

## **M.L. 2017 Minnesota Aquatic Invasive Species Research Center Subproject Abstract**

For the Period Ending June 30, 2022

**SUBPROJECT TITLE:** MAISRC Subproject 15: Determining Highest Risk Vectors of Spiny Water Flea Spread

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**FUNDING SOURCE:** Environment and Natural Resources Trust Fund (ENRTF)

**LEGAL CITATION:** M.L. 2013, Chp. 52, Sec. 2, Subd. 06a

M.L. 2017, Chp. 96, Sec. 2, Subd. 06a

**SUBPROJECT BUDGET AMOUNT:** \$119,513

**AMOUNT SPENT:** \$119,337

**AMOUNT REMAINING:** \$176

### **Sound Bite of Project Outcomes and Results**

Spiny water fleas are an invasive zooplankton that threaten Minnesota lakes. In tests of recreational fishing gear, fishing lines entangled the most spiny water fleas and should be the focus of cleaning efforts. In addition, all water should be removed from bait buckets and livewells to prevent spreading this invader.

### **Overall Subproject Outcome and Results**

Spiny water fleas are a predatory non-native zooplankton that threatens the ecology and recreational value of Minnesota lakes. Estimates are that >40% of northern Minnesota lakes are vulnerable to invasion. These invaders are primarily spread by human recreational activity, but we do not know exactly how this is happening. Our project goals were to 1) determine which types of recreational fishing gear would entangle (and thus spread) spiny water fleas, and 2) widely disseminate our results and gear-cleaning tips. We conducted 7 sampling events on Lake Mille Lacs, collecting 718 samples including zooplankton tows and spiny water flea counts on fishing gear and anchor ropes. We found that fishing lines accumulated the most spiny water fleas and thus should be the focus of angler cleaning efforts. In addition, it is critically important that all water be removed from bait buckets and livewells to prevent spread. To help recreational anglers clean their fishing gear, we printed and/or coordinated the distribution of over 20,000 cellulose dish cloths that were printed with cleaning instructions. 8,000 cloths were printed and distributed to 18 community partners (lake associations, AIS prevention staff, agency partners) as a part of this project and an additional 12,000 were printed and distributed through coordination with partner organizations and additional funders. Cloths were distributed to recreational anglers, focusing on those who move between spiny water flea infested lakes and uninfested lakes. In addition, we launched the [stopspiny.org](http://stopspiny.org) website to disseminate research findings and share prevention resources and created three PSA videos that demonstrated how to use the cloth to clean fishing lines. The videos played on YouTube, Facebook, Twitter, and TV in the Lake Superior, Lake of the Woods, Mille Lacs, Twin Cities markets. Facebook advertising was used to extend the stop spiny PSAs, reaching over 208,000 individual people and resulting in 442,000 impressions. PSA ads were also placed in local, online and print publications with an estimated reach of 103,000 readers. The research team also wrote one scientific manuscript and presented their results 19 times to about 1,500 people.

## **Subproject Results Use and Dissemination**

All outreach was done with strong collaboration and support from MAISRC staff.

**Stop Spiny Cloths:** To help recreational anglers clean their fishing gear, we printed a simple image of a spiny water flea and what they look like when ensnared on fishing lines, along with cleaning instructions and funder logos, on 8,000 cellulose dish cloths. These cloths look like a steam-rolled sponge. Use of these cloths (or any cloth) to wipe fishing line prior to leaving an infested lake will help prevent the spread of spiny water flea from lake to lake. In testing, we found that these cloths are easy to use to clean fishing lines (and a more useful product than our original idea of a sticker). These cloths were distributed this spring to about 18 partners (lake associations, AIS spread prevention staff, agency partners, etc.). In addition, we facilitated the Minnesota Lakes and Rivers Advocates to help about 25 other groups (mostly lake associations and conservation districts) order over 9,000 more spiny wipe cloths for distribution. In total, we have or are in the process of facilitating distribution of over 20,000 cloths (3,000 of these were part of our companion project funded by St. Louis County) to wipe spiny water fleas from angler fishing lines.

To support distribution of the cloths and assist those distributing them, MAISRC staff worked with us to create an outreach campaign that we called the “Stop Spiny” campaign.

**Website:** The Stop Spiny campaign was chiefly hosted on the MAISRC website at [stopspiny.org](https://stopspiny.org), which redirects to [www.maisrc.umn.edu/stopspiny](http://www.maisrc.umn.edu/stopspiny). The web page was created in Fall 2020 by MAISRC staff. Since its creation, the Stop Spiny campaign page has been viewed over 4,721 times. The average time a visitor spends on the page is nearly two minutes and thirty seconds. The Stop Spiny campaign webpage, as of Jan. 2022, is the seventh most popular page on the entire MAISRC website over the last year and a half.

The Stop Spiny campaign page gives an overview of spiny water flea invasion history and impacts and explains how water recreationists can help prevent the spread of spiny water fleas. A video about the project results is linked on this page. Additional information includes an interactive map showing current spiny water flea invaded lakes in Minnesota and links to additional spiny water flea research and species pages.

