

TRUCKEE REGIONAL AQUATIC INVASIVE SPECIES PREVENTION PROGRAM

STRATEGIC PLAN 2012 - 2016



01/21/2012

Tahoe Resource Conservation District

EXECUTIVE SUMMARY

The Truckee River watershed is at risk of aquatic invasive species (AIS) introduction and establishment through the threat of advancing nearby infested water bodies.

Over the last decade the surrounding region has seen a steady, yet predictable influx of unwanted organisms to its waters. Aquatic invasive species including plants (Eurasian watermilfoil, hydrilla, water hyacinth) warm water fish (smallmouth and largemouth bass, bluegill and green sunfish) and invertebrates (Asian clam, New Zealand mudsnail) have all established in nearby waters.

These species are known to be environmentally destructive, irreversibly alter aquatic ecosystems and destroy the recreational and ecologically important salmonid species currently found in the Truckee area.

Most recently however, and of great concern, is the detection of the larval stage of quagga mussels in Lahontan and Rye Patch Reservoirs east of Truckee. If these mussels are transported to Truckee area waters, they could not only negatively impact Truckee waters but also spread throughout the entire watershed, east into Northern Nevada and west into Central California. Lahontan Reservoir, a popular destination for Reno boaters is known to share its users with Truckee area waters such as Stampede and Boca Reservoirs.

In fact, boater survey data from the 2011 boating season recorded 85 boaters coming to Truckee waters from Lahontan Reservoir. Of the 85 boats from this known infested water body, only 6 volunteered to receive a free decontamination. All other boats were launched into Truckee area water bodies due to the absence of needed regulatory authorities and procedures.

The necessity for a mandatory prevention program in the Truckee area is now more apparent than ever. The Truckee River watershed finds itself in a unique geographic position; surrounded on all sides by waters infested with various unwanted and destructive aquatic species. The voluntary prevention program currently underway in Truckee is doing an adequate job of identifying these problem vessels. However, due to the program's voluntary nature, and the distance to Tahoe decontamination sites, inspectors have been unable to persuade many boaters originating from infested water bodies, such as Lahontan Reservoir, to receive the free decontaminations they have available to them.

Most vessels simply launch without taking further action to limit their potential impact to the Truckee watershed.

Of additional concern, Boca, Stampede and Prosser Reservoirs can be accessed prior to reaching the Food and Agricultural inspection station by vessels originating at potentially infested sites within Nevada. With no mandatory inspection program in place in the Truckee area, it can be concluded that potentially infested vessels will continue to access Truckee waters exposing them to the potential for introduction and establishment of quagga mussels or other invasive species.

Through a stakeholder-driven process, the Tahoe Resource Conservation District and Truckee River Watershed Council have gauged the support and identified the programmatic steps for implementation of a mandatory prevention program in the Truckee region. Two major milestones are needed to achieve this direction. First a governing body, such as a Joint Powers Authority (JPA), must be formed to provide

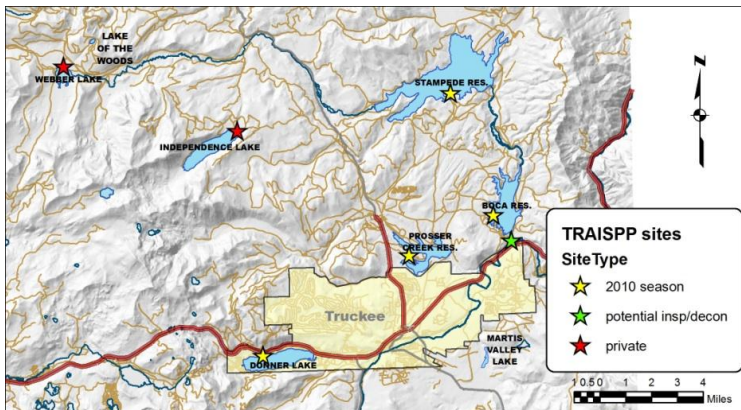
for the administration and policies guiding a mandatory program, and secondly, an ordinance needs to be established to provide the foundation on which the program will rely.

