

BONNIE Can you describe what we're looking at right now?

WILLISON:

HALI JAMA: Right now, we're looking at this milky broth from the fish. We have some tofu in there also cooking. The fish and I are currently making eye contact. And yeah, it's just boiling and--

BONNIE If you couldn't tell, we're cooking some fish today. So Hali, where did you get this recipe that we're making right now?

HALI JAMA: We got it from Judy Yan. We met and she told me about one of her favorite Chinese fish recipes.

JUDY YAN: A typical recipe I would make is the fish with tofu. So you would put the ginger-- can get rid of the fish smell, right? And then you put the fish inside and boil the fish with water. And once the fish-- the soup becomes a little bit of whitish like milk color. And then you put the tofu inside. Cube the tofu and then cook it for like five, six minutes. The tofu is very tender, and you put the Chinese onion, the onions inside. And then that's it. Put some stock and it's very fresh, very simple.

HALI JAMA: Immigrants and refugees bring their food habits with them to their new home. This includes their love for fish or maybe their favorite fish soup recipe. But what happens when immigrants rely on fish from contaminated waters? Today, we learn about fish consumption amongst Asian women in Milwaukee, learn how to eat fish safely and make our first pot of fish and tofu soup. From Wisconsin Sea Grant, I'm Hali--

BONNIE And I'm Bonnie.

WILLISON:

HALI JAMA: --and you're listening to the water we swim in, stories about the Great Lakes, and the people working towards equity.

BONNIE Wisconsin Sea Grant is based at UW Madison which occupies the traditional land of the Ho-Chunk people. The story is on this podcast span area we now know as Wisconsin where the lands and waters are cared for by the 12 native nations that call Wisconsin home.

JUDY YAN: So my name is Judy, and I moved to the United States in 2010 through my job. So I used to be a global marketer. So I joined the Milwaukee Chinese community as the Chinese teacher in 2017. And after two years, actually I took over as the principal of a long heritage Chinese school is called Cricket. That's how I got involved into the Chinese community as a board member till now.

BONNIE Judy moved to the US in 2010, and she lives with her husband and kids in Milwaukee. And throughout her time here, she's noticed some differences in the way that fish are treated in the US and in China.

JUDY YAN: Fish in China-- basically, we treat the fish's part differently. And the fish head, as I said, is very popular. We steam the fish head, we cook a soup with fish head, and the body of the fish, kind of like fillets and we kind of cook it differently as well. But the US, I think fish is like you only eat the flesh. There's not even bones in this.

For example, my husband traveled to China with me and he doesn't like the fish in China at all because they are always fish bones in the fish, and he just doesn't like it. And so I think that's a distinction. We like fish in the original structure. I would say more variety of way to cook fish in China than here.

BONNIE WILLISON: Judy said that fish are a good supplement for children and their brain development. So she's always cooked fish for her kids. She also mentioned that different fish are good for different things.

JUDY YAN: We have the smaller fish. So it's for lactation. Like for women give birth to the baby and this is a tradition. We'll cook the fish with the tofu and with some like herbs. So that's very important because the baby will drink the mother's milk and that's a very important nutrition for the people who just have baby.

HALI JAMA: Judy obviously knows a lot about fish and has a lot of traditional dishes to make with it like the ones we're making right now. So people migrate to America and obviously still have that love for their traditional dishes.

BONNIE WILLISON: Yeah. Immigrants bring their fish habits with them. But what happens when the fish in their new American community live in water that can be unhealthy? This has been a topic of interest to the Wisconsin Department of Health Services. The DHS first started working with Burmese refugees who came from Myanmar in Southeast Asia.

AMANDA HABAN: The Wisconsin Department of Health Services found that between 2000 and 2018, over 6,000 Burmese refugees resettled in Wisconsin, and a lot of them were resettled in Milwaukee County. And so they're one of the largest refugee populations in Wisconsin. And the Milwaukee area has been found to have water bodies with high levels of contamination. So the Burmese culture is traditionally rich in fish. And so when they immigrated to the US, they still eat a lot of fish. And so consequently, those contaminants in Milwaukee, water bodies pose a huge health threat.

