

Position Paper for ESRI Oceans Summit

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GIS and Coastal Interests

The mission of Rutgers University's Center for Remote Sensing & Spatial Analysis (CRSSA) research program is to advance the development and application of geo-spatial information science and technology (GIS&T) to address issues in land use planning, natural resource management, agriculture and the environment. Over the past twenty years, CRSSA has completed a number of research and outreach projects that have employed the application of GIS&T to promote sound planning and conservation of coastal and marine resources. Building on this activity, CRSSA, is working collaboratively with the Rutgers Institute of Marine & Coastal Science, the Jacques Cousteau National Estuarine Research Reserve, and a number of federal, state and local partners. A USEPA-funded project entails multi-disciplinary modeling and analysis to assess the implications of coastal zone land use on eutrophication of coastal waters and estuarine ecosystems. With funding from NOAA, we are developing geographically targeted web-based decision support tools to help municipalities and state agencies assess the implications of sea level rise on human infrastructure and natural resources. Working with the MidAtlantic Regional Council on the Ocean (<http://www.midatlanticocean.org/>) and a number of partners (EcoTrust, the Nature Conservancy, Monmouth University) we are developing the Mid-Atlantic Ocean Data Portal as an online tool that allows state, federal, and local decision-makers and the public to visualize, query, map, and analyze ocean and coastal data in the Mid-Atlantic region.

Ocean GIS issues of concern

In developing the MARCO Ocean Data Portal, we are working with a slew of different types of GIS data from a host of sources. It is a challenge managing all these data files of varying formats, provenance and iterations. We then serve these data to the web mapping application developed using open source software, Open Layers. Internally, we store the data using ESRI geodatabase servers in a rather ad hoc, piecemeal fashion. We are presently exploring the potential utility of the ArcMarine Data Model as a means to develop a coherent structured organization.

Another issue is how to incorporate temporally dynamic ocean observation data into the MARCO Ocean Data Portal. The bulk of the existing data layers are more temporally static, i.e., administrative boundaries, lease blocks, shipping lanes, etc. We are moving to include derived satellite and buoy products that of weekly to daily to hourly time intervals.

Bottom line technology needs:

- Organizing and storing varied and complex data types
- Serving the above data to the web

Ways Esri can better support ocean science and management

- Continue to develop the ArcMarine Data Model (or something of the sort) and assist potential users in its application