

Jerusha Klemperer:

I want to tell you about Whetstone Radio Collective, a brand new podcast venture from Whetstone Media. The shows from Whetstone Radio have a sound all their own, with discussions on politics, culture, global gastronomic histories, all centered on human empathy. Whetstone Radio Collective has some incredible shows for you like Climate Cuisine from Taiwanese-American journalist Clarissa Wei, which looks at the way the climate crisis is fundamentally shaping our relationship with food, or Fruit Love Letters from Chef Jessamine Starr, which is like a valentine to all your favorite fruits. I encourage you to check out some of the programming at Whetstone Radio Collective and continue to discover the immense power that food has on our communal lives.

Jerusha Klemperer:

This is the second to last episode of our eight episode season. We're now in the planning phases for a second season, and we want to know what would you like us to cover, what foods are you curious about and what questions do you have? Send us an email to info@foodprint.org, and tell us what you're dying to know about what you're eating.

Buck Jones:

The salmon, they're a commodity, but first they're culturally relevant to our people. The salmon in the Creation Story gave up his life to feed us. And he spends a couple, 2, 3 years out in the ocean and comes back. And so we honor that salmon because it's something that comes back. A salmon, it has that life cycle where it goes out into the ocean and it comes back. What kind of species is going to be born in freshwater, live in saltwater for three years, and then come back to its place, hundreds of miles up the river and come back to that same area and be aware to know that it has a sensing mechanism in it that will go through elements, dams and low water, falls and things like that to get back to that area.

Paul Greenberg:

I think humans are always drawn to a kind of heroic journey and salmon are famous for an epic journey. They hatch out of an egg, somewhere up river, migrate as little tiny fish out into the open ocean, spend several years back in the ocean and then battle tide and current and predators to struggle all the way up to their spawning grounds, where they meet a mate and spawn. And if you're on the west coast, die, if you're on the east coast, maybe make it to spawn another time. But more or less, it's the struggle that I think got people excited about salmon in the first place.

Jerusha Klemperer:

Depending on who you are, your connection to salmon may be spiritual, cultural, or just a matter of taste. If you live in the Pacific Northwest, you might be familiar with and appreciate wild salmon, but for the rest of us, our love of salmon avocado rolls reflects a love of farmed salmon, because yes, most of what you're eating is farmed whether you realize it or not. Today on What You're Eating, we look at America's favorite finfish, salmon, and dig a little deeper into where it comes from. What's farmed, what's wild, and why some people want you to care about that distinction at all.

Jerusha Klemperer:

We get into the details of fish farming of salmon and other fish too, and how it replicates some of the problems we see in land-based factory farms for animals like chickens and pigs. I'm Jerusha Klemperer, and this is What You're Eating, a project of foodprint.org. We aim to help you understand how your food

gets to your plate and to see the full impact of the food system on animals, planet, and people. We uncover the problems with the industrial food system and offer examples of more sustainable practices, as well as practical advice for how you can help support a better system through the food that you buy, and the system changes you push for.

Paul Greenberg:

I think Americans like farmed salmon better. I'm not saying that I do, but I think your average American likes farmed salmon better. I think what people like about... Well, first of all, let's get the species straight. Because the difference you're tasting is not just the difference between wild and farmed. It's a difference in species. My name is Paul Greenberg, I often say that I'm not famous, but I am to some degree fish famous, mostly for two books that I've done. One is called *Four Fish: the Future of the Last Wild Food*, and the second, *American Catch*, I think, is it the... What was the subtitle? I got to look at that. Oh, *The Fight for Our Local Seafood*. So yes. So anyway... Yes and I spent a lot of time talking and writing about fish for a lot of different places. So there is only one salmon native to the Atlantic ocean, and that is the Atlantic salmon.

Paul Greenberg:

And that's kind of confusing because you hear Atlantic salmon, you assume wild, but actually Atlantic salmon are commercially extinct. It's too expensive to go fishing for them commercially to make it worthwhile. So they come to us nearly entirely in their farmed form. On the Pacific coast, we have, I believe it is, depending on which side of the Pacific you're on, five or six salmon going from largest to smallest. You have King salmon, and then after them you have Coho salmon and then Sockeye salmon and then Chum salmon and then Pink salmon. So those are five salmon that are migrating in and out of the American rivers. There's a sixth salmon called the Cherry salmon, which migrates into Asian rivers. All of those fish are actually a different genus from the Atlantic salmon and they have different structures, different physical structures. They have different diets, they have different habits, and so they taste different.

Jerusha Klemperer:

A couple of decades ago, there was a lot of conversation about farmed seafood being problematic or inferior to wild salmon. And people who cared about what they ate, whether they understood the reasons or not knew to seek out wild over farmed. But some of that negative perception seems to have worn away in more recent years. Where did that negative perception come from, and then where did it go?

