

MRBP Member Updates April 2010

Arkansas – Submitted by: Brian Wagner, Arkansas Game & Fish Commission

The Arkansas team continues to move forward on our ANS Management Plan. We have completed edits on the draft plan and have submitted it the Arkansas Game & Fish Commission's administration for review.

Last spring we attempted eradication of the introduced population of Northern Snakeheads in eastern Arkansas. A massive, multi-agency effort was executed using rotenone over the entire Piney Creek watershed. Sampling last fall showed their persistence in a few places in the watershed, and additional populations in neighboring watersheds. While the best result would have been complete eradication, we hope that with continued monitoring and localized eradication efforts, the population can be held in check and its spread to new areas can be limited.

This experience has heightened the awareness of ANS issues within our Fisheries Division. Division staff members are in the early stages of developing a rapid response team structure for responding to future discoveries.

Colorado – Submitted by: Elizabeth Brown, Colorado Division of Wildlife

See attached report.

Illinois – Submitted by: Steve Shults, Illinois Department of Natural Resources

In December 2009, IDNR served as lead agency for a rapid response in Lockport, Illinois known as Operation Silver Screen. Asian carp could severely impact the Great Lakes' sportfishing and recreation industries. Operation Silver Screen was an enormously complex and highly visible international response to prevent an invasion of Lake Michigan during maintenance operations of the US Army Corps of Engineers' electrical barrier in the Chicago waterways. This response involved more than 25 local, state, federal and Canadian entities as well as 22 private contractors. The response team effectively organized and maintained a challenging unified command structure composed of the Illinois Department of Natural Resources (Incident Command), US Army Corp of Engineers, US Environmental Protection Agency, US Coast Guard, and the US Fish and Wildlife Service. Despite an extremely condensed planning timeframe due to the emergency nature of the response, the team conducted a successful operation involving more than 450 people and 50 boats, navigated a myriad of challenges including property access, protecting a large power plant that services Chicago, nighttime operations and inclement weather, protecting the health and safety of hundreds of responders on and around the water, and limiting the fish kill to the designated area. This response was a pioneering process in that it was the first international response to an invasive species using the Incident Command System, the first use of Rotenone under new restrictive EPA label requirements, the first application using a new delivery system, and the first use of system modeling to design specific application techniques. Additional response actions may be coming in 2010!

IDNR and partners across the state have worked to have May declared as Invasive Species Awareness Month. The governor of Illinois is expected to make the proclamation this week and activities are ready to kick-off, including launch of a new website and coordination of more than 50 events where members of the public can get involved with learning and controlling invasive species at the local level, involve students and educators, and even a poster contest. For more information, visit www.illinoisinvasives.org

Indiana - Submitted by: Doug Keller, Indiana Department of Natural Resources

Although Asian carp have yet to be suspected as present in two small Indiana streams that connect to the Chicago Area Waterway System (each of which have outlets into Lake Michigan) we have become involved in Asian carp efforts in the area. In December 2009 the AIS Coordinator and three fisheries personnel participated in the fishery eradication project on the Chicago Sanitary and Ship Canal. The AIS Coordinator is on the "Asian Carp Monitoring and Rapid Response for Asian Carp in the Upper Illinois River and Chicago Area Waterway System" planning team. Indiana is awaiting eDNA sampling on the Grand Calumet River and Little Calumet River. If positive results for either bighead or silver carp are found, Indiana will quickly respond with electrofishing or other sampling methods to determine the extent of the population. Fortunately on the Grand Calumet River there has been a barrier to fish movement in place since December 2009 (200 foot dewatered section to remove contaminated sediment). As a result fish cannot enter the lake through Indiana Harbor. There are no barriers to fish movement on the Little Calumet River which outlets to the lake at Burns Harbor although this would be about a 50 mile swim through a small and shallow waterway containing poor habitat and water quality.

The fourth year of whole-lake treatment to eradicate hydrilla from Lake Manitou will begin again in May 2010. Through 2009, we have achieved 95% reduction in hydrilla tuber abundance. Parrot feather eradication will continue through 2010 at Meserve Lake and we will hopefully eliminate the final few plants that remain. Starry stonewort is now found in two lakes in northern Indiana. In 2010 we will increase efforts to control this new species to the state. Starry stonewort has reportedly become a big problem in a number of lakes in Michigan. We hope our aggressive attack prevents its spread through our natural lakes region of Northern Indiana.

Iowa - Submitted by: Kim Bogenschutz, Iowa Department of Natural Resources

The Aquatic Nuisance Species Program (DNR–ANS) staff will consist of 1 full-time Coordinator/Natural Resources Biologist, 1 full-time Natural Resources Technician, 18 seasonal Natural Resources Aides, and 3 seasonal Water Patrol Officers in 2010. This will be the second year that ANS seasonal staff will be located in field offices during the summer.

Major accomplishments in 2009 included the following.

- Surveyed vegetation in 79 waterbodies and discovered new infestations of Eurasian watermilfoil (2), brittle naiad (2), and flowering rush (1)
- Chemically treated 9 waterbodies with Eurasian watermilfoil or brittle naiad
- Surveyed zebra mussels in 3 lakes
- Placed zebra mussel veliger settlement samplers in 21 lakes and reservoirs
- Sampled water for zebra mussel veligers in 7 interior rivers
- Surveyed Asian carp below dams on 3 interior rivers

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- Purchased equipment for DNR Fisheries management stations to prevent the spread of ANS during operations
- Conducted 7,015 watercraft inspections reaching almost 20,000 people
- Supported volunteer watercraft inspection program in Dickinson County
- Leased 12 billboards with ANS prevention messages on interstate and state highways
- Distributed brochures, identifications cards, posters, tattoos, maps, and regulations booklets and broadcast radio advertisements, local television programming, news releases, radio and television interviews, and presentations
- Supported 13 partnerships and cooperative projects

Iowa has two interior lakes with known infestations of zebra mussels: Clear Lake (discovered in 2005) and Lake Delhi (discovered in 2006). The flow of water from Clear Lake goes to Willow Creek, the Winnebago, Shell Rock, Cedar, and Iowa Rivers, and into the Mississippi River. DNR-ANS staff collected water samples from all rivers between Clear Lake and the Mississippi River in 2009. Low densities of veligers were found in samples from each of the rivers. It is unknown at this time if the veligers came from Clear Lake or if there are adult populations within these rivers. In October 2007, zebra mussels were discovered on a boat that had been transported from the Mississippi River and moored at a marina on Lake Rathbun. Sampling for zebra mussels in Lake Rathbun in 2008 and 2009 included settlement samplers, adult mussel surveys, and water samples analyzed for the presence of veligers. One water sample collected in 2009 had a total of 9 veligers. No other zebra mussels have been observed. Sampling, including PCR analysis, will continue in 2010.

During the summer of 2009, DNR-ANS staff conducted 7,015 watercraft inspections reaching almost 20,000 boat operators and passengers on 90 waterbodies. One hundred (1%) inspected watercraft had vegetation, zebra mussels, mud, or other species attached. Two thirds of the boaters contacted were familiar with Eurasian watermilfoil (62%) and Asian carp (65%). More than three quarters were familiar with zebra mussels (81%). Fifty-six percent of the boaters indicated they knew about the law prohibiting the transport of aquatic invasive species in Iowa. Data collected during watercraft inspections indicates that awareness of ANS has increased since the DNR-ANS began doing surveys in 2001. Fifty-one percent of boaters interviewed in 2001 said that they were familiar with invasive species. In 2009, that number had increased to 80%. Results of a survey mailed to registered boat owners in 2008 indicated that 71% were very likely to take steps to prevent the spread of ANS, while another 23% said they took some steps every time they went boating. Boaters reported signs at water access points, mailings to home or business, displays at various venues, and regulation books as their most used sources of ANS information. When asked how they would like to receive information about ANS, boaters overwhelmingly selected to see reminders near waterbodies they use.

The DNR Fisheries Bureau developed a new agency policy regarding grass carp. Beginning in 2010, no grass carp can be stocked in public waters in Iowa. Private pond owners can continue to stock either diploid or triploid grass carp.

Kansas - Submitted by: Jason Goeckler, Kansas Department of Wildlife and Parks

1.0 ANS Program Summary

The Kansas Aquatic Nuisance Species Management Plan was approved by the ANSTF in May 2005. The goals of the plan are to prevent new introductions of ANS to Kansas, prevent

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dispersal of established populations of ANS, eradicate or control to minimize the adverse ecological, economic, social, and public health effects of ANS, educate all aquatic users of ANS risks, and to support research ANS in Kansas. The coordinated efforts contained within the plan are designed to protect residents of Kansas and the state's aquatic resources from the multitude of potential losses associated with ANS plants and animals.

2.0 Major Accomplishments ¹

(DM) Continue to monitor zebra mussel reproduction in El Dorado Reservoir with monthly plankton tows. The first major die-off was observed in 2007 and the population has been slow to recover.

(DM) Zebra mussels were discovered in Winfield City Lake in December 2006, Cheney Reservoir, and Perry Reservoir in 2007, Marion Reservoir and Lake Afton in 2008, and Milford and Wilson Reservoirs in 2009. Monitoring and outreach activities are underway.

(R) Research to evaluate zebra mussel impacts on zooplankton and age-0 sport fish is underway.

(R) Research to determine relationships between zebra mussel infestations and cyanobacterial production in drinking water reservoirs: implications for drinking water quality are underway.

(EO) Put Clean Drain Dry message on all fisheries section vehicle tailgates and fish hauling boxes.

(EO) Identified dry hydrants as a vector for ANS spread and contacted all KS fire departments to ensure 'clean' practices.

(CM) Began project to eradicate hydrilla from Kansas.

(CM) Eradicated Eurasian watermilfoil from a water supply lake.

(EO) Developed on-line ANS certification program.

(EO) Continue to distribute educational materials to users.

(EO) Created ANS display for agency office entries.

(EO) Distribute ANS materials to all registered boaters, bait shops, and marinas.

(DM) Continue to monitor (Portland samplers and/or plankton tows) all department waters and the Kansas/Missouri River at KC for presence of zebra mussels.

(EO) Numerous ANS press releases were produced to inform the public about various ANS. Continue to include large section in fishing regulations dedicated to ANS.

