Research Priorities for Aquatic Invasive Species – Research & Demonstration

Proposals for research on the following topics will be considered for funding. The topics are not listed in priority order; however, the department has particular interest in initiating and supporting research to develop innovative experiments and techniques to understand, prevent, contain, and manage populations of AIS.

A: Early detection and preventing the establishment of AIS

1. Investigate relationships between boater movement and AIS presence by developing interactive models that inform asset-based water resource protection at multiple spatial scales (local to regional). For example, by overlaying introduction risk, habitat suitability, lake type, plant species suitability, etc. and assets. Use models to prioritize prevention and management actions in Wisconsin lakes.
2. Compile types of AIS messaging strategies and investigate how an AIS communication strategy shapes public perception of AIS. Specifically consider whether a neutral AIS messaging strategy can be effective. Evaluate boater behavior data related to AIS messaging and analyze to determine if/how AIS messaging is/is not changing behavior, knowledge, and perception.
3. Investigate the values and motivations that prompt the release of invasive species such as aquarium/pond fishes (e.g., goldfish, koi, etc.) into the environment and develop alternatives to release that are accessible and acceptable to the public.
4. Investigate whether early identification and intervention of AIS has/had impact on the AIS population status and overall condition of the waterbody years/decades later.
5. Evaluate long term data to evaluate AIS rate of spread across the state and determine if current AIS education and prevention activities are impacting the rate of spread.
6. Evaluate the efficacy of AIS decontamination techniques to fill existing knowledge gaps and further minimize the risk of spreading AIS.

B: Creating and improving options for control of AIS

1. In comparison to single method strategies, evaluate the efficacy of integrated pest management strategies for controlling AIS.
2. Evaluate native plant recovery in lakes that have been managed for aquatic invasive plants and develop improved methods for restoration of native submerged aquatic vegetation to help prevent reintroduction and promote resilience.
3. Quantify short- and long-term benefits and impacts of aquatic pesticides on non-target organisms through synthesis, experiments, and/or modeling. Address benefits and non-target impacts across spatial and temporal scales.
4. Compare waterbodies that have been managed for AIS to those that have not been managed over longer time scales to set realistic expectations of management outcomes and no-action alternatives. Also consider waterbodies where management stops after being conducted for years/decades.

C. Understanding impacts to prioritize management actions

1. Determine the non-target water-quality and ecological impacts of aquatic herbicides being applied repeatedly over time and across large areas to inform adaptive management (e.g., treatment strategies, permitting, policy, etc.).

2. Evaluate the effects of AIS and management of AIS (e.g., pesticide uptake) on wild rice, or other significant, sensitive, threatened or endangered species, to help guide management responses.
3. Evaluate environmental, economic, social, and cultural impacts of AIS on waterbodies in Wisconsin. Results should be used to inform cost-benefit analyses, risk assessment, and management decision-making.
4. Conduct evaluations on long term AIS population time series. Evaluate whether management actions, climate change, and/or other stressor (e.g., nutrient management, shoreline development, etc.) explain population outcomes or population patterns.
5. Evaluate grant-funded projects to assess the degree to which they have resulted in long-term, multi-season suppression of established AIS populations or maintenance or suppression of small established populations.