

ACTIVITY UPDATE

2025



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Authors:

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Executive Overview

Established in 2014 under the Leon H. Charney School of Marine Sciences at the University of Haifa, our marine research station has served as Israel's leading hub for long-term ecological monitoring and transparent, data-driven marine research. Situated in the uniquely biodiverse and rapidly changing Eastern Mediterranean, the station has built a foundation of excellence in multidisciplinary research—from plankton to apex predators—and has championed open-access data, sustainable mariculture, and cutting-edge marine technologies.

In recent years, this work has expanded under the broader umbrella of Kadas Nexus—a strategic platform accelerating the translation of scientific discovery into societal and environmental impact. Through innovation, collaboration, and policy engagement, Kadas Nexus is scaling marine research to meet the urgent challenges of global change, biodiversity loss, and sustainable ocean use.

Our Vision

Over the next decade, Kadas Nexus will become a global leader as a leading centre for marine science, blue technology, and sustainable practices. It will foster innovation, academic excellence, and regional leadership, impacting environmental policies and industry practices as they relate to Global Change.

Our Mission

1

Enhanced academic excellence and standing within Israel

2

Expand our operations to the regional and international level with permanent sites in Israel and abroad

3

Become local-to-regional standing as leader of marine monitoring and research

4

Create a dynamic hub where academia, industry and investment converge to incept and develop research-based Blue Tech innovations

Key results:

2024-2025



Launched the BlueSpark Pre-Accelerator to advance Blue Economy Ventures and is fully underway



4 new hires, including sector leads Dr Ran Yehuda (AgTech), Efrat Kadosh (Climate and Ocean Tech), and 2 personnel for the recent "AquaConvergence" Infrastructure Centre grant



Restructuring our LTER layers to a more classic structure which allows us to access more regional-international networks



Dr Ziv Zemah-Shamir won a 5-year support grant as an 'Outstanding Researcher'



Held the first offsite for Kadas Nexus in January 2025, aligning our Global Change Vision with Blue Tech and LTER needs for a clearer strategy



Successful transfer of database operations to Efrat Kadosh with 100% uptime (i.e., data available to download to the public)

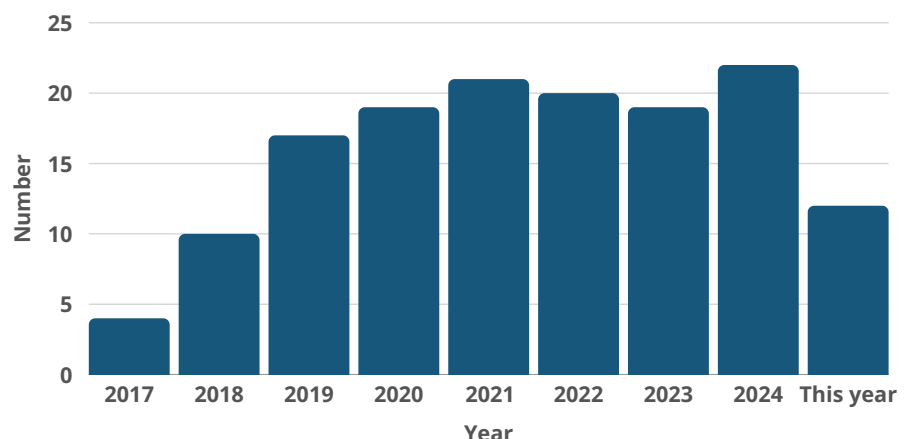


Successfully deployed our 1st permanent monitoring buoy in Sdot Yam (10 m depth), with 100% uptime since deployment

170+
publications

Our current team and fellows have been cited 60,000 times in peer-reviewed articles

Publications by year



We envision our future permanent centre to be a unique international hub, uniting under one our shared vision. Over time, the building's wings will carry the names of key donors, underscoring the central role of philanthropy in bringing this vision to life. By combining academia, government agencies, NGOs, and a dedicated platform for marine innovation and startups, the building will serve as a catalyst for groundbreaking research, policy, education, and technology development. We have two strong possibilities now under consideration: a 5-dunam site in cooperation with the Hadera Municipality or a 3,000 m² location within the Haifa Ports complex. It is important to emphasise that this project already stands on a strong financial and institutional foundation. **Still, additional resources are essential to ensure the full realisation of the project, which will house eight leading partner groups, 30 professional staff, and five state-of-the-art laboratories.**

Infrastructure & Legacy Site



Above is a conceptual illustration of our planned facility within the Haifa complex — a site envisioned as the engineering and BlueTech hub of our initiative. Designed during the planning process, this facility will focus on marine engineering, prototype development, and technological scale-up, bridging the gap between discovery and real-world application.

