



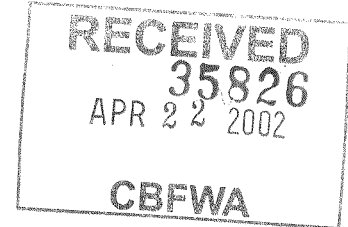
Don Campton

04/22/2002 02:19 PM

To: tiverson@cbfwa.org

cc: Gayle Zydlewski/AFTC/R1/FWS/DOI@FWS, Ann_Gannam@fws.gov,
Carl V Burger/AFTC/R1/FWS/DOI@FWS, Judith_Gordon@fws.gov

Subject: BPA Project No. 30003; Response to CBFWA regarding coho studies



TO: Tom Iverson and CBFWA

FR: Don Campton, Geneticist
U.S. Fish & Wildlife Service
Abernathy Fish Technology Center
Longview, WA

RE: Response to CBFWA regarding proposed Project No. 30003

I have submitted the following proposal for BPA funding under the Columbia Estuary Provincial Review: "Evaluation of Two Captive Rearing Methods for Assisting with Recovery of Naturally Spawning Populations of Steelhead and Coho Salmon." This proposal is currently under review by CBFWA and has been assigned Project No. 30003. Gayle Zydlewski and Ann Gannam, both of whom are coworkers with me at the Abernathy Fish Technology Center, are principal investigators with me on this proposal.

During the April 9 meeting of the CBFWA budgetary review committee, Bill Tweit of WDFW raised concerns regarding potential overlap between our proposed work with coho salmon and other coho work currently funded by BPA, particularly work funded through the Yakima-Klickitat Fishery Project (YKFP). Although I believed our proposed work is "new" and "different", I agreed to investigate current work with coho salmon under the YKFP and provide a reply back to CBFWA within two weeks. This is my reply. This reply deals only with the coho portion of our work. The committee did not raise any questions regarding the steelhead portion.

Briefly, the coho portion of our project involves the collection of 2,000 natural-origin (a.k.a. "wild" or "NOR") age 0+ coho juveniles from Abernathy Creek during the early fall (September-October), overwintering those juveniles in one of our hatchery raceways for only 6-7 months, and then releasing those fish back into Abernathy Creek as smolts after they have been given a ventral fin clip and a coded wire tag. The outmigration of those fish would then be monitored with a smolt trap (operated under subcontract to WDFW), and their return as adults monitored with our permanent weir. The natural reproductive success of those fish upstream of our weir in Abernathy Creek would then be evaluated via DNA markers. Our goal is to assess this approach as a potential strategy for reintroducing and restoring natural populations of coho salmon in areas where they are imperiled or extirpated. Our auxiliary goal, from a scientific perspective, is to determine whether temporary rearing in a hatchery facility significantly reduces smolt-to-adult survivals and/or natural reproductive fitness of NOR coho salmon relative to their NOR cohorts that are not brought into the hatchery for temporary rearing and acclimation. The principal goal, from a management perspective, is to evaluate a potential strategy for restoring coho salmon populations that does not rely on populations that have been artificially propagated in hatcheries for 10 or more generations. Can existing "wild" coho found in lower river tributaries serve as a potential source of coho salmon in restoration programs without relying on hatchery populations that have been artificially propagated for at least 10 generations? Please note that our proposed project involves no "captive breeding" or "production" of hatchery fish: it simply involves temporary rearing of NOR juvenile coho salmon in a hatchery raceway for 6-7 months prior to marking/tagging and release.

In response to CBFWA's and Bill Tweit's inquiries at the April 9 meeting, I contacted the following individuals: Craig Busack, Washington Dept. of Fish & Wildlife; Joel Hubble, tribal biologist for the Yakama Indian Nation; Speros Doulos, Complex Manager, Little White Salmon and Willard National Fish Hatcheries; and Chris Pasley, Manager, Winthrop National Fish Hatchery.

