

SUPPORTING STATEMENT
PUGET SOUND RECREATIONAL SHELLFISH HARVESTING SURVEY
OMB CONTROL NO. 0648-XXXX

A. JUSTIFICATION

1. Explain the circumstances that make the collection of information necessary.

The Puget Sound estuary provides one of the most valuable shellfish habitats in the Pacific Northwest. Shellfish are important economically, ecologically, and socially to the Puget Sound basin. The State of Washington manages shellfish harvest areas by assessing water quality on an ongoing basis and instituting management options (advisories and closures) based on particular water quality outcomes. While shellfish bed closures have decreased area-wide, persistent closures continue in certain locations, affecting local growers and restricting commercial and recreational harvest opportunities.

[The Puget Sound Partnership](#) (Partnership) is a Washington State agency with responsibility to create an [Action Agenda](#) that will lead to the recovery of the Puget Sound Ecosystem by 2020. The Northwest Fisheries Science Center (NWFSC) participates in the Partnership by loaning staff and completing projects that help to inform management decisions, and by providing input to the Partnership's advisory Science Panel. The Partnership has set a priority to reduce the risks of shellfish-growing area closures and adverse effects on human health. The Partnership's Action Agenda has set a goal for a net increase of 10,800 harvestable shellfish acres by 2020, an increase of nearly 6% of the current potentially harvestable area and a 30% reduction in the area of shellfish areas currently closed.

In support of the Partnership's pursuit of this goal, as well as of its own Planning Today For Tomorrow's Science: The NWFSC's Research Planning Priorities, 2010 Research Plan Update (*included here as a supplementary document*), the NWFSC is independently undertaking an economics research project to assess the behavior of individual shellfish harvesters in response to the state's management of shellfish harvesting.¹ This management system opens and closes

¹ As listed in the Research Plan, research at the NWFSC is conducted under a wide variety of legislative requirements and policy documents that set agency and other priorities. For this project, relevant policy documents include 1) Department of Commerce Strategic Plan FY 2007 - FY 2012 (<http://www.osec.doc.gov/bmi/budget/07strplan/DOC07strplan.pdf>), which includes Strategic Goal 3 (Promote Environmental Stewardship) and Objective 3.1 (Protect, restore, and manage the use of coastal and ocean resources); 2) NOAA Next Generation Strategic Plan (http://www.ppi.noaa.gov/wp-content/uploads/NOAA_NGSP.pdf), which includes the Long-term Goal of Resilient Coastal Communities and Economies and the Objective under this goal of Improved coastal water quality supporting human health and coastal ecosystem services; 3) NMFS Strategic Plan for Fisheries Research (http://www.st.nmfs.noaa.gov/st4/s_plan/NMFS-Strat-Plan-2007.pdf), which include the objective of providing scientific data and information to increase long-term economic and social benefits to the nation from living marine resources through economic and ecological research on

individual shellfish beaches for human health reasons, which can affect the value of recreational shellfish harvesting, an important marine-based ecosystem service in Puget Sound. While it is possible with existing data to assess the maximum possible loss (in days of harvesting) from the closure of a particular harvest site, it is not possible to estimate the likely losses in economic value based on the ability of harvesters to change their behavior and visit other sites.

The Puget Sound Recreational Shellfish Harvesting Survey will collect the information necessary to develop estimates of these possible economic losses. Specifically, the survey will collect information on 1) shellfish harvesting activities by a respondent over a past 12 month period; 2) how a respondent might change their harvesting activity in response to different types of beach closures; and 3) basic socioeconomic characteristics of a respondent. We will use the information gathered from the survey to develop an economic model of recreational shellfish harvesting for Puget Sound beach sites. With such a model, we can estimate the economic value of changing the status of shellfish harvest sites. This will also allow us to estimate at least part of the imputed value of changes in water quality that trigger a status change, and in turn the imputed value of management practices that affect water quality. These estimates can provide important information to the Puget Sound Partnership in assessing possible actions that can contribute to the restoration of Puget Sound.

2. Explain how, by whom, how frequently, and for what purpose the information will be used. If the information collected will be disseminated to the public or used to support information that will be disseminated to the public, then explain how the collection complies with all applicable Information Quality Guidelines.

