

**SUPPORTING STATEMENT**  
**U.S. Department of Commerce**  
**National Oceanic & Atmospheric Administration**  
**Economic Analysis of Shoreline Treatment Options for Coastal New Hampshire**  
**OMB Control No. 0648-xxxx**

**A. JUSTIFICATION**

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

This request is for a pretest of a new data collection to benefit the National Oceanic and Atmospheric Administration (NOAA), Office for Coastal Management (OCM), and decision-makers on the state and local level in New Hampshire. NOAA will collect socio-economic, and behavioral data pursuant to the Coastal Zone Management Act (CZMA). A change request will follow for the final collection.

NOAA is subject to and supports mandates of the CZMA (16 U.S.C. § 1452 (303)(2)(D)), which encourages the preservation, protection, development, and restoration of coastal resources. The CZMA also encourages the inclusion and participation of the public in carrying out the tenets of the act (16 U.S.C. § 1452 (303)(4)). Further, the act encourages programs that provide assistance to “sensitive preservation and restoration of historic, cultural, and esthetic coastal features” (16 U.S.C. § 1452 (303) (2)). Finally, NOAA is responding to the September 9, 2015, Executive Order, “Using Behavioral Science Insights to Better Serve the American People.” This Executive Order requests federal agencies to “identify policies, programs, and operations where applying behavioral science insights may yield substantial improvements in public welfare, program outcomes, and program cost effectiveness,” and “develop strategies for applying behavioral science insights to programs and, where possible, rigorously test and evaluate the impact of these insights.”<sup>1</sup>

The New Hampshire Coastal Risk and Hazards Commission (CRHC) was established by the State Legislature through RSA 483-E on July 2, 2013. The purpose of the Commission, as stated in the law, is to “recommend legislation, rules and other actions to prepare for projected sea-level rise and other coastal watershed hazards such as storms, increased river flooding and storm water runoff, and the risks such hazards pose to municipalities and the state assets in New Hampshire.” Further, in carrying out this charge, the Commission is specifically directed to “review National Oceanic and Atmospheric Administration and other scientific agency projections of coastal storm inundation and flood risk to determine the appropriate information, data, and property risks” to incorporate into its recommendations.

The CRHC created a Science and Technical Advisory Panel (STAP) to review available scientific information about coastal hazards and flood risks in New Hampshire. In 2014, an externally-reviewed STAP reported entitled, *Sea-level Rise, Storm Surges, and Extreme Precipitation in Coastal New*, was adopted and used to develop its recommendations to assist in planning and preparation for the changing climatic conditions in coastal areas of New Hampshire. “Some of the key scientific findings summarized in the STAP report include:

- Global and regional sea levels have been rising for decades, though not uniformly.
- Using mean sea level in 1992 as a starting point, New Hampshire sea levels are expected to rise between 0.6 and 2.0 feet by 2050 and between 1.6 and 6.6 feet by 2100.
- Today’s extreme storm surge events will have a significantly greater inundation extent and

---

<sup>1</sup> Executive Order for Using Behavioral Science Insights to Better Serve the American People. 9 Sept 15. Available online at: <https://www.whitehouse.gov/the-press-office/2015/09/15/executive-order-using-behavioral-science-insights-better-serve-american>.

destructive impact due to higher sea levels.

- It is likely that coastal storms will be more severe as a result of warmer oceans and other changes in climate systems, but at the time of the STAP report publication, the research continues to be uncertain about whether storm frequency will change in the future.
- Annual precipitation is expected to increase by as much as 20 percent by the end of the 21st century compared to the late 20th century, and extreme precipitation events are projected to increase in frequency and in the amount of precipitation produced.”  
(NHCRHC STAP, 2014)

In 2016, the CRHC recommended the development of a “comprehensive, integrated New Hampshire Coastal Shoreline Management Plan (CSMP) that presents general priorities for coastal shoreline management, as well as site-specific and place-based strategies including, where appropriate, protection, adaptation, and abandonment.” Following a New Hampshire Shoreline Management workshop organized by the Great Bay National Estuarine Research Reserve (GBNERR) in 2014, and consistent with CRHC Recommendation BL6, the New Hampshire Coastal Program (NHCP) has prioritized living shoreline assessment and implementation in its five-year strategy to enhance coastal management (309 Strategy, 2015) and set a long-term goal to develop a CSMP for New Hampshire.

