The Supporting Statement for OMB 0596-NEW
Subsistence Harvest Patterns in Prince William Sound
November 2008

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 government units, households, or persons) in the universe covered by the collection and in the corresponding sample are to be provided in tabular form for the universe as a whole and for each of the strata in the proposed sample. Indicate expected response rates for the collection as a whole. If the collection had been conducted previously, include the actual response rate achieved during the last collection.**

Residents from the four communities of PWS who are subsistence eligible (Chenega Bay, Cordova, Tatitlek, and Whittier) will be defined as the sample universe.   The total population within this sample universe is ~ 1107 households: Cordova (958), Whittier (86), Tatitlek (38), and Chenega bay (22) according to 2000 Census records for each community.   Approximately 20 percent of these households are likely to come from three different Alaska Native communities, commonly referred to as Chenega, Tatitlek, and Eyak whose residents are dispersed throughout the community of Cordova and represent ~ 18 percent of the households in town according to tax records (Pers. Comm. Mayor Joyce).

We intend to conduct a complete census of the three smallest communities (Chenega Bay, Tatitlek, Whittier) and based on previous work completed on subsistence harvest have been told to expect ~ a 70 percent response rate for households that actually harvest subsistence resources and will be interested in reporting their harvest results (Fall et al. 1999). For the larger community of Cordova we are going to randomly select 40 percent of the households based on phone records and inquire about willingness complete a subsistence harvest interview.   This proportion selected based on a population estimate method published by the State of Alaska for municipalities with less than 2000 housing units (State of Alaska 2007).   We can expect approximately an 80 percent response rate from targeted households that harvest subsistence resources and would be willing to complete an interview (Fall et al. 1999). We expect a total response to be ~ 71 percent from targeted households with dataset that represents ~ 34 percent of the sample population.

Table 4 - The sample population of households by community and expected response rates based on Fall et al. 1999

Community	Total households	Households targeted	Expected Response rate %	Resulting Households	Estimate % Alaska Native
Cordova (response)	958	**383**	80	306.4	18%
Chenega (response)	22	**22**	70	15	100%
Tatitlek (response)	38	**38**	70	27	100%

Whittier (response)	86	**86**	30	26	<5%
Total	1107	**529**	AVG 71%	374	---

2. Describe the procedures for the collection of information including:

- **Statistical methodology for stratification and sample selection,**
- **Estimation procedure,**
- **Degree of accuracy needed for the purpose described in the justification,**
- **Unusual problems requiring specialized sampling procedures, and**
- **Any use of periodic (less frequent than annual) data collection cycles to reduce burden.**

Study Population

The resource harvest patterns of residents from the four communities of PWS who are subsistence eligible (Chenega Bay, Cordova, Tatitlek, and Whittier) will be evaluated through face-to-face interviews conducted with the head of targeted households. These household style interviews around the theme of subsistence harvest have proven to be successful at evaluating summary harvest of resources in the years prior to and following the 1989 Exxon Valdez Oil Spill (e.g., Lee et al. 1986, Fall et al. 1996, and Fall et al. 1999). Responses summarized and analyzed as a summary dataset for PWS as a whole and by individual community. Interviews will occur in late March and early April of 2009 in all four communities.

Interview Methods

Phone records from the municipality of Cordova will be used to target 383 households for interviews based on recommended sampling procedures for Alaskan communities of < 2000 households (State of Alaska 2007). Based on prior efforts targeting the general population of in Cordova, phone records offer the most comprehensive list of town residents (pers. comm. Mayor Tim Joyce). In the smaller communities of Chenega Bay, Tatitlek, and Whittier a combination of phone lists and door-to-door visits will be used to conduct a complete census of 146 households (Fall et al. 1999). Interviewers will introduce the project and make an inquiry by phone or in person (as some households do not have phones) about the availability of the head of each household to meet for a face-to-face interview for an approximate 30-minute interview regarding their subsistence harvest patterns. Three separate attempts will be made to contact each household. Interviewers will arrange meetings with the head of each amenable household at mutually agreeable location and time with emphasis place on the convenience of the respondent.

A total of five categorical response questions, including one four-part question, and two narrative response questions will be asked. Questions aim to understand current patterns of subsistence harvest in PWS pertaining to the seasons and general locations important for harvest of resources by individual households. They also will help assess the existing degree of possible conflict or competition between subsistence and other uses as well as general observations about harvest conditions in PWS. The answers to each of the questions will be transcribed on an associated table that will relate to a map document dividing PWS into a series of grid cells. We assume that the generalized area information conveyed by a 10x10km grid cell will allow respondents to feel comfortable participating without giving away their specific harvest locations. Further, this

systematic spatial unit should assist in consistent definition of use. The two summary documents employed during the interview include a 14x22" map document (attached as Appendix III) and an associated reporting table (attached as Appendix IV). The specific questions to be asked and directions for recording them on these two documents are described a document attaches as Appendix V.

