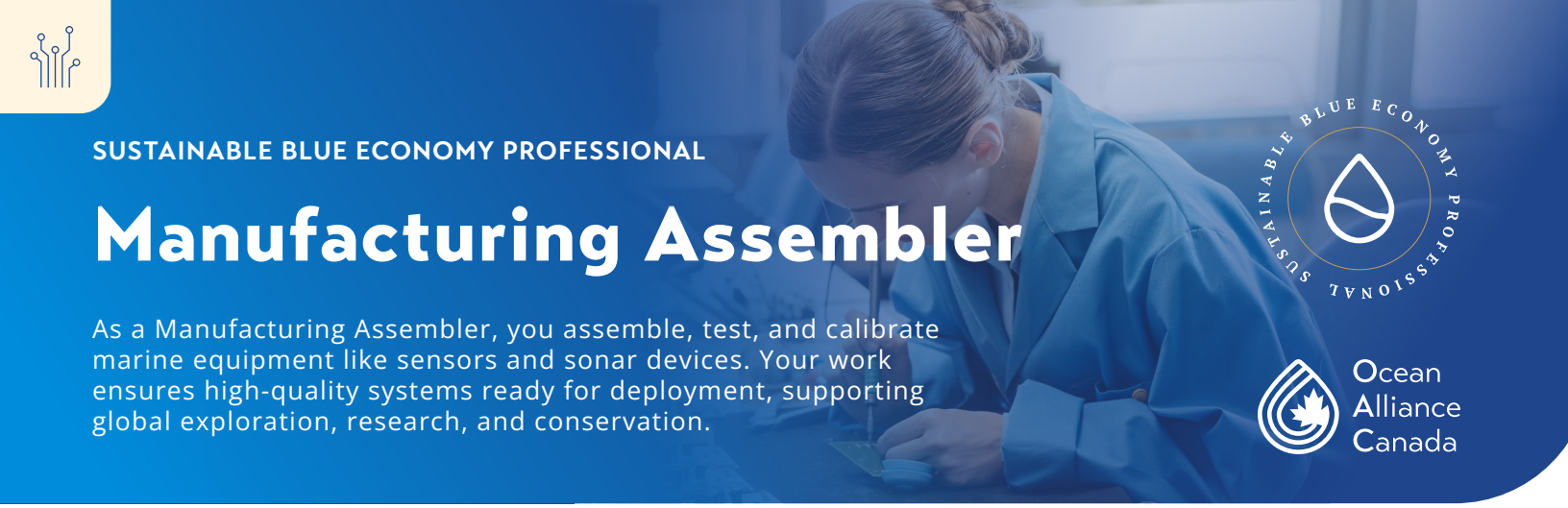
SUSTAINABLE BLUE ECONOMY PROFESSIONAL

Manufacturing Assembler

As a Manufacturing Assembler, you assemble, test, and calibrate marine equipment like sensors and sonar devices. Your work ensures high-quality systems ready for deployment, supporting global exploration, research, and conservation.



Ocean Alliance Canada

JOB DUTIES

- Assemble components of oceanographic equipment;
- Interpret blueprints and technical diagrams;
- Conduct quality control tests on completed assemblies, and perform calibrations;
- Perform routine maintenance on tools and equipment;
- Collaborate with engineers and production teams to resolve technical issues, troubleshoot assembly challenges, and improve assembly processes;
- Document assembly steps, test results, and quality assurance checks; and
- Ensure safety standards and protocol compliance.

EDUCATION

A career as a Manufacturing Assembler in the Ocean Technology sector requires a foundation in mechanical assembly, and electronics. An interest in high-tech equipment and marine technology is essential.

- Technical Diploma or Certification:
  - A diploma in Manufacturing Technology, Electronics, Mechanical Engineering Technology, or a similar field; and
  - Courses in precision manufacturing, electronics, and quality control.
- Additional Training:
  - Specialized certifications in soldering, electrical assembly, or quality assurance (e.g., IPC certifications for electronics assembly); and
  - Familiarity with ISO quality standards and practices is also valuable.

TECHNICAL SKILLS

- Basic Soldering and Electrical Wiring Skills;
- Proficiency in Assembly and Calibration Techniques for electronic and mechanical components;
- Familiarity with Diagnostic and Testing Equipment for quality control;
- Knowledge of Safety Protocols and Quality Assurance Standards;
- Ability to Interpret Technical Diagrams;
- Experience with Precision Tools and Measurement Instruments;
- Understanding of Material Properties and Compatibility in marine environments;
- Ability to Operate and Maintain CNC Machines; and
- Proficiency in Using Inventory Management Software.

PERSONAL & PROFESSIONAL SKILLS

- Strong Attention to Detail
- Problem-Solving Abilities
- Manual Dexterity and Precision
- Communication Skills
- Time Management
- Team Collaboration
- Patience and Persistence

WHERE TO WORK

Manufacturing Assemblers in ocean technology work with organizations producing marine and oceanographic equipment, including:

Oceanographic Equipment Manufacturers | Marine Technology Companies | Research and Development Institutions | Government Marine and Environmental Agencies | Environmental Monitoring and Conservation Organizations University Research Facilities with Ocean Technology Divisions

SUSTAINABLE BLUE ECONOMY PROFESSIONAL

Acoustic Engineer

As a Marine Acoustic Engineer, you apply the science of sound to study its impact on aquatic life and develop technologies for sound detection and monitoring. Your expertise drives the design and analysis of acoustic equipment for environmental monitoring, sonar systems, and noise pollution control. By advancing sustainable maritime practices, your work enhances our understanding of marine ecosystems while reducing human impact on ocean habitats.

