# NOTICE OF OFFICE OF MANAGEMENT AND BUDGET ACTION

Date 05/19/2015

Department of Commerce
National Oceanic and Atmospheric Administration

FOR CERTIFYING OFFICIAL: Jennifer Jessup
FOR CLEARANCE OFFICER: Jennifer Jessup

In accordance with the Paperwork Reduction Act, OMB has taken action on your request received 01/23/2015

ACTION REQUESTED: New collection (Request for a new OMB Control Number)
TYPE OF REVIEW REQUESTED: Regular
ICR REFERENCE NUMBER: 201501-0648-004
AGENCY ICR TRACKING NUMBER:
TITLE: Contingent Valuation/Choice Experiment Surveys for Hurricane Sandy Restoration Efforts in Forsythe National Wildlife Refuge in New Jersey and Jamaica Bay, NY
LIST OF INFORMATION COLLECTIONS: See next page

OMB ACTION: Approved with change
OMB CONTROL NUMBER: 0648-0714
The agency is required to display the OMB Control Number and inform respondents of its legal significance in accordance with 5 CFR 1320.5(b).

EXPIRATION DATE: 05/31/2018 DISCONTINUE DATE:

| BURDEN: | RESPONSES | HOURS | COSTS |
|---|---|---|---|
| Previous | 0 | 0 | 0 |
| New | 1,001 | 375 | 0 |
| Difference | | | |
| Change due to New Statute | 0 | 0 | 0 |
| Change due to Agency Discretion | 1,001 | 375 | 0 |
| Change due to Agency Adjustment | 0 | 0 | 0 |
| Change due to PRA Violation | 0 | 0 | 0 |

TERMS OF CLEARANCE:

OMB Authorizing Official: Dominic J. Mancini
Acting Deputy Administrator,
Office Of Information And Regulatory Affairs

| List of ICs | | | |
|---|---|---|---|
| IC Title | Form No. | Form Name | CFR Citation |
| Jamaica Bay survey | NA, NA | Jamaica Bay Coastal Protection Survey, Jamaica Bay Survey - final | |
| Forsyth Survey | NA, NA | Forsyth Salt Marsh Restoration Survey, Forsythe survey - final | |

# PAPERWORK REDUCTION ACT SUBMISSION

**Please read the instructions before completing this form. For additional forms or assistance in completing this form, contact your agency's Paperwork Clearance Officer. Send two copies of this form, the collection instrument to be reviewed, the supporting statement, and any additional documentation to: Office of Information and Regulatory Affairs, Office of Management and Budget, Docket Library, Room 10102, 725 17th Street NW, Washington, DC 20503.**

1. Agency/Subagency originating request
DOC/NOAA/Office for Coastal Management

2. OMB control number
a. 0648 -_____
b. [✔] None

3. Type of information collection (*check one*)
a. [✔] New Collection
b. [ ] Revision of a currently approved collection
c. [ ] Extension of a currently approved collection
d. [ ] Reinstatement, without change, of a previously approved collection for which approval has expired
e. [ ] Reinstatement, with change, of a previously approved collection for which approval has expired
f. [ ] Existing collection in use without an OMB control number
For b-f, note Item A2 of Supporting Statement instructions

4. Type of review requested (*check one*)
a. [✔] Regular submission
b. [ ] Emergency - Approval requested by ____/____/____
c. [ ] Delegated

5. Small entities
Will this information collection have a significant economic impact on a substantial number of small entities? [ ] Yes [✔] No

6. Requested expiration date
a. [✔] Three years from approval date b. [ ] Other Specify:____/____

7. Title
Contingent Valuation/Choice Experiment Surveys for Hurricane Sandy Restoration Efforts in Forsythe National Wildlife Refuge in New Jersey and Jamaica Bay, NY

8. Agency form number(s) (*if applicable*)

9. Keywords

10. Abstract

This information request covers two surveys to be implemented in areas affected by Superstorm Sandy. The purpose of the two surveys is to provide information to NOAA, and its stakeholders of policy- and decision-makers, on how individuals who live in and near the affected areas value trade-offs between different restoration options and storm protection measures. The first survey focuses on salt marsh restoration work being done at Forsythe National Wildlife Refuge in New Jersey. The second survey focuses on assessing the trade-offs between shoreline armoring (sea and flood walls) and living shorelines (dunes, salt marshes) for storm protection along the shoreline and within Jamaica Bay in New York City.

11. Affected public (*Mark primary with "P" and all others that apply with "x"*)
a. X Individuals or households d. ___ Farms
b. ___ Business or other for-profit e. ___ Federal Government
c. ___ Not-for-profit institutions f. ___ State, Local or Tribal Government

12. Obligation to respond (*check one*)
a. [✔] Voluntary
b. [ ] Required to obtain or retain benefits
c. [ ] Mandatory

13. Annual recordkeeping and reporting burden
a. Number of respondents 1,035
b. Total annual responses 1,035
1. Percentage of these responses collected electronically 100 %
c. Total annual hours requested 389
d. Current OMB inventory 0
e. Difference
f. Explanation of difference
1. Program change
2. Adjustment

14. Annual reporting and recordkeeping cost burden (*in thousands of dollars*)
a. Total annualized capital/startup costs 0
b. Total annual costs (O&M) 0
c. Total annualized cost requested 0
d. Current OMB inventory 0
e. Difference
f. Explanation of difference
1. Program change
2. Adjustment

15. Purpose of information collection (*Mark primary with "P" and all others that apply with "X"*)
a. ___ Application for benefits e. X Program planning or management
b. X Program evaluation f. P Research
c. X General purpose statistics g. ___ Regulatory or compliance
d. ___ Audit

16. Frequency of recordkeeping or reporting (*check all that apply*)
a. [ ] Recordkeeping b. [ ] Third party disclosure
c. [✔] Reporting
1. [ ] On occasion 2. [ ] Weekly 3. [ ] Monthly
4. [ ] Quarterly 5. [ ] Semi-annually 6. [ ] Annually
7. [ ] Biennially 8. [✔] Other (describe) one-time

17. Statistical methods
Does this information collection employ statistical methods
[✔] Yes [ ] No

18. Agency Contact (person who can best answer questions regarding the content of this submission)
Name: Peter Wiley
Phone: 301- 563-1141

## 19. Certification for Paperwork Reduction Act Submissions

On behalf of this Federal Agency, I certify that the collection of information encompassed by this request complies with 5 CFR 1320.9

**NOTE:** The text of 5 CFR 1320.9, and the related provisions of 5 CFR 1320.8(b)(3), appear at the end of the instructions. *The certification is to be made with reference to those regulatory provisions as set forth in the instructions.*

The following is a summary of the topics, regarding the proposed collection of information, that the certification covers:

(a) It is necessary for the proper performance of agency functions;

(b) It avoids unnecessary duplication;

(c) It reduces burden on small entities;

(d) It used plain, coherent, and unambiguous terminology that is understandable to respondents;

(e) Its implementation will be consistent and compatible with current reporting and recordkeeping practices;

(f) It indicates the retention period for recordkeeping requirements;

(g) It informs respondents of the information called for under 5 CFR 1320.8(b)(3):

- (i) Why the information is being collected;
- (ii) Use of information;
- (iii) Burden estimate;
- (iv) Nature of response (voluntary, required for a benefit, mandatory);
- (v) Nature and extent of confidentiality; and
- (vi) Need to display currently valid OMB control number;

(h) It was developed by an office that has planned and allocated resources for the efficient and effective management and use of the information to be collected (see note in Item 19 of instructions);

(i) It uses effective and efficient statistical survey methodology; and

(j) It makes appropriate use of information technology.

If you are unable to certify compliance with any of the provisions, identify the item below and explain the reason in Item 18 of the Supporting Statement.

| Signature of Senior Official or designee | Date |
|---|---|
| | |

| Agency Certification (signature of Assistant Administrator, Deputy Assistant Administrator, Line Office Chief Information Officer, head of MB staff for L.O.s, or of the Director of a Program or StaffOffice) | |
|---|---|
| Signature<br>Cheryl Marlin for Hugh Johnson | Date<br>01/13/2015 |
| Signature of NOAA Clearance Officer | |
| Signature<br>BRABSON.SARAH.1365710488<br>Digitally signed by BRABSON.SARAH.1365710488<br>DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=OTHER, cn=BRABSON.SARAH.1365710488<br>Date: 2015.05.20 15:47:47 -04'00' | Date |

**SUPPORTING STATEMENT**

**Contingent Valuation/Choice Experiment Surveys for Hurricane Sandy Restoration Efforts in Forsythe National Wildlife Refuge in New Jersey and Jamaica Bay, NY**

**OMB CONTROL NO. 0648-xxxx**

## A. JUSTIFICATION

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

This information collection request covers two surveys to be implemented in areas affected by Superstorm Sandy. The purpose of the two surveys is to provide information to NOAA, and its stakeholders of policy- and decision-makers, on how residents in or near areas affected by Sandy value trade-offs between different restoration options and storm protection measures. The first survey focuses on salt marsh restoration work being done at Forsythe National Wildlife Refuge (NWR) in New Jersey. The second survey focuses on assessing the trade-offs between shoreline armoring (sea and flood walls) and living shorelines (dunes, salt marshes) for storm protection along the shoreline and within Jamaica Bay in New York City.

Under the Disaster Relief Appropriations Act of 2013, NOAA received funding to provide technical assistance to support State assessments of coastal impacts of Hurricane Sandy. Under its coastal management responsibilities, NOAA is developing a better understanding of the relative benefits of restoration activities taking place in response to Hurricane Sandy.

These surveys are designed to yield information that will provide decision-makers with information on the values that people place on various restoration options and inform restoration decisions in the wake of future disasters. Specifically, both surveys are designed to assess how people value trade-offs between different restoration and/or protection decisions. For the Forsythe survey, NOAA's survey will provide information on how people value trade-offs between levels of ecosystem service restoration in salt marshes. The results will provide NOAA, and ultimately other federal, state/local decision-makers on how people value trade-offs between protection from storm surge, protection from (non-surge) flooding, improved habitats, and recreation opportunities. This information can contribute to decisions on what types of restoration to perform in the future by helping decision-makers understand how people value the trade-offs. The information from Forsythe will be directly useful to the Forsythe NWR by providing them with a value of the work they have performed.

The survey in Jamaica Bay will provide information on how people living in the New York City area value storm protection measures. Specifically, the survey compares protection from built structures (e.g., sea walls) to protection from living shorelines (e.g., dunes). Whereas built structures may provide more immediate and stronger protection in the short term, living shorelines offer protection that may improve over time, require less maintenance, and also offer habitat and recreation benefits. The purpose of the Jamaica Bay survey is assess the value people place on the trade-offs associated with these two general approaches to protection. Storm protection decisions need to be made not only in Jamaica Bay, but in any coastal area subject to

storms. This survey will provide data that can be used to assess the values that people place on different storm protection measures and can be used as one input into decisions for storm protection.

NOAA's overall method is to use choice experiments, a more general form of contingent valuation, to elicit this information from individuals who live in areas affected by Sandy.

Salt Marsh Restoration in Forsythe National Wildlife Refuge

The Forsythe National Wildlife Refuge spans nearly 47,000 acres and extends for 50 miles along the coast of New Jersey from Brick Township southward to five miles north of Atlantic City. The wildlife refuge serves as a regional attraction, with an estimated 100,000 visitors each year. The refuge is protected and managed for its coastal wetland habitat, which includes salt marsh and coastal forest and the wildlife that rely upon the wetland habitat, particularly wintering and migratory birds.

