Sidedoor Season 6 Ep. 8 Holding Out for a Herring Final Transcription

Lizzie Peabody: This is Sidedoor, a podcast from the Smithsonian with support from PRX. I'm Lizzie Peabody.

Lizzie Peabody: So, let's find a place out of the wind, maybe under the hillside down here. Yeah. We might get...

Matt Ogburn: That's the problem with river valleys. Kind of a wind tunnel, sometimes.

Lizzie Peabody: Yeah. It's a gorgeous day on the Patapsco River, where I'm walking with Matt Ogburn in bright sunshine and a bracing spring wind.

Matt Ogburn: Maybe we can hide behind that big rock, up there.

Lizzie Peabody: Yeah. I like the look of that rock. Today it's park land, a nice place to swim, fish, or crouch behind a boulder to do an interview. But 200 years ago, this river that winds through Maryland and into the Chesapeake Bay was a hub of American industry. Water power from its dams powered flour mills and iron forges just outside the nation's capital. And you won't find any commemorative historical plaque, but it's also the birthplace of Henrietta.

Matt Ogburn: We first met Henrietta in 2017. We think she was probably about three or four years old.

Lizzie Peabody: So, tell me about her.

Matt Ogburn: Henrietta is a pretty fishy-looking fish. If you drew a simple drawing of a fish, that's kind of what she looks like.

Lizzie Peabody: Uh-huh (affirmative).

Matt Ogburn: She's about a foot long, shiny silver. Covered in scales, and a little bit darker brown on top.

[MUSIC]

Lizzie Peabody: Henrietta is a river herring, and Matt is a marine ecologist at the Smithsonian Environmental Research Center, SERC for short. He and his team have been tracking Henrietta for the past four years, so he has a pretty good sense of her life story.

Matt Ogburn: Yeah, so we think Henrietta was born here on the Patapsco River, and then she probably washed out pretty quickly within a few weeks, into Chesapeake Bay. And grew up there, over the summer and fall of that year, so living along the edges of the marshes or just out in the open water of Chesapeake Bay.

Lizzie Peabody: River herring are migratory fish like salmon. They're born in freshwater rivers, and then they swim out to the ocean where they eat and hang out and grow into their adult fishy selves. Then,

after a few years when they're old enough, they travel back to their home river to start their own fish families. There's something kind of sweet about that.

Matt Ogburn: Yeah. They have a home river, which is incredible for a little fish that goes out and lives in the ocean, and doesn't come back to their homeland until they're three or four years old. But they're able to come find it.

Lizzie Peabody: Yeah. For Henrietta, it's a migration of about 500 miles.

Matt Ogburn: She spends the summers probably off of Long Island or Cape Cod, somewhere out there. So it's a long way to swim to come back here, to reproduce.

Lizzie Peabody: Wow, that is quite a journey. And it's a journey she's made several times, because unlike salmon, which spawn only one time before dying, herring can spawn every year of their adult lives.

Matt Ogburn: And, it's a stressful time when they come back into the river to spawn, and come into fresh water.

Lizzie Peabody: What does a stressed fish look... I mean, I don't quite understand.

Matt Ogburn: Well, it's really bad physiological stress. So it's a huge amount of exercise and effort to come here. Going from saltwater to freshwater is a big challenge for them too, really stressful for their bodies. And then they're not feeding as much, and they tend to lose a lot of weight and a lot of muscle while they're spawning.

Lizzie Peabody: In fact, spawning is so stressful, it actually leaves a permanent mark on the fish.

Matt Ogburn: So, the edge of their scale actually erodes a little bit. And so, if all the edges are really clean, you know it's the first time they're spawning. But if they get these growth rings that have really jagged edges on their scales, those are the previous times they've spawned.

Lizzie Peabody: Wow.

Matt Ogburn: So, we can tell, if it's her first time or not, from the scales.

Lizzie Peabody: That's how Matt and the SERC team know that it was Henrietta's first time spawning, when they caught and tagged her four years ago. Since then, they've watched her annual pilgrimage back to the Patapsco River. And this year, she'll be seven. Seven in fish years is like, maybe 70, in human years?

