



SAVE THE DRAGON
Lake Nacimiento

WWW.NRWMAC.ORG



Watercraft Inspection Handbook

NRWMAC • www.nrwmac.org

WHO WE ARE

The Nacimiento Regional Water Management Advisory Committee – **NRWMAC** represents visitors, property owners and outdoor enthusiasts that enjoy all that Lake Nacimiento has to offer. **NRWMAC** is a volunteer based non-profit organization.

We are a collective voice of the lake area property owners. NRWMAC has a seat on the board of the Monterey County Water Resource Agency's Reservoir Operations Committee. This Committee, which meets in Salinas, controls the outflow of water from the lake and consequently the lake elevation.

Our goal is to maximize the water level in Lake Nacimiento throughout the summer. The **NRWMAC** web site (www.nrwmac.org) provides current information about the Lake, as well as projects and happenings in, on, or about Lake Nacimiento in a easy to find, easy to understand format.



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DON'T MOVE A MUSSEL



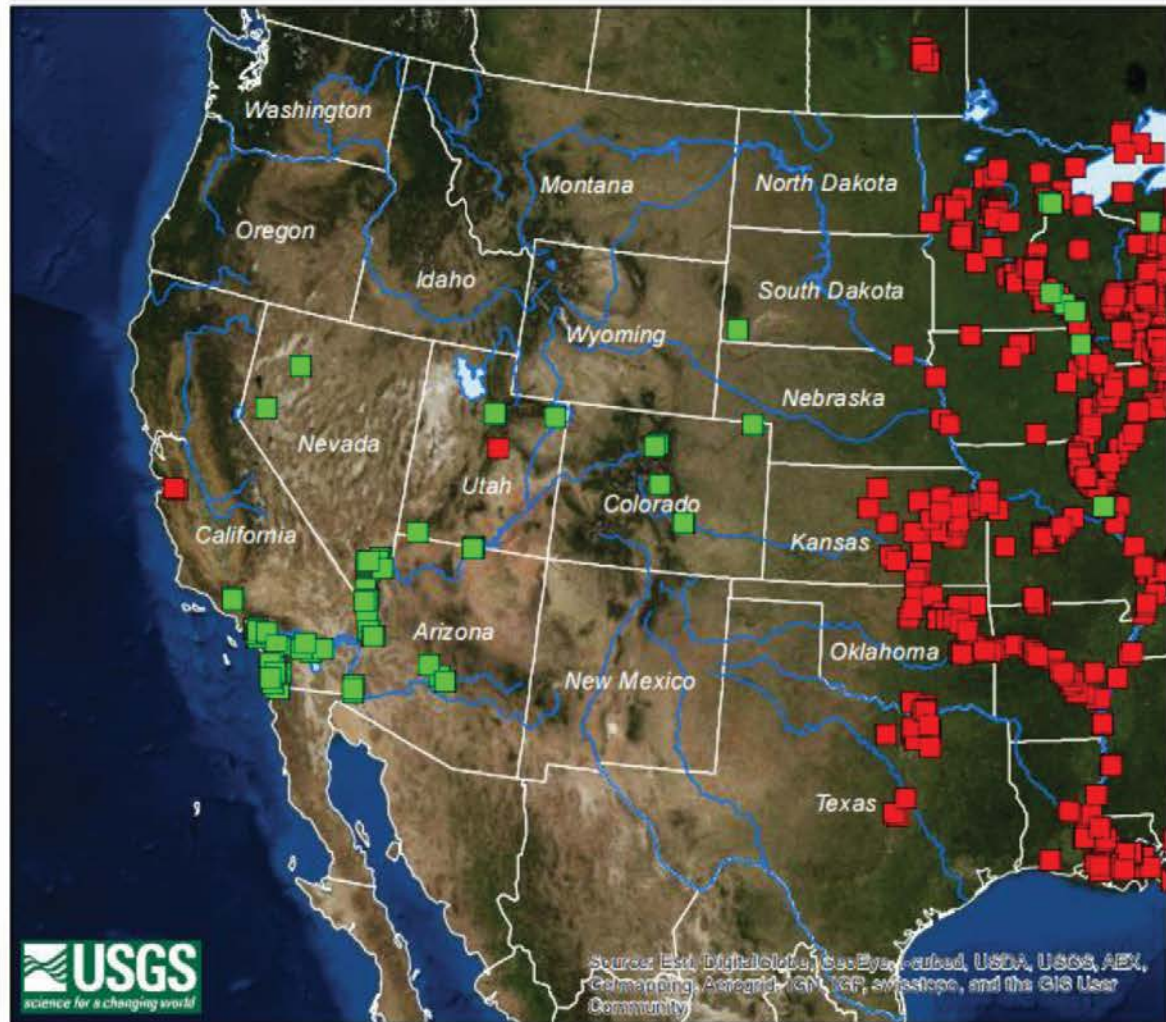
Lakes Nacimiento and San Antonio face a serious threat - dreissenid mussels. Here are basic guidelines on what's at risk, what's planned for 2012, and what you can do to keep area lakes dreissenid mussel-free.

