

# Coastal and Ocean Modeling Testbed Notice of Funding Opportunity 2024



# Note

Disclaimer: This webinar provides a general overview of the Coastal and Ocean Modeling Testbed (COMT) Notice of Funding Opportunity (NOFO). Please consult the NOFO for complete details.

The COMT NOFO has been issued by NOAA's IOOS office. Anticipated funding will come from Fiscal Year 2024-2027 funds. The deadline for proposals is February 26, 2024.

## Webinar Logistics

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(US) +1 929-277-6393 PIN: 767 481 916 #
- Please note a recording and transcript of this webinar will be posted on  
<https://comt.ioos.us/>



# Outline

- I. Funding Opportunity Description
- II. Program Priorities
- III. Eligibility
- IV. Requirements
- V. Award Information
- VI. Application and Submission
- VII. Evaluation Criteria
- VIII. FAQs

## I. Funding Opportunity Description

- The IOOS Coastal and Ocean Modeling Testbed (COMT) is an effort to transition prototype ocean, coastal, & Great Lakes models, modeling tools & techniques, products, & data management advances to operations.
- Operational model is defined as the actual application of the technology in its final form and under mission requirements.



## II. Program Priorities

### **Advancing the Coastal Component of the Unified Forecast System**

- Improvements to temperature and salinity predictions
- Improvements to nearshore ocean dynamics (for example, wave friction parameterization, internal waves and freshwater influences)
- Development or improvement of models that accurately capture ocean dynamics of the continental shelf especially for areas of ecosystem or economic value (for example, estuaries and ports)
- Geographic expansion of coastal models to complement the existing operational suite
- Development of National Unified Operational Prediction Capability (NUOPC) to couple coastal and ocean models with other model components including the National Water Model, WaveWatch III, CICE ice model, and FV3 atmospheric models
- Enhancing the capability of the NOS operational models to assimilate all ocean and coastal observations using the JEDI framework

## II. Program Priorities

### Coastal Resilience and Ecosystem Modeling

- Advancements to BGC models to support ocean acidification, pollutant transport, harmful algal bloom, parasite, and bacteria predictions
- Efficient approaches to couple regional ecosystem, estuary and marsh models with existing UFS physical modeling frameworks (ROMS, FVCOM, SCHISM) and the National Water Model V3/NextGen
- Evaluation of marsh models for accuracy and performance through reanalysis/hindcasting, skill assessment, and/or development of performance metrics for sites of various geographies and environmental conditions

The overarching goal of this priority is to help coastal communities better assess risks associated with changing ecosystems and plan for the future by advancing models and improving prediction accuracy



## IV. Requirements

- Applicants to this topic must **demonstrate** that NOAA, IOOS Regional Associations, and / or other potential **operational hosts are integral to the transition activities.**
- Applicants should **identify intended end users** of the model or product that will be evaluated in the Testbed.
- **Commitment from operators (those that will sustain/maintain the model) and end users** is critical to the eventual success of each project and the transition and adoption of the models, tools or forecast products for sustained use. A successful project will involve operators and practitioners, to the fullest extent possible, from the beginning of the project.
- The applicant must show a clear path for further developing the partnerships and opportunities for transfer throughout the course of the project.
- Applicants are expected to **commit to developing a draft transition plan**
- Applicants are expected to show how projects will engage in the COMT to meet its mission and vision.
- **Proposals should include a minimum of two investigators, a Scientific Principal Investigator and an Transition Principal Investigator (which have been Regional Association Directors, NOS Modeling leads, or members of the modeling community playing a key role in transitioning a model to operations).**



## IV. Requirements

In order to ensure transition of management tools to application, the duties and responsibilities of the two PIs are presented below:

**Scientific Principle Investigator:** will **coordinate research** and modeling activities, such as:

- Data management
- Development and validation of models
- Development of tool prototypes
- **Working with Transition PI** to refine and develop models or tools based on input from end users.
- Identify the transition metrics that are used to measure progress toward transition.

**Transition Principal Investigator:** will be responsible for activities related to transitioning the research information and tools toward operational application, such as:

- Developing application concept based on stakeholder outreach;
- **Coordination and communications with the operator and end user groups**, ensuring continuous engagement in project activities (meetings, workshops), and outreach of project results;
- **Ensuring that the milestones representing transition of research to operations are met.**
- Enabling collaboration within projects and between COMT project teams to improve COMT and the impact and value of the technical projects done within it.



