

Atlantic Salmon feat. Dan McCaw and Rory Saunders

Hey to all you fish enthusiasts out there. Whether you're an avid angler or just curious about fish, we'd like to welcome you to fish of the week. It's Monday, June 7, 2021. We're excited to talk about all the fish. I'm Katrina Liebich with the US Fish and Wildlife Service in Alaska.

And I'm Guy Eroh, a roving fisheries technician.

And our fish of the week is the Atlantic salmon. Our guests today are Rory Saunders, who's a fisheries biologist from NOAA National Marine Fisheries Service. And Dan McCaw, who's the fisheries program manager for the Penobscot Indian Nation. Both are based in Maine. So welcome you two.

Thank you.

Yeah, thanks for having us.

So could one of you just described you know a typical life of a salmon? How does that go?

Salmon 101. Let's see how we do this. Well, right now it is June in the state of Maine, the Atlantics are starting to come in and be caught and the salmon have been out in the ocean. So they're coming into freshwater and they have one thing on their mind, I need to get upstream. I need to hunker down and I need to find a place to spawn this fall. Now salmon when they come into freshwater they don't eat. But these salmon are beyond Olympic athletes, in the most pinnacle condition of any animal around the globe at any time of its life. You're talking about peak performing unbelievable condition. So they can withstand not eating for five or six months and hanging out and fighting and live all the way till next spring go do it again. So they go all the way up the river. If they can, they find a cold water deep pool. Now these salmon can smell things, they can feel things in the water, they know that there's other salmon around here. So not only are they tied in genetically with past generations and things we can't even understand as an animal with just five senses. But they know things and feel things that we can't understand. So they go to these places where there are other salmon where they were raised right in the rivers they were raised in as juveniles. They hunker down all summer they try to avoid the poaching, I go out and chase them around with my camera and take pictures of them. And then in the fall, the great roundup begins and the males chase the other males around and bite each other and fight for the right and the privilege to spawn with these females that they found. And deep in the gravel with these eggs are buried all winter long, they lay nice and quiet, covered in ice hopefully covered in in flowing ice cold, highly oxygenated water. And these little eggs with these little developing salmon do their business all winter and they grow and grow and grow. And then in springtime when the water warms up enough and keyed in perfectly with all the insect life coming alive at the same time they had and then they're in freshwater and they live in these beautiful cold water streams in Maine for two years, until they're both the size of a cigar. And then that spring after two years, they turn bright silver and lose their power marks and their spots and turn bright silver and then make the mad dash for the ocean. But again, much superior to their Homo sapien comrades, they turned a switch inside them that allows them to live in salt water, which to me is mind blowing. I have trouble just being in water much less being able to breathe salt and freshwater. Their bodies undergo this massive transformation which very few fish can do. And they go out to the ocean and they travel. Where do they go, they go to

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Greenland, they go up around Quebec, up through past Nova Scotia, up by Newfoundland and they head to off the coast of Greenland for the North Atlantic with the with the food hopefully is really plentiful. And they live there for a year, year and a half. And they go from a cigar size to a full size salmon that we know 12 to 15 pounds. Then they turn around and they head back to Maine to come visit us again in the springtime. It's wonderful. It's like it's on par with the with the caribou in northern Canada, in Alaska and on par with the great migrations that birds do every year or that all the animals do across the African plain. We as Mainers are so privileged to have this animal live here with us and I'm so glad that they're coming back this season. So fingers crossed for a good year.

That is the best life history description I've ever heard.

That was not a story that was a performance.

That's for you kids out there.

The Pacific salmon of course they die after they spawn. I didn't hear that in your story there. Do they die after they spawn? Are they able to return to the ocean?

Well, they can. They can. They're very fortunate in that way. See the salmon out west really act as fertilizer for those rivers in a lot of ways, not for the rivers but the whole landscape here in Maine. We have other fish to do that duty. We have sea lamprey, and All these herring that come in and they fertilize the drainage so we're lucky enough that our salmon can turn around and spawn multiple times. It's very challenging these days, because every time they go upstream, they encounter danger, fish passage facilities, hydro dams, etc, etc. And when you do that once you have to get back to the ocean and downstream passage is the more most dangerous route for a salmon or any fish in our rivers here in Maine.

Yeah, and just to build on that a little bit, Dan, it's, it's really important sort of biologically from a population standpoint, you know, those fish that are repeat spawners, you know, those are the biggest of all the salmon in any population, right? Those are the ones that are going to have the most eggs. Not only that, but they've done it before they know how to do it, they're very good at it, you know. So from just from a population standpoint, the loss of those repeats, honors turns out to be a really big challenge biologically,

Is there any concern about some of these farmed fish that are out in the pens off of Maine's coast, escaping and possibly introducing, quote unquote, bad genetics into the endangered wild populations?

