

Stemming the tide

STUDY SHOWS NO INCREASE IN SPREAD OF AQUATIC INVASIVE SPECIES.

Krista Kamke from Golden Sands Resource Conservation and Development, a central Wisconsin nonprofit group, finds a banded mystery snail while snorkeling in Porters Lake in Waushara County.

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For five years, wielding rakes, nets and snorkels, teams of researchers and citizen scientists spread out across Wisconsin lakes searching for evidence of aquatic invasive species (AIS). Their purpose: to find out if occurrences of species like Eurasian watermilfoil, spiny water fleas, zebra mussels and purple loosestrife were stabilizing. Their findings: yes, there are signs that they are.

The effort was the largest of its kind and involved 150 volunteers and professionals who searched 1,000 lakes over a combined 3,000 hours. What they found is good news because it shows invasive species prevention outreach programs — like the Clean Boats, Clean Waters watercraft inspection program and the annual Fourth of July Landing Blitz and Drain Campaign — are working.

Invasion rates tend to increase, stabilize and then decrease. It is possible the stabilized rate of spread the study identified is because the number of lakes in Wisconsin that can be invaded has become saturated, but more research is needed to make this distinction.

The project was funded largely by federal money under the Great Lakes Restoration Initiative, which supports efforts to protect and restore the Great Lakes. Boaters are known to be the primary pathway for AIS spread in Wisconsin so

researchers concentrated on lakes with public boat access.

In addition to rates of spread, the study revealed some other surprising facts. Nearly 75 percent of the lakes surveyed had at least one AIS, which is more than researchers expected. While that number may seem high, not all AIS are equally problematic or damaging and many of the new discoveries were of the easier-to-handle variety.

Most detections were purple loosestrife, which has an effective biocontrol agent — insects that eat only it — or mys-

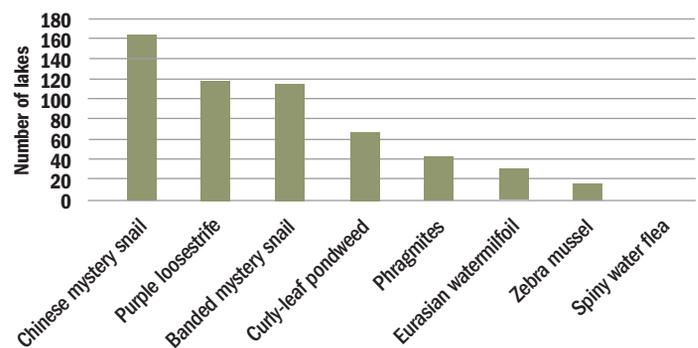
tery snails, whose level of negative impact is unclear.

The most problematic invasive species — like Eurasian watermilfoil, zebra mussels and spiny water flea — were uncommon. The data show that 75 percent of the lakes monitored don't have Eurasian watermilfoil, more than 90 percent of lakes don't have zebra mussels and 99 percent of lakes don't have spiny water flea. Since these species can impact recreation and be difficult to manage, their relative absence from most lakes is a welcome discovery.

Another important outcome was the discovery of 550 previously unrecorded AIS populations, most of which were found in lakes that had never before been monitored, reflecting a need for



NEW DETECTIONS 2011-2015



more people searching for and reporting AIS.

Early detection is key

Importantly, few of these new detections would be considered early or “pioneer” populations, or species that are newly established in a lake. In fact, they may have been there for a long time without being noticed (see sidebar). For example, of the 31 new Eurasian watermilfoil detections, only five were actually pioneer populations. This suggests two things: Invasive species are widespread and an increase in early detection monitoring capacity is needed.

However, the few early detections enabled quick responses to remove these pioneer populations and stop them from spreading to other lakes. DNR researchers are finding that early detection is critical for more effective control of invasive species. Wisconsin is well-poised to respond to pioneer populations with Early Detection and Response (EDR) grants, which fund efforts to manage newly established AIS populations to prevent them from spreading throughout a lake or to other lakes.

The new detections showed, most importantly, that DNR needs to better target monitoring to catch AIS early. Citizens play an important role in monitoring and reporting early populations. The DNR is identifying public access waterbodies near known occurrences of prohibited invasive species, making them vulnerable to their spread. The DNR will be working with the Citizen Lake Monitoring Network to increase citizen involvement.

When DNR staff, partners and volunteers know what species look like and work together to find these populations early on, the potential for eradication increases. DNR works to continue to foster those partnerships.

Bob Wakeman, the statewide DNR AIS program coordinator, sees the findings of a constant rate of spread as encouraging, but also an indication that more work needs to be done.

