

NEANS Panel Meeting
March 14, 2013

Status of Chinese Mitten Crab
Early Detection
Rapid Response Plan

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Early Detection and Rapid Response Plan
for the
Chinese Mitten Crab
in the
Northeast Aquatic Nuisance Species Panel
Region

2011

Significant Changes

Part One – Background

risk assessment

Part Two – Early Detection

monitoring network

outreach/education

Part Three – Rapid Response

needs significant change

Part Four – Recommendations

edit via parts 2 & 3

Part Five – Post Response

incorporate into part 3

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Risk Assessment

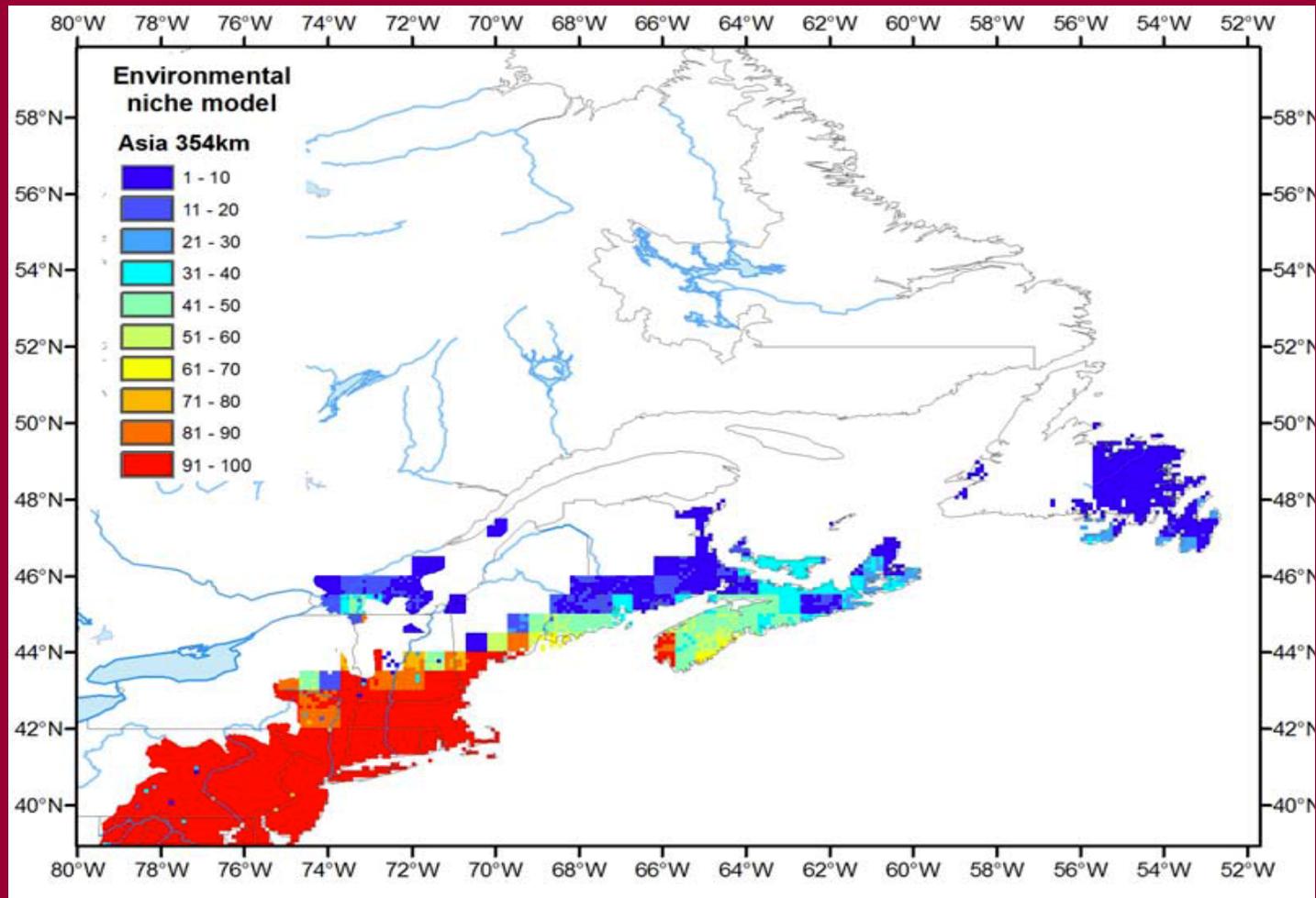


Figure 12: Potential distribution of Chinese mitten crab on the Atlantic coast based on GARP model predictions using the Asian distribution of Chinese mitten crab (Therriault et al., 2009)

