

University of New Hampshire

NOAA-UNH Joint Hydrographic Center Center for Coastal and Ocean Mapping

•• MAP ONCE—USE MANY TIMES ••

Director's Report for the Hydrographic Services Review Panel
September 27, 2023



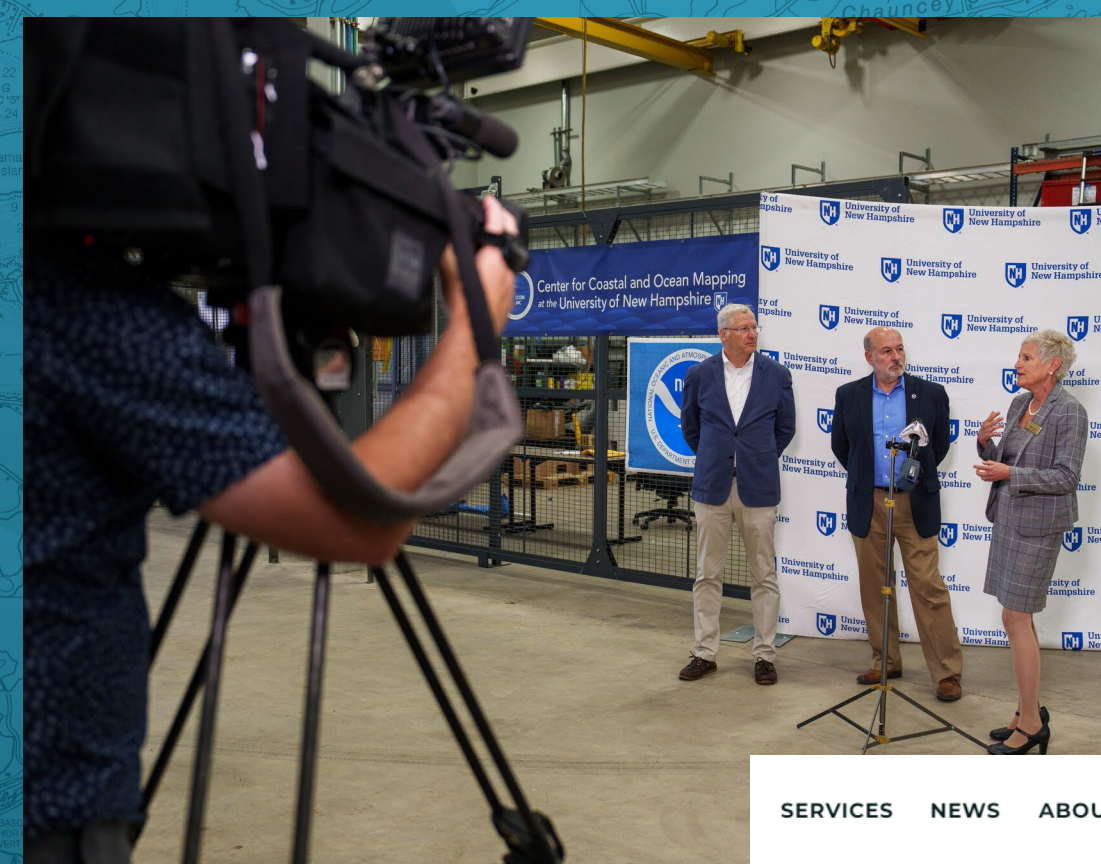


Photo: Jeremy Gasowski/UNH

September 19, 2023

New Ocean Mapping Center Partnership

NOAA and the University of New Hampshire (UNH) are expanding a 24-year ocean and Great Lakes mapping partnership through the creation of a new Center of Excellence for Operational Ocean and Great Lakes Mapping.

“NOAA and UNH have a long history of collaborating to advance the latest technologies and tools to map our ocean, coasts and Great Lakes — a cornerstone of the blue economy,” said **Rick Spinrad, Ph.D., NOAA Administrator**. “Our continued partnership on the Center of Excellence will help build a workforce ready to tackle the mapping challenges of the future, and further our understanding of our changing ocean and coasts.”

