Research Equipment Reserve Fund (RERF)

Final Report

Multi-temperature chiller unit

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Award: RERF Spring 2012

$7,870
Budget Statement

1. MT-6 Aqua-logic multi-temp chiller unit $7,099.41
2. Sweetwater ¾ HP heavy duty centrifugal pump/motor $ 769.25
3. 210 gal. rectangular poly tank reservoir $ 921.55
4. Electrical hook-up $ 800.00
5. Chiller start-up $ 180.00

TOTAL: $9,770.21

RERF funds were used to purchase the multi-temperature chiller unit and the pump necessary to supply water to the chiller unit. Matching funds to cover remaining costs were provided by the US Fish and Wildlife Service.

Scholarly Work/Activities Made Possible by RERF Award

The multi-temperature chiller unit has increased the capacity to rear fish in cold water at the Fish Performance and Genetics Laboratory. Current research projects that have benefitted from the chiller unit are the Spring Chinook Surrogate Project (PIs: Carl Schreck and David Noakes) funded by the US Army corps of engineers and the Bull Trout Conservation Project (PI: Carl Schreck) funded by the US fish and Wildlife Service. Both of these salmonid species are federally listed as endangered species. One of the necessary steps towards recovery requires artificial propagation of these fish in conservation hatcheries. However, hatchery rearing typically emphasizes rearing as many fish to a large size as quickly as possible. As a result, hatchery-reared individuals exhibit a phenotype that does not accurately represent the wild fish that they are supposed to mimicking. These research projects are exploring alternative rearing strategies that might produce fish that will better approximate wild fish and increase the probability of success in the conservation of these species. Water temperature is an important factor contributing to the phenotypic characteristics of fish, and is therefore an essential factor to manipulate in these research projects. Both of these studies were obtained because of the unique fish rearing capabilities at the FPGL, and to a large degree because of our ability to control water temperature. Chinook reared under temperature-controlled conditions as part of our experiments have been and continue to be used by state and federal agencies for liberation into the Willamette river basin to test efficacy of ESA recovery measures for Chinook. The US Fish and Wildlife Service is presently in discussions about the possibility of liberating bull trout raised at the FPGL for enhancement of depleted populations in select waters of Oregon.

Additional Scholarly Work/Activities Made Possible by RERF Award

The chiller unit contributed to the current success of the Spring Chinook Surrogate Project. As a result, the US Army Corps of Engineers awarded an additional grant to the PIs to incorporate
winter-run steelhead into the surrogate project. The winter-run steelhead surrogate project was developed under the same premise as the Chinook surrogate project, i.e. to explore alternative rearing strategies that might produce fish that will better approximate wild fish and increase the probability of success in the conservation of these species.

External Funding Requests as a result of RERF Award

Development of wild fish surrogates for UWR spring Chinook salmon, *Oncorhynchus tshawytscha*, and steelhead, *Oncorhynchus mykiss*

Project continuation for FY2013 and FY2014

PIs: David L. G. Noakes and Carl B. Schreck

Development of a wild winter-run steelhead surrogate to facilitate North Santiam Reservoir and dam passage studies

PIs: David L. G. Noakes and Carl B. Schreck