

Early Life: Three Billion Years Ago

The ocean gave birth to life about three billion years ago. Before this, the air in Earth's atmosphere was very different from what we breathe today. Methane, ammonia, and other toxic gases were prevalent. The atmosphere began to change as the oxygen produced by photosynthetic organisms in the ocean was released into the air.

Layers of metallic ore on the seafloor

The oxidation of metal in the ocean occurred on a large scale at this point in the Earth's evolution. The resulting metallic minerals concentrated in extensive layers on the ocean floor, forming the huge deposits of manganese ore and iron ore that are mined today.

An oxygen-rich Earth

As the oxidation of manganese and iron progressed, the quantity of metal ions in the ocean decreased and the oxygen level rose. Photosynthetic organisms like cyanobacteria multiplied in the seas and continued to produce oxygen.

The emergence of life

In this oxygen-rich atmosphere and ocean, aerobic organisms—creatures that need oxygen to live—began to flourish. Life on Earth evolved and continues to thrive thanks to the presence of these microorganisms over a period of more than three billion years.