

## Appendix

### Template for Submission of Scientific Information to Describe Ecologically or Biologically Significant Marine Areas

*Note: Please **DO NOT** embed tables, graphs, figures, photos, or other artwork within the text manuscript, but please send these as separate files. Captions for figures should be included at the end of the text file, however.*

Title/Name of the area: Exploring the Inner Space of the Celebes Sea 2007

#### **Presented by** (names, affiliations, title, contact details)

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#### **Abstract** (in less than 150 words)

Our expedition takes us to unexplored waters south of the Philippine Islands, in search of the strange — and possibly unknown — fishes, jellyfish, squids, and shrimp that live in the dark deep waters of the Celebes Sea. Surrounded by much shallower ocean waters, the Celebes plunges to over 5,000 meters (m), and in these waters there may well be species that have evolved in isolation from other surrounding waters, waiting to be discovered with modern exploration tools.

#### **Introduction**

*(To include: feature type(s) presented, geographic description, depth range, oceanography, general information data reported, availability of models)*

#### **The Midwater Environment**

We all know that the ocean covers 70% of our planet, but we rarely think about how deep most of that water is. The ocean below the depth of sunlight — the midwater — is by far the largest volume of living space on Earth. This environment is dramatically different from any other: dark, cold, weightless, timeless, and virtually infinite in any direction. The animals living here have evolved under conditions unlike anything we see on land. These often bizarre-looking fishes, crustaceans, squid, and jellyfish are

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important food-web links between the many organisms living in the productive shallow layer and the scarcer animals that live far below the midwater realm. But midwater animals remain among the least well known creatures on Earth.

### **Earth's Richest Marine Diversity**

The Southeast Asian nations of Philippines, Malaysia, and Indonesia occupy one of the richest biological environments on Earth. Sometimes called the "Coral Triangle," this region of islands and ocean basins is considered a "hotspot" of biodiversity, both on land and in shallow marine environments. Until now, most of our knowledge of marine biodiversity here has been from shallow water environments — the deep sea is almost entirely unexplored. The goal of Exploring the Inner Space of the Celebes Sea 2007 is to learn more about this center of shallow-water biodiversity by studying the fauna in the midwater realm and making extensive vertical surveys of the water column. Our mission will explore one of the most intriguing parts of the deep sea — the deep basin of the Celebes Sea, south of the island of Mindanao in the Philippines.

The Celebes Sea is bordered by shallow ocean regions, which greatly limits the exchange of deep-water animals with other deep-water areas in the sea. During past times of lower sea level, the deep basins were completely isolated by dry land, and they may have developed highly endemic faunas (animals found exclusively in that area). We hope to learn whether diverse, endemic, and undiscovered species will be found within the Celebes basins. Recently two "living fossils," a coelacanth fish and a primitive shrimp, were found in the Celebes Sea, and more rare or unknown species may be found in the course of our explorations.

### **Tools and Goals**

Our exploration will use a combination of tools to penetrate and sample the depths. A remotely operated vehicle (ROV) will take photographs and video as well as collect specimens down to 3,000 meters. Additional samples will be collected with a midwater trawl net, or photographed with baited cameras. Fragile animals in surface waters will be filmed and collected by scuba divers, with additional samples of zooplankton taken with plankton nets.

Following the expedition, investigators in the U.S. and Philippines will analyze the biodiversity of the sampled fauna, comparing the findings with other ocean regions. Our results will be communicated through scientific papers, Web sites, and magazine articles. All of our data from this expedition will make a significant contribution to the Census of Marine Life, a global inventory of life in the world's oceans.

### **Location**

*(Indicate the geographic location of the area/feature. This should include a location map. It should state if the area is within or outside national jurisdiction, or straddling both. It should also state if the area is wholly or partly in an area that is subject to a submission to the Commission on the Limits of the Continental Shelf)*

We'll be diving in the middle of the richest marine environment on Earth — an area known as the "Coral Triangle" of Southeast Asia. This region, including the Philippines, Malaysia and Indonesia, is known to have the highest species diversity of shallow-water marine animals. The same may be true for deep-water

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creatures, but nobody knows yet. Using a remotely operate vehicle (ROV) that can dive to 3,000 m, we'll get high-definition video and still pictures, and collect specimens to bring back for study. With multiple large trawl nets, we plan to collect even more samples. Baited cameras moored to the bottom will take photos and video of big animals attracted to the free meal. Up in the warm surface waters, we'll go scuba diving to film and collect the delicate zooplankton we find there.

