Life in the Ocean
Diversity, Distribution, Abundance

FRANK BIASI AND RICHARD BULLINGTON. PHOTO AND CONTENT DEVELOPMENT: CENSUS OF LIFE. VISUALIZATION: AUTUMN-LYNN HARRISON

2,700 scientists from more than 80 nations to establish a baseline of marine life. COPYRIGHT © 2010 NATIONAL GEOGRAPHIC SOCIETY, WASHINGTON, D.C.

Arctic summer would enable a mixing of life forms if the polar ice cap recedes. The prospect of new habitats in the Arctic may serve a similar role in connecting realms from microbes to whales.

Arctica is a continent surrounded by ocean. More than geographic opposites, the Arctic is an ocean that spans the globe. The deep ocean habitat of mid-ocean ridges influences life on the sea surface. Hot spots that attract many species, seamounts and mid-ocean ridges are considered to be the most biologically diverse regions.

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Life on the oceans? What lives in the oceans today? What will live in the oceans tomorrow? These are questions that have captivated and inspired people for centuries. But can science provide answers to these questions? In the past half-century, the number of known species has grown by more than a factor of five. Using new technology and international collaborations, scientists have carried out a census of marine life, which has revealed breathtaking diversity in marine species, some 1,300 of them discovered and described by Census of Marine Life (CoML) scientists. This aggregation enabled a new global map of present marine biodiversity, which can help clarify if a species is genuinely new. During the last decade over 16,000 new marine species have been described scientifically: about 250,000 species in total have been described, and at least 1 million have been estimated to exist. Biologists estimate that only 10% of marine species have been described, indicating that we still have much to learn about the marine world.

A decade of effort assessing the scope of marine life has revealed thousands of species, some of which are unique ecosystems on the planet. To speak about what will live in the oceans involves integrating many disciplines, from biology and oceanography to geology and history. This map of present marine biodiversity shows that populations and species are distributed across the ocean’s surface, or along the bottom. The mid-water column in the open ocean is much harder to sustain it’s catch levels. The state of California banned commercial abalone harvesting in 1910. Such measures are critical for the conservation of unique ecosystems. The right whale was the first species for which conservation efforts were implemented. The number of known species is limited compared to the ocean’s surface, and at least 1 million have been estimated to exist. Biologists estimate that only 10% of marine species have been described, indicating that we still have much to learn about the marine world.

A history of renewals

The concept of biodiversity can be traced all the way back to the beginning of recorded history, with the first records of marine life being found in 5,000-year-old human settlements. The diversity of marine life has varied throughout history, with many species becoming extinct, and new species emerging from the deeps. Today, the number of known species is growing at an unprecedented rate, with new species being discovered and described every year. This growth in knowledge has been driven by advances in technology, such as remote-controlled vehicles, which can dive to depths of 6,500 meters. This has allowed marine biologists to explore the abyssal plains and deep marine life of Marguerite Bay, which is one of the most unique ecosystems on the planet.

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