

# COASTAL SERVICES

VOLUME 11, ISSUE 5 • SEPTEMBER/OCTOBER 2008

LINKING PEOPLE, INFORMATION, AND TECHNOLOGY

**FINDING NEMO . . .  
IN RHODE ISLAND?  
State Permits First Marine  
Ornamental Farm**

**Making Massachusetts'  
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Recreational Boater  
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# FROM THE DIRECTOR

While I write this, Hurricane Fay has just moved across Florida and the northern Gulf of Mexico dumping rain in the double digits, and Gustav is looming. As we head into the two busiest months of the Atlantic hurricane season, many people's thoughts are on their short-term preparations—stashing adequate water, food, plywood, and other personal emergency supplies.

But what about the longer-term preparations that our communities, states, and federal government need to undertake to ensure that our coastlines are more resilient in the face of sea level rise and other impacts from climate change?

In this edition of *Coastal Services*, we feature an article on how coastal resource managers in Massachusetts are working to help the state's 78 coastal communities become StormSmart by giving them the information and tools they need.

The website they have created can be shared or tweaked by coastal communities around the country to help prepare for and bounce back from a hurricane, flooding, or other natural disaster.

Creation of community-specific tools for other regions also is underway, beginning with the Gulf of Mexico, where 70 percent of this nation's repetitive flood losses occur.

The cover story of this edition of *Coastal Services* examines farming marine ornamental species and the efforts Rhode Island coastal managers have undertaken to encourage this lucrative aquaculture niche.

Readers also can learn how Florida is capturing recreational boater behavior in a GIS (geographic information system) that may enable coastal decision makers to better manage the resources that attract boaters to Florida in the first place.

The common thread to all these stories is money. Marine ornamental species aquaculture, recreational boating, and natural hazards all make or cost our coastal communities significant amounts of money.

This is the common thread throughout almost all of coastal management. Let us not forget that more than 50 percent of the nation's population lives on the coast, and nearly 60 percent of the nation's gross national product comes from coastal counties.

We need to be reminding folks that the well-being of our coasts is a national issue: it is the golden goose of our national economy.



Margaret A. Davidson

The mission of the NOAA Coastal Services Center is to support the environmental, social, and economic well being of the coast by linking people, information, and technology.



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# NEWS AND NOTES

## Decision-Support Tools

At the National Oceanic and Atmospheric Administration (NOAA) Coastal Services Center, a decision-support tool is generally defined as a methodology or software that helps users compare data or scenarios for the purpose of gaining new information and insights.

The following represent some of the decision-support tools offered by the Center. Visit the website, [www.csc.noaa.gov](http://www.csc.noaa.gov), to download these and other tools.

### Hazard Assessment Tool

Put your local data into this template so citizens can download information about the various hazards that might impact a specific location.  
[www.csc.noaa.gov/hat/](http://www.csc.noaa.gov/hat/)

### Hurricane Evacuation Zones Map Tool

Use this template to develop a mapping application website that citizens can use to find hurricane evacuation zones.  
[www.csc.noaa.gov/hez\\_tool/](http://www.csc.noaa.gov/hez_tool/)

### Risk and Vulnerability Assessment Tool

Assess and prioritize the precautionary measures your community can take to become more resilient to hazards.  
[www.csc.noaa.gov/rvat/](http://www.csc.noaa.gov/rvat/)

### Nonpoint Source Pollution and Erosion Comparison Tool

Create various scenarios that estimate water quality impacts from nonpoint source pollution and erosion. This complex yet user-friendly tool takes information about land cover and topography into account.  
[www.csc.noaa.gov/nspect/](http://www.csc.noaa.gov/nspect/)

### CanVis

Use this visualization tool to add docks, buildings, and other structures to the background picture of your choosing to "see" the potential impacts from proposed development. A library of coastal objects (docks, piers, etc.) is available. Also use CanVis to visualize sea level rise.  
[www.csc.noaa.gov/canvis/](http://www.csc.noaa.gov/canvis/)

### Habitat Priority Planner

Use this software to develop maps of an area and add components that are deemed important (fishing areas, places of historical significance, etc.). Components can be changed very quickly and easily, making this a helpful tool for group decision making.  
[www.csc.noaa.gov/hpp/](http://www.csc.noaa.gov/hpp/)

### Legislative Atlas

Pinpoint a place of interest and use this program to download information about the

