisp.	Pacific Barracuda	1	300	0.30	0.30
2031	2611	13-Jun-92	MSB	PB	Black	Kelp Bass	1	600	0.60	0.60
2031	2612	13-Jun-92	MSB	PB	Hisp.	California Halibut	1	300	0.30	0.30
2031	2613	13-Jun-92	MSB	PB	White	Pacific Barracuda	2	300	0.60	0.60
2031	2614	13-Jun-92	MSB	PB	White	Pacific Barracuda	2	150	0.30	
2031	2614	13-Jun-92	MSB	PB	White	California Halibut	1	150	0.15	0.45
2031	2615	13-Jun-92	MSB	PB	White	California Halibut	4	300	1.20	
2031	2615	13-Jun-92	MSB	PB	White	Kelp Bass	4	300	1.20	
2031	2615	13-Jun-92	MSB	PB	White	White Seabass	2	300	0.60	3.00
2032	2628	27-Jun-92	RSB	PB	Black	California Scorpionfish	1	300	0.30	
2032	2628	27-Jun-92	RSB	PB	Black	Chub Mackerel	1	300	0.30	0.60
2032	2629	27-Jun-92	RSB	PB	Hisp.	Pacific Bonito	3	150	0.45	0.45
2032	2634	27-Jun-92	RSB	PB	White	Chub Mackerel	3	150	0.45	0.45
2032	2635	27-Jun-92	RSB	PB	White	Chub Mackerel	1	225	0.23	0.23
2032	2641	27-Jun-92	RSB	PB	Hisp.	Chub Mackerel	6	150	0.90	0.90
2032	2642	27-Jun-92	RSB	PB	White	Chub Mackerel	1	150	0.15	0.15
2032	2645	27-Jun-92	RSB	PB	Black	Pacific Barracuda	1	75	0.08	0.08
2032	2648	27-Jun-92	RSB	PB	Fili.	Vermilion Rockfish	1	300	0.30	0.30
2032	2652	27-Jun-92	RSB	PB	Hisp.	Chub Mackerel	1	150	0.15	0.15
2034	2676	12-Jul-92	MDRS	PB	Kore.	Kelp Bass	1	150	0.15	
2034	2676	12-Jul-92	MDRS	PB	Kore.	Barred Sand Bass	2	150	0.30	0.45
2034	2679	12-Jul-92	MDRS	PB	Kore.	Barred Sand Bass	4	300	1.20	
2034	2679	12-Jul-92	MDRS	PB	Kore.	Kelp Bass	3	300	0.90	
2034	2679	12-Jul-92	MDRS	PB	Kore.	California Halibut	2	300	0.60	2.70
2034	2680	12-Jul-92	MDRS	PB	Kore.	Barred Sand Bass	1	300	0.30	0.30
2034	2681	12-Jul-92	MDRS	PB	White	Pacific Barracuda	5	300	1.50	
2034	2681	12-Jul-92	MDRS	PB	White	Barred Sand Bass	6	300	1.80	
2034	2681	12-Jul-92	MDRS	PB	White	Kelp Bass	2	300	0.60	
2034	2681	12-Jul-92	MDRS	PB	White	California Halibut	1	300	0.30	4.20
2034	2682	12-Jul-92	MDRS	PB	Black	Pacific Barracuda	8	375	3.00	
2034	2682	12-Jul-92	MDRS	PB	Black	Kelp Bass	8	375	3.00	
2034	2682	12-Jul-92	MDRS	PB	Black	California Scorpionfish	1	375	0.38	
2034	2682	12-Jul-92	MDRS	PB	Black	California Halibut	8	375	3.00	
2034	2682	12-Jul-92	MDRS	PB	Black	Barred Sand Bass	9	375	3.38	12.75
2034	2684	12-Jul-92	MDRS	PB	Kore.	White Seabass	1	150	0.15	
2034	2684	12-Jul-92	MDRS	PB	Kore.	Pacific Bonito	2	150	0.30	
2034	2684	12-Jul-92	MDRS	PB	Kore.	Pacific Barracuda	1	150	0.15	
2034	2684	12-Jul-92	MDRS	PB	Kore.	Barred Sand Bass	1	150	0.15	
2034	2685	12-Jul-92	MDRS	PB	Hisp.	Kelp Bass	1	450	0.45	
2034	2686	12-Jul-92	MDRS	PB	Hisp.	Barred Sand Bass	1	450	0.45	
2034	2686	12-Jul-92	MDRS	PB	Hisp.	Chub Mackerel	1	450	0.45	
2034	2686	12-Jul-92	MDRS	PB	Hisp.	Rockfish, unidentified	8	450	3.60	4.50
2034	2688	12-Jul-92	MDRS	PB	White	California Halibut	5	525	2.63	
2034	2688	12-Jul-92	MDRS	PB	White	Yellowtail	5	525	2.63	
2034	2688	12-Jul-92	MDRS	PB	White	Rockfish, unidentified	5	525	2.63	
2034	2688	12-Jul-92	MDRS	PB	White	Barred Sand Bass	6	525	3.15	
2034	2688	12-Jul-92	MDRS	PB	White	Kelp Bass	5	525	2.63	13.65
2034	2689	12-Jul-92	MDRS	PB	White	Pacific Barracuda	1	300	0.30	0.30
2034	2690	12-Jul-92	MDRS	PB	White	Pacific Barracuda	5	300	1.50	
2034	2690	12-Jul-92	MDRS	PB	White	Barred Sand Bass	6	300	1.80	
2034	2690	12-Jul-92	MDRS	PB	White	Kelp Bass	2	300	0.60	
2034	2690	12-Jul-92	MDRS	PB	White	California Halibut	1	300	0.30	4.20
2034	2691	12-Jul-92	MDRS	PB	White	Pacific Bonito	3	450	1.35	
2034	2691	12-Jul-92	MDRS	PB	White	Barred Sand Bass	1	450	0.45	
2034	2691	12-Jul-92	MDRS	PB	White	Pacific Barracuda	3	450	1.35	3.15
2034	2692	12-Jul-92	MDRS	PB	Other	Barred Sand Bass	6	300	1.80	
2034	2692	12-Jul-92	MDRS	PB	Other	Kelp Bass	20	300	6.00	
2034	2692	12-Jul-92	MDRS	PB	Other	Pacific Bonito	5	300	1.50	
2034	2692	12-Jul-92	MDRS	PB	Other	California Halibut	1	300	0.30	9.60
2034	2693	12-Jul-92	MDRS	PB	White	Pacific Barracuda	6	600	3.60	
2034	2693	12-Jul-92	MDRS	PB	White	California Halibut	1	600	0.60	
2034	2693	12-Jul-92	MDRS	PB	White	Barred Sand Bass	12	600	7.20	11.40
2035	2713	20-Jul-92	RSBT	PB	Hisp.	Pacific Barracuda	1	300	0.30	0.30
2035	2714	20-Jul-92	RSBT	PB	Hisp.	Pacific Barracuda	1	300	0.30	0.30
2035	2717	20-Jul-92	RSBT	PB	Black	Kelp Bass	6	150	0.90	
2035	2717	20-Jul-92	RSBT	PB	Black	Barred Sand Bass	1	150	0.15	
2035	2717	20-Jul-92	RSBT	PB	Black	Pacific Barracuda	7	150	1.05	2.10
2035	2718	20-Jul-92	RSBT	PB	Kore.	California Scorpionfish	1	300	0.30	
2035	2718	20-Jul-92	RSBT	PB	Kore.	Rockfish, unidentified	2	300	0.60	
2035	2718	20-Jul-92	RSBT	PB	Kore.	Barred Sand Bass	5	300	1.50	
2035	2718	20-Jul-92	RSBT	PB	Kore.	Kelp Bass	2	300	0.60	3.00
2035	2721	20-Jul-92	RSBT	PB	White	Kelp Bass	1	300	0.30	
2035	2721	20-Jul-92	RSBT	PB	White	Barred Sand Bass	1	300	0.30	0.60
2036	2729	26-Jul-92	MDRS	PB	White	Barred Sand Bass	1	300	0.30	0.30
2036	2731	26-Jul-92	MDRS	PB	Kore.	California Halibut	1	300	0.30	
2036	2731	26-Jul-92	MDRS	PB	Kore.	Pacific Barracuda	4	300	1.20	
2036	2731	26-Jul-92	MDRS	PB	Kore.	Barred Sand Bass	5	300	1.50	3.00
2036	2732	26-Jul-92	MDRS	PB	White	Pacific Barracuda	12	150	1.80	1.80
2036	2734	26-Jul-92	MDRS	PB	White	Pacific Barracuda	1	300	0.30	

Appendix 11 (continued)

Census	Survey	Date	Location	Mode	Ethnic	Species	Consumption Frequency (Times/mo)	Meal Size (gm)	Species Consumption Rate (kg)	Total Consumption (kg/ind/mo)
2036	2734	26-Jul-92	MDRS	PB	White	Barred Sand Bass	14	300	4.20	4.50
2038	2737	26-Jul-92	MDRS	PB	Hiep.	Barred Sand Bass	2	300	0.60	0.60
2037	2742	01-Aug-92	MSB	PB	White	Pacific Barracuda	1	150	0.15	
2037	2742	01-Aug-92	MSB	PB	White	Barred Sand Bass	1	150	0.15	0.30
2037	2743	01-Aug-92	MSB	PB	White	White Seabass	1	150	0.15	
2037	2743	01-Aug-92	MSB	PB	White	Kelp Bass	2	150	0.30	0.45
2037	2745	01-Aug-92	MSB	PB	White	Kelp Bass	1	450	0.45	
2037	2745	01-Aug-92	MSB	PB	White	Barred Sand Bass	1	450	0.45	0.90
2037	2746	01-Aug-92	MSB	PB	Viet.	Barred Sand Bass	3	75	0.23	0.23
2038	2749	05-Aug-92	LAHS	PB	White	Pacific Barracuda	1	600	0.60	0.60
2038	2750	05-Aug-92	LAHS	PB	Fili.	Yellowtail	3	450	1.35	
2038	2750	05-Aug-92	LAHS	PB	Fili.	Pacific Barracuda	4	450	1.80	
2038	2750	05-Aug-92	LAHS	PB	Fili.	Pacific Bonito	2	450	0.90	4.05
2038	2751	05-Aug-92	LAHS	PB	White	Pacific Barracuda	1	600	0.60	
2038	2751	05-Aug-92	LAHS	PB	White	Pacific Bonito	1	600	0.60	1.20
2038	2752	05-Aug-92	LAHS	PB	White	Pacific Bonito	1	300	0.30	
2038	2752	05-Aug-92	LAHS	PB	White	Pacific Barracuda	1	300	0.30	0.60
2038	2753	05-Aug-92	LAHS	PB	White	Pacific Bonito	1	450	0.45	
2038	2753	05-Aug-92	LAHS	PB	White	Pacific Barracuda	1	450	0.45	0.90
2038	2754	05-Aug-92	LAHS	PB	Unk.	Pacific Bonito	1	300	0.30	
2038	2755	05-Aug-92	LAHS	PB	Unk.	Kelp Bass	1	600	0.60	
2038	2755	05-Aug-92	LAHS	PB	Unk.	Pacific Barracuda	1	600	0.60	1.20
2038	2756	05-Aug-92	LAHS	PB	Japa.	Pacific Barracuda	1	150	0.15	0.15
2039	2762	21-Aug-92	MSB	PB	White	Kelp Bass	1	225	0.23	
2039	2763	21-Aug-92	MSB	PB	White	Barred Sand Bass	1	300	0.30	
2039	2763	21-Aug-92	MSB	PB	White	Kelp Bass	1	300	0.30	0.60
2039	2764	21-Aug-92	MSB	PB	Black	California Halibut	2	300	0.60	
2039	2764	21-Aug-92	MSB	PB	Black	Kelp Bass	4	300	1.20	1.80
2039	2765	21-Aug-92	MSB	PB	Japa.	Ocean Whitefish	1	300	0.30	
2039	2765	21-Aug-92	MSB	PB	Japa.	Kelp Bass	1	300	0.30	0.60
2039	2766	21-Aug-92	MSB	PB	White	Ocean Whitefish	1	300	0.30	
2039	2766	21-Aug-92	MSB	PB	White	California Sheepshead	1	300	0.30	
2039	2766	21-Aug-92	MSB	PB	White	Kelp Bass	5	300	1.50	2.10
2039	2767	21-Aug-92	MSB	PB	Kore.	Kelp Bass	5	300	1.50	
2039	2767	21-Aug-92	MSB	PB	Kore.	Barred Sand Bass	4	300	1.20	2.70
2040	2774	30-Aug-92	MDRS	PB	White	California Scorpionfish	1	450	0.45	
2040	2774	30-Aug-92	MDRS	PB	White	Barred Sand Bass	1	450	0.45	0.90
2040	2775	30-Aug-92	MDRS	PB	White	Pacific Barracuda	1	150	0.15	0.15
2040	2779	30-Aug-92	MDRS	PB	White	Kelp Bass	4	300	1.20	
2040	2779	30-Aug-92	MDRS	PB	White	Barred Sand Bass	4	300	1.20	2.40
2040	2781	30-Aug-92	MDRS	PB	Kore.	Kelp Bass	3	450	1.35	
2040	2781	30-Aug-92	MDRS	PB	Kore.	Pacific Barracuda	3	450	1.35	4.05
3009	3157	10-Sep-91	CBR	PBL	White	Halfmoon	1	225	0.23	
3009	3157	10-Sep-91	CBR	PBL	White	Black Perch	3	225	0.68	
3009	3157	10-Sep-91	CBR	PBL	White	California Scorpionfish	1	225	0.23	1.13
3010	3158	21-Sep-91	KHBH	PBL	White	Pacific Bonito	5	150	0.75	
3010	3158	21-Sep-91	KHBH	PBL	White	California Scorpionfish	1	150	0.15	
3010	3158	21-Sep-91	KHBH	PBL	White	California Halibut	2	150	0.30	1.20
3010	3160	21-Sep-91	KHBH	PBL	Unk.	California Halibut	1	300	0.30	0.30
3010	3161	21-Sep-91	KHBH	PBL	White	Pacific Bonito	1	150	0.15	0.15
3010	3163	21-Sep-91	KHBH	PBL	White	Pacific Bonito	1	150	0.15	0.15
3010	3165	21-Sep-91	KHBH	PBL	Other	Chub Mackerel	1	150	0.15	
3010	3165	21-Sep-91	KHBH	PBL	Other	Barred Sand Bass	1	150	0.15	0.30
3010	3170	21-Sep-91	KHBH	PBL	Hisp.	Shark, unidentified	1	150	0.15	0.15
3010	3174	21-Sep-91	KHBH	PBL	Japa.	Kelp Bass	1	300	0.30	0.30
3010	3175	21-Sep-91	KHBH	PBL	White	Kelp Bass	3	150	0.45	0.45
3010	3180	21-Sep-91	KHBH	PBL	White	Sanddab, unidentified	2	225	0.45	
3010	3180	21-Sep-91	KHBH	PBL	White	Barred Sand Bass	2	225	0.45	
3010	3180	21-Sep-91	KHBH	PBL	White	Kelp Bass	1	225	0.23	
3010	3180	21-Sep-91	KHBH	PBL	White	Pacific Bonito	1	225	0.23	1.35
3011	3187	26-Sep-91	MDRBR	PBL	White	Flag Rockfish	1	450	0.45	
3011	3187	26-Sep-91	MDRBR	PBL	White	Starry Rockfish	1	450	0.45	
3011	3187	26-Sep-91	MDRBR	PBL	White	Barred Sand Bass	3	450	1.35	2.25
3011	3192	26-Sep-91	MDRBR	PBL	Other	Bonito Shark	4	300	1.20	1.20
3012	3447	12-Oct-91	KHBH	PBL	White	Ocean Whitefish	1	150	0.15	
3012	3447	12-Oct-91	KHBH	PBL	White	California Scorpionfish	1	150	0.15	
3012	3447	12-Oct-91	KHBH	PBL	White	Kelp Bass	1	150	0.15	0.45
3012	3449	12-Oct-91	KHBH	PBL	Japa.	Kelp Bass	1	225	0.23	
3012	3449	12-Oct-91	KHBH	PBL	Japa.	California Scorpionfish	1	225	0.23	0.45
3012	3451	12-Oct-91	KHBH	PBL	Black	California Halibut	1	225	0.23	0.23
3012	3452	12-Oct-91	KHBH	PBL	White	Barred Sand Bass	1	225	0.23	
3012	3452	12-Oct-91	KHBH	PBL	White	Kelp Bass	1	225	0.23	
3012	3452	12-Oct-91	KHBH	PBL	White	California Halibut	1	225	0.23	0.68
3012	3453	12-Oct-91	KHBH	PBL	Hisp.	Rockfish, unidentified	1	225	0.23	
3012	3453	12-Oct-91	KHBH	PBL	Hisp.	Kelp Bass	1	225	0.23	
3012	3453	12-Oct-91	KHBH	PBL	Hisp.	Barred Sand Bass	1	225	0.23	
3012	3454	12-Oct-91	KHBH	PBL	Unk.	Chub Mackerel	1	225	0.23	
3012	3455	12-Oct-91	KHBH	PBL	Viet.	Barred Sand Bass	1	75	0.08	
3012	3455	12-Oct-91	KHBH	PBL	Viet.	California Halibut	1	75	0.08	0.15
3012	3456	12-Oct-91	KHBH	PBL	White	Kelp Bass	1	225	0.23	