WHAT WOULD HAPPEN IF LAKE NACIMIENTO OR SAN ANTONIO GOT INFECTED?

The lake ecosystem would never be the same. There is no known means of eradication without killing everything else in the lake(s). In other words, once mussels get a foothold, there is no known way to get them out of our lakes. The balance of fish and other species in the lake would be noticeably impacted. Clumps and clusters of mussels would develop and their carcasses would accumulate on the shore.

We would have to declare ourselves an infected water body, a deterrent to boating and a negative impact on the local economy. Boats based at an infected lake would no longer be welcome on other lakes seeking to remain mussel-free.

QUAGGA AND ZEBRA MUSSEL SIGHTINGS DISTRIBUTION IN THE WESTERN UNITED STATES, 2007 - 2015



■ Quagga mussel sightings ■ Zebra mussel sightings

CALIFORNIA

Parker Dam - 2007
 Colorado River Aqueduct - 2007
 Colorado RA at Hayfield - 2007
 Lake Matthews - 2007
 Lake Skinner - 2007
 Dixon Reservoir - 2007
 Lower Otay Reservoir - 2007
 San Vicente Reservoir - 2007
 Murray Reservoir - 2007
 Lake Miramar - 2007
 Sweetwater Reservoir - 2007
 San Justo Lake - 2008
 El Capitan Reservoir - 2008
 Lake Jennings - 2008
 Olivenhain Reservoir - 2008
 Irvine Lake - 2008
 Rattlesnake Reservoir - 2008
 Lake Ramona - 2009
 Walnut Canyon Reservoir - 2009
 Kraemer Basin - 2009
 Anaheim Lake - 2009
 Black and Gold Golf Course pond - 2010
 Lake Poway - 2010

CALIFORNIA (continued)

Shadow Lake Estates lake - 2012
 Coachella Canal - 2012
 Ridgemark Golf Course - 2012
 Lake Piru - 2013
 Lake Forest 1 - 2014
 Lake Forest Keys - 2014

ARIZONA

Lake Havasu - 2007
 Central Arizona Project Canal - 2007
 Lake Pleasant - 2007
 Imperial Dam - 2008
 Salt River - 2008
 Lake Powell - 2012

COLORADO

Pueblo Reservoir - 2008 (Both Species)
 Lake Granby - 2008
 Grand Lake - 2008 (Both Species)
 Willow Creek Reservoir - 2008
 Shadow Mountain Reservoir - 2008
 Jumbo Lake - 2008
 Tarryall Reservoir - 2008

NEVADA

Lake Mead - 2007
 Lake Mohave - 2007
 Lahontan Reservoir - 2011
 Rye Patch Reservoir - 2011

UTAH

Electric Lake - 2008
 Red Fleet Reservoir - 2009
 Sand Hollow Reservoir - 2010
 Deer Creek Reservoir - 2015