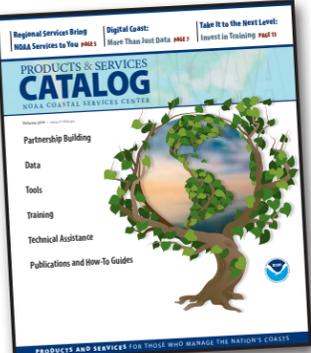
applicable ocean-related laws, policies, and jurisdictions.  
[www.csc.noaa.gov/legislativeatlas/](http://www.csc.noaa.gov/legislativeatlas/)

### Historical Hurricane Tracks

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# Making Massachusetts' Coast StormSmart

A major hurricane hasn't hit the Gulf of Maine's densely developed coastline in two generations, but many experts agree it's just a matter of time before a big storm hits the region. To help communities prepare for and bounce back from a hurricane, flooding, or other natural disaster, coastal resource managers in Massachusetts are working to ensure that local decision makers have the information and tools they need.

"We've provided one-stop shopping for local authorities," says Andrea Cooper, shoreline and floodplain management coordinator for the Massachusetts Office of Coastal Zone Management. "We are translating highly technical information into tools or strategies that they can use to make real-world changes."

Launched as a website in May, StormSmart Coasts consolidates and simplifies information from around the U.S. on everything from hazard identification and mapping to legal information and funding. Fact sheets explain the tools and showcase success stories that provide real-world examples of complicated concepts.

Over the summer, staff members began a series of regional workshops to make it easier for planners, board members, and others from the state's 78 coastal communities to find the information they need to prepare for natural hazards.

"This is about changing things on the ground, not state policy stuff," says Wes Shaw, the phase one project manager of StormSmart Coasts. "It's the local people who will be impacted by floods, sea level rise, and storms. Things need to happen right at the community level."

*"If our staff could barely get through it and understand it, how are local officials supposed to make use of it?"*

Andrea Cooper,  
Massachusetts Office of Coastal  
Zone Management

In the second phase of the project, the Massachusetts coastal program will select three to five communities to directly implement StormSmart strategies. The lessons learned will then be translated and packaged for use by other coastal communities within the state and nation.

## Coming Storm?

Flood damage in the United States continues to escalate. Even when the hurricanes of 2005—Katrina, Rita, and Wilma—are not included, flood damage increased six-fold from the early 1900s to the year 2007 and now averages over \$6 billion annually, according to the Association of State Floodplain Managers.

Every coastal manager knows that a major hurricane or other natural hazard could devastate any community, potentially resulting in loss of life, extensive property damage, destruction of public infrastructure, and environmental impacts from the release of sewage, oil, debris, and other contaminants.

In areas with intense coastal development, such as the 1,500-mile shoreline of Massachusetts, even damage from less severe storms can be costly. These potential impacts may be compounded by relative sea level rise and impacts from climate change.

"Towns often have limited staff and lack the technical know-how and resources to prepare for storms," notes Cooper, "yet coastal resiliency and storm readiness rest largely in their hands."

## Need to Prepare

The StormSmart Coasts program was created after a 2007 report by the state's Coastal Hazards Commission stressed the need to help specific communities prepare for future climate change.

One of the commission's top four priority recommendations was that Massachusetts establish a storm-resilient communities program to provide case studies for effective coastal smart growth planning and implementation.

The state's Office of Coastal Zone Management also recognized the need to provide technical assistance to communities, submitting an application to the National Oceanic and Atmospheric Administration (NOAA) Coastal Services Center for a coastal management fellow. In 2006, Shaw joined the program to lead phase one of what is now StormSmart Coasts.

## Translation Please

The first step in developing StormSmart Coasts was looking at information that already existed. Cooper, who served as Shaw's mentor during the project, says they "quickly recognized that there was a myriad of information out there that was extremely difficult to access and understand."

She asks, "If our staff could barely get through it and understand it, how are local officials supposed to make use of it?"

The focus then became translating the information into



user-friendly terminology and tools that local officials in Massachusetts need to make decisions.

For instance, Shaw downloaded a 134-page technical document from a government agency website. Buried in the document was research showing that spending \$3,000 extra during construction to elevate a home three feet can save \$100,000 in flood insurance costs over the life of a mortgage.

While some information was clearly beneficial to local officials, a critical part of the project was determining what information local officials actually needed. Shaw used three networks of local officials on the North Shore, South Shore, and Cape Cod as sounding boards in the development of all the StormSmart products.

