

## REGIONAL RESEARCH PARTNERSHIP PROGRAM

The Regional Research Partnership Program (R2P2) is an Office of Research and Development (ORD) program administered by the Office of Science Policy. The program provides short-term training opportunities (up to 3 months) for regional technical staff to travel to ORD laboratories, centers or offices and work with ORD scientists on top regional priorities.

### Goals of the Regional Research Partnership Program

- Establish short-term collaborative research opportunities between regional staff and ORD colleagues in ORD laboratories, centers, and offices to foster long-term relationships that help link regional science needs with ORD research objectives
- Establish a formal professional development opportunity for regional staff to perform field or laboratory research in their discipline

### Sample R2P2 Projects

#### Region 6 Mobilization and Fate and Transport of Minerals in Aquifer Storage and Recovery Systems

Aquifer Storage and Recovery (ASR) technology is used in Texas and New Mexico to assist with water quantity issues. Little information is currently available about the effects of aquifer storage on mineral mobilization and the role of water conditioning on the fate and transport of contaminants in treated wastewater effluent.

ORD can support participation of one technical staff member from each region each year. Selected program participants should complete their assignments by the end of the calendar year.

### R2P2 Process

Each year regional offices, in collaboration with ORD, solicit R2P2 candidates to work with an ORD mentor at an ORD laboratory, center, or office. The Regional Science Liaisons facilitate early communication between regional office scientists and ORD scientists, ensure the projects are within the scope of ORD's mission, and secure regional and ORD management support for the nominated candidates and their projects. Applications must include a description of the proposed project, products, anticipated benefits and a work plan.



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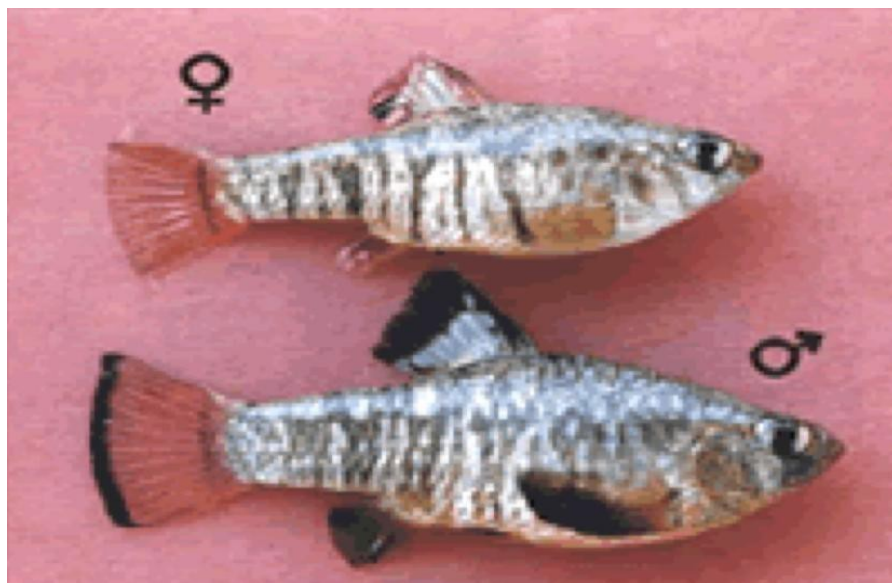
For more information on the RSL Program, please visit:  
<http://intranet.ord.epa.gov/regional-science/regional-science-liaison-rsl-program>

**Region 6 Mobilization and Fate and Transport of Minerals in Aquifer Storage and Recovery Systems, continued from page 1.**

Angela Restivo from Region 6 worked with Jeff Yang at ORD's National Risk Management Research Laboratory to develop a better understanding of the utility of ASR as a national water storage option, particularly in areas experiencing water quantity issues.

Soil column tests were used to assess the effect of water conditioning on metal mobilization in ASR systems. Fate and transport of arsenic were compared in one column simulating natural groundwater flow and one simulating ASR using reclaimed and secondary wastewater treatment effluent after chlorination. Concurrent bench-scale studies used atomic force microscopy (AFM) to quantify the dissolution of pyrite and subsequent mobilization of arsenic in reclaimed water.

The information gathered from this project is available to the Office of Water, as well as state and local water utilities that are considering ASR technology. Experimental results have cost-reduction implications in areas where mineral mobilization could prevent the use of ASR technology due to levels in excess of the Maximum Contaminant Levels.



**Region 10 Aquatic Toxicology and Endocrine Disruptors, Technology Transfer**

The environmental impact of endocrine disruptor compounds (EDCs) is of great interest to regulators, public health officials, and many other stakeholders. Many chemicals have the potential for endocrine disruption. Chemicals regulated individually may act synergistically and lead to impacts greater than the sum of those from the individual chemical constituents. To better understand the impact of EDCs, this project aimed to transfer real-time, quantitative PCR (qPCR) technology from ORD's National Exposure Research Laboratory (NERL) to the EPA Region 10 Laboratory. This newly developed qPCR technique uses both fathead and sheepshead minnows to detect EDC exposure in fresh and marine waters, respectively.

This project gave Region 10 scientists Stephanie Harris and Stephanie Bailey the opportunity to train with Dr. David Lattier of NERL and learn how to perform qPCR technology. During this one-week training, the scientists learned to culture and raise fathead minnows and expose them to potentially impacted water; sacrifice and dissect the minnows; extract and purify RNA; and use qPCR to detect expression of a gene marker indicative of EDC exposure.

This project will enable Region 10 to evaluate surface waters for biologically active levels of EDCs. It will allow a comparison of the efficiency of removal techniques for estrogenic compounds through joint efforts with the National Pollution Discharge Elimination System (NPDES) permits unit and wastewater treatment plant operators. Finally, Region 10 is collaborating with Regions 5 and 8 and ORD to develop a standardized biological method for measuring the estrogenicity of effluents that will be applicable nationwide.

**For more information on the Regional Research Partnership Program, please visit: <http://intranet.ord.epa.gov/regional-science/regional-research-partnership-program-r2p2>**