Matt Ogburn: Maybe 70 or 80, in human years. Yeah. She's pretty old.

Lizzie Peabody: Nearing the end of her life.

Matt Ogburn: Except she can still reproduce.

Lizzie Peabody: So yeah. Is fish menopause not a thing?

Matt Ogburn: Not that I'm aware of, for these fish, anyway.

Lizzie Peabody: Okay. They can just go on spawning, until they die.

Matt Ogburn: Yeah. And old female fish tend to be larger, and they produce more eggs than younger fish. So, having an older female fish in the population is really important for reproduction, because they produce more eggs than younger fish.

Lizzie Peabody: Huh. Scientists generally don't like to anthropomorphize animals. So I'll say it. Henrietta's got grit. Just to have survived this long is a feat, but she's getting older.

Matt Ogburn: As she gets older, she might get a little bit weaker, or easier for a predator to catch. That's one of the challenges of being a herring, is that you're prey for a lot of things. So, things like striped bass, bald eagles, or osprey or even blue herons eat them.

Lizzie Peabody: Would a black-crowned night heron eat her?

Matt Ogburn: That's a good question. I don't have the answer to that one.

Lizzie Peabody: Okay.

Matt Ogburn: I haven't seen one out here fishing for her, but certainly, maybe as a juvenile.

Lizzie Peabody: Yeah. Even if the odds are against her, Matt is really hoping Henrietta will show up this year, because seeing her return to this bend in the river would mean more than just a fertile fish friend getting the most out of her sunset years. In the time since Matt last saw her, Henrietta's home river has undergone some renovations, and watching how she navigates the change could tell us a lot about the ecological future of the Patapsco and the fish that rely on it. So this time, on Sidedoor, Waiting for Henrietta. After the break.

[MUSIC]

Lizzie Peabody: Long ago in the American colonies, herring ran wild and plentiful through the Chesapeake region. We know, because George Washington said so. In 1793, he wrote that the shores of the Potomac were well supplied.

Speaker: "... with various kinds of fish, at all seasons of the year. And in the spring, with the greatest profusion of shad, herring, bass, carp, perch, sturgeon, et cetera."

Lizzie Peabody: Washington had three different stations along the river by his home, where enslaved workers netted more than a million fish each season. And for the few weeks each spring when herring migrated up river, past his home at Mount Vernon, the surface of the water was said to sparkle like silver with the bodies of so many fish.

Speaker: "The whole shore, in short, is one entire fishery."

Lizzie Peabody: We don't know exactly how many herring there used to be, but historical records indicate it was enough to write home about. In the early 1700s, a visitor to the colony of Virginia wrote...

Speaker: "In the spring of the year, herring come up in such abundance into their books and fords to spawn, that it is almost impossible to ride out without treading on them. Fancy this, that at this time of the year, the freshest of the rivers stink like fish."

Lizzie Peabody: There were so many herring American colonists use them as fertilizer for crops and fed them to livestock, but they also ate them, as Native Americans had for thousands of years before. George Washington himself chowed down. There's even a replica of the suppertime classic, herring in mustard sauce, on display at Mount Vernon. Today herring is a bit fishy for most American tastes, but Matt Ogburn says, they're still a critical part of the diets of other animals.

Matt Ogburn: They're a very important part of the food web. They're that really critical step between the tiny phytoplankton, microscopic plants and animals that are at the bottom of the food chain, and the predators and things we like to eat, or like to see and conserve. So they're that critical step in the middle, that links those things.

Lizzie Peabody: But in the last century, herring have become increasingly hard to find. The first reason is over fishing. But, the second cause...

Matt Ogburn: Is things like, dams and culverts, things that block fish from being able to access the habitat they need to reproduce.

Lizzie Peabody: To block them from going back upstream?

Matt Ogburn: Yeah. Block them from going back upstream, to the places they spawned and places where they were born.

Lizzie Peabody: Here's the dam problem. As migratory fish, herring lake Henrietta need to be able to get upriver and back down, in order to keep their families going. Dams get in the way of that migration.

