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Information Collection Request

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Supporting Statement for the Palos Verdes Shelf Seafood Consumption Survey

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1Part A of the Supporting Statement

1. Identification of the Information Collection

1(a) Title of the Information Collection

Palos Verdes Shelf Seafood Consumption Survey Information Collection Request (ICR)

1(b) Short Characterization/Abstract

The Palos Verdes Shelf Superfund site (PV Shelf) is a large sediment deposit off the coast of the Palos Verdes Peninsula, Los Angeles County, California, that contains approximately 110 tons of DDT and 10 tons of PCBs. The contaminants are in sediment too deep for direct human contact; however, fish in the PV Shelf area bioaccumulate the contaminants, exposing people and wildlife who consume fish to these hazardous substances.

Institutional Controls Program

In March 2000, EPA issued a proposed plan that recommended the use of institutional controls (ICs)¹ as an initial step to address the threat to human health posed by high concentrations of contaminants in fish (EPA 2000). The ICs Implementation Plan identified three categories of activities to be carried out under the ICs program: *public outreach and education* to increase awareness and understanding of existing fish consumption advisories and fishing restrictions; *monitoring* to evaluate and track contaminant concentrations in fish; and *enforcement* of California Dept. of Fish and Game commercial catch ban and recreational bag limit on white croaker (EPA 2001).

The primary vehicle for implementation of the ICs program has been the Fish Contamination Education Collaborative (FCEC). FCEC is a consortium of federal, state, and local agencies as well as non-profits and community-based organizations that educates the public about the fish contamination problem.

Fundamental to the ICs program is an understanding of the health risk consumers face. Last June, the State of California updated the fish advisory for Southern California after an extensive survey of over 20 species of fish from coastal areas between Ventura and Orange counties. The advisory recommends no consumption of white croaker, barred sand bass and topsmelt from the Palos Verdes Shelf area and limited consumption of numerous other species (OEHHA, 2009). The advisory noted that PCB and DDT concentrations in skin-on fillets were 3 to 12 times higher than skin-off fillets.

Cleanup Levels

In September 2009, EPA issued an interim Record of Decision summarizing EPA's remediation plan for PV Shelf. Remedial action objectives include reducing to acceptable levels the risk to human health from ingestion of fish contaminated with DDTs and PCBs. EPA performed a Human Health Risk Assessment (CH2M Hill 2007) to determine "acceptable levels." The assessment calculated risk by considering the concentrations of DDTs and PCBs in fish, how much fish an individual consumes, and over how long a period.

EPA used the *2002-2004 Southern California Coastal Marine Fish Contaminants Survey* to estimate contaminant concentrations for a half dozen species commonly found on PV Shelf. Consumption rates and periods (i.e., how many years an individual might consume contaminated fish) were calculated from the *Santa Monica Bay Seafood Consumption Study* (SMBRP 1994), a seafood consumption survey of

¹ Institutional Controls (ICs) refer to non-engineering measures, such as site use restrictions, intended to affect human activities in such a way as to prevent or reduce exposure to contaminants at a site. They are often used at Superfund sites as a supplement to active remediation measures such as excavation, groundwater pump and treat, etc. to address risks to human health.

anglers conducted for the Santa Monica Bay Restoration Project by the Southern California Coastal Water Research Project and MBC Applied Environmental Sciences during 1991-1992.

The extensive *Coastal Marine Fish Contaminants Survey* provides EPA with relatively up-to-date data on DDT and PCB concentrations in fish. Additionally, ongoing fish monitoring programs provide fish data on a biennial basis. However, the survey EPA used to calculate risk from seafood consumption in the Human Health Risk Assessment is almost 20 years old. EPA cannot assume that fish consumption patterns described in the *Santa Monica Bay Seafood Consumption Study* still match current local consumption patterns. As a result, EPA may be inaccurately estimating exposure or missing a fish species that through consumption or cooking method may pose a risk.

EPA has no recent data on seafood consumption by fishermen in the PV Shelf area, generally defined as the area north of PV Shelf to Santa Monica Pier (in Santa Monica Bay) to south of PV Shelf to Seal Beach Pier (in San Pedro Basin). The goals and objectives of this survey are to provide current data on seafood consumption by PV Shelf anglers that can be used in EPA's ICs program and future risk assessments.