The refuge is considered a site of regional importance in the Western Hemisphere Shorebird Reserve Network, with a minimum of 20,000 shorebirds annually.[1] The refuge is also considered a Wetland of International Importance under the Ramsar Convention, in part for the habitat and variety of wildlife that it hosts.[2]

There were several types of damage to the refuge resulting from Sandy. This damage and alteration to the refuge included:

- Removal of sediment from coastal marshes
- Inundation of the site's freshwater impoundment with highly saline bay water, which caused the elimination of freshwater invertebrates and impacts to migratory birds reliant upon that habitat.
- Flattening of dunes, particularly in the Holgate Unit,[3] that resulted in sand being pushed into salt marshes
- Storm surge resulted in down trees and forest damage
- A 22–mile debris field in the refuge's sensitive coastal marshes and wetlands, including contaminants from boats, fuel oil tanks, chemical drums and other hazardous materials

Restoration efforts to address the impacts of Hurricane Sandy at Forsythe are being led by The U.S. Fish and Wildlife Service (FWS), who manages the refuge. FWS is aiming to restore and enhance salt marshes to increase storm protection as well as "associated social, economic, and

[1] Western Hemisphere Shorebird Reserve Network. http://www.whsrn.org/western-hemisphere-shorebird-reserve-network

[2] See Ramsar Convention Site about Forsythe: http://www.ramsar.org/cda/en/ramsar-documents-list-anno-list-usa/main/ramsar/1-31-218%5E15774_4000_0__

[3] The Holgate Unit is part of the Brigantine Wilderness approximately 11 miles north of Atlantic City. For more on the Brigantine Wilderness see: http://www.fws.gov/refuges/AirQuality/ARIS/BRIG/

recreational values" for nearby communities.[4] For marsh restoration, FWS will be raising the elevation of the marshes by placing new sediment on the marsh (also referred to as "thin layer placement"). USACE and New Jersey Department of Transportation (NJDOT) will supply dredged material to FWS to complete this marsh enhancement.

Conducting the thin layer enhancement of the marshes will serve two purposes in additional to raising the marsh elevation: 1) filling in linear mosquito ditches and 2) tidal flow restoration. When the additional sediment is added to the marshes, it will fill in ditches that were originally put in place to help control the breeding of mosquitoes. By filling in these ditches, a more natural flooding regime will be restored in the marsh. Adding sediment to the marsh will also help restore tidal flow, which is essential for carrying nutrients in and out of the marsh.

NOAA's survey for Forsythe will involve asking individuals who live in/near Forsythe to value different benefits associated with salt marsh restoration. Salt marshes provide a number of benefits to society, including:

- Coastal storm protection – sand and thick grass in salt marshes protect coastal buildings and roads from surging storm waters and erosion.
- Flood protection – marshes reduce flooding by slowing and absorbing rainwater.[5]
- Contaminant removal – marshes improve water quality for fish and bird habitats by filtering out contaminants (such as excess nitrogen from fertilizers).
- Habitat – marshes provides an important resting place for migratory birds, home for nesting birds, and space for fish and shellfish to spawn.
- Recreation – marshes provide numerous recreational opportunities such as bird watching, nature/walking trails, canoeing, and kayaking.
- Food web support for fish – biological processes in marshes provide the basis of the food web for recreational and commercial fisheries.
- Carbon storage - salt marshes absorb and store large quantities of carbon dioxide from the atmosphere, reducing the amount of carbon in the atmosphere (which can help to manage climatic change).

Through this survey, NOAA will be eliciting the values that individuals place on four of these benefits:[6] coastal storm protection, flood protection, habitat, and recreation. Furthermore, our use of a choice experiment methodology will allow us to estimate the values of each ecosystem service relative to the other benefits. These relative values can be used in assessing restoration decision trade-offs in the future. The results will provide NOAA, and ultimately other federal, state/local decision-makers how people value trade-offs between protection from storm surge, protection from (non-surge) flooding, improved habitats, and recreation opportunities. This information can contribute to decisions on what types of restoration to perform in the future by

[4] http://www.fws.gov/hurricane/sandy/projects/CoastalMarshes.html

[5] In pre-tests for the Forsythe survey, most individuals that took the survey could distinguish between the storm surge and non-surge flooding; however, two individual suggested adding in clarifying language for storm surge to more clearly identify what was meant. NOAA revised the survey instrument accordingly.

[6] Our decision to include these four benefits and to exclude contaminant removal and food web support for fish is based on discussions we had with scientists working at Forsythe or who are familiar with the Refuge. Carbon sequestration was excluded since it can be valued using a social cost of carbon approach that does not require collection of data from the public.

helping decision-makers understand how people value the trade-offs. The information from Forsythe will be directly useful to the Forsythe NWR by providing them with a value of the work they have performed.

Although restoration efforts are underway, this survey will assist NOAA in better understanding how people value trade-offs between different outcomes form marsh restoration. This information will assist NOAA and decision-makers in the future to better allocate restoration funding following storms. Additionally, the work currently being performed at Forsythe will be followed by future work to further restore and improve the marsh at the Refuge. This survey will help planners better understand the value placed on different restoration outcomes.

Shoreline Armoring and Living Shoreline Trade-Offs in Jamaica Bay

Superstorm Sandy inflicted significant damage on the Jamaica Bay area of New York City. Jamaica Bay is part of New York City and sits south of Brooklyn and Queens. Much of Jamaica Bay consists of salt marsh, although much of the historical marsh lands in the Bay have been lost to open waters and mud flats. The Bay offers habitat to more than 300 species of birds and over 100 species of fish. The Bay is protected from the Atlantic Ocean by the Rockaway peninsula which contains a number of town and communities.

The Jamaica Bay area suffered significant damage from Superstorm Sandy. The communities along the Rockaway peninsula (Breezy Point, East Rockaway, West Rockaway, and Far Rockaway; all sections of Queens) all suffered significant property damage, as well as significant damage to beaches and dunes along the Atlantic-facing side. The community of Breezy Point was particularly hard hit with a fire that consumed more than 130 homes. Two man-made freshwater ponds in the Bay were breached. Communities inside the Bay were also hard hit with flooding affecting areas such as Broad Channel in the middle of the Bay and Howard Beach on the northern side of the Bay.

Jamaica Bay also offers protection to the much of the New York City area. Jamaica Bay sits just south of the two heavily populated areas: the northern side of Queens and Brooklyn. Additionally, JFK Airport borders the Bay on its northeastern edge.

Over the last decade, there has been an active debate on the best ways to protect areas such as Jamaica Bay from storms. Superstorm Sandy only highlighted the need to provide better information. One possible approach involves building sea walls (or flood walls) and other “gray” structures that will work to stop storm surge and strong waves caused by coastal storms. This is often referred to as “shoreline armoring.” A second approach is to build “green” infrastructure such as dunes and marshes that will also protect coastal areas and also provide habitat as well recreational opportunities for people. The “green” approaches are sometimes referred to as “living shorelines.” The purpose of this survey is to help NOAA better understand how and why people value the different shoreline protection options.

Significant work is underway to restore Jamaica Bay from the impacts of Sandy. The New York Rising Community Reconstruction Program was established to provide rebuilding and revitalization assistance to New York communities severely damaged by Hurricanes Sandy and Irene and Tropical Storm Lee. Under this program, local communities in Jamaica Bay have identified a number of projects to increase their resiliency to coastal storms. Some of these

projects involve building sea walls and others involve restoration or establishment of dunes and marshes. In addition to the work being funded by NY State and NYC, the Federal government (U.S. Army Corps of Engineers, National Parks Service, etc.) are also working to building storm protection and resiliency measures.

Although much work is either underway or planned, there is still much to be done to protect Jamaica Bay and other parts of NYC from future storms and a good deal of thought has been given to what types of protective measures should be used. There are many options being considered, some of which involve shoreline armoring and some of which involve living shorelines. In 2013, NYC released its Special Initiative for Rebuilding and Resiliency (SIRR) report which included recommendations for increasing coastal edge elevations in which NYC would "increase the height of vulnerable coastal edges with bulkheads, beach nourishment, and other measures" and protecting against storm surge by using "flood protection structures such as floodwalls, levees, and local storm surge barriers."[7]

The New York Rising reconstruction plans all contain a set of "Additional Resiliency Recommendations." These additional recommendations are projects that would further enhance the protection of the shoreline in the Jamaica Bay area. Text such as the following can be found in these plans:

> *"The Planning Committee recommends working with relevant government agencies to build up and expand upon existing ocean edge strengthening projects such as additional, stronger dunes, ocean side jetties, and possibly flood walls."*[8]
>
> *"The planning committee recommeds the siting of a Jamaica Bay surge barrier by the City or State that does not exacerbate flooding in Roxbury and Breezy Point."*[9]
>
> *"The Committee recommends that a study be undertaken to determine the feasibility of a Jamaica Bay surge barrier, proposed in the SIRR [Special Initiative for Rebuilding and Resiliency] report, which could protect all communities surrounding Jamaica Bay."*[10]

Reports for other communities in Jamaica Bay contain similar recommendations, as well as more specific recommendations for using gray and green options to protect those communities.

The goal of this survey is to collect information on how people living in the Jamaica Bay area value shoreline armoring compared to living shorelines. Given the types of protection options being discussed in the New York area, NOAA expects that this survey will provide decision-makers with information on how different options are valued.

**2. <u>Explain how, by whom, how frequently, and for what purpose the information will be</u>**

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[7] http://www.nyc.gov/html/sirr/html/report/report.shtml, page 46 of the full report.
[8] http://stormrecovery.ny.gov/sites/default/files/crp/community/documents/rockawaywest_nyrcr_plan_17mb.pdf, page V-1.
[9] http://stormrecovery.ny.gov/sites/default/files/crp/community/documents/breezypoint_nyrcr_plan_20mb.pdf, page V-2.
[10] http://stormrecovery.ny.gov/sites/default/files/crp/community/documents/howardbeach_nyrcr_plan_18mb.pdf, page V-2.

**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.**

How, By Whom, and Frequency

These data are being collected by NOAA through the use of an online survey. This is a one-time collection. To collect these data, NOAA will obtain an online sample that is both statistically representative of the areas where we are sampling (New Jersey, the New York City area, and selected counties in eastern Pennsylvania). There are a number of sources of these list such as GfK Knowledge Networks, who maintains an online panel of individuals (KnowledgePanel) who form a representative sample of the United States population.[11] NOAA has provided additional details on the sample in Part B.

Purpose

The data being collected under these two surveys can be categorized into two distinct categories:

- Questions that elicit information on the value that individuals place on either marsh restoration options (Forsythe survey) or on coastal protection options (Jamaica Bay survey).
- Questions that are used to provide explanatory variables in the statistical model NOAA will develop to estimate the values individuals place on marsh restoration and coastal protection.

The survey developed for this collection effort supports the development of a choice experiment model to estimate willingness to pay for marsh restoration options and coastal protection measures. In a contingent valuation survey, respondents are provided with information on some environmental project and asked whether they would vote for performing that project at a given cost to them. Choice experiments add complexity to the valuation question and result in significantly more information on values. In a choice experiment, several different "options" are developed by the researcher reflecting different levels of attributes. The respondent is then presented with two or more options, the costs of the options to them, and asked to vote on his/her preferred or to vote for none (e.g., a "status quo" or "no action" option). For example, respondents may be given a choice between:

- Option A – Restore 5,000 acres of marsh which will lead to protecting 1,000 homes from a 5-foot storm surge, protecting 4,000 homes from a 20-year flood, significantly improved habitat for migratory birds, and minor improvements to recreational opportunities. The option would add $50 per year to the respondent's taxes.