Those genetic issues are a very big concern. But it's not limited to just genetics, there's also disease issues. Sea lice can be a challenge as well, particularly for wild Atlantic salmon smolts that are migrating out to the marine environment. And these are, these are fish that have that are in pretty bad shape, thanks to several centuries of damming pollution, overfishing, lots of other challenges in freshwater, but also some challenges in the marine environment. You know, the wild salmon that we have here in Maine, of course, they still possess, you know, river specific adaptations, local adaptations that are that are honed to their, to their own rivers. And those fish that are that are raised in farms, they

don't have those same adaptations. So they're really a very different fish, even though they are sort of members of the same species. Fortunately, we have a really good program, a regulatory program, that that's overseen by several state and federal agencies, primarily the Maine Department of Marine Resources. And here in Maine, there's, there's actually a pretty good program to make sure that those potential risks are limited.

If you were to take a snapshot of the fish community and the Northeast rivers back and say like the 16, or 1700s, and one today, how would those two pictures be different?

Certainly back in the 1600s, the rivers here in New England would have already been impacted by colonial expansion, it was very common for colonial people to start transporting fish from one range to another. However, I think the species composition would be relatively the same as it is today. However, today we've had many different species of fish come to Maine, the smallmouth bass is new to our waters since the Civil War. Black bass in general are new to Maine. And you also see fish being brought in for sport reasons, rainbow trout, brown trout, the biggest change would be the sea run fish, because in the 1600s, the mainstem rivers were not dammed. So you had those 12 or 13 species of fish that came in and the literal billions of fish every year into the Gulf of Maine. And most of those are gone these days. They really exist as remnant populations in small pockets. And the one that sort of highlights is our poor Atlantic salmon, I don't mean poor in the sense that they're any less magnificent than what they are. But they are that they're existing on by a by a thread these days. And I know, you know, in having the privilege of working with tribal people for as long as I have, there's a sense that it doesn't have to be that way. And the solutions are very simple.

I'm curious about how the range of the Atlantic salmon might have changed over that same period of time is, are you It's my understanding that right now, you're towards the southern end of the Atlantic salmon national range in North America, it's always been the case, I think

it is the case, I think Maine is at the southern end of the range right now, historically, the range would have gone to Long Island Sound, as I understand it, and but the range has contracted and salmon really loved cold water. And they're not afraid to exploit cold water as it comes about through many ice ages and things like that. But they also have to retreat to that. So we're fortunate, you know, we a lot of people talk about salmon, you know, in the United States, salmon, you know, listed as endangered species and things like that. And it is so important that we do everything. We can't protect these animals in Maine and beyond. But we have to that we you can hold one little bit of warmth in the in the depth of your heart for salmon and know that in the Arctic, where it is really, really bitter cold. They can still hang on up there so long as it stays cold up there. But we'll see how long that lasts.

Yeah, the one bit I'd add to that to Dan, though, is you're right that that the range appears to have contracted pretty substantially here the last 100 years or so. But it's an important Note to though that some of those tributaries and like say, for example, the Connecticut River, you know, those are still cold water tributaries that still can support salmon. One of the main challenges is that they can't get to and from Long Island Sound on the timeframes that they would need to biologically. And that's been a big source of challenge in terms of restoring salmon to the Connecticut River to the point where you know that program is essentially no longer in existence, that Connecticut program is really no longer.

So I want to talk a little bit about kind of their historical presence is food. So I mean, these fish were historically, you know, a target for food before settlers arrived for, you know, Indigenous peoples as the settlers were there. Maybe, Dan, you could help us, you know, just learn about some of the culinary traditions in the United States?

Salmon have been on the diet for tribal people in Maine always, always. But the thing that I think is more important, is how that piece dictated lifestyle choices, timing of families moving. The connection was tribal peoples spent the winters in family groups or clans in the upland habitat. In the forest, you get protection from wind, you were able to dig in and hunker down and keep warm. And also the game was plentiful deer, moose and caribou, those kinds of things. So that's where most tribal people spent the winter. In the spring time, after a long cold winter in Maine, they would travel to certain key places, on rivers in Maine to fish because this was the first source of fresh protein for a very long time. Certainly the salmon was very important. It was one of the most prized food fishers coming up, the tribal people here in Maine, developed their own specific spear for salmon. So the tribal people had many ways to catch salmon, spearing being the most dominant, that I know of. More than likely, they use weirs. They use nets and other methods, it's more than just an opportunity to eat. That opportunity was so important to tribal people over so long of a period of time, it was embedded into their culture, into their into everything that happened, we talked about the life cycle of Santa, we could talk about sort of the yearly cycle of humans on this landscape. And salmon were such a key part of that. It dictated it.

And then on the other side of the Atlantic, we've got Greenland and when the salmon go out to the ocean to feed, they are intercepted in their ocean home too. So maybe you could talk to us a little bit about that.

