

**A. Supplemental Questions for DOC/NOAA Customer Survey Clearance  
(OMB Control Number 0648-0342)**

- 1. Explain who will be conducting this survey. What program office will be conducting the survey? What services does this program provide? Who are the customers? How are these services provided to the customer?**

The survey will be conducted by an educational evaluator to examine the effects on student understanding of the concepts in two NOAA WaterLife games, *Sea Turtles and the Quest to Nest* and *Where the Rivers Met the Sea*. The games were developed by the National Oceanic and Atmospheric Administration's National Ocean Service (NOS) and are based on research on effective game design for middle school students. Teachers will receive support in using the Waterlife games from NOS staff. The games are housed on the NOS website, <http://games.noaa.gov/> and support the education mission of NOAA to build environmental literacy through products and programs that incorporate the applied science of NOAA and NOS. The target audience for the games website are students in upper elementary through high school, but teachers are increasingly using the site as classroom supplements. The teachers will give the survey link to the students at the beginning and end of their estuary or sea turtle lessons. *Teachers will also be surveyed, and this survey is the only one that would not be considered a regular part of classroom instruction and testing; therefore only the burden for this survey will be counted; the rest of the information is background only.*

- 2. Explain how this survey was developed. With whom did you consult during the development of this survey on content? statistics? What suggestions did you get about improving the survey?**

An outside evaluator developed the survey based on the purpose of the games. The game developers and NOS education coordinator reviewed the survey. Based on feedback, the language of some of the questions was refined to be even more developmentally appropriate for students in grades 5-8 and some questions about additional content were added.

- 3. Explain how the survey will be conducted. How will the customers be sampled (if fewer than all customers will be surveyed)? What percentage of customers asked to take the survey will respond? What actions are planned to increase the response rate? (Web-based surveys are not an acceptable method of sampling a broad population. Web-based surveys must be limited to services provided by Web.)**

Middle school teachers and informal educators will be recruited who teach the concepts in one of the games as part of their curriculum. Educators will be recruited until at least 250 student participants for each game are involved, half for the control and half for the treatment group for each game. This could result in 5-10 teachers, depending on the number of classes they teach. The educators who participate will need to teach more than one section of the subject that includes the concepts, so at least one group/class can learn with the game, and one without.

Teachers will need to complete the unit of instruction during this academic year, have students take online pre/post concept tests and the post survey, and *complete an online questionnaire themselves or give an interview about how they used the games in their instruction (20 minutes)*.

Students will take the following tests/surveys:

- #s 1 and 2: Retrospective student attitude survey (attitude toward the subject; only two questions about the game itself) - all students, but two questions regarding the game to be answered by the treatment group only - all questions to be answered after the unit (10 minutes).
- #s 3 and 4: Pre/post understanding performance task – all students (10 minutes each for pre- and post-test)
- #s 5 and 6: Pre/post knowledge test consisting of released items<sup>1</sup> and one open-ended question - all students (10 minutes each for pre- and post-test).

All the students will be surveyed. No identifying information is being collected from students.

**4. Describe how the results of this survey will be analyzed and used. If the customer population is sampled, what statistical techniques will be used to generalize the results to the entire customer population? Is this survey intended to measure a GPRA performance measure? (If so, please include an excerpt from the appropriate document.)**

The outside evaluator will analyze the results using t-tests for gauging change in student attitudes and knowledge on the quantitative section. Open-ended question responses will be analyzed for recurring ideas. An evaluation report on the results will be presented to the NOS staff who will use it in future decision-making regarding curriculum development and to further knowledge within NOAA and the field on the effectiveness of these games for learning and the methods for evaluating them.

This survey is not intended to measure a GPRA performance measure.

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<sup>1</sup> The knowledge test items have been released/retired by state testing agencies from previous years' tests. They have been through a rigorous development and testing process so they are valid and reliable measures of the concepts.

## 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.**

Game	#Institutions	#Students	Sample	Expected response rate
Where Rivers Meet the Sea	6	300	100%	100%
Quest to the Nest	6	300	100%	100%

*In addition, a maximum of 10 teachers will complete an on-line questionnaire or complete an interview with the same question, by telephone, at the end of the unit. All teachers are expected to respond, with a total burden of 3.4 hours.*

- 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.**

Educators will have both control and treatment group students log in to take the online tests. Teachers are agreeing to involve all their students in the data collection, so no sample selection will be done. The data will be collected during the same time period as the unit is taught, to reduce the burden. *Teachers will answer questions about their own participation at the end of the unit.*

- 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.**

Teachers will give the pretests to the entire class, then conduct the activities over a period of days or weeks depending on the chosen curriculum and then have the students complete the posttests and survey on the last day. The tests and activities will be done during the same time period with the control and treatment groups over the unit's duration. Some students may be absent the day of the survey. Teachers will be encouraged to have absent students make up the tests and survey if appropriate, so that very few, if any, students are expected not to respond. *A response rate close to 100% is expected for teachers, given their interest and stake in the project, but those not responding within a set length of time will be re-contacted and reminded. The choice of online or telephone interviews is expected to make responses less burdensome.*

**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.**

Locating and using the online student survey will be discussed with the teachers, and then their understanding will be checked by having them complete the survey. Student understanding of the concepts will be measured by comparing the post test scores of the two groups using regression analysis and pre/post gains within each group using Wilcoxon T-tests for matched pairs. Pretest scores will be used to determine the comparability of the groups. Student perceptions of learning with the game as reported on the end of experience survey will be compared by group and achievement level for both qualitative and quantitative data. *The teacher responses will be used to augment data gathered from the student surveys and assist in future use of these games/planning for revised or different games.*

**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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