Hexagonâ€™s R-evolution Enables Blue Carbon Credits for Worldâ€™s Largest Seagrass Ecosystem

R-evolution has been awarded a contract to supply multidimensional intelligent mapping services of The Bahamas' seabed. The services are part of a larger initiative to enable the island nation to protect, restore and activate its blue carbon ecosystems to invest in climate resilience and biodiversity initiatives. R-evolution is the sustainable innovation and green-tech investment subsidiary of Hexagon, a global leader in digital reality solutions combining sensor, software and autonomous technologies.

Over 80% of the global carbon cycle is circulated through the oceans, with blue carbon emerging as a key nature-based solution to fighting climate change. Blue carbon ecosystems sequester greenhouse gases approximately 35 times faster than tropical rainforests and can store ten to 15 times as much carbon as their terrestrial counterparts. The Bahamas' seagrass meadows are estimated to total up to 92,000 square kilometres – 40% of the world's known seagrass habitat, storing hundreds of millions of tons of CO_2.

Sensor-tagged Tiger Sharks

R-evolution's first foray into blue carbon began in December 2021, when it teamed up with Beneath The Waves to conduct an initial mapping pilot of the Little Bahama Banks' seabed. The goal was twofold: to validate Beneath The Waves' initial findings, which indicated that The Bahamas had the largest seagrass bed in the world, and to provide an accurate, scalable solution for year-on-year change detection and health monitoring of the seagrass ecosystem.

Wells Howe, blue carbon program manager, Beneath The Waves, and Erik Josefsson, president, R-evolution.

An innovative collaboration combining sensor-tagged tiger sharks, marine vessel surveys, scuba diver surveys and aerial data captured by Hexagon's airborne bathymetric Lidar technology led to the mapping of one of the world's largest seagrass meadows on The Bahama Banks. This mapping is vital to the protection of seagrass habitat across The Bahamas Banks and providing the foundation for a sovereign blue carbon exchange.

Following successful validation of Beneath The Waves' initial research, the Bahamian Government is preparing to issue blue carbon credits that are the first of their kind, with Beneath The Waves as the end-to-end science partner and R-evolution as the mapping supplier of superior point density and depth penetration for seagrass mapping and classification.

Natural Solutions to Combat Climate Change

"Blue carbon habitats, such as seagrass and salt marsh habitats, are among the most productive natural solutions for fighting climate change. Degrading these millennia-old carbon sinks may cause irreversible harm to our planet," says Hexagon president and CEO Ola Rollén. "While blue carbon credits don't excuse industry from transitioning to carbon-free energy sources, they finance the prevention of new carbon release through the preservation of existing ecosystems as well as the absorption of additional carbon dioxide through the restoration of degraded habitats."

The structure developed by the Bahamian Government involves a partnership between Carbon Management Ltd. and Beneath the Waves to ensure that all of the scientific services required by international registries are performed for successful accreditation of carbon credits.

R-evolution and Beneath The Waves' next commercial mapping expedition targets 1,100 square kilometres in The Exumas, Bahamas, expanding coverage to the Great Bahamas Bank.

Launched in mid-February 2021, R-evolution is focused on reinventing how industry addresses complex environmental challenges, profitably, using Hexagon's digital reality solutions. Learn more about R-evolution's ocean project helping to protect blue carbon ecosystems.

R-evolution and Beneath The Waves management in front of survey aircraft