Information on recreational shellfishing will be gathered by a telephone pre-survey contact and a mail survey (see Part B, Question 2 for a detailed description). Our survey design includes a formal pretest of the survey using all of the protocols that will be used in the final survey. The purpose of the pretest is to determine whether the survey instrument provides the data needed, as well as to test survey procedures and protocol and gather information that can be used for stratifying the sample for the full survey (see Part B, Questions 1 and 2 for more discussion of the stratification methods).

The survey is funded by the National Oceanic and Atmospheric Administration (NOAA) Fisheries (through the NOAA Fisheries budget for socioeconomic research) and will be administered by a private contractor (Gilmore Research). Although the approach anticipates multiple mailings of the survey in cases where initial attempts are unsuccessful, the

marine communities and ecosystems; and 4) the West Coast Governors' Agreement on Ocean Health (<http://www.westcoastoceans.org/media/WCOceanAgreementp6.pdf>), which is intended to increase regional collaboration to protect and manage the ocean and coastal resources along the entire West Coast.

administration of the survey will occur once and each respondent will give only one set of responses.

The survey responses will be used to develop an economic model of recreational shellfish harvesting in Puget Sound. The survey includes questions that gather information on a respondent's harvesting activities in Puget Sound over a 12 month period and on how a respondent might change their activities should particular beaches be closed to harvesting. The individual sections of the survey are discussed below in more detail.

Introductory material

The survey begins with a brief presentation of information on the different types of shellfish that are harvested recreationally in Washington State. This section is intended to create common references and language for the remainder of the survey.

Section A: Recreational Shellfish Activities in Washington State

Because a shellfish license enables a recreational harvester to harvest clams and oysters outside Puget Sound, the first part of Section A is intended to screen out respondents who have not harvested clams and oysters in Puget Sound over the past 12 months.

If a respondent has done such harvesting, the remainder of this section gathers information on the respondent's typical trips to harvest clams and oysters in Puget Sound over the past 12 months. This information includes the location of the beach most often used for harvesting; the distance to that beach; and the type of accommodation used if a typical trip to the beach is overnight. The section also includes questions about the reasons the respondent harvests clams and oysters, and the frequency that the respondent consumes meals from harvested shellfish.

Section B: The Most Recent Puget Sound Clam or Oyster Trip

Section B gathers information on the respondent's most recent harvesting trip in Puget Sound. The information includes the length of the trip; the location of the harvest beach; the type of accommodation used if the most recent trip was overnight; the types and amounts of shellfish harvested; and the types and amounts for trip expenditures.

Section C: Trips You Might Take in the Next 12 Months

Section C gathers information on how a respondent is likely to react to different types and lengths (in time) of beach closures. In Puget Sound, a beach can be closed for harvesting clams and oysters for conservation or health reasons; for the latter type of closure, the trigger can be pollution, the presence of biotoxins, or both. The period of a closure can range between a few weeks and an entire season.

The first set of questions in this section is aimed at establishing a baseline for the harvest trips a respondent is likely to take over the immediate next 12 months. The remainder of the section

presents four hypothetical scenarios in which the beach most likely to be used by the respondent is closed to harvest. Each scenario includes information on 1) the type of closure; 2) the period of closure; 3) the species closed to harvest; and 4) the additional distance to a nearby beach that is fully open. Following this information, the respondent is asked how such closure would affect plans to take harvesting trips in terms of the number, type, and location of the trips.

Section D: About You and Your Family

Section D asks a series of demographic and other questions the answers to which can be used to improve the estimation of the shellfish harvesting model. These questions will gather information on age, gender, education, household size, household income, and whether the respondent harvests shellfish by taking time off work or not.

NOAA Fisheries, NWFSC will retain control over the information and safeguard it from improper access, modification, and destruction, consistent with NOAA standards for confidentiality, privacy, and electronic information. See response to Question 10 of this Supporting Statement for more information on confidentiality and privacy. The information collection is designed to yield data that meet all applicable information quality guidelines. Although the information collected is not expected to be disseminated directly to the public, results may be used in scientific, management, technical or general informational publications. Should NOAA Fisheries, NWFSC decide to disseminate the information, it will be subject to the quality control measures and pre-dissemination review pursuant to [Section 515 of Public Law 106-554](#).

3. Describe whether, and to what extent, the collection of information involves the use of automated, electronic, mechanical, or other technological techniques or other forms of information technology.