Pursuant to the CZMA, NOAA will collect social, economic, and behavioral data to document perceived effects of weather and climate events and adaptation strategies, to estimate preferences for ecosystem services derived from shoreline treatment options within the coastal New Hampshire region, as defined by New Hampshire’s seventeen coastal zone communities (termed hereafter the “study region”), and to establish a baseline for future monitoring of NOAA’s success in meeting its mandates and obligations.

Residents will be randomly sampled from 1) households within the two coastal counties in New Hampshire, 2) from households within Massachusetts and bordering the Hampton-Seabrook Estuary, and 3) from Maine and bordering the Piscataqua River (see Part B Section 1.i for more information). The final collection will support the development of a CSMP for New Hampshire, as well as help inform local coastal zone management and planning, by providing information on public perceptions of coastal risks and hazards, current and anticipated adaptation practices on private property, and preferences for adaptation practices on public property. This information will help ensure the CSMP and future management and planning practices properly address these public perceptions, take private property adaptation practices into account, and incorporate the public’s preferences. This information will also help local managers develop more targeted and meaningful messaging in their communication and outreach efforts.

**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.**

*i. How will this information be used?*

The survey instrument will be pretested to ensure the quality of the data and to test protocol for workflow needed in the full-scale information collection. Information from the pretest will also be used to make changes, if necessary, to the survey instrument and/or study design.

The final data collection will provide preference data to compare shoreline treatment options. Data are required to document perceptions of weather and climate events, adaptation strategies, and the preferences for ecosystem services related to shoreline treatments.

*ii. Who will use this information?*

NOAA OCM and decision-makers in coastal New Hampshire will use the data gathered from the final

collection.

*iii. How frequently will this information be used?*

This is a one-time information collection. Data and derived informational products will be provided to OCM and decision-makers in coastal New Hampshire at the conclusion of the full project period. OCM and decision-makers in coastal New Hampshire will use the data and derived products on an as-needed basis.

*iv. For what purpose will the information be used?*

The final collection will support NHCP's and GBNERR's long-term management objectives by providing data to assess the benefits associated with shoreline treatment options, as well as providing information to help inform local coastal zone management and planning. Additionally, the information collected has potential to be used by resource managers for outreach and education purposes.

*v. Summary of Survey Questions*

The survey items are designed to understand the following concepts as they relate to Coastal New Hampshire:

- Preferences for ecosystem service outcomes;
- assessment of respondents' perceptions of weather and climate effects and adaptation strategies; and
- demographic information.

The non-market values related to ecosystem service attributes are operationalized through the contingent choice experiment method. Assessment of respondents' perceptions of weather and climate effects and adaptation strategies are operationalized through a series of Likert-scale questions.

Below are summaries and justifications for Outcomes included on the survey instrument.

- 1. Please indicate how strongly you agree or disagree with the following statements?**
- 2. Please indicate whether you think the following will increase or decrease in the next 10 years.**
- 3. Do you own or rent property on a shoreline?**
- 4. Has your home or property suffered damage from the following in the past five years?**

Questions 1., 2., and 4. ask about existing and anticipated effects of weather and climate effects in coastal New Hampshire. Question 3. asks if the respondent owns or rents property on a shoreline. This information will help resource managers understand the main weather and climate concerns of local residents. Subgroup analysis will also help understand if the existing and anticipated effects vary by shoreline versus inland property owners or across different locations of shorelines. Finally, this information will provide context for other analyses. For example, those who believe these effects are a problem and/or are likely to increase may be more likely to take action to respond to weather or climate effects (Questions 5. and 6.).

