

Lulu Hamnicutt
ANS 401

During class, on February 14, Larry Matfay, one of the 1989 spring semester elder in residence at the University of Alaska, Fairbanks, made reference to the red tide. The purpose of this paper is to inform the reader about red tides in hopes that new information will be presented to the reader, so that his knowledge of red tides is greater than it was previously. Also, the information presented can be used as a supplement to be added to what Larry mentioned about red tides. However, only a general and brief discussion will be presented due to the sparse availability of resources on red tides.

In one dictionary, red tides are defined as ocean waters colored by the rapid growth and spread of red, one-celled, plant-like animals (flagellates) which are in sufficient numbers to kill fish. In another dictionary, red tides are defined as a brownish-red discoloration of marine waters that is lethal to fish (this definition resembles what Larry told the class about red tides). This led me to the conclusion that, while red tides may have been in existence for a long time, they are a relatively new phenomena in that they are just beginning to be documented in some places. This is in fact true and because of the present day situation, the whole realm of red tides are not known, hence the two different definitions.

As mentioned above, red tides occur in oceans (there were no indications that red tide occurs in rivers, ponds or lakes) and that it discolors the ocean ranging from a red to a brownish red color. Contrary to belief, the red tide, in most cases, had always been present in the places it occurs. This means that when the environmental conditions were not favorable for growth, the red tide did not occur, and when conditions were favorable, such as warm weather, an inflow of nutrient filled water or fresh water, the red tide develops. In very few cases the red tide is altogether new. This means that the red tide was in fact not "native" to the area but was introduced to the area. The various means of introduction was not discussed to the extent needed to draw conclusions. Also mentioned above is that the red tide is now called plant like animals. These are called flagella or flagellates. This is a one-celled organism with a tail or whip like structure. Red tides can also be dinoflagellates which are one-celled protozoans with two tails or whip like structures. These have a very special quality in reference to their title "red tide." These animals have a red pigment which is why the area of water they encompass turns red. Not only do these animals turn the water red, but they also are known for releasing toxins into the water. The toxins can be transferred to the air but the toxicity levels of the air after transfer is not known. The release of these toxins are fatal to marine mammals, water fowl and algae which inhabit the oceans.

Larry said that the fish in Olga Bay were blinded by the red tide and then the fish died. Another effect of some toxins, which was pointed out in the readings, is the clogging of the fish's gills.

When the red tide is mentioned, one of the first ideas which occur to most people is that the red tide is poisonous. This is not always the case. There are in fact red tides in existence that are not toxic. Also, red tides are not always caused by protozoans, they can also be produced by a blue-green algae, called cyanbacteria, and can be caused by other sorts of organisms. Mention of these won't be made because a conclusive list would not be possible to reach at this time. Further, red tides usually bloom in the summer months when the weather is warm. However, some places also have winter blooms due to warm winters in such areas.

To learn something of the red tide, one has to pick a certain organism and research it or pick a region where red tide occurs, find out the name of the organism and then research it. In searching for resources, three books, one of which was a bibliography, were found in the University library. There were no materials available that pertained to Alaska or specific places in Alaska. Albeit this is short, I feel that I have exhausted the subject in respect to the amount of material and quality information available to me.

WORKS CITED

- Locicero, Vincent R. PROCEEDINGS OF THE FIRST INTERNATIONAL CONFERENCE ON TOXIC DINOFLAGELLATE BLOOMS. The Massachusetts Science and Technology Foundation:1975.
- Tomotoshi, Anderson and Nemoto. RED TIDES: BIOLOGY, ENVIRONMENTAL SCIENCE AND TOXICOLOGY. Elsevier Science Publishing Co.:1989.
- Loeblich and Loeblich III. BIBLIOGRAPHY: THE FIRST INTERNATIONAL CONFERENCE ON TOXIC DINOFLAGELLATE BLOOMS. Massachusetts Science and Technology Foundation:1975.