EECS 472 Final Project Progress Report

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Agent Behaviors :

For forage fishes: it has the option to form a flock which would make its survival easier. If the flock? is false, the fishes can choose avoid action to detect nearby predators and escape which would cost energy 2. Every move would make the fish's age plus one and fishes can reproduce only after their ages are over 3. The fishes would eat seaweed and gain energy.

For predators: They can chase after the forage fishes for food and if there is no fish nearby but some other predators nearby, they would fight with each other and one of them would die. Predators can eat fishes to gain energy and reproduce at a certain possibility which would lose 20 energy. If the age of predator is over 8 or its energy goes out, it would die. Every move would also make predator's age plus one.

For human-beings: there is an option to decide whether the human would involved in this ecosystem. If human-involved is false, the system would only have predators and forage fishes. If human-involved is true, the system would have boats moving around and catching predators and fishes. The boats' speed is higher than fishes and when there is a

predator nearby, the boat would prefer predator rather than all the fishes in radius 3. These operations can be controlled by users using the HubNet.

System Behavior:

I change my model into two parts. One is the main model which can draw the patches into land and thus have impact on the whole ecosystem, the other one is the hubnet, which I would study how human's fishing would effect the whole ecosystem.

The system works a little weird. At a lot of situations, the predator would die out too fast and I need to find some parameters that at a certain situation that the predator and forage fishes would keep balance without the human involved. I just change the human into the turtles that can be controlled.

After drawing some patches into red, I make the move to avoid moving towards the land, but all the turtles would stop moving which I cannot fix it. Also the button reacts to me very slow, it seems going into some dead cycles…..

Rationale for agent rules:

These rules are basic knowledge for a marine ecosystem.

Model output:

The ecosystem would die out by themselves and I search the wolf-sheep model, still cannot make my model to keep all the species lasts. Without this feature guaranteed, I cannot really say how the human would affect the whole system.

Questions: Why the predators would die out so soon.

Next step:

I would fix the problem why the predators would die out so soon and the bug in the drawing stuff.