PHOTO REALISTIC
3D CLOUD
TECHNICAL DATASHEET

MCS

Part of the MCS Group
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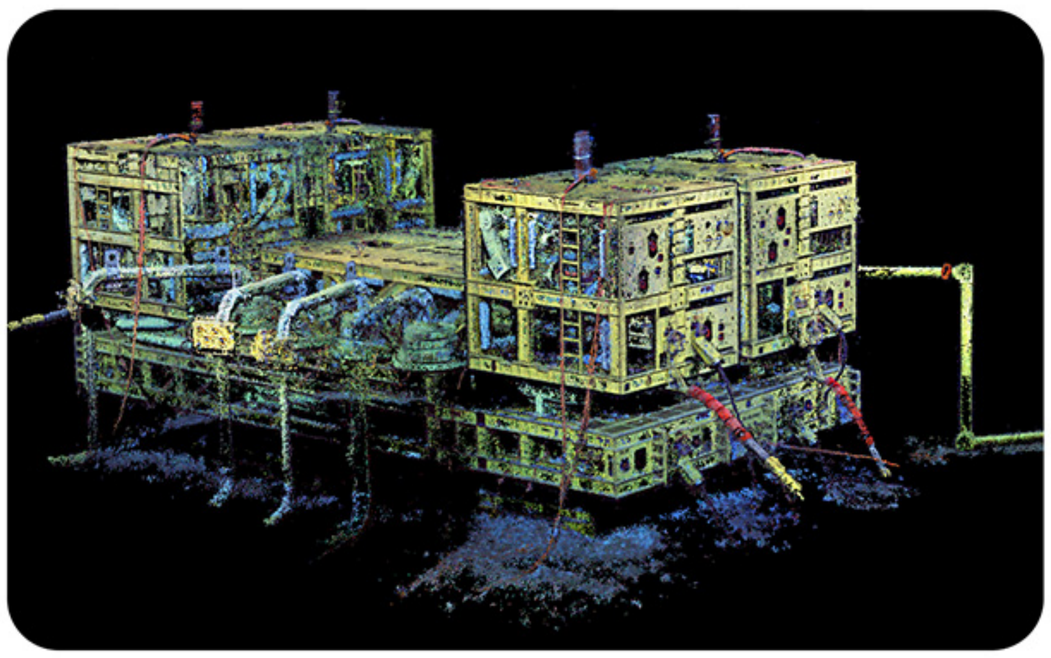
OVERVIEW

MCS is a leader in subsea data management and inspection of underwater structures, pipelines, cables and umbilical. We develop in-house technologies to overcome challenging underwater data gathering, measurement and inspection tasks. Our proprietary Photo Realistic 3D Cloud (PRC) is a game changing subsea inspection and measurement solution which creates a 3D cloud of millions of points, presenting a 3D visualization of any scanned object. It provides faster, safer and extremely accurate subsea inspection and measurement to the nearest millimeter and degree.



OUR APPROACH

The PRC is a precise measurement tool for all structures, pipelines, cables, and umbilical as well as wreck and archaeological seabed sites. It's fitted to an ROV to overcome inspection challenges, allowing safe access and real-time viewing, even in hazardous and hard-to-reach locations.