## Fully Operational

Over two years, Shaw and coastal staff members pulled information onto a user-friendly website and developed fact sheets that explain available tools and provide case studies of towns in Massachusetts that have implemented mitigation efforts.

"There is something on the website for everybody," Shaw says. "There is a whole menu of options, and the best thing to do is pick and choose what's best for your community."

After the website was launched, Shaw led four regional StormSmart

workshops, with about 100 local officials attending each one.

Following the workshops, 15 communities expressed interest in participating in phase two, requiring the coastal program to develop criteria for selecting the communities, Cooper says. "That to me is a good sign that the project is successful."

## Test Drive

The Massachusetts coastal program also was recently awarded a second coastal management fellow, Daniella Hirschfeld, who will lead the StormSmart program in the next phase. Hirschfeld will provide direct technical assistance and training to three to five communities to help them choose and implement the different tools and strategies.

"We're going to take it for a two-year test drive," Cooper says. "We want to make sure that what we think is workable is actually ground-truthed." The lessons learned will then be packaged for use by all Massachusetts coastal communities and other states.

Shaw is going to continue his StormSmart focus, adapting the same approach for the Gulf of Mexico Alliance starting this fall.

"Creating storm-resilient communities is a national priority," Shaw says, "but all change has to happen at the local level, ultimately, or it's not going to happen at all."

He adds, "Everything comes back to the local level eventually." ❖

To view the StormSmart website, point your browser to [www.mass.gov/czm/stormsmart/](http://www.mass.gov/czm/stormsmart/). For more information, contact Andrea Cooper at (617) 626-1222, or Andrea.Cooper@state.ma.us. You may reach Wes Shaw at (360) 639-6954.





# Finding Nemo . . . in Rhode Island?

## State Permits First Marine Ornamental Farm

Five years after clownfish gained popularity in the hit film, *Nemo* can now be found in Rhode Island. Clownfish are among the species being produced by the state's first marine ornamental farm that grew out of an aquaculture initiative led by Rhode Island coastal resource managers.

According to media reports, demand for clownfish in the aquarium trade has risen sharply since the 2003 release of the popular animated film, *Finding Nemo*. Marine ornamental aquaculture species such as these tend to be much more lucrative than their food-fish cousins and their production facilities smaller, cleaner, and more contained, making them appealing to businesses and coastal managers alike.

"We were working with Roger Williams University to do research on aquaculture, and one of the questions they were looking at is where you get the greatest return in terms of dollars per pound of fish," says Grover Fugate, executive director of the Rhode Island Coastal Resources Management Council. "The obvious one that pops up is the ornamental fish market."

What also can come to mind when contemplating farming tropical

fish and other ornamental species are problems associated with accidental or intentional release, turning a potential or former pet into an invasive environmental nightmare.

An expert panel doing a risk analysis of the issue in Florida recently concluded that "concerns over marine ornamentals expressed by the scientific community and amplified in public media communicate a degree of alarm that is not supported by evidence."

"Florida's been doing this a long time," says Craig Watson, director of the Tropical Aquaculture Laboratory at the University of Florida. "Concerns that are raised about . . . [marine ornamental aquaculture] are because people don't know about it yet."

Despite the relative safety, the potential for release and water quality are issues that coastal managers need to look at when reviewing marine ornamental farming operations.

### Growing Industry?

Tropical and ornamental fish for aquariums are one of the leading cash crops in the aquaculture industry, with a retail value approaching \$1 billion annually, according to the website for Marine Ornamentals '08, an international conference sponsored by Sea Grant and the Florida Tropical Fish Farms Association, among others.

Watson cautions that these numbers are "generated by the industry itself," and that sales of marine ornamentals are "not shrinking, but they are not growing at the rate they were a few years ago."

He also notes that marine ornamentals are not sold per pound but are sold individually, "so any analogy to food aquaculture only goes so far."

### Location, Location, Location

It is Rhode Island's location between two major markets—New York and Boston—that makes it an ideal site for ornamental marine species aquaculture, says Brad Bourque, a partner in New England Marine Ornamentals, Inc., which received a permit from the Rhode Island Coastal Resources Management Council for the first ornamental marine fish farm in the state.

"The market is very strong in the Northeast," he says. "We did a study to quantify what the market was, and there is an eagerness from the ornamental store industry and individual [aquarium enthusiasts], who really want a sustainable, farm source of animals. The economics look very promising."

