Northwestern Michigan College – Great Lakes Water Studies Institute

ADCI certified ROV Pilot Technician Training program

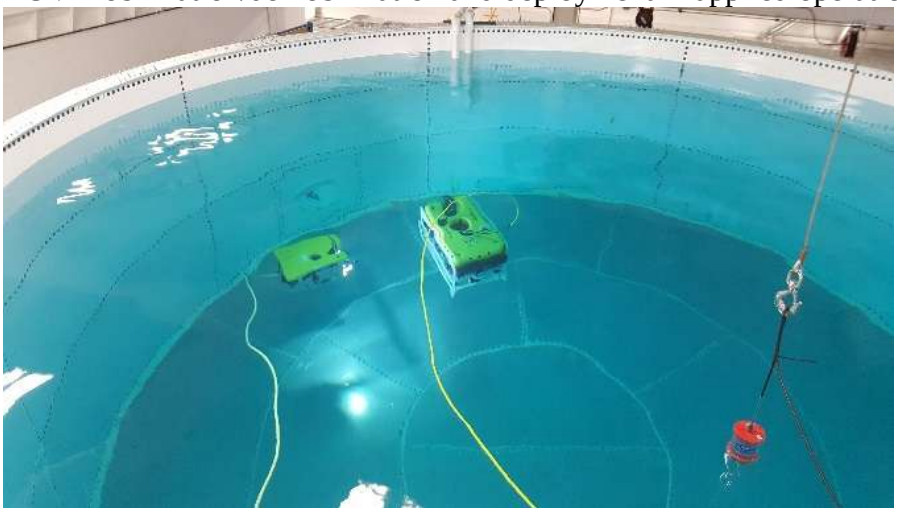
This 10 week training program covers all aspects of ROV operations as related to both onshore and offshore marine applications. This course is intended for all personnel who seek employment opportunities in the ROV industry and includes practical training with equipment typically used in these operations.

Northwestern Michigan College is a fully accredited institution by the Higher Learning Commission and is renowned for delivery of training programs for the entire marine and maritime industry.

The location, facilities and personnel at Northwestern Michigan College provide an ideal setting for the delivery of world class training. NMC is the only Association of Diving Contractors International (ADCI) certified ROV training school in the world. Successful graduates of this training program receive an ADCI Pilot Technician certification.

Topics include:

- Basic to intermediate electricity, electronics, high voltage and data telemetry
- Basic to intermediate hydraulics and pump systems
- Basic to intermediate fiber optics diagnosis, repair and re-termination of tether/umbilical
- ROV ballasting and system troubleshooting
- ROV mobilization/demobilization and deployment in applied operations



- ROV piloting, navigation and tether handling


- Acoustic systems including USBL, Scanning Sonar, Side Scan Sonar and Multibeam Sonar

- Single, five function and seven function manipulator systems (Hydraulic and electric)
- Sensor and camera integration and reconfiguration
- Automated ROV control systems including waypoint navigation, station keeping

- HAZWOPER 40 hour safety training, USCG vessel safety, Red Cross First Aid, CPR, AED

Training applications include:

- Deep and shallow water operations in Lake Michigan (during navigation season)

- Research vessel operations (during navigation season)

- Pier and harbor deployments

- Simultaneous ROV operations

- Rivers and inland lakes

- Submerged tunnel and infrastructure inspection

- Subsurface manipulator operations/worktasks

- Shipwreck investigations (during navigation season)


- Under ice operations (when seasonally appropriate/available)