Lizzie Peabody: Here on Henrietta Herring's home river, 50 miles from George Washington's house a dam was built in 1907, the Bloede Dam. It generated electricity and worked great for about 20 years, until in the early '30s, it clogged up with river muck and stopped working. And then, like many old dams, it just sat there. A three-story wall, in the river.

Lizzie Peabody: Now, by the 1990s river herring populations had dipped to record lows along the East Coast. And here on the Patapsco, the Maryland Department of Natural Resources realized the Bloede Dam was blocking valuable space for herring to swim and spawn. They needed a way to help the herring over the dam. Luckily, there are a few ways to help fish climb a wall. Here's one.

Alex Haro: They're called fish ladders, because they kind of look like ladders.

Lizzie Peabody: This is Alex Haro. He's a research ecologist with the US Geological Survey, and it's his job to figure out how to get fish up dams safely.

Alex Haro: So, if we have a 12-foot-high dam, we want to break that up into little steps. Maybe each step is only eight inches high. So there are pools that are, each one is higher than the other.

Lizzie Peabody: So, it's almost like stairs.

Alex Haro: It's like stairs.

Lizzie Peabody: Like fish stairs.

Alex Haro: It's exactly like stairs. So, instead of trying to climb over a wall, for a human, it's easier to go up the stairs. And the same way for fish.

Lizzie Peabody: Fish. They're just like us. And just like us, they get tired of going upstairs. So if a dam is too tall, that's when you need a fish elevator.

Alex Haro: Where the fish basically swim into a box, and that box is filled with water and lifted up to the top of the dam, and the fish are allowed to swim out of the box, and into the head pond.

Lizzie Peabody: So, how do the fish know where to swim? How do they know to swim into the elevator, or up the stairs?

Alex Haro: Right. Well, fish have a natural tendency to follow flow.

Lizzie Peabody: Fish follow flow. They know their way upstream, by swimming into a river's current.

Alex Haro: So, at the base of a dam, you create a channel, and you put flow through that channel. And if it's directional, and the flow signal is strong enough, the fish will go in.

Lizzie Peabody: I see. So you have the, essentially water that seems to be coming out of the lift, so that fish swim up into the lift and then they hang out until the lift closes. And they can get lifted, above.

Alex Haro: That's it.

Lizzie Peabody: Okay. And if that isn't marvelous enough for you, just wait until you hear about the fish cannon.

Alex Haro: Right. It's a relatively new development, it was actually developed initially for transporting things like fruit.

Lizzie Peabody: Really?

Alex Haro: Yes. Or other objects, that could be shot through a pneumatic tube.

Lizzie Peabody: The fish cannon actually works a lot like a bank drive-thru, where they fire the little capsule full of checks and cash, and sometimes lollipops, out to your car. Except this one can be hundreds of feet long, and it fires fish.

Alex Haro: Yes. There's negative air pressure on one side and the tube, it actually contracts around the side of the fish, and the fish essentially gets sucked through that tube.

Lizzie Peabody: And safe to say, the media, was thrilled with this.

Speaker: A cannon, that fires fish through a tube, and over a dam, is absolutely incredible.

Speaker: Fired into the sky, these salmon are becoming flying fish.

Speaker: At a speed of 45 kilometers per hour, salmon is shot into the flexible tube like a rocket.

Speaker: Fish gun, or salmon cannon...

Speaker: 40 fish can be fired through the pneumatic tubes a minute, and they come flying out.

Lizzie Peabody: I can't say rocketing through a tube at 20 miles per hour would put me in the mood to spawn, but I'm not a fish. So yeah, there are a few ways to get fish over dams, and back on Henrietta's home river, the Patapsco, Maryland's Department of Natural Resources took stock of their options, and in 1992, built a $1.5 million state-of-the-art fish ladder in the Bloede Dam. Now, Henrietta's forefathers fore-fish? Fore-fish... Could simply climb the stairs up the dam, and swim merrily on their way upstream. Only, they didn't seem to be doing that. So, how well did the ladder work?

