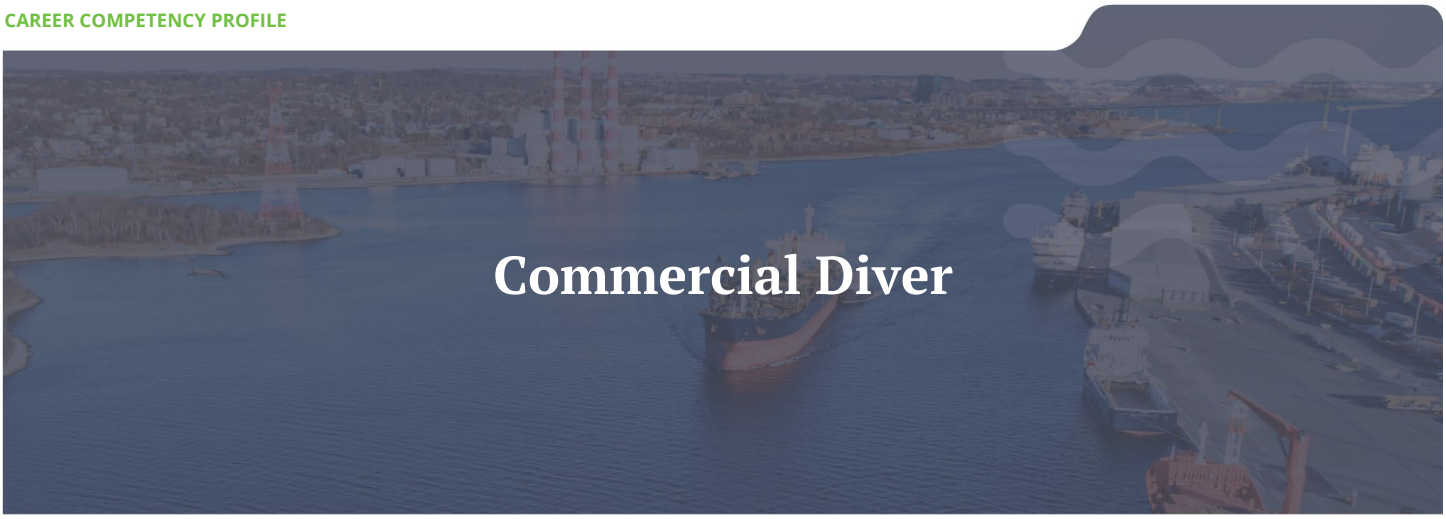

Commercial Diver

ROLE OVERVIEW

You are an expert in the water who has a passion for adventure while taking a stern approach to health and safety. You will utilize your expertise in the water to work below the surface to inspect, repair, remove, install, or salvage equipment and structures.

Working as a commercial diver there will be significant uncertainty in this role. The company or industry you are employed in will greatly impact the both the scope of work and the types of dives you will do. You may work in a more construction oriented roll, using a variety of power and hand tools, such as drills, hammers, torches, or even a welder (if qualified), or perhaps in a scientific role conducting tests, experiments, and documenting observations. While there is uncertainty in the scope of work, there must never be uncertainty to the health and safety of the project team.

You will work diligently to take appropriate safety precautions, such as monitoring dive lengths, conducting pre-dive hazard assessments, and calibrating and maintaining equipment. Diving is a significantly dangerous role that requires tremendous attention to detail to ensure all parties return home safely at the end of the day

STRATA LEVEL: 1 – Operational

Also Known as:

- Marine Diver
- Deep Sea Diver

Education and Experience:

- High School Diploma or Equivalent.
- CSA Standard Z275.4-02, Competency Standard for Diving Operations.
- Occupational Diver Certificate of Competency issued by the Diver Certification Board of Canada (DCBC) or qualification earned through a formal education program, training courses in diving or a combination of education and practical experience.
- Certification of competency and a diving medical examination from an approved hyperbaric physician.

