

The logo for the Coastal Ocean Research Institute is a large, light blue circular emblem. It features a stylized wave pattern at the bottom, transitioning into a circular shape that resembles a globe or a sun with a leaf-like shape at the top. The text "COASTAL OCEAN RESEARCH INSTITUTE" is centered within this emblem in a white, bold, sans-serif font.

**COASTAL OCEAN
RESEARCH INSTITUTE**





“This Research Institute will transform our understanding of coastal oceans and the impacts we are having on them.”

Mention coastal oceans, and the images that come to mind are beautiful beaches and shorelines, a spectacular array of fish, whales, and other sea creatures, charming coastal towns, and activities like surfing, diving, fishing, and boating. Coastal oceans also conjure images of ports, ships, commercial fishing, and other economic activities.

The coastal ocean is an integral part of our lifestyle, recreation, and culture. It's also critical to our economy and communications, which rely on the ocean for materials and transport.

But the ocean and the life within it are even more fundamental to our well-being. Our very survival depends on healthy oceans for necessities like oxygen, water, food, and climate regulation. As goes the ocean, so goes humanity.

At the same time that we rely on our coastal ocean, we are increasing pressure on it. Whether from pollution, overfishing, habitat damage, or warming and acidification from carbon emissions, the influence of human activities on coastal ecosystems is evident and growing.

Fortunately, in light of these enormous benefits and impacts, there has been growing awareness, and with it an upwelling of interest from businesses, communities, philanthropists, and governments to reduce negative trends and increase the health and wealth of the ocean.

Although human awareness and interest is growing, the ocean still largely remains a mystery to us. Information and knowledge is often divided among many different agencies and groups, is unrelated to priority issues, does not exist, and/or is poorly communicated or used.

Knowledge that transforms our understanding, informs new technologies and solutions, and provides facts and evidence for decision-making is now, more than ever, key to our coastal ocean's future. To generate this knowledge, there is a pressing need for a permanent, independent, and collaborative science organization.

The Coastal Ocean Research Institute will bring people, resources, and information together, and communicate the results in a clear and balanced manner. This permanent, independent, and collaborative Research Institute will transform our understanding of coastal ecology and the impacts humans are having on it.





“As goes the ocean, so goes humanity.”

The ocean makes us healthy


- 97 per cent of all water on Earth is in the ocean.
- The ocean produces over half of the oxygen each of us breathes.
- Three billion people rely on seafood as their primary source of protein.
- The evaporation of the seawater provides rainwater for land. All the freshwater that each of us will drink in our lifetime ultimately comes from the ocean.
- The ocean buffers, regulates, and stabilizes temperatures and weather patterns.

The ocean makes us wealthy

- Many of the exports and imports that we produce and consume are carried by ships on the ocean's highways.
- 90 per cent of our electronic communications traffic is carried by submarine cables across the ocean floor.
- The ocean is an increasingly important source for mineral and energy supplies.
- The ocean is considered a “blue growth” frontier for future economic development opportunities.

We are impacting the ocean

- We deposit sewage, industrial chemicals, pesticides, plastics, oil, noise, and artificial light into the ocean.
- We contribute to warming temperatures and acidification of ocean waters through carbon dioxide emissions.
- We remove large quantities of fish and marine life.
- We damage habitat and disrupt natural processes.




The mission of the Coastal Ocean Research Institute is to produce and communicate scientific knowledge, evidence, and understanding in service of:

- Protecting coastal ocean life and habitats, ensuring they remain healthy for generations to come;
- Informing responsible economic activity; and,
- Safeguarding communities.







“We work collaboratively with governments, First Nations, researchers, businesses, donors, and non-profit organizations.”

To fulfill our mission, we work collaboratively with governments, First Nations, researchers, businesses, donors, and non-profit organizations. This multi-faceted approach reflects our appreciation for different kinds of knowledge, including traditional ecological knowledge, practical experience and observations, and scientific research. It also reflects our commitment to address priorities and avoid duplication.

As part of our commitment to integrating knowledge across boundaries, subjects, and cultures, the Research Institute is committed to aggregating and building ecosystem knowledge. This reflects the importance of understanding how things interact and work as a whole, including the relationships between ecological, social, economic, infrastructure, and governance systems.

The Research Institute operates as an impartial science-based entity. To preserve its independence and credibility, it maintains diversified funding sources including the Vancouver Aquarium Marine Science Centre, governments, individual donors, businesses, and foundations.

The Vancouver Aquarium Marine Science Centre established the Coastal Ocean Research Institute in 2014 as part of the organization's commitment to the long-term conservation of our aquatic and coastal ecosystems. It is a non-advocacy based independent research centre constituted to work in broad collaboration with governments, academia, NGO's, industry, and others. Administrative and financial operations will be serviced within the Vancouver Aquarium Marine Science Centre's non-profit organization to reduce costs and allow the Research Institute to focus on its mission. The Research Institute is grateful for its generous founding funding partners Sitka Foundation and North Growth Foundation.


