



UNIVERSITY OF CALIFORNIA, SAN DIEGO

SCRIPPS INSTITUTE OF OCEANOGRAPHY

GLOBAL DISCOVERIES FOR TOMORROW'S WORLD

"One of the greatest scientific challenges facing society today is understanding, protecting, managing, and restoring biodiversity in our oceans."

NANCY KNOWLTON

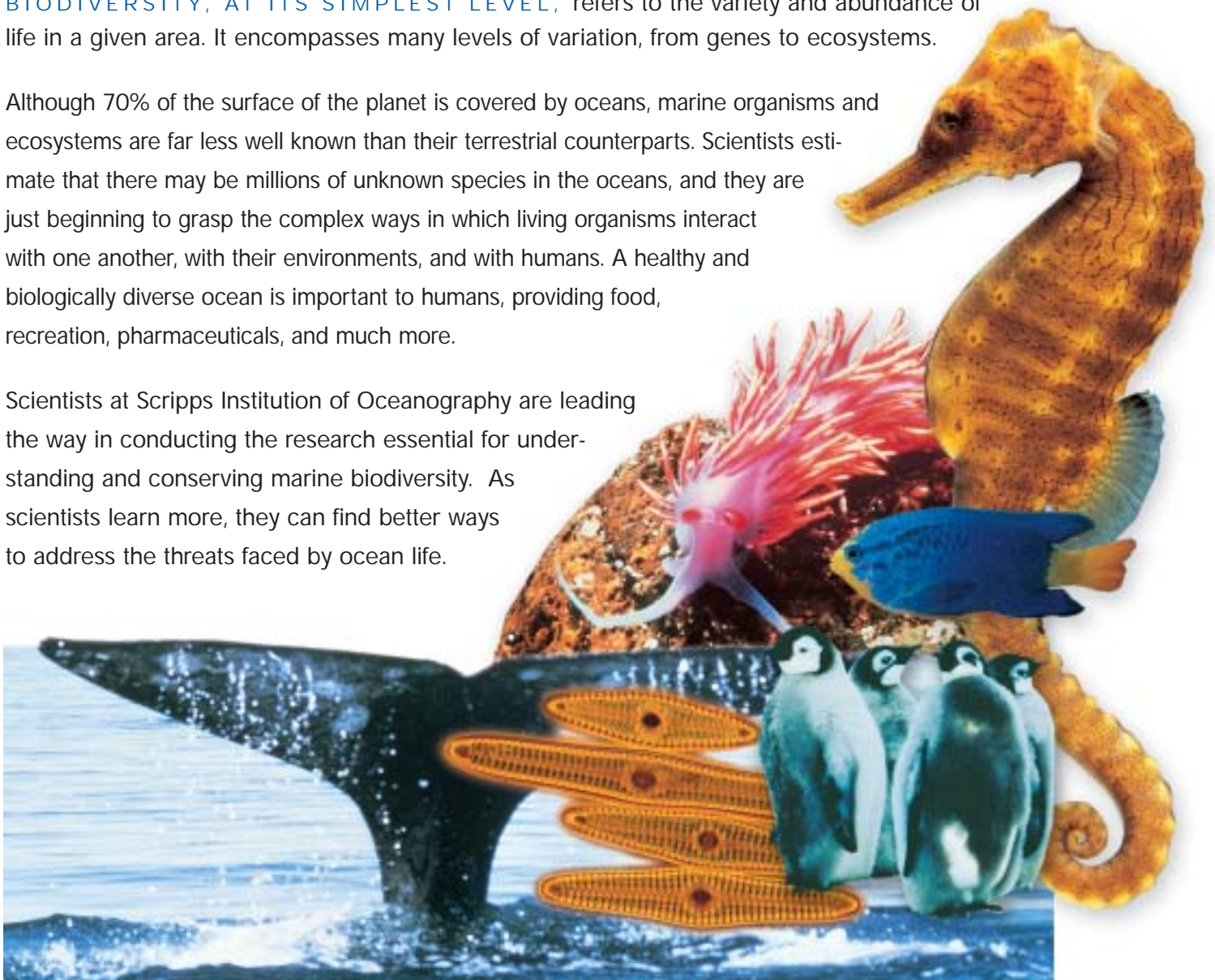
Director, Center for Marine Biodiversity and Conservation, Scripps Institution of Oceanography

Marine Biodiversity and Conservation

BIODIVERSITY, AT ITS SIMPLEST LEVEL, refers to the variety and abundance of life in a given area. It encompasses many levels of variation, from genes to ecosystems.

