# Learn How Whale Poop Makes the World a Better Place


- Lindi Osborne, Waterkeeper Swim Guide



June 2, 2020


Today, we're spotlighting whales and their priceless poop. Strange as it may seem, whale poop is worth its weight in gold.

Whales are some of the ocean's most fruitful gardeners. When whales poop, they drop a load of crucial nutrients into the 'topsoil' of the ocean. Their poop fertilizes the surface of the ocean with nutrients that are fundamental to the health of ocean ecosystems, the global nutrient cycle, and the carbon cycle.

Photo by Christopher Michel

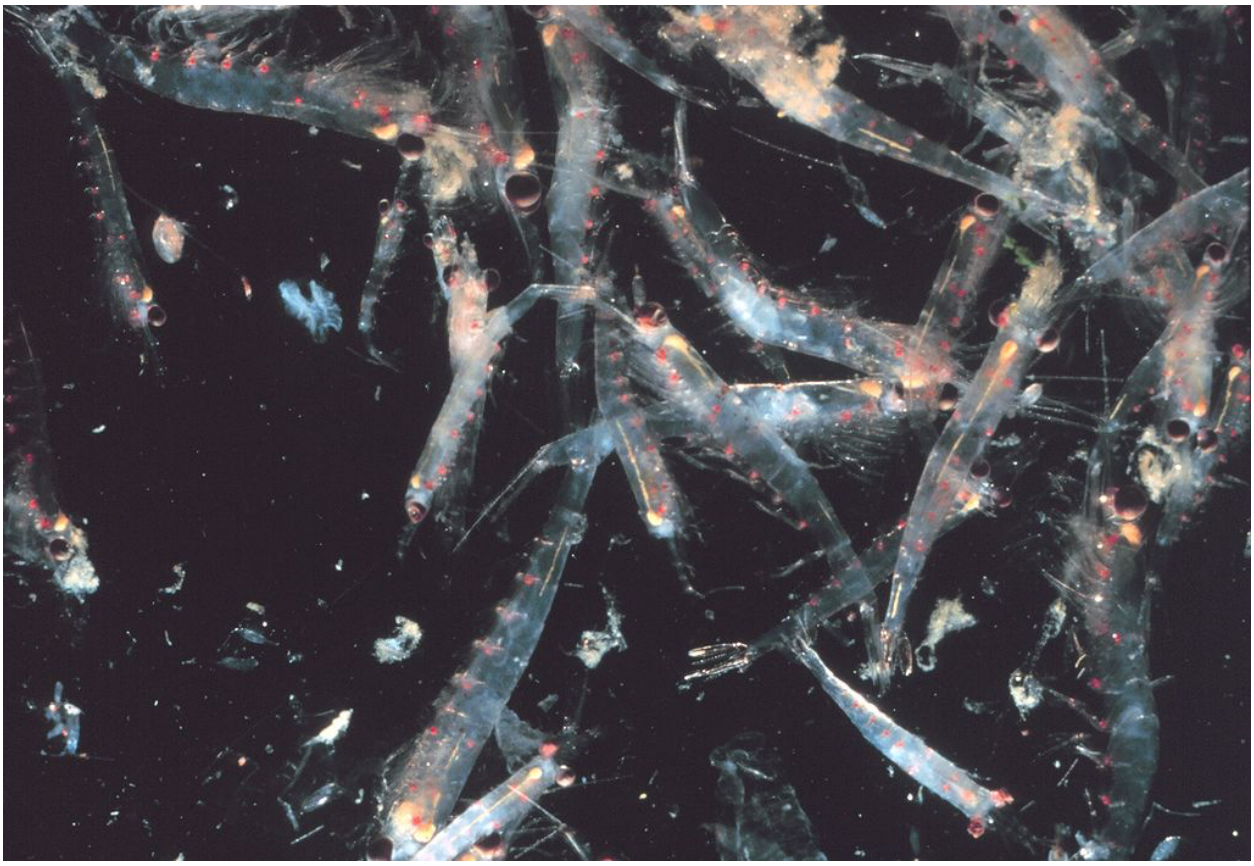
# By simply eating and pooping, whales are creating healthy ecosystems, giving us air to breathe, and even combating climate change.

Does that sound like an unthinkable amount of good to come out of something as simple as poop? Well, it's not. We might not be able to breathe underwater, but we wouldn't be able to breathe without it.

# Here's how whale poop makes the world a better place:

## Step 1: Whales feed on nutrient-rich marine life

Whales love eating nutrient-rich food. They like to dine on krill, for example, which provide lots of iron. Nutrient-rich diets lead to nutrient-rich poop full of things like iron, nitrogen, and phosphorus.



Krill swarm in the Gulf of the Farallones. Photo by Jamie Hall

One study found that baleen whale poop had *10 million times* more iron than the same weight of seawater. This may seem like a lot of iron, but remember, whales are enormous and they have correspondingly enormous excrement (feces/poop).