Sustainable Blue Economy Professional

Ocean Alliance Canada

JOB DUTIES

- Develop acoustic devices and systems;
- Conduct acoustic testing and analysis;
- Monitor underwater noise levels and assess noise pollution;
- Ensure accurate calibration of acoustic equipment;
- Collaborate with researchers to plan research projects;
- Develop noise control solutions and technologies that minimize sound disturbances from human activities;
- Use software and simulation tools to model sound behaviour; and
- Document research findings, prepare technical reports, and present results to stakeholders.

EDUCATION

- Bachelor's Degree:
  - Acoustical Engineering, Marine Technology, Physics, Mechanical Engineering, or a related field.
- Advanced Degrees:
  - For more specialized or research-focused roles, a master's or doctoral degree can be advantageous.
- Additional Training:
  - Institute of Acoustics Certificate of Competence in Environmental Noise Measurement.

TECHNICAL SKILLS

- Acoustic Equipment Design & Calibration;
- Knowledge of Sound Propagation and Underwater Acoustics;
- Data Collection and Analysis;
- Familiarity with Environmental Noise Regulations and Impact Assessment;
- Experience with Modeling Software;
- Competency in Operating Hydrophones and Sonar Systems; and
- Ability to Interpret Acoustic Data.

PERSONAL & PROFESSIONAL SKILLS

- Attention to Detail
- Problem-Solving
- Communication Skills
- Team Collaboration
- Adaptability
- Strong Organizational Skills
- Effective Time Management
- Creativity

WHERE TO WORK

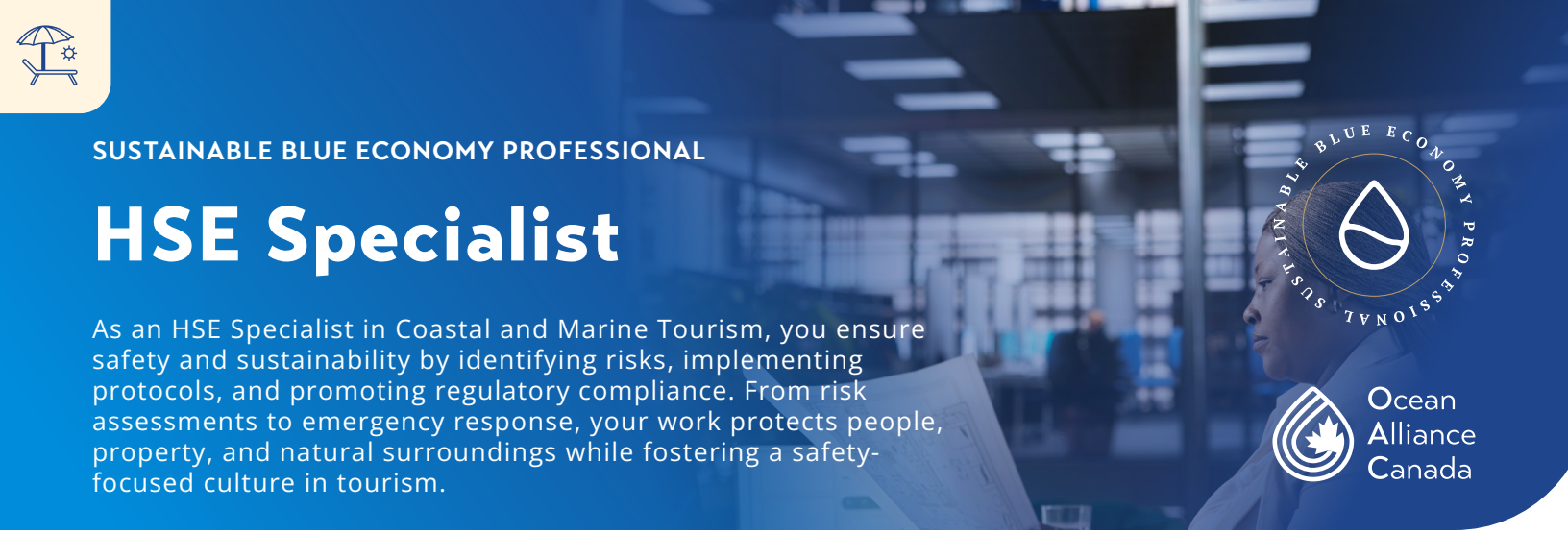
Acoustic Engineers can work with organizations specializing in underwater sound research, environmental conservation, and marine technology innovation, including:

Environmental Research Organizations | Government Agencies
Marine Technology and Engineering Firms | Offshore Oil and Gas Companies
Universities and Research Institutions | Environmental Consulting Firms
Defense and Naval Organizations

SUSTAINABLE BLUE ECONOMY PROFESSIONAL

HSE Specialist

As an HSE Specialist in Coastal and Marine Tourism, you ensure safety and sustainability by identifying risks, implementing protocols, and promoting regulatory compliance. From risk assessments to emergency response, your work protects people, property, and natural surroundings while fostering a safety-focused culture in tourism.



JOB DUTIES

- Conduct regular on-site inspections to identify hazards, ensuring tourism facilities and coastal environments meet health, safety, and environmental standards;
- Evaluate potential risks related to marine and coastal activities, developing strategies and protocols to mitigate hazards and promote safe practices;
- Organize and lead emergency response drills;
- Oversee adherence to local, regional, and national health, safety, and environmental regulations;
- Track and document incidents, and other HSE-related issues, providing reports and insights;
- Engage with employees, visitors, and stakeholders; and
- Work closely with tour operators, local authorities, and environmental organizations.

