

**SYDNEY** I'm Sydney.

**WIDELL:**

**BONNIE** And I'm Bonnie.

**WILLISON:**

**SYDNEY** And this is *Introduced* from a Wisconsin Sea Grant.

**WIDELL:**

**BONNIE** We have some great episodes coming for you. But before that, we have a little appetizer.

**WILLISON:**

**SYDNEY** Shall we say a taste of what's to come?

**WIDELL:**

**BONNIE** Speaking of taste, did you know there's a lot of aquatic invasive species that you can eat? I would love to try Red Swamp Crayfish, the infamous crayfish species that is invasive here in Wisconsin.

**WILLISON:**

**SYDNEY** Yes, if we could just set up a crayfish boil that would be really fun and I would come over. We could do that in your backyard.

**WIDELL:**

**BONNIE** Well, it's kind of illegal to have them here, but yes, I should say they're not invasive yet here in Wisconsin, but there have been some scares. But they're native to the Gulf Coast, and they're common in crayfish boils because they're really big and delicious.

**WILLISON:**

Also, water hyacinth, this invasive plant that grows in really dense mats on the top of the water, I guess the leaves can be steamed or sauteed, or you could take the bulb and you can roast it and deep fry it. Also, all of our French listeners will have to chime in and respond here, but I have heard that lamprey-- with suction cup mouths full of teeth-- they're eaten in France, and I've also heard that lamprey pie is an old English recipe. Also Native American tribes on the Pacific Coast eat sea lamprey.

**SYDNEY** Well, yes, and also when we talk to Kelsey Taylor from the Fond Du Lac Band of Lake Superior Chippewa, she gave us this recipe for snail salsa, which she makes from introduced snails in the Lake Superior area.

**WIDELL:**

**BONNIE** The fact that some of these species are edible and commonly eaten by people, it raises a lot of questions. For example, the four species of invasive carp-- silver, bighead, black, and grass carp-- they are super, super abundant in the places that they've been introduced to, like in the Midwest. So they're a really abundant, accessible source of protein for people. So why let that all go to waste?

**WILLISON:**

**SYDNEY** Yes, it's really frustrating to think about. But on the other hand, a lot of people think that we should not be trying to make these species sustainable food resources. And if you start to create a taste for any of these species, that could create a situation where maybe they're getting moved around and being spread to more places where they haven't been introduced yet.

**WIDELL:**

**BONNIE WILLISON:** Yes, sometimes if we try removing a lot of a certain invasive species to bring the population down, it kind of backfires. Removing a lot of species can then just open up more habitat resources to the ones that are left, you know, so in some rare cases invasive species have rebounded to larger levels than they were before.

**SYDNEY WIDELL:** That's so interesting. Bottom line is there are always consequences to things like this, and yes, it takes a lot of forethought and--

**BONNIE WILLISON:** Yes.

**SYDNEY WIDELL:** Yes, there's risk involved, I guess. Learning from non-local beings and looking to their home ranges for guidance is a practice some indigenous cultures are advocating for.

**BONNIE WILLISON:** Some of the tribal knowledge holders we talked to from around the upper Great Lakes are proponents of finding a use for beings if you have to remove them. So what we're talking about is not a new idea. And it's not an idea that we can really take credit for either.

**SYDNEY WIDELL:** Yes.

**BONNIE WILLISON:** You know, I still don't ever want to see potential food going to waste when there are people that are hungry.

**SYDNEY WIDELL:** And we see this all the time with aquatic invasive species management. The one example that is so obvious to me is the carp harvest.

**BONNIE WILLISON:** Exactly when silver, bighead, black and grass carp are harvested out of lakes, rivers that we don't want them in, they're usually used for things like dog food, or fertilizer, or bait for crabs or lobsters, which is good that they're not going to waste but sometimes it ends up that they're just thrown out. They're just thrown into dumpsters, these tons and tons of fish.

That's really ironic and kind of troubling because in their native range these four fish species are a really popular and delicious food source for people. They're really prized culturally in China.

**YUSHUN CHEN:** Especially in the past there are still recently people here view the silver carp and bighead carp like you guys view chickens. That's the same thing.

**BONNIE WILLISON:** That was Dr. Yushun Chen from Wuhan, China and we talked to him for episodes four and five of *Introduced*.

**SYDNEY WIDELL:** I wanted to get a taste of carp for myself, so we connected with Captain Nate Wallick who runs Peoria Carp Hunters which is this bowfishing charter down on the Illinois River, and so I made plans to go down there with a few of my friends. The part of the Illinois River that runs through Peoria has the highest population density of Silver and Bighead Carp anywhere in the world, including the native range in China.

