



Industry Days 2018

Remotely Operated Vehicles Capabilities

NAVAL UNDERSEA WARFARE CENTER
DIVISION, KEYPORT

May 16, 2018

Mr. Dirk Schmitz

Range Systems In-Service Engineer

Mr. Mark Moody

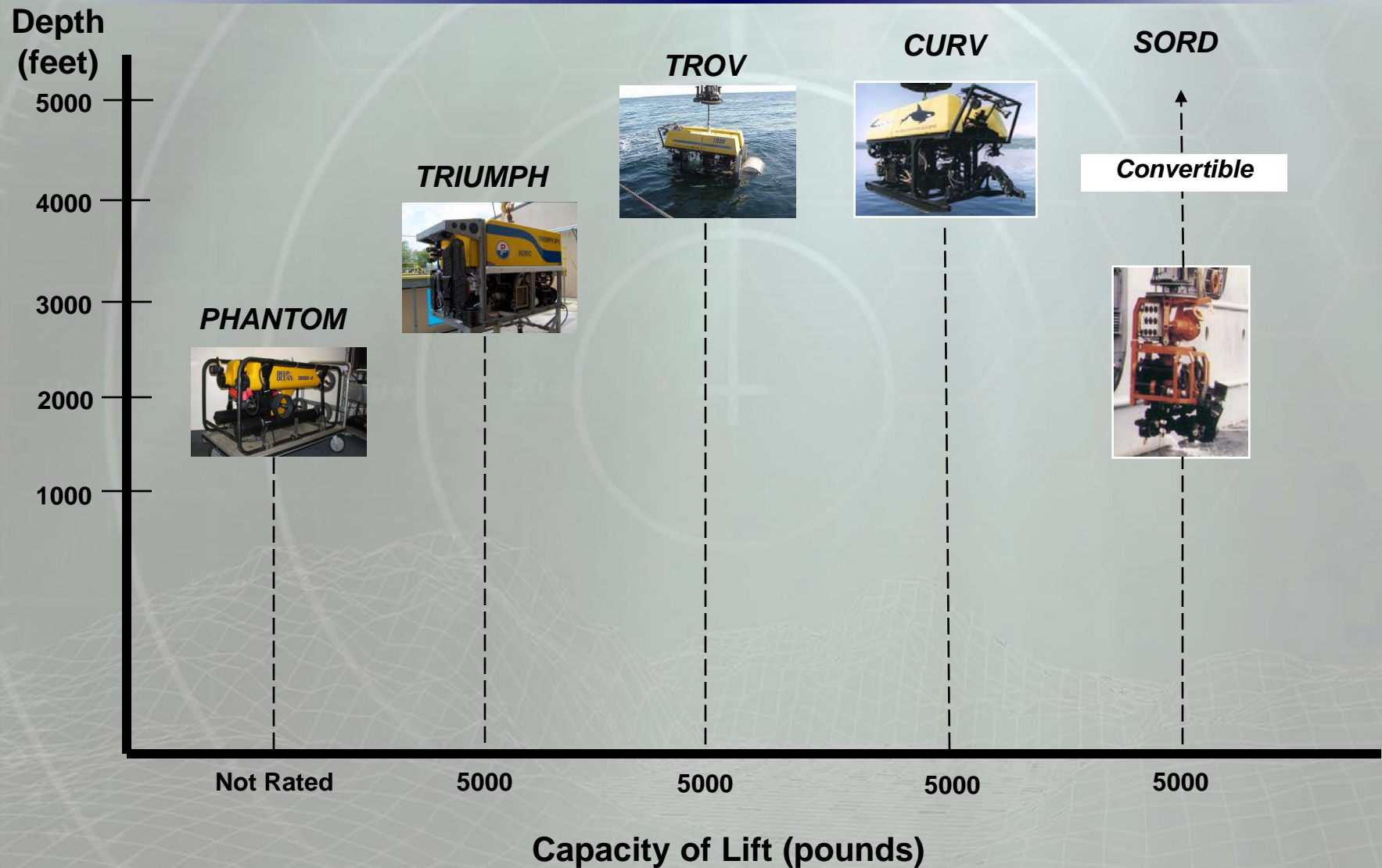
Electronics Lead

Mr. Clay McCandless

ROV Lead

Distribution Statement A: Approved for Public Release; Distribution is unlimited. NUWC Division, Keyport #15_002.

Recovery Vehicles



Triumph Special Purpose Vehicle (SPV)

SPV Specs

- Fly-away capable
- Crew – 5
- 3250 foot depth
- Wash-out capable
- 75 HP hydraulics

On Board Systems

- Dual manipulators
 - 7 function spatially correspondent
 - 5 function Kodiak Rate Arm
- SONAR
 - Long range continuous transmission frequency modulated (CTFM) with pinger locating capability from 20k-50kHz.
 - DIDSON and Tritech high resolution imaging sonars
- Cameras – lights
- Vehicle tracking system
- QINSy navigation and processing
- Customer-defined systems



SPV Control Console



Cable-Controlled Underwater Recovery Vehicle (CURV)/ Tethered Remotely Operated Vehicle (TROV) Characteristics

Specs

- Crew - 3 People
- Depth 4100 - 4400 feet
- 40 HP hydraulics
- Washout capable

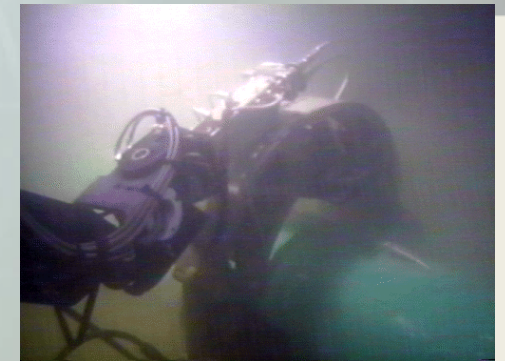
On Board Systems

- Manipulators
- SONAR
 - Long range CTFM with pinger locating capability from 20k-50kHz
 - Tritech high resolution imaging
- Cameras – lights
- Vehicle tracking system
- Customer-defined systems

