

Statement

Seagrass is a plant that grows in shallow seawater. Seagrass makes its own food through photosynthesis, which requires sunlight.

Statement

Seagrasses are fragile plants. They sequester (store away) carbon because the below ground part doesn't decompose when it dies, so it builds up over many years. Seagrasses capture three times more carbon dioxide than an equivalent area of land plants.

Statement

Phytoplankton are autotrophs (make their own food) that are found in vast numbers in the ocean. Phytoplankton are primary producers: they provide oxygen and food for other organisms. Phytoplankton need sunlight and nutrients.

Statement

Phytoplankton sequester (store away) carbon in deep ocean through a biological pump. This happens when dead, ingested, and defecated phytoplankton sink, aided by their carbonate or silicate shells clumping together.

Feedback

Warming of oceans and air causes Arctic sea ice to melt, pouring less dense, fresh water onto the top of the saltwater ocean. This disrupts ocean currents.

Feedback

Warming air and oceans lead to ice melting and ocean expansion which results in a rise in sea levels.

Feedback

Sea level rise increases depth of water above existing seagrass beds and reduces light to seagrass plants. This lessens the amount of photosynthesis in leaves.

Feedback

Reduced photosynthesis leads to reduced oxygen and increased carbon dioxide levels in the ocean (and air).

Feedback

Ocean currents usually carry nutrients around the globe and, in certain places, bring them to the surface. There are less nutrients when currents are disrupted.

Feedback

Reduced nutrients decreases the amount of phytoplankton. Less phytoplankton reduces food and oxygen for sea animals. It also means there's more carbon dioxide in the surface ocean (and air).

Feedback

Acidification affects production of carbonate shells in some phytoplankton. The shells become less dense and less able to clump together.

Feedback

Changes in their shell composition means dead or defecated phytoplankton don't sink easily, so fewer will sink.

Feedback

Less phytoplankton sink to deep ocean. This means less carbon is sequestered, so there's more carbon dioxide in the ocean.

Feedback

Air and ocean surface temperature changes affect winds and currents. This disrupts weather patterns and climate systems, such as El Niño. The result is more severe weather events and storms occurring in new places.

Feedback

Storms cause large waves and tidal surges that destroy sea grass meadows.

Feedback

Less sea grass means less carbon sequestration and hence more free carbon dioxide.

Feedback

Building new coastal developments destroys sea grass meadows. This is because water cloudiness increases, and sunlight can't filter through.

Feedback

Intensive farming practices, and fertilizer run-off, lead to harmful algal (a type of phytoplankton) bloom.

Feedback

Fish and other animals die because they feed on poisonous algae, or are starved of oxygen that's used by blooming algae.

Feedback

White sea ice reflects sunlight. Warming of the ocean and air melts sea ice. So, with less sea ice, the ocean absorbs more of the sun's energy.

Feedback

Global warming causes sea ice to melt.
Warmer air passing over the sea replaces
cold air over sea ice.

Feedback

Warmer air causes Arctic permafrost
(permanently frozen soil) to warm up
releasing the greenhouse gas methane
trapped underneath.

Feedback

Loss of sea ice affects polar bears' ability to
hunt and feed on seals.

Feedback

The polar bear population is reduced,
affecting the food chain and Arctic ecology
balance.

Feedback

Acidification of the ocean reduces its ability
to absorb carbon dioxide.