Objectives:

- a) To conduct a statistically valid survey of recreational anglers that fish in the greater PV Shelf area to determine the fish species that are being caught and consumed at the highest rates
- b) To gather quantitative data that can be used to characterize exposures of the general fishing population of the PV Shelf area to DDTs and PCBs from consumption of fish and shellfish caught in the PV Shelf area
- c) To identify demographic and ethnic subgroups within the general fishing population of the PV Shelf area that may be consuming large quantities of contaminants through selection, quantity, and/or cooking method of fish species
- d) To gather sufficient information to determine whether the existing human health risk assessment needs to be revised before its use in a final Record of Decision.

2. Need for and Use of the Collection

2(a) Need/Authority for the Collection

EPA Superfund needs this information to determine consumption patterns of recreational and subsistence fishers in the PV Shelf area who may be under additional risk of exposure to chemical contaminants through their consumption of locally caught fish. The survey will provide data on the types of fish commonly caught and consumed and preferred methods of seafood preparation by angler populations. These data will be used to refine the PV Shelf Superfund site ICs program that forms an essential component of the site's remedial action by providing nonengineered solutions to limit individual's consumption of fish that pose a human health risk. Additionally, survey data will be compared to the assumptions used in the existing human health risk assessment to determine whether a revised risk assessment is warranted.

EPA Region 9 Superfund Division is collecting this information as part of its remedial response under authority of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) §104 and §121, and the National Contingency Plan (40 CFR 300), which directs EPA to take necessary steps, including information gathering, to protect human health from Superfund sites, and Clean Water Act (CWA) §104, which provides for the collection of information to be used to protect human health and the environment. EPA's actions are also directed under Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. Through their outreach work, the PV Shelf Fish Contamination Education Collaborative (FCEC) has identified Asian communities and low-income populations as most likely to consume large quantities of fish. Some traditional Asian dishes utilize whole fish, further increasing consumers potential exposure to the contaminants of concern.

2(b) Practical Utility/Users of the Data

Information collected by EPA Region 9 Superfund Division will form part of EPA's remedial action at the PV Shelf Superfund site. Specifically, information on seafood consumption will enable EPA to determine whether anglers are exposed to greater risk because they are eating whole fish or are eating fish species known to contain greater levels of PCBs and DDTs. This information will be used to improve the effectiveness of the ICs program and to determine whether a revised human health risk assessment is necessary.

The survey data will be used by EPA superfund site managers and contractors who are developing the remedial design and implementing the remedial action associated with the Palos Verdes Shelf Superfund site.

3. Non-duplication, Consultations, and Other Collection Criteria

3(a) Non duplication

Fish consumption information has not been collected from anglers in the PV Shelf area since 1992. EPA examined the information collected for the Santa Monica Bay Restoration Commission by this earlier survey and will include some of the same questions for purposes of comparison. However, the purpose of this information collection is different from that of the Santa Monica Bay Restoration Commission in that this survey is focused on gathering information to use in remedy implementation. The demographics of the PV Shelf area have changed over the last 18 years and the seafood survey will include areas and population not surveyed in 1992. The survey will attempt to gather sufficient data on seafood consumption to identify differences among different ethnic groups who fish in the area in order to craft appropriate messages.

3(b) Public Notice Required Prior to ICR submission to OMB

A public notice is required prior to ICR submission to OMB. A notice was published in the Federal Register on August 10, 2010 (75 FR 48324), requesting comments on the Palos Verdes Shelf Seafood Consumption Survey, EPA ICR Number 2399.01. Only one comment was received during the 60-day comment period. A local reporter who covers the Palos Verdes Shelf Superfund site asked to be kept informed of the survey and its findings.

3(c) Consultations

EPA Region 9 Superfund reviewed the above-referenced *Santa Monica Bay Seafood Consumption Study* and the *San Francisco Bay Seafood Consumption Report* (SFEI, 2000). PV Shelf Superfund site stakeholders were consulted in developing the draft survey. Members of the FCEC will be consulted to check translations of the questionnaire into languages commonly spoken by anglers found in the PV Shelf area.

3(d) Effects of Less Frequent Collection

Lack of current data on seafood consumption in the PV Shelf area could result in a less effective ICs program, increasing the number of individuals inadvertently consuming contaminated fish. This is a one-time survey.