EDUCATION

Starting a career as an HSE Specialist in Coastal Tourism requires interest in health, safety, and environmental stewardship.

- Post-Secondary Education:
  - A diploma or bachelor's degree in Occupational Health and Safety, Environmental Science, Marine Studies, or a related field.
- Certifications:
- Basic First Aid, WHMIS (Workplace Hazardous Materials Information System), or entry-level health and safety certifications (e.g., Occupational Health and Safety Certificate).

TECHNICAL SKILLS

- Knowledge of Health and Safety Regulations;
- Risk Assessment and Hazard Identification;
- Emergency Response Procedures;
- Documentation and Report Writing;
- Basic Data Analysis; and
- Familiarity with Environmental Monitoring Tools and Techniques.

PERSONAL AND PROFESSIONAL SKILLS

- Attention to Detail
- Strong Communication and Interpersonal Skills
- Problem-Solving
- Ability to Work Independently and in Teams
- Organizational and Time Management Skills
- Leadership Skills

WHERE TO WORK

HSE Specialists in coastal and marine tourism work with organizations focused on tourism, conservation, and coastal safety, including:

Coastal and Marine Tourism Operators | Environmental Conservation Organizations | Government Agencies and Regulatory Bodies Resort and Recreation Facilities | Eco-Tourism Companies | Marine Transportation Companies | Environmental Consulting Firms

SUSTAINABLE BLUE ECONOMY PROFESSIONAL

Fishing Vessel Master

As a Fishing Vessel Master, you lead your crew to balance productivity, safety, and environmental stewardship. With expertise in navigation and sustainable fishing, you safeguard coastal waters, uphold fishing traditions, and preserve resources for future generations.

Ocean Alliance Canada

JOB DUTIES

- Navigating the vessels through open waters, using knowledge of tides, weather patterns, and marine charts;
- Overseeing fishing operations;
- Conducting regular safety drills and maintaining safety protocols on board;
- Managing and mentoring the crew;
- Monitoring equipment performance and coordinating maintenance and repairs;
- Recording detailed logs of fishing activities, such as catch data;
- Adapting to changing sea and weather conditions; and
- Maintaining communication with port authorities, other vessels, and shore support.

EDUCATION

- Vessel Operation Certification: a Master's Certificate or Fishing Master's Certificate;
- Diploma or Certification in Marine Navigation or Fisheries Management:
  - Programs in maritime studies, navigation, or fisheries management provide foundational knowledge in vessel operations, sustainability, and fishing regulations;
- On-the-Job Training: experience as a deckhand or crew member is often necessary for skill building;
- Additional Certifications: Training in First Aid, CPR, and safety protocols (e.g., Standards of Training, Certification, and Watchkeeping (STCW)); and
- Relevant coursework or training may include:
  - marine navigation, seamanship, vessel maintenance, and sustainable fishing practices.

TECHNICAL SKILLS

- Proficiency in navigation and other fishing assistance software;
- Operations and maintenance of hydrualic equipment;`
- Maintenance of fishing equipment
- Knowledge of Marine and Fishing Regulations;
- Expertise in Crew Management and Emergency Response;
- Skills in Fishing Techniques and Equipment Operation; and
- Data Recording and Logkeeping.

PERSONAL AND PROFESSIONAL SKILLS

- Strong Leadership
- Team Management
- Decision-Making Skills
- Effective Communication Skills
- Physical Stamina
- Resilience for working in demanding marine environments & challenging weather conditions

WHERE TO WORK

Fishing Vessel Masters may work with organizations including:

Commercial Fishing Companies | Indigenous Fisheries and Community-Based Fishing Enterprises | Seafood Processing and Export Companies | Government-Managed Fisheries Programs | Private Fishing Vessel Owners and Cooperatives

INDIGENOUS PATHWAYS

ECO Canada is committed to increasing Indigenous Participation in the Blue Economy by highlighting non-traditional education and training pathways.

Indigenous communities have a deep-rooted history in sustainable fishing, making the role of Fishing Vessel Master a natural fit for many. Programs tailored specifically to Indigenous fishers offer pathways into this leadership role, blending traditional knowledge with advanced certifications to uphold community values and ecological practices.

INDIGENOUS FISHERIES GUARDIAN PROGRAM

- Provides training for Indigenous individuals to manage and protect their fishing territories; and
- Equips participants with leadership skills and marine certifications, such as the Fishing Master's Certificate.

PACIFIC INTEGRATED COMMERCIAL FISHERIES INITIATIVE (PICFI)

- Supports pathways into fishing careers;
- Offers both financial support and professional development; and
- Creates opportunities for Indigenous women to become certified vessel operators.

FIRST NATIONS COMMERCIAL FISHERIES PROGRAM

- Training and funding for Indigenous aiming to pursue commercial fishing careers; and
- Provides mentorship from experienced captains, hands-on experience, and access to training courses in navigation, vessel management, and sustainable fishing techniques.

Ocean Alliance Canada

SUSTAINABLE BLUE ECONOMY PROFESSIONAL

Fishing Vessel Master

SUSTAINABLE BLUE ECONOMY PROFESSIONAL

SUSTAINABLE BLUE ECONOMY PROFESSIONAL

Fisheries Biologist

As a Fisheries Biologist, you study and protect fish populations and habitats through research, analysis, and data management. Collaborating with agencies and conservation groups, you recommend sustainable practices and habitat restoration to support biodiversity and ecosystem resilience.

Ocean Alliance Canada

JOB DUTIES

- Conducting field research to monitor fish populations;
- Designing and implementing studies to assess the health of fish populations and aquatic ecosystems;
- Analyzing biological and environmental data;
- Collaborating with conservation organizations, government agencies, and local communities;
- Evaluating the impact of land and water use on fish habitats;
- Preparing and presenting technical reports that communicate findings and recommendations;
- Managing scientific databases to maintain accurate and accessible records; and
- Providing guidance on regulatory compliance related to fisheries and habitat protection.