Appendix 11 (continued)

Census	Survey	Date	Location	Mode	Ethnic	Species	Consumption Frequency (Times/mo)	Meal Size (gm)	Species Consumption Rate (kg)	Total Consumption (kg/ind/mo)
3012	3458	12-Oct-91	KHBH	PBL	White	White Croaker	1	225	0.23	
3012	3458	12-Oct-91	KHBH	PBL	White	Barred Sand Bass	1	225	0.23	0.68
3012	3458	12-Oct-91	KHBH	PBL	Hisp.	California Halibut	1	225	0.23	0.23
3012	3444	12-Oct-91	KHBH	PBL	White	Barred Sand Bass	3	150	0.45	
3012	3444	12-Oct-91	KHBH	PBL	White	Blue Rockfish	1	150	0.15	0.60
3013	3200	12-Oct-91	KHBH	PBL	White	California Halibut	3	225	0.68	
3013	3200	12-Oct-91	KHBH	PBL	White	Bocaccio	3	225	0.68	1.35
3013	3204	12-Oct-91	KHBH	PBL	Japa.	California Scorpionfish	1	225	0.23	
3013	3204	12-Oct-91	KHBH	PBL	Japa.	Barred Sand Bass	1	225	0.23	
3013	3204	12-Oct-91	KHBH	PBL	Japa.	Chub Mackerel	1	225	0.23	0.68
3013	3212	12-Oct-91	KHBH	PBL	White	Pacific Bonito	2	225	0.45	0.45
3013	3215	12-Oct-91	KHBH	PBL	White	Chub Mackerel	1	300	0.30	
3013	3215	12-Oct-91	KHBH	PBL	White	Pacific Bonito	1	300	0.30	0.60
3014	3216	21-Oct-91	MDRBR	PBL	White	Yellowfin Croaker	1	225	0.23	0.23
3014	3218	21-Oct-91	MDRBR	PBL	White	California Halibut	3	150	0.45	0.45
3014	3219	21-Oct-91	MDRBR	PBL	White	California Halibut	1	225	0.23	0.23
3014	3220	21-Oct-91	MDRBR	PBL	White	California Halibut	2	225	0.45	
3014	3220	21-Oct-91	MDRBR	PBL	White	Kelp Bass	1	225	0.23	0.68
3014	3221	21-Oct-91	MDRBR	PBL	White	Sandab, unidentified	1	300	0.30	
3014	3221	21-Oct-91	MDRBR	PBL	White	Flatfish, unidentified	1	300	0.30	
3014	3221	21-Oct-91	MDRBR	PBL	White	California Scorpionfish	1	300	0.30	0.90
3014	3222	21-Oct-91	MDRBR	PBL	White	California Spiny Lobster	1	225	0.23	0.23
3015	3226	09-Nov-91	CBR	PBL	White	White Seabass	1	225	0.23	
3015	3226	09-Nov-91	CBR	PBL	White	Kelp Bass	1	225	0.23	0.45
3015	3227	09-Nov-91	CBR	PBL	White	Cabezon	2	225	0.45	
3015	3227	09-Nov-91	CBR	PBL	White	Opaleye	4	225	0.90	
3015	3227	09-Nov-91	CBR	PBL	White	Kelp Bass	1	225	0.23	
3015	3227	09-Nov-91	CBR	PBL	White	Halimoon	3	225	0.68	2.25
3015	3228	09-Nov-91	CBR	PBL	White	Opaleye	1	150	0.15	
3015	3228	09-Nov-91	CBR	PBL	White	Cabezon	1	150	0.15	
3015	3228	09-Nov-91	CBR	PBL	White	Halimoon	1	150	0.15	0.45
3015	3233	09-Nov-91	CBR	PBL	Black	Black Perch	1	225	0.23	
3015	3233	09-Nov-91	CBR	PSL	Black	Sargo	1	225	0.23	
3015	3233	09-Nov-91	CBR	PBL	Black	Halimoon	1	225	0.23	0.68
3016	3235	15-Nov-91	KHBH	PBL	White	Lingcod	1	225	0.23	
3016	3235	15-Nov-91	KHBH	PBL	White	Kelp Bass	1	225	0.23	0.45
3016	3236	15-Nov-91	KHBH	PBL	White	Kelp Bass	1	225	0.23	0.23
3017	3237	02-Dec-91	MDRBR	PBL	White	Barred Sand Bass	1	300	0.30	
3017	3237	02-Dec-91	MDRBR	PBL	White	California Scorpionfish	1	300	0.30	0.60
3017	3240	02-Dec-91	MDRBR	PBL	White	Kelp Bass	1	225	0.23	
3017	3240	02-Dec-91	MDRBR	PSL	White	Barred Sand Bass	1	225	0.23	0.45
3017	3243	02-Dec-91	MDRBR	PSL	Hisp.	Halimoon	4	225	0.90	
3017	3243	02-Dec-91	MDRBR	PBL	Hisp.	White Croaker	1	450	0.45	1.35
3018	3244	08-Dec-91	CBR	PSL	White	White Croaker	1	300	0.30	0.30
3018	3245	08-Dec-91	CBR	PBL	White	Kelp Bass	1	300	0.30	0.30
3018	3247	08-Dec-91	CBR	PSL	Hisp.	Chub Mackerel	4	300	1.20	1.20
3018	3249	08-Dec-91	CBR	PBL	White	Chub Mackerel	3	450	1.35	
3018	3249	08-Dec-91	CBR	PBL	White	Barred Sand Bass	1	450	0.45	1.80
3018	3250	08-Dec-91	CBR	PBL	White	Barred Sand Bass	1	450	0.45	
3018	3250	08-Dec-91	CBR	PBL	White	Chub Mackerel	3	450	1.35	1.80
3018	3251	08-Dec-91	CBR	PBL	White	Barred Sand Bass	1	450	0.45	
3018	3251	08-Dec-91	CBR	PBL	White	Chub Mackerel	3	450	1.35	1.80
3020	3256	26-Jan-92	KHBH	PBL	White	Barred Sand Bass	1	150	0.15	
3020	3256	26-Jan-92	KHBH	PBL	White	California Halibut	1	300	0.30	0.45
3021	3258	05-Feb-92	CBR	PBL	White	Kelp Bass	1	150	0.15	
3021	3258	05-Feb-92	CBR	PBL	White	Halimoon	1	150	0.15	
3021	3258	05-Feb-92	CBR	PBL	White	Ocean Whitefish	1	150	0.15	0.45
3021	3259	05-Feb-92	CBR	PBL	Hisp.	California Scorpionfish	1	180	0.18	0.18
3021	3260	05-Feb-92	CBR	PBL	White	Kelp Bass	7	225	1.58	1.58
3022	3261	22-Feb-92	KHBH	PBL	White	Kelp Bass	1	300	0.30	
3022	3261	22-Feb-92	KHBH	PBL	White	Barred Sand Bass	1	150	0.15	0.45
3022	3263	22-Feb-92	KHBH	PBL	Fili.	Kelp Bass	1	300	0.30	
3022	3263	22-Feb-92	KHBH	PBL	Fili.	Pacific Bonito	1	300	0.30	0.60
3022	3266	22-Feb-92	KHBH	PBL	White	California Sheephead	1	750	0.75	
3022	3266	22-Feb-92	KHBH	PBL	White	Chub Mackerel	1	750	0.75	
3022	3266	22-Feb-92	KHBH	PBL	White	California Scorpionfish	1	750	0.75	
3022	3266	22-Feb-92	KHBH	PBL	White	Pacific Bonito	1	750	0.75	3.00
3023	3268	22-Mar-92	MDRBR	PBL	White	California Halibut	4	225	0.90	
3023	3268	22-Mar-92	MDRBR	PBL	White	Kelp Bass	5	225	1.13	
3023	3268	22-Mar-92	MDRBR	PBL	White	Barred Sand Bass	5	225	1.13	3.15
3023	3269	22-Mar-92	MDRBR	PBL	White	Barred Sand Bass	1	300	0.30	0.30
3023	3270	22-Mar-92	MDRBR	PBL	White	Kelp Bass	4	150	0.60	
3023	3270	22-Mar-92	MDRBR	PBL	White	Barred Sand Bass	4	150	0.60	
3023	3270	22-Mar-92	MDRBR	PBL	White	California Halibut	4	150	0.60	1.80
3025	3274	18-Apr-92	CBR	PSL	Unk.	Chub Mackerel	1	150	0.15	
3025	3274	18-Apr-92	CBR	PBL	White	White Croaker	1	150	0.15	0.30
3025	3279	18-Apr-92	CBR	PBL	Black	White Croaker	2	450	0.90	0.90
3025	3282	18-Apr-92	CBR	PBL	Black	Chub Mackerel	1	300	0.30	
3025	3282	18-Apr-92	CBR	PBL	Black	Black Perch	1	300	0.30	0.60
3025	3283	18-Apr-92	CBR	PBL	Chin.	Lingcod	1	150	0.15	
3025	3283	18-Apr-92	CBR	PBL	Chin.	California Halibut	1	150	0.15	0.30