Jim Thompson: Not very well.

Lizzie Peabody: This is Jim Thompson, Fish Passage Coordinator for the State of Maryland. Jim says, to use the ladder, the herring have to find it first. Which is actually, really hard.

Jim Thompson: Because the entrance of the ladder is only three feet wide, and the dam is a hundred feet wide, give or take. They're migrating up, and they see the water coming over the dam, and they think that's the way to go. If you're a fish, just imagine how hard it is to find the ladder. You can't just pop your head up out of the water, and see where to go. You've got to navigate through all the turbulence and all the bubbles, and it's just a very difficult thing to do, for a fish.

Lizzie Peabody: Jim made an underwater video to give a fisheye view of the base of a dam. And it's definitely a disorienting place to be.

Lizzie Peabody: Once in the ladder, the herring have a long climb.

Jim Thompson: Bloede Dam was the longest fish ladder in the state. It had several turns.

Lizzie Peabody: And Jim says, the longer the ladder, the harder for the herring.

Jim Thompson: It's more energy expenditure. If you had to carry a weight on your back, a hundred pound weight, and you had to go 200 feet versus 20 feet, it would be much more difficult.

Lizzie Peabody: So, how many herring actually made it up the Bloede Dam? Apparently, none. Matt knows, because he and the team at SERC were keeping track, by looking for herring DNA in the water.

Matt Ogburn: So, this is a method that basically lets us take a bottle of water, and see how many copies of that herring's DNA in there.

Lizzie Peabody: Fish leave DNA in the water as they swim, just as we humans leave behind skin cells and hairs, fish leave scales and slime.

Matt Ogburn: So, we sampled for about three years, with DNA, both downstream and upstream of the dam. And we really reliably detected them, using that method downstream of the dam, in a lot of different sites. But never upstream.

Lizzie Peabody: Without a single trace of herring DNA upstream of the dam, it appeared Henrietta's crew was not about taking the stairs. In spite of the fish ladder, nary a herring could be found upstream of the Bloede Dam, which according to Jim, is not all that surprising.

Jim Thompson: Fish ladders in general, are not very efficient. Some of the most efficient ladders that were studied, there are only about 33% efficient. And what that means is basically, of the fish that want to use it, only about 33% of them can. And that's at a good ladder.

Lizzie Peabody: But here's the thing. Not getting up the dam is actually the best case scenario for some fish, because remember, what goes up must come down. And once herring like Henrietta spawn, they and their babies need to get back to the ocean. How does it get down? Do they just swim over the dam and hope for the best?

Alex Haro: Well, in some cases, that's what they have to.

Lizzie Peabody: Alex Haro, USGS fish guy.

Alex Haro: For a larger taller dam. Obviously that's more of a risk. And especially if you have a hydroelectric facility where, a lot of the water is not flowing over the dam, but going through a turbine.

Lizzie Peabody: And remember how Alex said, fish follow flow? Well the same instinct that helps get upstream, works against them on the way down. At least, when it comes to dams.

Alex Haro: Because it's, you're basically now trying to separate fish from the flow.

Lizzie Peabody: The fish want to follow the flow of the water, sometimes right into hydroelectric turbine.

Alex Haro: If it's a large turbine, with a lot of blades that are spinning very quickly, it's like going through a cheese grater.

Lizzie Peabody: Oh, gosh. What an image.

Alex Haro: Yeah. It's not good.

Lizzie Peabody: Engineers will install nets, or use bright lights and sounds, to scare fish away from the turbines and usher them into streams that let them bypass the dam. But even then...

Alex Haro: Even if they are bypassed, safely, there may be a gauntlet of predators that they have to deal with, once they get out the other side.

Lizzie Peabody: Just like, a bobcat family stationed, right on the other side of the chute?

Alex Haro: Yeah. Or herons, raccoons, cormorants, large fish that eat smaller fish. It can be quite a problem. Downstream passage is a lot harder nut to crack, than upstream.