EDUCATION

- Bachelor's Degree:
  - A degree in Biology, Aquatic Sciences, Environmental Science, Ecology, or a related field
- Advanced Degrees:
  - A master's or doctoral degree in Fisheries Science, Marine Biology, or Environmental Science

TECHNICAL SKILLS

- Proficiency in Fish Population Assessment and Surveying;
- Data Collection and Analysis;
- Strong Skills in Statistical Software;
- GIS and Remote Sensing;
- Knowledge of Regulatory Compliance and Environmental Legislation; and
- Competent in Water Quality Testing and Sample Collection Techniques.

PERSONAL AND PROFESSIONAL SKILLS

- Strong Observational Skills
- Critical Thinking and Problem-Solving
- Communication Skills
- Collaboration and Interpersonal Skills
- Project Management and Organizational Skills
- Adaptability

WHERE TO WORK

Fisheries Biologists work with organizations focused on aquatic research, conservation, and sustainable resource management, including:

Commercial Fishing Companies | Indigenous Fisheries and Community-Based Fishing Enterprises | Seafood Processing & Export Companies | Government-Managed Fisheries Programs | Private Fishing Vessel Owners and Cooperatives

SUSTAINABLE BLUE ECONOMY PROFESSIONAL

Dockworker

As a Dockworker, you play a vital role in marine logistics, ensuring cargo is safely transferred between ships, docks, and storage areas. Your work keeps global trade moving efficiently, supporting economies and communities worldwide.

JOB DUTIES

- Load and unload cargo from ships using forklifts, pallet jacks, and cranes;
- Secure cargo on vessels and in storage areas;
- Inspect cargo for damage and report irregularities;
- Follow strict safety protocols;
- Assist in the maintenance of dock equipment;
- Coordinate with port crew, ship staff, and logistics teams; and
- Complete inventory and shipment documentation.

TECHNICAL SKILLS

- Proficiency in Operating Forklifts, Pallet Jacks, and Cranes;
- Knowledge of Safety Protocols and Hazard Prevention;
- Ability to Secure and Inspect Cargo Safely;
- Basic Inventory and Documentation Skills;
- Physical Strength and Stamina for Heavy Lifting;
- Understanding of Load Balancing and Weight Distribution for Vessel Safety; and
- Familiarity with Warehouse Management Systems (WMS) or Logistics Software.

EDUCATION

- High School Diploma or Equivalent
- On-the-Job Training
- Additional Certifications: Forklift operation, workplace safety, OH&S Certifications

PERSONAL AND PROFESSIONAL SKILLS

- Attention to Detail
- Problem-Solving Abilities
- Team Collaboration & Communication
- Adaptability to a Fast-Paced Environment
- Reliability and Punctuality
- Strong Work Ethic and Commitment to Deadlines
- Ability to Handle Stress and Perform in Physically Demanding Conditions

WHERE TO WORK

Dockeworkers may work in organizations including:

Commercial Shipping Companies | Marine Cargo Handling and Logistics Firms
Port Authorities | Container Terminals | Freight Forwarding Companies
Government Transportation Agencies | Private Marine and Industrial Ports

SUSTAINABLE BLUE ECONOMY PROFESSIONAL

Aquaculture Technician

As an Aquaculture Technician, you manage aquatic life in hatcheries and aquaculture facilities, ensuring healthy growth through feeding, habitat maintenance, water quality monitoring, and disease prevention. Your work supports sustainable seafood production and contributes to a vital industry for global food security.

Ocean Alliance Canada

JOB DUTIES

- Monitor and maintain water quality;
- Feed fish and other marine organisms according to precise schedules;
- Assess fish behaviour and health, identifying signs of disease;
- Record data on water quality, feeding patterns, and growth rates;
- Clean and maintain tanks, filters, and other aquaculture equipment;
- Assist in the breeding and hatching processes;
- Record data on growth rates, water parameters, and feed intake;
- Collaborate with biologists, veterinarians, and other aquaculture professionals; and
- Develop and update standard operating procedures (SOPs).

TECHNICAL SKILLS

- Proficiency in Water Quality Monitoring and Analysis;
- Feeding and Nutrition Management for Aquatic Species;
- Equipment Maintenance and Operation for Aquaculture Systems; and
- Data Collection and Record-Keeping for Aquaculture Operations.

EDUCATION

- Diploma or Bachelor's Degree:
  - A diploma or degree in Aquaculture, Marine Biology, Fisheries Science, or Environmental.
- Certifications in areas like water quality testing, disease management, and safety (e.g., First Aid, CPR) are beneficial.
- Specialized training in aquaculture techniques and sustainable farming practices, such as those offered by the Aquaculture Certification Council (ACC) or similar organizations, can enhance qualifications.

PERSONAL AND PROFESSIONAL SKILLS

- Attention to Detail
- Problem-Solving
- Physical Stamina
- Communication Skills
- Ability to Work Effectively in Outdoor and Laboratory Settings

WHERE TO WORK

Aquaculture Technicians can work in organizations including:

Fish Hatcheries | Commercial Aquaculture Farms
Research and Development Institutions | Seafood Processing Facilitie
Environmental Conservation Organizations | Government Fisheries Departments
Universities and Marine Biology Research Centers

INDIGENOUS PATHWAYS

ECO Canada is committed to increasing Indigenous Participation in the Blue Economy by highlighting non-traditional education and training pathways.