3(e) General Guidelines

The survey will adhere to OMB's general guidelines for information collection.

3(f) Confidentiality

Information sought does not include personal information that could be used to identify the respondent. No sensitive material will be collected.

3(g) Sensitive Questions

No questions concerning matters considered private, e.g., religious beliefs, will be included in the information collection.

4. The Respondents and the Information Request

4(a) Respondents/SIC Codes

Participation in the seafood consumption survey is voluntary. It will be administered to individual anglers found fishing in the survey area, defined as the coastal region from Santa Monica Pier to Seal Beach Pier. The survey will target anglers in this area who are fishing from 1) piers and jetties, 2) private boats, 3) party boats, and 4) beaches and rocky intertidal zones. Sampling procedures will be customized by location type. No SIC codes are associated with the survey.

4(b) Information Requested

(i) Data items, including record keeping requirements

The survey will collect information on demographic makeup of the anglers within the PV Shelf area, what fish they are trying to catch, and information regarding what anglers do with their catch. The survey will also address consumption rates of locally caught fish and shellfish, preferred fish, portion size, preferred cooking methods and consumption of other seafood.

Data from the survey will be processed and kept by EPA for use in human health risk assessment and implementation of the PV Shelf Superfund site remedial action. The surveys will become part of the PV Shelf Superfund site file to be retained by the EPA Record Center in accordance with CERCLA requirements.

(ii) Respondent Activities

Respondents will voluntarily answer questions posed to them by information collection survey team. Interviews will take place at fishing location of respondents. Interviews are estimated to take under 10 minutes.

5. The Information Collected-Agency Activities, Collection Methodology, and Information Management

5(a) Agency Activities

Agency activities, implemented through contractor support, associated with the collection of information by this survey include development of questionnaire, translation of questionnaire, hire and training of survey teams, fish identification training, creation and coordination of survey schedule and materials, collection of survey responses, entry into response table, analysis of survey responses, documentation and preparation of survey response reports.

5(b) Collection Methodology and Management

To collect and analyze the information associated with this information collection request, EPA will use paper questionnaires to be filled out by field teams trained to ask seafood consumption and demographic questions in multiple languages from anglers fishing from different fishing modes at four regions included in the PV Shelf area. The field teams will return the questionnaires to EPA's contract support for data entry and tabulation.

Within each region, specific fishing locations will be identified with approximately 10 specific potential interview sites within each location. Sampling teams will attempt to collect data from every angler at each site. When this is not possible due to the number of anglers, a random sampling procedure will be used. In this random sampling procedure, every predetermined n^{th} anglers will be selected for interview, and " n^{th} " terms will be determined using a pre-established randomization sheet (ranging from 1 to 6). This selection process will take into account the level of traffic at a particular pier, jetty, or boat, with a higher n^{th} traffic being surveyed at locations with higher traffic. Random selection of respondents is important because it allows a representative sample to be collected from the population and minimizes selection bias.

Prior to surveying anglers in each of the proposed locations, the field survey team will conduct a census of the location sites. The census will be used to collect site level information, including temperature, weather, sea state, number of anglers, and approximate demographics of the anglers at the site.

Following the location census, interviews will be conducted with anglers utilizing a questionnaire. The questionnaire will be administered orally to each angler in their native language whenever possible. The questionnaire will include the following categories of items:

- Basic site characteristics
- Angler's fishing history at the location and other locations within the PV Shelf area
- Inventory of each angler's catch
- Seafood consumption and preparation patterns
- Behavioral intentions with seafood that had been caught
- Demographic information

Pictures of fish common in the PV Shelf area and examples of standard meal size fillets will be used to assist the anglers in identifying different types of fish and their consumption patterns. To identify common local fish species, interviewers may utilize a fish identification card that depicts 23 common fish species found in Southern California.

To ascertain the parts and quantities of fish consumed by the angler, interviewers will utilize a model of a whole fish in which participants can indicate what portions and parts of the fish they consume. In this manner, interviewers can accurately record the fish parts consumed.

Surveys will be administered orally with responses recorded in paper-and-pencil form. Interview teams will include at least one interviewer that is fluent in English, Spanish, and either Vietnamese, Tagalog or Chinese. With the angler's permission, information regarding the types of fish or shellfish caught, measurements of fish caught, including weight, total lengths, and fork lengths will be recorded.