### III. Eligibility

- Eligible funding applicants are higher education, nonprofit and for-profit organizations, and State, local and tribal governments.
- Federal agencies or institutions and foreign governments may not be the primary recipient of awards under this announcement, but they are encouraged to partner with applicants when appropriate.
- Cost Sharing or Matching not required.
- **Applicants must include at least one IOOS Regional association partner to qualify, and must contact them at least 30 days prior to application deadline.**



## V. Award Information

- **Total estimated funding for all awards is up to \$ 1.5 million per year from the U.S. IOOS Program and partner program within NOAA.**
- **Multiple awards are anticipated, subject to availability of funds, in amounts up to \$300,000 per year.**
- **Proposals may be submitted for a duration of up to 5 years. However, funding will be provided in years 4 and 5 only to those projects that require model development and testing activities required for transition to an operational framework.**
- **The number of awards is anticipated to range from approximately three (3) to five (5), and will be adjusted based on availability of funds.**
- **Proposals not funded in the current fiscal period may be considered for funding in the next fiscal period (Fiscal Year 2025) without NOAA repeating the competitive process outlined in this announcement.**

Disclaimer: There is no guarantee that funds will be available to make awards for this Notice of Funding Opportunity or that any proposal will be selected for funding.



## VI. Application and Submission

- The **proposal narrative must total no more than 20 pages** (double-spaced, 12-point font).
- The 20-page limit does not include the proposal title page, a table of contents, the data sharing plan, the project summary and any required appendices.
- **Appendices should be limited to 30 pages** and should be materials that directly support the main body of the proposal
- **Applicants should present their work plan in priority order and identify options for scalability such that if less money is available than is requested the process of modifying proposals is simplified.**



## VI. Application and Submission

All funding application packages must have:

### a) Title Page (Proposal Cover Sheet)

- Include proposal title, complete contact information for the Principal Investigator and Financial Representative, duration of proposed project, funding type, applicant type and funding request.
- If funds are to be transferred to a NOAA partner on the project, also state the amount to NOAA on the cover.

### b) Project Summary

- Project Name/Title
- Primary Contact (name, address, telephone, fax, e-mail)
- Primary Recipient Institution
- Other Investigators (name, affiliated institution or agency)
- Brief Project Summary including objectives and intended benefits
- Partners

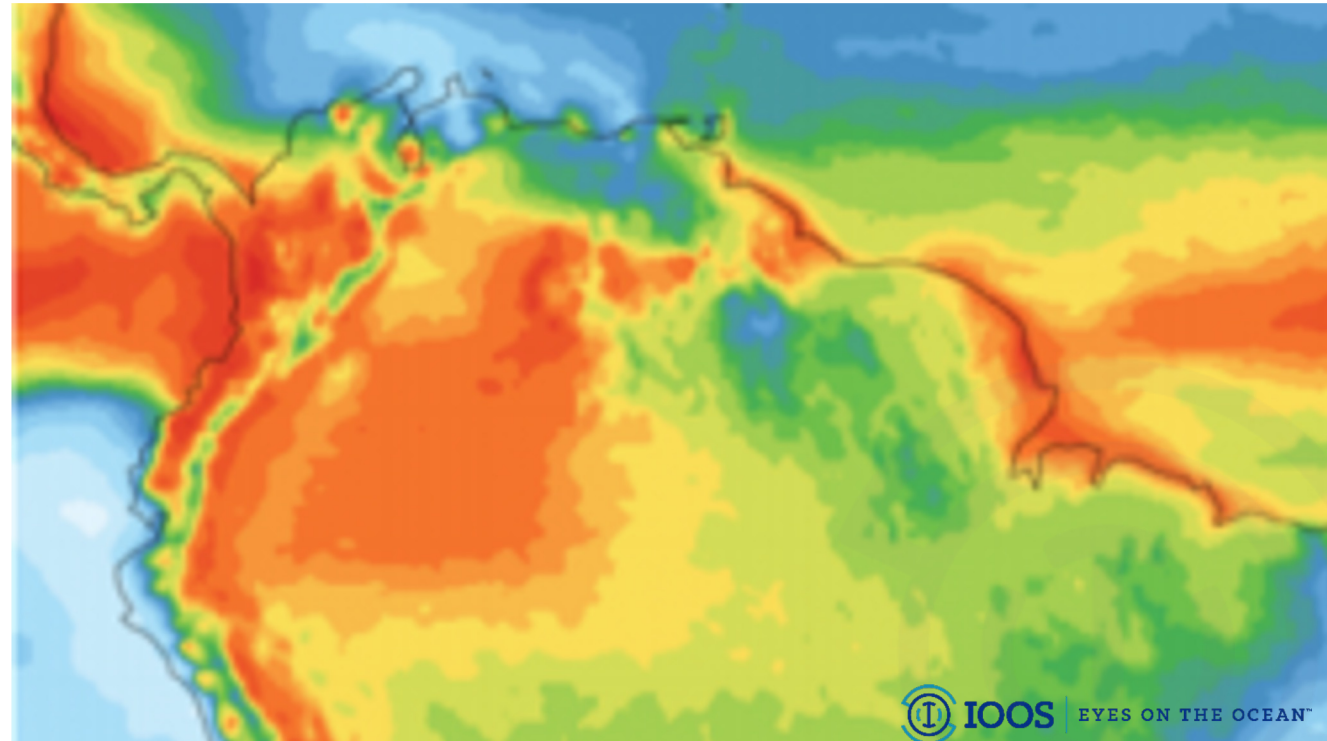


## VI. Application and Submission

### c. Project Description

#### 4. Approach:

- Provide a work plan that: identifies specific tasks; explains the technical approach (including quality assurance); identifies partner roles and contributions, including resources; and identifies potential obstacles
- Describe how end-users are involved in the planning and design process.
- Provide a data management plan, name one data manager point of contact (POC), and include plans to identify and disseminate at least one data set per year.
- Roles, responsibilities and contributions of Federal partners must be clearly identified.
- Benefits. Identify the users of the information derived from the work, and the benefits that will be achieved for users and society as a whole.