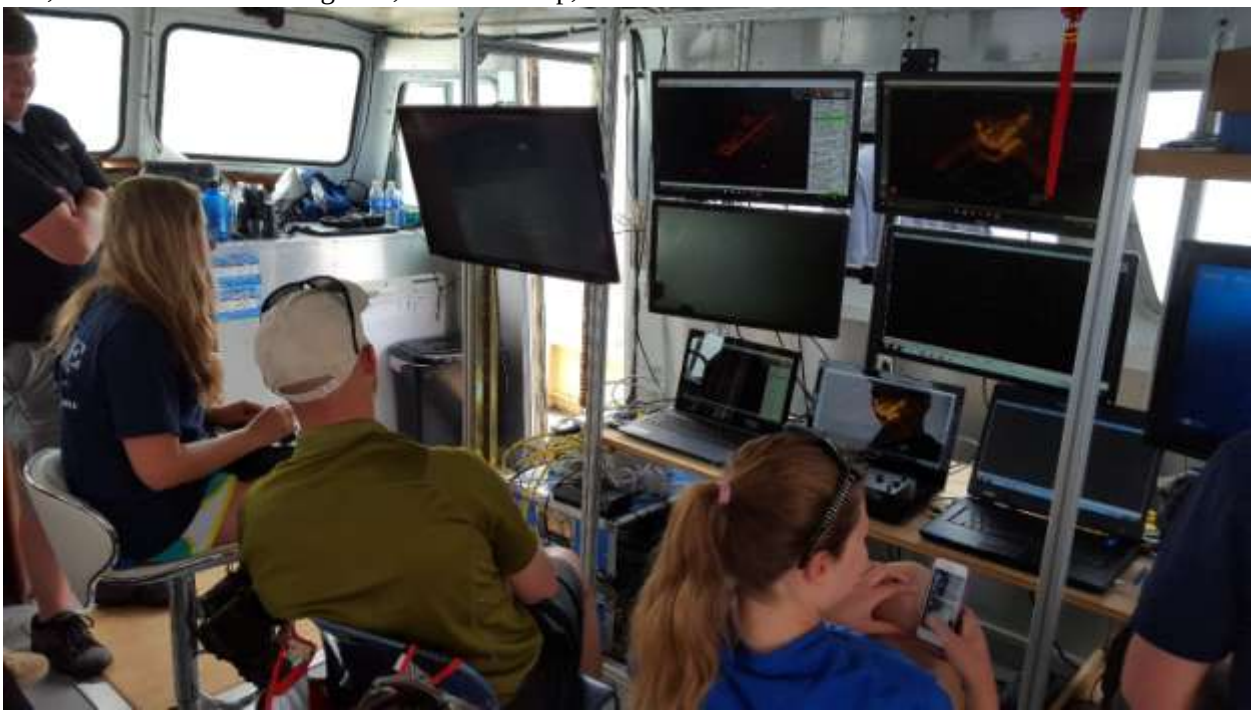
- Large ship hull inspections

- Ecosystem and habitat monitoring

Northwestern Michigan College Training Facilities

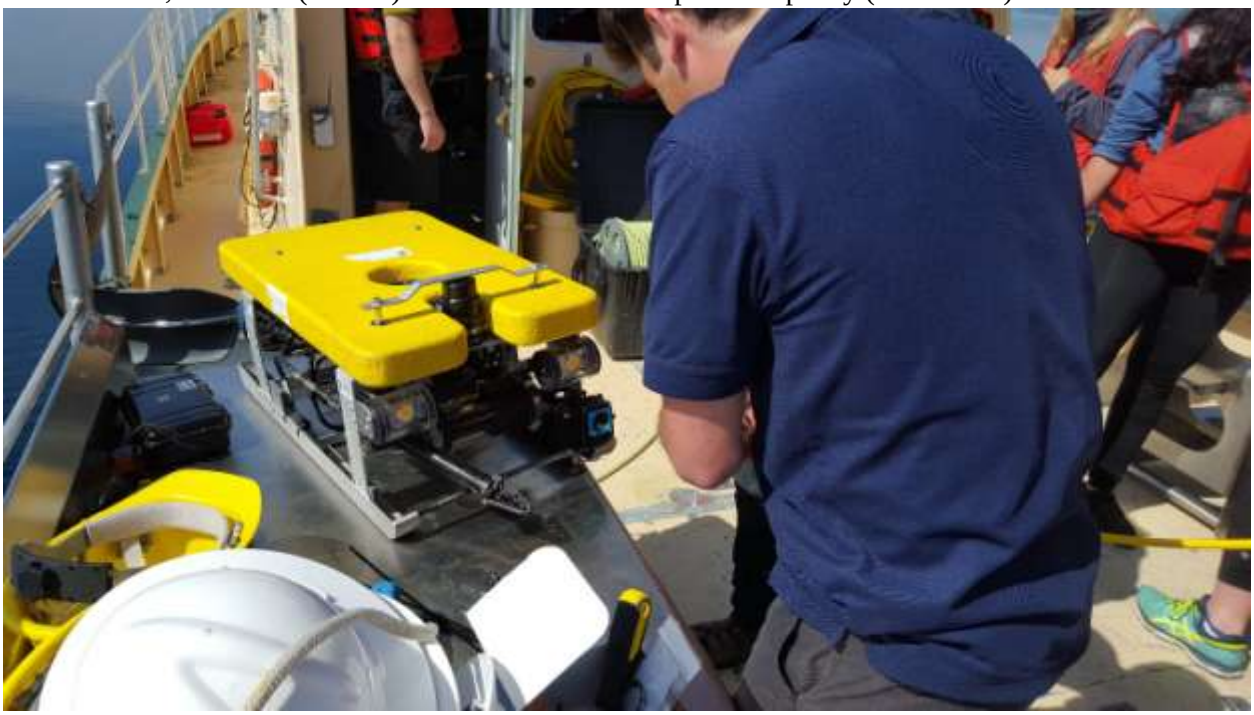
- Privately owned harbor on Lake Michigan (100 meter X 100 meter basin, 5.5 meters deep)

