



# MARINE TECHNOLOGY

PART OF THE  
GREAT LAKES WATER STUDIES INSTITUTE



Northwestern  
Michigan College



BACHELOR OF SCIENCE IN MARINE TECHNOLOGY

The first degree of its kind in the U.S.

Get your hands wet in Grand Traverse Bay in Traverse City, MI



# YOUR PATHWAY

to a successful career,  
on the water or on shore.



NMC's Marine Technology program prepares you for high-paying jobs in water research and data collection.

Aboard NMC's research vessel, you'll learn to operate technical, industry-standard equipment. In the classroom you'll learn project management skills. The combination prepares you to work on- and off-shore in the Great Lakes and oceans.



The first bachelor's degree of its kind in the U.S. Marine Technology graduates typically receive multiple job offers.



#### Additional certifications available:

- Drone pilot (FAA part 107)
- Certified Associate in Project Management (CAPM)
- Computer programming (PCEP)
- CAD design (Solidworks Design Associate)
- Hazardous Waste Operations (OSHA)



“I moved from the West Coast to join this one-of-a-kind program. I'm only in my second year, but I've already had two top-flight internships and multiple job offers.”

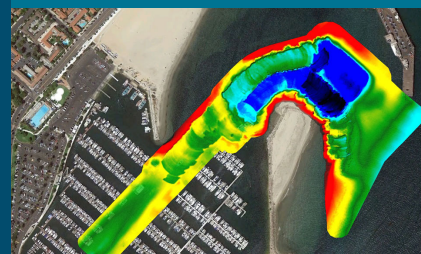
Tyler Smith, BSMT graduate, 2023

#### Where are jobs located in this field?

- Regional (Great Lakes)
- Coastal (East, West, and Gulf)
- International



**TYPICAL INDUSTRY  
SALARY RANGE**  
**\$85,000 - \$115,000**

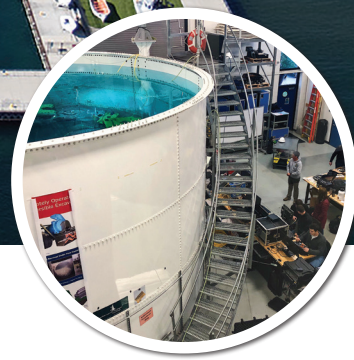




**HANDS-ON TRAINING**  
 Aboard NMC's research vessel in Lake Michigan, in NMC's Great Lakes campus harbor and in multiple campus labs.



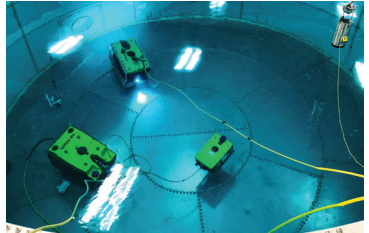
**EXPERIENTIAL LEARNING**  
 Capstone project .....  
 Internships .....  
 Independent study



**INDUSTRY-STANDARD EQUIPMENT**  
 60,000-gallon indoor water tank on the Aero Park campus .....  
 ROVs  
 (remotely operated vehicles) .....  
 Multiple sonar types and technologies

**CAREER OPTIONS**

- ROV/AUV Pilot, Operator or Technician
- Marine Data Processor
- Hydrographic Surveyor
- GIS Technician
- Hydrographer/ Bathymetrist
- Marine Technician
- Submersibles Engineer
- Project Manager



**Industry organizations employing graduates**

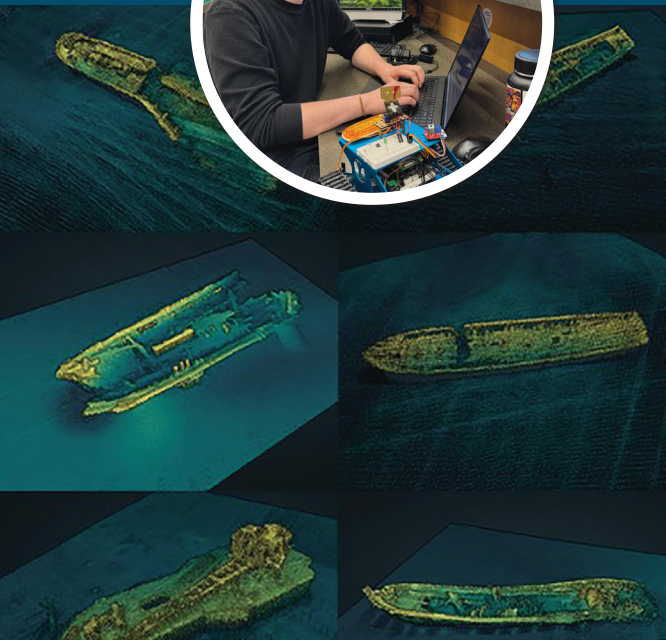
- Fugro
- L3 Harris
- Schmidt Ocean Institute
- Hibbard Inshore
- Oceaneering
- Woods Hole Oceanographic Institution



Start your marine technology journey at [nmc.edu/marine-tech](http://nmc.edu/marine-tech)

