

# DeepWorker Equipped with YSI Sonde Sustainable Seas Expedition



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YSI Ocean Research  
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In 2001, the Sustainable Seas Expeditions (SSE)—a joint five-year collaborative project between the National Geographic Society (NGS) and the National Oceanic and Atmospheric Administration (NOAA)—began conducting a comprehensive expedition of the coral reef and hard bottom communities of the Gulf of Mexico and the Florida and Georgia coasts. The Loop Current, its associated gyres in the western Gulf of Mexico, and the Gulf Stream connect this large ecosystem. The expedition intended to explore protected and non-protected coral and hard bottom communities that connect the different habitats. Oceanographic measurements were acquired to help researchers assess water quality conditions entering and exiting marine protected areas. Both deep and shallow water habitats were examined.

The expedition presented a unique opportunity for the governments and scientific communities of Belize, Mexico, and the United States to work together, exploring and researching these unique habitats and obtaining valuable information—digital video and still photography, water quality information, oceanographic and atmospheric data, and more.

Using the latest in single-person research submersible technology, SSE gathered substantial information to enhance efforts to assess, characterize, and manage natural and cultural resources in the marine environment. By exploring and documenting new areas within the existing system of National Marine Sanctuaries, as well as other unique marine habitats, SSE sought to increase U.S. and international recognition of the need to protect, conserve, and sustain the natural integrity of ocean ecosystems.

## Water Quality Data as Part of the Research

Since April 1999, SSE conducted operations in ten National Marine Sanctuaries and explored several unique features on the West Florida Shelf. Using the DeepWorker 2000 submersible for video and photo documentation, sample collections, and ambient-condition measurements, scientist pilots studied habitats and species as well as collected data to support critical research projects.



An SSE DeepWorker 2000 submersible vehicle with a YSI 6600 Multiparameter sonde.

To help it do so, DeepWorker was equipped with a YSI 6600 multiparameter water quality monitoring sonde. The 6600 accurately and reliably measured temperature, conductivity, salinity, dissolved oxygen, pH, turbidity, and depth throughout the project duration. It was also programmed to sample data at 4-second intervals for the duration of the dives.

With the conclusion of field operations in 2003, SSE was prepared to apply the lessons learned to much more complex and ambitious projects and to assist in future operations for the health and well-being of the oceans.

**For additional information on the Sustainable Seas Expedition:**  
Web: [oceanexplorer.noaa.gov](http://oceanexplorer.noaa.gov)

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