



# COASTAL AMERICA UPDATE

WINTER 2003

## Invasive Species

What do the water hyacinth, bullfrog, and nutria all have in common? They are invasive species – a species that is non-native to the ecosystem under consideration and whose introduction causes economic or environmental harm or harm to human health. Human actions are the primary means of invasive species introduction. The total cost to the US in environmental damages and losses is over \$100 billion per year according to one study. Several Coastal Ecosystem Learning Centers are involved in invasive species research and education efforts.

Dr. Cindy Hunter, acting director of the **Waikiki Aquarium**, is a part of a research team assessing the feasibility of removing alien invasive algae *Gracilaria salicornia* from Hawaiian Island reefs. The algae were introduced in 1971 in an effort to stimulate agar-producing seaweeds. *G. salicornia* reproduces through fragmentation, infiltrates small reef spaces and overgrows bottom-dwelling algae and coral. Controlled experiments seek to determine: how fast the algae grows; how long it takes to remove the algae; how fast it regenerates; and whether herbivores control the algae through grazing. Four cleanups involving over 300 volunteers have occurred since August. Over 24,000 pounds of algae were removed by teams of divers, snorkelers and beach workers. A green-waste recycling company processed the algae into a composting tea and nutrient amendment for taro ponds. The partners



Researchers, staff and volunteers from several agencies worked together removing algae from Waikiki reef.

in this collaborative effort include: US Fish and Wildlife Service, Waikiki Aquarium, University of Hawaii-Botany Department, Hawaii Division of Aquatic Resources, The Nature Conservancy – Hawaii, and Hawaii Reef Check. The Hawaii Coral Reef Initiative and The Nature Conservancy provided funding.

After featuring the invasive Australian spotted jellyfish in an exhibit, the **Dauphin Island Sea Lab** will follow up this year with an exhibit on plants and animals that have invaded the local area and are contributing to habitat loss and species displacement. Featured fish include Rio Grande cichlid, Mozambique tilapia and grass carp. The last two are a result of the now discontinued practice of intentional introduction for aquatic vegetation control. Alligator weed and the Mediterranean gecko, unintentional introductions through international ships are also included in the exhibit.

The **Hatfield Marine Science Center** submitted a proposal to Sea Grant to fund an invasive species exhibit that will

eventually travel to other learning centers. The exhibit will have general information, but can be customized for local species and issues.

For more information on invasive species, check out [www.invasivespecies.gov](http://www.invasivespecies.gov), a gateway to federal and state invasive species activities and programs. The 12<sup>th</sup> International Conference on Aquatic Invasive Species will occur June 9-12 in Windsor, Canada.

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This issue of Coastal America Update is dedicated to the Coastal Ecosystem Learning Centers (CELCS). The CELC network creates a partnership between the federal government and marine education centers to improve public understanding of the coastal environment.

## Events

All CELCs sponsor numerous events throughout the year. Three new events last year included the H.M.S. SeaFest at **Hatfield Marine Science Center**, National Estuaries Day at **Mystic Aquarium**, and Aquafest at the **South Carolina Aquarium**.

June 2002 marked the first annual H.M.S. SeaFest, which included an open house of the Hatfield Marine Science Center, tours of the R/V Wecoma, lectures, demonstrations, exhibits, family activities and seafood. Over 3000 visitors enjoyed the event sponsored by Oregon State University, NOAA, EPA, and the US Fish and Wildlife Service. The second annual H.M.S. SeaFest will take place June 21, 2003.

Hatfield Marine Science Center participated in "EstuaryLive," an interactive field trip shown over the internet in association with National Estuaries Day 2002. Sponsored by the National Estuarine Research Reserves and the National

Estuary Programs, the program allowed viewers to e-mail questions to naturalists during the live broadcast.

Mystic Aquarium hosted National Estuaries Day with Narragansett Bay National Estuarine Reserve in September of 2002. Over 2500 visitors learned about estuaries and why they are important. Activities included live alligator touch-and-learn, a large flounder to dissect and a live owl program presented by the Audubon Society. The collaboration with Narragansett Bay National Estuarine Reserve was so successful that Mystic Aquarium hopes to partner again for future National Estuaries Days and other events.

South Carolina Aquarium's Aquafest showcased the activities of Coastal



*Visitors dissect a large flounder at Mystic Aquarium's National Estuaries Day.*

America Partners in the state. Two thousand visitors attended the festival, which included live animals, flood plain demonstrations and information about hurricanes. Representatives from US Fish and Wildlife Service, the National Weather Service, NOAA Coastal Service Center, the Army Corps of Engineers, the US Forest Service and Coastal America were all present.