5(c) Small Entity Flexibility

Only individuals will be approached to be interviewed.

5(d) Collection Schedule

In order to capture seasonal variations in angler activity, the survey will be fielded for one year. The sampling period will be separated into summer and non-summer months. Summer months are defined as May through August. During these four months, surveys will be conducted on two weekend and two weekday days per month for each of the four fishing modes for a total of 16 survey days per months (total of 64 samples across the year). Non-summer months are September through April. Because of the lower volume of anglers in non-summer months, surveys will be conducted on one weekend day and one weekday per month for each of the major fishing modes, for a total of 8 survey days per month (total of 64 samples across the year).

Surveys at the selected sites will be chosen randomly to be conducted during one of three time periods: mornings (8:00 a.m. to noon), afternoon (noon to 4:00 p.m.) and evening (4:00 p.m. to 8:00 p.m.). These time periods may be adjusted to account for boating schedules and seasonal changes.

6. Estimating the Burden and Cost of the Collection

6(a) Estimating Respondent Burden

Respondents will be interviewed at fishing locations before, during, or after the respondent has been fishing. Interviews are voluntary and require participant to answer a series of questions. Interview is estimated to require no more than 10 minutes.

6(b) Estimating Respondent Costs

There is no monetary cost to the respondent associated with participation in the survey.

(i) Estimating Labor Costs

No labor costs are anticipated for the individuals providing verbal responses to the survey.

(ii) Estimating Capital and Operations and Maintenance Costs

No capital or operations and maintenance costs for respondents are anticipated under this survey.

(iii) Capital/Start-up Operating and Maintenance (O&M) Costs

No capital or start-up O&M costs for respondents are anticipated.

(iv) Annualizing Capital Costs

No capital costs are anticipated for this information collection.

6(c) Estimating Agency Burden and Cost

Agency burden is estimated based on the assumption that the bulk of the work performed under each activity associated with this information collection will be carried out by contract support with EPA providing oversight and direction, as necessary. Estimated EPA management oversight for the length of the survey and analysis period is 350 hours at the GS-13 rate (OPM General Schedule salary table for the San Jose-San Francisco-Oakland area). A benefits/overhead multiplication factor of 1.6 is used to obtain a total labor cost for EPA. Agency cost is estimated to total \$19,255.

The following table enumerates contractor’s tasks, level-of-effort and costs associated with implementation of the information collection program. Agency oversight costs are added to contractors’ tasks for a grand total of \$314, 817.

Contractor Tasks		Hours	Total (\$)
Develop implementation plan	Draft survey design implementation plan	66	7,920
Develop Survey	Draft survey questions	86	9,680
	Review, revise and provide feedback on survey		
	Integrate feedback and finalize survey questions		
	Design, develop, review and finalize survey form		
Prepare for survey administration	Draft data collection plan	425	45,922
	Survey translation		
	Hire and train survey takers		
	Fish identification training		
	Pilot test and survey and collate surveys		
	Coordinate survey schedule and materials		
	Develop survey response table		
	Enter survey response to table		
	Pilot assessment and survey modifications		

Conduct surveys	Develop pilot write-up		
	Fish ID training/protocol	2186	121,360
	Coordinate survey schedule		
	Travel to and from fishing locations to conduct surveys		
	Develop survey response table		
	Enter survey responses		
	Survey administration		
Develop analytical plan	Draft a plan for the analysis of survey data	81	9,720
Analyze data	Analyze surveys	166	19,920
	Prepare final reports (technical)		
	Prepare final reports (non-technical)		
Reporting	Documentation, reporting and internal meetings	356	42,720
	Quarterly progress reports		
	FCEC partners meetings		
Expenses	Project expenses		38,320
	Technical experts		
TOTAL		3366	295,562
Plus Agency Burden	EPA Agency oversight	350	19,255
GRAND TOTAL		3716	314,817

6(d) Estimating the Respondent Universe and Total Burden and Costs

The respondent universe for this ICR is calculated based on an estimated total of 2396 individuals to be approached with a total number of 1272 interviews to be completed over a two-season survey period. This translates to a target response rate of 75 percent.

