2025 / ANNUAL SUSTAINABILITY REPORT

SDG 14 | Life below water

Khazar University · Baku, Azerbaijan

REPORTING PERIOD JANUARY–DECEMBER 2025

Institutional Approach

Khazar University contributes to the protection of aquatic ecosystems through research, water-related teaching, international cooperation and environmental policies. In 2025, its work included studies of freshwater pollution, discussion of Caspian water security and the establishment of a specialised water research centre. The University's existing policies also address sustainable seafood sourcing and the prevention of pollution that can affect rivers and seas.

2025
two Khazar-affiliated aquatic research papers

11–12 Mar
international SORG4NOBAL final workshops

3 Nov
water research centre established

14.1 Research on life below water

In 2025, the supplied Scopus dataset recorded **7 publications associated with SDG 14 (Life Below Water)**, comprising six research articles and one review article. Additional institutional records identified two further relevant publications. Khazar University-affiliated research addressed marine pollution, freshwater biodiversity, aquatic ecotoxicology, and water quality.

Marine pollution and ecosystem protection

Maeyouf et al. (2025), including Khazar University-affiliated researcher Gunel Imanova, investigated heavy metal contamination along Libya's Benghazi coastline. The study analysed 45 samples of seawater, sediments, fish, algae, and mussels, identifying significant pollution risks associated with cadmium and other heavy metals.

In another study, Maeyouf et al. (2025) examined heavy metal contamination in seawater, sediments, algae, and fish from Susah and Tobruk in the Mediterranean Sea. The researchers identified contamination and bioaccumulation risks, highlighting the importance of environmental monitoring and marine ecosystem protection.

Freshwater biodiversity and aquatic pollution

Mamedova and Karanis (2025), in *Coccidia (Apicomplexa: Eucoccidiorida) of Freshwater Fish*, reviewed parasitic organisms affecting freshwater fish. The study contributed knowledge relevant to fish health, aquatic biodiversity, and disease management in freshwater ecosystems.

Karimova et al. (2025), including Khazar University researcher Rovshan Abbasov, investigated the effects of chronic exposure to the pesticide-related substance diflubenzuron on *Daphnia magna*. Published in *Ecotoxicology*, the study identified adverse effects on survival, reproduction, and physiological health, demonstrating the risks chemical contamination can pose to freshwater organisms.

Water quality and environmental monitoring

Yolchuyeva et al. (2025), in *Analysis of Physico-Chemical Parameters of Drinking Water from Kur River, Azerbaijan*, examined water samples collected from six locations along the Kura River. The researchers assessed parameters including pH, electrical conductivity, dissolved solids, and alkalinity, contributing evidence relevant to freshwater quality assessment.

Research collaboration and knowledge exchange

Alongside scientific publications, Khazar University supported research cooperation and educational activities concerning aquatic ecosystems.

On 11–12 March 2025, researchers participated in the SORG4NOBAL international project meeting, discussing agricultural pollution, eutrophication, and nature-based solutions.

On 25 March 2025, Khazar representatives participated in a water security workshop at Erasmus University Rotterdam, addressing challenges affecting Azerbaijan and the Caspian Sea.

On 3 November 2025, the University established the Water Sciences and Hydroinformatics Research Center, creating an institutional framework for research on water resources, hydrology, and ecosystem management.

Together, these publications and academic activities demonstrate Khazar University's engagement in understanding aquatic pollution, protecting biodiversity, and supporting sustainable water resource management.

Selected Research Publications (2025)

1. **Maeyouf, H., Khattab, R. A., Temraz, T., Sami, M., Ali, I., & Imanova, G. (2025).** Assessment of heavy metal contamination in sediments, seawater, and marine organisms along the Benghazi coast, northeastern Libya (Mediterranean Sea). *Environmental Science and Pollution Research, 32*(33), 19953–19974. DOI
2. **Maeyouf, H., Khattab, R. A., Temraz, T., Sami, M., Ali, I., & Imanova, G. (2025).** Heavy metal contamination in seawater, sediments, algae, and fish from Susah and Tobruk, Mediterranean Sea. *Water Environment Research, 97*(5), e70091. DOI
3. **Mamedova, S., & Karanis, P. (2025).** Coccidia (Apicomplexa: Eucoccidiorida) of freshwater fish. *Microorganisms, 13*(2), 347. DOI
4. **Karimova, G., Na, J., An, G., Kim, H., Abbasov, R., & Jung, J. (2025).** Cellular and individual toxicity of diflubenzuron for the chronic exposure in Daphnia magna: Focus on oxidative stress, chitin content, and reproductive outcomes. *Ecotoxicology, 34*(6), 1068–1077. DOI
5. **Yolchuyeva, F., Hajiyeva, S., & Huseynli, A. (2025).** Analysis of physico-chemical parameters of drinking water from Kur River, Azerbaijan. *Khazar Journal of Science and Technology, 9*(1), 5–14. DOI

