Introduced
Transcript

Episode 22. The story of starry

[00:00:00] **Jenna:** This is Introduced, where Great Lakes stories meet invasive species science. Introduced is brought to you by Wisconsin Sea Grant and the Great Lakes Commission. I'm Jenna Mertz.

[00:00:20] **Bonnie:** And I'm Bonnie Willison. We're both storytellers here at Wisconsin Sea Grant, and we're joined today by Tim Campbell, Wisconsin Sea Grant's Distinguished Aquatic Invasive Species Outreach Specialist. Hey, Tim.

[00:00:32] **Tim Campbell:** Hey Bonnie. Hey Jenna, excited to be here today.

[00:00:35] **Jenna:** So Bonnie, you have a story for us today, right?

[00:00:39] **Bonnie:** I do.

[00:00:39] So, often times on Introduced, we talk about a new species that was discovered in our waters. Like, we told the story of the first time that Red Swamp Crayfish were found in Wisconsin. That's one of my favorites.

[00:00:53] And remember that time that there was a moss ball crisis? When moss balls were sold at pet stores and they had zebra mussels on them. We told that story. And these are some of my favorite stories to tell. They're exciting, and I like that there are so many lessons that we can learn from them. So today I want to tell another one of those stories.

[00:01:18] I want to talk about a tiny invasive species called starry stonewort and what happened when it was first discovered in Wisconsin. But I want to get a little deeper too, because we have Tim here to talk about some new research - new research about why humans respond the way that they do to a new invasive species.

[00:01:37] So Jenna and Tim, what do you know about starry stonewort?

[00:01:42] **Jenna:** I don't know much. Um, I've heard of the name before and I always thought it was like a magical sounding name, kind of like an ingredient in a magical witch's brew or something.

[00:01:52] Like it's the, the starry stonewort has a very, like, fantasy feeling to it.

[00:01:57] **Tim Campbell:** Also sounds like it could be something like in a [00:02:00] pond in a Van Gogh painting. So I'm sure somebody has seen it there. But, seriously, what, what I know about, uh, starry stonewort, it often gets kind of lumped into aquatic plants, but it's an algae and it's a species of conservation concern in Europe where it's originally from and kind of ironically, invasive here.

[00:02:21] And as a fish and bug person, all plants kind of look the same to me. Uh, but you know, it's just got these thin, I guess, stems, it kind of branches out. But it has these very distinctive starry bulbils that kind of grow underneath, uh, they almost, they're not seeds, seed like things on them. And that's the really distinctive part of it.

[00:02:45] And, and so Tim, what did, what do they do to a lake? Those starry little bulbils kind of sound cute. So, you know, how is it affecting lakes?So because it looks a lot like a plant, it has the same, a lot of the same impacts as aquatic invasive plants.

[00:03:01] It can out compete native plants. It can make life difficult for fish, could make life difficult for, you know, really anyone that enjoys using the lake, including boaters, you have to try imagining running your boat through a bunch of, uh, you know, really thick plants that can clog up the motor.

[00:03:17] Just make it an unpleasant experience.

[00:03:20] **Bonnie:** Classic aquatic invasive plant behavior there. So, starry stonewort was first found in Wisconsin in 2014. So, 10 years ago. And Tim, you were working in AIS in Wisconsin then, right?

[00:03:35] **Tim Campbell:** Yes, I was. Looking back, it was close to the beginning of my career.

[00:03:39] And I didn't really know much about starry stonewort at that time, and to be fair, not a lot of people in Wisconsin did, it hadn't been studied much. So I remember the atmosphere at the DNR when it was discovered, there was a lot of concern and uncertainty on what would happen because, um, I think for a lot of people, this just wasn't [00:04:00] on their radar.

[00:04:00] **Bonnie:** Yeah, so, this is kind of what I had heard about starry stonewort is that, you know, The introduction was you know, people remember it as very, kind of, nerve wracking and dramatic, and that is one of the reasons that I wanted to tell this story.

[00:04:16] So, I wanted to speak to someone who was involved at the time, so I called Paul Skawinski. Back in 2014, he worked for the Department of Natural Resources, or the DNR,

[00:04:29] and also fun fact, he literally wrote the book on aquatic plants of the upper midwest, so he seemed good to talk to.

[00:04:36]

[00:04:37] **Paul Skawinski:** I was out on a lake when I got a text that someone had found starry stonewort, and I was a little bit bummed that it had finally arrived here in Wisconsin, but we'd been watching for Starry for a couple years prior, so it wasn't like it was a giant surprise that it found its way here.

[00:04:53] I think there was a lot of uncertainty about how starry stonewort would behave in Wisconsin and, and what our best first approach should be.

