

MOCNESS

Multiple Opening/Closing Net and Environmental Sensing System

DESCRIPTION

The *MOCNESS* family of towed collecting systems is designed for the reliable shallow and mid-water capture of zooplankton and micro-nekton. *MOCNESS* offers multiple net/bucket sub-systems which open and close under command of the deck unit, and a full array of sensors tracks seven or more environmental variables during the course of the tow. *MOCNESS* is complete, including frame, net/bucket sample collection sub-systems, underwater electronics package, environmental and net monitoring sensors, and deck unit.



Figure 1.

FEATURES

- Up to 20 samples nets per tow
- Full net control from deck unit/computer
- Continuous environmental sensing during tow.
- RS-2322 interface standard for computer control and real-time data acquisition and analysis.
- Interchangeable components.

OPERATION

MOCNESS is based on the Tucker Trawl principle. Up to twenty net/bucket sub-systems are attached to

a hard-coat anodized aluminum frame which is towed at a speed of ~2 knots and at an angle of 45°. When *MOCNESS* is deployed, each net is sequentially open and closed via the deck unit or, optionally, by computer. Every two seconds during operation, sensors sample temperature, depth, conductivity, frame angle, flow counts, net number, and net response.

Sensor data and elapsed time are sent to the deck unit and, if desired, to an attached computer, printer, or plotter, as well as to a cassette backup.

ELECTRONIC SYSTEM

The *MOCNESS* electronic system consists of two major components, the underwater electronics package and the deck unit.



Figure 2.

The rechargeable battery-powered underwater unit mounts on top of the net frame and connects to several sub-assemblies, including the net opening controls and environmental sensors.

The deck unit connects to the underwater unit via a single conductor cable with ground return. The deck unit displays sensors variables and provides a panel control that allows the operator to change the net open/close configuration.

Reliable shallow and mid-water capture of zooplankton and micronekton. *MOCNESS* offers multiple net/bucket sub systems which open and close under command of the deck unit, while a full array of sensors simultaneously track seven or more environmental variables during the course of the tow. *MOCNESS* is complete, including frame, net/bucket sample collection systems, underwater electronics package, environmental and net monitoring sensors, and deck unit.

Ship-time is harder to schedule and far more costly with each passing year. At the same time, budgets are not keeping pace with these costs. It is critical that equipment fulfill all necessary functions simultaneously and that the same equipment also operate reliably. *MOCNESS* meets these requirements. *MOCNESS* units by Biological Environmental Sampling Systems provide reliable biological sampling with simultaneous environmental data collection.

Since the first unit was shipped in 1937, BESS *MOCNESS* units have operated with excellent reliability.



Figure 3.
The Double MOCNESS