## VI. Application and Submission

### c. Project Description

#### 1. Goals and Objectives:

Goals and objectives should be specific for each year of the work plan presented

#### 2. Background:

Provide sufficient background information for reviewers to assess independently the significance of the proposed project.

#### 3. Audience:

Identify specific users of the results of the project, describe how they will use the results, and identify any training needed



## VI. Application and Submission

### c. Project Description

#### 5. Milestone Schedule:

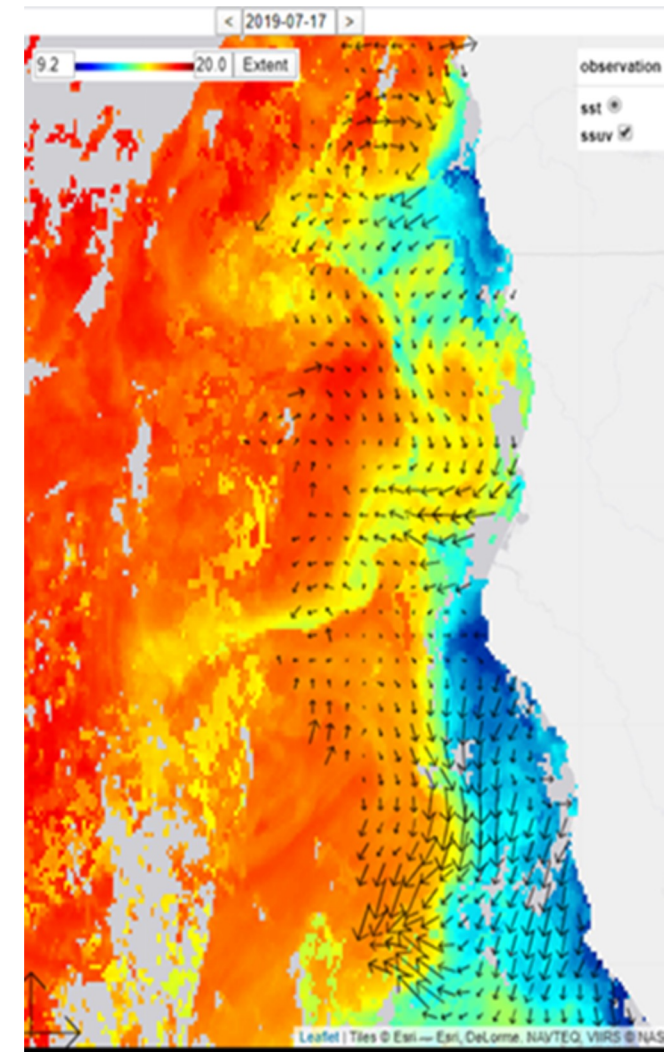
Display timelines for major tasks, target milestones for important intermediate and final products including deliverables and key project outcomes. Milestones should include expected readiness level achievements.

#### 6. Readiness Level:

**Identify the current Readiness Level (RL) of the models or techniques and how far they expect to advance in RLs through the project period. Clearly state how this funding will aid in the advancement and potential for transition into NOAA operations.**

#### 7. Project Budget:

Provide a budget description that follows the categories and formats in the NOAA grants package (SF-424A) and a brief narrative justification of the budget. An SF-424A must be submitted for each year of the project as well as for each subcontract. The budget narrative must also provide detailed information on travel, and a justification of how the requested travel is directly relevant to the successful completion of the project.





## VI. Application and Submission

### d. Appendices

#### 1. Resumes:

Provide resumes of the Principal Investigator for the project and other key personnel critical to the success of the project. Ensure that resumes address qualifications relevant to conducting the proposed work.

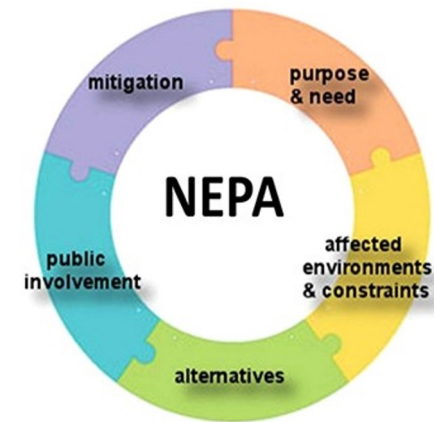
#### 2. Detailed Budget:

Include budgets of subawards and contracts, detailed information on travel, etc. Information should include the names of all entities receiving funds, the locations of work and of the entities receiving funds,.