MODE	Survey Days	Estimated Census (total)	Estimated Completed Interviews
Piers	32	884	519
Party Boats	32	977	450
Private Boats	32	481	258

Beach & Intertidal	32	54	45
TOTAL	128	2396	1272

6(e) Bottom Line Burden Hours and Cost Tables

(i) The Respondent Tally

The burden associated with respondent participation in the seafood consumption survey is approximately 267 hours total over three years or approximately 89 hours annually. Burden calculations assume 1,272 surveys of 15 minute duration with a 75 percent response rate (238.5 hours). Estimate also assumes about a 1 minute burden for those 25 percent who are stopped, but don't want to respond (5.3 hours) and 120 pilot tests of the survey with again 15 minute time burden and similar response rate (23 hours).

	Respondents	Responses	Minutes per Response	Total Minutes	Total Hours
Pilot	120	90	15	1350	22.5
(Refused)		30	1	30	0.5
Survey	1272	954	15	14310	238.5
(Refused)		318	1	318	5.3
TOTAL	1392				266.8
Annual	464				88.9

(ii) The Agency Tally

Agency and contractor hours and labor are summarized in the following table.

Contractor and Agency Activity based on 1272 completed interviews	Total Hours	Total Labor Costs	Total Capital Costs	Total O&M Costs	Total Costs
Develop workplan and survey	677	\$ 78,518	-0-	-0-	78,518
Implement survey	2,236	130,640	-0-	-0-	130,640
Analysis of survey data	347	47,859	-0-	-0-	47,859
Reporting	456	57,800	-0-	-0-	57,800
Participant Burden	356	-0-	-0-	-0-	-0-
GRAND TOTAL	4,072	\$314,817	-0-	-0-	\$314,817

(iii) Variations in the Annual Bottom Line

This is a new ICR thus the survey represents a one-time increase in burden on the public.

6(f) Burden Statement

The annual public reporting and recordkeeping burden for this collection of information is estimated to average 15 minutes per response. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations are listed in 40 CFR part 9 and 48 CFR chapter 15.

To comment on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques, EPA has established a public docket for this ICR under Docket ID Number EPA-R9-SFUND-2010-0506 which is available for online viewing at www.regulations.gov, or in person viewing at the EPA Region 9 Superfund Records Circulation Desk, 95 Hawthorne St., Room 405, San Francisco, CA 94105. The Superfund Records Circulation Desk is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Circulation Desk is (415) 536-2000. An electronic version of the public docket is available at www.regulations.gov. This site can be used to submit or view public comments, access the index listing of the contents of the public docket, and to access those documents in the public docket that are available electronically. When in the system, select "search," then key in the Docket ID Number identified above. Also, you can send comments to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW, Washington, D.C. 20503, Attention: Desk Officer for EPA. Please include the EPA Docket ID Number EPA-R9-SFUND-2010-0506 and OMB Control Number 2009-NEW in any correspondence.

1Part B of the Supporting Statement

B1. Introduction

At the cornerstone of this study is EPA's goal to provide accurate, complete and actionable data to feed the mechanisms that protect public health from contaminated fish consumption around the Palos Verdes Shelf and regionally to affected areas. The sampling frame is designed to provide a representative sample of anglers fishing in the PV Shelf region. Each site is sampled on weekdays and weekends, at randomly determined time periods, and at diverse locations within each of four regions. Based on the stratified sample, a working sample of 1,272 completed interviews is anticipated. This is based on an estimated 75 percent response rate, using census figures provided in the *Santa Monica Bay Seafood Consumption Study*.

B2. Survey Objectives

The objective of the survey is to gather quantitative data that will provide estimates of seafood consumption by anglers in the PV Shelf area that can be used in EPA's ICs program and risk assessments. The survey will 1) determine the fish species that are being caught and consumed at the highest rates, 2) identify demographic and ethnic subgroups within the general fishing population of the PV Shelf area that may be consuming large quantities of contaminants through selection, quantity, and/or cooking method of fish species, 3) gather quantitative data that can be used to characterize exposures of the general fishing population of the PV Shelf area to DDTs and PCBs from consumption of fish and shellfish caught in the PV Shelf area, and 4) gather sufficient information to determine whether the existing human health risk assessment needs to be revised before its use in a final Record of Decision.