For Indigenous individuals interested in sustainable aquaculture, a career as an Aquaculture Technician offers a valuable way to contribute to food security and environmental stewardship within their communities. Programs dedicated to Indigenous aquaculture training provide pathways combining traditional ecological knowledge with modern aquaculture practices.

INDIGENOUS FISHERIES AND AQUACULTURE INITIATIVE (IFAI)

INITIATIVES SUPPORTED BY FISHERIES AND OCEANS CANADA

- Offers funding, training, and resources for Indigenous communities to develop and manage aquaculture facilities; and
- Provides Indigenous participants with technical training in fish husbandry, water quality monitoring, and facility management—skills essential for Aquaculture Technicians.

BEAHR AQUACULTURE TECHNICIAN TRAINING (ATT)

- Provides training for entry-level positions as aquaculture technicians with the ability to assist fish farm and hatchery managers with breeding and rearing of marine species;
- Aims to help build local capacity within indigenous communities, with a focus on sustainable aquaculture activities; and
- Helps participants in developing their technical knowledge, professional attitude, and organizational skills to find meaningful employment in the ocean sector.

B.C. INDIGENOUS AQUACULTURE FUND

- Supports Indigenous-led aquaculture projects in British Columbia;
- Fund allows Indigenous communities to create sustainable aquaculture operations, providing training and mentorship to Indigenous youth and adults interested in technical roles within the field; and
- Participants gain skills in hatchery management, fish health, and sustainable resource use, ensuring that they can uphold industry standards and traditional practices.

ABORIGINAL AQUACULTURE ASSOCIATION (AAA)

- Offers tailored training programs, scholarships, and apprenticeships specifically for Indigenous individuals; and
- Focus on skill-building in fish breeding, environmental monitoring, and sustainable aquaculture practices.

Ocean Alliance Canada

SUSTAINABLE BLUE ECONOMY PROFESSIONAL

Aquaculture Technician

SUSTAINABLE BLUE ECONOMY PROFESSIONAL

SUSTAINABLE BLUE ECONOMY PROFESSIONAL

Wind Turbine Technician

Wind Turbine Technicians maintain and repair turbines powered by coastal and marine winds, conducting inspections and troubleshooting mechanical and electrical issues to ensure optimal performance. Working at heights and in varied weather conditions, you play a crucial role in keeping renewable energy systems safe and reliable. Your skills support sustainable coastal energy initiatives, benefiting communities and industries committed to a greener future.

JOB DUTIES

- Perform routine inspections and maintenance on wind turbines, including checking blades, and tower components for wear or damage;
- Troubleshoot and diagnose mechanical and electrical issues;
- Conduct safety checks and adhere to safety protocols at all times;
- Replace or repair damaged turbine components;
- Use diagnostic tools to run tests and analyze turbine performance;
- Maintain records of inspections, maintenance activities, and repairs; and
- Collaborate with other technicians on maintenance schedules.

EDUCATION

- Diploma or Certificate:
  - A technical diploma or certificate in Wind Energy Technology, Renewable Energy, Electrical Technology, or a related field is often required.
- Apprenticeship Programs:
  - Some technicians enter the field through apprenticeships, which provide practical, on-the-job training and a structured learning path.
- Additional Training:
  - Global Wind Organization (GWO) offers specialized safety training (e.g., GWO Basic Safety Training); and/or
  - Certifications in electrical and mechanical systems form National Electrical Contractors Association (NECA).

TECHNICAL SKILLS

- Mechanical and Electrical Repair and Maintenance;
- Proficiency with Hydraulic Systems;
- Diagnostic Skills for Turbine and Electrical Systems;
- Knowledge of Safety Protocols for working at heights and with high-voltage equipment;
- Understanding of Aerodynamic Principles in Turbine Design; and
- Knowledge of Industry Regulations and Compliance Standards.

PERSONAL & PROFESSIONAL SKILLS

- Attention to Detail
- Problem-Solving
- Physical Stamina and Dexterity
- Ability to Work Independently and in Teams
- Strong Communication Skills
- Adaptability to Work in Varied Weather Conditions
- Strong Organizational Skills for Managing Maintenance Schedules Critical Thinking

WHERE TO WORK

Wind Turbine Technicians can find employment in various organizations committed to renewable energy and sustainable practices. common employers include:

Renewable Energy Companies focused on Wind Energy | Offshore Wind Farm Operators | Environmental and Conservation Organizations | Government Agencies and Regulatory Bodies involved in Renewable Energy | Marine Engineering and Consulting Firms specializing in Wind Energy Projects | Utility Companies with Renewable Energy Divisions | Equipment Manufacturers for Wind Turbine Maintenance and Repair

SUSTAINABLE BLUE ECONOMY PROFESSIONAL

Software Developer

Software Developers in the Ocean Technology sector create and maintain applications for underwater exploration, marine research, and environmental monitoring. They build software solutions tailored to marine environments, working with data from sensors, navigation systems, and remotely operated vehicles. As a Software Developer in this field, you design and implement applications that help monitor ocean health, track marine species, and manage subsea equipment.

JOB DUTIES

- Create and optimize software applications that support marine research, data collection, and underwater operations;
- Perform rigorous testing and debugging;
- Work closely with marine scientists, engineers, and data analysts to develop integrated solutions;
- Develop algorithms and applications for real-time data analysis;
- Update and maintain software systems to ensure compatibility with new technologies;
- Adhere to industry regulations and best practices, ensuring software supports sustainable practices and environmental protection; and
- Observe software performance in real-world conditions, making adjustments to enhance functionality and reliability.

