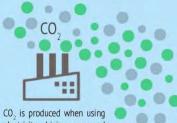


## **Ocean Acidification**

Watch an <u>introductory video on ocean acidification and how it affects ocean.</u> Next, take a look at the infographic below to dive deeper into the concept of ocean acidification. <u>Read up on the sanctuaries'</u> <u>explanation of climate change and ocean acidification</u>. Explore each of the affected sanctuaries to see how they are dealing with the effects of climate change and ocean acidification.

# **ACIDIFICATION IN OUR OCEAN**

OCEAN ACIDIFICATION: Our ocean absorbs excess CO<sub>2</sub> when we burn fossil fuels to power cars and create electricity. This excess CO<sub>2</sub> increases acidity in our ocean on a global scale.



electricity, driving cars, and other industrial activities.

We, as humans, are deeply connected to our ocean whether we realize it our not. Our ocean regulates climate like the heart regulates blood flow in our bodies. Humidity, rain, and temperature are all controlled by our ocean. Burning fossil fuels adds excess heat and carbon dioxide that disrupt this system and make it harder to maintain a stable climate. COASTAL ACIDIFICATION: Nutrients entering the water from land exacerbates acidification in near shore waters.



 $H_2 0 = \frac{\text{increased}}{\text{acidity}}$ 

The ocean absorbs CO., which mixes with water and increases the acidity of the water. Carbonate, used by coral and shellfish to build their hard exteriors, becomes scarce when ocean acidity increases. Because many reef animals rely on coral for food and shelter, changing ocean chemistry can affect the entire coral reef ecosystem. Plankton populations thrive in high nutrient environments and can become so dense that they block light from sun-dependent organisms like coral. When this algal bloom dies, the plankton sink and are broken down. The decay process depletes oxygen and adds nutrients, exacerbating changes in ocean chemistry and creating a challenging environment for marine life.



Increased ocean acidity reduces fish size and populations. Some fish grow slower and cannot reproduce as well. Others have more difficulty avoiding predators. https://oceanacidification.noaa.gov/

WHAT CAN WE DO TO HELP?



Cut back on watering your lawn or choose drought-tolerant landscaping to reduce runoff into the ocean.



Reduce the use of fertilizers with high nitrogen and phosphorus concentrations.



Eat a plant-rich diet and buy local produce to reduce transportation and production emissions.



Reduce energy use by choosing energy efficient appliances and learn about solar initiatives in your community.

### https://sanctuaries.noaa.gov/education

# How does Ocean Acidification Affect Marine Life?

Try a <u>hands-on activity</u> that demonstrates what can happen to animals like coral, clams, and crabs when the ocean becomes more acidic. You can also see how <u>Dungeness crabs are</u> <u>specifically impacted by ocean acidification</u>.

Gather the family together for game night! <u>Whale Jenga</u> is a fun and exciting way to learn about marine food webs and the impacts environmental changes, such as climate change, pollution, and acidification, can have on them.

Invite some friends along to play <u>Rugose Reef Tag</u>! Learn about the importance of a complex and healthy coral reef with this up-and-at-em predator-prey game! Check out the follow up discussion questions to discuss what you've learned.

Move through the online <u>coastal acidification animation</u> to learn exactly how humans contribute to ocean acidification. Test your knowledge as you go!

### Want to See More?

Watch <u>the 5-minute Deep Sea Coral Communities of the West</u> <u>Coast Sanctuaries video</u> to learn more about coral communities and the impacts ocean acidification has on them. Next take a look at a list of ocean acidification hands-on activities.

### How Can You Help?

- **Be energy smart!** Use less energy generated by fossil fuels, like coal, oil, and methane. Burning less fossil fuels will reduce carbon dioxide emissions, protecting life in the ocean.
- Find out what your local government, businesses, and schools are doing to **reduce the use of fossil fuels** and transition to **renewable**, **clean energy**.
  - The more, the merrier! Encourage your community to follow in your eco-friendly footsteps!
- Educate others about how carbon dioxide emissions are impacting ocean life.

<u>Download the ParkPassport App</u> to learn more about national marine sanctuaries. Take virtual tours, view live webcams, earn digital badges, and more.

All information in this document was adapted from the NOAA Office of National Marine Sanctuaries' resources. This collection was developed in partnership with the National Park Trust

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Photo: NOA







