

**Dg.0 2004 Demo:**

*“The Oregon Coastal Atlas:  
A Pacific Northwest Coastal Information  
Management System”*

**Authors:** Tanya Haddad (State of Oregon Ocean-Coastal Management Program), Michele Dailey (Ecotrust), Dawn Wright (Oregon State University, Department of Geosciences)

**Website:** <http://www.coastalatlus.net>

**Introduction**

The Oregon Coastal Atlas, a collaboration of the Oregon Ocean-Coastal Management Program, Oregon State University and Ecotrust, is an interactive map, data, and metadata portal for coastal resources managers and scientists, with additional outreach sections for the general public. The portal enables users obtain data, but also to understand its original context, and to use it for solving a spatial problem via online tools. The design of the atlas draws from the reality that resource decision-making applications require much more than simple access to data. Resource managers commonly make decisions that involve modeling risk, assessing cumulative impacts and weighing proposed alterations to ecosystem functions and values. These decisions involve pulling together knowledge from disparate disciplines such as biology, geology, oceanography, hydrology, chemistry and engineering. Practitioners within each one of these disciplines are often vested in the technologies that dominate the market within their particular field. This presents significant data integration difficulties for investigators involved in management decisions that are as inherently interdisciplinary as those in the coastal zone. The goal of our proposed effort is to address these problems by incorporating a variety of geospatial data and analysis tools within a common framework. End-user training and direct technical assistance are incorporated into the development of the system, as are back-end system maintenance tools to ensure system longevity. In this way, we seek to improve universal participation in coastal decision-making among communities by extending infrastructure to public offices that would otherwise face difficulties accessing these services and resources.

**Impact**

The current research employs intensive research partnerships across the disciplines of coastal oceanography, geographic information science, natural resource management and computer science, and addresses problems in coastal hazards management, watershed assessment, and protection of ocean areas (sanctuaries, no-take zones, marine protected areas). Each of these applications needs much more than simple access to data catalogs. The data difficulties experienced by local level decision-makers are commonly a result of combinations of limited time, access to data sources, technology platforms, physical media or training. The common outcome is that resource decisions are often made with whatever information is readily at hand, regardless of whether it represents a full and accurate picture of relevant status. Staff time at the local level is often in such short supply that it is highly unrealistic that significant "data mining" and conversion be expected to occur to alleviate this problem. Dg.O funding has made possible the integrated approach that is now overcoming this. With the Oregon Coastal Atlas we are developing the computational infrastructure needed to support data sharing, but also spatial analysis tools and increased use of up-to-date geo-spatial resource data in local coastal management decision-making.

## **The Demo**

The Oregon Coastal Atlas offers users 4 main functional areas: "Search", "Learn", "Tools", and "Map". The intention is for users to be able to look for and find data pertaining to a particular enquiry, to understand the original context of the data, and to be able to put selected data to use via online tools in order to help solve a question. Major content is always made accessible through multiple paths to accommodate different types of audiences/searchers. All functions occur via a unified and highly cross-linked interface that helps provide an intuitive workflow and seamless user experience.

Under "**Search**", the ability to find data and information is enabled both via traditional query forms (e.g., for keyword, scale, source, etc.) and by "area of interest" selection via a map interface. Both geospatial data (e.g. Arcview shapefiles) and non-geospatial information (eg. bibliography entries, online documents) can be returned from a single search. All GIS data returned is documented to the FGDC metadata standard and all metadata records co-reside in an NSDI searchable node making them retrievable to any user with an NSDI client.

The "**Learn**" section provides access to background information on both Coastal Systems such as estuaries, sandy shores, rocky shores, and ocean areas, and Coastal Topics such as hazards, public access, fisheries, processes, etc. The format allows for descriptive narrative, static images, and animations, and cross-links whenever possible with relevant datasets available in the archives. Similarly, the "**Tools**" section of the website will provide specific interactive tools for viewing and utilizing archive data to solve directed topic-based questions (e.g., will a certain property be inundated in a 20-year storm during an El Nino year?). Each tool will be cross-linked with a topic-based help tutorial that will also be accessible from the "Learn" section. Featured tools include the Coastal Erosion Suite (consisting of Overtopping Hazards, Undercutting Hazards, and Bluff Recession Hazards tools that step the users through a process explaining points of relevant science, and then asking for a selection or input value), Watershed Assessment (based on the State of Oregon Watershed Enhancement Board assessment manual), and Marine Visioning (not as much of a step-by-step tool as an illustration of the web of interconnections between various components of the marine landscape).

Features available under the "**Map**" section include those typical of many web-mapping applications: Pan, Zoom In, Zoom Out, and Query are all available in a compact and simplified layout with pop-up advice as to appropriate uses. Users can browse preformatted datasets in the form of raster backdrops with vector overlays, for the entire Oregon coastal zone including the territorial sea. In addition, datasets identified by users from the archives may be interactively added to the base map to provide maps of personalized interest. Users may also dynamically switch between an HTML and Java Applet-based interfaces to accommodate the widest audience of browsers and platforms. Once a custom map has been created, output to a printer-friendly format (e.g., PDF) is possible.