As described in more detail below (see Part B, Questions 1, 2, and 3), the survey will be conducted by telephone and mail. The potential respondents will be a stratified sample drawn from a population of Washington fishing and shellfishing license holders, with the strata determined by the type of license (see Part B, Question 1 below). While the electronic submission of responses is possible, it would have an unknown effect on non-response bias because it is unlikely that such a submission would be universally available for our sample. Also, because we are using a stratified sample design, we will not have an electronic version available to the public because such availability is incompatible with our sampling strategy.

4. Describe efforts to identify duplication.

We reviewed the existing literature on recreational activities such as fishing and shellfishing and could not find any studies that duplicate our effort. We also conferred with Washington State officials with responsibilities for managing shellfish harvesting and they could not identify any

existing or planned duplicative efforts. Finally, we have discussed the survey with members of the Puget Sound Partnership Science Panel, and they are unaware of similar research efforts.

5. If the collection of information involves small businesses or other small entities, describe the methods used to minimize burden.

The collection of information does not involve small businesses or small entities.

6. Describe the consequences to the Federal program or policy activities if the collection is not conducted or is conducted less frequently.

As noted before, the survey will collect information needed to develop an economic model of recreational shellfishing in Puget Sound. This research will provide scientific support for management agencies such as the Puget Sound Partnership, the Washington State agency established to facilitate the conservation and restoration of Puget Sound. Although no federal agency regulatory action is involved, not conducting the information collection will undercut the ability of these agencies to implement conservation actions that account for the economic values these models are capable of estimating.

7. Explain any special circumstances that require the collection to be conducted in a manner inconsistent with OMB guidelines.

Not Applicable.

8. Provide information on the PRA Federal Register Notice that solicited public comments on the information collection prior to this submission. Summarize the public comments received in response to that notice and describe the actions taken by the agency in response to those comments. Describe the efforts to consult with persons outside the agency to obtain their views on the availability of data, frequency of collection, the clarity of instructions and recordkeeping, disclosure, or reporting format (if any), and on the data elements to be recorded, disclosed, or reported.

A Federal Register Notice published on June 18, 2012 (77 FR 36260) solicited public comments. No comments were received.

There has been extensive consultation with the Puget Sound Partnership in preparation for this survey. In addition, the NWFSC has consulted with personnel at the Washington State Department of Health and the Department of Fish and Wildlife regarding the data we are collecting and given them the opportunity to review the survey. We have also consulted with economists at the University of Washington and the University of California, Davis, who have used similar surveys.

9. Explain any decisions to provide payments or gifts to respondents, other than remuneration of contractors or grantees.

We are not providing payments or gifts to respondents.

10. Describe any assurance of confidentiality provided to respondents and the basis for assurance in statute, regulation, or agency policy.

To support the confidentiality of this research, no participant names will be included on the survey document. Participant names will be tracked in a separate database in order to code participants for protection during data analysis, confirm receipt of a survey from each individual, and avoid duplication of responses.

Documents containing names will be kept in locked container such as a lock box in the field or a locked file cabinet in the office setting. All electronic versions will be kept under password protected systems, accessible only by study researchers.

When writing final reports and publishing the findings of this research, tabulations of individual responses will occur at a high enough level of aggregation so that no single individual may be identified. In addition to the confidentiality protection measures, survey participants are provided the option to skip questions of concern and stop their participation in the survey at any time with no consequence to themselves. Finally, in the event of a [Freedom of Information Act](#) (FOIA) request, we will protect the confidentiality to the extent possible under the Exemption 4 of the FOIA.

11. Provide additional justification for any questions of a sensitive nature, such as sexual behavior and attitudes, religious beliefs, and other matters that are commonly considered private.

The survey includes questions that gather demographic information, including information on income. This information will be used as part of the statistical analysis of survey responses.

12. Provide an estimate in hours of the burden of the collection of information.

Our survey design includes two features that affect the estimation of burden hours. First, as we discuss in Part B, Questions 1 and 2, we will conduct a pretest of the survey and use the results to develop a stratified sample for the full survey. For that reason, our estimate of burden hours (pretest and full survey) is based on reasonable assumptions about the pretest results and the resulting stratification. These assumptions will produce a higher potential number of burden

hours relative to a sampling approach that does not use stratification. Part B, Question 1 provides more details about these assumptions.

