

Scientists Study Impact of Invasive Fish in Alaska

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The benefits of long-term research, mixed with a little serendipity. That's how David Heins, professor and chair of the Tulane Department of Ecology and Evolutionary Biology, sees a fish mystery in the wild waters of Alaska that led to a new area of research.



While doing fish research in Alaska, Tulane professor and department chair David Heins links a mystery to a voracious invasive species. (Photo by Sally Asher)

Annually since 1996, [Heins](#) has been sampling the threespine stickleback in Scout Lake on the Kenai Peninsula in south-central Alaska. The original intention was to investigate the life-history evolution of this native fish, as well as to study host-parasite relationships. But over the years, he noticed that the fish population was changing rapidly, without an obvious explanation.

"I was observing striking changes in the population of threespine stickleback. Adult fish were getting much smaller and fewer fish were being caught in our traps, but I didn't know why," says Heins. "Then in 2008, I received an email from the Alaska Department of Fish and Game — they had discovered illegally introduced northern pike in Scout Lake and were going to treat it to remove the [pike](#). At that moment, I

knew the reason for the changes in the stickleback population.”

A new research project was born: to determine the impact of the invasive species using the samples captured over the previous two decades.

“The northern pike is a voracious predator,” explains Heins.

Heins added an undergraduate research student to the team. Helen Knoper, now in her senior year as an ecology and evolutionary biology major, signed on to study phenotypic evolution of life-history traits of the stickleback for her honors thesis. This past summer, she traveled to Alaska to collect stickleback.

“The lab work Helen and I are conducting will reveal the changes in energetic investment in reproduction, number of eggs laid and the size of the eggs □ in addition to documenting the change in size of adults,” says Heins. “This investigation will address what happens when a voracious, invasive predator begins preying upon a native population of fish that had not experienced such intense predatory pressure.”