

Wa-Tor World

Mike Scott

University of Texas at Austin

Overview

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

The Class

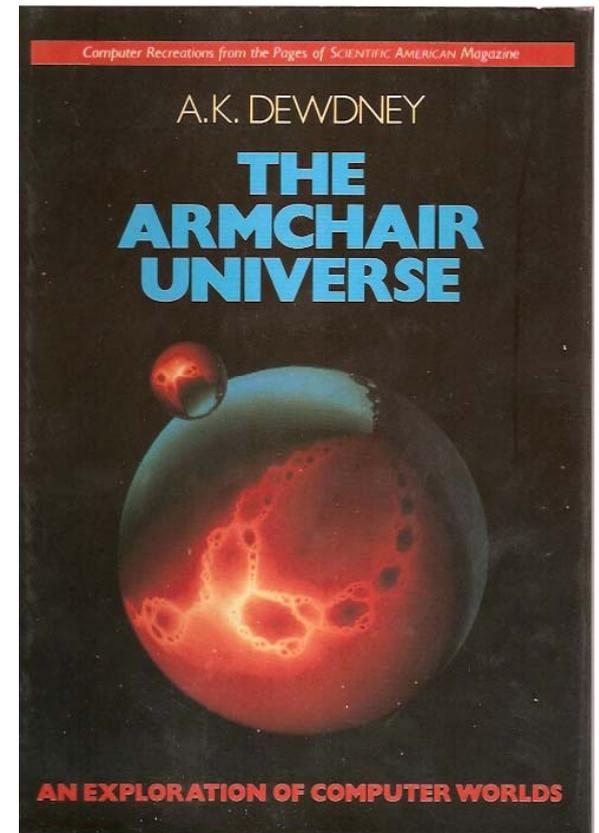
- Applications of Graphics and Data Visualization
- Class for non CS majors
- Programming experience = CS 1.5
- Fourth of nine assignments
- Emphasis on creating GUI and displaying data

Concepts

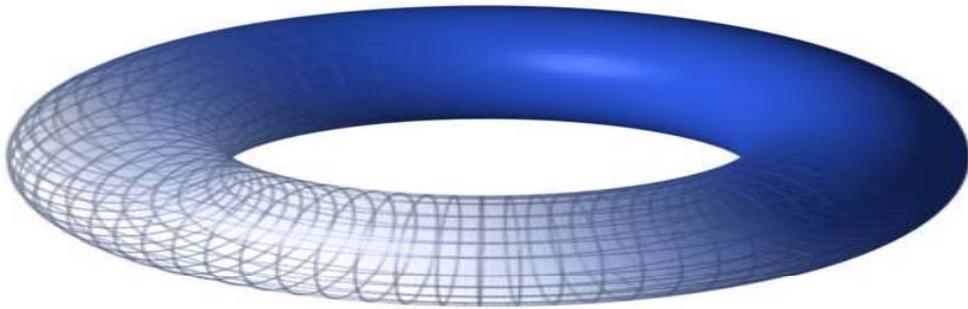
- 2D Arrays, looping, data transformation
- Working with multiple classes and documentation
- GUI programming
- Event Driven Programming

Description of Wa-Tor World

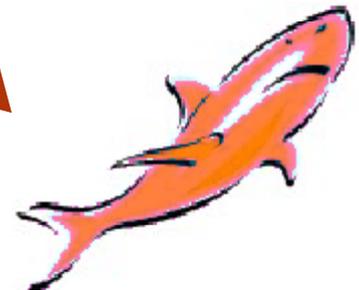
- A.K. Dewdney
- *Computer Recreations* column in *Scientific America*
- *Sharks and Fish Wage an Ecological War on the Toroidal Planet Wa-Tor*



