Experience

Low carbon solution for carbon capture project

USV project support for Bayou Bend CCS LLC

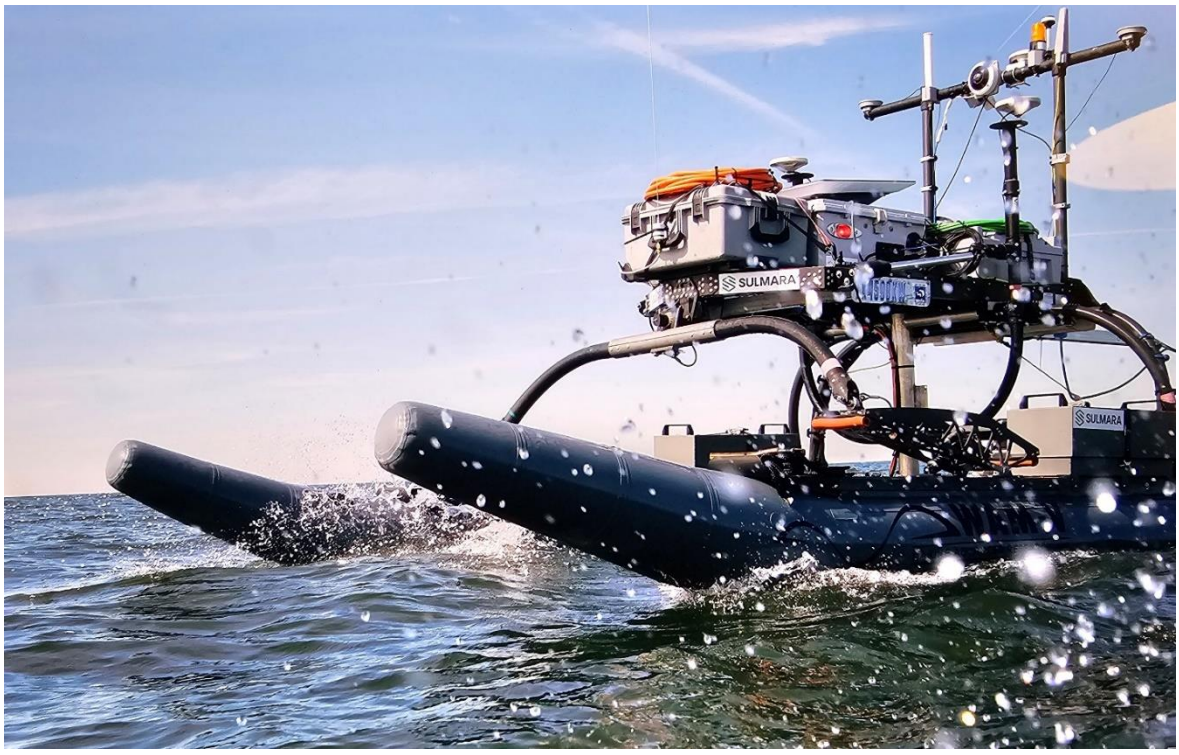
Location: U.S. Gulf of Mexico, off the coast of Jefferson County, southwest Texas

Challenge

How do you carry out initial survey data acquisition with the fewest carbon emissions for a carbon capture project?

Chevron, along with their partners Talos and Carbonvert (together known as CCS LLC) are developing the Bayou Bend Carbon Capture and Sequestration hub, which is seeking to be one of the first offshore carbon dioxide storage projects in the United States. CCS LLC commissioned Sulmara to conduct an archaeological and geohazard assessment of the proposed Bayou Bend pipeline route from the future offshore platform locations to landfall, a scheme which has the potential to reduce the environmental impact of local industrial facilities by isolating carbon dioxide underground.

Sulmara utilised an electric WAM-V 16 Uncrewed Surface Vessel (USV) for the offshore data acquisition, overcoming bad weather and extreme shallow waters to help significantly lower the overall carbon footprint of the project by reducing the number of diesel-burning vessels offshore, as well as shortening the time required to conduct the survey.



Delivery

“This is some of the best quality data we’ve seen – even in comparison with conventional methods.”

Sulmara utilised the WAM-V 16 integrated with a towed Geometrics G882 magnetometer, and towed Edgetech 4125 side can sonar, Innomar sub-bottom profiler, and Norbit iWMBS multibeam echosounder for data acquisition. The use of USVs as a low carbon solution for this project was important for the CCS LLC partnership, and whilst the technology is not he cheapest or easiest to deploy, it was the solution that aligned with their environmental goals whilst maintaining excellent data quality.

We integrated the WAM-V with the SpaceX-backed Starlink satellite system to ensure strong communications between the USV and the Mobile Remote Command Centre which allowed Sulmara to push the technology further offshore than on any previous WAM-V 16 deployment.

Geophysical data to be delivered included a bathymetric data model, backscatter, interpreted geohazards, side scan sonar mosaic and magnetometer contacts. The quality of data achieved was excellent, and when comparing to the data for the same route acquired using conventional technology, both the client and Sulmara were impressed with the clarity and precision, especially considering the time of year and weather conditions.

Sulmara Project Manager Darius Rivera said, “The quality of the data gathered is some of the best we’ve seen from a USV. That quality of information, as well as the operability of the equipment and relationship that has been developed, have been key to the project’s success.”

Resilience

Launching the WAM-V 16 was challenging thanks to the weather experienced at the time of year the survey was carried out, as between October and December in the Gulf of Mexico there are significantly higher winds and seas Our people worked together CCS LLC personnel and combined beach launches when conditions were suitable with the use of a local vessel to tow the WAM-V 16 to the work location when necessary.

Impact

Sulmara’s use of the WAM-V 16 improved the quality of the data collected along the shallowest parts of the intended pipeline route, and saw a significant reduction in the time required to collect the various datasets versus a traditional survey vessel method. As the WAM-V 16 is an electric vehicle, the environmental impact of the data acquisition was negligible, ensuring that CCS LLC were able to realise significant carbon savings

when compared to conventional methods. Finally, the USV option reduced the risk to injury of personnel by removing the exposure hours risk associated with conventional vessels working in a dynamic shallow water environment.

“We are proud to partner with CCS LLC on this important project. Our development of towed sensor capability from an uncrewed platform is a clear demonstration of our commitment to both sustainability and innovation.

“We look forward to working with CCS LLC again in the future to help them push towards net-zero.”

Andy Nicol
Regional Director for the Western Hemisphere