In this appendix, the budget narrative also shall clearly identify the priority and cost of separable elements of the proposed work, and shall identify the elements of the project that the cooperator would recommend for revision or elimination in the event that sufficient funding is not available for all proposed activities.

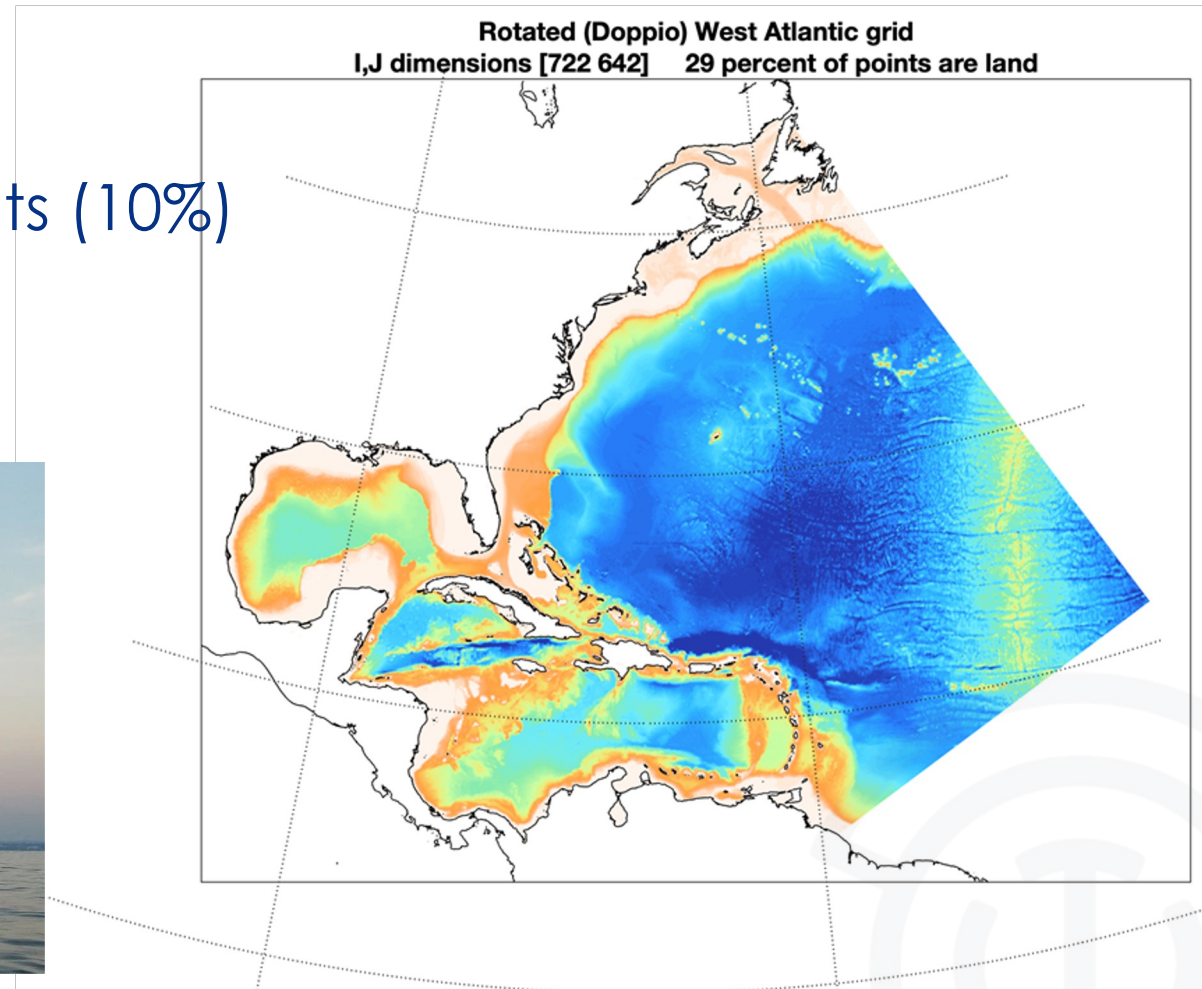
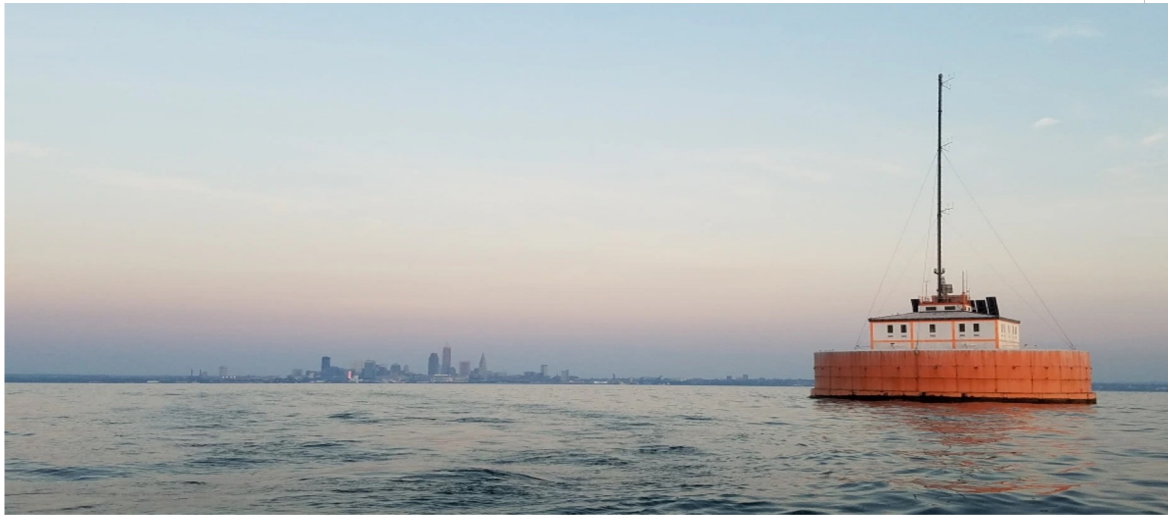
#### 3. National Environmental Policy Act (NEPA):