Although 70% of the surface of the planet is covered by oceans, marine organisms and ecosystems are far less well known than their terrestrial counterparts. Scientists estimate that there may be millions of unknown species in the oceans, and they are just beginning to grasp the complex ways in which living organisms interact with one another, with their environments, and with humans. A healthy and biologically diverse ocean is important to humans, providing food, recreation, pharmaceuticals, and much more.

Scientists at Scripps Institution of Oceanography are leading the way in conducting the research essential for understanding and conserving marine biodiversity. As scientists learn more, they can find better ways to address the threats faced by ocean life.



"Remarkably, we do not know the true number of species on Earth, even to the nearest order of magnitude."

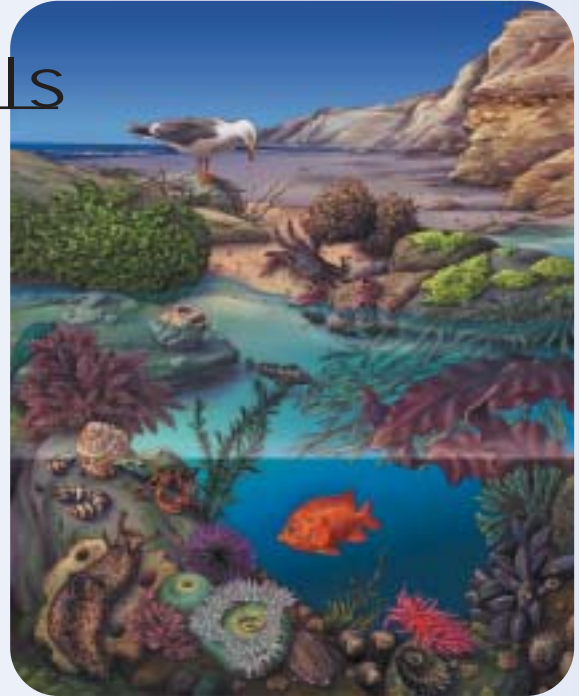
E. O. WILSON

Harvard University Naturalist and Winner of the 2001 Scripps Nierenberg Prize for Science in the Public Interest

Microbes to Mammals

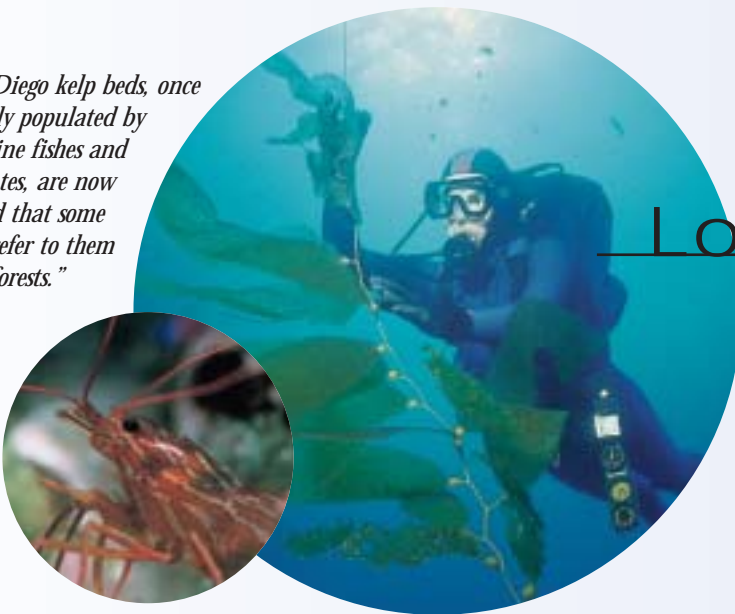
UNIDENTIFIED SPECIES and ecosystems may be changing or disappearing before scientists even know they exist.

In the field and in laboratories, Scripps scientists are working to assess the diversity, distribution, and abundance of marine life in the world's oceans. Exciting new tools and techniques are helping scientists identify species, track their movements, interpret evolutionary relationships, and estimate abundance.