Appendix II (continued)

Census	Survey	Date	Location	Mode	Ethnic	Species	Consumption Frequency (Times/mo)	Meal Size (gm)	Species Consumption Rate (kg)	Total Consumption (kg/ind/mo)
3025	3284	18-Apr-92	CBR	PBL	Japa.	Chub Mackerel	1	150	0.15	0.15
3025	3285	18-Apr-92	CBR	PBL	White	Kelp Bass	2	300	0.60	0.60
3025	3287	18-Apr-92	CBR	PBL	Hisp.	Kelp Bass	1	300	0.30	0.30
3028	3300	31-May-92	MDRBR	PBL	White	Pacific Barracuda	1	300	0.30	0.30
3028	3302	31-May-92	MDRBR	PBL	White	Kelp Bass	1	600	0.60	0.60
3028	3303	31-May-92	MDRBR	PBL	Unk.	Barred Sand Bass	1	300	0.30	0.30
3028	3307	31-May-92	MDRBR	PBL	White	California Halibut	2	300	0.60	0.60
3028	3307	31-May-92	MDRBR	PBL	White	Barred Sand Bass	8	300	2.40	3.00
3028	3312	31-May-92	MDRBR	PBL	White	Kelp Bass	1	300	0.30	
3028	3312	31-May-92	MDRBR	PBL	White	Barred Sand Bass	1	300	0.30	0.60
3028	3315	31-May-92	MDRBR	PBL	Kore.	Pacific Barracuda	1	300	0.30	0.30
3028	3318	31-May-92	MDRBR	PBL	White	Barred Sand Bass	1	450	0.45	0.45
3028	3320	31-May-92	MDRBR	PBL	Viet.	Chub Mackerel	1	150	0.15	
3028	3320	31-May-92	MDRBR	PBL	Viet.	White Croaker	1	150	0.15	0.30
3028	3324	31-May-92	MDRBR	PBL	White	White Croaker	2	450	0.90	
3028	3324	31-May-92	MDRBR	PBL	White	Chub Mackerel	1	450	0.45	1.35
3029	3341	06-Jun-92	KHBH	PBL	Hisp.	Barred Sand Bass	1	225	0.23	
3029	3341	06-Jun-92	KHBH	PBL	Hisp.	Pacific Bonito	1	225	0.23	0.45
3029	3342	06-Jun-92	KHBH	PBL	Unk.	Pacific Bonito	1	300	0.30	0.30
3029	3346	06-Jun-92	KHBH	PBL	Hisp.	Pacific Bonito	1	150	0.15	0.15
3029	3347	06-Jun-92	KHBH	PBL	White	Brown Rockfish	1	150	0.15	
3029	3347	06-Jun-92	KHBH	PBL	White	Pacific Bonito	1	150	0.15	0.30
3029	3348	06-Jun-92	KHBH	PBL	White	California Sheepshead	1	300	0.30	0.30
3029	3349	06-Jun-92	KHBH	PBL	White	Rockfish, unidentified	1	300	0.30	0.30
3030	3351	07-Jun-92	CBR	PBL	White	Lingcod	1	300	0.30	
3030	3352	07-Jun-92	CBR	PBL	Hisp.	California Halibut	1	300	0.30	
3030	3357	07-Jun-92	CBR	PBL	Fili.	Kelp Bass	1	150	0.15	
3030	3357	07-Jun-92	CBR	PBL	Fili.	California Scorpionfish	1	150	0.15	0.30
3030	3358	07-Jun-92	CBR	PBL	Hisp.	Rockfish, unidentified	2	300	0.60	
3030	3358	07-Jun-92	CBR	PBL	Hisp.	Pacific Bonito	2	300	0.60	1.20
3031	3366	28-Jun-92	KHBH	PBL	White	Pacific Barracuda	1	300	0.30	0.30
3036	3406	23-Jul-92	CBR	PBL	White	Barred Sand Bass	2	450	0.90	0.90
3036	3408	23-Jul-92	CBR	PBL	White	Barred Sand Bass	1	600	0.60	0.60
3036	3409	23-Jul-92	CBR	PBL	Black	Jacksmeat	1	600	0.60	
3036	3409	23-Jul-92	CBR	PBL	Black	Chub Mackerel	1	600	0.60	
3036	3409	23-Jul-92	CBR	PBL	Black	White Croaker	2	600	1.20	2.40
3036	3410	23-Jul-92	CBR	PBL	Unk.	White Croaker	1	450	0.45	0.45
3037	3412	07-Aug-92	MDRBR	PBL	Other	Walleye Surfperch	1	600	0.60	
3037	3412	07-Aug-92	MDRBR	PBL	Other	White Croaker	1	600	0.60	
3037	3412	07-Aug-92	MDRBR	PBL	Other	Chub Mackerel	1	600	0.60	1.80
3037	3414	07-Aug-92	MDRBR	PBL	White	Barred Sand Bass	6	900	5.40	
3037	3414	07-Aug-92	MDRBR	PBL	White	Pacific Barracuda	6	900	5.40	10.80
3037	3415	07-Aug-92	MDRBR	PBL	Fili.	Barred Sand Bass	1	150	0.15	0.15
3037	3416	07-Aug-92	MDRBR	PBL	White	Barred Sand Bass	1	600	0.60	
3037	3416	07-Aug-92	MDRBR	PBL	White	Pacific Barracuda	1	600	0.60	
3037	3416	07-Aug-92	MDRBR	PBL	White	Flatfish, unidentified	1	600	0.60	1.80
3037	3417	07-Aug-92	MDRBR	PBL	White	Barred Sand Bass	2	450	0.90	0.90
3038	3421	11-Aug-92	CBR	PBL	Hisp.	Kelp Bass	3	300	0.90	
3038	3421	11-Aug-92	CBR	PBL	Hisp.	Pacific Barracuda	2	300	0.60	
3038	3421	11-Aug-92	CBR	PBL	Hisp.	Barred Sand Bass	2	300	0.60	2.10
3038	3422	11-Aug-92	CBR	PBL	White	Pacific Barracuda	4	300	1.20	
3038	3422	11-Aug-92	CBR	PBL	White	Kelp Bass	4	300	1.20	2.40
3039	3423	15-Aug-92	KHBH	PBL	White	Yellowtail	1	300	0.30	0.30
3039	3424	15-Aug-92	KHBH	PBL	Chin.	Pacific Bonito	1	150	0.15	0.15
3039	3426	15-Aug-92	KHBH	PBL	Hisp.	Flatfish, unidentified	1	300	0.30	
3039	3426	15-Aug-92	KHBH	PBL	Hisp.	Pacific Bonito	1	300	0.30	
3039	3429	15-Aug-92	KHBH	PBL	White	Yellowtail	2	600	1.20	
3039	3429	15-Aug-92	KHBH	PBL	White	Pacific Bonito	1	600	0.60	
3039	3429	15-Aug-92	KHBH	PBL	White	Kelp Bass	2	600	1.20	
3039	3429	15-Aug-92	KHBH	PBL	White	Pacific Barracuda	2	600	1.20	4.20
3039	3430	15-Aug-92	KHBH	PBL	White	Surfperch, unidentified	2	600	1.20	
3039	3430	15-Aug-92	KHBH	PBL	White	Barred Sand Bass	1	600	0.60	
3039	3430	15-Aug-92	KHBH	PBL	White	Walleye Surfperch	2	600	1.20	
3039	3430	15-Aug-92	KHBH	PBL	White	Bocaccio	1	600	0.60	3.60
3039	3431	15-Aug-92	KHBH	PBL	Hisp.	Pacific Barracuda	1	150	0.15	
3039	3431	15-Aug-92	KHBH	PBL	Hisp.	Barred Sand Bass	1	150	0.15	0.30
3039	3432	15-Aug-92	KHBH	PBL	White	Yellowtail	1	300	0.30	
3039	3432	15-Aug-92	KHBH	PBL	White	Pacific Barracuda	1	300	0.30	
3039	3432	15-Aug-92	KHBH	PBL	White	Pacific Bonito	1	300	0.30	0.90
3040	3434	23-Aug-92	CBR	PBL	White	Pacific Barracuda	4	150	0.60	0.60
3040	3435	23-Aug-92	CBR	PBL	White	Kelp Bass	3	150	0.45	0.45
3040	3441	23-Aug-92	CBR	PBL	Black	Barred Sand Bass	3	150	0.45	
3040	3441	23-Aug-92	CBR	PBL	Black	Walleye Surfperch	3	150	0.45	0.90
3040	3442	23-Aug-92	CBR	PBL	Black	Kelp Bass	2	750	1.50	
3040	3442	23-Aug-92	CBR	PBL	Black	California Sheepshead	1	750	0.75	
3040	3442	23-Aug-92	CBR	PBL	Black	Halfmoon	1	750	0.75	
3040	3442	23-Aug-92	CBR	PBL	Black	Black Perch	3	750	2.25	
3040	3442	23-Aug-92	CBR	PBL	Black	Barred Sand Bass	2	750	1.50	6.75
3040	3443	23-Aug-92	CBR	PBL	Hisp.	Jacksmeat	1	450	0.45	0.45
4006	4002	03-Sep-91	RB	BI	Hisp.	Senorita	1	150	0.15	
4006	4002	03-Sep-91	RB	BI	Hisp.	Shiner Perch	1	150	0.15	

Appendix 11 (continued)

Census	Survey	Date	Location	Mode	Ethnic	Species	Consumption Frequency (Times/mo)	Meal Size (cm)	Species Consumption Rate (kg)	Total Consumption (kg/Ind/mo)
4006	4002	03-Sep-91	RB	BI	Hisp.	Opaleye	1	150	0.15	0.45
4007	4006	15-Sep-91	PDRB	BI	White	Yellowfin Croaker	1	150	0.15	
4007	4006	15-Sep-91	PDRB	BI	White	California Halibut	1	150	0.15	0.30
4008	4008	26-Sep-91	VB	BI	Japa.	Yellowfin Croaker	7	225	1.58	1.58
4008	4009	26-Sep-91	VB	BI	Chin.	Yellowfin Croaker	1	300	0.30	0.30
4011	4014	29-Jan-92	HB	BI	Japa.	Surfperch, unidentified	2	150	0.30	0.30
4016	4015	16-Jul-92	MDRB	BI	Chin.	Chub Mackerel	1	300	0.30	
4016	4015	16-Jul-92	MDRB	BI	Chin.	Yellowfin Croaker	1	300	0.30	
4016	4015	16-Jul-92	MDRB	BI	Chin.	Jacksmelt	1	300	0.30	
4016	4015	16-Jul-92	MDRB	BI	Chin.	California Corbina	8	300	2.40	3.30

Location abbreviations: BCJ = Ballona Creek Jetty; CBR = Cabrillo Beach ramp; CP = Cabrillo Pier; HP = Hermosa Beach Pier; KHB = King Harbor breakwater; KHBH = King Harbor Boat Hoist; LAHS = L.A. Harbor Sportfishing; MDRB = Marina del Rey Beach; MDRBR = Marina del Rey Boat Ramp; MDRFD = Marina del Rey Fishing Dock; MDRS = Marina del Rey Sportfishing; MP = Malibu Pier; MSB = Malibu sportfishing boat; PCP = Paradise Cove Pier; RMMP = Redondo Municipal/Monstad Pier; RSB = Redondo Sportfishing Barge; RSST = Redondo Sport-fishing Boat; RSP = Redondo Sportfishing Pier; SMMP = Santa Monica Municipal Pier; VB = Venice Beach.

Mode Abbreviations: BI = beach or intertidal; PB = party boat; PBL = private boat launch; PJ = pier or jetty

Values were obtained by multiplying the angler's estimate of meal size relative to the fillet model by the consumption frequency during the month prior to the interview. For each angler, total and species-specific rates were calculated for each species consumed by the angler in the four weeks prior to the interview.

APPENDIX 12

**Seafood Consumption Rates of Anglers with Fish
Santa Monica Bay Seafood Consumption Study, 1991-1992**

Appendix 12. Seafood consumption rates of anglers with fish at the time of the interview. Values were obtained by multiplying the edible portion of the species in hand by the frequency of consumption in the previous month, divided by the number of consumers in the household. Santa Monica Bay Seafood Consumption Study, 1991-1992.