## Exhibits

Here's a list of some new or upcoming exhibits:

### Alaska SeaLife Center

- The 2200 square foot Bering Sea exhibit, a collaboration with NOAA, the US Fish and Wildlife Service and the National Park Service, opens in March.

### Hatfield Marine Science Center

- The earthquake exhibit is open and a travel kit is available for teachers.

### Monterey Bay Aquarium

- The spring 2004 shark exhibit will coincide with the Aquarium's 20<sup>th</sup> anniversary.



*Participants at South Carolina Aquarium's Aquafest learn about endangered species.*

### Seattle Aquarium

- The Life on the Edge hands-on exhibit celebrating Pacific Northwest tidepools has been enhanced with a photographic display based on the "Troubled Sound" environmental article series published by the Seattle Post-Intelligencer.

### South Carolina Aquarium

- The Aquarium is working on a new water quality exhibit.

## What's for Dinner?

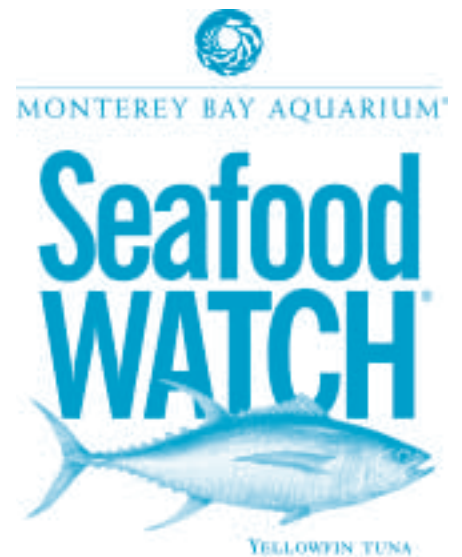
Here's a scenario: you go to a new restaurant and see that the chef's specialties are orange roughy, bluefin tuna and Chilean sea bass. Which do you choose? None of the above. All three species are on the "Avoid" list of Seafood Watch's West Coast Seafood Guide. The "Avoid" category indicates that "these fish need to recover from overfishing, or the fishing or farming currently harms the environment."

Instead of just eating a salad, peruse the menu for other seafood items like rock lobster, oysters, mussels or white sea bass, which are all on Seafood Watch's "Best Choices" list. "Fisheries conservation is among the most important marine conservation issues today," said Julie Packard, **Monterey Bay Aquarium** executive director. "It's an environmental problem whose solution is in people's hands every time they buy seafood."

Monterey Bay Aquarium, **The Seattle Aquarium**, Vancouver Aquarium and **Aquarium of the Pacific** teamed up to create a wallet sized West Coast Seafood Guide for consumers. Check out Monterey Bay Aquarium's website for a copy of the guide and information on Seafood Watch. A wallet-sized Hawaii Seafood Guide will be available sometime this year.

In support of the Seafood Watch program, Monterey Bay will host its second celebration of sustainable gourmet cuisine "Cooking for Solutions" May 30-31, 2003. Diana Kennedy, a champion of regional Mexican cuisine and sustainable living, will be honored. A dozen noted chefs will prepare a Friday gala and Saturday banquet of sustainable seafood and dishes with organic ingredients. Additional activities include cooking demonstrations and farm and winery tours with the chefs.

On the east coast, the **South Carolina Aquarium** partnered with a culinary school and over twenty restaurants to promote the Sustainable Seafood program. The goals of the program are to "promote wise seafood choices and promote consumption of environmentally-friendly, locally captured seafood." The restaurant partners removed Chilean sea bass, orange roughy and shark from their menus. On April 6, 2003 McCrady's Restaurant in Charleston will host a five course Sustainable Seafood Dinner prepared by six world-renowned chefs. Information on Sustainable Seafood, seafood recipes from the twenty partner restaurants and tickets for the dinner are all available on the South Carolina Aquarium website.