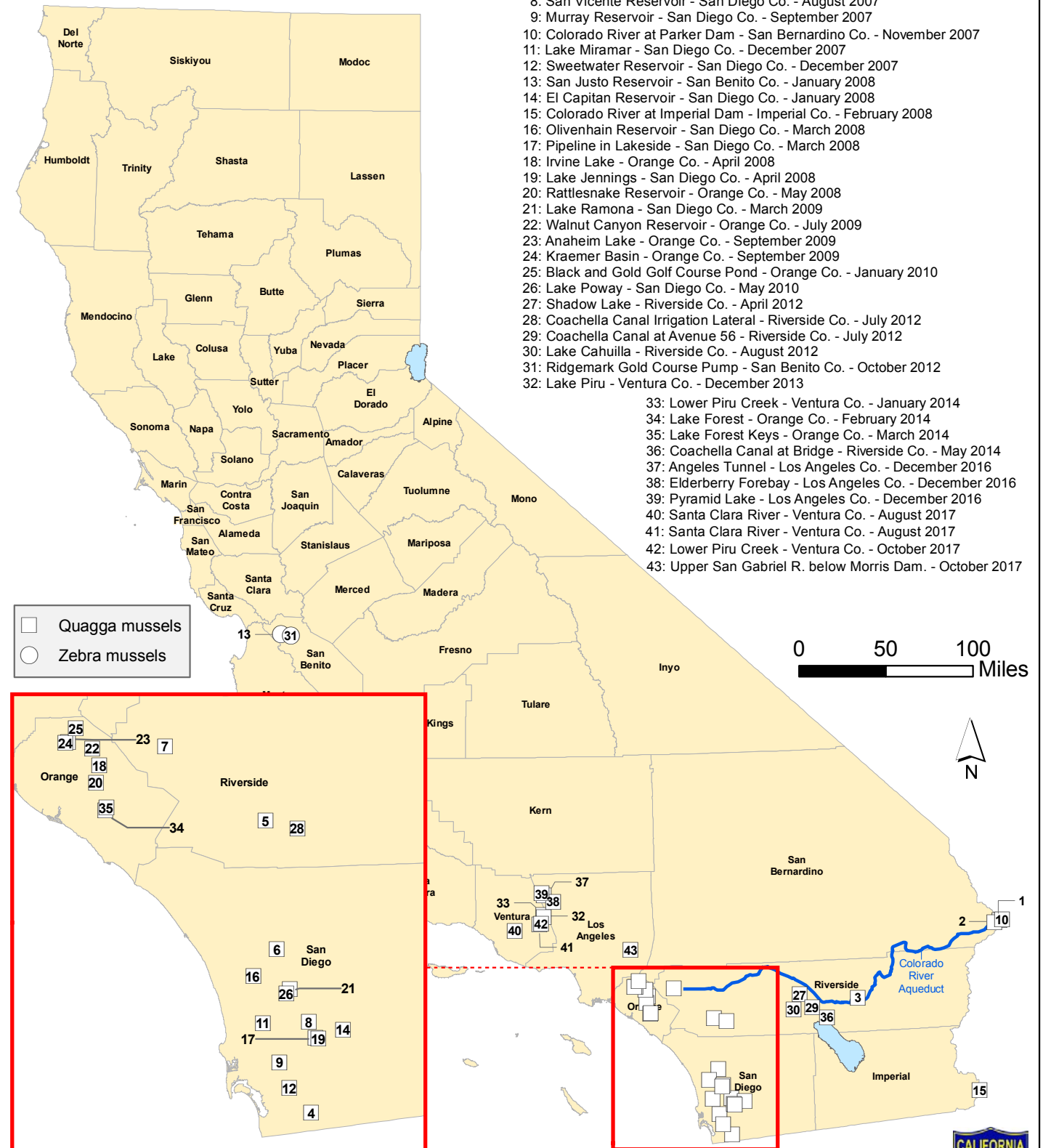
TEXAS

Lake Texoma - 2009
 Lake Ray Hubbard - 2011
 Ray Roberts Reservoir - 2012
 Lake Bridgeport - 2013
 Lewisville Lake - 2013
 Belton Lake - 2013
 Lake Lavon - 2013