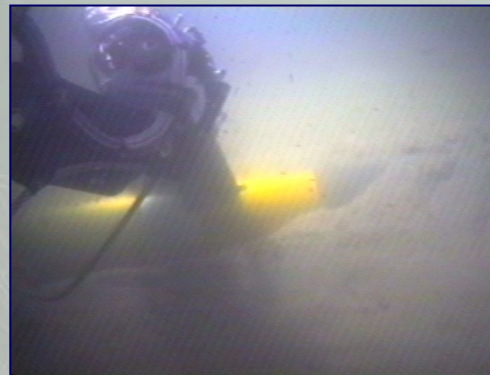
CURV/TROV deployed from YTTs



CURV recovering Unmanned Underwater Vehicle (UUV)



Recovery claw and torpedo



Partially buried torpedo



YTT range craft

Submerged Object Recovery Device (SORD)

SORD IV Specs

- Burial depths to 35 feet
- Depth 4,400 feet
- Weight 8,300 lbs.
- 5,000 lbs. direct lift
- Deployed from YTT, stabilized via kedge wires to mooring buoys

On Board Systems

- Wash-out pump
- Manipulators (2)
- SONAR (for finding units in mud)
- Long range sensors with pinger locating capability
- Cameras - lights



Operational Capabilities

- **Search and recovery of lost ordnance**
 - **21", 13", and 6" claws and ability to snare any diameter vehicle**
 - **Direct or indirect lift of mines or UUVs**
- **Perform aircraft and vessel salvage**
- **Subsea video surveys of objects and points of interest.**
- **Ability to cut cables: hydraulic cutter, up to 1.5"; hydraulic circular saw, 10" abrasive blade**
- **Deployment of undersea sensors and equipment**
- **Bottom sampling**
- **Can integrate customer supplied sensors or work / tooling packages**

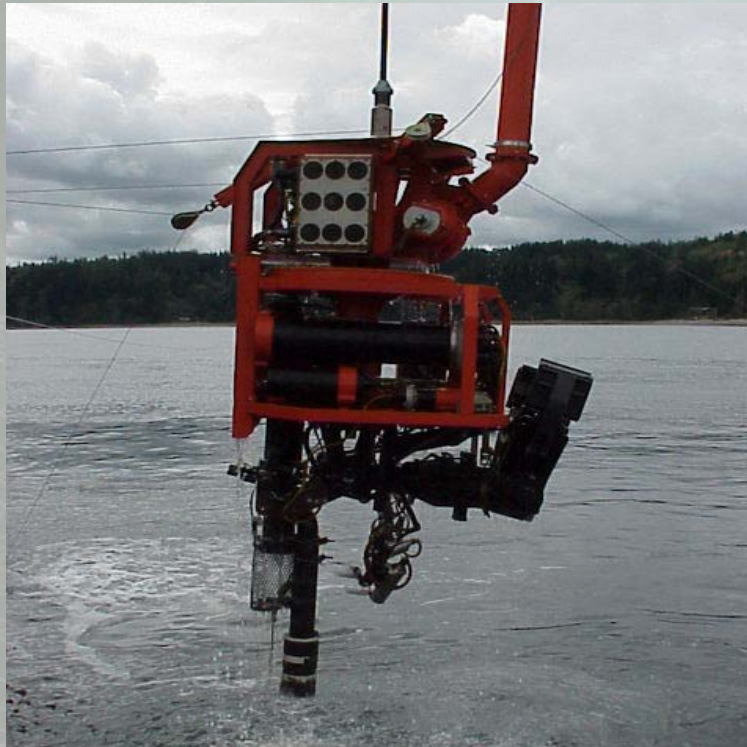
Recovery Team Capabilities

- **Torpedo recoveries throughout world**
- **Recovered downed airplanes, helicopters**
- **Criminal investigation, video evidence gathering**
- **Intricate bottom mounted equipment repair**
- **Ordnance trained crew**
- **Ordnance certified equipment**
- **Government crew with secret clearance**

SORD Upgrade

SORD Upgrade

- All Customers who use the range at Dabob Bay or Nanoose are potential customers of SORD.
- SORD IV was developed in 1984 and last overhauled in the mid-90s. Many of its systems are obsolete and becoming unreliable.



SORD Upgrade

The SORD Upgrade shall:

- Address telemetry, the washout system, the drive system, and ship based control, including software.
- Utilize current technology where available; addressing obsolescence issues and single point failures of degrading items that are costly to manufacture... thus increasing overall reliability and maintainability.
- Encompass a new ordnance handling framework to accommodate new system components, with a coating applied to ensure proper protection from undersea environment.



Acquisition Strategy

- **SORD Upgrade Contract with two phases to limit SORD down time:**
 - Phase 1: Design and build new frame per ordnance handling specifications. Update telemetry and power systems. Develop software for topside control.**
 - Phase 2: SORD IV manipulator provided to vendor. Integrate original equipment with new frame and components. Acceptance testing at contractor facility.**
- **Documentation and range craft system integration.**
- **Government personnel with contractor support will install and test SORD on YTT-10 and YTT-11.**

For any follow on questions please contact
Cindy Carlson at cynthia.carlson@navy.mil