Bourque gives the example of a flounder that takes two years to reach market size and sells for about \$5 a pound compared to a clownfish that takes four to five months to produce and sells for \$8 a fish.

### Finding the Source

Marine and estuarine aquarium species, or ornamentals, include fish, invertebrates, and plants that are either caught from the wild or raised in aquaculture operations. The one in Rhode Island is producing clownfish, lined seahorses, and dottybacks. Coral and giant clams are examples of other successfully farmed species.

While ornamental aquaculture is increasing, most aquarium species continue to be collected from the wild, primarily in shallow coral reef ecosystems.

"The way they harvest marine ornamentals in the wild is often very destructive," says David Alves, Rhode Island's aquaculture coordinator. Poisons, such as cyanide, or explosives might be used, which are "destructive to the local ecosystem where the fish are naturally found, as well as to the fish themselves."

Alves says that marine ornamental aquaculture typically is much better for the environment, and the fish tend to be healthier and have a higher survival rate.

### Taking the Initiative

The Rhode Island Coastal Resources Management Council is the lead agency for permitting all aquaculture in the state, and New England Marine Ornamentals grew out of the Rhode Island Aquaculture Initiative, a three-year effort to advance the aquaculture industry.

In 2002, the initiative received \$1.42 million from the National Oceanic and Atmospheric

Administration for grants funding, and the Coastal Resources Management Council, Rhode Island Sea Grant, Roger Williams University, and the University of Rhode Island worked together to manage the initiative.

An initiative grant was used to fund a Marine Ornamental Aquaculture Research Center at Roger Williams University. The niche looked so promising that Bourque, who is the marine laboratory manager at Roger Williams, another faculty member, and a third partner decided to pursue a commercial operation.

### Weather Permitting

The new commercial facility is located about three miles inland in an old mill in Warren, Rhode Island.

"It was a relatively easy permitting issue," Fugate says. "It is a totally closed system, and there is no danger of escape. Even if there were an escape, none of the species they are growing would survive the winter."

### Bad Pet Owners

"That's one of the hot-button issues of aquaculture," Watson says. The introduction and establishment of nonindigenous marine ornamental species was such a concern in Florida that the state's Department of Agriculture and Consumer Services, the Florida Fish and Wildlife Conservation Commission, and the University of Florida cooperated to produce a pathway risk analysis for all commercially available exotic marine and estuarine animals in Florida's pet trade.

The risk analysis concluded that the benefits of the industry outweigh the ecological risks.

"It started out as a high-priority concern," Watson says, "but it's been almost taken off the list because it was determined the issue was with the hobbyist, not with the industry. Unless we're ready to outlaw aquarium keeping, we need to look at educating the pet owner. We don't want people dumping dogs and cats, either."

*Continued on Page 9*

### More Information

**The Rhode Island Aquaculture Initiative**, [www.crmc.state.ri.us/riai/](http://www.crmc.state.ri.us/riai/)

**The Florida "Pathway Risk Analysis for Exotic Ornamental Marine and Estuarine Species,"** [www.floridaaquaculture.com/publications/Ornamental\\_Marine\\_Species\\_Pathway\\_Risk\\_Analysis\\_01553.pdf](http://www.floridaaquaculture.com/publications/Ornamental_Marine_Species_Pathway_Risk_Analysis_01553.pdf)

**Marine Ornamentals '08**, [www.hawaiiaquaculture.org/docs/MO08%20bro%20July%202020.pdf](http://www.hawaiiaquaculture.org/docs/MO08%20bro%20July%202020.pdf)

# Florida Capturing Recreational Boater Behavior in a GIS

More than a million boaters ply Florida's coastal waters every year, contributing significantly to the state's economy and lifestyle. Knowing where recreational boaters go and what they do once they are on the water can help coastal decision makers better manage the resources that attract boaters to Florida in the first place.

*"Nobody has looked at boating issues with this type of detailed information before."*

*Bill Sargent,  
Florida Fish and Wildlife  
Conservation Commission*

"With increasing numbers of boats and resulting safety and habitat issues, there's a need for improved boater education and awareness, and waterway management and planning that includes access," says Charles Sidman, associate director of research for Florida Sea Grant.

A tool that is helping with these types of decisions is a Recreational Boating GIS (geographic information system) for some Florida waterways. Spatial and behavioral information was collected for the GIS that can be used to characterize boater preferences and map on-water activities and use patterns.