Paul Greenberg:

There was one report that to me generated a lot of negative press about farmed salmon industry, and that was a report called the Heights Study and it was commissioned by The Pew Charitable Trusts. And in that report, they studied the PCB levels in farmed and wild salmon, and this was I think the late 90s and early 2000s that the study was conducted and then later published, and they found significantly higher levels of PCBs in farmed salmon, particularly those in the Northern Hemisphere, and that got a lot of press headlines. Because you could throw all the environmental problems at people, but where, it's like Upton Sinclair said, he aimed to hit America in heart instead they punched him in the stomach. And that's kind of, I think what happened with farmed salmon.

Jerusha Klemperer:

And there was also advocacy from groups who opposed farmed salmon for environmental reasons and then also a push from the wild salmon industry to highlight the qualities of their own product.

Marianne Cufone:

So I think the first thing to think about is that many years ago, when farmed salmon started to be a thing, the folks in Alaska were really up in arms because wild salmon is a signature Alaskan product. Right. Certainly it comes from other places, but when you think wild salmon, most people would think Alaska. So Alaska invested in their fishermen and did a major campaign about wild salmon. And that's one of the reasons that people all throughout the Lower 48 learned about wild salmon versus farmed salmon was this Alaska campaign trying to protect their fishing communities. That has since dwindled over the years. You don't really see these major ads for Alaska wild salmon anymore. And so I think there has been sort of a loss of knowledge there about the comparison between farmed and wild salmon.

Marianne Cufone:

I'm Marianne Cufone, I'm the executive director of Recirculating Farms. We are a national non-profit organization that works with innovative agriculture and in particular hydroponics, aquaponics and aquaculture. I also am the director of the environmental law program at Loyola University New Orleans, College of Law. In the same vein, I think there's been a lot of salmon farming over the years and people are used to seeing and eating salmon that is farmed and it looks different. Right. In a case, farmed salmon looks neon orange or pale-pale orange. And it doesn't look like the beautiful Red King salmon that you get from Alaska or beautiful salmon that we used to get from California area. It doesn't look like those salmon. But people are used to it, and so in their mind, that's what they associate with salmon. And so the taboo of a farmed salmon, I think has slowly gone away because we have gotten used to the idea of that's what we eat when we think about salmon and wild salmon is only a luxury, wild salmon is only for the wealthy.

Jason Jarvis:

Number one, it's not seafood. And I'm sorry to get vulgar, but it's bullshit to call salmon that's farmed seafood. It is not raised in the sea. It is not wild. It is not seafood. So I think there needs to be some legislation, some legal action put in play so people can stop calling this garbage seafood.

Jerusha Klemperer:

That's Jason Jarvis, Rhode Island fisherman, and the president of the board of directors of an organization called NAMA, The Northwest Atlantic Marine Alliance.

Jason Jarvis:

I've worn many hats. I was a sous chef at the age of 17, moved on from that to become a therapist in a residential drug rehab. While I was doing that, my brother showed up one day and asked me if I wanted to go work on a boat because he wanted some time off. And I said, sure, why not? I know how to run a boat. I know how to work on a boat. I didn't realize what I was getting myself into. And that was the beginning of the end. I never stopped. I realized that I could make more than a week's pay in a day compared to social work. Whereas a salaried employee killing myself 80 hours a week, loving the work, but unable to pay the mortgage.

Jason Jarvis:

And that being said, I started out on a Gillnetter and I worked on that boat and then I worked in the for hire sector on charter boats, six pack boats, party boats, oyster farms, wild harvest clamming. And now I'm running my own small boat. I actually have two boats and I set my own hours, but it's a more sustainable way for me to manage my life, my family and the other 12 jobs that I have. But that's how it goes. I fish for anything that I'm allowed to catch legally on my boat.

Jason Jarvis:

If you want to farm catfish in a pond, in a farm in the middle of the Midwest, go for it. Feed them some corn pellets, I don't know, earth worms, who cares, but if you're going to take Atlantic salmon and raise them in the Pacific Northwest where Atlantic salmon don't even belong, there's one problem and the problems go on and on and on, and it's tough for me not to get upset and freak out.

Paul Greenberg:

There's been a kind of rising constellation of threats to salmon that really goes back to over a thousand years. The biggest, in my mind, threat to salmon is the damming of rivers, because if you dam a river that basically kills off a salmon run. Salmon need to reach gravelly, shallow water, where they can spawn. And if they can't get to those places, that particular run will die because salmon are predisposed to return to the river of their birth. So if you dam off the river of their birth, that whole line of salmon will just cease to exist. The other thing is there has been overfishing and overfishing is sort of come in two ways. The California fish barons, who took over large fisheries in Alaska, for example, would string entire nets across the entire mouth of a river and would basically act as a dam destroying the entire year's worth of fish in one shot.

