

An underwater photograph of a coral reef. Sunlight rays penetrate the deep blue water from the top left, creating a dramatic effect. The foreground shows various types of coral, including a prominent yellowish-orange branching coral on the left and darker, more complex structures on the right. Small fish are visible swimming in the background.

Ocean Acidification

Christine Ambrosino

‘Ale‘alani Dudoit

RULES

- No eating, drinking, gum chewing in the classroom.
- Lunch area is outside the sliding doors within view.
- Don't wander around without checking with us.
- Wash your hands before you leave the lab.
- Wear shoes.
- Don't pour sea water down the drain. Empty sea water into a bucket and dispose outside.
- Clean up before you leave the classroom.

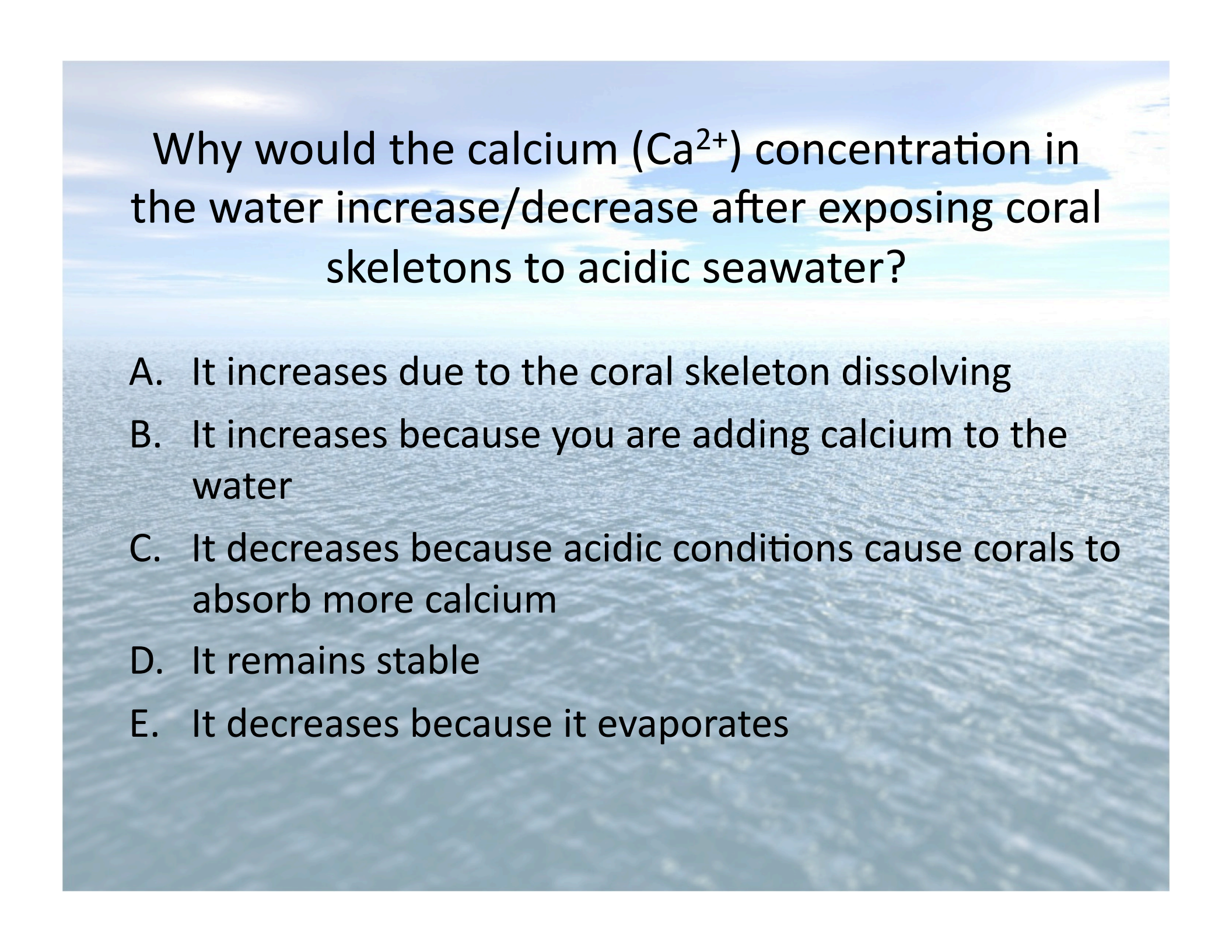
What are coral skeletons made of?

- A. Sodium bicarbonate
- B. Calcium bicarbonate
- C. Sodium carbonate
- D. Sodium and calcium bicarbonate
- E. Calcium carbonate