Lizzie Peabody: We need dams. They're important for humans, and they provide power, but they suck for fish.

Alex Haro: So, when you can, when the opportunity arises to remove a dam, that's always the best solution. If you can, because not only are you mitigating for that barrier, but you're restoring a river. Reconnecting the entire environment. And that means the full suite of fish, and even non-fish species, that might migrate up and down the river.

Lizzie Peabody: So, what did you think when you heard that the Bloede Dam was going to be blasted?

Matt Ogburn: I thought it was pretty exciting, that that they decided to blast it.

Lizzie Peabody: In 2019, nearly a century after it stopped working, the Maryland Department of Natural Resources blew up Bloede, and they recorded it on video.

Lizzie Peabody: It was one of the largest dam removals on the East Coast.

Matt Ogburn: The Bloede Dam was right here. So, we're sort of sitting under these big rocks on the side of the river, which are where the dam was attached. And you can even see some of the holes they drilled, to put in dynamite to blow up the dam.

Lizzie Peabody: Today, it's hard to tell the damn thing was ever here.

Matt Ogburn: So now that the dam is gone, fish have access to about 60 miles of additional river and stream habitat, upstream from here.

Lizzie Peabody: Wow. 60 miles.

Matt Ogburn: Yeah.

Lizzie Peabody: With the dam gone, herring like Henrietta will have access to whole stretches of river they've never even seen before. It's like going away for the summer, and coming home and opening up your closet, and finding a whole new world inside. So, what will the herring do with their Narnia? This is what Matt and the team are figuring out. After the break.

Lizzie Peabody: We're back, on the Patapsco River in Maryland, where just two years ago, the Bloede Dam was blasted. Matt Ogburn and the herring team at SERC have been keeping track of herring populations on this river since before the dam was dynamited. And now that it's gone, they'll have a

chance to see what dam removal means for river herring like Henrietta, who need to migrate upstream in order to reproduce.

Matt Ogburn: The big purpose of our tracking project is to see how individual fish are using the river. And if those individual fish are moving up past where the dam used to be, and if they're doing it in multiple years, since these are fish that we know come back from year to year for several years, to reproduce.

Lizzie Peabody: So how do you track herring? Well, you have to tag them, but first you have to catch them.

Matt Ogburn: A little bit of a path, along the river. I'm sure a lot of people come and fish here.

Lizzie Peabody: This is like, where urban meets rural.

Matt Ogburn: So, I don't know. We just need to find a good spot.

Lizzie Peabody: Okay. And then they'll come... Oh, I see them.

Matt Ogburn: Yeah. They're right down there.

Lizzie Peabody: A short distance downriver, right next to a highway overpass, biologist Rob Aguilar and research technician Kira Heggie are piloting SERC's electrofishing boat.

Matt Ogburn: The boat's not on right now, but when they turn it on, so they just turned on the generator.

Lizzie Peabody: Oh, I hear it.

Matt Ogburn: It gets plenty loud, when they come by.

Lizzie Peabody: Okay.

Lizzie Peabody: Now, electrofishing is like no fishing I've ever seen before. It's electric.

Lizzie Peabody: The boat would look like a standard flat bottom fishing boat, except suspended off the front of it are these two claws-like contraptions, dangling electrified metal chains into the water. The chains create an electrical field around the boat.

Lizzie Peabody: Wait. So if I were to put my finger in the water right now, would I feel the electricity in it?

Matt Ogburn: You might not feel it right now, but if you did it when came by, you'd get a pretty decent little shock, like sticking your finger in the electric socket.

Lizzie Peabody: Oh boy. Okay. I'm not going to fall in the water.

Lizzie Peabody: When fish swim into the electrified zone around the boat, they get temporarily stunned. They stop moving and float to the top of the water. Kira, standing at the front of the boat with a super long net, scoops up the stunned fish.

Matt Ogburn: ….fish.

Lizzie Peabody: Oh, oh wow. Oh, she's...

Matt Ogburn: So there, she's...

Lizzie Peabody: She's quick.

Matt Ogburn: She's good at this.

