

AutoNaut can provide the perfect platform with their 5-metre AutoNaut Unmanned Surface Vessel (USV) to install an Acoustic Doppler Current Profiler (ADCP) for the measurement of water velocities at different depths simultaneously for survey purposes.



The silent, zero emissions, wave propelled AutoNaut vessel provides an environmentally friendly solution to collect data for ocean survey purposes. Removing the risk factor of sending employees offshore, this wave propelled vessel can be deployed for long periods of time and is controlled remotely with the latest satellite communication technology.

In April-May 2017 AutoNaut deployed a 5-metre vessel for marine survey purposes in the North Sea. The AutoNaut ran for 7 days 24-7 collection surface current measurements and identifying marine mammal species through vocalisation, using the Passive Acoustic Monitoring (PAM) system fitted on-board. The data was regularly transmitted over the Iridium satellite communications, providing the client with real time data.

AutoNaut has assisted a number of clients with current measurements for marine survey purposes, which is used by oceanographers to provide data for the shipping, oil & gas, renewal energy offshore and safety industries.

Using an AutoNaut with an ADCP

AutoNaut can deliver several solutions to provide current profile information. An ADCP can be fitted on-board a 5-metre vessel to provide shallow and surface current measurements. In addition to this an AutoNaut can be used as a communication gateway with a sea bed mounted ADCP to collect sea bed current information. The raw data can either be collected on the on-board PC or processed and delivered real-time over the Iridium satellite communication system before being analysed ashore.

Currently AutoNaut can fit sensor sizes for frequencies of 300K Hz and upwards in the standard Janus configuration, providing clients with real-time current and predicted current information.

AutoNaut

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Available sensors

- **Teledyne Marine Workhorse Monitor ADCP**

The Monitor is ideally suited for the most demanding environments, including high traffic areas such as ports and harbours. This direct reading unit can easily be upgraded to include pressure sensor, bottom tracking, and directional wave measurement, whilst being powered directly from the AutoNaut's battery pack. Broadband signal processing delivers very low-noise data, resulting in unparalleled data resolution and minimal power consumption. The 4-beam design improves data reliability, improves data quality, and improves data accuracy.

- **Nortek Signature 1000**

The Signature 1000 ADCP is the optimal tool for turbulence measurements and very shallow water with 5 beams for mean currents and turbulence. With a maximum sampling frequency of 16 Hz, it gives the scientific community an unprecedented opportunity to study a part of the turbulence spectrum that has never been accessible before. Vertical resolution current profiles of 2 cm over a range of up to 8 m further increase the Signature 1000's versatility. The centre beam also functions as a biological echo sounder, enabling high-resolution measurements of biomass in the water column.

- **Nortek Signature 500**

The Signature 500 ADCP is designed for flexibility. It measures current profiles at up to 8 Hz sampling frequency. It can also measure direct vertical velocity profiles, wave height and direction, and ice thickness and drift. The centre beam also functions as a biological echo sounder, enabling high-resolution measurements of biomass in the water column. All these features can be combined using Nortek's patented concurrent mode technology.

