



CALIFORNIA

◀ INVASIVE SPECIES

ADVISORY COMMITTEE

**Report on Invasive Mollusks prepared at
the request of Secretary of Agriculture
Karen Ross and presented to the Invasive
Species Council of California**

**Part 1 adopted May 24, 2012
Part 2 adopted July 19, 2012**



Part 1: Report from Invasive Mollusk Subcommittee in response to Secretary of Agriculture Karen Ross's request for advice on the Lake County Board of Supervisors' recommendations for State actions to control invasive dreissenid mussels.

Background. In a letter of August 22, 2011 addressed to Craig MacNamara, President of the State Board of Agriculture, the Lake County Board of Supervisors requested that the State of California review a recently adopted county resolution asking the Governor to declare a State of Emergency regarding the infestation of dreissenid mussels in the waterbodies of the State. The County further requested that the Board of Agriculture join in "calling for a uniformly applied strategy, formulated at the State and Federal levels, designed to ensure that Quagga and Zebra mussels are effectively contained and further contamination is prevented." On January 4, 2012, on the recommendation of the Board of Agriculture, Secretary of Agriculture Karen Ross requested that the California Invasive Species Committee (CISAC) "advise the Invasive Species Council of California (ISCC) on proposed action related to this issue.

On receipt of Secretary Ross's letter at its January 19, 2012 meeting, CISAC appointed an Invasive Mollusk Working Group (IMWG) consisting of Victoria Brandon, Ricardo DeLeon, Richard Forster, Jay Goldsmith, and Karen McDowell, and asked them to investigate the feasibility and utility of the recommendations in the Lake County Resolution, and to present a draft response to Secretary Ross for the consideration of the full CISAC.

On March 19, 2012 IMWG members Brandon, DeLeon, and McDowell met by conference call, with participation from CISAC Chair Andrea Fox and Department of Fish and Game (DFG) Invasive Species Program Manager Susan Ellis. To provide appropriate context to evaluate the individual recommendation in the Lake County resolution, the IMWG first examined existing and ongoing efforts to contain the invasive mussel infestation in the state and to prevent further contamination.

- Recognizing the importance of coordination, DFG is actively involved with ISCC and CISAC on an ongoing basis to ensure complementary, cost-efficient, effective, environmentally sound actions to protect the state from invasive species including dreissenid mussels. DFG also chairs the California Agencies Aquatic Invasive Species Team (CAAIST), which bears responsibility for implementation of the California Aquatic Invasive Species Management Plan, and also leads an Interagency Team charged with coordinating state and federal efforts to control existing infestations and prevent new ones, to share new information, and to collaborate on public outreach. DFG staff also assists local entities in their efforts to develop prevention, control, and monitoring programs.
- On the national level, DFG staff serve on the Invasive Species Advisory Committee to the National Invasive Species Council, and the Western Regional Panel on Aquatic Nuisance Species. Participation in these national efforts provides opportunities for DFG to raise awareness of California's issues and to improve the coordination of response. DFG is also actively encouraging local agencies to develop reciprocal inspection programs that may lead to the future development of a more comprehensive statewide prevention program.

- Due to restrictions on State funding, DFG has focused on providing tools to local waterbody managers, including a “Boat Cleaning Guide Book” and drying time calculator. In October 2010, DFG sponsored a “Quagga Mussel Summit” to encourage the development of reciprocal prevention programs.
- DFG coordinates and supports early detection monitoring efforts by local agencies and stakeholders, and monitors gaps in coverage as resources permit. In addition to providing training and consultation for early detection monitoring efforts, DFG analyzes plankton samples for larval mussels using two methods; microscopy and Polymerase Chain Reaction (PCR), at no cost to local agencies, and maintains a database of known early detection monitoring efforts. In 2011 DFG documented 430 early detection monitoring events at 58 locations throughout the state.
- Although California does not have a comprehensive sticker or quarantine program for recreational boats, the California Department of Food and Agriculture (CDFA) has the authority to quarantine boats entering the states through Border Protection Stations, and exercises that authority regularly.
- Section 2301 of Fish and Game Code outlines ways for water agencies to establish control plans for infested waterbodies and authorizes detention of boats containing standing water whether or not live mussels are present; Section 2302 encourages individual agencies to establish mussel prevention programs in uninfested waterbodies under their control, based on a report by the National Park Service and adopted by the Western Regional Panel. Local authorities are invited to submit their prevention plans to DFG for compilation, but so far few have done so. Encouraging the submission of this information so that it could easily be shared with other jurisdictions would have several beneficial effects.
- Two additional bills to improve the state’s defenses against Aquatic Invasive Species (AIS) are currently under consideration by the legislature. AB 2443 (Williams) would authorize counties to assess local fees on boats registered within their jurisdiction for the purpose of supporting mussel prevention programs, and SB 1251 (Evans) would establish a statewide AIS Working Group with representation from state and federal agencies and other stakeholders. The Working Group, which would report directly to the legislature, would be tasked with streamlining response, developing statewide priorities, and improving inter-agency coordination, with a particular focus on the development of adequate and reliable funding mechanisms.