Census	Survey	Date	Site	Ethnic	Species	Number of Consumers	Consumption		Consumption	
							Frequency (times/mo)	Consumable Weight (kg)	kg per individual	Rate (kg/ind/mo)
1009	1241	03-Sep-91	RMMP	Hisp.	Chub Mackerel	1	1	0.27	0.27	0.27
1009	1242	03-Sep-91	RMMP	Hisp.	Chub Mackerel	1	1	2.53	2.53	2.53
1009	1242	03-Sep-91	RMMP	Hisp.	Pacific Bonito	1	1	0.15	0.15	0.15
1009	1253	03-Sep-91	RMMP	Viet.	Chub Mackerel	2	1	0.33	0.17	0.17
1009	1259	03-Sep-91	RMMP	Pacsl	Chub Mackerel	2	9	1.33	0.67	5.99
1009	1267	03-Sep-91	RMMP	Fili.	Chub Mackerel	4	3	0.99	0.25	0.74
1009	1279	03-Sep-91	RMMP	Fili.	Chub Mackerel	5	2	0.08	0.02	0.03
1010	1292	07-Sep-91	PCP	White	Leopard Shark	1	1	0.96	0.96	0.96
1011	1302	15-Sep-91	MDRFD	Fili.	Queenfish	2	1	0.03	0.02	0.02
1011	1305	15-Sep-91	MDRFD	Fili.	Salema	2	1	0.11	0.05	0.05
1011	1305	15-Sep-91	MDRFD	Fili.	Walleye Surfperch	2	1	0.05	0.02	0.02
1011	1305	15-Sep-91	MDRFD	Fili.	Yellowfin Croaker	2	2	0.02	0.01	0.02
1011	1312	15-Sep-91	MDRFD	White	Walleye Surfperch	2	1	0.07	0.03	0.03
1011	1315	15-Sep-91	MDRFD	Black	Opaleye	3	1	0.78	0.26	0.26
1011	1315	15-Sep-91	MDRFD	Black	Yellowfin Croaker	3	1	0.03	0.01	0.01
1011	1316	15-Sep-91	MDRFD	Hisp.	Queenfish	2	1	0.03	0.01	0.01
1012	1336	18-Sep-91	CP	Japa.	Jack Mackerel	1	1	0.01	0.01	0.01
1012	1338	18-Sep-91	CP	Black	White Croaker	2	1	0.39	0.20	0.20
1012	1341	18-Sep-91	CP	Black	White Croaker	2	1	0.04	0.02	0.02
1012	1345	18-Sep-91	CP	Black	California Lizardfish	1	1	0.14	0.14	0.14
1012	1345	18-Sep-91	CP	Black	Surfperch, unidentified*	1	1	-	-	-
1012	1347	18-Sep-91	CP	Black	White Croaker	1	1	0.09	0.09	0.09
1012	1351	18-Sep-91	CP	Black	White Seaperch	3	1	0.04	0.01	0.01
1012	1355	18-Sep-91	CP	Black	White Croaker	8	2	0.10	0.01	0.02
1012	1358	18-Sep-91	CP	Black	White Croaker	3	5	0.06	0.02	0.10
1012	1357	18-Sep-91	CP	Black	White Croaker	2	1	0.10	0.05	0.05
1012	1360	18-Sep-91	CP	Hisp.	Pacific Bonito	1	1	0.24	0.24	0.24
1012	1361	18-Sep-91	CP	White	Jacksmelt	3	1	0.29	0.10	0.10
1012	1361	18-Sep-91	CP	White	White Croaker	3	1	0.17	0.06	0.06
1012	1362	18-Sep-91	CP	Hisp.	White Croaker	1	6	0.30	0.30	1.79
1012	1367	18-Sep-91	CP	Hisp.	White Croaker	1	4	0.07	0.07	0.28
1013	1375	04-Oct-91	CP	Hisp.	White Croaker	1	1	0.54	0.54	0.54
1013	1378	04-Oct-91	CP	Hisp.	White Croaker	2	2	0.07	0.03	0.07
1013	1385	04-Oct-91	CP	White	White Croaker	1	1	0.18	0.18	0.18
1013	1394	04-Oct-91	CP	Hisp.	White Croaker	3	1	0.18	0.06	0.06
1013	1395	04-Oct-91	CP	Hisp.	White Croaker	4	1	0.12	0.03	0.03
1013	1396	04-Oct-91	CP	Hisp.	White Croaker	4	4	0.16	0.04	0.16
1015	1422	03-Nov-91	MP	White	Chub Mackerel	7	1	0.22	0.03	0.03
1016	1456	22-Nov-91	RMMP	Hisp.	Chub Mackerel	3	2	1.98	0.66	1.32
1019	1490	11-Jan-92	CP	Hisp.	Chub Mackerel	4	4	0.19	0.05	0.19
1019	1490	11-Jan-92	CP	Hisp.	White Croaker	4	4	0.04	0.01	0.04
1019	1500	11-Jan-92	CP	Black	Chub Mackerel	2	1	0.25	0.13	0.13
1019	1500	11-Jan-92	CP	Black	Jacksmelt	2	1	0.20	0.10	0.10
1020	1508	29-Jan-92	HP	Hisp.	Banded Surfperch	7	1	0.04	0.01	0.01
1021	1513	17-Feb-92	KHB	White	Surfperch, unidentified*	4	1	-	-	-
1021	1515	17-Feb-92	KHB	Hisp.	Opaleye	2	3	0.38	0.18	0.54
1021	1516	17-Feb-92	KHB	Black	California Sheepshead	1	1	0.03	0.03	0.03
1021	1518	17-Feb-92	KHB	Black	Opaleye	1	1	0.19	0.19	0.19
1021	1518	17-Feb-92	KHB	Japa.	California Scorpionfish	1	1	0.28	0.28	0.28
1022	1525	27-Feb-92	CP	Hisp.	California Scorpionfish	4	1	0.15	0.04	0.04
1022	1527	27-Feb-92	CP	Hisp.	Pile Perch	7	1	1.08	0.15	0.15
1022	1528	27-Feb-92	CP	Hisp.	Pile Perch	5	1	0.07	0.19	0.19
1022	1551	27-Feb-92	CP	Fili.	Chub Mackerel	8	1	0.08	0.01	0.01
1025	1558	05-Apr-92	CP	Hisp.	Chub Mackerel	6	1	0.54	0.09	0.09
1025	1558	05-Apr-92	CP	Hisp.	White Croaker	6	1	0.16	0.03	0.03
1025	1561	05-Apr-92	CP	Black	Chub Mackerel	1	1	0.24	0.24	0.24
1025	1569	05-Apr-92	CP	Chin.	Chub Mackerel	6	1	0.10	0.02	0.02
1025	1570	05-Apr-92	CP	Pacsl	Chub Mackerel	1	3	1.70	1.70	5.10
1025	1572	05-Apr-92	CP	Hisp.	Chub Mackerel	10	2	0.19	0.02	0.04
1025	1578	05-Apr-92	CP	Pacsl	Chub Mackerel	3	61	1.31	0.44	28.73
1025	1578	05-Apr-92	CP	Pacsl	Jacksmelt	3	1	0.10	0.03	0.03
1025	1580	05-Apr-92	CP	Hisp.	Chub Mackerel	2	3	1.17	0.58	1.75
1025	1582	05-Apr-92	CP	Viet.	California Lizardfish	10	1	0.22	0.03	0.03
1025	1583	05-Apr-92	CP	Hisp.	Chub Mackerel	5	1	0.44	0.07	0.07
1025	1583	05-Apr-92	CP	Hisp.	Jacksmelt	5	1	0.17	0.03	0.03
1025	1586	05-Apr-92	CP	Hisp.	Chub Mackerel	8	1	1.81	0.23	0.23
1025	1588	05-Apr-92	CP	Hisp.	White Croaker	8	1	0.13	0.02	0.02
1025	1587	05-Apr-92	CP	Hisp.	Chub Mackerel	3	4	1.56	0.52	2.07
1025	1591	05-Apr-92	CP	Hisp.	Surfperch, unidentified*	10	3	-	-	-
1027	1618	09-May-92	SMMP	Black	Opaleye	3	1	0.13	0.04	0.04
1027	1618	09-May-92	SMMP	Black	Rainbow Seaperch**	3	1	0.06	0.02	0.02
1027	1621	09-May-92	SMMP	Hisp.	Rainbow Seaperch**	5	1	0.03	0.01	0.01
1027	1622	09-May-92	SMMP	Fili.	White Croaker	2	5	0.28	0.14	0.70
1027	1632	09-May-92	SMMP	Hisp.	Jacksmelt	6	2	0.05	0.01	0.02
1027	1637	09-May-92	SMMP	White	Chub Mackerel	1	1	0.64	0.64	0.64
1028	1677	21-May-92	RSP	Fili.	Pacific Bonito	12	5	1.74	0.14	0.72
1028	1682	21-May-92	RSP	Hisp.	Pacific Bonito	2	3	2.73	1.37	4.10

Appendix 12 (continued)

Census	Survey	Date	Site	Ethnic	Species	Number of Consumers	Consumption			Consumption	
							Frequency (times/mo.)	Consumable Weight (kg)	kg per individual	Rate (kg/ind/mo)	
1029	1697	05-Jun-92	CP	Hisp.	California Lizardfish	2	1	0.05	0.03	0.03	
1029	1697	05-Jun-92	CP	Hisp.	Chub Mackerel	2	1	0.09	0.05	0.05	
1029	1702	05-Jun-92	CP	Hisp.	Chub Mackerel	1	1	0.25	0.25	0.25	
1029	1702	05-Jun-92	CP	Hisp.	White Croaker	1	2	0.09	0.09	0.17	
1029	1703	05-Jun-92	CP	Hisp.	Chub Mackerel	1	1	0.04	0.04	0.04	
1029	1703	05-Jun-92	CP	Hisp.	White Croaker	1	5	0.02	0.02	0.11	
1029	1705	05-Jun-92	CP	Fili.	Chub Mackerel	3	1	0.48	0.16	0.16	
1029	1707	05-Jun-92	CP	Black	Chub Mackerel	2	1	0.15	0.07	0.07	
1029	1707	05-Jun-92	CP	Black	White Croaker	2	1	0.23	0.12	0.12	
1029	1708	05-Jun-92	CP	Hisp.	Chub Mackerel	4	2	0.21	0.05	0.10	
1029	1712	05-Jun-92	CP	Hisp.	Chub Mackerel	1	1	0.59	0.59	0.59	
1030	1722	18-Jun-92	BCJ	Hisp.	Jacksnelt	1	1	0.26	0.26	0.26	
1030	1724	18-Jun-92	BCJ	Kore.	Chub Mackerel	2	1	0.17	0.09	0.09	
1030	1724	18-Jun-92	BCJ	Kore.	White Croaker	2	1	0.08	0.04	0.04	
1030	1729	18-Jun-92	BCJ	Black	Jacksnelt	1	1	0.11	0.11	0.11	
1031	1758	20-Jun-92	MP	White	Yellowfin Croaker	1	1	0.01	0.01	0.01	
1031	1761	20-Jun-92	MP	Viet.	Chub Mackerel	2	1	0.46	0.23	0.23	
1031	1769	20-Jun-92	MP	Kore.	Chub Mackerel	1	1	1.28	1.28	1.28	
1032	1791	21-Jun-92	RMMP	Fili.	Chub Mackerel	2	4	0.47	0.23	0.93	
1032	1793	21-Jun-92	RMMP	Fili.	Chub Mackerel	4	31	1.73	0.43	13.39	
1032	1797	21-Jun-92	RMMP	Fili.	Chub Mackerel	5	1	0.36	0.07	0.07	
1035	1840	25-Jul-92	CP	Hisp.	White Croaker	5	1	0.06	0.01	0.01	
1035	1841	25-Jul-92	CP	Hisp.	Jacksnelt	5	1	0.31	0.06	0.06	
1035	1841	25-Jul-92	CP	Hisp.	White Croaker	5	1	0.03	0.01	0.01	
1035	1844	25-Jul-92	CP	Hisp.	Jacksnelt	6	1	0.12	0.02	0.02	
1035	1844	25-Jul-92	CP	Hisp.	White Croaker	6	1	0.14	0.02	0.02	
1035	1847	25-Jul-92	CP	Hisp.	White Croaker	4	3	0.55	0.14	0.41	
1035	1848	25-Jul-92	CP	Hisp.	White Croaker	4	3	0.29	0.07	0.22	
1035	1849	25-Jul-92	CP	Hisp.	Chub Mackerel	3	1	0.23	0.08	0.08	
1035	1851	25-Jul-92	CP	Hisp.	Jacksnelt	7	1	0.33	0.05	0.05	
1035	1851	25-Jul-92	CP	Hisp.	White Croaker	7	1	0.07	0.01	0.01	
1035	1855	25-Jul-92	CP	Hisp.	White Croaker	5	2	0.05	0.01	0.02	
1035	1862	25-Jul-92	CP	Fili.	White Croaker	2	4	0.12	0.06	0.25	
1035	1863	25-Jul-92	CP	Hisp.	Jacksnelt	4	13	1.16	0.29	3.78	
1035	1863	25-Jul-92	CP	Hisp.	White Croaker	4	1	0.07	0.02	0.02	
1035	1864	25-Jul-92	CP	White	Black Perch	5	21	0.52	0.10	2.19	
1035	1864	25-Jul-92	CP	White	Opaleye	5	16	2.03	0.41	6.48	
1035	1864	25-Jul-92	CP	White	Sargo	5	11	0.67	0.13	1.48	
1037	1898	09-Aug-92	MP	Hisp.	Barred Surfperch	1	1	0.09	0.09	0.09	
1037	1898	09-Aug-92	MP	Hisp.	Yellowfin Croaker	1	1	0.07	0.07	0.07	
1037	1910	09-Aug-92	MP	Fili.	Jacksnelt	4	1	0.26	0.06	0.06	
1038	1927	17-Aug-92	HP	Hisp.	Bat Ray	6	2	0.06	0.01	0.02	
1038	1931	17-Aug-92	HP	Hisp.	Pacific Bonito	1	1	0.20	0.20	0.20	
1038	1938	17-Aug-92	HP	Hisp.	Pacific Bonito	9	7	1.17	0.13	0.91	
1039	1967	22-Aug-92	MDRSD	Chin.	Yellowfin Croaker	4	2	0.01	0.00	0.00	
1039	1973	22-Aug-92	MDRSD	Fili.	Yellowfin Croaker	2	2	0.05	0.02	0.05	
1040	1	26-Aug-92	CP	Hisp.	Jacksnelt	8	1	0.03	0.00	0.00	
1040	1	26-Aug-92	CP	Hisp.	White Croaker	8	1	0.20	0.03	0.03	
1040	2	26-Aug-92	CP	Hisp.	White Croaker	1	1	0.06	0.06	0.06	
1040	4	26-Aug-92	CP	Hisp.	California Lizardfish	5	1	0.07	0.01	0.01	
1040	4	26-Aug-92	CP	Hisp.	Jacksnelt	5	1	0.07	0.01	0.01	
1040	4	26-Aug-92	CP	Hisp.	Queenfish	5	1	0.03	0.01	0.01	
1040	4	26-Aug-92	CP	Hisp.	White Croaker	5	1	0.07	0.01	0.01	
1040	9	26-Aug-92	CP	Hisp.	White Croaker	4	2	0.06	0.02	0.03	
1040	1994	26-Aug-92	CP	Hisp.	Jacksnelt	5	1	0.08	0.02	0.02	
1040	1994	26-Aug-92	CP	Hisp.	White Croaker	5	1	0.02	0.00	0.00	
1040	1995	26-Aug-92	CP	Hisp.	White Croaker	3	4	0.11	0.04	0.14	
1040	1997	26-Aug-92	CP	Hisp.	Chub Mackerel	3	1	0.17	0.06	0.06	
1040	1997	26-Aug-92	CP	Hisp.	Jacksnelt	3	1	0.20	0.07	0.07	
1040	1997	26-Aug-92	CP	Hisp.	Shiner Perch	3	1	0.02	0.01	0.01	
1040	1997	26-Aug-92	CP	Hisp.	Spotted Sand Bass	3	1	0.04	0.01	0.01	
2009	2191	05-Sep-91	MDRS	Kore.	Chub Mackerel	2	1	0.77	0.38	0.38	
2010	2196	12-Sep-91	RSBT	White	Kelp Bass	3	2	0.31	0.10	0.21	
2010	2210	12-Sep-91	RSBT	Hisp.	Barred Sand Bass	1	1	0.50	0.50	0.50	
2010	2210	12-Sep-91	RSBT	Hisp.	Kelp Bass	1	1	0.87	0.87	0.87	
2010	2210	12-Sep-91	RSBT	Hisp.	Pacific Bonito	1	1	0.91	0.91	0.91	
2010	2211	12-Sep-91	RSBT	Japa.	Barred Sand Bass	2	1	0.34	0.17	0.17	
2010	2211	12-Sep-91	RSBT	Japa.	California Scorpionfish	2	1	0.12	0.06	0.06	
2010	2211	12-Sep-91	RSBT	Japa.	Kelp Bass	2	1	0.40	0.20	0.20	
2011	2213	14-Sep-91	MSB	Kore.	Bocaccio	5	1	0.15	0.03	0.03	
2011	2213	14-Sep-91	MSB	Kore.	California Scorpionfish	5	1	0.24	0.05	0.05	
2011	2213	14-Sep-91	MSB	Kore.	Rockfish, unidentified	5	1	0.19	0.04	0.04	
2012	2235	29-Sep-91	RSB	White	Pacific Bonito	2	1	0.31	0.15	0.15	
2012	2237	29-Sep-91	RSB	Chin.	Pacific Bonito	2	1	0.57	0.28	0.28	
2012	2241	29-Sep-91	RSB	Kore.	Pacific Bonito	5	1	1.30	0.26	0.26	
2012	2249	29-Sep-91	RSB	White	Copper Rockfish	4	1	0.08	0.02	0.02	
2012	2249	29-Sep-91	RSB	White	Pacific Bonito	4	1	0.92	0.23	0.23	

