

Kodiak Crayfish feat. Tammy Davis, Matt van Daele, and Jeff Woods

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 14 2021. And 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, an unofficial fisheries teaching assistant.

We're gonna go a little cray cray since it's Alaska invasive species Awareness Week and talk about the crayfish of Kodiak Island. Our guests today are Tammy Davis, who's the Invasive Species Program Coordinator at the Alaska Department of Fish and Game. We've also got Matt van Daele, a Tribal Biologist at Sun'aq Tribe of Kodiak. And we've got Jeff Woods, who's a crayfish fisherman and also a police officer. So welcome you three.

Thanks for having us. Thank you.

So for folks that aren't familiar with crayfish, they're obviously not a fish. They're a little more like a freshwater lobster. Some people call them crawdads and I was reading that there's over about 600 species of crayfish worldwide. But until recently, Alaska wasn't really a place where you think to find crayfish. Is that right Tammy?

Yeah, that's right. There are no native crayfish in Alaska.

There's no native crayfish in Alaska. But crayfish have arrived in Alaska. Is that the case?

We first learned about crayfish in 2002. We have reports occasionally from 2002 to 2011. And then a student was out fishing in Buskin lake and found several of them. So that following summer, we did some opportunistic trapping. We weren't that successful. And maybe, Matt, since you were on one of those crews...maybe you want to talk about your experience.

Yeah, sure thing. Matt van Daele here, the tribal biologist with Sun'aq tribe of Kodiak. And a long time ago, back in 2003, I was a brand new high school intern with sport fish division here in Kodiak. And my buddy and I got sent out by the sport fish biologists to try to trap these crayfish. We assumed that we were being sent out on the snipe hunt or something like that. I'm embarrassed to admit now that our method of trapping involves just simple minnow traps in Buskin river itself. And we didn't get any crayfish at all. We got a lot a lot of crushed traps from bears coming in checking them out and trying to get to the bait inside. But fortunately as years have gone on, folks have gotten very adept at catching crayfish and trapping crayfish. So that that's kind of hopefully making up for some of my bad karma accumulated for not being more successful. One of our guests today is one of those students, if not the student that actually was first successful at catching crayfish, including females with eggs.

Yeah, Jeff, I'd be curious how you're catching crayfish. What are some of the methods folks are using?

So the first one back when I was in high school, was completely by accident. I was out with my dad doing some silver fish and by the outlet of Buskin Lake. And there was another gentleman sitting next to us and saw something under a rock but he was too scared to try and grab it. And it turned out to be a

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fairly good sized signal crayfish, which I later took to my high school natural resource teacher, Jane Iseman, and then it went from there.

I'm familiar with white tubercle crayfish got white bumps on the claws. We got you know, red swamp crayfish are an invasive species down the southeast. Signal crayfish is an interesting name. Why are they called that?

So they tend to be brownish to bluish, but they have at the joints in their claw where their sort of pincher and their main part of their claws join that joint. They have a white spot there. It's kind of their signal.

Right on. Is that the only species that has been found in Alaska so far?

It's not actually. Red swamp crayfish have been found down on the Kenai Peninsula. Somebody had imported some crayfish for a crawfish boil. crayfish, crawfish, tomato tomato. Their young children wanted to save some of the crayfish so they released them. They didn't fare very well. They're some of the more southeastern crayfish so the cold waters of Alaska were not suitable habitat.

The red swamp crayfish got introduced on the Kenai cuz you had some people releasing them after a crawdad boil. I mean, it sounds like it's still a little bit of a mystery. But if we knew anything about the general introduction, if it was a food fish, or how else they may have gotten into Kodiak.

We suspect that the crayfish were brought into Kodiak either as a pet...you know, maybe somebody who lived in crayfish country, grabbed one out of the creek, turned it into a pet, brought it with them when they came to Alaska. And because of the Coast Guard Base, there's a pretty high transient population in Kodiak. So we think that either it was released as a pet, or there's sometimes used as bait, that seems less likely that somebody is going to bother importing crayfish to use this bait when there are other options.

So where are these signal crayfish found naturally, I mean, Alaska is kind of tough winters.

The native range is basically the Columbia River Basin. The southernmost populations are in that northwestern corner of Northern California. And then they kind of range up through Oregon, up into Washington, although not around the Puget Sound area, and then even up into British Columbia, a little bit into the panhandle of Idaho. That's their native range. They've been introduced into Central California, Nevada, parts of Oregon, where they aren't native, as well as Utah.

Matt, now we know you got a Tribal Wildlife Grant that's funding a study looking at the distribution and the movement and the diet of these crayfish. Can you tell us a little bit more about that, and what you guys are finding?

