FRAMEWORK

	IOOS Priority	Satisfies Priority Target Audience Needs			Year 1 %	Year 2 %	New allocation				
Subs. #1: Observing subsystem (Platform Types / Sensor - Parameter)											
Fixed Platform (shore stations)					$ 99,743 (10%)	$53,405 (5%)					
Fixed Platform (moored buoys)					$ 482,499 (51%)	$465,313 (42%)					
Fixed Platform (moored buoy UNCW/NDBC)						$40,000					
Mobile Platform (Gliders, profilers and drifters)					$0	$0					
HF Radar (Land based Radar)	X				$ 367,843 (39%)	$600,001 (53%)					
Satellite and aerial Remote sensing											
Total Allocations for observing subsystem					**$950,085 (47%)**	**$1,158,719 (51%)**					
Physical /Meteorological					100%	100%					
Chemical					$0	$0					
Biological					$0	$0					
Geological					$0	$0					
Subs. #2: Data Management and Communications											
DMAC Infrastructure Maintenance					X	X					
Data assembly and delivery center operations					X	X					
Data provider and end user services					X	X					
Products development support services					X	X					
Total Allocations for DMAC subsystem	X				**$286,095 (14%)**	**$289,022 (13%)**					
Subs. #3: Governance											
Board and Member Meetings					X	X					
Staff / Operations					X	X					
Development (proposal writting, member recruitment)					X	X					
Grant Management					X	X					
PI Coordination					X	X					
Outreach (Congressional, Staff attendance at National meetings,etc.)					X	X					
Total Allocations for Governance subsystem	X				**$211,246 (10%)**	**$422,881 (18%)**					
Subs. #4: Modeling subsystem											
Atmospheric Models											
Circulation Models					34%	31%					
Storm Surge Indundation Models					42%	42%					
Wave Models											
Hydrological Models											
Sediment transport models											
Water Quality/Ecosystem Models											
Fisheries Models					18%	18%					
Statistical Models					6%	9%					
Total Allocations for Modeling subsystem					**$448,949 (22%)**	**$416,202 (18%)**					
Subs. #5: Education and Outreach (or RD rename to STAKEHOLDER AND USER ENGAGEMENT)											
K-12 Education Products					X						
Non- K-12 Education Products					X						
Stakeholder outreach					X						
Total Allocations for E&O subsystem					**$134,771 (7%)**	**$0**					
Subs #6: Research & Development											
Research and Pilot Projects											
Sensor devlopment projects											
Total Allocations for R&D subsystem						**$0**					
Subs #7: Product Development											
Obs & Model data visulaization via SECOORA web site											
User defined products and decision support tools											
Total Allocations for Product Dev. subsystem						**$0**					
GRAND TOTAL					**$2,031,146**	**$2,286,824**					

SECOORA Regional Coastal Ocean Observing System (RCOOS) Terms and Definitions (Subsystems mentioned in framework document = Subcomponents in the survey)

Observing subsystem: Observing subsystem consists of real-time and non-real-time marine enviornmental measurements (physical, meteorological, chemical, biological and geological) from sensors mounted on platforms such as shore stations, moorings, HF Radar, mobile platforms (gliders, profilers, drifters), aerial and satellites. This subsystem also includes asset management and optimization studies.

Data Management and Communications (DMAC) Subsystem: Data Management and Communications subsystem consists of IT infrastructure (hardware, software and software professionals) that assembles, aggregates, implements QA/QC, enables interoperability and delivers data in OGC Geospatial web services. This includes observations, model and data products. Activities include recruiting data providers, managing data providers, standards management, data assembly center operations, data delivery services, and hardware infrastructure maintenance.

Modeling subsystem: SECOORA has subregional to regional scale modeling capability within the SE region which include: nesting of very high-resolution inner shelf and estuarine models; the coupling of dynamical models (coastal mesoscale meteorological, coastal hydrological, and coastal wave models); the coupling of application models (e.g., eco system, sediment transport, and wave models); and the utilization of advanced numerical modeling methods (e.g., data assimilation schemes, non-hydrostatic models, and unstructured and adaptive grids). SECOORA model data and products will be served to stakeholders and end users.

Governance subsystem: SECOORA governance subsystem consists of administrative, i.e. human resources, and fiscal management, RCOOS projects coordination and management, member, board, IOOS and NFRA support, communications, education and stakeholder engagement, and program development.