DESIGNED FOR AGILITY

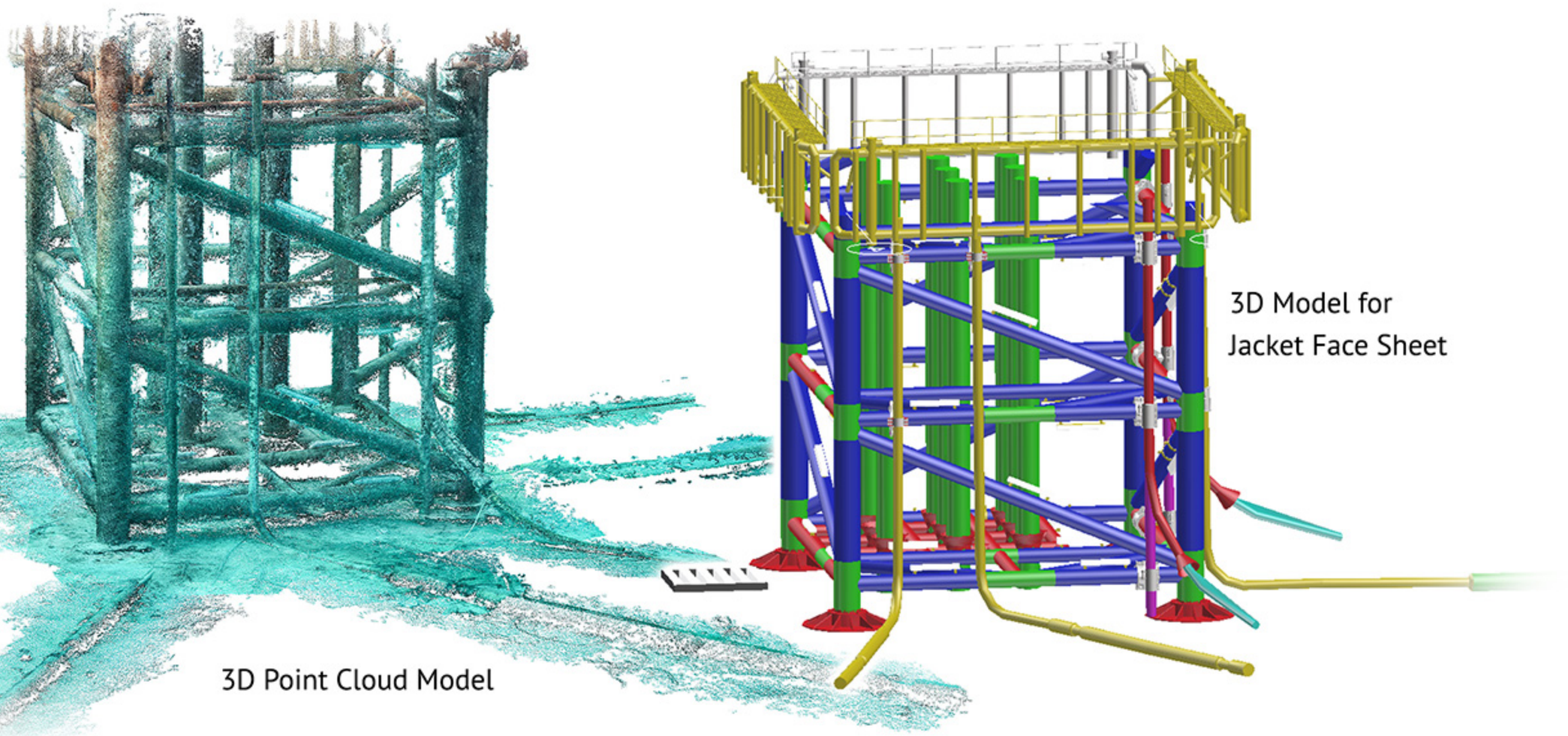
The PRC system is universal and easy to install onto any ROV, from work class to mini systems. Real-time viewing, and the ability to integrate with our Pipeline and Structure Commander reporting software, means data can be collected fast. It can provide highly accurate information, with no need for shutdown, ultimately increasing overall efficiency and reducing cost. We have built our PRC technology into our MiniSpector® mini ROV to create a highly accurate inspection and metrology drone.

BENEFITS

- Like the human eye, but without human risk or error, the system gives highly accurate measurements.
- Real time inspection increases overall efficiency and reduces cost.
- Visibility and positioning challenges are solved with advanced optical sensors and breakthrough mathematical disciplines.

PRC provides a level of inspection data leading to in depth integrity assessment and lifetime extension of existing assets such as:

Producing design drawings for subsea structures up to fabrication accuracy and creating as-built models of its current condition. It uses a platform approach to gather precise 3D reference for dimensions and features including position and orientation for all future construction and maintenance.

