

# Aquatic Invasive Plant Management Plan

Sanders County Aquatic Invasive Plants Task Force

On Feb. 28, 2018, the Sanders County Aquatic Invasive Plants Task Force (Task Force) adopted the adaptive management alternative as described in the Analysis of Treatment Alternatives for Invasive Watermilfoil in Noxon Rapids and Cabinet Gorge Dams to serve as an ongoing management strategy to provide guidance for management decisions related to aquatic invasive plants. The Analysis<sup>1</sup> was prepared for the Task Force by Creative Resource Strategies, LLC, in 2017 and funded through a Montana Department of Natural Resources and Conservation Aquatic Invasive Species Grant and Avista Utilities.

The Analysis included a survey and workshop with Task Force members and other partners, and as a result, the Task Force adopted a new definition for success in managing invasive watermilfoil; to contain and control existing aquatic invasive species (AIS) populations as well as prevent new introductions of AIS within Cabinet Gorge and Noxon Rapids Reservoirs; reduce the presence of aquatic invasive plants at or near public and private access sites, including boating access sites; and promote sustainable long-term management of Eurasian watermilfoil (EWM) and other invasive aquatic plants to reduce negative impacts to natural resource communities while addressing broader reservoir uses.

After examining the various alternatives to achieving these goals, the consultants and the Task Force concluded that the No Action alternative was not a viable option. Therefore, this management plan was established to provide direction toward management efforts to control invasive watermilfoil. In addition to redefining success, the Task Force also established a Scientific Advisory Panel to determine the annual management methods based on annual monitoring data, a prioritization framework (explained below) and on local circumstances impacting the feasibility and efficacy of various control methods.

### **Adaptive Management Alternative**

This alternative uses a suite of tools in an adaptive management context (Figure 1) to address EWM and hybrid watermilfoil (HWM) in Noxon Rapids and Cabinet Gorge reservoirs. The adaptive management framework is a process to help practitioners assess which actions are working, improving the process by which people plan, implement and assess actions in the context of a project cycle (Conservation Measures Partnership 2013). The framework is intended to provide clear guidance on how to maximize the effectiveness and efficiency of projects for maximum conservation gain. All elements of the framework are significant to the work the Task Force is implementing in Noxon and Cabinet Gorge reservoirs relative to aquatic invasive plant management.

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<sup>1</sup> Debruyckere, L. and T. Pennington. July 2017. Analysis of Treatment Alternatives for Invasive Watermilfoil in Noxon Rapids and Cabinet Gorge Reservoirs, Sanders County, Montana.



Figure 1. Adaptive Management Framework. Source: Miradi.org.

The following recommendations are a combination of recommendations from the Invasive Aquatic Plant Control for Noxon Rapids and Cabinet Gorge Reservoirs, Montana: An Adaptive Management Plan (Getsinger et al. 2017), outcomes from this analysis of treatment alternatives for invasive watermilfoil in Noxon Rapids and Cabinet Gorge reservoirs, and outcomes of a June 2017 workshop with Task Force members.

This framework establishes specific goals and well-defined maintenance and control strategies driven by densities and locations of EWM and HWM populations, provides the flexibility needed to manage these species in a dynamic reservoir with variable water fluctuation schedules and complex circulation patterns, considers economic and environmental constraints, and incorporates each element of an adaptive management framework.

Step 1 of the framework included the creation of the Task Force, its focus on controlling and containing EWM in both reservoirs, and in particular, preventing further spread downstream and to other systems.

Step 2 of the framework was revised during the June 2017 workshop, in which Task Force members defined success and how it will be measured, described their prioritization scheme, and determined how best to monitor the reservoirs to assess success and trends through time.

Defining Success—Implementing any plan requires a clear articulation of the issue, concise goals and objectives, links between objectives and proposed actions, action implementation, a monitoring plan, data analysis, synthesis, and evaluation, communication about the scientific understanding, and course corrections to adapt to the findings. This plan-do-evaluate and response approach is defined as adaptive management. Sanders County has clearly defined the goals for management of EWM in Noxon and Cabinet Gorge reservoirs, yet the results of a survey conducted to affirm consensus on goals revealed significant differences of opinion and perspectives relative to goals and desired outcomes. At the June 2017 workshop, Task Force members found consensus on how they would define success with the following outcomes:

- Seek to contain and control existing AIS populations as well as prevent new introductions of AIS within Cabinet Gorge and Noxon reservoirs.
- Reduce the presence of aquatic invasives at or near public and private access sites, including boating access sites.
- Promote sustainable long-term management of EWM and other invasive aquatic plants to reduce negative impacts to natural resource communities while addressing broader reservoir uses.

