

Humans take place at top of food chain, eat crawdads to help Tahoe's ecosystem

June 4 2012



The nearshore zone at the 1,645-foot-deep Lake Tahoe is the critical area for fish habitat and a place where invasive species, including crawdads and warm-water fish such as the invasive bass, can thrive, according to limnologist Sudeep Chandra, of the University of Nevada, Reno, who has studied the pristine high-elevation lake for 20 years. The crayfish is thriving in the nearshore zone, and it's in this area, in depths from five to 250 feet, that a commercial harvest will have a net positive impact on the pristine lake that borders Nevada and California.

Credit: Photo by Mike Wolterbeek, University of Nevada, Reno

The University of Nevada, Reno's Sudeep Chandra, a leading Lake Tahoe scientist who has studied invasive species and limnology at the lake for 20 years, said issuing permits for commercial harvesting of crayfish at Lake Tahoe will help improve clarity at the pristine lake, as well as take away a food source for other invasive species that threaten lake clarity and ecosystems.

"The Nevada Division of Wildlife is taking an important step with the harvesting permits. We expect to see the first permits issued next week," Chandra, a professor and researcher at the University's Department of Natural Resources and Environmental Science, said. "Harvesting the invasive crayfish at Tahoe could have a positive impact on lake clarity, especially in the critical nearshore zone of the lake."

Commercial harvesting of the estimated 220 million crayfish could begin as soon as next week in the high mountain lake on the Nevada/California border if the permits from several agencies are processed as expected. Kim Tisdale of the Nevada Department of Wildlife said there are two permits pending, while several others have expressed interest in the commercial harvesting and are expected to apply for permits.

"Our interest is in maintaining a good fishery," Tisdale said. "We'll monitor the operations and the effects on the ecosystem. It will be important to see the effects of the harvesting. We'll be getting monthly reports on the number of crayfish harvested and from which locations."

A study last summer by limnologist Chandra showed that while the center of the lake, the second deepest lake in the United States, is used when measuring lake clarity, the nearshore zone is the critical area for fish habitat and a place where [invasive species](#), including crawdads and warm-water fish such as the invasive bass, can thrive.

"Our team, which included Miami University in Ohio, used common modern technology to measure ultraviolet light, a scientific measurement, which tells us the amount of sunlight available to algae, and invasive and native plants and animals, and can assess what will grow and thrive best in those conditions," he said. "While it's nice to know if we can see the Secchi dish at 100 feet down or 60 feet down, we can't rely on it to monitor impacts on species, which is crucial to the lake's

health."

The crayfish is thriving in this nearshore zone, and it's in this area that a harvest will have a net positive impact.

"The crayfish stimulates algae growth by excreting nutrients and grazing on algal cells, some of which are dead, that open up room for more growth. Algae growth is a major factor in Tahoe's declining clarity. What we are finding is that the crayfish stimulate [algae growth](#)," Chandra said.

Chandra estimates that there could be as much as 8 million pounds of crawdads scattered around the 22-by-12-mile lake, which were introduced in the late 1800s. He is helping the Nevada Department of Wildlife by identifying the best places and practices for harvest. He's been working closely with entrepreneurs who brought the harvest idea forth to public agencies and supports their efforts.

"These guys have a great idea and they've made investments and connections to build a viable business while helping the environment," Chandra said.

The plan would involve placing traps on the bottom of the Nevada side of the [lake](#), from 5 to 250 feet below the surface, and selling the harvest to restaurants and local meat wholesalers.

"It's a good project all the way around," Fred Jackson of Tahoe Lobster Company said. "We spent a lot of time with Sudeep. It's a blend of science and economics, and it took a lot of time to figure out a business plan. We've had a huge positive response from local restaurants, and some from out of the area as well."

Jackson, who is president of one of two companies with permits

pending, expects to stimulate the economy by providing a new source of tourism and a new market for restaurants, hotels and casinos.

Chandra, who is based in the College of Agriculture, Biotechnology and Natural Resources, studies lakes and their ecosystems around the world. He said [crayfish](#) harvesting occurs profitably in other areas of the country.

"It can have a positive effect on the economy and the environment," he said. "And with a little butter and garlic, it's tasty too."

Provided by University of Nevada, Reno

Citation: Humans take place at top of food chain, eat crawdads to help Tahoe's ecosystem (2012, June 4) retrieved 27 April 2024 from <https://phys.org/news/2012-06-humans-food-chain-crawdads-tahoe.html>

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