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Risk Assessment

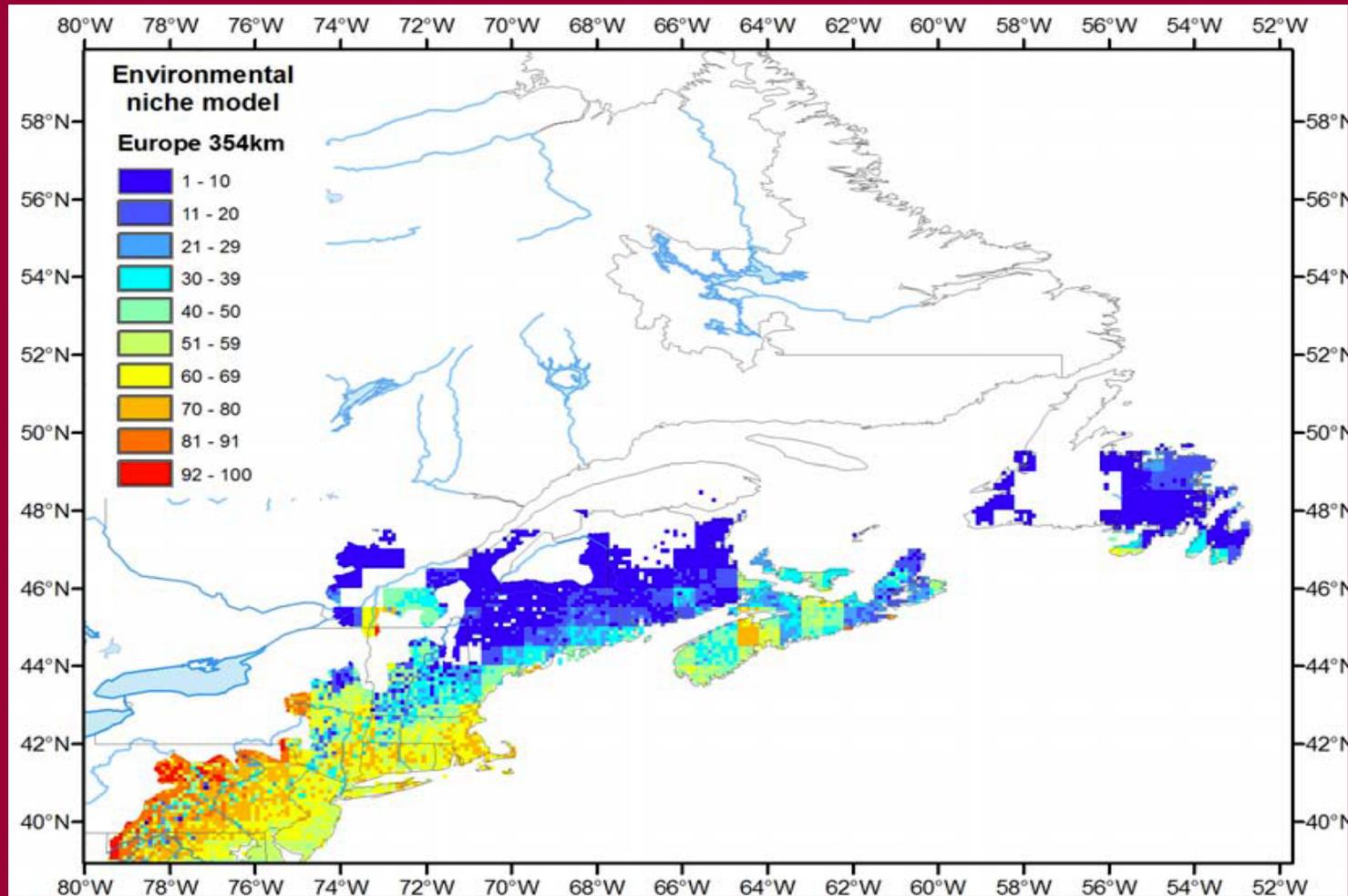


Figure 13: Potential distribution of Chinese mitten crab on the Atlantic coast based on GARP model predictions using the European distribution of Chinese mitten crab (Therriault et al., 2009)

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Early Detection

Partnership-Based Monitoring Networks

- NEANS Panel members provide initial leadership
- Coordination Committee formed:
 - *Identify/Prioritize High Risk Areas*
 - *Adopt Existing or Develop Monitoring Protocols*
 - *Coordinate with Existing Monitoring Efforts*
 - *Recruit and Train Others to Join Monitoring Network*
 - *Develop Reporting/Data Management System*
 - *Outreach/Education/Training*

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Early Detection

NEANS Panel Membership List

<http://www.northeastans.org/docs/NEANSPanelroster.pdf>

**Citizens Monitoring for Marine Invasive Species:
A Regional Approach to Covering the Coast October 23, 2006**

Workshop Proceedings

http://www.northeastans.org/docs/neanspanel_volmon_workshop_ppt_10.2006.pdf

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Early Detection

Links to NEANS Panel Aquatic Invasive Species Monitoring Resources

- 1) **Chinese mitten and Dungeness crabs alert print-ready posters available for the states of Connecticut, Maine, Massachusetts, New York, and Rhode Island.**
(Connecticut) <http://www.northeastans.org/docs/ctcrab.pdf>
(Maine) <http://www.northeastans.org/docs/mecrab.pdf>
(Massachusetts) <http://www.northeastans.org/docs/macrab.pdf>
(New York) <http://www.northeastans.org/docs/nycrab.pdf>
(Rhode Island) <http://www.northeastans.org/docs/ricrab.pdf>
- 2) **Rapid Response to Aquatic Species in the Northeast: Developing an Early Detection and Eradication Protocol May 2003 Workshop Proceedings - document released September 2003 (5.4M, pdf)**
<http://www.northeastans.org/docs/rr-proceedings0903.pdf>
- 3) **Implementing Rapid Response to ANS in the Northeast: Key Components of a Successful Program. May 2005 Workshop Proceedings (5.4M, pdf)**
http://www.northeastans.org/docs/NEANSPanel_RR3.2005.pdf
- 4) **Citizen Volunteer Monitoring Workshop packet with PowerPoint presentations October 2006 (19M, pdf)**
http://www.northeastans.org/docs/neanspanel_volmon_workshop_ppt_10.2006.pdf
- 5) **Freshwater Nuisance Species Prevention & Early Detection: Northeast Programs and Potential for Regional Collaboration. May 2008 Workshop Summary (145k, pdf)**
http://www.northeastans.org/docs/neanspanel.ped_workshop.summary.5.2008.pdf

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Species ID Guide



Mitten Crab *Eriocheir sinensis*

History

- * Between 2005-2008, 19 individuals were confirmed along the U.S. Atlantic coast in the Chesapeake Bay (2005-2007), Delaware Bay (2007), Hudson River (2007-2008), and Raritan Bay and Toms River, New Jersey (2008)
- * In Quebec, specimens have been collected from St. Lawrence River at Notre-Dame-de-Pierreville in 2004 and Quebec City in 2005
- * Both females and males have been found, but an established reproductive population in eastern U.S. has not been confirmed as of the summer of 2008

