New PSP Tests Under Evaluation in Kodiak

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Brianna Gibbs/KMXT

As some Kodiak residents may have heard, eating local shellfish can be a deadly endeavor. While the archipelago’s shellfish are plentiful, the bounty is also prone to a naturally occurring marine biotoxin that causes Paralytic Shellfish Poisoning, or PSP.

Brian Himelbloom is an associate professor of Seafood Science and Technology at the Kodiak Seafood and Marine Science Center. He said whether or not a particular shellfish has PSP can only be told through testing.

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“Over the years we’ve been waiting for more easy tests to do or more diagnostic types tests. Because the standard assay is to make an extract and inject mice and wait fifteen minutes and see if the mouse dies," he said. "And it’s pretty crude. But it’s something that’s been used for the last 70 years and it gives a total toxicity, it can’t say which part of the toxin or how much of the toxin but if it kills the animal then it’s toxic, a toxic event has occurred. But now with refinements in chemistry, people have gone to some very sophisticated devices.”

Himelbloom said those devices are now coming in the form of

test kits. Among other things, the kits will help minimize or do away with animal testing by measuring toxicity in a plastic dish, not on a live specimen.

-- (PSP Testing 2 : 26 “We’re not interested in killing mice, I mean that’s something that’s done on a regulatory basis by the Alaska Department of Environmental Conservation and also the Food and Drug Administration, that’s the kind of things that regulatory organizations want to do. But across the spectrum, in various countries there is a movement toward no animal testing. So that requires the scientists to figure out OK if we’re not going to use animals, maybe we can use cells from animals, tissue culture. So we’re not using a whole animal, you’re just killing off cells, that seems to be OK.”)

Himelbloom said there is already a company that makes these kits, but whether or not they are a viable option for testing in Alaska remains to be seen.

-- (PSP Testing 3 : 41 “It’s a Canadian company on the eastern coast of Canada, so maybe they don’t have the sweet of saxitoxin that we have on the west coast, or even in Alaska. So if you don’t have the right antibodies to make these assays, then when you come to test the kit, it might throw it off. And I don’t know if there’s any move a foot to try to use antibodies raised from let’s say the dynofalagite that causes PSP in Alaska. It would be nice, but there’s no biotechnology company in Alaska that’s involved with this. So we’re sort of dealing with other companies that have taken a global perspective like Gillette Biotech is one, and there’s one called Abraxis they’re out of California and they’ve come up with a newer kit and that’s what we’re going to evaluate. ”)

Himelbloom isn’t working to develop these kits, but rather test them on Alaskan shellfish. As he explained, there are different chemical forms of the same toxin, about 24 known ones, so Alaskan shellfish that is tainted with PSP may have a different form then shellfish from other waters. His research will take the kits and see if they accurately identify toxins in four edible shellfish varieties: butter clams, blue mussels, little neck clams and cockles.

-- (PSP Testing 4 : 17 “But the big question is are these as reliable and as useful as the total toxicity of the animal model, and that’s what we’re trying to evaluate. And hopefully, with enough testing, we have a very small study that’s going on, it’s probably going to take some time to really evaluate these kinds of test kits to see if they’re working well.”)

But even if the tests do prove effective, Himelbloom there are still many variables that could risk someone’s life. He said proper testing will be crucial, and even if one shellfish tests clean, other specimens in the same area could still cause PSP. Knowing that, ideally every collected shellfish would have to be tested, and Himelbloom said that could get costly, both in dollars and time. Of course there is always the chance that they are safe, but Himelbloom says that is a risky chance to take.