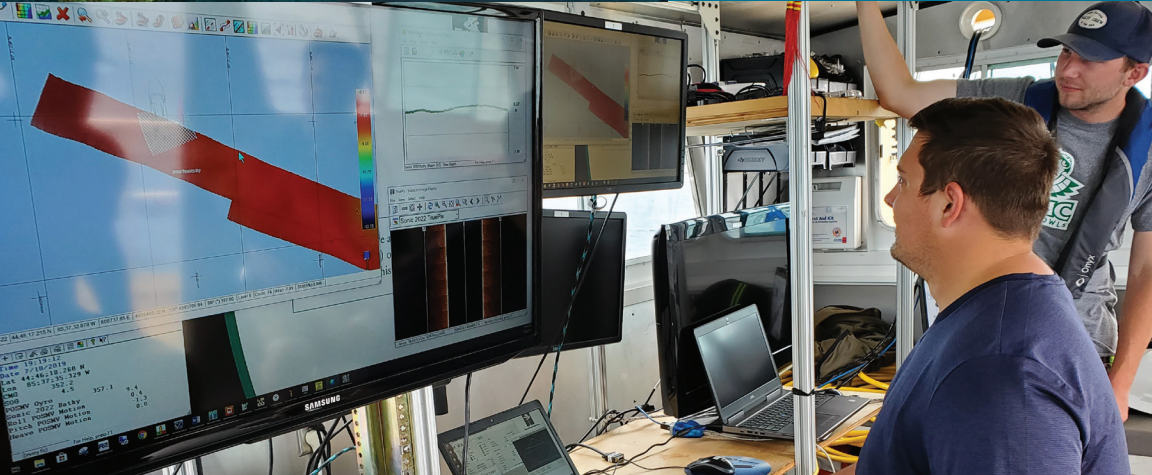


**Adyn McHugh, current 3rd year NMC student.**



Adyn McHugh was thrilled to find the perfect bachelor's degree program just a short way from home: NMC's Marine Technology program. It combines hands-on learning with outstanding job prospects.

"We have amazing field courses," said McHugh, who specializes in processing the data gathered on NMC's research vessel Northwestern. "I think of it as kind of a scavenger hunt. Especially when you're looking for things. We just did an assignment with a shipwreck in it."



## Hands on learning in the field.

### Courses including field operations

**WSI 200 — Great Lakes Research Technologies:** This two-week intensive course teaches the fundamentals for multibeam echosounder (MBES) setup, calibration, operation and collection.

**WSI 240 — ROV Systems & Operations:** This course provides intermediate level training in the use of ROV systems aboard NMC research vessels in Lake Michigan and from docks, piers and other infrastructure.

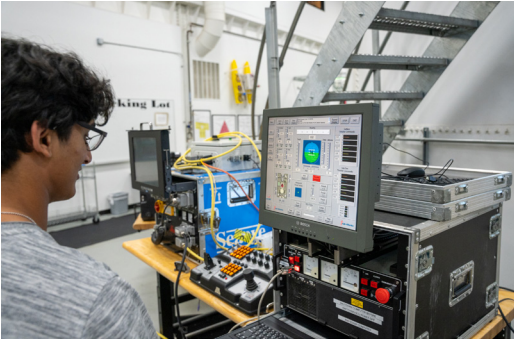
**WSI 310 — Sonar Systems and Operations:** This intensive course provides advanced training in the use of MBES systems aboard NMC research vessels in Lake Michigan and various inland lakes and river systems.

**WSI 390 — Marine Technology Internship:** Internship experience that provides company based training and operation of MBES systems for research/commercial/government use.

**WSI 400 — Marine Capstone:** Project-based course utilizing MBES aboard NMC research vessels and NMC autonomous surface vessels.

**WSI 440 — Advanced Marine Platforms:** This course focuses on the use of complex marine platforms in multiple marine environments through the completion of a defined field project. Competencies of various technologies are assessed including multiple sonar systems, unmanned underwater vehicles and remotely operated vehicles.

## Marine Technology Society Student Section at NMC



NMC has an active chapter of the Marine Technology Society, the national professional group for marine technology. It offers social events, networking opportunities and professional development.

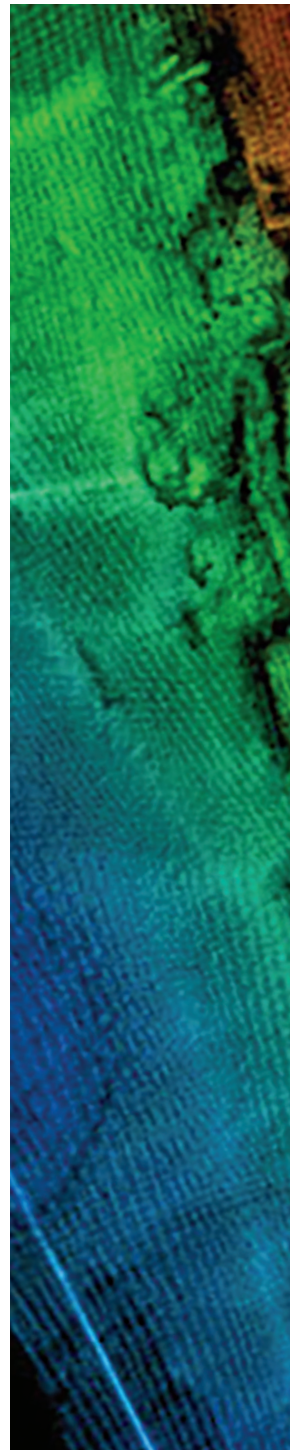
### Marine Technology, Bachelor of Science DEGREE REQUIREMENTS