(EO) 3 Web-based videos were developed.

(CM) Purchased heated pressure washers for all agency fisheries biologists for ANS decontamination.

(CM) Developed department policy requiring HACCP/decontamination plans

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(CM) Present ANS information to outdoor groups including anglers, boaters, sailors, and college students.

(EO) Distribute ANS prevention materials to registered fishing tournaments.

(EO) Zebra mussel information was posted on popular fishing websites.

(EO) Stop Aquatic Hitchhiker signs maintained at all boat ramps across Kansas.

(CM) Assist several communities with ANS infested water sources outline necessary management techniques.

(CM) ANS Coordinator serves as Co-Chair to the MRBP.

(EO) Maintain informational signage at infested waters.

(EO) Maintain awareness signs at all KS lakes.

¹ P = Prevention; DM = Detection & Monitoring; CM = Control & Management;
EO = Education & Outreach; R = Research

Louisiana – Submitted by: Ralph Allemand, Louisiana Department of Wildlife and Fisheries

August

- Chef Philippe Parola met with Gary Tilyou, Inland Fisheries Division Chief on the possibilities of establishing a consumer based fishery for silver and bighead carp.

October

- LDWF personnel and Chef Parola met with grocers about supporting silver carp products in stores.
- Participated in Louisiana Sea Grant's Ocean Commotion at LSU. K-8 graders learned about various invasive species.
- Held quarterly LAIS council meeting. Subjects covered were Port Sulphur tilapia monitoring and predator species stocking; cold water effects on tilapia; silver carp promotional update and cogon grass information request, update on MARAD biofouling issue.

November

- Attended fall GSARP meeting in Raleigh, N.C.

January

- Held media day for Silver Carp promotion. On January 12th 2010, we held a media day at department headquarters where we invited members of the press, news stations and other interested parties to hear why it's important to remove this fish from our waters. It also furnished an opportunity for attendees to taste several of the products.

February

- Chef Parola presented the silver carp promotional campaign to a national audience at the NGA convention in Las Vegas, NV.

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March

- Pathway Analysis Protocol Contract submitted to USGS for signatures. Proposed completion date is October 1, 2010.
- LDWF biologists assisted UCA in their sampling efforts for northern snakehead in Arkansas.
- Held LAIS quarterly meeting. Topics included: cogon grass contact person, Silver carp cleaning DVD distribution and update, Rio Grande cichlid/bluegill territorial behavior, and discussion on apple snail movements and possible winter kill effects.

Future Activities

- Port Sulphur tilapia monitoring.
- Snakehead monitoring will hopefully take place later in the summer in north Louisiana.
- Lake Bisteneau Giant Salvinia eradication program-high water and extreme cold winter temperatures helped reduce the acreage infested with giant salvinia. We will still be applying herbicides to infested areas. However, department biologists have worked closely with the different jurisdictions surrounding the lake, convincing them to try new methods of control.
- Continue with the silver carp promotion. Attempt to change the name to "Silver fin".
- Giant Salvinia genetics research at LSU-We are in the second year of this project scheduled to be completed in 2012.

Mississippi – Submitted by: Dennis Riecke, Mississippi Department of Wildlife, Fisheries & Parks

New Activities since September 2009

- The State Management Plan for Aquatic Invasive Species has undergone state review and public comments were received. It was sent to the National ANS Task Force in January 2010 for their review. Once it is revised with comments received back from the National ANS Task Force, we plan to resubmit it to them for final approval at their Fall 2010 meeting. We began working on the plan in the spring of 2003.
- Represented the Mississippi Department of Wildlife, Fisheries & Parks at the Gulf & South Atlantic Panel on Aquatic Invasive Species November 2009 meeting in Raleigh, NC
- Sent objection letters for the culture of Red Claw Crawfish to the aquaculture permitting agency, the Mississippi Dept. of Agriculture & Commerce and the applicant.
- Responded to Nicole Furlan with Sea Grant concerning state "white list" of species for AIS Database.
- Sent letter to Aquascape Online (online pet store in Bellville, NJ) informing them since 1969 it has been illegal to ship piranhas into the State of Mississippi. We received a report from a citizen that he had purchased piranhas from this firm. Agency employees took possession of these fish.

Ongoing Activities

- Represented the Mississippi Department of Wildlife, Fisheries & Parks on the Mississippi Aquatic Invasive Species Task Force.
- Continued distributing "Stop Aquatic Hitchhiker" cards along with all boat registrations or renewals that are mailed out.
- Continued printing The Stop Aquatic Hitchhiker logo and bullet list in the annual regulation guides --- *Mississippi Outdoor Digest* and *Guide to Mississippi Saltwater Fishing*.
- Links to the Mississippi River Basin Panel on Aquatic Nuisance Species and the Gulf and South Atlantic Panel on Aquatic Invasive Species, Stop Aquatic Hitchhiker and Habitattitude websites are on the department website.
- The Mississippi Museum of Natural Science has a permanent exhibit on exotic species.

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- The Mississippi Department of Marine Resources has been monitoring and treating Giant Salvinia (*Salvinia molesta*) in the Pascagoula River system.
- The Mississippi Department of Marine Resource has secured Mississippi Coastal Impact Assistance Program funding authority to hire a Conservation Resource Biologist under a 4 year contract to form an Aquatic Nuisance Species Advisory Council and begin implementation of action items contained in the Mississippi State Management Plan for Aquatic Invasive Species. We hope to fill this position soon.

Future Activities

- Complete the Mississippi State Management Plan for Aquatic Invasive Species in 2009 and submit it to the Governor, Regional Panels and National ANS Task Force for comment.
- Compose freshwater fishing bait regulations to specify what bait can be legally, sold, possessed, transported and used in Mississippi.
- Amend administrative Public Notice to prohibit the possession of live snakeheads and Asian swamp eels in Mississippi. Currently only live walking catfish and piranhas are prohibited in Mississippi. We plan to prohibit the stocking of any nonnative fish except triploid grass carp and goldfish into private waters. (People want to stock tilapia for largemouth bass forage).
- Adopt list of approved, restricted and prohibited species as specified in MS Code 49-7-80. Amend list of approved, restricted and prohibited species as specified in the public notice that regulates aquaculture activities in Mississippi.
- Pursue licensing of retail bait outlets selling live freshwater fishing bait.

Missouri – Submitted by: Tim Banek, Missouri Department of Conservation

It seems that it has been such a short time since the last meeting! However, the Missouri Department of Conservation (MDC) did accomplish a substantial amount of ANS work over the winter.

The most notable accomplishment was completion of the Missouri registered boat owners survey. Nearly 10,000 surveys were sent out to collect information that will help us better manage Missouri's ANS. The survey was designed for each of the randomly selected boat owners to be contacted up to three times, depending on if a response was received or not. The survey form containing 24 questions was sent with a cover letter in the first mailing. About a week to 10 days following the first mailing, a postcard reminder was sent to all that had not returned their survey. A couple of weeks later the third and final attempt was made by mailing another survey form with a cover letter as a last effort to achieve a response. The response rate was about 42%. I hope to have further details to present at this meeting.

Public information and education ANS signs were developed for Didymo and a general "don't dump" sign was designed for use at MDC area lakes.

We are working on an agreement with the Coast Guard Auxiliary to complete 100th Meridian Initiative Surveys and Inspections on Missouri's large reservoirs. The cost per survey is \$15. All that remains is to secure funding for the project.

A presentation was made on grass carp to MDC's Fisheries Division leaders. In short, even though Missouri is one of only 7 states that still allow diploid grass carp to be stocked, there was little support for a change in MDC regulations to be more restrictive.

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Lastly, we began discussing which reservoirs to sample for zebra mussel veligers. Thanks to Eileen Ryce and the Montana lab staff for analyzing our samples.

Public Education & Information



Animals and plants **NOT NATIVE TO MISSOURI** can harm our environment and economy. Help prevent the spread of these invaders.



Don't dump animals or plants not from these waters!




This includes:

- Bait
- Aquariums
- Plants
- Animals




Disposal options
 Freeze animals or plants for 24 hours, seal them in plastic bag and put in trash. Do not compost plants. Pour aquarium water into a drain that leads to a treatment facility.

For more information, call (573) 751-4115, or contact your local Conservation Office or Agent.

Stop Rock Snot

The invasive alga "didymo" has been found in Arkansas in portions of the White River System and the North Fork of the White River.

Before entering this water:

CHECK AND CLEAN OR DRY

CHECK

Remove all visible clumps of algae and plant material from fishing gear, waders, equipment, water shoes and sandals, canoes and kayaks, and anything else that has been in the water.



CLEAN

Clean your gear in a 2% household bleach solution (1/3 cup per gallon water), 5% saltwater solution (1 cup per gallon water) or dishwashing detergent. Scrub boats and other "hard" items thoroughly; Completely soak equipment, felt-sole waders, personal flotation devices and other "soft" items for at least 20 minutes!!!!



OR

DRY

Allow any item that has been in contact with the water to completely dry; the item should be exposed to sunlight and left to dry for at least 48 hours.



Please Do Your Part - Don't Spread Didymo!



For More Information

Contact:

(417) 334-4859



Montana – Submitted by: Eileen Ryce, Montana Department of Fish, Wildlife, and Parks

Major Program Accomplishments for 2009

- During the Montana 2009 Legislative Session the Montana Aquatic Invasive Species Act was passed. The Act established an Invasive Species Account to hold contributed funding for aquatic invasive species work, directed agencies to develop cooperative agreements for detection and control, provided some additional rule making authority, and established a framework for designating infested areas as Management Areas with mandatory check stations. Associated with the Act was an additional \$660K General Fund money for the biennium, the intent of the money was for implementation of the new Act. Additionally, Montana Fish, Wildlife & Parks (FWP) received the authority for 1.75 FTE and an annual operating budget of \$35K for the ANS Program.
- Training for resource agency staff, NGO's and the public was provided at 6 events, not including training provided for FWP ANS Program staff. The trainings covered ANS identification, early detection, prevention strategies and watercraft inspection/decontamination. The trainings were provided to FWP, Montana Department of Agriculture, Montana Department of Transport, US Fish and Wildlife Service, National Park Service, US Forest Service, Bureau of Land Management, Bureau of Reclamation,

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Confederated Salish Kootenai Tribe, counties, public utility companies, angling organizations and other interested parties. The Montana ANS Coordinator also provided training in Jackson Hole Wyoming for State and Federal agencies and other interested parties.