NOAA must analyze the potential environmental impacts, as required by the National Environmental Policy Act (NEPA), for applicant projects or proposals that are seeking NOAA federal funding opportunities.



## VII. Evaluation Criteria

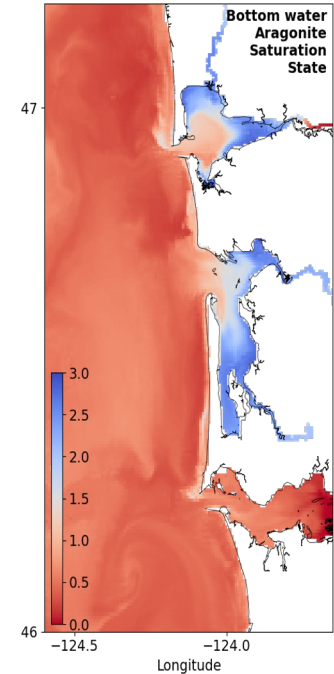
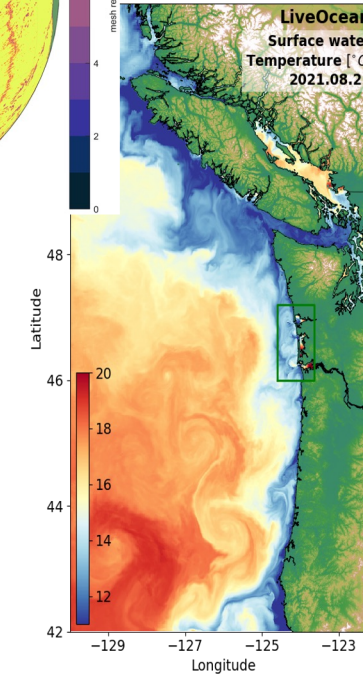
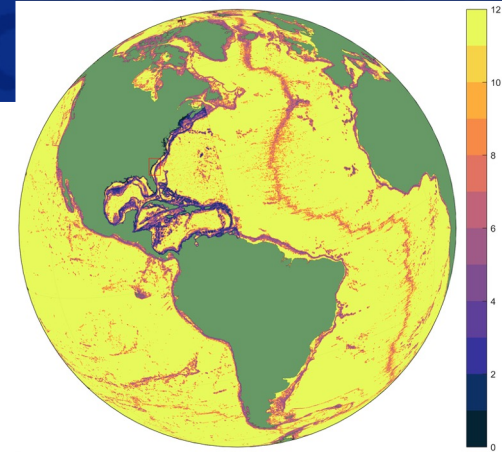
1. Importance/Relevance and Applicability of Application to the Project Goals (35%)
2. Technical/Scientific Merit (30%)
3. Overall Qualifications of Applicants (10%)
4. Project Costs (10%)
5. Outreach and Education (15%)



