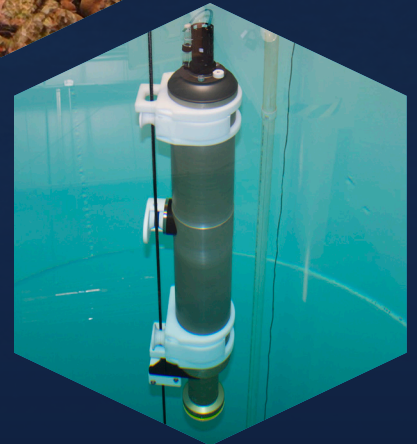
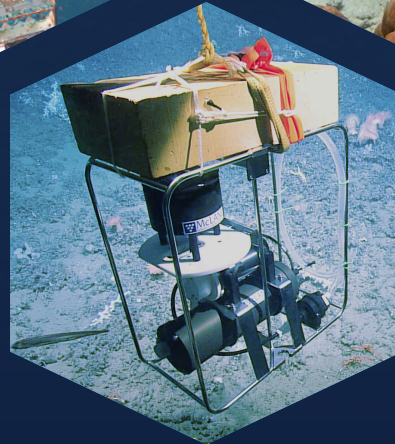
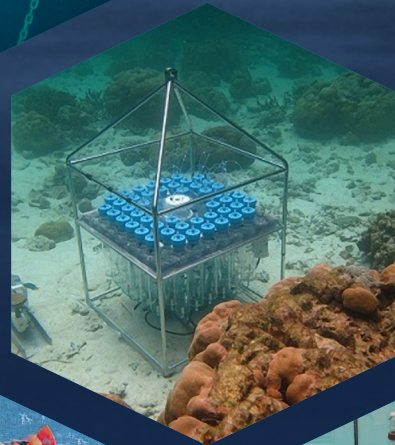
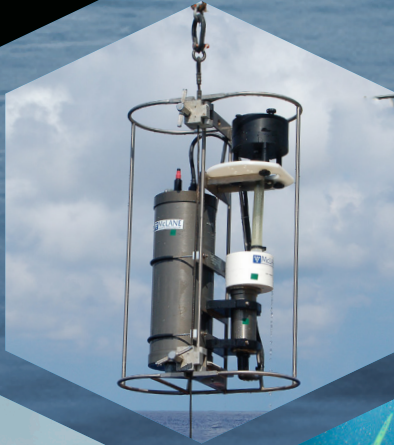
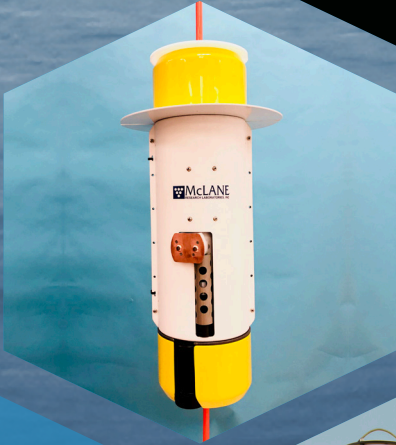
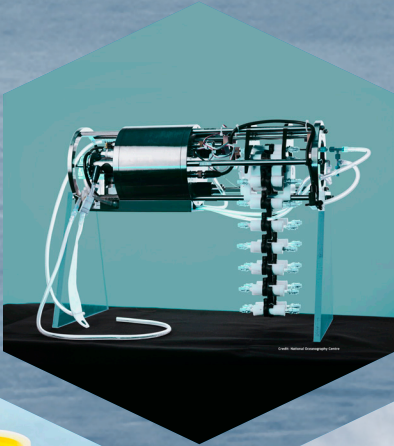




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RESEARCH LABORATORIES, INC.

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# Sediment Trap

The **Parflux Sediment Trap** collects the export flux of settling particles from oceans and lakes in individually sealed bottles. Sampling is pre-programmed or adaptively triggered from an on-shore device.

- ❖ Maximum depth: 7,000 m (10,000 m deep model available).
- ❖ Number of samples: 13 or 21 samples of 250 mL or 500 mL.
- ❖ Models: Standard models collect 13 or 21 samples. 8-13 model (small cone) collects 13 samples of 250 mL or 500 mL.

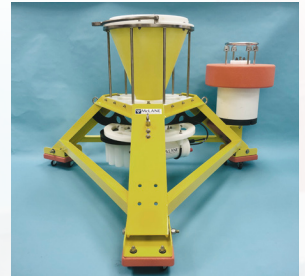
The **Signal Activated Bottom Lander (SABL)** Sediment Trap is a low-profile sediment sampler based on the flagship McLane Parflux Sediment Trap with remotely started and terminated sample collection to target specific events. SABL also allows programmed time-series calendar event deployments.

- ❖ Maximum depth: 400 m (deep model available).
- ❖ Number of samples: up to 13 samples of 250 mL.
- ❖ Options: Ethernet communication, and pressure sensor.

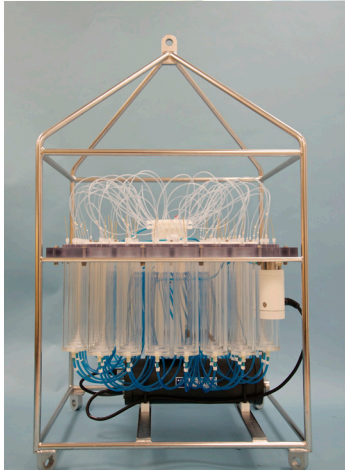
**Wet Sample Divider (WSD)**, available for all Sediment Trap models, splits wet samples into five or ten equal parts.



