

**SUPPORTING STATEMENT
 DEFINING TARGET LEVELS FOR ECOSYSTEM COMPONENTS:
 A SOCIO-ECOLOGICAL APPROACH
 OMB CONTROL NO. 0648-XXXX**

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.

Region	Respondent Universe (Est.)*	Total Desired Responses	Response Rate (Est.) **	Number Contacted
Puget Sound (12 Washington State Counties)	3,701,000	1000	40%	2500

*Respondent universe is equal to the estimated adult population of the Puget Sound Region, using American Community Survey population data (<http://www.census.gov/acs/www/>) for the twelve counties of the region multiplied by the estimated percentage of the population (82.7%) that is 18 years or older.

**Estimated response rate based upon prior, similar work conducted by the Carsey Institute-University of New Hampshire

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.

A sample of households in the Puget Sound region will be selected by a procedure known as random digit dialing. First, with the aid of the computer, an area code is selected at random from within the selected geography (e.g., 206). Next, one of the three-digit telephone exchanges which are currently used in the area code (e.g., 772) is randomly selected. The computer then randomly selects one of the "working blocks"-- the first two of the last four numbers in a telephone number (e.g., 64) -- and attaches it to the randomly selected exchange. Finally, the computer program then generates a two-digit random number between 00 and 99 (e.g., 57) which is attached to the previously selected prefix (772), and the previously selected working block (64) resulting in a complete telephone number -- i.e., 206/772-6457. This procedure is then repeated numerous times by the computer to generate more random numbers, so that we have a

sufficient quantity to conduct the survey. The end result is that each household in the area in which there is a telephone has an equally likely chance of being selected into the sample.

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.

Given the Carsey Institute's prior experiences implementing very similar surveys both in the Alaska region and in the Puget Sound region, we anticipate an estimated 40% response rate.

Using the questionnaire developed in conjunction with the NOAA project team, the UNH Survey Center will use the included Computer-Assisted Telephone Interviewing (CATI) script, carry out all interviews, and provide an SPSS data file including all variable and value labels. Probability weights will be calculated to equalize the chances of a respondent being included in the study (by the number of adults in the household and the number of different telephone numbers on which the household can be reached), and make adjustments based on the sex of the respondent, the respondents race, and respondent age to account for known biases in telephone surveys.

All interviews will be conducted by UNH Survey Center interviewers from a centrally supervised location in Huddleston Hall, on the UNH Durham campus. The Survey Center has a 32-station CATI center using WinCati software. This software provides for extreme flexibility in programming complex questionnaires including skip patterns, question and response rotation, and split ballot experimentation as well as excellent scheduling capacities to ensure that selected telephone numbers are called on multiple dates and at multiple times. The Survey Center also uses an 800 number for respondents to contact the Survey Center at convenient times. All of these procedures are designed to ensure high completion rates. Prior research has shown that response rates are higher when a research project has university sponsorship than when conducted solely commercial organization (even with NOAA sponsorship as well).

All Survey Center interviewers have been trained on the use of the Survey Center's CATI system and have extensive experience in telephone surveys. In addition, all interviewers will be additionally trained on the NOAA restoration survey to ensure they fully understand the questionnaire. All interviewers have signed confidentiality statements about sharing survey data with other people and the entire process will be reviewed and approved by the UNH Institutional Review Board (IRB). Telephone interviewers are paid on an hourly basis, NOT on a per-interview basis, as we emphasize quality of data over speed of completing the project.

An average of 8 call attempts will be made to each randomly selected number to ensure high response rates. All initial refusals will be re-contacted by senior interviewers and we anticipate that 20–30% of these conversion attempts will result in completed interviews. The average response rate for similar social-environmental surveys conducted by UNH Survey Center has been 40%. Analysis of U.S. Census data will be used to ensure that survey respondents are representative of the underlying populations in the target counties in Washington. Probability weights will be employed to allow for minor adjustments toward a representative age-sex-race

distribution, and also compensate for household-size bias inherent in the two-step random selection.

Questions about political party affiliation and income will be posed at the close of the survey in order to maximize participation. Such questions are more likely to lend themselves to non-response, which is why the question order has been constructed with those more sensitive questions arriving at the end. In terms of bias by political party affiliation, we can compare survey respondents to actual registered voters by party, including those who identify as independent or “non-affiliated.” These data are available at the county level from the state and can therefore be used for weighting purposes.