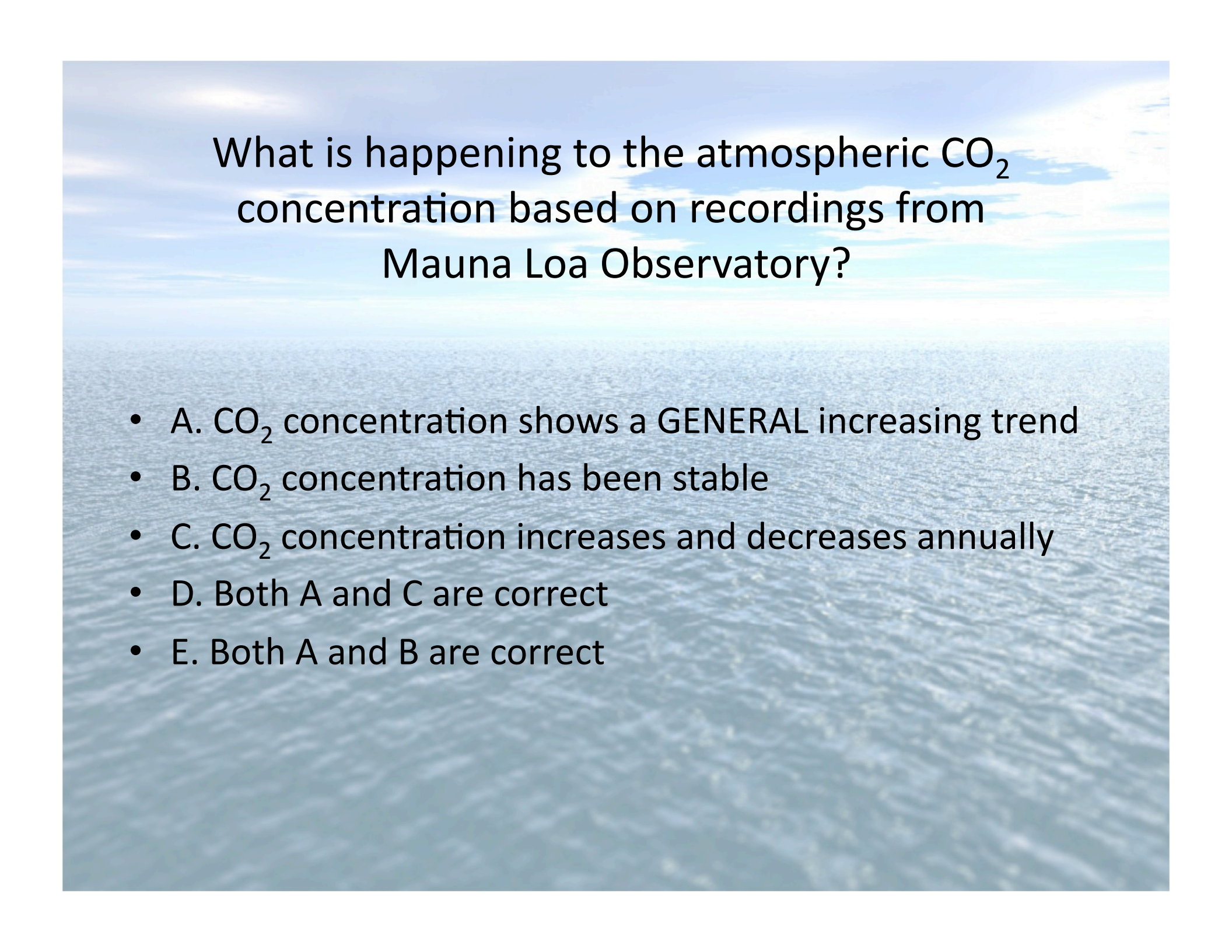
Which of these are global carbon sources?

- A. The ocean
- B. Fossils and dead organisms
- C. Photosynthesis
- D. Automobile and factory emissions
- E. Corals



Why would the calcium (Ca^{2+}) concentration in the water increase/decrease after exposing coral skeletons to acidic seawater?

- A. It increases due to the coral skeleton dissolving
- B. It increases because you are adding calcium to the water
- C. It decreases because acidic conditions cause corals to absorb more calcium
- D. It remains stable
- E. It decreases because it evaporates

The background of the slide is a photograph of a vast, calm blue ocean meeting a clear blue sky at a distant horizon. The water has a fine, textured surface with small ripples. The sky is a pale, uniform blue with a few wispy clouds near the horizon.

What is happening to the atmospheric CO₂ concentration based on recordings from Mauna Loa Observatory?

- A. CO₂ concentration shows a GENERAL increasing trend
- B. CO₂ concentration has been stable
- C. CO₂ concentration increases and decreases annually
- D. Both A and C are correct
- E. Both A and B are correct

Why do scientists think ocean acidification will be bad for corals?

- A. It raises the pH so corals cannot grow
- B. It raises the pH and consumes carbonate making it difficult for corals to calcify
- C. It lowers the pH and consumes carbonate making it difficult for corals to calcify
- D. It raises the pH, causing changes in water temperature, which in turn, affects coral growth
- E. It lowers the pH, causing changes in water temperature, which in turn, affects coral growth

Which of the following is an example of a GOOD hypothesis?

- A. If seashells are exposed to acidic seawater, then global warming is true.
- B. If carbon dioxide is added to ocean water with corals in it, then the calcium concentration in the water will increase.
- C. If crustaceans are exposed to acidic seawater, then ocean acidification is not a threat.
- D. If carbon dioxide is added to ocean water with seashells in it, then they are not made of calcium carbonate.
- E. NONE OF THE ABOVE

What causes a solution to become more acidic?

- A. An increase in dissolved minerals
- B. An increase in hydrogen ions
- C. An increase in temperature
- D. An increase in pH
- E. An increase in carbon



The ocean is becoming more acidic
because it is absorbing more...?

- A. Carbon
- B. Calcium
- C. Carbon dioxide
- D. Carbonate
- E. Oxygen