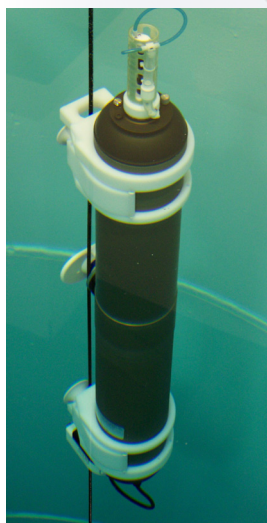




## Prawler

The Prawler (PProfiling crAWLER) is a wave-actuated vehicle that moves along the mooring wire, collecting data from the water column. Wave motion and special ratcheting clamps move the vehicle up the wire. Prawler collects measurements while falling to the bottom of the user-programmed profiling range. Minimal wave action needed for movement. Suitable for the energetic ocean to low-wave freshwater lakes and reservoirs. Depth range: Surface to 500m.

- ❖ Minimum operating temperature: -2° C water.
- ❖ Available sensors: Sea-Bird CTD, Sea-Bird Optical backscatter, Aanderaa Optode DOX.
- ❖ Profiling: Wave-actuated (sensors powered by lithium primary batteries).



## Ice Tethered Profiler

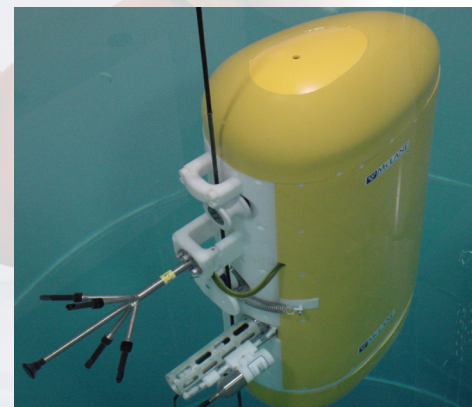
The Ice Tethered Profiler (ITP) vertically travels along a fixed mooring wire at 25cm/sec. Suited for (but not limited to) water column sampling under the ice, data collection in lakes and shelves, and coastal oceans studies. Narrow anodized aluminum housing fits through a bore-hole. The ITP transmits near real-time via inductive modem when connected to a customer-supplied surface controller. Depth range\*: 30m-1000m (open ocean or lake), 5m-1000m (ice floe).

- ❖ Minimum operating temperature: -2° C water.
- ❖ Available sensors: CTD, dissolved oxygen, PAR, optical backscatter (other sensors can be integrated).
- ❖ Options: 360Ah battery for 50% more battery capacity, motor speeds of 10cm/sec or 33cm/sec, mooring bumpers for top and bottom profile limits.

## McLane Moored Profiler

The McLane Moored Profiler (MMP) vertically profiles at 25cm/sec along the water column carrying an array of sensors. User sets profiling depths, time intervals, and pressure stops. Profiling patterns can span seasons or timeframes. Extended MMP model has 50% more battery capacity. Depth range\*: 30m - 6,000m.

- ❖ Minimum operating temperature: -2° C water.
- ❖ Available sensors: CTD, fluorometry, dissolved oxygen, PAR, optical backscatter, turbidity, CO<sub>2</sub> methane, and nutrients (other sensors can be integrated).
- ❖ Options: Inductive communications (customer supplies surface buoy), motor speeds of 10cm/sec or 33cm/sec, mooring bumpers.



\* Depth ranges are based on application and mooring. Contact [mclane@mclanelabs.com](mailto:mclane@mclanelabs.com) for details.





## Sediment Trap

The Parflux Sediment Trap collects the export flux of settling particles from oceans and lakes. The wide collection funnel features a hexagonal grid top. The Sediment Trap stores samples in individual sample bottles. Sampling is pre-programmed or adaptively triggered from an on-shore device.

- ❖ Maximum depth: 7,000m (10,000m deep model available).
- ❖ Number of samples: 13 or 21 of 250mL or 500mL.
- ❖ Models: Standard models collect 13 or 21 samples, the Mk8-13 model is half the size of standard models and collects 13 samples of 250mL or 500mL.
- ❖ Options: Wet Sample Divider (WSD-10) to split wet samples, Ethernet communication, tilt sensor, and pressure sensor.



## Remote Access Sampler

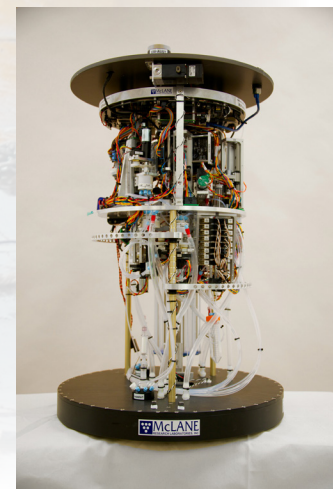
The Remote Access Sampler (RAS) collects individual 100mL or 500mL water samples in clear or opaque sample bags. Samples are suited for conducting biological, dissolved major and minor nutrient studies, and dissolved trace metal analyses. User-defined settings control sample collection time, and volume of collected samples. User-defined biofouling acid flush is available.

- ❖ Maximum depth: 5,500m.
- ❖ Number of samples: 48.
- ❖ Models: RAS-500 collects up to 48 individual samples of 500mL each, RAS-100 collects up to 48 individual samples of 100mL each.
- ❖ Options: 47mm filter holder on each sample (25mm filter holder for each RAS-100 sample), heavy duty frame for energetic environments.

