





Monitoring Marine Aquatic Invasive Species in Rhode Island

Niels Hobbs, CRMC contract biologist

Rapid Assessment Surveys in Rhode Island

2000 – the baseline...

2003

2007

2010

Narragansett Bay Expedition:

The 2000
Rapid Assessment Survey of
Non-Indigenous Aquatic Nuisance Species
in Narragansett Bay, Rhode Island

August 12-18, 2000



This report presents the results of the Narragansett Bay Rapid Assessment Survey 2000:

Dr. James T. Carlton, Team Leader, Williams College/Mystic Seaport Maritime Studies Program
Dr. Robert Bullock, University of Rhode Island
Dr. Dale Calder, Royal Ontario Museum
Dr. John Chapman, Oregon State University
Dr. Larry Harris, University of New Hampshire
Dr. Charles Lambert, Prof. Emeritus, Cal. St. Fullerton; U of Washington, Friday Harbor Lab
Gretchen Lambert, University of Washington, Friday Harbor Laboratories
Dr. Seth Tyler, University of Maine at Orono
Evangelina Schwindt, Williams College/Mystic Seaport Maritime Studies Program
Niels-Viggo S. Hobbs, University of Rhode Island

Edited by

Kevin R. Cute, Marine Resources Specialist, RI Coastal Resources Management Council
Niels-Viggo S. Hobbs, Graduate Research Assistant, University of Rhode Island



Rapid Assessment Surveys in Rhode Island

2000 – the baseline...

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IS THIS ENOUGH??

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Volunteer Dock Monitoring



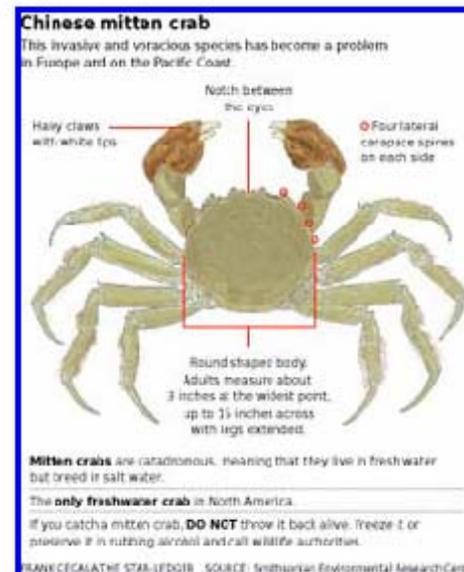
Interested in marine biology? Love our shores?

You can be on the front lines defending our waters from invasive marine species!

The R.I. Coastal Resources Management Council (CRMC) is seeking volunteers to participate in a marine aquatic invasive species monitoring initiative in Narragansett Bay and other coastal water bodies throughout the state. Volunteer monitors will receive training in aquatic invasive species identification and monitoring protocols. Those interested in volunteering will be asked to conduct five monitoring events at floating docks and other coastal habitats during the summer and fall of 2010. Training sessions are scheduled for late May, with sampling beginning in early June. No previous experience with marine species is necessary. Regular monthly laboratory sessions will provide further opportunities for understanding the biology of invasive marine species.

The threat posed by invasive species to the diversity of life on the planet is considered second only to habitat destruction. You can help.

For more information on the volunteer initiative and to sign up to become a field monitor, contact Kevin Cute at CRMC at 783-3370 or kcute@crmc.ri.gov



Volunteer Dock Monitoring

2009 - Present

CRMC – volunteer/ citizen scientist dock monitoring program

Five sites around RI coast

Monthly inspected by teams of trained volunteers, with supervision

May/June - October



Volunteer Dock Monitoring



GUIDE TO MARINE INVADERS IN THE GULF OF MAINE

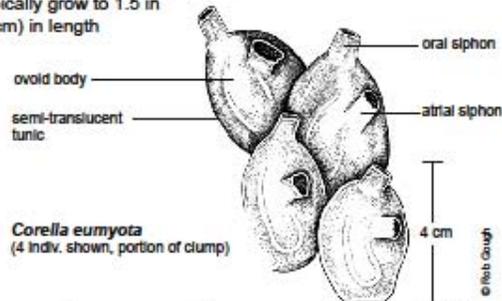
Corella eumyota tunicate

Potential
Invader



PHYSICAL DESCRIPTION

- Grayish, semi-translucent tunic (exterior skin) revealing internal gut and gonads, but occasionally covered with debris
- Rounded, oval or egg-shaped body
- Two prominent siphons: an oral siphon at top, and an atrial siphon located 1/3 of the way down the side of the body
- Often found adhering very tightly to one another in clumps
- Typically grow to 1.5 in (4 cm) in length

