

Overview of Invasive Species Presented to the Joint Marina & Recreational Boating Workgroup

California Dept of Fish and Game
Invasive Species Program



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OVERVIEW

- Intro to aquatic invasive species (AIS)
- Why prevent AIS?
- Profiles of some marine and estuarine AIS, mussel update
- Vectors
- Marina Outreach
- CA Dept of Fish and Game's Invasive Species Program
- CAAIST & CISAC

Characteristics of Invasive Species

- Rapid reproduction - can overcome an initial small population size
- Broad environmental tolerance
- Not a picky eater
- A good traveler

WHY PREVENT AIS?

- Alter aquatic habitat
- Displace native species
- Change community structure and food webs
- Alter nutrient cycling & sedimentation

- \$\$\$ Expensive – 2009 study estimated the associated costs in the US due to invasives is \$143 billion annually
- diminish fisheries, foul ships' hulls, and clog intake pipes and conveyances that transport water for drinking & farming

- Cause major impacts to boating ways & swimming areas

- Can impact human health by causing disease such as West Nile Virus

AIS Profile

Star Sea Squirt (*Botryllus schlosseri*)

- Native to Europe
- CA 1947 SF Bay
- Southern CA by 1960's
- Today occurs throughout harbors along CA coast



AIS PROFILES

Atlantic Green Crab (*Carcinus maenas*)

- Native to Europe
- CA 1989 Sonoma Co & Redwood Shores, SF Bay
- Today several bays Monterey to Humboldt



Caulerpa Seaweed (*Caulerpa taxifolia*)

- Native to Caribbean & Indo Pacific
- CA 2000 SD and Orange Co
- No plants found after 2002
- "Eradicated" late 2005



Quagga and Zebra Mussels

Zebra mussels (*Dreissena polymorpha*) &
Quagga mussels (*D. rostriformis bugensis*)
are collectively known as Eurasian
or Dreissenid Mussels



- Native to Ukraine and Russia
- US Great Lakes in late 1980's (ballast water)
- Lake Mead 2007
- Very prolific: 1 million eggs/spawning season
- Free-swimming larvae, transported easily in sm amount of water
- Adults can live at least a week out of water
- Freshwater filter feeders consume lg portions of plankton foodweb

VECTORS

AIS and potential AIS species can be spread in many ways:

- Ballast
- Boats, Trailers
- Airplanes, Seaplanes
- Cargo and mail
- Aerial dispersal during fire fighting actions
- Water diversions
- Livestock
- Wheeled vehicles
- Hiking boots
- Fishing equipment such as waders
- Live bait

Marine Bait Worms

- Sand/blood worms sold at New England retail bait shops
- “Worm weed” used for packing (*Ascophyllum nodosum*)
- Results:
 - 14 seaweed species
 - 2 harmful phytoplanktons
 - 23 taxa of invertebrates
(amphipods, gastropods,
mollusks, annelids,
arachnids, isopods, etc)



Marina Outreach

DON'T MOVE A MUSSEL!

Mussels will ruin your boat, fisheries and California waters!

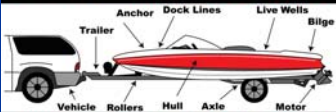
When leaving the water:

- Inspect all exposed surfaces - small mussels feel like sandpaper to the touch.
- Wash the hull of each watercraft thoroughly.
- Remove all plants and animal material.
- Drain all water and dry all areas.
- Drain and dry the lower outboard unit.
- Clean and dry all live-wells.
- Empty and dry any buckets.
- Dispose of all bait in the trash.
- Soak 5 days in hot weather and up to 30 days when cool and moist. Keep watercraft dry between launches into different fresh waters.



REPORT MUSSEL FINDS TO 866-440-9530
VISIT www.dfg.ca.gov/invasives/quaggamusel

LOOK FOR MUSSELS HERE



CHECK YOUR BOAT, TRAILER AND VEHICLE

DFG's Invasive Species Program

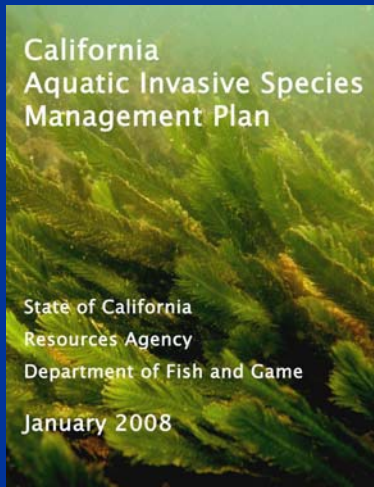
Mission: to reduce the negative effects of non-native invasive species on the wildlands and waterways of California

- Coordination / Planning
- Regulations / Policy Development
- Outreach / Training
- Prevention and Response

California Marine Invasive Species Program

- CA State Lands Commission's program works with commercial vessels to manage ballast water discharge, fouling removal and hull husbandry reporting
- DFG's (OSPR) program conducts studies to determine the level of invasion to CA coastal and estuarine waters and to monitor for any new introductions to determine if the ballast program is effective

California Aquatic Invasive Species Management Plan



- Facilitates coordination among 40 state agencies
- Provides platform of information and “how to” framework
- Over 150 specific actions

California Agencies Aquatic Invasive Species Team (CAAIST)

- CAAIST is composed of representatives from over 25 California state agencies
- CAAIST currently includes two standing committees
 - Coordination Committee
 - Technical Committee

Current DFG/CAAIST Goals

- Continue to quantify and assess live bait as an AIS vector
- Assess all current monitoring of the state's coastal, marine, and inland waters for opportunities to incorporate early detection of AIS
- New marketing campaign on aquatic invasive species

Invasive Species Council of California (ISCC)

- The ISCC was established February 2009 and represents the highest level of leadership and authority in state government regarding invasive species
- The ISCC members are six Governor appointed Secretaries
- The ISCC has appointed a California Invasive Species Advisory Committee (CISAC)

California Invasive Species Advisory Committee (CISAC)

- Twenty-four appointed members to serve as representatives of a broad range of constituencies
- CISAC will provide its advice to the council based upon input from and cooperation with other stakeholders and existing organizations addressing invasive species issues

CISAC's Accomplishments

- Developed a statewide "living list" of invasive species
- Developed a Strategic Framework for addressing invasive species in the State
- CISAC/ISCC recently produced a video, PSA, poster and brochure for distributing throughout California



More Information:

www.dfg.ca.gov/invasives

www.iscc.ca.gov