### AVOID

Caviar, Beluga/Osetra/Sevruga  
Chilean Sea Bass  
Cod, Atlantic/Icelandic  
Crab, King (*imported*)  
Lingcod  
Monkfish  
Orange Roughy  
Rockfish/Rock Cod/Pacific Snapper  
Salmon (*farmed/Atlantic*)  
Sharks (except U.S. West Coast Thresher)  
Shrimp (*imported*)  
Sturgeon (*wild-caught*)  
Swordfish (*Atlantic*)  
Tuna, Bluefin

### BEST CHOICES

Abalone (*farmed*)  
Cattfish (*U.S. farmed*)  
Caviar (*farmed*)  
Clams (*farmed*)  
Crab, Dungeness  
Halibut (*Pacific*)  
Lobster, Rock (CA, Australia)  
Mussels (*farmed*)  
Oysters (*farmed*)  
Sablefish/Black cod (AK, BC)  
Salmon (CA, AK; *wild-caught*)  
Salmon, canned  
Sand Dabs  
Sardines  
Sea Bass, White  
Shrimp/Prawns (*trap-caught*)  
Squid (CA market squid)  
Striped Bass (*farmed*)  
Sturgeon (*farmed*)  
Tilapia (*farmed*)  
Trout, Rainbow (*farmed*)  
Tuna, Albacore/Yellowfin/  
Bigeye (*troll/pole-caught*)



*Chefs from Fishwife Restaurant serve up tilapia, a "Best Choices" seafood, during Cooking for Solutions at Monterey Bay Aquarium in 2002.*

## Educational Efforts

Education remains the primary focus of all Coastal Ecosystem Learning Centers. Here are a few highlights from the past year. **Monterey Bay Aquarium's** Splash Zone - Rock and Reef Homes received the AZA Significant Achievement Award for new exhibits and the AZA Education Award in 2002. The **IGFA Fishing Hall of Fame and Museum** hosted Brownie and Junior Girl Scout Overnights, which included activities to earn an EPA Water Drop Patch. **Texas State Aquarium** collaborated with the US Fish and Wildlife Service, the Gulf of Mexico Program, Texas Parks and Wildlife Department, Gladys Porter Zoo and Sea Turtle, Inc. on a sea turtle program for teachers. Educators from Texas and Mexico attended the first in a series of workshops this January.

Educational efforts continue to extend beyond CELCs. The **Seattle Aquarium** in partnership with King County Department of Natural Resources, completed their fourth season of naturalist training. Over 120 Beach Naturalists made over 20,000 contacts with the public between May and August at seven beaches. Cedar River Naturalists educated over 4700 visitors during a major sockeye salmon run. **Dauphin Island Sea Lab's** Baymobile visits schools around Alabama with messages of clean watersheds and coastal ecology, and hands-on lab activities. The **New York Aquarium's** Elly Jelly exhibit has been used as the basis for a national curriculum for grades 1-3.

With the assistance of the CELC liaison for the Northeast Region, several CELCs scheduled educational cruises aboard the Environmental Protection Agency's ocean survey vessel *Peter W. Anderson*. The vessel is equipped for surveys and monitoring along the coast using side-scan sonar, water sampling, plankton tows, trawls and bottom grabs. The **New England Aquarium** brought together Boston public school teachers, teens, and scientific experts on the *OSV Anderson*. They spent the day conducting bottom grabs and otter trawls to investigate conditions in Boston harbor and Massachusetts Bay. The vessel then headed to New London, where **Mystic Aquarium** and Coastal America partners organized a trip for Connecticut students and teachers. The *Anderson* then docked at Fort Trumbull and was open to the public for the afternoon. EPA staff and guest scientists were on-board to explain the workings of the ship, provide demonstrations of equipment and answer any questions. The total of four trips (including two sponsored by the Corporate Wetlands Restoration Partnership) included close to 80 teachers and students and two dozen Coastal America partners.



*The Dauphin Island Sea Lab Baymobile visits schools with messages of clean watersheds and coastal ecology.*



*Brownies practice gyotaku, a Japanese form of fish printing art, during the February 2003 overnight at IGFA for the EPA Water Drop Patch.*



*The Texas State Aquarium's teacher workshop on sea turtles will expand conservation awareness for these endangered species.*

