Math 106—Calculus II Project 3
Rural agriculture in Skanebra...

by Gavin LaRose (glarose@NebrWesleyan.edu), Nebraska Wesleyan University, January 1997

©1997 Gavin LaRose
permission granted to use and distribute free in an academic setting

As you look back with satisfaction at projects completed, it is with some regret that you find yourself faced with your final contract with Sophisticated Technical Contractors. This one comes from a fish-farming firm from the West coast that in the last year made headlines by starting a number of sites in Skanebra.

EcoSystems, Inc.
1 EcoSystem Dr.
Leseatt, TG
71986

4 April, 1997

Sophisticated Technical Contractors, Inc.
Suite 1, Strawmarket Business Plaza
Lonlinc, SK 04685

Dear STC:

As you may know, EcoSystems, Inc., has in the past year expanded its immensely successful fish farms along the scenic Tonwathing coast near Leseatt to include a large lake near Lonlinc—therefore allowing us to also supply Lonlinc and surrounds with a needed and ecologically sound food source supplied fresh daily by our exclusively electric fleet of bright blue delivery vans. The success of this endeavor we credit pimarily to a careful mathematical analysis carried on by another mathematical contracting firm in your city.

In an effort to keep up with the demand that we have discovered in the Lonlinc area we are beginning a second farm near Haoma. As is our practice, we first did a few test stockings of the lake we are using for the farm. In each case we began with a population of fish and monitored the population over the course of ten breeding cycles. For the first test, we found the population varied as in table 1, and for the second, as in table 2, below.

t (cycles)	0	1	2	3	4	5
p (250s of fish)	5.000	10.828	12.894	13.239	13.288	13.295
t (cycles)	6	7	8	9	10	
p (250s of fish)	13.296	13.296	13.296	13.296	13.296	

Table 1: Fish populations vs. breeding cycle, test 1

t (cycles)	0	1	2	3	4	5
p (250s of fish)	15.000	13.506	13.324	13.300	13.296	13.296
t (cycles)	6	7	8	9	10	
p (250s of fish)	13.296	13.296	13.296	13.296	13.296	

Table 2: Fish populations vs. breeding cycle, test 2

Because an understanding of how the rate at which the fish population changes in response to outside stimuli is essential for the effective management of the farms, we have contracted with STC to determine, based on this data an equation that governs the rate of change of the population.

Dr. Gavin LaRose has agreed in his copious free time to serve as a mathematical consultant for this project. You should contact him with your investigative team with any questions you may have in your work on this project. You should further contact him by the 10th of April and again by the 17th of April with updates on your progress. As we need your report in time to begin work for the summer cultivation season at the farm, we need your final report by the 2nd of May.

Yours sincerely,

"Chuck" R.D. Arwin
President, EcoSystems, Inc.

crda:glr