Sensors, science and sampling: March 2020 expedition highlights

Submitted by Duncan Lowrie Wed, 2020-04-08 16:46

From 1-13 March, Natural Resources Canada and Ocean Networks Canada (ONC) embarked on the annual spring expedition aboard CCGS John P. Tully to maintain infrastructure at observatory sites in the southern Salish Sea and offshore locations at Folger Deep and Barkley Canyon.

These maintenance expeditions allow for a hands-on approach?remotely operated vehicle (ROVs) hands, that is?to ensure things are running smoothly on the underwater networks, to deploy new instruments, and to enable sampling for calibrations, ongoing studies, and experiments.

Led by ONC?s marine operations experts, the 18-member team of scientists, engineers, technicians, data specialists and Canadian Coast Guard crew were able to complete 52 out of 56 planned operations, resulting in a very successful mission.

New deployments included:

- a hydrophone at Folger Deep, now located away from the instrument platform and providing much higher quality data; and
- a hydrophone array in the Strait of Georgia that collects vital information on shipping, marine mammals, fish and other underwater noise in this busy Salish Sea waterway.
Expeditions at sea are the perfect opportunity to conduct sampling and make improvements to sensor calibration. Onboard sampling included:

- collecting CTD rosettes to measure temperature, salinity, and dissolved oxygen in the upper 600 metres of the water column;
- collecting sediment samples?using ONC-built sediment core samplers?to measure microplastics, benthic micro fauna, environmental DNA (eDNA), and ribonucleic acid (RNA), which provides insight into organism abundance and microbial activity; and
- conducting ROV video transects through the water column at Barkley Canyon and in Saanich Inlet?fs hypoxic zone to study the distribution of benthic organisms across the dissolved oxygen gradient.

There was an interesting pattern of species abundance along the Saanich Inlet transect that
can now be compared to previous years, when many animals were impacted by high temperatures and an expanded oxygen minimum zone,? says Joe Needoba, who supported the sampling onboard. ?A careful analysis of the 2020 transect will allow researchers to assess how the benthic animal community has recovered.?

The ONC, Natural Resources Canada and Canadian Coast Guard team recovers ROV Oceanic Explorer from the water after a dive.

Joe joined the ONC science team earlier this year as a senior staff scientist in biogeochemistry who specialises in primary production, with a focus on biological and chemical sensors, ocean acidification, hypoxia, plankton, and water column processes. Interested in doing research in these areas using ONC infrastructure or data? Reach out to Joe.

In preparation for two summer expeditions, ONC’s Marine Operations team is continuing
essential expedition-related preparatory work within a new, physically distanced environment at the Marine Technology Centre. Maintenance and installations are currently scheduled to take place onboard CCGS Tully June 1-16 and EV Nautilus in tandem with cable ship Cable Innovator, July 6-24. Highlights include extension cable replacements and deployments, repairing the Barkley Canyon node, and expanding instrumentation at the Endeavour Hydrothermal Vents site.

ONC continues to adapt to the evolving COVID-19 situation. During this extraordinary time, we will share impacts and updates to our science community through email, newsletters, and social media.

Related Stories:

Read about Jackson Chu’s ongoing research into how animals are responding to decreasing oxygen in the Northeast Pacific and the extent of habitat compression and hypoxia in Saanich Inlet from 2016

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