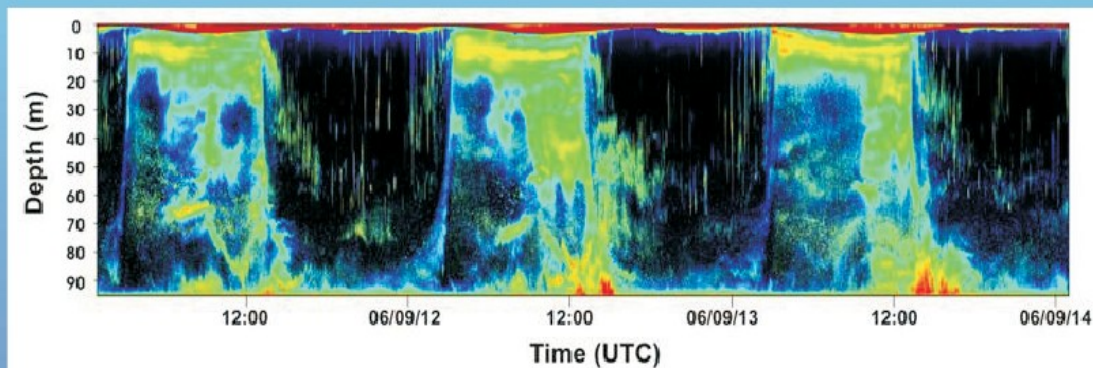


Multiple-Frequency

Acoustic
Water
Column

Profiler

An inexpensive way of obtaining reliable measures of marine environmental conditions in the water column.



Backscatter signal over 3 days from a 200 kHz inverted echo sounder mounted on the VENUS array in Saanich Inlet, BC.

Applications

The Acoustic Water Column *Profiler*[™] can monitor the presence and abundance of zooplankton within the water column by measuring acoustic backscatter returns with ultrasonic frequencies. Other sonar targets realized from the sonar backscatter data include fish and suspended sediments.

A powerful tool for scientific research and environmental monitoring in oceans, lakes and rivers.

Features

- ~ Can collect data continuously for periods of up to several months.
- ~ Available with up to four frequencies in a single transducer housing.
- ~ Can be operated in bottom-mounted, upward looking mode or in downward looking mode from a buoy.

Multi-Frequency Acoustic Water Column Profiler™ Specifications

<p>FEATURES</p> <ul style="list-style-type: none"> • Integral tilt sensor. • Anodized aluminum underwater pressure housing rated to 600 m. • RS-232 serial output. • Removable Compact Flash. • High resolution 16 bit A/D. 	<p>USER SELECTABLE FEATURES</p> <ul style="list-style-type: none"> • Deployment phases (12 maximum) by date or duration (with repeat and sleep phases) • Configurable Ping rate up to 2 Hz (Depends on number of frequencies and range) • A/D Digitization rate: 64,000, 40,000 or 20,000 Hz • User selectable pulse length: 100 to 900 microseconds • Range lockout to ignore near targets • Range averaging into bins (minimum bin size is 0.011m) • Ping averaging over time • Option to save standard deviation of averaged returns
<p>SOFTWARE</p> <ul style="list-style-type: none"> • Includes MF-AWCPLink to configure the instrument and plot the data • Software will output data files in a comma delimited ASCII format or binary format • Compatible with Myriax Echoview software 	<p>TILT SENSOR: Range $\pm 45^\circ$ with an accuracy of $\pm 3^\circ$ DATA STORAGE: CompactFlash (8 GB standard or 16 GB maximum) POWER: Standard Full battery pack with 195 A-hr ($\frac{3}{4}$, $\frac{1}{2}$ or $\frac{1}{4}$ packs available) (<i>Example with standard battery:</i> ping for 175 days with three frequencies every 2 seconds over a 100m range) SIZE: 0.17m diameter x 1.0m long (single or multiple frequencies) SHIPPING WEIGHT: 50 kg in ruggedized aluminum shipping and storage case</p>

OPTIONS

- Compact AWCP packages for Mid-ocean floats, gliders and AUVs
- RS-422 serial communication with optical isolation for real-time applications
- Short pressure case without batteries
- External battery pack
- Taut-line mooring frame
- Bottom frame
- Tilt pinger for use with bottom frame
- Deployment and recovery services

ACOUSTIC PERFORMANCE OF THE ACOUSTIC WATER COLUMN PROFILER

Frequency (kHz)	Nominal Target size (mm)	Nominal Beam angle (-3 dB) $\pm 1^\circ$	Nominal Source Level (ref 1 mPa @ 1m)	Estimated limits of detectable volume backscatter strength (dB)				
				20m	50m	100m	200m	300m
38				Expected 2010				
70				Expected 2010				
125	20	8	205	-	-81 to -27	-72 to -26	-59 to -27	-52 to -27
200	16	8	213	-103 to -39	-83 to -31	-73 to -30	-57 to -27	-44 to -32
460	6	8	206	-91 to -35	-65 to -29	-48 to -31	-17 to -5	-
775	2	8	205	-77 to -37	-53 to -36	-	-	-

NOTES

- Sidelobes are -17 dB or better
- Limits of detectable volume strength are estimates to within +/- 3 to 4 dB
- Four selectable gain settings allow the user to vary the overall system gain in approx. 6 dB increments
- The time-varying gain range is 80 dB
- The above specifications are subject to change without prior notice