Generally speaking, while questions about party may decrease the total number of respondents we can use in our analysis due to question refusals, the University of New Hampshire Survey Center has not found in other surveys that particular political parties are less likely to respond to their surveys in general. In terms of questions about income, which also has higher rate of question refusal as compared to other questions, we will use census data for weighting our respondent results..

Table 1 displays survey information from recent environment-related surveys completed by the Carsey Institute (UNH Survey Center), related to the Communities and the Environment in Rural America project (CERA) including the field period for each region, the number of completed interviews, and the response rate. The survey will use similar questions and be of the same length, making these an accurate benchmark for assessing potential response rates for the survey. Response rates are calculated using the standard developed by the American Association for Public Opinion Research (AAPOR).¹ The predicted AAPOR response rate of 40% was used because of the overlap of telephone exchanges across geographies in each of the regions. The formula to calculate AAPOR response rate is:

$$\frac{I}{((I+P) + (R+NC+O) + e(UH+UO))}$$

I=Complete Interviews, **P**=Partial Interviews, **R**=Refusal and break off, **NC**=Non Contact, **O**=Other, **e**=estimated portion of cases of unknown eligibility that are eligible, **UH**=Unknown household, **UO**=Unknown other.

Table 1
Communities and the Environment in Rural America

State	Year	Survey Period	Response Rate
Louisiana	2010	7/29/2010 – 9/11/2010	38.0 %
Florida	2010	8/3/2010 – 9/30/2010	41.0%
Alaska	2010	6/22/2010 – 8/2/2010	40.1%
Washington	2010	10/13/2010 – 11/15/2010	36.5%

Weighting of the Data

¹ For a discussion of the importance of understanding non-response and calculation of response rates, see Groves, Robert (2006) “Non-response Rates and Non-response Bias in Household Surveys,” *Public Opinion Quarterly*, 70(5):646-675.

To avoid biasing the sample in favor of households which can be reached through more than one telephone number, each case should be weighted inversely to its probability of being included in the sample. In addition, the data should be weighted to correct for sampling biases due to size of household (i.e., number of adults living in the household). Finally, the data should be weighted to correct for potential sampling biases on the sex of the respondent, using 2010 U.S. Census figures.

Sampling Error

This survey, like all surveys, will be subject to sampling error due to the fact that all residents in the area were not interviewed. For those questions asked of one thousand (1000) or so respondents, the error is +/-3.1%. For those questions where fewer than 1000 persons responded, the sampling error can be calculated as follows:

$$\text{Sampling error} = \pm (1.96) \frac{\sqrt{P(1-P)}}{\sqrt{N}}$$

Where **P** is the percentage of responses in the answer category being evaluated and **N** is the total number of persons answering the particular question.

For example, suppose you had the following distribution of answers to the question, "Should the state spend more money to restore Puget Sound even if that means higher taxes?" Assume 1,000 respondents answered the question as follows:

YES	- 47%
NO	- 48%
DON'T KNOW	- 5%

The sampling error for the "YES" percentage of 47% would be

$$\pm(1.96) \frac{\sqrt{(47)(53)}}{\sqrt{1,000}} = \pm 3.1\%;$$

for the "NO" percentage of 48% it would be

$$\pm(1.96) \frac{\sqrt{(48)(52)}}{\sqrt{1,000}} = \pm 3.1\%;$$

and for the "DON'T KNOW" percentage of 5% it would be

$$\pm(1.96) \frac{\sqrt{(5)(95)}}{\sqrt{1,000}} = \pm 1.4\%;$$

In this case we would expect the true population figures to be within the following ranges:

YES 43.9% - 50.1% (i.e., 47% +/-3.1%)
NO 44.9% - 51.1% (i.e., 48% +/-3.1%)
DON'T KNOW 3.6% - 6.4% (i.e., 5% +/-1.4%)

These weighting protocols will be used to ensure that statistical analyses conducted using data from the Determining Target Levels for Ecosystem Components survey will be valid.

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.

Given the Carsey Institute's prior experience with the implementation of similar surveys, no survey testing will be conducted.

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.

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