

NOTICE OF INTENT TO AWARD

This Funding Announcement is not a request for applications. This announcement is to provide public notice of Reclamation's intention to fund the following project activities without full and open competition.

ABSTRACT	
Funding Announcement	R12AS20008 <i>CESU # R11AC10001</i>
Project Title	Klamath River Fish Health Studies
Recipient	Oregon State University
Principle Investigator	Jerri Bartholomew, Associate Professor
Anticipated Federal Amount	\$2,125,000.00
Cost Share	None
Total Anticipated Award Amount	FY12 Award \$425,000.00
New Award or Continuation?	New Award
Anticipated Length of Agreement	4 years and 6 months
Anticipated Period of Performance	Date of execution through September 30, 2016
Award Instrument	Cooperative Agreement
Statutory Authority	Fish and Wildlife Coordination Act, Public Law 85-624, 16 U.S. C. 661et seq., as amended.
CFDA Number	15.517
Single Source Justification Criteria Cited	Justification Criterion: (2) Continuation and (4) (Unique Qualifications), of the Department of Interior Single Source Policy Requirements
Reclamation Point of Contact	Judy A. Hudson, judson@usbr.gov

OVERVIEW

The myxozoan parasite *Ceratomyxa shasta* has been implicated as significant source of morbidity and mortality for salmonid fishes below Iron Gate Dam (IGD). Previous studies on *C. shasta* provide trend data on disease caused by these pathogens in juvenile salmon, alternate parasite host (polychaete worm) population densities and infection prevalence, and infectious load of the Klamath River during the spring and summer smolt migration period. For example, Ceratomyxosis, caused by *C. shasta*, has been detected in up to 60% of juvenile Chinook salmon smolts and has been identified as a factor limiting the continued survival of Klamath River (KR) salmonids (Foott et al. 2002). Results of sentinel studies have shown that KR fall Chinook salmon have decreased resistance to the effects of the disease in comparison with KR strains of rainbow and steelhead trout and recent observations suggest that KR coho salmon may be even less resistant (Foott et al. 2004; Bartholomew, unpublished data).

The ability of the parasite to cause disease is a function of the innate resistance of the fish, the parasite, dose and water temperature. Defining the distribution of this parasite, the habitats that supports its life cycle and the conditions that contribute to severe disease is critical to making decisions that will reduce disease effects in the KR. The goal of this research and monitoring program is to provide information on juvenile and adult life stages of Chinook and coho salmon by assessing mortality associated with freshwater disease issues. Information gathered will be important to track management and recovery of these sensitive and commercially valuable species and gauge success of restoration efforts and management actions.

The overall goal of this research program will be to understand the environmental variables responsible for variation in mortality in both early life stages and adult stages of coho and Chinook salmon associated with disease and other fish health issues. The study will focus on process-related research and inter-annual pattern-based research from routine monitoring. Annual results will be assessed to determine future work plans and be submitted as a modification to this agreement.

This cooperative effort between Reclamation and the Oregon State University (OSU) would be conducted under a Cooperative Ecosystem Studies Unit (CESU) program.

RECIPIENT INVOLVEMENT

1. Determine how interactions between water flow, temperature and adult salmon returns affect:
 - a. polychaete populations (density, abundance, adult-juvenile ratios)
 - b. polychaete infection rates (prevalence of infection)
 - c. disease in juvenile salmon
2. Determine what influences fluctuations in parasite genotype and how this affects mortality in Chinook and coho.
3. Validate the epidemiological model of disease and interpret results for inclusion in the conceptual model for *C. shasta* disease.
4. Validate the 2-dimensional flow model and interpret results for inclusion in the conceptual model for *C. shasta* disease.
5. Dissemination of Results

Project Outcomes will include:

1. A long-term dataset on disease severity for Chinook and coho salmon that encompasses years differing in the magnitude and timing of flows, temperatures during spring and summer, and adult returns.
2. An index for predicting disease severity for Chinook and coho salmon that is validated by correlating data on infection prevalence and disease severity in each fish species with genotype-specific spore densities in water collected at each site.
3. An epidemiological model that identifies sensitive parameters in the host-parasite life cycle, simulates the effect of potential management strategies on the different stages of the life cycle, and predicts disease severity in juvenile salmonid population under certain environmental conditions (i.e. parasite density, temperature, flow).
4. A long-term dataset on polychaete densities and prevalence of *C. shasta* infection. These data will be used to examine relationships among disease severity in fish and environmental variables.
5. A validated model of polychaete distribution and density based on the FASTECH 2D, a modeling system, for different scenarios predicted for discharge manipulations, water years, and dam removal.
6. A dataset encompassing environmental variables and their relationship with polychaete host ecology, which will facilitate predictions about how polychaete densities and infection levels may change under future climate and temperature regimes.