- 270,000 liter indoor training tank, 5 meters deep, 7.5 meters diameter

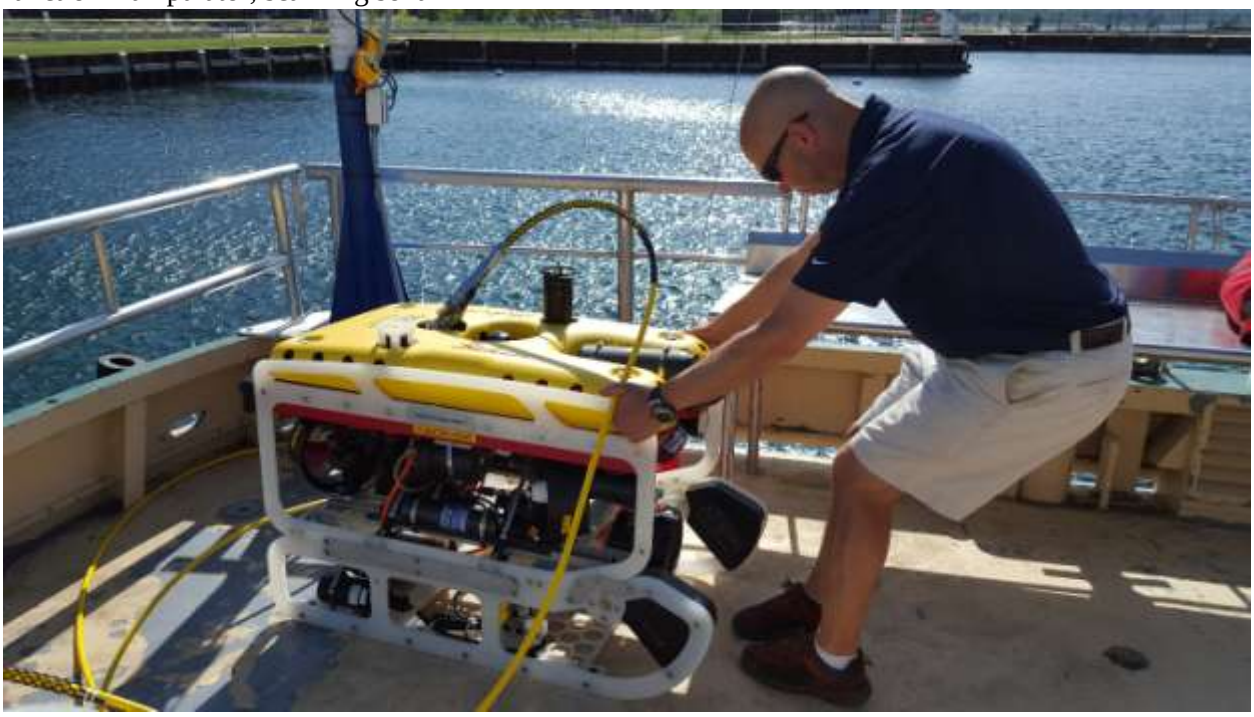


- RV Northwestern, 17 meter (56 foot) research vessel with 20 person capacity

- RV Hawkowl, 6.5 meter (21 foot) research vessel with 7 person capacity (Trailerable)



- Outland 1000 Remotely Operated Vehicle (ROV) with 244 meters (800 feet) of tether, single function manipulator, scanning sonar



- SAAB Seaeye Falcon Remotely Operated Vehicle with 450 meters (1475 feet) of fiber tether – integrated with M3 multibeam, Hydrolek 5 function manipulator, USBL, GreenSea automation software and INS, NAV sonar
- Linkquest Tracklink 1500c USBL
- ORE Trackpoint2 USBL
- Open ROV Remotely Operated vehicles (5)
- Seafloor Systems Hydrone G1 ASV/RCV
- Kongsberg M3 multibeam and 2D Acoustic Sonar
- Kongsberg 1171 Scanning Sonar
- Edgetech 4125 Side Scan Sonar, dual frequency - 400 kHz and 900 kHz transducers, 100 meters tether
- Marine Magnetics Explorer Magnetometer
- Velodyne Lidar
- HYPACK Marine data processing software
- Quimera marine data processing software
- ESRI Arcview GIS software
- Automation Studio software (electronics and hydraulics modules)
- Advanced marine electronics laboratory with Spectrum analyzers, OTDR (single and multimode), Fiber optic splicing trainers, digital oscilloscopes, motor controller trainers, subsurface connector trainer
- Advanced marine hydraulics laboratory with Hydraulic trainers (5 different trainers), Hydraulic troubleshooting trainer, pump comparison trainer, pump trainer and Maximus manipulator trainer