Whale carbon and oxygen flux

Solar energy

Atmospheric carbon

Atmospheric oxygen

Phytoplankton

Whale Pump

All whales dive underwater to feed and return to the surface to breathe. At the surface, they release buoyant fecal plumes that are rich in nutrients that phytoplankton need to grow.

Movement

Breeding grounds

Movement

Feeding grounds

Great Whale Conveyor Belt

Many whales migrate from nutrient-rich feeding grounds to nutrient-poor breeding grounds. On the breeding grounds, whales release nitrogen-rich urea that can stimulate phytoplankton growth.

- Nutrient Flux
- Carbon Flux
- Waste Products
- Oxygen Flux

Movement

Biomass Carbon

All living things are made of carbon and thus serve as carbon reservoirs throughout their lifespans. The larger and more long-lived the animal, the more carbon is stored.

Deadfall Carbon

When large marine vertebrates die, their carcasses sink to the seafloor. There, the carbon inside their carcass can support deep-sea ecosystems and be incorporated into marine sediments.

Deep Ocean Floor

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