Education and Outreach Subsystem: The primary focus of the E&O subsystem is to engage formal and informal education audiences and stakeholders regarding observing technologies, data, products, and services.

Product Development subsystem: Our overall goal for product development is to integrate the rich data set of remotely sensed, in situ, glider, and model-derived data captured in all of the other subsystems for delivery to multiple stakeholders and decision-makers. Our approach to developing end-use applications begins with the identification and engagement of local, regional and national partners who have articulated a need that can be addressed through coast and ocean observations or predictions. These partners are engaged to develop product specifications that guide the product/service development effort. End-users participate in the design, development and validation of such products. Every product or service has a clear linkage to specific customers and to specific SECOORA-supported observation, model or prediction data

Research and Development subsystem: R&D subsystem includes both the identification of R&D needed to fulfill a societal goal as well as the participation in R&D to fulfill that need.

1) Identification of R&D needs – this includes the identification of R&D required to fulfill user needs.
2) Research project – a project that is designed to produce new scientific knowledge or understanding, technology, or model and the associated methodology
3) Pilot project – a project designed to demonstrate the feasibility of a routine, sustained observing application
4) Pre-operational project – a project that demonstrates the proof of concept, including the value added and cost effectiveness of an observing application

This subsystem also includes coordination of R&D programs, technical assessments, and technology enhancements.

Fixed Platforms: Single purpose buoys (e.g., waves only, tide gauges, stream gauges); Shore stations; Offshore platforms; Multi-purpose buoys/moorings; Profiling buoys

Mobile Platforms: Gliders; AUVs; Ships; Beach Transects; Drifters ; AXBTs

Remote Sensing: a. Space-based - sensors on satellites; b. Airborne - sensors on airplanes such as LIDAR and hyperspectral; c. Land-based – HF Radar

Observed Variables (* are IOOS Core Variables identified in Blueprint Assessment)

Physical: temperature*, salinity*, pressure, surface currents*, currents at depth, surface waves*, sea surface height, water levels* (this includes lake level and sea levels), freshwater flows, ice distribution*, optical properties*, heat flux*, ocean color/optical properties*

Meteorological: wind speed and direction*, air temperature, barometric pressure, precipitation, humidity, visibility

Chemical: nutrients (organic and inorganic, dissolved* and particulate), dissolved oxygen*, contaminants*, partial pressure of carbon dioxide (pCO2)*, acidity (pH)*

Biological: dissolved organic matter; phytoplankton species and abundance*, zooplankton species and abundance*, fish species and abundance*, sea turtles and marine mammals; extent and condition of benthic habitats; pathogens*

Geological: bathymetry*, bottom character*, suspended sediments (total suspended matter*), turbidity, stream flow*

Model Details

a. **Atmospheric models** - produce estimates of the tropospheric and surface conditions (e.g., WRF, MM5)

b. **Circulation models** - produce estimate of the ocean circulation, for deep ocean, shelf, coastal and estuarine areas (e.g., ROMS, POM, HYCOM, NCOM, NLOM, FVCOM, layered models, etc.)

c. **Inundation models –** specialized application of shelf/coastal/estuarine circulation models to focus on coastal hazards and represent the movement of water onto land due to flooding (e.g. ARCIRC, FVCOM, SLOSH).

d. **Wave models** - produce estimates of surface gravity wave fields. Used for marine forecasts and as part of inundation/erosion models (e.g., SWAN, WW3, STWAVE etc.)

e. **Hydrologic models** - watershed and riverine models that produce estimates of transport of water and water-born material from the land into estuaries

f. **Sediment transport models** - produce estimates of the movement of sediment (suspended and bedload) in ocean or estuarine settings (ROMS sediment model, etc.)

g. **Water Quality/Ecosystem models** - produce estimates of water quality, primary productivity and biomass, ecosystem productivity and health, water quality, CO2 uptake, etc (NPZD, Nemuro, LTRANS, etc.)

h. **Fisheries models** – can be either higher trophic level representations in an ecosystem model or individual based models that assume behavioral particles, coupled with circulation and possibly water quality/ecosystem models.

i. **Statistical surface current prediction** – Short Term Prediction System (STPS)– uses HFradar input and produces a 24 hour forecast

j. **Statistical water quality model** – uses varied inputs to predict harmful pathogen levels in shellfish areas

k. **Statistical rip current forecast** – uses surface wave information to estimate the likelihood of dangerous rip currents