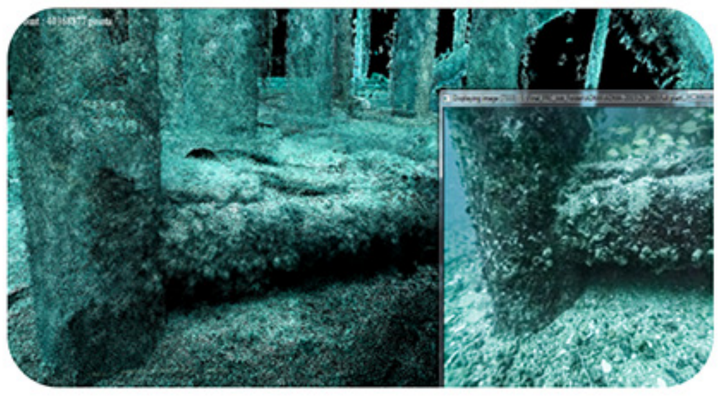


3D Point Cloud Model

3D Model for
Jacket Face Sheet

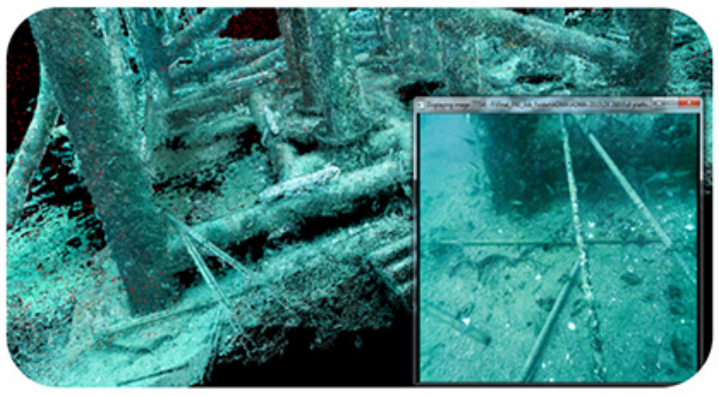
PHOTO REALISTIC 3D CLOUD

- Precise 3D reference for dimensions and features position/orientation; convenient for all future construction / maintenance, such as riser installation, flange/clamps fabrication, platform approach.
- Geometric assessment (i.e. ovality / non-circularity , deformation, verticality, exact diameters, scouring, lack of integrity / centralization ….etc)