[00:05:02] As far as the public goes, I think the public's reaction was, and staff too, was a lot of anxiety.

[00:05:09] **Jenna:** The people who live and work around lakes are familiar with the effects and the costs associated with invasive species and Our lakes already have a lot of stressors, other invasives, and erosion problems, and nutrient pollution. So, yet another invasive species was just another thing that threatens to cost more money and harm the lakes in other ways. So where was starry stonewort discovered?

[00:05:33] **Bonnie:** So it was discovered in Little Muskego Lake, which is about 20 miles from Milwaukee in Southeast Wisconsin.

[00:05:40]

[00:05:40] **Tom Reck:** Yeah, that was shocking to everybody that here on Little Muskego Lake, the first lake in the state of Wisconsin. Why us? Oh my gosh. It had been in Michigan and some other lakes out west.And here we are in Wisconsin, now we have starry, stonewort.

[00:05:57] **Bonnie:** That was Tom Reck. I [00:06:00] talked to him in his backyard overlooking Little Muskego Lake. Tom was the chairman of the Little Muskego Lake District in 2014, meaning he was leading the people in charge of making decisions about the lake at the time that starry stonewort was found in the lake.

[00:06:15] **Tom Reck:** You know, the problem at that time was you didn't really know what was going to happen. And they were talking about, you know, that it could. cut out all the sunlight and then the fish would not have anything to eat so the fishing would be reduced and, and it would take over the bottom of the water and, and create this carpet that was just nasty. And nobody wants that. Nobody wants to have our lake be ruined, you know, because it's beautiful out here and a lot of fun.

[00:06:50] **Paul Skawinski:** There's a lot of uncertainty when any new species moves into a lake. Nobody really knows for sure what it's going to look like years from now, what that end result will be.

[00:07:00] I think people also went on the internet and searched starry stonewort and they would find the information from Michigan or other states where they've done a lot of management on it and that probably contributed to their concerns too.

[00:07:12] **Bonnie:** So, at the time, we really didn't know much about how starry stonewort behaves in a lake.But what we did know came from other states to the east of us, cause that's kind of where it came from first.

[00:07:26] **Tim Campbell:** Yes, that's right. Uh, Michigan probably had the longest known established populations of starry stonewort. I think it might go back to the 70s, but outside of that, I don't think there have been, widespread populations of it

[00:07:40] So, I remember it at the time, looking through the literature myself, looking for more information about starry stonewort, and I still remember a lot of the, the first things I came across when looking for this literature. And, you know, a lot of times it wasn't the peer reviewed literature that we are used to [00:08:00] seeing in the same tone.

[00:08:01] You know, one paper in particular that was really influential, you know, had some useful information in it but also had this really alarmist, like, sensationalistic tone to it that starry stonewort was going to destroy your lake.

[00:08:16]

[00:08:17] **Bonnie:** Yeah, So this paper.

[00:08:19] Other people I talked to mentioned a paper that they read at the time that is still kind of stuck with them. So I found this paper and I read it, and a lot of it is just kind of generic scientific reporting on identification and biology of starry stonewort, but the conclusion of this paper was pretty terrifying.

[00:08:43] **Jenna:** Like what? What, what made it terrifying?

[00:08:45] **Bonnie:** So, things like, here, here's a sentence. "Starry stonewort may be the greatest challenge that has ever faced lake management professionals and lake groups in Michigan. The impact on Michigan fisheries could be profound".

[00:08:59] Another part said, "starry stonewort seems to extirpate most submersed plant species". Stuff like that. So, it kind of went on to say how starry stonewort seems to have a dramatic impact on mostly every aspect of a lake, from water quality to plant species diversity to the sediment.

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[00:09:18] **Jenna:** Yeah, the picture that this paper paints is pretty bleak. Like, the phrase that sticks out to me is "extirpate most submersed plants". Like, to me, that means just starry stonewort. Like, all the other plants, gone, dead, like, pushed them out. Um, and if I heard that, you know, and I lived on a lake, I'd be really nervous too.

[00:09:38] **Tim Campbell:** Yeah, I mean, I think that these are some really kind of bold statements that you often wouldn't see in a peer reviewed scientific paper. To be fair, the magazine or journal that this was published in is kind of a hybrid between a magazine and a peer reviewed journal.

[00:09:57] And yeah, I do think that there [00:10:00] could have been a little bit of a conflict of interest here with the, the authors of the paper being associated with a lake management company that, you could argue that they would benefit from having some of this information out there.

[00:10:14] So for this to be the only piece of literature out there on starry stonewort that people were referring to, I think that really complicated some of the response to starry stonewort in Wisconsin.

