

DISCOVER THE OCEAN. UNDERSTAND THE PLANET.

OCEAN
NETWORKS
CANADA

Ocean observing Workshop Ocean networks Canada Barkley Node Trawl Event & Repair

Paul Macoun, ONC Field Operations Manager

3 January 2017

AN INITIATIVE OF  University
of Victoria

Overview

Problem (2015)

- ❑ TRF is rolled by a trawl wire, Node ejected
- ❑ Science and CTA cables under tension, likely damaged
- ❑ Loss of communications to the Node

Description (2015)

- ❑ Fibre in connector hose damaged (main communications)
- ❑ Fibre in science cables damaged
- ❑ CTA replaced, and spare Node deployed (outside TRF)
- ❑ Wet mate-able HV connector failed on power up
- ❑ TRF accidentally flipped and subsequently recovered, along with Barkley and Spare Nodes (May 2015)

Solution (2016)

- ❑ Removed HV connector from CTA/Node linkage and hard wired power into the Node
- ❑ Node foam pack removed and the CTA and Node “guts” were bolted to the TRF frame
- ❑ Deployment of the CTA/Node/TRF was done off the back deck of a cable ship with support from an ROV on a different vessel

Lessons

- ❑ Need to remain engaged with the fishing community
- ❑ HV connectors from original installation not reliable
- ❑ Node locks would have prevented bulk of the damage
- ❑ Cable ship is a viable platform for Node repairs

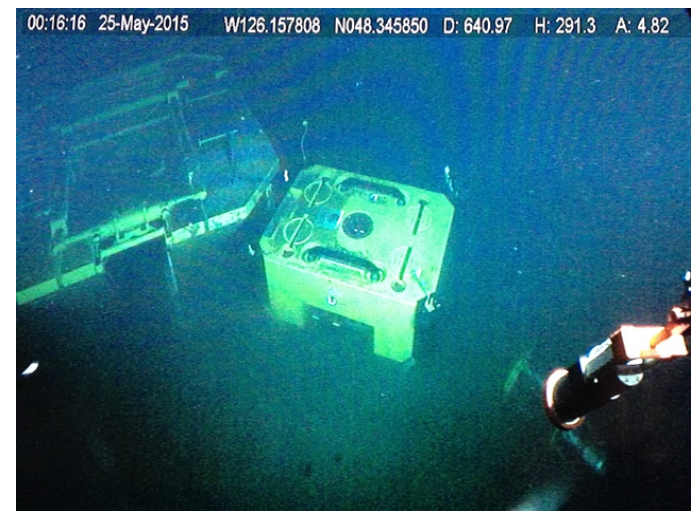
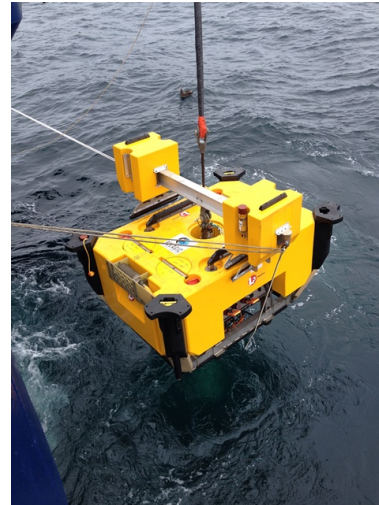
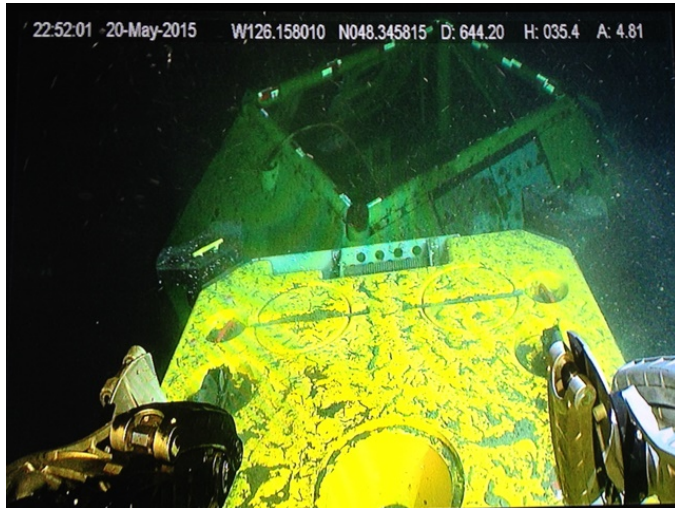
Problem: Dislodged Node & Damaged cables (Jan. 12, 2015)