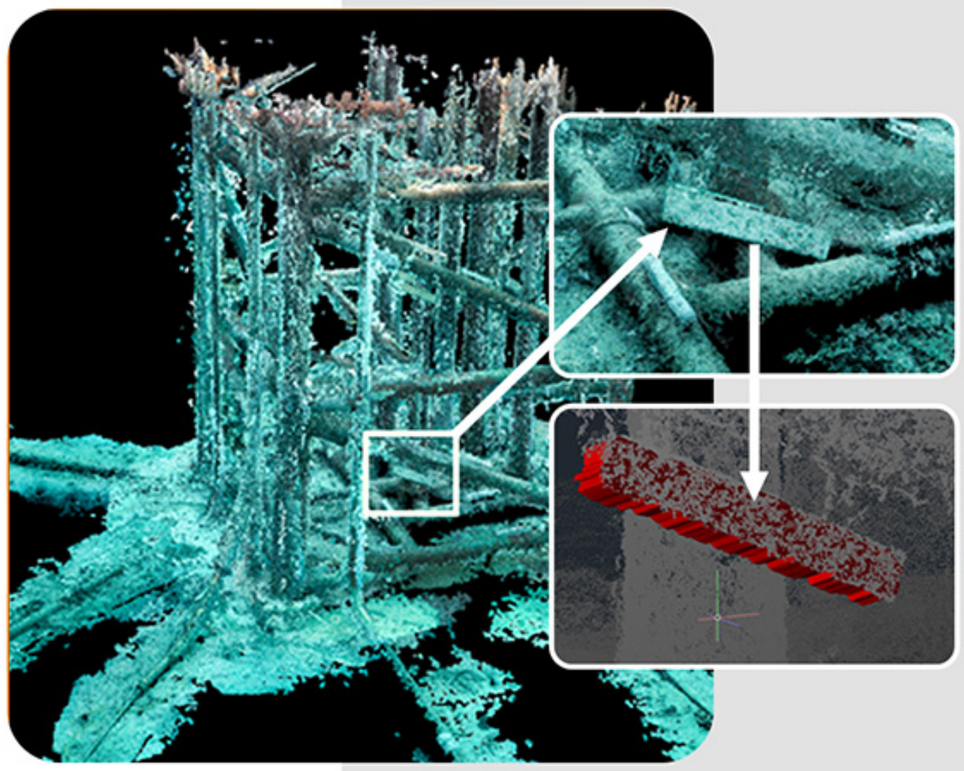


Scour measurement at seabed level

Conductor lack of Centralization



Debris in contact with the structure

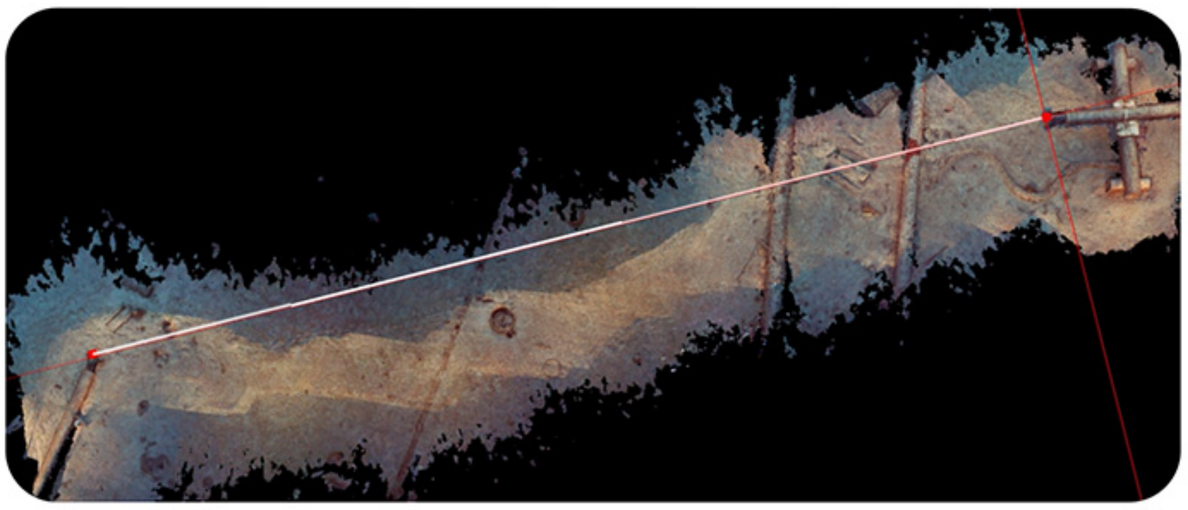


ENSURE RELIABILITY AND MAINTAINABILITY

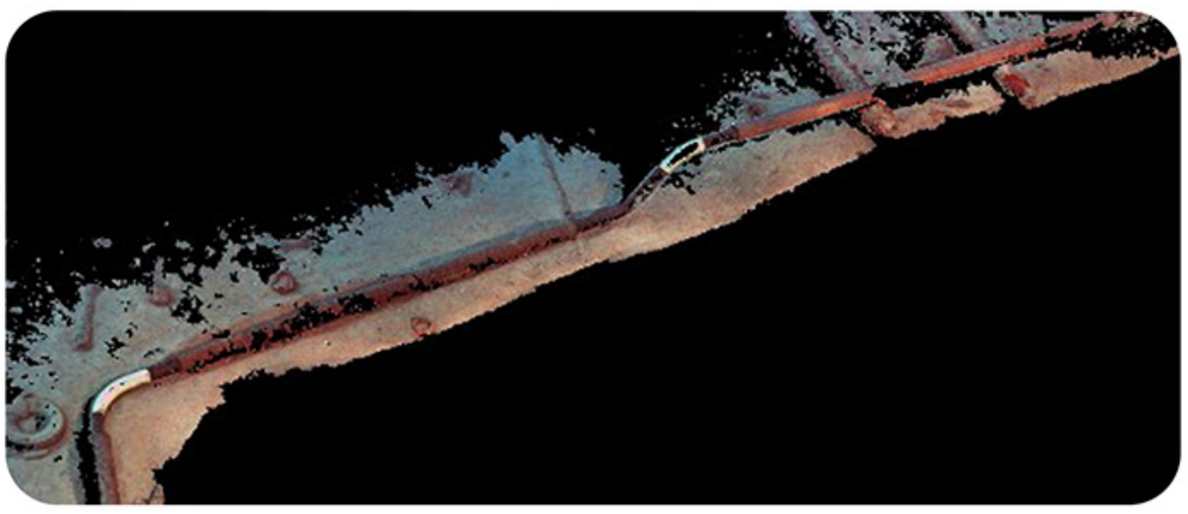
- Volume Quantification - Anode Depletion Measurements, as found shape for the anode will be presented in a 3D solid model to calculate the actual anode depletion in comparison with anode design model.