TECHNICAL SKILLS

- Programming Languages: Python, C++, Java;
- Data Processing and Analysis;
- System Integration with Marine Hardware;
- Software Testing and Debugging; and
- Real-Time Data Processing.

EDUCATION

An undergraduate diploma or degree is typically required to become a software developer. Relevant fields of study include:

- Computer Science;
- Software Engineering;
- Electrical Engineering;
- Ocean Technology;
- Ocean Engineering; and/or
- Marine Emergency Duties (MED) Certification.

Additional training in areas like data analysis, machine learning, or marine software systems can be valuable assets for this role:

- The Esri ArcGIS Certification supports skills in GIS and spatial analysis;
- The Certified Kubernetes Administrator (CKA); and
- Courses that focus on programming languages (e.g., Python, C++, Java), data processing, and real-time systems are highly relevant.

PERSONAL & PROFESSIONAL SKILLS

- Attention to Detail
- Problem-Solving
- Collaboration and Communication
- Project Management
- Critical Thinking
- Time Management
- Self-Motivation and Initiative

WHERE TO WORK

Software Fevelopers can find opportunities in various industries focused on marine exploration, environmental conservation, and underwater operations common employers include:

Marine Research Institutions | Environmental Consulting Firms Offshore Oil and Gas Companies | Government Agencies and Regulatory Bodies Technology and Engineering Firms Specializing in Marine Applications Renewable Energy Organizations Focused on Offshore Projects | Defense and Security Organizations involved in Underwater Surveillance and Monitoring

SUSTAINABLE BLUE ECONOMY PROFESSIONAL

ROV Technician

ROV Technicians operate, maintain, and repair ROV systems used in underwater environments. They pilot ROVs for inspections, repairs, and data collection in sectors like oil and gas, scientific research, and underwater construction. Their work is crucial for safe and efficient underwater operations, supporting environmental monitoring and subsea project success.

Sustainable Blue Economy Professional

Ocean Alliance Canada

JOB DUTIES

- Pilot the ROV in coordination with vessel operators;
- Prepare and test ROV systems before and after dives;
- Operate ROV cameras, sonar, navigation systems, and other ROV tools to perform underwater tasks;
- Conduct routine and preventative maintenance on ROV systems;
- Clean and rinse the ROV after each dive to prevent corrosion;
- Document dive records, including video, audio, and data logs;
- Work with engineers to modify and upgrade ROV capabilities; and
- Communicate technical information accurately and clearly.

TECHNICAL SKILLS

- ROV piloting;
- Routine & preventative maintenance;
- Navigation using sonar and cameras;
- Manipulation of underwater tools;
- Hydraulics knowledge; and
- Electrical systems repair.

EDUCATION

An undergraduate diploma or degree in a related field including:

- ROV Technology;
- Electrical, Electronics, or Mechanical Engineering/Technology;
- Marine Technology; and
- Mechatronics.

Certifications are often essential or highly beneficial:

- ROV Pilot Certification; and
- Marine Emergency Duties (MED) Certification.

PERSONAL & PROFESSIONAL SKILLS

- Effective communication
- Team collaboration
- Problem-solving
- Attention to detail
- Adaptability to underwater conditions
- Stress management

WHERE TO WORK

ROV Technicians work in industries like subsea oil and gas, research, and construction, where they support remote operations for exploration, maintenance, and data collection. they are crucial for maintaining safety and operational standards in these sectors:

Oil and Gas Companies | Marine Research Facilities| Salvage Operations
Telecommunication Companies | Offshore Construction Projects
Defense and Security Agencies | Environmental Consulting Firms
Aquaculture Operations

SUSTAINABLE BLUE ECONOMY PROFESSIONAL

Outdoor Animator

As an Outdoor Animator, you engage visitors in hands-on activities that highlight the beauty and importance of natural and coastal environments. Through guided experiences like kayaking or teaching about local wildlife, you educate and inspire, promoting sustainable tourism and fostering a deeper respect for marine ecosystems.

Sustainable Blue Economy Professional

Ocean Alliance Canada

JOB DUTIES

- Plan and lead guided outdoor activities and provide visitors with safe, engaging, and educational experiences;
- Develop and deliver educational content on local ecology, conservation, and cultural history;
- Ensure all safety protocols are followed;
- Share knowledge of local flora, fauna, and ecosystems, including traditional knowledge where appropriate;
- Assist in the maintenance of equipment;
- Promote sustainable tourism practices and compliance with environmental regulations;
- Support community events and activities;
- Work on a team of outdoor animators or with volunteers.

TECHNICAL SKILLS

- Proficiency in Outdoor Activity Skills (e.g., kayaking, snorkelling, hiking);
- Knowledge of Local Ecology and Environmental Conservation;
- First Aid and Emergency Response; and
- Group Management and Safety Protocols.

PERSONAL & PROFESSIONAL SKILLS

- Strong Communication Skills
- Storytelling and Interpretation
- Problem-Solving Abilities
- Physical Stamina and Resilience

EDUCATION

Typical education requirements include a high school diploma. However, a degree or diploma in Outdoor Recreation, Environmental Studies, Tourism, or a related field is generally beneficial. Courses in ecology, environmental education, and outdoor leadership also provide valuable skills. To work as an Outdoor Animator, certain certifications are either essential or highly recommended:

- First Aid and CPR are essential for ensuring participant safety.
- Wilderness First Responder certification is highly recommended for working in remote settings.
- Specialized training in water safety (e.g., Lifeguard or Open Water Diver certification).
- Wilderness guiding (e.g., Wilderness Tour Guide certification) can also be advantageous.
- Relevant coursework includes environmental education, outdoor leadership, interpretation, and wildlife management.

