

COASTAL CONNECTIONS



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A BIMONTHLY PUBLICATION FOCUSED ON TOOLS FOR COASTAL RESOURCE MANAGERS

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Mark Monmonier
Author and Distinguished
Professor of Geography,
Syracuse University's
Maxwell School of
Citizenship and
Public Affairs

Where you live: Syracuse,
New York.

Job description: Teach courses
on map design, mapping
policy issues, hazardous
geographic environments, and
the history of cartography at
Syracuse University's Maxwell
School of Citizenship and
Public Affairs. Author of
many books on mapmaking
and editor of *History of
Cartography, Volume 6*, which
covers the 20th century and
is now in development.

Education: B.A. in
mathematics, Johns Hopkins
University; M.A. and Ph.D.
in geography, Penn State.

Family: Wife, Marge;
daughter, Jo Kerry.

**What you enjoy about your
job:** It's very gratifying when
students tell me they get
something valuable out of
the courses I teach. And
writing books enables me

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FOCUS

THE NOAA SHORELINE DATA WEBSITE

*A new resource showcases practical guidance on
shoreline data and easy access to multiple data sets.*

The year was 1807, and President Thomas Jefferson saw a pressing need to map the nation's coasts. The president, who was also an experienced land surveyor, knew that coastal charts were vital to security and essential for the growth of commercial shipping. At his urging, Congress passed an act to establish a survey of the coast, an initiative that marks the birth of what later became the National Oceanic and Atmospheric Administration (NOAA).

In the two centuries since that act was passed, NOAA's leadership and a steady stream of technological improvements have enhanced the precision of shoreline maps. And accurate, accessible shoreline information and data have never been more important, as sea level rise in the coming decades is expected to bring unprecedented environmental, economic, and residential challenges to coastal communities. This realization is not lost on the nation's coastal resource managers—and in fact, a top customer request of the NOAA Coastal Services Center is for shoreline data and information.

However, shoreline data can easily be misunderstood and misinterpreted by coastal professionals new to the task. To lessen confusion and increase effective use of shoreline data, NOAA and other agencies have come together to produce a website that for the first time provides access to all NOAA shoreline information, plus data from other federal agencies.

The NOAA Shoreline Website (<http://shoreline.noaa.gov>) was developed and designed by the NOAA Coastal Services Center in cooperation with NOAA's National Geodetic Survey, Office of Coast Survey, and Office of Ocean and Coastal Resource Management, in addition to the U.S. Geological Survey and the National Geospatial-Intelligence Agency.

The website provides links to seven sources of federal shoreline data, with supporting segments devoted to frequently asked questions, common uses of shoreline data, and shoreline references and terms.

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to learn new things about photography, geospatial technology, and other subjects. It's amazing what you find out by digging into mapping archives and talking to users of geospatial information.

What you do in your spare time:
I like reading mystery novels and watching Turner Classic Movies.

In his most recent book, *Coast Lines: How Mapmakers Frame the World and Chart Environmental Change*, Monmonier posits that the definition and cartography of coasts have shifted at critical junctures in history.

According to Monmonier, we are experiencing just such a time, since the anticipated effects of climate change—particularly sea level rise and more severe cases of storm surge—will “redraw” many current shoreline maps.

As a member of the Coastal Elevations and Sea Level Rise Advisory Committee (CESLAC), an initiative of the U.S. Climate Change Science Program, Monmonier has met policy makers and other scientists who are equally concerned about climate-driven changes to coastal shorelines.

“Having access to plausible and defensible shoreline data is a very important goal, and our committee would like to see agencies increase the accuracy of coastal elevation data, principally through the use of lidar,” says Monmonier. “Lidar can give users a good representation of the depth of water down to 30 meters or so, which makes it a valuable tool for modeling storm surge and coastal erosion.”

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Shoreline Data: Studying the Terrain

“There are several reasons why coastal stakeholders and professionals do not always know how to apply or compare shoreline data sets,” says Tara Miller, a coastal hazards specialist with the Center.

