



Black John - the Bogus Pirate

By John Joyce

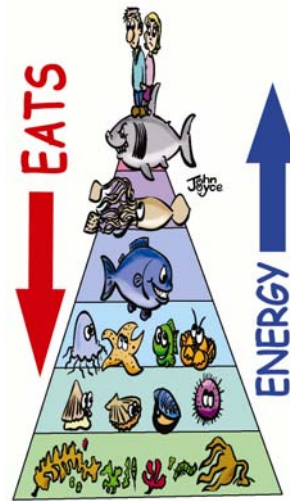
Avast there, Mateys! Today I'm going to hand over to Amos, our ship's cat to talk about the Fourth Principle of Ocean Literacy which says that "The Ocean has made our planet a habitable place to live" and here's how . . .



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A habitable place to live

One theory offered for the origin of all life on Planet Earth is that it started around hydrothermal vents at the bottom of the deep ocean. Hydrothermal vents occur when seawater seeps down through cracks in the seabed, along mid-ocean ridges at junctions between the vast 'tectonic plates' that cover the Earth. This seawater is heated to boiling point and vented back into the ocean above, taking dissolved and suspended minerals with it. It is thought that these dissolved minerals then combined to form increasingly complex compounds until eventually 'organic' proteins known as DNA (deoxyribonucleic acid) were created. Then, protected by the walls of microscopic pockets in the volcanic rock around the vents, which acted as 'cell walls' these DNA proteins split, reproduced and formed the first 'living cell', which would have resembled a modern bacterium. Over millions and millions of years, these primitive 'cells' grew more and more sophisticated, became mobile, and began the evolutionary process that created the vast variety of living things on Planet Earth - including you and me.



The Marine "Food Web"

One vitally important step in the development of life on Earth was evolution of the organic chemical 'chlorophyll' which uses the energy of sunlight to create oxygen and a variety of other chemicals from carbon dioxide and water.

This led to the creation of 'phytoplankton' - tiny cells that between them produce around half of all of the oxygen in Earth's atmosphere.

Not only do phytoplankton and other ocean plants produce half the oxygen in the air we breathe, they also form the foundation of the 'Food Chain' in the ocean that gives us the fish and other marine food products we need to eat.

Phytoplankton and larger seaweeds convert energy from the sun and chemicals from the ocean into plant tissue which is eaten by 'herbivores' such as limpets, winkles and sea urchins or filtered out of the water by shellfish such as mussels and cockles. These 'herbivore' animals are then eaten by predators such as jellyfish, starfish, crabs and small fish in the next level up what scientists call 'The Marine Food Pyramid'.



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