YEAR 1			
	COURSE	TITLE	CREDITS
FALL	ENG 111	English Composition	4
		Group 1 Humanities	3
	WSI 106	Introduction to Water Quality	3
	EET 103	Electrical Studies 1	3
	RAM 155	Microcontroller Programming	3
		<b>CREDITS</b>	<b>16</b>
SPRING	ENG 220	Technical Writing	3
	RAM 205	Microcontroller Systems	3
	DD 170	CADD/Computer Modeling	4
	EET 204	Electrical Studies II	3
		<b>CREDITS</b>	<b>13</b>
SUMMER	WSI 200*	IGL Research Technologies (Summer only)	3
		<b>CREDITS</b>	<b>3</b>

YEAR 2			
	COURSE	TITLE	CREDITS
FALL	MTH 121	College Algebra	4
	GEO 115	Introduction to GIS	3
	MFG 104	Fluid Power	3
	WSI 210	Underwater Acoustics and Sonar (Fall only)	3
	WSI 240*	ROV Systems & Operations (Fall only)	3
		<b>CREDITS</b>	<b>16</b>
SPRING	MTH 122	Trigonometry	3
	ENV 117	Meteorology & Climatology	4
	UAS 121	UAS Applications in Surveying (Spring only)	3
	WSI 215	Marine GIS & Data Processing (Spring only)	3
	WSI 315	Advanced Marine Survey & Data (Spring only)	3
		<b>CREDITS</b>	<b>16</b>
SUMMER	WSI 310/440*	Sonar Systems & Operations (Summer only) or Advanced Marine Platforms	3-4
		<b>CREDITS</b>	<b>3-4</b>

\*includes field operations

YEARS 3-4 >>



Start your marine technology journey at [nmc.edu/marine-tech](http://nmc.edu/marine-tech)



Recognized as one of the nation's leading ocean engineering programs, NMC stands apart due to its prime location on the shores of Lake Michigan, part of the expansive Great Lakes ecosystem.

## Marine Technology, Bachelor of Science

### DEGREE REQUIREMENTS CONTINUED

YEAR 3			
	COURSE	TITLE	CREDITS
FALL	SVR 111	Introduction to Field Surveying (Fall only)	2
	PHY 121	General Physics I (Fall only)	4
	WSI 304	Marine Electronics	3
	WSI 300	Remote Sensing & Sensors	3
			<b>CREDITS 12</b>
SPRING	ENV 131	Oceanography	3
	MTH 131	Intro to Prob & Statistics	4
	Approved Technical Electives		6
			<b>CREDITS 13</b>
SUMMER	WSI 390*	Marine Tech Internship <sup>1</sup> or Independent Study – Water Studies	3
	WSI 297A		
	WSI 440*	Advanced Marine Platforms or Sonar Systems and Operations	3-4
	WSI 310*		
			<b>CREDITS 6-7</b>
YEAR 4			
	COURSE	TITLE	CREDITS
FALL	ECO 202	Principles of Microeconomics	3
	ECO 202	Approved Technical Elective	6
			<b>CREDITS 9</b>
SPRING	WSI 400*	Marine Technology Capstone	4
	WSI 433	Marine Project Management (Spring only)	3
	WSI 405	Marine Industry (Spring Only)	3
	Optional: Internship or Independent Study		3
			<b>CREDITS 10-13</b>

\*includes field operations

**TOTAL CREDITS 120-122**

<sup>1</sup> WSI 390 Marine Tech Internship or WSI 297A Independent Study Water Studies option to take Summer year 3 OR Spring year 4

### We're here to support you:

- > Learn from nationally-ranked experts
- > Enjoy beautiful Traverse City, MI
- > Stop by Enrollment Services
- > Meet with a coach at the Student Success Center
- > Live in on-campus housing
- > Experience hands-on learning opportunities



## UPCOMING:

### Lakebed 2030

An annual fall conference that brings industry professionals together from science, research, policy, government and industry to:

- Focus on high-resolution mapping data in the Great Lakes
- Develop strategies to catalog lakebed information for shared use
- Showcase the latest technology advancements

### Freshwater Research and Innovation Center



2027 is the planned completion date for the Freshwater Research and Innovation Center (FRIC), a partnership between NMC, Discovery Pier, Traverse Connect, 20Fathoms and Michigan Technological University on West Bay.



## Start your journey today!

**Northwestern Michigan College**  
1701 E. Front Street, Traverse City, MI  
Admissions: (231) 995-1054  
admissions@nmc.edu

**Great Lakes Water Studies Institute**  
(231) 995-3333 | glwsi@nmc.edu  
nmc.edu/marine-tech 