[00:10:27] **Bonnie:** And the news media didn't help with painting a more nuanced picture of starry stonewort.

[00:10:32] **News clip:** This weekend has been a great one to be on the water, but a group says what's growing underneath the surface at Little Muskego Lake is putting all inland lakes at risk.

[00:10:41] It's a destructive underwater plant. Little Muskego Lake is the first in Wisconsin to have it and is fiercely trying to prevent it from spreading. Otherwise the algae takes over and kills the natural habitat. So it's the start of a death of a, of a lake.

[00:10:57] **Jenna:** Death of a lake! That's really intense. And I hear that and I, you know, it feels like there's no hope for the situation, you know?

[00:11:06] So, what happened to Little Muskego Lake? Like, was catastrophe unleashed?

[00:11:13] **Bonnie:** So, yeah, the DNR was on it. They were ready to spring into action. So was Tom and the Lake District. So, they were working together to do everything they could to try to contain starry stonewort and try to get rid of it. And when one method didn't work, they moved on to the next. For years. And they tried everything.

[00:11:37] **Paul Skawinski:** Manual removal.

[00:11:38] **Tom Reck:** DASH, diver assisted suction harvesting.

[00:11:41]

[00:11:42] **Paul Skawinski:** A lot of monitoring.

[00:11:43] **Tom Reck:** And then we had the chemical company come out.

[00:11:47] **Paul Skawinski:** A water level drawdown.

[00:11:50] **Tom Reck:** We lowered the water to try to freeze it out over the winter, so we lowered the water seven feet.

[00:11:57] We did education.

[00:12:00] **Paul Skawinski:** Prevention.

[00:12:01] **Tom Reck:** At all of the parks, we had people talking with boaters that would launch their boat and would take their boat out of the water,

[00:12:12] Yeah, it takes over your life and you, and you, that's, that's devastating. It really is. It really is. So there was, you know, meeting after meeting, day after day, you know, trying to figure out what we're going to do.

[00:12:29] So it was just a lot. day after day after day after day for years. Thank God I had some time. You know, I just painted a part of my job.

[00:12:39] It was part of my life and it's, it's okay. It was okay.

[00:12:44] **Jenna:** It's crazy listening to that list. So like one of those methods had to have worked, right?

[00:12:52] **Bonnie:** No. Nothing worked.

[00:12:55] **Jenna:** Nothing. Wow. I, nothing. That's, so they, what's the lake like now after 10 years?

[00:13:05] **Tom Reck:** Well, starry stonewort has taken over a lot of the lake and now every year that we do this analysis and, and they say that about 60 percent of the weeds that we have in the lake is starry stonewort. We still have a lot of Eurasian watermilfoil, which grows to the top.

[00:13:20] But starry stonewort is a carpet on the bottom and, uh, so that carpet is kind of nice actually when you're out boating and you're swimming or whatever and now you have this carpet on the bottom instead of all this muck that you'd stand in and, and sink into, et cetera. Um,

[00:13:41] Other weeds are not growing up to the top like they had in the past. So, you know, all in all, I'm not sure if it's as bad as what it seemed like it was going to be. It's certainly is not devastating like we had thought it would be, but I don't know what it's going to be like in [00:14:00] another 10 or 20 years.

[00:14:02] I think that the people around the lake have just learned to, you know, live with it.

[00:14:06] It's just another weed. And our weed problem is pretty bad. Because of the, the Eurasian watermilfoil and the curly leaf pondweed that all grow up.

[00:14:17] And so it's not going away. We're not able to eradicate it. We're not able to remove it. And so, I don't know what's going to happen with that over time. Now that we have 60 percent in the lake, does that mean that, you know, at 80%, 90%?

[00:14:36] It's going to be in 10 years? I don't know. I think it'll take some time before we totally realize that this is a non-issue or not.

[00:14:49] **Jenna:** So what I'm hearing from Tom is just like a lot of uncertainty and you know, they're also playing the waiting game of, you know, will this become a problem? It's been 10 years, but you know, we'll look, will this problem get worse? And it's, it's interesting to hear him say that it's just become like another weed in their weed problem.

[00:15:09] **Bonnie:** It is because, you know, that is not really the picture that was painted by this paper, by the news, you know. It is interesting to hear those reflections after so long. So, as Tom and Paul explained, they tried so many strategies to eradicate starry stonewort. But there is one thing they didn't try on Little Muskego Lake.

[00:15:33] **Jenna:** What could possibly be left for them to do? I mean, we heard that list. It sounds like they exhausted literally all of their options.

[00:15:41] **Bonnie:** Well, the one thing they didn't try was doing nothing.

[00:15:46] **Jenna:** Doing nothing? Like, literally doing nothing? That doesn't seem like it would work, Bonnie.