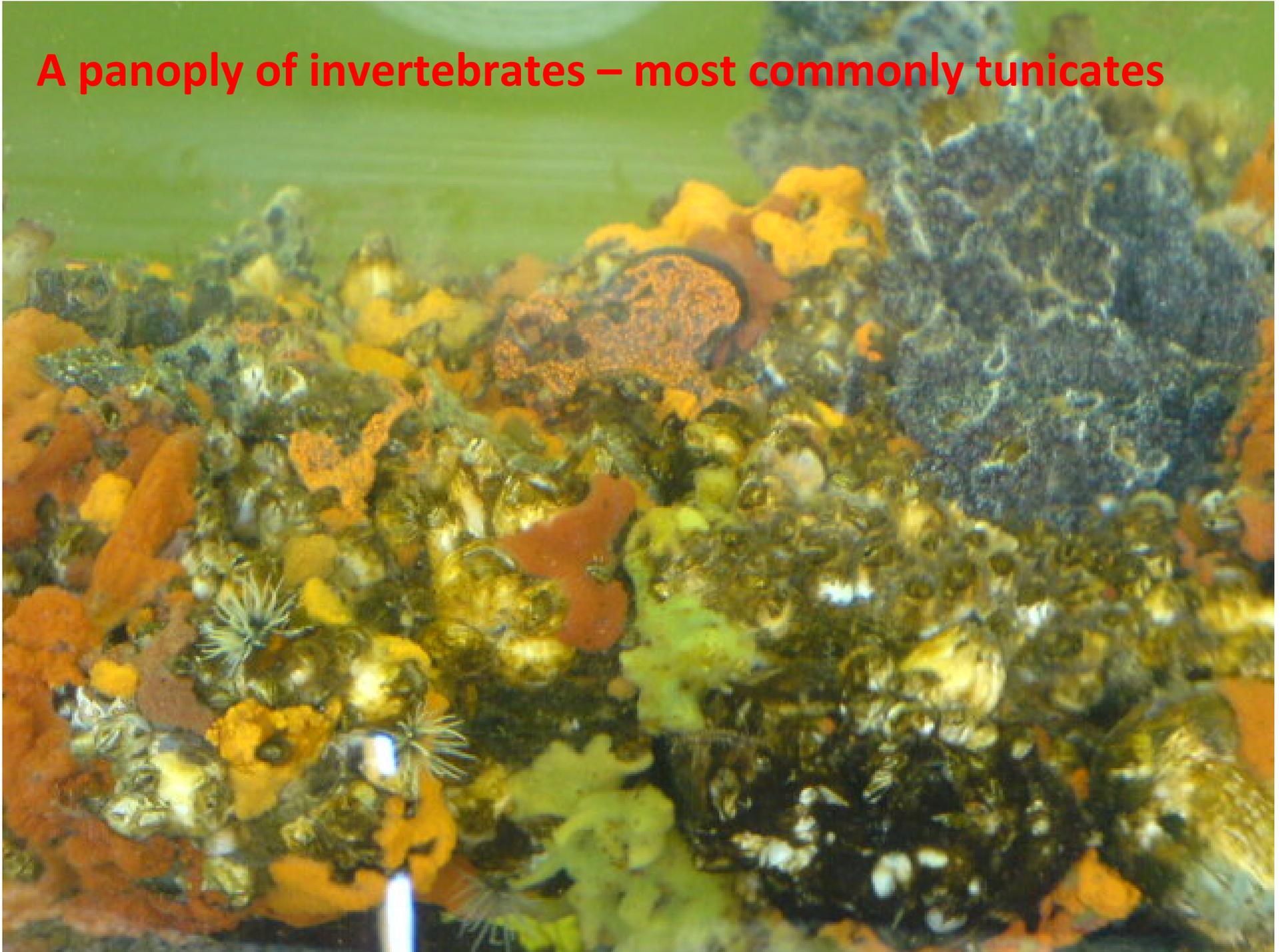


HABITAT PREFERENCE

- Found in shallow, subtidal waters attached to docks, pilings, ropes, and other submerged structures
- Prefers calm, protected waters