Faster, diver-less and more accurate approach than conventional way for collecting as-built / as-found information avoiding human error.

- Metrology for pre-lay tie-in spool piece to determine exact measurements and orientation for the design.
- Tie-in spool piece post-installation scanning for condition assessment.



Spool before installation



Spool after installation

OUR INNOVATION

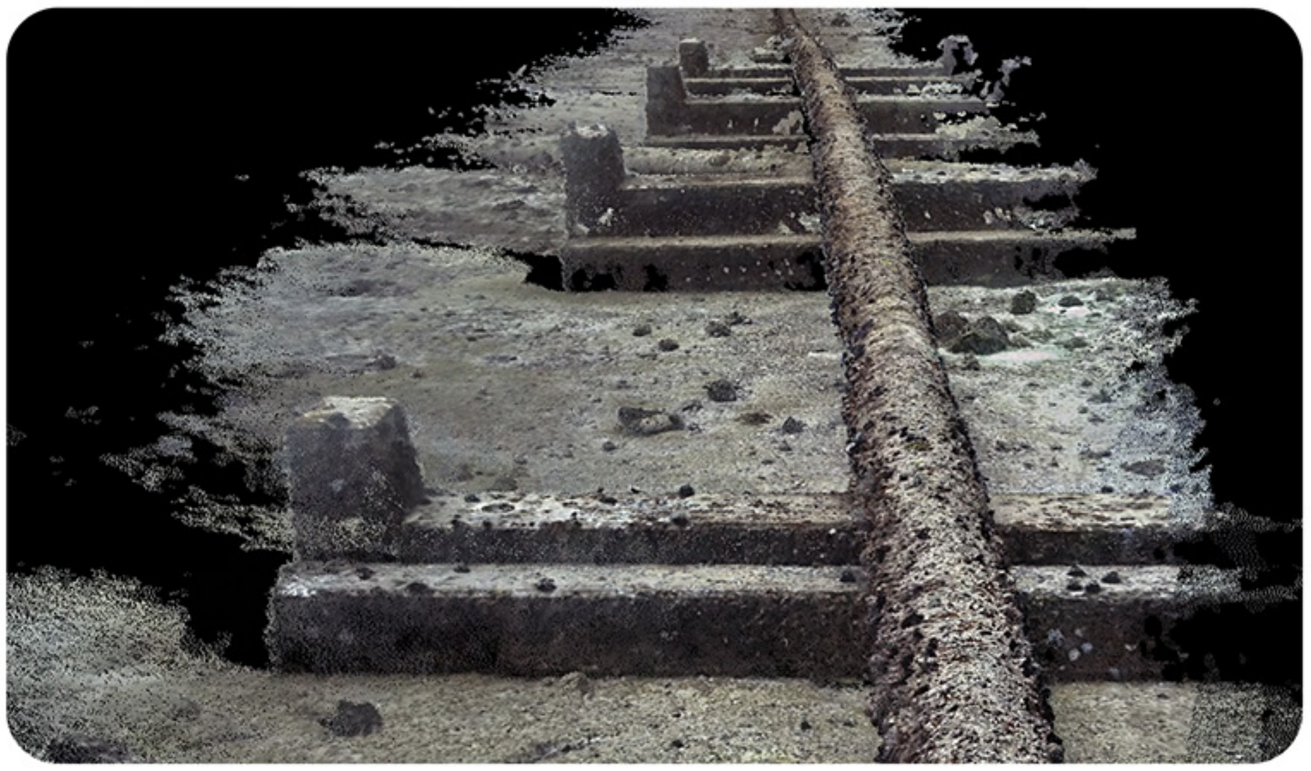
MCS has created its own physical and mathematical software model for the PRC.