Characteristics

- * Light brown to olive green
- * Carapace (shell) up to 4 in (10 cm) wide
- * 4 lateral spines on each side of carapace
- * Notch between the eyes
- * Claws hairy with white tips
- * Claws normally equal in size
- * Legs longer than twice the carapace width

Habitat

- * Estuaries, lakes, riparian zones, water courses, wetlands
- * Burrows in the bottom and banks of freshwater rivers and estuaries
- * Tolerates wide range of temperatures
- * Catadromous life cycle: begins as estuarine larva, migrates into freshwater streams for 1-4 years, then returns to coast to reproduce
- * Able to survive in highly polluted aquatic habitats
- * Adept at walking on land and around barriers

Known Distribution

- * Native to east Asia
- * Chesapeake Bay, Delaware Bay, Hudson River, New Jersey, Quebec

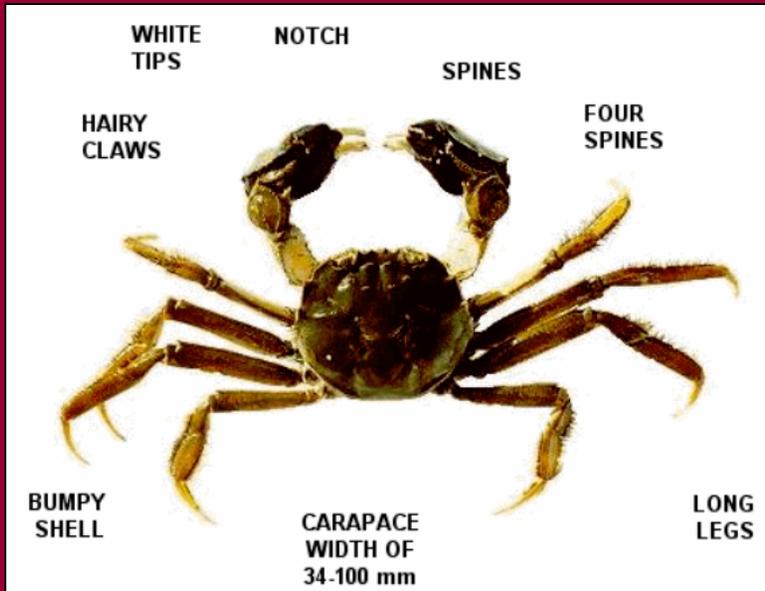
Impacts

- * Efficient predator and competitor for food; may have a profound effect on native biological communities
- * Damage to fishing gear
- * Clogged pumps, screens, and intake pipes
- * Burrowing activity may accelerate erosion of banks and levees