Lizzie Peabody: You've got to have strong back muscles. That is a long net.

Matt Ogburn: So, she just caught, it looked like a herring, there. Little silver fish.

Lizzie Peabody: She plops the fish into a water tank on board. Where, now out of the electrical field, it springs back to life. We watch from the bank, as the rig goes by. Rob steering, Kira scanning for stunned herring. The whole time, these ominous suspended chains dragging through the water. If Mad Max had a boat, this would be it.

Lizzie Peabody: Oh my gosh.

Lizzie Peabody: The tag team snags three herring, and then ties up to shore, so they can tag the fish. Now, I had figured tagging a herring would probably mean sticking a little tracker on its fin, or something. But in fact, the tag needs to go inside the fish's body.

Kira Heggie: Okay, equipment: tags. Ethanol for tags.

Lizzie Peabody: Here Kira is, getting ready to operate.

Kira Heggie: That's in all, four tags. Glove, glove, gauze, alcohol patch.

Lizzie Peabody: It's like watching a doctor show, except the surgeon is straddling the operating table, which is actually a bench on a boat. And the patients are fish, swimming around their holding tank, awaiting the scalpel.

Kira Heggie: Okay. Scalpel. You good?

Rob Aguilar: Yep.

Kira Heggie: Okay. Who wants to go first?

Rob Aguilar: So now we're going to pull a fish out of the live well, scan it to see if it's been previously tagged.

Kira Heggie: Okay. Measure the fish.

Lizzie Peabody: Kira lays the fish on a measuring board.

Kira Heggie: 24.

Lizzie Peabody: Rob takes notes.

Kira Heggie: And, 257 total length. And... Male.

Lizzie Peabody: She gives the fish a little squeeze, to see what comes out. White sperm means male, yellow eggs mean female.

Kira Heggie: Inserting the scalpel. Removing the scale.

Lizzie Peabody: Kira plucks a scale from the fish's side, pierces the skin with the scalpel and then slides this tiny bullet-shaped tag into the herring's body.

Rob Aguilar: And now, I'm inserting the tag.

Kira Heggie: Fish goes in tank.

Lizzie Peabody: The whole thing takes about three seconds.

Rob Aguilar: Got it?

Kira Heggie: Happy fishy. Okay. Who's up next?

Lizzie Peabody: Rob and Kira work quickly as a team, partly to reduce stress for the fish, partly because they've done this thousands of times. The SERC team has tagged more than 1200 herring in the Patapsco River alone. The information they're gathering on each fish is logged and linked to that fish's unique tag number.

Matt Ogburn: Yeah. So, each fish tag has a different number, and these tags are sort of like the microchips for your pet, or the E-Z Pass, for your car.

Lizzie Peabody: The E-Z Pass analogy is actually a great way to think of it, because that's basically what this is. Except, instead of cars on a highway passing through a sensor to pay a toll, they're fish on a river passing checkpoints that alert the SERC team to their location. Matt shows me one.

Matt Ogburn: You can probably see the E-Z Pass best from here, about halfway down the bank?

Lizzie Peabody: Oh, yeah.

Matt Ogburn: There, you can see these two orange wires going into the water here on the close shore, and then stretching across the river. It's not exactly a straight line, because the current's pushing it a little bit downstream in a few places, but extending across the river all the way to the other side.

Lizzie Peabody: Oh yeah, I totally, I see it now.

Matt Ogburn: Yeah.

Lizzie Peabody: When the fish swims over the wires, it's little tag number is recorded. This is how Matt has been able to keep track of Henrietta over the years, watching her beep through the river checkpoint each spring.

Matt Ogburn: It's always exciting when we see her again, because we just, we come out here a lot and are downloading data from our instruments, with this long string of numbers. And when you see a number that's familiar, it's really exciting.

Lizzie Peabody: It's like seeing a familiar face in a crowd.

Matt Ogburn: Yeah, it is.

Lizzie Peabody: And right there on the side of the river, he whips out his laptop and pulls a number from his spreadsheet.