Our area of operation will be just to the southeast of the Sulu Islands, and we expect to spend two weeks working there. We will be on the research vessel BRP *Hydrographer Presbitero*, operated by the Philippines National Mapping and Resource Information Authority. (BRP is the acronym for Barako ng Republika ng Pilipinas, which identifies the ship as being from the Republic of the Philippines.) We will be joined by scientists from several Philippines universities and research agencies.

Working together with our colleagues from the Philippines, we'll use all these samples, videos, images, and data to increase our understanding of the biological composition and the nature of the deep midwater environment of the Celebes Sea, and compare it with what is known about other deep-sea regions around the world.

#### **Feature description of the proposed area**

*(This should include information about the characteristics of the feature to be proposed, e.g. in terms of physical description (water column feature, benthic feature, or both), biological communities, role in ecosystem function, and then refer to the data/information that is available to support the proposal and whether models are available in the absence of data. This needs to be supported where possible with maps, models, reference to analysis, or the level of research in the area)*

#### **Feature condition and future outlook of the proposed area**

*(Description of the current condition of the area – is this static, declining, improving, what are the particular vulnerabilities? Any planned research/programmes/investigations?)*

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### Assessment of the area against CBD EBSA Criteria

(Discuss the area in relation to each of the CBD criteria and relate the best available science. Note that a candidate EBSA may qualify on the basis of one or more of the criteria, and that the boundaries of the EBSA need not be defined with exact precision. And modeling may be used to estimate the presence of EBSA attributes. Please note where there are significant information gaps)

CBD EBSA Criteria (Annex I to decision IX/20)	Description (Annex I to decision IX/20)	Ranking of criterion relevance (please mark one column with an X)			
		Don't Know	Low	Some	High
<b>Uniqueness or rarity</b>	Area contains either (i) unique (“the only one of its kind”), rare (occurs only in few locations) or endemic species, populations or communities, and/or (ii) unique, rare or distinct, habitats or ecosystems; and/or (iii) unique or unusual geomorphological or oceanographic features.				
<i>Explanation for ranking</i>					
<b>Special importance for life-history stages of species</b>	Areas that are required for a population to survive and thrive.				
<i>Explanation for ranking</i>					
<b>Importance for threatened, endangered or declining species and/or habitats</b>	Area containing habitat for the survival and recovery of endangered, threatened, declining species or area with significant assemblages of such species.				
<i>Explanation for ranking</i>					
<b>Vulnerability, fragility, sensitivity, or slow recovery</b>	Areas that contain a relatively high proportion of sensitive habitats, biotopes or species that are functionally fragile (highly susceptible to degradation or depletion by human activity or by natural events) or with slow recovery.				
<i>Explanation for ranking</i>					

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<b>Biological productivity</b>	Area containing species, populations or communities with comparatively higher natural biological productivity.				
<i>Explanation for ranking</i>					
<b>Biological diversity</b>	Area contains comparatively higher diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity.				
<i>Explanation for ranking</i>					
<b>Naturalness</b>	Area with a comparatively higher degree of naturalness as a result of the lack of or low level of human-induced disturbance or degradation.				
<i>Explanation for ranking</i>					

**Sharing experiences and information applying other criteria (Optional)**

Other Criteria	Description	Ranking of criterion relevance (please mark one column with an X)			
		Don't Know	Low	Some	High
<i>Add relevant criteria</i>					
<i>Explanation for ranking</i>					

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## **References**

*(e.g. relevant documents and publications, including URL where available; relevant data sets, including where these are located; information pertaining to relevant audio/visual material, video, models, etc.)*

<http://oceanexplorer.noaa.gov/explorations/07philippines/welcome.html>

## **Maps and Figures**

## **Rights and permissions**

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