



**INTEGRATED COASTAL AND OCEAN OBSERVING SYSTEM (ICOOS)
ACT OF 2009
IMPLEMENTATION PLAN**

ACTIVITY: “DOCUMENT INCLUDES 2 ACTIVITIES:

1. *Committee Activity*
2. *Lead Federal Agency Activity*

ACTIVITY 1: Establish protocols and standards for System data processing, management, and communication;

ICOOS ACT REFERENCE: §12304 (c)(2)(D)

PLAN:

- **Objectives/Milestones:**
 - a. Design a mechanism whereby experts can select and approve data processing, management, and communication protocols and standards.
 - b. Establish a steering team for the purpose of guiding development of the DMAC system. This team will focus on standards and protocol development as a priority item.

- **Execution Plan:**
 - a. Complete a review of current data management and communications.
 - b. Consult with the IOOC on outcomes and results of the formal review to decide on the most effective structure for a steering team.
 - c. Re-charter the current data management and communications steering team to better meet the legislative requirements and other implementation challenges.
 - d. Convene meetings and conference calls as necessary to recommend data protocols and standards adoption and recommend improvements to the System.
 - e. Issue agreed upon data protocols and standards to the IOOC for approval.
 - f. Develop a communications strategy for conveying new protocols and standards to the RICEs.

- **Dependent Activities:** Non-federal enforcement of data protocols and standards is contingent upon provisions in §12304 (c)(2)(E) to develop contract certification standards and compliance procedures.

- **Additional Needs:** N/A

GROUP RESPONSIBLE: Interagency Ocean Observation Committee, Lead Federal Agency

DELIVERABLES: Conduct community survey; Conduct formal review workshop, Draft new charter or terms of reference; Establish updated web presence; Select new steering team members (completed); Elect a steering team chair (completed).

DUE DATE: N/A

OUTSTANDING DECISIONS NEEDED: Approval of the DMAC ST Charter; Selection of new Steering Committee Members (completed).

ACTIVITY 2: “develop and be responsible for a data management and communication system, in accordance with standards and protocols established by the Council, by which all data collected by the System regarding ocean and coastal waters of the United States including the Great Lakes, are processed, stored, integrated, and made available to all end-user communities.”

ICOOS ACT REFERENCE: §12304 (c)(3)(J)

PLAN:

- **Objectives/Milestones:**
 1. Refining existing web services for access/delivery of ocean observation data;
 2. Building an enhanced U.S. IOOS data portal and catalog;
 3. Launching QARTOD (Quality Assurance for Real Time Ocean Data) for U.S. IOOS – a sustainable quality assurance/quality control process;
 4. Implementing DMAC for biological observations in U.S. IOOS regions;
 5. Improving access to animal telemetry observations by establishing data standards; and
 6. Establishing baseline standards for glider operations and data.
- **Execution Plan:**
 - A. Refining existing web services for access/delivery of ocean observation data.**
 - a. Adapting and modifying two open source software solutions to accommodate the IOOS profile and providing them as IOOS reference implementation version 1.0 [Complete]
 - b. Implement and test new services for at least five US IOOS Regions, USACE (Mobile District), and NOAA NDBC and CO-OPS [Spring 2013]
 - B. Building an enhanced U.S. IOOS data portal and catalog.**
 - a. Establishing process to register web services of IOOS data providers [Winter 2013]
 - b. Capacity to aggregate in situ data across multiple data providers [Winter 2013]
 - c. Deploy IOOS Catalog version 3.0 [Winter 2013]

- d. Implement an enhanced system viewer that utilizes IOOS data services [Spring 2013].
- C. Launching QARTOD for U.S. IOOS**
 - a. Publish draft procedures via technical memorandum. [Complete]
- D. Vocabulary Development**
 - A. Develop and register IOOS Platform Vocabulary at MMI [Spring 2013]
 - B. Publish an IOOS Vocabulary Policy [Winter 2013]
- E. Implementing DMAC for biological observations (species, presence, absence and abundance) in U.S. IOOS regions.**
 - a. Implementing existing data standards to improve access to biological observations. [Spring 2013]
- F. Improving access to animal telemetry observations by establishing data standards.**
 - a. Develop standard data services for animal acoustic telemetry observations [Spring 2013]
- G. Establishing baseline standards for glider operations and data.**
 - a. Establish agreed upon standard formats, metadata and other requirements to enable improved and interoperable access to glider observation data [Complete]
 - b. Identify priority issues/challenges associated with operating glider fleets and providing a collaborative process for their resolution [Spring 2013]
- **Dependent Activities:**
 - a. Web services: successful delivery of reference implementation will depend upon evaluation and testing of adapted commercial software.
 - b. Catalog/Registry: Full implementation of these tasks will depend partially on success of web services reference implementation.
 - c. QARTOD: Progress on initial new procedures could be accelerated by resource contributions from other IOOC agencies.
 - d. Glider data standards: Will be driven, in part, by emerging discussions on a national plan for ocean gliders.
- **Additional Needs:** None at this time

GROUP RESPONSIBLE: NOAA/US IOOS/Operations Division

DELIVERABLES:

- IOOS reference implementation web service (Open Geospatial Consortiums Sensor Observation Service)
- US IOOS QARTOD Program initial QA/QC procedure
- Self-registration function in place for US IOOS data portal
- DMAC biological data services in place for two additional IOOS Regions
- Data conventions for animal acoustic telemetry data and associated scalable web services in place for at least one IOOS Region
- Dynamic, web-based National Glider Asset map
- Initial framework for a National Glider Plan describing priority strategies for next steps
- Enhanced IOOS Data Catalog and Viewer

DUE DATE: See Execution Plan and Deliverables above. All tasks to be completed by Sept 2013

OUTSTANDING DECISIONS NEEDED:

- None

COMPLETION SUMMARY:

Completed FY 2012 Activities

- A. Refining existing web services for access/delivery of ocean observation data.**
 - a. Publish an IOOS profile for an existing data model standard that will simplify access multiple types observations data from in situ sensors [Complete]
- B. Building an enhanced U.S. IOOS data portal and catalog.**
 - a. Improved reliability for monitoring registered web services [Complete]
- C. Launching QARTOD for U.S. IOOS**
 - a. Analyze existing QA/QC procedures, including previous QARTOD reports, per IOOS core variables and sensors as part of prioritizing initial targets [Complete]
 - b. Convene subject matter experts to develop consensus QA/QC procedures for at least one priority variable/in-situ sensor combination [Complete]
- D. Implementing DMAC for biological observations in U.S. IOOS regions.**
 - a. Technical training for all IOOS Regions on use of existing web services and tools for organizing and exposing biological observations [Complete]
 - b. Develop requirements for new web services at 2 IOOS regions that will enable access to NOAA Fisheries SEAMAP data base [Complete]
- E. Improving access to animal telemetry observations by establishing data standards.**
 - a. Enable modelers access to historic physical oceanographic data [Complete]