The Florida Fish and Wildlife Conservation Commission,

Florida Coastal Management Program, University of Florida Sea Grant Program, and local governments are collaborating to develop the Recreational Boating GIS, which they hope will eventually cover the entire state.

"I think it's significant," says Bill Sargent, research scientist for the Florida Fish and Wildlife Conservation Commission. "Nobody has looked at boating issues with this type of detailed information before. Having really good, on-the-ground data to prove traffic patterns and such just hasn't been available."

The GIS is generating the most interest from local and county governments working to develop mandated manatee-protection and comprehensive management plans, and struggling with issues such as marine facility siting and public waterway access, Sidman says.

"This kind of data can be used to support future planning efforts to maintain recreational boating access and site new boating infrastructure in a way that sustains the estuarine environment," he says.

## Big Business

Recreational boating is big business in U.S. coastal states, but nowhere is it bigger than in Florida, where the recreational season is year-round.

According to the Marine Industries Association of Florida, recreational boating and related expenditures pump \$18.4 billion annually into Florida's

economy. More than one million recreational boats are registered in Florida—more than any other state in the nation—and several hundred thousand more are brought over the state line each year.

With the number of boats in the state increasing every year, coastal management issues such as waterway access, user conflicts, and resource impacts, including seagrass scarring and impacts to manatee populations, have become critical concerns, Sidman says.

State agencies and local governments "want to provide access to boaters, but they want to balance that with environmental protection, as well as boating safety," he says.

Bob Swett, coordinator of the Florida Sea Grant Boating and Waterway Management Program, notes that issues relating to recreational boating are not just seen in Florida. "The bottom line is, this is a national issue that many states are dealing with."

## Planning Needs

While Florida has numerous state, federal, and local boating restriction zones, such as manatee protection zones and speed restrictions for safety or maritime property protection, the bulk of existing geographic information used for coastal planning stops at the water's edge.

Resource managers in Florida "have a pretty good handle on the situation with the natural resources and know what management is

already in place," Sargent notes, but spatial information is needed to characterize the use of recreational boating facilities, traffic patterns, on-water activities, preferred water-access points, and destinations.

## Pilot Project

To develop the GIS, a pilot project was begun in 2000 for Charlotte Harbor. An extensive survey was mailed to 500 boaters using addresses randomly selected from Florida's Vessel Title Registration System, a database of motorized-boat owners in the state.

The information that was collected was used to "develop a rudimentary GIS that combined both spatial and behavioral data," Sidman says. "Once we determined, 'Yes the method was successful,' we conducted a full-scale implementation for the Tampa Bay and Sarasota Bay boating regions," beginning in 2003.

Since then, project partners have worked with local governments to initiate additional characterizations covering much of Southwest Florida waterways, as well as Brevard County on the eastern coast of the state and Bay County in the panhandle. A project is currently underway in Collier County.

## Significant Improvements

As a result of the pilot study, "we made significant improvements to the questionnaire's design," Sidman says. The survey evolved into a 24 by 36 inch map of the waterways with a series of questions on the alternate side.

Thousands of survey recipients have used the map to locate

trip departure sites, travel routes, favorite destinations, and congested areas. Survey questions collect information on vessel type, departure dates and times, time spent on the water, and activities, as well as problems and needed improvements.

How the boaters are selected for the surveys also was changed. Surveys now target boaters observed using area access facilities, such as boat ramps, marinas, and private docks. Vessel and boat trailer registration numbers are used to find addresses on the state vessel registration system or on the U.S. Coast Guard Documented Vessel database. A private data vendor helps identify out-of-state boaters. "This has allowed us to identify where boaters live relative to the facilities they are using," Sidman notes.

## Digitizing Data

Map information from returned surveys is digitized, and descriptive information about boaters is linked to the spatial data in the GIS. The data, provided on CD-ROM, can be used to map travel corridors and identify congested areas and popular boating destinations. Information such as user group, vessel type, vessel draft, and activity also can be accessed.

The data have been used in the development of a system to establish and evaluate existing manatee speed zones and protection areas, to support marine facility



siting and manatee protection plan updates, and to help develop state-mandated management plans.