[00:15:55] **Bonnie:** Well, now 10 years after starry stonewort was introduced into Wisconsin, we have [00:16:00] evidence that sometimes, the less you do, the better.

[00:16:05] After the break, why do we respond to invasive species the way we do? And what counterintuitive methods actually work for controlling invasive species and protecting our lakes?

[00:16:35] **Jenna:** So, if I'm understanding this correctly, Bonnie, we found that doing nothing about starry stonewort could be the best way to manage it.

[00:16:44] Like I'm, I'm a bit dubious about that. So tell me a little bit more.

[00:16:50] **Bonnie:** Yeah, well, Let me introduce you to a special Wisconsin lake. It's called Pike Lake. It's actually not far from Little Muskego Lake, so it's less than an hour's drive from Little Muskego Lake. Here's Paul.

[00:17:04] **Paul Skawinski:** There's one lake that has not done anything since the beginning. It was found in 2015. And they haven't done a thing. And interestingly, the population there is not really changing much. And then we have these other lakes that are very heavily managed with all kinds of different techniques and the starry is increasing in those lakes. But like any good invasive species, it really likes disturbed habitats and the more you mess with the lake and change the sediment and eliminate other competition, they thrive on that.

[00:17:40] **Bonnie:** When I first heard of Pike Lake and what was going on there, I thought that was so fascinating that not far from Little Muskego Lake, where we had the first, you

know, discovery of starry stonewort, there's another lake with starry stonewort, and on this lake, they chose to just wait and see what [00:18:00] happened.

[00:18:00] And I was kind of surprised to hear that not much happened.

[00:18:05] **Jenna:** Yeah. It makes me wonder, like, how could that be? You know, what, what's going on in Pike Lake? What makes it different or special, if there's anything at all?

[00:18:14] **Bonnie:** Yeah, so to understand Pike Lake, we need to do some myth busting. Aquatic invasive species myth busting.

[00:18:23] So, if you know anything about invasive species, you probably know that they take off, right?

[00:18:29] Like they're known to increase in population and kind of take over whatever ecosystem they're in. Well, that is not the full picture.

[00:18:39] **Tim Campbell:** Yeah, that's right Bonnie. Um, this idea that aquatic invasive species take over, it's something I run into a lot when talking to people about invasive species. It's conventional wisdom.

[00:18:50] But when you have a new population of a potentially invasive species someplace, it doesn't necessarily increase rapidly and take over. It's really context dependent. And really, the science says that most populations of things we know to be invasive or just non native in general don't become problematic.

[00:19:11] **Jenna:** So most invasions aren't problematic? Like, I'm reorienting myself right now. Cause like Tim, as a kid, like that's the story I always heard was that invasive species are bad and they are always bad. And you don't want, you know, any sort in your lake, otherwise they will, you know, conquer it all.

[00:19:32] **Tim Campbell:** And that's not wrong. You don't want new invasive species in your lake because you never know what's going to happen. But it is surprising to most people. This really interesting research actually comes from Wisconsin. There's a lot of work being done where researchers are collecting data from the same Wisconsin lakes for, you know, 40 plus years. And we have a lot of invasive species presence, absence, population level data in that study. And basically, one of the things they [00:20:00] found is that most populations of non native species often are just present in pretty low densities, and it's only very rarely that they reach high densities, and actually the distribution of population levels and densities of non native species matches that of native species pretty well, which is super interesting.

[00:20:20] **Jenna:** Why? Like, how, how could that be?

[00:20:24] **Tim Campbell:** Well, so, you're a young zebra mussel coming over on a boat, coming to a new lake, and not every lake's the same. There's different, uh, water chemistry, you know, substrate for you to attach on. Just every lake is slightly different and we know

that lakes change over time too. So you maybe dropped off in a new lake that isn't particularly suitable for you, but 10 years from now, sometime in the future, who knows, something about the lake changes, which allows your population to really increase.

[00:20:54] It's just really context dependent on when these become a problem. And for invasive species, usually they don't become a problem until the conditions are just right.

[00:21:04] **Jenna:** But I mean, they do sometimes take over, right? And it can get pretty bad. So you mentioned zebra mussels. I'm thinking of zebra mussels, like how every surface gets coated, all the rocks, any sort of equipment or piers that you have in the lake. And then, you know, I'm also thinking about Sea Lamprey, who decimated the lake trout population in, you know, Lakes Michigan and Superior.

[00:21:27] Am I, like, I'm not wrong to be concerned, right? Like, it's not just one of my other unfounded anxieties about the world is that invasive species could take over, because I do have a lot of those.

