

Appendix M

MANAGEMENT OF INVASIVE SPECIES



INVASIVE SPECIES PROGRAM

Invasive Species in California

WHAT ARE INVASIVE SPECIES AND WHY ARE THEY A PROBLEM?

Californians have benefited from the introduction of plant and animal species necessary for food or other human pursuits; however, there are many other introduced species that can wreak havoc on the state's environment and economy. Those species that cause harm and once established, spread quickly from their point of introduction are often called "invasive."

Invasive species threaten the diversity or abundance of native species through competition for resources, predation, parasitism, interbreeding with native populations, transmitting diseases, or causing physical or chemical changes to the invaded habitat. Through their impacts on natural ecosystems, agricultural and other developed lands, water delivery and flood protection systems, invasive species may also negatively affect human health and/or the economy. Examples of direct impact to human activities include the clogging of navigable waterways and water delivery systems, weakening flood control structures, damaging crops, introducing diseases to animals that are raised or harvested commercially, and diminishing sportfish populations.

A large population of an invasive species can start from a very small number of individuals, and those individuals can be difficult to see, so they may easily go unnoticed. The tiny young of invasive shellfish or insects, a fragment of an aquatic weed or a single plant ready to release its seeds can be enough to start off a population that will ultimately become a multimillion dollar headache for the state. However these populations do not grow from a few individuals to damaging levels overnight, and if populations are detected early enough, there is a good likelihood that they can be eliminated before they cause damage and huge population control costs. Early detection and rapid response are the most effective and cost efficient responses to invasive species, after prevention.

HOW DID THEY GET HERE?

Relatively few non-native species were introduced to California prior to its settlement by Spaniards that began in the 1700's. With the beginning of European settlement, non-native species were carried to California attached to the hulls of ships, submerged in the ships' ballast, or carried along in shipments of grain.

Today, there are many different ways in which non-native invasive species are introduced to the State. Commercial shipping remains a major source of unintentional introductions, along with smaller commercial fishing boats and recreational watercraft. People traveling between natural areas, farms or waterways for work or recreation unintentionally spread invasive species on their vehicles, boats, equipment and even clothing.

Both historically and today, non-native invasive species have also been introduced purposely, without an understanding of the potential consequences of those introductions. This occurs most commonly with plants used for erosion control, livestock forage, and aquarium or garden ornamentals. Some of the animals that in the past were or are currently brought into California as sources of food, fur or pets have turned into major pests.

WHAT DOES THE INVASIVE SPECIES PROGRAM DO?

The mission of the Invasive Species Program is to reduce the negative effects of non-native invasive species on the wildlands and waterways of California. We are involved in efforts to prevent the introduction of these species into the state, detect and respond to introductions when they occur, and prevent the spread of non-native invasive species that have become established. Our projects address problems with introduced animals, plants and microbes, both terrestrial and aquatic. More fundamentally, we try to address the ways by which the species are introduced, typically inadvertently, by human activities. Studies show that preventing introductions is the most effective and cost efficient

way to respond to the problem of invasive species. We conduct our work in coordination with other government agencies and non-governmental organizations.

WHAT ARE THE LAWS AND REGULATIONS REGARDING INVASIVE SPECIES?

(Documents referred to below can be viewed by clicking on the blue text).

Descriptions of Federal and State laws and regulations regarding invasive species can be found in Appendices B and C, respectively, of the [California Aquatic Invasive Species Management Plan](#) (CAISMP). A summary of those laws and regulations is provided in Chapter 5 of the CAISMP. Although this document only addresses management of aquatic invasive species, the majority of the laws that are involved address both terrestrial and aquatic species. When a law applies only to aquatic invasive species it is evident in the title of the law and its description in the CAISMP and its appendices.

Appendix G of the CAISMP includes lists of **aquatic** invasive plants and animal species in California that are regulated by laws and regulations that are species-specific. It is a matrix that shows the status or ratings of these species under various state and federal statutes and policies.

A description of California's laws and regulations to control noxious and invasive weeds can be found in Appendix D of the California Noxious and Invasive Weed Action Plan.

The link for this plan is: www.cdfa.ca.gov/phpps/ipc/noxweedinfo/pdfs/noxious_weed_plan.pdf

A manual on laws and regulations implemented by the California Department of Fish and Game regarding animals with restrictions on their importation and possession can be found at www.dfg.ca.gov/licensing/pdffiles/fq1518.pdf. It includes a list of the species that are regulated by these laws.

FOR OUTDOOR RECREATION ENTHUSIASTS (BOATERS, ANGLERS, HIKERS, ETC.)