- Option B - Restore 5,000 acres of marsh which will lead to protecting 3,000 homes from a 5-foot storm surge, protecting 6,000 homes from a 20-year flood, significantly

[11] http://www.gfk.com/Documents/GfK-KnowledgePanel.pdf.

improved habitat for migratory birds, and significant improvements to recreational opportunities. The option would add $125 per year to the respondent's taxes.

- Do nothing which provide no benefits and add no new amount to property taxes.

Options A and B would be just two of many options constructed for the experiment. For example, different levels of acreage restored, homes protected from storm surge, homes protected from flooding, habitat improvements, and recreational improvements can be defined and varied across options presented to respondents. This can result in a large number potential "options"; specifically, the number of options would equal the product of the number of levels across all attributes (e.g., homes protected, etc.). For example, with four attributes that have three levels each, there are 81 = ($3^4$) different potential options. Methods exists, such as fractional factorial design, to reduce the number of options to a manageable number without losing information from the resulting data.

A simple contingent valuation survey would present one option and ask respondents to vote yes or no on that option while varying only the cost to each respondent. The strength of the choice experiment method is that it allows the researcher to obtain the information on how respondents' values change in the attributes (home protected from storm surge, homes protected from flooding, habitat, recreation) *relative to one another*. In other words, the data we obtain from this effort will allow NOAA and decision-makers to better understand how much individuals value improved habitat relative to protection of property, as well as other trade-offs.

Table 1 provides a summary of the choice experiment values to be used in the Forsythe survey. First, NOAA had discussions with the representative at Forsythe who provided information on the scope of the restoration. Forsythe provided the number of acres (approximately 3,000) and the areas of the marsh in which restoration would occur. Second, NOAA based the number of homes protected based on research into the communities surrounding the areas where restoration would take place. For storm surge, there are 34,051 houses in the 5 communities that border the area where the restoration will occur (Eagleswood, Little Egg, Stafford, Tuckerton, and Barnegat). In those five communities, 519 homes sustained "minor" damage (<$8,000), 2,284 sustained "major" damage ($8,000 - $28,800), and 788 sustained "severe" damage (>$28,800).[12] NOAA used the 3,072 with major/severe damage as an approximate mid-point for the value. Since this is a choice experiment, we added what we expect are reasonable values above and below these values. For flooding, FEMA has 7,552 policies in place in the 5 communities. As above, we rounded down to 7,000 and used that as the mid-point and varied it above and below. Habitat and recreation descriptions were developed as simple qualitative descriptions following a "no", "small", and "large" categories. The cost values we used represent values that are typically seen in the literature. For example, in a study on the value of restoring Louisiana wetlands, Petrolia and co-authors used values of $25. $90, $155, $285, $545, and $925 in their choice experiment.[13] The Petrolia study, however, covered a large area of wetlands (all of Louisiana), so we restricted our range to the lower end.

[12] http://www.njspotlight.com/stories/13/03/14/assessing-damage-from-superstorm-sandy/

[13] Petrolia, Daniel, et al., 2104, "America's Wetland? A National Survey of Willingness to Pay for Restoration of Louisiana's Coastal Wetlands," *Marine Resource Economics*, v. 29, no. 1.

**Table 1 - Choice Experiment Values for Forsythe Survey**

| Category | Attributes for options A and B | Status quo text |
|---|---|---|
| Amount of the marsh that is restored | • 1,000 acres<br>• 3,000 acres<br>• 5,0000 acres | • None |
| | | |
| Storm protection | • Protects 1,000 homes from a 5-foot storm surge<br>• Protects 3,000 homes from a 5-foot storm surge<br>• Protects 6,000 homes from a 5-foot storm surge | • Homes in the coastal area are under increased risk from storm damage. |
| Flood protection | • Protects 4,000 homes from a 20-year flood<br>• Protects 7,000 homes from a 20-year flood<br>• Protects 10,000 homes from a 20-year flood | • Homes in the coastal areas are under increased risk of suffering flood damage. |
| Habitat | • Provides no improvements for migratory birds<br>• Provides small/minor improvements in habitat for migratory birds<br>• Provides significant improvements in habitat for migratory birds. | • Habitats for wildlife continue to deteriorate with the marsh |
| Recreation | • Provides no improvement in recreation<br>• Provides small/minimal improvement in recreation<br>• Provides significantly better recreation | • Recreational opportunities decline as the marsh deteriorates. |
| | | |
| Cost | • $25<br>• $50<br>• $75<br>• $100<br>• $125 | • $0 |

Table 2 summarizes the values to be used in the Jamaica Bay survey. The numbers used in the survey are meant to provide respondents with distinct choices (low, medium, high) on levels of protection to allow analysis of trade-offs. However, the mid-points are based on some background research NOAA performed. There are five communities in the Jamaica Bay area that are most susceptible to storm impacts (as evidenced by Sandy): Breezy Point, Howard Beach, East Rockaway, West Rockaway, and Broad Channel. All but Howard Beach are in Queens District #14 (QD14). According to NYC, QD14 has 12,145 1-, 2-, and multifamily lots.[14] Howard Beach is part of QD10 which has 22,261 1-, 2-, and multifamily lots. As noted, Howard Beach is only part of QD10. NOAA assumed that Howard Beach represented 20% of those lots (roughly based on area Howard Beach represents in that District) or 4,452 lots. Adding this to the QD14 total yields 16,597 lots. We then assumed that one quarter of these would be reasonable to use as a mid-point for the protection mid-point, or approximately 4,150 which we rounded to 4,000. Next, we chose a "lower" level of protection as half the mid-point (2,000) and we decided to be symmetric around the mid-point to get the "higher" protection amount of 6,000. The levels for habitat and recreation are phrased as "none," "small," and "large" to categories. The cost values follow those we used for Forsythe, however, we used a higher range to since the Jamaica Bay survey deals with storm protection.

[14] All data in this paragraph are based on http://www.nyc.gov/html/dcp/html/neigh_info/nhmap.shtml.

**Table 2 - Choice Experiment Values for Jamaica Bay Survey**

| Category | Attribute values for options | Status quo text |
|---|---|---|
| | | |
| Shoreline armoring | • Do not install seas, protecting no additional homes from storm surge.<br>• Install sea walls to protect 2,000 homes from storm surge.<br>• Install sea walls to protect 4,000 homes from storm surge.<br>• Install sea walls to protect 6,000 homes from storm surge. | • Do not install seas, protecting no additional homes from storm surge. |
| Living shorelines | • Do not install living shorelines, protecting no additional homes from storm surge.<br>• Install living shorelines to protect 2,000 homes from storm surge.<br>• Install living shorelines to protect 4,000 homes from storm surge.<br>• Install living shorelines to protect 6,000 homes from storm surge. | • Do not install living shorelines, protecting no additional homes from storm surge. |
| Habitat | • No improvement to habitat; habitats for wildlife continue to deteriorate with the marsh. [a]<br>• Small/minimal improvements to habitat.<br>• Significant improvements to habitat. | • Habitats for wildlife continue to deteriorate with the marsh. |
| Recreation | • No improvement to recreation; recreational opportunities decline as the marsh deteriorates. [a]<br>• Small/minimal improvements to recreation.<br>• Significant improvements to recreation. | • Recreational opportunities decline as the marsh deteriorates. |
| | | |
| Cost | • $75<br>• $125<br>• $175<br>• $225 | • $0 |

Information Quality Guidelines

NOAA 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. 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.**

All data being collected by NOAA under this effort will be collected through electronic means.

NOAA's subcontractor (Eastern Research Group, Inc. (ERG)) will handle implementing the survey using an online survey software.

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

NOAA has been in contact with its partners and stakeholders in the New York and New Jersey area and has been monitoring economic valuation projects related to Sandy-related restoration. Although work is being done related to Sandy, NOAA is not aware of any studies that are substantially similar to this. The closest study is one being done by The Nature Conservancy (TNC) on valuing ecosystem service associated with Sandy restoration in National Wildlife Refuges in New Jersey, including Forsythe. NOAA has been in regular contact with the primary researchers at TNC to ensure we are not duplicating their efforts. The TNC work is focused on developing environmental indicators at this point and then eventually apply economic values to changes in the indicators in the future. NOAA's work under this project is focused on developing willingness to pay measures based on primary data collection in the near term. In that sense, NOAA's work and TNC's work will act as complements to one another in the longer term.

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

Data are not being collected from 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.**

The information is being collected only once. If the data are not collected, NOAA will not be able to develop a statistical model that values different restoration options for salt marshes and different coastal protection measures. As noted under Question #1, the purpose of the information being collected is to provide information to decision-makers. This will assist decision-makers in determining what actions to take in the future by providing them with information on the relative values that individuals place on different marsh restoration options and on different coastal protection measures.

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

This data collection is 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 October 22, 2014 (70 FR 63086) solicited public comments. No comments were received.

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

Respondents are not being offered any payments or gifts for their response by NOAA.

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

No statutory assurance of confidentiality can be made for this collection. Nevertheless, NOAA will assure participants that the data they supply will be kept anonymous. NOAA will not be able to associate data being provided with any specific individual. The data will be collected by NOAA's subcontractor, ERG, and ERG will purge the final data of any link between email addresses the data provided by the individual.

**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.**

There are no questions of a sensitive nature being asked in the survey.

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

Table A-3 provides an estimate of the time and cost to respondents for this data collection effort. Section B of this package contains our reasoning for the sample size estimates. NOAA expects a total of 1,001 responses. We have assumed that the Forsythe Salt Marsh Restoration survey will require 20 minutes to complete and that the Jamaica Bay Coastal Protection Survey will take 25 minutes. Across both surveys, NOAA estimates that respondents will spend 375 hours. NOAA used an hourly cost of $24.66 to estimate a total cost of $9,247 to respondents for answering the survey questions.[15]

**Table A-3 - Total Response Time and Cost**

| Survey | Total number of expected responses | Average time per response (minutes) | Total time for responses (hours) | Total cost [a] |
|---|---|---|---|---|
| Forsythe Salt Marsh Restoration Survey | 501 | 20 | 167 | $4,118 |
| Jamaica Bay Coastal Protection Survey | 500 | 25 | 208 | $5,129 |
| **TOTALS** | **1,001** | **-** | **375** | **$9,247** |

Note: This is a one-time collection, thus all estimates can be considered annual. Additionally, only one response per respondent is being requested.
[a] Calculated by multiplying the total time by an average hourly wage of $24.66 taken from the Bureau of Labor Statistics' December 17, 2014 press release (http://www.bls.gov/news.release/realer.nr0.htm, Table A-1, "Average Hourly Earnings," November 2014).

**13. Provide an estimate of the total annual cost burden to the respondents or record-**

[15] The cost per hour is taken from the Bureau of Labor Statistics, see note [a] of Table 1 for details.

**keepers resulting from the collection (excluding the value of the burden hours in Question 12 above).**

This information collection does not involve any recordkeeping or reporting costs.

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

NOAA has provided ERG with a contract for $290,804 to perform this work over a two-year period. NOAA and ERG estimate that approximately 75 percent of this funding is being allocated with this information collection effort and the associated analysis and report writing. Thus, the annualized cost to the Federal government is $109,052 (= [$290,804x75%]/2). These funds cover survey development, implementation, statistical analysis, and report writing.