SOUTH DAKOTA

Angostura Reservoir - 2014

Quagga and Zebra Mussel Sightings Distribution in California, 2007 - 2017



- LOCATIONS-----
- 1: Lake Havasu - San Bernardino Co. - January 2007
 - 2: Copper Basin Reservoir - San Bernardino Co. - March 2007
 - 3: Colorado River Aqueduct - Riverside Co. - July 2007
 - 4: Lower Otay Lake - San Diego Co. - August 2007
 - 5: Skinner Reservoir - Riverside Co. - August 2007
 - 6: Dixon Reservoir - San Diego Co. - August 2007
 - 7: Lake Matthews - Riverside Co. - August 2007
 - 8: San Vicente Reservoir - San Diego Co. - August 2007
 - 9: Murray Reservoir - San Diego Co. - September 2007
 - 10: Colorado River at Parker Dam - San Bernardino Co. - November 2007
 - 11: Lake Miramar - San Diego Co. - December 2007
 - 12: Sweetwater Reservoir - San Diego Co. - December 2007
 - 13: San Justo Reservoir - San Benito Co. - January 2008
 - 14: El Capitan Reservoir - San Diego Co. - January 2008
 - 15: Colorado River at Imperial Dam - Imperial Co. - February 2008
 - 16: Olivenhain Reservoir - San Diego Co. - March 2008
 - 17: Pipeline in Lakeside - San Diego Co. - March 2008
 - 18: Irvine Lake - Orange Co. - April 2008
 - 19: Lake Jennings - San Diego Co. - April 2008
 - 20: Rattlesnake Reservoir - Orange Co. - May 2008
 - 21: Lake Ramona - San Diego Co. - March 2009
 - 22: Walnut Canyon Reservoir - Orange Co. - July 2009
 - 23: Anaheim Lake - Orange Co. - September 2009
 - 24: Kraemer Basin - Orange Co. - September 2009
 - 25: Black and Gold Golf Course Pond - Orange Co. - January 2010
 - 26: Lake Poway - San Diego Co. - May 2010
 - 27: Shadow Lake - Riverside Co. - April 2012
 - 28: Coachella Canal Irrigation Lateral - Riverside Co. - July 2012
 - 29: Coachella Canal at Avenue 56 - Riverside Co. - July 2012
 - 30: Lake Cahuilla - Riverside Co. - August 2012
 - 31: Ridgemark Gold Course Pump - San Benito Co. - October 2012
 - 32: Lake Piru - Ventura Co. - December 2013
 - 33: Lower Piru Creek - Ventura Co. - January 2014
 - 34: Lake Forest - Orange Co. - February 2014
 - 35: Lake Forest Keys - Orange Co. - March 2014
 - 36: Coachella Canal at Bridge - Riverside Co. - May 2014
 - 37: Angeles Tunnel - Los Angeles Co. - December 2016
 - 38: Elderberry Forebay - Los Angeles Co. - December 2016
 - 39: Pyramid Lake - Los Angeles Co. - December 2016
 - 40: Santa Clara River - Ventura Co. - August 2017
 - 41: Santa Clara River - Ventura Co. - August 2017
 - 42: Lower Piru Creek - Ventura Co. - October 2017
 - 43: Upper San Gabriel R. below Morris Dam. - October 2017

Data Sources: CA Department of Fish and Wildlife, City of San Diego Water Authority, Imperial Irrigation District, Helix Water District, Irvine Ranch Water District, Coachella Valley Water District, National Park Service, CA Department of Water Resources, Los Angeles Department of Water and Power, United Water Conservation District. Map produced by the California Department of Fish and Wildlife, December 15, 2017.



What is being done to contain the Quagga/Zebra?

State and federal agencies have joined forces to avert further infestations of Quagga/Zebra mussels and are urging boaters to help stop the spread of Quagga/Zebra mussels in California.