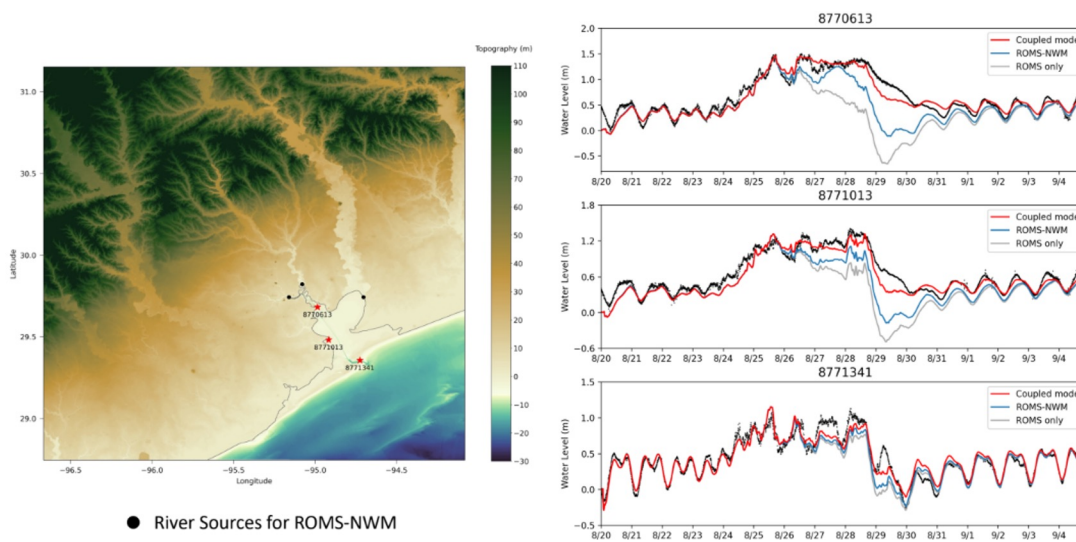
# VIII. Funded Projects

## Current Projects

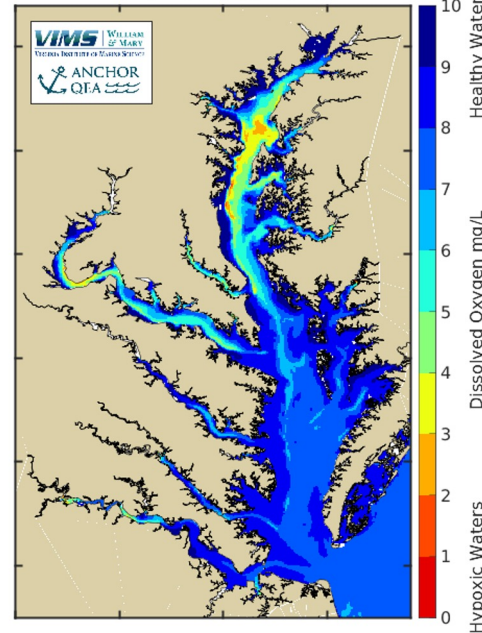
- [Chesapeake Bay Environmental Forecasting System](#)
- [LiveOcean Model Enhancement](#)
- [Multi-Physics Water Level Modeling From Global to Meter Scales](#)
- [Data Assimilation Algorithms for U.S West and East Coast OFS](#)
- [Coupled Ocean Modeling Testbed Platform](#)



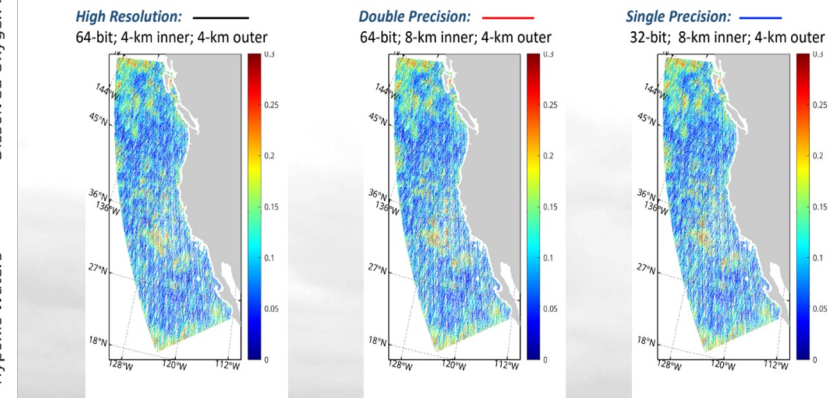
Fully Coupled model vs. Linked "one-way" coupling vs. ROMS only