In 2025, a Khazar-affiliated research team contributed to the peer-reviewed study Cellular and individual toxicity of diflubenzuron for the chronic exposure in Daphnia magna. Published in Ecotoxicology, 34(6), the study investigated how exposure to a pesticide-related substance affects a freshwater organism important to aquatic food webs.

A second paper, Analysis of Physico-Chemical Parameters of Drinking Water from Kur River, Azerbaijan, examined water samples from six sites along the Kura River. The findings contribute to understanding freshwater quality. These publications offer concrete examples of research, rather than a measure of total research output or citation impact.

14.2 Supporting aquatic ecosystems through education

In the 2025 autumn term, Caspian Studies, Water Resources Management and Water Diplomacy courses introduced students to aquatic habitats, pollution, freshwater governance and shared water resources. These courses supported specialist education on the environmental challenges facing rivers and the Caspian Sea.

Learning also extended beyond university classrooms. On 2 June, visiting Dunya School pupils explored aquatic specimens in a Life Sciences laboratory and discussed biodiversity protection.



A visit to Tamiz Shahar waste facilities and the Pearls of the Caspian eco-design exhibition further raised awareness of pollution prevention and reuse.

14.3 Supporting aquatic ecosystems through action

The SORG4NOBAL international project concluded with workshops on 11–12 March 2025, including a session hosted by Khazar University. Researchers, farmers and partner organisations explored ways to reduce nutrient enrichment and pesticide contamination through sustainable agricultural practices.

At an Erasmus University Rotterdam workshop on 25 March, Khazar academics shared perspectives on water security and the Caspian Sea. A Finnish ambassador's water-diplomacy lecture in October and the Fourth International One Health Conference in November created further opportunities for discussion across disciplines.

The University also maintains a Sustainable Harvesting Policy for Campus Aquatic Food, which calls for responsible sourcing and traceability of aquatic food products. Its presence sets an institutional direction; documented supplier implementation is a separate matter.

14.4 Water sensitive waste disposal

Khazar University publishes a Plastic-Free Campus Policy that promotes reusable alternatives, water dispensers and awareness of single-use plastic pollution. Its Water Quality Standards and Guidelines describe parameters used to assess contamination, including nutrients, heavy metals and oil-related substances.

The University also has guidance for hazardous-waste handling and environmental protection. These documents explain its approach to managing potential pollution risks; annual discharge sampling, compliance results and measured plastic reductions require separate operational records.

14.5 Maintaining a local ecosystem

The Water Sciences and Hydroinformatics Research Center, established on 3 November 2025, brings together expertise in hydrology, water quality, ecosystem studies and river-basin management. It provides a foundation for longer-term work on water resources and nearby aquatic environments.

The University's Biodiversity Conservation Policy supports habitat protection and monitoring in principle. The 2025 research and partnerships describe important scientific capacity, while specific local monitoring programmes or habitat restoration outcomes would need to be documented separately.

Selected Activities in 2025

2025	ACTIVITY
11–12 Mar	SORG4NOBAL workshops on nature-based solutions and pollution pathways
25 Mar	Caspian water-security exchange at Erasmus University Rotterdam
15 May	Publication online of Daphnia magna ecotoxicology study
2 Jun	Aquatic biodiversity learning visit for Dunya School pupils
21 Oct	Water diplomacy and international cooperation lecture
3 Nov	Water Sciences and Hydroinformatics Research Center established
28–29 Nov	One Health conference on shared environmental challenges
2025	Kura River water-quality study published

2025 Overview

During 2025, Khazar University connected aquatic research with education, interdisciplinary partnerships and public-facing learning. Its peer-reviewed freshwater studies, international water discussions and new research centre complemented established policies intended to protect water quality and reduce pressures on aquatic ecosystems.