Appendix 12 (continued)

Census	Survey	Date	Site	Ethnic	Species	Number of Consumers	Consumption Frequency (times/mo)	Consumable Weight (kg)	kg per individual	Consumption Rate (kg/ind/mo)
2012	2252	29-Sep-91	RSB	White	Starry Rockfish	2	1	0.08	0.04	0.04
2012	2252	29-Sep-91	RSB	White	Vermilion Rockfish	2	1	0.09	0.04	0.04
2012	2253	29-Sep-91	RSB	Hisp.	Pacific Bonito	1	1	0.57	0.57	0.57
2012	2255	29-Sep-91	RSB	Hisp.	Pacific Bonito	8	1	1.08	0.14	0.14
2014	2278	16-Oct-91	MDRS	Hisp.	Brown Smoothhound	1	1	1.65	1.65	1.65
2014	2279	16-Oct-91	MDRS	White	Barred Sand Bass	1	5	1.17	1.17	5.84
2014	2279	16-Oct-91	MDRS	White	California Halibut	1	5	0.68	0.68	3.31
2014	2281	16-Oct-91	MDRS	White	Barred Sand Bass	3	1	0.97	0.32	0.32
2014	2281	16-Oct-91	MDRS	White	Kelp Bass	3	1	0.55	0.18	0.18
2014	2283	16-Oct-91	MDRS	White	Barred Sand Bass	5	1	0.26	0.05	0.05
2014	2283	16-Oct-91	MDRS	White	Kelp Bass	5	1	0.72	0.14	0.14
2014	2285	16-Oct-91	MDRS	White	Kelp Bass	2	1	0.96	0.48	0.48
2014	2286	16-Oct-91	MDRS	White	California Halibut	2	1	2.11	1.05	1.05
2014	2286	16-Oct-91	MDRS	White	Kelp Bass	2	3	0.80	0.30	0.90
2015	2289	06-Nov-91	LAHS	Japa.	Kelp Bass	1	1	0.77	0.77	0.77
2015	2290	06-Nov-91	LAHS	Japa.	Kelp Bass	2	1	0.21	0.11	0.11
2015	2294	06-Nov-91	LAHS	Hisp.	Halfmoon	2	1	0.41	0.21	0.21
2015	2294	06-Nov-91	LAHS	Hisp.	Kelp Bass	2	1	0.21	0.11	0.11
2015	2295	06-Nov-91	LAHS	White	Halfmoon	4	1	0.45	0.11	0.11
2015	2296	06-Nov-91	LAHS	White	White Seabass	3	1	3.42	1.14	1.14
2015	2298	06-Nov-91	LAHS	White	Halfmoon	4	1	1.33	0.33	0.33
2015	2298	06-Nov-91	LAHS	White	Kelp Bass	4	1	1.10	0.27	0.27
2016	2314	16-Nov-91	RSB	Fili.	Bocaccio	6	1	0.02	0.00	0.00
2016	2314	16-Nov-91	RSB	Fili.	Chilipepper	6	1	0.14	0.02	0.02
2016	2322	16-Nov-91	RSB	White	Bocaccio	5	1	0.30	0.06	0.06
2016	2322	16-Nov-91	RSB	White	Chilipepper	5	1	0.04	0.01	0.01
2017	2335	14-Dec-91	LAHS	Hisp.	Kelp Bass	3	5	0.40	0.13	0.67
2017	2337	14-Dec-91	LAHS	Hisp.	Barred Sand Bass	6	1	0.28	0.05	0.05
2017	2337	14-Dec-91	LAHS	Hisp.	Kelp Bass	6	5	0.21	0.04	0.18
2017	2338	14-Dec-91	LAHS	White	Barred Sand Bass	4	1	0.16	0.04	0.04
2017	2338	14-Dec-91	LAHS	White	California Sheephead	4	1	0.42	0.11	0.11
2017	2338	14-Dec-91	LAHS	White	Kelp Bass	4	1	0.31	0.08	0.08
2017	2339	14-Dec-91	LAHS	Black	California Scorpionfish	4	1	0.31	0.08	0.08
2017	2339	14-Dec-91	LAHS	Black	Kelp Bass	4	5	2.70	0.67	3.37
2017	2339	14-Dec-91	LAHS	Black	Rockfish, unidentified	4	1	0.06	0.01	0.01
2017	2340	14-Dec-91	LAHS	White	Barred Sand Bass	1	1	0.26	0.26	0.26
2017	2340	14-Dec-91	LAHS	White	California Scorpionfish	1	1	0.30	0.30	0.30
2017	2340	14-Dec-91	LAHS	White	California Sheephead	1	1	0.87	0.87	0.87
2017	2340	14-Dec-91	LAHS	White	Chub Mackerel	1	4	0.40	0.40	1.59
2017	2340	14-Dec-91	LAHS	White	Kelp Bass	1	1	0.42	0.42	0.42
2017	2342	14-Dec-91	LAHS	Chin.	Barred Sand Bass	10	1	1.21	0.12	0.12
2017	2342	14-Dec-91	LAHS	Chin.	Blue Rockfish	10	1	0.31	0.03	0.03
2017	2342	14-Dec-91	LAHS	Chin.	Chub Mackerel	10	1	0.28	-0.03	-0.03
2017	2342	14-Dec-91	LAHS	Chin.	Halfmoon	10	1	0.17	0.02	0.02
2017	2342	14-Dec-91	LAHS	Chin.	Kelp Bass	10	10	0.64	0.06	0.64
2017	2342	14-Dec-91	LAHS	Chin.	Treefish	10	1	0.31	0.03	0.03
2017	2345	14-Dec-91	LAHS	Black	California Scorpionfish	5	1	0.15	0.03	0.03
2017	2345	14-Dec-91	LAHS	Black	Chub Mackerel	5	1	0.87	0.17	0.17
2017	2345	14-Dec-91	LAHS	Black	Gopher Rockfish	5	1	0.31	0.06	0.06
2017	2345	14-Dec-91	LAHS	Black	Grass Rockfish	5	1	0.18	0.04	0.04
2017	2345	14-Dec-91	LAHS	Black	Halfmoon	5	1	0.15	0.03	0.03
2017	2345	14-Dec-91	LAHS	Black	Kelp Bass	5	1	0.98	0.20	0.20
2017	2346	14-Dec-91	LAHS	White	Barred Sand Bass	1	1	0.16	0.16	0.16
2017	2346	14-Dec-91	LAHS	White	California Scorpionfish	1	1	0.19	0.19	0.19
2017	2346	14-Dec-91	LAHS	White	Chub Mackerel	1	1	0.67	0.67	0.67
2017	2346	14-Dec-91	LAHS	White	Halfmoon	1	1	0.12	0.12	0.12
2017	2346	14-Dec-91	LAHS	White	Kelp Bass	1	1	0.36	0.36	0.36
2017	2348	14-Dec-91	LAHS	White	Rockfish, unidentified	1	1	0.30	0.30	0.30
2018	2350	18-Dec-91	MDRS	Kore.	Barred Sand Bass	4	1	0.26	0.06	0.06
2018	2355	18-Dec-91	MDRS	White	California Halibut	2	2	2.66	1.33	2.66
2020	2374	25-Jan-92	RSBT	White	Bocaccio	3	1	0.03	0.01	0.01
2020	2374	25-Jan-92	RSBT	White	California Scorpionfish	3	1	0.04	0.01	0.01
2020	2374	25-Jan-92	RSBT	White	Copper Rockfish	3	1	0.45	0.15	0.15
2020	2375	25-Jan-92	RSBT	White	Rockfish, unidentified	6	1	0.35	0.06	0.06
2020	2378	25-Jan-92	RSBT	Viet.	California Scorpionfish	2	1	0.09	0.05	0.05
2020	2378	25-Jan-92	RSBT	Viet.	Rockfish, unidentified	2	2	0.46	0.23	0.46
2020	2382	25-Jan-92	RSBT	White	Greenspotted Rockfish	1	1	0.40	0.40	0.40
2020	2382	25-Jan-92	RSBT	White	Greenspotted Rockfish	1	1	0.08	0.08	0.08
2020	2383	25-Jan-92	RSBT	White	Bocaccio	1	1	1.10	1.10	1.10
2020	2383	25-Jan-92	RSBT	White	Flag Rockfish	1	1	0.17	0.17	0.17
2020	2383	25-Jan-92	RSBT	White	Greenspotted Rockfish	1	1	0.07	0.07	0.07
2020	2385	25-Jan-92	RSBT	Chin.	Bocaccio	6	1	0.86	0.14	0.14
2020	2388	25-Jan-92	RSBT	Kore.	Bocaccio	2	1	1.72	0.86	0.86
2020	2389	25-Jan-92	RSBT	Kore.	Flag Rockfish	2	1	0.10	0.05	0.05
2020	2389	25-Jan-92	RSBT	Kore.	Greenspotted Rockfish	2	1	0.13	0.06	0.06
2020	2389	25-Jan-92	RSBT	Kore.	Starry Rockfish	2	1	0.15	0.07	0.07
2020	2390	25-Jan-92	RSBT	Hisp.	Bocaccio	6	1	0.63	0.11	0.11

