

Meeting: 1003, Atlanta, Georgia, MAA CP J1, MAA Session on Projects and Demonstrations that Enhance a Differential Equations Course

1003-J1-192 **Michael Huber*** (am6996@usma.edu), Department of Mathematical Sciences, 646 Swift Road, West Point, NY 10996, and **Timothy Povich.** *Aquaculture: Does This Investment Smell Fishy? A DE Project that Offers Faculty Development.*

A project in aquaculture was the capstone event in a freshman calculus/differential equations course. Students studied the effects of price, area, inflation, and harvesting. Student groups analyzed three options for harvesting (with the harvesting functions being constants, polynomials, and step functions) and then developed a fourth, projecting revenue earned over a 30-year term in an attempt to optimize the present value of future revenues. Students used technology to analyze and solve difficult differential equations and explore changes to conditions and parameters in their models. The added benefit of this project was the faculty development that occurred. Instructors met in groups to discuss choosing the types of fish that were to be harvested, the water area of the pond, the carrying capacity of the farm, the operating cost of the farm for thirty years, and the three options to be investigated. Consequently, each instructor's section had different sets of data. Students would then use the internet to research prices, inflation amounts, and other factors impacting on the amount of fish. The project was overwhelmingly embraced by each instructor; this ownership enabled all instructors to sell the project to each student group. (Received August 23, 2004)