BONNIE WILLISON: I talked to Amanda Haban, who is working on a project on fish consumption amongst Asian women in Milwaukee. She wants to better understand the influence of culture, attitudes, and beliefs on fish consumption habits of women of childbearing age.

HALI JAMA: Well, how come it's just women?

BONNIE WILLISON: Yeah, so contaminants that you might find in fish are most concerning if they're eaten by pregnant people and their babies. Fish from the store or our local waterways can be contaminated with, for example, mercury. And mercury is very unsafe for developing babies and it can cause nervous system and learning issues down the line.

So the first DHS study that Amanda was talking about was important because it found that in the Burmese refugee community in Milwaukee, women of childbearing age had higher levels of mercury, PCBs, and lead in their blood levels compared to other Milwaukee women of the same age.

HALI JAMA: But that's just the Burmese population. What about other immigrant populations?

BONNIE WILLISON: Yeah, it's a really good question. Because they were curious about this, the DHS brought in their study. And that's what Amanda is working on right now.

AMANDA HABAN: So our current project is expanding it to other Asian ethnic groups as well because we found that especially in the Milwaukee area, there is also very large Hmong population and there's also been resettlement within the Chinese and Filipino groups. And not just the Burmese group, but also there's the Karen group that came from Vermont or Myanmar. And so they also eat high levels of fish.

BONNIE WILLISON: So in order to learn about different groups and their use of fish, Amanda connected with women from the four communities that she just mentioned the Hmong, Chinese, Filipino, and Karen communities. That's how Judy Yan joined the project because Judy is super involved in the Chinese community in Milwaukee.

JUDY YAN: So it's a very cohesive community. And first of all, we have a common WeChat group. So we share all kinds of things from big thing politics to a small thing like where to buy certain kind of food or certain ingredients. So a Chinese community, we have a lot of activities like channel likes. Once a year in the past, that's all the people will go. We have a dragon boat race. So I would say we have a lot of things going on with the Chinese community. We are very cohesive through the social media.

BONNIE WILLISON: Judy herself gets most of her fish from the grocery store. But Judy also knows people who do fish in Milwaukee, fishing in the harbor at Lake Michigan and in the creeks and rivers leading to the harbor.

JUDY YAN: So fishing in Chinese community I would say is more like a polarized situation. Why I say polarized is either people older like the retired is like entertainment. They go out with a group, they have leisure, they have time. So they want to go fishing. And also for those people, when they get the fish, they will eat it and they will share with their family.

Another group is like a younger generation. They are just more a hobby. So for this group of people, they don't eat those fish. They fish it and they release the fish. It's more just for them to spend time with friends, hanging out.

HALI JAMA: I asked Judy what she thought about the pollution in her local lakes and rivers. Being from China, she had an interesting perspective.

JUDY YAN: In China, pollution is a bigger problem, particularly the water pollution. And so that's why everybody is very concerned the air pollution, water pollution, food pollution. So say for example, when I moved to the United States in 2010, I feel everything's fresh. Everything is clean, right? You buy the fruit, you don't even need to wash and you can eat. In China, you have to soak with hours with fish detergent and then you feel safe to eat, right, because you don't want insecticide, pollution, say for example.

So that's a big contrast. So that's why I think also draw a lot of people go more fishing here and eat them than back in China. So when we go fishing in China, we don't just go to any random lake. There are like almost the petting farm kind of fishing farm, right? So they have to pay more premium to go to those fishing farms to get really good fish. And people never go to a random lake and fish because they know those waters are highly polluted.

And fishing actually is a luxurious kind of activity in China. Only like people with certain income, they go fishing because they will drive their private car to a certain village. Your rural area has less pollution, has a fishing farm there. And they do fishing and then they have whole entertainments, activity, connecting with fishing. So that's kind of a luxurious activity.

AMANDA HABAN: I mean, you look at water and you don't see the contaminants. So you think it's healthy. The fish look healthy.