- All state hatcheries and biologist staff are encouraged to develop and maintain HACCP plans. Training is provided when necessary.
- Every major waterbody in Montana has been monitored for invasive invertebrates (including zebra/quagga mussels and New Zealand mudsnails) and invasive plants (including Eurasian watermilfoil and hydrilla). Monitoring is continuous and ongoing, a variety of methods are used to accommodate the different habitats and species we are sampling. To date no zebra/quagga mussel adults or veligers have been detected within the state. Populations of New Zealand mudsnails are generally declining in both density and distribution and have yet to be found in any waters west of the divide within the state. 254 sites were monitored during 2009.
- A hatchery ANS inspection program was developed in 2005 and is ongoing. The program requires that all state, federal and private hatcheries be inspected for any ANS within their inflow, effluent or within the hatchery. During 2009 10 state, 12 commercial, and 3 federal facilities were inspected. Since 2005 one commercial hatchery has tested positive for New Zealand mudsnails however, measures adopted during 2006 now ensure that the spread of New Zealand mudsnails from the facility is being prevented, fish stomachs are analyzed annually to determine if the measures are being effective, no mudsnails were found in any of the 120 stomachs collected in 2009.
- Montana has established a Dreissenid Veliger Lab. The Montana lab processes the majority of plankton samples for the entire Missouri Basin, the lab processed a total of 492 samples in 2009. In 2009 the lab processed samples from Montana (150), North Dakota (82), South Dakota (70), Nebraska (17), Kansas (139), and Missouri (34).
- All state hatcheries are being analyzed for their vulnerability to ANS and management actions being taken to help prevent any ANS infestations in these facilities. This is an ongoing process and is being incorporated with updating and maintaining HACCP plans at each of the facilities.
- Montana established a watercraft inspection program in 2004. During 2009 82 watercraft inspection events were conducted at 18 different waterbodies and 33 different locations. 975 inspections were carried out. During the inspections no boats with quagga or zebra mussels were found, however, one boat was reported by a marine mechanic to be positive with zebra mussels. The one boat reported that was contaminated had been inherited by a Montana resident from Illinois, the boat was decontaminated. The most common issue noticed during the inspections were small fragments of aquatic vegetation. Education and Outreach is the primary benefit of conducting the inspections.
- Angler/Boater surveys were conducted as part of the watercraft inspections. Additionally, 570 interviews (1971 contacts) were conducted on the Madison River. The information from the surveys is essential in determining movement patterns of boaters/recreators in addition to providing valuable information on behavior. The information from the surveys will be provided to the 100th Meridian database.

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- The ANS webpage was given a permanent button on the Montana FWP homepage. Added to the ANS webpage in 2009 was a reporting page for suspected ANS.

Nebraska – Submitted by: Steve Schainost, Nebraska Game and Parks Commission

In April 2006, an established population of zebra mussels was confirmed in the Offutt Base Lake, a private recreational lake owned by Offutt Air Force Base (Department of Defense). A series of five meetings were held between March, 2007 and March 2008 to develop a management plan. Meeting attendees included representatives from federal, state and local agencies, utilities, and state and local government. A plan to attempt eradication using copper sulfate was developed and implemented in the fall of 2008 and spring of 2009. This is the second known attempt to eradicate an established zebra mussel population and, to date, it appears to have been successful.

In 2008, the University of Nebraska's School of Natural Resources through their Cooperative Fish and Wildlife Research Unit initiated the Nebraska Invasive Species Project. The objective of the project is "Coordinating invasive species management efforts across institutional boundaries and creating an all encompassing resource for Nebraskans." A project coordinator was hired (Annabel Major) and her first task was to organize a Nebraska Invasive Species Conference which was held in February 2008. One of the recommendations that came out of this conference was to create a Nebraska Invasive Species Advisory Council. At this point a Council has been formed and is working but has not been formally recognized. The purpose of the Council is to coordinate invasive species management and research across the State of Nebraska for the prevention and detection of invasive plant and animal species. A legislative bill (LB582) to formally create the Nebraska Invasive Species Advisory Council was submitted during the 2009 session but was not acted on, was carried-over into the 2010 session where it died. The bill will be resubmitted in 2011.

One of the first projects sponsored by the Council is the writing of a Nebraska Aquatic Nuisance Species Management Plan. A new Invasive Species Coordinator (Karie Decker) is doing the ANS Plan writing and a draft is scheduled to be delivered to the ANS Task Force at the end of April. The final plan will be delivered to the Governor's office in September and, hopefully, a final signed plan will be sent to the Task Force in time for their November meeting.

Finally, due to the recent discovery of zebra and quagga mussels in Colorado, we will be hiring a temporary employee to inspect boats using our western reservoirs that are most popular with Colorado boaters. In support of this effort, a Level One training session was held on 24 March at Lake McConaughy.

Ohio – Submitted by: John Navarro, ODNR Division of Wildlife

Ohio's AIS Committee is working on an allocation template for the recently approved GLRI funds. Ohio will use the recently developed actions that cover four core areas (prevention, monitoring, control, and research/education) to distribute these funds. Many of these actions will be statewide activities and consequently benefit both the Mississippi River and Great Lakes Basins. The Ohio AIS Committee is also working on filling membership gaps to increase the group's diversity. The Division of Wildlife has updated the AIS web site with more comprehensive and current information which can be viewed at:

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http://www.dnr.state.oh.us/Home/wild_resourcessubhomepage/dealing_with_wildlifeplaceholder/InvasiveSpecieslandingpage/aquaticinvasivewildlife/tabid/5827/Default.aspx

Contact: John Navarro, ODNR Division of Wildlife, 614-265-6346, john.navarro@dnr.state.oh.us or Eugene Braig, Ohio Sea Grant, 614-247-6684, braig.1@osu.edu

Pennsylvania – Submitted by: Sue Thompson, Pennsylvania Fish and Boat Commission

Pennsylvania now has signs for use at boat launches across the Commonwealth educating boaters and anglers about steps to take to prevent the spread of AIS. These signs will eventually be installed at all Pennsylvania Fish and Boat Commission (PFBC), state park, and state forest boat launches.

On behalf of Pennsylvania, PFBC recently submitted a proposal to USFWS as part of the Great Lakes Restoration Initiative requesting \$1.1 million. The proposal was developed collaboratively with Pennsylvania Sea Grant, Pennsylvania Invasive Species Council, Western Pennsylvania Conservancy, and other state agencies. Funding is requested to help fund an AIS coordinator position; develop and distribute AIS educational materials; implement biosecurity protocols by state agencies; enhance early detection efforts; compile inventories of AIS held by various organizations into a master inventory; and to develop training and monitoring programs.

In March, round gobies were discovered in an inland gravel pit just outside of Erie, probably the result of a bait bucket introduction. This is the first instance of round gobies in an inland waterway in Pennsylvania. Currently, a rapid response committee is evaluating options (and the recently finished rapid response plan is being put to the test). The gravel pit is heavily used as it is traditionally stocked with fish, but stocking has not occurred yet this year.

South Dakota – Submitted by: Andy Burgess, South Dakota Game, Fish, and Parks

- In June we will be offering our second year of training on ANS identification and monitoring techniques. We hope to train a variety of state and federal agency staff as well as representatives from Tribal Natural resource agencies across the state as well. Training will include regional ANS species identification, equipment handling, monitoring, etc. The training was attended by more than 50 individuals in 2009.
- In April of this year Bill Zook will once again offer a Level 1 Watercraft Inspection and Decontamination training by Bill Zook (PSMFC).
- Development and implementation of an internal agency equipment handling policy to prevent the inadvertent spread of ANS. Heated pressure washers have been purchased and made available at all regional offices to decontaminate equipment.
- Seasonal interns will once again be hired in all regions of the state to facilitate ANS monitoring in waterbodies across the state during the summer of 2010. In 2009 monitoring results included the detection of a new infestation of Asian clams (*Corbicula fluminea*) and Eurasian Water Milfoil (*Myriophyllum spicatum*) in Lewis and Clark Lake on the MO River. These detections were very significant due to the location of Gavins Point National Fish Hatchery in Yankton which uses these waters in their rearing ponds. Additional risk control measures have been developed as a direct result of these discoveries and additional monitoring will be done in 2010 on those waterbodies with a recent history of stockings from this hatchery.

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- South Dakota remains Dreissenid mussel free to this date (4/10) Veliger sampling below Gavin's Point and Randall dams continues, but no positive samples have been found since the single finding in 2003. Veliger sampling was expanded in 2009 to include the sampling all MO river reservoirs. US Bureau of Reclamation reservoirs in the western half of the state were also sampled for veligers and samples processed independently. Sampling in 2010 will be expanded even farther.
- South Dakota has received financial support from Isaac Walton, Wildlife Forever and the SD Dept. of Agriculture and SD Walleyes Unlimited, and SD Invasive Species Management Association to place ANS billboards on highways in high risk areas on US 90 as well as highways in the southeast of the state.

Tennessee – Submitted by: Bobby Wilson, Tennessee Wildlife Resources Agency

Below are the AIS activities and issues from Tennessee for the past year:

1. There was a request from an individual from North Carolina to our Agency asking permission to raise escargot snails in Tennessee. I forwarded the request out to several members of Tennessee's ANS Planning committee and received responses within a few days. Snail experts within our state advised against allowing this to occur since the most likely species for the escargot is the highly invasive brown garden snail. It turns out that the Tennessee Department of Agriculture has a law which bans the brown garden snail from Tennessee anyway. A good example of interagency communication.
2. Bait Proclamation. The Tennessee Wildlife Resources Agency (TWRA) has been working on this for the past two years and finally got this proclamation passed within the last year. Many of the restrictions on live bait were placed in order to address concerns about the introduction and spread of invasive crayfish and fish. The regulation went into effect in March 2010.
3. Silver carp expansion. The TWRA has been receiving reports on the abundance of silver carp in the Tennessee and Cumberland River systems for a few years now, but these reports became more numerous this past year. Silver carp were collected this past summer for the first time by biologists with the Tennessee Valley Authority. Commercial fishermen have also reported an increase in the number that they have caught as well. These recent reportings have also caught the attention of several legislators in Tennessee and a presentation on the status of Asian Carp in Tennessee was given to the Wildlife Sub-Committee of the House Environment and Conservation Committee on March 16, 2010.
4. ANS Grant. Tennessee received its first ANS Federal Grant since its plan was approved in October of 2008. Most of these funds will be spent on producing and printing the new "Angler's Guide to Tennessee Fish" which will include a large section devoted to ANS in Tennessee.