The IMWG then examined the individual recommendations contained in the Lake County resolution.

1. *Declare a statewide State of Emergency.* When this proposal was first advanced several years ago, it was determined that the threat, though very serious, did not meet the standard established by Sec 8558 of the California Emergency Services Act as a “disaster or of extreme peril,” threatening human health and safety. Emergency funding was however made available at that time without a formal declaration, including funding to establish an incident command structure.
2. *Extend state enforcement powers to local jurisdictions.* Currently Fish and Game Code is specific and enforcement powers can only be extended to state agencies. Extending state

enforcement powers to local jurisdictions without providing funding to execute these powers might be seen as an unfunded, burdensome mandate. Nonetheless, local jurisdictions are free to add tagging and quarantine provisions to their own codes and ordinances should they choose to do so.

3. *Increase funding for mussel prevention programs*

(a) *Raise boater registration fees.* Since recreational boaters are both the likely vectors of infestation and the beneficiaries of mussel-free waterways, on first glance this funding mechanism seems appropriate and fair. However, this is a difficult time to be proposing an increase in fees. Pursuing this option would also require careful consultation with both the Department of Motor Vehicles (since the fees are included in DMV code) and Boating and Waterways (current recipients of registration fee funding).

(b) *Direct some of the existing boater registration fees toward mussel prevention.* Again, this seems like an appropriate source of funding, but diversion of the proceeds from the Watercraft Revolving Fund to mussel prevention efforts would be considered a “fiscal impact” requiring a two-thirds vote of the legislature

(c) *Add fees to water billings.* Water companies and their customers plainly benefit by keeping reservoirs mussel free, but there are thousands of separate water districts within the state, conditions vary widely from one to another (for example, some draw on surface water and others use ground water), and the fee structure would have to be tailored to these diverse circumstances. Implementation of a Statewide coordinated fee program would therefore be quite complex. However, water companies could implement their own site-specific prevention programs and charge appropriate fees to keep their reservoirs mussel free. Such programs could end up saving their ratepayers a considerable sum of money in the long run by avoiding the expensive proposition of maintaining water conveyance facilities choked by mussels.

5. *Acknowledge watercraft as a vector for disease.* It is already widely recognized that water craft are an important vector for the transmission of Aquatic Invasive Species (AIS), including invasive mussels, but should also be acknowledged that in only one case -- the zebra mussel infestation in San Justo Reservoir -- has a California waterbody been contaminated by this means. The extensive infestation in the Colorado River and associated lakes has been spread by water conveyance alone.

6. *Impose a 30-day quarantine on vessels that cannot be adequately decontaminated.* Most out of state boats are already out of the water for 30 days or more, and several layers of inspection already exist. Appropriate quarantine periods also depend on the receiving water body.

Statewide, the program is based on relative risk, and many different types of boats are evaluated.

7. *Aim for a “vector free boat” objective.* Designing vessels to make them inhospitable to AIS is a worthwhile objective, although boats and boat trailers will always be a vector to some degree. Efforts are currently underway to pursue design features that reduce risk (for example, windows that allow ballast areas to be examined for standing water), and to establish standards for actions such as treatment of ballast.

8. *Extend DFG enforcement authority and funding to local entities.* See response to items (2) and (3).

9. *Include an aggressive educational outreach component.* This effort is already underway, as is regional messaging coordination and the search for creative new ideas to increase awareness such as the “Whack a Mussel” machine targeted at young people.

10. *Require infested jurisdictions to impose a 30-day quarantine on departing vessels and band them to trailers.* Unfortunately imposition of quarantine on boats leaving the Colorado River or infested southern California reservoirs is not practical, since few of the access points are staffed, and therefore no mechanism for the imposition of quarantine exists. Nor would boaters whose vessels are banded to trailers have any incentive to refrain from removing the bands. Identifying some (but not all) vessels that have been in infested waters could also create a counterproductive sense of false confidence among those responsible for the protection of uninfested waterbodies.

11. *Maintain existing border inspection stations.* The CDFA border stations are California's first line of defense against the interstate transport of many kinds of invasive species, and insuring that they receive adequate funding is a high priority. Given current severe budgetary restrictions when hard choices have to be made, choosing to reduce hours at border stations in the far north of the state is consistent with a relative risk assessment strategy.

12. *Establish inspection stations on intra-state north-south corridors.* CDFA has on occasion set up temporary inspection stations on State Highways to intercept vectors of disease, an action that requires the collaboration of the Highway Patrol, and which becomes particularly complex and expensive if the station is intended to be permanent. Costs, including permitting, are estimated at \$22 million per station. Given the relatively small number of boats which are transported along these corridors, and the fact that no California waterbodies have been infested by this vector to date, cost-benefit analysis does not appear to justify the creation of this extra layer of inspection at the present time.