A panoply of invertebrates – most commonly tunicates



A panoply of invertebrates – most commonly tunicates



Port Edgewood Marina, Prov RI - and STB docks

	10.06	14.07	14.08	16.09	06.10
Water temp (deg C)	17.3	20.8	21.7	20.6	17.7
Salinity (ppt)	22	20	22	?	26
Species					
<i>Asciidiella aspersa</i>					
<i>Botrylloides violaceus</i>					
<i>Botryllus schlosseri</i>					
<i>Carcinus maenas</i>					
<i>Codium fragile</i>					
<i>Diadumene lineata</i>	2.5	3.5	3.5	4	3.5
<i>Didemnum vexillum</i>					
<i>Diplosoma listerianum</i>					
<i>Grateloupia turuturu</i>					
<i>Hemigrapsus sanguineus</i>		2	3	4	3
<i>Membranipora</i> sp.	2	2			3
<i>Ostrea edulis</i>					
<i>Styela clava</i>					
<i>Caprella mutica</i>					
<i>Bugula neritina</i>					

Point Judith Marina, Snug Harbor RI

	11.06	16.07	16.08	14.09	12.10
Water temp (deg C)	15.2	29	24.2	20.2	?
Salinity (ppt)	34	31	31	30	32
Species					
<i>Asciidiella aspersa</i>		2.5	3	4	2
<i>Botrylloides violaceus</i>	3	3	4	4	3
<i>Botryllus schlosseri</i>	1	3	4	4	2
<i>Carcinus maenas</i>					
<i>Codium fragile</i>	2			3	2
<i>Diadumene lineata</i>	1		2	1	
<i>Didemnum vexillum</i>	3	2	4	4	0
<i>Diplosoma listerianum</i>	1			4	
<i>Grateloupia turuturu</i>			1?	1	
<i>Hemigrapsus sanguineus</i>				2	2
<i>Membranipora</i> sp.					
<i>Ostrea edulis</i>					
<i>Styela clava</i>	3	3	3.5	4	3
<i>Caprella mutica</i>				2	
<i>Bugula neritina</i>			2	2	

Caprella mutica



Caprella mutica



Caprella mutica





Kelly Lab, University of New Haven

Palaemon macrodactylus

P. macrodactylus in Rhode Island

- first collected Sept 2010 in Providence River

- similar numbers collected in May 2011, monoculture

- also present in two subsequent collections in summer 2011, and early summer sampling in 2012.

- with ovigerous females present in collection, species now seems fully established.

- expect widespread occurrence in Narragansett Bay, given natural tolerances.



ENVIRONMENT

In search of alien life in local waters

On the lookout for invasive species: Asian shrimp in the Providence River

By RICHARD SALTZ
JOURNAL STAFF WRITER

PROVIDENCE — On a brisk autumn evening, wispy clouds glow pink and red over the downtown skyline as a Hollywood TV crew

films the medical drama "Body of Proof" under bright lights off South Water Street.

But just across the way, on the shore of the Providence River, a real-life thriller is unfolding. Call it "Alien Invaders."

The protagonist, Ray Hartenstine, a library technician by day and naturalist by night, grips a chicken bone with rotten meat on it and places the

bait in an umbrella-shaped net. He casts it into the murky water and watches it sink to the bottom. Then he waits.

The sky darkens. Suspense builds. Will Hartenstine once again confront the alien lurking in these waters? In August, in these very waters, with the hour approaching mid-

SEE SHRIMP, A10



THE PROVIDENCE JOURNAL / ANDREW DICKERMAN

Ray Hartenstine, a volunteer with the R.I. Coastal Resources Management Council, checks his net as he searches for invasive Asian shrimp in the Providence River.

Nov. 10, 2010

More recent finds
of *P. macrodactylus*

In other portions of
Narragansett Bay



Native
Palaemonetes sp.