BONNIE WILLISON: So when you're walking by a lake or a river, you might have seen little signs that have information about which fish are in the lake and how much of each fish to eat. Amanda and Judy are concerned that this information isn't made accessible to groups like refugees in their languages that they use. And that's a big disparity and disservice.

So I was still curious to learn more about those contaminants that you can't see just by looking at the water. So I sat down with Dr. Gavin Dehnert who works here at Wisconsin Sea Grant as an emerging contaminant scientist.

DR. GAVIN DEHNERT: In short, there's a lot of different contaminants that are going to be in our freshwater ecosystems. There's only a handful, let's say, that are actually important that can actually accumulate or bioaccumulate into our fish. The big one's obviously mercury which a lot of people have heard about, PCBs, as you mentioned, that's kind of an issue that's maybe 20, 30 years old, and then the PFAS problem has really started to vamp up in the last three to five years. But those are really the big three, yeah.

BONNIE WILLISON: How did they get in our waters in the first place?

DR. GAVIN DEHNERT: So it's going to be from some sort of pollution, some anthropogenic source. PFAS, PCBs, this is usually somehow, some way through the life cycle of the production of PFAS.

BONNIE WILLISON: So with PCBs, they've been banned since the 1970s. But they could still be getting into our waters from leaking from old contaminated sites. He also mentioned PFAS which is a group of chemicals. They're used in the production of so many products that we use like in our carpets, clothing, nonstick pans, paints, that kind of thing. They're also used in firefighting foam like at airports. So they can kind of leak from those facilities into the water.

And then lastly, mercury. Gavin said that mercury mainly gets into the air before it gets into our water. And it gets into the air from when we burn coal or burn waste. How would one of these contaminants get into fish?

DR. GAVIN DEHNERT: Great question. So the easiest way to kind of explain this is a fish lives in the aquatic environment, right? So they are fully 100% immersed in the lake, right? With some of these contaminants, they're actually ubiquitous throughout the water column. At any point, the fish is actually being exposed to it dermally or on its skin. Depending on the type of contaminant, it could actually move through the skin into the fish.

A second way that the fish is going to be exposed is through its gills. A third way is just the consumption of food. So if the fish is eating something that has this toxicant already in it, if it invertebrates, if it's eating algae or whatever it is eating, if that is, that's another way of exposure.

BONNIE WILLISON: So how would the contaminants get into people?

DR. GAVIN DEHNERT: You can kind of think about it in the same ways. One way that we're getting exposed to it from the fish is really going to be consuming the fish itself. The other ways that humans are exposed-- I mean, you can think about it's in our drinking waters, you can be exposed to contaminants when you're breathing air. If it's in the air, that's another exposure route. It's kind of the same ways that a fish is being exposed. You can think we're also exposed the same way, except for not through our gills.

BONNIE WILLISON: So do you think people should just stop fishing?

DR. GAVIN DEHNERT: No, no. There's a lot of benefits to consumption of fish. You know you get a lot of fatty acids, good omegas. So when you're thinking about these health guidelines, right, there's probably certain lakes where if you can avoid eating fish out of that lake, you should if there's like a do not eat health advisory on that lake.

So definitely not going to push you away from fishing and eating the fish. I think it's a wonderful way to go out and actually harvest your own fish. The only thing to be aware of is try to limit the amount of that you're eating that might have these contaminants in order to further protect human health.

HALI JAMA: So back in Milwaukee, Amanda and Judy's main goal is to educate as many communities as possible about the harms of excessive fish consumption.

JUDY YAN: So I think it's very important to educate the population. So particularly, I think, as I mentioned earlier, we tend to give children more fish because we just feel that it's a great way for them to the brain developments. And brain development is such an important thing for the Chinese community for our little children. I think it's very crucial to have the information in the public sense that how people to really have very detailed information which kind of fish carry more and which kind of fish need to cook differently. I don't think we have that knowledge to that.

BONNIE WILLISON: So as Gavin mentioned before, fish is a really nutritious food source and it's usually low cost. It's high in protein and low in unhealthy saturated fats. You just took a nutrition course. Does this make sense-- is this what you learn too?