Paul Greenberg:

But more insidiously are high seas fisheries where... So salmon tend to... They might come from different rivers, but the different populations from different rivers will intermingle in one central area or several central areas. So the Atlantic, that's off Greenland and the Faroe islands, mostly. Post World War II fishing fleets found those places where all the salmon in the Atlantic went and started to perse in those areas. And so if you perse through an area that has salmon from Ireland, from Scotland, from France, from Canada, not only are you taking the fish of the year from a single country, you have the ability to kind of wipe out salmon kind. So that's really a big deal.

Paul Greenberg:

And then on top of it, there's pollution issues. So I think hackles were already up from the very beginning that, oh my God, we're losing the wild. We're just going to replace this with farmed. And like with any new industry, many of the problems were not necessarily known or foreseen and also nobody I think ever conceived that farmed salmon would reach the scale that they reach. There's more farmed Atlantic salmon in the world, far more farmed Atlantic salmon in the world than there are wild Atlantic salmon, and probably maybe more farmed salmon overall in the world than there are wild salmon, Pacific or Atlantic.

Marianne Cufone:

Farmed salmon happens all over. From Norway to Chile and all around Canada and even in some instances off the coast of the United States, although that is dwindling at this point. But a lot of countries have experimented with farming salmon and other fish as well in the open ocean or in open waters inside of gulfs and locks and things of that nature. And basically what that means is they are

growing fish in captivity. So they have some kind of cage or net pen. And in general instances, they are stuffing lots of fish into these cages because more fish means more money. So you can think about large floating farms out in the water filled with fish.

Marianne Cufone:

Generally, in the United States it's three miles off the coast. In some states like Florida and Texas, it's up to 12 miles off the coast, but that's just the beginning. Location, oftentimes they're more like 45, 50, 100 miles offshore. And so these facilities use floating cages or pens filled with fish to raise fish to a size that you would use in a restaurant or in a grocery store for people to eat. Proponents of offshore finfish aquaculture say that this is such a great idea because we need more fish. We have an expanding world and an expanding pallet and we just need more fish. We can't keep up with wild fish.

Paul Greenberg:

To have a functioning wild salmon system, you need intact rivers, intact, undammed, clean rivers that produce young of the year every year that migrate and come back in. For farmed salmon you don't need a river, you just need a tank basically. So once you realize, oh, I don't need these rivers. There's so many other things humans could do with the river. They could dam it to make power, they could bury it over entirely, like many rivers have been done... It has happened to many rivers in urban settings. You can put roads alongside of it without worry about environmental impacts.

Paul Greenberg:

So rivers are kind of a nuisance to humans in a way, and so being able to kind of steamroll over rivers, for many humans is kind of an advantage. And if you take salmon out of the picture... Look at the Columbia river, which was once home to annual salmon runs in the tens, if not twenties of millions of fish every single year, those rivers very powerful sources of hydroelectric power, which basically powers the Pacific Northwest at this point. So you delete that system and you replace it with hatcheries or fish farms, and you still get the salmon and you get to use the river for its power. So a certain kind of market value planner sees the advantage of getting rid of this messy wild system and replacing it with a tidy farm system and being able to use the rivers for human purposes.

Marianne Cufone:

We have turned to farming and lots of other food sources. Right. We farm cattle, we farm chickens. But the thing with farming fish is it impacts the wild fish. And so there's a significant difference with raising finfish than other forms of farming. I'm not saying it's worse. It's certainly not. There's lots of evidence that other sorts of farming, especially with concentrated animal feedlots is problematic, but growing fish out in open waters has a lot of problems associated with it. And we've seen this globally. There's been lots of fish farming all around the world and we should learn from the lessons that have been taught with these existing facilities. I think some of the biggest problems certainly are pollution. These are open net pens and cages, meaning there's a free flow between what's in the cage and the outside environment.

Marianne Cufone:

And so any antibiotics or chemicals or excess fish feed or fish waste, all of these things that are in the cage end up outside the cage. Essentially these facilities use natural waters as a dumping ground. And in fact, in the United States, we have to get a discharge permit from the environmental protection agency to build these facilities because it is a point source of pollution. So we recognize that everything that

comes from these facilities ends up in the natural environment and people will say, oh, dilution is the solution to pollution. You know what? It's not. The reality is it all goes somewhere. And so just because it might be whisked away from the cages and not observed around the cages, it ends up somewhere and we need to be thoughtful about not using our oceans as a dumping ground.

Paul Greenberg:

The problems inherent in farming salmon are that you primarily farm salmon in wild salmon habitat. So people tend to sink these net pens in fjords adjacent to salmon rivers in the same cold crisp well oxygenated water that wild salmon need to live in. You put enough salmon pens in an enclosed fjord with not great water circulation. You'll get build up of nitrates and possibly algal blooms and all those kinds of things. Also, large aggregation of salmon tends to bring in a parasite called sea louse and sea lice... Well, they cling to the surface of the salmon, sucking up their bodily fluids. On an adult salmon they're not that much of a problem, but on young salmon, smolts coming down the river, if they pass by a salmon farm and get hit by sea lice, it can be lethal, if you have a certain number of sea lice upon a young salmon.