This technology removes any underwater effects and restores the original colors of all photos the PRC takes for optimum visibility.

The result is a 3D photogrammetry model with authentic colors which allows our clients to investigate and analyze their assets remotely.

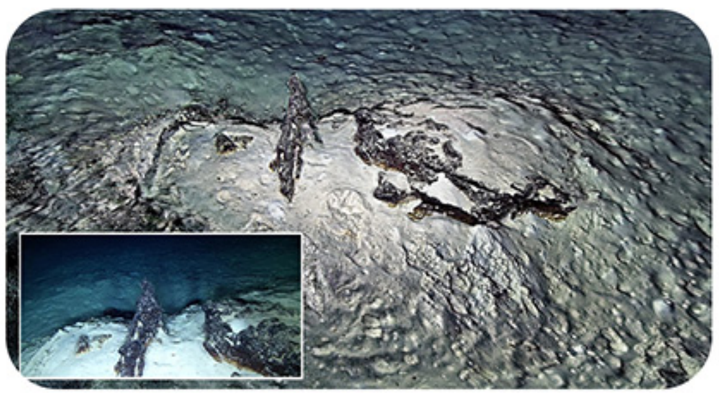
OTHER APPLICATIONS:

- Pipeline tie-in spool measurements.
- Subsea decommissioning survey.
- Mooring chain inspection.
- Umbilical inspection.
- Marine growth developing rate.
- Accurate modeling for buckling or deformation in structure x-members.
- Mathematical volume analysis for As-Laid/ As-Built. and Pre/Post trenching.
- Spud can actual locations with respect to the structure legs.
- Damage volume quantification.

