A SWIMMING RECOVERY

By Leigh Cooper

When the Kootenai Tribe of Idaho decided to rescue Idaho burbot — a leopard-spotted freshwater cod — from local extinction, they gathered experts from across Idaho, Montana and Canada. The team, which included scientists from the University of Idaho's Aquaculture Research Institute (ARI), realized any successful rehabilitation plan would require the aquaculture of wild burbot.

"But no one had raised these fish in captivity before," said Ken Cain, ARI associate director. "We had to figure out how to rear these fish from tiny larvae to a size where they could be tagged and monitored once released into the wild."



Watch to learn about the burbot conservation story.

KOOTENAI RIVER, Boundary County

Burbot are native to Idaho's Kootenai River, but by the early 2000s, the state's wild burbot population was estimated to be less than 50 fish due to dams, overfishing and habitat degradation. With the assistance of ARI researchers, the repopulation effort helped the fish rebound, bringing Idaho's population to approximately 60,000 by the end of 2019. The conservation plan was so successful the Idaho Department of Fish and Game initiated a recreational burbot fishery on the Kootenai River in January 2019.

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Listen to Sue Ireland, fish and wildlife director for the Kootenai Tribe of Idaho, talk about the decision to conserve the burbot.

KOOTENAI TRIBE OF IDAHO, Bonners Ferry

When the burbot population crashed, extinction wasn't an option, said Sue Ireland, fish and wildlife director for the Kootenai Tribe of Idaho. Historically, the Tribe used the fish as food during winter as the fish congregate together, making them easier to catch. Instead of letting the iconic species disappear, the Tribe pushed for a community-based restoration program, which now supports a subsistence tribal fishery, and has allowed them to share their knowledge of burbot aquaculture with other indigenous groups interested in burbot conservation.

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Listen to Shawn Young, Kootenai Tribe of Idaho Fish and Aquaculture Program Lead Environmental Consultant, discuss burbot aquaculture.

TWIN RIVERS STURGEON AND BURBOT HATCHERY, Kootenai and Moyie Rivers

In 2003, the Kootenai Tribe tapped the ARI for assistance in efforts to develop burbot aquaculture. The team explored ways to spawn the adults, incubate the eggs, feed the young fish and keep cannibalism to a minimum before releasing the first burbot into the Kootenai River in 2009. In 2015, the Kootenai Tribe opened the Twin Rivers Sturgeon and Burbot Hatchery, implementing the newly developed burbot aquaculture techniques on a large scale for population recovery.



Watch to learn about Luke Oliver's reasons for earning a doctorate studying burbot.

U OF I AQUACULTURE RESEARCH INSTITUTE, Moscow

Students like Luke Oliver, who's earning a doctorate studying burbot, are taking what was learned from the Kootenai Tribe's burbot conservation program and developing it into commercial aquaculture. To succeed, the researchers must domesticate the fish so they grow well in captivity. Burbot naturally breed only in winter, and the team wants University of Idaho Stages Comeback for the Leopard of the Kootenai

to trigger the fish to breed at different times. In addition, the newly hatched larvae are the size of an eyelash and must be fed live zooplankton — an expensive food source. The goal is to breed them to eat cheaper commercial diets.



Watch Brain Small, Director of the Hagerman Fish Culture Experiment Station, discuss trout farming in Idaho.

U OF I HAGERMAN FISH CULTURE EXPERIMENT STATION, Hagerman

Outside of burbot, the ARI supports Idaho aquaculture of tilapia, salmon, ornamental fish and, most importantly, trout. Idaho produces about 70% of the farmed trout — approximately 41 million pounds a year — in the United States. The Hagerman Fish Culture Experiment Station is always trying to make a better fish for Magic Valley trout farms and their roughly 500 employees. Their studies include creating an all-plant protein diet for trout and increasing the amount of heart-healthy omega-3 fatty acids in fillets.

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Listen to trout aquaculturist Stan Standal discuss growing burbot.

SNAKE RIVER TROUT AQUACULTURE, Magic Valley

Burbot aquaculture is a good complement to Idaho's trout farms and would allow farmers to diversify, Cain said. Freshwater springs feed a cold and consistent flow of water to the Magic Valley trout farms, conditions that are just about perfect for burbot. One farm that partnered with U of I Extension to grow burbot experimentally found that the animals showed good growth in spring water, and the researchers saw minimal fish loss or problems with disease.

DOWNLOAD RECIPES (PDF)

SNAKE RIVER GRILL, Hagerman

To evaluate consumer acceptance and market potential of burbot, ARI and U of I Extension surveyed roughly 150 Snake River Grill customers who were served the fish. Nearly all gave positive reviews. U of I doctoral student Moureen Matuha delved deeper, performing a taste test with 88 participants at Washington State University. She found consumers preferred burbot to tilapia or trout by more than 80%.

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Multimedia by Leigh Cooper, Holli Sampson, Grace Wiese, Will Knecht, Peter Roise and Scott Riener, University Communications and Marketing.

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