



PRESS RELEASE

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Catlin Seaview Survey's Latest Expedition to Investigate Caribbean's Endangered Coral Reef Ecosystems

Series of Expeditions Significantly Expands Breadth of Scientific and Visual Research Highlighting Effects of Climate Change on Planet's Reefs



Click image for high resolution download - [and here for more images](#). A video 'fly through' of a survey transect is also free to use. Credit Info: Catlin Seaview Survey

Bermuda - July 31, 2013 - The Catlin Seaview Survey, sponsored by international insurer Catlin Group Limited, today announced a massive expansion of its study of coral reefs with a new campaign in the Caribbean and Bermuda. The program - which will significantly widen opportunities for ocean, coral and climate scientists to understand the changes that are occurring within the region - starts in Belize and moves on to Mexico, Bermuda, Anguilla, St. Vincent, Guadeloupe, Turks and Caicos and the Bahamas.

Coral reefs in the Caribbean, like elsewhere, are under growing environmental stress. Being highly sensitive to environmental change, corals are considered the "canary in the coal mine" when it comes to impacts of climate change and ocean acidification. Exploitation, pollution, warming waters and increased storms linked with climate change have caused the massive loss of corals across the Caribbean Sea over the last 50 years.

Losing coral reefs in this fashion has long-term implications for Caribbean economies given their dependence on coral reefs and other marine ecosystems for goods, services and economic welfare. According to the World Resources Institute, the value of shoreline protection services provided by Caribbean reefs is between \$700 million and \$2.2 billion per year. Within the next 50 years, continuing coral degradation and death could lead to losses totaling \$140 million to \$420 million annually.

"We are committed to understanding the future risks posed by climate change," said Stephen Catlin, Chief Executive of sponsor Catlin Group Limited. "It is not only important that scientists have access to this valuable data, but companies such as ours must

understand the impact that significant changes to our environment will have on local economies.”

A Scientific Race against Time

Coral reefs globally are in an unprecedented state of decline due to pollution, overfishing and climate change. The National Oceanic and Atmospheric Administration (NOAA) predict increasing frequency and severity of mass bleaching events over the coming years. As the Catlin Seaview Survey embarks on a race against time to survey the coral reefs of the world, the Caribbean serves as an ideal launching point to take the campaign global because of the stress already experienced by its reefs.

“The Caribbean was chosen to launch the global mission because it is at the frontline of risk. Over the last 50 years, 80 percent of the corals in many places in the Caribbean have disappeared because of coastal development and pollution. They now are also threatened by invasive species, climate change and ocean acidification - it’s the perfect storm,” said Richard Vevers, Project Director for the Catlin Seaview Survey.

It is expected the state of the Caribbean reefs will provide insights into the future prospects for coral reefs in other regions of the world. Specifically, the new survey will focus on four major scientific goals:

1. **Change detection - creating a Caribbean-wide ecological baseline:** Accurate measurements of the current state of the coral reefs in the Caribbean are crucial to support timely decisions about their management.
2. **Understand stress within the Caribbean - when, where and how much?:** The Catlin Seaview Survey team will use direct measurements as well as information from NOAA and NASA satellite systems to understand how patterns in the health of coral reefs (e.g. coral cover, reef complexity) are influenced by local and global stressors such as changes in sea temperature, coastal pollution, fishing intensity, and exposure to wave stress and storms. This will fill in critical gaps in our understanding of why coral reefs have been in decline over the past 50 years.
3. **Understanding climate change vulnerability: Develop deeper insights into mesophotic (deep-water) coral reef communities:** The Catlin Seaview Survey’s work during 2012 on the Great Barrier Reef has revealed that mesophotic coral reefs may play an essential role in regenerating shallow water reef systems. The Survey will gather a more comprehensive understanding of the threat of climate change to coral reefs in the Caribbean by using similar techniques and technologies to map mesophotic coral reefs in the region and to investigate the genetic connectedness of those reefs to shallow water reef systems.
4. **Produce new tools for understanding changes in tropical reef systems:** Rapid, semi-automated and rigorous surveys of coral reefs are essential for developing an understanding of the rates of change, vulnerability and priorities for management intervention. To aid in the Survey’s campaign, a new camera has been developed; the SVII-S is a lighter-weight version of the main SVII camera that can be operated by a single diver, allowing dive team members to cover extra survey areas