A multi-agency taskforce, including the California Departments of Fish and Game, Boating and Waterways, Water Resources, Parks and Recreation, and Food and Agriculture as well as the U.S. Fish and Wildlife Service, U.S. Bureau of Reclamation, National Park Services, and many local governments and water agencies, has launched a statewide outreach campaign to alert the public – and particularly boat owners – about the Quagga/Zebra mussel threat.

Boaters should be aware that the Lacy Law now makes it illegal to transport Quagga/Zebra mussels, even unknowingly. And, it carries a \$2,000.00 fine. Boats found with evidence of the mussels may be quarantined and boat owners may face fines in some states. Many local authorities have instituted mandatory inspection programs at their lakes and reservoirs. Contaminated or suspect boats are being turned away.



California Department of Fish and Game

1416 9th Street, 12th Floor
Sacramento, CA 95814
(866) 440-9530

www.dfg.ca.gov/invasives/quaggamussel



Tierra Redondo on pristine Lake Nacimiento.

Protect Your Boat! Keep Freshwaters Open to Boating and Fishing!

How can you help fight the Quagga/Zebra mussel invasion?

Boater and watercraft users can stop the mussels from spreading.

This guide was compiled specifically for boat owners and watercraft users. The information contains general guidelines for all boaters and a basic checklist for inspecting and cleaning boats and recreational equipment for Quagga/Zebra mussels. There are also additional inspection and cleaning checklists for specific types of boats and equipment. By taking the time to inspect and clean your boat, you can:

- Protect your boat, the aquatic environment, and the boating facilities you use (marinas, gas docks, piers).
- Keep waterways open for recreational boating and fishing.
- Prevent an economic disaster resulting in millions of dollars in damage to water transport facilities.
- Comply with state and federal laws regarding the spread of Quagga/Zebra mussels.

Just two hours north of here Lake San Justo is CLOSED because it is INFESTED with Zebra Mussels.



This is what we are trying to prevent from happening at Nacimiento.



We do not want the shoreline at Nacimiento to look like this.



They smell bad. They attach themselves to everything.



What do they look like?

Quagga/Zebra mussels vary in color and often have dark and light stripes on their shells. They differ in size, from microscopic young to adults an inch or two in length. These invasive mussels cluster in huge colonies.



Zebra mussels next to dime.



Zebra mussels at San Justo Reservoir (right/below)



Various sizes of Quagga/Zebra mussels.



Photos San Benito County Water District

Quagga/Zebra mussels could severely reduce recreational boating and fishing activities if more waters become infested.

Don't move a mussel!

Quagga/Zebra mussels pose serious threats

Quagga/Zebra mussels may be tiny, but are highly destructive in freshwater systems because they can:

- Reproduce quickly and in very large numbers, up to 1 million larvae per spawning season.
- Colonize on both hard and soft surfaces, from the water's surface to more than 400 feet down, including boat hulls, propellers, anchors, docks, and boat trailers.
- Coat submerged surfaces such as piers, pilings, rocks, cables, boat ramps, docks, lines, pipes and fish screens, increasing maintenance costs.
- Infiltrate and damage boat engines, bilges, live wells, and steering components.
- Threaten the state's water treatment plants, hydroelectric plants, and reservoirs.
- Clog municipal water intake structures and obstruct the flow of drinking water.
- Cost taxpayers millions of dollars to repair damaged pipes and water transport facilities.
- Wreak havoc on the environment by disrupting the food chain by filtering the water column of phytoplankton and out-competing other species, including sport fish and endangered species.
- Change water conditions, causing heavier aquatic plant growth, oxygen loss, and fish kills.
- Result in infested waters being closed to boating and fishing altogether.

Once Quagga/Zebra mussels are established, in most cases it is impossible to eradicate them with current technologies.



Yes, even kayaks need an inspection form.

