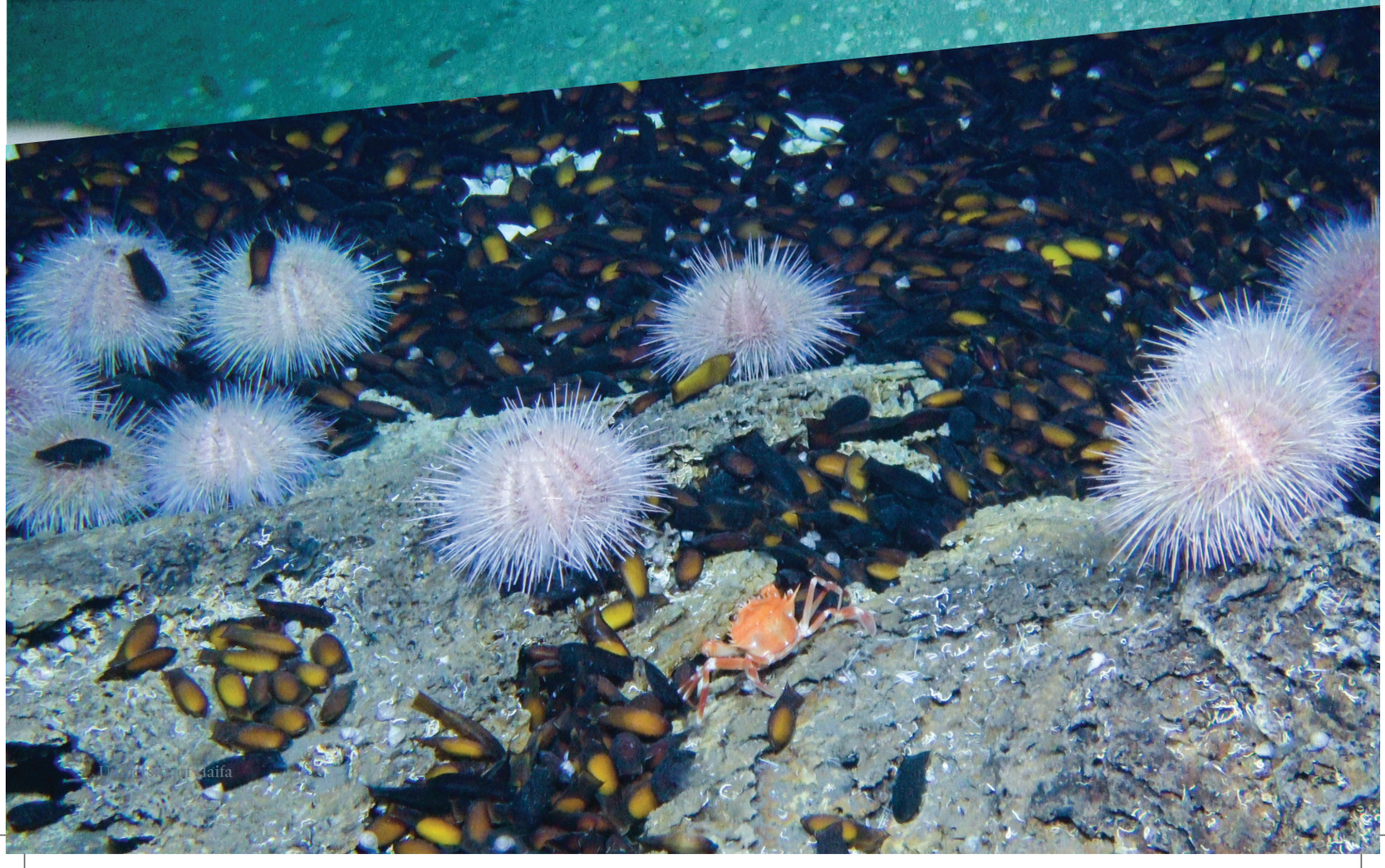
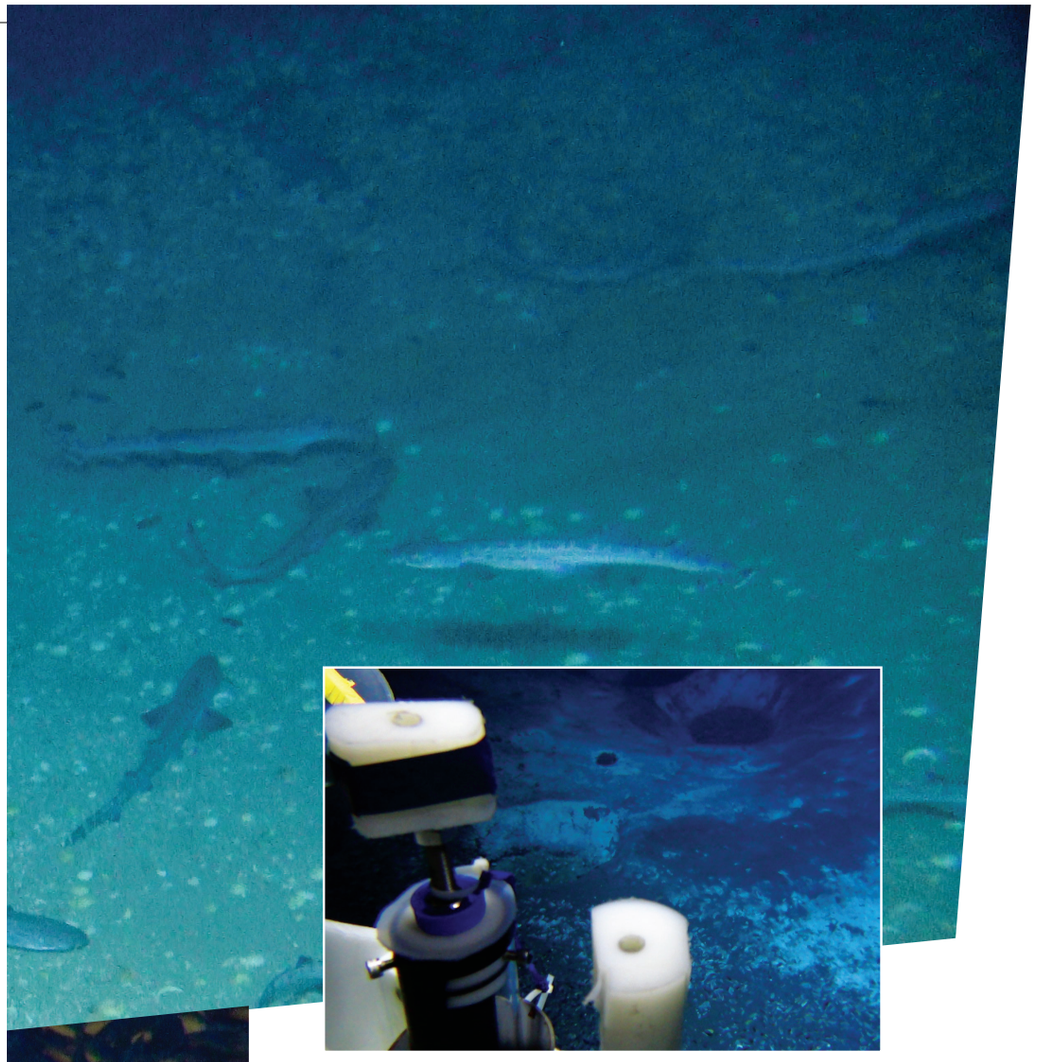
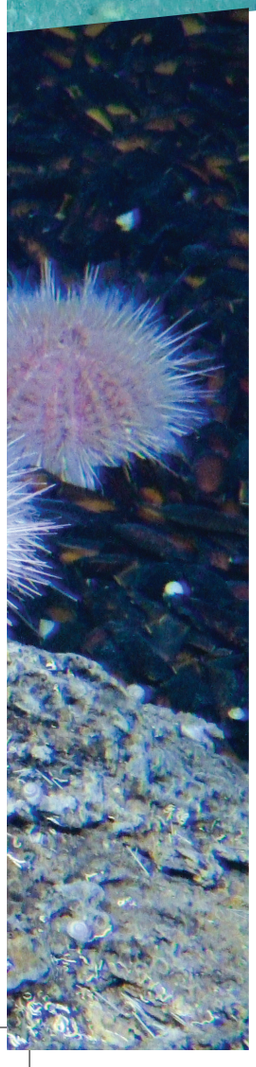
SEA