Scientific Collaborators

The Catlin Seaview Survey has teamed up with the Global Change Institute at The University of Queensland in Australia and Davey Kline, a project scientist at Scripps Institution of Oceanography at UC San Diego. Kline and other Scripps collaborators are working with the Global Change Institute to develop autonomous assessments of the hundreds of thousands panoramic images taken of the reefs within the Caribbean using their sophisticated semi-automated image recognition software to analyse the percent coverage of the main benthic organisms (e.g. corals, algae, other invertebrates) in the photographs. Analysis of such a large data set of photographs would not be possible without a semi-automated computer analysis system.

These relationships are essential to the success of the research program," said Professor Ove Hoegh-Guldberg, Chief Scientist of the Catlin Seaview Survey. "By collecting and analysing images in a semi-autonomous fashion, the research project can cover huge distances. This has never been done before."

Climate Change and Implications for the Insurance Industry

500 million people worldwide rely on coral reefs for food, tourism, economic stability and shoreline protection. When reefs are harmed or destroyed due to climate change and regional drivers, the effects can be devastating and far-reaching. There is a shift in the insurance industry; evaluating and helping clients minimise risk is critical to business, the assessment of the impact of climate change is a natural extension for the future of the insurance industry.

The Geneva Association, the international association for the study of insurance economics, recently released a report, [*Warming of the Oceans and Implications for the \(Re\) Insurance Industry*](#), highlighting how climate change has effected the warming of oceans and the correlating effect on the insurance industry's risk assessment strategies. The report highlights three main drivers of change:

- **Greater Volumes of Water = Greater Risk:** Not only do rising sea levels increase the risk of flooding or the potential impact of storm surges, but they also decrease the protective lifespan of coastal infrastructure. While the probability of a storm is not increased, the damage caused by one is.
- **Warmer Ocean = More Water in the Atmosphere:** A warmer atmosphere contains more water and therefore more energy. This has the potential to increase the intensity of extreme events and associated precipitation. This greater intensity increases the loss potential of natural catastrophes.
- **Effect on Large-Scale Climate Patterns:** The warming of the oceans is also likely to affect large-scale climate patterns such as El Niño, various monsoon systems or the North Atlantic Oscillation.

About the Catlin Seaview Survey

The Catlin Seaview Survey is a pioneering scientific expedition revealing more than ever before the impact of environmental changes on the world's coral reefs. The Survey aims to significantly expand the data available to scientists about global coral reef systems. The Catlin Seaview Survey made world news in 2012 with its ground-breaking scientific study of the Great Barrier Reef. The team took more than 100,000 360-degree

panoramic images, at 32 separate locations, along the entire length of the 2,300-km reef, using specially built cameras. The images are being used to create a vital scientific baseline study of the reef that can be used to monitor change, as well as being used to reveal it to the world through Street View in Google Maps - in partnership with Google.

More information about the Catlin Seaview Survey can be found here:

<http://www.catlinseaviewsurvey.com>

Explore the Caribbean reefs through recent videos taken in the region:

<https://www.hightail.com/download/bWJwUXVqQzdRWUlzeHNUQw>

Existing 360 images of the Catlin Seaview Survey expedition can be found here:

http://catlinseaviewsurvey.com/gallery/a576_panorama-image-gallery

You can also engage with the Catlin Seaview Survey and its 2.9 million followers on

Google+ here: <https://plus.google.com/+CatlinSeaviewSurvey/posts>

About Catlin

Catlin Group Limited is a global specialty property/casualty insurer and reinsurer operating worldwide through six underwriting hubs: London/UK, Bermuda, the United States, Asia Pacific, Europe, and Canada. The Catlin Seaview Survey is the second major scientific project Catlin has sponsored. The Catlin Arctic Survey (2009-2011) investigated the impact of environmental changes in the Arctic. Catlin believes that insurers must take a leading role in improving the understanding of potential changes to our environment, changes that could affect how risks are managed in the future. Catlin's contribution is to sponsor independent, impartial research that is freely distributed to the world's scientific community. <http://www.catlin.com/>

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MEDIA PHOTOS:

Media photos of the underwater survey in the Caribbean can be downloaded from:

http://catlinseaviewsurvey.zenfolio.com/caribbean_media_gallery/

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