# HALIFAX CANADA'S OCEAN CITY









# GREAT DEPTHS

Given its strategic location, the ocean-related focus of its post-secondary institutions, and the depth of its science-based workforce, it's no surprise that Nova Scotia is a world leader in oceans. With 7,579 kilometres of coastline, Nova Scotia is home to more than an estimated 480 oceans-related PhDs, 200 companies and 60 high tech innovators. The province's capital city, Halifax, is the hub of oceans related business and research.

## Areas of concentration and expertise include

acoustics, sensors and instrumentation, marine geomatics, marine biotechnology, marine unmanned surface and underwater vehicles, marine data and communications systems, and naval architecture.

Ocean sectors served include: defence and security, shipbuilding and marine transportation, ocean science and observation, offshore and coastal energy, and aquaculture and fisheries.

NOVA SCOTIA HAS ONE OF THE

HIGHEST CONCENTRATIONS
OF OCEANS-RELATED PhDs

IN THE WORLD (EST. 480)

# **MORE THAN 100**

RESEARCHERS AND ACADEMICS ACROSS NINE FACULTIES

AT DALHOUSIE UNIVERSITY

# 600

SCIENTISTS, ENGINEERS AND OTHER RESEARCHERS

> WORK OUT OF THE BEDFORD INSTITUTE OF OCEANOGRAPHY

INCLUDING SPIN-OFFS,
OCEAN-RELATED INDUSTRIES
GENERATE APPROXIMATELY
\$4.5 billion or
12.2% OF NOVA SCOTIA'S GDP

OF ALL RESEARCH AND DEVELOPMENT BUSINESSES IN NOVA SCOTIA ARE IN THE AREA OF OCEAN TECHNOLOGY

OVER **200** COMPANIES,
WITH MORE THAN 60 INNOVATORS
OF NEW PRODUCTS AND SERVICES

# BIG OCEANS PROJECTS AT DALHOUSIE UNIVERSITY

CANADA EXCELLENCE RESEARCH CHAIR \$34m

\$25m

OCEAN TRACKING NETWORK \$128m

MARINE ENVIRONMENTAL OBSERVATION PREDICTION AND RESPONSE NETWORK (MEOPAR)

# OCEANS RESEARCH

IS BEING DONE BY NOVA SCOTIA
UNIVERSITIES, NOVA SCOTIA
COMMUNITY COLLEGE (NSCC), AND
PUBLIC AND PRIVATE COMPANIES
AND INSTITUTIONS

ABOUT 35,000

NOVA SCOTIANS
ARE DIRECTLY EMPLOYED
IN THE OCEANS SECTOR

HALIFAX PARTNERSHIP

CanadasOceanCity.com

ANCHOR INSTITUTIONS:

DALHOUSIE UNIVERSITY
BEDFORD INSTITUTE OF OCEANOGRAPHY
DEPARTMENT OF NATIONAL DEFENCE
NOVA SCOTIA COMMUNITY COLLEGE (NSCC)

# **NOVA SCOTIA'S OCEAN ECOSYSTEM**

#### **MARINE BIOTECHNOLOGY**

Royal DSM's Halifax-based operation is the world's largest supplier of Omega-3 EPA/DHA ingredients to the dietary supplement and food manufacturing markets.

#### **Industry Associations**

BioNova

#### Marine Extract Products

Kenney & Ross Ltd.

#### **Nutraceuticals and Food Additives**

Acadian Seaplants Ascenta Health Roval DSM

#### Research and Business Development

Acadia University Dalhousie University Innovacorp

#### **Screening Tests**

Jellet Rapid Testing

#### **SCIENCE AND OBSERVATION**

20% of all research and development businesses in Nova Scotia are in the area of ocean technology.

#### **Coastal Zone Management**

AERDE Environmental Research Canadian Seabed Research Ltd. OEA Technologies Incorporated Seaforth Geosurveys Inc.

#### Communications

Omnitech Electronics Incorporated Nautel Ltd. MacArtney Underwater Technology

## Data Fusion

McGregor GeoScience Ltd. Sea-Bird Scientific TekMap Consulting

#### Equipment

Hawboldt Industries Omnitech Electronics Incorporated

#### Hydrography Geological Survey of Canada (Atlantic)

Romor Ocean Solutions

#### Industry Organizations & Networks

The Coastal and Ocean Information Network Atlantic (COINAtlantic) Ocean Technology Council of Nova Scotia

#### Ocean Tracking Network Council

#### Marine Acoustics, Sensors and Instrumentation

Acoustic Data Analysis Centre Atlantic AERDE Environmental Research

General Dynamics Canada

L-3 Electronic System Services Lockheed Martin Canada Inc. MacArtney Underwater Technology METOCEAN Data Systems Ocean Sonics Omnitech Electronics Incorporated

Instrument Concepts Inc.

Open Seas Instrumentation Inc. Pro-Oceanus Systems Inc.

Geospectrum Technologies Inc.

