Northwest Power and Conservation Council

November 29, 2007

MEMORANDUM

TO: Council Members

FROM: Mark Fritsch, Project Implementation Manager

SUBJECT: Presentation on Relative fitness of hatchery and wild steelhead: results to date and future directions

At the December meeting Dr. Michael Blouin, from Oregon State University's Department of Zoology, will make a presentation on recent research that he has been involved in regarding the fitness of hatchery and wild steelhead. Results of this research were published in the October 5, 2007 edition of Science Magazine: *Genetic Effects of Captive Breeding Cause a Rapid, Cumulative Fitness Decline in the Wild* by Hitoshi Araki, Becky Cooper, and Michael S. Blouin.

The paper's abstract states: "Captive breeding is used to supplement populations of many species that are declining in the wild. The suitability of and long-term species survival from such programs remain largely untested, however. We measured lifetime reproductive success of the first two generations of steelhead trout that were reared in captivity and bred in the wild after they were released. By reconstructing a three-generation pedigree with microsatellite markers, we show that genetic effects of domestication reduce subsequent reproductive capabilities by 40% per captive-reared generation when fish are moved to natural environments. These results suggest that even a few generations of domestication may have negative effects on natural reproduction in the wild and that the repeated use of captive-reared parents to supplement wild populations should be carefully reconsidered."

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