PROTECT YOUR BOAT! FIGHT QUAGGA AND ZEBRA MUSSELS

A GUIDE TO CLEANING BOATS



AND PREVENTING MUSSEL DAMAGE

DON'T MOVE A MUSSEL



An Infested boat taken out of Lake Mead.

What is NRWMAC doing?

In conjunction with San Luis Obispo County, **NRWMAC** continues to support training of new Level I Screeners, and Re-Certification of existing Screeners. We have sent **NRWMAC** Directors to Level II Responder and Trainer training held at Lake Mead Nevada. This Level II training is hosted by the Pacific States Marine Fisheries Commission. This training allows **NRWMAC** to participate with San Luis Obispo County in providing classes for new screeners and for screeners requiring re-certification.



Students at the Level II Responder and Trainer class, held at Lake Mead, Nevada gets hands on experience in the screening and decontamination processes.

General Inspection and Cleaning

Boat Exterior: Entire hull, floor, transom wall, ballast tanks, ropes and lines, anchors, lights, pitot tube, depth sounders, trim tabs, cavitation plates, thru-hull fittings, depth transducers, water intakes and outlets

Motor: Entire exterior housing, propeller, propeller shaft, propeller shaft support, propeller guards, propulsion units, lower unit, gimbal area, water intakes and outlets

Boat Equipment and Contents: All fishing nets and other fishing equipment, lines and ropes, float belts, life jackets, float cushions, water skis and tow ropes, ski gloves, equipment lockers, waterfowl decoys and camouflage blinds, clothing and footwear, floats, fenders, dock guards inner tubes and other inflatable items, downriggers and other fishing equipment, bait containers/buckets and live wells, trolling motors, and internal ballast tanks

Trailer: Trailer frame, axles, license plate and holders, lights and wiring, fenders, hangers, trailer tires and wheels, rollers and bunks, wiring, springs, pockets and hollow spaces



Photos Utah State Parks and California Department of Fish and Game

Drain the engine, dry the motor well, check the prop and system components, clean trolling motors, make sure everything is drained and dried. Remove all aquatic weeds.



Be sure to check the trailer for aquatic weeds and other areas on the boat like bow lights.

All vessels should be cleaned, drained, and dried!

Don't move a mussel!

General Inspection and Cleaning

Do Not Launch a Vessel Until You Have Cleared the Mussel Inspection

Our lake is clean of Zebra and Quagga Mussels.
With your help we'd like to keep it that way.

Please check your watercraft to make sure it's CLEAN, DRAINED and DRY.

There is a \$2,000.00 fine for not having an inspection form with you at all times.
You may get pulled over and asked for this form.

*There may be mussels on your boat.
Please don't bring them into our lake.*



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Between Lake Nacimiento and San Antonio

Basic Inspection and Cleaning Checklist: All Watercraft

Whenever you leave freshwater, take the following actions:

1. **Remove the boat from the water and away from the launch ramp** for vessel inspection and cleaning.
2. **Thoroughly inspect all exposed surfaces on your vessel and trailer.** If you find any mussels, scrape them off and kill them by crushing them. Dispose of the remains in the trash. Alert the Department of Fish and Game at 866-440-9530.
3. **Remove all plants and mud** from your boat, trailer, and all equipment. Dispose of all material in the trash.
4. **Carefully feel your boat's hull** for any rough or gritty spots, which may be young mussels that have settled on your vessel and cannot be seen. Microscopic Quagga/Zebra mussels will feel like sandpaper.
5. **Away from the waterway, wash your boat's hull,** trailer, equipment, bilge, and any other exposed surfaces with high-pressure, hot water. When possible use water at a temperature of 140 F (60 C) at the hull – or about 155 (68 C) at the nozzle – which will kill the mussels. Dry the boat as much as possible.
6. **Drain all water from your boat** (pull all plugs) and **dry all areas,** including the motor, motor cooling system, live wells, ballast tanks, bladders, bilges, and lower outboard units. Make sure that all life jackets, water skis or other items that have been in the water, including anchors, ropes, etc., are inspected, cleaned, and dried.
7. **Empty and dry all buckets** and **dispose of all bait** in trash receptacles before you leave. Do not take bait home, or leave it on the ground or dump it in any waterway.
8. **Thoroughly clean all fishing and recreational equipment** (fishing nets, etc).
9. **Clean and dry personal belongings, clothing, and footwear** that have come in contact with the water.
10. **Wash, dry, and brush pets** that have been in the water.
11. **Keep your watercraft dry for at least 10 days in warm, dry weather and up to 30 days in cool, moist weather before launching into a freshwater**

