COLORADO
Colorado Water Conservation Board
Department of Natural Resources

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John Hickenlooper, Governor

Robert Randall, DNR Executive Director

James Eklund, CWCB Director

TO: Colorado Water Conservation Board Members

FROM: Michelle Garrison, Interstate, Federal & Water Information Section

DATE: January 24, 2017

AGENDA ITEM: **25. Aquatic Nuisance Species (informational item)**

Colorado Parks and Wildlife (CPW) has historically managed and funded Colorado's Aquatic Nuisance Species (ANS) Program through Severance Tax Tier 2 funding. With the dramatic decrease in that funding source, CPW is working with existing and possible new cooperators—including CWCB—to identify short-term funding sources for the program. CPW is also exploring stable long-term funding options, including possible license fee increases, sticker fees, or registration fees.

The program's goals focus on protecting the state's water infrastructure for municipal, industrial and agricultural uses, as well as preserving natural resources and providing outstanding outdoor recreational opportunities. The ANS Program operations include a multi-jurisdictional mandatory watercraft inspection and decontamination program, statewide sampling and monitoring of waterbodies, and education and outreach efforts. The program has been very successful in intercepting watercraft that are infested with harmful zebra and quagga mussels. This January, Colorado became the only state in the nation to go from positive to negative status for mussels.

CPW will present information regarding its ANS program, prioritization of facilities, funding needs and possible sources of short-term and long-term funding.

There is no staff recommendation at this time. Staff seeks guidance from the Board regarding CWCB's role as a possible cooperator in the ANS program.

Attachments:

ANS Program Fact Sheet

ANS Program Risk Assessment

C O L O R A D O P A R K S & W I L D L I F E

2016 ANS Fact Sheet

AQUATIC NUISANCE SPECIES (ANS) PROGRAM OVERVIEW

Background

The State Aquatic Nuisance Species (ANS) Act was signed into law 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. The Parks Board passed regulations required by the Act on February 20, 2009 and updated in 2015 to reflect the CPW merger. The regulations require mandatory watercraft inspection, and if necessary, decontamination of all boats coming from out of state, leaving waters with known ANS and boats entering high-risk waters where inspections are required by the managing entity. The focus of the program is to prevent zebra and quagga mussels and other ANS from infesting Colorado's water resources and threatening our water storage and distribution systems for municipal, industrial and agricultural use. The Colorado ANS Program is highly effective and a model which other states across the nation are learning from.

Program Goal and Successes

The goal of the program is to protect the state's natural resources, outdoor recreation and water supply infrastructure through the prevention of new introductions of costly invasive species, such as zebra or quagga mussels, in Colorado. Western states such as Arizona, Kansas, Montana, Nebraska, Oklahoma, South Dakota, Texas and Utah, do not have aggressive ANS prevention programs and continue to become infested with zebra or quagga mussels. Colorado has prevented the introduction of these awful invasive species due to the diligent efforts of watercraft inspection and decontamination staff, as well as monitoring, education and enforcement actions.

Pueblo Reservoir is the only water in the state positive for quagga mussel veligers (larvae) and will be de-listed in January 2017 following 5 years of negative detections. There has never been an adult zebra or quagga mussel found in Colorado. All other reservoirs that initially tested positive were de-listed in 2014 after 5 years of negative testing. CPW's ANS Program has worked to stop the continued inoculation of our waters to invasive mussels being introduced by recreational watercraft.

2008

JANUARY
Zebra Mussel Veligers Found at Lake Pueblo State Park

MAY
State ANS Act Passed

JUNE
Water Providers Close Waters to Boating and Fishing

JULY
Reservoirs Reopened by CDOW and State Parks WIDS

JULY/OCTOBER
Quagga and Zebra Mussel Veligers Found at Several Reservoirs

2009

FEBRUARY
ANS Regulations Passed

Colorado Watercraft Inspection and Education Handbook *Published*

MARCH
Statewide Implementation of WIDS

March 30, 2009—First infested mussel boat intercepted coming into Colorado from out of state.

2010

JANUARY
State Zebra and Quagga Mussel Management Plan Finalized

2011

JUNE
CDOW Published ANS Watercraft Decontamination Manual

JULY
CDOW and State Parks Merge

2012

JANUARY
Colorado Boat Compendium for ANS Inspectors *Published*

2013

JANUARY
Colorado ANS Curriculum for Watercraft Inspection and Decontamiantion *Published*

SEPTEMBER
State of Colorado Containment Manual for Watercraft Inspection and Decontamination Stations *published*

2014

JANUARY
Colorado de-lists seven reservoirs for zebra or quagga mussels following 5 years of negative testing.