Bottom Oxygen: Nowcast November 13, 2023



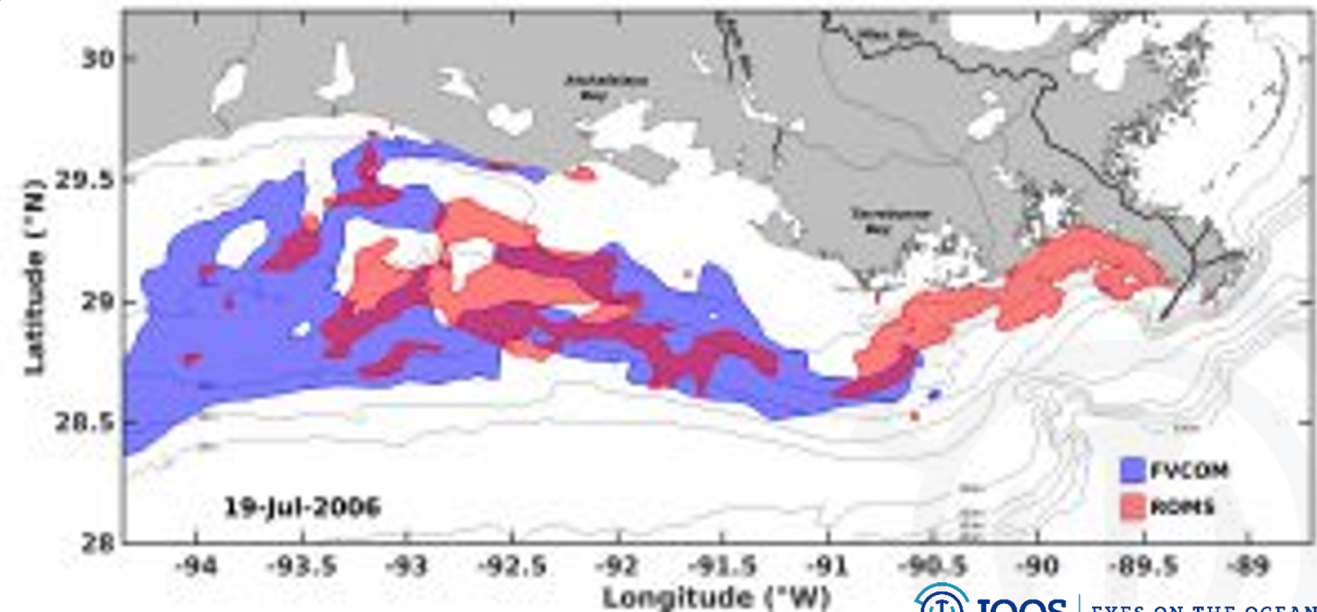
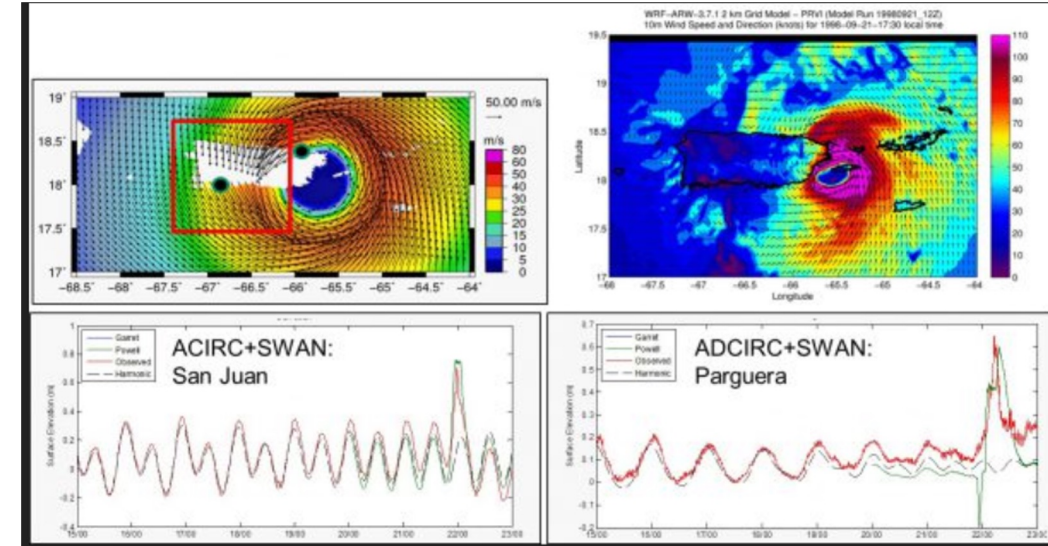
RMS difference between 4D-Var Analyses and Observations (all cycles): SSH (meters)



## VIII. Funded Projects

### Past Projects

- [Coastal Waves, Surge and Inundation in the Gulf of Maine](#)
- [Coastal Waves, Surge and Inundation in the Gulf of Mexico](#)
- [Coupling the National Water Model to the Coastal Ocean](#)
- [Northeast Coastal Ocean Forecast System \(NECOFS\)](#)
- [A Unified Framework for IOOS Model Data Access](#)
- [Advancing the West Coast Ocean Forecasting System](#)
- [Operational Forecast System for the Salish Sea](#)
- [Chesapeake Bay Hypoxia](#)
- [Gulf of Mexico Hypoxia](#)
- [US West Coast Model Intercomparison Project](#)
- [Puerto Rico/ U.S. Virgin Islands Inundation](#)
- [Cyberinfrastructure](#)



## Take aways...

- A successful project will involve operators and practitioners, to the fullest extent possible, from the beginning of the project.
- This is a transition program and our focus is on products that are to be transitioned to operations within NOS. However, there are other programs within NWS, the IOOS RAs, or other federal agencies who have operational responsibilities and the development, and sustained operations of those models are essential to meet NOS mission priorities.
- Clearly state readiness levels and expectations of final readiness level as described in SF-424A linked to the NOFO

## FAQs

A full list of FAQs is available: <https://ioos.noaa.gov/about/funding-opportunities/>

### How does the COMT program define operational?

Within NOAA, the transition of research to operations is governed by a NOAA Administrative Order ([NAO 216-105B](#)). This NAO defines Operational as “**Sustained, systematic, reliable, and robust mission activities with an institutional commitment to deliver specified products and services.**” The key element for determining the likelihood of success for a transition project is an institutional commitment on the part of the operating institution. COMT aims to transition projects for operations within NOS, other parts of NOAA such as NWS, other federal or state agencies, or IOOS Regional Associations.

