



# Scientific Equipment

On board Sailing School Vessels *Corwith Cramer* and *Robert C. Seamans*  
Operated by Sea Education Association, Woods Hole, MA, USA



Carousel



Water sampling



Neuston net



Plankton net

## Winches

Markey DESF-4 Hydrographic Winch with 3000-5000m 1/4" 3x19 wire rope  
Markey DEBT-3 Auxiliary "enhanced BT" Winch with 1/8" wire rope  
Bathythermograph Winches with 1/8" wire rope  
Hydraulic j-frames  
Rugged Controls sheave, LCI-90i display (CC)  
Dynacon sheave, LCI-90 display (RCS)

## Bathymetric Instrumentation

Knudsen Model 3260 Chirp sub-bottom profiling system, 2-7 kHz

## Physical/Chemical Equipment & Instrumentation

Water sampling Carousel SBE 32SC with:

- Seabird Electronics (SBE) 90208 Auto Fire Module
- SBE "SeaCAT" Conductivity, Temperature and Depth (CTD) Profiler
- Biospherical PAR sensor
- Sea Point in-vivo chlorophyll-a Fluorometer
- Wetlabs CDOM Fluorometer and Transmissometer
- SBE-43 oxygen sensor
- 12 x 2.5-L Niskin Water Sampling Bottles

Acoustic Doppler Current Profiler (RDI Ocean Surveyor 75kHz)

Octans fiber optic gyro-compass (CC); Ashtech ADU-5 (RCS)

RBR XR420 towed CTD

YSI-30 and YSI-85 handheld meters

Orion 3-star benchtop pH meter

Ocean Optics Flame spectrophotometers with DH-mini light sources

Secchi Disk

Star-Oddi centi-TD (temperature/depth) loggers for depth readings on towed net deployments

Full complement of wet-chemical capability (e.g., column reductions, filtration)

## Biological Sampling Equipment

Aquabotix Hydroview ROV (200ft rating, color cameras and HD video)

Turner Designs Model 10-AU Benchtop Fluorometers

Sea-Gear 200, 335, 1000  $\mu$ m mesh Plankton nets

Sea-Gear 335  $\mu$ m mesh Neuston nets (1m wide by 0.5m high)

Sea-Gear 63  $\mu$ m Phytoplankton nets

Tucker Trawl multiple opening/closing net

McLane Large Volume Water Transfer System (WTS-LV) (CC)

Phantom 3 Pro UAV Quadcopter for aerial observations



Shipek sediment grab



Zeiss microscope



DNA gel

## Geological Sampling Equipment

Shipek Sediment Grab  
Gravity Corer

## Microscopes

Zeiss Stemi 305 stereo dissecting microscopes  
Zeiss Axiolab A1 LED fluorescence microscopes  
Zeiss Axiocam microscope camera for digital photomicrographics

## Datalogging

Underway clean-flowing seawater system with SBE-45 thermosalinograph, in-vivo chlorophyll and CDOM fluorometer, and transmissometer. System logs surface seawater salinity, temperature, in-vivo chlorophyll fluorescence, beam attenuation, CDOM fluorescence, as well as GPS position once per minute while underway.

## Computers / Network

HP rp5700 (Windows 7; 2-4GB RAM) and Intel NUCi3 solid-state (Windows 10; 8GB RAM) Desktops for scientific instruments as well as shipboard navigation and communication equipment, SCS for data acquisition and logging, LAN and wireless network, Synology RS816 rack station network storage device, automatic data backup, student library with HP rp5700 Desktops, Intel I-NUC solid-state computer, printers, and Dell and Lenovo laptops.

## Other

Laboratory equipment (centrifuges, adjustable micropipettes, etc.), Milli-Q DirectQ3, aquaria, PAR reference sensor, hydrophone and recorder, PCR thermocycler, electrophoresis gel rig



Laboratory aboard SSV *Robert C. Seamans*  
photo: Tane Sinclair-Taylor