HALI JAMA: Yeah, the part about omega specifically that he mentioned. There's omega 6 and omega 3 specifically that a lot of people take. They take fish oil to get those things. But my professor was saying how fish oil only is specifically high in omega 3. So she was advising that we don't take fish oil and to actually get omega 3 and omega 6 from actual fish. So I agree with that [INAUDIBLE].

BONNIE WILLISON: So yeah, fish is really good for fetal development and it lowers your risk of heart disease. And importantly, there are ways that you can cook a fish that reduces any possible contaminants.

AMANDA HABAN: When we eat the fish, there are certain parts of the fish where the chemicals are more concentrated. So that's why really good cleaning and cooking practices are crucial.

BONNIE WILLISON: And Judy shared some of her techniques for this.

JUDY YAN: So first of all, we are very careful cleaning the fish. Actually, when I was in China, we kind of really like to eat freshly from the pond. That's much more expensive than the grocery because it's very fresh. And so we have these habits of cleaning thoroughly. So for example, fish head is a big delicacy of Chinese. We love to eat fish head.

And so we will clean the inside of the fish because we also love to eat the eyes area and the cheek of the fish because that's the most delicious part of the fish. And the intestines, all the inside organs we'll clean. So that's one thing. We don't leave any in organs inside because those are the things we believe will carry the toxins.

And then after that, we definitely will cook thoroughly because we believe heat-- when you cook boiling under certain heat, the germs and the bacteria will be killed.

AMANDA HABAN: Cleaning and cooking practices-- they say you can reduce some of the chemicals in the fish by nearly half just by removing guts and skin and the head of a fish, trimming belly fat and fatty meat along the filet, removing skin completely from the fish, and then baking, broiling, or grilling to allow the fat to drip away. So this is a struggle within those for targeted communities because a lot of them do not remove the skin or the fish head when they eat the fish. A lot of them use the drippings and they save it to cook their next fish meal.

BONNIE WILLISON: So you're really only supposed to eat only one to two servings of fish per week. And that's fish from the grocery store and/or fish from the lake. Amanda also said that you can keep in mind the age of the fish because older fish and larger fish tend to-- they've been accumulating contaminants for longer. So they have more contaminants in them. And you can also take into account where you're fishing because every lake is going to have a different mix of contaminants. And so just look at the fish advisory that's posted on that water body.

HALI JAMA: Yeah, exactly. This is really useful information. But we have to keep in mind that not everyone knows this information, especially immigrant groups who might not be able to understand the English on the signs. Fish are pretty important to Amanda's four target groups-- the Hmong, Chinese, Filipino, and Karen communities. Getting information to them is also very important.

AMANDA HABAN: So if we're not properly informing them in terms of translated materials and the right kind of messaging, then that's a huge inequity. I think as public health advocates, it's our duty to provide that information and to keep those pathways open.

BONNIE WILLISON: And this is one question that Amanda and Judy have been thinking a lot about-- how do we get this fish consumption information out to the people who need it the most. Judy has some ideas that she thinks are important for the Chinese community.

JUDY YAN: Nowadays, first of all, people still Google for everything. I think Google is a very important source of information. So a lot of people that they started just as a new mom. They don't know how to cook fish, what kind of fish to feed the baby for lactation. The first source, they will just Google it. What to eat, how to cook, right, and what's the health benefits, I think those are the questions people are interested, and they are going to ask those questions in Google.

And the second is really use the WeChat is a very important channel because that's where everybody gets the information here, like for the Chinese community. And also, that's where they share the information with each other.

BONNIE Yeah, I love that. It's just like, yeah, we use Google. Google is our best friend. But Judy also still thinks that this

WILLISON: kind of education could be more fun.

JUDY YAN: So it's really how do you capture people's attention and also in a way that you are not showing that you are trying to educate them. Or gamification. In a certain way, engage them like a game, right? Like a game like different type of fish. You guess which kind of fish is the most dangerous to your health wise from the lake. So for example, that's more engaging.

BONNIE After the break, we taste tests our fish and tofu soup.