The ocean is teeming with known and unknown species.

The San Diego kelp beds, once abundantly populated by large marine fishes and invertebrates, are now so depleted that some scientists refer to them as "ghost forests."



Local to Global

"The diversity of life in the ocean is being dramatically altered by the effects of activities associated with human population expansion."

UNDERSTANDING MARINE BIODIVERSITY (1995)

National Research Council, National Academy of Sciences

HALF THE WORLD'S POPULATION lives within 60 miles of the coast and two-thirds are expected to inhabit coastal lands by 2025.

Human activities directly affect biodiversity and the health of the oceans. Scripps scientists are studying these links to determine the nature and extent of human impacts.

Scripps's research spans the globe, from local wetlands and kelp forests to coral reefs and the deep sea. Scripps scientists communicate the results of their research to resource managers, fishers, non-government agencies, government leaders who make policy decisions, and the public.



Scientists have documented rapidly accelerating coral bleaching and death over the past 20 years, caused primarily by rising ocean temperatures.



"Historical data not only help to clarify the underlying causes of ecological change, but they also demonstrate achievable goals for restoration and management of marine ecosystems."

J E R E M Y J A C K S O N

Professor of Oceanography, Scripps Institution of Oceanography

Past to Future

TO UNDERSTAND where we are now, we must understand where we have been.

The past condition of marine ecosystems can be uncovered using archaeological, paleoecological, and historical data. Such data present a clearer picture of what once lived in the oceans and how marine ecosystems have been altered over time by human impacts as well as ongoing natural variability.

By documenting changes in the abundance and distribution of organisms, Scripps scientists can:

- reveal the biodiversity of the past
- gain insights into what is affecting biodiversity today
- formulate remedies to reverse the decline in biodiversity and ensure the health of our oceans in years to come

Overfishing of marine species—from oysters and turtles to large fishes and mammals—has impacted the world's oceans for hundreds of years.

Scripps scientists study marine life from surface waters to the deepest parts of the ocean.



Scripps scientists have begun working with government agencies and environmental groups to implement a system of marine protected areas in southern California, Mexico's Gulf of California, and elsewhere around the globe.



Biodiversity and Conservation Science at Scripps

SOLVING COMPLEX PROBLEMS requires the support of compelling science. Scripps is dedicating unique resources and innovative researchers to the study of marine biodiversity and conservation.

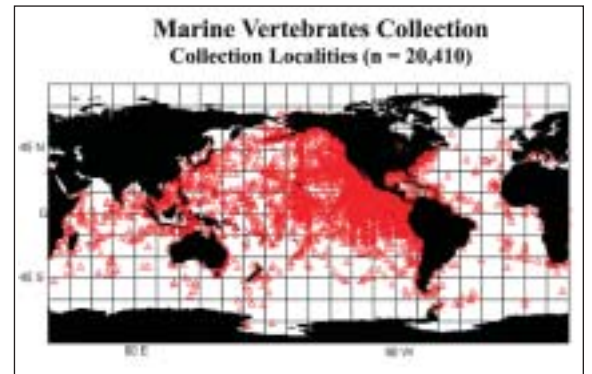


Scientists at the Center for Marine Biodiversity and Conservation at Scripps represent a broad spectrum of disciplines, including the physical, biological, social, and information sciences. In addition, Scripps scientists collaborate with social scientists from the University of California, San Diego, and other academic institutions; local, national, and international leaders in government and industry; and conservation agencies and scientists around the world.

Scripps is training the next generation of marine scientists in this interdisciplinary approach so that they will have the skills to help protect, manage, and restore marine biodiversity and achieve a sustainable future for the world's oceans.



Scripps scientists are studying the recovery of plants, invertebrates, and fishes in restored coastal wetlands.



The Scripps Oceanographic Collections include more than 100 million specimens used to support research on marine biodiversity.

FOR MORE INFORMATION, PLEASE CONTACT:

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SCRIPPS INSTITUTION OF OCEANOGRAPHY at the University of California, San Diego, is one of the oldest, largest, and most important centers for global science research and graduate training in the world. The scientific scope of the institution has grown since its founding in 1903. A century of Scripps science has had an invaluable impact on oceanography, on understanding of Earth, and on society. More than 300 research programs are under way today in a wide range of scientific areas.