Task members also described how success would be measured:

- The number of infested watercraft leaving Noxon Rapids and Cabinet Gorge reservoirs.
- Public awareness of AIS (Clean, Drain, Dry).
- The presence of AIS at public access points during the boating season.
- The percentage of EWM along the littoral zone of both reservoirs.
- The number of public use visits to the reservoirs.
- Visitor satisfaction with reservoir experiences.
- State noxious weed laws and state priorities for AIS addressed by Sanders County.
- The number of bass tournaments held annually in both reservoirs.
- Resident participation in AIS plant removal (e.g., raking when allowed and use of barriers through the Shoreline Coalition).
- An acceptable monitoring program developed and implemented annually.

### Prioritizing Treatment Areas

At the June 2017 Task Force meeting, members developed a scheme that prioritizes treatment areas annually that incorporates the size/density of plant infestations, location of infestations (e.g., sites with significant public use to reduce spreading by boats and trailers), upstream versus downstream sites (to minimize reinfestation), water exchange processes, areas that protect water intakes and improve fish and wildlife habitat, and the practicalities associated with managing these run-of-river reservoirs.

Task Force members prioritized treatment sites to address how they define success, which includes containment and control of existing EWM and HWM populations (and other AIS) in both reservoirs. Both priorities listed below will be addressed in the context of treating all sites upstream to downstream, assuming widespread presence of HWM, and basing prioritization on fall monitoring results crosschecked with spring monitoring results.

- Public or residential use sites, which include boat launches, dock access areas, and designated recreation and swimming areas, are the highest priority for treatment (Priority 1):
  - Boat launch treatment areas include a 40-foot minimum swath around a boat launch; depending on the bathymetry associated with each boat launch. Herbicides, diver hand-pulling, and benthic barriers are potential control options.
  - Dock access areas include those in the immediate vicinity of docks. Control options include herbicides and benthic barriers, and potentially raking. Herbicides will be used at docks where benthic barriers are not

used, or in areas past the edges of the benthic barriers to incorporate a wider radius surrounding the docks. Avista will allow shoreline residents to rake aquatic vegetation adjacent to their docks and properties and assist with any required permits.

- Designated recreation and swimming areas include areas in the immediate vicinity of docks; control options include herbicides and diver hand-pulling.
2. Large, high density (e.g., >50% invasive plant coverage) shallow access areas with significant boat traffic (e.g., Nolan Slough, Dody Flats, Finley Flats, pond near Trout Creek, etc.) are the second highest priority for treatment (Priority 2). Treatment areas will be prioritized based on the highest AIS impact areas concurrent with significant recreational use with input from Montana Fish, Wildlife & Parks staff. Herbicides are the primary control option in these areas. The percent of acreage treated will be based on available funding.

### Annual Process to Determine Treatment Areas

Step 3 of the framework includes developing an annual treatment plan and monitoring the results of plan implementation. At the June 2017 workshop, Task Force members developed a new process to determine treatment areas, and refined and achieved consensus on a monitoring strategy that both informs annual treatment plans as well as builds baseline information to assess long-term trends and changes through time. That is, annually, the Task Force will review the outcomes from previous control efforts, assess the status of existing AIS populations, address emerging issues, and develop a plan for the next season of control efforts.

In the past, the Task Force provided technical advisors with information from prior monitoring results to propose a set of control recommendations. At its June 2017 meeting, the Task Force proposed the creation of a Scientific Advisory Panel. The panel, which would consist of invasive plant specialists, fish biologists, Avista employees with familiarity of benthic barrier sites, and others, will propose a prioritized list of treatment sites and control options for review and input by the technical advisors, who would then present the proposed plan of activities to the Task Force. Creation of this subgroup incorporates more site-specific knowledge of the system, recreational fishery activity, and other information into the proposed plan of action prior to determining the specifics of which herbicides will be applied.