Colorado Trainers Manual for WID Courses *published*

2015

JANUARY
Western Regional Panel on ANS adopts Colorado training curriculum for 100th Meridian Regional Training Program

2016

MAY
Supreme Court ruling in Case No. 13SC996 eliminated the entire source fund for the ANS Program (Tier II Severance Tax)

JULY
Colorado deploys multi-state regional data sharing application for WID stations.

DECEMBER
CPW announces Pueblo will be de-listed in 2017 following 5 years of negative testing.

Colorado *is the only state in the nation to go from positive to negative and it's because of the current ANS Program in place.*

Other ANS We Are Most Concerned About

New Zealand Mudsnail

Eurasian Watermilfoil

Rusty Crayfish

PHOTO BY PHIL MYERS, MUSEUM OF ZOOLOGY, UNIVERSITY OF MICHIGAN

Spiny Waterflea

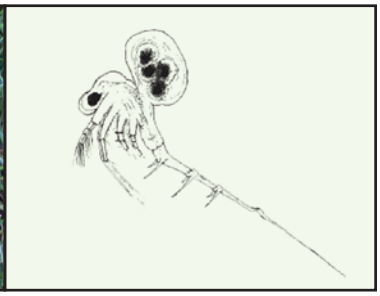


ILLUSTRATION BY MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

Working Together: Watercraft Inspection and Decontamination (WID)

Watercraft inspection and decontamination is a requirement of the ANS Act and continues to be a key component in preventing the spread of ANS into and within Colorado. CPW coordinates the vast network of WID stations that are operated by CPW, the National Park Service, Larimer County, various municipalities and private industry locations. In total, the state has collectively performed over **3 million inspections and 46,628 decontaminations** since 2008.

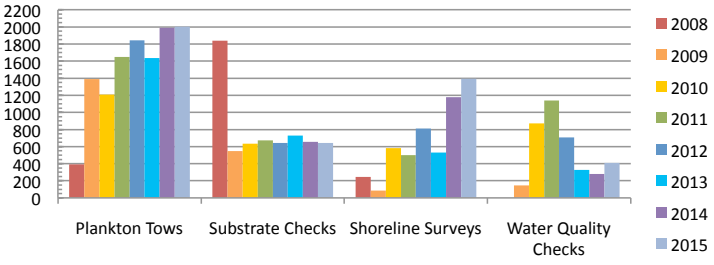
Mussel Boat Interceptions

In total there have been 117 watercraft intercepted with adult zebra or quagga mussels attached since the ANS program began. In 2015, there were 21 watercraft intercepted with zebra or quagga mussels attached, which is more than any year in program history. The majority of the intercepted vessels were coming from Arizona or the Great Lakes. All boats were decontaminated to ensure all mussels were dead, and no mussels were visibly attached.

Sampling and Monitoring

Sampling and monitoring is a key component to the success of the ANS Program. CPW has sampled 584 "at-risk" waters over the last ten years and it was through this sampling program that invasive mussel larvae were first detected in Colorado. While CPW ANS staff monitors the state's public waters for numerous invasive plant and animal species, the focus of sampling is on early detection of zebra and quagga mussels. There are three sampling protocols that target the three life cycles of mussels. CPW also documents native aquatic plants, mollusks and crayfish while performing monitoring activities for invasive species.

Summary of Monitoring Activities by Year



Information and Outreach

CPW and its partner agencies have implemented a comprehensive, multi-faceted invasive species public education campaign. Accomplishments include distribution of tens of thousands of printed rack cards, brochures, handouts, DVDs and posted signage at offices, boat ramps and other public access points. Additionally, a media relations campaign has been launched using web-based, radio, print and television interviews.

Operating and Financials—Where we stand

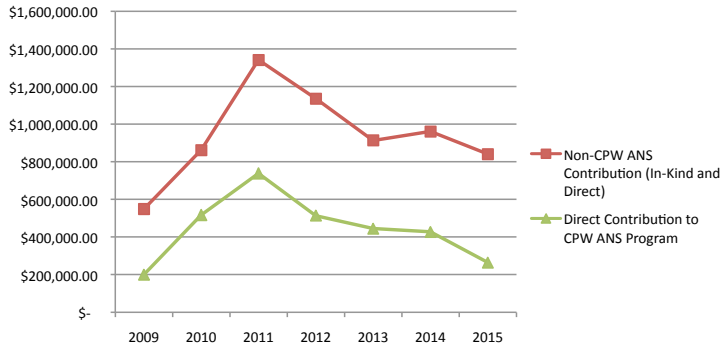
The Supreme Court ruling in case 13SC996 significantly reduced the source fund for the ANS Program (Tier II Severance Tax) as appropriated in the ANS Act. As of July 1st, 2016 the CPW ANS Program is no longer collecting the $4M appropriation as authorized in the ANS Act. CPW is spending reserve ANS Fund dollars from savings during previous years to complete the 2016 boating season. CPW has engaged a stakeholder process to determine viable long term solutions for stable funding for the ANS Program. Solutions may include funding from federal and local agencies to operate WIDS at their impoundments, grants and donations, and legislative remedies.