Jerusha Klemperer:

Whose water is this, that we're farming these fish in, and whose water did it used to be, whose water is it now? Can you talk a little bit about that issue of privatization of water?

Marianne Cufone:

It's federal waters, which means the United States is tasked with managing these water areas for the benefit of the nation, and that means all of us. So that's our water that we are using as a dump site for fish farms. That's our water that's being taken up with corporate interests and building facilities to grow fish. People say, oh, well, it's for our benefit to grow these fish, but there's no guarantee that the fish that they grow are coming to the United States. In fact, more likely they are being raised for export. More and more in the US, we are catching fish and producing fish here and exporting it to other countries who'll pay top dollar for US raised or captured fish. Whereas here in the US, we keep importing more and more lower quality, cheaper fish for our own consumption.

Jerusha Klemperer:

Paul Greenberg spoke about that import export issue as well.

Paul Greenberg:

Well, first of all, the United States, even though we control more ocean than any country on earth, more than 80% of our seafood is imported. The majority of the salmon that we catch in Alaska gets sent abroad. Then there's this other weird phenomenon that happens, a certain portion of Alaskan salmon, and it's hard to determine how much, get caught in America, frozen whole, sent to China or Indonesia, or the Philippines or wherever, defrosted, boned, filleted, refrozen and sent back to us double frozen. So a lot of people... I remember I was on Terry Gross and she was like, this sort of strange Fresh Air pause. And she said, "my mother always told me not to eat food that was double frozen." And I was like, "yeah, that's right, Terry, you shouldn't do that I suppose."

Paul Greenberg:

But that said, freezing technology has advanced to the point where you actually can do it without a significant health risk. So there's that. And then on top of it, the other funny wheel in all of this is that while we're a net exporter of wild salmon, we're by far a net importer of farmed salmon. So we're sending all this nice wild salmon abroad, and then we're importing lots and lots of farmed salmon.

Marianne Cufone:

So one of the biggest problems I think too, is feed when it comes to aquacultured fish. We actually feed them very similarly to how we feed land based farmed animals unfortunately. We've been growing corn and growing soy and in some instances I've seen chickpeas. We're trying to find cheaper feed, that's accessible and acceptable to these fish that they will eat and still grow and be somewhat healthy, at least enough to grow to a size where they would be harvested. The problem with that is none of that belongs in the ocean. And none of that is a proper diet for fish. And so those things cause problems for the fish. However, the alternative feeding fish what they should eat like other fish, especially if you're growing carnivorous fish, which means we should be feeding them other fish, which is very, very inefficient to take fish from the wild, grind it up and feed farmed fish wild fish.

Paul Greenberg:

In the early days of farmed salmon, it could take as many as five or six pounds of wild fish to grow single pound of farmed salmon. And that was primarily because the feed formulas were pretty primitive. The very first salmon farming that took place in the fjords of Norway, they just caught herring and so forth and chopped them up and fed them to the salmon. Now they make feed pellets and what's happened over time is, it'd be nice to say that it was all because of environmental reasons, but I think in the end, people realized it was much cheaper to lace the pellets with things like soy and other plant-based material and to use fish oil and some fish meal to round out the diet. Now the feed companies claim that it's 1:1, 2:1, something like that. Somewhere between 1:1, 2:1 feed conversion ratio or what they call fish in fish out or FIFO. So less than two pounds of wild fish to make a pound of farmed salmon.

Jerusha Klemperer:

There are also additives put in to give the salmon their distinct pinkish orange hue. Wild salmon eat shrimp and krill, tiny crustaceans that have carotenoids that make them pinkish orange and then make the salmon who eat them pinkish orange. Farmed salmon eat corn and soy pellets and small feed fish. So they don't turn that color. So fish farms use food additives in varying amounts to achieve the color that they think customers most want.

Jerusha Klemperer:

Hearing about the problems with farming fish offshore, one immediately wonders, can we solve the problems of an offshore fish farm by moving it into a tank on land? So I asked our food and policy analyst, Ryan Nebeker about land-based aquaculture and whether it would make sense to try raising salmon that way.

Ryan Nebeker:

Land-based fish farms are all over the map in terms of the kinds of fish you can raise, the kind of technology they're employing, where they sit on the sustainability scale. Historically, one of the biggest issues is just economics. Salmon need particular water temperatures to survive. Now they're an interesting fish because of salmon's life cycle. They're a lot more flexible when it comes to salinity. You don't have to be quite as picky with water chemistry as you would with something like other marine fish

that we've tried to farm in tanks. The biggest advantage to salmon farming is that you have put them in the water and you're not worried about... When you're not paying rent on a piece of land. You're leasing a portion of the ocean generally, but you're not worried about the inflow and outflow of water. You've got a constant supply of water all around you, versus when you're on land, you have to make some choices about where you're getting that water, how you're filtering it, how you're disposing of the waste.