So we went down to the river and we ended up going bowfishing with Captain Nate on his *Carpocalypse* pontoon and that was a wild adventure. We talked about that last episode. In the end I did what I came to do, which was catch one carp.

**BONNIE** That's so exciting.

**WILLISON:**

[AUDIO PLAYBACK]

**SYDNEY** Is this on?

**WIDELL:**

**BONNIE** Yes.

**WILLISON:**

**SYDNEY** OK. I'm in my kitchen right now and it's kind of loud, there are a lot of cars outside. Yes, but I'm about to filet my  
**WIDELL:** very first fish. I'm kind of scared to be honest. I'm a little nervous.

[END PLAYBACK]

**BONNIE** So you had never filleted a fish before?

**WILLISON:**

**SYDNEY** No, this is my first one.

**WIDELL:**

**BONNIE** I can't wait to hear about it.

**WILLISON:**

**SYDNEY** And it was a carp which I feel is just the very worst place to start. Yes so if you're listening to this and you filet a  
**WIDELL:** lot of fish in your life, please don't make fun of me I was just doing my best, but yes, it was a whole process. And  
actually I had two carp, so--

**BONNIE** How did you end up having two carp?

**WILLISON:**

**SYDNEY** I netted one, and my friend Allison got one with a bow and arrow.

**WIDELL:**

**BONNIE** And she didn't want hers?

**WILLISON:**

**SYDNEY** No. She entrusted it to me. So it's just past 6:30 at night when I got started. Traditionally these carp are cooked  
**WIDELL:** whole.

**BONNIE** Yes, I remember when I talked to Duane Chapman from the USGS and Yushun Chen, they both mentioned a dish  
**WILLISON:** called bighead carp soup that is popular in China. Is that how you are making it?

**SYDNEY** Yes-- no. I wanted to try a little fish fry. So I had the carp out in front of me on the kitchen counter on this cooking  
**WIDELL:** shift next to the sink. I definitely did not have the right setup for any of this. I was borrowing my roommate's filet  
knife. So I was on the counter next to my kitchen sink. The carp was pretty big. It was about as long as the cookie  
sheet I had it on, and kind of heavy, and it was just lying there staring up at me. It was weirdly intimate.

[AUDIO PLAYBACK]

**SYDNEY** I was warned that this carp was going to be really slimy and kind of bloody, but for the record it's not it's really  
**WIDELL:** clean. OK, I have a tape measure. Snout to tail this carp is 21 and 1/2 inches. I don't know if that's big for a carp. I think relative to other fish that is kind of large. Compared to a Bluegill that is quite large. Let me know if I caught a big carp, OK?

[END PLAYBACK]

Yes, wait Bonnie have you ever filleted a fish before?

**BONNIE**  
**WILLISON:** Um, I never have

**SYDNEY** OK. I've gone fishing and eaten fish that I've caught, but I guess there's always been someone at this specific  
**WIDELL:** stage, at this step. For me the fish has always just gone from the lake and then to my plate, and I am removed from this part. Yes, right now there's just like a huge fish in front of me and I don't really know what to do with it, and I'm super nervous.

[AUDIO PLAYBACK]

**SYDNEY** Oh my God, Oh my God, Oh my God, I just-- Ahh! I just did it. OK. I don't think I'm doing this right.  
**WIDELL:**

[END PLAYBACK]

So this video I was watching it was like, do it like how you would cut up a tilapia, and I was-- like I obviously don't know how to do that. So that turned into me you're going down this half an hour long rabbit hole of watching people cutting up different types of fish.

**BONNIE**  
**WILLISON:** My gosh.

**SYDNEY** And so at this point my roommate, Lulu, she came downstairs and she gave me moral support and I can be kind  
**WIDELL:** of a perfectionist about stuff to the point where I don't even want to start doing something because I'm too afraid of messing it up. And I was definitely feeling that way about this fish, like she kind of helped me make peace with the fact that it was not going to be perfect, and that was OK.

So I was just kind of standing around for a really, really long time, trying to get the nerve up to make the first cut.

I found a YouTube video we're going to watch real quick.

[AUDIO PLAYBACK]

Brian is going to go in he's going to make a cut very similar to how you would filet a tilap--

[END PLAYBACK]

**SYDNEY** So I cut the first filet off and I descaled it by sliding my knife right underneath the skin, and that kind of got all  
**WIDELL:** the skin off.

All right, for everyone keeping track I've been doing this for roughly one hour. I'm one side of one Carp in. That's OK, the night is young. Getting a little hungry though.