- 5. Have any of the following been done on your home or property in the past five years?**
- 6. How likely are you to do any of the following on your home or property in the next 10 years?**

Questions 5. and 6. ask about existing and anticipated actions in response to weather or climate effects. This information will help resource managers understand how local residents are currently adapting to these effects and their future plans to adapt. As with previous questions, subgroup analyses will be performed to understand the differences across different populations of interest.

- 7. To what degree would the following factors make you more likely to install shoreline walls or riprap?**
- 8. To what degree would the following factors make you more likely to plant, restore, or preserve the natural shoreline?**

Questions 7. and 8. asks about factors that influence the decision to install shoreline walls or riprap and to plant, restore, or preserve the natural shoreline. This information will help local partners understand how their residents make decisions and how to best influence decision-making. As with previous questions, subgroup analyses will be performed to understand the differences across different populations of interest.

- 9. Buffer lands are naturally vegetated areas surrounding water bodies. The following is a list of potential policies or ordinances that could be implemented to better manage buffer lands in New Hampshire. How supportive would you be of each potential policy or ordinance?**

Question 9. asks for the support level for various policies or ordinances to manage buffer lands. This information will help resource managers understand which potential policies or ordinances local residents would support. The policies and ordinances provided come from a synthesis of relevant policy options related to buffer management in the Great Bay watershed (Barley-Greenfield and Riley, 2017) and include state and municipal regulations, as well as a non-regulatory option. As with previous questions, subgroup analyses will be performed to understand the differences across different populations of interest.

- 10. How often do you use the following methods to get information on local environmental issues?**

- 11. How credible do you consider these informational sources on local environmental issues?**

Questions 9. and 11. ask about information mediums and credibility of information sources with respect to local environmental issues. Studies have shown that the television is the primary medium for current events in America, followed by the Internet and newspapers (NSF, 2012). However, many people are relatively wary of the information they find (Horrigan, 2017). Previous studies have found that people are less likely to pay attention to media they do not perceive as credible (Johnson and Kaye, 1998), but that different user groups are likely to believe some information sources are more credible than others (Flanagin and Metzger, 2000). This information will help resource managers understand how best to communicate with NH residents about local environmental issues.

- 12. Are you a seasonal or year-round resident of coastal New Hampshire?**

- 13. Have you ever visited coastal New Hampshire?**

Questions 12. and 13. ask about whether the respondent has had direct experience with coastal New Hampshire. "Experience goods" are goods for which consumers are uncertain about their preferences and learn about them with each consumption event (Nelson, 1970, 1974; Stigler and Becker, 1977). Direct experience with a good or service has been found to have an impact on value (Boyle et al., 1993; Adamowicz, 1994; Whitehead et al., 1995; Cameron and Englin, 1997; Hanley et al., 2009) and in value certainty (Hanley et al., 2009; Czajkowski et al., 2014).

- 14. When considering options to manage coastal New Hampshire shorelines, how important to you are each of the following?**

The statements in Question 14. are related to the concept of desired outcomes. Understanding what drives local needs and desires will help resource managers in their decision-making. Previous research has identified six broad categories of outcomes that are produced by nearly

all managed landscapes and that can be emphasized through the actions of resource management and planning efforts. These six broad categories of outcomes are ecological, economic, lifestyle, quality of life, sense of physical space, and social solidarity (Smith et al., 2011, 2013). Research also suggests that place attachment is a key driver of desired outcomes (Vogt and Williams, 1999; Bricker and Kerstetter, 2002; Kruger and Jakes, 2003; Kyle et al., 2003; Smith et al., 2011), so those relationships will be analyzed.