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

This is a new data collection.

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

The data collected through this effort will be analyzed using complex statistical analysis. The standard technique for choice experiment data such as this survey effort is to use a multinomial logistic (MNL) nonlinear regression model.[16] The MNL model is used for modeling data where the response (dependent) variable reflects a choice of one among multiple choices. NOAA's subcontractor, Eastern Research Group, Inc. (ERG) has access to software and expertise in estimating MNL models.

Following statistical analysis, NOAA will develop a report and make the report available on Office for Coastal Management's website.

**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.**

NOAA will display the expiration date for the OMB approval.

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

There are no exceptions to the certification statement.

[16] The choice experiment structure of this effort is detailed in Question #2 above.

**SUPPORTING STATEMENT**

**Contingent Valuation/Choice Experiment Surveys for Hurricane Sandy Restoration Efforts in Forsythe National Wildlife Refuge in New Jersey and Jamaica Bay, NY**

**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.**

ERG (NOAA's subcontractor on this survey) will use GfK Knowledge Network's online panel "Knowledge Panel." GfK recruits its online panel members using a combination of random digit dialing (RDD) and address-based sampling (ABS). The ABS sampling allows for inclusion of cell-only households and non-internet households who join the panel are provided with computers to allow them to take the online surveys. Thus, GfK builds its internet panel from non-internet sources. This avoids some issues related to "opt-in" panels on the internet. The sampling frame we will use will be comprised of individuals living in the New Jersey and New York areas that were recruited by GfK, agreed to be part of the GfK panel, and were retained in the GfK panel at the time we implement our survey.

GfK claims that its panel is representative of the U.S. population:

> "Representativeness of KnowledgePanel sample—including hard-to-reach groups such as young adults, males and minorities, for specific studies—has been documented in a number of papers and publications (Baker, Wagner et al 2003; Baker, Bundorf et al, 2003; Schlenger and Silver, 2006; Silver, Holman et al, 2002; Heeren et al, 2008; Chang and Krosnick, 2009; Baker et al, 2010; Yeager et al, 2011; Boxer, Aronson and Saxe, 2013)."[1]

The respondents will be selected from GfK's panel from New Jersey, the New York City area, and selected counties in eastern Pennsylvania for the Forsythe survey and from New York and New Jersey for the Jamaica Bay survey. Eastern Pennsylvania was added to the Forsythe survey since individuals from eastern Pennsylvania may be familiar with Forsythe.

[1] https://www.gfk.com/Documents/GfK-KnowledgePanel-ESOMAR-28-Questions.pdf; the citations for the studies do not appear in the linked document above, but have been included below and can be found (along with others) in GfK's bibliography document: http://www.knowledgenetworks.com/ganp/docs/KN-Bibliography.pdf. ERG also notes that the bibliography document contains references to valuation studies that have used the GfK sample (see page 2 of the bibliography).

Response for our survey should reflect the response rates that GfK obtains in recruiting, onboarding, and retaining its panel, as well as the rate of completion of the survey we implement. GfK calculates four separate response/cooperation rates:

- Recruitment rate: the percentage of those who were recruited that agreed to become part of the GfK panel. GfK quoted to ERG a current recruitment rate of 10%.
- Profile rate: the percentage of those who agreed to become part of the panel who complete a demographics survey that GfK asks them to complete. Individuals who do not complete the demographics survey are not part of the panel. The current profile rate is 85%.
- Completion rate: This is the percentage of people who complete surveys. This will vary from survey to survey and the one we implement with them will have its own completion rate. However, GfK suggested we use a value of 60% as an estimate for the completion rate.[2]
- Retention rate: This is the percentage of people in the panel who remain in the panel from year to year. GfK's estimated retention rate is 75%.

GfK has indicated that each of these rates iscalculated in ways consistent with AAPOR standards. Furthermore, they indicate that the appropriate method to calculate a response rate from these four rates is to multiply them together.[3] Using the values provided by GfK indicates that the panel has a response rate of 6.4% (all rates except the completion rate). Accounting for the (expected) completion rate in the surveys we plan to implement implies a project response rate of 3.8% taking into account all of the rates quoted by GfK. We have provided a discussion of our approach to dealing with and analyzing non-response under Question B3 below. In calculating necessary sample sizes, however, we only use the completion rate in the tables that follow.

Table B-1 summarizes the number of households in each area and the associated sample to be selected from that area. Sample size calculations and selection are discussed under Question B2 below. NOAA expects to be able to attain a 60 percent or better completion rate in this survey since this survey involves a significant event (Hurricane Sandy). Stratification of the sample across states ("Percent of Sample from State" column) is discussed in Question B2 below.

[2] NOAA previously used a 65 percent estimate from Gfk for this value. In recent discussion, GfK recommended using 60 percent instead.
[3] See http://www.knowledgenetworks.com/accuracy/fall-winter2009/pdf/disogra-fall09.pdf.

**Table B-1 – Respondent Universe and Sample Sizes**

| Area | Total Number of Households, 2009-2013 (Universe) [a] | Percent of Sample from State | Sample Size | Expected Completion Rate in Panel [b] | Expected Number of Responses |
|---|---|---|---|---|---|
| | | | | | |
| **FNWR Salt Marsh Restoration Survey** | | | | | |
| New Jersey | 3,186,418 | 60% | 500 | 60% | 301 |
| New York [c] | 4,451,487 | 20% | 167 | | 100 |
| Eastern Pennsylvania [d] | 1,988,698 | 20% | 167 | | 100 |
| **TOTALS** | **9,626,603** | | **834** | | **501** |
| | | | | | |
| **Jamaica Bay Coastal Protection Survey** | | | | | |
| New Jersey | 3,186,418 | 30% | 250 | 60% | 150 |
| New York [c] | 4,451,487 | 70% | 584 | | 350 |
| **TOTALS** | **7,637,905** | | **834** | | **500** |

[a] Total household numbers were taken from Census Bureau data and reflect average number of households in the 2009-2013 time frame. See http://quickfacts.census.gov/qfd/index.html.
[b] The 60 percent completion rate assumption is based on response rates that GfK has been able to achieve through in its online survey efforts. NOAA has assumed that this represents a reasonable completion rate for our surveys.
[c] Includes the counties of New York (New York City), Richmond, Kings, Queens, Nassau, Suffolk, Bronx, Westchester, and, Rockland.
[d] Includes the counties of Bucks, Montgomery, Philadelphia, Delaware, Chester, Lehigh, Berks, and Lancaster.

## 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.

Necessary Sample Size (Degree of Accuracy)

The sample size for each survey was calculated using the rule of thumb developed by Johnson and Orme (1996)[4] and summarized in Orme (2010).[5] The rule of thumb value provides a minimum sample size needed for a choice experiment study that involves having respondents assess multiple alternatives in which the attributes of the alternatives have multiple levels. In our case, the alternatives are the salt marsh restoration options or coastal protection options that we are asking the respondents to vote on. The attributes are the different aspects or the restoration or coastal protection that we use to define the option's benefits and cost.[6] Each attribute has a set number of levels. Furthermore, the rule of thumb takes into account that each respondent can assess more than one set of alternatives. The rule of thumb is

[4] Johnson, R. and Orme, B. (1996), "How Many Questions Should You Ask In Choice-Based Conjoint Studies?" ART Forum Proceedings.
[5] Orme, B. (2010), *Getting Started with Conjoint Analysis: Strategies for Product Design and Pricing Research*. Second Edition, Madison, Wis.: Research Publishers LLC.
[6] For example, for the salt marsh restoration survey, the attributes are the amounts of the marsh restored, coastal protection, flood protection, habitat, and recreation, as well as the cost. For the coastal protection survey, the attributes are storm surge protection, flood protection, habitat, recreation, and cost.

$$n \geq \frac{500c}{ta}$$

where

- *n* is the (minimum) sample size,
- *t* is the number of tasks that each respondent is being asked to perform. In our case, this is the number of alternative sets that we'll ask each respondent to vote on. We will ask each respondent to vote on two different sets (*t* = 2)
- *a* is the number of alternatives being presented to respondents each time they are asked to vote (excluding the "status quo" or "no action" scenario). In our case, we are asking respondents to compare two options each time (*a* = 2)
- *c* is the number of levels for each attribute. In cases where the number of levels varies across the attributes, *c* is set equal to the largest number of levels for any attribute. For both surveys, the largest number of levels for any attribute is 4 (*c* = 4).

Using these values for *t*, *a*, and *c* in the rule of thumb results in an estimated sample size of 500 for each survey.

Stratification and Sample Selection

NOAA will be focusing on New Jersey, the New York City area, and selected counties in eastern Pennsylvania for the Forsythe NWR Salt Marsh Restoration survey and on the New York City area and New Jersey for the Jamaica Bay Coastal Protection survey. NOAA's approach is to stratify by state for each survey. As noted, NOAA is targeting a sample of 500 respondents for each survey. Assuming a 60 percent completion rate, this implies selecting an initial sample of 834 respondents. To stratify the sample across states in each survey, NOAA has selected percentages for each state in the sample. For the Forsythe NWR survey, NOAA has selected 60 percent for New Jersey and 20 percent for the New York City area and eastern Pennsylvania. The concentration on New Jersey reflects the fact that Forsythe is located in New Jersey. For the Jamaica Bay survey, NOAA has selected 70 percent for the New York City area and 30 percent of sample for New Jersey. NOAA selected 70 percent for the New York City area since Jamaica Bay is located in New York.

**Table B-2 – Stratification and Sample Size by State**

| Area | FNWR Salt Marsh Restoration Survey | | | Jamaica Bay Coastal Protection Survey | | |
|---|---|---|---|---|---|---|
| | Percentage for State | Initial Sample | Expected Sample | Percentage for State | Initial Sample | Expected Sample |
| New Jersey | 60% | 500 | 301 | 30% | 250 | 150 |
| New York [b] | 20% | 167 | 100 | 70% | 584 | 350 |
| Eastern Pennsylvania [c] | 20% | 167 | 100 | - | - | - |
| **TOTALS** | **100%** | **834** | **501** | **100%** | **834** | **500** |

[a] Reflects English-speaking households only.
[b] Includes the counties of New York (New York City), Richmond, Kings, Queens, Nassau, Suffolk, Bronx, Westchester, and, Rockland.
[c] Includes the counties of Bucks, Montgomery, Philadelphia, Delaware, Chester, Lehigh, Berks, and Lancaster.

Estimation

To analyze the data that are collected from the surveys, NOAA will use a multinomial logisitic (MNL) regression analysis. MNL regression is the standard approach for analyzing choice experiment data. Before describing our use of MNL to derive values, we will provide some context on the analytical data set. First, respondents will represent multiple records in the final analytical data set. For example, for Forsythe, we are asking each individual to make a choice from two separate choice sets and each set has three choices (e.g., "Status quo," "Option A," and "Option B"). Thus, each response to the survey represents six records in the data (2 choice sets × 3 options to choose from within each set). Each record will have a binary variable set equal to 1 (= yes) if the respondent selected that option or 0 (= no) if the respondent did not select that option.[7] Second, although the attributes we have included have quantitative levels, the data should be thought of as discrete in nature.[8] For example, in the Forsythe survey, we will use four separate levels for the number of homes protected from storm surge: 1,000, 3,000, and 6,000, as well as and an implied "no additional" as part of the status quo. We cannot treat this as continuous data, but need to define four binary variables:

- Alternative included no additional homes to be protected, yes or no.[9]
- Alternative included 1,000 additional homes protected, yes or no.
- Alternative included 3,000 additional homes protected, yes or no.
- Alternative included 6,000 additional homes protected, yes or no.

