Data Management and Communications Services Request for Quotes (RFQ)

Issue Date: March 20, 2019
Submission Deadline: May 22, 2019
Period of Performance: June 1, 2021 – May 31, 2026*
**Subject to continued funding and annual performance-based contract renewal*

The Southeast Coastal Ocean Observing Regional Association (SECOORA) is a regional non-profit organization based in Charleston, South Carolina and operating in the coastal waters of NC, SC, GA and FL. SECOORA is one of the eleven coastal ocean observing regional associations partnered with the NOAA US Integrated Ocean Observing System (IOOS). SECOORA has established a data management and communications (DMAC) system and is implementing the US IOOS recommended standards-based web services. The SECOORA DMAC plan outlines the current SECOORA DMAC system. SECOORA promotes data interoperability, discovery, efficient aggregation, access, sharing, and visualization for coastal and ocean data (e.g. physical oceanographic, chemical, biological). SECOORA's current DMAC system aggregates data from SECOORA funded observational assets and models. This includes in situ moorings that collect oceanographic and atmospheric data, mobile assets (e.g. gliders), high frequency radar (HFR), regional and sub-regional coastal circulation and water quality models. The data system also aggregates data from federal and non-federal real-time and non-real time coastal ocean datasets (in-situ, satellite, and models) in the SECOORA region. Data and information products are made available in near real time to stakeholders and decision makers via the SECOORA Data Portal and the Data Catalog.

SECOORA's next IOOS cooperative agreement renewal period is June 1, 2021 – May 31, 2026. As part of this effort, SECOORA is soliciting contractors with DMAC qualifications who will present a plan and demonstrate the capability to operate a region-wide, end-to-end integrated DMAC infrastructure as a core component of SECOORA operations. Respondents should demonstrate their DMAC expertise and capabilities, user product development services, and data provider support services. They should also demonstrate how they will build upon or modify SECOORA's current DMAC system and how, using existing tools and products and/or emerging, appropriate new technologies implement a robust, cost-effective and scalable coastal ocean data management system that is compliant with IOOS DMAC requirements.

Respondents should demonstrate a range of capabilities from building a new data management system to expanding/building upon SECOORA's existing data management system/software. Options for continuing or replacing the applications, products, tools and services that are currently offered via the SECOORA Data Portal should be addressed. Past SECOORA IOOS project proposals, progress reports, DMAC funding allocations, and activities being carried out to date are available for access via the Resources section of the SECOORA website.

Respondents will need to include details on the infrastructure and specifications accessible to support this effort. The current total data storage for regional SECOORA models is 3TB and storage for global models and satellite datasets is > 40TB. Real-time, historic, and mobile platform storage is ~800GB.

SERVICES REQUESTED

The SECOORA DMAC contractor must maintain access to, and continue to add data for, over 1485 stations, 6228 variables, 80 models and GIS layers, and data from ships and mobile platforms (e.g. gliders) for over 80 data providers. This requires the contracted DMAC service provider to deliver end-to-end data management support and communication services, building upon the hardware, software, tools and products developed over the past five years, following the national IOOS DMAC Program guidance. This includes the ability to:

- Deliver real-time, delayed-mode and historical data for in-situ and remotely-sensed physical, chemical and biological observations;
- Deliver model-generated output, including both nowcasts/forecasts and hindcasts, to SECOORA and IOOS end users;
- Develop, upgrade and maintain user products and tools as needed;
- Provide technical assistance and support to data users and data providers that enable easier access to and use of relevant data and information; and,
- Maintain the SECOORA website and data portal to ensure an up-time of > 95%.

Proposers must demonstrate how they will address the following services:

1. **Data Ingestion and Repository services**: The SECOORA data management system should provide services to receive, ingest, aggregate and archive near-real-time data streams and historical datasets and serve as a regional Data Assembly Center (DAC). Respondents should demonstrate their experience in working with a variety of data providers (state, federal, academic researchers, NGOs and private industry) and aggregating diverse oceanographic and meteorological datasets in a variety of formats including but not limited to netCDF, XML, KML, CSV, WMS, WFS, SOS, ncSOS, ASCII, SQL and HTML.

2. **Data Discovery, Access, and Delivery**: The primary gateway for the SECOORA data system is via https://portal.secoora.org/. The data are currently accessible via IOOS recommended standards-based web services, the SECOORA data portal, and the data catalog. SECOORA has established IOOS recommended standards-based web services such as ncSOS, WMS, WFS, THREDDS and ERDDAP for data dissemination. The respondents should address their capability to implement or improve the existing web services, or develop new data discovery, access and delivery tools, and share data with other data systems and key partners such as NOAA's National Data Buoy Center (NDBC), National Ocean Service (NOS), and/or the National Centers for Environmental Information (NCEI). The use of standards-based web services allows for the integration

of data and development of tools and web products between regional associations.

3. **Data QA/QC, Archival, and Metadata**: Each of the following must be addressed:
   a. IOOS, together with regional associations and coastal ocean observing organizations and community experts, has developed and released Quality Assurance of Real Time Ocean Data (QARTOD) manuals. Regional Associations are working with data providers to implement QARTOD recommended quality control (QC) tests and flagging schemes for the data they serve. The QC tests and flagging schemes are a part of the data system. Respondents should demonstrate their ability to work with data providers and implement QA/QC flags to data (real-time and non-real time) served via the SECOORA data portal.
   b. IOOS Data Certification requires that the data collected and served via the SECOORA data portal be archived locally, offsite, and at NOAA's National Centers for Environmental Information (NCEI), the permanent archiving facility. The respondents should describe their experience in providing archival services for real-time and delayed mode data sets.
   c. All IOOS data providers are expected to ensure relevant metadata is produced, accessible, and compliant with IOOS conventions, and to participate as appropriate in the development of such conventions. Respondents should describe how they will meet US IOOS metadata standards and requirements.

