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Elwha River's coming dam removal has scientists flooded with unknowns

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ELWHA RIVER, Clallam County â€” From all over the country they came to ponder this river: its gravel, its teal-green waters, its shores and mouth and mostly its future as the site of the largest dam-removal project ever in North America.

Sweeping north from Mount Olympus to the Strait of Juan de Fuca, the Elwha has been collared by two dams since the early part of the 20th century. Both will be taken out chunk by chunk, releasing some 18 million cubic yards of sediment impounded along with the river's flow. The process will take about three years, beginning next June.

This week, scientists from agencies, universities and consulting firms gathered for a two-day research foray along the Elwha River, to consider what can be learned when the dams come down. For this dream team of specialists â€” engineers, fisheries scientists, biologists, geomorphologists and a botanist â€” the dam removal on the Elwha is a science Olympics of sorts, a chance to watch natural processes in play as the river and its surroundings undergo ecological changes on a scale not seen before.

Oddly, for its importance, Elwha research is a shoestring effort. The \$350 million federally funded restoration project includes no money for scientific study. So as they toured the river corridor, the scientists were framing potential research questions to propose for funding by agencies, universities and other sources.

What will happen to all that sediment behind the dams when they come out? What will the pattern of colonization of the river by salmon look like once they can reach their spawning gravels above the dams once more?

There also may be surprises as the reservoirs are drawn down: Long-drowned log jams could affect the flow. There is at least one intact standing forest of alders researchers know of, waiting to be revealed.

And what about revegetation of hundreds of acres of exposed reservoir bottom and river banks, the exact shape of their terrain as yet unknown? If it sounds like mission impossible, Joshua Chenoweth, a botanist with Olympic National Park who is helping lead the effort, sees plenty of good research questions ahead in a revegetation mission that in some ways bests even the restoration of Mount St. Helens after the 1980



STEVE RINGMAN / THE SEATTLE TIMES

Scientists from around the country are coming to the Elwha River to observe and study the taking down of the dams. This group, standing downriver from the Lower Elwha Dam, listened to a presentation this week about restoring the salmon run.

blast.

"At least there were buried roots at Mount St. Helens," he said "We have nothing. This is the first time anyone's tried anything like this. The scale is unprecedented."

The scientists bushwhacked across logjams, traversed gravel bars and waded the Elwha to reach the wild upper reaches of the river; examined Glines Canyon and Elwha dams, and hiked to the windblown river mouth.

Tim Randle, manager of the sedimentation and river-hydraulics group of the Bureau of Reclamation's technical-service center in Denver, organized the trip. He sees a trove of research questions posed by the dam-removal project.

"It's the first time anyone has done a staged, step-by-step dam removal of this scale," Randle said. "It's the largest controlled release of sediment ever in North America, and a very different process than we've seen elsewhere."

For some, it was their first look at a river they have studied for years.

"We built a model of this, but I've never actually stood on it," said Gordon Grant, research hydrologist with the U.S. Forest Service research station in Corvallis, Ore. "How does the river adjust to the change in level? You have a tiger by the tail, and the only knob you have to turn is how quickly you take it down. What's upstream will drive what is downstream, and that is what makes this such a juicy problem.

"I can't think of another analogue anywhere for the experiment this river is going to be. It's a natural laboratory unlike any other."

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