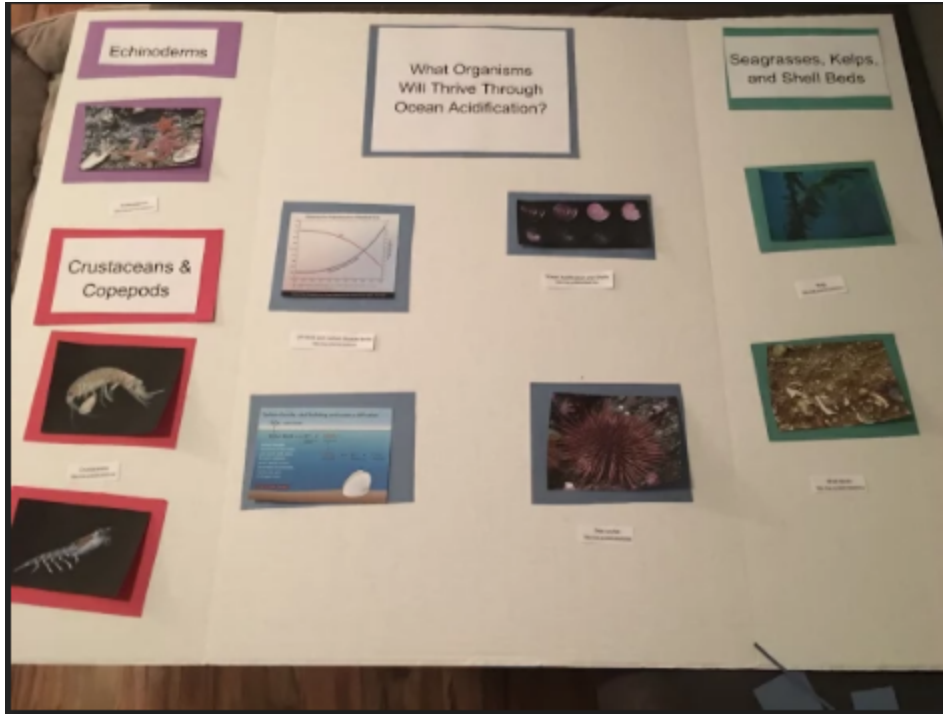


**Student Project Pieces:**



**Screenshots of the students Prezi:**



## What is Ocean Acidification (OA)?

The graph displays two trends from 2000 to 2100 under the IPCC RCP8.5 scenario. The left y-axis represents atmospheric CO2 in parts per million (PPM), ranging from 300 to 1000. The right y-axis represents ocean pH, ranging from 7.1 to 8.2. The x-axis shows years from 2000 to 2100 in 10-year increments. A red line shows atmospheric CO2 increasing from approximately 370 PPM in 2000 to about 900 PPM in 2100. A blue line shows ocean pH decreasing from approximately 8.1 in 2000 to about 7.6 in 2100.

Year	Atmospheric CO2 (PPM)	Ocean pH
2000	370	8.1
2010	410	8.05
2020	450	8.0
2030	500	7.95
2040	550	7.9
2050	600	7.85
2060	650	7.8
2070	700	7.75
2080	750	7.7
2090	800	7.65
2100	900	7.6

<http://euanmearns.com/is-ocean-acidification-a-threat/>

**OA**

## OA

- Ocean Acidification is the lowering of the pH balance of the ocean due to the absorption of carbon dioxide
- Lowers calcium carbonate levels
- By the end of the century the ocean could be more than 150% acidic
  - Higher than we've seen in over 20 million years



**What organisms will thrive in OA?**



<https://www.pexels.com/photo/beach-sand-legs-ocean-39626/>

- Crustaceans and Copepods
- Seagrasses, Kelps, and Shell beds
- Echinoderms
- Continued

## ***Crustaceans and Copepods***

- These organisms appear to be relatively tolerant of OA
- Crustaceans include: shrimp, krill, crayfish, lobsters, and crabs.
- These animals can withstand a dramatic decrease in pH levels of the ocean with very little negative impacts including stunted growth and reproductive issues.



[https://commons.wikimedia.org/wiki/File:Abludomelita\\_obtusata.jpg](https://commons.wikimedia.org/wiki/File:Abludomelita_obtusata.jpg)



<https://simple.wikipedia.org/wiki/Copepod>

## ***Echinoderms***

- Organisms such as Echinoderms will not be harmed through ocean acidification as their environment already has a lower pH level.
- Halophilic microorganisms also thrive in low pH levels, they require it to survive.
- Acidophiles also thrive in this type of environment, able to regulate their own internal pH levels.



