



Photo: Jean-Marcus.com

THE CLIPPER 2017-18 ROUND THE WORLD YACHT RACE AND THE PORT OF SEATTLE MONITORING OCEAN ACIDIFICATION

The Clipper 2017-18 Round the World Yacht Race is partnering with the Port of Seattle, Visit Seattle, University of Washington, NOAA and Sunburst Sensors to undertake pioneering scientific research into the global impacts of ocean acidification. This research will contribute to a worldwide database and be used to raise public awareness of this incideous problem.

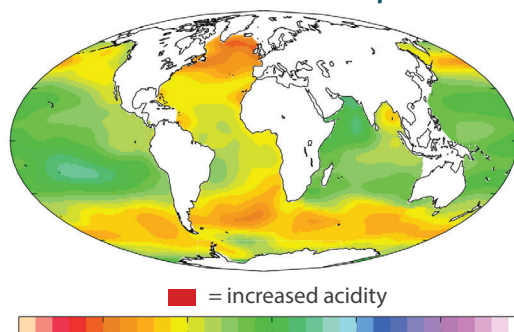
This interdisciplinary team has arranged for a pH sensor to be installed on the *Visit Seattle* yacht participating in the Clipper Race during the seventh leg between Seattle and New York.

WHAT IS OCEAN ACIDIFICATION?

Ocean acidification refers to the changes in ocean chemistry in response to increasing carbon dioxide (CO₂) in the atmosphere due to the burning of fossil fuels and changes in land use.

Ocean acidification is occurring because the world's oceans are absorbing carbon dioxide from the atmosphere, resulting in increased acidity that inhibits the ability for marine life to form shells. These impacts are not limited to oysters and mussels, but also include small planktonic organisms - food for herring, salmon, pollock and other fish species of ecological and economic importance.

CHANGES IN OCEAN pH



OCEAN LIFE IN DANGER DUE TO OCEAN ACIDIFICATION



Pteropod, from the Greek "winged foot" is a swimming sea snail. As food for herring, salmon and Pollock, this picturesque plankton plays a critical role in the marine ecosystem. It is very sensitive to ocean acidification which inhibits its ability to form its shell.

THE NORTHWEST HAS BECOME A HUB of scientific expertise in ocean acidification because our marine life is particularly vulnerable to its impacts.

LEADING EXPERTS COLLABORATE TO RAISE PUBLIC AWARENESS

National Oceanic and Atmospheric Administration (NOAA)



NOAA is an agency within the US Department of Commerce. Its Ocean Acidification Program seeks to better prepare society to respond to changing ocean conditions and resources by expanding understanding of ocean acidification, through interdisciplinary partnerships, nationally and internationally.

University of Washington



The Washington Ocean Acidification Center serves the entire state from its base at the University of Washington. Created in 2013, the Center connects researchers, policymakers, industry and others in Washington to advance

the science of ocean acidification and provide a foundation for developing strategies and policies to protect marine ecosystems and the people connected to them.

Sunburst Sensors



The XPrize-winning **Sunburst Sensors** design and manufacture autonomous sensors that measure the sea water pCO₂ and pH using patented drift-free technology. The AFT - Autonomous Flow Through sensor - is small and affordable enough to conduct flow through measurements on a variety of vessels of opportunity. The device was installed on the Visit Seattle Yacht on April 23 while in Seattle and will be removed from the yacht when it arrives in New York in mid-June. The data will subsequently be analyzed by scientists at the UW and NOAA.

Visit Seattle



Visit Seattle has served as the official destination marketing organization (DMO) for Seattle and King County for more than 50 years.

A 501(c)(6) organization, Visit Seattle enhances the economic prosperity of the region through global destination branding along with competitive programs and campaigns in leisure travel marketing, convention sales and overseas tourism development. Nearly 40 million annual visitors spend \$7.4 billion in the city and county each year. The economic power of travel and tourism generates more than 76,000 Seattle area jobs and contributes \$762 million in annual state and local tax revenue. Go to www.visitseattle.org.

The Clipper Race – A Global Platform for Pioneering Research



The Clipper Round the World Yacht Race is one of the world's

toughest endurance challenges – an eleven-month, 40,000 nautical mile sailing adventure around the planet for everyday people made up of eleven 70-foot yachts, including a team represented by the Port of Seattle-sponsored *Visit Seattle* yacht. The yacht will be fitted with a Sunburst pH sensor to monitor the effect of ocean acidification.

This route down the west coast of the United States through the Panama Canal and up the east coast is one that has not been monitored for pH by NOAA before. The new data will contribute to the growing body of scientific evidence and promote a better understanding of the effects of ocean acidification to a global audience. NOAA and UW participate in the Global Ocean Acidification Observing Network (www.goa-on.org) which seeks to document the status and progress of ocean acidification world-wide in order to better understand ecosystem responses and inform societal adaptation strategies.

Port of Seattle



Founded in 1911, the Port of Seattle is a special-purpose government serving the citizens of King County. The port is committed to creating opportunity for all, stewarding our environment, partnering with surrounding communities, and promoting social responsibility.

Fishermen's Terminal, the Port's first facility, is now home to the North Pacific Fishing Fleet. The Port led this collaboration because it recognizes ocean acidification as a global threat to the entire marine food web that also has immediate impacts on our tenants. Today, more than a billion people worldwide rely on food from the ocean as their primary source of protein. Many jobs and economies in Washington and around the world depend on healthy oceans that populations of fish, shellfish and people need to survive.

The Port of Seattle is proud to collaborate with Clipper and others to elevate public awareness of the importance maritime innovation plays in support of a sustainable sea.

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