The World and its Inhabitants



Wa-Tor



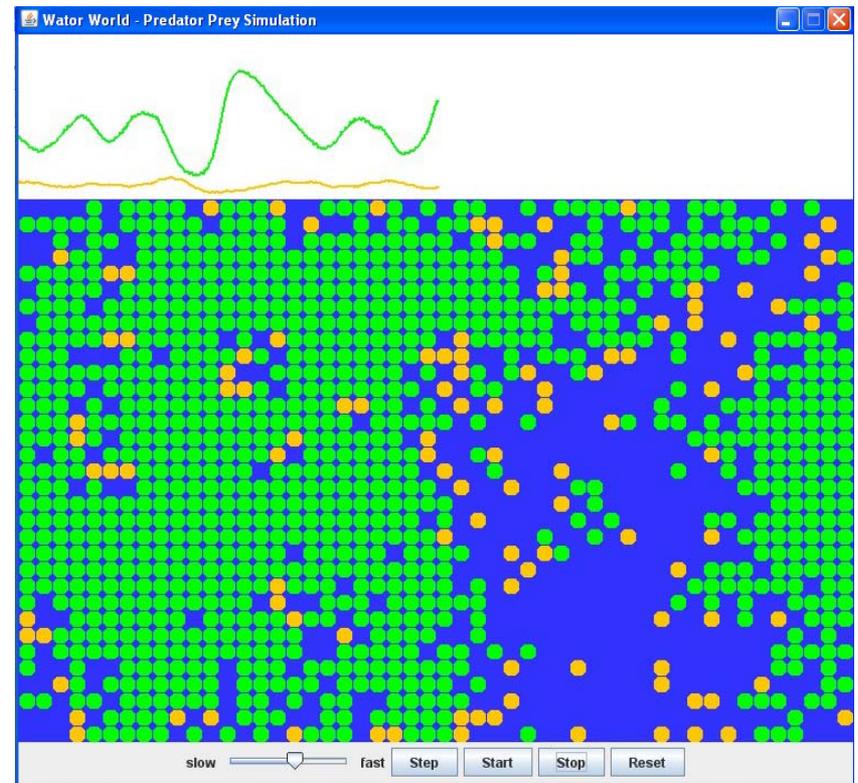
The Assignment

- Students given simulator
- Must implement GUI and controls

Population Graphs →

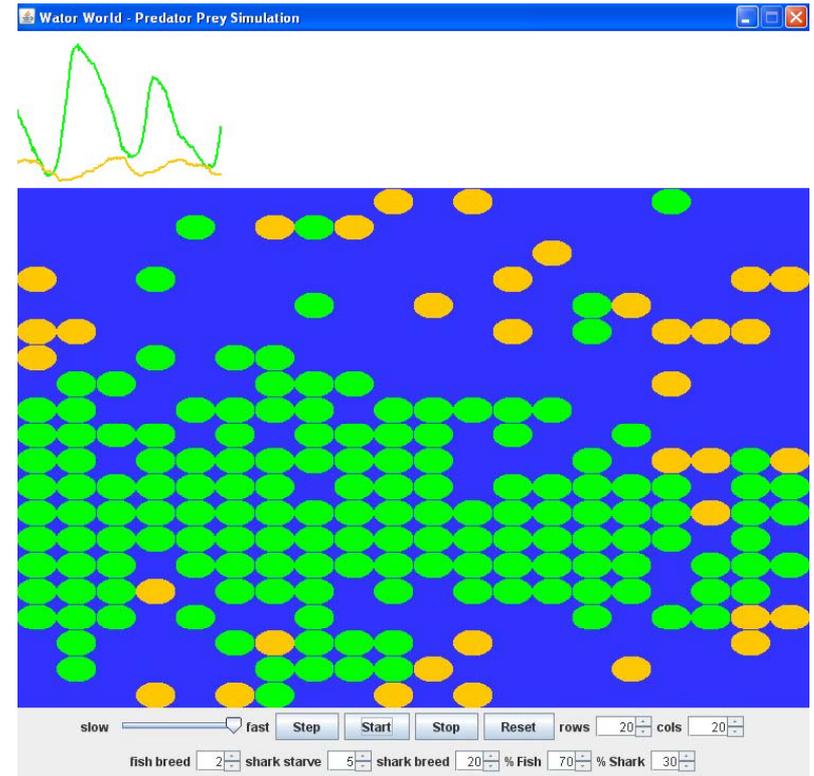
The World →

Controls →



Demos