Craig Busack provided some background information on the YKFP and confirmed that our proposed work with coho salmon (i.e. under Project No. 30003) would complement ongoing work elsewhere in the Columbia River Basin. He also sent an email letter to Bill Tweit addressing some of Bill's concerns. Craig's email letter to Bill is appended to the end of this letter for reference. As Craig notes, our proposed project is designed to test a potential strategy under an "experimental control situation". I personally believe that this "situation" is unique within the Columbia River Basin. In contrast, ongoing work elsewhere in the Columbia Basin involves large release studies.

I talked at length with Joel Hubbel of the Yakama Tribe, and he further confirmed that our proposed work with coho salmon would complement ongoing studies in the upper basin. The Yakama Tribe has been obtaining HOR juvenile coho salmon from lower river hatcheries and then acclimating/releasing them at upriver locations. The sources of those HOR coho have been the Speelya Hatchery (WDFW) on the Lewis River, the Eagle Creek National Fish Hatchery on the Clackamas River, the Cascade Hatchery (ODFW) near Bonneville Dam, and the Willard National Fish Hatchery near the Little White Salmon River. Those juvenile coho have been released at a number of locations including sites in the Yakima River, Methow River, and Wenatchee River. Within the Yakima River, there have been eight different release groups: "early" vs. "late" releases, 2 sub-basins (Yakima vs. Naches), and 2 sites per sub-basin for each release time. The principal goal of this work has been to determine smolt-to-adult survivals and identify the protocols that optimize adult return rates, a necessary prerequisite for restoring runs or wild populations. According to Joel Hubbel, over 5,000 adults passed Prosser Dam in 2001, but only 600 made it as far as Roza Dam. He suggests that HOR coho from lower river hatcheries may be experiencing a "stamina problem" that prevents them from returning all the way back to their release locations. Similarly, approximately 900 adults were counted at Wells Dam in 2001, but only 334 adults returned to the Winthrop National Fish Hatchery (Chris Pasley, pers. comm.). Significant numbers of redds were also counted in the Winthrop River, including the side channel leading from the hatchery to the river. However, natural spawning did not peak until November (Chris Pasley, pers. comm.). Returning adults trapped at Winthrop have been spawned, and their progeny transported to the Wenatchee River for release there. The rationale of this latter strategy is to maximize the potential "genetic stamina" of fish released into the Wenatchee.

Whereas the above-described "field projects" are attempting to reintroduce and restore coho salmon to the upper basin via "hatchery releases" of HOR juveniles, our proposed study with NOR coho salmon is an "experimental project" under more controlled conditions to test an alternative strategy for potentially achieving the same or similar goals. It is unknown whether HOR coho salmon from lower river hatcheries, after more than 10 generations of artificial propagation and no natural spawning, are capable of re-establishing natural populations in the upper basin (or elsewhere). An alternative approach would be to collect NOR age 0+ fish from lower river tributaries, overwinter them in a hatchery raceway for 6-7 months to maximize overwinter survival, and then release them as smolts with the goal of assessing their overall survival, return rate, and natural reproductive success relative to their NOR cohorts that overwintered in Abernathy Creek. Reintroduction projects could follow a similar protocol except that the acclimation and release sites would differ from the source site. If our proposed work is successful, then (a) NOR age 0+ coho from lower river tributaries could potentially be a source of fish for direct outplanting studies (e.g. in the Yakima River or elsewhere) or (b) they could be artificially spawned upon their return as adults and their offspring outplanted in areas where reintroduction of coho salmon is desired. The two, big questions are: (1) Does overwintering in a hatchery raceway confer a net demographic benefit in terms of overwinter survival and adult returns, and (2) are NOR fish better able to establish naturally spawning populations than HOR fish? After we initiate part "(1)" as proposed, we could then work with the Yakama tribal biologists to test part "(2)". This latter evaluation would thus compare the two complementary pieces: the current outplanting projects with HOR fish and our proposed project with NOR fish.

Please call if you have further questions or need additional details.

Sincerely,

Don Campton