

EPA BPA EPBPA12H0035
Statement of Work

Call Order: (OW No. BPA-2-29, MODIFICATION 1)

Title: Enhancing Data Visualization and Presentation for the National Aquatic Resource Surveys

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BACKGROUND, PURPOSE, AND SCOPE

Numerous reports have identified the need for improved water quality monitoring and analysis at the national scale to more effectively address national and broad regional questions. To address these issues, the U.S. Environmental Protection Agency, states, and tribes conduct a series of surveys of the nation's aquatic resources called the National Aquatic Resource Surveys (NARS). The NARS is made up of four surveys, the National Lakes Assessment (NLA), the National Coastal Condition Assessment (NCCA), the National Wetlands Condition Assessment (NWCA) and the National Rivers and Streams Assessment (NRSA). Information from the NARS is used in the EPA Strategic Plan measures and in other Agency reporting.

Using a probability-based survey design, the NARS provide nationally consistent and scientifically-defensible assessments of our nation's waters and can be used to track changes in condition over time. Each survey uses standardized field and lab methods and is designed to yield unbiased estimates of the condition of the whole water resource being studied (i.e., rivers and streams, lakes, wetlands, or coastal waters). A key aspect of these data is the ability to extrapolate data from the sites sampled to the entire population of waters because sites are selected using a stratified random design. As part of these assessments, the EPA has been developing national reports for each of the water resources. These reports have been primarily hardcopy, traditional reports. OWOW is interested in using new data visualization techniques to move toward more web-based, informative, and interactive reporting formats.

For this Call Order, the Office of Wetlands, Oceans and Watersheds (OWOW) seeks support in exploring new and innovative ways of presenting data from the national assessments for various audiences, focusing on techniques that help to illuminate the assessment results and key aspects of the underlying data, including but not limited to the uncertainty associated with results, change/trend analyses, etc. Audiences that OWOW is interested in reaching more effectively through improved data presentation include, but are not limited to the general public, Congress, EPA management, technical water resource staff/management, and the informed/interested public (e.g., lake associations).

The Call Order contractor staff shall have the following qualifications: (1) a high level of national or international expertise and experience in providing technical assistance to governmental organizations on data visualization; (2) superior technical knowledge and skills in developing and analyzing complex data; (3) excellent graphic development skills; and (4) significant experience and expertise in presenting data for various audiences (from general to management to scientific/technical). Specific objectives for this order are provided in the individual tasks below.

The Contracting Officers Representative (COR) is authorized to provide written technical direction to the Contractor to clarify requirements already specified in the Statement of Work (SOW). Work on this Call Order shall begin on date of award (July 23, 2014) and ends July 22, 2015. Work under this Call Order applies to tasks I, II, IV, V and IV of the BPA SOW.

TASK 1 - TECHNICAL RESPONSE AND QUOTE

Within three (3) days of receiving the Call Order, the contractor shall communicate with the COR via a conference call or emails to converse on the scope of the project, desired outcome, and other issues. The contractor shall provide a technical response and quote within 14 days describing the intended approach for meeting the requirements of this Call Order. Background information in support of this Call Order is provided below.

EPA Provided Materials

EPA NARS Reports

- 2007 National Lakes Assessment Report
http://water.epa.gov/type/lakes/upload/nla_newlowres_fullrpt.pdf
- Draft National Rivers and Streams Report 2008-2009
http://water.epa.gov/type/lakes/upload/nla_newlowres_fullrpt.pdf
- National Coastal Condition Report IV
http://water.epa.gov/type/oceb/assessmonitor/nccr/upload/0_NCCR_4_Report_508_book_marks.pdf

Example Data Reporting/Visualization Sites

- NARS website - http://water.epa.gov/type/watersheds/monitoring/aquaticsurvey_index.cfm
- Ocean Health Index - <http://www.conservation.org/projects/Pages/Ocean-Health-Index.aspx>
- State of the Coast - <http://stateofthecoast.noaa.gov/>

Deliverable

Due Date

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| 1-1 | Pre-Work Plan Meeting | Within three calendar days of contractor's receipt of Call Order |
| 1-2 | Technical Response & Quote | With-in 14 days of contractor's receipt of Call Order |

TASK 2: MEETINGS TO EXPLORE DATA VISUALIZATION TOOLS AND METHODS

This task is designed to allow the EPA to explore various options for presenting National Aquatic Resource Survey data using data visualization tools, methods, and techniques. This exploration will focus on the National Lakes Assessment data but is expected to lay the groundwork for improved data presentation and information/outreach/communication for all of the NARS. This task will result in the development of example graphics, charts and other data visualization techniques for presenting data to diverse audiences. It is anticipated that the Task will result in data visualization options related to a number of NARS assessment components including, but not limited to:

- Needs of different audiences
- Presentation of environmental indicator results at the national and regional levels
- Presentation of uncertainty around the results
- Presentation of change and (over time) trends
- Presentation of summary information while also providing an ability to drill in to find more details

The Contractor shall work with the COR to set up 8-10 meetings with the EPA starting at the end of July 2014 and concluding in July 2015. The first 4 meetings will be approximately 2-3 weeks apart giving time for further development/refinement of graphics or other presentation techniques in between and based on the meetings. Each meeting shall be approximately 4 hours. The remaining meetings will be set up between November 2014 and July 2015 per technical direction from the COR. The Contractor shall incur travel and conduct the meetings at the EPA Headquarters in Washington DC.

