

STATE OF COLORADO

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COLORADO

DEPARTMENT OF
NATURAL
RESOURCES

Bill Ritter, Jr.
Governor

Harris D. Sherman
Executive Director

May 1, 2009

Dear Members of the Joint House Agriculture, Livestock, and Natural Resource Committee and the Senate Agriculture, Natural Resources, and Energy Committee:

On behalf of the Division of Wildlife, the Division of Parks and Outdoor Recreation, and the Colorado Water Conservation Board, I am pleased to submit the attached Annual Report concerning the Aquatic Nuisance Species program. This report is provided to you in accordance with C.R.S. 33-10.5-103.

Should you have questions or need additional information regarding the State of Colorado's response to and management of aquatic nuisance species, please contact me at 303-866-3311 ext. 8666 or at doug.robotham@state.co.us.

Sincerely,

Douglas M. Robotham
Assistant Director for Lands



**State Aquatic Nuisance Species Program Summary
For Colorado Legislators per SB 08-226
Prepared by the Colorado Division of Wildlife and Colorado State Parks**

Background

Zebra mussels were identified in Colorado at Pueblo Reservoir in January 2008 as a result of a multi-year statewide sampling effort conducted by the Division of Wildlife (DOW) in partnership with Colorado State Parks, the U.S. Fish & Wildlife Service and the U.S. Bureau of Reclamation (BOR). Zebra mussels, and their close relatives Quagga mussels, are highly invasive aquatic species that negatively impact plankton communities, fisheries, water based recreation, and water supply and distribution systems for municipal, industrial and agricultural uses.

In spring of 2008 a response plan was developed for Lake Pueblo. State Parks, DOW and the Colorado Water Conservation Board (CWCB) in cooperation with the BOR and other state and federal agencies gathered information critical to developing the approach to this problem. This plan developed a containment response based on education, inspections and decontamination and incorporated best management practices from other states and invasive mussel experts. A containment response was put in place immediately at Lake Pueblo State Park based on this information and with funding support from the CWCB, water suppliers and the Water Supply Reserve Account.

The State Aquatic Nuisance Species (ANS) Act was passed by the General Assembly in May 2008. The Act defines ANS as exotic or nonnative aquatic wildlife or any plant species that have been determined to pose a significant threat to the aquatic resources or water infrastructure of the state. It makes it illegal to possess, import, export, ship, transport, release, plant, place, or cause an ANS to be released. The Act allocated funding to ANS programs in both the DOW and State Parks. It provides authority to qualified peace officers to inspect, and if necessary, decontaminate or quarantine watercraft for ANS. It also provides authority for trained authorized agents to inspect and decontaminate watercraft for ANS. Regulations required by the Act were passed by the Parks Board on February 20, 2009.

The DOW internally reallocated resources to create a fulltime position to coordinate ANS activities statewide. This position oversees implementation of the State ANS Management Plan and the State Zebra and Quagga Mussel Management Plan. The backbone of the plan includes containment and prevention based on watercraft inspection and decontamination procedures, sampling and monitoring, education/outreach and applied research.

State Parks put in place comprehensive education, inspection and decontamination programs at Lake Pueblo in early spring 2008 and then expanded that program with multiple tiers of coverage based on a risk assessment performed in cooperation with DOW. In July 2008, upon receipt of funding from the legislature, State Parks initiated a very large inspection and public contact program at 24 parks. By December of 2008, State Parks had performed over 114,000 inspections. This boating season, State Parks will address 27 parks and is expected to perform over 200,000 inspections and education contacts. In February of 2009, Parks hired a fulltime position to coordinate the ANS program and train park staff in inspection and decontamination procedures.

Goal

Prevent the future introduction and reduce the spread of ANS, specifically zebra and quagga mussels, in Colorado.

Current Status

Since the initial finding of mussels at Pueblo Reservoir, six other reservoirs were found to have either zebra or quagga mussels in Colorado. The positive locations are Lake Granby, Grand Lake, Shadow Mountain Reservoir, Willow Creek Reservoir, Tarryall Reservoir and Jumbo Reservoir. Other ANS known to Colorado include Eurasian watermilfoil (a costly and hard to control aquatic noxious weed) and New Zealand Mudsnail (currently known in only 3 locations).