[00:21:39] **Tim Campbell:** Again, you're not wrong. there are those instances where invasive species populations increase, they take over aggressively, and they cause problems both ecologically and economically, and that we should manage them or try to do something about it.

[00:21:53] Just the issue is that a lot of times when a new non native species or invasive species is found in somebody's [00:22:00] lake, they think the worst is going to happen. And they're concerned for their lake, which they love. Makes sense. And they want to do the best thing that they can for their lake, which they believe is moving aggressively to control invasive species.

[00:22:14] And in the case of plants, a lot of times it's a lot of herbicide really fast. And there's a time and place for herbicides, for sure, but we also know that herbicides harm things that people care about in their lake, and if not done well, like, could have just as much of a negative impact as the invasive species themselves.

[00:22:32] **Bonnie:** Yeah, so, we know people are scared of invasive species, and when their lake gets an invasive species, they often want to attack it right away with herbicides and, you know, solve this problem. But we also know that chemicals can do more harm than good, there's a lot of new research coming out that says that.

[00:22:53] And this is a problem that I've heard over and over again when talking to natural resources folks. The interesting thing is that, as natural resources folks, we also have had a role to play in kind of stoking this fear about invasive species. The way that we speak about invasive species has changed a lot over the years.

[00:23:16] Here's Paul.

[00:23:18] **Paul Skawinski:** I've been working with AIS for 20 years now. I started out back in 2004. As a watercraft inspector with Sea Grant on Lake Michigan. And back then I had to

explain to people what an invasive species was. People didn't know that term. It was not a commonly known term that people were familiar with. And we really stressed how scary and damaging all these species were. So we really played into that, that fear and, and driving that fear home with people that, you don't want these species in the lake. They're dangerous. Terrible. They're going to act horribly in every lake. And we were really making this assumption that if the species caused big problems in one lake, it was going to cause [00:24:00] really big problems in another lake. But these days, we've observed these species acting differently in various kinds of lakes. And sometimes they're very aggressive and sometimes they're just integrated into the community and they don't cause any real big issues.

[00:24:15] **Tim Campbell:** I think every invasive species person has a story similar to Paul's, especially when you're just learning how to do your job and, uh, make people care about invasive species, you're given 30 seconds, maybe a couple of minutes to make somebody care about your issue. And you want them to take you seriously and take action.

[00:24:35] And one of the easiest ways to do that kind of intuitively is to scare them.

[00:24:39] **Bonnie:** Yeah, that's really interesting because I feel like I have a similar story too.

[00:24:44] So I started at Sea Grant like five years ago. I didn't actually know that much about the Great Lakes, but through this job, I got to know them a lot better. I got to see how like how special they are.

[00:24:58] I started feeling very passionate about protecting them. And then, you know, I started this podcast pretty quickly, about invasive species and started learning more about aquatic invasive species. And, I was kind of scared of all the effects that invasive species could bring to the Great Lakes, you know, what would happen if invasive carp got into the Great Lakes?

[00:25:18] So I wanted to tell these invasive species stories, but also communicate that kind of emotion and passion to people like, look, we gotta protect these. The stakes are really high. And I feel like to do that, I did gravitate more towards fear, like telling people, you know, won't it be so scary if the Great Lakes are threatened?

[00:25:42] But I think it is interesting that there's kind of this uninterrogated assumption that scaring people about invasive species would be the best way to get them to stop spreading invasive species.

[00:25:57] And this is kind of a big assumption, [00:26:00] and, you know, is it a myth as well? We'll find out after the break.

[00:26:05] So, as we said, we have this conventional wisdom, this assumption that you can scare people into stopping the spread of invasive species. And Tim, this is where your research comes in, right?

[00:26:45] **Tim Campbell:** Yep. And over my career , I've seen a lot of people use fear-based messaging under the assumption that it's more engaging. It gets people's attention. It's pretty intuitive. I've done it. I think everyone working in invasive species communication has done it.

[00:26:59] But is fear really the best way to influence people?

[00:27:03] Are there potentially some unintended consequences or backfire effects of using this language? I wanted to figure out a way to test this. So I partnered with my friend and colleague, Bret Shaw.

[00:27:13] Bret is a professor and extension specialist in the Department of Life Science Communication at UW Madison.

[00:27:21] **Bret Shaw:** My name is uh, Bret Shaw, and I mostly focus on research about how to communicate more effectively to promote different behavior change outcomes to protect the environment.

[00:27:36] **Tim Campbell:** Bret has worked in environmental communication and messaging for a long time across a number of different environmental issues, and he has heard some of this fear-based rhetoric before.

