

# Global Reef Expedition: Science Without Borders®

## Host Country Letter of Engagement Submission Guidelines

### INTRODUCTION

Throughout our multi-year (2010-2012) *Global Reef Expedition: Science Without Borders®* program, the Khaled bin Sultan Living Oceans Foundation (Foundation), invites you (Host Country) to join us in surveying, mapping and studying coral reefs within your jurisdictional waters, with the clear goal to identify actions to sustain the health and improve the resilience of these imperiled ecosystems.

The following guidelines are provided to assist the team from your country in submitting a Letter of Engagement (LOE) to the Foundation for potential participation in our *Global Reef Expedition: Science Without Borders®* program.

### GOALS

Our goals for host country participation in this program include:

- Engage in collaborative research leading to joint recommendations for local and regional protection and management of coral reefs under scenarios of global climate change;
- Receive security and logistical support from our hosts;
- Build lasting relationships with host countries around the globe in the spirit of our *Science Without Borders®* program.

### RESEARCH AGENDA

The Foundation will conduct a standard suite of research activities at all sites as part of a global research agenda to document reef resilience. However, the host country is encouraged to present additional research activities to be added to our standard research agenda. The final research agenda for a given location will be negotiated as part of the formal commitment process

# Global Reef Expedition: Science Without Borders

## SCIENTIFIC PLAN SYNOPSIS

The primary scientific goals of the Global Reef Expedition are to map and characterize coral reefs, identify their current status and major threats, and examine factors that enhance their capacity to resist, survive and rapidly recover from major disturbance events. This unique global expedition will enable coral reef scientists of many nations, under the Living Oceans Foundation *Science Without Borders*® program, to conduct research in order to:

- Identify the locations of coral reefs, their spatial extent, community structure, condition, and human and natural threats;
- Assess the major habitat types within these reef systems and create high-resolution benthic habitat maps using remote sensing technology, ground-truthing and advanced GIS technology;
- Understand the extent, nature and causes of coral reef degradation and identify ways to address the threats;
- Characterize factors that enhance the capacity of coral reefs to resist, survive and rapidly recover from major disturbance events;
- Determine impacts of climate change, including long-term effects of elevated temperatures and alkalinity, consequences of bleaching and reduced potential for coral growth and calcification, and synergistic effects of non-climate stresses;
- Provide forecasts on the future condition of coral reefs exposed to varying threats and under different scenarios of management;
- Develop regional and global conservation measures to counter the most serious threats impacting the health of coral reefs.

# Global Reef Expedition: Science Without Borders®

Standard research activities will include:

- 1) Acquisition and analysis of multispectral satellite imagery of each area complemented by acquisition of airborne hyperspectral imagery of high priority sites within these areas on a case-by-case basis;
- 2) Collection of detailed ground-truthing and bathymetric data to verify and map the habitat types and their boundaries;
- 3) Conducting benthic surveys and fish transects to characterize coral reef community structure, condition and threats;
- 4) Evaluation of processes controlling coral reef community structure and function and how gradients of human pressure, biophysical attributes, and environmental stressors affect these processes;
- 5) Targeted assessment and sampling of resilience indicators to identify site and species-specific factors that may allow coral reefs to adapt and persist under scenarios of global climate change;
- 6) Evaluation of connectivity within and between reef ecosystems and biological and physical factors that affect and enhance recovery and resilience.