B3. Key Variables

Key variables include fishing mode, geographic region, and ethnicity.

Geographical Region: The PV Shelf impacted area is defined as the coastal region from Santa Monica Pier to Seal Beach Pier. The total survey area will be separated into four regions: Central Bay (Santa Monica Municipal Pier to Playa Del Rey Beach), South Bay (Manhattan Beach to Redondo Beach), Los Angeles Harbor (Cabrillo Pier and Cabrillo Boat Ramp), and Long Beach (Cabrillo Boat Ramp to Seal Beach Pier).

Fishing Mode: The sample will be further stratified by fishing mode. Interview teams will sample from four fishing modes: 1) piers and jetties, 2) private boats, 3) party boats, 4) beaches and rocky intertidal zones. Sites will be selected within each region to provide coverage of each mode. Sampling procedures will be customized by location type taking into account the characteristic nature of the various modes.

- Piers and Jetties - These surveys will be conducted at the following potential locations Cabrillo Pier, Hermosa Beach Pier, Manhattan Beach Pier, Marina Del Rey Beach, Playa Del Rey Beach, Redondo Pier, Santa Monica Pier, San Pedro breakwater, Venice Beach Pier, Belmont Pier, Pier J and Rainbow Harbor. Anglers will be approached while they are fishing and interviewed in their native language (whenever possible).
- Private Boats -These will include boats potentially in Cabrillo Boat Ramp, King Harbor Boat Hoist, Marina Del Rey Boat Ramp, Redondo Sport Fishing Boat and Barge, Long Beach Shoreline Marina, Rainbow Harbor Marina, Alamitos Bay Marina, Marine Stadium and Los Angeles Harbors. Anglers will be

approached as they dock the boat. Prior to interviewing these individuals, we will establish that the anglers had fished within the study area using a map to illustrate the location. If they were fishing within the study area, interviews will be conducted with as many anglers as possible. Permission to board the boats and interview the anglers will be sought whenever possible. In the event that this is not possible, interviews will be conducted as anglers leave the boat.

- Party Boats - These will include full- and half-day trips from potential locations including Cabrillo Boat Ramp, King Harbor Boat Hoist, Marina Del Rey Boat Ramp, Redondo Sport Fishing Boat and Barge, and Los Angeles Harbor. Anglers will be approached while waiting to board the boat or on the outgoing trip. Permission to board the boats and interview the anglers will be sought whenever possible. In the event that this is not possible, interviews will be conducted as anglers leave the boat.
- Beaches and Intertidal - These surveys will be conducted at beaches adjacent to the pier or jetty locations being sampled (see potential list of piers above). These surveys will occur prior to surveying pier or jetty locations for the duration of two hours. Anglers on the beach within site from the pier or jetty will be approached while they are fishing and interviewed in their native language (whenever possible). Intertidal regions include Bluff Cove, Lunada Bay, Malaga Cove, Long Point and Royal Palms Beach/White's Point. Anglers will be approached while they are fishing and interviewed in their native language (whenever possible).

Statistical analyses and reporting will focus on descriptive statistics for each variable, along with the associated margins of error. Visual graphs and tables will accompany the key descriptive statistics, and help to highlight the overall pattern of findings. In addition, the workplan anticipates conducting several inferential statistical analyses, comparing demographic and behavioral differences in seafood consumption practices. Finally, the analyses will estimate aggregated seafood consumption rates. Following the 1994 *Santa Monica Bay Seafood Consumption Study*, the survey will begin by using each person's indicated typical meal size for each species relative to a fillet model, multiplied by the frequency of consumption of that species reported for the four weeks prior to the interview.

A second consumption estimate will be calculated for anglers who have fish on hand at the time of the interview and who allow the interviewers to examine and measure their catch. In these instances, the interview team will calculate a gram weight of the consumable portion for each fish. This will be multiplied by the reported consumption frequency of that species over the previous four weeks. To obtain a per capita household consumption rate (grams per individual per day), the sum of the consumable portion weights (in grams) of the species in hand at the time of the interview will be multiplied by the reported consumption frequency of that species in the previous four weeks, and then divided by the number of consumers in the angler's household.