Achieving these two milestones, executing a fundamental education and outreach effort, deploying roving watercraft inspectors and identifying centralize inspection and decontamination locations will be the primary focus in 2012. Implementation in years 2-5 of the program will likely include administration of a fee structure, securing 1-2 centralized locations, pursuing additional funding opportunities and performing on-going program management. Below are the key aspects of this strategic plan as well as contextual information which led to our decision making.

MARKET DYNAMICS

In response to this increasing resource management concern, the Tahoe Resource Conservation District (Tahoe RCD) initiated a pilot AIS program in 2010 in the Truckee region with funding provided by the Truckee River Fund. The principle objectives of the pilot program were to better understand invasive species issues in the region, provide outreach and education on invasive species, organize regional resource managers, evaluate usage patterns, and evaluate the feasibility of watercraft inspections and decontaminations. The eight water bodies included in the program are listed in Table 1 and identified on the regional map below. The region covers three counties (Sierra, Nevada and Placer) and includes the Town of the Truckee.

Donner Lake	Stampede Reservoir
Independence Lake	Boca Reservoir
Webber Lake	Prosser Reservoir
Martis Creek Lake	Lake of the Woods



The Truckee Regional Aquatic Invasive Species Prevention Program (TRAISPP), led by the Tahoe RCD recently completed its second year of operation (2011) which was also funded by the Truckee River Fund. The second season of the program continued to be very successful and benefited from broad support amongst resource managers, county representatives, utility managers, and, importantly, boaters. Awareness is building for the need for inspections.

During 2011 it was learned that the risk for AIS invasion was mounting and the need for a sustainable mandatory program all the greater. Below are some key highlights of the year:

- Lake Mead in Nevada was infested with quagga mussels.
- Lahontan and Rye Patch Reservoirs east of Truckee detected early stage quagga mussels.
- The TRAISPP implemented its second year and continued to see challenges in a volunteer inspection program with limited inspections and decontamination stations.
- The unrestricted access amongst several of the water bodies makes inspection (and eventual enforcement) all the more challenging.

- The TRAISPP stakeholder group met numerous times to define the requirements of a successful program (details to be shown later in this report).
- Tahoe RCD partnered with the Truckee River Watershed Council (TRWC) to define a sustainable mandatory program structure.
- The three counties in the Truckee region (Sierra, Nevada and Placer) and the Town of Truckee were consulted by Tahoe RCD and the TRWC and a Joint Powers Authority was agreed upon as an organizational structure. Policy enforcement language was established across the jurisdictions. Expectations are to formalize these two key areas in 2012.
- Current state and federal budget situations suggest that there is little money to aid with infestation. It has been discussed with stakeholders that water bodies in the Truckee region could close if infestation occurs, mainly due to the high risk of trajectory for AIS – spread to other water bodies in the West.

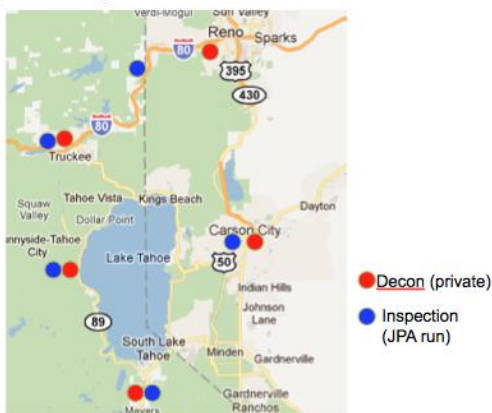
PROGRAM VISION

The long-term vision for the TRAISPP is to have an integrated response effort that spans from Lake Tahoe to Pyramid Lake and works in conjunction with response efforts in the States of Nevada, California, Utah and Idaho. In order to have a successful program locally, the team recognizes that coordination with its state boundaries to manage and protect against aquatic invasive species is vital. Working with our State partner agencies, we envision a series of inspection stations that are working together to prevent the spread of AIS. Having inspections stations along the major highways going through the State of the Nevada to the border of Idaho are critical. With the recent infestation at Lake Mead, we see the need for several inspection points based on public access to that Lake. On the California side, we envision future inspection stations eastbound and westbound along Highway 80.

