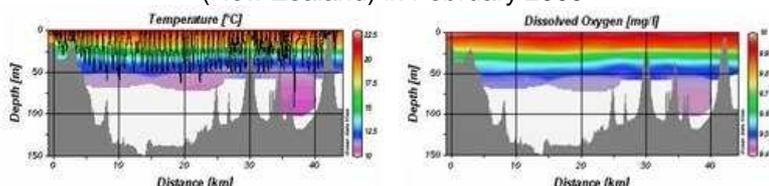




# BIO – FISH



Profiles performed by the University of Waikato in the lake Taupo (New Zealand) in February 2005



## DATA TRANSMISSION

The **BIO - FISH** system works only in direct reading mode, a single-core sea-cable with a diameter of approx. 3,2 mm is required.

Data transmission is ensured via the single-core sea-cable, additional analogue devices can be connected to the **BIO-FISH** probe (please inquire).

Data transmission mode is RS-232 signals (telemetry) via sea-cable to the Remote Control Box and RS-232 to the PC. An original ADM probe is recommended to have all the facilities of the **ADM - SDA** software for navigation.

The **ADM "BIO - FISH"** is an extremely light-weight, multiparameter system designed for performing fast, complete data collection surveys in estuaries, lakes, rivers, and coastal areas. It is automated to an extent that it can be used by personnel without special training in measurements and data processing.

The complete system consists of:

- The **BIO - FISH** tow body, up to fifteen physical, chemical and biological sensors.
- An electronics data acquisition and command module.
- A conductor cable, a small hand winch with slip-rings, a laptop computer with RS-232 I/O and the necessary data collection and calibration software.
- A GPS navigation system and a depth sounder are integrated in the computer steering of the **BIO - FISH** to follow an undulating survey course along with bottom avoidance.

Performance of the system:

The **BIO - FISH**, weighing approx. 20 kg, can be handled in the field by a single person.

The max. depth capability is 60 m at 3 knots.

Customs designs for deeper performance and specialised sensors are offered. The customer should detail the requirements and review them with ADM engineers in advance of any proposal effort.

Tow speed should be matched to the sensors but can be as high as 5 knots. Most field surveys are performed at an average of 3 knots. The system is also designed for use in a vertical profiling mode while maintaining station. The sensors are positioned on the **BIO - FISH** to insure free flow condition.

The readings are not materially affected by motion through the water column.

Options: Other devices can be fitted additionally.