Haram, Carlton Lab, Williams Mystic

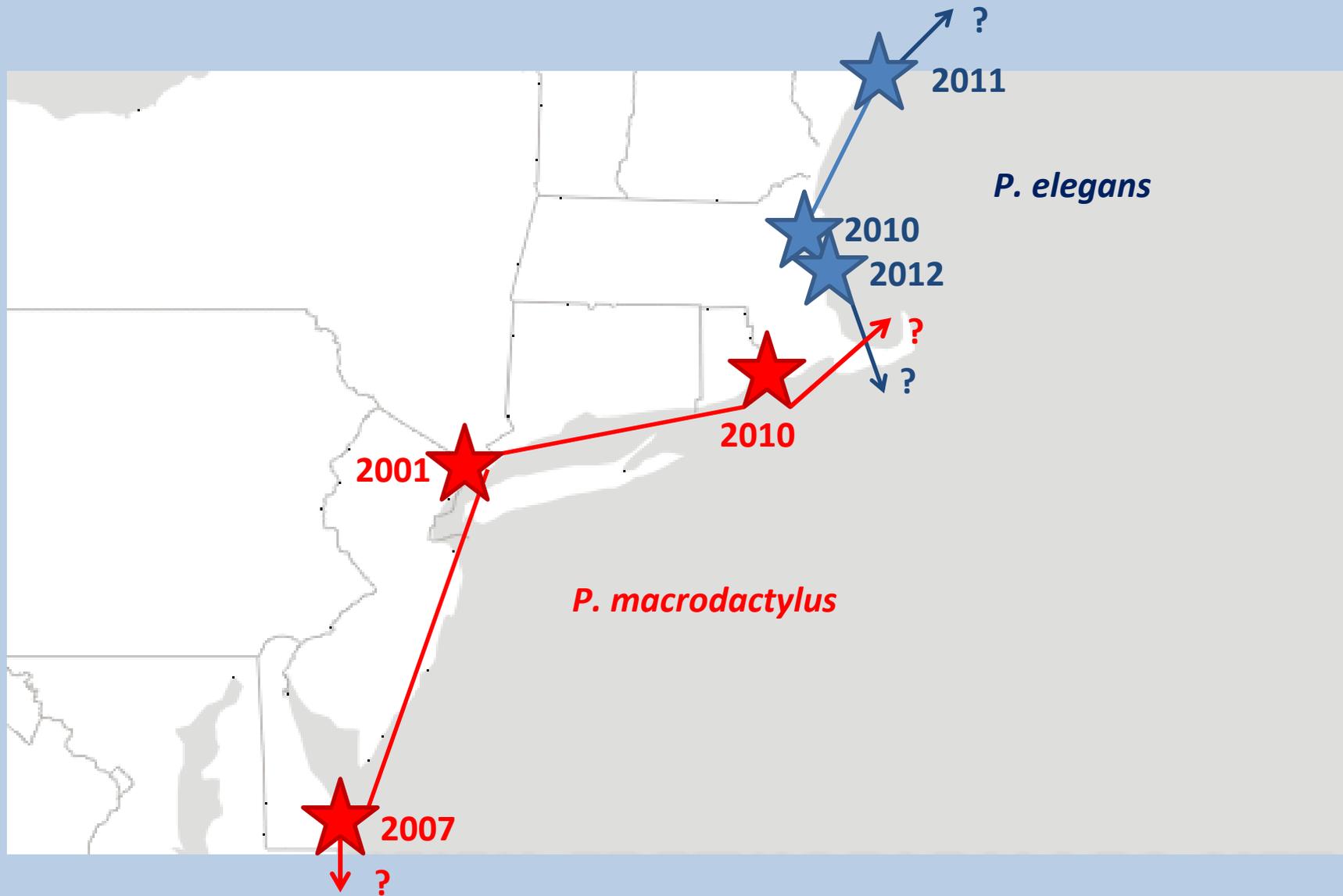
Palaemon macrodactylus



Haram, Carlton Lab, Williams Mystic

