ENVIRONMENT

Agency Says Dam Should Come Down

For the past 160 years, even 2-meter-long Atlantic sturgeon have been no match for the Edwards Dam. Although this 6-meter wall on Maine's Kennebec River is tiny compared to its more famous western cousins, such as the Hoover Dam, it has effectively blocked sturgeon, salmon, and eight other species of migratory fish from reaching their historic spawning grounds upriver. Denied these miles of shallow pools—which now lie buried beneath blankets of sand in deep water—the Kennebec's once bountiful fish populations have plunged.

But the fish may yet defeat the dam. In an unprecedented move, the staff of the Federal Energy Regulatory Commission (FERC) last week recommended taking down the dam. The FERC, which licenses most of the electricity-producing dams in the United States, says removal is the best and cheapest way to help the Kennebec's struggling fish species recover.

The recommendation is a major victory for environmentalists. For the past decade, they have been pressing the FERC to force the owners of about 1600 nonfederal power dams under its jurisdiction to operate their projects in a more environmentally friendly fashion. The effort "offers the exciting possibility of undoing some of the environmental impacts of the industrial revolution," says Alex Hoar, a biologist with the U.S. Fish and Wildlife Service in Hadley, Massachusetts.

If the FERC's five commissioners adopt the staff's recommendation to dismantle the Edwards Dam—an action that could come within 6 months—it could open "a new chapter in conservation history," said Secretary of the Interior Bruce Babbitt, whose department has been seeking removal of the dam.

Until recently, however, it seemed unlikely that the FERC would deny the dam's owner, Edwards Manufacturing Co. in Augusta, Maine, a renewal of its license, which expired in 1993. In January 1996, the agency released a draft environmental study that concluded the dam could stay if the owner added expensive fish elevators to lift millions of spawning fish over the obstacle. But fisheries biologists argued that elevators would not help four of the species involved: striped bass, rainbow smelt, shortnose sturgeon, and the endangered Atlantic sturgeon. The critics said that the cheapest and most effective way to protect these and other species was simply to get rid of the dam.

FERC officials agreed after reviewing more than 7000 pages of comments on the draft study and the results of a special review of dam-removal costs prepared by the Oak Ridge National Laboratory in Tennessee. "Removal of the Edwards Dam would be best," they concluded in a Final Environmental Impact Statement released on 28 July. "The cost of installing [fishways] (about $10 million) makes licensing the project about 1.7 times more costly than removing the dam." The agency also concluded that removing the dam would have few social impacts. It produces just 3.5 megawatts of electricity, or one-tenth of 1% of Maine's annual energy use.

The reversal is "the flawed result of a tainted process," charges Mark Isaacson of Edwards Manufacturing. He says the company may challenge the government's authority to regulate the dam out of existence. He also says he will oppose any effort to make the company pay for the removal, which several studies have concluded can be accomplished without further harm to the river.

At least one environmentalist would welcome the test case. "We believe it will lay the groundwork for removing other dams," said Kate Costenbader of American Rivers. Her group and others have already urged FERC to order removal of at least three other dams seeking new licenses: the Condit Dam on Washington state's White Salmon River, the Cushman Dam on Washington's Skokomish River, and the Carver Falls Dam on Vermont's LaMoille River. Environmentalists have also convinced Congress to study removing two dams on Washington's Elwha River.

Meanwhile, at least one biologist is anticipating the research opportunities that dam removal could bring. Says Boyd Kynard, a biologist with the U.S. Geological Survey's Silvio Conte Laboratory in Turners Falls, Massachusetts: "It would be a wonderful opportunity to gather some unique insights into the recovery of a river."

–David A. Malakoff

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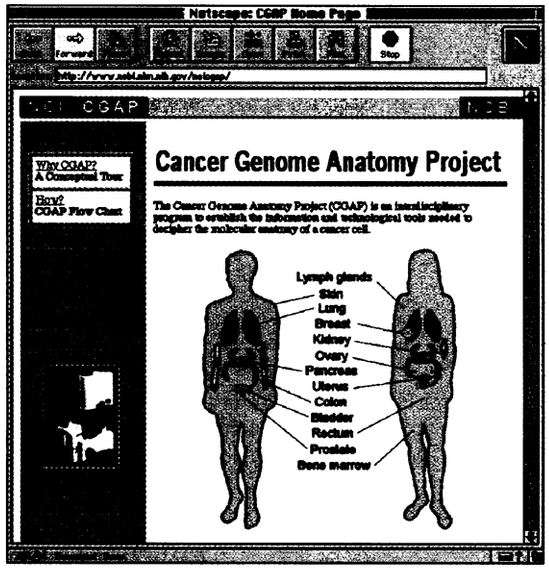
GENOMICS

Your Complete Web Guide to Tumors

Vice President Al Gore last week officially unveiled a new Web site that will help cancer researchers and physicians paint a complete genetic picture of tumor cells throughout the body. The site is part of the Cancer Genome Anatomy Project (CGAP) funded by the National Cancer Institute (NCI), the National Library of Medicine, and several drug and biotech companies (*Science*, 16 May, p. 1023).



CGAP

Decades of research have demonstrated that cancer is caused by genetic changes in cells—mutations in the genes themselves and in the set of normal genes expressed in a particular cell. But clinical diagnosis and treatment of cancer currently rely largely on the location of tumor tissue in the body and its appearance under the microscope. CGAP seeks to allow doctors to check the active genes and proteins in human tissues, making possible earlier detection and more precise diagnosis and treatment of cancer.

The CGAP Web site is a complete database of the known active and silent genes in normal, precancerous, and tumor cells, indexed by type of cancer. Its first targets are lung, prostate, colon, breast, and ovarian cancer. Along with each gene sequence, the site provides links to databases of scientific papers, protein products, related genes, and maps of the human genome.

Comparing cancer research to a large jigsaw puzzle, Gore said the new Web site "gives us the confidence that we will have all of the pieces all together in the same place" in the search for cures. "It promises to help us unlock the deepest mysteries of cancer and many other killers." Richard Klausner, director of NCI, said he hoped CGAP "will become an international lab where scientists and researchers will come together." The address is: www.ncbi.nlm.nih.gov/ncicgap.

–David Ehrenstein