## Step 2: Whales come to the ocean's surface to poop

Whales feed deep in the ocean, but they swim to the surface when it's time to poop. Why? No, it isn't a flagrant display of exhibitionism.

Studies have actually shown that whales have trouble pooping under the extreme pressure in the depths of the ocean. To avoid unnecessary pooping pressure, whales come to the sea's surface when it's time to go.

Blue whale poop. Photo by Eric Gropp

Unlike fish poop, whale poop floats. It remains near the surface of the sea where its nutrients are needed the most.

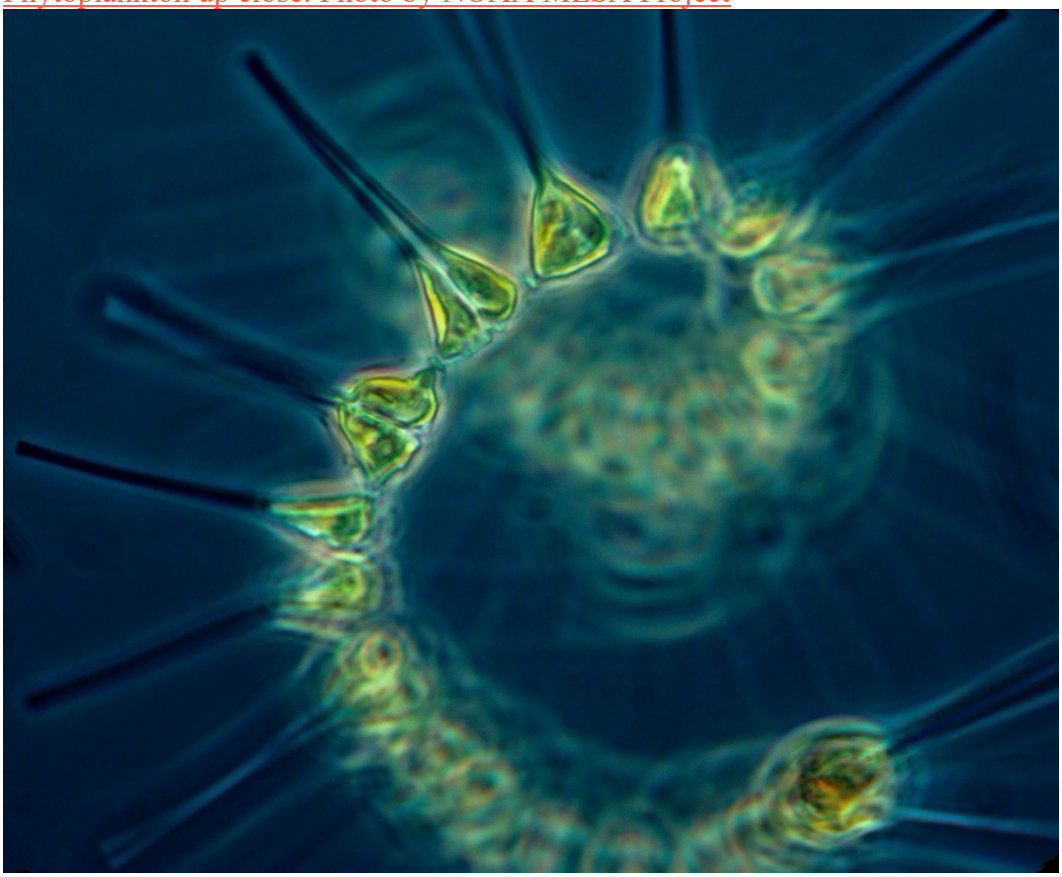
# Like bumblebees bringing pollen from one flower to another, whales bring nutrients from the bottom of the ocean up to its surface, where it helps phytoplankton grow.

## Step 3: Whale poop fertilizes phytoplankton

Phytoplankton are microscopic, plant-like organisms. Just like plants on land, phytoplankton use the sun's light to photosynthesize (make their own food). Think of them as tiny forests growing in the sunlit waters of the ocean's surface.

Land plants send their roots down into the soil to get the nutrients they need, but phytoplankton, suspended in the surface of sea, have no such luxury. Instead, they get the nutrients they need to grow from whale poop. Luckily for phytoplankton, these nutrients are brought right to them when whales surface to do their business.

Phytoplankton up close. Photo by NOAA MESA Project



Whales are migratory animals. This means that they transport their nutrient-filled poop to hungry phytoplankton all over the globe (in what is definitely the largest and only scatological meal delivery service in the world).

## Step 4: Phytoplankton nourish the whole ocean food chain

Phytoplankton are at the bottom of the aquatic food chain, but this doesn't mean they're unimportant. Quite the opposite. Phytoplankton are the basis of entire ocean food webs (Phytoplankton are Producers). Healthy phytoplankton means that all the animals up the food chain (the consumers) have food to eat.

# Krill, fish, jellyfish, birds, penguins, seals, whales, and so many other marine creatures rely on phytoplankton to survive.