“The University of New Hampshire’s world-class Center for Coastal and Ocean



A group of four images (top to bottom): an image of the Visual Lab at University of New Hampshire/Joint Hydrographic Center, an uncrewed surface vessel during survey operations, a digital terrain map of the entrance to Portsmouth Harbor,

09.19.2023

NH Delegation Welcomes New Ocean Mapping Center at the University of New Hampshire

The new Center of Excellence for Operational Ocean and Great Lakes Mapping expands NOAA, University of New Hampshire partnership.



Joint Hydrographic Center Operations Began ~ Jan 2000

~\$1.9 M earmark from Senator Gregg
JHC becomes line item in President's Budget
2009 - A Joint Hydrographic Center authorized under PL111-11



Oct. 2008
South Wing

Oct. 2003
Second Floor

2017
New Wing

Feb. 2000
First Floor

2017
Amphitheater

2010 - competed for
and awarded
5 yr JHC grant

2013 - part of School
of Marine Science and
Ocean Engineering

Nov 2019 - Awarded 2020-2025 Competitive Grant

May 2015 - submitted proposal for 2016-2020 competition

November 2015 - awarded 2016-2020 grant

2017 - new addition with 9 new offices and 85-seat amphitheater classroom/seminar room



Joint Hydrographic Center Goals

- To be a world leader in the development of hydrographic & ocean mapping technologies and approaches
- To expand the scope of ocean mapping clients and constituencies through the development of innovative applications and collaborative work with both the private sector and government labs
- To educate a new generation of hydrographers and ocean mappers that can meet the growing needs of both government agencies and the private sector.



Graduates

2001 - 2023

Ph.D.s	15	
NOAA Ph.D.s	2	
Master's	78	
NOAA Master's	19	Including 3 NOAA Admirals
Non-GEBCO Certificates	5	
GEBCO Scholars	113	120 students from 50 countries
TOTAL	232	

8 Students – went on to work for NOAA – many now in senior positions



Industrial Associates (64)

Acoustic Imaging Pty Ltd.

AML Oceanographic

Applanix

Arete Associates, Inc.

AusSeaBed

BAE Systems

BeamworX

Bedrock OceanExploration

Chance Marine Technologies, Inc.

Chesapeake Technology Inc.

CIDCO

Clearwater Seafoods Limited

David Evans & Associates, Inc.

Earth Analytic, Inc.

EdgeTech

EIVA Marine Survey Solutions

Environmental Systems

Research Institute

Euclidean International PYT LTD

Exocetus Autonomous Systems

Exail

Farsounder, Inc.

Foreshore Technology, Ltd.

Foxglove

Fugro USA Marine, Inc.

Huntington Ingalls Industries

HydroOctave Consulting, Inc.

Hypack, A Xylem Brand

IFremer

IIC Technologies

Jasco Applied Sciences (Canada) Ltd.

Kongsberg Underwater Technology, Inc.

Kraken Sonar

L3Harris

Leidos

Lynker

Mitcham Industries, Inc.

NLA International

Norbit Subsea AS

Ocean Exploration Trust

Ocean High Technology Institute, Inc.

Ocean Infinity

Ocean Power Technologies, Inc.

OceanX

Quality Positioning Services B.V.

Saildrone, Inc.

SBG Systems

Sea ID Ltd.

Sea Machines Robotics

Seafloor Systems

SevenCs

SubCom (TYCO)

SubSeaSail LLC

Substructure

TCarta Marine

Teledyne Benthos

Teledyne Caris

Teledyne Marine

Teledyne Odom

Hydrographic

Teledyne RDI

Teledyne Reason, A.S.

Terradepth

Tetra Tech, Inc.

ThayerMahan Inc.

Woolpert, Inc.

