
Turn your idea or tech into
a wave of opportunity
Offshore
Energy
OCEAN
STARTUP
CHALLENGE
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Challenge Statements

Now is the time for you to take advantage of rapid growth in the ocean economy, projected to reach $3 trillion by 2030.

Oceans are the foundation for much of the world's economy More than 3 billion people rely on oceans to provide jobs and livelihoods. Oceans feed us, regulate our climate, and generate 50% of the oxygen we breathe. Oceans are valuable sources of renewable and non-renewable resources and you can make a big impact.

Curious what ocean sectors present big opportunities to innovate? We have you covered.

We sought input from industry and thought leaders who shared their top pain points across the following areas: aquaculture, fisheries, biosciences, healthy oceans and ecosystem services, transportation, energy, and enabling technologies and data analytics. Common themes that run across those areas are the need for data, information, knowledge, decision-making tools, and enabling technologies.

Be innovative. Desirable attributes of solutions might include being: low cost, easily deployable, easily maintained, rugged for harsh environments, accurate, low power, real-time, remote, and safer for human operators.

We need diverse entrepreneurs and innovators from rural, Indigenous and urban communities across Canada, and internationally.

Step up to make a positive impact by solving one or more of the ocean industry priorities listed in the areas below.

Offshore Energy

Offshore resources such as oil, gas and renewable sources can help meet energy demands. More than a quarter of today's oil and gas supply is produced offshore.[1] Ocean energy, also known as marine energy, encompasses engineering technologies, such as tidal and wave power, that harness the movements of the ocean to create electricity.[2] It is critical to develop new products and services to enable and accelerate the transition from extractive energy production to renewable energy production. Challenges include surveillance of marine life and habitat, site characterization, remote operations, testing and modelling, advanced materials and corrosion protection, installation and logistics, and power generation and power grid.[3]

The offshore energy industry has identified the following priorities for technology innovation and development:

- Develop a marine life monitoring system for the offshore renewable energy industry to monitor disruptions to marine habitats, to enable aquaculture farming around offshore wind platforms, and to decrease fish and marine life mortality by employing predictive analytics.
- Design a data analytics and AI-enhanced platform that optimizes the performance of marine renewable energy systems.

1 https://www.iea.org/reports/offshore-energy-outlook-2018

2 https://ourworld.unu.edu/en/ocean-energy-making-waves

3 https://webgate.ec.europa.eu/maritimeforum/sites/maritimeforum/files/OceanEnergyForum_Roadmap_Online_Version_08Nov2016.pdf

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- Develop an embeddable sensor to monitor the performance of offshore renewable energy assets.
- Improve site characterization efficiency, accuracy, and resolution, increase speed at collecting the data, and reduce mission costs.
- Improve material and coating technology to reduce corrosion and biofouling, reduce vibration and fatigue, and protect against ice and suspended sediment.
- Improve operational efficiency, preventative maintenance, and decommissioning using digital twin and AI technologies.
- Develop new autonomous and robotic systems to reduce costs and increase personnel safety in offshore operations.