Yeah, sure thing, so that that grant actually just ended. And I'm in the process of writing up the final report right now. And so what I'm hoping we actually just got a brand new grant from Bureau of Indian Affairs, their invasive species program, which is going to fund another full season, potentially, a full season and a half season and next year of very concerted effort to remove as many crayfish as

possible from these higher density areas, we're going to be getting samples of at least 50 of their main likely food resources, because there's there's a possibility that they're different food resources might have a unique signature, unique isotopic signature and be just enough that we would be able to develop a mixing model to see what proportion of their diet are coming from plants or animals. And that would that would be able to tell us where they're operating on the food chain. And also, if you know they're eating animals, are those animals going to be salmon? If they are eating salmon? are they eating a whole lot or just a little?

In your expert opinions, what are some of the biggest fears that you have from these crayfish being introduced? Or if they were introduced in a new place what might they do to the ecosystem?

Like most invasive species, signal crayfish are great at reproducing and pretty easily going in terms of their habitat needs, they heavily predate on invertebrates. And you know, invertebrates are really important to salmon food webs, but also just to the greater food web of the ecosystem. And that predation on inverts, you know, in some studies, they found that there's a 60% reduction. So that's pretty significant. That's really pulling out a lot of essential food for other organisms that either eat or just kind of tear up and destroy aquatic plants, it can crash the DO--the dissolved oxygen--in the system, which is really problematic for anybody else living in the lake or river system. But one big problem over in Europe is that signal crayfish carry specific pathogens, namely one that that is the "crayfish plague." And so since we don't have native crayfish, we don't need to worry about that. But it's a good reminder that anything you release into the wild, whether it's a fish, or you're the aquatic pets that you no longer want, they may be carrying something that could negatively impact native species.

Along with their behavior, they also tend to burrow. And fortunately, signal crayfish aren't like a real extreme burrowing species or some other species that burrow a lot. But signal crayfish burrow enough to be a definite concern, especially if they're born into a salmon redd, for instance. Yeah, disrupt that habitat, but also find a bunch of salmon eggs to eat.

Is there anything any species that might benefit from the crayfish being there within the ecosystem, anything that might prey on them?

There's a chance that salmon might prey on juvenile crayfish, obviously, not enough to reduce the population. And Kodiak's a really good example of that.

And then we've got, of course, humans preying on crayfish, how popular is the fishery on Kodiak for fishing for these guys?

In my experience, it hasn't really taken off. There's been a core couple of groups of guys that go out kind of periodically attempt to do it. It's kind of a weekend thing, mostly with traps. Traps, you kind of have to do it right and Kodiak. Diving. I've seen them where people have made the openings too small and you'll have 6070 crawfish around the outside of the trap. Oh no. Yeah. So it's people's lack of success, I think turned a lot of people off pretty early. The most efficient way I found has been by diving.

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Okay. Yeah. Can you tell us a little more about how you how you do that like how deep you go and are you? Is it snorkeling or actually Like, yeah, where are you doing it? And how are you doing it?

I've caught crayfish as shallow as two inches of water and as deep as 18 to 20 feet.

Oh, wow.

I've tried walking with just my Xtratufs down the first little portion of Buskin River every year since probably 2017 and in 2017 I think I caught 16 in around April. This year 103 in about three hours.

Oh, wow.

So I've caught crayfish before and they like to do that little backwards scuttle. How do you How are you catching them where they're not like getting away from you? And that way you'd like trapping them kind of under a rock or what's your technique?

Generally, you know, what's, where they're going. So I come from behind them and grab them that way they go towards your hand. I have used nets with success and a lot of the crawfish we catch here are actually big enough that they won't go through the mesh of a normal, like release sized salmon or steelhead net.

Okay. Wow.

How do you store the the little crawdads as you're moving along? I'm imagine if you're catching 103 of them, do you get like a bag with you or some sort of box?

So that time I didn't really start my day trying to go catch crawfish. I just thought I'd be fine and go try and catch some Arctic Char, Dolly Varden. I found I was a terrible Dolly varden fishermen that day. So I stored them in the pedal drive of my kayak.

How big are they? Like what's the kind of what's the eater size?

I've caught them anywhere from as small as you can see, like the, I guess half inch in length to I've caught them were from the tip of the claw to the base their tail, they're longer than my hand and wrist.

Oh, whoa. Okay, so pretty big.

When you catch one of those little ones where you know, it's not eatin' sighs but also you don't want them around? What What do you do with that?

I tend to crush them. And as a result, the rainbow trout and Dolly varden Very much like me, there's generally a cloud of them behind.

Nice

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Good answer. Good answer.

I always like when the invasive species can be turned into food sources, that idea if you can't beat it, eat it.

So in terms of on Kodiak Island, are they just within the buskin River Watershed? Or have you guys found them outside of that area?