The second feature that affects the estimation of burden hours is the use of a short telephone survey to determine the eligibility of respondents for the mail survey (both for the pre-test and the full survey) and gather some information that can be used to address non-response bias for the mail survey. If a telephone contact is successful, an eligible respondent will be sent a mail survey while an ineligible respondent will not. If a telephone contact is unsuccessful, a mail survey will still be sent. This means that a respondent will have one of three possible time burdens:

- 1) The respondent answers a short telephone survey and a mail survey;
- 2) The respondent answers a short telephone survey only (a phone contact is made but the respondent is ineligible for the mail survey or is eligible and sent a mail survey but does not return it); or
- 3) The respondent answers a mail survey only (no telephone contact is made but a mail survey is sent and returned).

Part B, Question 1 provides a complete description of the survey design.

Based on previous experience with similar surveys, we estimate that answering the telephone survey will take 3 minutes and the mail survey 30 minutes. Table A1 below divides the total respondents into the three categories above and uses these estimates to calculate the burden hours.

Table A1						
Respondent Group	No. of Respondents	Responses per Respondent	Total No. Responses Annualized	Response time (minutes)	Total Burden Annualized (hours)	Labor Cost in \$25 to Public Per Burden Hour, Annualized
Pre-Test						
Answers both telephone and mail survey	60	1	20	33	11	\$275
Answers telephone survey only	282	1	94	3	5	\$125
Answer mail survey only	180	1	60	30	30	\$750
Full Survey						
Answers both telephone and mail survey	744	1	248	33	136	\$3,400
Answers telephone survey only	2798	1	933	3	47	\$1,175
Answer mail survey only	1856	1	619	30	309	\$7,725
Totals	5,920		1,974		538	\$13,450

13. Provide an estimate of the total annual cost burden to the respondents or record-keepers resulting from the collection (excluding the value of the burden hours in Question 12 above).

No cost other than labor cost is expected.

14. Provide estimates of annualized cost to the Federal government.

The survey is being administered by an outside contractor. The costs to the federal government are limited to the cost of the contract, which amounts to \$56,667 per year over three years on an annualized basis.

15. Explain the reasons for any program changes or adjustments.

This is a new program.

16. For collections whose results will be published, outline the plans for tabulation and publication.

The intent of collecting the information is to provide scientific support for ongoing environmental management actions in Puget Sound. The main use of the information will be to develop an economic model of recreational shellfishing in Puget Sound and publish scientific articles based on these models. The survey results will not be published in a stand-alone format in publications or on a NMFS website, but responses to some questions may be included in aggregate as part of these publications.

Pending OMB approval, we intend to field the survey in the first quarter of 2013 and develop reports and manuscripts for publication based on the results by the end of 2013.

17. If seeking approval to not display the expiration date for OMB approval of the information collection, explain the reasons why display would be inappropriate.

Not applicable, as we are not seeking such an approval.

18. Explain each exception to the certification statement.

Not applicable, as we are not seeking such an exception.

B. COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS

1. Describe (including a numerical estimate) the potential respondent universe and any sampling or other respondent selection method to be used. Data on the number of entities (e.g. establishments, State and local governmental units, households, or persons) in the universe and the corresponding sample are to be provided in tabular form. The tabulation must also include expected response rates for the collection as a whole. If the collection has been conducted before, provide the actual response rate achieved.

Potential Respondent Universe

The population of interest for this survey is Washington State residents who have recreationally harvested shellfish (clams and oysters) in Puget Sound in a preceding 12 month period. Our estimate of the size of this universe (approximately 300,000 at most) is based on the number of Washington State residents who held a license that allows the holder to recreationally harvest shellfish in Puget Sound in 2012. Licenses are issued by the Washington Department of Fish and Wildlife, who have provided us with data on individuals who held any of the following types of licenses: 1) an annual shellfish/seaweed license (shellfish-only license); or 2) an annual, 1-Day, 2-Day, or 3-Day combination fishing and shellfish license (combination license). About 33% of this universe consists of shellfish-only license holders, while 67% consists of combination license holders.

Sampling and Other Respondent Selection Methods

The sample for the pretest will be randomly drawn from the population described above. The full survey that follows will use a stratified sampling approach, using two strata defined by license type: shellfish-only license holders and combination license holders. We will employ information learned during the pretest regarding the eligible population sizes and cost of survey administration by stratum to develop the appropriate size of each stratum. This two-phase sampling design should serve to lower the variance of the resulting estimates, relative to a random sample or an ad-hoc stratification scheme.