- California Department of Boating and Waterways, Boating Clean and Green Campaign:
www.coastal.ca.gov/ccbn/ccbndx.html
- Help stop the spread of New Zealand Mudsnaills (and other invasive species):
<http://mudsnails.com/index.html>
- Protect your waters – Stop aquatic hitchhikers:
www.protectyourwaters.net/aboutus.php
- California Department of Water Resources – Zebra Mussel Watch
<http://www.wdes.water.ca.gov/>
- 100th Meridian Initiative: www.100thmeridian.org/
- San Francisco Estuary Project's Clean Boating Resources
<http://sfep.abag.ca.gov/programs/boated/index.html>

FOR WATER MANAGERS, RURAL CONSTRUCTION, TIMBER HARVEST, AND ENVIRONMENTAL PROFESSIONALS

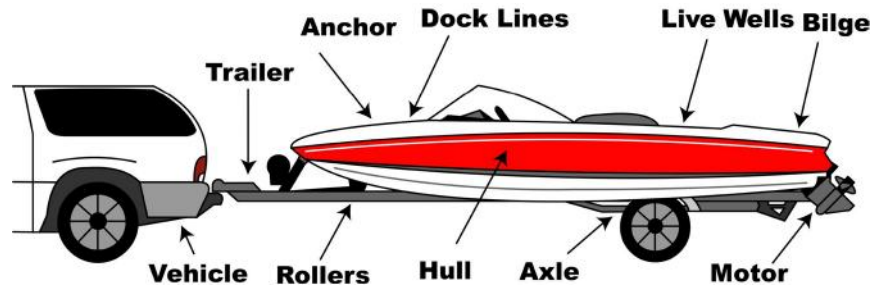
- Develop a customized plan to avoid spreading invasive species from one worksite to another:
www.haccp-nrm.org/
- Avoid spreading New Zealand Mudsnaill (and other invasive species) on field gear:
<http://seagrant.oregonstate.edu/>

What boaters can do to stem the spread of invasive quagga/zebra mussels



- Be aware that transferring a boat that has been in infested waters will allow the spread of quagga mussels, or the closely related zebra mussels.
 - Thoroughly wash the hull of each fishing boat, sailboat, or personal watercraft once it leaves the water. This is especially important if the vessel has been moored for more than a day.
 - Use hot water from a high-pressure hose when possible during all cleaning operations.
 - Thoroughly wash any watercraft trailer used to remove a boat from a lake, river or waterway. Use hot water from a high-pressure hose when possible.
 - Physically inspect all exposed surfaces. The presence of quagga mussels will feel like sandpaper to the touch.
 - Remove aquatic plants from boat, motor and trailer. Check all underwater fittings and equipment, such as rollers, axle, bilge and trailer, and above water equipment, such as anchors, live wells, and docks. Place aquatic plants in trash if possible.
 - Drain any lake or river water from equipment including the motor, bilges, live wells, bait buckets, and coolers. Ensure all drained areas are dry.
 - Ensure the watercraft's lower outboard unit is drained and dry.
 - Dispose of unwanted live bait on shore or in trash.
- Any vessel traveling from Lake Mead, Lake Mohave, Lake Havasu, the Colorado River, or lakes that receive water from the Colorado Aqueduct, including: Lake Skinner (Riverside County), Lake Mathews (Riverside County), San Vicente Reservoir (San Diego County), Dixon Lake (San Diego County), Lower Otay Reservoir (San Diego County), Miramar Reservoir (San Diego County) and Lake Murray (San Diego County) should remain dry and out of water for a minimum of five days or longer depending upon the weather.
- For personal watercraft, impeller areas can contain quagga and zebra mussels and aquatic plants. Once upon the trailer, run the engine for five to 10 seconds to blow out excess water, mussels and plants. Before leaving water access, inspect and remove any mussels or plants from intake, steering nozzle, hull, and trailer.

- Exercise patience at Department of Fish and Game vehicle checkpoints and Department of Food and Agriculture border inspection stations.



For a detailed, boat-specific set of instructions for cleaning and inspecting a vessel, visit:

<http://www.nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=4957>

WHAT YOU CAN DO TO PREVENT THE SPREAD OF NEW ZEALAND MUDSNAILS

- If you wade, freeze waders and other gear overnight (at least 6 hours).
- Have extra waders and boots that are used only in infested waters. Store them separately.
- After leaving the water, inspect waders, boots, float tubes, boats/trailers—any gear used in the water.
- Remove visible snails with a stiff brush and follow with rinsing. If possible, freeze or completely dry out any wet gear.
- Never transport live fish or other aquatic animals or plants from one water to another.
- Snails range in size from a grain of sand to 1/8 inch in length and are black or brown in color.
- **GET THE WORD OUT !**

Additional information is available at:

<http://www.dfg.ca.gov/invasives/public-help.html>

<http://www.dfg.ca.gov/invasives/quaggamussel/>

and

<http://www.dfg.ca.gov/invasives/mudsnail/>