



Reef Scientists Launch Mission to Reveal State of Hawaii's \$33 Billion Reefs

Multi-partner scientific team to record current condition of diverse coral reef habitats in 360° panoramic imagery as impacts of climate change threaten the region's reefs



Credit Info: XL Catlin Seaview Survey

Oahu, Hawaii (August 19, 2015) – The [XL Catlin Seaview Survey](#), a pioneering scientific expedition to study and reveal the world's coral reefs, sponsored by [XL Catlin](#), global insurer and reinsurer, today announced the launch of its scientific survey to explore and study the health of the different coral reefs in Hawaii.

The Survey's scientists from The University of Queensland in partnership with the National Oceanic and Atmospheric Administration's (NOAA) [Office of National Marine Sanctuaries](#) (ONMS) will capture unique imagery of coral habitats in and around the Hawaiian Islands Humpback Whale National Marine Sanctuary adjacent to the islands of Oahu, Maui, Lanai, Hawaii and Molokai. Mission scientists will collect this imagery using the survey's advanced [SVII](#) camera to gain a comprehensive understanding of the region's distinctive marine ecosystem and the health of corals found in these waters. Findings from this survey will also help scientists better understand and monitor the potential impact of environmental and human stressors on coral recovery in the future.

Recent news on the impact of climate change and rising sea temperatures in the Pacific make this expedition particularly timely. According to a recent EPA report titled *Climate Change in the United States: Benefits of Global Action*, coral cover in Hawaii could potentially decline from the current 38 percent to five percent by 2050 if continued warming persists. The most common effect of rising seawater temperatures is coral bleaching. This phenomenon occurs when corals expel their colored algae, causing them to appear white and in extreme cases die off.

In the summer of 2014, Hawaii recorded its first ever mass bleaching event due to an unexplained patch of warm water forming in the Eastern Pacific, known in scientific circles as the "blob." With the combination of this phenomenon and a strengthening El Niño event this year, the outlook for 2015 is far worse. With Hawaii's corals only now starting to recover from last year's blob occurrence, the current increase in ocean temperatures has the potential to stop and possibly reverse the recovery process, causing long-term damage to the state's reefs.

"Due to location at a relatively high latitude and exposure to variable ocean conditions, Hawaii is a remarkable place for the study of coral reefs and adds a vital element to our global picture of coral

health,” said Professor Ove Hoegh-Guldberg, the survey’s chief scientist from the Global Change Institute at The University of Queensland. “Despite the increasing global threat to coral reefs from climate change, Hawaiian reefs have remained relatively intact, although future conditions pose a very real threat. Surveying this region is likely to reveal important information on the resilience of coral reefs under the rapid and unprecedented changes in ocean temperature and acidity that are projected.”

Scaling Ocean Study in Hawaii

As one of the world’s most isolated archipelagos, Hawaii features approximately 410,000 acres of living coral reefs and is known for its abundance of endemic species and large diversity of subtropical coral reef habitats. Unlike other coral regions, the isolated corals reefs of Hawaii offer researchers the potential opportunity to uncover unique reef formations that have never been explored before and expand on scientists’ existing knowledge of the area’s marine ecosystem.

Hawaii contains more than 60 percent of the coral reefs in U.S. waters. A peer-reviewed study commissioned by NOAA in 2011 estimates that the total economic value of the Hawaiian coral reefs is \$33.57 billion. Hawaiians rely on coral reefs as important sources of food, income, shoreline protection, and recreation. Reef-related tourism and recreation account for an estimated \$364 million in added value to Hawaii’s annual economy and its near shore reefs contribute nearly \$1 billion to the state’s annual gross revenue. Furthermore, Hawaii’s reefs are not only important to support marine life and local economies, but are also considered an integral part of the state’s cultural heritage and identity.

“Working with XL Catlin Seaview Survey will not only allow us to further the scientific research around the region’s corals reefs but also highlight how ocean stewardship is deeply rooted in the native Hawaiian culture and identity,” said Malia Chow, superintendent of the Hawaiian Islands Humpback Whale National Marine Sanctuary. “XL Catlin Seaview Survey’s mission and use of camera technology resonates with the sanctuary’s strategy of employing a unique ecosystem-based management approach that combines science with the traditional Hawaiian approach to protecting natural and cultural resources.”

Technological Approach

Technology plays a fundamental role in both the teams’ surveying work and subsequent data analysis. The SVII is a revolutionary camera system attached to an underwater scooter that takes about 1,000 high-resolution 360-degree underwater images across distances of up to 1.2 miles in a single dive – increasing the data-gathering efficiency 30-fold compared to previous methods. The spectacular 360-degree images are accurately GPS-located so researchers can re-visit the same locations in later years and show changes happening on the reef.