Texas – Submitted by: Dr. Earl W. Chilton II, Texas Parks and Wildlife Department

The new Texas Invasive Species Coordinating Committee (TISCC) held its first two meetings. Although there has been a TISCC for several years, previously it was the

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result of an MOA among eight state agencies. During the last session TISCC became a legislatively mandated body composed of six state agencies. There will be an Advisory Group made up of non-governmental organizations, water authorities, academia, industry, etc. to assist TISCC. The primary charge for TISCC is finding extra-state funding sources to help manage invasive species.

During the 2009 legislative session Texas Parks and Wildlife Department (TPWD) was directed to create an approved list of aquatic and riparian exotic plant species. TPWD is currently in the process of developing the list. Each species listed will have undergone a risk analysis before placement on the list. All exotic aquatic and riparian plant species not on the list when it goes into effect January 1, 2011 will be illegal to possess, sell, or propagate without an exotic species permit. The first draft list contained about 150 species. However, TPWD has conducted a number of public meetings and reached out to constituency groups and there has been some significant input. Ultimately, some of the plants on the draft list will be removed, while hundreds of species may need to be added.

Also, during the 2009 legislative session TPWD was allocated \$750,000 per year over the next two years to control and manage exotic aquatic plant species in Texas. This represents a dramatic increase in funding for the Aquatic Habitat Enhancement Program.

TPWD and the Texas Commission on Environmental Quality (TCEQ) are in the process of working out permitting of biofuel production facilities that utilize algae. This is a complex issue since there is no recognized list of native versus exotic algae in the state. Many algal species have airborne propagules which make a determination of "native" problematic in some cases.

TPWD will be kicking off a giant salvinia media campaign in April to educate the public about the nature of the plant and how to help prevent its spread. Billboards, pump toppers, radio ads, media events, specialized signs and buoys will all be involved. Media events will sometimes be interrupted by the "giant salvinia monster" which will help illustrate the problems with the plant. Themes such as "Hello giant salvinia, good-bye fishing" will be used.

West Virginia – Submitted by: Frank Jernejcic, West Virginia Department of Natural Resources

The major, and only, ANS "event" in WV during the past year has been the discovery of golden algae in 7 streams. The discovery occurred because of a major fish kill on 40 miles of Dunkard Creek, a tributary to the Monongahela River on the WV-PA border. An estimated 20,000 fish were killed in the 25-mile WV reach as well as the complete eradication of 14 species of mussels. The cause of the kill was originally thought to be treated acid mine drainage from deep coal mines that had a high conductivity (40,000-50,000 umos/cm at the discharge; 2,000-4,000 20 miles downstream). It was later determined that a golden algae bloom, *Prymnesium parvum*, produced a toxin that killed the fish. This was the first time golden algae was documented in WV although we had never surveyed for it. There are 20 other WV streams with

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high conductivities that also may promote a golden algae bloom. A monitoring program has been initiated.

Wyoming – Submitted by: Beth Bear, Wyoming Game & Fish Department

During the 2010 session, the Wyoming legislature passed HB0018 (<http://legisweb.state.wy.us/2010/Enroll/HB0018.pdf>) which created statues allowing the Wyoming Game and Fish Department and State Parks and Cultural Resources to develop a new aquatic invasive species program. The act provides for inspection and decontamination of watercraft, authority to develop regulations, civil and criminal penalties, a user fee to help pay for a portion of the program, a \$1.5 million appropriation, and a new permanent position of AIS Coordinator within the Game and Fish Department.

Based on direction from the legislature, the Wyoming Game and Fish Commission and State Parks and Cultural Resources have implemented emergency regulations to address the aquatic invasive species threat. The emergency rule provides procedures to establish check stations, methods to inspect and decontaminate watercraft, authority for impoundment and quarantine if necessary, requirement for mandatory reporting of Aquatic Invasive Species, and fees and requirements for the decal program (user fee).

To implement this program, the Department is hiring 29 seasonal inspectors, one 12-month program assistant, and the permanent coordinator. The goal is to have the program up and running by Memorial Day weekend. Inspectors will conduct watercraft inspections on a rotating basis at 23 priority waters throughout the state.

Outreach continues to be our largest component of the program with a newly developed brochure, self-certification form, boat ramps signs, billboards, and other media. Our goal is to contact as many boaters as possible to make them aware of the invasive species threat we face and to remind them to Drain, Clean, and Dry their boats and equipment.

We are coordinating with the Bureau of Reclamation (BOR) who will conduct monitoring for mussels at 7 priority waters. Results from the sampling of these same 7 waters sampled by BOR in 2009 were all negative. The Game and Fish Department will conduct monitoring at the 16 other priority waters in 2010.

Sea Grant (Upper Basin) – Submitted by: Kristin TePas, Illinois-Indiana Sea Grant Program

Illinois-Indiana

Illinois-Indiana Sea Grant's (IISG) has been involved in several outreach initiatives on Asian carp including 1) participation in the production of a "how to clean" video featuring Duane Chapman, 2) working with presenters at the Chef's Collaborative to have Asian carp discussed as an "underutilized" food fish, and 3) working to include Asian carp on the banquet menu of the Governor's Conference on the Illinois River. We also are planning to host an Asian Carp Marketing Summit this summer in Grafton, IL. The summit will bring together the various stakeholders in the issue including managers, harvesters, and processors to identify the opportunities and impediments to creating an economically viable market for these fish.

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IISG is also working on finalizing a set of “recreational guidelines” for the water-gardeners portion of the water garden pathway. We hope to have these steps approved by the ANS Task Force. We also are seeking funding to produce an AIS-training CD for retail outlets selling aquatic plants.

Contact: Pat Charlebois, IISG, charlebo@illinois.edu.

Minnesota

MNSG promoted AIS public awareness at many events during the winter/spring. *Stop Aquatic Hitchhikers!*TM was a featured booth at the 44th Annual Duluth Boat, Sport, and Travel Show, Duluth (Feb. 2010). Nearly 2,000 people stopped by. Several new partners recently joined the *Stop Aquatic Hitchhikers!*TM campaign including the White Iron Chain of Lakes Association and the Cook County Lakes Association. During the summer, the campaign will be promoted at the Watershed Festival (June 5, Duluth), Mills Fleet Farm’s Kid Fishing Appreciation Day (July 10, 11 locations in MN), Lake Superior Days (July 22-24, Duluth), Tall Ships Celebration (July 28-Aug 1, Duluth), and several county fairs. Tens of thousands of people will be reached by representatives staffing booths from Sea Grant, MnDNR, US Forest Service, Wildlife Forever, and a dozen other conservation and lake associations. MNSG will host a *Habitattitude*TM learning station reaching over 1,100 6th graders from Duluth-Superior area schools during River Quest, a ship board education event (May 10-13, Duluth). MNSG promoted the latest on VHS through the Web (see <http://www.seagrants.mn.gov/fisheries/parasites#vhs>) and presentations. They will host an International Symposium on Genetic Biocontrol of Invasive Fish (June 21-24, Mpls., <http://www.seagrants.mn.gov/ais/biocontrol>). Proceedings of the 2008 Minnesota Invasive Species Conference are available at <http://www.seagrants.mn.gov/ais/mnisc/>. Interviews of resulted in news coverage, <http://www.seagrants.mn.gov/news/2010/04/02>.

Contact: Doug Jensen, MN Sea Grant, djensen1@umn.edu

Sea Grant (Lower Basin) – Submitted by: Carol Franze, Louisiana Sea Grant Program

Louisiana

Teacher Workshops on Invasive Species

157 teachers received professional development instruction at 8 workshops (1-1.5 hr each) on invasive species. Venues were NSTA, Aliens in the estuary Symposium, DREAMS, WETSHOP, SMART, LSTA, BSC/BWET, and NFC). Potential impact: 18,840 students.

Invasive Species at Educational Events

Louisiana Earth Day (April 2009)

Harry Hurst Wetland Celebration (March 2009) 600 6th graders

Aliens in the Estuary (July 2009)

Ocean Commotion (November 2009) 2,095 2nd-8th graders, 148 teachers, 252 chaperones

- Ten teachers across the state completed stewardship projects with 540 students grades 3-12 on invasive species. These students communicated information about invasive species throughout their schools and in their communities.
- April Stone, 3rd grade teacher at South Street Elementary in Opelousas won LSTA’s Elementary Teacher Year Award for her work with students on stewardship projects on invasive species through the Nab the Aquatic Invader project.

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- Gulf suspect rap sheets from the Nab the Aquatic Invader website were reduced, revised and edited. Photos of the invasives were collected and sent with the short rap sheets to the Smithsonian to be featured on a kiosk in Ocean Hall. Invasive species is expected to be showcased in February 2010. The feature will also be available at kiosks at all Coastal Learning Centers in the country.
- Adapted our AIS jeopardy game to a computer based format, presented it to 15 teachers.
- AIS activity Invasive Species Round Up developed in 2008 by graduate student, C. Sutera was presented at Ocean Commotion, Earth Day, Aliens in Estuary and Louisiana Science Teachers Association conference.
- Gulf Suspect rap sheets developed for the Nab the Aquatic Invader site <http://www.sgnis.org/kids/index.html>, were reduced, revised, edited and photos collected and sent to the Smithsonian to add to the kiosk in Ocean Hall. All Nab the Aquatic invader suspects are expected to be showcased in February 2010. The feature will also be available on kiosks at Coastal Learning Centers.
- Six "Meet the Scientist" profiles of Gulf scientists working in the field of invasive species research and management were developed and posted on the Nab the Aquatic Invader website http://www.sgnis.org/kids/Gulf/kidsheadqtrs/meet_scientists.html.
- A bookmark was developed featuring the top ten Gulf suspects on the Nab the Aquatic Invader website. About 3,000 have been distributed through teacher workshops and student-center and public events.

