

## **CENTER FOR LAKES AND RESERVOIRS**

Dr. Mark Sytsma

Associate Professor, Environmental Sciences and Resources

Director, Center for Lakes and Reservoirs

Portland State University

Portland OR 97207

Phone 503-725-3833 Fax 503-725-3834 Email sytsmam@pdx.edu

### **Summary of Research**

Dr. Sytsma's work broadly addresses management of freshwater and marine systems. It includes study of basic chemical processes and biological communities. A focus of his research is the management of harmful introduced species. This work involves study of the basic biology of introduced plants and animals to inform management, production of management and response plans, and policy development. Dr. Sytsma directs the Center for Lakes and Reservoirs at PSU, which was established by the legislature to address lake and invasive species management issues in Oregon.

### **Potential for Commercialization and Job Creation**

One of the key pathways of introduction of harmful aquatic organisms is ballast water discharge from ships. Development of treatment technologies to remove organisms is proceeding slowly; however, recent regulatory actions at the federal and international level suggest that technology development will accelerate. Retrofitting ships for treatment of ballast water in response to these new regulations will result in formation of a new industry with a global market estimated to be in the billions of dollars. There is low-level competition for this market already. Investment in development and testing of treatment technologies could secure a portion of this market for Oregon. At this point funding for this type of research has been limited and has not been the focus of my work, however, strategic investment could result in capturing a portion of this new global industry for Oregon.

### **Total Research Funding**

Ongoing research at the Center for Lakes and Reservoirs is supported by a diversity of local, state, and federal organizations and agencies. Total ongoing projects total \$2.2 million; another \$900,000 in research is presently in review following acceptance of pre-proposals. Total research funding since 1998 totals \$3.25 million. Federal support for ongoing projects is primarily from the US Fish and Wildlife Service, US Coast Guard, US Environmental Protection Agency, and the US Forest Service. State agency support is provided by the Oregon Departments of Agriculture and Environmental Quality and the Washington Department of Ecology.

### **Student Involvement**

Dr. Sytsma's research currently supports two doctoral and four masters students. Three current and former students have received scholarships from professional societies for their research. One has received a Smithsonian fellowship. One current student has received "best student paper" award at two professional society meetings.

**Website**  
[www.clr.pdx.edu](http://www.clr.pdx.edu)