Palaemon elegans



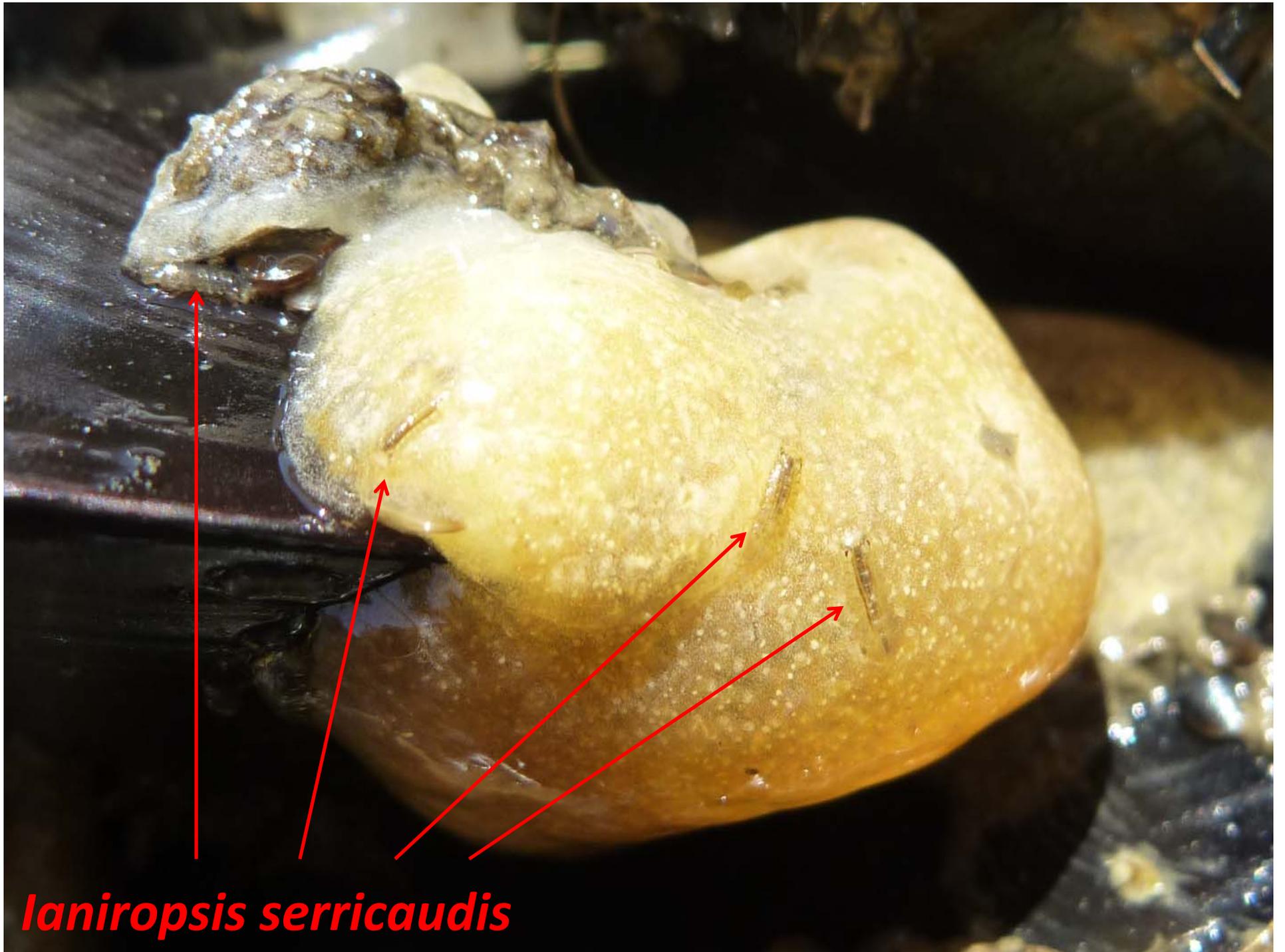




laniropsis serricaudis



laniropsis serricaudis



