

**Rhode Island Aquatic Invasive Species
Volunteer Monitoring Project**

Rhode Island Land & Water Partnership

7th Annual Land & Water Conservation Summit

URI Memorial Union

Saturday March 27, 2010

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Marine Resources Specialist

Coastal Resources Management Council

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What is an Aquatic Invasive Species?

- *Non-native*
- *Accidentally or intentionally introduced*
- *Causes harm:*
 - *environmental*
 - *economic*
 - *human health*

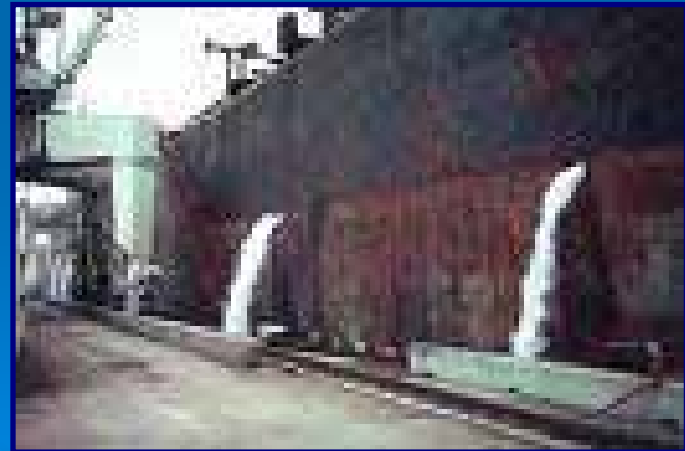


<http://woodshole.er.usgs.gov/>

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How Do They Get Here?

- *Commercial shipping*
- *Recreational boating*
- *Marine research institutions*
- *Aquarium hobbyists*
- *Seafood trade*
- *Aquaculture*
- *Internet*



www.providence.edu/megaport/ballast.htm

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Ecological Roulette

*Not all introduced species survive;
Not all survivors become invasive;*

However...

*The small fraction that becomes invasive causes
enormous economic and environmental
damage*

*- SUBCOMMITTEE ON ENVIRONMENT, TECHNOLOGY, AND STANDARDS
COMMITTEE ON SCIENCE, U.S. HOUSE OF REPRESENTATIVES*

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Why So Nasty?

- *Robust environmental tolerance*
- *Rapid growth & reproduction*
- *Effective dispersal*
- *Outcompete native species*
- *Predators and diseases lacking*



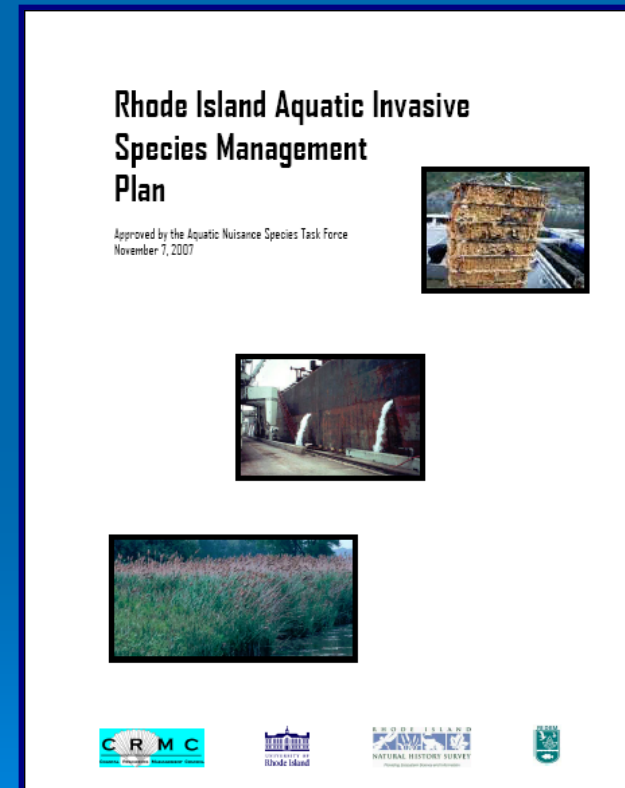
<http://www.sgnis.org>

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National Invasive Species Act



www.northeastans.org/



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Rapid Assessment Surveys

- *RI & MA in 2000*
- *Northeast 2003, 2007*
- *Northeast 2010 in planning stages as we speak...*

Coastal Features

Volume 9, Issue 1
FALL, 2000

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Top Marine Scientists Search for Bioinvasive Species in Narragansett Bay
by Kevin B. Case

This article is the first in a series that will describe a rapid assessment survey for marine bioinvasive species that took place in Narragansett Bay, August 12-18, 2000.

