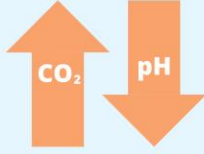
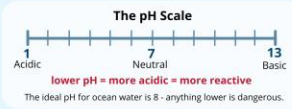


Mudflat Acidification Testing

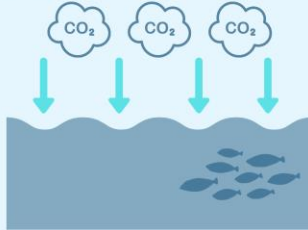


Goal: to find a direct relationship between the rise in CO₂ and the decreasing pH of the flats

Changes in acidity **harm** marine animals



Shellfish are calcifying organisms that create and maintain their shell structures with calcium carbonate (CaCO₃).



increased CO₂ levels in the atmosphere
↓
more CO₂ absorbed by ocean
↓
pH of ocean water decreases
↓
more hydrogen atoms created that bond with carbonate ions
= less carbonate ions available for shellfish & excess hydrogen ions begin to break down existing shell structures

Seaside's Work

At Seaside, we conduct field research of the changing CO₂ and pH levels of the flats in Cape Ann. This data is sent to our partners at the **Salem Sound Coastwatch** to be put into a database for further review.

While it is important that we monitor the changing conditions of the flats, we also need to do everything in our power to **reduce CO₂ levels in the atmosphere.**



5 Ways To Reduce Your Carbon Footprint

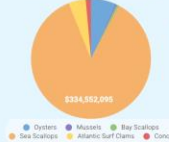
- avoid single-use plastic
- eat less meat
- conserve water
- carpool or use public transport
- conserve energy at home by using LED lighting and lowering your thermostat in winter

Seaside's Long-term Goals:

1. Collect accurate data that contributes to our understanding of climate change
2. Increase the public's knowledge and awareness about the consequences of mudflat acidification
3. Monitor changes in the Cape Ann mudflats over time
4. Advocate for the protection and restoration of the natural environments of coastal Massachusetts

Massachusetts Bivalve Industry

Annual Revenue in 2016



annually generates upwards of

\$388 million

Counties in coastal MA generate more money with the shellfish industry than anywhere else in the country.

Coastal Massachusetts is the **most vulnerable region in the nation to the effects of ocean acidification.**

Sources:

- "The Basics of Ocean Acidification." <http://www.noaa.gov/education/outreach/education/acidification/>
- "Massachusetts is Highly Vulnerable To Ocean Acidification According to New Study." [www.mass.gov/pressroom/2015/05/050515-01.htm](http://www.mass.gov/pressroom/2015/05/05/050515-01.htm)
- "Ocean Acidification and the Massachusetts Bivalve Industry." www.mass.gov/pressroom/2015/05/050515-02.htm
- "The Economics of Ocean Acidification." <http://www.noaa.gov/education/outreach/education/acidification/economics/>
- "Ocean Acidification and the Massachusetts Bivalve Industry." www.mass.gov/pressroom/2015/05/050515-02.htm