Aquatic Invasive Species Education / Utilization

- Creation of the "Flying Fish – Great Dish" video, to promote fisheries for Asian carp, in cooperation with USGS, Illinois/Ind. Sea Grant, LSU AgCenter, LDWF, and USFWS. 3,100 copies being distributed: YouTube site: Flying Fish, Great Dish (Part 1: Introduction & Removing Filets) <http://www.youtube.com/watch?v=T1NVUV8yhmU>
- Flying Fish, Great Dish (Part 2: Making "Flying Carp Wings") <http://www.youtube.com/watch?v=CB-fmA07qZ8>
- Flying Fish, Great Dish (Part 3: Deboning Filets & Closing Credits) http://www.youtube.com/watch?v=RhGkjwmxm_0o

National Park Service – Submitted by: Byron Karns, St. Croix National Scenic Riverway (Note: Some of these activities occurred in the Great Lakes Basin, but within this region of the National Park Service)

St. Croix National Scenic Riverway (Upper Miss Basin)

- Acquired funding to survey and identify zooplankton in the lentic region of the River (Lake St. Croix, lowest 22 miles/35.4km of river) in anticipation of an Asian carp invasion.
- Will start zebra mussel/native mussel competition and predation study in 2010. Funded by USGS, the project will: quantify the effects of the ZM invasion in the SACN by assessing 1) the mechanisms of impact on native adult and juvenile mussels (e.g., direct impact via encrustation, indirect via competition for seston food resources); 2) the extent of ingestion and assimilation of ZM and native juveniles by local populations of benthivorous fish; and 3) effects of ZM removal by hand-scrubbing on native mussels.
- Continue to monitor and maintain containment strategies related to zebra mussels on the Riverway. Currently, the river is considered "infested" from mile 25.4 downstream to the confluence with the Mississippi River. The river (including the largest tributary and part of the Riverway system, the Namekagon) remains noninfested upstream of mile 25.4.

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- Will continue surveying Riverway in 2010 for expansion of invasive nonnative snails (e.g. Mystery, faucet, mud). A survey is planned in 2010 for aquatic macrophytes. First comprehensive data ever for the St. Croix River. This should hopefully identify pockets of Eurasian water milfoil and curly leaf pondweed for further management efforts.

Mississippi National River and Recreational Area (Upper Miss Basin)

- Continues with low levels of zebra mussels throughout the 72 mile corridor. Zebra mussels have been found in the river upstream of the park and in associated lakes and back waters.
- Asian carp are at the doorstep, but have not been confirmed within park boundaries.
- The park activity suppresses purple loosestrife.

Sleeping Bear Dunes National Lakeshore (Lake Michigan Basin)

- There was an aquatic invasive vegetation survey of the inland lakes at Sleeping Bear Dunes in 2009.

Voyageurs National Park (Hudson Bay Basin)

- Has spiny water flea and has been taking steps to reduce the spread by decontamination and use of separate or dedicated equipment for various lakes in the park.

Isle Royale NP (Lake Superior Basin)

- Zebra mussels were found at two bays of Lake Superior, nothing found inland. Surveys will continue and the Water Resources Division has provided emergency funding.

Buffalo National River (Lower Miss Basin)

- Discovered zebra mussels in upstream tributaries. The park is establishing standard operating procedures for use in 2010. More detail forthcoming.

Apostle Islands National Lakeshore (Lake Superior Basin)

- Unfortunate recent discovery of VHS (viral hemorrhagic septicemia) within park water's has lead to boating and fishing rule changes: prohibit ballast water exchange, required decontamination of boats and gear, artificial bait use inland or local bait stocks in Superior.

Pictured Rocks National Lakeshore (Lake Superior Basin)

- US Fish and Wildlife Service is field testing a sea lamprey pheromone attractant in Miners River, at the site where they have been conducting population assessment during spawning runs for several decades (mark/recapture).

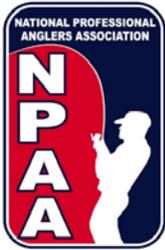
Great Lake Inventory and Monitoring Network (Upper Mississippi/Great Lakes Basin)

- Has developed HACCPs for every park, and now follow rigorous decontamination (and prevention) measures between water bodies.
- Dr. Charles Kerfoot at Michigan Technological University is heading a 3 year study of the invasion status of *Bythotrephes longimanus* in inland lakes at Voyageurs , Pictured Rocks, and Sleeping Bear.

US Forest Service – Submitted by: Nick Schmal, Eastern Regional Office

See the attached press release regarding the National Professional Anglers Association and the 2009 threat campaign report. John Rothlisberger, a recent University of Notre Dame graduate who worked on invasive species issues and boat washing, will be representing the Forest Service on the Great Lakes ANS Regional Panel.

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NPAA News for Immediate Release –April 8, 2010- Forestville, WI

NPAA and U.S. Forest Service Team Up to Educate Anglers

The National Professional Anglers Association (NPAA) announced today they have partnered with the U.S. Forest Service to educate anglers about the spread of aquatic invasive species. The NPAA will get the word out to the public and the media at tournaments, youth fishing clinics and fishing clubs.

Nick Schmal, fish and aquatic ecology program leader with the eastern regional office of the U.S. Forest Service in Milwaukee, said, “In my 30 years working with the Forest Service, this is one of the most exciting opportunities to be able to work with professionals and educate the public about invasive species. These cooperative efforts will take place at high-level tournaments where the NPAA conducts youth clinics.”

He continued, “Promoting awareness of practices that prevent the spread of terrestrial and aquatic non-native species is important. It’s each person’s responsibility to help care for the resources.” Additionally, the NPAA will help share information about conservation and stewardship of natural resources. “It all starts with teaching kids,” Schmal said, “And, the professional anglers are part of the solution.”

The NPAA will conduct youth clinics at FLW, MWC and AIM fishing tournaments throughout the Midwest in 2010. Youngsters will receive t-shirts at the clinics, along with lessons that will last a lifetime. Invasive species threaten watersheds. Research from northern Wisconsin in August, 2007, showed that recreational boaters carried and moved 13 species of weeds, 28 species of aquatic animals, and 23 terrestrial organisms such as ants, seeds and spiders.

“Cleaning boats before leaving the launch ramp is the most effective intervention to prevent transmission of invasive species,” Schmal said. Some common exotics now present in many Midwestern waters are milfoil, spiny water fleas and zebra mussels. “Control of the Asian carp is so critical now because it could destroy other fisheries,” he said. His best advice: “Be ultra-careful going lake-to-lake. Inspect, clean and wash bilges, boat exteriors, livewells and trailers.”

The NPAA is a non-profit organization focused on growing the sport of fishing and increasing the professionalism of its members. Its supporting partners include Northland Fishing Tackle, Navionics, Mercury Marine, Evinrude Outboards, Lund Boats, Ranger Boats, Off-Shore Tackle, Fin-Tech Tackle, Berkley, AIM Walleye Series, Masters Walleye Circuit, FLW Outdoors, Frabill, U.S. Forest Service, Liddle Marketing, FPS Financial Planning Services, Do-it Corp., Optima Batteries, John Butts Outdoors, Pasha Lake Cabins, Oahe Wings and Walleyes Guide Service, Outdoor First Media, Advanced Tex Screen Printing and Worldwide Marine Underwriters. More NPAA member and association news can be viewed at www.npaa.net.

(For more information, contact Pat Neu, NPAA executive director, 920-559-6901)

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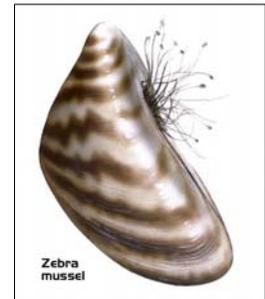


State Aquatic Nuisance Species (ANS) Program Summary for Colorado Legislators per SB 08-226

**Colorado Division of Wildlife and Colorado State Parks
January 2010**

Background

Zebra and/or Quagga Mussels were identified in eight reservoirs in Colorado in 2008 as a result of a multi-year statewide sampling effort conducted by the Division of Wildlife (DOW) in partnership with State Parks (Parks), the U.S. Fish & Wildlife Service and the U.S. Bureau of Reclamation. 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 supply.



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 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 rules require mandatory watercraft inspection and if necessary decontamination of all boats coming in from out of state, leaving a known positive water in Colorado, and those entering a high risk water where inspections and decontaminations are required by the managing agency. The rules set the standard for watercraft inspection, decontamination, impoundment, sampling, monitoring, identification and reporting. Lastly, they created a new ANS species list (plants and animals) which focused on species that can be transported by watercraft.

The DOW internally reallocated resources to create a fulltime position to coordinate Invasive Species activities statewide beginning July 1, 2008. The Invasive Species Coordinator oversees implementation of the State Zebra and Quagga Mussel Management Plan (ZQM Plan). The backbone of the ZQM Plan includes containment and prevention through watercraft inspection and decontamination, sampling and monitoring, education/outreach, communications and information, and applied research. The DOW provides ANS support to all waters of the state, and to all inspection stations, regardless of jurisdiction. Services provided by the DOW include site-specific planning, training/certification, watercraft inspection and decontamination, law enforcement support, educational materials, workshops and

conferences, sampling/monitoring, ANS identification, cost-share opportunities and Motorboat Colorado Grants for decontamination units.

In February 2009, Parks hired a fulltime position to coordinate the Parks ANS program and train staff in inspection and decontamination procedures at 27 parks. As provided for in the ANS Act, Parks hired seven fulltime employees to implement the ZQM Plan with Parks, which includes a comprehensive education, inspection and decontamination program.

Program Goal

The goal of the program is to prevent new introductions and reduce the spread of existing ANS, specifically zebra and quagga mussels, in Colorado.