Vision 2016 Statewide Inspection Areas



Vision 2016 Regional Inspection & Decon Areas



Regionally, our strategy is to have a series of decontamination and inspection stations located to capture most of the traffic that is coming into the Truckee region and Lake Tahoe. In the Truckee region, the decontamination stations would be located westbound on Highway 80 near Truckee and eastbound on Highway 80 closer to Reno. Inspection stations would be placed similarly though the eastbound 80 inspection point would most likely be a bit closer to Truckee at the Hirschdale Agricultural station. In Lake Tahoe there are already decontamination and inspection stations managed by the Tahoe RCD. The TRAISPP would work

closely with these efforts to ensure tight coordination and response. Having the Tahoe RCD as a part of both programs will ensure this synergy.

The long-term vision holds regional infestation levels to the current 2011 state. It also includes having a broad awareness and support from stakeholders and community members about AIS regulations, similar to those of fishing license regulations. The TRAISPP intends to continue to support science for eradication and intends to develop a more comprehensive response plan.

The high-level program elements would be collaborative in nature where it is driven and managed by the JPA, but input and resources are sought from the stakeholder team. The ideal program would include mandatory inspections for motorized vehicles, signage, awareness and education, enforcement, fining, fees, restricted access and strategically located inspection and decontamination stations. Through a combination of fees, grants, and jurisdictional support, the program would be self-sustaining. Understanding and quantifying the economic impact and benefits of the program will be critical to obtaining ongoing funding.

Over the next three to five years, as TRAISPP moves to this vision, the focus will be on:

- Creating a sustainable program with an organizational structure (JPA) that can continue to develop, enhance and decide upon key program policies and elements.
- Continuing to work in the areas of advocacy and education on the risks of AIS.
- Create a funding model that ensures long-term success and viability of the program.
- Reaching out to State agencies for an integrated cross-border inspection program.

SWOT Exercise

Before formalizing a strategic program plan for TRAISPP, it was beneficial to better understand the strengths, weaknesses, opportunities and threats of the current program. The purpose of this was to understand the current dynamics facing the program in order to strategically consider alternatives and options. This exercise was also done in 2010 and it is interesting that some of the weaknesses identified in 2010 (no jurisdictional support or policy or peer review science) were tackled are now strengths in 2011.

Strengths

- Community Concern and support
- Educated recreational community and other organizations
- Strong stakeholder advisory group
- Successful two-year pilot program
- Jurisdictional support for JPA and ordinance structure
- Program provides Jobs and protects economic interests - tourism
- Strong argument for existence
- National marketing campaign – awareness
- Engaged science community with baseline stats

Weaknesses

- Varied opinions on level of risk continues despite science
- Geographic challenges - widely dispersed water bodies
- Access to water bodies is difficult to control

Opportunities

- Linkages to other programs in the region
- Regional and national educational materials
- Funding partnerships
- Formalized ordinance and governance structure
- Establishment of AIS programs for the entire Truckee watershed

Threats

- Discovery of AIS in nearby waterbodies
- Quagga mussel and established in Lake Mead and introduced in Lahontan and Rye Reservoirs
- Advancement of numerous AIS in western states
- Lack of comprehensive risk assessment and coordinated regional and state level response plan
- Potential risk of introduction and establishment of various species
- Lack of solid long-term funding structure
- Proximity of water bodies to a major interstate highway

RECOMMENDED PROGRAM STRUCTURE

As indicated previously, efforts are underway by Tahoe RCD and TRWC to create a Joint Powers Authority (JPA) to include the counties of: Placer, Nevada and Sierra as well as the Town of Truckee that would oversee and manage the TRAISPP. A JPA allows these jurisdictions to operate as a single entity in response to its AIS program. This is perhaps the most effective structure as it allows the agencies to pool their resources and provide a single response to this threat. The JPA will make high-level program and funding decisions, determine appropriate policies, fees & fines structure and direct the implementation required. Additionally, the JPA will be responsible for sustainably funding the program.