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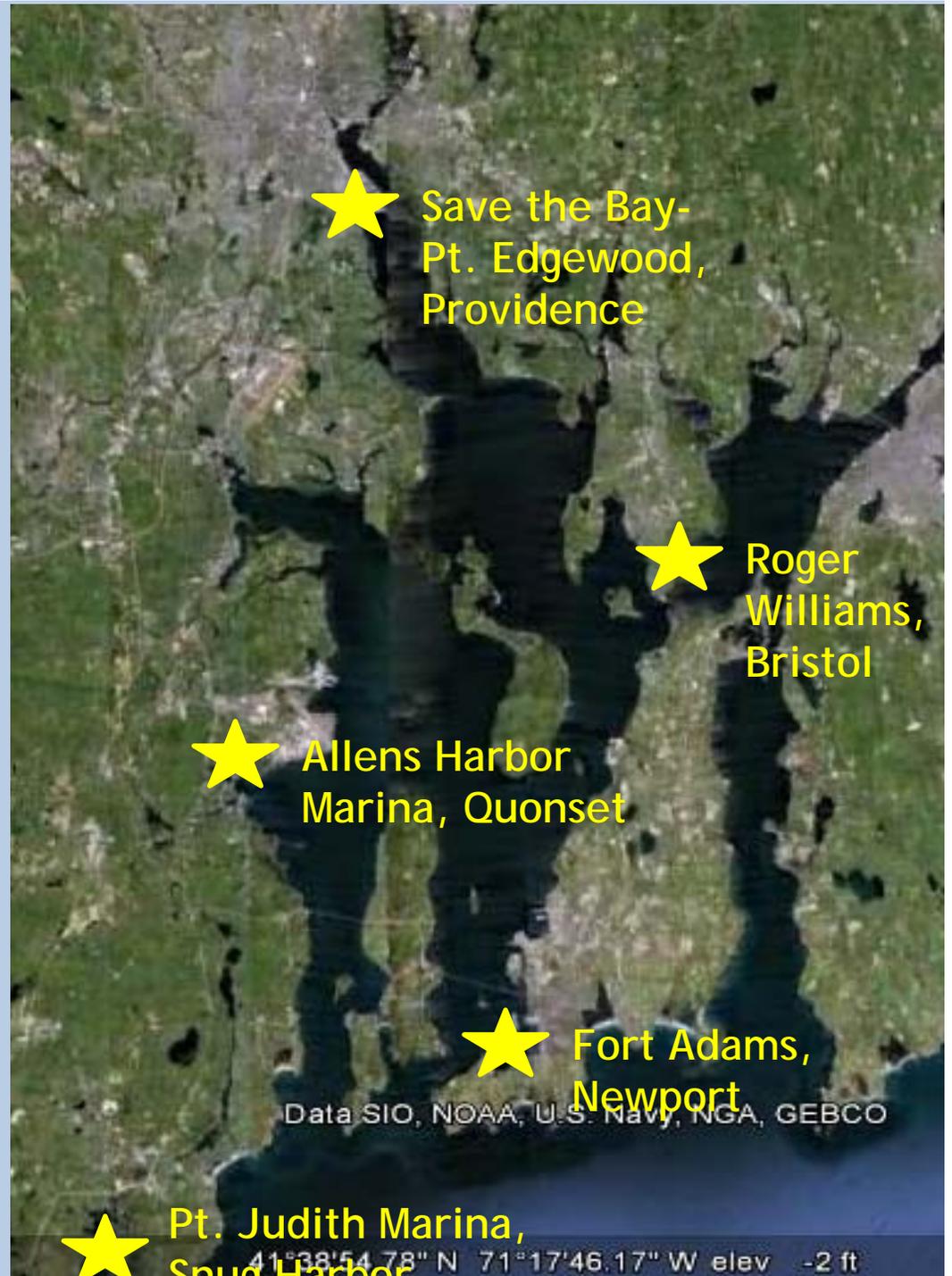
Volunteer Dock Monitoring