FRUDENCE ISLAND — Marine bioinvasive species (non-native marine organisms) are becoming increasingly identified as a serious threat to fragile coastal ecosystems and the economic activities that depend upon them.

This growing recognition led to the first National Conference on Marine Bioinvasions, January 24-27, 1999 at the Massachusetts Institute of Technology. And when President Clinton announced the federal government's response to the problem a few days later (Executive Order 13113 "Invasive Species"), the stage was set for those charged with the task of protecting the nation's coastal resources to get busy.

The RI Coastal Resources Management Council (CRMC) responded by forming a partnership with the RI Department of Environmental Management Narragansett Bay

by Rhode Island Coastal Resources Management Council

Rhode Island RAS Team: (l-r) Dr. John Chapman, Dr. Charles Lambert, Dr. Seth Tyler, Gretchen Lambert, Dr. Dale Calder, Evangelina Swartz, Dr. James Carlson, Niels Hobbs, Dr. Robert Bofcocks and Dr. Larry Harris

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*Marine Invader Monitoring
and Information Collaborative*

- *Network of trained volunteers, scientists, & state agency staff*
- *Monitor for marine aquatic invasive species along New England coast*
- *Thirteen established & seven potential marine species monitored*

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Habitats Monitored

- *Floating docks*
- *Cobble beaches*
- *Tide pools*
- *Benthic Zone*



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Rhode Island Monitoring Sites 2009

- *Save The Bay / Pt. Edgewood Marina*
- *Allen Harbor Marina*
- *Pt. Judith Marina*
- *Westerly Boat Yard*
- *Fort Adams State Park*
- *Colt State Park / Roger Williams University*

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Field Sampling



Courtesy Judith Dibello



Courtesy Judith Dibello

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Lab Session



AquaCulture02835.com

Courtesy Judith Dibello

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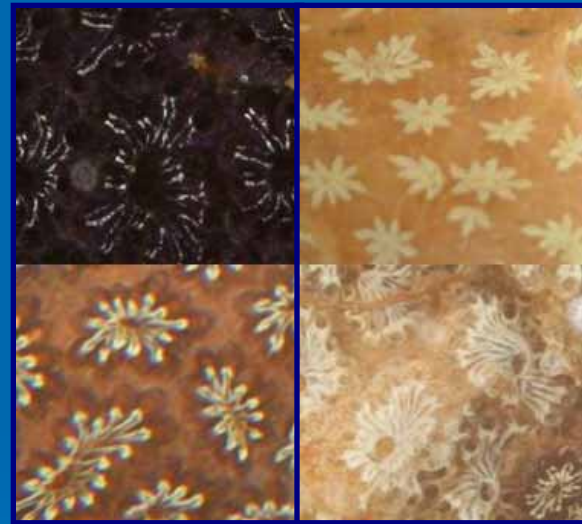
Colonial Tunicate, *Botrylloides violaceus*



- Northwest Pacific origin
- First introduced 1970's
- Widely established

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Colonial Tunicate, *Botryllus schlosseri*



- European origin
- First introduced 1841
- Widely established

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Colonial Tunicate, *Diplosoma listerianum*



- European origin
- First introduced 1990's

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Colonial Tunicate, *Didemnum vexillum*



- Pacific origin
- First introduced 1980's
- Aggressive

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Solitary Tunicate, *Styela clava*



- Pacific origin
- First introduced 1970's

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Solitary Tunicate, *Ascididiella aspersa*



- European origin
- First introduced 1980's

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Green Crab, *Carcinus maenas*



- European origin
- First introduced 1800's
- Widely established

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Asian Shore Crab, *Hemigrapsus sanguineus*



- Pacific origin
- First introduced 1988
- Widely established

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Red Algae, *Grateloupia turuturu*



