Wa-Tor World

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Overview

- Class and Concepts
- Description of Wa-Tor World
- Demos
- Alternatives
- Tie in with Biology - Animal Populations
The Class

- Applications of Graphics and Data Visualization
- Class for non CS majors
- Programming experience = CS 1.5
- Fourth of nine assignments
- Emphasis on creating GUI and displaying data
Concepts

- 2D Arrays, looping, data transformation
- Working with multiple classes and documentation
- GUI programming
- Event Driven Programming
Description of Wa-Tor World

- A.K. Dewdney
- Computer Recreations column in Scientific America
- Sharks and Fish Wage an Ecological War on the Toroidal Planet Wa-Tor
The World and its Inhabitants

Wa-Tor

- Sun
- Ocean
- Fish
- Fish

Wa-tor World - Nifty Assignment
The Assignment

- Students given simulator
- Must implement GUI and controls

Population Graphs

The World

Controls
Demos

- Basic Version
- Advanced Controls
Large Worlds

[Image of a simulation interface with a graph and a grid representing a predator-prey simulation]
Alternatives

- Give the GUI, students write the simulator (late CS1, early CS2)
  - Simulator based on AP GridWorld
  - improve efficiency, bogs down near 30,000 cells
- Add other kinds of creatures
- Record statistics
Predator – Prey Equations

- a.k.a. Lotka–Volterra equations

Predicted

Hudson Bay Pelts

Rabbit Population in Red

Fox Population in Blue

![Diagram of predator-prey populations](image-url)