CRMC

2009 - Present

Five sites

June - October



Settlement Plate Study

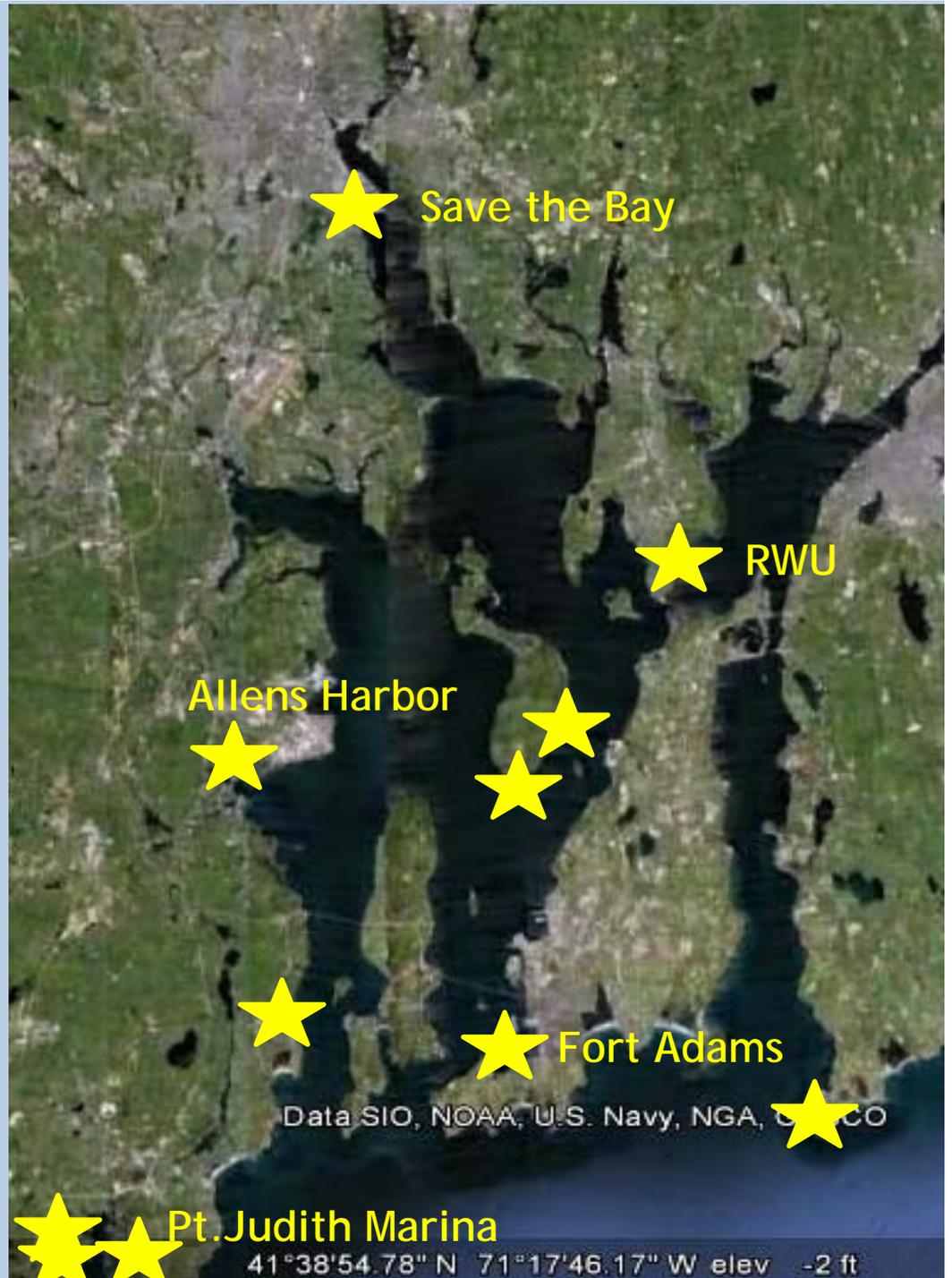
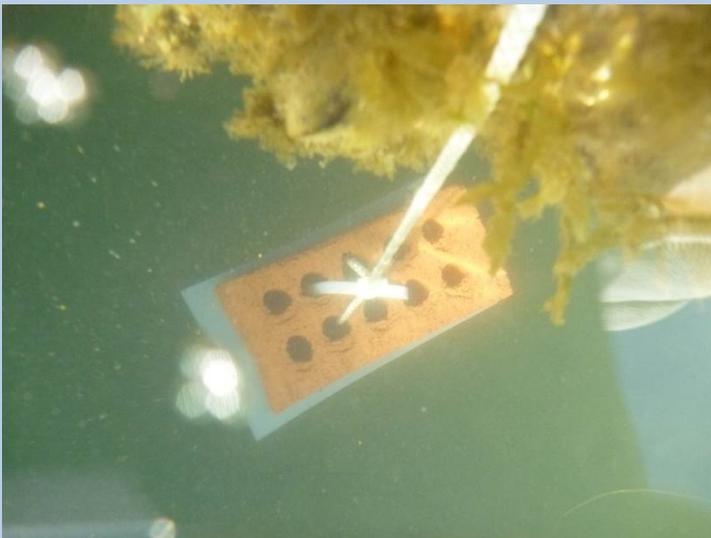
CRMC

New for 2012...

Primarily conducted by more trained staff

Eleven sites and growing...

March - October



Settlement Plate Study



Sakonnet Point



May



June



July



August



Settlement Plate Study

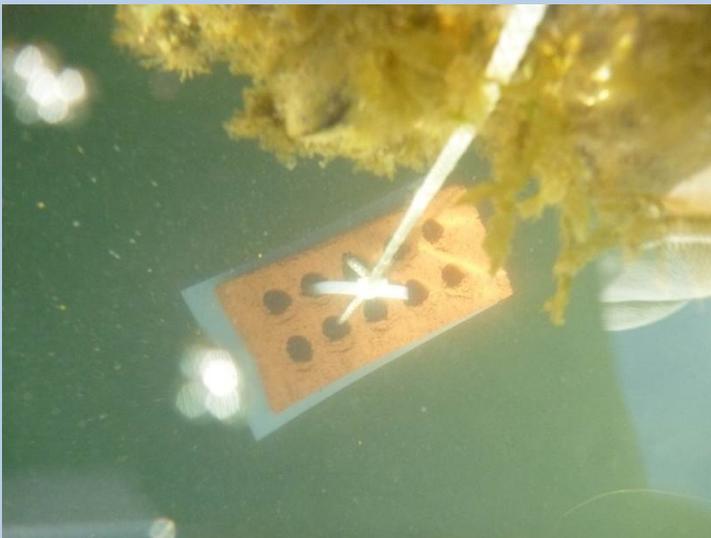
CRMC

New for 2012...