Day boats or those that "come and go" and spend only a few hours in the water are still at risk for picking up and transporting mussels that may be attached to aquatic weeds. The basic cleaning steps apply to any and all watercraft.

Additional steps for specific boats follow.

Vessels that are slipped and moored at infested waters run greater risk of having settlers and adult mussels.

Don't move a mussel!



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Personal Watercraft

1. **Avoid running craft through aquatic plants** because this may damage the craft, plug water intakes, and increase mussel contamination.
2. **Stop the engine** when water activities cease.
3. **Push or winch craft** onto the trailer, without running the engine.
4. **Remove the craft from the water** and **away from the launch ramp** for vessel inspection and cleaning.
5. **After completing the basic checklist, inspect and clean** all of the systems and components that apply specifically to the craft.
6. **Start and run the engine** for five to 10 seconds to blow out water and contaminants from the underbody jet drive system.
7. **Stop the engine** and **remove all plants, mud, and other contaminants** from the steering nozzle and the rest of the hull.
8. **Check underneath the craft for Quagga/Zebra mussels**, especially the water intake area (including the edges of the intake grate).
9. **Dry any pockets** that may be wet or holding water.
10. **Drain any ballasts** on the craft, **rinse with hot water**, and **allow to dry**.

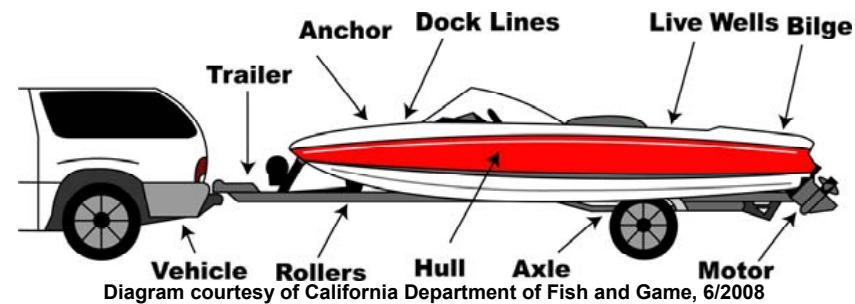
Personal watercraft should be drained of all water, washed, and dried.



The steering nozzle should be inspected for aquatic weeds that might have mussels.

Photos Utah State Parks

Check all of these places for hitchhikers:



Before and after launching your watercraft, be sure to decontaminate your vessel as described below:

- ✓ **CLEAN** - remove any visible mud, plants, fish or animals from your boat motor, live wells, trailer, anchors, kayak components, storage hatches, fishing gear, and dive gear
- ✓ **DRAIN** - water from your boat motor, live well, bilge, or kayak on land where it will not drain into the lake
- ✓ **DRY** - anything that comes into contact with water (boats, trailers, equipment, clothing, anchors, etc.)
- ✓ Never release plants, fish or animals into a body of water unless they came out of that body of water

NOTICE - DO NOT LAUNCH your vessel unless it is **CLEAN. DRAINED. and DRY.**

Water Ski Boats

1. **After completing the basic checklist, drain water** from every internal ballast tank system as much as possible.
2. **Resume normal ballast system operation** when you go boating again. Be sure to winterize the vessel when boating season ends.



Photo by Trina Anthony



California Department of Fish and Game



Ski boat covers open.



Ski boat ballast water lines.



Ballast system water pump, water lines, and caps should all be flushed and cleaned.



Trim tabs on transom.