B4. Survey Design

The survey design will be a stratified random sample. The population will be stratified by geographic region, and by angling mode. Within each stratum, a

random sample will be obtained of anglers, with consideration for time of day (morning, afternoon, and evening) across a one-year time span. The sampling period will be separated into summer and non-summer months to capture any seasonal variability in angler population. The survey includes interviews using visual aids (whole fish and fish fillet models, cards of common fish species) at select fishing locations using multi-language teams able to converse in English, Spanish, or Vietnamese, Tagalog or Chinese.

The sampling frame is designed to produce a representative sample, with industry-standard confidence intervals for each stratum, and acceptable levels of statistical power for group-level comparisons (e.g., ethnicity, fishing mode).

B5. Pretests and Pilot Tests

The final draft version of the survey questionnaire will be reviewed by a technical review committee of scientists working on the project from representative Federal, State and stakeholder organizations. Upon completion of the review, commenting and editing, the questionnaire will be field tested for both duration and clarity. In addition to pilot testing of the questionnaire, training will be given to field technicians regarding the questionnaire content, protocol for data collection of responses, refusal log census and fish identification.

B6. Collection Methodology

Field protocol. Upon arrival at the site, the field team will attempt to collect data from every existing angler. When this is not possible due to the number of anglers, a random sampling procedure will be used. In this random sampling procedure, every predetermined n^{th} angler will be selected for interview, and “ n^{th} ” terms will be determined using a pre-established randomization sheet (ranging from 1 to 6). This selection process will also take into account the level of traffic at a particular pier, jetty, or boat, with a higher n^{th} traffic being surveyed at locations with higher traffic. Random selection of respondents is important because it allows a representative sample to be collected from the population and minimizes selection bias. Without random selection, a specific portion of the population may be under- or over-sampled, resulting in a biased sample.

Prior to surveying anglers in each of the proposed locations, the field team will conduct a census of the location sites. The census will be used to collect site level information, including temperature, weather, sea state, number of anglers, and approximated basic demographics of the anglers at the site.

B7. Survey analysis

The anticipated sample will allow for statistical estimates of the full population at a $\pm 3\%$ margin of error (using a 95% confidence interval). Within strata, the margin of error will be smaller, but generally within an acceptable range: piers (N=519, CI95% $\pm 4\%$), party boats (N=450, CI95% $\pm 5\%$), private boats (N=258, CI95% $\pm 7\%$), beach and intertidal (N=45, CI95% $\pm 15\%$). Confidence intervals will apply to percentage estimates. For estimates of continuous variables (e.g., on average, how many times per week do you eat seafood that you have personally caught?) we will report 95 percent confidence intervals as ranges.

The estimated sample sizes reported above will also provide adequate statistical power for group-level comparisons. Estimates of statistical power are based on effect size estimates, choice of test statistic, and sample size. The sample sizes anticipated for this survey will be sufficient to detect medium effects (r-values of .30 or larger, d-values of .50 or larger) for single-level data splits (e.g., comparisons across fishing mode, region, or ethnicity). However, analyses based 2-variable splits (e.g., ethnic differences within each fishing mode) are likely to be underpowered. As outlined in Section III of the RFP (Task Descriptions), most of the analyses will be based on the full sample (analyses 2-5), and the most refined analyses are based on single-variable comparisons (analyses 1 and 6).

Sample Seafood Consumption Questionnaire

Basic Information on Site and Interview Characteristics

COMPLETE BY SURVEYOR PRIOR TO INTERVIEW:

Surveyor: _____ Date: _____ Time: ___:___ am/pm

Location _____

Mode (choose one):

HI, MY NAME IS _____. I AM A RESEARCHER WORKING FOR THE ENVIRONMENTAL PROTECTION AGENCY AND I'D LIKE TO ASK YOU A FEW QUESTIONS ABOUT YOUR EXPERIENCES FISHING IN THE (FILL IN REGION). IT WILL ONLY TAKE ABOUT 15 MINUTES. OK?

Interview Accepted? ___Yes ___Refused (See Refusal Log)

THANK YOU. THE ANSWERS YOU GIVE WILL BE KEPT STRICTLY ANONYMOUS. YOUR RESPONSES WILL NOT BE LINKED BACK TO YOU PERSONALLY. YOU DO NOT HAVE TO ANSWER ANY QUESTIONS YOU DO NOT WANT TO AND YOU MAY STOP THE INTERVIEW AT ANY TIME.