WHERE TO WORK

As an Outdoor Animator, you may work in organizations such as:

Eco-Tourism Companies | Marine and Coastal Parks
Convservation Organizations | Outdoor Education Centers
Adventure and Recreation Companies | Marine Resorts and Lodges

INDIGENOUS PATHWAYS

ECO Canada is committed to increasing Indigenous Participation in the Blue Economy by highlighting non-traditional education and training pathways.

For Indigenous individuals with a passion for nature and cultural storytelling, a career as an Outdoor Animator provides an opportunity to share traditional ecological knowledge and promote environmental stewardship. Various programs specifically support Indigenous pathways into eco-tourism and outdoor education, blending Indigenous heritage with modern outdoor guiding skills.

INDIGENOUS TOURISM ASSOCIATION OF CANADA (ITAC)

- Programs that help build careers in eco-tourism and cultural guiding;
- Learn guiding skills, cultural interpretation, and eco-tourism management; and
- Access to certifications (wilderness first aid).

ABORIGINAL YOUTH FIRST PROGRAM

- Works with Indigenous youth to develop skills in outdoor leadership and environmental stewardship; and
- Mentorship in guiding, conservation, and traditional land-use practices.

FIRST NATIONS STEWARDSHIP PROGRAM

PARKS CANADA

- Trains Indigenous youth and adults in park stewardship, wildlife observation, and ecological interpretation; and
- Learn skills such as plant and wildlife identification, storytelling, and leading educational tours, all within a framework that honours Indigenous land knowledge and conservation practices.

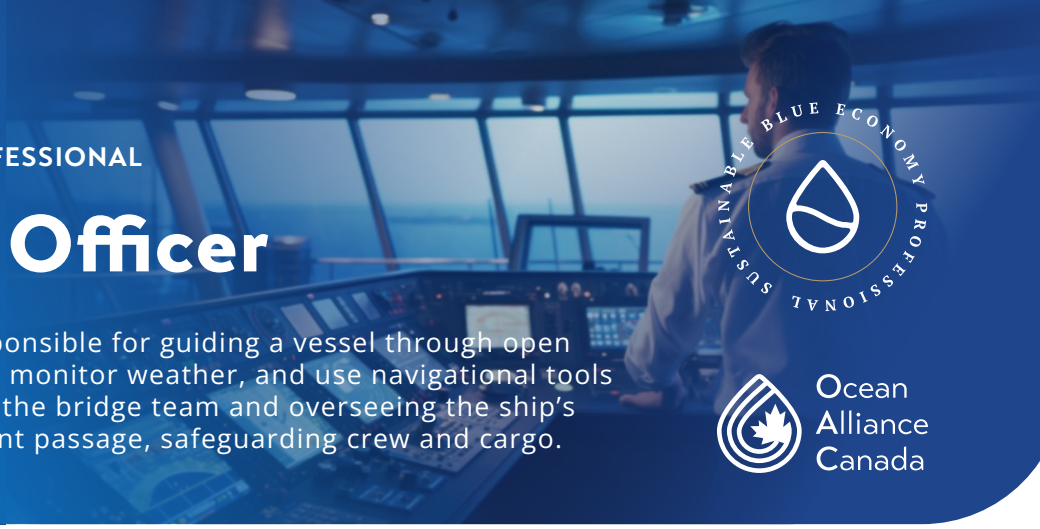
Through these programs, Indigenous individuals interested in becoming Outdoor Animators can access training, mentorship, and certifications that blend Indigenous wisdom with the demands of modern eco-tourism. This pathway allows Indigenous Outdoor Animators to build careers that celebrate their cultural heritage, connect people with nature, and foster a deeper respect for the environment.

Ocean Alliance Canada

SUSTAINABLE BLUE ECONOMY PROFESSIONAL

Outdoor Animator

SUSTAINABLE BLUE ECONOMY PROFESSIONAL



SUSTAINABLE BLUE ECONOMY PROFESSIONAL

Navigational Officer

As a Navigation Officer, you are responsible for guiding a vessel through open and coastal waters. You plan routes, monitor weather, and use navigational tools like radar and navigation. Managing the bridge team and overseeing the ship's movements, you ensure safe, efficient passage, safeguarding crew and cargo.

Ocean Alliance Canada

JOB DUTIES

- Plan and plot safe routes using navigational tools and software;
- Monitor and adjust the vessel's position, speed, and course;
- Conduct safety inspections and ensure that emergency protocols and life-saving equipment are compliant with maritime regulations;
- Oversee bridge operations and maintain watch, communicating with the bridge team and port authorities;
- Interpret weather data and reports to make informed adjustments to the route;
- Manage logbooks and records; and
- Lead and supervise junior officers and bridge crew.

EDUCATION

If considering a career as a Navigation Officer, a strong interest in maritime operations, navigation, and safety is key. Passion for dynamic environments and managing complex systems will support your success.

- Bachelor's Degree:
  - Nautical Science, Marine Transportation, or a related field.
- Certification:
  - Officer of the Watch (OOW) or higher qualifications from an accredited maritime institution.
  - Other certifications include STCW, ECDIS, GMDSS, and BRM.
- Additional Training:
  - Specialized training in areas like advanced navigation, emergency response, and ship management Electronics Association (NMEA) Marine Electronics Installer.

TECHNICAL SKILLS

- Proficiency in Navigational Tools;
- Maritime Regulations Knowledge;
- Weather Analysis and Interpretation;
- Electronic Chart Display Systems (ECDIS);
- Communication Systems Proficiency; and
- Emergency Response Knowledge.