XOCEAN



EXAMPLES of R2O:

Software Distributed by our Partners:

- CUBE
- GeoCoder
- SW_GrandMaster

Hardware Distributed by our Partners:

- CSB – Black Boxes
- End-fire SAS array

In-house Software Co-Developed with NOAA:

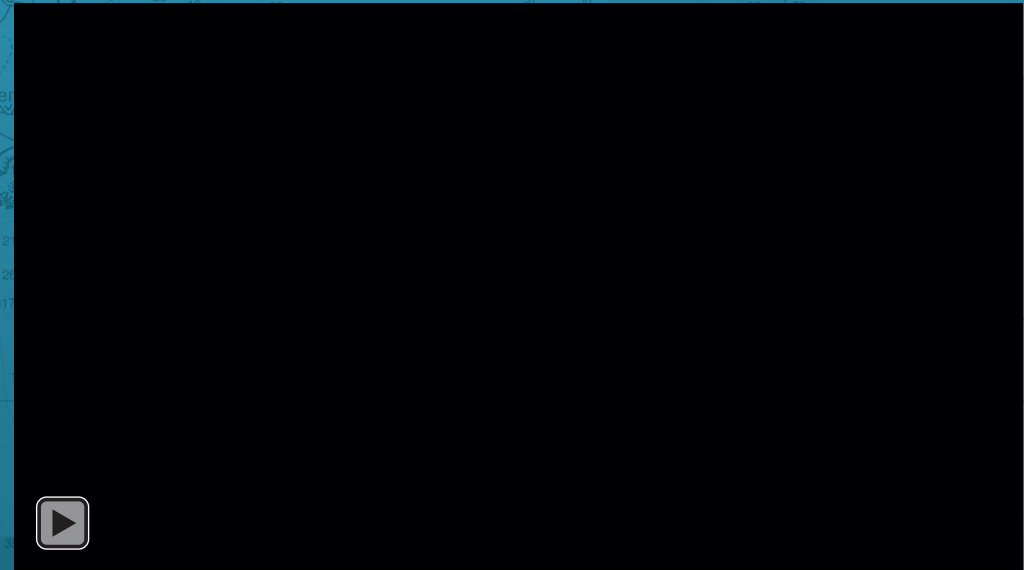
- HydrOffice
- QC Tools
- QA Tools
- Sound Speed Manager - ~7000 downloads
- MAC Tools



PARTNERSHIPS:



KONGSBERG DISCOVERY



Saildrone



WORKING WITH OMAO, OCS, OER, and FISHERIES



Center of Excellence in Operational Ocean and Great Lakes Mapping



A NOAA Center of Excellence at the University of New Hampshire

Working across NOAA line offices and leveraging public-private partnerships to advance the Nation's ocean and Great Lakes mapping goals



Center of Excellence in Operational Ocean and Great Lakes Mapping

FY 2023 Funding and Congressional Direction

- \$10 M new money in the NOS Mapping and Charting Line
- Leverage existing capabilities, including the Joint Hydrographic Center
- Work across NOAA line offices including NOS, OAR, and OMAO
- Support and grow the Nation's deep water, shallow water, and coastal mapping capabilities and data holdings.

Supports Requirements and goals of:

U.S. NOMECS Strategy

Hydrographic Services Improvement Act

Coastal and Ocean Mapping Integration Act

Seabed 2030



Center of Excellence in Operational Ocean and Great Lakes Mapping

In particular, serve as :

- a focal point for **transitioning developments** in mapping platforms, sensors, and concepts of operations **into operations**;
- a focal point for **applied training** for mapping and surveying operations, to grow and diversify the pool of well-qualified talent in this expanding field;
- an agency-wide capability to provide **technical support** for ocean mapping technologies **to operators** in the field on an increasingly **diverse set of platforms**;
- a mechanism to **leverage public-private partnerships** in advancing the Nation's ocean and Great Lakes mapping goals.



Support from Industry and within NOAA

- We heard strong support from industry at the recent Joint Hydrographic Center Annual Review
 - Applied training and a career-long approach to hydrographic competence
 - Public-private partnership—
 - We've heard the encouragement from the HSRP
 - Several companies have approached UNH regarding participation and co-location at the new facility
- OAR/OER and OMAO strongly support the Center and are working closely with us on developing the program plan



Center of Excellence in Operational Ocean and Great Lakes Mapping

Plan of Action

• FY 23—

- Awarded \$8M initial installment on a \$20 M construction grant to UNH for new facility
- Began supporting applied training with available funding and initial staffing

• FY 24—

- Release \$6 M installment on construction grant
- Increase staffing with FTEs and Affiliates
- Develop career-focused ocean mapping training
- Develop technical support plan and provide initial support to NOAA mapping fleet
- Develop public-private partnership program

• FY 25—

- Release \$6M final installment of construction grant
- Start transition to operations programs
- Ramp up training, technical support, and public-private partnership programs

• FY 26 and out—

- All funding to operation of Center programs



Since 1951...