2008 Program Activities

Early Detection: Sampling and Monitoring

The DOW sampled 102 lakes or reservoirs for zebra and quagga mussels. A risk assessment was conducted specifically for zebra and quagga mussels which identified 19 very high risk waters, 17 high risk waters, 58 medium risk waters, and 64 low risk waters. The sampling and monitoring component was overseen by the DOW Aquatic Animal Health Laboratory.

The state follows a three-tier sampling protocol and a three-phase identification process: 1) conducting plankton tows to find the free-floating, planktonic, microscopic larval stage of the mussel, known as a veliger, 2) deploy and check substrates to find the juvenile “settlers” or attached adult mussels, and 3) conduct surveys along the shoreline and existing structures for juvenile settled or attached adult mussels. Identification of the plankton tows includes a microscopic visual analysis, followed by two-phase DNA analysis (polymerase chain reaction (PCR) and gene sequencing to identify genus and species respectively).

The DOW invited a Panel of national experts to review the zebra/quagga mussel early detection and response program strategy in August 2008. The Panel analyzed procedures and critiqued processes to make Colorado’s early detection efforts the most efficient and reliable according to the best science available. The DOW received high marks for its early detection efforts and recommendations made by the Panel will be incorporated in 2009 sampling and monitoring efforts.

Watercraft Inspection Program – Containment & Prevention

State Parks performed over 114,000 inspections and 79 decontaminations in the 2008 boating season. State Parks developed materials and procedures and then put in place inspections at Lake

Pueblo, Eleven Mile and Spinney in early spring 2008. The program was then expanded to cover 24 locations in July 2008. These programs focused on educating boaters as well as inspecting boats. Parks FTE staff was trained in inspection and education procedures with materials adapted from other states into a procedural handbook compiled by State Parks staff.

The DOW conducted approximately 5,000 watercraft inspections and 50 decontaminations in 2008. Following the identification of mussels in Lake Granby, the DOW led a multi-agency response for watercraft inspection and decontamination. Outreach was targeted to the marinas and shoreline associations for the three lakes (Lake Granby, Shadow Mountain Reservoir and Grand Lake).

Prevention inspection stations were put in place at Antero Reservoir, Tarryall Reservoir and Williams Fork in partnership with Denver Water. The prevention inspection station at Rampart was put in place in partnership with Colorado Springs Utilities. Inspections were conducted by DOW temporary employees trained as authorized agents and the reservoirs were closed to trailered watercraft when inspectors were not present.

Temporary FTE were also trained for public education on boat ramps, but not for actual boat inspections for several reservoirs in the southeast. They worked weekend days at various reservoirs to inform boaters of the mussel problem, answer questions and to enlist their cooperation to clean, drain and dry their watercraft.

State Fish Hatchery Program

The Colorado State Fish Hatchery system consists of 17 production or rearing units. This represents a substantial contribution to the fisheries in the state, but also provides opportunities for dissemination of pathogens and ANS. Proactive and preventative methods have been instituted within the state hatchery system to prevent spread of ANS through aquaculture activities, especially fish stocking and taking of wild spawn.

These methods include Annual Fish Health Inspections for examination of facilities and tissue collection for presence of ANS. In 2008, Hazard Analysis and Critical Control Point (HACCP) planning was conducted for state hatcheries and wild spawn operations. Hatchery staff attended ANS related training and educational courses, including watercraft and equipment decontamination. Standardized protocols were implemented statewide at all hatcheries for fish stocking, wild spawn and eyed egg transfers between hatcheries to ensure ANS were not being transported through these operations.

Currently, the only Colorado state fish hatchery exposed to or using mussel-infested water is Pueblo State Fish Hatchery. That hatchery was thoroughly inspected for adult mussels when zebra mussels were first discovered in Pueblo Reservoir and none were found. The hatchery has water samples collected and tested every two weeks according to state protocols. To date, no mussels have been identified, but disinfection protocols are still being implemented.

Professional Education

State Parks hired a professional ANS inspection and decontamination trainer from the Lake Mead area to train Pueblo staff in March 2008, and then developed a handbook and forms for

inspections to use at Lake Pueblo that were then adapted and provided to all state parks. Training was devised to include a slideshow and videos adapted from professional trainers in other states and video as well as hands on inspections and written tests were developed and implemented to ensure consistency among temporary and full time staff. Over 23 State Parks ANS trainings were performed between March 2008 and January 2009.

The 4th Annual ANS Workshop was held in March 2008 in both Grand Junction and Denver. The workshop was a two-day event including one classroom day and one day of watercraft inspection and decontamination training. Over 200 participants from 3 states attended.