"This information will go a long way towards planning for public access and generating science-based information that can be used for resource protection efforts and to address boater needs," Sidman says. "The Recreational Boating GIS is an important data visualization tool for gaining public and interagency consensus regarding waterway management planning." ❖

*For the Sea Grant publication list that includes the recreational boating characterization reports, point your browser to [www.flseagrant.org/program\\_areas/waterfront/waterfront\\_pm.htm](http://www.flseagrant.org/program_areas/waterfront/waterfront_pm.htm). For more information on the Florida Recreational Boating GIS, you may contact Charles Sidman at (352) 392-1837, or [csidman@ufl.edu](mailto:csidman@ufl.edu), Bob Swett at (352) 392-6233, or [rswett@ufl.edu](mailto:rswett@ufl.edu), or Bill Sargent at (727) 896-8626, ext. 3022, or [Bill.Sargent@myFWC.com](mailto:Bill.Sargent@myFWC.com).*

## California Sanctuary Using Podcasts to Reel In Supporters

For those who aren't technically savvy, the term "podcasting" in association with Cordell Bank National Marine Sanctuary may bring to mind some kind of netting technique involving the pods of blue and humpback whales that feed in sanctuary waters. In reality, sanctuary education staff members are using podcasts as a way to distribute ocean information and reel in volunteers and sanctuary supporters.

*"The number one download on the sanctuary website is the RSS file, and it's increasing."*

*Jennifer Stock, Cordell Bank National Marine Sanctuary*

A podcast is a digital audio or video recording that is distributed over the Internet for playback on a portable media player, such as an MP3 player or iPod, or over a computer. The word brings together the terms "iPod" and "broadcast."

The sanctuary's podcast originates as a live radio show called "Ocean Currents" hosted and produced by Cordell Bank Education and Outreach Coordinator Jennifer Stock and aired once

a month over a volunteer-run community radio station.

"The radio show is a really nice way to reach the local community," Stock says. "The listening radius is pretty small on the coast, so we decided to do a podcast to extend the life and reach of the show," which covers ocean research, management issues, natural history, and stewardship topics.

The radio station that airs "Ocean Currents" has a listening audience of 15,000. The program streams live over the Internet where it can be listened to by anyone with a computer anywhere in the world. Stock then edits the audio file and archives it on the sanctuary's website for later listening in RSS, a "Web-feed" computer format used for podcasts.

"When I started archiving the shows in 2006, the download rate was very low, but as soon as I started the RSS feed file, it shot way up," Stock says. "The number one download on the sanctuary website is the RSS file, and it's increasing."

The podcast has over 10,000 total downloads, with the most popular shows being on the Humboldt Squid, the review of the sanctuaries' joint management plan, and the satellite tracking of pelagic species, such as the albatross.

Stock had no radio experience before proposing the idea for the show to sanctuary



management and the radio station. She underwent 20 hours of station training and had to learn many new skills in order to produce the show.

Each show now takes about four hours to develop and can take over an hour to edit. "It's getting easier," Stock says. "In the beginning, the time investment was much more."

She adds, "We see it as worth the trade-off [of staff time]. We are gaining a regular listening audience and are consistently represented in the community, with the community hearing our name and what we do. We see it as a good investment in time. It's definitely a good way to tell our story." ❖

*To tune in to the "Ocean Currents" radio broadcast or download archived podcasts, point your browser to <http://cordellbank.noaa.gov/education/radioshow.html>. For more information on the show or its production, contact Jennifer Stock at (415) 663-1397, or [Jennifer.Stock@noaa.gov](mailto:Jennifer.Stock@noaa.gov).*

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### Effluent Happens

In addition to the potential for release, water quality was a concern for Rhode Island coastal managers. Fugate says effluent from the permitted farm goes into the town sewer and treatment system. The farm also uses artificial seawater, which helps ensure the facility is disease free.

Watson notes that in Florida, effluent is also monitored for salinity and nutrient load, but "the discharge is very clean compared to food-fish aquaculture."

"The difference," he says, "is that ornamentals are usually much smaller operations. . . It takes hundreds of thousands of pounds of fish for a food-fish business to make money. A hundred thousand clownfish don't weigh very much," and much less effluent is produced.

### Management Potential

While Watson doesn't believe that marine ornamental aquaculture in any other state will ever come close to rivaling Florida as the industry leader, he does note that one of the largest coral farms in the U.S. is in Detroit.

If coastal managers do find themselves reviewing plans for a marine ornamental facility, Alves says, the "biggest thing is to look at the proposal and not just say, 'It's aquaculture. We're going to have a problem.'"

