

## THE CENSUS OF MARINE LIFE PROGRAM (CoML)

### MISSION:

The mission of the CoML ([www.CoML.org](http://www.CoML.org)) is to describe and synthesize global patterns of biodiversity, distribution, and abundance across all taxa of marine species, from microbes to mammals, and across ocean realms, from the nearshore to the deep sea and the open ocean.

### RESEARCH QUESTIONS:

1. What are the global patterns and processes of marine biodiversity across different taxa and ocean realms?
2. Which are the major drivers explaining diversity patterns and changes?
3. What is the total number of known species in the ocean and an estimate of the unknown?
4. How has the abundance and distribution of some major species groups such as large mollusks, fish, reptiles and mammals changed over time?
5. How important is environment in determining the movement behavior of animals and what changes to these natural patterns is induced by man?
6. What are the ecosystem consequences of fishing and other human impacts?

### PROJECTS:

The projects seek to answer the questions of what lived, what lives and what will live in the oceans. To accomplish this, the CoML is coordinating 17 projects dealing with:

**History of Marine Animal Populations:** aimed to improve our historical understanding of ecosystem change and our ecological understanding of man's role in changing marine ecosystems

**Exploration:** 14 exploratory projects focused on the biodiversity of the

-Coastal Zone: rocky shores, seagrass beds, coral reefs, Gulf of Maine, tracking of Pacific shelf species

-Open Ocean: tracking of ocean pelagics, zooplankton, microbes, Mid Atlantic Ridge

-Deep Sea and geologically active ecosystems: continental margins, seamounts, vents / chemosynthetic ecosystems, abyssal plains

-Ice oceans: the Arctic and the Antarctic

**Future of Marine Animal Populations:** aimed to describe and synthesize globally changing patterns of species abundance, distribution, and diversity across ocean realms, and to model the effects of fishing, climate change and other key variables on those patterns

**Integration in the Ocean Biogeographic Information System OBIS:** aimed to be a national, regional and international infrastructure for information and biogeographic data on marine species and their distribution and abundance

**MAJOR ACCOMPLISHMENTS:**

- Exploration of unexplored areas and discovery of multitude of species
- Providing data on distribution, diversity and abundance of many marine species
- Advancing technology for discovery
- Organizing knowledge about marine life and making it accessible
- Measuring effects of human activities on ocean life, past, present and predicting future scenarios
- Providing the foundation for scientifically-based policies through more than 1000 scientific publications
- Building global partnerships, sharing knowledge, and creating a global network of about 2000 in more than 80 nations

**MAJOR ASSETS**

- Social capital and social networks
- Continually improving standards, protocols and technology
- Data assimilation frameworks (OBIS)
- Physical repositories for specimens, tissues, and DNA
- A framework – the Known, the Unknown and the Unknowable (KUU) – provides baseline information and identifies gaps and questions for new science (e.g., the unexplored and unexplained part of the unknown needs discussion beyond 2010)
- Expectations and optimism for more (e.g., demand from the public)
- Information to address real problems (e.g., degradation of marine biodiversity)