Impacts of Climate Change: Ocean Acidification

Cameron Reed, Jordan Nicolette, Nicholas Kilby, Akash Shah

CPSG101 Science & Global Change First Year Colloquium II
April 25, 2017

The basic idea:
Some of the CO₂ being produced is absorbed by the ocean which decreases the pH level of the ocean. This process is known as ocean acidification. This seems like it would be good as it is removing CO₂ from the air, but we are now discovering the horrifying side effects of ocean acidification.

Causes:
Ever since the industrial age, we have needed electricity to live our everyday lives. The main method of energy creation today is through the burning of fossil fuels which releases CO₂.

Effects on the Biosphere

Floral effects:
Ocean acidification creates problems with the ecosystem in that it enhances algae metabolism, which in turn results in large algae blooms, killing much of the competing aquatic flora on the seafloor.

Faunal effects:
Ocean acidification causes the embryos of fish, like Atlantic Cod, to be more sensitive to temperature. This can prove problematic because the embryos are in their most vulnerable and volatile state, so their tolerance for change is already small and can potentially cause dramatic consequences.

The effect of ocean acidification on marine life can be directly seen through the impact on coral calcification:
- Corals are necessary for harboring species of fish and necessary bacteria, but these organisms are at risk when there is decay
- Coral reefs protect coastlines from storms and waves that could threaten cities.
- They also house an incredible amount of biodiversity.

Citations:

The diagram shows the effect of both temperature (T) tests and those comprised of heavier acidification. The structures in the control are not visible, whilst the structures in the others are.