7. Regular dissemination of research findings via the Web to provide stakeholders, managers, researchers and the general public ready access to current information and historical datasets pertinent to C. shasta in the Klamath River.

RECLAMATION INVOLVEMENT

Substantial involvement on the part Reclamation is anticipated for the successful completion of the objectives to be funded by this award. In particular, Reclamation will be responsible for the following:

1. Providing field assistance or access to federally-owned properties on a request-by-request basis as those requests relate to the study objectives
2. Provide review of the study proposal and research design
3. Provide input to the interim and final reports
4. Provide review, input and approval at key interim stages of the project.

SINGLE-SOURCE JUSTIFICATION

DEPARTMENT OF THE INTERIOR SINGLE SOURCE POLICY REQUIREMENTS

Department of the Interior Policy (505 DM 2) requires a written justification which explains why competition is not practicable for each single-source award. The justification must address one or more of the following criteria as well as discussion of the program legislative history, unique capabilities of the proposed recipient, and cost-sharing contribution offered by the proposed recipient, as applicable.

In order for an assistance award to be made without competition, the award must satisfy one or more of the following criteria:

- (1) **Unsolicited Proposal** – The proposed award is the result of an unsolicited assistance application which represents a unique or innovative idea, method, or approach which is not the subject of a current or planned contract or assistance award, but which is deemed advantageous to the program objectives;
- (2) **Continuation** – The activity to be funded is necessary to the satisfactory completion of, or is a continuation of an activity presently being funded, and for which competition would have a significant adverse effect on the continuity or completion of the activity;
- (3) **Legislative intent** – The language in the applicable authorizing legislation or legislative history clearly indicates Congress' intent to restrict the award to a particular recipient of purpose;
- (4) **Unique Qualifications** – The applicant is uniquely qualified to perform the activity based upon a variety of demonstrable factors such as location, property ownership, voluntary support capacity, cost-sharing ability if applicable, technical expertise, or other such unique qualifications;
- (5) **Emergencies** – Program/award where there is insufficient time available (due to a compelling and unusual urgency, or substantial danger to health or safety) for adequate competitive

procedures to be followed.

Reclamation did not solicit full and open competition for this award based on the following criteria:

(2) CONTINUATION & (4) UNIQUE QUALIFICATIONS

Single Source Justification Description:

Oregon State University was the recipient of the previous cooperative agreement on Klamath River fish disease research. In order to complete this project, the staff at Oregon State University possesses working knowledge and therefore, most familiar with the epidemiological model structure, *Ceratomyxa shasta* infection prevalence monitoring studies, high throughput genotyping, and polychaete habitat and a hydraulic model.

It is likely that awarding the proposed agreement to a recipient, other than Oregon State University, would result in substantial duplication and extra cost to the government. Therefore, it would be impractical, inefficient and unreasonable to award this agreement to a different recipient.

STATUTORY AUTHORITY

The authority for this agreement is set forth by the Fish and Wildlife Coordination Act (The Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.), as amended and delegated by the Department of the Interior Manual, 255 DM 14.

The Fish and Wildlife Coordination Act, 16 U.S.C. § 661, states in part:

[T]o provide that wildlife conservation shall receive equal consideration and be coordinated with other features of water-resource development programs through the effectual and harmonious planning, development, maintenance, and coordination of wildlife conservation and rehabilitation ... the Secretary of the Interior is authorized (1) to provide assistance to, and cooperate with, Federal, State, and public or private agencies and organizations in the development, protection, rearing, and stocking of all species of wildlife, resources thereof, and their habitat, in controlling losses of the same from disease or other causes,

255 DM 14, paragraph 1, states:

The Commissioner, Bureau of Reclamation, is delegated so much of the authority of the Secretary under the Fish and Wildlife Coordination Act, 16 U.S.C. 661 et seq., as is necessary to provide assistance, through grants or cooperative agreements, to public or private organizations for the improvement of fish and wildlife habitat associated with water systems or water supplies affected by Reclamation projects.