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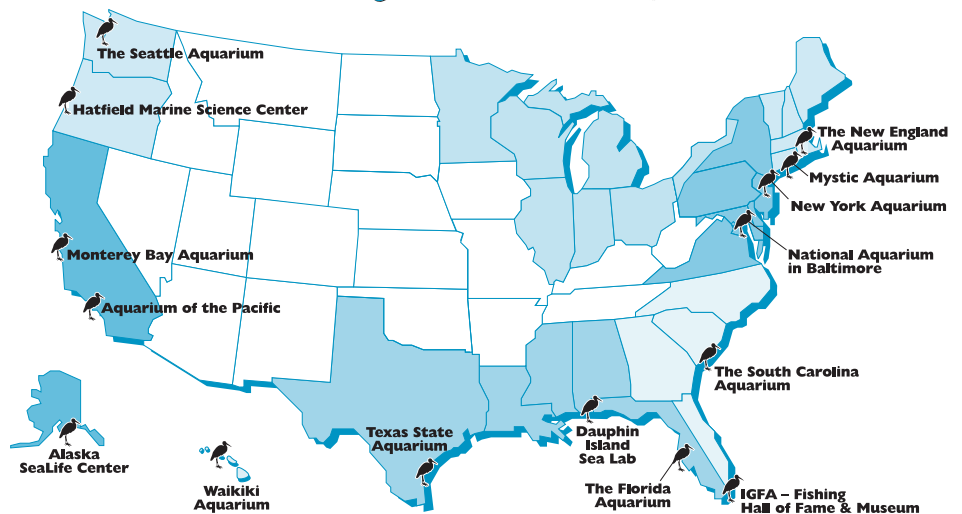
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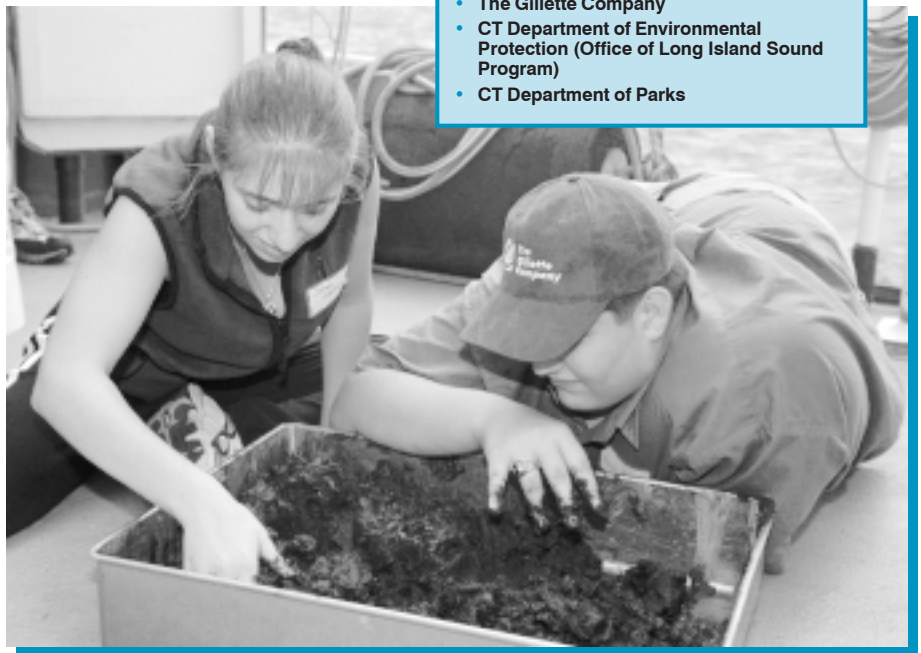


**For information on  
Coastal America  
and links to all  
of the CELCs,  
go to  
[www.coastalamerica.gov](http://www.coastalamerica.gov)**



**Agencies, Organizations,  
Companies That Made the  
Anderson Activities a Success:**

- US Environmental Protection Agency
- US Fish and Wildlife Service
- US Coast Guard
- US Army Corps of Engineers
- NOAA/National Marine Fisheries Services
- New England Aquarium
- Mystic Aquarium
- MA Wetlands Restoration Program
- Save the Harbor
- Save the Bay
- MA Water Resources
- MA Executive Office of Environmental Affairs
- Maritimes and Northeast Pipeline
- The Gillette Company
- CT Department of Environmental Protection (Office of Long Island Sound Program)
- CT Department of Parks



*Two students examine bottom sediments from Boston harbor on the OSV Anderson trip organized by the New England Aquarium.*

## Time to Act

Human activities of the past and present continue to pose a threat to our natural environment. Several Coastal Ecosystem Learning Centers are very active in local restoration efforts.

The Conservation Department at the **National Aquarium in Baltimore** provides opportunities for volunteers to actively engage the public in the restoration of habitats and increase environmental awareness in Bay communities. The Aquarium Conservation Team (ACT!) is a volunteer corps dedicated to the restoration of estuarine habitats in the Chesapeake Bay.