**15. Please state your level of agreement or disagree with the following statements about coastal New Hampshire?**

The statements in Question 15. are related to the concept of place attachment, which refers to the positive emotional bond that individuals' develop with their local geographic context, including natural areas (Altman and Low, 1992; Williams et al., 1992; Moore and Graefe, 1994). Four place attachment dimensions are examined in this question: individual identity, place dependence, community identity, and environmental identity (Davenport and Anderson, 2005; Raymond et al., 2010; Smith et al., 2011, 2013). The order the items are presented will be randomized to exclude order effects (Lavrakas, 2008). This information will help resource managers understand how local residents are connected to Coastal NH. As with earlier questions, subgroup analyses will be performed to understand the differences across different populations of interest. Finally, this information will provide context for other analyses. For example, those with strong ecological identities may value environmental quality improvements more than those with strong economic dependence.

**16. How supportive would you be of this proposed policy?**

**17. How supportive would you be of this proposed policy?**

**18. How supportive would you be of this proposed policy?**

**19. How supportive would you be of this proposed policy?**

**20. How supportive would you be of this proposed policy?**

**21. How supportive would you be of this proposed policy?**

Questions 16-21. are factorial survey questions that ask respondents to indicate their level of support or opposition to different potential policies with specific environmental quality changes.

Factorial surveys, also referred to as vignette experiments, use short, systematically varied descriptions of situations or persons (called vignettes) to elicit the beliefs, attitudes, or behaviors of respondents with respect to the presented scenarios (Atzmüller & Steiner, 2010; Auspurg & Hinz, 2015; Dülmer, 2007; Jasso, 2006; Nock & Rossi, 1978; Rossi 1979; Rossi et al., 1974; Rossi & Anderson; 1982; Sauer et al., 2011; Steiner & Atzmüller, 2006). The vignettes used in a factorial surveys are typically generated by factorially combining the levels of factors considered as relevant for the study.

Each potential policy is characterized by a) the amount of wetlands covered by vegetation; b) the amount of beach covered by sand dunes; c) the amount of shoreline shielded by seawalls and coastal armoring; d) the number of homes protected from flooding during a storm; e) the rate of shoreline erosion; and f) where the funds to implement the policy would come from. The levels for these factors are described in qualitative terms: "increase," "maintain," and "decrease." (Table 1). The final design can be found in the Vignette attachment.

Table 1. Factors and their levels

Factor	Factor levels
Wetlands (W)	
Sand dunes (S)	
Hardened shoreline (H)	Decrease/Maintain/Increase
Flood damage (F)	
Erosion (E)	
Who pays (P)	ONLY residents of coastal New Hampshire ALL residents of New Hampshire ANYONE who resides in or visits coastal New Hampshire

One goal of the proposed study is to understand perceptions and preferences of strategies for adapting to coastal risks and hazards. A choice experiment was originally proposed to estimate values for various environmental benefits that would result from potential approaches to dealing with events such as shoreline erosion or regional flooding. However, this approach was not approved by OMB because of concerns over estimating monetary values for ecosystem services using survey data. Three alternate approaches were considered: a hedonic approach, a benefits transfer approach, and a factorial design approach (described above)

The hedonic approach uses the housing market to infer the implicit price function for non-market amenities. The benefits to the hedonic approach are that it does not require a primary data collection and estimated values are based on actual choices. However, downsides to this approach include

- the estimated values are limited to measuring benefits related to housing prices only,
- it assumes that everyone has prior knowledge of the potential positive and negative externalities associated with purchasing property,
- the model assumes that, given their income, people have the opportunity to choose the combinations of attributes they prefer when, in reality, the real estimate market can also be affected by external factors such as interest rates and taxes,
- there are often issues with multicollinearity (e.g., if large properties are only available in areas with certain environmental amenities),
- the model assumes that prices in the market will automatically adjust to any changes in the attributes, and
- there is often bias due to omitted variables, such as other factors people consider when purchasing property