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Eleven sites and growing...

March - October



Allen Harbor Marina



Permanent- August (four months)



Monthly – August (five weeks)

Matunuck Oyster Farm



Permanent- August (four months)

Monthly – August (five weeks)



Photo Credit: Lee Mecum

Eriocheir sinensis - The Chinese mitten crab

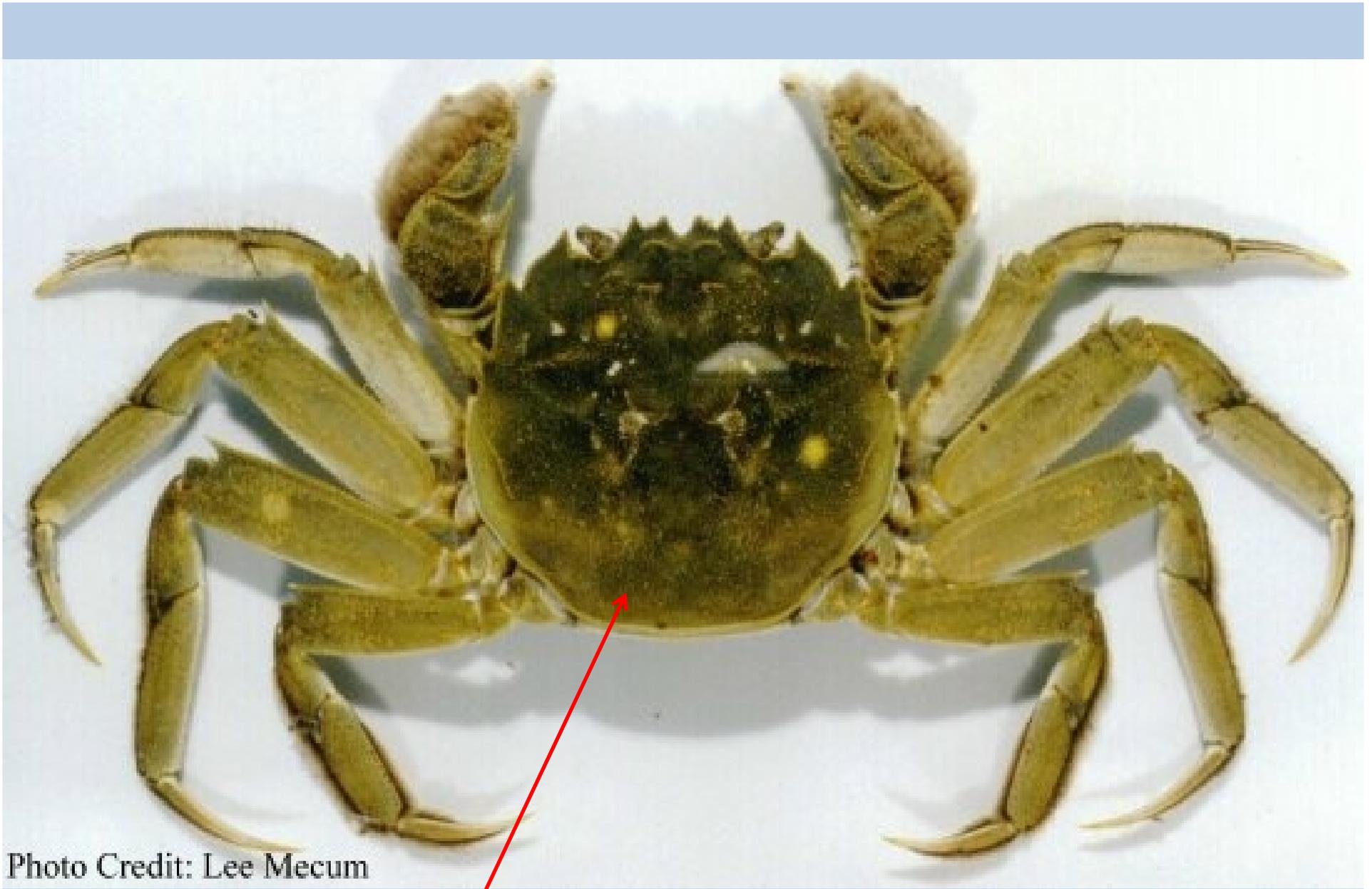


Photo Credit: Lee Mecum

Eriocheir sinensis - The Chinese mitten crab

Thank you!