Jerusha Klemperer:

So given all of that is anyone attempting to do land-based farming of salmon?

Ryan Nebeker:

Yeah. There are a few. One of the big ones that's done pretty well so far is this company called Superior Fresh and they are in Wisconsin and that's a little bit funny because you don't think of Wisconsin as being like, oh yeah, salmon or fish in general, kind of outside of walleye maybe. But one of the advantages that they have is you have a lot of easily available groundwater. It's a water secure place. You can draw a lot of groundwater. And that groundwater happens to come out of the ground at about the perfect temperature for salmon to really thrive. So there's one advantage. Half of your climate control is done already and that's pretty constant year round. If you're trying to do this in a warmer area where your water supply, like your groundwater isn't as stable, you have to invest in cooling that groundwater, which is incredibly expensive. One of the other projects that's gained some traction is Atlantic Sapphire.

Jerusha Klemperer:

Atlantic Sapphire is a Norwegian company that is building land-based salmon farms with the intention of offering farm salmon. That doesn't have to be shipped across the world. And they have a project under construction in Florida, a place whose water is not quite as cold as Wisconsin's. They've run into a bunch of technical problems, and so they're behind schedule right now. And that means that the bottom line is unless you happen to have access to the Superior Fresh salmon from Wisconsin, you're not going to find land-based farm salmon right now. And the future success or failure of the larger scale Atlantic Sapphire project might tell us how likely the product is to proliferate in any meaningful way. It's also worth mentioning that the Superior Fresh salmon farm is a recirculating farm that's also growing aquaponic greens in conjunction with the fish.

Marianne Cufone:

There are many ways to do aquaculture, and offshore aquaculture is one of them. But another is something called recirculating aquaculture. Some people call it RAS, Recirculating Aquaculture Systems. But generally what that means is raising fish in tanks on land. A lot of these facilities are able to reuse the waste water that comes from this facility within the facility. So one example is aquaponics, which is one of my favorites because it mimics nature. It is a way to have fish and plants growing together that mutually benefit one another. And so recirculating systems, aquaponics in particular use fish in a tank, the fish do what they do and make nutrients in the water. You pump that water out of the tank into a plant bed and the plants absorb the nutrients that the fish made in the water. And then the water can be recirculated back to the fish to be cleaned. It's fairly smart and not terribly difficult. And I speak from experience, we've set up a number of systems over the years and have done them in a very inexpensive, simple manner.

Jerusha Klemperer:

One thing that irks fisherman like Jason Jarvis is that the entire concept of large scale farming of fish seems to represent giving up on the idea that we can fish responsibly and that we can rehabilitate wild stocks. When in fact that's something we have done and continue to do.

Jason Jarvis:

Seafood farming is a joke for a bunch of reasons, and the propaganda that's put out there and paid for by some of these big companies that say all the are gone, the ocean is dying. Still to this day my favorite propaganda film is Seaspiracy. When I watched that... My wife and I sat and watched that, and fact checkers were all over it just because of how they put that together. We have fish here in New England called a scup or a porgy. In Europe, they call it a sea bream. Well, in New England, the most I've ever gotten paid for was a \$1.50 a pound. This year it actually went up to \$2. Most money I've seen paid for it yet. In Europe, it's \$40 a kilo for the whole fish, but here it's called the trash fish. And to say that it's over fish[inaudible 00:30:51]I think last time they checked scientifically it's 4 or 500% recovered.

Jason Jarvis:

We could go catch them right now. And it's a delicious food. It's amazing protein, but the general public is being told, no, there's nothing left. The ocean's dead. Let's build windmills and put up more real estate grabs on the ocean because there's nothing else out there. And it's even funny than that for the first time in a long time seeing that conservation does work, we had giant bluefin tuna off the beach here this year, the first time in large numbers that they've been off the beach in 50 years. So conservation does work.

Ryan Nebeker:

US fisheries policy is one of the rare examples where over the course of the 20th century, we've really been able to get back on track in a big way and promote regulations that generally work for the fish. And there's a caveat there because some of the fishery regulation that we've imposed doesn't always work for people in fishing communities and that's worthy talking about on its own. But the fact that we through NOAA, which is the National Oceanic and Atmospheric Administration, kind of a gnarly acronym to chew on, because we have good monitoring and good management from NOAA, they're able to shut down certain fisheries, allow them to recover. They're able to set catch limits on others to say like, Hey, this is the maximum amount we can take per year. If we take more than this, we're putting the population at risk. And through that regulatory process, you've had a number of success stories. If we manage fisheries well, there's a lot of food in there and there's a lot of food that we can pull out of there in a way that doesn't inherently damage the ecosystem.

