Frequently Asked Questions

Starry Stonewort Management

What is the best way to keep starry stonewort from spreading to other lakes?

Prevention is the key to stop the spread of all aquatic invasive species. Practice clean boating and set a good example at boat launches, "Inspect, Remove, Drain and Never Move." Pay special attention to anchors and other gear that may have touched lake sediments. In addition, Clean Boats Clean Waters (CBCW) grants and programs can be implemented to help prevent the spread; program volunteers can help educate boaters and assist with cleaning equipment.

Top photo: Progressive AE
Bottom photo: Paul Skawinski

When should starry stonewort be managed?

Management efforts should focus on preventing the spread of starry stonewort (*Nitellopsis obtusa,* SSW) outside of the waterbody, and on mitigating the impacts of SSW where it occurs. Consistent monitoring will provide the information to determine whether control is necessary and can save time and resources in the long run. If SSW is causing minimal impacts to recreational use, habitat, or water quality, then the need for active management should be carefully considered.

Which management approaches have been tried?

Chemical control methods, primarily copper-based herbicides, have been used to attempt control. Drawdowns, dredging, diver assisted suction harvesting (DASH) and hand pulling have also been used. Regular monitoring and analysis of plant communities without active management of SSW has also been conducted. At this point, all control methods are experimental. Please refer to the Department's research factsheet on SSW management for more specifics.

What is the department doing to learn more about the species and its impacts?

The department will continue to support collaborative research with regional and national partners like the U.S. Army Corps Engineer Research and Development Center, University of Minnesota, Indiana University, New York Botanical Garden, Midwest Aquatic Plant Management Society, and local lake organizations. The department is also involved with the Great Lakes SSW Collaborative, an EPA grant-funded effort to increase the capacity for experts, resource managers and citizen scientists to understand the potential impacts of SSW and the best management practices available.

What can you do to help us learn more about this species?

The department is looking to support collaborate research projects designed to learn how to better manage SSW. Eligible applicants who want to engage in collaborative research may pursue funding through the Surface Water Grant Program's AIS Research and Demonstration, Aquatic Invasive Species Control or Early Detection and Response grants. In all cases, projects should employ management methods that have promise for effective control and include an evaluation method. Organizations with a new population of SSW are encouraged to develop a lake management plan or an AIS response plan. Funding through the Surface Water Grant Program's AIS Prevention or Lake Planning program can help provide financial assistance. For more information, including how to determine eligibility and start developing a project, visit the department's information page on the Surface Water Grant Program.

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Which management approaches have worked?

The department has not yet identified any control measures that work well. Chemical management of SSW has not resulted in sustained control or reduction in population size for any waterbody in Wisconsin. The efficacy of dredging, DASH, and hand-pulling are currently being evaluated. To date, the only SSW population that has decreased over time is the population that has never been actively managed. The department will continue to monitor all populations as resources allow to better understand long term trends in both managed and unmanaged lakes.

What should be done if previous management did not work well?

When one control strategy doesn't work, it is necessary to reevaluate management goals and all available management tools. Involved groups should continue SSW population monitoring to learn how SSW interacts with other plants and animals in each waterbody. In addition, it is important to continue researching how SSW populations react to different types of management and how those same management actions impact native plants, animals and water quality. Please refer to the department's guide on Integrated Pest Management, to create a waterbody-specific action plan.

Why is the department concerned about continual copper-based herbicide use?

Copper is generally considered non-selective, and may have non-target impacts on native species, especially on native macroalgae such as musk grasses. Copper does not degrade after application, but rather accumulates in the sediment, and repeated use in the same area may potentially increase toxicity risks for other aquatic life, as well as potentially give rise to copper-resistant populations of undesirable species. Please refer to the department's Copper Compounds Chemical Fact Sheet for more information.

Why is the department concerned about management impacts to native plants?

Aquatic plants form the foundation of healthy lake ecosystems. They not only protect water quality, but also produce life-giving oxygen. Aquatic plants are a lake's own filtering system, helping to clear the water by absorbing nutrients like phosphorus and nitrogen that could stimulate algal blooms. Native aquatic plants also provide important reproductive, food, and cover habitat for fish, invertebrates, and wildlife.

What are some alternative management approaches beyond chemicals?

Other management options include: drawdowns, dredging, diver-assisted suction harvesting (DASH), hand-pulling and no management. Several of these strategies are being used in conjunction with chemical control of SSW populations in the state.

Why is starry stonewort so difficult to manage?

Starry stonewort is a bushy, bright green macroalga with star-shaped reproductive structures called bulbils. Unlike the common vascular non-native plants, Eurasian watermilfoil and curly leaf pondweed, SSW does not have a vascular system. Think of vascular plants like the human body, an injection anywhere on the body will move throughout the entire bloodstream. In SSW, each branchlet, stem or bulbil is a single cell type with a different function. If a human body was SSW each arm, leg, torso and head would be a separate cell, an injection into the arm would impact that arm only. Additionally, that arm could grow back if it was removed.

Think of a large collection of individuals packed tightly together as a bed of SSW. If someone flew overhead on a normal day with moderate wind and sprayed paint, the paint may drift down and contact the heads and shoulders of the group in a random fashion. If the group was more spread out, the paint may contact more individuals, but still only hit a portion of each individual body part. If the wind was just right, the group was moderately spread apart and enough paint was used, the paint may drift down and uniformly coat most of each individual body part.

Unless the final scenario can occur in water, it is unlikely the entire SSW plant structure is affected by a contact herbicide. Contact herbicides only kill or impact the part of the plant that they touch. If the top of the macroalgae is impacted by a treatment, within a short amount of time new cells will grow. If the reproductive bulbils are not impacted by treatment, they will continue producing new SSW vegetative growth. Additionally, SSW management itself can have impacts on native species, as the contact herbicides typically used for SSW are also labeled to impact certain native plant species that often grow near or within SSW beds. Therefore, even when treatments are not effective at managing SSW, they have the potential to cause non-target damage to natives.

In conclusion, in aquatic treatments it can be hard to predict how much of SSW will be touched by herbicide and how long the herbicide will remain on the macroalgae. If herbicide contact time and dosage is limited by water flow, water volume, population densities or the amount of herbicide used, there can be variability in treatment success and nontarget impacts. The structure of SSW and its bulbils can also pose challenges during manual and/or mechanical removal.

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