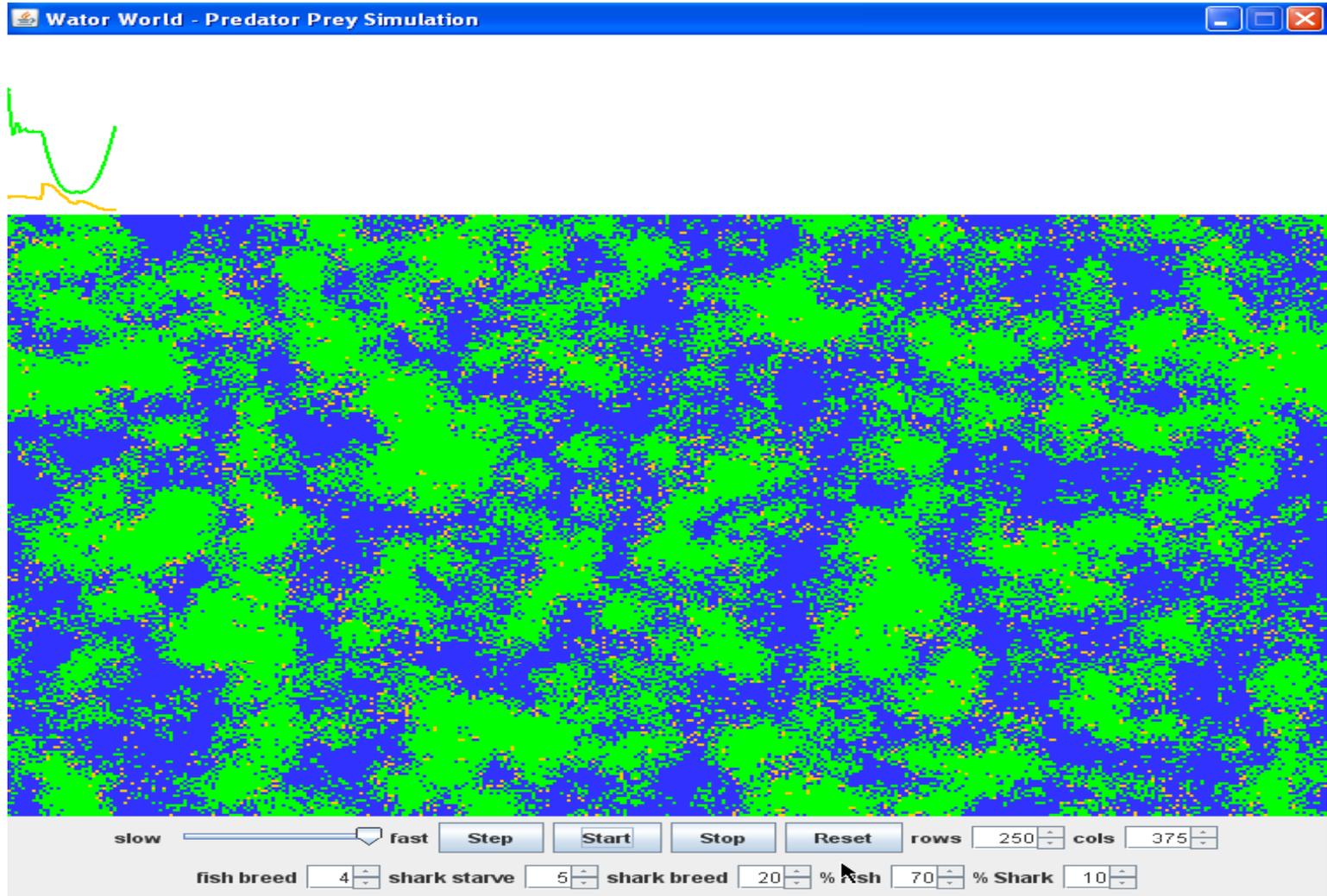
- Basic Version
- Advanced Controls



slow fast **Step** **Start** **Stop** **Reset** rows cols

fish breed shark starve shark breed % Fish % Shark

Large Worlds



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