The benefits transfer approach transfers information available from studies already completed in one location or context to another to estimate economic values for ecosystem services. The main benefit to this approach is that it also does not require a primary data collection; however, data are sensitive to changes in the context in which they were collected and subject to various uncertainties. For example, differences between the case study sites or in the preferences of respondents from different regions could lead to errors when transferring

estimates. Currently, there are only two studies that have been conducted in the New England region to estimate the non-market values of the environmental benefits of interest to the proposed study. The non-market values of natural riparian land, river ecology, recreational fishing, safe swimming, development setback, and enforcement were estimated in Maine (Johnston et al., 2015) and the non-market values of wetlands, beaches and dunes, seawalls and coastal armoring, and flood protection were estimated in Connecticut (Johnston et al., 2018).

All three methods have their application. In this case, however, a factorial design is the best option as we are interested in capturing non-use benefits (which cannot be done with a hedonic approach) and there are a limited number of existing non-market studies in the study region ruling out the potential to conduct a benefits transfer study that might have otherwise have allowed us to estimate non-market values.

**22. Please indicate how strongly you agree or disagree with the following statements.**

The statements in Question 22. ask respondents about their motivations as to why they supported or opposed certain proposed policies. These statements will help identify respondents who incorrectly interpreted the questions or did not believe the policies to be credible. In other words, the responses to these questions will be used to identify potentially invalid responses, such as: protest response (e.g., protest any government program), scenario rejection, symbolic (warm glow) responses (Mitchell and Carson, 1989; Moore et al., 2015), and hypothetical bias (e.g., Li and Mattson, 1005; Loomis and Ekstrand, 1998; Johannesson et al., 1999; Champ and Bishop, 2001; Fuji and Garling, 2003; Samnaliev at al., 2006; Lundhede et al., 2009; Bech et al., 2011; Olsen et al, 2011).

**23. Thinking about the proposed policies you were supportive of, please indicate how strongly you agree or disagree with the following statements.**

The statements in Question 23 also ask respondents about their motivations and will be used to identify motivations behind respondents' support levels, including altruism, option value, and bequest (Gilbert et al., 1992; Haefele et al., 1992; Lockwood et al., 1993; Moore et al., 2015; Nguyen and Robinson, 2015).

**24. What is your sex?**

**25. In what year were you born?**

**26. Are you Hispanic or Latino?**

**27. What is your race? (select all that apply)**

**28. What is the highest level of education you have completed?**

**29. Are you currently employed?**

**30. What was your annual household income in 2019?**

**31. How long have you been a resident of your current county or town?**

**32. Do you own or rent your main home?**

**33. How many people, including yourself, live in your household?**

**34. How many of these people are at least 18 years old? \_\_\_\_\_**

Questions 24. -34. collect social, demographic, and household information, which will be used

to estimate the influence of these variables on responses, including values to improve the environmental quality in coastal New Hampshire. These variables will also be used to develop weights, comparing demographic and household characteristics from the sample to the target population . Population data will be obtained from the from the 2020 Census.

vi. *Compliance with Information Quality Guidelines*

The information collected will be disseminated to the public or used to support publicly disseminated information. NOAA National Ocean Service, National Centers for Coastal Ocean Science will retain control over information and safeguard it from improper access, modification, and destruction, consistent with NOAA standards for confidentiality, privacy, and electronic information. Final datasets will be archived following the rules and requirements of the NOAA Public Access for Research Results (PARR) plan. 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. Prior to dissemination, the information will be subjected to quality control measures and a 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.**

Survey respondents will be asked to complete the survey online. Advantages of an online survey include ease of data gathering, minimal costs, and automation in data input and handling. Disadvantages include the absence of an interviewer and inability to reach challenging populations. According to the US Census Bureau, in 2016, an estimated 90.2% of the population in New Hampshire households had both a computer and internet subscription; this estimate increases to 92.0% for the population in households who are aged 18 to 64 years old (US Census Bureau, 2016). As such, the researchers believe that online administration will be a satisfactory method for surveying New Hampshire residents (see Part B, Section 3 for more information on maximizing response rates and dealing with nonresponse.)