WILLISON:

JUDY YAN: I'll just give you a typical recipe out of the bank is the fish with tofu. So you will put ginger, you will put mostly--

BONNIE During our interview, Judy told us about this fish recipe that she makes-- fish and tofu soup. So we wanted to try

WILLISON: it.

HALI JAMA: So do we wash the fish too?

BONNIE We probably wash it.

WILLISON:

HALI JAMA: Yeah, right?

BONNIE Earlier today, before we started cooking, I went to the Asian midway food grocery store in Madison. I picked up

WILLISON: some tofu, cilantro, a tilapia fish that was in the frozen section because they-- I don't know. They had some fresh fish, but I didn't know what one to get.

HALI JAMA: So do I just cut it in half with the skin and everything?

BONNIE So after my trip to the grocery store we got together and we got all of our supplies ready and we started cooking.

WILLISON: Do you want to try the ginger thing she was doing with getting the ginger along--

HALI JAMA: We turned on the oven and then we used the ginger to get rid of that fish smell before we even started cooking anything. This is actually genius. I'm going to start doing this for everything. And then we put the fish whole into the pot.

BONNIE Yeah, I just got this fish from the frozen section. But yeah, usually, I don't use a fish just whole in a dish. What

WILLISON: about you?

HALI JAMA: No, I don't either. We usually cut it up into pieces as well. Like she said, in America, it's very common to do that. But I guess it's common in my culture too. But yeah, we used it whole, though, for the recipe.

BONNIE So now we char the fish or sear it. So just like put it on and flip it after a little bit.

WILLISON:

HALI JAMA: OK, guess so. So after we put the oil in and it kind of like started sizzling, we put some water in. And we kind of let it sit for a while, let it boil. And after that, we finally put in the green onion. This is also supposed to help prevent the smell of fish. And I think it did. I think it did a pretty well job. I didn't really smell anything fishy. We're probably going to add cilantro soon, right?

BONNIE Yeah, next step, add cilantro.

WILLISON:

HALI JAMA: Oh yeah, I called my family because like I said, we usually eat fish cut up into pieces. And I just thought it was kind of funny to see a fish whole and being cooked. She's usually so quick to answer me.

[NON-ENGLISH SPEECH]

OK, look.

WOMAN: Yeah.

[NON-ENGLISH SPEECH]

She asked me why don't I blend it. [LAUGHS]

[NON-ENGLISH SPEECH]

She means, why don't you fry it. I don't know.

[SOMALI SPEECH]

Strangely actually, her friend was next to her.

[SOMALI SPEECH]

It's my mom's friend.

[SOMALI SPEECH]

Tilapia.

[SOMALI SPEECH]

She was like, oh, my God, that's tilapia! But usually, I fry it up and stuff like this. And she told me her recipe, which was very similar to kind of what we were making. At least the spices were. It was just kind of funny to my family. But to her specifically, she was like, yeah, I love tilapia.

BONNIE Where's your mom's friend from?

WILLISON:

HALI JAMA: She's from Southern Somalia. But we're up North, like all the way up. So I'm thinking like maybe different recipes. Yeah, OK. [SOMALI SPEECH] Bye. Tell mom I said bye. I'll call you later.

[SOMALI SPEECH]

OK. That was funny. She started giving me all her recipes. Apparently she makes this dish a lot.

BONNIE Really?

WILLISON:

HALI JAMA: It's just funny. I don't know how she-- she was saying she uses these exact same ingredients except the red pepper. And she was-- lastly, we put in our cilantro. And we let it cook for just a little like a few more minutes. And it was pretty much ready after that.

BONNIE So finally, we turned off the stove because the soup was done. And you got some of your dormmates to come.

WILLISON:

HALI JAMA: I brought them in case you wanted some people to try it.

SUBJECT: Hey, podcast.

SUBJECT: Hi, podcast.

[INTERPOSING VOICES]

HALI JAMA: Yeah, my roommate Diana and coworker Sidney came and tried the recipe. Well, we haven't even tried it actually.

SUBJECT: You haven't tried it? So we're going to be the first?

