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[00:00:00] **Speaker 1** I guess you want to show and tell? Yeah, absolutely. What do we have in here?

[00:00:05] **Speaker 2** Right, we have years worth of fish samples in here that we've gotten from Glyphwick and you can see we have some from 2013, 2011. We have a variety of both, this one is whitefish, lake trout, we've a lot of spring walleye samples. By far the most what we do is spring walleyes, so we get between... 350 and 450 spring walleye samples annually from Glyphwick and we've been analyzing those for mercury and every year when we are done analyzing them we store them in these freezers so we archive the samples in case anyone would like to analyze them for something later on or in case we have to go back and answer other questions about mercury so we've we have four freezers that are full, this full of mercury samples dating back to 1996. So it's been a really good archive so that people can go back and look at potential metals that, other metals or other chemicals that become of interest that we didn't know were a problem and now we're learning are more problematic such as potentially PFAS.

[00:01:22] **Speaker 1** That seems to be the most obvious one, that you, I mean, it does seem like that's an open, an invitation to figure out, okay, when did it first start appearing in fish?

[00:01:32] **Speaker 2** It is. One thing we have to be a little bit careful about with the archive samples is the processing that we used, you know, from the fileting to the grinding to the sample containers themselves. Is it compatible with PFAS analysis? Because we don't want to be a part of the problem in the analysis of that. So, but it is. A potential source. We've had people go back and look at PCBs and other different things that are in those samples.

[00:02:06] **Speaker 1** So broaden this out for me, obviously you're with the Lake Superior Research Institute. What is it that it does? I mean, you're part of this relationship with GlyphWhip, but you've given me the broader picture in the context of walleye is what we're interested in, but a lot of the research that goes into it.

[00:02:22] **Speaker 2** Right, so the Lake Superior Research Institute has been here. We do grant-funded research, and we've had a relationship with GLIFWC since the middle of the 1990s. So we receive samples from them, we do the mercury analysis on them, and then we give the analysis, the concentrations of mercury back to glyphic and then they use that information. To make maps where they do consumption advisories of lakes that are in the seeded territories. And they do it on a basis of a couple of different things. They do the women of childbearing age and young children. And then they have the adults that are beyond childbearing age and males because mercury is a neurotoxin and so it's more of a concern in younger children and women of childbearing age than it is in adult males or women beyond childbeareing age.

[00:03:30] **Speaker 1** So you're one of the first ones to see the info come out. Had there been times where you're like, whoa.

[00:03:36] **Speaker 2** There are sometimes I see a fish that I go, oh well I would not want to eat the fish from that lake. And there are certain lakes that are certainly higher in concentration in mercury than other lakes. It has a lot to do with the ecology of the, just what's around certain lakes, what kind of, if they have a lot of swampy areas around them or if they a lot of rock, more like granite or, basalt around them that's going to have an impact on how much mercury is present in the fish.

[00:04:09] **Speaker 1** So, you said that one was kind of the baseline for when you start to worry? Is, er, what a... I guess, walk me through, because those were like the .35... Right!

[00:04:19] **Speaker 2** Right, the fish that we looked at today, they were in about the 0.3 milligrams per kilogram of fish that were looking at. Those I would say are not a high concern. Again, it depends on your age and the frequency that you're eating the fish, certainly. Yeah my general rule after having done this for many years is that I try not to eat any walleye that are over 20 inches. That seems to be kind of a good cut off. It's not safe in every lake to eat fish that are in that size range but that's generally I would say a pretty safe area.

[00:05:03] **Speaker 1** So what do you, so what is the one break threshold or where's where's the point where you said, oh that is a that's a link that no one should be eating this.

[00:05:12] **Speaker 2** Yeah, I'm not exactly sure right now what the concentration is where we're calling, you know, things have changed over the years. So one used to be kind of the mark that we would use as like people probably shouldn't be eating any fish that are in that concentration. So I would say that that certainly would not be eating it, but because most people don't know Just what If they take a fish out of a lake, they're not going to know what concentration that is.