PERSONAL & PROFESSIONAL SKILLS

- Attention to Detail
- Problem-Solving
- Communication Skills
- Leadership Skills
- Teamwork Abilities
- Adaptability

WHERE TO WORK

Navigational Officers may work for organizations such as:

Shipping Companies (cargo and passenger) | Marine Transport Operators (e.g., tours, charters) | Port Authorities | Government Agencies (e.g., coast guards and maritime administrations) | Offshore Oil and Gas Companies | Maritime Training Institutions

SUSTAINABLE BLUE ECONOMY PROFESSIONAL

Marine Technician

As a Marine Technician in the Coastal and Marine Tourism sector, you maintain and operate equipment essential for marine activities and vessel operations. Working with engineers and operators, you support the design, testing, and maintenance of systems on vessels, ensuring safe and efficient operations for tourism activities.

Ocean Alliance Canada

JOB DUTIES

- Inspect and maintain vessel engines, electrical systems, and onboard equipment;
- Perform repairs on mechanical and electrical systems;
- Install and calibrate navigation, communication, and safety equipment;
- Conduct regular safety checks on life-saving equipment to ensure regulatory compliance;
- Monitor system performance during tours and address any technical issues that arise;
- Document maintenance and repair activities in service logs; and
- Collaborate with captains, crew members, and operators.

EDUCATION

If you're considering a career as a Marine Technician, a strong interest in mechanics, marine systems, and hands-on problem-solving is essential. Passion for working with vessels and maintaining equipment in marine settings will support your success in this role.

- Diploma or Certification:
  - Programs in Marine Technology, Mechanical Engineering Technology, or a related field.
- Apprenticeships:
  - Completing an apprenticeship in marine mechanics or a similar area.
- Additional Training:
  - Certifications in areas like electrical systems or marine electronics; and/or
  - Specialized training such as the American Boat & Yacht Council (ABYC) Marine Electrical Certification or the National Marine Electronics Association (NMEA) Marine Electronics Installer.

TECHNICAL SKILLS

- Proficiency in Mechanical Repair and Maintenance;
- Knowledge of Marine Electronics and Navigation Systems;
- Ability to Conduct Safety Checks and Protocols;
- Familiarity with Electrical and Hydraulic Systems;
- Competence in Diagnosing and Troubleshooting Mechanical and Electrical Issues; and
- Understanding of Marine Propulsion Systems and Engine Operations.

PERSONAL & PROFESSIONAL SKILLS

- Attention to Detail
- Problem-Solving
- Physical Stamina and Dexterity
- Communication
- Teamwork
- Organizational Skills
- Adaptability to Dynamic Work Environments
- Effective Time Management

WHERE TO WORK

Marine Technicians in coastal and marine tourism can find employment across various settings where marine operations support tourism activities. common employers include:

Coastal and Marine Tourism Operators | Recreational Boating and Sailing Companies | Eco-tourism Organizations Specializing in Marine Activities Marine Equipment Maintenance and Repair Facilities | Yacht Charter Companies and Marinas | Cruise Lines offering Coastal and Marine Tours Government Parks and Recreation Departments with Marine Programs

SUSTAINABLE BLUE ECONOMY PROFESSIONAL

Marine Systems Engineer

As a Marine Systems Engineer, you design, operate, and maintain marine systems, including propulsion, power, and auxiliary systems, ensuring safe and efficient vessel performance. Collaborating with naval architects, you optimize operations, support environmental compliance, and drive innovation in sustainable marine transport.

Ocean Alliance Canada

JOB DUTIES

- Develop mechanical and electrical systems for vessels, including propulsion, power generation, and auxiliary systems, ensuring safety, efficiency, and reliability;
- Perform regular inspections and diagnostics on ship systems;
- Collaborate with naval architects, technicians, and environmental experts;
- Oversee installation, testing, and commissioning of new equipment and systems on vessels;
- Manage maintenance schedules and implement maintenance programs;
- Use computer-aided design (CAD) software and simulation tools to model system functionality, optimize designs, and predict issues before implementation; and
- Prepare technical documentation, including reports, operation manuals, and compliance records.

TECHNICAL SKILLS

- Computer-Aided Design (CAD) and Simulation Software;
- Knowledge of Propulsion and Power Generation Systems;
- Diagnostics and Troubleshooting for Mechanical and Electrical Systems;
- Familiarity with Maritime Regulations and Environmental Standards;
- Expertise in Hydraulic and Pneumatic Systems;
- Advanced knowledge of Marine Fuel Systems and Emission Control Technologies.

WHERE TO WORK

Marine Systems Engineers have diverse career opportunities in organizations focused on vessel design, maintenance, and sustainable marine practices. Common employers including:

Shipping and Logistics Companies | Marine Engineering Firms Shipbuilding and Repair Yards | Government Maritime Agencies | Offshore Oil and Gas Companies | Research and Development Institutions | Environmental Consulting Firms Focused on Marine Technology

EDUCATION

A career as a Marine Systems Engineer requires a strong foundation in mechanical and electrical engineering, combined with an understanding of marine-specific technologies. An interest in vessel design, propulsion systems, and environmental sustainability is essential for success.

- Bachelor's Degree:
  - A degree in Marine Engineering, Mechanical Engineering, or Electrical Engineering is generally required.
- Advanced Degrees:
  - A master's degree in Marine Systems Engineering or related fields.
- Additional Training:
  - Certifications such as Certified Marine Engineer (CME) or Professional Engineer (P.Eng); and
  - Training from recognized maritime institutions, including IMO and STCW courses.

PERSONAL & PROFESSIONAL SKILLS

- Attention to Detail
- Problem-Solving
- Communication Skills
- Team Collaboration
- Project Management
- Leadership
- Analytical Thinking