[00:27:47] I used to work in health communication. And I remember talking to a breast cancer surgeon and he said, you know, Bret, women will often approach me after they've been diagnosed,

[00:27:57] and they're like, I want a double mastectomy and chemo [00:28:00] and radiation, you know, right now. And he's trying to distinguish between a biological emergency and an emotional emergency. And if you get a new aquatic invasive species, there's some similarities, right? If you've been really scared, the first thing you want to do is just eradicate it, get rid of it.

[00:28:18] But in fact, if you pour herbicides in as a first course of action, and again, we've never said there's not a role for herbicides, but a lot of times it might make sense to monitor. And you know, some people might think of monitoring as a passive strategy, but sometimes monitoring is what makes the most sense. Or there's manual removal, or mechanical removal, or there's different ways to go about it. And we definitely want to avoid people creating ecological damage out of elevated fear that's not proportionate to the risk at hand when they get a new invasive species because they think it's going to be worse.

[00:28:53] **Jenna:** Right, so what exactly is fear-based messaging, Tim? Like, do you have some examples that you can share?

[00:29:02] **Tim Campbell:** Yeah. So, you know, for example, imagine you're at a boat launch and you see a sign about invasive species and it says something like, stop the zebra mussel invasion, help fight the battle against zebra mussels. And there might be a watercraft

inspector standing next to you that says, you know, don't forget to clean, drain, dry your boat, otherwise you're going to ruin every lake you, you visit after that.

[00:29:25] **Jenna:** Yeah, I've, I've definitely heard stuff like that before. Um, and it's very militaristic, the language there, like battle, fight, invasion. I think earlier I mentioned like conquering a lake, um, like an army is coming or something.

[00:29:41] **Tim Campbell:** Exactly. And we call this the militaristic frame. It's really easy for people to intuitively use that language, you know, "invasion" itself is a militaristic term.

[00:29:52] And you know another frame you can picture is, you know, imagine a different sign that just says zebra mussels: not [00:30:00] native, not welcome. Keep them out of Wisconsin's waters

[00:30:03] **Jenna:** Yeah, that's kind of scary. I mean, it, it sounds a lot like anti immigrant rhetoric to me.

[00:30:10] **Tim Campbell:** To be honest, I was uncomfortable saying that, but I think you do see a lot of that kind of language in invasive species communication. This definitely compares invasive species to outsiders or others that you don't really want. We'll call this the nativist frame,

[00:30:28] So the militaristic and nativist frames are used all the time and they're based in fear.

[00:30:33] **Jenna:** Okay. So you wanted to get a sense of whether or not fear-based messaging was the best way to influence people. So Tim, how did you go about doing that?

[00:30:45] **Tim Campbell:** Basically we put these messages up on Facebook as advertised posts.

[00:30:51] And we wanted to see if these negative messages, like the militaristic and nativist frames were more engaging than other frames that we use for invasive species communication that are more neutral or even positive.

[00:31:04] **Jenna:** So neutral, even more positive messages. What do those look like and sound like?

[00:31:09] **Tim Campbell:** Well, have you seen those signs that say, "stop aquatic hitchhikers" at literally every boat landing in Wisconsin? Please say yes.

[00:31:15] **Jenna:** Oh yes, absolutely. Yes, yes, yes.

[00:31:18] **Tim Campbell:** So, uh, the hitchhiker message is just one framing that we use that, you know, people are kind of out there accidentally moving invasive species around on

the plants on their boats. And so that's one frame invasive species professionals use. It's more neutral, and it assigns, you know, humans a role in the process.

[00:31:36] And then there's another, you know, we called it the protective message, that you can help protect our lakes. You know, stop zebra mussels.

[00:31:43] **Jenna:** Yeah, that one sounds a little bit more empowering, right? Um, and frames things in a positive light. Like you can make a difference.

[00:31:51] **Tim Campbell:** Definitely. And then the last one we had was just purely sharing aquatic invasive species science. It was, uh, seemed kind of boring and [00:32:00] simple. It just read "zebra mussels impact fisheries and recreation", which is the scientific truth.

[00:32:05] **Jenna:** Yeah. Like just, just the facts, um, which I like and okay. So to summarize here, you had the two fear-based messages, and then there were three that were more neutral or, you know, even positive. And so you took these ads and you put them online in the real world of Facebook to see which one got more engagement.

[00:32:27] And so what did you find? Like, how did the fear-based messages stack up with the more neutral, positive ones?

[00:32:34] **Tim Campbell:** So basically, the fear-based militaristic and nativist metaphors that people were using because they thought they were more engaging - they didn't actually outperform the other messages. In fact, science, which was the more neutral one, performed just as well, and in some metrics the Hitchhiker one worked pretty well too.