Below, an artistic rendering (created with Ideogram.AI for illustrative purposes only) depicts a potential marine research and sustainability centre in Hadera, Israel. This site will anchor our sustainable aquaculture and long-term ecological research (LTER) monitoring base, integrating fieldwork, experimental aquaculture, and ecosystem observation into one dynamic platform.



*Title of building would reflect the donor's gift

Centre for Marine and Climate Innovation*

BlueTech Hub: Accelerating Innovation for a Sustainable Future

The oceans are our planet's life-support system—providing over 50% of the oxygen we breathe, absorbing more than 90% of global heat, and acting as critical carbon sinks. In Israel, the sea plays an even more vital role, supplying approximately 85% of our drinking water and 90% of our energy. Yet these same water bodies are facing growing threats from overfishing, pollution, and climate change.

The Marine Blue Technologies Hub was established in response to this global challenge to translate deep marine scientific insight into practical, scalable solutions that serve both environmental and industrial needs. Our unique approach lies in synergising marine monitoring, technological innovation, and market-driven entrepreneurship, positioning the Hub as a vital bridge between academia, industry, and the environment.

Technology to Market: A One-Stop Innovation Ecosystem

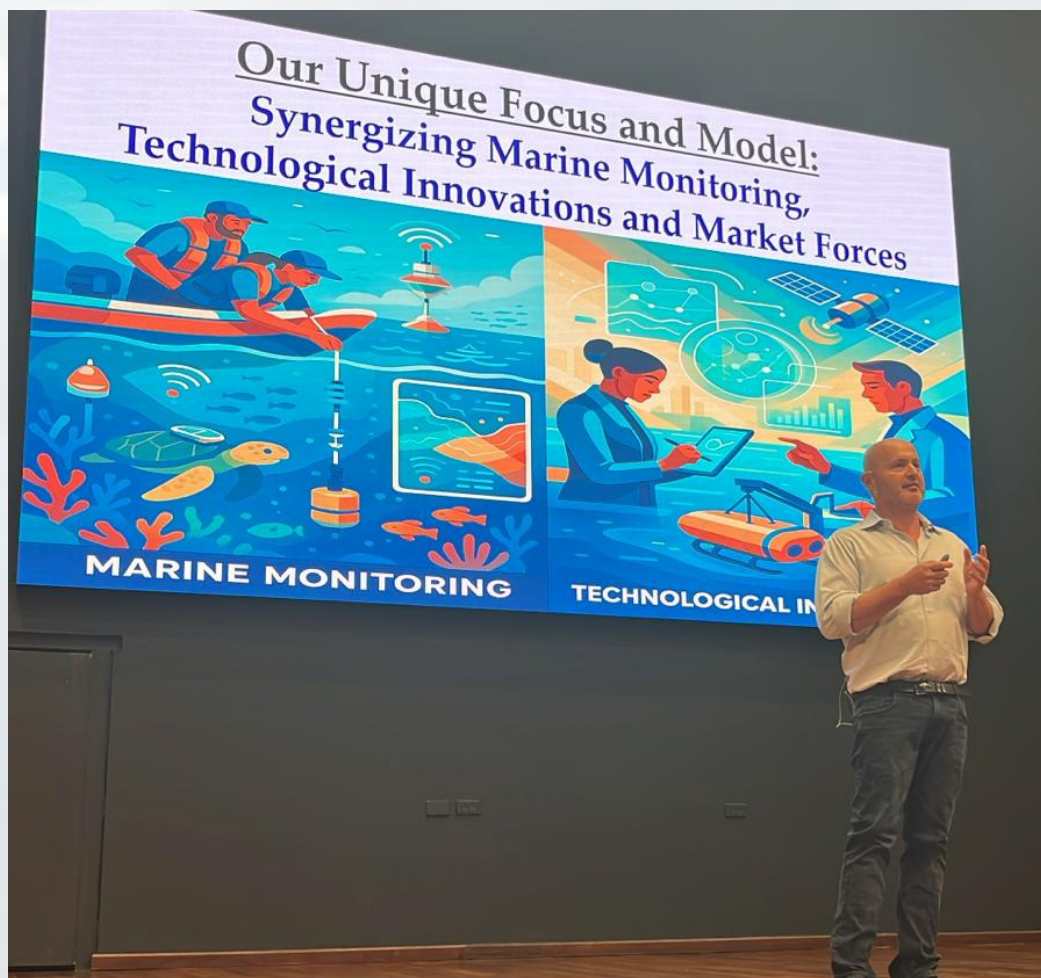
The Hub actively identifies unmet industry needs across AgTech, sustainable fisheries, and climate-ocean technologies. We then support the entire lifecycle of innovation—from ideation to commercialisation—through funding, infrastructure, mentorship, and collaboration with industry partners.