Expected Response Rate

A survey covering recreational shellfish harvesting has not been conducted by NWFSC in Puget Sound nor, to our knowledge, by other parties. The NWFSC has conducted surveys of similar design and length for recreational fishing, however. These surveys also used a telephone and mail approach. We are basing our estimates of response rates in part on our experience with those surveys.

We propose to use a stratified sampling approach, however, because we expect response and other relevant survey rates to differ between the two types of license holders. In general, we expect shellfish-only license holders to be a more receptive population than combination license holders for a survey that focuses only on shellfish harvesting. Specifically, we expect the two groups to differ in the following ways:

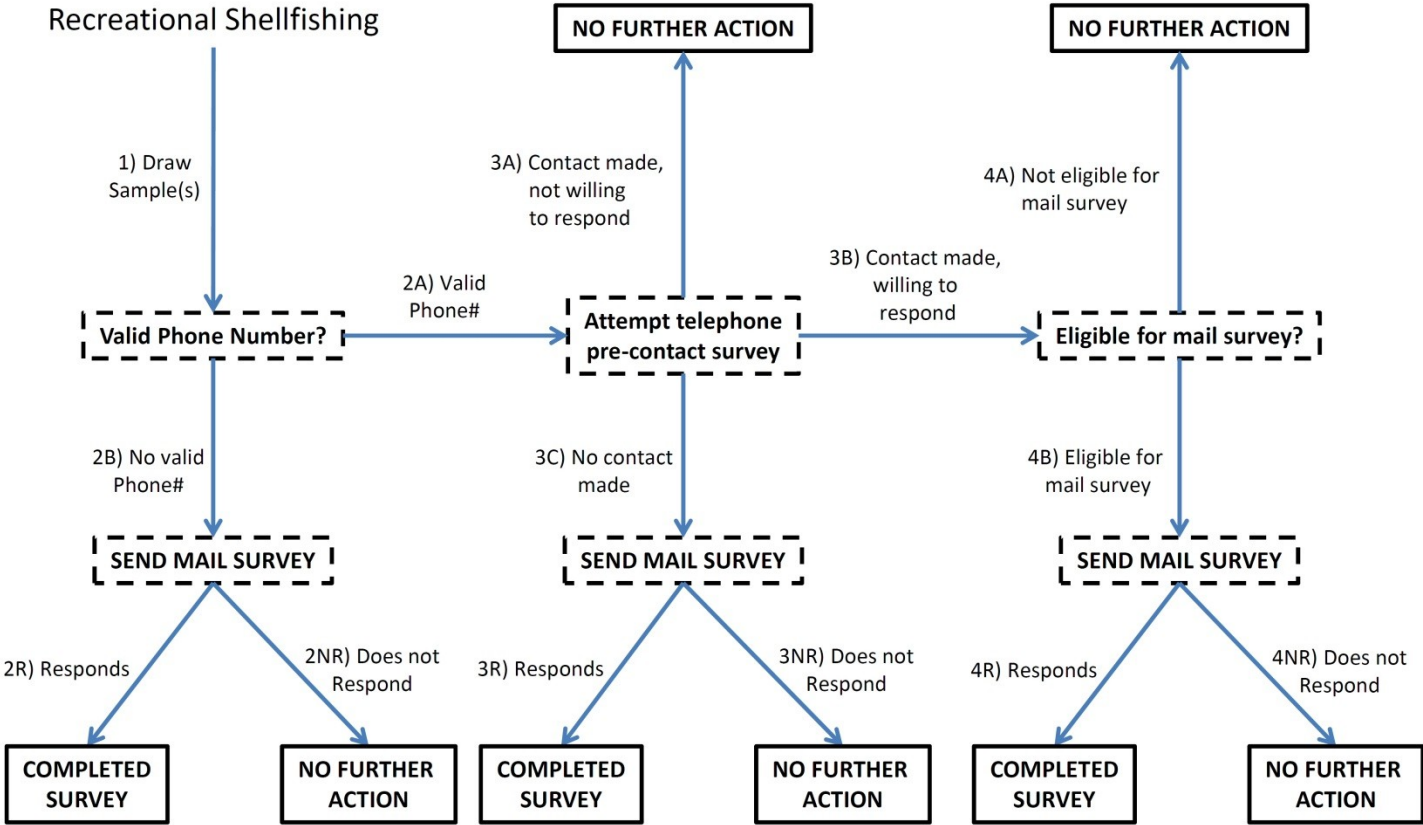
- If a phone contact is made, a shellfish-only license holder will be more likely to respond to the telephone survey than a combination license holder
- The eligibility of a license holder for a mail survey (determined by whether the license holder has harvested shellfish in Puget Sound over the previous 12 months) will be higher for a shellfish-only license holder than a combination license holder
- If a mail survey is sent, a shellfish-only license holder will be more likely to return a completed survey than a combination license holder.