## MAPPING

A core competency of the Living Oceans Foundation is the application of remote sensing through use of multispectral satellite imagery and hyperspectral airborne imagery to develop habitat maps. The foundation will negotiate with the host country an acceptable geographic area to focus our mapping efforts; the following ranges apply to the different methods:

- Satellite multispectral: up to a maximum aerial coverage of approximately 8,000 km<sup>2</sup>
- Hyperspectral: up to a maximum aerial coverage of approximately 2,500 km<sup>2</sup>

# Global Reef Expedition: Science Without Borders

## OPERATING CONDITIONS

The following operating conditions are provided to guide Host Country expectations as you draft the LOE and envision collaboration with the Foundation:

- Ship Time: each research project will likely be limited to four weeks maximum duration
- Berths: a maximum of four berths are provided to host countries and their academic/NGO partners aboard our research vessel
- On Board Assets: resources such as launches can be made available for research but are limited and will need to be negotiated in advance
- Expertise: As Host Countries suggest additional research activities, the Foundation may need to identify and secure additional expertise and therefore may or may not be able to accommodate requests
- Laboratory Capabilities: On board laboratory support is available but has limited capabilities
- Satellite Coverage: We rely on the availability of multi-spectral satellite imagery for our habitat mapping activities.
- Hyperspectral Airborne Surveys: The expense and operational challenges involved in conducting airborne hyperspectral surveys are considerable. Airborne surveys are best employed in situations where very high resolution mapping is required over small areas. Airborne surveys will be considered on a case-by-case basis and will not be a routine asset during the Global Reef Expedition.

## FORMAL LETTER OF ENGAGEMENT CONTENT RECOMMENDATIONS

In order to be considered for selection as a research partner in the Global Reef Expedition: Science Without Borders®, potential host countries are encouraged to submit a formal Letter of Engagement (LOE) to the Khaled bin Sultan Living Oceans Foundation. We recommend that your letter contain the following basic elements:

1. A general statement of the willingness of your government to serve as host to the Foundation for conducting coral reef research activities for a period not to exceed 1 month for the expressed purposes of coral reef research within your jurisdictional waters;

## Global Reef Expedition: Science Without Borders®

2. A brief statement of your specific coral reef research priorities and why additional reef research is desired to inform management decisions in the host country;
3. A brief statement of your willingness to assist with securing necessary permits and other forms of necessary agreement such as Memorandums of Understanding;
4. Stated willingness to assist with security and logistics support for our ships and research team while in your jurisdiction;
5. List of key contacts within your resource agencies we may contact to develop plans;
6. Signature(s) of highest level(s) of authority from agency/agencies responsible for management of marine resources; and,
7. Attached letters of support from other relevant resource agencies.

Letters of engagement should not exceed 10 pages in length and must be received by the Foundation no later than **January 31, 2009** at the following address:

**Dr. Andrew Bruckner, Chief Scientist**

**Khaled bin Sultan Living Oceans Foundation**

**8181 Professional Place, Suite 215**

**Landover, MD 20785 USA**

Phone: (301) 577-1288

Fax: (301) 577-5735

Electronic submissions (with paper copy follow-up) may be sent to:

[Bruckner@livingoceansfoundation.org](mailto:Bruckner@livingoceansfoundation.org)

# Global Reef Expedition: Science Without Borders

## FORMAL COMMITMENT AND APPROVAL

The Khaled bin Sultan Living Oceans Foundation ([www.livingoceansfoundation.org](http://www.livingoceansfoundation.org)) is a medium-sized non-profit Foundation. Understandably, we have resource, capacity, and logistical constraints that will limit our ambitious project and, unfortunately, it will not be possible for us to conduct research in all coral reef areas desired. Ship route planning, climatology, fuel costs, research team availability, etc must be factored in to the itinerary for the Global Reef Expedition. We anticipate conducting two to three major research projects per year of the three year expedition entirely at the Foundation's expense. All of these constraints will affect our planning and site selection.

If your coral reef research priorities and geographic area of interest identified in your LOE align well with this project, our staff will contact the designated representative from the Host Country or designee to begin planning for a formal commitment and approval for collaboration as well as to discuss details for obtaining research permits and for obtaining security and logistical support. By submitting an LOE, the host country and the Khaled bin Sultan Living Oceans Foundation is not bound to any agreement other than an expressed willingness on the part of the Host Country and the Foundation to discuss plans to develop a more formal agreement.