[00:32:52] **Bret Shaw:** The main argument for using kind of militaristic or nativist xenophobic metaphors would be that we have to use them because that's what people want and they're more engaging.

[00:33:06] So in testing those, we found that science performed just as well.

[00:33:11] So we're, we're, in essence, sort of undermining the argument that they're more engaging because that's not what we found.

[00:33:18] So what would be the underlying argument for continuing to use those metaphors when they don't appear to work any better? And sometimes they produce unintended consequences. So it just seems like we'd like to encourage people to use those less.

[00:33:33] **Jenna:** So unintended consequences. Like, what are we talking about here?

[00:33:39] **Tim Campbell:** Well, we ended up getting some comments on the ads that made us feel uncomfortable, and Comments that we didn't really want associated with our invasive species prevention program.

[00:33:49] **Bret Shaw:** So if you look at like, say, the nativist metaphor, which is like you know, about "not native, not welcome, keep them out", you know, it's pretty strong.[00:34:00]

[00:34:00] You know, people would go off about immigration issues and different things that frankly weren't the kind of engagement that we would really hope for as people that work in science communication. Whereas the science metaphor, for example, produced more reasonable engagement.

[00:34:16]

[00:34:17] **Tim Campbell:** You know, for the science frame or the protective frame, we had people tagging their friends saying, Hey, look, we do this all the time.

[00:34:24] Or, you know, My lake has a boat inspection program, like, all things that are kind of adding on and being helpful. And yeah, if that's what we get with these more positive frames, I think it begs the question, why would we use militaristic and nativist message frames in the first place?

[00:34:38]

[00:34:43] **Jeanne Scherer:** When I look through the literature, it says that using fear tactics might get an initial response, but it can also just cause people to freeze in place, or it can cause them to give up. If you have boaters coming to the launch that just don't believe there's any way to stop invasive plants from getting into their lake or some little organism, they're not going to clean the boat if they are just giving up. If you don't think you can make a difference because you've been just pounded with these scary messages, you're a lot less likely to.

[00:35:20] **Bonnie:** Jeanne Scherer thinks a lot about the language that we use when talking about invasive species. Her interest in language is informed by her experiences working with boaters and lakeshore property owners through her career in aquatic invasive species.

[00:35:36] **Jeanne Scherer:** I've been out at boat launches and had people come up to me at a, say it's a DNR launch, so it's a public launch, and say, You know what? I, I live on this water body. I pay my taxes and I don't think you should let anybody into this lake other than us.

[00:35:55] And so you start, you get this us against them thing [00:36:00] going between people too. So when you sit and think about it, there's just a lot of good reasons to avoid that fear language.

[00:36:09] **Jenna:** So I'm totally down with eliminating the fear language. I don't need personally any more of that in my life. It's something that I know I have to practice because I'm so used to talking about aquatic invasive species in negative terms.

[00:36:24] So, it's making me think, like, what do we say instead? Like, if, if we're moving away from these negative stories, how should we frame this and moving into the future?

[00:36:34] **Bonnie:** Yeah, exactly. So, I wanted to talk to Jeanne because she's got this interesting role where she works at the DNR and the University of Wisconsin Extension. She no longer works at boat launches, like, on the ground, talking to people every day.

[00:36:48] But she's still in charge of responding to new invasive species. But now she responds with words.

[00:36:57] **Jenna:** Ooh, you mentioned words, so you got my attention.

[00:37:00] **Bonnie:** So whenever a new aquatic invasive species is found in Wisconsin, a press release needs to be written and reviewed, like, Alert, Eurasian watermilfoil was found in this new lake, you know, those kind of things just kind of need to happen. And Jeanne is the one to review those press releases and emails that go out.

[00:37:19] **Jenna:** So what are the things that Jeanne's looking for in these press releases? (example)

[00:37:23] **Jeanne Scherer:** If I'm reviewing someone's text, I will notice the trigger words, like, Something's going to destroy your lake, or Things are exploding across the landscape, you know, trying to tone things down.

[00:37:38] I mean just simple things, like instead of calling a, a patch of curly leaf pondweed in a bay,

[00:37:45] instead of calling it an infestation, we'll call it a population.

[00:37:49] **Bonnie:** So she's actually crafted a set of phrases that are ready to go, that help her explain aquatic invasive species in a scientific way.

[00:37:58] **Jeanne Scherer:** Instead of your anchoring [00:38:00] statement at the beginning of an article or some kind of media, social media, being something about This threat is here, we have to take care of it, it'll, be something along the lines of, If we are maintaining a healthy landscape, the risks of invasive species are lowered considerably, because people are out there working all the time to put in native plants and reduce runoff so the lake isn't going to get filled with extra nutrients that'll spur on more growth of Eurasian watermilfoil or whatever.