- Not every shoreline map is appropriate for every purpose. For instance, old paper-charting methods were accurate for their era, but these maps cannot pinpoint coordinates with the precision of today’s technologies. The inconsistencies in maps obtained by different methods can cause confusion among users.
- The shoreline is not static. The tide is ephemeral, and coastal erosion or changes in sea level can alter the shoreline.
- The scale of a map will determine the shoreline data included. For instance, a “bird’s-eye view” captured through aerial photography will record fewer shoreline miles than a map developed by walking along all the shoreline’s estuaries and creeks, measuring every nook and cranny.
- Most shoreline charts contain “cartographic bias”—that is, they are developed with the end product in mind. For example, if the chart is developed for a mariner, it will be focused primarily on safe navigation.

Improving Data Access, Providing Context

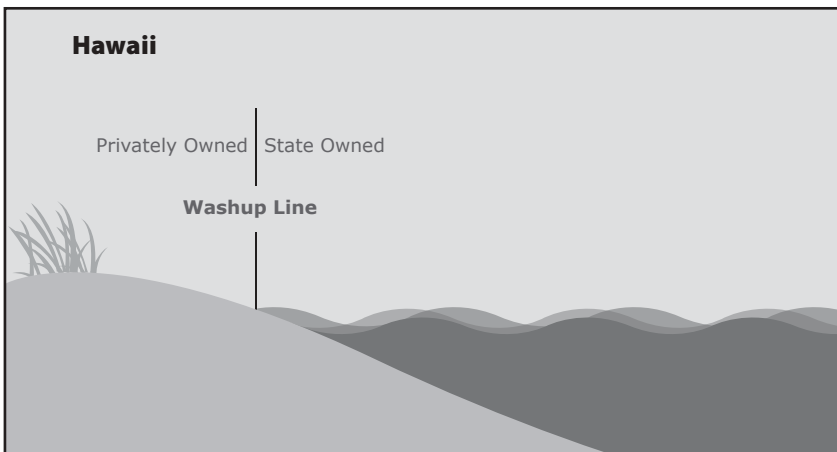
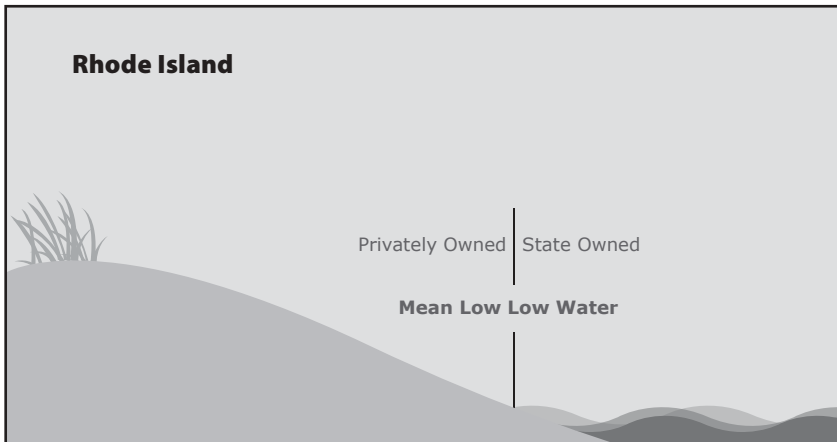
To bring potential shoreline data users up to speed, the NOAA Shoreline Website features an interactive shoreline mapping time line that has received praise from a nationally recognized expert in the history of cartography.

“The site is a fantastic resource, because it introduces users to mapping technologies and sources while also placing them within a historical context,” says Mark Monmonier, a distinguished professor of geography at Syracuse University and the author of *Coast Lines: How Mapmakers Frame the World and Chart Environmental Change*. “For instance, the website provides background on NOAA T-Sheets, coastal topographic maps that were compiled beginning in the 19th century and continuing on through the 1950s. The website and other efforts by the Center have improved the collection of coastal imagery and data,” he adds.

Besides the federal shoreline data sources featured, “the site explains the factors that have gone into collecting federal data—the tidal element, the scale, the coverage area, the data format, and other considerations,” says Miller.

Users can locate data sources by application or scale, and they can also learn about nautical chart production, shoreline change analysis, boundary determination, and other applications. “With the data and guidance on the site, we’re confident that coastal professionals will find shoreline data easier to use and to apply to their agencies’ needs,” says Miller.