Tahoe RCD will continue to play an implementation and advisory role for at least two more years. After 2012, however, it may longer play the lead role in managing the policies, decision-making and funding of the program.

In addition to a JPA, ordinance language has been drawn up for each of the jurisdictions and is expected to be approved by early 2012 prior to the start of boating season.

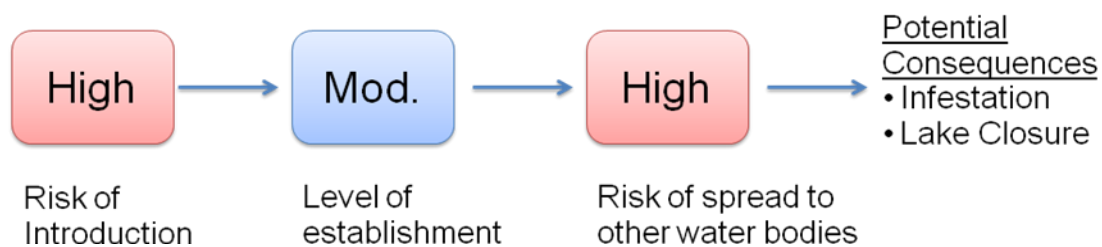
The stakeholder group that has advised Tahoe RCD for the past two years will continue to serve in an advisory capacity. This group is comprised of the following organizations:

- Bureau of Reclamation
- US Fish and Wildlife
- California Dept. of Fish & Game
- Truckee Sanitation District
- Truckee Donner Park & Recreation District
- Truckee River Watershed Council
- Private Marine Facilities
- US Forest Service
- Tahoe Donner Association
- The Nature Conservancy
- University of Nevada, Reno
- Town of Truckee
- Nevada County
- Sierra County
- Truckee Meadows Water Authority
- Tahoe Resource Conservation District

This group will meet twice a year to provide critical feedback on program plans and efforts and will continue to be consulted on an as needed basis.

Current View on Risk

Ongoing discussions have been had on the level of risk facing the Truckee River Watershed water bodies. During this time, regional water bodies have become infected and the risk has been a bit easier to quantify and understand. Below is a diagram that the TRAISPP team is currently utilizing to explain the level of risk facing the region.



There are really three levels of risk to consider. The first is the risk of introduction, the second is the risk associated with the spread of the AIS once it has been introduced, and last is the risk associated with infecting other water bodies.

Due to the recent nearby infestations in neighboring water bodies of Rye and Lahontan Reservoirs, and Lake Mead, it is less controversial today to state that the risk of introduction to the area of an aquatic invasive species is quite high. Once infected, science suggests that, due to the low levels of calcium in our water bodies (a key ingredient in the proliferation of aquatic invasives), AIS can live but not thrive and risk of widespread establishment is therefore moderate to low. As we look at the risk associated with spreading AIS to other water bodies, it is undoubtedly high as our waters are highly used and recreated upon by locals and visitors alike who travel from all over California, the west, and the nation.

Other important points associated with risk that were recently highlighted include:

- Invasive species such as Hydrilla, water hyacinth, New Zealand mud snail and others are spreading in western states
- Lake Tahoe science suggests adult quagga mussels can survive in low calcium water
- Calcium levels in some regional water bodies are high enough during certain periods of the year to suggest survivorship of adult quagga mussels. The ability of juvenile mussels to survive in low calcium water is uncertain.
- Invasive species are highly adaptable
- Asian clams have recently been confirmed to be present in Donner Lake
- Eurasian watermilfoil is present in water bodies in close proximity – Truckee River, Lake Tahoe and Martis Creek Lake
- Boater surveys indicate that users come from distant areas
- Proximity of regional water bodies to a major interstate highway presents opportunity for introduction from distant areas
- Cost of prevention verses control and/or maintenance

So what does this level of risk translate to? One way to look at it is to consider is the ecological and economic impact associated with the establishment of an invasive species. In the case of quagga and zebra mussels, it is their profound ecological and economic impacts that make them a particular threat. The fact that these species are very difficult to control and virtually impossible to eradicate once established adds considerably to the threat they present. Once our waterbodies are introduced to these species, they could be permanently infested causing significant ongoing environmental harm.