- Pacific origin
- First introduced 1996
- Expanding populations

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Codium fragile ssp. fragile (tomentosoides)



- Pacific origin
- First introduced 1990's

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Orange-Striped Anemone, *Diadumene lineata*



- Pacific origin
- First introduced 1890's

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European Oyster, *Ostrea Edulis*



massbay.mit.edu

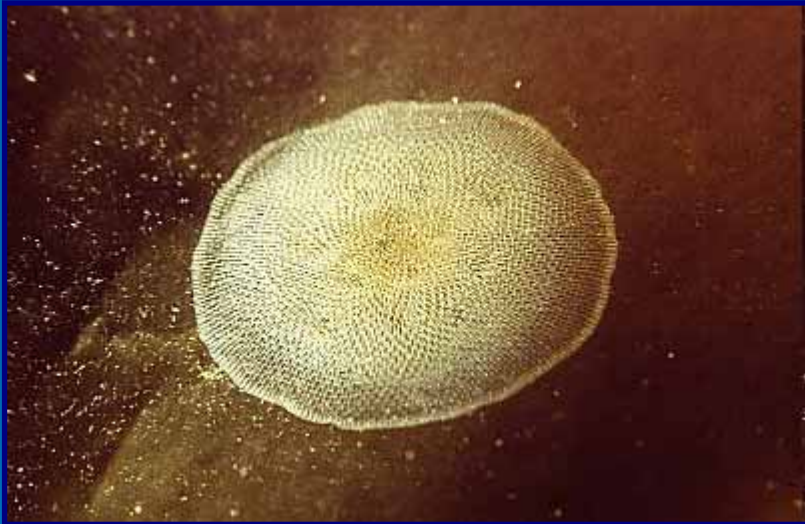


Molecular Ecology Research Group

- European origin
- First introduced 1950's

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Lacy Crust Bryozoan, *Membranipora membranacea*



Peter Jonas



- European origin
- First introduced 1980's



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Corella eumyota, unnamed tunicate



Gretchen Lambert



MarLIN



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Undaria pinnatifida, wakame



Steve Lonhart



© NoE Marine Genomics Europe



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Sargassum muticum, wireweed



Luis A. Solorzano



E. Cook



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Synidotea laevidorsalis, Asian isopod



SERTC/SCDNR



SERTC/SCDNR



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Rapana venosa, veined rapa whelk



© 2001. Juliana M. Harding



ICES



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Hemigrapsus takanoi, brush-clawed crab



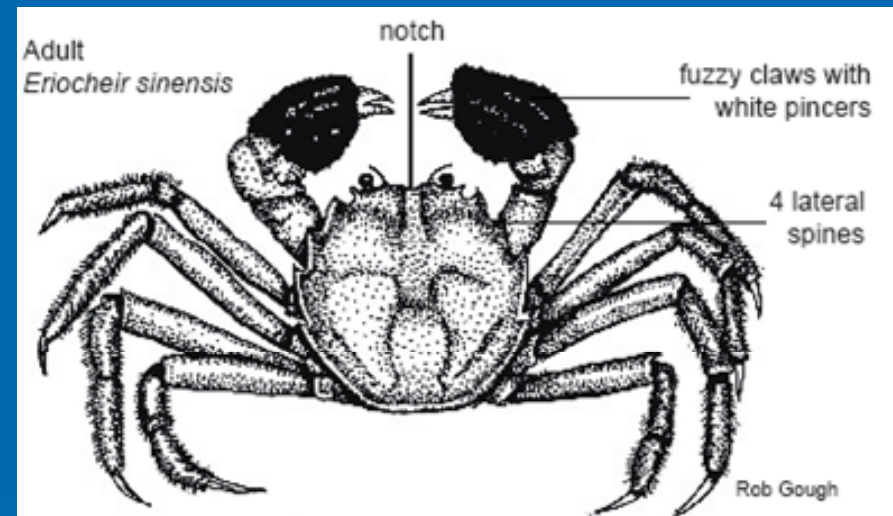
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Chinese Mitten Crab, *Eriocheir sinensis*



- Freshwater/estuarine
- First reported on east coast in 2005
- Has been found as far north as Albany, NY

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The Chinese Mitten Crab Needs a Name!



http://www.crmc.ri.gov/news/2010_0318_crab.html

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