## **Can NOAA employees or other Federal Agencies receive funds as long as they partner with non-Federal entities and use these funds for research/modeling operations?**

Federal agencies or institutions and foreign governments may not be the primary recipient of awards under this announcement, but they are encouraged to partner with applicants when appropriate.

If an applicant has a partner(s) who would receive funds, the lead grantee will be expected to use subcontracts or other appropriate mechanisms to provide funds to the partner(s). If a partner is a NOAA office or laboratory, the IOOS office will transfer funds internally. IOOS will transfer the funds to a NOAA office or laboratory internally via a budget operating plan (BOP).

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**With the requirement to “demonstrate that that IOOS Regional Associations(RA) and/or other potential operational hosts are integral to the transition activities,” do we have to fund RAs? Also, what does ‘RA’s should be integral to transition activities’ mean?**

No, you are not required to provide funding to the RAs but you must meet the guidance in the NOFO for partnership/engagement.

The language in the NOFO states "Applicants to this topic must demonstrate that IOOS Regional Associations and / or other potential operational hosts are integral to the transition activities," so it is really up to you to define how you will integrate or include your targeted RAs in your proposal.



What are the RAs? U.S. IOOS is comprised of eleven regional associations (RAs), which guide development of and stakeholder input to regional observing activities. The RAs serve the nation's coastal communities, including the Great Lakes, the Caribbean and the Pacific Islands and territories.

<p><i>"We are tied to the Ocean. And when we go back to the sea, whether it is to sail or to watch - we are going back from whence we came."</i> - John F. Kennedy</p>	<p><b>Alaska</b> The Alaska Ocean Observing System (AOOS) is the U.S. IOOS regional association for Alaska.</p>	<p><b>Great Lakes - GLOS</b> The Great Lakes Observing System (GLOS) is the U.S. IOOS regional association for the Great Lakes.</p>	<p><b>Northeast Atlantic - NERACOOS</b> NERACOOS spans coastal waters from the Canadian Maritime Provinces to the New York Bight.</p>
<p><b>Pacific Northwest - NANOOS</b> NANOOS is the Regional Association in the Pacific Northwest for the States of Washington and Oregon.</p>			<p><b>Mid-Atlantic - MARACOOS</b> The Mid-Atlantic Regional Association for Coastal Ocean Observing System (MARACOOS) spans the coastal states from Cape Cod to Cape Hatteras.</p>
<p><b>Central and Northern California - CeNCOOS</b> CeNCOOS is our regional observing association for the California/Oregon border south to Point Conception</p>			<p><b>Southeast-Atlantic - SECOORA</b> The Southeast Coastal Ocean Observing Regional Association (SECOORA) is the U.S. IOOS regional association for the Southeast U.S.</p>
<p><b>Pacific Islands - PacIOOS</b> PacIOOS is our regional observing association in the Pacific region, from the Hawaiian islands to Micronesia</p>	<p><b>Southern California - SCCOOS</b> SCCOOS is our Regional Association that provides coverage in California from Point Conception south to the Mexico Border</p>	<p><b>Gulf of Mexico - GCOOS</b> The Gulf of Mexico Coastal Ocean Observing System (GCOOS) is the U.S. IOOS regional association for the Gulf of Mexico</p>	<p><b>Caribbean - CARICOOS</b> The Caribbean Regional Association for Coastal Ocean Observing (CARICOOS) is the regional association for Puerto Rico and the U.S. Virgin Islands.</p>



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**We are targeting a federal organization for our operational host, do they need to be our Transition PI?**

No, they do not need to be, but can be if they choose to. Use the Transition PI responsibilities outlined in the COMT to determine an effective Transition PI

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**There seems quite an emphasis on transition to operations rather than testing models that could be built for operations. Is that a fair summary?**

Not necessarily. This NOFO is targeting projects in RL 4-7 that advance at least 2 RLs. The [NOAA Administrative Order \(NAO\) 215-105B](#) (referenced in the NOFO) specifies that end users/operators should be identified as early as RL 4, so this NOFO also follows that guidance with an emphasis on appropriate transition to operations engagement early in the project development and testing. Applicants should still specify what RL they will be starting and advancing to and how they establish those RLs for their projects based on the guidance in the NAO.

**Are there any available cloud or HPC resources available for testing and development?**

## IOOS Cloud Sandbox



Access



Collaboration



Ease of  
Use



Minimize Cost



Community

- Provide easier access to abundant compute resources in the cloud
- Provide a collaborative environment for community development of models
- Easily deployable and reproducible compute environments
- Flexible workflow that creates compute nodes on demand to minimize costs
- Open-source to encourage community contribution: <https://github.com/ioos/Cloud-Sandbox>

Contact [Patrick.Tripp@TetraTech.com](mailto:Patrick.Tripp@TetraTech.com) or [Tiffany.C.Vance@NOAA.gov](mailto:Tiffany.C.Vance@NOAA.gov) for more information.

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**Questions?**