Appendix 12 (continued)

Census	Survey	Date	Site	Ethnic	Species	Number of Consumers	Consumption Frequency (times/mo)	Consumable Weight (kg)	kg per individual	Consumption Rate (kg/ind/mo)
2020	2390	25-Jan-92	RSBT	Hisp.	Greenshiped Rockfish	6	1	0.09	0.02	0.02
2020	2390	25-Jan-92	RSBT	Hisp.	Starry Rockfish	6	1	0.48	0.08	0.08
2020	2392	25-Jan-92	RSBT	Chin.	Bocaccio	2	1	0.10	0.05	0.05
2020	2392	25-Jan-92	RSBT	Chin.	Flag Rockfish	2	1	0.33	0.16	0.16
2020	2394	25-Jan-92	RSBT	Fili.	Bocaccio	2	9	1.00	0.50	4.50
2020	2394	25-Jan-92	RSBT	Fili.	Copper Rockfish	2	1	0.56	0.28	0.28
2020	2394	25-Jan-92	RSBT	Fili.	Flag Rockfish	2	1	0.14	0.07	0.07
2020	2395	25-Jan-92	RSBT	Fili.	Bocaccio	3	9	0.54	0.18	1.62
2020	2396	25-Jan-92	RSBT	Hisp.	Chub Mackerel	1	1	0.52	0.52	0.52
2020	2398	25-Jan-92	RSBT	Hisp.	Greenshiped Rockfish	1	1	0.08	0.08	0.08
2020	2398	25-Jan-92	RSBT	Hisp.	Rockfish, unidentified	1	1	0.03	0.03	0.03
2020	2398	25-Jan-92	RSBT	Hisp.	Starry Rockfish	1	1	0.33	0.33	0.33
2023	2427	12-Mar-92	LAHS	White	Kelp Bass	4	1	1.02	0.25	0.25
2023	2429	12-Mar-92	LAHS	White	Kelp Bass	1	6	0.19	0.19	1.14
2023	2430	12-Mar-92	LAHS	White	Barred Sand Bass	1	6	0.37	0.37	2.20
2023	2430	12-Mar-92	LAHS	White	California Scorpionfish	1	1	0.28	0.28	0.28
2023	2433	12-Mar-92	LAHS	Black	Halfmoon	3	1	0.52	0.17	0.17
2023	2433	12-Mar-92	LAHS	Black	Jacksmeit	3	1	0.11	0.04	0.04
2023	2433	12-Mar-92	LAHS	Black	Kelp Bass	3	2	0.50	0.17	0.33
2023	2434	12-Mar-92	LAHS	Black	Slacksmith	5	1	0.16	0.03	0.03
2023	2435	12-Mar-92	LAHS	White	Kelp Bass	4	1	0.31	0.08	0.08
2023	2443	12-Mar-92	LAHS	Hisp.	California Scorpionfish	1	1	0.50	0.50	0.50
2023	2443	12-Mar-92	LAHS	Hisp.	Halfmoon	1	1	0.27	0.27	0.27
2023	2443	12-Mar-92	LAHS	Hisp.	Kelp Bass	1	1	0.47	0.47	0.47
2023	2451	12-Mar-92	LAHS	White	Kelp Bass	3	2	0.21	0.07	0.14
2024	2452	28-Mar-92	RSBT	Chin.	Barred Sand Bass	1	1	0.54	0.54	0.54
2024	2455	28-Mar-92	RSBT	White	Barred Sand Bass	4	1	0.37	0.09	0.09
2024	2455	28-Mar-92	RSBT	White	Halfmoon	4	1	0.32	0.08	0.08
2024	2457	28-Mar-92	RSBT	White	Halfmoon	3	1	1.28	0.43	0.43
2024	2458	28-Mar-92	RSBT	Japa.	Barred Sand Bass	2	1	0.28	0.14	0.14
2024	2458	28-Mar-92	RSBT	Japa.	Triggerfish, unidentified**	2	1	-	-	-
2024	2459	28-Mar-92	RSBT	Japa.	Halfmoon	5	1	0.32	0.06	0.06
2024	2459	28-Mar-92	RSBT	Japa.	Rockfish, unidentified	5	1	0.08	0.02	0.02
2025	2478	13-Apr-92	MSB	Hisp.	Chub Mackerel	6	1	0.35	0.06	0.06
2025	2478	13-Apr-92	MSB	Hisp.	Squarespot Rockfish	6	1	0.68	0.11	0.11
2026	2482	25-Apr-92	LAHS	Japa.	Kelp Bass	2	1	0.96	0.48	0.48
2026	2485	25-Apr-92	LAHS	White	Barred Sand Bass	1	1	0.67	0.67	0.67
2026	2486	25-Apr-92	LAHS	White	Kelp Bass	2	1	0.21	0.11	0.11
2026	2487	25-Apr-92	LAHS	White	Kelp Bass	1	1	0.17	0.17	0.17
2026	2487	25-Apr-92	LAHS	White	Pacific Barracuda	1	1	0.73	0.73	0.73
2026	2488	25-Apr-92	LAHS	White	Barred Sand Bass	1	1	0.18	0.18	0.18
2026	2488	25-Apr-92	LAHS	White	Kelp Bass	1	1	0.19	0.19	0.19
2026	2489	25-Apr-92	LAHS	White	Kelp Bass	4	1	0.19	0.05	0.05
2026	2490	25-Apr-92	LAHS	Black	Kelp Bass	3	1	0.21	0.07	0.07
2026	2492	25-Apr-92	LAHS	White	Kelp Bass	1	1	0.19	0.19	0.19
2026	2493	25-Apr-92	LAHS	Hisp.	Barred Sand Bass	2	1	0.31	0.16	0.16
2026	2494	25-Apr-92	LAHS	White	Barred Sand Bass	3	1	0.31	0.10	0.10
2026	2495	25-Apr-92	LAHS	Hisp.	Chub Mackerel	7	1	0.38	0.05	0.05
2026	2496	25-Apr-92	LAHS	Hisp.	Kelp Bass	6	1	0.17	0.03	0.03
2026	2499	25-Apr-92	LAHS	Fili.	Kelp Bass	3	1	0.28	0.09	0.09
2026	2500	25-Apr-92	LAHS	Hisp.	Chub Mackerel	7	6	0.48	0.07	0.41
2026	2500	25-Apr-92	LAHS	Hisp.	Pacific Barracuda	7	2	0.67	0.10	0.19
2026	2501	25-Apr-92	LAHS	White	Barred Sand Bass	2	1	0.34	0.17	0.17
2026	2508	25-Apr-92	LAHS	White	Barred Sand Bass	2	1	0.39	0.20	0.20
2026	2506	25-Apr-92	LAHS	White	Pacific Barracuda	2	1	0.57	0.28	0.28
2026	2507	25-Apr-92	LAHS	White	Kelp Bass	1	4	0.40	0.40	1.61
2026	2507	25-Apr-92	LAHS	White	Pacific Barracuda	1	1	0.59	0.59	0.59
2027	2512	06-May-92	RSB	Fili.	Chub Mackerel	2	8	3.43	1.72	13.73
2027	2517	06-May-92	RSB	Hisp.	Chub Mackerel	4	1	6.03	1.51	1.51
2027	2518	06-May-92	RSB	Black	Chub Mackerel	3	1	1.68	0.56	0.56
2027	2520	06-May-92	RSB	Black	Chub Mackerel	2	1	1.21	0.60	0.60
2027	2521	06-May-92	RSB	Paci!	Chub Mackerel	3	5	6.77	2.26	11.29
2027	2521	06-May-92	RSB	Paci!	Pacific Bonito	3	5	1.38	0.46	2.30
2027	2522	06-May-92	RSB	Fili.	Chub Mackerel	3	1	3.17	1.06	1.06
2027	2526	06-May-92	RSB	White	Chub Mackerel	2	1	0.45	0.23	0.23
2027	2526	06-May-92	RSB	White	Pacific Bonito	2	1	0.42	0.21	0.21
2028	2538	16-May-92	MDRS	Hisp.	Pacific Barracuda	1	1	1.10	1.10	1.10
2028	2539	16-May-92	MDRS	White	Barred Sand Bass	1	1	0.18	0.18	0.18
2028	2539	16-May-92	MDRS	White	Kelp Bass	1	1	0.44	0.44	0.44
2028	2539	16-May-92	MDRS	White	Pacific Barracuda	1	1	0.57	0.67	0.67
2028	2541	16-May-92	MDRS	Chin.	Barred Sand Bass	2	5	0.26	0.13	0.65
2028	2541	16-May-92	MDRS	Chin.	Pacific Barracuda	2	1	6.90	3.49	3.49
2028	2544	16-May-92	MDRS	Hisp.	Barred Sand Bass	3	9	1.26	0.42	3.79
2028	2547	16-May-92	MDRS	White	Pacific Barracuda	1	1	3.23	3.23	3.23
2028	2551	16-May-92	MDRS	Chin.	Pacific Barracuda	2	1	1.57	0.79	0.78
2028	2553	16-May-92	MDRS	White	Barred Sand Bass	3	8	1.23	0.41	3.29
2028	2553	16-May-92	MDRS	White	Pacific Barracuda	3	1	0.70	0.23	0.23

Appendix 12 (continued)

