

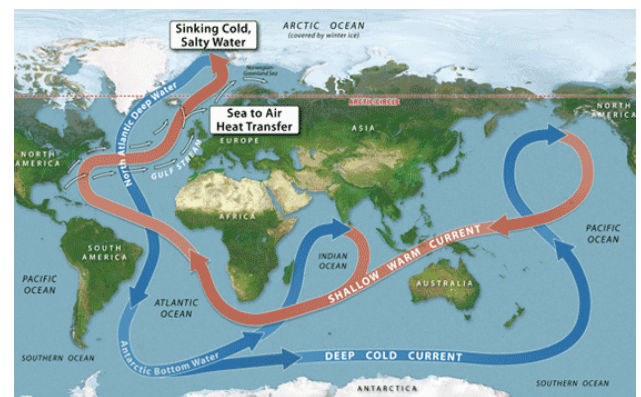
## Why is the ocean important for habitability?

Make a list below of all the services the ocean gives humanity.

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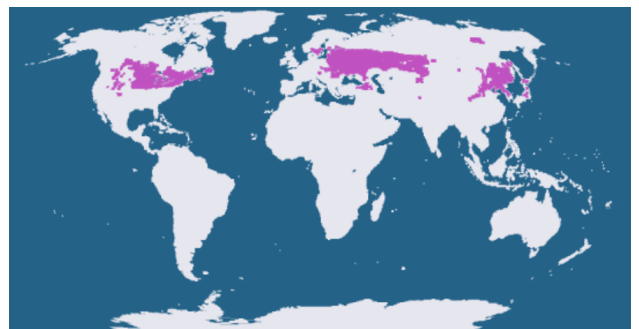
## Oceans Move Heat!

In your own words tell me how the ocean is responsible for heat transfer around the planet.



## How does the ocean impact the climate zones?

Tell me how the ocean impacts the Humid Continental climate zone of Indiana.



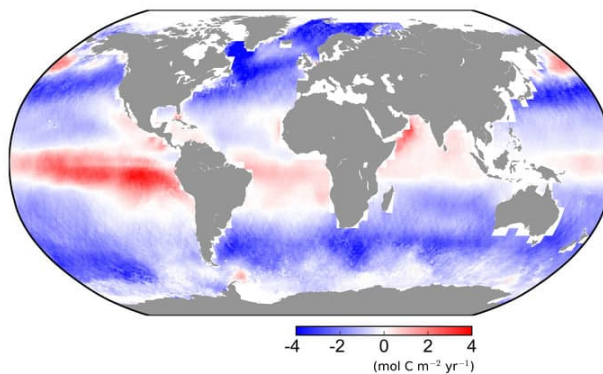
## Oceans hold Carbon Dioxide

- The oceans have absorbed about \_\_\_\_\_ of the CO<sub>2</sub> that humans have produced since 1950
- If the oceans had not absorbed the CO<sub>2</sub> levels in the atmosphere would be closer to \_\_\_\_\_
- CO<sub>2</sub> in the ocean is used by

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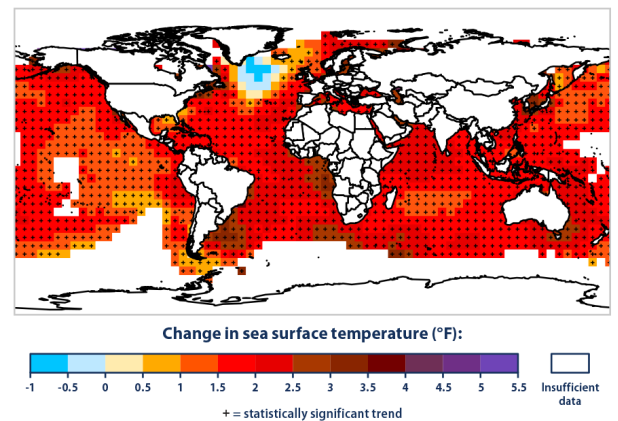
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## How does climate change affect the Oceans?

### Increased Heat

- Where are the oceans heating the most?
- Why are they warming?
- Where are the oceans cooling?
- What effect does this change in ocean temperature have on the global conveyor belt?



How does ocean warming affect El Niño and La Niña?

### **Ocean Acidification**

The ocean takes up Carbon dioxide, this CO<sub>2</sub> reacts with the water to make carbonic acid - this acid releases Hydrogen ions which react with carbonate ions to make bicarbonate. This doesn't leave any carbonate ions for shelled animals to use to make their shells.

What larger impacts does this have on food webs?

### **Deoxygenation**

When the ocean gets too \_\_\_\_\_ it can't hold as much oxygen.

In addition, increased temps and increased \_\_\_\_\_ increases algae growth. When the algae dies it uses the oxygen to decompose creating dead zones

Fish, mammals, and all living things in the ocean need oxygen.