Standard Sediment Trap, Small Cone Sediment Trap



SABL Sediment Trap



## Remote Access Sampler

The **Remote Access Sampler (RAS)** collects individual 100 mL or 500 mL water samples in clear or opaque bags. Samples are suited for biological, dissolved major and minor nutrient studies, and dissolved trace metal analyses. User sets sample collection and volume. Programmable biofouling acid flush, and optional Fixative Flush available. Fixative floods and seals each sample bag with reagent solution after user specified incubation time.

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



## Large Volume Water Transfer System

The **Large Volume Water Transfer System (WTS-LV)** collects a single suspended particulate sample in-situ onto 142 mm filter media. Flow rate of 1-8 L/min, and varied filter porosity support a range of specimen collection needs. Up to 45,000 L of water can be pumped and filtered (high capacity model). Multiple samplers can be synchronized with trigger start.

- ❖ Maximum depth: 5,500 m (Standard and Bore Hole), 5,000 m (Dual Filter and High Capacity) All models have 7,000 m option. Number of samples: Single event sampler.
- ❖ Models: Standard, Dual Filter (separately metered, modular 142 mm vertical intake filter holders for parallel filtration), High Capacity (3x more battery power, Bore Hole (configured to fit through a 30 cm hole).
- ❖ Options: 30 L/min pump head, 3-tier filter holder for an additional level of pre-filtering, 293 mm filter holder, and vertical intake filter holder.

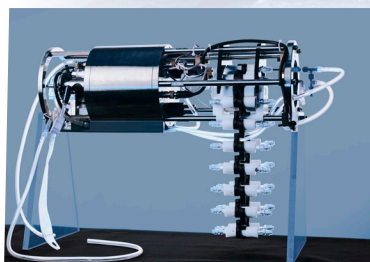




## Imaging FlowCytobot

The **Imaging FlowCytobot** (IFCB), is an automated submersible microscope that uses a combination of flow cytometric and video technology to capture high resolution ( $\sim 2.7$  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: 40 m.
- ❖ Sample rate: 15 mL/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.



## Robotic Cartridge Sampling Instrument (RoCSI)

The **Robotic Cartridge Sampling Instrument** (RoCSI) is an autonomous in-situ sampler that collects and preserves water samples into industry standard 0.22 and 0.45 micron Sterivex™ filter cartridges for later eDNA analysis. Compact size and user-defined sample capacity make the RoCSI ideal for vehicle integration, long-term mooring systems, buoy mounts, bottom landers and ship-board applications. Automated in-line sample intake flush reduces cross contamination.

- ❖ Maximum depth: 6000 m. Number of samples: 12, 24, or 48.
- ❖ Collects samples into industry standard 0.22 and 0.45 micron Sterivex™ filter cartridges.
- ❖ Uses common industry preservatives such as RNAlater™.
- ❖ Options: Lithium primary battery and moored frame.



## Phytoplankton & Particle Sampler

The **Phytoplankton & Particle Sampler** (PPS) collects filtered individual in-situ particulate water samples onto 47 mm 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 50-125 mL/min or 100-250 mL/min.

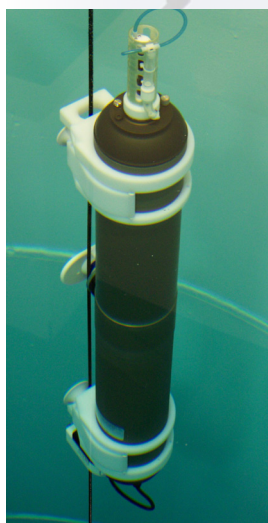
- ❖ Maximum depth: 5,500 m. Number of samples: 24.
- ❖ Sample collected upstream of pump.
- ❖ Options: Fixative valve allows flooding of each filter holder with fixative after a sample is collected, antifouling solution reservoir can supply a post-sample flush with antifouling fluid to prevent biofouling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



## Prawler

The **Prawler** (P<sup>R</sup>ofiling 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 500 m.

- ❖ 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

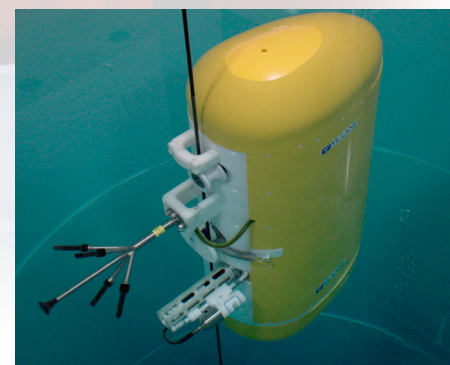
The **Ice Tethered Profiler** (ITP) vertically travels along a fixed mooring wire at 25 cm/sec. Suited for (but not limited to) water column sampling under the ice, data collection in lakes and shelves, and coastal ocean studies. Narrow anodized aluminum housing fits through a bore-hole. The ITP transmits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

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

## McLane Moored Profiler

The **McLane Moored Profiler** (MMP) vertically profiles at 25 cm/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 shorter time frames. Extended MMP model has 50% more battery capacity. Depth range\*: 30 m - 6,000 m.

- ❖ 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 10 cm/sec or 33 cm/sec, mooring bumpers.



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