Mitten crab (*Eriocheir sinensis*)
Credit: Christian Fischer

Species ID Guide



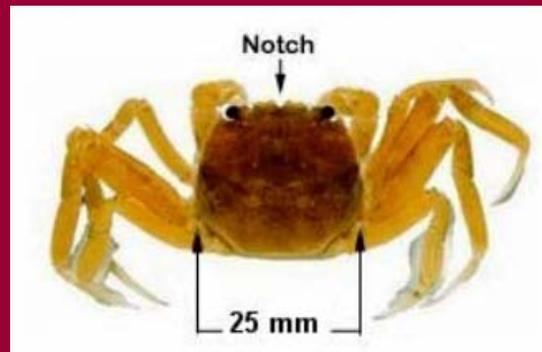
Adult Chinese Mitten crab

<http://www.delta.dfg.ca.gov/mittencrab/>



Female (top) and male (bottom) Chinese Mitten crabs

<http://www.dfg.ca.gov/delta/mittencrab/photos.asp>

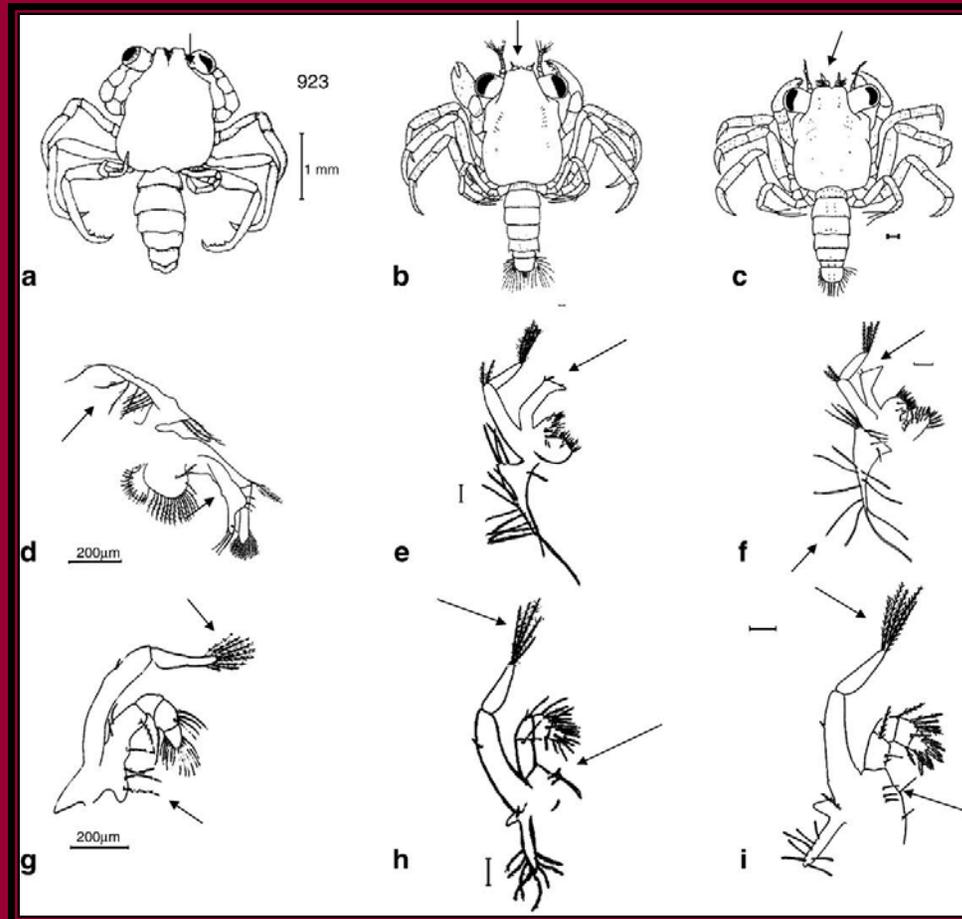


Juvenile Chinese Mitten crab

<http://www.delta.dfg.ca.gov/mittencrab/>

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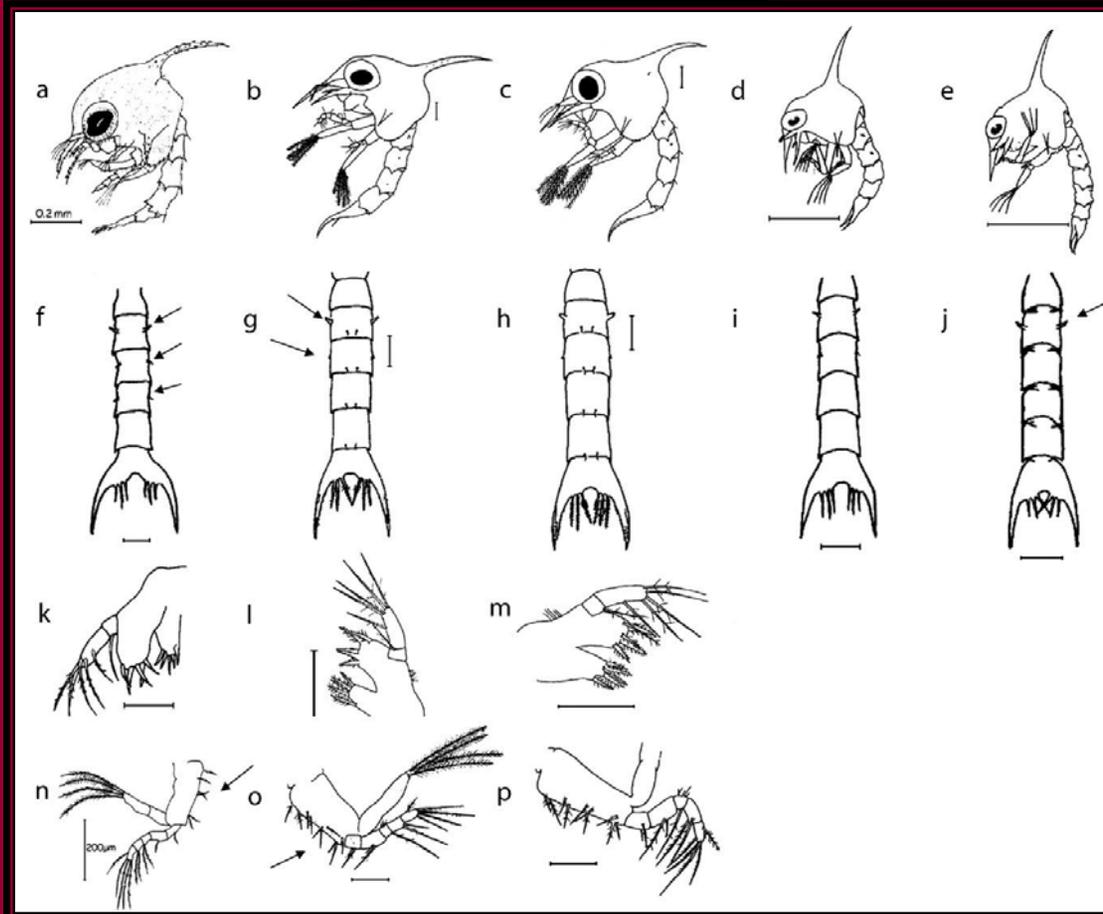