Interviewers will conclude by briefly reviewing all reported results with the respondent prior to the termination of the interview and attempt to capture any inconsistencies in response or transcription errors. The contracted interview specialists will send hard copies of the response table and narrative notes to our data summary specialist with the University of Arizona who will compile the information in Access for entry into an ArcGIS Geodatabase.

Anticipated Analysis Procedures

Spatial summaries of total days invested in attempted harvest will be compiled by resource and season for each grid cell. These cells will be combined into cumulative layers of seasonal and resource use. Comparison of these cells to predicted raster distributions of recreation use returned by the contemporaneous Prince William Sound User Experience Project. Exact characterization will depend on the structure of the data returned by these two studies but will likely be reported by a categorical volume of intersection using a Natural Breaks or Quantile classification in ArcGIS Spatial Analyst. The results of this analysis will predict zones of highest intersection with recreation activity by season as well as the harvesting activities that most commonly co-occur with recreation activity.

An analysis of variance in harvest within grid cells will be completed by comparing reported categories of total history of use with reported use of individual cells. Additional summary analyses of variance in total days invested by individual respondents will be completed for each harvested resource. These variance parameters will likely be summarized as mean with standard deviation.

A ranked summary analysis of most commonly selected reasons for change in use and discontinuation of cells will be completed. A spatial summary of cells where respondents report changing their use will be completed by cited reason for change in activity. A similar analysis will be completed for those cells where respondents reported a discontinuation of use. The two identified cell layers will be conceptualized as potential conflict zones and compared to the resulting volume of intersection analyses for recreation data in order to cross-validate those results. Additionally, these conflict zones will be related to areas identified as Human Use Hotspots, following the completion of that contemporaneous analysis.

3. **Describe methods to maximize response rates and to deal with issues of non-response. The accuracy and reliability of information collected must be shown to be adequate for intended uses. For collections based on sampling, a special justification must be provided for any collection that will not yield "reliable" data that can be generalized to the universe studied.**

The following ethical principles have been established as the appropriate way to engage subsistence communities in south-central Alaska and will guide the proposed research: "1) review and approval of the research plans by community governments prior to fieldwork; 2) informed consent by household members selected for interviewing (participation in the research was voluntary), 3) confidentiality of individual and household-level responses, 4) review of study findings by the participating communities and 5) providing study findings and reports to each study community." (Fall et al. 1999) These principles are consistent with those developed by the EVOS Trustee Council in regard to "Protocols for including Indigenous Knowledge in the Exxon Valdez Oil Spill Restoration Process." Adherence to these principles has been documented to be effective at increasing response rate within PWS subsistence eligible communities (Fall et al. 1999). It should be noted that in regard to Principle 3, this study does not specifically guarantee confidentially under any statutory authority. Rather, our sampling procedures do not involve collecting any information regarding individual or household names. Similarly our analysis procedures do not summarize data at the individual household or respondent level. Our assumption with respect to response rates is that these two measures result in anonymity for our respondents and thus de facto confidentiality of their individual information.

We feel that engaging local individuals from within community leadership entities to conduct actual data collection will also increase our response rate. Additionally, prior to the implementation of interviews community leadership councils will opportunistically advertise the coming survey effort and the importance of the work toward ensuring the activities and concerns of subsistence harvesters are adequately understood by local area managers. It is hoped that this increased awareness and endorsement will aid in boosting response rates. A sample achievement of 60 percent has been established as a representative sample for PWS subsistence communities (Fall et al. 1999) and it is very likely our effort will be able to achieve this measure based on the success of previous studies. Non-response rates will be recorded and compared with prior subsistence studies from the PWS region.

4. **Describe any tests of procedures or methods to be undertaken. Testing is encouraged as an effective means of refining collections of information to minimize burden and improve utility. Tests must be approved if they call for answers to identical questions from 10 or more respondents. A proposed test or set of tests may be submitted for approval separately or in combination with the main collection of information.**

Pre-test interviews were conducted on five individuals from three of the four target communities and those responses are included as Appendix II.

5. **Provide the name and telephone number of individuals consulted on 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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Data Collection
Data collection will be conducted by contractual engagement using local entities recommended by community leadership. The contracts have yet to be awarded, but entities that have reported interest include:

- Tatitlek IRA Village Council
- Whittier Watershed Council
- The Native Village of Eyak
- Chugach Regional Resources Commission

Agency Unit and Contact:
The Chugach National Forest, Alaska Region, US Forest Service
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Citations

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Stratton, Lee and Evelyn B. Chisum, 1986 Resource Use Patterns in Western Prince William Sound: Chenega in the 1960s and Chenega Bay 1984-86. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 139. Juneau, Alaska

Tatitlek IRA Council, 2003. Tatitlek Village Natural Resource Management Plan. Indian Reorganization Act Council for Tatitlek Village. Tatitlek, AK. 26 pp.

Appendices

Appendix I - Statutory obligations directing the Chugach National Forest to manage recreation activity in Prince William Sound

Appendix II - Comments collected during a pretest of the proposed interview questions and recording materials.

Appendix III - Subsistence harvest map document for the Prince William Sound Region.