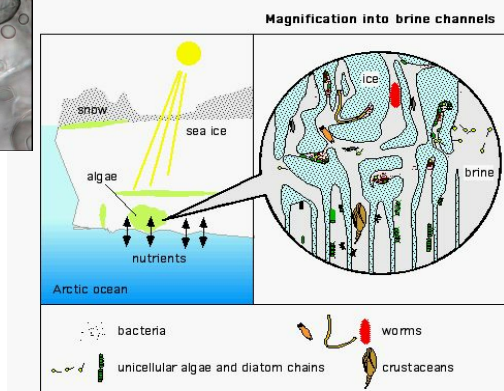
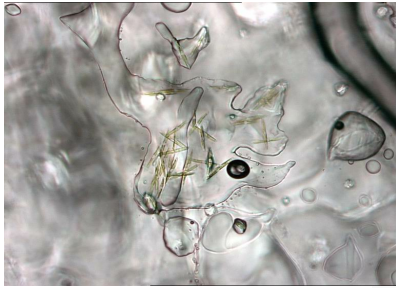
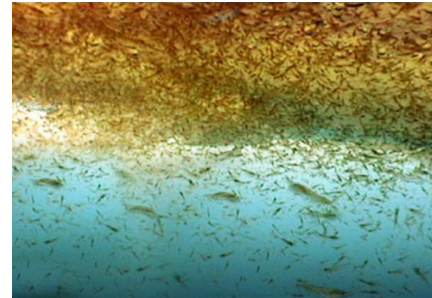


Sea Ice Microbial Community



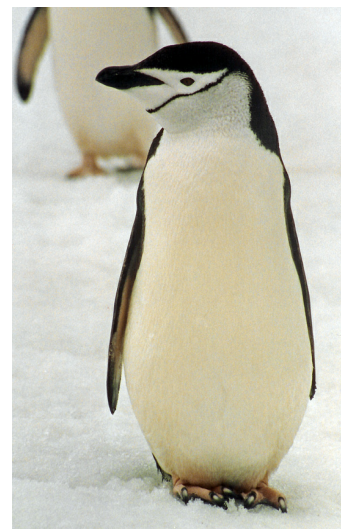
Krill



Decomposers



Penguins



Antarctic krill is the most common zooplankton in the Southern Ocean. It is a crustacean, closely related to the larger shrimp.

It feeds on phytoplankton and other primary producers that grow in brine channels within sea ice.

Krill swarm in humongous aggregations, by the millions, which form convenient “all-you-can eat krill buffets” for their predators. Many, many species eat krill; some say it is the “foundation” of the Antarctic ecosystem. Penguins, seals, and all large whales in the Southern Ocean rely on krill for food.

There are 7 species of Antarctic and Subantarctic penguins. Many of them rely on icebergs and sea ice as a refuge from predators.

Penguins eat zooplankton, like krill. (They also eat small fish, which eat krill.) Orcas and seals love to eat penguins.

Some species, like emperor penguins, nest on land, and walk across hundreds of miles of sea ice (a very dangerous journey, during which they starve themselves for months) to get there.

A massive, diverse ecosystem INSIDE the ice.

When seawater freezes, salt and water separate. The water freezes into ice, and slushy collections of salts and nutrients are concentrated and collected in pockets, pores and channels inside, usually in the bottom layer of it.

Hundreds of primary producers and bacteria live in these brine habitats. Millions of tons of krill, shrimp, and other zooplankton depend on the SIMC. They scratch at the bottom of sea ice to release these producers, then eat them!

In the spring, when the sea ice melts, all the SIMC dumps into the ocean, “seeding” a huge outbreak of primary producers and zooplankton. This, in turn, is used by fish, penguins, seals, and whales.

A huge variety of organisms feed upon on dead and sinking bodies of other life forms.

For example, when whales or fish or penguins or seals die and fall to the seafloor, amazingly diverse communities colonize the dead bodies and feed off them. In doing so, they recycle nutrients and organic matter, returning it to the water, to be used again in the future.

Seals



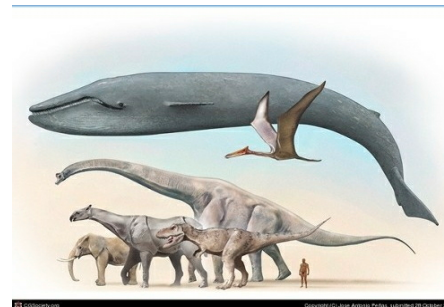
Orca



Minke Whale



Blue Whale



A large population of orca remain in the Southern Ocean throughout the year.

There are many separate subspecies of killer whale in the Southern Ocean; some subspecies eat only penguins and fish; other subspecies eat seals; and other subspecies hunt down minke whales.

The blue whale is the largest animal to have ever lived, but it feeds strictly on one of the smallest: Antarctic krill. It can eat 2 or more tons of krill per day!

Industrial whaling reduced Antarctic blue whale populations to less than 0.1% of pre-whaling numbers. That's 1/1000th!!!

There are 6 species of seal in Antarctic waters. They have no natural land predators, but in water killer whales chomp them.

Two of the most common species are Antarctic Fur Seals, who eat penguins and small fish, and Crabeater Seals, who eat krill.

The minke whale is the smallest of the “large whales”, but it is still more than 30 feet long. It is a baleen whale; it uses its baleen to filter feed for krill, other zooplankton, and small fish.

Occasionally, it is hunted by killer whales.