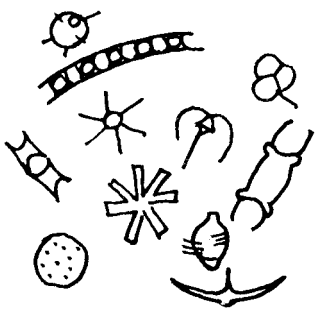
MARINE DIATOMS

AND OTHER IMPORTANT STUFF

Life in the sea, like that on land, depends on the light and warmth of the sun. The cycle of life in the sea begins around the surface where there lives a multitude of plants and animals that drift and wander through the water under the influence of wind, tides and currents; these are called *plankton*.

Plankton is made up of microscopic (teeny-tiny) plants, called *phytoplankton*, and microscopic animals, called *zooplankton*. Phytoplankton is also called algae.



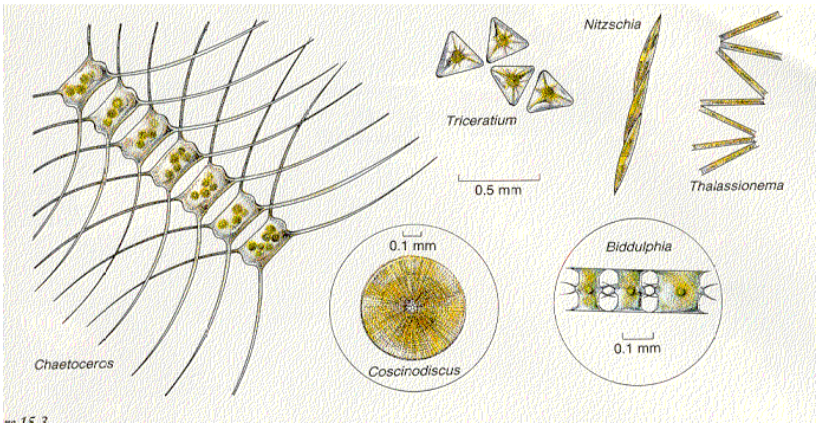
PHYTOPLANKTON
(plants, algae)

ZOOPLANKTON
(animals)

PHYTOPLANKTON

Phytoplankton are single-celled plants that live close to the surface of the water and provide food directly or indirectly to every animal in the sea, from the smallest sponge to the largest whale. They range in size from a few microns to several hundred microns. What's a micron?! Good question. A micron is one thousandth of a millimeter … a millimeter is about as long as this dash: - A two-liter bottle full of coastal sea water might contain as many as 30 MILLION individual of phytoplankton plants!

Although they are really small, these plants can be seen under a microscope. If you have a look in our microscope, you'll see some boxes or squares. Those are a kind of phytoplankton or algae called *diatoms*.



DIATOMS

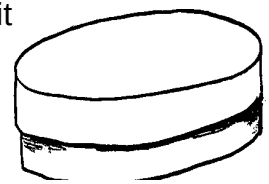
Up close, under a very powerful microscope, diatoms look like this:

Diatoms are the most common and abundant phytoplankton. (That just means they are easy to find and there are lots of them!)

Diatoms can be found in

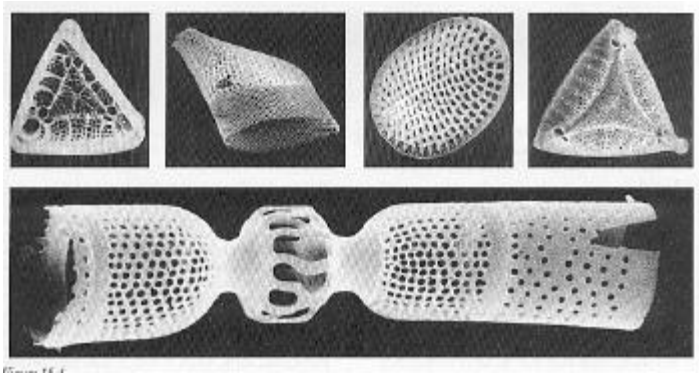
both marine (ocean) and freshwater (lakes and streams) habitats. Most diatoms simply float around in the water. However, some kinds grow attached to things like rocks or shells. They can grow together and eventually form long, branching strands that look a lot like seaweed. (That is the kind that we usually have at our table – look at them in the microscope!)

Either way – floating in the water or attached to a rock – diatoms are microscopic, one-celled plants that live in transparent (see-through) cases that fit snugly together. These cases look like a hat box or a shoe box and are made from pectin (jelly) with bits of silica. (The windows in your house are also made from silica – it's glass!)



Diatom cases are rounded or triangular or sometimes are shaped like a pencil. Some are smooth and some have bumps and dents and ridges. All have lots of tiny holes or pores. By looking at the different shapes and patterns, we know that there are over 9,000 different kinds of diatoms!

If you look at them with a special microscope that takes a picture (called a stereo micrograph), they look like this:



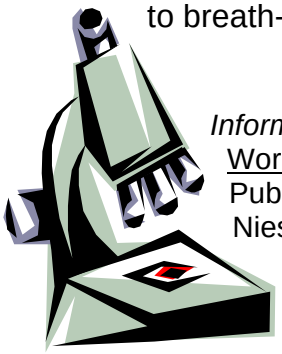
Diatoms are the most important food supply in the sea. Each one is a tiny chemical factory that uses sunlight to convert carbon dioxide (the air we breathe out, for example), water and mineral salts into oxygen and sugars. Diatoms do in the sea what trees and grass do on land: PHOTOSYNTHESIS. Scientists think of it like this:

$$6CO_2 + 6\,H_2O \longrightarrow C_6H_{10}O_6 + 6O_2$$

or, in (other) words:

Carbon dioxide + Water ⟶ Sugar + Oxygen

And because people and dogs and birds and fish and every other kind of animal need to breath-in **oxygen** to stay alive, we think diatoms do a really important job!



Information sources used to produce this document: An Introduction to the World's Oceans, Fourth Edition, Duxbury and Duxbury, 1984, Wm. C. Brown Publishers, Iowa; The Marine Biology Coloring Book, Second Edition, Thomas Niesen, 2000, Coloring Concepts, Inc. and Harper Collins, California; and An Introduction to Fisheries Science, First Edition, Barbie Cam, 1988, Educational Development Center, Republic of Maldives.

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