Species ID Guide



(Taken from Kim and Hwang 1990; Hwang et al., 1993; Montu et al., 1996)

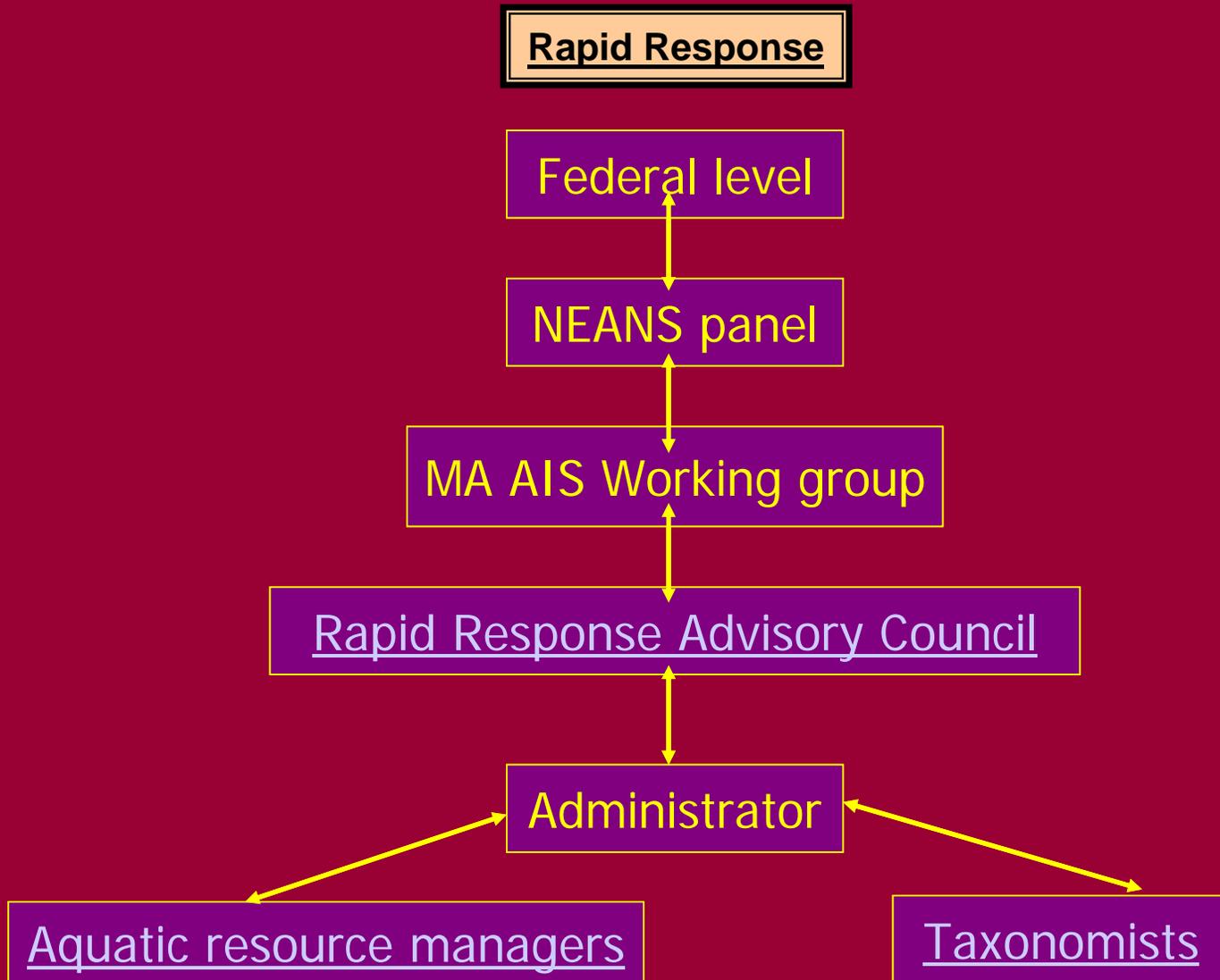
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Species ID Guide