## DATA ACQUISITION SOFTWARE

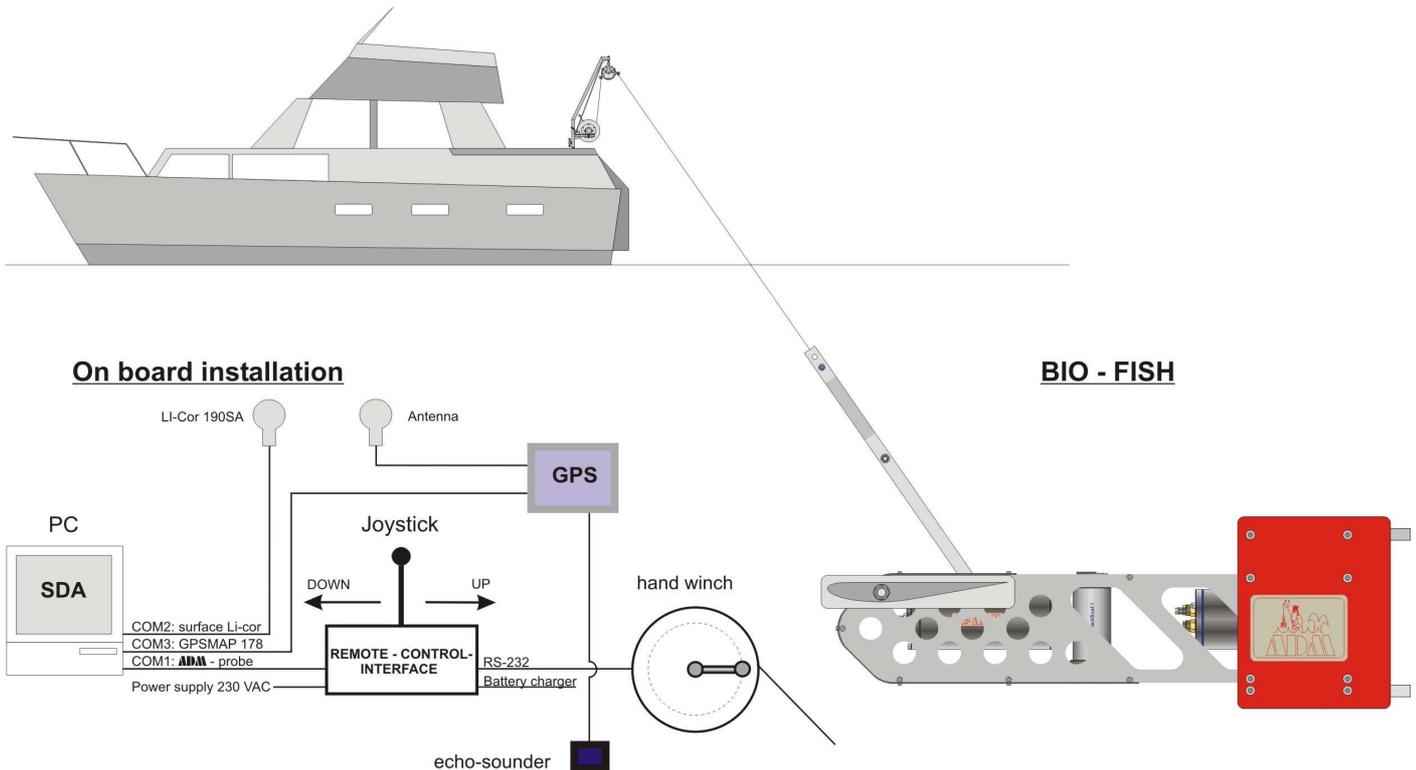
The **Standard Data Acquisition** package (**ADM - SDA**) is Windows® software which comprises acquisition of data, evaluation, graphic display (real time), storage, and output of data to printers and other peripheral devices.

The **ADM - SDA** is menu-driven, controlling the probe functioning and all data output.

The data is changed to engineering values and can be imported into analyses programs such as spread-sheets.

**System description: see next page**

## Example of a BIO - FISH System Configuration



### Sensor data

sensor	principle	measuring range	accuracy	resolution	response time
temperature	Pt 100	-2 ÷ 38 °C	± 0,01 °C	0,001 ° C	120 ms
pressure	piezo-resistive	0 ÷ 100 dbar	± 0,1 dbar	0,01 dbar	40 ms
conductivity	7-pole cell	0 ÷ 60 mS/cm or 0 ÷ 4 mS/cm	± 10 µS/cm ± 2 µS/cm	1 µS/cm 0,1 µS/cm	50 ms 50 ms
oxygen I or optional	amperometric	0 ÷ 150 % sat.	± 2 % sat.	0,02 % sat.	3 s (63 %) 10 s (95 %)
oxygen II (fast response)	galvanic	0 ÷ 200 % sat.	± 2 % sat.	0,02 % sat.	≥ 250 ms (100 %)
pH (H <sub>2</sub> S resistant)	potentiometry	4 ÷ 10 pH	± 0,02 pH	0,02 pH	< 10 s
Redox	potentiometry	± 2 V	± 2,0 mV	0,1 mV	< 10 s
H <sub>2</sub> S	amperometric	3, 10 or 50 mg/l	< 3 % f.s.	0,001; 0,03; 0,1 mg/l	< 3 s (100 %)
turbidity	light source: 880 nm	0 ÷ 750 FTU	< ± 2 %	0,02 FTU	< 1 s

### Main features

- Versatile portable system \*
- Maximal undulating depth is 60 m at 3 knots
- Undulating range in automatic mode: 8 to 40 m
- Navigation speed range is 3 to 5 knots
- GPS and echo-sounder equipment for navigation
- Multi-channel probe with 16 bit resolution installed
- Low power consumption, 60W/230 VAC \*\*
- Baudrate 4800 bits/s, min. 4 scans/s
- Software ADM-SDA for navigation and data acquisition

\* only a small hand winch with slip-rings is required.

\*\* PC consumption not included.

\*\*\* Height and weight may vary depending on chosen options.

### Dimension

Length overall	: approx. 950 mm
Width overall	: approx. 700 mm
Height overall ***	: approx. 320 mm
Body width	: approx. 120 mm
Weight ***	: approx. 20,0 kg

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