So far, all we know is that they're in Buskin Lake and part of Buskin River. There are many, many tributaries, the river itself is about three and a half miles long. So there is a lot of ample habitat for them to colonize. And check out and one of the other things that we're working on right now is a new grant to set up kind of a an early morning network using eDNA, environmental DNA from water samples that we'd be taking in some of these other tributaries to determine if they're potentially crayfish present in these because of such a large area to cover. And it's kind of tough walking tough hiking, prime bear habitat, if we were able to come up with a an effective early morning network, that could help our efforts quite a bit more. Another thing too, is that this would be an effective means to help with our citizen scientists like Jeff because just the other week, he was telling me about strange little holes that he was observing in another river system that looked very much like crayfish burrows. And so if we get any DNA monitoring technique going here in Kodiak, when we receive reports from concerned citizens and citizen scientists, we'd be able to do something about it rapidly.

And for folks who aren't familiar with eDNA, so that's where you actually take a water sample, correct. And you find basically bits of crayfish DNA in the water. So you don't actually have to capture the crayfish itself. You just take a water sample, correct?

Exactly. The problem is with with crustaceans, they don't shed as much DNA into the water column as other taxa might. And so probably to maximize our efforts, we want to be focusing on getting water samples right around this time of year and maybe a little bit later when the eggs are hatching.

If we're going to talk about folks eating these, how are people preparing crayfish? What's a crayfish boil?

I've actually done quite a lot of them. I think since 2012. I've I've taken conservatively 800 to 1500 of them out of the watershed.

Oh, wow. Nice. Good job!

Oh, they're tasty. They're phenomenal eating crawfish at the end of the day. They're a little sweeter than the swamp crayfish that I grew up catching in the lower 48. In fact, at the reception for my wedding, we did one.

Oh, nice.

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It depends on who you're talking to, as well. I know. One of the gals in the Soil and Water Conservation District very much likes the more Swedish method with lots of dill. For me, I like taking about a dozen lemons, cut them in half put them in with some onions and plenty of Tony Chachere's and call it good.

Do you suck the heads?

If you don't you're not that indeed seafood.

Good answer.

You know, this is a really cruel conversation to be having right before lunch.

I mean, it's an interesting species because they're not native, they're invasive. They're not wanted in Alaska waters, but they're, they're tasty. So I guess you know, what's a take home you want folks to have?

Don't release your pets. Don't do it. The Buskin is a primary sockeye system. I would hate to think that there'll be a preference for invasive species over our valued and culturally relevant sockeye salmon.

The Buskin watershed supports the per capita most important subsistence sockeye fishery here in Kodiak and certainly in the Kodiak road system. And there have been multiple times in the past when even the subsistence fisheries had to be shut down because of low escapement. Now whether this has anything to do with the crayfish you know that that's definitely debatable, but it highlights the importance of this subsistence resource for the entire community of Kodiak, but also just the fragility of this essential fishery. And introducing something like signal crayfish or having signal crayfish get more established is one more thing to upset the balance.

What's the likelihood of a dent being made in reducing and possibly eradicating this population of crayfish on Kodiak?

I am optimistic that we could make a dent, I am not optimistic that we'd be able to fully eradicate it. And the things that we definitely have going for us are the community involvement, folks like Jeff being interested and involved and engaged. Tammy and her crew at Fish and Game, keeping everyone informed about this. So it's, it's definitely a community effort. And another thing that we're going to be working on for hopefully next year is a combination mark recapture study, where we're going to release just rerelease just a few tagged crayfish, maybe 30, or 40 individuals, but then come up with a community derby. So folks catch one of these tag crayfish, they get a prize for every 100 crayfish that they catch, they turn in a scorecard, they'd be entered into a raffle. And so that would be a nice combination of being able to do a mark recapture study to get a good estimate of what the population is, but also still be removing as many crayfish as possible, and also getting the public engaged and excited. And helping out with this invasive species problem, we're going to be meeting with the lunatic elders language group, and discussing coming up with an actual Alutiiq name for crayfish. And it might be something akin to salmon thief, just to highlight the impact that they have on subsistence resources, but also to maximize our outreach and education efforts.

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If you think that it's an unusual species report, we have an invasive species hotline 1-877 INVASIV and you can report things online, Alaska invasive species reporter. You can also contact the ADF&G invasive species program if you're interested in doing any sort of citizen science community based science. One quick plug for Alaska Invasive Species Awareness Week, June 13 through the 19th. So look for opportunities to engage with your community to learn about invasive species to participate in local events, and then share what you learn about invasive species with your family, your friends and your neighbors.

Okay, we hope everybody gets out there and enjoys all the fish and doesn't do any releasing of species into our waters.

Thank you.

Thanks for listening to fish of the week. My name is Katrina Liebich. And my co host is Guy Eroh. Our production partner for the series is Citizen Racecar. The show is produced by David Hoffman co produced and story edited by Charlotte Moore. Post production by Garrett Tiedemann. This other 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.