

Completion Report to: Oregon Watershed Enhancement Board  
775 Summer Street NE, Ste 366  
Salem OR 97301-1290

Submitting by: Michael A. Banks,  
Associate Professor, Marine Fisheries Genetics  
Coastal Oregon Marine Experiment Station  
Hatfield Marine Science Center  
2030 Marine Science Drive  
Newport, OREGON 97365

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**OSU Component for Nonpareil Dam Adult Trap and Genetic Pedigree  
Contract 206-836**

Amount:  
\$143,948

Term:  
July 1, 2006 - June 30, 2007

Principal Investigators:

Dr. Greg Moyer: Now: Regional Geneticist  
U.S. Fish and Wildlife Service  
Warm Springs Fish Technology Center  
5308 Spring Street  
Warm Springs, GA 31830

Dr. Michael A. Banks Address above  
Fax: (541) 867 0345  
Office: (541) 867 0420  
[Michael.Banks@oeragonstate.edu](mailto:Michael.Banks@oeragonstate.edu)

## OSU Component for Nonpareil Dam Adult Trap and Genetic Pedigree 2006 – 2007

An Applied Biosystems DNA sequencer lease-purchase payment of \$115,319.98 was made for the 2006-7 period utilizing \$100,000 from this OWEB contract #206-836 and a balance of payment coming from other non-OWEB fund sources. Service of this sequencer was utilized to score microsatellites for continuing samples taken from single and multiple year hatchery stocks of the pedigree study. Drs. Moyer and Banks worked on analysis of findings and presentation for peer review including response to peer and editorial review comments. Capital equipment, salary, expendable supplies and the 10% university overhead charges were apportioned as originally assessed in the budget.

The CHIP Project Proposal Narrative detailed the following 8 primary tasks:

**Task 1.** What is the relative success of using a first generation, wild-type broodstock in a supplementation program compared to a broodstock that has been captive for multiple generations?

**Task 2.** What is the relative success of unfed fry releases compared to smolt releases in producing returning adults?

**Task 3.** What is the reproductive success in the wild of adult fish from the following treatments:

- a. First-generation hatchery fish from unfed fry releases;
- b. First-generation hatchery fish from smolt releases;
- c. Multi-generation hatchery fish from unfed fry releases;
- d. Multi-generation hatchery fish from smolt releases; and
- e. Wild fish.

**Task 4:** How does the supplementation program modify the effective population size of the population in the Calapooya (termed the "Ryman-Laikre Effect" (Ryman and Laikre 1991, Ryman et al 1995)

**Task 5:** What is the level of inbreeding that results from the supplementation program?

**Task 6:** What is the incidence of natural crossing between adults from the different treatment groups while on the natural spawning grounds and the consequences of mate choice to the relative production of offspring by individuals;

**Task 7:** What differences in reproductive success occur by treatment by age (males), by gender, by adult run time, and by adult body size (length)?

**Task 8:** Does the size of the naturally-produced population increase due to successful natural reproduction by hatchery fish? Does the contribution to this increase vary by treatment group?

Attached manuscript which focuses primarily on task 1,4 and 5 presents our first primary peer review derivable from this research:

**G. R. Moyer, M. S. Blouin, and M. A. Banks. 2007. The influence of family-correlated survival on *Nb/N* for progeny from integrated multi- and single-generation hatchery stocks of coho salmon (*Oncorhynchus kisutch*). *Canadian Journal of Fisheries and Aquatic Science*.64:1258-1265.**