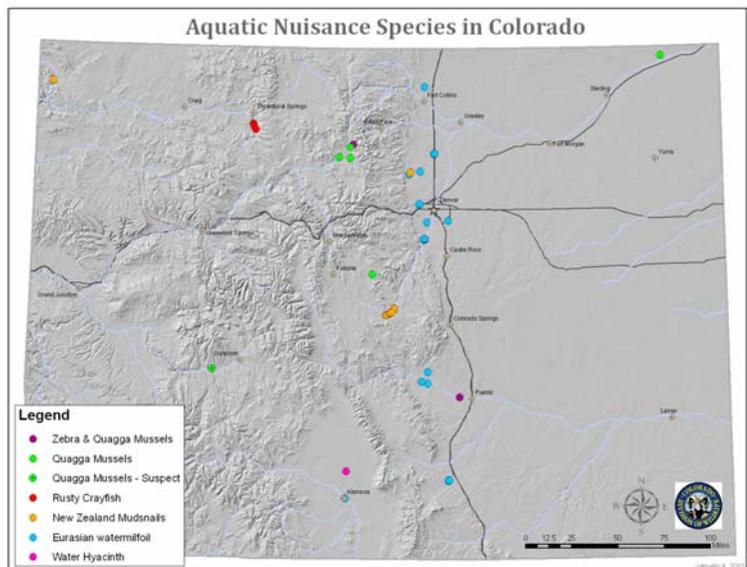
Current Status

Pueblo Reservoir, Granby Reservoir, Grand Lake, Shadow Mountain Reservoir, Willow Creek Reservoir, Tarryall Reservoir and Jumbo Reservoir are all considered positive for zebra and/or quagga mussels. In April 2009, Blue Mesa Reservoir was classified as ‘suspect’ for quagga mussels. This classification is used by multiple states in the west following inconclusive genetic analysis of juvenile mussel veligers. Veligers are the free-floating, microscopic larval life stage of zebra and quagga mussels.

For the third consecutive year, juvenile mussel veligers were detected in Pueblo Reservoir. This indicates that there is a reproducing population of adult mussel population in Pueblo Reservoir. **There were no positive detections for zebra or quagga mussels at any other water in Colorado in 2009.**

Rusty crayfish, a new invasive species to Colorado, was discovered in 2009 in a main-stem impoundment of the Yampa River and at two river locations between Stagecoach Reservoir and the town of Steamboat Springs. Management planning and monitoring is underway.

Although very few ANS are known to be in Colorado, other species present include noxious weeds, Eurasian watermilfoil and water hyacinth, and the New Zealand Mudsnaail.



2009 Program Activities: Planning

State Zebra & Quagga Mussel Management Plan – The DOW completed this plan in December 2008. The ZQM Plan went through an extensive review process with our partners and the public. It outlines the mandatory inspection and decontamination program, sampling and monitoring, reporting,

equipment disinfection, education, information, research, state fish hatchery program's prevention protocols, and volunteerism. The implementation of the ZQM Plan began in March 2009 and is ongoing.

Lake/Reservoir Site-Specific Zebra and Quagga Mussel Management Plans – Site-specific mussel management plans were completed for 22 waters in 2009. The plans are very detailed, lake/reservoir-specific documents that mirror the ZQM Plan but provide increased detail for the mussel management of that specific reservoir. These plans are written as cooperative processes with stakeholders including owners, managers, water districts, water providers, energy companies, marinas, concessioners, etc. The goal is to implement watercraft inspection/decontamination, sampling and monitoring, and education in a standardized manner where all partners contribute to accomplish either the prevention of, or containment of, invasive mussels at that specific water body. This planning process has served as the catalyst for a variety of cost-share partnerships for local implementation of the ZQM Plan.

State ANS Watercraft Inspection and Education Handbook – The DOW and Parks completed this publication in partnership with many other entities in March 2009. This document defines the state standard protocols for inspections and decontamination, and includes talking points, FAQs, responsibilities, green seal system and standardized forms and protocols for inspection stations, as referenced in the state ANS regulations. The Handbook also serves as the training manual for the watercraft inspection and decontamination certification program.

State ANS Watercraft Inspection and Decontamination Handbook for Positive Waters*
Begun in October 2009 and scheduled for completion in spring 2010.

State ANS Watercraft Decontamination Manual*
Begun in October 2009 and scheduled for completion in summer 2010.

*These documents contain the latest information based on knowledge gained in the first full year (2009) of watercraft inspection and decontamination implementation.

Sampling/Monitoring

The DOW has been sampling over 100 at-risk waters for aquatic invasive weeds animals over the last 5 years. It was through this sampling program that zebra/quagga mussels were detected in Colorado.

The state follows a three-tier sampling protocol and a three-phase identification process: 1) conducting plankton tows to find the veligers, 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 settled juveniles or attached adult mussels. Identification of plankton tows includes a cross-polarized light microscopic visual analysis, followed by two-phase DNA analysis (polymerase chain reaction [PCR] and gene sequencing) to identify genus and species respectively.

In 2008, the DOW implemented a comprehensive early detection program for zebra and quagga mussels. Over 100 lakes and reservoirs were sampled for zebra and quagga mussels. Those waters were selected from a prioritization ranking resulting from a risk assessment, which was conducted specifically to determine the potential risk of introduction of zebra and quagga mussels. The risk assessment identified 19 very high risk waters, 17 high risk waters, 58 medium risk waters, and 64 low risk waters.

In 2009, the DOW continued the early detection program for zebra and quagga mussels, along with sampling for other priority ANS. The DOW crews sampled 168 waters (standing and flowing) statewide on multiple occasions. The DOW, in collaboration with the Bureau of Reclamation, held the State ANS Sampling and Monitoring Training School in April and August 2009. Sixty-four attendees 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 helped to collect samples during 2009 at waters they own or manage. All analysis was conducted at the DOW's Aquatic Animal Health Lab at no cost to partners.



Students are taught to do a plankton tow for zebra/quagga mussel veligers during the ANS Sampling Training School.

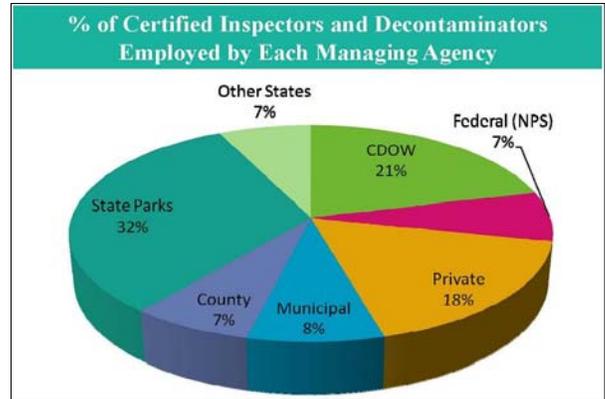
The DOW completed the State ANS Sampling and Monitoring Manual in July 2009. This document describes in great detail the standard protocols for the various baseline inventories and species-specific ANS sampling and monitoring protocols, in addition to identification and laboratory processes. The Manual incorporates recommendations detailed in both the *Zebra/Quagga Mussel Early Detection and Rapid Response: Blue Ribbon Panel Recommendations for the DOW* (February 2009) and the *100th Meridian Initiative's Interagency Dreissena Monitoring Plan for Western Waters* (September 2009).

Currently, the DOW is designing a sampling and monitoring database, which will be contracted for development in 2010. This web-based system will allow us to track a sample from collection to final identification online. This enables us to closely track our sampling efforts and the results from microscopy, PCR testing and gene sequencing to make our early detection program more efficient. This database also enables us to better communicate with our partners and reservoir owners/managers regarding our efforts specific to their water bodies. Reclamation has partnered with the DOW to cost-share the development and assist with the implementation.

Watercraft Inspection and Decontamination

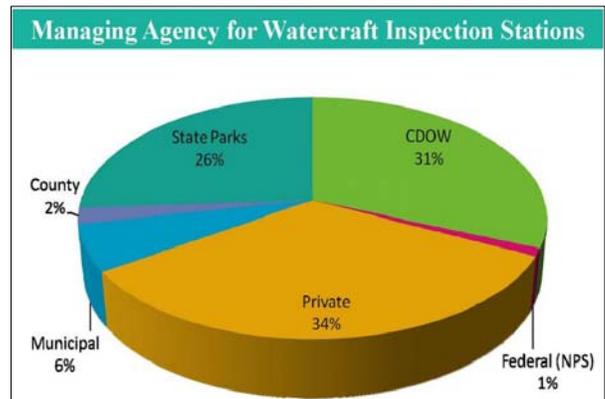
Per the State ANS Regulations, trailered watercraft must submit to an inspection, and decontamination if needed, prior to entrance in Colorado's waters following boating out of state or boating on a water known to be positive for ANS. Boaters are also required to submit to an inspection prior to entering a water body where inspections are required by the managing agency. All persons performing inspections and/or decontaminations in Colorado must be certified by either the DOW or Parks.

The DOW, Parks and their partners conducted 93 watercraft inspection and decontamination certification courses throughout Colorado in 2009. The DOW also trained Wyoming Department of Game and Fish personnel. Together, the DOW and Parks trained and certified more than 1,000 individuals between March and October. Both the training program and the inspection programs focus on educating the boaters, in addition to inspecting the boats.



A total of 209 locations were authorized to perform watercraft inspection and decontamination in 2009. Of those, eight locations were containment operations at positive or suspect waters. The focus of the containment programs is to inspect watercraft leaving the lakes/reservoirs to prevent boats from moving mussels or other ANS overland from positive waters into currently uninfested areas. Parks manages the containment program at Pueblo Reservoir. The DOW implemented containment procedures at the federally managed impoundments in Grand County (Granby Reservoir, Shadow Mountain, and Willow Creek) and Grand Lake, in addition to two State Wildlife Areas (Tarryall Reservoir and Jumbo Reservoir). The DOW and the National Park Service jointly implemented both prevention and containment protocols at Blue Mesa Reservoir. In addition to zebra/quagga mussel containment, Lathrop State Park implemented containment protocols in response to an infestation of Eurasian watermilfoil.

The other 201 authorized locations were implemented to prevent the introduction of mussels into currently uninfested waters, including boat ramps on lakes and reservoirs, and off-water locations such as at DOW offices and private industry locations. Prevention stations focus on inspecting watercraft prior to entering an uninfested water to prevent a new invasive species from being introduced. The prevention stations are operated by a variety of entities, including the DOW, Parks, Larimer County, several municipalities, marinas, concessioners, private clubs and marine dealers. The Colorado Marine Dealers Association has been an active supporter of the inspection program and a majority of their members have been state certified.