Jerusha Klemperer:

Buck Jones, who spoke about salmon at the top of the episode, represents Indigenous fishers on the Columbia River. And the stewardship he described to me is a good example on a community level of how stewardship can help keep fish populations afloat. He told me about some of the threats to the salmon in the Columbia River, and there are a lot, but also about the approach, the Indigenous communities who fish there are taking towards conservation.

Buck Jones:

My name is Buck Jones. I'm an enrolled Cayuse tribal member, which is one of the bands of the Confederated Tribes of Umatilla Indian Reservation, which is in Eastern Oregon. The Umatilla Reservation is one of the four member tribes that my agency, Columbia River Inter-Tribal Fish Commission. Yeah. It's one of the member tribes along with Warm Springs in Oregon, Yakima Nation in the state of Washington, and Nez Perce tribe in the State of Idaho. I'm the salmon marketing person. I've had that since 2015. I've been employed with CRITFC, that's the acronym for Columbia River Inter-Tribal Fish Commission, in different capacities since 2004. I'm a former tribal fisherman. The member tribes that we represent have treaty fishing rights along the Columbia River, and in our tributaries of the reservations I name.

Buck Jones:

I was raised in Eastern Oregon or whatever and my father taught me how to fish, and I didn't fish on the main stem of the Columbia. We started fishing for salmon in the tributaries. We would go up and it's called gaffing. Gaffing a salmon. You go along the tributaries where they're born and you kind of like go along the river and they've got long poles and you put a gaff hook on the end of it and then so you go around and you try to catch those fish. And when you gaff hook it's got a lead line on it. So it'll fall off the pole and then you got a way to control it. So that was my experience into salmon fishing.

Buck Jones:

The Columbia River at one time was a free flowing river and this day and age with hydroelectricity dams, it started in the late 30s, it made these rivers like big lakes or whatever. So there's 1, 2, 3, there's four dams in our fisheries. It's made the temperatures rise. It's really had large impact because of global warming. But what we can do on the reservations or the spawning areas, we can do stream restoration. We can change the flow of the river or the creek, so that it doesn't just go straight down the river. That it meanders through there... Like I said, we have our own watershed department, we have our own meteorologist, so that we're looking at the lack of snow and stuff like that that's in the mountains and stuff like that. It's been decreased recently, glaciers that we used to have not just in our area, everywhere, they're not there no more. They're really shrinking quickly. So we do the best that we can with the science that we have. But we also use our indigenous knowledge to the best of our abilities.

Buck Jones:

It's part of our way that since the salmon comes back, we got to be good stewards of the land too. And good stewards of the land means taking care of the water and the streams where they return to for spawning, because if the salmon don't come back and we don't take care of the land when they go, and we're seeing impacts because of global warming and things, our seasons are changing. The fish are returning at different times. It means taking care of the streams back home and stuff like that. So they return, that's the way we got to be. So when we set our seasons, we're thinking about the escapement that gets back to where they spawn so they can come back because we believe as tribal people, if the salmon don't return and they don't come out, then we're going to not exist as people.

Paul Greenberg:

The biggest thing, as far as salmon is concerned, the thing that we really need to do is protect American rivers and the spawning grounds of wild salmon. And you alluded to something called Pebble Mine, which was a major mining development that was on... It was initiated, it was killed during the Obama administration. It was revived under the Trump administration and then it was killed right at the end of the Trump administration. And now the Biden administration, I think, is trying to restart what's called a

404c process within the Clean Water Act that creates federal protection over and above state authority to protect watersheds of national importance.

Paul Greenberg:

The idea is to get the Bristol Bay Watershed locked up under a 404c agreement so that hence forward, there will never be another threat to those spawning grounds. There are minds and different ideas for all sorts of Alaskan rivers and as temperatures warm, and as people move to Alaska as surely, they will, all those same development pressures that cause the pretty much commercial extinction of salmon in the continental United States, as we know it to take place. There are still wild salmon in the continental US, but they're largely propped up by hatcheries because we don't have the spawning grounds that we used to have.

Paul Greenberg:

So I would say before the land rush for Alaska happens, we need to push for kind of an enshrinement of salmon as sort of part of the identity of the state of Alaska. There's a small nonprofit called Salmon State that's trying to do just that and working on a number of different legislative issues to try and make that happen.

Jerusha Klemperer:

This kind of approach is also important in other places that are home to wild salmon. Climate change is impacting populations everywhere, not just Alaska. In places like the Columbia River, for example, we need to protect salmon habitat. So the fish have the opportunity to adapt, to changing temperatures and conditions. Something salmon have actually proved to be good at, but it's also true that in some places right now, wild salmon populations are at dangerously low levels. And one way to be part of that solution is not to eat those fish. I talked to Renee Erickson, a chef and restaurateur in Seattle who five years ago made the decision not to serve any King salmon on her menus. Despite the fact that it's a delicious and iconic fish, one that lots of locals want and expect to see on a menu, especially at a nice seafood restaurant.