Only one of these can be equal to one for any record in the database.[10] Each other attribute would be treated similarly. Finally, the value for cost to respondent is used in its quantitative form. For example, if the cost for the option was listed as $100, then the value for the cost variable is simply 100. This is necessary to derive willingness to pay values.

The MNL regression analysis would use the binary variable for selection of the option (1 = respondent selected the option, 0 = respondent did not select the option) as the dependent variable. The independent variables would then be the binary variables used to represent the attributes (described above),[11] the cost of the option, and characteristics of the respondent (age, gender, distance from site, etc.). The estimated marginal effect coefficients for the different attribute level variables in the MNL can then be divided by the negative[12] of the marginal effect

[7] Thus, since each respondent has six records and was presented with two choice sets, each respondent must have 2 records with a "yes" in the selection binary variable and 4 records with a "no."
[8] This, however, is not true for the cost variable which is treated as a quantitative value for analytical purposes.
[9] In MNL regression, the yes values are converted to a one and the no values are converted to a zero.
[10] As above, each record in the analysis database corresponds to one option that was presented to a respondent. Each option would have no additional home protected ("status quo"), 1,000 homes protected, 3,000 homes protected, or 6,000 homes protected.
[11] One additional detail must also be accounted for; one of the binary variables for each attribute must be omitted (i.e., a "base" level) or the model would be perfectly collinear. This complicates calculation of marginal willingness to pay. However, a coding scheme exists to allow for estimation of the marginal effects of for the "base" attribute level. This is described in Holmes, Thomas P. and Wiktor L. Adomowicz, 2003. "Attribute-Based Methods," in Champ, Patricia A., et al., eds, *A Primer on Nonmarket Valuation*, Springer Science+Business Media, New York, pp. 187-188.
[12] The value must be multiplied by -1 for algebraic reasons.

for the cost variable to provide an estimate of the willingness to pay for the attribute level. Comparing the estimated willingness to pay values for the attribute levels and the different attributes provides estimates of trade-offs between levels with the attribute and between attributes.

Unusual problems requiring special sampling procedures

There are no unusual problems in this effort requiring special sampling procedures.

Less frequent than annual collection

This is a one-time date collection.

**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.**

NOAA expects this survey will provide sufficient data for its intended purpose. First, the results are meant to provide information on how people value trade-offs and to provide input into future restoration decisions. It is not NOAA's intent that these results be used as the sole decision factor in making restoration decisions. The results are expected to provide indications of the relative values that people place on restoration options. Second, the data will be relevant for the areas where we are surveying. However, the results are not meant to drive decisions in the areas we are surveying. At Forsythe, the results will provide an estimate of the value of work that was performed. In Jamaica Bay, the results will provide input into the larger conversation about shoreline protection in the Bay, but will not be a primary driver of decisions in the Bay.

NOAA's approach to maximize response begins with following good survey practices. First, as described above, NOAA will obtain a sample email list to use under this project that is representative of the U.S. population. NOAA will draw a random sample from that list and implement the survey using that sample. NOAA will send a pre-notification email, a follow-up email with the survey link, and then up to two additional reminders to each.

NOAA will have its subcontractor, ERG, perform a series of analyses and adjustments to assess and deal with potential nonresponse bias. These include:

- **Compare sample characteristics to population characteristics derived from archival data**. The sample will contain information on gender, age, race, Hispanic origin, employment status, marital status, home ownership, education level, and household income. ERG will use statistical tests to compare each of these sample characteristics to data from the Census Bureau for the areas where we draw the sample. This analysis will allow us to determine whether the respondents to our survey are similar to those in the geographic area from which they were drawn. If the sample does not match the population characteristics, there should be some concern for nonresponse bias. However, even if the sample is not statistically different from the population on the key

characteristics, this does not guarantee an unbiased sample. This simply tells us that our sample matches the population for the area we are sampling. If the sample does match, on the other hand, we can say that the sample is most likely not biased due to differences in these characteristics.

- **Compare the characteristics of responders to non-responders *within the panel* using panel profile data available from GfK.** GfK maintains a large amount of data on its panel members, including gender, age, race, Hispanic origin, employment status, marital status, home ownership, education level, and household income. These data can be made available to ERG for both respondents and individuals within the panel who did not respond. ERG will use statistical tests to compare the responders to the non-responders within the panel on the characteristics listed above. Thus, ERG can assess whether the pool of respondents differs from the pool of non-respondents within the panel for the characteristics that GfK maintains. If non-responders within the panel are significantly different, we should have concerns over a biased sample.

- **Compare results to other studies.** ERG will compile studies that have used similar methods (e.g., contingent valuation studies or choice experiments), especially in the New York and New Jersey area, for similar issues (salt marsh restoration and storm protection) and compare our estimates to those from other studies.[13] There is no requirement that our estimates be equivalent to other studies, but our resulting estimates should be consistent. For example, if our sample is biased due to nonresponse and the resulting sample is comprised of people who have strong feelings for environmental protection, our estimates may be significantly larger than values from other studies. For the most part, this will be a qualitative comparison. If we identify some studies that are particularly relevant, we can compare the 95 percent confidence intervals for the resulting estimates, although we have not identified any such study to date. Another approach in this regard would to be to compare our estimates to values that could be derived from meta-analysis functions. John Loomis at Colorado State University has spent considerable time and effort developing a set of meta-analysis functions that could be used for this purpose.[14] If our estimates are consistent with the values derived from meta-analyses we can have some confidence in our estimates.[15] If our resulting estimates are not consistent with estimates from other studies or meta-analyses, and the inconsistencies are not explainable in the study design, we should be concerned about nonresponse bias.

- **Compare early to late respondents.** In implementing the survey, ERG will send out an initial request for response and then follow up with reminders. ERG will compare the responses for those who responded to the first request to those who responded to later requests. The purpose of this analysis is to determine whether those who took more effort to obtain a response from (late responders) are different than those who took less effort to obtain a response from (early responders). If the late responders differ significantly in the data being provided from the early responders, then we should have some concern over

[13] One aspect we would need to assess from other studies is whether those studies also have nonresponse issues.
[14] http://dare.agsci.colostate.edu/outreach/tools/.
[15] We do note, however, that the assessment usually runs in reverse. Specifically, primary studies such as ours are used to validate estimates derived from meta-analyses. Nevertheless, using the meta-analyses as a comparator may provide some insight into the potential for nonresponse bias.

nonresponse bias. Specifically, if late responders differ from early responders, it may also be the case the non-responders would also differ in the responses to the survey questions. Although similar responses from early and late responders does not guarantee unbiased data, we can have more confidence in our data if the two groups answered questions similarly.

- **Calculate weights reflecting non-response.** Finally, ERG will adjust the sampling weights for nonresponse. Each respondent will have a sampling weight equal to the inverse of his/her probability of selection into the sample. ERG will adjust the weights using the following approach:
    - First, we will partition the sample into sub-groups where nonresponse appears to be an issue. For example, if we compare the sample to Census data and the GfK panel for the area and find that lower income individuals were less likely to respond, then we will use income to partition the sample.[16]
    - Second, using the GfK sample data for the relevant characteristics (e.g., income), we will formulate response probabilities for the different groups. We will be able to do this since the sample is being drawn from the GfK panel and we will know the characteristics of the non-responders. Continuing the example above, we may form 4 income groups and calculate the probability of response from each income group.
    - Finally, we will adjust the sampling weights by multiplying the sampling weight by the inverse of the response probability.

  These adjusted weights will then be used in place of the non-adjusted weights in performing our analyses.

Finally, ERG will generate a memo that details the results of these analyses and provide that to NOAA as part of the project record. Furthermore, all reports or papers for this project will contain a section that details the results of the non-response analyses.

**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.**

NOAA has pre-tested the Forsythe instrument, and in the process of pre-testing the Jamaica Bay instrument, with a limited number of individuals to refine the instrument as needed. For each instrument, NOAA asked its subcontractor ERG to pre-test the instrument with nine (or fewer) people who live the in New York and New Jersey area. For the Forsythe pre-test, ERG conducted a total of seven pre-tests and had each individual complete a paper version of the instrument and then discussed the instrument with each individual to obtain feedback on the instrument and to get ideas on how to improve the instrument. An identical process is being followed for the Jamaica Bay instrument. Based on feedback from the Forsythe pre-test, ERG implemented a number of changes to the instrument.

To develop this instrument, NOAA worked with ERG and its consultant Craig Landry at the

[16] It may be necessary to partition the sample in more than one dimension; for example, income and age.

University of Georgia. Dr. Landry is an expert at designing contingent valuation and choice experiment surveys. Furthermore, ERG and Dr. Landry started with the instrument used by Petrolia et al. (2014) as a basis for developing the instruments for this data collection.[17]

**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.**

NOAA worked with the following individuals in developing this study design and survey instrument.

| Name | Organization | Contact information |
|---|---|---|
| Lou Nadeau, Ph.D. | Eastern Research Group, Inc. | Lou.nadeau@erg.com<br>781-674-7316 |
| Craig Landry, Ph.D. | University of Georgia | clandry@uga.edu<br>706-542-2481 |

Additionally, NOAA and ERG held conversations with a number regional stakeholders about this project, including Forsythe National Wildlife Refuge, USGS, The Nature Conservancy, Jamaica Bay Eco-Watchers, and the U.S. Army Corp of Engineers.

The data collection process will be managed by Eastern Research Group, Inc. (ERG).

**References**

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**Questionnaire – Forsythe National Wildlife Refuge**

- This research study is being conducted by Eastern Research Group, Inc. on behalf of the National Oceanic and Atmospheric Administration (NOAA).
- Your participation is absolutely voluntary and you may stop at any time.
- The survey will take approximately 20 minutes of your time to complete.
- You will not be individually identified and your responses will be used for statistical purposes only.
- If you have questions about your rights as a participant in this survey, or are dissatisfied at any time with any aspect of the survey, you may contact {*contact for implementation*}.

Public reporting burden for this collection of information is estimated to average 20 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other suggestions for reducing this burden to Peter Wiley, NOAA Office for Coastal Management 1315 East-West Highway, Silver Spring, MD 20910 (Peter.Wiley@noaa.gov, 301- 563-1141).

Notwithstanding any other provisions of the law, no person is required to respond to, nor shall any person be subjected to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number.

*[Introductory text]*

In October of 2012, Hurricane Sandy inflicted significant damage and loss of life along the eastern seaboard of the U.S. One of the natural areas affected was **Forsythe National Wildlife Refuge** (NWR) near Atlantic City in southern New Jersey.

- The Refuge contains more than more than 47,000 acres of land, 78% of which is a salt marsh.
- The Refuge offers a stop-over for tens of thousands migratory birds along the Atlantic Flyway.
- The Refuge is primarily located within Ocean County New Jersey and the local towns that surround the marsh are home to approximately 75,000 people and 28,000 homes.

Aside from the large amount of debris that was washed into the Refuge, the storm brought attention to the severely degraded status of the Forsythe salt marshes. Pollution, human modification, and sea level rise have reduced the elevation of the salt marshes and altered water flow through the system. These changes impact the services provided by the Refuge, including:

- **Coastal storm protection** – sand and thick grass in salt marshes protect coastal buildings and roads from surging storm waters and erosion.