[00:38:37] And then we just recently added one based off research, um, for things like, um, Eurasian watermilfoil, starry stonewort: non native species are known to have varying degrees of impacts depending on the specific water body they're found in, and in some cases are able to integrate into a water body to the extent where actual documented impacts are minimal and active management may not be necessary.

[00:39:06] **Bonnie:** So, imagine reading that in a news article, some, some statement that was kind of like, you know, non native species are known to have varying degrees of impact depending on what water body they're found in. How do you think that statement would make you feel?

[00:39:21] **Jenna:** Honestly, um, I feel less likely to push the panic button. Um, I'm more reassured, you know, to hear that there's varying impacts and that it's not the worst possible thing. And in this case, it may not be the worst possible thing. It makes it sound like it's a manageable problem. And also that it's, yeah, it may not be the end of the lake that I love, you know, like, there's, there's hope.

[00:39:44] **Bonnie:** So if you remember at the beginning of this episode, we started out with the story of Little Muskego Lake.

[00:39:54] **Jenna:** Yeah. So that was ground zero for starry stonewort in Wisconsin.

[00:39:58] **Bonnie:** Yeah, exactly. [00:40:00] And back in 2014 when we didn't understand starry stonewort super well, we threw a lot of things at that lake trying to eradicate starry stonewort. And we learned a lot in the process. Here's Paul Skawinski again.

[00:40:15]**Paul Skawinski:** That lake still has starry stonewort 10 years later. But we've learned a lot from not only that lake, but all the other lakes where these different techniques have been tried.

[00:40:24] Uh, I think it's also been very evident that a careful monitoring plan and strategic management will give us better results in the long term compared to this fear-based impulsive management that we've done in the past. I do still think that if a population is found really early, it's a very small population, then I'm absolutely still a fan of going at it right away and pulling the stuff out. But if there's acres of a species, then we do need to take a step back and map it out and observe it for a little bit and see what's it going to do? Is it really going to spread out around the whole lake and cause lake wide issues? Maybe or maybe not.

[00:41:06] **Jenna:** So what approach does Paul advocate for now, for starry stonewort?

[00:41:10] **Bonnie:** He recommends what he calls the wait and see approach.

[00:41:14] **Jenna:** You know, that sounds an awful lot like Pike Lake.

[00:41:17] **Bonnie:** Pike Lake, yep, the nearby lake where they just let starry stonewort be.

[00:41:23] **Bonnie:**

[00:41:23] **Paul Skawinski:** The wait and watch or wait and see type approach, this is basically where we're just closely monitoring the lake to see how starry stonewort behaves in the lake, and, and what type of action we might need to do, if anything. In a lake with a lot of healthy aquatic plants and healthy shorelines and overall just a good healthy balanced lake, it

can often defend itself pretty well against the invasion of a new species. So it's an important technique to try and has been pretty successful in Wisconsin. Um, the, the, the key management tool, I think with not only starry stonewort, but any aquatic invasive species is [00:42:00] prevention.

[00:42:01] If an invasive species is prevented from getting to the new lake in the first place, then obviously we don't have to worry about how to manage it or how much it'll cost because it never got there. And the usual steps of cleaning off a boat trailer and draining water out of the boat and out of the motor and allowing a boat to dry before launching it into another water body, those are all effective against starry stonewort just like they are with any other species.

[00:42:23] **Bonnie:** So, do you all remember Tom Reck, the former lake commissioner who gave years of his life to dealing with starry stonewort day in and day out at Little Muskego Lake?

[00:42:35] **Jenna:** Oh Yeah, Tom. Tom's a hero.

[00:42:38] **Bonnie:** He is. So, I asked Tom, you know, all this time has gone by since starry stonewort has come into his lake, what advice does he have for other lake residents who might be dealing with a new invasive species?

[00:42:52] **Tom Reck:** I think that every lake, every year, all the time, you gotta be doing these, these things. You gotta educate your people, and you gotta make sure that people are not bringing in weeds and, and things from other lakes.

[00:43:09] And so, and you have to do what you can, so that's protecting, and you have to protect your lake from that. And then you, you gotta do, you know, eradication. Uh, you're gonna support your lake.

[00:43:21] And that's what, you know, every lake should have some kind of a group that works that, year in and year out, because things change, right?

[00:43:34] **Bonnie:** This season of Introduced is written and produced by Bonnie Willison, Jenna Mertz, Tim Campbell, and Nicole Angel. Please subscribe, rate, review, and share this podcast with a friend. This podcast is a production of Wisconsin Sea Grant with support from the Great Lakes Commission. Thanks for [00:44:00] listening and see you next time.