These images are added to the [XL Catlin Global Reef Record](#), an online research tool that allows scientists and researchers to better analyze and monitor changes in the global reef ecosystems on a local, regional, and global level. XL Catlin Seaview Survey’s ongoing partnership with Scripps Institution of Oceanography at UC San Diego enables access to advanced computer-based processing methods that is similar to facial recognition technology and has the potential to increase analysis by 10 to 30 times faster than manual methods. What can now be achieved in 12 months would have taken 30 years using traditional methods.

As a leading insurer/reinsurer and sponsor of this expansive research survey, XL Catlin recognizes the value of understanding the impact of climate change on our ocean environments and what this change means in coastal regions. It is essential to gather factual research into the changes, so that the insurance industry can continue to help clients manage risks in the years to come.

Community Awareness

This expedition will take place in and around the Hawaiian Islands Humpback Whale National Marine Sanctuary, which is administered by a partnership between NOAA’s ONMS and the state of Hawaii through the Department of Land and Natural Resources. The sanctuary plays a crucial role in supporting

humpback whales and strives to improve upon existing marine conservation by providing inter-agency coordination and comprehensive protection through education, science, and outreach support.

During the mission, team members from XL Catlin Seaview Survey, The University of Queensland, and NOAA's ONMS will promote awareness around their ongoing scientific research of reefs and marine sanctuaries by hosting a series of community events on Oahu, Maui, Lanai, Molokai, and Hawaii.

The events will be held at local schools, dive shops and visitor centers in an effort to engage both students (grades 4-12) and the general public, focusing on XL Catlin Seaview Survey's use of technology and science to support reef and ocean conservation, as well as the Hawaiian Islands Humpback Whale Sanctuary's efforts in marine resource management. Participants will learn about the mission and the organizations participating in the survey, the science being conducted, as well as see the technology used and imagery being captured from around the islands.

Media Contacts and Content Links

XL Catlin Seaview Survey

Lin Shen

+1 (415) 677-2741

xlcatlinseaviewsurvey@ogilvy.com

NOAA Office of National Marine Sanctuaries

Sarah Marquis

West Coast/Pacific Media Coordinator

+1 (949) 222-2212

sarah.marquis@noaa.gov

University of Queensland

Rachael Hazell

Communications and Engagement Officer

r.hazell@uq.edu.au

Images:

High-resolution photographs are available for download at a Zenfolio site:

<http://catlinseaviewsurvey.zenfolio.com/hawaii2015>

B-Roll:

High-resolution video is available for download here:

<https://www.hightail.com/download/bXBaOU1jTkwafN4djhUQw>

About the XL Catlin Seaview Survey

The XL Catlin Seaview Survey is a pioneering scientific expedition revealing 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 XL Catlin Seaview Survey is currently focusing on the Indian and Pacific Oceans, having previously completed pioneering scientific studies of the Coral Triangle, the Great Barrier Reef and the Caribbean. The images are captured in order to provide a vital scientific baseline study of the world's coral reefs. These images monitor change, reveal it to the world through Street View in Google Maps – in partnership with Google. More information about the XL Catlin Seaview Survey can be found here: <http://www.xlcatlinseaviewsurvey.com>.

You can also engage with the XL Catlin Seaview Survey and its 4 million followers on Google+ here:

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

About XL Catlin

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About the Global Change Institute, University of Queensland

The Global Change Institute at The University of Queensland (UQ), Australia, was established in 2010 as an independent source of game-changing research, ideas and advice for addressing the challenges of global change. GCI advances discovery, develops solutions and advocates responses that meet the challenges presented by climate change, technological innovation and population change. UQ is one of the world's premier teaching and research institutions. It is consistently ranked in the top 100 in four independent global rankings. With more than 48,000 students and 6,500 staff, UQ's teaching is informed by research, and spans six faculties and eight research institutes. www.gci.uq.edu.au

About NOAA's Office of National Marine Sanctuaries

NOAA's Office of National Marine Sanctuaries serves as trustee for a system of 14 marine protected areas, encompassing more than 170,000 square miles of America's ocean and Great Lakes waters. Through active research, management, and public engagement, national marine sanctuaries sustain healthy environments that are the foundation for thriving communities and stable economies.

NOAA's mission is to understand and predict changes in the Earth's environment, from the depths of the ocean to the surface of the sun, and to conserve and manage our coastal and marine resources.

About the Hawaiian Island Humpback Whale National Marine Sanctuary

The Hawaiian Islands Humpback Whale National Marine Sanctuary was created by Congress in 1992 to protect humpback whales and their habitat in Hawai'i. The sanctuary, which lies within the shallow (less than 600 feet), warm waters surrounding the main Hawaiian Islands, constitutes one of the world's most important humpback whale habitats. Through education, outreach, research and resource protection activities, the sanctuary strives to protect humpback whales and their habitat in Hawai'i and currently is nearing the end of a extensive public engagement process that has the potential to expand boundaries and resources for the sanctuary.