

ON&T

oceannews.com



GeoSpectrum.ca

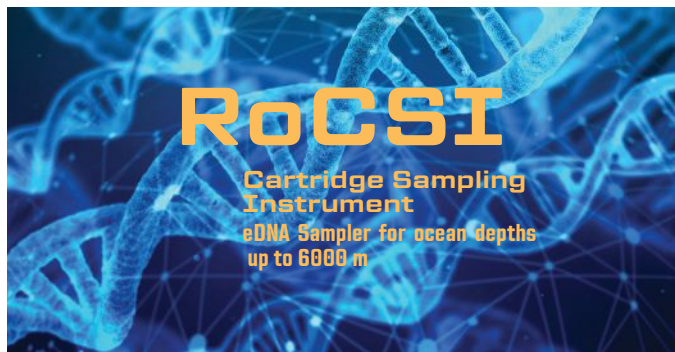
AUGUST 2023

OCEAN OBSERVATION, DATA, & COMMUNICATIONS

BRINGING eDNA SAMPLING TECHNOLOGY TO MARKET

McLANE[®]
RESEARCH LABORATORIES, INC.

**National
Oceanography
Centre**



A new automated technology, the Robotic Cartridge Sampling Instrument (RoCSI) performs autonomous, high-count, in situ sample collection up to 6,000 m that allows resulting environmental DNA (eDNA) studies to characterize biological communities with high sensitivity and species-level accuracy without disturbing organisms in the environment.

RoCSI is designed for high capacity, fine porosity sampling with the ability to continuously sample, depending on space in the vehicle. Specimens are preserved in situ in Sterivex™ filters with porosity ranging from 0.22 to 0.45 µm. Water samples are collected and then biologically preserved with a user-specified fixative. Optional in-line bleach flushing cleans the sample intake, reducing cross contamination.

BROADENING BIODIVERSITY STUDIES

eDNA has rapidly become a critical component of marine biodiversity studies. Using eDNA samples, biologists, and oceanographers are increasing the scope of biodiversity studies and acquiring more data about the structure and dynamics of marine ecosystems and their ecological processes.

With automated eDNA collection instruments such as the RoCSI, factors that characterize biological communities can be examined. These factors encompass geographic conditions, seasons, climate responses, and collection depth. Facilitating genetic observations in varying conditions has great potential to improve baseline data, especially in environments like the deep-sea.

SUCCESS IN THE FIELD

While the RoCSI is compact in size (15.5 kg (air); 10 kg (seawater)) the instrument is designed to operate as deep as 6,000 m and has been successfully deployed at over 4,900 m on the National Oceanography Centre (NOC) ROV Isis on the SMARTX JC241 cruise as well as at 3,400 m on AutoSub6000 during the iMirabilis expedition for EU Horizon 2020 project. RoCSI can be adapted to vehicle integration, long-term mooring systems, buoy mounts, bottom landers, and shipboard applications.

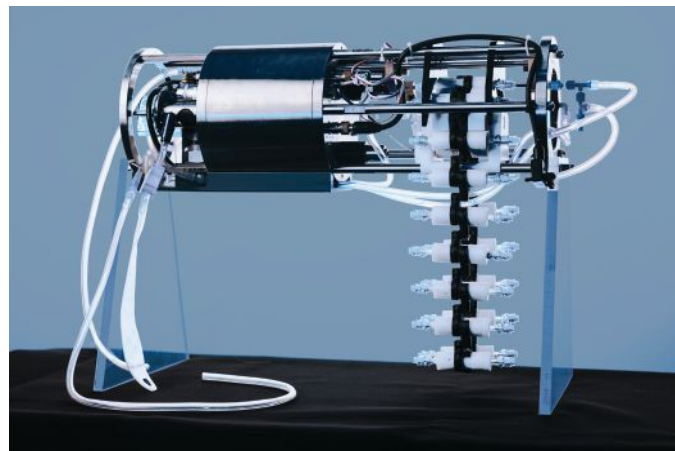
The field-proven RoCSI was developed by the NOC Innovations team in Southampton, UK. As part of a 2023 technology transfer partnership with McLane Research Laboratories, this innovative eDNA sampler is now being commercially manufactured and made available to the eDNA sampling community worldwide. McLane officially launches the RoCSI at OCEANS Gulf Coast this September 25–28 in Biloxi, MS.

"We are delighted to be working with McLane to ensure that RoCSI is made available to all in the field of eDNA sampling. I'm looking forward to seeing the impact that this technology development has in what is a truly exciting new area of environmental monitoring," said Philip Bishop, Head of Commercial Development, NOC.

"The RoCSI is an ideal complement to our sampler product line adding fine-porosity, high-resolution sampling to our capabilities," added McLane Research Laboratories CEO Yuki Honjo. "This innovative instrument will support researchers in the wide-ranging field of ocean eDNA."

McLane Research Laboratories manufactures time-series in situ oceanographic instrumentation for scientific deployments in the open ocean, and freshwater environments. For more information, visit: www.mclanelabs.com.

NOC Innovations Ltd is the trading subsidiary of the National Oceanography Centre and acts to build bridges between science and business. Their capabilities enable the transferring of cutting-edge technology and research to industry with the revenue generated being used to support their charitable mission. For more information, visit: www.noc-innovations.com.



» RoCSI is designed to operate to depths of 6,000 m and can be integrated into vehicles, long-term mooring systems, buoy mounts, and bottom landers. (Image credit: National Oceanography Centre)