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# Help Keep California Zebra Mussel-Free

## *What are zebra mussels?*

Zebra mussels are small (2 inches or smaller) freshwater mussels, usually with brown or black stripes, that are native to Eastern Europe and Asia. Zebra mussels were accidentally transported to Michigan in the ballast of a trans-Atlantic ship in the late 1980's. Since 1988, this invasive species has rapidly expanded its range throughout the Great Lakes, the Mississippi River and its tributaries, and some inland lakes.

## *Is the zebra mussel in California?*

No, the zebra mussel has not been found in waters west of the Rocky Mountains. As of 1997, Oklahoma is the closest state that has the mussel.



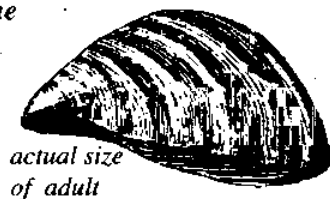
## ***How could the zebra mussel get to California?***

Trailing recreational boats from an area with zebra mussels is one way to introduce them. Adult zebra mussels attach to boat hulls, motors, and engine cooling systems. Because the mussels can survive out of water for more than a week, they can be transported to new waters when they attach to a vessel. Zebra mussels also attach to aquatic plants and can be transported by boaters when plants are caught on boats parts or boat trailers. Microscopic young mussels called veligers can be transported in water stored in boat live wells, bait buckets, and bilges.

## ***What is California doing to keep the zebra mussel out of the state?***

In 1993, California amended a law to make zebra mussels a prohibited species. At that time, the California Department of Agriculture began inspecting boats at border agriculture check stations. Through this inspection program, live zebra mussels have been found on boats entering California.

***Learn what zebra mussels look like. In many states it is illegal to transport zebra mussels and invasive aquatic plants. Be sure you know the rules.***



## ***Why are zebra mussels a problem for you and your boat?***

The zebra mussel is a problem for boaters. Zebra mussels reproduce rapidly and attach to any firm surface, including other organisms and themselves. Impacts to vessels include:

**Attachment** to hulls and submerged outboard motors can increase fuel consumption and operating costs.

**Clogging** of engine cooling water intakes and keel coolers can cause overheating and engine damage.

**Impairment** of boat steering mechanisms and jamming of center boards on sail boats.

**Damage** to hulls from scraping required to remove mussels.

## ***The zebra mussel is a problem for anglers and swimmers.***

Zebra mussels compete with native fish and shellfish for food and habitat. Possible impacts include:

**Depletion** of the food supplies of native species, with potential impacts to commercial and recreational fisheries.

**Fouling** of salmon and trout spawning gravel further reducing the fish populations.

**Impacts** to recreational use of beaches when large numbers of small, sharp dead shells wash up on the shore.



## ***The zebra mussel is a problem for water users.***

Zebra mussel can colonize and clog pipes of up to 2 feet in diameter. In the Great Lakes, these mussels have clogged intake pipes at power plants, public water facilities, golf courses, and firefighting and irrigation systems. Because California is so highly dependent on aqueducts and pipelines to provide water to cities and agriculture, controlling zebra mussels would be very costly to us. Impacts could include:

**Lost pumping ability**, clogged pipes, obstructed valves, and increased corrosion of cast iron pipes, resulting in water delivery problems.

**Safety hazards** if sprinkler systems fail to deliver fire fighting water.

**Smells** from decayed mussel flesh in water systems.

**Higher costs** for water use in California due to eradication and control costs, power production loss, and damaged equipment.

## ***What can you do to keep the zebra mussel out of California?***

Observe the following "good boatkeeping" steps before leaving any launch area or transporting your boat:

**Inspect and remove** zebra mussels and aquatic plants from your boat, motor, and trailer. Inspect your boat's hull, drive unit, trim, and trolling plates, prop guards, anchor, and trailer. Scrape off and discard any suspected mussels or aquatic plants.

**Drain** all bilge water, live wells, and any other water from your boat and equipment.

**Empty** bait buckets and any remaining live bait in a suitable container. Leftover aquatic bait should not be released into any California water body.

## ***Observe the following steps when using your boat in zebra mussel-infested waters:***

**Dry** your boat, trailer, motor, and other equipment for a least one week between trips.

**Wash** the boat, trailer, tackle and other equipment, preferable using hot water (104°F) with a high pressure washer.

**Flush** water through your motor's cooling system, livewells, and other areas that hold water. Then let everything dry for as long as possible.

For more information on zebra mussels or other aquatic nuisance species, contact:

UC Sea Grant Extension Program  
(415) 871-7559

US Fish and Wildlife Service  
(209) 946-6400

The San Francisco Estuary Project  
(510) 286-0800

The California Department of Fish and Game,  
Regional Offices:

- ❖ North CA/North Coast (916) 225-2300
- ❖ Sac Valley/Central Sierra (916) 358-2900
- ❖ Central Coast (707) 944-5500
- ❖ San Joaquin/S Sierra (209) 243-4005
- ❖ S Cal/E Sierra (562) 590-5132

The Sea Grant Nonindigenous  
Species Web Site (SGNIS)  
<http://www.ansc.purdue.edu/sgnis/>

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