Their migration in the marine environment is really amazing. And, you know, they travel all the way up to the west coast of Greenland. They make, you know, several stops along the way, and pretty much anywhere they come in, you know, contact with humans, you know, we as a species have figured out how to capture on them, including, you know, along the way off the coast of Newfoundland and Labrador, there is a still a small fishery off the west coast of Greenland. And, you know, in through the 1970s, there really wasn't a mechanism to sort of regulate that fishery until the convention for the conservation of Atlantic salmon in the North Atlantic was signed, and that basically created NASCO, the North Atlantic Salmon Conservation Organization. So that that means that Atlantic salmon is one of the few individual species that have whole international convention where, you know, countries like the United States Canada, you know, have signed on to this international agreement to reduce the fisheries in ways that are consistent with you know, modern scientific fisheries management.

So what keeps you and all of these people that are working to recover Atlantic salmon and conserve Atlantic salmon what inspires you?

My inspiration comes from the look on kids faces when they see a salmon for the first time they see an adult salmon at and also I'm really motivated personally, when I see an adult salmon or juvenile salmon or any salmon any at any at any time, I don't like to see them in the hatchery that doesn't give me the warm, fuzzy, but I do like to see them out on the landscape, I realized that I'm in the presence of

something that is very different than me. And oftentimes, I think humans have this notion that they are superior and that we can do we are the only smart ones on the planet. And we can do what we want. Heck, we could send a man or woman or person into space. But if you ever get into the water with Atlantic salmon, you even with fins on, you want to be taught a lesson in humility real fast. Yeah, that's the way to do it. And to share that with my 10 year old son and to hear him tell other people about it. That's what really motivates me is that connection to realize, if no one else is going to fight for these fish, if no human if I don't do it. Who else is better suited to do it than me? I'm right in the middle. I'm right in the mix. There's no quitting now.

Yeah, good answer, Dan. The thing I am legitimately motivated by is all the progress that we see. Now, that's not necessarily manifest in adult returns from year to year, like we don't see a steady uptick. But we do see a steady progress in terms of the amount of habitat that's available for Atlantic salmon and the full suite of sea-run fish. When we removed the dam, we saw real legitimate progress being made when some of the big dams in the province Scott were recently removed, and we see lots of other smaller dams being removed, you know, over the last couple decades, that's real, legitimate progress. So that that absolutely motivates me. And, you know, on these sorts of questions, I think we have to take the bigger picture view, the long view, because there's over 200 years to dig all it's gonna take more than then a couple of decades to dig it out. And every time I see, you know, whether it's a dam removed, or another habitat restoration project, that that comes to fruition, legitimate progress. And that's, that motivates me.

How do people stay connected? What are some things that you would like people to know about these fish and what they can do to help?

Salmon benefit from clean water, we all benefit from a healthy Penobscot River, which is the blood that drains this landscape that we all share. So I think by becoming engaged with your community, whether that be helping out the local school to put on programs going to a town meeting, and talking about how we can get clean water, how we can do a little restoration project in our own backyard, how we can do little steps in our own life. To make things easier for the salmon. That's the way to connect. One thing that we need to leave room for is time in our lives just a little bit of time to say, Hey, we all benefit from healthy landscapes, healthy water on my in my backyard is good for my children. It's good for my dog, and it's good for the salmon. So hey, why don't we do things a little bit differently next year than we did last year?

Yeah, I'd agree with that. Dan, you know, our salmon recovery efforts here at the southern edge of the range are probably going to be dependent upon, you know, bringing along other components of the of the sea around fish community, namely things like river herring and rainbow smelt. There's some pretty direct connection between these other fish and Atlantic salmon, in terms of, you know, essentially services that those other species provide for Atlantic salmon. So one of the ways that, you know, we like to connect with some of our recovery efforts is actually you know, to go and see an Alewife run, one that's kind of close to home here is actually on Blackmon Stream, which is a lower river tributary of the Penobscot. And, you know, that stream literally runs black with our wives this time of year. And it's just an amazing thing to see, particularly in a place that hasn't seen alewives in over 100 years. So and it's, it's really, my kids, actually, you know, want me to take them there this time of year because it's such

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an amazing, amazing sight to see, not only abundant runs with our wives, but you know, the things that eat the alwives: ospreys and eagles, you know, in numbers that really substantially rebounded. So those are, those are absolutely part and parcel of our of our Atlantic salmon recovery story these days. And, again, one that's really nice to share with the next generation of conservationists coming up.

Well, thank you guys so much. It was great. hearing a little bit about these amazing fish and thank you for all the work that you all are doing.

Thanks for having us, that was a lot of fun.

We hope you all get out and enjoy all the fish. Thanks for listening to Fish of the Week. My name is Katrina Liebich. And my co host is Guy Eroh. Our production partner for this series of Citizen Racecar. The show is produced by David Hoffman co-produced and story edited by Charlotte Moore. Post production by Garrett Tiedemann. Fish of the Week! is a production of the US Fish and Wildlife Service, Alaska Region Office of External Affairs. As the Service reflects on 150 years of fisheries conservation, we honor things and celebrate the whole community, individuals tribes, the state of Alaska, our sister agencies, fish enthusiasts, scientists and others who have elevated our understanding and love as people and professionals of all the fish.