## Environmental Sample Processor

The Environmental Sample Processor (ESP) is an in situ laboratory that collects and concentrates microorganisms or particulates from discrete water samples and automates the application of molecular probes to identify target species or toxins. Samples are collected onto 25mm membrane filters within multi-purpose reaction chambers called pucks. Analytical (array) pucks contain printed DNA or protein-based arrays designed to react only to specific rRNA or toxin targets. When the homogenized sample is exposed to the array, a chemiluminescent pattern develops which describes the detection and enumeration of multiple targets or toxins. The array is then imaged on-board with those images available for remote retrieval and analysis.

- ❖ Maximum depth: 50m with optional pressure housing.
- ❖ Number of samples: 44 (33 with archival sample); 132 puck capacity.
- ❖ Options: Platform is customizable to run secondary analytical modules.



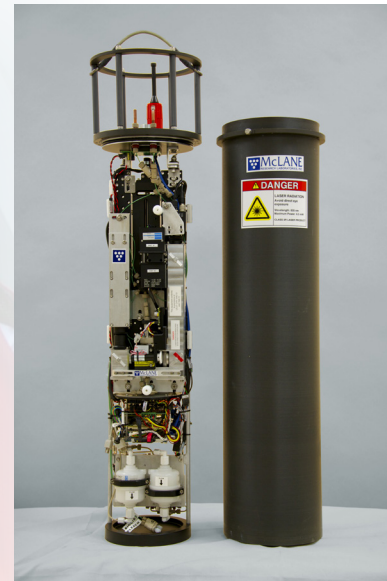




## Imaging FlowCytobot

The Imaging FlowCytobot (IFCB), is an automated submersible microscope that uses a combination of flow cytometric and video technology to capture high resolution (~ 3.4 pixels/micron) images and optical data of suspended particles in-flow, from the aquatic environment. IFCB images can be used to classify organisms to the genus or species level with accuracy comparable to that of human experts, which makes the IFCB well suited to phytoplankton monitoring programs.

- ❖ Maximum depth: 40m.
- ❖ Sample rate: 15mL/hr. Generates up to 30,000 high resolution images per hour (target population dependent). Continuous sampling for up to 6 months.
- ❖ Laser-induced fluorescence and light scattering from individual particles are measured and used to trigger targeted image acquisition. Automated or interactive image collection schedule.
- ❖ Remote optical and image data in near real time. Antifouling and periodic standard analysis maintains sampler performance in-situ.



## Filtered Water Samples

The **Phytoplankton Sampler** (PPS) collects filtered individual in-situ particulate water samples onto 47mm filter media. Samples can be analyzed for trace metals, phytoplankton, and suspended particles. An in-line filtered water flush port protects the pump from large particle interference. Flow rates of 50-125mL/min or 100-250mL/min.

- ❖ Maximum depth: 5,500m. Number of samples: 24.
- ❖ Sample collected upstream of pump.
- ❖ Options: Fixative valve floods each filter holder with fixative after a sample is collected, antifouling solution reservoir can supply a post-sample flush with antifouling fluid to prevent biofouling between sample events.

The **Large Volume Water Transfer System** (WTS-LV) collects a single suspended particulate sample in situ onto 142mm filter media. Flow rates and filter porosity support a range of specimen collection needs. Up to 45,000L of water can be pumped and filtered (high capacity model).

- ❖ Maximum depth: 5,500m (Standard and Bore Hole), 5,000m (Dual Filter and High Capacity) All models have 7,000m option. Number of samples: Single event sampler.
- ❖ Models: Standard system, Dual Filter (separately metered, modular 142mm vertical intake filter holders for parallel filtration), High Capacity (30Ah high capacity battery for 3 times the battery power), Bore Hole (configured to fit through a 30cm hole in the ice).
- ❖ Options: 4L/min, 8L/min or 30L/min pump heads, 3-tier filter holder for an additional level of pre-filtering, 293mm filter holder, trigger start (time synchronizes multiple samplers) and vertical intake filter holder.



Above: Phytoplankton Sampler (top) and WTS-LV Dual Filter Sampler



# Profilers Samplers Flotation



## Glass Flotation

Deep ocean-rated 12" borosilicate glass spheres are protected in polyethylene protective hardhats. Multiple units are available in modular, through-center systems connected by a center rod to provide compact buoyancy and eliminate cable twist. All glass flotation modules are depth-rated to 6,000m.

- ❖ G2200 (one 12" glass sphere with hardhat)  
Buoyancy: 22lb (10kg).
- ❖ G6600 (three 12" glass spheres with hardhat)  
Buoyancy: 66lb (30kg).
- ❖ G8800 (four 12" glass spheres with hardhat)  
Buoyancy: 88lb (40kg).



## Steel Flotation

Steel subsurface flotation has heavy steel construction and a durable finish to withstand the harsh ocean environment and strenuous deployment procedures. Customizations include sensor mounts such as ADCP, channel mounts, flanges, buoys with wells, and tubes. Rugged internal tension member allows in-line placement in a high-tension mooring. All steel buoys are depth-rated to 380m.

- ❖ S0369 (30in, 76cm) Buoyancy: 369lb (168kg).
- ❖ S0726 (37in, 94cm) Buoyancy: 700lb (318kg).

## Instrument Housing

Custom instrument housing service provides vessels tailored to individual project needs. Lightweight, strong, and corrosion-resistant housings are built using the 12" glass sphere and are ideal for holding electronics, batteries, antennae, navigation devices, and custom sensors.

- ❖ Each 12" borosilicate glass instrument housing is individually tested to customer-specified depth up to 4,000m.
- ❖ Electrical penetrator holes or pressure feed-throughs are precisely drilled to customer specifications. Vacuum release ports can be installed for opening and re-sealing housings.
- ❖ Can be deployed as part of a custom instrument or in-line from a mooring in protective polyethylene hardhats.

