

## **Cytochrome P450 enzymes and the Effects of Environmental Stressors on Fish**

**Dr. Joanna Wilson**, Associate Professor, Department of Biology, McMaster University.

In our basic research program we study the evolution, function and expression of cytochrome P450 (CYP) enzymes in aquatic species. This research involves bioinformatics based approaches such as genome annotation, phylogenetic analyses, and more recently protein folding to raise functional hypotheses regarding the function of CYP genes. Our laboratory based studies of CYP enzymes involves in vivo and vitro approaches to study catalytic function, expression and regulation of these genes in fish. In our applied research program, we study aquatic toxicology with a focus on organic contaminants such as pharmaceuticals. Using environmentally relevant compounds and concentrations, we examine the effects of chronic exposure on fish reproduction, physiology, and development. We have recently begun to study the effects of temperature on fish development. These areas of research intersect as we are beginning studies of multiple stressors.