- **Flood protection** – marshes reduce flooding by slowing and absorbing rainwater.

- **Contaminant removal** – marshes improve water quality for fish and bird habitats by filtering out contaminants (such as excess nitrogen from fertilizers).

- **Habitat** – marshes provides an important resting place for migratory birds, home for nesting birds, and space for fish and shellfish to spawn.

- **Recreation** – marshes provide numerous recreational opportunities such as bird watching, nature/walking trails, canoeing, and kayaking.

- **Food web support for fish** – biological processes in marshes provide the basis of the food web for recreational and commercial fisheries.

- **Carbon storage** - salt marshes absorb and store large quantities of carbon dioxide from the atmosphere, reducing the amount of carbon in the atmosphere (which can help to manage climatic change).

These benefits are made possible by salt marshes being a combination of tall, strong grasses (*Spartina alterniflora*) and the channels of water that connect the marsh to the ocean. Salt marshes require ocean tides to come in and flood the marsh and then to go out and allow the marsh to briefly dry out. As living matter (grasses) settle and decay, the marsh land compacts

and sinks (subsides). In well-functioning marshes, tides will bring new sediment (soil) to raise the elevation of the marsh again, maintaining the area as a salt marsh. If tides do not bring enough sediment or if water (sea) levels increase, however, lower areas of a marsh will be continually flooded with water leading to the marsh grass dying off and those areas to be transformed to open water or mud flats. If not counterbalanced somehow, large areas of marshes can be eventually transformed to open water or mud flats.

In response to the degradation of the marsh at Forsythe from Hurricane Sandy, the Fish and Wildlife Service and the U.S. Army Corp of Engineers, in cooperation with local governments and the State of New Jersey, have initiated restoration projects in the Refuge. These projects include work to raise the elevation of the marshes, improve water flow, remove debris left by Sandy and previous storms, and remove old telephone poles and wires. These efforts should help to maintain and improve the services provided by the Refuge. Some Federal funds have been authorized to begin restoration efforts, but additional future funds may be needed to further restore and maintain the marshes in the future.

The goal of this survey is to collect information from people like you to assist in better decision-making about restoration activities following natural events, such as Hurricane Sandy. We are interested in what you think of marsh restoration and the environmental services it can generate. The survey is also designed to assess how much people like you value the services provided by the marsh.

*[Survey questions]*

1. **How familiar are you with the <u>Forsythe National Wildlife Refuge</u>?**
   __ Very familiar
   __ Somewhat familiar
   __ Not very familiar
   __ Have never heard of it

2. **Have you ever visited the <u>Forsythe National Wildlife Refuge</u>?**
   __ Yes – Go to 2a.
   __ No – Go to 3.

   **2a. How many times did you visit <u>Forsythe National Wildlife Refuge</u> in the previous 12 months?**
   _____ times

   **2b. Have you visited <u>Forsythe</u> since Hurricane Sandy?**
   __ Yes
   __ No

3. **Prior to reading the last page that described the benefits of salt marshes, how familiar were you with the environmental services of salt marshes?**
   __ Very familiar
   __ Somewhat familiar
   __ Somewhat unfamiliar
   __ Not at all familiar

4. **Overall, how concerned are you about the status of <u>Forsythe National Wildlife Refuge</u> and the environmental services it provides?**
   __ Very concerned
   __ Somewhat concerned
   __ Not very concerned
   __ Not at all concerned
   __ Unsure / Don't know

5. **Were you living in [respondent's current state] when Hurricane Sandy struck?**
   __ Yes
   __ No

6. **How would you describe the impact that Sandy's on you?**
   __ Very significant
   __ Moderate impact
   __ Small impact
   __ No impact at all

7. **In order to help us assess where you live in relation to <u>Forsythe National Wildlife Refuge</u>, please provide your ZIP code?**

   _ _ _ _ _

*[Instructions prior to valuation question]*

The results of this survey are *advisory.* In other words, they can be used to inform policymakers on the opinions and preferences of people such as yourself about funding for restoration of coastal marshes. We would like to better understand your level of support for salt marsh restoration at **Forsythe National Wildlife Refuge**. To do so, we will ask you to vote on different restoration programs. Each program can offer improvements in environmental services, but will require public money to implement the project. One alternative is to not invest in marsh restoration, in which case no public money will be needed.

The restoration options we will ask you about involve restoring a number of acres of salt marsh at Forsythe and some potential benefits from restoring those acres. The benefits we describe are in terms of number of homes protected, habitat restored, and recreation offered. Since any restoration project will produce specific benefits based on its location and details, the described benefits in this survey meant to be general. For example, rather than providing specific recreation benefits for a restoration option such as a number new hiking trails or increased number of wildlife viewing platforms, you might be asked to consider the relative benefits of the restoration alternatives, such as recreation improvements that provide little, moderate, or significant benefits. Once again, our purpose here is to get a sense of how people value different types of restoration options to better inform policy decisions in the future.

As a voting taxpayer, you have an opportunity provide feedback to policymakers regarding your support for – and willingness to pay for – marsh restoration projects. One way that policymakers might evaluate whether or not to do this work at the salt marsh is through an advisory referendum or special ballot question used to gauge voter opinion. Please think carefully about how you would actually vote in this situation. We want you to respond as if costs for your household would actually increase if restoration projects are implemented.

Please think carefully about how you would actually vote in this situation. The results will be provided to policymakers, and we want you to respond as if costs for your household would actually increase if restoration projects are implemented.

Please take the time to consider both the benefits and costs of the restoration program to your household.

Paying for restoration means your household would have less money to spend on other goods like food, clothing, trips, and less toward other environmental problems that you care about.

There are no right or wrong answers. We have found some people would support these kinds of projects and others would not support them. Both kinds of voters have good reasons for why they would vote one way or the other.

8. **The table below provides two potential restoration options, the potential benefits from those options, and the associated cost to taxpayers. You can choose to vote for one of the two option or choose neither one (i.e., the "status quo" option).**
*{Note to reviewer: Options for the blanks appear at the table at the end of the survey. During implementation, values will be inserted into the table for the respondent to select from.}*

| **Category** | **Status quo** | **Options A** | **Option B** |
|---|---|---|---|
| Amount of the marsh that is restored | None | _____ acres | _____ acres |
| | | | |
| Storm protection | • Homes in the coastal area are under increased risk from storm damage. | • Protects ____ homes and businesses from a 5-foot storm surge (a rise of water generated by a storm that is 5 ft over and above the predicted tide level) | • Protects _____ homes and businesses from a 5-foot storm surge (a rise of water generated by a storm that is 5 ft over and above the predicted tide level) |
| Flood protection | • Homes in the coastal areas are under increased risk of suffering flood damage. | • Protects _____ homes and businesses from a 20-year flood | • Protects _____ homes and businesses from a 20-year flood |
| Habitat | • Habitats for wildlife continue to deteriorate with the marsh | • Provides moderate improvements in habitat for migratory birds | • Provides significant improvements in habitat for migratory birds. |
| Recreation | • Recreational opportunities decline as the marsh deteriorates. | • Provides minimal improvement in recreation | • Provides significantly better recreation in the marsh |
| | | | |
| Cost (annually per household) | $0 | $____ | $_____ |
| | | | |
| Vote | ☐ | ☐ | ☐ |

9. **How confident were you in the choice you made?**
   **___ Very confident**
   **___ Somewhat confident**
   **___ Somewhat unsure**
   **___ Not at all confident (I guessed)**

10. **When voting, what expectations, if any, did you have about how <u>others</u> might vote?**
    ___ I thought most people would vote for the status quo option.
    ___ I thought most people would vote for Option A.
    ___ I thought most people would vote for Option B.
    ___ I didn't really think about it.

11. **How likely do you think it is that the results of <u>this survey</u> will shape the direction of future policy at Forsythe NWR?**
    ___ Very likely
    ___ Somewhat likely
    ___ Somewhat unlikely
    ___ Very Unlikely
    ___ I don't know.

12. **[Ask only if answer to Q8 is a "Status quo" vote] You chose to vote for neither Option A nor Option B on the referendum. What was your reasoning?**
    ___ I don't really have a specific reason why.
    ___ I'm interested, but I can't afford it.
    ___ I don't think the expected benefits are worth it.
    ___ Society has more important problems than restoring salt marshes.
    ___ I do not support any kind of tax increases.
    ___ I do not live in the area – only people who live in the area should pay for the project.
    ___ Other: _____

13. **How important to you are each of the following benefits of salt marshes.**

| | Not at all important | Slightly important | Moderately important | Very important | Extremely important |
|---|---|---|---|---|---|
| Storm protection | | | | | |
| Flood protection | | | | | |
| Wildlife habitat | | | | | |
| Fish/seafood spawning ground | | | | | |
| Water purification | | | | | |
| Recreation | | | | | |
| Carbon sequestration | | | | | |

**14. To what extent do you agree with the following statements?**

| | Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly Agree |
|---|---|---|---|---|---|
| The climate is changing in ways that could be harmful to the coast. | | | | | |
| Sandy was a rare event and a similar storm is unlikely to occur in my lifetime. | | | | | |
| I expect to see bigger coastal storms in the future. | | | | | |
| It is the responsibility of the federal government to fund restoration at Forsythe. | | | | | |
| Federal and state governments can effectively implement environmental restoration projects. | | | | | |

MORE ATTITUDINAL QUESTIONS

**15. Which, if any, of the following outdoor activities do you engage in? Please check all that apply.**

___ Freshwater fishing
___ Saltwater fishing
___ Boating/Canoeing
___ Hunting
___ Bird watching
___ Hiking/nature walking
___ Other_____
___ I don't engage in any outdoor activities

Table of value for question #8 (choice experiment question)

| Category | Attributes for options A and B | Status quo text |
|---|---|---|
| Amount of the marsh that is restored | • 1,000 acres<br>• 3,000 acres<br>• 5,0000 acres | • None |
| | | |
| Storm protection | • Protects 1,000 homes from a 5-foot storm surge (a rise of water generated by a storm that is 5 ft over and above the predicted tide level)<br>• Protects 3,000 homes from a 5-foot storm surge (a rise of water generated by a storm that is 5 ft over and above the predicted tide level)<br>• Protects 6,000 homes from a 5-foot storm surge (a rise of water generated by a storm that is 5 ft over and above the predicted tide level) | • Homes in the coastal area are under increased risk from storm damage. |
| Flood protection | • Protects 4,000 homes from a 20-year flood<br>• Protects 7,000 homes from a 20-year flood<br>• Protects 10,000 homes from a 20-year flood | • Homes in the coastal areas are under increased risk of suffering flood damage. |
| Habitat | • Provides no improvements for migratory birds<br>• Provides small/minor improvements in habitat for migratory birds<br>• Provides significant improvements in habitat for migratory birds. | • Habitats for wildlife continue to deteriorate with the marsh |
| Recreation | • Provides no improvement in recreation<br>• Provides small/minimal improvement in recreation<br>• Provides significantly better recreation | • Recreational opportunities decline as the marsh deteriorates. |
| | | |
| Cost (annually per household) | • $25<br>• $50<br>• $75<br>• $100<br>• $125 | • $0 |

**Questionnaire – Jamaica Bay New York**

- This research study is being conducted by Eastern Research Group, Inc. on behalf of the National Oceanic and Atmospheric Administration (NOAA).
- Your participation is absolutely voluntary and you may stop at any time.
- The survey will take approximately 25 minutes of your time to complete.
- You will not be individually identified and your responses will be used for statistical purposes only.
- If you have questions about your rights as a participant in this survey, or are dissatisfied at any time with any aspect of the survey, you may contact {*Contact person*}.

