# Polar Ecosystem

New Mexico
Supercomputing Challenge
Final Report
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Our team is modeling a Polar Ecosystem and showing how animals from different regions of the earth could possibly interact in a wildlife refuge-like habitat. We are using Killer whales, Polar bears, Leopard seals, Emperor penguins, a few different types of fish, and small particles for the fish to eat. We will take temperature into account so we can monitor ice thickness and water temperature.

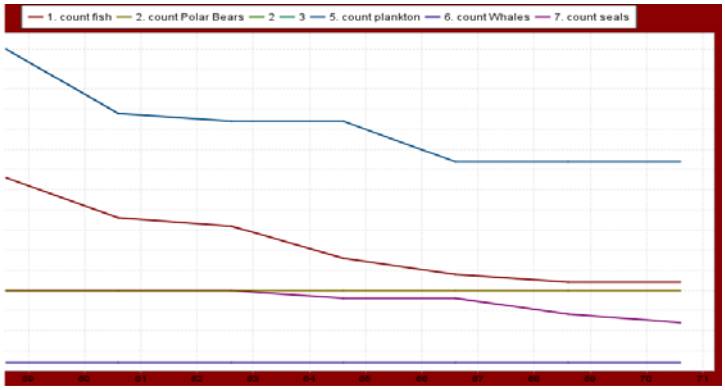
We intend to use Starlogo TNG to model a polar ecosystem and have found that this works quite well. We have different regions consisting of ice, and open sea. This restricts the animals to the region that they inhabit in real life. We have used math equations to show how the species interact.

So far we have our program running as intended, except for a few minor flaws. We have carried out extensive research and have found out things that have dramatically changed the quality and outcome of our experiment.

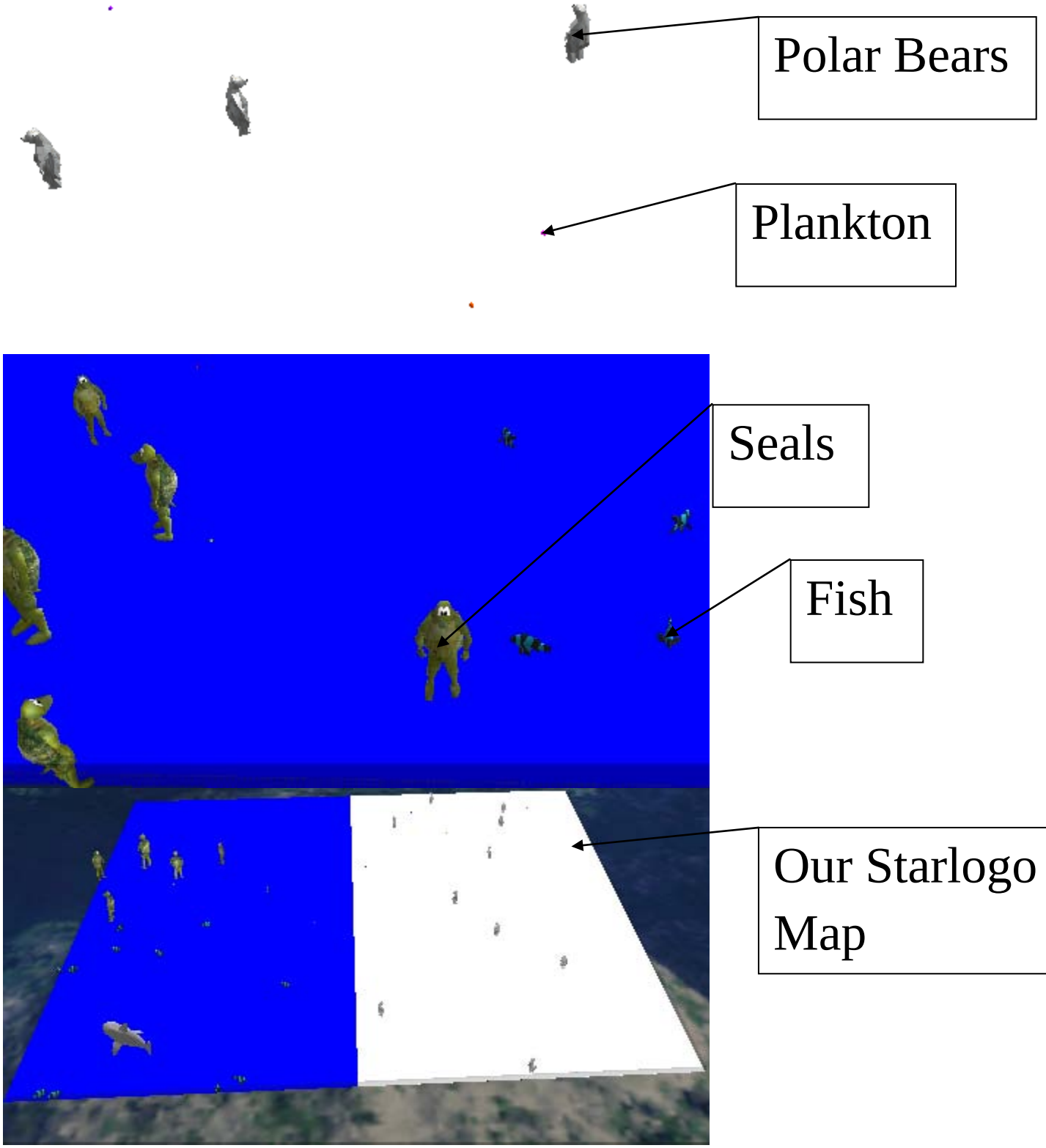
We have chosen this project because of the recent problems with global warming and melting icecaps. We intended to show how animals could be put in a polar wildlife refuge and to see if it were possible for them to interact and live together if needed. This project could provide vital information to the scientific community and solve the global warming crisis.

We have approached this problem by modeling a Starlogo TNG world to represent a polar ecosystem and incorporating endangered polar animals that don't interact with each other in real life. This is to test if the animals could possibly interact in a refuge like environment. We have so far found that the animals can interact without a problem without human interference.

We have had varied successes and failures along the way and have also found that it is possible to incorporate animals from the north and south poles in the same refuge. This is a very good thing because it allows scientists to have a plan in case global warming makes the destruction of the poles imminent. As you can see in the graph below the numbers are perfectly equal to the amount needed by all animals to survive.



We have finally concluded that it would be entirely possible to create a polar refuge for animals that have had their habitats destroyed by global warming. This could be achieved, and from what we have seen, could be balanced for many years to come. This is very good news, seeing as we might have to do just this in the years to come.


Polar Bears
Plankton
Seals
Fish
Our Starlogo Map