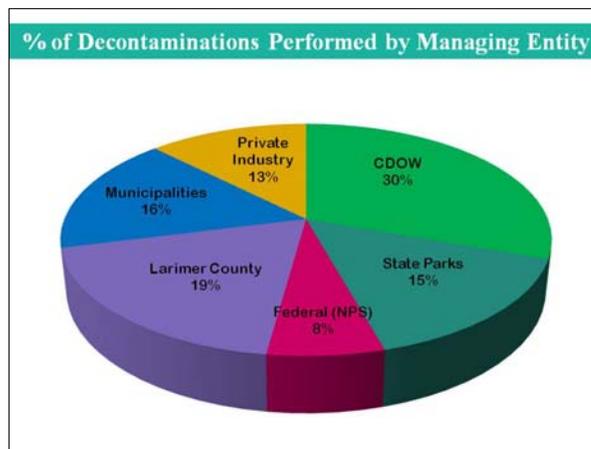
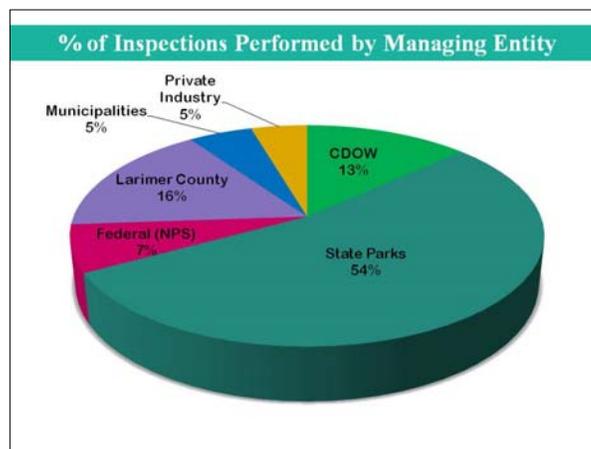


A total of 19 boats with attached adult zebra or quagga mussels were intercepted coming into Colorado's waters from out of state at watercraft inspection and decontamination stations statewide in 2009. These boats were fully decontaminated to ensure all mussels were dead, and no mussels were attached to the vessel. The infested vessels were intercepted at Blue Mesa, Cherry Creek, Denver DOW Headquarters, Horsetooth, Navajo, Pueblo, Ridgeway and Williams Fork. These vessels were coming into Colorado from Arizona, Illinois, Louisiana, Minnesota, New York, and Ohio. The majority of the intercepted vessels were coming from the Great Lakes, the Mississippi River, or Arizona (Lake Pleasant or Lake Havasu).

The State of Colorado and all our partners collectively inspected over 400,000 boats and conducted over 3,300 decontaminations in 2009. Parks conducted 214,690 inspections (54%) and 511 decontaminations (15%) at 27 parks. The DOW performed 52,608 inspections (13%) and 1,025 decontaminations (30%) at 35 permanent and 101 temporary locations, while providing support to all waters of the state regardless of jurisdiction, and maintaining the private industry component of the program. Larimer County conducted 62,595 inspections (16%) and performed 635 decontaminations (19%) at Horsetooth and Carter. Inspector salaries and equipment for the Larimer County waters were funded with the DOW's ANS funds. The National Park Service and the DOW at Blue Mesa performed 27,582 inspections (7%) and 219 decontaminations (7%). Private industry (marinas, marine dealers and concessioners) performed 18,060 inspections (5%) and 420 decontaminations (12%). Municipalities collectively performed 20,569 inspections (5%) and 554 decontaminations (16%). Comparatively in 2008, Parks performed approximately 114,000 inspections and 79 decontaminations at 24 parks. The DOW performed approximately 5,000 inspections and 50 decontaminations at 6 locations in 2008. The National Park Service, Larimer County, and the majority of municipal and private industry locations did not perform inspections or decontaminations in 2008.



Quagga mussels on a boat from Minnesota that was intercepted prior to launching at Pueblo Reservoir.

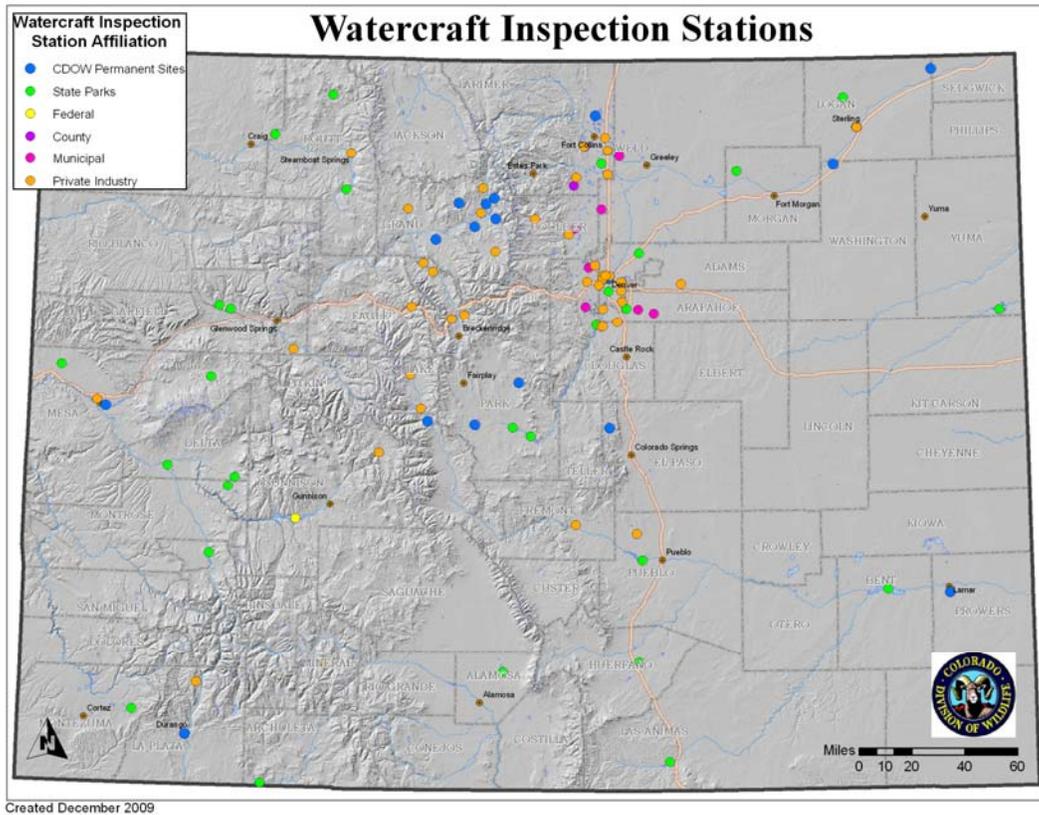


In order to guarantee quality assurance of the inspections operated by the various certified entities, the DOW implemented a Quality Assurance & Field Support Team in 2009. The team evaluated all watercraft inspection stations, certified by the DOW, to ensure that state protocol was being followed. The team also ensured all stations were adequately stocked with educational materials and proper signage, and to provide on the job training to inspectors and supervisors.

The DOW designed a database to store and track information associated with inspection stations statewide. The database includes information related to trainers, certification courses, certified individuals, identification cards, authorized location operating procedures, site supervisors, cooperative management agreements and key partner contacts. This database allows us to better communicate with the inspectors and decontaminators in the field, along with reservoir owners and managers, in a timely fashion. It enables us to provide alerts and to receive feedback from the field to better support our employees and partners.

The second phase of the database project is to develop an electronic format for storing inspection data at the ramp which can be utilized by all authorized locations to better evaluate watercraft risk on site.

In 2009, Parks implemented a proof of prior inspection system at night; in early spring and late fall (boat seals and inspection receipts are dropped in a drop box at the boat ramp). The boat ramps are not staffed during those times, yet Parks verifies all boats are inspected prior to launch and fines those that launch without prior inspection. Parks with small hand-launch craft conduct education programs and spot inspections only. In 2010 there will be inspection programs at 29 parks.



Information and Outreach

Throughout 2008, the DOW, Parks and other partner agencies developed a comprehensive, multi-faceted, public-education campaign to inform boaters and anglers about zebra and quagga mussels and how to prevent the further spread of these harmful species and other ANS in Colorado's waterways.

The cooperative effort utilized a variety of mediums, including billboards, boat ramp signage, ANS brochures and agency Web pages to convey this message.

Accomplishments include: distribution of thousands of "Zap the Zebra" brochures and ANS rack cards, installation of more than 400 "STOP ANS" signs at statewide boat ramps and water-access points, posting "Clean, Drain and Dry" billboards at 12 high-traffic locations across the state and the distribution of hundreds of "Don't Move a Mussel" DVDs to boating and angling groups.

In addition, the DOW and Parks launched an aggressive media relations campaign, using press releases and conducting Web-based, radio, print and television interviews.

Division aquatics staff and biologists also hosted numerous outreach seminars to boating and angling groups, marine dealers, HOAs, watershed groups, basin roundtables, ditch companies, municipal water managers and providers. The DOW conducted over 72 ANS presentations at conferences, trainings and workshops statewide in the last year. Parks conducted 7 ANS presentations.



The 2009 campaign continued this objective, focusing largely on notifying resident and nonresident boaters about Colorado's revised boating regulations and mandatory watercraft inspections. To supplement this effort, the DOW developed a brochure: "Boaters Guide to ANS Inspections," detailing Colorado-specific boating guidelines and inspection requirements.

To reach a larger audience, the DOW proposed an "ANS-Alert" postcard be included in all municipal water bills. Aurora Water began this in 2009 and the DOW is engaging more water providers to participate. This outreach would target the entire population of Colorado, whereas past efforts were directed primarily at recreational users.

Professional Education

In May 2009, the DOW hosted the 5th Annual ANS Workshop in the Denver area, sponsored by the Colorado Weed Management Association and the Colorado Lakes and Reservoir Management Association (CLRMA). The workshop focused on both aquatic nuisance weeds and animals detailing identification, biology, impacts and control. Key topics included the new regulations and listed ANS species, survey and monitoring, statewide planning updates and Hazard Analysis and Critical Control Point Planning (HACCP). Over 100 individuals attended.