ODIM Brooke Ocean Romor Ocean Solutions Saab Support and Services

Sea-Bird Scientific Ultra Electronics Marine Systems VFMCO

#### Modeling and Forecasting

Bedford Institute of Oceanography Centre for Marine Environmental Prediction – Dalhousie University MacDonald, Dettwiler and Associates Ltd.

### Monitoring

Instrument Concepts Inc. JouBeh OEA Technologies Inc. Omnitech Electronics Incorporated Pro-Oceanus Systems Inc. VEMCO XEOS Technologies Inc.

#### Ocean Mapping

Bedford Institute of Oceanography Geological Survey of Canada (Atlantic) MacDonald, Dettwiler and Associates Ltd.

#### Seaforth Geosurveys Inc. Oceanography / Meteorology

Bedford Institute of Oceanography Canadian Seabed Research Ltd. Centre for Marine Environmental Prediction – Dalhousie University JouBeh McGregor GeoScience Ltd.

METOCEAN Data Systems

OEA Technologies Inc. Open Seas Instrumentation Inc. ODIM Brooke Ocean

Sea-Bird Scientific

#### Research

Bedford Institute of Oceanography Dalhousie University Institute for Ocean Research Enterprise National Research Council of Canada

#### Seismic Survey

Geological Survey of Canada (Atlantic)

#### **Underwater Intervention** MOOG Oil and Gas

#### **Underwater Vehicles**

Omnitech Electronics Incorporated

#### **OFFSHORE AND COASTAL ENERGY**

Nova Scotia Offshore Exploration worth \$2B: Nova Scotia holds an estimated 3.3 trillion cubic meters of offshore natural gas and 8 billion barrels of oil. Shell Canada acquired four offshore parcels for a record bid of \$970 million in early 2012, and UK-based BP bid \$1.05 billion for four deep-water parcels in late 2012.

#### **Exploration**

RP FnCana ExxonMobil Canada MOOG Oil and Gas Shell Canada TekMap Consulting Welaptega Marine Limited

#### Industry Organizations

The Maritimes Energy Association Ocean Technology Council of Nova Scotia

Offshore Energy Research Association **Production and Processing** 

#### H-Energy MOOG Oil and Gas Pieridae Energy

Project Management / Consultancy Fieldco Services Inc. Offshore Technical Services Ltd. (OTSL)

#### Seismic Survey

Canadian Seabed Research Inc. GeoSpectrum Technologies Inc. Instrument Concepts Inc. McGregor GeoScience Ltd. ODIM Brooke Ocean Seaforth Geosurveys Inc. TekMap Consulting

#### **Transmission**

Maritimes and Northeast Pipeline Nova Scotia Power

#### **Underwater Intervention**

Blue Drop Performance Learning Instrument Concepts Inc. Welaptega Marine Limited

#### **DEFENCE AND SECURITY**

Halifax has a dynamic defence and security cluster largely focused on the marine environment. Nova Scotia is home to over 40% of Canada's military assets. Through its strategic location in Halifax, Maritime Forces Atlantic employs over 10,000 civilian and military personnel.

#### **Industry Associations**

Aerospace and Defence Industries Association of Nova Scotia Ocean Technology Council of Nova Scotia

#### Military Blue Drop Performance Learning

DRS Pivotal Power L-3 Electronic System Services Lockheed Martin Canada Inc. MacDonald, Dettwiler and Associates Ltd. OEA Technologies Inc. Omnitech Electronics Incorporated ODIM Brooke Ocean

#### Ultra Electronics Maritime Systems Port Security

Defence Research and Development Canada (DRDC) Atlantic MacDonell Group Omnitech Electronics Incorporated Ultra Electronics Maritime Systems

#### Search and Rescue

METOCEAN Data Systems OEA Technologies Inc.

#### **Support Services** SNC-Lavalin Inc.

Surveillance Blue Drop Performance Learning

#### CarteNav Solutions Inc. Deep Vision Inc.

Defence Research and Development Canada (DRDC) Atlantic

GeoSpectrum Technologies Inc. MacDonald, Dettwiler and

Associates Ltd. Omnitech Electronics Incorporated

#### Ultra Electronics Maritime Systems **Systems Integration**

General Dynamics Canada Omnitech Electronics Incorporated

#### **SHIPBUILDING**

Halifax shipbuilding contract worth \$29.3B: Irving Shipbuilding was awarded the contract to build vessels for the federal government's shipbuilding procurement strategy in 2012.

These are Nova Scotia companies who provide products and services necessary to construct Canada's next generation of naval vessels.

#### Architecture (Naval)

AF Theriault & Son Allswater Irving Shipbuilding LeeWay Marine Martec Ltd.