Additionally, if the State considers our waterbodies to be a significant threat to other major water bodies in CA, which would impact tourism, local economies and environments, one possible outcome could indeed be lake closure. If this happens to our water bodies, our local and regional economy will surely suffer. One of the goals of the team is to quantify what this impact could be though early estimates suggest the number to be in the millions in terms of loss of TOT funds and visitor expenditure dollars.

PROGRAM OBJECTIVES

As mentioned in the introduction, the principle objectives of program are to formalize the Joint Powers Authority, work with the jurisdictions to better understand the elements, issues and challenges of the program, develop consistent enforcement policies across the JPA jurisdictions and develop a sustainable funding model.

The TRAISPP three to five year project goals and outcomes are outlined below:

2012 Project Goals

Program Implementer: Tahoe RCD

Administration:

- Develop JPA with local jurisdiction membership
- Identify fee structure
- Identify fee administration and distribution
- Identify fine/enforcement structure
- Identify 1-2 centralized locations
- Design program stickers
- Develop ordinance language consistent across jurisdiction membership and get formal adoption.
- Revise current language and edit as needed
- Move through each jurisdiction for adoption



Inspections:

- Conduct roving inspections at Stampede, Boca and Prosser Reservoirs
- Conduct inspections at Donner Lake, unless staffed by TD Parks and Rec
- Provide complimentary stickers following inspections to introduce program
- Determine mandatory inspection hours and locations for 2013-2016.
- Define restricted access strategies and implementation plan

Education and Outreach:

- Distribute information materials through roving inspectors
- Use various media outlets to distribute program information

Decontaminations (likely will have fee):

- Direct high risk vessels to one of Tahoe inspection stations
- Direct high risk vessels to local business

Enforcement:

- No enforcement first year

Science:

- Formalize relationship between JPA an science community for ongoing integration of best available science into program.



Two to five year (2013-2016) Project Goals

Program Implementer: JPA

Administration:

- Implement fee structure
- Implement fines/enforcement
- Secure 1-2 centralized locations
- Identify banding program options
- Purchase stickers/bands
- Pursue additional funding, as needed
- On-going program management

Inspections:

- Implement mandatory inspection program
 - Conduct inspections at 1-2 centralized locations
 - Collect inspection fee
 - Distribute sticker following inspection
 - Provide band as necessary

Decontaminations (likely will have fee):

- Direct high risk vessels to one of Tahoe inspection stations
- Direct high risk vessels to local business
- Direct high risk vessels to regional decontamination facility
- Begin implementation of restricted access plan (based on funding)

Enforcement:

- County Sheriff
- Town of Truckee Sheriff
- Truckee Ranger District (through agreement with County)

Science:

- Continue to work with science community and integrate information into policies and management efforts.