In partnership with the National Park Service, the Aquarium maintains and monitors a ten-acre created tidal wetland adjacent to Fort McHenry National Monument and Historic Shrine in Baltimore. Although this site is vital for many species of wildlife, including sea ducks, herons, muskrats, and red-winged blackbirds, years of neglect have left this site saturated with debris. During 2002 three public restoration days allowed for the removal of close to 55,000 pieces of debris and the planting of 2,000 marsh

grasses and 50 various species of trees. Ornithological observations marked the sighting of the Northern Goshawk, the 201<sup>st</sup> bird species to visit the wetland since studies began in 1999.

In conjunction with the Aquarium's new exhibit: *Seahorses: Beyond Imagination!* and in partnership with the Department of Defense, the Aquarium leads a seagrass

restoration project at Langley Air Force Base. During October 2002 ACT! worked with Langley Air Force Base and local community groups to restore a 50,000 square foot area of the Back River with approximately 20,000 units of eelgrass. Aquarium staff returned to the site a month after planting and plant survival rates were estimated at over 80%.



*ACT! Volunteers at Eastern Neck National Wildlife Refuge in Maryland dig holes, pour fertilizer and plant marsh grass.*



*A Seattle Aquarium trained naturalist explores Puget Sound with two students (see Educational Efforts on page 4).*

**The New England Aquarium** engaged in collaborative planning for an upcoming salt marsh restoration project at the Broadmeadows Marsh in Quincy, Massachusetts. Aquarium staff worked with a nearby middle school, local community groups, NOAA, US Fish and Wildlife Service, Massachusetts Audubon Society, and the Army Corps of Engineers to develop a plan that includes community involvement in the restoration and planting process, as well as in ongoing monitoring and maintenance. They hope to see this site become a platform for ongoing salt marsh investigation and monitoring activities by participants in the Aquarium's programs and students at the Broadmeadows Middle School.

## Sharks and Seamounts

Coastal Ecosystem Learning Centers continue to expand scientific knowledge of our aquatic ecosystems through research. This knowledge can lead to further understanding and public awareness through education.

A new **Seattle Aquarium** research initiative focusing on 6-gill sharks in Puget Sound is underway. The project includes a long-term behavioral observation program and the construction of a permanent research station in 60 feet of water. Seattle Aquarium biologists intend to work with the Washington Department of Fish and Wildlife, Vancouver Aquarium and Point Defiance Zoo and Aquarium to attach visual markers to sharks and gather tissue samples to study population genetics.

Last spring researchers from **Monterey Bay Aquarium**, Aquarium Research Institute, and Monterey Bay National Marine Sanctuary explored the Davidson Seamount 1300 meters below the ocean's surface off California's Big Sur coast. The 2300 meter high mountain was observed with the aid of a remotely operated vehicle (ROV). Headed by Dr. Andrew De Vogelaere, the team of geologists, marine biologists, educators and resource managers took samples, studied the living creatures and mapped the 40 kilometer long seamount.

*On the final day of Aquarium of the Pacific's Student Ocean Conference, students are engaged with presentations.*



*Dr. Sylvia Earle and a student explore the touchtank at the Alaska SeaLife Center's Student Ocean Conference.*

## Student Ocean Conferences

Four Student Ocean Conferences were held in 2002 at the **Alaska SeaLife Center**, **Hatfield Marine Science Center**, **Monterey Bay Aquarium** and the **Aquarium of the Pacific**. To date, Coastal America and the National Geographic Education Foundation have sponsored nine conferences at CELCs around the nation. Funding is available for three additional conferences and there are preliminary plans for a National Student Ocean Conference. For additional information, please see 2001 and 2002 Coastal America Updates and the upcoming 2002 Annual Report.



*A student examines phytoplankton with a microscope during the Student Ocean Conference at Hatfield Marine Science Center.*

**CALENDAR**

**March 21**

Nominations for Partnership Awards Due

**April 13-16**

Restore America's Estuaries Conference  
Baltimore, MD

**June**

Partnership Awards Announced

**June 10-12**

Oceans Week  
Washington, DC

**June 16-20**

Coastal America Retreat  
San Diego, CA

**Regional Chairs**

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Coastal America is a partnership among federal, state and local governments and private alliances to address environmental problems along our nation's coasts. The federal partners are: Departments of Agriculture, Air Force, Army, Commerce, Defense, Energy, Housing and Urban Development, Interior, Navy, State, Transportation, Environmental Protection Agency and The Executive Office of the President.



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