HALI JAMA: Yeah.

SUBJECT: I'm scared.

SUBJECT: I'm scared too. What if-- OK, wait.

HALI JAMA: Oh, I have another spoon. It's fine.

SUBJECT: I've never had tofu. So that's crazy. It feels funny. But the caldo part, what you call this in Spanish, English--

ALL: Broth.

SUBJECT: Broth? This part tastes really good.

HALI JAMA: Really? Perfect.

SUBJECT: I don't know if I like tofu, but this is good.

HALI JAMA: Oh, it's really good. I actually kind of like the tofu. I actually like the tofu, yeah.

BONNIE A lot of the things we put in we're to get rid of the fishy flavor. I feel like it doesn't really even taste that much like fish.

WILLISON:

SUBJECT: I wouldn't think there's any fish in this at all.

BONNIE Wow.

WILLISON:

SUBJECT: This is definitely bussin.

SUBJECT: It's good. In other words, it's good.

SUBJECT: Yeah, definitely the broth is so good.

HALI JAMA: Wow. Wait, I would make this again.

SUBJECT: Cool, cool, cool. 10 out of 10.

[INTERPOSING VOICES]

SUBJECT: 11 out of 10, actually.

SUBJECT: Good job, girl.

SUBJECT: I'm really proud of you.

[INTERPOSING VOICES]

SUBJECT: Thank you. Bye, podcast.

HALI JAMA: We can and should be putting a lot of energy into helping people avoid unhealthy habits. So educating communities is one thing, but something is missing so far. How did these contaminants get into our water in the first place? Why do refugee communities and all other people who rely on Milwaukee's waters have to deal with this? Communities of color, immigrants, and low income communities are disproportionately exposed to water quality issues, and this isn't just a coincidence.

DR. TOM PEARSON: I mean, the foundation of economic development in US society is built off of racial disparities and injustices. Because of that, right, and that intersects as well with a history of residential segregation. In urban and suburban areas, there's all sorts of environmental hazards that people of color are disproportionately burdened with because of that history and because of the geography of race and class inequality in the United States.

BONNIE WILLISON: Dr. Tom Pearson is a professor who's researching how people grapple with the discovery of toxic pollution in their communities. And the Great Lakes and surrounding watersheds have been subject to a lot of pollution over the years. This poses a threat to fish health and to human health.

DR. TOM PEARSON: What does that mean to people then, right, where they might have a relationship to their environment or a relationship to these places, to wildlife that is also disrupted, right? Now this is a potential threat. That's a health threat, but it's also like a rupture to how people relate to the natural world.

BONNIE WILLISON: But one thing that inspires Tom is community organizing.

DR. TOM PEARSON: One of the things that I, I guess, learned or been most impressed by is just like the crucial role that local advocacy and citizen engagement plays. And it's tough though, because it's easy to get burnt out and it's easy to be discouraged. Wherever we've seen communities that have been successful in addressing issues in a way that really is beneficial to the people that live there, it's when there have been persistent organized residents who have kind of stuck with it.

HALI JAMA: And I think there are a few elements to fighting toxic pollution. First, we need industries to stop polluting and stop creating hazards in marginalized communities.

**BONNIE
WILLISON:** Right. If you remember Gavin, the emerging contaminant sciences that we talked to earlier, he said that toxicology is super reactionary. It's like we're just stuck reacting to new chemicals and contaminants once we happen to find out that they're already in our environment and they're a health threat. But in reality, more work should go into testing before we start using new chemicals to make products that we use every day.

HALI JAMA: Right. And secondly, we need to work on cleaning up our waters. And last but not least, we need to make sure that everyone has access to information they need to eat fish safely. Thanks to people like Amanda Haban and Judy Yan for working on that.

**BONNIE
WILLISON:** The water we swim in is produced by Bonnie Willison and Hali Jama. Please subscribe, rate, and review, and share this podcast with a friend. You can find Wisconsin Sea Grant at seagrant.wisc.edu. You can find the Wisconsin Water Resources Institute at wri.wisc.edu. Thanks for tuning in. We'll see you next time.