The DOW conducted 16 watercraft inspection and decontamination trainings statewide between March and August. Trainings were held in a variety of locations throughout the state with many municipalities, county governments, state and federal employees, and private industry representatives in attendance. There have been six DOW employees Level II-certified by the Lake Mead Training sponsored by the Pacific States Marine Fisheries Commission.

Colorado hosted the Western Regional Panel Annual Meeting on ANS in Fort Collins in 2008. Colorado also hosted the 100th Meridian Initiative's Annual Meeting in February 2009, which was coupled with the Zebra and Quagga Mussel National Sampling and Monitoring Symposium.

Information & Communication

A multi-agency team, led by the DOW, was formed to collaborate on standardized informational materials for a comprehensive statewide education campaign. There are two main goals of the team. The first is to coordinate media releases, contacts, interviews and events. The second is to develop informational materials (brochures, rack cards, signs, billboards), educating the public about what they can do to minimize the spread of ANS.

In addition to media relations and press releases in 2008, informational accomplishments include an informational letter sent to all registered boat owners making them aware of the mussel infestation and the watercraft inspection efforts. There were 16 billboards posted statewide, 300 Stop ANS Signs posted at water access points, and 250 large Stop ANS Boat Ramp Signs posted at over 160 waters statewide. Over 100,000 brochures, 80,000 rack cards and 250 DVDs were distributed statewide. Numerous presentations were given to a variety of recreational user groups, water providers, HOAs, sportsman groups, professional associations, and conferences. The DOW and Parks participated in a variety of educational media outlets; such as web-based broadcasts, radio, print and television. ANS booths were staffed at sportsmen's tradeshow and expos.

Planning

The State ANS Management Plan was drafted by the State ANS Steering Committee, chaired by the DOW. The Committee is composed of personnel from 15 state, federal and local governments, non-governmental organizations and private industry. The ANS Plan outlines the programmatic approach to strategically address all ANS (plants, animals and pathogens) in Colorado.

The State of Colorado Zebra & Quagga Mussel Management Plan was drafted by the DOW. Members of the State ANS Task Force provided valuable input and direction to the planning process. Plan components focus on an extensive watercraft inspection and decontamination program for prevention and containment, education and outreach, information and communication, and applied research.

The DOW is the lead coordinator for site specific zebra and quagga mussel management plans. The goal of these plans are a collaborative effort that involves the land and water owners, recreation managers, local governments, marinas, concessioners and other interested parties. These documents detail the operational facets of a containment or prevention program and outline the rapid response actions for containment in the event of an introduction. The DOW will continue to coordinate site specific plans to cover as many waters as possible over time.

2009 Program Activities

The State ANS Steering Committee expanded in January 2009 to include over 35 partners from state, federal and local governments, private industry, sportsmen groups and non-governmental organizations. Now known as the Colorado State ANS Task Force, chaired by the DOW, it will continue to be a working management team for coordination of ANS activities across jurisdictional boundaries into the future.

Early Detection: Sampling and Monitoring

The DOW began statewide sampling and monitoring for ANS in April 2009. The goal is to increase the number of waters sampled and samples taken. There are over 175 locations identified including lakes, reservoirs and flowing water sites.

The DOW held an ANS Sampling and Monitoring Training School in April 2009. Fifty-two students from state, federal and local governments, private industry and non-governmental organizations were taught state sampling protocols in classroom, field and laboratory settings. These valuable partners will collect samples during routine work for their employers, and send them to the DOW for analysis. However, anyone sampling for ANS in Colorado must request and be granted a special collections permit for prohibited species from the DOW per state regulations.

State Watercraft Inspection and Decontamination Program – Containment & Prevention

The State ANS Inspection Handbook documents the standard protocol for watercraft inspection and decontamination. The handbook was completed as a partnership effort between the DOW and State Parks, along with input from members of the ANS Task Force and other states. The goal is to standardize watercraft inspection procedures and provide the same message to boaters, regardless of jurisdiction, and have those activities be accepted across jurisdictional boundaries.

A standardized watercraft inspection and decontamination training program has been implemented by both the DOW and State Parks. The training program includes a detailed curriculum, standard slideshow and training activities, exam, protocols, forms and procedures. There will be a quality control patrol that will work to ensure authorized locations are operating according to state regulations. This high level of quality control will assist with cross

jurisdictional acceptance of inspections, and enables private industry (marinas and marine dealers) to provide inspections to their customers.