Prior to the severance tax decision, federal contributions and grants to the ANS Program have been in steady decline. Program expenditures have exceeded the ANS Act allocation as the state is now paying for expenses on federal waters in which previous contributions had evaporated. Future funding for the program is essential, as the cost of operations at a major recreational water body following an infestation could double in order to implement containment measures.

How You Can Help

- Make a financial donation to support ANS Program operations in 2017.
- Contact U.S. and State Senators and Representatives and encourage them to take an active role in securing necessary resources to maintain the ANS Program's future for the biosecurity of state waters.
- Encourage the U.S. Bureau of Reclamation, U.S. Army Corp of Engineers and the U.S. Forest Service to prioritize funding allocations to CPW for WID and monitoring operations on waters under their ownership or recreational management.
- Partners should inform municipal government, county commissioners, state legislators and federal congressional delegates of the potential economic and social impacts that could occur without ANS preventative measures in place.
- All stakeholders should reach out to their governing boards to provide fiscal support to CPW for WID stations and monitoring to prevent an invasion and avoid much more costly management and operational costs later.

Annual Partnership Funds



The threat of invasion from zebra and quagga mussels is greater than ever due to numerous new infestations in surrounding states such as Arizona, Kansas, Montana, Nebraska, Oklahoma, South Dakota, Texas and Utah.

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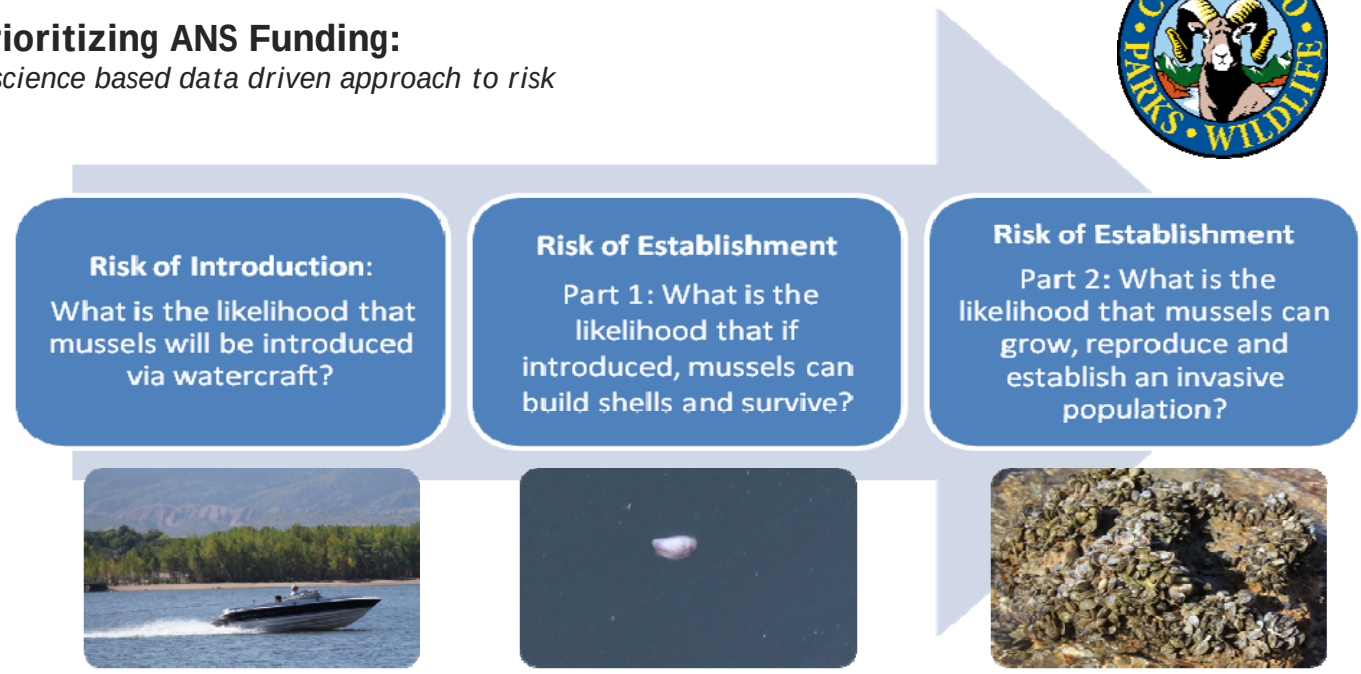
12/2016

Prioritizing ANS Funding:

A science based data driven approach to risk



Risk of Introduction by Recreational Watercraft:

- Primary ranking factor for priority waters.
- Based on boater demographics and more than 1M data points collected at watercraft inspection and decontamination (WID) stations from 2012-2015.
- Five data factors compared among waters with WID stations:
    - Total Incoming Inspections or Total Volume of Boats
    - Boat Origin
        - Local In-State Boat
        - Non-Local In-State Boat
        - Out of State Boat
    - Watercraft Risk Type
    - Number of Boats That Have Been Out of State in the Last 30 Days
    - Last Launch in a Colorado Positive or Suspect Water

Risk of Establishment:

- Secondary ranking factor for priority waters.
- Based on ~281,000 water quality data points collected by the ANS Program's sampling and monitoring crews from 2013-2016.
- All waters examined are within suitable habitat ranges despite some being ranked lower than others.

Part 1:

- Primary factor necessary for shell formation and animal viability.
- Represents what a zebra or quagga mussel would need to survive if introduced
- CHALK variables = Calcium, Hardness, Alkalinity, pH

Part 2:

- Secondary factor necessary for long term population survival
- Represents what a zebra or quagga mussel would need to survive, reproduce and establish an invasive population.
- Based on three factors:
    - Chlorophyll
    - Total Phosphorus
    - Total Nitrogen

Zebra and Quagga Mussel Risk Assessment Summary

DECEMBER 2016 REVISION UPDATE

Ranked by Risk of Introduction Score First, and Risk of Establishement (Habitat) Score Second.

WID Site Location	Region	[2]INTRODUCTION RANK	[1]HABITAT RANK
PUEBLO - QM*	SE	VERY HIGH	VERY HIGH
BOYD LAKE	NE	VERY HIGH	VERY HIGH
CHATFIELD*	NE	VERY HIGH	VERY HIGH
CHERRY CREEK*	NE	VERY HIGH	VERY HIGH
NAVAJO*	SW	VERY HIGH	HIGH
BLUE MESA RESERVOIR* #	SW	VERY HIGH	HIGH
HORSETOOTH LAKE*	NE	VERY HIGH	MEDIUM
CARTER LAKE*	NE	VERY HIGH	MEDIUM
CBT - GRAND, GRANBY, SHADOW MOUNTAIN* #	NW	VERY HIGH	LOW
ELEVEN MILE*	NE	HIGH	VERY HIGH
JACKSON LAKE*	NE	HIGH	VERY HIGH
MCPHEE RESERVOIR	SW	HIGH	VERY HIGH
NORTH STERLING	NE	HIGH	VERY HIGH
HIGHLINE LAKE*	NW	HIGH	VERY HIGH
RIDGWAY*	SW	HIGH	VERY HIGH
SPINNEY MOUNTAIN*	NE	HIGH	VERY HIGH
JOHN MARTIN	SE	MEDIUM	VERY HIGH
RIFLE GAP	NW	MEDIUM	VERY HIGH
STAGECOACH	NW	MEDIUM	VERY HIGH
TRINIDAD	SE	MEDIUM	VERY HIGH
JUMBO RESERVOIR #	NE	MEDIUM	VERY HIGH
ANTERO RESERVOIR	NE	MEDIUM	VERY HIGH
LATHROP*	SE	MEDIUM	VERY HIGH
GREEN MOUNTAIN RESERVOIR	NW	MEDIUM	HIGH
ELKHEAD	NW	MEDIUM	HIGH
RUEDI RESERVOIR	NW	MEDIUM	HIGH
TAYLOR PARK RESERVOIR*	SW	MEDIUM	MEDIUM
VALLECITO*	SW	MEDIUM	MEDIUM
CRAWFORD*	SW	LOW	VERY HIGH
VEGA	NW	LOW	HIGH
SWEITZER	SW	LOW	HIGH
STEAMBOAT LAKE	NW	LOW	MEDIUM
CLEAR CREEK RESERVOIR	SE	VERY LOW	MEDIUM
HARVEY GAP	NW	VERY LOW	VERY HIGH
BARR LAKE	NE	VERY LOW	HIGH
TARRYALL RESERVOIR #	NE	VERY LOW	HIGH
MANCOS	SW	VERY LOW	HIGH
PAONIA	SW	VERY LOW	HIGH
WILLIAMS FORK RESERVOIR*	NW	VERY LOW	LOW

[1]Analysis performed by CPW on 2013-2016 data collected by CPW ANS Sampling Crews

[2]Analysis performed in 2016 based on 2012-2015 average WID data

(?) Indicates a water body in which WID data submitted for analysis is questionable.

** indicates a water body that has intercepted one or more infested mussel boats in the past.*

 # indicates a water body which has had a prior detection and has been de-listed for mussels.

Colorado Parks and Wildlife ANS Program, Elizabeth Brown & Robert Walters, January 12, 2017