Public reporting burden for this collection of information is estimated to average 25 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other suggestions for reducing this burden to Peter Wiley, NOAA Office for Coastal Management 1315 East-West Highway, Silver Spring, MD 20910 (Peter.Wiley@noaa.gov, 301- 563-1141).

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*[Introductory text]*

In October of 2012, Hurricane Sandy inflicted significant damage and loss of life along the eastern seaboard of the U.S. One of the areas significantly affected was the **Jamaica Bay** area of New York City.

Since Hurricane Sandy, there has been an active debate on the best ways to protect areas such as Jamaica Bay from storms like Sandy. One possible approach involves building sea walls (or flood walls) and other "hard" structures that shield buildings and infrastructure from storm surge and strong waves caused by coastal storms. This is often referred to as "**shoreline armoring**." A second approach is to foster the growth of natural features, such as dunes and marshes, that will also protect coastal areas, while also providing habitat as well recreational opportunities for people. This approach is sometimes referred to as "**living shorelines**." The two options are not necessarily mutually exclusive, and the two can be combined as part of a region-wide strategy. Furthermore, some specific locations are better suited for one approach rather than the other for various reasons. In many cases and at some locations, however, decision-makers will need to choose between the two options.

The purpose of this survey is to help NOAA better understand how and why people value the different shoreline protection options. In what follows, we'll provide some information on the pros and cons of each approach and then ask you a series of questions, including a question that asks about your willingness to pay for both types of storm protection.

As you are probably aware, significant work is underway to restore Jamaica Bay from the impacts of Sandy. The New York Rising Community Reconstruction Program was established to provide rebuilding and revitalization assistance to New York communities severely damaged by Hurricanes Sandy and Irene and Tropical Storm Lee. Under this program, local communities in Jamaica Bay (e.g., Broad Channel, East Rockaway, West Rockaway, Far Rockaway, and Breezy Point) have identified a number of projects to increase their resiliency to coastal storms and sea level rise. Some of these projects involve building sea walls and others involve restoration or establishment of dunes and marshes. In addition to the work being funded by NY State and NYC, the Federal government (U.S. Army Corps of Engineers, National Parks Service, etc.) are also working to build storm protection and resiliency measures.

Although much work is either underway or planned, there is still much to be done to protect Jamaica Bay and other parts of NYC from future storms and climatic changes (?) and a good deal of thought has been given to what types of protective measures should be used. There are many options being considered, some of which involve **shoreline armoring** and some of which involve **living shorelines**.

The goal of this survey is to collect information from people like you to assist in better decision-making. We are interested in what you think of different storm protection options and the value you place on that protection.

The choice between **shoreline armoring** and **living shorelines** is not a simple one; each offers pros and cons relative to the other. The following table describes some of these pros and cons for sea walls (a form of armoring) and two types of living shoreline approaches, dunes and salt marshes.

| | Armoring – Building sea and flood walls | Living shorelines – Creating and maintaining dunes | Living shorelines –Creating and maintaining salt marshes |
|---|---|---|---|
| Amount of protection from storms | A sea wall offers significant protection from a storm. A sea wall repels most coastal storm waves which protects structures from damage. They can be designed to withstand certain storm "levels" (e.g., a 5-foot storm surge or a 50-year storm). | Dunes slow waves down and, if large enough, repel the waves. Large waves can wash over dunes and strong waves can wash away large dunes (as happened along the New Jersey shoreline during Sandy). | Salt marshes contain strong grasses that absorb storm waves. Whereas height is important for sea walls and dunes, the important feature of marshes are width.. The wider the marsh, the more protection it offers. |
| Time it takes to get to full protection | Once it is installed, a sea wall offers immediate protection from coastal storms. | Dunes can be built in a few months and offer immediate protection from storms. | Salt marshes require two - four years before they reach the maximum amount of protection. |
| Longevity of protection | Over time, a sea wall will deteriorate and require maintenance and, eventually, replacement. | In the absence of storm such as Sandy, a dune will last for decades, offering protection over time. As we saw during Sandy, however, dunes can be wholly or partly washed away by large coastal storms. | Once established, a marsh will offer protection from storms. With sea level rise, however, marshes can deteriorate over time and become less effective. |
| Beach erosion | Sea walls located in front of beaches will cause the beach to erode as waves bounce off of the wall and take sand with them back into the ocean. | Dunes will protect beaches from erosion by absorbing wave energy and providing sand from the dune itself to beaches to replace sand that is washed out to sea. | Salt marshes can also help reduce beach erosion by absorbing wave energy that would otherwise erode nearby beaches. |
| Aesthetics (how nice the structure or feature looks) | Sea walls are just that, a wall, and are not necessarily pleasing to look at. | Some may consider dunes more pleasant to look at compared to sea walls, but large dunes (which offer more storm protection) can block views of the ocean. | Some may consider salt marshes more pleasant to look at. |
| Benefits besides storm protection | None | Dunes provide habitat for birds and other wildlife. Dunes also provide recreational opportunities such as wild-life watching and beach-going to people. | Marshes provides habitat for birds, shellfish, and other wildlife. They provide spawning grounds for commercially important fish. Also, marshes offer recreational opportunities such as wildlife watching. |

*[Survey questions]*

1. **How familiar are you with Jamaica Bay?**
   __ Very familiar
   __ Somewhat familiar
   __ Not very familiar
   __ Have never heard of it

2. **Do you live in Jamaica Bay?**
   __ Yes – Go to 4
   __ No – Go to 3.

3. **How frequently do you visit Jamaica Bay?**
   __ Very often
   __ Often
   __ Sometimes
   __ Rarely
   __ Never

4. In the previous 12 months, how many trips did you take to the Jamaica Bay area for the purpose of recreation or relaxation?
   _____ trips

5. **Were you living in the New York/New Jersey area during Hurricane Sandy?**
   __ Yes
   __ No

6. **How would you describe the impact that Sandy on you?**
   __ Very significant
   __ Moderate impact
   __ Small impact
   __ No impact at all

7. **In order to help us assess where you live in relation to Jamaica Bay, please provide your ZIP code?**
   _ _ _ _ _

*[Instructions prior to valuation question]*

The results of this survey are *advisory.* In other words, they can be used to inform policymakers on the opinions and preferences of people such as yourself about different types of coastal protection measures. To provide information to policymakers, we will ask you to vote on different options that involve **shoreline armoring** and **living shoreline** coastal protection measures. We'll describe each option and the potential benefits of the option in terms of number of homes/buildings protected, habitat provided, and recreation opportunities. These options will ask you to compare and choose amongst shoreline armoring and living shoreline projects (or to choose "no additional action"). These projects are *not* currently proposed projects or ones that are being considered at this time. In fact, we have kept the details general to focus on the trade-off between **shoreline armoring** and **living shoreline** options. In other words, the options we present are illustrative examples rather than specific projects.

Importantly, we'll also be asking whether you'd be willing to incur additional tax dollars to fund these coastal protection measures. As a voting taxpayer, you have an opportunity provide feedback to policymakers regarding your support for – and willingness to pay for – coastal protection projects. Naturally, one alternative is to not invest in additional coastal protection, in which case no public money will be needed. If, however, the public values coastal protection, the results of this survey may be used to assess public preferences and how much people are willing to pay. This information may influence financing decisions, which can affect taxation policies.

Please think about your budget and keep in mind other things you might spend your money on instead of the project. Honestly assess the tradeoffs of supporting a proposed project and not supporting it.

There is no right or wrong answer. We have found some people would support these kinds of projects and others would not support them. Both kinds of voters have good reasons for why they would vote one way or the other.

8. **The table below provides two potential coastal protection options, the potential benefits from those options, and the associated cost to taxpayers. You can choose to vote for one of the two option or choose neither one (i.e., the "no further action" option).**
*{Note to reviewer: Options for the blanks bullets appear at the table at the end of the survey. During implementation, values will be inserted into the table for the respondent to select from.}*

| **Category** | **No further action** | **Option A** | **Option B** |
|---|---|---|---|
| | | | |
| Shoreline armoring | • Do not install additional bulkheads | • | • |
| Living shorelines | • Do not install additional living shorelines | • | • |
| Habitat | • No additional improvements to habitats in the Bay besides the current ongoing efforts. | • | • |
| Recreation | • No additional improvements to recreation in the Bay besides the current ongoing efforts. | • | • |
| | | | |
| Cost | $0 | $____ | $_____ |
| | | | |
| Vote | ☐ | ☐ | ☐ |

9. **How confident were you in the choice you made?**
   **___ Very confident**
   **___ Somewhat confident**
   **___ Somewhat unsure**
   **___ Not at all confident (I guessed)**

10. **When voting, what expectations, if any, did you have about how <u>others</u> might vote?**
   ___ I thought most people would vote for the no additional action option.
   ___ I thought most people would vote for Option A.
   ___ I thought most people would vote for Option B.
   ___ I didn't really think about it.

11. **How likely do you think it is that the results of <u>this survey</u> will shape the direction of future policy in Jamaica Bay?**
   ___ Very likely
   ___ Somewhat likely
   ___ Somewhat unlikely
   ___ Very unlikely
   ___ I don't know.

12. **[Ask only if answer to Q8 is a "no additional action" vote] You chose to vote neither Option A nor Option B on the referendum. What was your reasoning?**
   ___ I don't really have a specific reason why.
   ___ I'm interested, but I can't afford it.
   ___ I don't think the expected benefits are worth it.
   ___ Society has more important problems than restoring salt marshes.
   ___ I do not support any kind of tax increases.
   ___ I do not live in the area – only people who live in the area should pay for the project.
   ___ Other: _____

13. **To what extent do you agree with the following statements?**

| | Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly Agree |
|---|---|---|---|---|---|
| The climate is changing in ways that could be harmful to the coast | | | | | |
| It is the responsibility of the federal government to fund restoration efforts related to Sandy | | | | | |
| Sandy was a rare event and a similar storm is unlikely to occur again in my lifetime | | | | | |
| I expect to see bigger coastal storms in | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| the futur | | | | | |
| Where possible, natural options for shoreline protection should be used before any man-made options | | | | | |

**14. Which, if any, of the following outdoor activities do you engage in? Please check all that apply.**

___ Freshwater fishing
___ Saltwater fishing
___ Boating/Canoeing
___ Hunting
___ Bird watching
___ Hiking/nature walking
___ Other_____
___ I don't engage in any outdoor activities

Table of value for question #7 (choice experiment question)

| Category | Attribute values for options | Status quo text |
|---|---|---|
| | | |
| Shoreline armoring | • Do not install seas, protecting no additional homes from storm surge.<br>• Install sea walls to protect 2,000 homes from storm surge.<br>• Install sea walls to protect 4,000 homes from storm surge.<br>• Install sea walls to protect 6,000 homes from storm surge. | • Do not install seas, protecting no additional homes from storm surge. |
| Living shorelines | • Do not install living shorelines, protecting no additional homes from storm surge.<br>• Install living shorelines to protect 2,000 homes from storm surge.<br>• Install living shorelines to protect 4,000 homes from storm surge.<br>• Install living shorelines to protect 6,000 homes from storm surge. | • Do not install living shorelines, protecting no additional homes from storm surge. |
| Habitat | • No improvement to habitat; habitats for wildlife continue to deteriorate with the marsh. [a]<br>• Small/minimal improvements to habitat.<br>• Significant improvements to habitat. | • Habitats for wildlife continue to deteriorate with the marsh. |
| Recreation | • No improvement to recreation; recreational opportunities decline as the marsh deteriorates. [a]<br>• Small/minimal improvements to recreation.<br>• Significant improvements to recreation. | • Recreational opportunities decline as the marsh deteriorates. |
| | | |
| Cost | • $75<br>• $125<br>• $175<br>• $225 | • $0 |

[a] Always selected if no homes are to be protected by living shorelines.

http://www.nyc.gov/html/dcp/html/neigh_info/nhmap.shtml
http://www.nyc.gov/html/dcp/pdf/lucds/qn10profile.pdf

**SUMMARY:** The Department of Commerce, as part of its continuing effort to reduce paperwork and respondent burden, invites the general public and other Federal agencies to take this opportunity to comment on proposed and/or continuing information collections, as required by the Paperwork Reduction Act of 1995.

