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Fishy Invention: Anchorage grad gets patent for solution to fish waste problem

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Main Image:

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Alexandra West is the first UAA student to be the sole inventor on a patent. The former engineering student invented a hydropowered fish grinder that, in theory, could be used at popular Alaskan fishing spots.

As an Alaskan with a predilection for fishing and the outdoors, Alexandra West knew what problem she wanted to solve while a student at the University of Alaska Anchorage, and it had to do with fish.

Near her childhood home on the Kenai Peninsula, West had observed chunks of fish lumped on the banks of the Russian River after people had caught and filleted fish and then tossed the unwanted pieces back into the water.

For the bears, the abandoned fish meant an effortless meal. For the people, the abandoned fish meant more interactions with the bears. For West, the issue became the crux of her undergraduate honors project. An issue her father, a wildlife biologist, had spent years navigating.

A solution to the fish waste dilemma would earn West a patent and the title of inventor by the age of 25. On UAA's "Patent Wall of Fame," West's plaque is the first with a student listed as the sole inventor.

"That's really a milestone," said Dr. Helena Wisniewski, the vice provost for research and graduate studies at UAA.

What West has crafted is the conceptual design for a "fish carcass disposal system." Attached to a fillet table on land, by way of a ramp, the system would sit in the water and consist of a paddle wheel and a grinder. The water's current would spin the wheel, which would power a grinder attached to a float.

Out of the grinder, the chopped fish would filter back into the water in a size not so tiny that it would coat the bottom of the river, but also not so big that it would wash back on shore, West said.

The specific spot West has envisioned for the installation of her system is at the confluence of the Russian River and Kenai River, about 40 miles east of Soldotna, the city where she grew up.

It's an area that the Russian River Interagency Coordination Group, a cadre of national and state wildlife agencies, has flagged because of its potential for humanbear conflict, said Bobbie Jo Skibo, the group's interagency coordinator for the U.S. Forest Service.

In the area, bears not only stay longer than they should, but they are also teaching their cubs to feed on the fish waste, instead of fishing naturally. "They're getting hooked on, basically, fast food," Skibo said.

As many as 150,000 people, either fishing or just visiting, travel to the spot where the two rivers meet each year between May and September, she said.

In efforts to curb the amount of fish waste left behind by people, the group wrote a fiveyear action plan that began in 2013. It took out fillet tables, asked that people take their fish out whole and continued the campaign "Stop, Chop and Throw." Another recommendation written into the plan is West's concept for a centralized grinding station a project Skibo helped West gather research for.

"She is a very bright student and is going to be a bright engineer," Skibo said.

West graduated from UAA in 2011 with a degree in civil engineering. She now works as an engineerintraining at PND Engineers in Anchorage while pursuing a Master of Science degree in civil engineering at UAA.

When asked if she expected to receive a patent for her disposal system, she laughed and said, "No. Never. Not at all."

"I was just thinking, 'Someone must have thought of this before,'" she said. "There's so many people in this world."

Wisniewski said she first heard of West's project from an adviser at the university. The way she would describe it, she said, was "novel, nonobvious and useful." She helped West navigate the patent process.

About three years later, Wisniewski emailed West and said her invention had been assigned U.S. patent 8,833,682 B2 ^[3].

Technically, UAA holds the title to the patent. West and the university are working together to decide what's next for the fish carcass disposal system.

West said she hopes her invention lives on in the university system. A senior design class is planning to pick up her project. A prototype will have to be created. Students must figure out what studies and permits are necessary to get it in the water.

Skibo said Wednesday that she had meetings scheduled with UAA to discuss installing a model of the design at the confluence of the Russian and Kenai rivers the spot West had always intended to help fix.

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