Does Salinity affect certain sharks in the Pacific Ocean?

New Mexico

Supercomputing Challenge

Final Report

April 2nd, 2014

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White Sands Middle School

Team Members:

Joshua Northrup

Catalina Sanchez-Maes

Teacher

Jim Maes

Project Mentor

Jim Maes

Summary

At the kickoff our group didn't know what to do. A mentor helped us find a project which is "Does salinity affect certain sharks in the Pacific Ocean?" For this project we created a model with Starlogo TNG. We chose five sharks for our project which are as follows: cat shark, zebra shark, tiger shark, hammerhead shark, and blacktip shark. We chose these five sharks because we wanted to be precise and not too general. There is very little research in this area and is something that needs to be explored in the future. This needs to be explored more in the future due to the cause of anthropogenic climate change changing the salinity amounts.

Does Salinity affect certain sharks in the Pacific Ocean?

The method we used to solve our problem was to create a model on Starlogo TNG. We verified and validated our project by doing background research on salinity, the Pacific Ocean and the sharks. We also checked our sources. The results of our study were inconclusive. There wasn't enough background research to supply accurate information for the model. The conclusions we reached by analyzing our results is that with more research we could possibly learn much more information for future reference. Looking at what we have done we realized that this area is limited in research.

Graphs from our Starlogo TNG model:

The following graphs are created in intervals of two seconds.

Shark Population



Key: Blue- zebra shark

Purple- cat shark

Lime green- tiger shark

Green- hammerhead shark

Red- blacktip shark

In all of the trials that we have done one type of shark has always died rapidly compared to all the others. In this trial the zebra shark has died. The type of shark that rapidly diminishes varies in each trial.

Salinity Count



Key: Blue- salinity

Once all the sharks die off the salinity thrives.

Our most significant achievement on this project is that we were able to learn the programming and how to do a research project.

Acknowledgments

We would like to thank:

Our coach Mr. Maes for sponsoring us

The people who research salinity for a living

GUTS for introducing us to programming

The Supercomputing Challenge for giving us an opportunity to explore this subject

White Sands Middle School for letting us represent them in this competition

Our family who supports us

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