With the assistance of a contract vendor having expertise in online survey administration, the survey administration tool will be developed to minimize burden for respondents and response bias, while maximizing response rate and data quality, based on best practices for online survey research. There will be an option available for respondents to request an alternative means for completing the survey.

**4. Describe efforts to identify duplication.**

Researchers reviewed scholarship and consulted with local partners to identify any duplication of effort.

There have been several ecosystem service related projects within this region in the last five years. From 2013-2016, an ecosystem services assessment of the Great Bay Estuary was performed using a benefits transfer approach (OCM, NHCP, and ERG 2016). This study focused on recreational fishing, recreational oyster harvesting, commercial fishing, carbon sequestration, and nitrogen removal. As part of the Buffer Options for the Bay Project, an economic valuation of water quality ecosystem services in New Hampshire's Great Bay Watershed was conducted (Bauer and Johnston, 2017). This study developed a water quality benefit transfer function using meta-analysis techniques, as well as a water quality index (WQI) to relate water quality pollutant concentrations to water body suitability for human uses. In the winter of 2013/2014, Johnston et al. (2015) surveyed residents of a Maine watershed to estimate their values for natural riparian land, river ecology, recreational fishing, safe swimming, development setback, and enforcement. In the spring of 2014, Johnston et al. (2018) surveyed residents of two coastal communities in Connecticut to estimate their values for wetlands, beaches and dunes, seawalls and coastal armoring, and flood protection. In 2017, an ecosystem services conceptual model for the Great Bay National Estuarine Research reserve was developed (Mason et al., 2018). This model identified five ecosystem services of interest: water treatment, habitat persistence, commercial fishing, recreational

Personal  
Use

Personal  
Character



fishing, and carbon storage. Each of these studies have been used to inform the development of the proposed survey instrument, including ecosystem service selection and scenario development.

According to our literature review and discussions with local partners, our survey is not a duplication of effort. Specifically, only two studies (Johnston et al., 2015, 2018) have examined the ecosystem services in the proposed survey, but neither took place in New Hampshire. No previous studies have examined the value of erosion control in New England.

We have also formed partnerships with ongoing and planned research efforts so that we can leverage resources and provide complementary information about ecosystem services related to shoreline treatment options in the study region.

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

This collection involves residents. It does not involve small businesses or other small entities.

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

The final collection will support the development of a CSMP for New Hampshire, as well as help inform local coastal zone management and planning, by providing information on public perceptions of coastal risks and hazards, current and anticipated adaptation practices on private property, and preferences for adaptation practices on public property. This information will help ensure the CSMP and future management and planning practices properly address these public perceptions, take private property adaptation practices into account, and incorporate the public's preferences. This information will also help local managers develop more targeted and meaningful messaging in their communication and outreach efforts.

New Hampshire does not have the technical expertise nor the budget to perform this work. Therefore, if this this collection is not conducted by NOAA, relevant agencies will have reduced data and information to meet evaluative requirements set forth by the CZMA relative to the National Estuarine Research Reserve.

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

Data collection will be consistent with OMB guidelines.

**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 May 13, 2019 (84 FR 9098) solicited public comments.

*i. Summary of Comments Received*

No public comments were received.

*ii. Consultation*

As a part of project scoping and development, individuals from the following institutions were consulted for their views on the data collection in terms of priority elements, best survey practices for surveying the public, and possible duplication of research effort or collaborative opportunities: NOAA OCM, New

Hampshire Fish and Game Department, New Hampshire Department of Environmental Services (NHDES) Coastal Program, The Nature Conservancy, Piscataqua Region Estuaries Partnership (PREP), and the University of New Hampshire. Feedback was used in further scoping of the research project, study design, and survey development.