“While the stable invasion rate might suggest that our AIS prevention efforts are having an impact, we would like to see a decline in the rate of spread,” Wakeman says. “Our next steps are to identify gaps in our education and outreach program to boaters and others that transport and introduce invasive species so we can decrease new introductions.”

Those efforts include the streamlined Clean Boats, Clean Waters watercraft in-

spection grants and the annual Fourth of July Landing Blitz and Drain Campaign, which are crucial to stop AIS from reaching new lakes. Wakeman also notes that new efforts to reach previously uncontacted water users, such as waterfowl hunters and water gardeners, can further limit the spread.

DNR will refine outreach to boaters to remove sediment from anchors and equipment to stop the spread of small-bodied AIS like spiny water flea and Asian clam. These prevention efforts could be evaluated during future rate-of-spread studies.

While the five-year monitoring project may have come to a close, the lessons learned will continue to help AIS staff and volunteers. The Citizen Lake Monitoring Network will adapt these early detection methods to kick off a Snapshot Day program to provide citizens training and resources to join the early detection campaign and help detect AIS in their area. Check out the Wisconsin Citizen

Lake Monitoring Network at www.uwsp.edu/uwexlakes to learn more. You can also participate in the statewide AIS Snapshot Day this August, where volunteers will be trained to recognize AIS and sample a local lake or stream from a public access point.

Visit the DNR’s AIS website (dnr.wi.gov/lakes/invasives/) to find out more about the distribution of AIS in Wisconsin and how to prevent their spread. 

Maureen Ferry is the aquatic invasive species monitoring coordinator in DNR’s Bureau of Water Quality. The design for the rate-of-spread study discussed here was developed by the Bureau of Water Quality’s Scott Van Egeren, lake and reservoir ecologist, and Alex Lätzka, Wisconsin Water Resources Policy Fellow. Also contributing to the story were: Ellen Kujawa and Alison Mikulyuk, from the Bureau of Water Quality; Paul Skawinski, UW-Extension Lakes’ Citizen Lake Monitoring Network educator; Tim Campbell, UW-Extension AIS communications specialist; and Jenny Seifert, UW-Extension AIS outreach specialist.

>>> SUCCESS FOLLOWS EARLY DETECTION

The five-year effort to determine the rate of spread of aquatic invasive species (AIS) also unveiled several discoveries of newly established AIS populations that if left undetected could have expanded, making management more challenging and costly. These early detections offered opportunities to implement management, like hand-pulling, engaging AIS grants and evaluating new prevention techniques.

For example, the early detection of yellow floating heart, a released water garden plant, in the Nicolet National Forest’s Lake Gordon in 2013 allowed managers to jump to action. We are confident this population of yellow floating heart will be eradicated due to efforts of local partners and DNR to hand remove the plants and raise awareness of releasing garden plants.

Other water garden releases, like water hyacinth and water lettuce, were found and removed by volunteers, partners and DNR staff in the Mississippi River, Lake Winneconne and Lake Mendota. Results are encouraging so far; citizens and DNR will continue surveillance. Similarly, volunteers in Porters Lake near Wautoma discovered several acres of scattered Eurasian watermilfoil in 2012. Thanks to quick action by Citizen Lake Monitoring Network volunteers, partners and an AIS Early Detection and Response grant, the plant was nearly eradicated in less than a year’s time.

Not all new invasions found can be eradicated but their spread can be prevented. Asian clam was discovered for the first time within state borders in four lakes in southeast Wisconsin during this five-year study. This species can harm the food web more than zebra mussels and can be transported in sediments attached to anchors.

Volunteers and partners work to promote awareness of these species and contain them in the newly invaded lakes. For example, the Friends of the Mukwonago River received an Early Detection and Response grant from DNR to implement regional Asian clam monitoring and outreach.

Such also was the case with the discovery of spiny water flea at Star Lake in Vilas County. This harmful species can be transported in leftover water from bilges, livewells or mud on anchors. Lake associations throughout Vilas County have been receiving Clean Boats, Clean Waters grants to help stop the spread of this and other AIS.

Likewise, faucet snails, which can host parasites known to kill waterfowl, were identified in a southeast Wisconsin lake and the Winnebago System. These snails attach to plants and rocks and burrow in sediments. The discoveries of these new species identify the need to go beyond simple removal and adapt prevention messages to target more specific behaviors, such as cleaning anchors and draining livewells. The rate of spread of these species could be determined in the future to evaluate the success of revised prevention campaigns.

Moving forward, DNR, the Citizen Lake Monitoring Network and other partners will target vulnerable sites to increase early detection and response and learn from experiences to adapt and evaluate prevention techniques.