Renee Erickson:

My name's Renee Erickson. I'm a chef in Seattle, Washington, and co-owner of a company called Sea Creatures. And over the past... Well for 25 years, but really in the last, I'd say 10 or so, I've been able to focus our company and our efforts around sourcing to as sustainable as we can be as far as choices. And kind of always learning about that and how to make better choices in regards to food. I grew up here in Washington and grew up lucky enough to get to go salmon fishing. So I've spent a lot of time on the water in the Salish Sea. As a young person, and salmon as a species and as a iconic thing here in the Northwest has always been really kind of central to my childhood, really. And then as I've grown older and become a cook, realizing the value of it and how quickly we're kind of destroying it.

Renee Erickson:

So as a person from here and someone who really cares about the traditions and obviously the long heritage of the Salish peoples that lived here and sustained their lives on this fish, it's really become very important to try to do right by that and hopefully keep them alive and everything that survives on them. It's such a complex and incredible species. We stop serving King salmon five years ago maybe now when Tahlequah's calf died.

Speaker 8:

Marine biologists are keeping a close eye on an endangered orca off the waters around the Southern Gulf Islands.

Speaker 9:

It's a sad, sad story of grief and loss. For the past week, a mother orca known as J35 has been carrying around her dead calf off the coast of Washington.

Speaker 10:

Southern resident whales are already closely monitored because they're endangered. There are only 75 left.

Speaker 11:

This little calf was a girl, which would've been really important to this community because she would've been able reproductively to contribute additional calves. So it's sad on so many levels.

Renee Erickson:

I didn't have a long thought in my head about this. I wasn't like confused as to what I knew I should do. And it was like, why am I eating this fish, this animal that requires so much to survive and the pods in the Northwest are dwindling in numbers for a number of reasons. But one of them is the fact that there's not enough food. And it just was like, what am I doing? Like, I don't need to eat this fish to survive. This is a luxury that I get to partake in, and that's ridiculous for me to continue to source that as a protein on my restaurant menu, because people want to eat salmon and it's just like, this is crazy.

Renee Erickson:

But we're kind of facing it again largely with wild salmon in general. We don't serve any farmed salmon at all. I'm very opposed to that and I'm not opposed to aquaculture. I think it's obviously a really important part of our future in feeding people, but we haven't figured it out and we're pretending like we can make the same mistakes that we've made with chicken and pig and cow farming, but doing it in the oceans and hiding it away from people. But yeah, those decisions of like what to do and how to do the right thing is a real big part of what I think of all the time when I'm considering putting things on my menu and why. And I think it's not fun. It's certainly not the better part of my job, but I think it's an important part of it, for sure. Some of the chefs that I jokingly said I gave hell to about buying farmed salmon they have often said to me, well, we have to have salmon on the menu and I'm just like, do you?

Renee Erickson:

Because I have, what do we have? Seven restaurants and... We almost never have salmon on the menu. We're in Seattle, we have three seafood restaurants and salmon is rare for us. And somehow we survive. People still come and have delicious food and aren't angry at us because we don't have salmon all the time. What we do have more of now than we ever have is frozen salmon that we use and, or sell, all from Bristol Bay, all Sockeye that we get. And that, I think that's the story that is surprising to people, when we say largely most of the fish that... As a consumer, if you're going to buy salmon anywhere else, except from a fisherman, you probably should buy it frozen, because it'll be in better shape when you go to eat it.

Jerusha Klemperer:

Paul Greenberg had the same advice about how to enjoy wild salmon, head to the freezer case.

Paul Greenberg:

So the biggest mistake most consumers make is to go to the fresh counter outside of salmon season. So the Alaskan salmon season basically starts around the mid to end of June and goes through the middle of August all other times, except for a small trolled king market that happens in winter, all that is coming frozen to the supermarket. So if you see Sockeye salmon lying on ice in the fresh counter, it's been defrosted and often weirdly they'll mark up the price because it sort of like it has this air of freshness and people think, oh, that's what I want, and they'll pay the top dollar for it. And it's frankly, an inferior piece of fish. So what I always do is I go to the frozen counter. What you want really are those individually vacuum sealed, frozen portions that were frozen, literally seaside as they came out of the water, and so it's like really high, high quality.

Paul Greenberg:

You also can go for canned fish and for canned salmon. I have replaced canned tuna in my house with canned salmon. It's almost always wild. There's no canned farmed salmon to my knowledge. To me, that's a pretty nice switch because you get higher omega 3s than tuna, you get non-existent mercury content, you know that you're buying from a largely sustainable fishery, and a can of tuna, I think what is it? Usually 2 bucks, can of salmon is more like 3, 3.50, but it's kind of not that big a difference so that you're stretching it out anyway with celery and onion and Mayo.