As noted above, we will use the results of the pretest essentially to test these hypotheses and refine our estimates of the response and other rates for each stratum.

Because our survey design includes a telephone pre-survey contact to screen potential respondents for the mail survey and other features that create “branches” in the survey administration, we first present a flow diagram that traces the logic of the survey (Figure 1). Table B1 lists the assumed response and other rates for the different branches and endpoints for the survey based on this diagram. Tables B2 and B3 provide a summary of the expected number of people in each stratum at each stage of the survey, as determined by the initial sample sizes (833 for the pretest and 7500 for the final survey) and the response and other rates listed above.

Figure 1
Survey Logic Flow

Universe of Potential Respondents:
License Holders for
Recreational Shellfishing



[- Survey branch

□ - Survey endpoint

Table B1		
Response and other rates for survey		
Survey branch	Combination License Holders	Shellfish-only License Holders
1) Percent of pretest sample	67%	33%
1) Percent of full survey (assumed)	50%	50%
2A) Percent of sample with valid phone number	85%	85%
2B) Percent of sample without valid phone number	15%	15%
3A) Percent of sample with valid phone number (2A) where a contact is made but the person is not willing to respond	25%	15%
3B) Percent of sample with valid phone number (2A) where a contact is made and the person is willing to respond	45%	55%
3C) Percent of sample with valid phone number (2A) where no is contact made	30%	30%
4A) Percent of sample where a contact is made and the person is willing to respond (3B) where the person is not eligible for a mail survey (person has not harvested shellfish in Puget Sound in past 12 months)	80%	50%
4B) Percent of sample where a contact is made and the person is willing to respond (3B) where the person is eligible for a mail survey (person has harvested shellfish in Puget Sound in past 12 months)	20%	50%
Telephone survey response rate (contacted by phone, willing to answer telephone pre-contact survey = $3B/[3A+3B]$)	64%	79%
Mail survey response rate (sent a mail survey, returns a completed survey)	50%	60%

Table B2: Combination License Holders						
Survey Stage	Group	Branch %	Number	Next action?	Burden group	Respondents
1	Combination License holders (67% of pretest sample, 50% of full survey sample)	--	4,721	Find valid phone number		
2	2A) Valid phone number	85%	4,013	Send to stage 3		
	2B) No valid phone number	15%	708	Send mail survey		
	2R) No valid phone number, returns mail survey	50%	354	Completed mail survey	Mail only	354
	2NR) No valid phone number, does not return mail survey	50%	354	No further action		
3	3A) Contact made, not willing to respond to telephone	25%	1,003	No further action		
	3B) Contact made, willing to respond to telephone	45%	1,806	Send to stage 4		
	3C) No contact made	30%	1,204	Send mail survey		
	3R) No contact made, returns mail survey	50%	602	Completed mail survey	Mail only	602
	3NR) No contact made, does not return mail survey	50%	602	No further action		
4	4A) Not eligible for mail survey	80%	1,445	No further action	Telephone only	1,445
	4B) Eligible for mail survey	20%	361	Send mail survey		
	4R) Eligible for mail survey, returns mail survey	50%	181	Completed mail survey	Mail and telephone	181
	4NR) Eligible for mail survey, does not return mail survey	50%	181	No further action	Telephone only	181
Summary		Number of people contacted by phone (3A+3B)			2,809	
		Expected response rate [3A/(3A+3B)]			64%	
		Expected number of telephone responses			1,806	
		Number of people sent mail survey (2B+3C+4B)			2,274	
		Expected response rate (2R+3R+4R)/(2B+3C+4B)			50%	
		Expected number of mail responses			1,137	