**BONNIE** How is it taking a whole hour to do--

**WILLISON:**

**SYDNEY** Bonnie, I don't know why it took so long. So I wound up-- it got faster, the first one definitely took the longest, but

**WIDELL:** I wound up with two filets. I had one from each side of the fish.

**BONNIE** Yes, carp are actually a pretty nutritious food, right? Compared to most fish they have a lot of protein and omega

**WILLISON:** 3 fatty acids.

**SYDNEY** Yes, I've heard that too, and they're really clean. Because they're just filtering tiny little organisms out of the

**WIDELL:** middle of the water they don't end up with as many contaminants in their body as like maybe a fish that bottom feeds, or a fish that's higher in the food web eating a lot of other little fish.

**BONNIE** Right, like the fish that end up eating kind of off the bottom get a little bit of contaminants and then fish that eat

**WILLISON:** them get a little bit more, and the fish that eat them get a little bit more, and that's called biomagnification. But carp, they are just-- they're filtering plankton out of the water, and sometimes eating vegetation as well. So they're not getting those contaminants.

**SYDNEY** Yes, like all the little fish you eat, they add up and humans have to be careful of that too. One thing I read was

**WIDELL:** that there is a stripe of red meat down the middle of the silver carp filet, and when you think about a fish having kind of like a pungent, fishy taste that is associated with that red meat. So you cut out the red meat and then that's gone, and then also that red meat stores a lot of the contaminants that you'd be worried about. So I cut that part out.

**BONNIE** So I've heard that carp have a lot of really tiny, tiny bones in them, and I've heard that kind of thing turns

**WILLISON:** Americans off to the fish a little bit because apparently we're more picky about no bones in there in the filet. We want our filets boneless and pristine, but you know plenty of people around the world eat these carp and you can just eat the bones because they're so tiny, or you can pick them out. So did you notice this about the fish?

**SYDNEY** Oh, absolutely. They were so bony. And again, I don't really have a huge frame of reference for this, but yes,

**WIDELL:** there were a wild amount of bones in this filet. One thing though that you can do that's a solution if you don't have the patience, or want to deal with this, is you can just grind the filet up and there's nothing wrong with eating the bones other than the fact that their pointy. So once it's all ground up you can use that in fish tacos or as a fish filet. I didn't have the tools to do that though, but I probably would have.

[AUDIO PLAYBACK]

**SYDNEY** There are so many bones. That was the other thing I was warned about and that was not an exaggeration.

**WIDELL:**

[END PLAYBACK]

**SYDNEY** Yes, I was pulling out these tiny bones that were the thickness of a strand of hair, and that was probably what

**WIDELL:** was taking me the longest.

[AUDIO PLAYBACK]

**SYDNEY**  
**WIDELL:** Like the filleting didn't take that long but picking the bones out has been a process that I think I'm going to abandon very soon, and just eat around the bones.

[END PLAYBACK]

**SYDNEY**  
**WIDELL:** So as I'm getting ready to start on the second fish my roommate Ben got home. And Ben actually knows a ton about fishing, and he's basically a trout whisper. So I was kind of hoping that I could convince him to clean out-- to prepare the second carp for me.

[AUDIO PLAYBACK]

**SYDNEY**  
**WIDELL:** Is this what you were expecting?

**BEN:** I wasn't-- I don't know. It looks like its head's on upside down. I wasn't expecting this to happen inside when I--

**SYDNEY**  
**WIDELL:** [LAUGHING]

**BEN:** I was like, if Sydney wants to do that we can do it out on the porch.

**SYDNEY**  
**WIDELL:** Do you have any words of advice for me?

**BEN:** I would love to watch.

[END PLAYBACK]

**SYDNEY**  
**WIDELL:** But Ben also just started rolling up his sleeves and I passed him the filet knife. He did get started, even though I kind of ambushed him with that, and he had a way different approach than me, and he made it look really easy and effortless.

[AUDIO PLAYBACK]

**SYDNEY**  
**WIDELL:** When was the last time you filleted a fish?

**BEN:** Probably like a month ago.

**SYDNEY**  
**WIDELL:** What was it?

**BEN:** A Brown Trout.

**SYDNEY**  
**WIDELL:** Where'd you get it?

**BEN:** Undisclosed location. I don't know who's going to hear this.

[END PLAYBACK]

**SYDNEY**  
**WIDELL:** Ben said that this is trickier than Brown Trout though because of all the bones.

[AUDIO PLAYBACK]

**SYDNEY**  
**WIDELL:** Is this fun for you, or is this like a chore?

**BEN:** No, this is fun. It's kind of like interacting with the food that you're going to eat. And kind of just seeing the process, it kind of makes you think that this happens every time you eat fish but you don't really think about it.