### Monitoring

Getsinger et al. (2017) (as described by Turnage and Madsen 2014) recommended conducting an annual reservoir-wide survey in each water body in late July or early August using a point-intercept regular grid pattern with sampling intervals of 150 meters. They also recommended conducting assessments and developing management strategies for other problematic invasive aquatic plants (growth, vegetative spread, and treatment efficacy of hybrid milfoils, curly-leaf pondweed, and flowering rush) in the Noxon Rapids/Cabinet Gorge system.

At the June 2017 workshop, the Task Force considered these recommendations in the context of how they define success as well as cost, and determined two types of surveys would advance their ability to achieve their goals:

- Survey boat launches and public access sites annually in the spring/early summer;
- Conduct a whole lake survey at least every other year, including all previously treated sites, following the standard format developed in 2008 (to allow for comparisons through time), and compiling a comprehensive summary of all survey data to determine frequency of whole lake surveys in the future.

All invasive plant monitoring and survey data collected in Noxon Rapids and Cabinet Gorge Reservoirs should have consistent data collection and recording methodologies to enhance understanding and utility of the data across years and between treatment plots. All contractors should adhere to consistent metadata requirements to provide consistency between sampling events. Specific recommendations include:

- Consistent nomenclature across all data fields, including:
  - Plant species (decide ahead whether data will be collected for ALL observed species, or just Eurasian watermilfoil, curly-leaf pondweed, and flowering rush);
  - Consistent reporting (e.g., percent occurrence and/or injury rank);
- Consistent datum (e.g., WGS 84);
- Consistent significant digits where applicable (e.g., 2.7 acres not 3 acres);
- Provide GIS layers for waypoint data for each plot;
- Provide GIS layers for polygon data for each plot.

Step 4 of the process is completed each year when the Scientific Technical Advisory Panel/Committee reviews the results of post-treatment monitoring and crosschecks that with spring invasive plant surveys.

Step 5 occurs after the Scientific Technical Advisory Panel/Committee and two technical advisors to the project present their recommendations for discussion with the entire Task Force.

Step 6 compiles bid specifications, followed by treatment implementation.

A key piece to the process is securing adequate funding for plan implementation. As a result of the June 2017 workshop, two additional recommendations related to funding should be implemented to enhance planning efforts and surety associated with plan implementation.

## Funding

The Task Force has explored and been successful through time in obtaining funding from a variety of sources to control invasive watermilfoil in both reservoirs, such as DNRC (e.g., Aquatic Invasive Species Grant Program, Reclamation Development Grant), FWP (AIS Program funds), Avista (through the Clark Fork Settlement Agreement [CFSA]), US Army Corps of Engineers Water Resources Development Act, the National Fish and Wildlife Foundation (Pulling Together), resident contributions for dock permits, and in-kind assistance.

In general, the Task Force faces several key challenges with funding, including reductions in funding from traditional (i.e., state) sources through time, poor alignment between the timing of grant funding and the need to expend funds, and poor alignment between the timing of spring plant survey information and grant application deadlines (i.e., grants are due before results from spring surveys can be conducted and crosschecked with post-treatment surveys in the fall). In addition, the realization that the management focus of invasive watermilfoil is shifting from attempting to maintain invasive watermilfoil at minimal levels in littoral zones throughout the reservoir to containing and controlling invasive watermilfoil (and other aquatic invasive plants) to avoid spread outside the reservoirs, is cause for the Task Force to a) seek other sources of funding to achieve control and containment goals and b) work with existing state AIS grant programs to address the funding cycle issues.

## Funding Recommendations

- Developing a Funding Committee within the Task Force to seek new sources of funding to achieve the goals of the Task Force. The Avista Grant Writers in consultation with the Task Force Facilitator have been serving as the Funding Committee.
- Engage DNRC, MFWP, and Montana Department of Agriculture staff to discuss the potential to shift the timing of grant applications as well as consider grants on a 2-year funding cycle, which would allow the Task Force ample time to adequately prepare for and implement treatment options.