Table B3: Shellfish-only License Holders

Stage	Group	Branch %	Number	Next action?	Burden group	Respon- dents
1	Shellfish-only License holders (33% of pretest sample, 50% of full survey sample)	--	4,444	Find valid phone number		
2	2A) Valid phone number	85%	3,777	Send to stage 3		
	2B) No valid phone number	15%	667	Send mail survey		
	2R) No valid phone number, returns mail survey	60%	400	Completed mail survey	Mail only	400
	2NR) No valid phone number, does not return mail survey	40%	267	No further action		
3	3A) Contact made, not willing to respond to telephone	15%	567	No further action		
	3B) Contact made, willing to respond to telephone	55%	2,077	Send to stage 4		
	3C) No contact made	30%	1,133	Send mail survey		
	3R) No contact made, returns mail survey	60%	680	Completed mail survey	Mail only	680
	3NR) No contact made, does not return mail survey	40%	453	No further action		
4	4A) Not eligible for mail survey	50%	1,039	No further action	Telephone only	1,039
	4B) Eligible for mail survey	50%	1,039	Send mail survey		
	4R) Eligible for mail survey, returns mail survey	60%	623	Completed mail survey	Mail and telephone	623
	4NR) Eligible for mail survey, does not return mail survey	40%	415	No further action	Telephone only	415
Summary		Number of people contacted by phone (3A+3B)			2,644	
		Expected response rate [3A/(3A+3B)]			79%	
		Expected number of telephone responses			2,077	
		Number of people sent mail survey (2B+3C+4B)			2839	
		Expected response rate (2R+3R+4R)/(2B+3C+4B)			60%	
		Expected number of mail responses			1703	

2. Describe the procedures for the collection, including: the statistical methodology for stratification and sample selection; the estimation procedure; the degree of accuracy needed for the purpose described in the justification; any unusual problems requiring specialized sampling procedures; and any use of periodic (less frequent than annual) data collection cycles to reduce burden.

Stratification and Sample Selection

The sample for the pretest will be drawn randomly from the population of combination and shellfish license holders. As stated in Part B, Question 1, however, there may be significant differences in factors such as eligibility and response rates between the two license types that would affect the unit cost of a completed survey. If the pretest confirms this hypothesis, we will use the estimates of unit costs obtained through the pretest to determine the sample sizes within each license type for the full survey mailing, often referred to as 'optimal' or 'Neyman' stratification (see J. Neyman, "On the two different aspects of the representative method: The method of stratified sampling and the method of purposive selection," *Journal of the Royal Statistical Society*, 1934, 97: 558-606; or P.S. Levy and S. Lemeshow, *Sampling of Populations: Methods and Applications*, 1991, Wiley, New York, pp. 132-36).

Desired Accuracy Needed for the Intended Purpose

Data collected through this survey will be used for the estimation of an economic model intended to support ongoing policy making in Puget Sound. While more accurate data are clearly preferred, standards do not exist regarding the accuracy of data required for estimation of an econometric model. Factors such as the minimization of model specification error also contribute to the quality of the empirical results obtained using survey data. It is not possible to state a level of accuracy that is required for all uses and applications of data collected by this survey..

Desired Precision and Response Rate

As noted above, data collected through this survey will be used for the estimation of an economic model to support ongoing policy making in Puget Sound. In these types of applications, error will arise not only from the representativeness of data used for model development, but also from model specification and estimation. Since it is not possible to completely avoid specification and estimation error in model development, there is good reason to desire a high response rate and degree of accuracy in the data collection process, but it is not possible to specify the precise rate and degree needed.

Survey Fielding

The PSRSHP will follow a modified Dillman Method protocol, which will consist of a telephone pre-survey contact, and up to five mail contacts:

1) Telephone pre-survey contact:

Upon receipt of the sample, the contractor will submit the entire sample to a national reverse directory search to verify telephone numbers, and to fill in any missing or incorrect telephone and address information. All sampled individuals with a valid telephone number will be contacted a minimum of eight times, with attempts rotated through day, evening, and weekend shifts. If a contact is made, the interviewer will administer a pre-survey of five to ten questions.

2) Mail survey:

All individuals contacted successfully through the telephone pre-survey who have harvested shellfish in Puget Sound within the last 12 months will be eligible for the mail survey (respondents will not be asked if they wish to participate in the mail survey).

In addition to individuals identified as eligible for the mail survey through the telephone pre-survey, all sampled individuals that were not contacted during the telephone pre-survey will be included in the mail survey sample. This will include individuals for whom a valid phone number could not be found and individuals who had a valid phone number but could not be contacted as part of the telephone pre-survey effort.