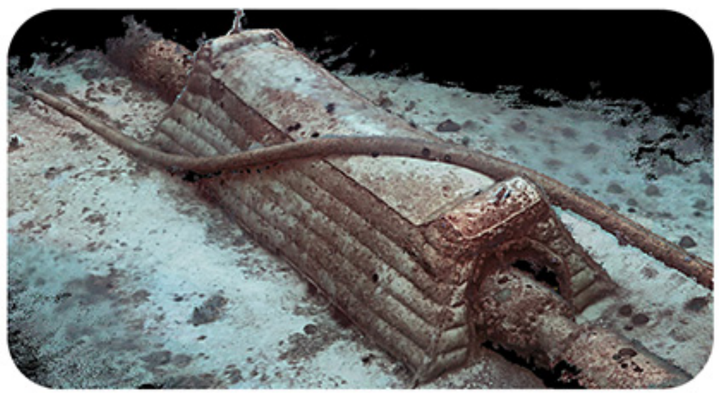


Pipeline Inspection

Mooring chain inspection



Monitoring Marine Habitats



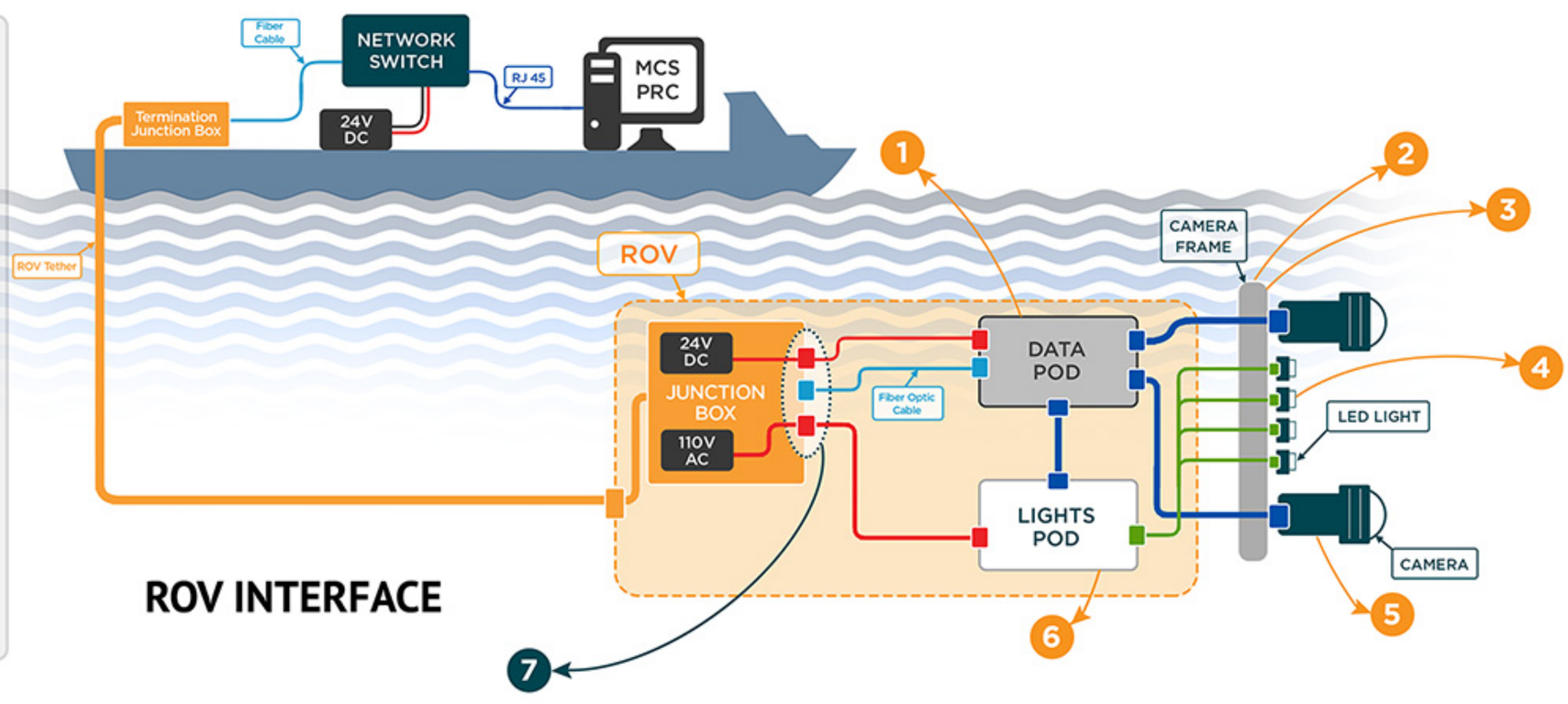
Precise measurement for crossing clearance

ONSHORE 3D MODELLING:

Capability of working on-shore or on structure Top-side in variable light conditions using hand-carried camera accessing congested areas easily and drones.

1. Diameter 19.5cm x Height 21.0cm
2. Mechanical U Frame used for Pipeline Inspection
3. Horizontal Frame used for Platforms and Structures Inspection. Most common frame dimensions: 106.0 x 22.0 x 2.5 cm
4. Dimmable LED Light
5. PRC Underwater Camera
6. Diameter 15.0cm x Height 25.0cm
7. Power cable 24 V DC, Power cable 110 V AC and Fiber Optic Cable (requires a dedicated fiber optic line) will be fitted in PRC POD while provided as free tails to be fitted in ROV junction box by the ROV company

Bulkheads



ROV INTERFACE

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