Associated NOC(s):

- **7384.7** – Commercial Divers

TECHNICAL

Diving Physics

Applies knowledge of the physical laws that govern underwater diving operations, such as the interrelationships between pressure, volume, and temperature and their properties to dive safely.

- Applies knowledge of Boyle's Law while descending and ascending to predict how air will expand and compress with water pressure to dive safely.
- Applies knowledge of Dalton's Law while descending and ascending to predict how much of a specific gas will dissolve in their bloodstream at a given depth.
- Applies knowledge of Henry's Law while ascending to predict how the solubility of nitrogen in their blood to prevent decompression sickness.
- Uses a buoyancy compensator to increase volume to displace more water to achieve neutral buoyancy to move underwater.

Diving Planning and Procedures

Works with dive supervisor, clients, vessel teams, and other divers to understand and execute a dive plan to establish a scope, identify hazards, and mitigate unforeseen events.

- Inspects diving equipment prior to dive to validate working order and calibration to ensure equipment is safe.
- Participates in the development of a daily dive plan to communicate conditions, work scope, and any changes to ensure all divers are prepared prior to work.
- Communicates with diving supervisor and other divers to demonstrate the signals and procedures in use for the current dive.
- Participates in a diver briefing to be briefed on the tasks, safety procedures, hazards, and any changes from the standard operating procedure to ensure understanding between dive supervisor and diver.
- Completes a prepared pre-dive and post-dive checklist to ensure project tasks are completed in sequence.
- Evaluate current water conditions to ensure an adequate means for egress and ingress is available.

Diving Physiology

Applies knowledge of the physiological effect of pressure on the human body to determine and identify abnormal symptoms and prevent injuries and death.

- Describe the causes, effects, symptoms, and treatment of pressure related diseases to identify and prevent symptoms to ensure safe diving.
- Describes the governing principles of compression and decompression of divers to identify the implications for recompression.
- Describe the physiology of thermal balance and the uptake, distribution, and elimination of gases by the body to identify when gases have a toxic effect on the body.
- Interprets decompression and therapeutic tables…
- Manages a diving accident scene.

Risk and Hazard Assessment

Works with dive supervisor and other divers to identify sub-sea and surface hazards to construct a pre-dive risk assessment to effectively prepare for the dive.

- Identifies and documents hazards during exercises to communicate potential risks and evaluation precautions that can be taken to prevent such harm.
- Take appropriate precautions around hazardous areas to mitigate potential unforeseen events
- Demonstrates an awareness of the potential surface, sub-surface, and equipment hazards present while diving to take appropriate precautions to prevent injuries.

Diving Techniques

Applies the appropriate procedures, techniques, and processes depending on the diving operations to safely complete work with zero-incidents.

Deep Diving

- Uses DCIEM tables to plan a deep dive to prevent absorbing too much nitrogen at deep depths.
- Uses tactile or visual guides, where possible, to guide in executing descents.
- Uses a depth gauge and timing devices to ascend at a rate not exceeding the rate specified by the table to minimize adverse effects during the ascent.
- Performs at least a three-minute safety stop at 5 metres before surfacing to allow excess nitrogen to release.
- Uses a tactile or visual guide to execute an alternate air source ascent with a diving buddy's alternate air source from 5 metres, when possible.

Night Diving

- Uses tactile or visual guides, where possible, to guide in executing descents.
- Uses a tactile or visual guide to execute an alternate air source ascent with a diving buddy's alternate air source from 5 metres, when possible.
- Uses personal dive lights, submersible pressure gauge, compass, timing device and depth gauges to visualize dimly lit areas at night.
- Uses a compass and natural feature to navigate to a predetermined location.
- Uses visual signals and communication devices to communicate between divers and dive supervisors.
- Maintains buddy contact throughout night dives to demonstrate proper buddy procedures.

