Hydrilla Eradication Challenges, Partnerships and Lessons Learned

David Kratville
Calif. Department of Food and Agriculture
• Food and Ag. Code sec. 7271. (a) The Legislature designates the Department of Food and Agriculture as the lead department in noxious weed management and the department is responsible for the implementation of this article in cooperation with the Secretary of the Natural Resources Agency.
California Department of Food and Agriculture
Purple Loosestrife Control Project
• Conducted noxious weed survey, mapping and eradication
• Administered Weed Management Area agreements
• Noxious Weed training
• Assisted Biological Control Program
Amend Section 4500 to read:

§ 4500. Noxious Weed Species.

It has been determined that the following species of plants are noxious weeds within the meaning of Section 5004 of the Food and Agricultural Code:

Acacia paradoxa (Kangaroo thorn)
Acacia aneurolepis (bitty biddy)
Acacia nova-zelandiae (bitty biddy)
Acacia paitita (bitty biddy)
Aeghis emerus (punggrass)
Aeghis repens (Thapsamium r.) (Russian knapweed)
Aeghis cylindrica (jointed goatgrass)
Aeghis ovata (avato goatgrass)
Aeghis triuncialis (barb goatgrass)
Aesculonome spp. (joint-veitch)
Aesculonome rudis (rough joint-veitch)
Aeghis maurosum (camelthor)
Acanthus altissimus (tree of heaven)
Acanthus paniculatum (parceled onion)
Acanthus vinosus (wild garlic)
Alternanthera philoxeroides (alligatorweed)
Alternanthera sessilis (sesile joyweed)
Ambrosia trifida (giant ragweed)
Arctium lappa (balsamroot)
Atriplex canescens (hoary alsea)
Atriplex hirsutissima (slender false-brome)
Calothamia caroliniana (Carolina fanwort)
Cardiaca shalepanica (lens-podded hoary cress)
Cardiaca draba (heart-podded hoary cress)
Cardiaca globosa (globe-podded hoary cress)
Cardiaca acanthoids (plumeless thistle)
Cardiaca crispus (curly plumeless thistle)
Cardiaca nutans (musk thistle)
Cardiaca pyriformis (Italian thistle)
Cardiaca tenufolia (Italian thistle)
Cardiaca baeticus (smooth distaff thistle)
CDFA Border Protection Stations

Approximately 135,000 boats/yr.
1.2 million inspected since 2007
Why Hydrilla?

- Legislation established in 1977 in the Food and Agricultural Code mandates an on-going statewide survey program and eradication where feasible. Makes it unlawful to produce, propagate, harvest, possess, sell, or distribute hydrilla as such or incidental to the sale of fish, aquatic plants, or other hosts or possible carriers of hydrilla. First offense is an infraction, second offense is a misdemeanor (Food and Ag. Code sec. 6048(b)).

* Funding cuts in 2014 ended statewide survey program.
Why Hydrilla?

FUNDING!

• Div. Boating & Waterways – Harbors & Watercraft: $1.5 million
• CA Dept. Water Resources: $612,000
• US Bureau Reclamation: $132,000
• General Fund: $0.00
Hydrilla in Irrigation Canal (CA)

85% reduction in water storage and conveyance
Hydrilla in Foothill Fire Pond (Yuba County)

~ 10 feet deep
Hydrilla, *Hydrilla verticillata*
Diverse native community

Monospecific non-indigenous population
Figure 2. Position of various vegetative propagules on monoecious Hydrilla verticillata.
Successful eradications!
Chemical Control

Contact herbicide burndown (copper), also used in irrigation water.
Chemical Control
Tubers, turions and fragments
Tubers form underground at end of shoots.
Contact Herbicide
Burndown
Submerged tubers and root crowns protected from contact herbicide
Slow release systemic acts as premergent on sprouting tubers
“Eradication”

Protocol extended to continue treatments through 7 years of no finds.
Cooperation and Oversight

Water Resources Control Board – NPDES Permit
Div. Boating & Waterways – Delta Authority
Dept. Water Resources – Cooperation (map/fund)
CA Dept. Fish Wildlife – Weed Risk Assessment
CDFA – Weed lists, ID, exclusion, survey, map
County Ag. Comm. – local enforcement
National Pollution Discharge Elimination System

- Sixth Circuit Court ruling 2009, aquatic pesticide applications require NPDES permit
- Requires monitoring prior to, during and after applications for:
  - pesticide levels
  - **Dissolved Oxygen**, pH, temperature, conductivity, water color/odor, etc.
Continuous temperature readings
DO will be added in 2017
# 2016 Water Temperatures

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Division of Boating and Waterways

- Harbors and Navigation Code sec 64.5. (a) The division is designated as the lead agency of the state for the purpose of cooperating with other state, ... to manage invasive aquatic plants in the Sacramento-San Joaquin Delta, its tributaries, and the Suisun Marsh.

- Current authority to control: Egeria densa, Water Hyacinth, Spongeplant and Curly-leaf Pondweed

- Potential problems: Eurasian watermilfoil, Waterprimrose, Coontail and Fanwort

- Funded through Harbors and Watercraft Revolving Fund: boat registration fees and gas taxes.
CA Dept. Fish & Wildlife

- Invasive Species Program:
  - Conducts aquatic weed risk assessments for DBW control projects in the Delta

- Wildlife Investigations Lab:
  - Investigates potential pesticide poisonings

- Endangered Species – Clear Lake Hitch
Calif. Dept. Water Resources

- Manages aquatic weeds in State Water Project facilities/infrastructure
- Early detection program for Quagga/Zebra mussels
Conclusion

• Don’t reinvent the wheel!
• Use appropriate authority/jurisdiction
• Coordinate and communicate
Thank you!