999-49-110 **Hem Raj Joshi*** (`joshi@xavier.edu`), Department of Mathematics and CS, Xavier University, 3800 Victory Parkway, Cincinnati, OH 45207-4441, **Suzanne Lenhart** (`lenhart@math.utk.edu`), Department of Mathematice, University of Tennessee, Knoxville, TN 37996-1300, and **Mike Neubert**, Biology Department, Woods Hole Oceanographic Institute, Woods Hole, MA.
Introduction to an Optimal Control and its application to a Fishery Model.

We will give an overview of an optimal control for Partial Differential Equations and illustrate it with a Fishery Model. In this model, we find an optimal harvesting strategy in a fish population modeled in a parabolic setting with logistic type growth term and a Dirichlet boundary condition in a multidimensional bounded domain. The harvesting term is the control and our goal is to maximize the profit. We discuss the existence and characterization of an optimal control and derive the optimality system. This problem is linear in control. (Received August 17, 2004)