Ice Diving

- Demonstrates, prior to participation in an ice dive, the ability to use a dry suit to control body temperature, buoyancy, and control while in cold water.
- Configure equipment such as harnesses, bail-out air supply and line attachment prior to diving to ensure working order.
- Uses line signals while ice diving, where visibility is poor, to communicate between divers and surface.

Nitrox Diving

- Calculate oxygen CNS% for a specific time and depth to prevent toxic levels of oxygen in the body.
- Perform required calculations to determine O2 exposure, MOD, and optimal gas mix
- Uses an O2 analyzer on two different enriched air mixes to calibrate device.

- Maintains an adequate supply of alternative sources of breathing gas to be made available in the event of a failure in the primary line.
- Calculates the equivalent air depth for two enriched air mixes to ensure appropriate volume of gases for safe diving.

Surface Supplied Diving

- Carries out pre-dive site set-up and pre-dive equipment checks to ensure scope of work is completed and equipment is fully functional.
- Executes manifold operations for surface supplied diving to allow divers to breath from mounted gas cylinders.
- Uses appropriate equipment such as a demand diving helmet and full-face mask with harness block to successfully execute surface supplied dives.
- Carries out emergency procedures in the event of a trapped or unconscious diver to rescue diver and ensure the health of all team members.

PERSONAL AND PROFESSIONAL

Communication

Positively directs outcomes by delivering communication that results in a better understanding of goals and objectives and that capture interest and gain support for immediate action.

- Maintains constant communication with the surface while diving to avoid hazards and prevent accidents.
- Communicates with other team members to share information and resources to improve operations and workplace tasks.
- Recommends improvements or solutions to supervisors for the purposes of improving operational efficiency.
- Actively listens to team members to address concerns and integrate ideas, values, and new information where appropriate.

Adaptability

Delivers a concentrated concern, including monitoring and checking information, organizing tasks and resources efficiently, or all areas involved towards the completion of an objective.

- Responds to emergencies in a calm manner to ensure efficiency and operations are maintained.
- Incorporates change in work tasks, situations, and environment so that output is not negatively impacted.
- Adapts to change in a reasonable timeframe without deliberate resistance.
- Participates in relevant professional development training to improve operational performance.

Teamwork

Actively participates in working with and helps others to accomplish a common objective.

- Ensures tasks are completed in the most efficient manner to optimize workplace output.
- Solicits input from team members for the purpose of improving efficiency.
- Listens to constructive feedback and incorporates suggestions to achieve a collective objective.

LEGAL, REGULATORY, AND POLICY

Diving Health and Safety

Adheres to specific workplace safe operating procedures and occupational health and safety requirements within a defined jurisdiction to identify potential hazards and appropriate safety actions while diving ensure the health and safety of others.

- Recognizes unsafe situations or conditions and clearly communicates reservations to refuse to dive.
- Neutralize any equipment or system on the work site that presents a hazard to ensure the work site is safe.
- Take appropriate precautions when handling oxygen and other flammable gasses to prevent combustion.

Regulatory Compliance

Adheres to specific regulations, codes, and legislation within a defined jurisdiction to ensure the health and safety of others.

- Occupational health and Safety CAN/CSA Z275-4.
- Verifies that diving equipment complies with legal requirements to ensure diving operations are compliant.
- Displays warning devices such as buoys, flags, lights, lamps, or flares to define to limits of the diving operation in accordance with the appropriate authority.
- Analyze the oxygen content and other breathing gases prior to use to ensure breathing gases comply with appropriate national or international standards.

ENVIRONMENTAL

Insert

Insert.

- *Insert.*

Insert

Insert.

- *Insert.*

The Development of Canada's National Occupational Standards for a Sustainable Blue Economy project is funded by the Government of Canada's Future Skills Centre.
Le projet « Élaboration des Normes Professionnelles Nationales Canadienne pour une Économie Bleue Durable » est financé par le Centre des Compétences Futures du Gouvernement du Canada.