MAISRC staff also created a Stop Spiny campaign resources web page. This page hosts a variety of Stop Spiny factsheets, images, videos, fliers, and more for the free use and distribution of educators, resource managers, lakeshore associations, and/or any others hoping to help prevent the spread of spiny water fleas. The average time spent on this page by users was six minutes, which is very long by web page viewing standards and indicates that visitors are taking the time to read and download the information on this webpage.

**Videos:** To help share the Stop Spiny message in a visually interesting format, we worked with MAISRC and UMD to produce multiple high-quality videos. Three different video lengths were created—15 seconds, 30 seconds, and a full length (~2:30 min). The videos were shared on multiple social channels, including MAISRC’s Facebook and Twitter accounts. The videos were also used in different combinations for Facebook advertisements and a television advertisement. On YouTube alone, the videos have accumulated over 850 views.

**Advertisements:** The Stop Spiny campaign included a combination of digital and print advertising. Print advertising included placements in the Lake Country Journal (based near the spiny water flea-infested Lake Mille Lacs), the Ely Summer Times (distributed along the Minnesota Iron Range, in the heart of spiny water flea-infested lakes), and Northern Wilds Magazine (another Northern Minnesota distributor). The estimated reach, per outlet, as provided by their respective company websites are as follows; Lake Country Journal—40,000; Ely Summer Times—28,000; Northern Wilds Magazine—18,000.

Northern Wilds Magazine, which also has an online edition and active online community, was contracted for Stop Spiny banner ads. The ads were placed on the Northern Wilds Magazine website at the top column of their side bar. The company estimates that their web pages see roughly 17,000 page views per month. Stop Spiny advertisements were placed on the top side bar for three consecutive months, from June to August 2021.

In addition, extensive Facebook advertising was used to enhance the Stop Spiny campaign. Multiple rounds of advertisements were planned to coincide with time of year and spiny water flea population increases. Since the launch of the campaign in spring 2021, Stop Spiny advertisements on Facebook reached over 208,000 individual people and resulted in 442,000 impressions. Included in all the advertisements were hyperlinks to the Stop Spiny campaign website for additional information and resources. In total, over 1,500 people clicked from the advertisement to the Stop Spiny campaign page.

On average the amount of time an individual person will watch a video on Facebook is six seconds. Engaging users to watch more than six seconds is a huge engagement success. By the end of the Stop Spiny campaign, over 29,000 users watched the Stop Spiny video they were served to completion (15-30 seconds) and over 60,000 users watched over 50% of the video they were served (7-15 seconds).

Finally, we have had numerous radio and print articles about our project and how to stop the spread of this invasive species, including an outreach article by MAISRC personnel in a Minnesota angling magazine (Activity 2, Outcome 4). Additional outreach has included working with Lake Minnetonka local government staff to use their lighted electronic boards to promote Stop Spiny messages, creating Stop Spiny factsheets and handouts, and sidebar online advertisements on the Northern Wilds website. Our Stop Spiny website hosts all these videos, factsheets, an interactive map, the radio scripts, and presentations for watercraft inspectors. The PIs published one scientific manuscript, and gave 19 presentations to over 1,500 people in total.

#### *Peer-Reviewed Publications*

- Donn K. Branstrator, Joshua D. Dumke, Valerie J. Brady & Holly A. Wellard Kelly (2021): [Lines snag spines! A field test of recreational angling gear ensnarement of Bythotrephes](https://doi.org/10.1080/10402381.2021.1941447), *Lake and Reservoir Management*, DOI: 10.1080/10402381.2021.1941447

#### *Presentation Recordings/Videos*

- 2021 MAISRC Research & Management Showcase Presentation  
<https://z.umn.edu/2021ShowcaseSpiny>
- 2020 MAISRC Research & Management Showcase Presentation  
<https://z.umn.edu/2020ShowcaseSpiny>
- AIS Detectors Webinar: Lines Snag Spines! Preventing the Spread of Spiny Water Flea  
<https://z.umn.edu/DetectorsWebinarLinesSnagSpines>
- MAISRC Video: Preventing the Spread of Spiny Water Flea  
<https://z.umn.edu/MAISRCPreventingSpinySpread>

#### *Select Media Coverage*

- Minnesota Opinion: Avoid catches you don't want this fishing season – West Central Tribune  
<https://www.wctrib.com/opinion/editorials/minnesota-opinion-avoid-catches-you-dont-want-this-fishing-season>
- New ways to stop spiny water flea spread – Mesabi Tribune  
[https://www.mesabitribune.com/opinion/columnists/new-ways-to-stop-spiny-water-flea-spread/article\\_daea21e8-bca9-11eb-ae17-0b26c8aa0317.html](https://www.mesabitribune.com/opinion/columnists/new-ways-to-stop-spiny-water-flea-spread/article_daea21e8-bca9-11eb-ae17-0b26c8aa0317.html)