Alves adds, "You need to look at it with an unbiased eye. There are a few things to look at, but basically this is good." ❖

*For more information on aquaculture in Rhode Island, you may contact Grover Fugate at (401) 783-7112, or [gfugate@crmc.ri.gov](mailto:gfugate@crmc.ri.gov), David Alves at (401) 783-3370, or [DAlves@crmc.ri.gov](mailto:DAlves@crmc.ri.gov), or Brad Bourque at (401) 254-3737, or [bbourque@rwu.edu](mailto:bbourque@rwu.edu).*

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## GET YOUR SHORELINE DATA HERE!

NOAA Shoreline Website  
[www.shoreline.noaa.gov](http://www.shoreline.noaa.gov)



Vector data for the nation's shorelines.

# IT'S BEAUTIFUL. BUT WHAT DOES IT MEAN?

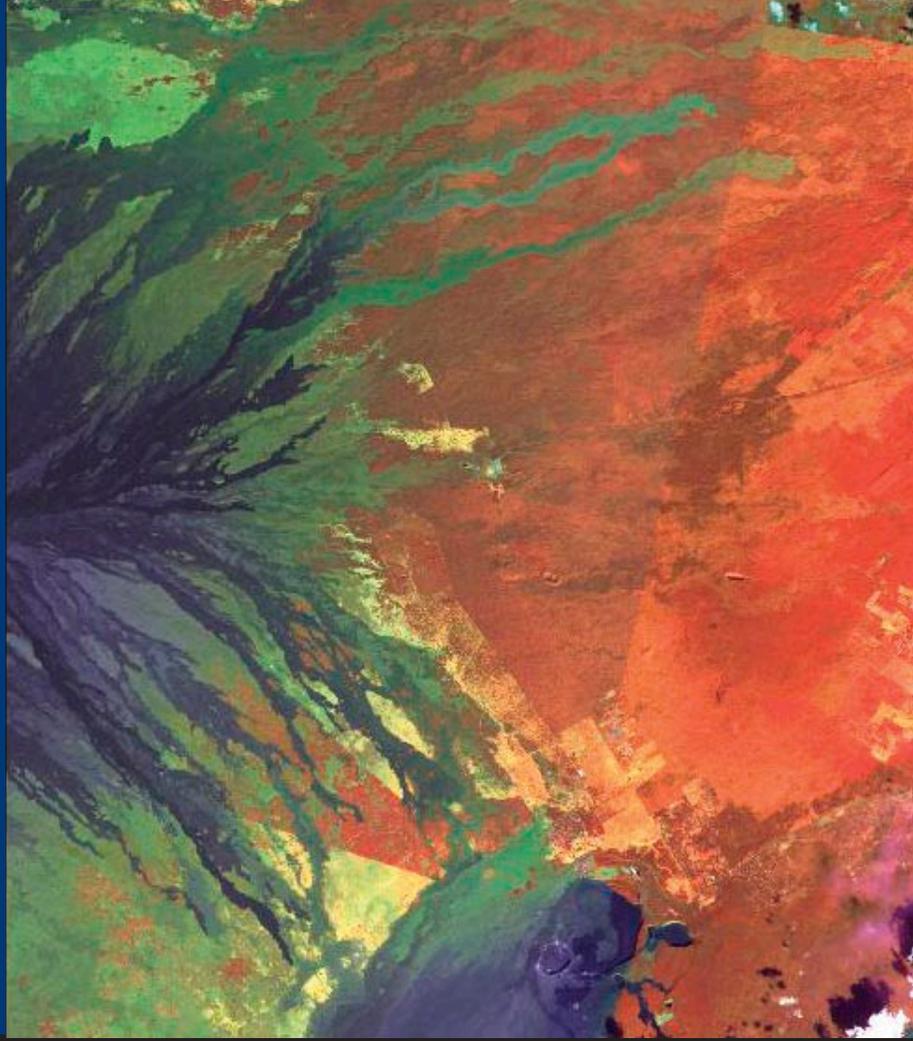
Digital Coast provides not only data, but also the tools, training, and information needed to turn these data into useful information. Visit the site for a test run.

## ***DIGITAL COAST:*** MORE THAN JUST DATA

[www.csc.noaa.gov/digitalcoast/](http://www.csc.noaa.gov/digitalcoast/)



**NOAA Coastal Services Center**  
LINKING PEOPLE, INFORMATION, AND TECHNOLOGY



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