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BY PAULA DOBBYN

nder cloudless, late-summer skies, a helicopter buzzed over undulating expanses of mossy Alaska tundra pocked with blueberry and Labrador tea shrubs. As it dipped low over braided streams rippling with slate-blue water, a young, red-haired biologist clutched a topographic map. Eyes darting between map and landscape, Sarah O'Neal directed the pilot to land near the alder-covered North Fork of the Kuktuli River. The Kuktuli is a headwater system that feeds the Nushagak River, the biggest producer of king salmon in Alaska, and a major artery of Bristol Bay.

Spotting a level patch of dry gravel amid the spongy tundra, the pilot set the helicopter down. Out popped wader-clad O'Neal, who headed straight for the water to begin a day's work—hunting for salmon in Bristol Bay's freshwater tributaries.

TU sponsored O'Neal's research last summer. In collaboration with The Nature Conservancy and Oregon-based State of the Salmon, she spent August and part of September documenting the presence of juvenile coho salmon in the maze of creeks, streams and lakes that comprise the Bristol Bay watershed. It's the same rugged patch of Southwest Alaska where developers want to build a huge open-pit gold and copper mine known as Pebble. Because the mine project threatens to scar this delicate landscape irreparably and expose Bristol Bay's pristine waters to mine pollution, TU is organizing a diverse coalition of anglers, commercial fishermen, Alaska Natives, seafood

BRIDGET BESAW



## Working to Save the Best of the Last in Alaska's Bristol Bay



RICHARD T. GROST



COREY ARNOLD



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consumers and others to stop Pebble and thereby conserve the bay as a salmon stronghold.


Over 40 million wild salmon returned to spawn in Bristol Bay during the summer of 2009. So why would O'Neal search for yet more salmon in its headwaters? As it turns out, the extent of salmon in this famed watershed, dotted with sport fishing lodges and fish camps, had yet to be documented until recently. And pinpointing the location of Bristol Bay's salmon habitat is critical as the state considers granting development permits to Pebble's developers.

For a variety of reasons, including the sheer size of the state, the Alaska Department of Fish and Game had not documented the presence of salmon in many of Bristol Bay's headwater systems. That's a state responsibility under Alaska's Anadromous Fish Act, a key statute that affords protection to freshwater habitats of fish. The act requires the identification of rivers, lakes, streams and tributaries that are important to the spawning, rearing or migration of anadromous fish. Unless a waterway is included in Alaska's Anadromous Waters Catalog, development, such as mining, can occur nearby without prior notice or a state permit.

Enter O'Neal and her boss on this assignment, Dr. Carol Ann Woody. The two, along with other scientists, spent the final weeks of summer, when rearing salmon are most present, surveying streams in and around the Pebble deposit. Using electro-shocking, they netted, counted and measured a sampling of fish. What they found was impressive: Salmon are virtually everywhere around the deposit. In 2009, they nominated 64 new miles of stream for inclusion in the Anadromous Waters Catalog.

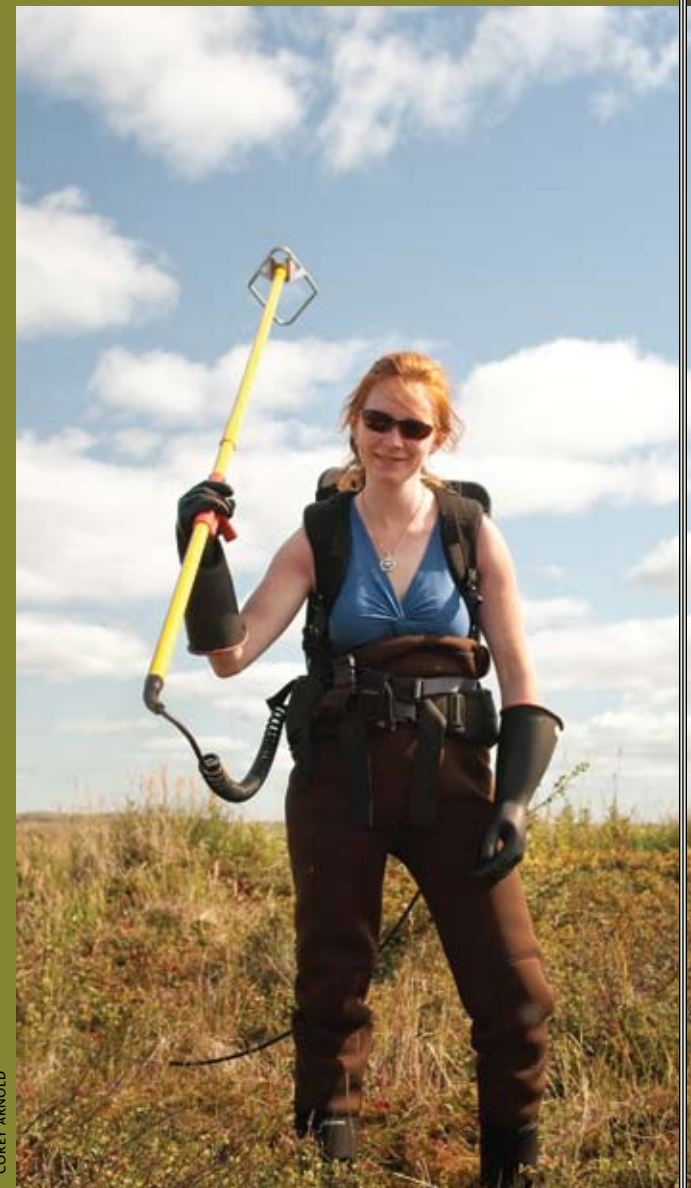
The results followed a similar survey that Woody conducted in 2008, in which she found salmon in 28 miles of stream that had previously been undocumented. The state accepted all 2008 nominations and is expected to do the same with the 2009 additions. In all, Woody and her team have added 92 miles of new salmon stream habitat to what is known about Alaska's biological heart, Bristol Bay.

It's a cause for which O'Neal, a native of Washington state, exudes passion.

"Where I'm from, the majority of salmon runs are vastly diminished if not extinct, and the water quality is a disaster. In Bristol Bay, we have a chance to avoid repeating the same mistakes," she says. 

To see more about O'Neal's research, visit [TU.ORG/BLOG](http://TU.ORG/BLOG)

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(Previous page) Dr. Carol Ann Woody and an assistant survey for salmon on a stream near the proposed Pebble Mine. (Far right) Sarah O'Neal works in the field. If built, Pebble would produce 2.5 billion tons of waste over its lifetime, which could devastate Bristol Bay salmon runs.



RUSS SCHNITZER