(Taken from: Kim and Hwang, 1990; Hwang et al., 1993; Montu et al., 1996; Rice and Tsukimura 2007).

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Rapid Response

The screenshot shows a web browser window displaying the NEANS (Northeast Aquatic Nuisance Species Panel) website. The page title is "NEANS NORTHEAST AQUATIC NUISANCE SPECIES PANEL". The main heading is "Control Methods for Selected Aquatic and Wetland Nuisance Species*". Below this, a paragraph states: "Below are lists of known available control methods for a select number of invasive aquatic and wetland species. Select type of control from the pull-down menu to view links to information about each procedure (links will open in a new window)".

Navigation links on the left include: Home, About the Panel, What are ANS?, Meetings, Calendar, Resources, Links, and Contact Us.

Five category buttons are shown: Aquatic Plants, Crustaceans, Marine Alga, Mollusks, and Wetland Plants. A key indicates that a red 'P' in a circle means "Present in the NEANS region" and a yellow 'W' in a circle means "Not yet known in the NEANS region".

A disclaimer states: "(This web page is provided for informational purposes only. The NEANS Panel does not make any claims as to which control/eradication methods are 'best,' and is not responsible for the content of external links.)"

The first species listed is "Curly-leaved pondweed" (*Potamogeton crispus*), categorized as an "Aquatic Plant". It has a red 'P' in a circle next to it. Below the name is a dropdown menu labeled "-> Choose a Control Method <-".



Next Steps – Sea Grant Chinese Mitten Crab Plan

- 1) Conduct risk assessments for estuarine water bodies to determine suitability to support the introduction, establishment, and spread of the Chinese Mitten crab
- 2) Characterize estuarine water bodies to assess the suitability of various monitoring and control methods
- 3) Identify agencies, organizations and others *currently engaged in EDRR* to determine interest and capacity to expand current efforts and/or join EDRR network
- 4) Identify agencies, organizations and others *not engaged in EDRR* to determine interest and capacity
- 5) Determine whether other states/provinces are able to and interested in contributing to a neighboring jurisdiction's Chinese Mitten crab EDRR network