I'D LIKE TO START BY ASKING YOU SOME INFORMATION ABOUT YOUR FISHING EXPERIENCES.

Q1: For how many years have you fished in this area? _____ (Years. Use map)

Q1a: In what other areas do you fish? _____ (Use map)

Q2: During the past year, approximately how many days did you go fishing? _____(times)

Q3: And of those days, approximately how many were here? _____ (times)

Q4: In what seasons have you fished here (CHECK ALL THAT APPLY)?

- Spring
- Summer
- Fall
- Winter
- All Seasons

Q5: In the past year, which of the following types of fishing have you done in the Santa Monica/San Pedro Area? (CHECK ALL THAT APPLY)

___Pier ___Jetty ___ Private boat ___ Party boat ___Beach

__ Other (specify):

Seafood Consumption Patterns

NOW I'D LIKE TO ASK YOU A FEW QUESTIONS REGARDING THE FISH YOU CATCH AND WHAT YOU DO WITH THEM.

Q6. Have you eaten fish caught from this area in the last 4 weeks (choose one)?

- Yes
- No
- Don't Know/Refused

Q7. During the last 4 weeks, how many fish fillets from the Santa Monica/San Pedro areas have you eaten? _____ (show model of fish file)

Q8. How do you usually eat your fish? (choose one)

- Whole with intestines
- Whole/gutted
- As steaks/fillets
- In some other manner _____

Q9. How do you usually cook your fish? (choose one)

- Fry
- Broil/BBQ
- Combo
- Soup
- Bake/Broil/Steam
- Raw/Smoked/Ceviche

Q10. Have you caught any fish today?

- Yes
- No
- Don't Know/Refused

Q11. May we examine your catch?

- Yes
- No
- Don't Know/Refused (reason)

Fish Type	Number of Fish Caught	Correctly Identified ?	Measurement		
			Weight	Length	Fork Length
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					

Note: Use 9 to denote “don’t know/refused” responses.

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Health Warning Awareness

NEXT I'D LIKE TO ASK YOU A FEW QUESTIONS ABOUT HEALTH WARNINGS REGARDING CONSUMPTION OF SANTA MONICA BAY FISH.

Q18. Have you heard of any health warnings regarding consumption of seafood from the Santa Monica Bay?

- Yes
- No
- Don't Know Refused

IF YES:

Q18a. Where have you heard this warning (choose all that apply)?

- Television
- Newspaper or magazine article
- Signs posted on the beaches or piers
- Other anglers and/or friends
- Other _____
- Don't know/Refused

Q18b. Has this warning had any effect on you?

- Yes. Specify:

- No

- Don't Know Refused

Q18c. How important do you think these warnings are (choose one)?

- | | | | |
|---------------|--------------------|-----------|----------------|
| 1 | 2 | 3 | 4 |
| Not important | Somewhat important | Important | Very important |

Demographic Information

FINALLY, I'D LIKE TO ASK YOU A FEW QUESTIONS ABOUT YOURSELF FOR CLASSIFICATION PURPOSES.

Q19. In what year were you born? _____

Q20. How would you categorize your race or ethnicity? (choose all that apply)?

- White
- Latino/a, Hispanic
- Black, African American, or Negro
- American Indian or Alaska Native
- Native Hawaiian
- Asian Indian
- Chinese
- Filipino
- Japanese
- Korean
- Vietnamese
- Other Asian _____
- Guamanian or Chamorro
- Samoan
- Other Pacific Islander _____
- Don't Know/Refused
- Some other race _____

Q21. What is your zip code? _____

Paperwork Reduction Act: The public reporting and recordkeeping burden for this collection of information is estimated to average 15 minutes per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed survey to this address.

COMPLETE BY SURVEYER AFTER INTERVIEW:

Gender: ___ Male ___ Female ___ Unknown

What language was survey conducted in?

___ English ___ Spanish ___ Vietnamese ___ Tagalog ___ Chinese

How well did the respondent understand the questions (choose one)?

___ Very Well ___ Somewhat well ___ Not well

How attentive was the respondent (choose one)?

___ Very attentive ___ Somewhat attentive ___ Not at all attentive

How cooperative was the respondent (choose one)?

___ Very cooperative ___ Somewhat cooperative ___ Not at all cooperative

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