

# NOAA Real-time Wave Monitoring

The NOAA National Ocean Service, Center for Operational Oceanographic Products and Services (CO-OPS) has installed a real-time wave/current measurement system in the Chesapeake Bay (MD, USA) using a bottom-mounted RD Instruments ADCP to measure complete frequency-direction wave spectra along with the current profiles. The acoustic modem, with its wireless connection, is a method for data communication between the ADCP and the surface buoy, eliminating the need for underwater cables that are expensive to install and maintain. However, the huge amount of data generated from the wave measurement may pose a serious challenge to the acoustic modem's robustness and power requirement. The total amount of data for a single year when wave measurement is done every hour will be more than 1.5Gbytes.

LinkQuest Inc worked closely with CO-OPS on this project, providing it with standard UWM1000 modems. The UWM1000 modem operates at 9600 baud with one 1 watt of transmitter power. Further modification to the system was carried out to improve communication efficiency based on the specific output mechanism of the wave data from the ADCP. This real-time wave/current measurement system has been working reliably since late July using the original battery pack with 12 DD Lithium cells. It is estimated that over 700mbytes of wave data, along with current data, have been transported over the acoustic link.

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<https://www.hydro-international.com/content/news/noaa-real-time-wave-monitoring>

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