Sample Innovations: From Aquaculture to AI

- **Smart Aquaculture:** We are developing precision-based aquaculture tools to reduce reliance on wild fisheries. Using AI-powered computer vision and acoustics, we monitor the health, behaviour, and biomass of farmed fish and shrimp to improve yield and welfare.
- **Algae cultivation:** Initiated an industrial micro-algae cultivation optimisation project with BarAlgae using machine learning analytics.
- **Marine Mammal Protection:** We are piloting ship navigation tools using computer vision and AI to minimise vessel-whale collisions, partnering with commercial developers.

Looking Ahead

With growing threats to ocean health, the Blue Technologies Hub stands as a bold and timely initiative to align science, technology, and markets for marine sustainability. Through donor support, we are not only protecting the sea—we are building the tools, partnerships, and industries that will ensure a thriving blue future for generations to come.



Above: Dr Yaron Bogin, Director of Blue Technologies at Kadas Nexus, participates in the 'Ambassadors Lecture Series' hosted by the University of Haifa. Click the photo to watch his full presentation.

We are building a fully integrated entrepreneurial ecosystem, including:

- A Technology Innovation Hub
- An Accelerator Program
- A Dedicated Venture Capital Fund

This one-stop shop empowers researchers —
and entrepreneurs to transform blue technologies into market-ready solutions.

**Blue Biotech MSc
launched
with 10 students**

**3 major AI-powered
marine innovations**

**BarAlgae and
OrcaAI
partnerships
active**

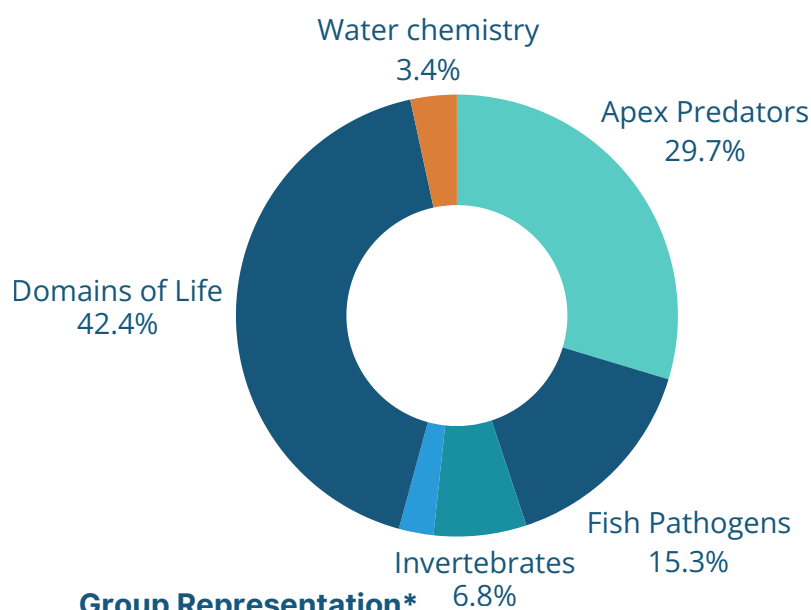
Research Highlights

Data Management & Accessibility

Following the recent launch of open data access and the initial development of our ecological database, we are currently undertaking a comprehensive upgrade of the existing data infrastructure. To support this process, we are pleased to announce the appointment of Mrs. Efrat Kadosh as our new Database Manager. Mrs. Kadosh brings significant experience in data management and digital platforms and will lead the technical and organisational aspects of this transition.