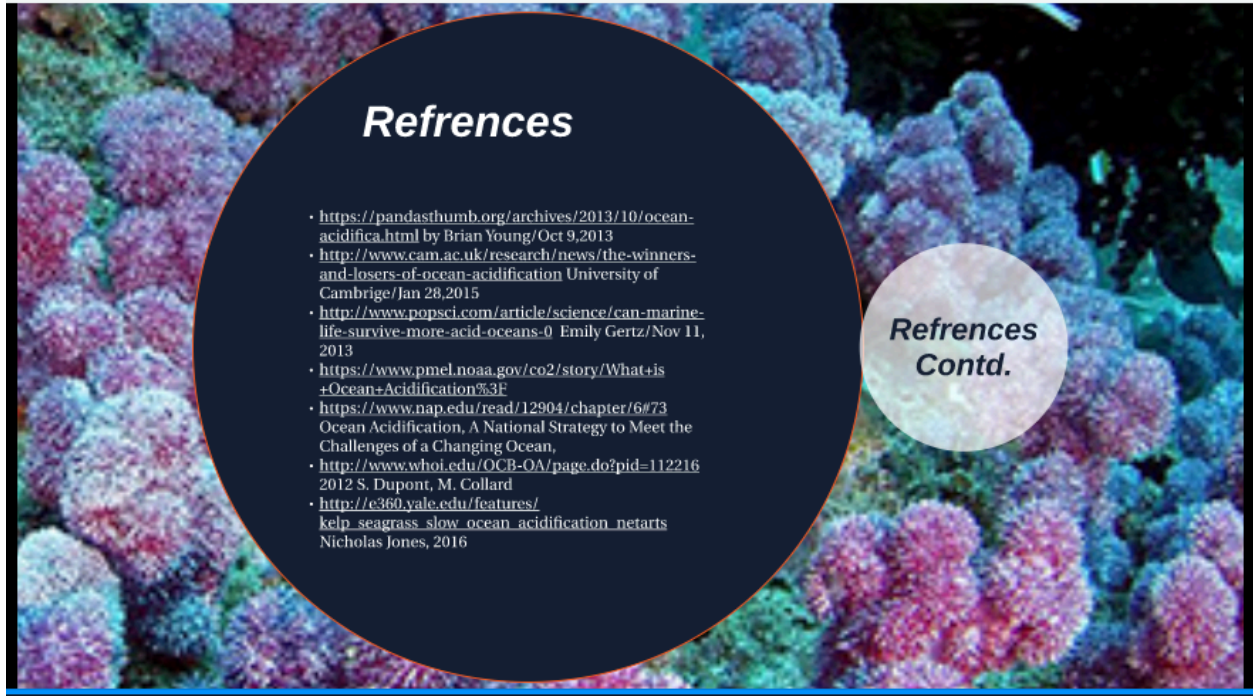
<https://commons.wikimedia.org/wiki/File:SeaStarfish.jpg>

## ***Continued***

- There are also several other extremophiles that can withstand an extreme amount of acidity
  - bacteria and other microorganisms.
- Hofmann, a scientist from the University of California, has done a study that may have led to a possible genetic code that can cause animals to thrive in more acidic waters.
  - consisted of exposing sea urchin larvae to acidic waters
  - She then interbred sea urchins from Southern California and the Pacific Northwest.
  - Hofmann discovered that the offspring could hold out against higher carbon dioxide conditions.



<https://www.flickr.com/photos/slobirdr/16455860102>



Screenshot of student takeway (business card):

# Thrive & Survive



By: ~~XXXXXXXXXX~~

<https://goo.gl/u5YC3b>



## Graded Feedback:

Some Rubric (1)	
Criteria	Assessment
Product Clarity	Full Marks 8/ 8.0 pts
Product Originality	Full Marks 8/ 8.0 pts
Relevance and Citations	Full Marks 8/ 8.0 pts
Required Elements	Full Marks 12/ 12.0 pts
Content Accuracy	Full Marks 4/ 4.0 pts
Attractiveness of Product	Full Marks 4/ 4.0 pts
Grammar	Full Marks 4/ 4.0 pts
Presentation - Enthusiasm	Full Marks 4/ 4.0 pts
Presentation - Professional Attire	Full Marks 4/ 4.0 pts
Presentation - Stays on Topic	Full Marks 4/ 4.0 pts
Presentation - Preparedness	Full Marks 4/ 4.0 pts
Presentation - Posture and Eye Contact	Full Marks 4/ 4.0 pts
Total Points: 68 out of 68.0	

***This group did a very good job talking about their topic at level that was very well informed. They also had both a poster and prezi that showed the information in professional and colorful visuals.***

## Full Rubric:

<https://docs.google.com/document/d/17D1eCyp-jRaei5MdcAd0aAHmsjP7uWZMBVAozYF3MYA/edit?usp=sharing>