We are a knowledge leader locally and internationally in the field of coastal ocean science. To fulfill our mission, our in-house scientists produce relevant applied research results on priority topics. Our current areas of focus include:

- Reporting on the health of Canada's Pacific Coastal Oceans.
- Contaminants and pollution in the ocean and seafood, including plastics, microplastics, hydrocarbons, and industrial chemicals.
- Vulnerable species and habitats, including whales and other marine mammals, sponges and corals, and other species and places.
- Climate change impacts on coastal ecology, including fish, kelp, invertebrates, and sponge reefs.
- Facilitating collaborative science initiatives involving governments, First Nations, and stakeholders.

In pursuing these topics, we work closely together and with others. We are experienced in providing science content to educators and students, media, businesses, managers, and decision-makers.

A key strength of the Research Institute is communicating coastal ocean science in a clear, understandable, and engaging manner. As a non-advocacy based organization, the Research Institute communicates knowledge, facts, and evidence in a balanced manner.



An underwater photograph showing a diver in the center, illuminated by a bright light on their head. The diver is surrounded by various marine life, including several fish and a large, white, mushroom-shaped coral structure. The water is a deep green color, and the seabed is covered in dark, textured sediment and small organisms.

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Research Institute is
communicating coastal
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**“We report on the health of
Canada’s Pacific coastal ocean.”**





The Coastal Ocean Research Institute will fill a major gap in our understanding of coastal ocean ecosystems by systematically collecting, analyzing, and publicly communicating information from a variety of sources. This will also provide a baseline or benchmark for comparison in determining the impacts of current and future changes.

In doing this work, the Research Institute will collaborate with scientists, organizations, agencies, and communities who undertake research within and on coastal ecosystems. The Research Institute will develop reporting formats that serve different audiences, including the public, government decision-makers, coastal communities, and stakeholders.

“We produce transformative knowledge about vulnerable species and habitats.”

Our Marine Mammal Research Program is widely known and respected around the world for its work, which includes playing a key role in the world’s longest continuous study of killer whales. Several examples of current research include:

The BC Cetacean Sightings Network. We gather and analyze whale sightings from citizen scientists in order to understand whale abundance and distribution. We have recently launched an App to enhance this work, and are in the process of making real-time data available to ship operators as well as working with them on educational programs that will lead to whale avoidance and reduced whale strikes.

Whale behaviour, genetics, and health. Behavioural observations have transformed coastal ocean knowledge, including recognizing the dramatic impact killer whales have on other aquatic life. DNA work improves knowledge about whales, including the relationships between resident, transient and offshore killer whale populations. Health research has led to improved understanding of feeding behavior and implications of prey depletion, health issues, threats to survival, and causes of injury or death.

Echolocation. We conduct research to better understand how dolphins use their echolocation to detect and capture prey and to avoid underwater hazards. The ultimate goal of this research is to improve fishing methods and gear in ways that reduce the accidental capture of dolphins, porpoises and whales in fishing operations worldwide.



A vibrant underwater scene featuring a red fish, a yellow fish, and several yellow sea anemones. The red fish is positioned in the upper right, looking towards the left. The yellow fish is in the upper left, partially obscured. In the foreground, there are several yellow sea anemones with long, thin tentacles. The background is dark, making the colors of the fish and anemones stand out.

“We monitor changes in coastal ecology and the relationship to climate factors.”

PHOTO PHIL EDGEELL



Adjacent to Vancouver, Howe Sound is one of North America's southernmost fjords and is home to more than 650 different species of fish and invertebrates. It is one of the first regions in B.C. to experience depletion of groundfish stocks and has faced significant industrial pollution. It provides a useful case study for understanding changes in coastal ecology, especially as development and climate change pressure continue into the future.

Scientists from our Howe Sound Research Program conduct studies on early life history stages of fish, natural history studies, and baseline documentary work on the nature of Howe Sound's underwater habitats. We monitor glass sponge reefs, depleted groundfish stocks including rockfish and the re-introduction of black rockfish, annual surveys of lingcod spawning, and juvenile spot prawns.

Our research team is the only continuous field presence monitoring Howe Sound, as well as the only longer term continuous program in the entire Strait of Georgia region. Using our research, we're teaching the next generation about the amazing natural community under the water at their front door, to inspire them to keep learning about marine biodiversity and to steward it.

We conduct international-caliber scientific research on contaminants and ocean pollution.

Our Ocean Pollution Research Program focuses on the sources and consequences of contaminants and ocean pollution, and on identifying practical solutions.

Research areas include:

- Marine mammals as sentinels of ocean pollution
- Clean seafood, especially for coastal aboriginal communities
- Marine debris, including plastics and micro-plastics
- Impacts of hydrocarbons in the coastal environment
- Emerging pollutant concerns

Our in-house laboratory will measure the health of fish and marine mammals using samples collected in the field. Our research will also measure the levels of contaminants including pesticides, industrial chemicals, flame retardants, pharmaceuticals, hydrocarbons and metals in fish, marine mammals and their habitat.

The Research Program includes **POLLUTION TRACKER**, where we work with partners to collect sediment and shellfish samples that will inform the status and trends of priority pollutants in coastal British Columbia.



Join Us

We invite you to join us in monitoring, understanding and reporting on our coastal oceans. Together we can keep Canada's West Coast healthy for generations to come.

COASTAL OCEAN RESEARCH INSTITUTE

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