All eligible individuals will be mailed a pre-notice letter and subsequently a survey packet, which will consist of a personalized cover letter, a survey booklet, and a business reply envelope. The cover letter will be personalized with the respondent's name and mailing address and will be dated with the mail out date. In addition, each letter will be printed with a NMFS toll-free contact number, in case respondents have questions or comments. Surveys that are returned with forwarding or address correction information will be remailed, and the contact information for that record will be updated. Subsequent contacts will be made to enhance the response rate (see below for more details).

Expected Dates of Survey Implementation

January – March 2013

3. Describe the methods used to maximize response rates and to deal with nonresponse.

The accuracy and reliability of the information collected must be shown to be adequate for the intended uses. For collections based on sampling, a special justification must be provided if they will not yield "reliable" data that can be generalized to the universe studied.

Methods used to maximize response rate

The PSRSHP will follow a modified Dillman Method protocol, which will consist of a telephone pre-survey contact, and up to five mail contacts. This includes the following steps intended to maximize response rates:

1) Seven days after the initial mailing date, the contractor will send a postcard reminder to each participating respondent, whether or not the respondent has returned a completed survey. The postcard will reinforce the importance of the survey; it will thank respondents who have already responded and remind those who did not respond.

2) One week from the postcard mailing, a report will be prepared which lists all respondents scheduled to receive the second survey mailing. The list will include respondents who meet the following three criteria:

1. Respondent was mailed the first survey three weeks before the second mail date
2. Respondent has not returned a completed survey
3. Respondent's first mailing was not returned as undeliverable.

As with the initial survey mailing, the second packet will be sent via first class mail. The steps involved in this mailing will be the same as the initial survey mailing. However, the cover letter for the second mailing will be different from the initial cover letter.

3) Two weeks from the second mailing, a report will be prepared that lists all respondents scheduled to receive the third survey mailing. The list will include respondents who meet the following three criteria:

1. Respondent was mailed a second survey packet
2. Respondent has not returned a completed survey
3. Respondent's first or second mailing was not returned as undeliverable

Similar to the initial survey mailing, the third packet will be sent via first class mail. The steps involved in this mailing will be the same as the initial and second survey mailings. However, the cover letter for the third mailing will be different from the initial and second survey cover letters.

Methods used to deal with non-response bias

We will use two sources of information to analyze the possibility of non-response bias. First, the license database that will be used to draw a random sample has information on address and type of license, the latter of which may be a proxy for avidity or general interest in shellfish harvesting. We can compare these for respondents and non-respondents. A second source of information will come from questions asked during the telephone pre-contact survey, which will contain a small number of demographic and other questions that will enable us to make a similar comparison.

If respondents are found to be significantly different than non-respondents on a characteristic that is also contained in the license database or telephone pre-contact survey, weighting adjustments will be used to compensate for unit nonresponse in subsequent analysis of the data. Based on responses to similar surveys we've conducted in the past, we are not expecting significant levels of item nonresponse. If encountered, however, we will consider using

imputation or, depending on the severity of the item nonresponse, treat the record as unit nonresponse.

4. Describe any tests of procedures or methods to be undertaken. Tests are encouraged as effective means to refine collections, but if ten or more test respondents are involved OMB must give prior approval.

We will conduct a formal pretest of the survey using all of the protocols that will be used in the final survey. The pretest will consist of 200 completed mail surveys. The purpose of the pretest is to determine whether the survey instrument provides the data needed, as well as to test survey procedures and protocol. If the survey needs revision, we will submit the revised instrument as part of a non-substantive change request.

5. Provide the name and telephone number of individuals consulted on the statistical aspects of the design, and the name of the agency unit, contractor(s), grantee(s), or other person(s) who will actually collect and/or analyze the information for the agency.

Mark Plummer (co-P.I.) - Designed survey and will analyze data
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Seattle, WA 98112-2097
Phone: 206-860-3492

Leif Anderson (co-P.I.) - Designed survey and will analyze data
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Todd Lee (consultant) - Provided input with regard to survey design
Northwest Fisheries Science Center
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Seattle, WA 98112-2097
Phone: 206-302-2436

Gilmore Research Group (survey contractor) - Will collect the data and offered input with regard to survey design
2101 4th Avenue
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Phone: 206-726-5555