Hexagon Deploys Airborne Bathymetric Lidar to Protect Marine Environments

Hexagon, a global leader in digital reality solutions, today announced R-evolution's efforts to map the threatened seagrass meadows of the Caribbean islands, beginning with the coastal waters of the Bahamas. In collaboration with Beneath The Waves – a leading, global, non-profit organization dedicated to protecting marine environments – R-evolution is leveraging Hexagon's airborne bathymetric Lidar technologies to detect, map and capture critical details about this vital habitat, including its extent and composition.

Blue carbon ecosystems refer to coastal and marine vegetated habitats, such as seagrass meadows, salt marshes and mangrove forests, that sequester and store carbon from the atmosphere and ocean. These powerful carbon sinks are rapidly disappearing in many parts of the world. Seagrass meadows, the most common among them, are crucial to solving environmental challenges yet remain among the least recognized and least protected ecological habitats.

Sensor-tagged Sharks, Satellite Data and Airborne Bathymetric Lidar

As part of a long-term shark monitoring project to study and protect the oceans, Beneath The Waves discovered that tiger sharks spend a large portion of their life patrolling and foraging dense seagrass meadows. A combination of sensor-tagged sharks, satellite data, marine vessel surveys and scuba divers drove the ongoing discovery and mapping of the extensive seagrass meadows of the Caribbean. However, to protect and restore these blue carbon sinks, the findings must be validated with high positional accuracy and datasets that can provide efficient, year-on-year change detection and monitoring.

R-evolution is helping Beneath The Waves validate their findings by deploying survey aircraft geared with one of Hexagon's airborne bathymetric Lidar solutions, the Leica Chiroptera 4X. The airborne bathymetry solution enables the cost-effective, rapid survey of large areas – accurately mapping thousands of square kilometres of seabed habitats at up to 30 metres water depth in just a few days. The high-resolution point clouds and aerial imagery will allow Beneath The Waves to scale up their marine research.

"We have a planetary need to protect and restore our oceans – our biggest life support system harbouring more biodiversity than any ecosystem on land," said Hexagon president and CEO Ola Rollén. "The protection and restoration of seagrass meadows can not only improve ocean health and productivity – from purifying water to protecting food chains – but also aid the natural sequestration of massive amounts of carbon, providing major potential for offsetting pollution and reaching net-neutral carbon goals."

Building Climate Resilience

While Hexagon and R-evolution focus on reducing the world's carbon footprint, both companies continue to bring innovation, cutting-edge technology and corporate leadership to climate change mitigation strategies. By combining the marine expertise of Beneath The Waves with the technological expertise of Hexagon, the collaborative project expects to yield groundbreaking results for blue carbon conservation.

"Hexagon has been a major player in the airborne bathymetric Lidar industry for many years," continued Rollén. "R-evolution's collaboration with Beneath The Waves is an excellent opportunity to deliver on the commitment to help the world achieve its environmental goals. We are honoured to be a technology partner in this planet-saving research project, which aims to support, preserve and unlock the power of nature to build climate resilience."

Launched in mid-February 2021, R-evolution is Hexagon's business venture focused on reinventing how industry addresses complex environmental challenges profitably, using Hexagon's digital reality solutions. Learn more about R-evolution's projects that accelerate the world's transition to a sustainable economy.

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