During the project scoping period, partners from the following organizations were consulted on the need for the collection as well as regarding important contextual or site considerations: New Hampshire Fish and Game Department, NHDES Coastal Program, and the University of New Hampshire. Feedback from these consultations was used to better understand public sentiment, the type of data already available on relevant topics, and data needs from the perspective of local and regional agencies. Information from these consultations was used during project scoping and development.

Finally, peer reviews on the survey and study design were obtained from individuals from the following institutions: PREP, New Hampshire Sea Grant, University of New Hampshire, Clark University, The Nature Conservancy, and NOAA OCM.

From these individuals, we received review relative to survey length, appropriate mode of survey administration, problematic survey Outcomes, Outcome order on the survey instrument, Outcome format and presentation, and opportunities to leverage this survey with previous or existing research efforts. Comments and suggestions provided from this group were used to revise and improve the study. Some examples include:

- Consolidating our Likert-type scales to reduce survey fatigue associated with numerous scaling types
- Asking about coastal versus riverine flooding to clarify the distinction, especially for inland residents
- Asking about the “credibility” of information sources rather than their “trustworthiness” to reduce perceived subjectivity of the term
- Including both increases and decreases in ecosystem services within the factorial design

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

A \$2 bill incentive will be provided with a follow-up letter for those who do not complete the survey after initial contact. A substantial literature has shown that monetary pre-incentives (as opposed to promises of money or gifts following participation) are effective at increasing overall response rates. We anticipate this incentive will increase response rates by at least 10%. A more detailed review of the literature and justification for the inclusion of the incentive is contained in Question 3 of Part B.

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

Information gathered from respondents will remain confidential. Access to any raw data collected will be restricted to project managers and lead analysts. In final datasets and products that are released, data provided by individual respondents will remain confidential and will be aggregated where appropriate to ensure confidentiality.

**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.**

No questions of a sensitive nature will be asked during this data collection.

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

The table below provides an estimate of burden hours by data collection phase (see Part B.1 for more details). We estimate a maximum of 540 respondents for the pre-test and 2,304 respondents for the full

survey implementation and for each survey to take approximately 20 minutes, including time for reading the instructions, reviewing the questions, and completing the survey instrument. We estimate a maximum of 737 respondents for the non-response follow-up survey and for each follow-up survey to take approximately five minutes. These estimates are based on the type of questions asked, length of the survey instrument, and the researchers' experience conducting similar surveys.

Data Collection Phase	Estimated Number of Respondents	Estimated Minutes per Response	Estimated Total Annual Burden Hours
Pre-test (Spring/Summer 2020)	540	20	180
Full implementation (Spring/Summer 2021)	2,304	20	768
Non-response follow-up (Summer/Fall 2021)	737	5	61.42
TOTAL	3,581	--	1,009.42

**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 additional cost burden will be incurred by respondents beyond response time.

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

The cost to the Federal government for contract services, supplies, equipment, travel, etcetera, is approximately \$88,000 for FY2018, \$61,000 for FY2019, and \$263,000 for FY2020. The annualized cost for contract services, supplies, equipment, travel, etcetera, is approximately \$137,300.

The total annual cost for Federal labor on the project is approximately \$40,000 for FY2018, \$40,000 for FY2019, and \$40,000 for FY2020. The annualized cost for Federal labor is \$40,000.

The total annualized cost for the project is \$177,300 for the period of FY2018 to FY2020.

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

This is a new collection.

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

Data will be provided by a contract vendor and analyzed by the NOAA NCCOS research team. Findings will be presented in a variety of formats, including tables, graphs, and maps. Upon completion of the project, the research team will produce a final report that will be published as a NOAA Technical Memorandum. Research findings may be presented at professional conferences and published in peer reviewed journals.

**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.**

The OMB Control Number and expiration date will be displayed on all survey documents.

**18. Explain each exception to the certification statement.**

There are no exceptions for compliance with provisions in the certification statement.