[END PLAYBACK]

**SYDNEY**  
**WIDELL:** Yes, the whole process-- I thought the process was going to take like 10 minutes and then we'd be eating dinner. And Ben said that that happened the first time he filleted a fish too.

[AUDIO PLAYBACK]

**BEN:** OK, the first fish that I ever filleted was a Walleye, that I caught on a study break in finals week, sophomore year. We were going to go fishing for like 20 minutes, and then go back to the library. Then we caught all these Walleye, and then Gus taught me how to fillet them. Then four hours later we had fish fry, and we didn't study.

I have no regrets at all because that put me path to where I am now filleting this fish. That led to a summer of a lot of fish eating.

[END PLAYBACK]

**SYDNEY**  
**WIDELL:** So at this point my other roommate Max came home. I started mixing up beer batter and then I put him in charge of the fry, so I was dipping and he was frying. I also roasted some potatoes, and sauteed some red cabbage.

**BONNIE**  
**WILLISON:** So how long has it been at this point since you started?

**SYDNEY**  
**WIDELL:** It's been about four hours.

[AUDIO PLAYBACK]

**SYDNEY**  
**WIDELL:** All right. It is 10:15, and we are about to start frying.

[END PLAYBACK]

**SYDNEY**  
**WIDELL:** Oh yes, so at this point everyone else is on their way up to bed, so it's just me and Max. We're the only people left in the kitchen like five hours later when all the food is ready. I asked Max what he thought.

[AUDIO PLAYBACK]

**MAX:** It was really tender. It was a little bony, but good fish. I can't remember the last time I had a good fish fry.

**SYDNEY** Do you think you'd eat it again?

**WIDELL:**

**MAX:** Definitely. It was a little bony.

**SYDNEY** I put in exactly zero effort into taking the bones out. Well no, actually that's not true. I'll give myself some credit.

**WIDELL:** I deboned half of a filet and then I decided that that would be a problem for future Sydney.

[END PLAYBACK]

**BONNIE** So did you eat the bones and what was it like? Was it just a little bit of *crackly* or--

**WILLISON:**

**SYDNEY** Um, you can tell when you're eating them because they're kind of sharp so I would just like spit them out but that did turn into me like very carefully chewing, and then-- yes, it was super good though, and it felt really rewarding to have done the whole thing and seen this carp from start to finish.

**WIDELL:**

Lulu also came downstairs and she snagged a few potatoes

[AUDIO PLAYBACK]

**LULU:** Loved every second of it, to be honest with you. I have taken a very-- it's been a very back-seat experience for me, but I've loved riding in the back.

[END PLAYBACK]

**SYDNEY** So I thought the carp was really good, which had me kind of surprised. One, because I felt like there had to be a reason why I don't hear about more people eating carp, that's not more why-- main stream here. I felt like there should be a reason for that and I don't know what that reason could be, because it was really good. And then I was also surprised because it was really good, and I was the one who prepared it and I had absolutely no idea what was going on.

**WIDELL:**

So yes, I guess it's just foolproof, anyone can do it.

**BONNIE** Or you're a natural chef.

**WILLISON:**

**SYDNEY** [LAUGHING] Or that.

**WIDELL:**

**BONNIE** You really had a team of roommates there at your beck and call--

**WILLISON:**

**SYDNEY** Yes, I was pretty lucky.

**WIDELL:**

**BONNIE** To prepare this meal.

**WILLISON:**

**SYDNEY** Yes, I don't think anyone really was too stoked to come home and have me with two large fish in the kitchen. But  
**WIDELL:** yes, everyone was pretty generous with their time and it was fun. We all had some good laughs about it.

And the whole four hours it took me to get this fish ready, I did have some time to really think about it and I found myself getting really mad and frustrated. Think about potentially how undervalued these fish are, and how we could be easily connecting these fish to people who need them and we're not doing that really.

I know, I just get the sense that a lot of these fish get wasted when they got removed from the river. As I was eating the fish I was just thinking about that, and it's kind of like really making me mad. And also a little bit ashamed to think about how these fish are so valued in their home range, and here we just are kind of disrespectful of them.

**BONNIE** Yes, I get that. Duane from the USGS was saying that he's tried to kind of educate people on carp and that  
**WILLISON:** they're a really delicious food. He'll give people a sample of fish and they'll say, it's really good, and then he'll say that this is carp and people will spit it out.