Marianne Cufone:

I think seafood's really complicated when it comes to the marketplace. Consumers are removed I think a lot from how seafood is produced and how it gets to their plates because out of sight, out of mind. Right. Fish are underwater and we have this romantic notion of the crusty old fishermen going out on their boat every day and cranking a hand line and throwing it in the boat and bringing it for processing. And it ends up in your supermarket. Most of the time that's not really how it works. There is an incredible amount of farmed seafood that comes from abroad in the marketplace. And when people ask me about how to choose what they feel is responsible or smart seafood, it's hard to give advice quite frankly, because my best advice is get to know your fishing folks. And if you live in a place where fishing is common, Florida, Louisiana, Mississippi, Alabama, Texas, California, Washington State, Alaska that's easy if you live in a place where people fish. If you do not live in a place where people fish or produce seafood, it's much more challenging.

Marianne Cufone:

But my first and best advice is learn where your seafood came from. Right. Even if it's frozen in a case, read the label. In some instances, frozen seafood's the best thing you can buy because it's been flash frozen on a boat and gone straight into the grocery and it's fresh pretty much. It's as fresh as you can get. Generally speaking, if you're going to eat farmed fish, I tell people to look to mussels, clams, oysters, many of them are farmed responsibly and carefully, and those are good choices. Always try and go wild first, always try and go domestic first. In terms of labeling, that's a difficult topic. There are a lot of seafood labels out there. Most of them are done by the industry for the industry, and in many instances, they're what we call pay to play. So meaning the fisheries that are able to pay for the certification are those that get certified as sustainable. That doesn't mean that they actually are. So I

often tell people to avoid the labels entirely and trust themselves and their own research and their own comfort levels.

Jerusha Klemperer:

I asked both Paul and Renee for cooking advice for wild salmon. Since most people are used to cooking farmed salmon, and I know from my own experience, they're really different.

Paul Greenberg:

The place where most Americans intersect with wild salmon is going to be Sockeye salmon. Sockeye salmon are significantly leaner and the filet itself is thinner. So you are at much greater risk of overcooking it. It doesn't have fat content. And most people don't quite know how to cook an Alaskan Sockeye. When I cook Alaskan Sockeye, I just do a very simple recipe. It's skin side up, under a broiler for five minutes. Farmed Atlantic is big, it's fatty, it comes from a filet two or three inches thick sometimes. It's got ribs of fat in between the different plates of muscle tissue, and it's just very savory, overcooking it as I said earlier is less of a risk. It's a little more neutral tasting maybe than wild salmon.

Paul Greenberg:

I think anytime you feed a fish on a diet of industrial feed that has a fair amount of fish in it, but it also has soy in it and other plant products. So it's more likely to kind of resemble other farm products in a way. That kind of sort of neutral farmed taste. To think about, if you eat a pheasant versus eating a chicken, if the pheasant has all sorts of funky notes all over the palette, whereas chicken is just a smooth one note kind of thing. And I think that's kind of what happens with your farmed Atlantic, it's just a neutral kind of thing and so I would say, Alaskan Sockeye really benefits from very, very simple preparations that if anything, just sort of highlight a little bit, the native tones and notes contained within the fish.

Renee Erickson:

If you can get Sockeye, I think it's largely, some would argue as delicious as Chinook. The fish aren't as big and they're not as thick. They're not going to have that big thick steak like quality. If it's coming frozen, if you can just let it thaw in your fridge. What I tend to do is slow roast fish. So at 225 degrees for like... Depends on its thickness, but like 45 minutes or so. And it ends up, I wouldn't call it raw like texture, but it doesn't... I don't know how to describe it, but salmon that's overcooked kind of takes on this weird squeaky thing that I hate. And so having it slow roasted, it just has this super luscious texture. So put it on a sheet tray, you can rub some olive oil if you want on it or old school Shirley, my mom's style, just some mayonnaise all over it, which turns out is actually damn delicious.

Renee Erickson:

But for the longest time, I was horrified that she did this to salmon, and now I'm like, maybe it wasn't a bad idea after all. Poaching it too, another great thing. If you really want to be crazy, poaching it in olive oil is really nice. And Sockeye, if people haven't bought Sockeye, they're missing out. It's a really fantastic fish. But yeah, I think just trying to use lesser showy species is also a really great thing to do. Salmon, it shouldn't be something that you eat probably weekly. Unless you're eating a fish, that's a pink or something like that's been preserved, but this is a like a luxury item. It's not something that we should be sustaining ourselves on anymore unfortunately. That used to be the case, but not now.

Jerusha Klemperer:

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