Census	Survey	Date	Site	Ethnic	Species	Number of Consumers	Consumption		Consumption	
							Frequency (times/mo)	Consumable Weight (kg)	kg per individual	Rate (kg/ind/mo)
2029	2565	02-Jun-92	RSBT	Kore.	Kelp Bass	4	1	0.28	0.07	0.07
2029	2565	02-Jun-92	RSBT	Kore.	Pacific Bonito	4	1	0.48	0.12	0.12
2029	2565	02-Jun-92	RSBT	Kore.	Squarespot Rockfish	4	1	0.08	0.02	0.02
2029	2567	02-Jun-92	RSBT	White	Chub Mackerel	2	1	0.96	0.48	0.48
2029	2567	02-Jun-92	RSBT	White	Kelp Bass	2	1	0.44	0.22	0.22
2029	2568	02-Jun-92	RSBT	Black	California Scorpionfish	7	1	0.21	0.03	0.03
2029	2568	02-Jun-92	RSBT	Black	Chub Mackerel	7	1	0.61	0.09	0.09
2029	2570	02-Jun-92	RSBT	Fili.	Kelp Bass	1	1	0.84	0.84	0.84
2029	2571	02-Jun-92	RSBT	White	California Sheephead	1	3	0.52	0.52	1.57
2029	2571	02-Jun-92	RSBT	White	Kelp Bass	1	10	0.21	0.21	2.11
2029	2571	02-Jun-92	RSBT	White	Pacific Bonito	1	1	0.55	0.55	0.55
2029	2572	02-Jun-92	RSBT	White	Kelp Bass	1	1	0.31	0.31	0.31
2029	2573	02-Jun-92	RSBT	White	Cabezon	1	1	0.08	0.08	0.08
2029	2573	02-Jun-92	RSBT	White	California Halibut	1	1	0.70	0.70	0.70
2029	2573	02-Jun-92	RSBT	White	Kelp Bass	1	3	0.42	0.42	1.27
2029	2573	02-Jun-92	RSBT	White	Pacific Bonito	1	1	0.55	0.55	0.55
2029	2573	02-Jun-92	RSBT	White	Squarespot Rockfish	1	1	0.06	0.06	0.06
2030	2587	11-Jun-92	MDRS	Kore.	Kelp Bass	1	1	0.69	0.69	0.69
2030	2587	11-Jun-92	MDRS	Kore.	Pacific Barracuda	1	1	0.79	0.79	0.79
2030	2588	11-Jun-92	MDRS	White	Pacific Barracuda	3	3	0.62	0.21	0.62
2030	2589	11-Jun-92	MDRS	White	Pacific Barracuda	6	1	2.90	0.48	0.48
2030	2590	11-Jun-92	MDRS	White	Pacific Barracuda	1	1	1.86	1.86	1.86
2030	2591	11-Jun-92	MDRS	Black	Chub Mackerel	3	4	0.23	0.08	0.31
2030	2595	11-Jun-92	MDRS	White	Pacific Barracuda	1	2	3.54	3.54	7.08
2030	2596	11-Jun-92	MDRS	Japa.	Pacific Barracuda	5	1	5.03	1.01	1.01
2030	2599	11-Jun-92	MDRS	Hisp.	Pacific Barracuda	3	1	0.57	0.19	0.19
2031	2613	13-Jun-92	MSB	White	Pacific Barracuda	4	2	4.44	1.11	2.22
2031	2614	13-Jun-92	MSB	White	Pacific Barracuda	4	2	2.18	0.54	1.09
2032	2634	27-Jun-92	RSB	White	Chub Mackerel	2	3	0.32	0.16	0.48
2032	2642	27-Jun-92	RSB	White	Chub Mackerel	4	1	0.42	0.10	0.10
2032	2648	27-Jun-92	RSB	Fili.	Vermilion Rockfish	2	1	0.25	0.12	0.12
2032	2652	27-Jun-92	RSB	Hisp.	Chub Mackerel	6	1	0.12	0.02	0.02
2034	2676	12-Jul-92	MDRS	Kore.	Barred Sand Bass	3	2	0.97	0.32	0.64
2034	2677	12-Jul-92	MDRS	White	Pacific Barracuda	3	9	0.88	0.29	2.64
2034	2679	12-Jul-92	MDRS	Kore.	Barred Sand Bass	3	4	3.02	1.01	4.02
2034	2680	12-Jul-92	MDRS	Kore.	Barred Sand Bass	3	1	3.47	1.16	1.16
2034	2681	12-Jul-92	MDRS	White	Barred Sand Bass	3	6	1.53	0.51	3.06
2034	2682	12-Jul-92	MDRS	Black	Barred Sand Bass	3	9	3.39	1.13	10.17
2034	2683	12-Jul-92	MDRS	White	Barred Sand Bass	5	1	4.31	0.86	0.86
2034	2684	12-Jul-92	MDRS	Kore.	Pacific Bonito	1	2	1.85	1.85	3.70
2034	2685	12-Jul-92	MDRS	Hisp.	Barred Sand Bass	1	1	5.26	5.26	5.26
2034	2685	12-Jul-92	MDRS	Hisp.	Pacific Barracuda	1	5	1.93	1.93	9.64
2034	2685	12-Jul-92	MDRS	Hisp.	Pacific Bonito	1	1	1.39	1.39	1.39
2034	2686	12-Jul-92	MDRS	Hisp.	Barred Sand Bass	2	1	1.72	0.88	0.86
2034	2686	12-Jul-92	MDRS	Hisp.	Chub Mackerel	2	1	1.49	0.75	0.75
2034	2687	12-Jul-92	MDRS	Japa.	Pacific Barracuda	2	1	0.57	0.28	0.28
2034	2688	12-Jul-92	MDRS	White	Barred Sand Bass	2	6	3.04	1.52	9.13
2034	2690	12-Jul-92	MDRS	White	Barred Sand Bass	3	6	2.60	0.87	5.20
2034	2691	12-Jul-92	MDRS	White	Barred Sand Bass	2	1	4.72	2.36	2.36
2035	2713	20-Jul-92	RSBT	Hisp.	Pacific Barracuda	3	1	1.09	0.36	0.36
2035	2714	20-Jul-92	RSBT	Hisp.	Pacific Barracuda	3	1	1.82	0.61	0.61
2035	2717	20-Jul-92	RSBT	Black	Barred Sand Bass	10	1	0.39	0.04	0.04
2035	2717	20-Jul-92	RSBT	Black	Pacific Barracuda	10	7	7.86	0.79	5.51
2036	2731	26-Jul-92	MDRS	Kore.	Barred Sand Bass	1	5	3.75	3.75	18.78
2036	2731	26-Jul-92	MDRS	Kore.	California Halibut	1	1	0.95	0.95	0.95
2036	2734	26-Jul-92	MDRS	White	Barred Sand Bass	1	14	0.55	0.55	7.86
2036	2734	26-Jul-92	MDRS	White	Pacific Barracuda	1	1	0.64	0.64	0.64
2036	2737	26-Jul-92	MDRS	Hisp.	Barred Sand Bass	8	2	1.14	0.14	0.28
2037	2742	01-Aug-92	MSB	White	Barred Sand Bass	2	1	1.66	0.83	0.83
2037	2742	01-Aug-92	MSB	White	Pacific Barracuda	2	1	0.67	0.34	0.34
2037	2743	01-Aug-92	MSB	White	Kelp Bass	1	2	1.17	1.17	2.33
2037	2745	01-Aug-92	MSB	White	Barred Sand Bass	2	1	1.12	0.56	0.56
2037	2745	01-Aug-92	MSB	White	Kelp Bass	2	1	0.85	0.42	0.42
2037	2746	01-Aug-92	MSB	Viet.	Barred Sand Bass	3	3	1.66	0.55	1.66
2038	2749	05-Aug-92	LAHS	White	Pacific Barracuda	1	1	1.48	1.48	1.48
2038	2750	05-Aug-92	LAHS	Fili.	Pacific Barracuda	1	4	0.76	0.76	3.02
2038	2750	05-Aug-92	LAHS	Fili.	Pacific Bonito	1	2	1.78	1.78	3.55
2038	2751	05-Aug-92	LAHS	White	Pacific Barracuda	1	1	0.85	0.85	0.85
2038	2751	05-Aug-92	LAHS	White	Pacific Bonito	1	1	1.67	1.67	1.67
2038	2752	05-Aug-92	LAHS	White	Pacific Barracuda	4	1	1.70	0.42	0.42
2038	2752	05-Aug-92	LAHS	White	Pacific Bonito	4	1	0.76	0.19	0.19
2038	2753	05-Aug-92	LAHS	White	Pacific Barracuda	1	1	1.78	1.78	1.78
2038	2753	05-Aug-92	LAHS	White	Pacific Bonito	1	1	3.00	3.00	3.00
2038	2754	05-Aug-92	LAHS	Unk.	Pacific Bonito	1	1	2.34	2.34	2.34
2038	2755	05-Aug-92	LAHS	Unk.	Kelp Bass	1	1	0.15	0.15	0.15
2038	2755	05-Aug-92	LAHS	Unk.	Pacific Barracuda	1	1	0.67	0.67	0.67
2038	2756	05-Aug-92	LAHS	Japa.	Pacific Barracuda	4	1	1.51	0.38	0.38

Appendix 12 (continued)

Census	Survey	Date	Site	Ethnic	Species	Number of Consumers	Consumption Frequency (times/mo)	Consumable Weight (kg)	kg per individual	Consumption Rate (kg/ind/mo)
2040	2774	30-Aug-92	MDRS	White	California Scorpionfish	5	1	0.36	0.07	0.07
3010	3160	21-Sep-91	KHBH	Unk.	California Halibut	1	1	2.06	2.06	2.06
3010	3161	21-Sep-91	KHBH	White	Pacific Bonito	1	1	1.62	1.62	1.62
3010	3163	21-Sep-91	KHBH	White	Pacific Bonito	1	1	0.26	0.26	0.26
3010	3169	21-Sep-91	KHBH	White	Barred Sand Bass	1	1	0.86	0.86	0.86
3010	3174	21-Sep-91	KHBH	Japa.	Kelp Bass	1	1	2.03	2.03	2.03
3010	3178	21-Sep-91	KHBH	Hisp.	Chub Mackerel	5	1	0.19	0.04	0.04
3010	3178	21-Sep-91	KHBH	Hisp.	Pacific Bonito	5	1	1.40	0.28	0.28
3011	3187	26-Sep-91	MDRBR	White	Flag Rockfish	1	1	0.14	0.14	0.14
3011	3187	26-Sep-91	MDRBR	White	Starry Rockfish	1	1	1.01	1.01	1.01
3013	3208	12-Oct-91	KHBH	Hisp.	Barred Sand Bass	3	1	1.44	0.48	0.48
3013	3210	12-Oct-91	KHBH	Viet.	Barred Sand Bass	6	1	0.31	0.05	0.05
3013	3210	12-Oct-91	KHBH	Viet.	California Halibut	6	1	1.52	0.25	0.25
3013	3210	12-Oct-91	KHBH	Viet.	Chub Mackerel	6	1	1.51	0.25	0.25
3013	3210	12-Oct-91	KHBH	Viet.	Horn Shark	6	1	1.12	0.19	0.19
3013	3210	12-Oct-91	KHBH	Viet.	Pacific Bonito	6	1	2.41	0.40	0.40
3013	3211	12-Oct-91	KHBH	White	Barred Sand Bass	2	1	0.20	0.10	0.10
3013	3211	12-Oct-91	KHBH	White	White Croaker	2	1	0.32	0.16	0.16
3013	3213	12-Oct-91	KHBH	Hisp.	Barred Sand Bass	3	1	1.10	0.37	0.37
3013	3213	12-Oct-91	KHBH	Hisp.	California Halibut	3	1	1.98	0.66	0.66
3014	3216	21-Oct-91	MDRBR	White	Yellowfin Croaker	1	1	0.02	0.02	0.02
3015	3226	09-Nov-91	CBR	White	Kelp Bass	3	1	2.14	0.71	0.71
3015	3230	09-Nov-91	CBR	White	Black Perch	3	1	0.48	0.16	0.16
3015	3230	09-Nov-91	CBR	White	Halfmoon	3	1	0.57	0.19	0.19
3015	3230	09-Nov-91	CBR	White	Opaleye	3	1	0.31	0.10	0.10
3015	3230	09-Nov-91	CBR	White	Rock Wrasse	3	1	0.19	0.06	0.06
3015	3230	09-Nov-91	CBR	White	Sargo	3	1	0.29	0.10	0.10
3015	3230	09-Nov-91	CBR	White	Shiner Perch	3	1	0.14	0.05	0.05
3017	3237	02-Dec-91	MDRBR	White	Barred Sand Bass	1	1	0.31	0.31	0.31
3017	3237	02-Dec-91	MDRBR	White	California Scorpionfish	1	1	0.50	0.50	0.50
3017	3243	02-Dec-91	MDRBR	Hisp.	Halfmoon	3	4	0.29	0.10	0.39
3018	3247	03-Dec-91	CBR	Hisp.	Chub Mackerel	1	4	1.54	1.54	6.16
3021	3260	05-Feb-92	CBR	White	Kelp Bass	3	7	5.98	1.99	13.94
3022	3261	22-Feb-92	KHBH	White	Barred Sand Bass	2	1	0.57	0.28	0.28
3022	3261	22-Feb-92	KHBH	White	Kelp Bass	2	1	0.46	0.23	0.23
3022	3263	22-Feb-92	KHBH	Fili.	Kelp Bass	1	1	0.49	0.49	0.49
3022	3263	22-Feb-92	KHBH	Fili.	Pacific Bonito	1	1	1.71	1.71	1.71
3025	3272	18-Apr-92	CBR	Black	Black Perch	3	1	0.18	0.06	0.06
3025	3272	18-Apr-92	CBR	Black	Chub Mackerel	3	1	4.50	1.50	1.50
3025	3274	18-Apr-92	CBR	Japa.	Chub Mackerel	1	1	2.40	2.40	2.40
3025	3276	18-Apr-92	CBR	White	Kelp Bass	3	2	0.80	0.27	0.54
3026	3299	28-Apr-92	MDRBR	Chin.	Barred Sand Bass	2	1	0.19	0.10	0.10
3026	3299	28-Apr-92	MDRBR	Chin.	Black Perch	2	1	0.30	0.15	0.15
3026	3298	28-Apr-92	MDRBR	Chin.	Chub Mackerel	2	1	2.18	1.09	1.09
3026	3298	28-Apr-92	MDRBR	Chin.	Gray Smoothhound	2	1	0.44	0.22	0.22
3026	3298	28-Apr-92	MDRBR	Chin.	Jacksnelt	2	1	0.12	0.06	0.06
3026	3298	28-Apr-92	MDRBR	Chin.	Kelp Bass	2	1	0.21	0.11	0.11
3028	3302	31-May-92	MDRBR	White	Kelp Bass	4	1	0.17	0.04	0.04
3028	3318	31-May-92	MDRBR	White	Barred Sand Bass	1	1	0.97	0.97	0.97
3028	3320	31-May-92	MDRBR	Viet.	Chub Mackerel	3	1	0.98	0.33	0.33
3028	3320	31-May-92	MDRBR	Viet.	White Croaker	3	1	0.14	0.05	0.05
3029	3342	06-Jun-92	KHBH	Unk.	Pacific Bonito	1	1	0.45	0.45	0.45
3029	3348	06-Jun-92	KHBH	Hisp.	Pacific Bonito	2	1	1.26	0.63	0.63
3029	3347	06-Jun-92	KHBH	White	Brown Rockfish	1	1	0.04	0.04	0.04
3029	3347	06-Jun-92	KHBH	White	Pacific Bonito	1	1	1.78	1.78	1.78
3029	3348	06-Jun-92	KHBH	White	California Sheephead	2	1	4.91	2.45	2.45
3030	3357	07-Jun-92	CBR	Fili.	California Scorpionfish	1	1	0.21	0.21	0.21
3030	3357	07-Jun-92	CBR	Fili.	Kelp Bass	1	1	0.14	0.14	0.14
3031	3364	26-Jun-92	KHBH	Hisp.	Chub Mackerel	4	1	0.44	0.11	0.11
3031	3364	26-Jun-92	KHBH	Hisp.	Pacific Bonito	4	1	1.14	0.29	0.29
3031	3366	26-Jun-92	KHBH	White	Pacific Barracuda	5	1	1.89	0.38	0.38
3033	3375	05-Jul-92	CBR	Hisp.	Cabezon	1	1	0.08	0.08	0.08
3033	3375	05-Jul-92	CBR	Hisp.	California Scorpionfish	1	1	0.21	0.21	0.21
3033	3375	05-Jul-92	CBR	Hisp.	Kelp Bass	1	2	0.62	0.62	1.25
3033	3375	05-Jul-92	CBR	Hisp.	White Seabass	1	3	4.25	4.25	12.75
3033	3376	05-Jul-92	CBR	Hisp.	California Halibut	3	1	0.29	0.10	0.10
3033	3376	05-Jul-92	CBR	Hisp.	Chub Mackerel	3	1	0.31	0.10	0.10
3033	3376	05-Jul-92	CBR	Hisp.	Shark, unidentified*	3	1	-	-	-
3033	3376	05-Jul-92	CBR	Hisp.	White Croaker	3	1	0.60	0.20	0.20
3033	3377	05-Jul-92	CBR	Fili.	Cabezon	3	1	0.11	0.04	0.04
3033	3377	05-Jul-92	CBR	Fili.	Kelp Bass	3	1	0.80	0.27	0.27
3033	3377	05-Jul-92	CBR	Fili.	Sanddab, unidentified	3	1	0.14	0.05	0.05
3033	3377	05-Jul-92	CBR	Fili.	Surperch, unidentified*	3	1	-	-	-
3033	3379	05-Jul-92	CBR	Hisp.	Barred Sand Bass	2	1	0.47	0.23	0.23
3033	3379	05-Jul-92	CBR	Hisp.	California Scorpionfish	2	1	0.43	0.21	0.21
3033	3379	05-Jul-92	CBR	Hisp.	White Croaker	2	1	0.09	0.04	0.04
3033	3380	05-Jul-92	CBR	White	California Scorpionfish	1	1	0.46	0.46	0.46