You know, they're not-- they're probably not trying to be disrespectful but these fish are delicious, they're nutritious, they're abundant, they're culturally revered in their home range and we can be kind of disrespectful to them maybe just because they're like outsiders.

It feels really irresponsible to let any of these fish go to waste. And then they are used for things, like they are used for fertilizer, they're good for dogs to eat as well, so that's good. But I think we're-- I wouldn't want to exclude some ways of getting people nutrition.

**SYDNEY** And then also what Ben was saying about the process. Knowing what the step-- the step that I feel like I've  
**WIDELL:** always been removed from-- knowing what that step is, and being present to it and witnessing it, that felt really powerful to me. And--

**BONNIE** Me too.

**WILLISON:**

**SYDNEY** There are a million reasons why it's important to know where your food and especially your meat comes from. It's  
**WIDELL:** easy to buy meat, I think, and not consider that this came from something that was alive and-- yes, that whole thing.

**BONNIE** Yes.

**WILLISON:**

**SYDNEY** That story just becomes infinitely more complicated when what you're eating is a quote unquote *invasive*  
**WIDELL:** *species*. These fish, how they got here, and what that means.

We've met so many people whose lives have been transformed in some way by silver carp. Like the engineers, and the scientists, and the people who work in these commercial and recreational harvest industries, and the people whose lives have been upended by the fact that these fish just have free reign of the rivers.

Rivers that have a completely new ecology now because the fish is in them, and all the money and investment that's gone into transforming places along the rivers-- I'm thinking about the carp barricade just to make sure that this fish doesn't spread any further.

All of that feels contained in the fish that's just sitting on my counter. And so I was thinking about that a lot as I was cutting it, and I hadn't really reflected on the way all of those pieces and stories fit together until then really.

**BONNIE**  
**WILLISON:** Also these ideas that we've been talking about-- a lot of indigenous people and groups are at the forefront of this idea of when something non-native is introduced, finding a way to learn from that species, finding a way to use that species for the benefit of people. Like Kelsey and the Fond Du Lac Band of Lake Superior Chippewa finding a way to control these really abundant, nuisance snails that were in their lake, and figuring out how to use them for other purposes.

Many tribes in the upper Great Lakes are already doing this work, and I think that if we were really to explore making introduced species a more readily available food source we need to follow their lead.

**SARAH SMITH:** Shekoli, My name is Sarah Smith, I'm from the Oneida Nation in Wisconsin.

**BONNIE**  
**WILLISON:** We had a relevant conversation that I remember back in Episode 9 with Sarah Smith. If you need a refresher, Sarah talked about a story she heard about introduced cattails.

**SARAH SMITH:** And I know one elder was talking about the invasive cattails, and instead of digging them all up, going to burn them, maybe we should learn what they could be used for. We should learn from them instead of waging a war on the species and the beings out there that aren't originally from here.

**JERRY**  
**JONDREAU:** [OJIBWEMOWIN]

My name is Jerry Jondreau, I'm from the Keewenaw Bay Indian Community.

**BONNIE**  
**WILLISON:** And we also talked to Jerry Jondreau. He reminded us that non-local beings are indigenous to someplace, they're local to some place.

**JERRY**  
**JONDREAU:** They're indigenous to a place and there are people there that have a better understanding of who that being is. And so instead of initially saying, well you're not from here, you don't belong here, we're going to rip you up and throw you away, why don't we have cultural transmissions and cultural migration, as well right?

If there's a new being that comes into our forest here, instead of just trying to rip them out and and throw them away, maybe go talk to the people that have a really good relationship with that tree species. How do you guys utilize this tree species, or what does it do? What are some of the things that you could tell me about that tree that would make it beneficial to our life and our existence?

**BONNIE**  
**WILLISON:** Jerry reminds us that transfers of knowledge between cultures should be approached respectfully because knowledge isn't something that should be extracted or demanded.

**SYDNEY  
WIDELL:**

In the year we've spent reporting on silver carp and other species of Asian carp I've heard a lot of stories that have left me feeling pretty anxious about the future, afraid for the day when these fish might make it to the Great Lakes. But this fish was also dinner for people and now I feel way more connected to it and also connected to this whole web of relationships.

Silver Carp are going to mean something different to everyone, but for me the process also meant spending a day on a beautiful stretch of river with some of my closest friends. And then I got to cook the fish with all of my roommates and it was just a really lovely night and we all hung out, and enjoyed this fish together.

None of this outweighs the ecological harm that these fish are causing and there is still so much at stake, but for the first time I also felt gratitude.

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