As part of our integration into the Israeli Long-Term Ecological Research (LTER) network, which is affiliated with both the European LTER (eLTER) and global ILTER

frameworks, we are aligning our data protocols with international standards (e.g., FAIR data principles: Findable, Accessible, Interoperable, Reusable) to facilitate collaboration and cross-site comparisons. The upgraded system will support advanced search functions, interactive visualisations, and standardised metadata, allowing users to access and analyse ecological datasets efficiently and reliably.

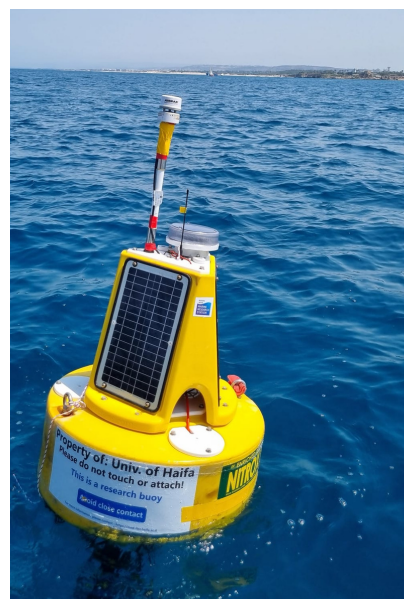


Group Representation*
*rough percentages of database rows per monitoring layer

In May 2025, our team deployed its first shallow-water monitoring buoy off Sdot Yam at a depth of 13 meters, marking a significant milestone in our long-term observation network. Equipped with advanced sensors, the buoy collects and transmits real-time environmental data—including wind speed and direction, wave height, barometric pressure, current profiles, salinity, chlorophyll, and temperature. These measurements help us better understand how wind drives wave systems, how oceanographic processes shape our coasts, and how environmental conditions are changing over time.

[Click here to see the live data now.](#)

Passive Monitoring Buoy



Research Grant Achievements

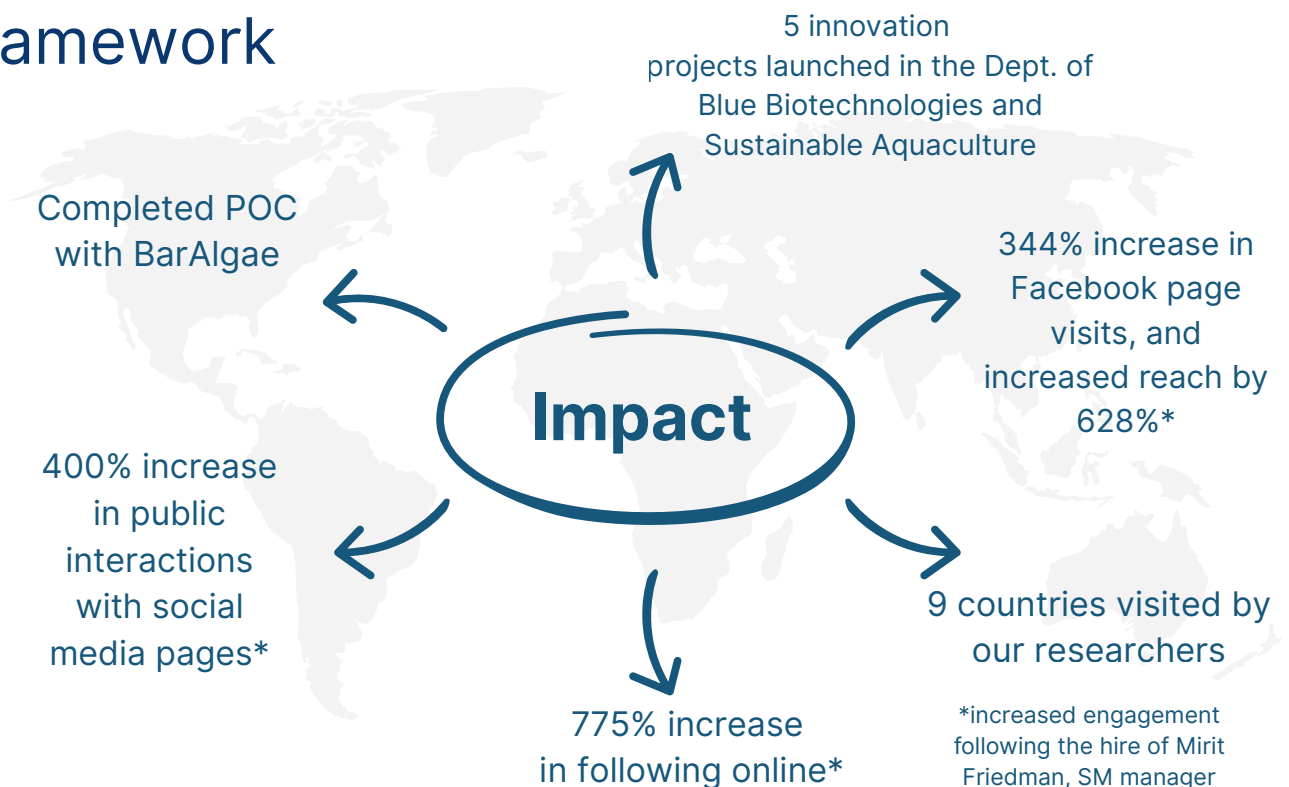
We secured over **14.1 million NIS** in competitive research funding, positioning itself as a national leader in aquaculture, blue biotechnology, and marine innovation.

