אוניברסיטת חיפה
UNIVERSITY OF HAIFA
جامعة حيفا

The Department of Marine Biology

Healthy oceans and seas are essential to our existence

Covering over 70% of the Earth's surface, the ocean regulates climate and weather patterns, generates half of the oxygen we breathe, provides food and sustains the livelihood of over three billion people. Today, the world's oceans are under threat. From climate change and plastics pollution, to overfishing and the destruction of coral reefs, human activities are damaging the marine ecosystems and harming many of the world's poorest and most vulnerable countries.

Scientists at the Department of Marine Biology are analyzing the impacts of global warming on marine organisms, developing new strategies for the preservation of marine life in a changing climate and conducting innovative research that may lead to the discovery of new drugs and medical treatments.

Research that is making a difference

As Israel’s leading department of marine biology, University of Haifa students and faculty have adopted a unique multidisciplinary approach.

Research here probes the tiniest details and the broadest issues. It ranges from genes and proteins, through to organisms, and on to complex marine communities and ecosystems.

Our research findings will have important implications for policy change and conservation efforts to help protect marine life and our oceans.

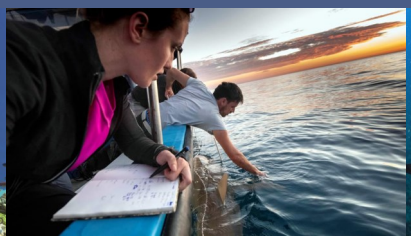
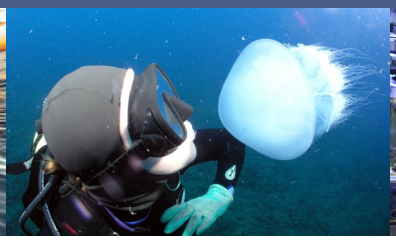
Professor Smadar Ben-Tabou de-Leon
Department Head

An estimated 80% of all life on earth is found under the ocean surface!

The oceans are teeming with life and represent a treasure trove which can feed humanity and provide energy and medicines for future generations. The oceans are also changing as a result of human activity.

Marine biologists are assuming the mandate as stewards of the sea—monitoring the oceans, understanding how they are changing, and guiding citizens and decision makers to preserve our natural marine heritage.

Established in 2010, the Department combines cutting-edge field and lab research with high-quality international training programs and evidence-based solutions designed to influence public opinion and governmental policies.


CORE RESEARCH AREAS

Biodiversity: The ocean is home to a vast array of species, many of which are not found anywhere else on the planet. Studying marine biology can help us understand and protect these unique and important ecosystems.

Food: The ocean is a major source of food for people all over the world. Marine biologists study fish populations and ecosystems to ensure that we can continue to sustainably harvest seafood.

Climate regulation: The ocean plays a critical role in regulating the Earth's climate by absorbing carbon dioxide and regulating temperature. Marine biologists study the interactions between ocean ecosystems and the climate to better understand these processes.

Medicines: Many medicines and other useful compounds have been derived from marine organisms. By studying marine biology, we can identify new sources of potential medical treatments and other useful products.

Recreation: The ocean is a source of recreation for millions of people. Marine biologists study the impacts of human activities such as fishing, boating, and tourism on marine ecosystems to ensure that we can continue to enjoy the ocean without damaging it.

Meet Two of Our Young Scientists

Tal Luzzatto Knaan

Field of Research

Metabolomics; Natural Products; Drug Discovery; BlueTech

Metabolomics (the study of small molecules, or metabolites, within cells, tissues, and biological fluids) has the potential to revolutionize our understanding of health and disease, and to lead to the development of more effective diagnostic tools, new therapies and healthy foods.

The marine environment is highly prolific and a treasure trove of novel chemistry that is largely understudied. Our lab is using advanced imaging equipment, artificial intelligence tools and applying a functional metabolomics approach to better understand the functional role of small molecules and their biochemical activities in marine biological systems. Our research findings will help healthcare professionals make more accurate diagnoses, develop personalized treatment plans and identify specific marine-based nutrients and compounds that promote health and prevent diseases.

Tali Mass

Field of Research

Coral physiology and biomineralization, coral adaptation to extreme environment

Today, anthropomorphic (human-induced) climate change is threatening coral reef survival more than ever before, with rising sea temperatures and a drop in ocean acidification caused by increased CO^2 emissions that enter the atmosphere.

Dr. Tali Mass is investigating corals with specific traits and tolerances to environmental conditions, such as corals living in wide ranges of temperatures and corals with high tolerance to seawater pH changes. Her research will help us understand how marine organism can adapt to rising sea temperatures.

Dr. Mass warns that the rapid changes in climate and sea temperatures we are experiencing today may overwhelm the young corals' ability to adapt and survive—with disastrous consequences to marine life and commercial fishing.

The Morris Kahn Marine Research Station

The Israeli coastal area and the eastern Mediterranean Sea is experiencing accelerated development and infrastructure projects along the coastline, and a massive exploitation of marine resources never experienced in our region and nation. Coupled with the effects of global climate change and local polluting factors, life in the shallow and deep sea are changing rapidly.

Under Professor Dan Tchernov's leadership, the Department established a Long-Term Ecological Research (LTER) station off the Mediterranean coast just south of Haifa to collect biological and ecological data that will inform strategic governmental decisions regarding energy production, food security, water desalination and the construction of artificial islands off the shoreline of Israel.

For further information, please visit the Department of Marine Biology website.

https://marsci.haifa.ac.il/en/school/department-of-marine-biology

Request for Support

To carry out this vital research, we require funding to cover the costs of advanced equipment, supplies, MSc/PhD scholarships and research cruises.

We invite you to partner with the University of Haifa to support research that is making a critical contribution to improving the ocean's health, leading to new medical breakthroughs and advancing blue tech initiatives that will play a major role in a more sustainable future.

- **A gift of $5 million** will enable the University to name the Department of Marine Biology in your honor.
- **A gift of $1 million** will enable us to purchase state-of-the-art research equipment (high-powered microscopes, centrifuges and spectrometers.
- **A gift of $100,000** will support MSc/PhD scholarships.

אוניברסיטת חיפה
UNIVERSITY OF HAIFA
جامعة حيفا

Division of External Relations
972-4-8240101
uh-president@univ.haifa.ac.il
www.haifa.ac.il