Boundaries, State by State



The boundary between private uplands and state submerged lands varies from state to state, as shown in the Rhode Island chart (at top) and Hawaii chart (beneath). Viewers of the NOAA Shoreline Website can consult the drop-down menu in the "boundary determination" section to view the boundary for each state.

Looking to refine your shoreline data knowledge and skills?

Attend
Coastal GeoTools 2009
March 2 to 5, 2009
Myrtle Beach, South Carolina

This biennial conference is sponsored by the NOAA Coastal Services Center. The theme for 2009 is "Building the Digital Coast," a new initiative providing easy access to data, tools, and technical training.

For more information, view www.csc.noaa.gov/geotools/

Shoreline Data Policy and Management Resources

The NOAA Shoreline Website lists a variety of planning, policy, and regulatory resources that can help coastal professionals in the management of shoreline areas:

The Public Trust Doctrine

The Public Trust Doctrine is a common-law doctrine of property law, customized by each state, which establishes public rights in navigable waters and on the shore. To learn more, visit www.csc.noaa.gov/ptd/.

Technical Assistance Toolbox

NOAA's Office of Ocean and Coastal Resource Management (OCRM) created the Shoreline Management Technical Assistance Toolbox as an on-line guide for state coastal managers. It provides centralized access to resources and tools to address shoreline erosion and management. View <http://coastalmanagement.noaa.gov/shoreline.html>.

Living Shorelines Portal

This clearinghouse section outlines implementation procedures for living shorelines, describes case studies, and includes many other resources and contacts. Go to www.habitat.noaa.gov/restorationtechniques/public/shoreline_tab1.cfm.

Marine Managed Areas:

Best Practices for Boundary Making

This publication provides a short, useful "best practices" guide to writing boundary descriptions for federal, state, or local marine managed areas within U.S. waters and for developing those boundaries within a geographic information system environment. Visit www.csc.noaa.gov/products/mb_handbook/.

Coastal Connections is a publication of the National Oceanic and Atmospheric Administration Coastal Services Center, produced for the coastal resource management community. Each issue of this free bimonthly newsletter focuses on a tool, information resource, or methodology of interest to the nation's coastal resource managers.

Please send us your questions and suggestions for future editions. To subscribe or contribute to the newsletter, contact our editors at

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NEWS AND NOTES

Comments Due December 7 on Gulf of Mexico Research Plan

Over the past year, approximately 1,500 people from throughout the Gulf of Mexico have discussed research priorities via an on-line survey and workshops. The result of this work has culminated in the Gulf of Mexico Research Plan (GMRP). Research-based organizations that fund or conduct research in the Gulf of Mexico are using the GMRP and research priorities outlined within the plan as they address regional needs. The draft GMRP is available for public comment on-line through December 7, 2008, at <http://masgc.org/gmrp/report.htm>.

Guide Features Science and Technology Communication Tips

Hold That Thought! is a publication for the professional who is working in a university, government agency, or nongovernmental organization and who communicates with the public about scientific or technical information. The guide can be ordered through Oregon Sea Grant's e-commerce website at <http://marketplace.oregonstate.edu>.

Distinctions

The manager of the Great Bay National Estuarine Research Reserve, **Peter Wellenberger**, received the 2008 Nancy Foster Award for Habitat Conservation from NOAA's National Marine Fisheries Service for his three decades of service to the nation's estuaries. At the national level, Wellenberger helped to develop a strategy for land acquisition for the National Estuarine Research Reserve System, and he serves as a leader with the National Estuarine Research Reserve Association. NOAA's Fisheries Service established the Nancy Foster Award in 1997. Dr. Foster served as a visionary leader at NOAA until her death in 2000.

Transitions

The Massachusetts Bays National Estuary Program welcomes **Carole McCauley** as the new outreach and policy coordinator. McCauley worked previously with the Indian River Lagoon National Estuary Program in Florida... **Charles Hopkinson** is now the director of Georgia Sea Grant. He previously worked as a senior scientist at the Marine Biological Laboratory (MBL) in Woods Hole, Massachusetts, and as a professor of ecology and evolutionary biology in the Brown University-MBL Joint Program.

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