The Aqua-Convergence Precision Aquaculture Centre (2024–2032) received a 6 million NIS institutional grant from the Israel Council for Higher Education (CHE). The centre will develop precision-based aquaculture systems, fermentation technologies, and real-time marine monitoring tools, led by Dr. Danny Morick, Prof. Dan Tchernov, Prof. Dan Feldman, and Prof. Anna Brook.

The Land-Based Aquaculture Science Centre (2024–2028) was awarded over 8 million NIS across institutions (our part: 2 Mn) to establish a cutting-edge research facility dedicated to sustainable, land-based aquaculture. The project is led by Dr. Morick and Prof. Tchernov, in collaboration with Hebrew University, Tel Aviv University, and the Volcani Institute, representing a national research partnership for the coming years.

A further 6 million NIS CHE grant supports the creation of the Interdisciplinary Center for Material Micro-Characterization (ICM²), enabling advanced 2D and 3D mapping of geological, biological, and synthetic materials. Led by Prof. Tali Mass, Dr. Yotam Asher, and Dr. Nicholas Waldman, this initiative strengthens Israel's capacity for cross-disciplinary marine research and innovation at the materials–biology interface.

Impact Framework

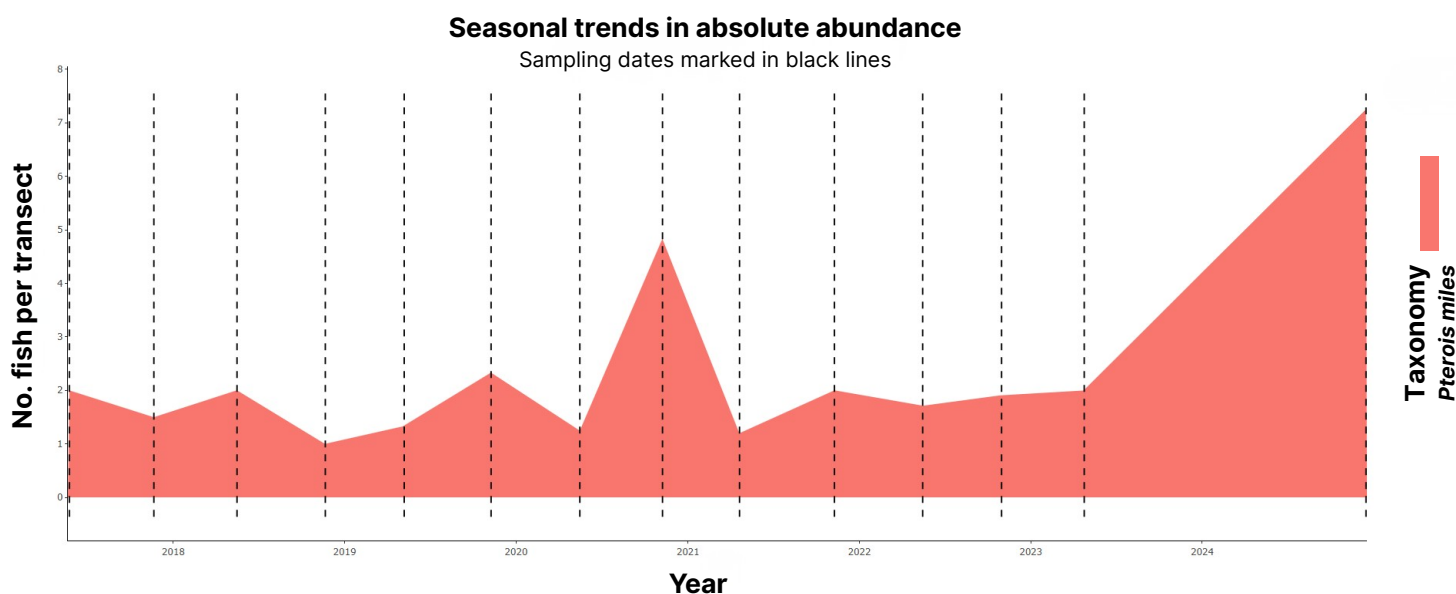


One Story, Big Impact

An example of monitoring and innovation catalysing real-world solutions

The **invasion of *Pterois miles*** (commonly known as lionfish) is unfolding across the Mediterranean Sea, expanding upon the ecological challenges observed on tropical reefs worldwide. The first Mediterranean observation was recorded over 30 years ago, followed by confirmed records offshore Lebanon in 2013. Since then, the species has spread rapidly along Israel's coastline, disrupting fragile ecosystems and threatening local fisheries.

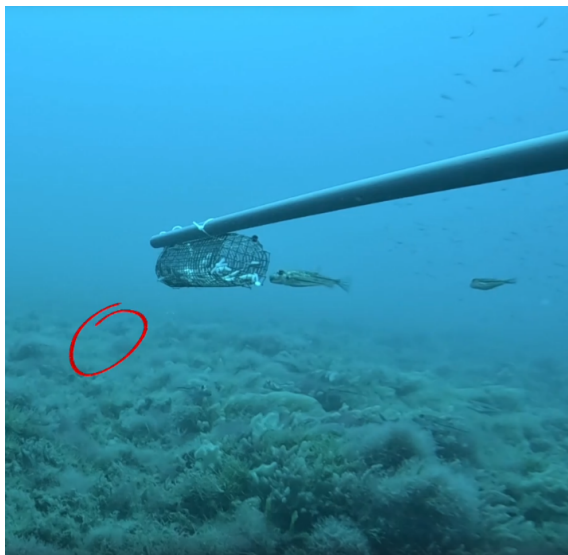
At our marine research station, long-term ecological monitoring has been a cornerstone of our purpose for over a decade. Through **19 consecutive survey seasons**, spanning wars and global pandemics, our dedicated monitoring team has documented the steady rise of lionfish populations along our shores. These consistent, standardised surveys now serve as one of the most robust time-series datasets for invasive species in the region.