The Node hanging out of the TRF, all weight (~700 lbs) hanging on the science and communications cables

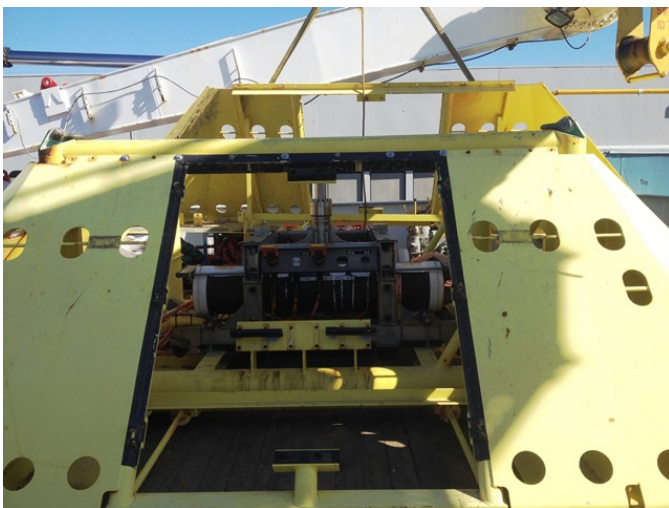
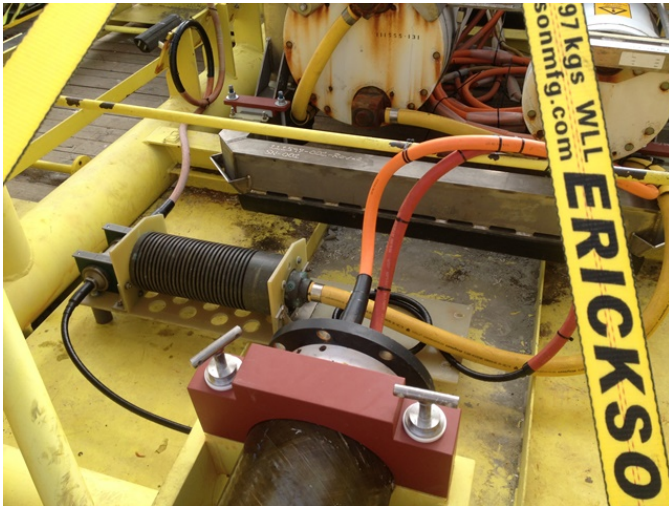
The Node after being repositioned to the top of the TRF by the ROV, just prior to unplugging of connectors



Description: Repair Operation (May 2015)



Solution: The Barkley Node, Re-configured



Barkley Node - New configuration

- Spare Node used (tested after connector failure)
- No HV connector, hardwired between CTA and MVC
- Optical connector retained
- Foam pack removed, overall weight reduced by 5000+ lbs
- Node bolted directly to the TRF frame
- Deployed off a cable ship, after CTA cable end terminated to cable on the seabed

Lessons Learned, Best Practice

- Reduce risk by remaining engaged with the fishing community re: locations
- HV connectors from original installation not reliable and should be phased out
- Assumptions about what is possible to be revisited - Node locks would have prevented bulk of the damage
- A cable ship is a viable platform for Node repairs
- Simple is better