#### Boat / Hovercraft Design and Build

Keltic Marine Group Nova Scotia Boat Builders Association Rosborough Boats

#### Classification

Llvod's Register Marine

#### Communications

Omnitech Electronics Incorporated Stevens Solutions & Designs

#### Composites

Stelia Aerospace North America

#### Computer Systems / Software Nicom Maritime

Ragot CAD/CAM Services Decking

## Kongsberg Maritime Ltd.

Electronics

# Allendale Electronics Ltd.

Electrical Spar Marine

# Engineering

ADM Systems Engineering Allswater Eastpoint Engineering Ltd. EYE Marine Consultants Fleetway Inc.

DNV GL Maritime Grantec Engineering Consultants Inc.

Lengkeek Vessel Engineering MacDonnell Group Martec Limited

Siemens Canada MTain Inc.

#### Galvanizing AZZ Galvanizing

HVAC

Alscott Air Systems Limited Bronswerk Marine Inc. FP HVAC Inc.

#### Hydraulics

East Coast Hydraulics & Machinery Ltd. Hawboldt Industries

Hydraulic Systems Ltd. Ice Management Horizon Systems Groups Instruments CTH Instruments Ltd.

Hercules SLR Inc.

#### K&D Pratt Group Inc. Machining / Fabrication

ABCO Industries Limited. Advanced Precision Aecon Atlantic Industrial Inc. Alloy Concepts Inc. Bradeans Tool & die Limited Cherubini Group DGI Supply Exact Machine Co Ltd.

#### Lunenburg Ind. Foundry & Engineering Limited

MacGregor's Industrial Group Marid Industries Limited Mulgrave Machine Works Ltd. Quality Machining Services Ltd. TG Welding & Fabrication Ltd. Target Hydraulics & Machine Works Ltd. Techtronics Machine Works Ltd.

#### **Metals Distributor**

Samuel, Son & Co. Limited

#### Navigation Nautel Ltd.

NSCC RC Marine Electronics Ltd.

#### Sperry Marine (Northrup Grumman) Noise Control

Jasco Applied Sciences Ltd. Project Management

#### Quay Marine Associates Ltd.

Propulsion and Power Systems ABB Atlantic Tractors and Equipment Ltd. Wajax Power Systems

MAN Diesel & Turbo Canada Inc. Wartsila Canada

#### Xero Point Green Technology **Quality Assurance**

Breton ND Testing Inc.

DRS Power Solutions

#### Safety

Acklands Grainger Don Breton's Fire Protection (DBCan) HSE Integrated Ltd. IMP Group Ltd., Marine Division Micmac Fire Safety Source Ltd. Safety Steps.ca

#### Ship Repair

Canadian Maritime Engineering Ltd. Dixon's Marine Group 2000 Inc. The Nodding Group Remote Access Technologies

#### MARINE TRANSPORTATION

The Port of Halifax provides importers and exporters with connections to 150 countries. serving major lines on transatlantic, Suez and pendulum routings including: Europe, Middle East, Southeast Asia/Indian Subcontinent and the Far East.

#### **Navigation**

Nova Scotia Community College (NSCC)

#### Ports

**Transportation** Atlantic Towing

Port of Halifax

Brookville Carriers Secunda Canada LP – Marine Services

#### **FISHERIES AND AQUACULTURE**

Nova Scotia is Canada's largest exporter of fish and seafood, with exports valued at \$1.66 billion. The province is home to thousands of independent fishing vessels and hundreds of aquaculture sites and fish plants.

#### **Associations**

Aquaculture Association of Nova Scotia Bay of Fundy Marine Resource Centre Nova Scotia Fisheries Sector Council Nova Scotia Fish Packers Association

### Data Analysis and

**Management Solutions** Atlantic Catch Data JouBeh VEMCO

#### Equipment

**Processing** 

Merex

Crimond Enterprises Ltd. Hawboldt Industries Inventive Marine Products Ltd. Rainbow Net & Rigging Ltd. Mechanical Design and Analysis

# Dynamic Systems Analysis

Acadian Seaplants Clearwater Seafoods Cooke Aquaculture High Liner Foods

#### **EDUCATION AND** TRAINING INSTITUTIONS

Nova Scotia has an estimated 480 oceans-related PhDs-one of the highest concentrations in the world. More than 100 oceanrelated researchers and academics work out of Dalhousie University. 600 scientists, engineers and other researchers work out of the Bedford Institute of Oceanography.

#### Marine Science & Ocean Technology R&D

Acoustic Data Analysis Centre Atlantic Bedford Institute of Oceanography Canadian Institute of Fisheries Technology Dalhousie University Defence Research and Development Canada (DRDC Atlantic) Fundy Oceans Research Centre for Energy (FORCE) Institute for Ocean Research Enterprise Maritime Forces Atlantic

#### Nova Scotia Community College (NSCC) Safety / Evacuation / Intervention

National Research Council of Canada

(MARLANT) – Halifax

#### Survival Systems Training

Simulation Training BlueDrop Performance Learning CAE Defence and Security

# **HALIFAX PARTNERSHIP** CONNECT, COLLABORATE, PROSPER,

CanadasOceanCity.com