But documenting the problem is only the beginning. **By integrating monitoring and automated image recognition through machine learning, we are transforming raw ecological data into dynamic insights to inform decision makers and stakeholders.** Our systems analyse thousands of underwater images to detect lionfish presence, estimate density, and track habitat shifts in near real-time. **This fusion of science, technology, and collaboration** empowers local stakeholders — from fishers to policymakers — with actionable intelligence for management and mitigation.

From Local Need to Global Impact

By developing replicable AI-based monitoring frameworks, our work is now applicable beyond Israel. The same digital tools that track lionfish invasions here can be applied globally — supporting efforts to safeguard biodiversity, strengthen fisheries resilience, and prepare coastal nations for future biological invasions intensified by climate change.



This is more than monitoring; it's a model for how science, innovation, and perseverance can protect our oceans and seas worldwide. To the left, the red circle indicates an AI-detected fish on a low visibility day when a baited camera was used.

2026 Priorities

The momentum built this year positions us to accelerate our mission: advancing marine science, pioneering BlueTech innovation, and shaping a resilient, sustainable future for the Eastern Mediterranean and beyond. Our next strategic milestones include:

- **Increasing governmental funding and private donations** to secure long-term sustainability, growth, and independence.
- **Renovating the Michmoret site**, expanding its capacity as a leading field research and education hub.
- **Advancing development of our two permanent centres** — the Hadera base for sustainable aquaculture and LTER monitoring, and the Haifa hub for marine engineering and technological innovation.

With your partnership, we are not only building facilities — we are building the national infrastructure and global collaborations that will define the future of ocean science, food security, and climate resilience.

Thank you for being part of this journey, and for believing in what is possible when visionary research meets bold philanthropic leadership.

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