The DOW will staff Containment Watercraft Inspection and Decontamination stations in 2009 at the Colorado Big Thompson Project Waters in Grand County (Lake Granby, Shadow Mountain and Grand Lake). Willow Creek will be closed to trailered watercraft in 2009. The DOW will also staff the containment stations at two infested State Wildlife Area waters - Tarryall and Jumbo Reservoirs.

The DOW will staff Prevention Watercraft Inspection and Decontamination Stations in 2009 at seven additional reservoir locations – Antero, Blue Mesa, Clear Creek, Douglas, Prewitt, Rampart, and Williams Fork. Fiscal support is being provided to Larimer County for watercraft inspections at Carter and Horsetooth Reservoirs. Decontamination Stations are being provided to the Twin Lakes Company for Twin Lakes and Turquoise Reservoirs. Fiscal support is being received from Denver Water for Antero and Williams Fork. Fiscal support is also being received from Colorado Springs Utilities for Rampart Reservoir. All operations are partnership efforts.

Six roving inspection patrols will be deployed statewide, consisting of two inspectors per patrol. They will set up a temporary watercraft inspection and decontamination station at different waters each day. This will instill upon boaters the “expect to be inspected” message and will provide valuable coverage and education for our clean, drain and dry campaign. Roving Patrols will be based out of Fort Collins, Colorado Springs, Grand Junction, Montrose, Durango and Monte Vista.

The DOW will staff four office locations beginning May 7, 2009 (Hot Sulphur Springs, Grand Junction, Lamar and Denver). These sites are equipped to offer inspections and decontaminations as needed to resident and out-of-state boaters. A fifth location is being investigated in the SW Region, but no suitable location has been found.

State Parks will provide staff for inspection and education programs at 27 parks in the 2009 boating season. State Parks will staff Containment Watercraft Inspection and Decontamination stations in 2009 at Lake Pueblo for invasive mussels and at Lathrop State Park for Eurasian Watermilfoil. Prevention programs will be conducted at 25 other parks. The parks with small craft only will conduct education programs and spot inspections. Between January 2009 and June 2009, at least 18 training sessions will be held to train over 200 people, including 5 outside entities (boat clubs/marinas/boat dealers).

The Colorado Marine Dealers Association has actively participated in the inspection training program. Numerous locations will be available for watercraft inspections through said Association.

Education

The 5th Annual ANS Workshop will be held on May 5, 2009 at the Jefferson County Fairgrounds. The DOW began hosting Watercraft Inspection & Decontamination Certification courses on March 23rd and has plans to offer a total of ten 2-day courses through the summer to certify a multitude of authorized locations for watercraft inspections and ensure everyone is

operating under standard procedures. The DOW held an ANS Sampling and Monitoring Training School in April 2009.

The Education Section of the DOW is working to develop a curriculum for science, math and geography teachers on Invasive Species, utilizing zebra mussels as the "poster species." The DOW presented the curriculum concept to Denver School District 6th grade Geography teachers on October 25, 2008 and to the Colorado Association of Science Teachers on November 21, 2008. K-12 educational materials are being developed, and tested in the spring of 2009. The DOW will conduct trainings in the spring for teachers. Once tested, the materials will be available in fall 2009.

Information & Communication

ANS signage is posted at all water access points where boater recreation occurs. Brochures, rack cards and DVDs will continue to be distributed. Future activities include continued press releases and media relations. Professional presentations, utilizing media outlets, staffing sportsmen's tradeshow and engaging volunteers are all critical components of the information strategy. A large campaign is launching to provide notification to local and out of state boaters to the new regulations for submitting to inspections and decontaminations in Colorado. In order to reach every citizen in the state, an ALERT postcard is proposed for inclusion in municipal water bills several times a year. Aurora Water started this in March for their customers. This outreach targets the entire population rather than only boaters and anglers. State Parks is preparing a mailing to all registered boaters again for this boating season that will make them aware of updates as well as solicit more email addresses for the registered boater database to allow for electronic updates throughout the year.

Research

An evolving list of potential research topics have been compiled for further analysis. It is the goal of DOW to conduct some research in-house, cost share other larger scale projects with partners and engage higher education involvement on others. Prioritization for research will be determined based upon available resources, the expertise of the DOW Aquatic Biology and Research Staff and opportunity for partnerships. Research will be ongoing over many years.