**DATES:** Written comments must be submitted on or before December 22, 2014.

**ADDRESSES:** Direct all written comments to Jennifer Jessup, Departmental Paperwork Clearance Officer, Department of Commerce, Room 6616, 14th and Constitution Avenue NW., Washington, DC 20230 (or via the Internet at *JJessup@doc.gov*).

**FOR FURTHER INFORMATION CONTACT:** Requests for additional information or copies of the information collection instrument and instructions should be directed to Amber Himes-Cornell, 206–526–4221 or *amber.himes@noaa.gov.*

**SUPPLEMENTARY INFORMATION:**

## I. Abstract

This request is for a new information collection.

The National Oceanic and Atmospheric Administration's (NOAA) National Ocean Service (NOS) and National Marine Fisheries Service's Alaska Fisheries Science Center propose to collect data on non-economic values related to subsistence salmon fishing and use in Alaska. Data are needed to support Natural Resource Damage Assessment (NRDA) and resource restoration analysis and activities. NRDA is a legal process to determine the type and amount of restoration needed to compensate the public for harm to natural resources and their human uses that occur as a result of an oil spill or other hazardous substance release. Through the NRDA process, NOAA and co-trustees identify the extent of natural resource injuries and the amount and type of restoration required to restore public trust resources to baseline conditions.

For this study, researchers have developed a survey instrument to quantify non-economic values, including (1) the value subsistence fishing adds to an individual or community's way of life, (2) the value of the subsistence resources in cultural or religious practices, roles, language, knowledge and skill transfer and (3) the value of the subsistence resources harvested. Alaska, with an abundance of natural and energy resources that are co-located with subsistence harvesting grounds, is a logical place for NOAA to develop assessment tools. This pilot project tests a set of survey questions for their ability to provide NOAA with adequate information to assess non-economic values of subsistence resource harvest that might be damaged by a hazardous substance release event. We focus on Alaska's subsistence salmon fishery because of its size, geographic range, and significance to multiple types of communities, families and individual commercial, recreational, and subsistence fishermen. We further focus on subsistence use of salmon because of its importance to rural residents and Alaska Natives who rely on natural resources for food, shelter, clothing, the maintenance of cultural traditions, and other aspects of Alaskan Native life. The data collection is expected to take place between fall 2015 and spring 2016.

## II. Method of Collection

Members of the research team will administer a questionnaire in person in an interview-style setting with each respondent.

## III. Data

*OMB Control Number:* 0648-xxxx.

*Form Number(s):* None.

*Type of Review:* Regular submission (request for a new information collection).

*Affected Public:* Individuals or households.

*Estimated Number of Respondents:* 600.

*Estimated Time per Response:* 45 minutes.

*Estimated Total Annual Burden Hours:* 450.

*Estimated Total Annual Cost to Public:* $0 in recordkeeping/reporting costs.

## IV. Request for Comments

Comments are invited on: (a) Whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information shall have practical utility; (b) the accuracy of the agency's estimate of the burden (including hours and cost) of the proposed collection of information; (c) ways to enhance the quality, utility, and clarity of the information to be collected; and (d) ways to minimize the burden of the collection of information on respondents, including through the use of automated collection techniques or other forms of information technology.

Comments submitted in response to this notice will be summarized and/or included in the request for OMB approval of this information collection; they also will become a matter of public record.

Dated: October 16, 2014.

**Glenna Mickelson,**

*Management Analyst, Office of the Chief Information Officer.*

[FR Doc. 2014–25026 Filed 10–21–14; 8:45 am]

**BILLING CODE 3510–JS–P**

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## DEPARTMENT OF COMMERCE

### National Ocean and Atmospheric Administration

### Proposed Information Collection; Comment Request; Contingent Valuation Surveys To Assess Value of Selected Hurricane Sandy Restoration Efforts in New York and New Jersey

**AGENCY:** National Ocean and Atmospheric Administration, Commerce.

**ACTION:** Notice.

**SUMMARY:** The Department of Commerce, as part of its continuing effort to reduce paperwork and respondent burden, invites the general public and other Federal agencies to take this opportunity to comment on proposed and/or continuing information collections, as required by the Paperwork Reduction Act of 1995.

**DATES:** Written comments must be submitted on or before December 22, 2014.

**ADDRESSES:** Direct all written comments to Jennifer Jessup, Departmental Paperwork Clearance Officer, Department of Commerce, Room 6616, 14th and Constitution Avenue NW., Washington, DC 20230, (or via the Internet at *JJessup@doc.gov*).

**FOR FURTHER INFORMATION CONTACT:** Requests for additional information or copies of the information collection instrument and instructions should be directed to Pete Wiley, NOAA Office for Coastal Management, 1305 East West Hwy., Silver Spring, MD 20910, 301–563–1141, *peter.wiley@noaa.gov.*

**SUPPLEMENTARY INFORMATION:**

## I. Abstract

This request is for a new information collection.

Superstorm Sandy caused significant damage to the New York and New Jersey coast. There are numerous ongoing and planned projects to repair the damage caused by the storm. The Disaster Relief Appropriations Act of 2012 provided NOAA with funding to assess the ecosystem service values associated with restoration options being considered in the wake of Sandy. Two geographic areas that were particularly impacted by the Storm were the Forsythe National Wildlife Refuge in

New Jersey and Jamaica Bay in New York. Under this collection effort, the NOAA Office for Coastal Management will implement a contingent valuation survey to assess the value of the ecosystem services that will be generated by restoration projects being implemented in both areas. Data will be collected from individuals who reside in the New York and New Jersey areas. NOAA will implement two separate surveys: One for each geographic area.

There are a number of restoration projects that are ongoing in the Forsythe National Wildlife Refuge and in Jamaica Bay. After reviewing the scope and focus of many of those restoration projects, NOAA has decided to focus on two specific projects. For the Forsythe National Wildlife Refuge, NOAA will focus on the work being done under a $15 million project being conducted by the U.S. Fish and Wildlife Service. The Forsythe project will focus on restoring and enhancing the salt marsh at the Refuge to act as a natural protection from storms and to act as a habitat for wildlife. In assessing ecosystem service benefits for the Forsythe restoration work, NOAA will focus on the value of the salt marsh for storm protection, habitat, and recreation, as well as other possible ecosystem services.

The Jamaica Bay area has a number of planned and ongoing projects. NOAA has decided to focus on work being conducted at Spring Creek Park on the northern point of Jamaica Bay. The restoration work at the park will involve improving habitat and storm and flood protection. NOAA will focus on the associated ecosystem services from habitat improvements and the added storm and flood protection.

NOAA is currently contacting and working with partners and stakeholders at each site to ensure the relevancy of this work.

## II. Method of Collection

NOAA will collect these data using a web-based survey instrument and will be using an online panel. The panel will consist of individuals who reside in the two areas. A number of firms maintain online panels to use in survey efforts. These firms recruit individuals to be part of the panels and target their recruitment efforts to develop panels that are representative of the general population. Individuals who are part of these panels have agreed to participate in online surveys. To access the panel, NOAA will contract with one of the firms who maintains an online panel.

## III. Data

*OMB Control Number:* 0648–xxxx.
*Form Number(s):* None.
*Type of Review:* Regular submission (request for a new information collection).
*Affected Public:* Individuals and households.
*Estimated Number of Respondents:* 400.
*Estimated Time per Response:* 20 minutes.
*Estimated Total Annual Burden Hours:* 134 hours.
*Estimated Total Annual Cost to Public:* $0 in capital and reporting/recordkeeping costs.

## IV. Request for Comments

Comments are invited on: (a) Whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information shall have practical utility; (b) the accuracy of the agency's estimate of the burden (including hours and cost) of the proposed collection of information; (c) ways to enhance the quality, utility, and clarity of the information to be collected; and (d) ways to minimize the burden of the collection of information on respondents, including through the use of automated collection techniques or other forms of information technology.

Comments submitted in response to this notice will be summarized and/or included in the request for OMB approval of this information collection; they also will become a matter of public record.

Dated: October 16, 2014.

**Glenna Mickelson,**

*Management Analyst, Office of the Chief Information Officer.*

[FR Doc. 2014–25054 Filed 10–21–14; 8:45 am]

BILLING CODE 3510–JS–P

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## DEPARTMENT OF COMMERCE

### National Oceanic and Atmospheric Administration

### Proposed Information Collection; Comment Request; Catcher Processor Socio-Cultural Study

**AGENCY:** National Oceanic and Atmospheric Administration (NOAA), Commerce.

**ACTION:** Notice.

**SUMMARY:** The Department of Commerce, as part of its continuing effort to reduce paperwork and respondent burden, invites the general public and other Federal agencies to take this opportunity to comment on proposed and/or continuing information collections, as required by the Paperwork Reduction Act of 1995.

**DATES:** Written comments must be submitted on or before December 22, 2014.

**ADDRESSES:** Direct all written comments to Jennifer Jessup, Departmental Paperwork Clearance Officer, Department of Commerce, Room 66165, 14th and Constitution Avenue NW., Washington, DC 20230 (or via the Internet at *JJessup@doc.gov*).

**FOR FURTHER INFORMATION CONTACT:** Requests for additional information or copies of the information collection instrument and instructions should be directed to Amber Himes-Cornell, (206) 526–4221 or *amber.himes@noaa.gov*.

**SUPPLEMENTARY INFORMATION:**

## I. Abstract

This request is for a new information collection.

Historically, changes in fisheries management regulations have been shown to result in impacts to individuals within the fishery. An understanding of social impacts in fisheries—achieved through the collection of data on fishing communities, as well as on individuals who fish—is a requirement under several federal laws. Laws such as the National Environmental Policy Act (NEPA) and the Magnuson- Stevens Fishery Conservation and Management Act (MSA) (as amended 2007) describe such requirements. The collection of this data not only helps to inform legal requirements for the existing management actions, but will inform future management actions requiring equivalent information.

Fisheries rationalization programs have an impact on those individuals participating in the affected fishery, as well as their communities and may also have indirect effects on other fishery participants. The North Pacific Fishery Management Council is considering the implementation of a new, yet to be defined, rationalization program for the Gulf of Alaska groundfish trawl fishery. A data collection was conducted in 2014 (OMB Control No. 0648–0685) to obtain relevant socio-cultural information about current participants in most sectors of this fishery.

The proposed data collection complements this 2014 effort by collecting comparable information from individuals participating in the catcher processor fleet that operates in the North Pacific. The data collected will be used to develop a baseline description of the catcher processor sector operating in the North Pacific that can be used to analyze impacts that future fisheries management changes, such as the new bycatch management changes being