Part 2: Second Report from Invasive Mollusk Subcommittee to Secretary of Agriculture Karen Ross's request for advice on recommendations to minimize risks posed by the spread of invasive dreissenid mussels within California

Background. On receipt of Secretary Ross's request to advise the Invasive Species Council of California (ISCC) on proposed action related to invasive quagga and zebra mussels, CISAC appointed an Invasive Mollusk Working Group (IMWG) at its January 19, 2012 meeting. The IMWG (Victoria Brandon, Ricardo DeLeon, Richard Forster, Jay Goldsmith, and Karen McDowell) was tasked with investigating the feasibility and utility of recommendations made by the Lake County Board of Supervisors in a Resolution of August 16, 2011. On July 24, 2012 the full CISAC considered the draft response prepared by the IMWG, and after minor revision authorized Chair Andrea Fox and IMWG Chair Victoria Brandon to present that response to Secretary Ross and the ISCC. At that time CISAC members also decided that it would also be helpful to broaden their evaluation beyond the structure presented by the Lake County recommendations, by drafting a set of recommended actions designed to minimize the spread of these destructive mollusks within California.

On July 9, 2012 IMWG members Brandon, Goldsmith, DeLeon, and McDowell met by conference call, with participation from CISAC Chair Andrea Fox. The IMWG supports implementation of the recommendations in the Quagga Zebra Mussel Action Plan (QZAP) prepared by the Western Regional Panel on Aquatic Nuisance Species (available for download at http://www.anstaskforce.gov/QZAP/QZAP_FINAL_Feb2010.pdf). Consistent with those recommendations, and recognizing the severe budgetary constraints currently operative in California, CISAC recommends that the ISCC prioritize the following actions.

Recommendations.

- *Maintain existing border inspection stations.* The California Department of Food and Agriculture (CDFA) border stations are California's first line of defense against the interstate transport of many kinds of invasive species, and insuring that they receive adequate funding should remain a high priority. Although border inspections cannot provide complete protection against invasive mussels, they significantly reduce the risk of infestations, and combined with additional state and local programs that focus on keeping uninfested waterways mussel-free are an essential element of a comprehensive prevention program.
- *Maintain and expand programs conducted by the Department of Fish and Game, Department of Boating and Waterways, and other state agencies.* DFG provides vital services by coordinating state, federal and local control and prevention efforts, supporting early detection monitoring efforts, providing educational tools to boaters, waterbody managers, and other stakeholders, and managing effective public outreach campaigns. At a minimum, support for these services should be maintained at the current level of funding, and if at all possible increased. Public awareness is critical for controlling invasive mussels, thus maintaining and expanding public outreach efforts is particularly crucial.

- *Increase coordination among local entities such as counties, cities, and waterbody managers.* Section 2302 of the Fish and Game code encourages local authorities to establish mussel prevention programs in uninfested waterbodies, and invites them to submit their plans to DFG for compilation, an invitation that few have availed themselves of so far. By actively encouraging local agencies to share information and to develop reciprocal regional prevention programs (for example by holding regular inter-agency conferences and establishing an interactive website designed for information exchange), DFG would help increase cost-effectiveness on both a state and local level. Better coordination could also eventually lead to the development of a more comprehensive statewide prevention program. Ongoing efforts along these lines should be continued and expanded.
- *Investigate mechanisms for early detection, decontamination, eradication and control* At the present time the only defense against invasive mussel infestation is prevention. Once these species are established in a waterbody, no effective means is known to discourage their rapid multiplication, much less to eradicate them or to prevent their spread to connected waterbodies. Since no prevention program can provide a guarantee of 100 percent effectiveness indefinitely, the likelihood of quagga and or zebra mussels spreading beyond the current infested areas is very high. Long term planning should incorporate control mechanisms that can be implemented as part of an Integrated Pest Management Program. As recommended by QZAP, scholarly research into dreissinid biology that could lead to the development of effective mechanisms for early detection, effective decontamination, eradication and control merits ongoing support.
- *Identify and implement ways to increase funding for prevention programs.* Without adequate funding, effective prevention programs cannot be implemented, and without prevention, the risk of widespread contamination rises dramatically, with consequent increased probability of much more burdensome future costs to government, businesses, and individuals. Since general fund resources are so extremely limited at the present time, establishment of fees on specific user groups may be the most feasible way to raise the necessary money. For example, a bill currently under consideration by the legislature (AB 2443, Williams) would impose a statewide maximum \$10 annual fee on the 800-900,000 boats registered within California, and direct most of the revenue to support quagga and zebra mussel prevention programs. Since freshwater boating is both a likely vector of infestation and a beneficiary of mussel-free waterways, this funding mechanism seems appropriate and fair. Fees on water billings could provide an alternative or additional source of funding, since water companies and their customers plainly benefit by keeping reservoirs mussel free and thus avoiding the expensive necessity of upgrading and maintaining water conveyance facilities once infested by mussels.