

U.S. National Ocean Exploration₁

Discovering half of America's territory ... for the first time

Introduction

Given the importance of the ocean to the welfare of humanity and to the success of our nation, a comprehensive program of ocean exploration should be a primary focus of the new Administration.

Statute (33 U.S.C. § 3401) establishes a national ocean exploration program and assigns the leadership and coordination of that national program to the National Oceanic and Atmospheric Administration (NOAA). Other agencies are expected to participate within their respective missions.

The same statute establishes a national Ocean Exploration Advisory Board (OEAB). This set of simple and achievable recommendations is a product of the OEAB.

Describing America's Oceans

America, like all coastal nations, exerts authority over the resources within approximately 200 nautical miles of its shorelines; the US Exclusive Economic Zone (EEZ). That expansion beyond the US land mass nearly doubles US geography.

There is wide recognition that 95% of the world's oceans are unexplored. A credible claim can be made that the large majority of the US EEZ is neither explored nor characterized well enough to queue scientific, management or resource investment decisions.

Nevertheless, understanding the US EEZ is vital to our economy, safety and quality of life due to the ocean's direct relationship with the food supply, climate variability, shipping, national security, disasters, pharmaceutical sources and natural resources. Contrast this contention with the known investment made in exploring the moon. The moon is 100% imaged to within one-meter resolution; yet there are comparatively few resources, quality of life, transportation or national security attributes on the moon.

Recommendations

1. The US EEZ should be explored in sufficient detail to inform national decision makers as to whether further research, continual observation, sustainable development or regional management proposals should be considered.
 - a. "Exploration campaigns" that bring together multiple agencies over an extended period in deliberately targeted ocean areas should, at a minimum:
 - take physical, chemical, biological and acoustic measurements of the water column from surface to the bottom,
 - map the shape and depth of the ocean,
 - collect samples of new (or unexpected) marine life, geological and chemical phenomena, and
 - image bottom and water column characteristics and archeological/historic items not previously expected.

2. The US has begun to gather detailed information about the shape, depth and geology of the ocean at the edge of the US EEZ. This effort should be completed within the next Administration's tenure so that the US is best prepared to argue successfully for resources to which it has a right beyond 200 nautical miles. This area is called Extended Continental Shelf (ECS).
3. NOAA should actively engage with other agencies, the scientific community, private organizations and industry to develop a prioritized exploration campaign strategy that seeks full characterization of important areas and then marshals the assets from all stakeholders to explore individual, designated areas within the US EEZ, fully, over periods of several years, each. Such joint "campaign planning" expands the impact of NOAA Ocean Exploration program and encourages all interested parties to leverage asset and talent opportunities.
 - a. NOAA does not own, or operate, all exploration assets (ships, remotely operated vehicles, autonomous vehicles, moored/implanted observing tools, exploration telecommunications capabilities, etc.). NOAA should, however, invest in other oceanographic assets when they can be adapted for ocean exploration duties. An example is investing in ocean exploration "telepresence" for all major oceanographic ships.
4. While there is a clear priority to explore America's own undersea territory (US EEZ), requirements and opportunities that may arise to explore parts of the global ocean outside of the US EEZ for resource knowledge, national security, science or diplomatic reasons cannot be ignored. International partnerships can be a side benefit of such exploration investments.
 - a. International campaign plans should explicitly consider the impact of these initiatives on US EEZ campaign priorities.
5. The NOAA Ocean Exploration program should actively and routinely promote technological innovation for exploration measurement, sensing and imaging.
6. The NOAA budget for the core national Ocean Exploration Program should reflect the advice of national blue ribbon panels and routinely be set at approximately \$75M/year for planned, annual ocean exploration campaigns and programs; with additional funding to address "emergent" national requirements, data management and technological capabilities.

1 Note: A definition of Ocean Exploration

Ocean Exploration is the act of going to sea to describe ocean areas, for the first time, from its surface through its sub-bottom. Its goal is initial scientific understanding of oceanic conditions to sustain life therein and our own lives. Therefore:

Characterizing the ocean through imagery, measurement and sampling, from the surface through the water column to the bottom and sub-bottom, in deliberately identified areas not previously completely characterized, to support priority agency requirements, hypothesis-based research, public information and education, and/or jurisdictional claims.