Unprecedented deep-sea brine pools and related habitat hotspots **found**

The discovery will shed light on deep sea biodiversity and the effects of climate change







Partner institutions:

Leon H. Charney School of Marine Sciences

Israel Oceanographic and Limnological Research (IOLR)

Ben-Gurion University of the Negev

Inter-University Institute of Marine Research

Mediterranean Sea Research Center of Israel (MERCI)

During what they thought would be a routine underwater expedition, marine researchers were left stunned by what they saw on their computer monitors. A biodiverse underwater ecosystem, spanning hundreds of meters, boasting an amazing variety of marine life, including hundreds of deep-water sharks and the largest concentration of deep-sea shark eggs ever found.

"From a global marine research perspective, this discovery can have enormous implications," said Charney School's Dr. Yizhaq Makovsky, one of the initiative's leading researchers. "With temperatures in the region going up 20% faster than the global average, the Eastern Mediterranean Sea is regarded by many climate change experts as an early detection and warning system for what we can expect as global temperatures increase over time. We believe that our discovery will provide crucial information for the sustainability and resilience of the marine ecosystem - not only in the Eastern Mediterranean, but also globally in other oceans."

High-resolution videos of the scene, including shark embryos moving inside their eggs, deep-sea brine pools and a food web thriving on methane, were beamed to the surface from cameras mounted on a Remotely Operated Underwater Vehicle that was purchased with support from the Helmsley Charitable Trust and maintained by the Hatter Department of Marine Technologies.

"The fact that this rich biodiversity hotspot was hiding in plain sight off the coast of Tel Aviv was a shocking revelation for the team of researchers. Previously, we thought that this area was nothing more than an ocean desert," Makovsky explained. "This discovery highlights how little we know about the deep sea — not just off the coast of Israel, but around the world. This is a global challenge."

The deep-sea research initiative is aligned with University of Haifa's commitment to the UN Sustainable Development Goals, specifically focusing on SDG14: "Life Below Water" - aiming to save the ocean and its biodiversity and increase marine protected areas.

"Investigating the geological and environmental records concealed in this hotspot will provide a precise record of the impact of changes on the deep sea, which is essential for understanding local and global climatic changes," said Makovsky.

Dr. Yizhaq Makovsky is a senior lecturer at the Dr. Moses Strauss Department of Marine Geosciences and the Hatter Department of Marine Technologies.