6 CLEAN WATER AND SANITATION

ENSURE AVAILABILITY AND SUSTAINABLE MANAGEMENT OF WATER AND SANITATION FOR ALL



Southern Jordan River Outflow into the Dead Sea (Credit: School of Environmental Sciences Facebook)

RESEARCH

Reliable Power-Water System Operation Under Uncertainty

Researchers Gal Perelman, Mashor Housh, Aviad Navon and Avi Ostfeld (School of Environmental Sciences) address power and water systems that are increasingly interconnected but planned separately. The researchers developed optimization methods for day-ahead operating plans for water pumps and power generators under uncertainty in water demand, electricity consumption and renewable generation, using a novel mathematical technique that makes the models practical to solve.

From Desert Storm to Sea: Tracking a Flash Flood

In a new study, Prof. Beverly Goodman-Tchernov and colleagues (Marine Geosciences) traced a rare desert flash flood in Eilat from its atmospheric origins to its impact on the Red Sea, using satellite, weather, flood and marine data. The flood delivered a pulse of freshwater and sediment that altered seawater salinity and sediment movement, improving understanding of how flash floods affect fragile coastal ecosystems in arid regions.

Hidden Pollution: Marine Litter Found in Sea Caves

In a new study, Prof. Dror Angel and colleagues (Maritime Civilizations) found that sea caves are overlooked hotspots for marine litter. Surveying sea caves, the researchers found debris in every site, mostly fragmented plastic; cave shape and wave exposure influence accumulation, and the waste can trap toxic substances and threaten species such as the Mediterranean monk seal.

Remote Sensing Tools for Mapping Waterborne Tropical Diseases

Profs. Daniel Sher and Yoav Lahan of the Leon H. Charney School of Marine Sciences received a 50,000 NIS grant through the 2026 Innovation and Sustainability Division Call for Impactful Research Projects to develop remote sensing-based tools for high-resolution mapping of waterborne neglected tropical diseases, supporting identification of high-risk areas, prevention and decision-making. The project takes place in Ethiopia.

PUBLIC ENGAGEMENT

Israel's Hidden Water Crisis

Dr. David Katz (School of Environmental Sciences) argues the public is not aware of the severity of Israel's water shortage: climate change reduces rainfall while intensifying storms, and despite heavier downpours and flooding, natural reservoirs keep shrinking, leaving northern agricultural fields vulnerable. The findings appear in a report for the environmental NGO Tzalul.

AI Meets Water

At the 11th Kinneret Conference, Prof. Mashor Housh and Dr. Elad Salomons (Natural Resources and Environmental Management) led a hands-on workshop on AI in the water industry for engineers, analysts and operations managers, using real-world water system datasets for data analysis, pattern recognition and operational decision-making.

Protecting Water, Enforcing Justice

The Social Justice Clinic uses legal tools to protect Israel's coastal and marine environment: monitoring enforcement against groundwater pollution in the Coastal Aquifer, identifying major contamination sources, and reviewing permits for discharging waste and wastewater into the sea to find opportunities for legal intervention.

LEARNING AND STUDENTS

Every Drop Counts

In the Water Quality course, Prof. Lior Gutman (Blue Biotechnology and Sustainable Marine Agriculture) introduces the science of water quality and its importance for health, ecosystems and water management, including methods for monitoring, analyzing and protecting water resources.

A Living Desert Classroom

The School of Environmental Sciences offers a multidisciplinary field course, led by Prof. Leah Michalovitz, on the landscapes of the Negev and Arava: the geological and geomorphological processes that shaped the region and its plant and animal diversity, with four field excursions.

Exploring the Future of Water

Students from Blue Biotechnology and Sustainable Marine Agriculture took a field tour exploring sustainable water technologies, visiting Pure Blue Fish, the Hadera desalination plant and the Dor Aquaculture Research Station to learn about recirculating aquaculture systems (RAS), large-scale desalination and applied research.

OPERATIONS

Landscaping for a Water-Smart Campus

The new garden along the University's main building features native, water-efficient plants, the first step in a broader sustainability initiative. Similar landscaping will be part of all future campus developments, including the new medical school building, whose construction is scheduled to begin next year.

Advancing Sustainability and Community Engagement on Campus

As winners of the Green Campus 2025 competition of the Innovation and Sustainability Division, Dr. Eli Shemesh (Marine Biology) and Mr. Benny Vaknin (The Institute of Evolution, IoE) established an aquaponics system near the Institute and the university dormitories, combining fish farming and soilless plant cultivation in a closed loop to support sustainable food production, hands-on learning and environmental awareness.