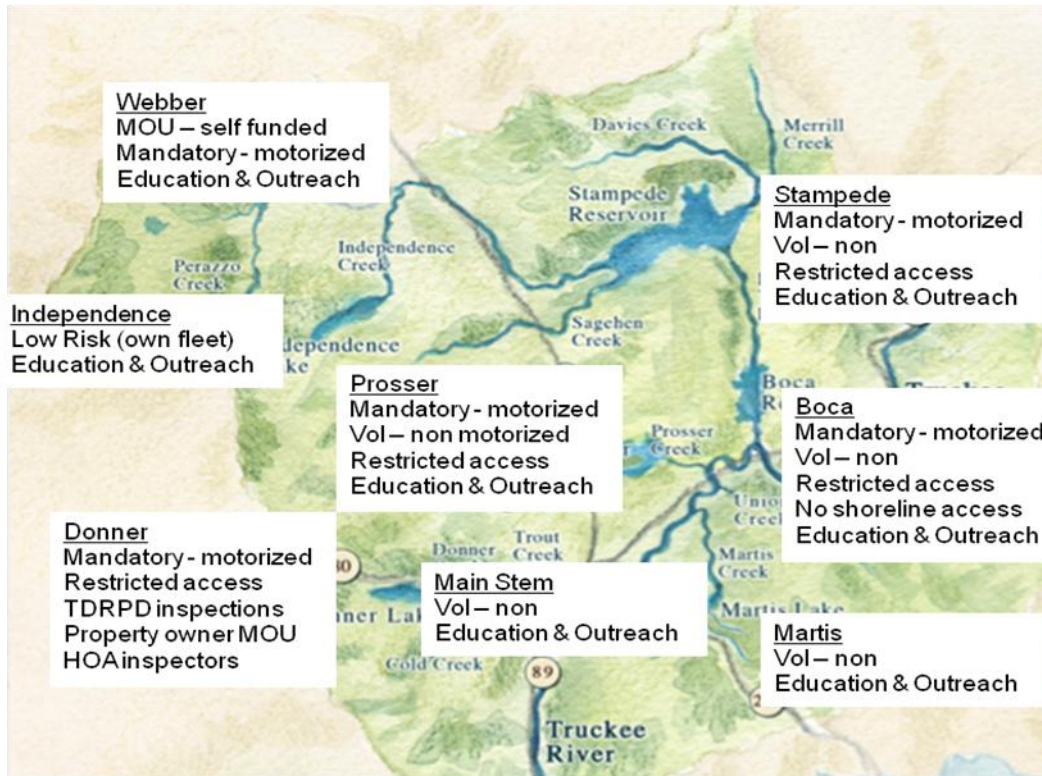
Measurable Outcomes

- 1) *Improved long-term program response and implementation through creation of a formalized organizational structure.*
- 2) *Implemented mandatory program that is self-sustaining and accepted by the community, stakeholders and visitor base.*
- 3) *Aid in the prevention of future AIS invasions.*
- 4) *Improved management policies and response efforts through use of best available science.*

- 5) Increase public understanding, perception and awareness of watercraft inspections and AIS and their associated risk to the watershed and surrounding communities.

PROGRAM STRATEGIES BY WATER BODY

Below is an illustration that outlines the initial program strategies by body of water in the Truckee River Watershed.



PROGRAM BUDGET & FUNDING

Estimated Annual Program Funding Requirement

Once the mandatory program is fully operational the annual anticipated program budget is estimated in the following manner:

Program Characteristic	Cost Estimate
Centralized Inspections (per centralized location) Staff only, 6 months, 12 hrs/7days/week	\$74,000.00
Banding at launch ramps (per ramp location) Staff only, 6 months, 15hrs/7days/week	\$42,000.00
Program Management	\$75,000.00
Program Operations (rent, supplies, etc.)	\$25,000.00
Education and Outreach (per year)	\$5,000.00
Early Detection & Monitoring (per year)	\$30,000.00
Total	\$251,000.00**

The estimate above does not include centralized location site costs. It also does not include one-time costs that may be associated with providing more restricted access.

Current and Potential Funding Sources

We expect a mix of funding sources to provide ongoing sustainability of the program. Below is a possible scenario for a sustainable funding model.

Funding Source	Committed (2012)	Pending (2013)	Unsecured 2014 - beyond
Truckee River Fund	\$267,627.00	\$150,000	\$100,000
Bureau of Reclamation		\$70,000	\$50,000
Program Fees (estimated)		\$150,000	\$150,000
Jurisdiction Members	\$20,000 (reserve)	\$30,000 (reserve)	\$50,000