Matt Ogburn: And, this, here-

Lizzie Peabody: …kind of like someone might pull a photo out of their wallet.

Matt Ogburn: ... fish numbers. So, her number is 523614. So you can see her, right here. And it says she was here on April 10th, 2019.

Lizzie Peabody: That was the last time you saw her.

Matt Ogburn: That's the last time we saw her. Yep.

Lizzie Peabody: If Henrietta was here last year, Matt wouldn't know it, because the pandemic prevented the team from installing any fish E-Z Passes. But this year they're hoping to see her again this time, for the first time ever, upstream of the old Bloede Dam.

Matt Ogburn: I think it would mean a lot, to see Henrietta. She's one of the fish that was born when the dam was still here, and potentially one of the first to come back and reproduce in this new habitat, now that it's gone.

Lizzie Peabody: So far all we know, I'm looking out at this river. Henrietta could be here, not far from us, right now.

Matt Ogburn: Yeah. Yeah. She could be right out here. This is the time of year we expect her to be here.

Lizzie Peabody: Do you think that she'll come back?

Matt Ogburn: I think there's a chance she'll come back, but I would guess, maybe less than 50, 50 chance this year that she makes it back.

Lizzie Peabody: Less than 50%. But you're watching.

Matt Ogburn: We're watching.

Lizzie Peabody: She hasn't made an appearance yet. And if she doesn't, it probably means she's serving her vital role in the middle of the food web. But even if Henrietta doesn't make her triumphant return Matt is hopeful a new generation of herring, some of them Henrietta's babies and grand babies, will begin to reclaim this part of the river, that was once theirs.

Matt Ogburn: It'll take a few generations maybe 10 years or so, before we can really see a measurable increase in the size of the population. But the first thing to look for is the first herring that's caught upstream of the dam, so that we know that they're actually using that habitat that's up there.

Lizzie Peabody: And this, we're already seeing. Since I interviewed Matt, the first herring on record was found upstream of the old dam, which Matt says is a great indication of what's to come, not just for the Patapsco River and not just for river herring, but for migratory fish in dammed rivers everywhere.

Lizzie Peabody: You've been listening to Sidedoor, a podcast from the Smithsonian with support from PRX. For pictures of our excursion on the banks of the Patapsco River, including that electrofishing rig, check out our newsletter subscribe at si.edu/sidedoor. You can also follow us on Twitter and Instagram, @sidedoorpod.

Lizzie Peabody: Special thanks this episode to the Smithsonian Environmental Research Center team, including Matt Ogburn, Kira Heggie, Rob Aguilar, Kim Richie, and Dave Norman. Also, to Dr. Louis Plough of the University of Maryland Center for Environmental Science, Jim Thompson from the Maryland Department of Natural Resources, Alex Haro of the US Geological Surveys, Silvio Conte Anadromous Fish Research Laboratory, which is part of the USGS Eastern Ecological Science Center and to Karin Limburg. Extra special thanks to Jonathan Austin and to my dad, David Peabody, for channeling his inner George Washington.

Lizzie Peabody: Our podcast team is Justin O'Neill, Nathalie Boyd, Stephanie DeLeon Tzic, Ann Conanan, Caitlin Shaffer, Tami O'Neill, Jess Sadeq, Lara Koch and Sharon Bryant. Episode artwork is by Dave Leonard. Extra support comes from Jason and Genevieve, at PRX. Our show is mixed by Tarek Fouda. Our theme song and episode music are by Breakmaster Cylinder. If you want to sponsor our show, please email sponsorship@prx.org.

Lizzie Peabody: I'm your host, Lizzie Peabody. Thanks for listening.

Lizzie Peabody: That's so efficient.

Rob Aguilar: Mm-hmm (affirmative), and you notice there's a bunch of-

Kira Heggie: Leeches.

Rob Aguilar: Fish leeches.

Lizzie Peabody: Oh, wow. Oh, gross.

Rob Aguilar: Well, they're cute in their way, you can...

Kira Heggie: Okay-

Lizzie Peabody: Ew.

Kira Heggie: ... off you guys go.