Follow these actions to stop mussels from growing inside the entire system. Failure to do so could result in restriction of water lines, overheating and pump damage, as well as the increased likelihood of needing to replace expensive system components.

Don't move a mussel!

Houseboats, Pontoon Boats, and Other Large Vessels

1. **After completing the basic checklist, completely drain and dry all water systems that use lake water** including air conditioning, personal sanitation, and washdown systems. Note: Vessel sewage must be disposed of at a pump-out facility or dump station. The longer the boat has been in the water, the higher the chance these systems have been contaminated.
2. **Take special care to protect system components** including water supply and discharge lines, filter screens, pumps, valves, and associated parts. Small passages in the air conditioning radiator core are highly susceptible to being plugged by mussels.



Southern California Marine Association

All areas that can hold water should be drained and dried. Pontoons should be inspected for mussels, settlers, and aquatic weeds that may have mussels attached.



Photos Utah State Parks



Vessels should be thoroughly cleaned. Those contaminated with mussels should be washed, scraped, drained and dried. Dry time may be between 10 days in hot, dry California summers and up to 30 days in cool moist weather.

Vessels that are slipped and moored at infested waters run greater risk of having settlers and adult mussels.

Don't move a mussel!



Photo by Trina Anthony

Hulls should be inspected; all motors, intakes and any equipment that comes into contact with the water should be flushed, washed, drained and dried whether the equipment is attached to the boat (like a slide) or unattached like skis or floatation devices.



Since large vessel water systems are located deep within the hull, they require extra effort to access, clean, and dry to protect them. Failure to properly clean could result in costly replacement of system components if infestation occurs.

Don't move a mussel!

California Codes that Apply to Quagga/Zebra Mussels

- Fish and Game Code § 2301
 - Specific to Dreissenid Mussels
 - Includes both adults and water that may contain them
- Title 14 CCR § 671 (F&G Code § 2118)
 - Places restrictions on Importation, Possession and Transportation of Live Animals
- Title 14 CCR §230 (f) and (h)
 - Special conditions on tournaments to provide for welfare of fish

The law gives the California Department of Fish and Game the authority to:

- Stop and inspect conveyances
 - vehicles
 - boats and other watercraft
 - containers
 - trailers
- Order conveyances that contain water be drained, dried, or decontaminated
- Impound or quarantine conveyances
- Revoke or deny permits for failure to comply

Don't move a mussel!

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General Guidelines: All Boaters

It is important for all boaters to cooperate with vessel inspections conducted at California Department of Food and Agriculture Border Protection Stations and on waterways around the state. Remember, you do not want to transport any Quagga/Zebra mussels from an infested water body to another location currently free of Quagga/Zebra mussels. In addition, California law makes it illegal to transport these aquatic species, even if done so unintentionally.

Trailer boats are the primary way that Quagga/Zebra mussels are introduced to unconnected water bodies.

After boating in any freshwater system:

Carefully inspect, clean, and drain your boat when you leave the water, using the checklists provided in this guide.

All areas must be dry (including live wells) and clear of debris, and no standing water should be on board your boat in any manner (including bait cans or buckets).

Before traveling to any freshwater for boating:

Inspect your boat for Quagga/Zebra mussels, which can survive 10 days out of water in California's hot summer and up to 30 days in cool, wet weather.

If any residual water or mussels are discovered upon an inspection, clean your boat and all equipment using the same checklist procedures and let the vessel dry for 10 to 30 days, depending on the weather, before you enter the water.

Calculate your drying time at:

<http://www.100thmeridian.org/Emersion.asp>

Failure to clean your vessel can result in it being quarantined.



Quagga mussels on boat hull found at California Border Protection Station.

Photo California Dept. of Fish and Game

Don't move a mussel!



Enjoy your boating at Lake Nacimiento.



If you want to see the history of the Nacimiento Dam visit www.nrwmac.org.

DON'T MOVE A MUSSEL
Enjoy the water and the fishing!



Support checkpoints!



Help keep our waters clean!