Youth Education

The DOW has partnered with the Colorado Foundation for Agriculture (CFA) for youth education. In August 2009, CFA published a comic about zebra and quagga mussels in the Denver Post Kids Section. The DOW and Parks are providing the comic to children waiting for an inspection of their family's watercraft on the boat ramps. The second product being published is a *Colorado Reader* specifically about ANS, sponsored by CLRMA. The Reader will be distributed to 5th grade science classrooms and at inspection stations statewide in 2010. The goal of these products is to educate children about the impacts of invasive species using geography, math and science educational points. It also reinforces the importance for children to help keep their family's boats and equipment cleaned, drained and dry to prevent the spread of ANS and protect Colorado's waters.

State Fish Hatchery Program

Proactive methods have been put in place statewide to protect hatcheries and state waters from an invasive species introduction. Those measures include Annual Fish Health Inspections, HACCP, Trainings and Workshops.

Preventative measures have been taken at Pueblo Reservoir State Fish Hatchery to monitor and detect a potential mussel infestation. The hatchery is regularly monitored and is tested every two weeks according to state protocols. To date, no mussels have been identified, but disinfection protocols are still being implemented.

Statewide preventative measures also include implementation of standardized disinfection protocols for wild spawn, fish transfers and egg transfers. Specialized trailer units have been constructed for all wild fish spawning operations to ensure no ANS are transported. Biologists are certified inspectors and decontaminators. They have decontamination units and clean boats and equipment in between each use.

Research

The DOW is currently funding or participating in several research projects for zebra and quagga mussel management. Current projects include the following:

- Boat Decontamination focused on interior compartments that hold water (bilge, ballast, etc). CSU. Underway, Scheduled for Completion in June 2010.
- Fish Hatchery Program protocols for disinfection for wild spawn, fish stocking and egg transfer. CSU. Underway, Scheduled for Completion in June 2011.
- Zebra/Quagga Mussel modeling / risk assessment based on recreational and downstream vector of dispersal utilizing the Colorado 2006-2008 boater surveys. This study will also analyze the habitat requirements to determine the suitability for mussel establishment. OSU. Underway, Scheduled for Completion in June 2010.
- Regional modeling based on recreational and downstream vector of dispersal utilizing 100th Meridian Initiative boater survey data from all western states. Western Regional Panel and University of California, Davis. Underway, Scheduled for Completion in October 2010.
- Economic Impact Analysis of Zebra and Quagga Mussels in Colorado. Colorado Water Conservation Board and CSU. Underway, Scheduled for Completion in 2011.

Other ANS of Concern

Rusty Crayfish – Discovered in 2009

The rusty crayfish is a new invasive species to Colorado that was discovered in 2009 in a main-stem impoundment of the Yampa River and at two river locations between Stagecoach Reservoir and Steamboat Springs. Extensive surveys were conducted following the initial finding and will continue in 2010. This is the first and only known rusty crayfish finding in Colorado, even though crayfish samples have been collected and identified statewide for several years.



A Rusty Crayfish Management Plan has been drafted to bring together all interested parties in a collaborative process to determine the best management practices for containment of rusty crayfish. At this time, we cannot say with certainty what their impact has been or will be on the upper Yampa River Basin.

Rusty crayfish are native to the Ohio River Basin and have expanded their native range to include several U.S. states and Ontario, Canada. They colonize lakes, rivers, and streams throughout North

America. They are more aggressive than native crayfish, better able to avoid fish predation, and can harm native fish populations by eating their eggs and young. They can displace native crayfish and hybridize with them. They graze on and eliminate aquatic plant populations that provide necessary habitat and food source for native fish and waterfowl.

New Zealand Mudsail Monitoring

As of 2009, there are three known locations of New Zealand mudsnails in Colorado. They are Boulder Creek in the City of Boulder, Green River in Dinosaur National Monument and the South Platte River just below the Eleven Mile dam. The DOW has been actively monitoring the populations since their discovery in 2004, and will continue to do so. An angler education program was enacted in 2004 and continues to be highly visible. There were no new mudsnail locations identified in 2009.



Aquatic Weed Coordination

The DOW is a lead agency on aquatic weed mapping and education, in close partnership with the Colorado Department of Agriculture's Noxious Weed Program. There are a few distinct aquatic weed efforts led by the DOW, which is summarized below.

Eurasian watermilfoil (EWM)

Beginning in 2005, EWM management has been coordinated by the ANS partnership. A detailed Geographic Information System (GIS) database of EWM locations and control efforts was created and is updated annually by the DOW.



A Eurasian watermilfoil weed mat

In 2009, the DOW Sampling Crews collected samples from known exotic and native milfoil sites throughout Colorado. Based on reports from the public and partners, and the sampling crew's work, three additional EWM sites were identified. All specimens were logged in at the CU herbarium. Specimens were also DNA tested and the results were as follows:

- Confirmed 15 exotic Eurasian watermilfoil sites
- Confirmed 5 native Northern watermilfoil sites
- Identified 2 hybrid populations (Eurasian x Northern)

The DOW is supplying this data to CDA for the State EWM Management Plan. The EWM Plan will designate waters as eradication, suppression or containment, as part of the rule making process for the State Weed Law. This process is scheduled for conclusion in spring 2010.

Purple Loosestrife

Beginning in 1993, the DOW has been the lead coordinator on the Denver metro purple loosestrife management effort. The goal of the program is to make sure that purple loosestrife is controlled to protect



waterfowl habitat and maintain in-stream flow. Approximately 29 cities and counties, private landowners and private entities are involved. The DOW and CDA share the responsibilities for the continuance of this program.

Program activities include annually monitoring the control efforts of each city or county, keeping detailed records of each purple loosestrife site, providing training on purple loosestrife identification and control methods, rapidly responding and documenting reports, publishing the Purple Loosestrife Newsletter, sending out informational e-mails, hosting strategy/organizational meetings, running the volunteer program, providing technical support and problem solving.

Regional Participation

The DOW is involved in several regional efforts to stop the spread of zebra and quagga mussels and other ANS. The DOW serves as:

- Chair of the national Association of Fish and Wildlife Agencies (AFWA) Invasive Species Committee
- A member of the Western Association of Fish and Wildlife Agencies Invasive Species Committee
- A member of the Executive Committee of the Western Regional Panel on ANS
- A member of the Steering Committee and Writing Team for the Quagga/Zebra Action Plan for Western Waters (written by Western Regional Panel and approved by Federal ANS Task Force in October 2009).
- A Core Team Member of the Champion States Invasive Species Initiative

Operating and Financial Statement

The DOW was authorized a total of \$3,917,244 that consisted of \$1,250,000 wildlife cash combined with \$2,667,244 of severance tax funding that became available on July 1, 2008 for Fiscal Year (FY) '08-09. Operating expenses, including equipment, comprise 62% of expenditures; temporary staffing expenses comprise 38% of expenditures. Internally reallocated permanent staff time is paid with wildlife cash.

For FY '09-10, the DOW was appropriated \$1,304,544. The funding is from Tier II of the Severance Tax and is made available to the DOW over three "installments" each fiscal year, provided sufficient funds are available (July 1 = 40% of appropriated funding; January 4 = 30% and April 1 = the remaining 30%).

As of January 1, 2010, \$1,183,960 had been spent in FY '09-10 and the total amount available for the 2010 boating season, assuming the Division receives its full appropriation, will be \$2,949,149 (including rollover funding from the initial year's appropriation). Based on the coverage implemented during the 2009 boating season and ongoing projects, the DOW is planning to expend an additional \$1,100,311 by June 30, 2010. Therefore, the estimated total program expenditure for FY '09-10 is approximately \$2,284,271. Budget projections indicate the current annual allocation to the DOW is not sufficient to maintain the 2009 level of ANS coverage beyond 2011.

Over the last year, the DOW leveraged current funding by forming partnerships with a variety of entities through the site-specific planning process. The following is a list of contributions totaling \$548,712 through cost-share agreements with the DOW and its partners.

- National Park Service: \$260,713 for inspection station staffing, operations and monitoring at Blue Mesa.
- Denver Water: \$240,000 for inspection station staffing at Antero, Williams Fork, Eleven Mile and Dillon Reservoirs.
- Larimer County: \$76,999 in-kind contribution in the form of supervision and management of the inspection stations at Carter and Horsetooth Reservoirs.
- Twin Lakes Canal Company (Aurora Water, Colorado Springs Utilities and Pueblo Board of Water Works): \$75,000 for inspection station staffing and \$15,000 for gates and equipment at Twin and Turquoise Reservoirs.
- U.S. Forest Service: \$22,000 for inspection station staffing at Twin, Turquoise and Green Mountain Reservoirs.
- U.S. Army Corp of Engineers: \$2,500 for monitoring at John Martin Reservoir.

Parks was allocated \$3,289,392 that became available on July 1, 2008 for the FY '08-09. Approximately \$1,788,000 was spent by June 30, 2009. Many equipment purchases and construction projects were planned and procurement processes were underway at that time. For the FY '09-10 fiscal year, Parks was allocated \$2,701,000, and will plan to spend about \$3.27 million by June 30, 2010 using carryover from the previous year. Of the \$3.27 million to be spent this year, \$2.2 million is allocated for operational costs and \$1.1 million is allocated for supplies, equipment and construction. As of January 1, 2010, \$1.1 million had already been spent.

Within Parks, several large equipment purchases and construction projects that were started over the summer are just coming to fruition, as well as decontamination water catchment facilities at the largest parks and filters at Lathrop to screen out Eurasian watermilfoil. Four of the 7 FTE who were hired last year in Parks will be completing their law enforcement academy training this winter and then be back in place at the parks for the start of the boating season.

For the 2010 boating season, the DOW and Parks will be hiring and training seasonal inspectors by March, so a large amount of funding will be spent quickly over the next few months. Additional signs, brochures, educational materials and other equipment is being delivered prior to Memorial Day when boating season will begin in full.

Both Parks and the DOW are planning to retain budget carryover between fiscal years because some projects span two fiscal years and because of the potential for zebra or quagga mussels to be detected in new waters during the middle of a boating season. The cost of operations at a major recreational water body following infestation could double in order to implement containment measures. The future risk of infestation could moderate if more monitoring is conducted and other agencies within Colorado and surrounding states put in place programs to prevent the spread of zebra and quagga mussels.