

# **Implementing the Rhode Island Aquatic Invasive Species Management Plan: Current Initiatives and Next Steps**

**CRMC Coastal Education Series**  
Administration Building; Conference Room A  
**September 11, 2012**

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**Coastal Resources Management Council**

# What is an Aquatic Invasive Species?

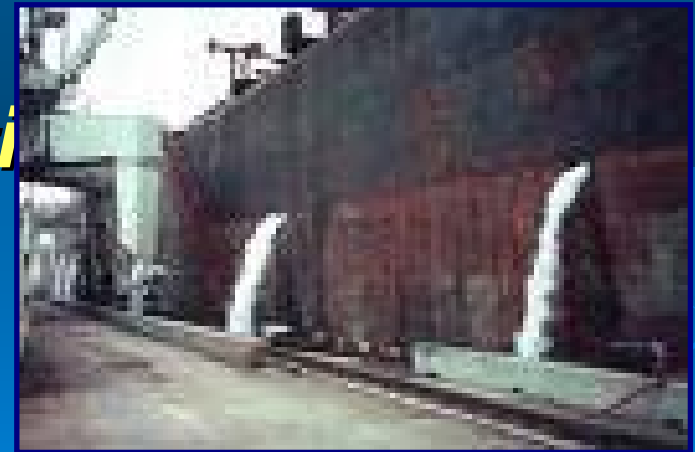
- \* *Non-native*
- \* *Accidentally or intentionally introduced*
- \* *Causes harm:*
  - *Environmental*
  - *Economic*
  - *Human health*



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

# Introduction Vectors

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



[www.providence.edu/megaopt/ballast.htm](http://www.providence.edu/megaopt/ballast.htm)

# 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***

## Why So Nasty?

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



<http://www.sgnis.org>

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## “In The Beginning”

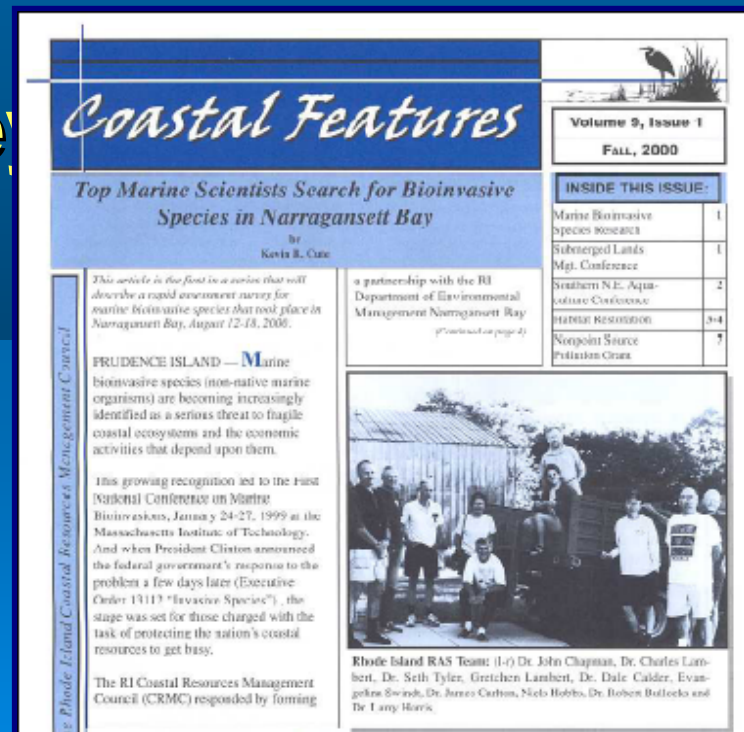
Rapid Assessment Survey

RI & MA 2000

Northeast 2003

2007

2010





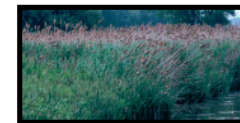
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# National Invasive Species Act of 1996



## Rhode Island Aquatic Invasive Species Management Plan

Approved by the Aquatic Nuisance Species Task Force  
November 7, 2007



# **NEANS Panel States and Provinces**

***Connecticut***  
***Brunswick***

***Maine***

***Massachusetts***

***New Hampshire***

***New York***

***Rhode Island***

***Vermont***

***New***

***Nova Scotia***

***Quebec***



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# **Rhode Island Aquatic Invasive Species Management Plan Working Group**

***Coastal Resources Management Council***

***Narragansett Bay National Estuarine Research  
Reserve***

***Rhode Island Department of Environmental  
Management***

***Rhode Island Natural History Survey***

## **Task 2A: Monitor the Introduction and Spread of AIS in Coastal Ecosystems**

***“...develop a long-term monitoring program  
that includes rapid assessment surveys and  
volunteer monitoring programs to ensure  
comprehensive coverage of Rhode Island’s  
coastal habitats”***

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# **CRMC Monitoring Sites 2009 – Present**

***Save The Bay / Pt. Edgewood Marina***

***Roger Williams University***

***Allen Harbor Marina***

***Fort Adams State Park***

***Pt. Judith Marina***

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# Field Sampling



Courtesy Judith Dibello



Courtesy Judith Dibello



# Colonial Tunicate

## *Botrylloides violaceus*



- \* *Pacific origin*
- \* *Introduced 1970's*

# Asian Shore Crab

## *Hemigrapsus sanguineus*



- \* *Pacific origin*
  - \* *Introduced*
- 1988**



# ***Codium fragile* *ssp. fragile (tomentosoides)***



- \* ***Pacific origin***
- \* ***Introduced***
- 1950's***



# Lacy Crust Bryozoan

## *Membranipora membranacea*



- \* **European origin**
- \* **Introduced 1980's**

# **Task 1G: Develop an Early Detection Rapid Response Strategy to Control or Eradicate Aquatic Invasive Species**

***“...the Coastal Resources Management  
Council shall develop an EDRR network for  
marine Aquatic Invasive Species”***

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## US EPA / CRMC AIS Monitoring Collaboration



Photo provided by US EPA Atlantic Ecology Division

***“Exploring the feasibility of utilizing an Autonomous Underwater Vehicle (AUV) for the detection of aquatic invasive species”***

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## USCG / RWU AIS Monitoring Collaboration



Photo credit: International Maritime Organization

***Using Environmental PCR to Monitor Ballast Water  
for Aquatic Invasive Species***



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# AQUATIC INVASIVE SPECIES MONITORING PROJECT



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