4. **Technical and product development support**: Applicants should demonstrate capabilities and experience in: developing user products and tools based on user defined requirements, incorporating a mechanism(s) to generate feedback from users; end-to-end data product development including beta testing, refinement and operations; and willingness, flexibility and adaptability to respond to user feedback.

5. **Website and Portal Hosting, System Administration, and Support:** The SECOORA website is the virtual face of SECOORA. The website includes information about SECOORA, events, resources, and other programmatic information as well as the data portal and visualization tools, data products, data catalog, and other applications. Respondents should demonstrate the capacity to host and maintain the full SECOORA website using WordPress.

Required Qualifications, Skills & Experience:

- Data management and programming technical skills, and access to and knowledge of hardware and software systems required for management of coastal and ocean data.
- Familiarity and experience with implementation of IOOS DMAC standards and functionalities is preferred. Must maintain a DMAC plan based on IOOS DMAC requirements and the plan must be made available on the SECOORA website.
- Experience with integration of disparate data sets to develop web-based products and services for SECOORA thematic applications.

- Possess strong communication and interpersonal skills. Must meet virtually with SECOORA staff weekly and participate in in-person meetings with SECOORA staff quarterly. Must be willing to communicate with the SECOORA staff and data providers.
- Dedicated technical personnel to respond to DMAC tasks and the needs of the organization in a timely manner.
- Demonstrate ability to document technical operations and activities as part of the data management plan and assure SECOORA meets RICE certification requirements.
- Experience with service-oriented architecture (SOA) design and implementation.
- Ability to work remotely and interactively with a small, regional staff, and a regionally-distributed technical working group.
- Leadership and collaboration skills; work flexibly with other teams.
- Successful experience in a relevant technical discipline that permits understanding of ocean observing system elements.
- Knowledge of coastal ocean observations, US IOOS, and regional associations is preferred.

RFQ REVIEW PROCESS

Any eligible state agency, university, research institution, NGO or private industry is encouraged to submit applications.

1. SECOORA will convene a review panel of 3-5 participants. The panel may include SECOORA staff, a SECOORA member with relevant expertise, other subject matter experts, and/or an IOOS Program Office representative.
2. Solicitation for qualifications will be sent out via SECOORA's email list and made available on the SECOORA website. Responses must be submitted by 5:00 PM ET, May 22, 2019.
3. The review panel will evaluate the responses to the RFQ and recommend up to three respondents for follow-up interviews.
4. At the conclusion of the interviews, SECOORA will identify their first choice and negotiate a contract for DMAC services.

This is an open and competitive process. SECOORA reserves the right to reject any and all responses received as a result of this process. Any contracts that result from this RFQ are subject to SECOORA's continued IOOS funding and the DMAC contractor's annual performance-based contract renewal.

SUBMISSION OF RESPONSES

Responses should be sent to Jennifer Dorton (jdorton@secoora.org) by 5PM ET, May 22, 2019. The responses should include the following sections:

Technical Proposal (not exceed 7 pages, with one-inch margins and 12- point text in PDF format) shall provide the following information:

- Title/Cover Page: Includes name of applicant organization and principal/co-investigators, contact information, and Year 1 requested funds.
- Introduction/Summary: Provide relevant background information and overview of the proposed scope of work, DMAC experience etc.
- Technical Approach: Provide detailed description of methods and approach to address items 1-5 under Services Requested.
- Management Approach and Qualifications: Describe management structure, identification of key personnel, responsibilities of key personnel, and technical experience.

Required Appendices which do not count towards the 7-page limit:

- CVs of key personnel.
- Documentation of DMAC experience and infrastructure capabilities (not to exceed 2 pages).
- Continuity of operations plan (not to exceed 3 pages) that describes how you will interface with SECOORA and maintain continuity of services so that the SECOORA data portal maintains an operational up-time of > 95%.

Cost Proposal: Year 1 cost proposal (not to exceed 4 pages, with one-inch margins and 12-point text in PDF format). The cost proposal shall address the following cost categories, and provide a basis of estimate for each:

- Labor categories, labor rates, and approximate labor hours for the five technical services outlined in this request. Also include fringe benefits rates and calculations.
- Detailed equipment costs (e.g. servers, hardware) for items over $5,000
- Supplies
- Services (e.g. Cloud computing, software)
- Estimated domestic travel costs including:
    - DMAC team member attendance at the 2-day SECOORA annual meeting and two other regional meetings annually (e.g. FACT meetings, data workshops). These meetings will occur in NC, SC, GA, or FL.
    - IOOS DMAC annual 3-day meeting held in Silver Spring, MD.
    - Other required travel such as quarterly travel to meet with SECOORA staff. One quarterly meeting can be combined with the SECOORA annual meeting.
- Other costs required to complete DMAC services requested in this RFQ.
- Indirect rates applied. Also include a copy of the respondents federally approved indirect cost rate agreement, if available.
- Provide an estimate of costs for years 2-5 including hardware maintenance/replacement costs, cloud services, and identify personnel escalation rates applied.

Questions Regarding Request for Quotes

For any questions related to this solicitation, please contact Jennifer Dorton, SECOORA RCOOS Manager via either email (jdorton@secoora.org) or telephone (910) 443-1708.