Appendix 12 (continued)

Census	Survey	Date	Site	Ethnic	Species	Number of Consumers	Consumption Frequency (times/mo)	Consumable Weight (kg)	kg per individual	Consumption Rate (kg/ind/mo)
3033	3380	05-Jul-92	CBR	White	Chub Mackerel	1	1	0.17	0.17	0.17
3033	3380	05-Jul-92	CBR	White	Kelp Bass	1	1	0.58	0.58	0.58
3034	3386	06-Jul-92	MDRBR	White	Barred Sand Bass	3	2	1.36	0.45	0.91
3034	3386	06-Jul-92	MDRBR	White	Pacific Barracuda	3	2	0.73	0.24	0.48
3034	3387	06-Jul-92	MDRBR	White	Barred Sand Bass	4	2	1.56	0.39	0.78
3034	3387	06-Jul-92	MDRBR	White	Pacific Barracuda	4	2	1.69	0.42	0.85
3034	3388	06-Jul-92	MDRBR	White	Barred Sand Bass	2	1	0.74	0.37	0.37
3034	3390	06-Jul-92	MDRBR	Viet.	California Halibut	6	1	6.87	1.14	1.14
3034	3391	06-Jul-92	MDRBR	White	Barred Sand Bass	2	3	4.40	2.20	6.60
3034	3392	06-Jul-92	MDRBR	White	Black Perch	3	2	0.03	0.01	0.02
3034	3392	06-Jul-92	MDRBR	White	Opaleye	3	1	0.24	0.08	0.08
3034	3392	06-Jul-92	MDRBR	White	Sargo	3	1	0.07	0.02	0.02
3034	3393	06-Jul-92	MDRBR	White	Barred Sand Bass	4	1	0.86	0.22	0.22
3034	3393	06-Jul-92	MDRBR	White	Chub Mackerel	4	1	0.40	0.10	0.10
3034	3393	06-Jul-92	MDRBR	White	Pacific Barracuda	4	1	1.30	0.32	0.32
3035	3397	18-Jul-92	KHBH	Hisp.	Barred Sand Bass	5	1	0.58	0.12	0.12
3035	3399	18-Jul-92	KHBH	Black	California Halibut	3	1	0.53	0.18	0.18
3035	3402	18-Jul-92	KHBH	White	Barred Sand Bass	1	1	0.76	0.76	0.76
3036	3408	23-Jul-92	CBR	White	Barred Sand Bass	3	1	0.18	0.06	0.06
3036	3409	23-Jul-92	CBR	Black	Chub Mackerel	2	1	0.74	0.37	0.37
3036	3409	23-Jul-92	CBR	Black	Jacksmeat	2	1	0.44	0.22	0.22
3036	3409	23-Jul-92	CBR	Black	White Croaker	2	2	2.32	1.16	2.32
3037	3412	07-Aug-92	MDRBR	White	Chub Mackerel	1	1	0.27	0.27	0.27
3037	3412	07-Aug-92	MDRBR	White	Walleye Surfperch	1	1	0.02	0.02	0.02
3037	3412	07-Aug-92	MDRBR	White	White Croaker	1	1	0.04	0.04	0.04
3037	3415	07-Aug-92	MDRBR	Fili.	Barred Sand Bass	5	1	4.16	0.83	0.83
3037	3416	07-Aug-92	MDRBR	White	Barred Sand Bass	4	1	1.88	0.47	0.47
3037	3416	07-Aug-92	MDRBR	White	Flatfish, unidentified	4	1	1.14	0.28	0.28
3037	3416	07-Aug-92	MDRBR	White	Pacific Barracuda	4	1	0.88	0.22	0.22
3038	3421	11-Aug-92	CBR	Hisp.	Kelp Bass	4	3	0.34	0.08	0.25
3039	3424	15-Aug-92	KHBH	Chin.	Pacific Sonito	4	1	7.39	1.85	1.85
3039	3426	15-Aug-92	KHBH	Hisp.	Flatfish, unidentified	1	1	0.09	0.09	0.09
3039	3426	15-Aug-92	KHBH	Hisp.	Pacific Sonito	1	1	0.48	0.48	0.48
3039	3429	15-Aug-92	KHBH	White	Kelp Bass	3	2	0.80	0.27	0.53
3039	3429	15-Aug-92	KHBH	White	Pacific Barracuda	3	2	2.40	0.80	1.60
3039	3429	15-Aug-92	KHBH	White	Pacific Sonito	3	1	3.10	1.03	1.03
3039	3429	15-Aug-92	KHBH	White	Yellowtail	3	2	1.32	0.44	0.88
3039	3430	15-Aug-92	KHBH	White	Surperch, unidentified*	1	2	-	-	-
3039	3430	15-Aug-92	KHBH	White	Walleye Surfperch	1	2	0.18	0.18	0.35
3039	3432	15-Aug-92	KHBH	White	Pacific Barracuda	1	1	0.88	0.88	0.88
3039	3432	15-Aug-92	KHBH	White	Pacific Sonito	1	1	2.09	2.09	2.09
3039	3432	15-Aug-92	KHBH	White	Yellowtail	1	1	0.68	0.68	0.68
3040	3435	23-Aug-92	CBR	White	Kelp Bass	2	3	0.95	0.48	1.43
3040	3442	23-Aug-92	CBR	Black	Black Perch	1	3	0.28	0.28	0.84
3040	3442	23-Aug-92	CBR	Black	California Sheephead	1	1	1.39	1.39	1.39
3040	3442	23-Aug-92	CBR	Black	Halfmoon	1	1	0.36	0.36	0.36
3040	3443	23-Aug-92	CBR	Hisp.	Jacksmeat	1	1	1.37	1.37	1.37
4008	4008	26-Sep-91	VB	Japa.	Yellowfin Croaker	1	7	0.02	0.02	0.12
4008	4009	26-Sep-91	VB	Chin.	Yellowfin Croaker	2	1	0.03	0.02	0.02
4016	4015	16-Jul-92	MDRB	Chin.	California Corbina	2	8	0.92	0.46	3.69

* Coefficients were not available for these species.

** Coefficients for calico surfperch were used to calculate for rainbow seaperch.

Location abbreviations: BCJ = Ballona Creek Jetty; CBR = Cabrillo Beach ramp; CP = Cabrillo Pier; HP = Hermosa Beach Pier; KHB = King Harbor breakwater; KHBH = King Harbor Boat Hoist; LAHS = L.A. Harbor Sportfishing; MDRB = Marina del Rey Beach; MDRBR = Marina del Rey Boat Ramp; MDRFD = Marina del Rey Fishing Dock; MDRS = Marina del Rey Sportfishing; MP = Malibu Pier; MSB = Malibu sportfishing boat; PCP = Paradise Cove Pier; RMMP = Redondo Municipal/ Monstad Pier; RSB = Redondo Sportfishing Barge; RSBT = Redondo Sport-fishing Boat; RSP = Redondo Sportfishing Pier; SMMP = Santa Monica Municipal Pier; VB = Venice Beach.

Mode Abbreviations: BI = beach or intertidal; PB = party boat; PBL = private boat launch; PJ = pier or jetty

APPENDIX 13

**Summary of Seafood Consumption Rates of Anglers with Fish
Santa Monica Bay Seafood Consumption Study, 1991-1992**

Appendix 13. Mean seafood consumption rates of Santa Monica Bay anglers using consumable portion and fillet model estimates, Santa Monica Bay Seafood Consumption Study, September 1991 to August 1992.

a) Consumable portion estimates

Ethnic Type	n	Mean Consumption Rate (kg/individual/month)									^b
		Barred Sand Bass 63	Chub Mackerel 73	Pacific Barracuda 41	Pacific Bonito 38	Kelp Bass 61	Rockfish Species 49	White Croaker 44	Other Species 106	Overall Mean	
Pacific Islander	4	--	12.28	--	2.30	--	--	--	0.03	12.86	
Korean	14	4.93	0.58	0.79	1.36	0.38	0.38	0.04	0.50	2.44	
Filipino	27	0.83	3.35	3.02	2.00	0.37	1.66	0.47	0.09	1.85	
White	110	1.56	0.43	1.22	1.03	0.94	0.34	0.11	0.94	1.57	
Unknown	4	--	--	0.67	1.39	0.15	--	--	2.06	1.42	
Chinese	13	0.35	0.38	2.14	1.06	0.37	0.14	--	0.83	1.10	
Black	30	5.11	0.40	5.51	--	0.99	0.06	0.36	0.27	1.04	
Hispanic	93	1.10	0.69	2.03	0.79	0.48	0.25	0.16	0.75	0.94	
Vietnamese	8	0.86	0.24	--	0.40	--	0.46	0.05	0.42	0.66	
Japanese	14	0.16	2.40	0.56	--	0.72	0.02	--	0.09	0.61	
Overall Mean ^a		1.70	1.56	1.46	1.09	0.77	0.47	0.20	0.66	1.45	
*Asians Combined	49	2.16	0.57	1.12	1.10	0.57	0.25	0.04	0.43	1.27	

-- = No Data

a = Overall Mean from summed consumption rate of each species divided by number of anglers that consumed that species.

b = Overall Mean from summed consumption rate of all species for each ethnic group divided by the number of anglers in that group.

"Asians Combined" includes Chinese, Japanese, Korean and Vietnamese categories.

b) Fillet model estimates

Ethnic Type	n	Mean Consumption Rate (kg/individual/month)									^b
		Chub Mackerel 146	Barred Sand Bass 144	Pacific Barracuda 71	Kelp Bass 140	Rockfish Species 65	Pacific Bonito 77	White Croaker 79	Other Species 230	Overall Mean	
Other	2	--	1.80	--	3.45	--	0.90	--	0.60	5.85	
Pacific Islander	11	3.65	0.80	--	1.76	1.80	1.46	--	0.83	3.67	
Filipino	38	2.53	0.23	2.40	0.19	0.60	0.93	0.75	0.94	1.87	
White	216	0.62	1.07	0.87	0.76	0.73	0.47	0.39	1.24	1.63	
Chinese	18	0.19	0.61	0.30	0.98	0.64	0.33	0.15	1.49	1.55	
Korean	28	0.51	1.05	0.53	0.96	0.34	0.26	0.80	0.58	1.41	
Black	57	0.44	0.76	1.11	0.91	0.98	0.88	0.56	0.87	1.35	
Japanese	31	0.55	0.57	0.45	0.47	0.70	0.23	0.15	0.53	0.95	
Hispanic	138	0.62	0.62	0.54	0.54	0.78	0.48	0.42	0.38	0.78	
Vietnamese	8	0.49	0.30	--	--	1.80	0.15	0.15	0.34	0.70	
Unknown	9	0.18	0.30	0.60	0.60	--	0.25	0.30	0.30	0.41	
Overall Mean ^a		0.94	0.89	0.81	0.79	0.73	0.55	0.44	0.91	1.38	
*Asians Combined	87	0.47	0.78	0.47	0.96	0.65	0.37	0.48	0.76	1.31	

-- = No Data

a = Overall Mean from summed consumption rate of each species divided by number of anglers that consumed that species.

b = Overall Mean from summed consumption rate of all species for each ethnic group divided by the number of anglers in that group.

"Other" category consists of; 1 Thailander and 1 East Indian.

"Pacific Islander" consists of; 3 Samoan, 3 Hawaiian, 3 Indonesian, 1 Guamanian and 1 Malaysian.

"Asians Combined" includes Chinese, Japanese, Korean, Vietnamese and "Other" categories.