For the first meeting, the Contractor and the EPA will converse on key aspects of the task including specific objectives, audiences for NARS indicators and information, etc. As part of this meeting, the Contractor and the EPA will also begin reviewing NLA datasets, conversing on possible visual presentation of the data, and means of applying visual concepts and techniques. A few examples of environmental data displays that the EPA has seen are included in the background materials.

For subsequent meetings, the Contractor shall continue to conduct conversation, explore and refine graphics, charts and other presentation techniques with the EPA. The exploration shall cover both techniques for visualizing data as well as related exploratory graphics. Additionally, during one or more of the fifth through tenth meetings, the Contractor shall work with EPA to explore and refine an interactive dashboard using selected data and visualizations. The dashboard shall include features such as the ability for the user to visualize data in different ways, including by different geographic levels, etc. The Contractor shall work with EPA to develop example written content for how selected graphics/visualizations could be used in a report (tells a story) (e.g., annotations within the graphics) and provide support in developing/reviewing web and report content for messaging. Based on EPA feedback, the Contractor shall provide products in different formats (Tableau, D3, static graphics, etc).

During all of the meetings, the Contractor shall demonstrate graphical displays and other data visualization techniques to the EPA. The Contractor and the EPA will have open conversations related to these different data visualization techniques, how they address NARS reporting needs, and other pros/cons. Following each of the meetings, the Contractor shall generate additional ideas and potential ways of presenting data based on these conversations and other COR comments.

The Contractor shall demonstrate the various options in a format of the contractor's choosing or as directed by the COR following meetings/conversations. An initial set of selection presentation graphics/tools for presentation to a wider audience (NARS partners, the EPA management, etc) will be selected by January 31, 2015. The Contractor shall provide all final charts and graphics in Microsoft compatible format (Excel, Word, and PowerPoint) in addition to other formats as appropriate.

As directed by the COR, two or three additional meetings may be scheduled in the spring of 2015 to converse on other NARS datasets and presentation.

The three main deliverables for this Task are:

- Exploratory Meetings with the EPA
- Example/draft data presentations (graphics, charts or other)
- Example report format including selected graphics

| <u>Deliverable</u> | <u>Due Date</u> |
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| 2-1 First Exploratory Meeting | TBD (End of July 2014) |
| 2-2 Second through Fourth Exploratory Meetings | TBD, but approximately two-three weeks after each previous meeting |
| 2-3 Fifth through Tenth Exploratory Meetings | TBD as identified through Technical Direction |
| 2-4 Provide example/draft analyses/presentation/content | At each meeting |
| 2-5 Provide technical assistance on developing graphics/charts | During each meeting |
| 2-6 Selected presentation graphics | January 31, 2015 |
| 2-7 Example Report format/content including selected graphics | February 28, 2015 |
| 2-7 Additionally selected presentation graphics | July 2015 |

and a final interactive dashboard

TASK 3: OUTREACH TO PARTNERS AND STAKEHOLDERS

The purpose of this task is to receive feedback from key partners (NLA steering committee, the EPA management) on the revised presentation formats selected for the NLA and to revise presentation graphics/charts and other tools based on this feedback.

The Contractor shall take part in one NLA Steering Committee Meeting. During the call, the revised format for presenting data will be conversed. The Contractor and the EPA will listen to feedback in order to refine, as needed, presentation materials, graphics, charts, etc. The Contractor shall take notes of all comments and feedback. This call will take place in the first or second quarter of FY 2015.

The Contractor shall take part in 2-3 EPA arranged conference calls with other partner/stakeholder groups. During the call, the revised format for presenting data will be conversed. The Contractor and the EPA will listen to feedback in order to refine, as needed, presentation materials, graphics, charts, etc. The Contractor shall take notes of all comments and feedback. These calls shall take place from January to June 2015.

Following the conference calls, the Contractor shall work with EPA to refine graphics, charts and other materials based on partner/stakeholder feedback.

Deliverable

Due Date

3-1 Notes from each call

With-in four working days of the call

3-2 Revised presentation options/materials

At the next meeting/call with EPA

TASK 4: TRAINING SUPPORT

The purpose of this task is to conduct training for EPA and partners on the use of tools for data visualization. The Contractor shall not begin work on Task 4.A or Task 4.B until Technical Direction is issued by EPA.

- A. The Contractor shall provide training to EPA staff on the use of Tableau for creating data visualizations developed under this Call Order as well as producing them in formats that can be incorporated into EPA materials such as print, presentations, etc. This training may include use of Tableau desktop, Tableau reader, and/or Tableau Public depending on the specific tools available. This training will be held in Washington, DC at EPA for approximately 2-6 staff and will be approximately 4-8 hours in length. This Training will provide background information on data visualization, what has been accomplished through this Call Order, and examples of other possibilities. This training will serve as a test of a portion of the training described under 4.B. In follow-up to the training, the Contractor shall provide support (via calls/emails) to answer EPA questions on using Tableau through the end of the period of performance.

- B. The Contractor shall provide a 1.5 day training for EPA and Partner staff on general data visualization principles and use of Tableau for creating data visualizations, dashboards, and other related topics but will be based in part on 4.A, will describe how to use the dashboard, and provide additional understanding on how to use and interact with the graphics developed as part of this Call Order. The Contractor shall work with EPA to develop the specific objectives and agenda. This training may include use of Tableau desktop, Tableau reader, and/or Tableau Public depending on the specific tools available. This training will be held in Washington DC for approximately 10-15 people and may include a webcast component.

Deliverable

Due Date

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| 4-1 Training for EPA staff | TBD |
| 4-2 Agenda for EPA and Partner training | Within 2 weeks of discussion with EPA |
| 4-3 EPA and Partner training | TBD |