University research parks and innovation neighborhoods have been central to



Academic, industry, and
government collaboration



Bringing innovations and
new ventures to market



Creating thousands of jobs and
billions in economic impact



Discovery and social impact,
improving quality of life



Introducing **The Edge**. New Hampshire's innovation neighborhood.

UNH is New Hampshire's flagship public research university.

- Founded 1866
- 15,000+ students
- 2,000+ graduate students
- Campuses: Durham, Manchester & Concord (Law)
- Top-tier research “R1” Carnegie designation
- \$210 M annual research expenditure
- Land-, Sea-, and Space-grant institution
- Stood up COVID testing lab

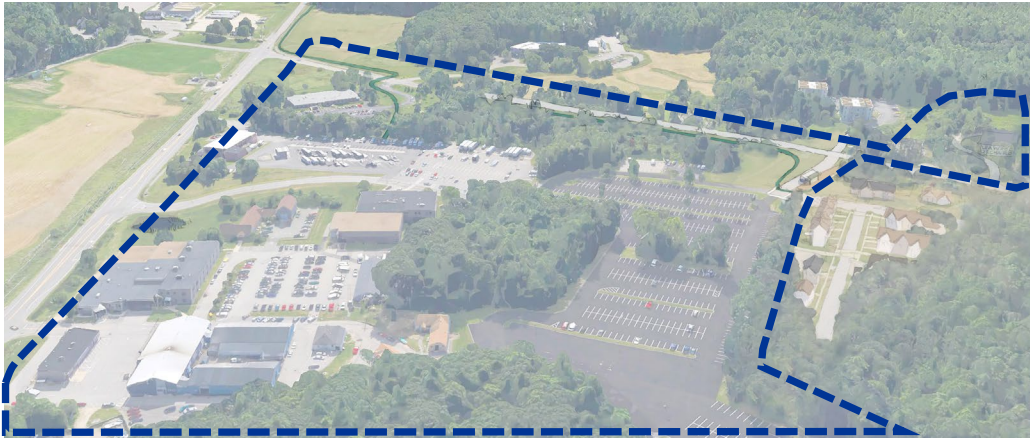


The Edge: NH's live, work, play, learn community

- A hub for innovation, technology transfer, and entrepreneurship
- Connecting researchers, students, start-ups, industry, and investors
- Co-locating high-growth companies, creating internships and jobs
- Training and retaining a skilled New Hampshire workforce
- Driving economic growth and creating social impact in the region



Mission for The Edge



The Edge transforms an opportunity into a thriving innovation community.

- Outdated, inefficient, low-capacity buildings -----> Intentional planning and state-of-the-art design
- Disconnected outpost of campus -----> Gateway to UNH center and town, easy transit access
- Lack of amenities for existing residents -----> Community hub brings vitality and services to area
- Rented UNH facilities, missed colocation opportunities -----> High-tech facilities for research and partnerships
- Limited housing for UNH community -----> Residential and commercial rental space



Intent for The Edge



At scale, The Edge will serve hundreds of residents and thousands of UNH employees and industry partners.

State-of-the-art facilities at The Edge

- Mid- and high-bay
- Damp lab
- Cleanroom
- Makerspace
- Co-working space
- Office rentals
- Workforce and UNH housing
- Retail and restaurants

More than the sum of its parts

- One mile from UNH's campus center & Durham downtown
- A short walk or campus transit ride from Amtrak station
- 20 minutes from the Seacoast and one hour from Boston
- Access to UNH's library, greenspaces, events, and amenities



Already signed up to locate at UNH

Exail U.S. Maritime Autonomy Innovation Hub

07
15
23



exail



University of
New Hampshire



Center of Excellence in Operational Ocean and Great Lakes Mapping