



SDG14 – LIFE BELOW WATER

Üsküdar University has been registered and included in the list by the international ranking organization Times Higher Education (THE) under the SDG 14 label, Life Below Water. In this report, within the scope of SDG 14-Life Below Water; educational programs, educational outreach activities, events, policies, standards and guidelines, action plans, engagement with research and/or industries, programs and incentives, collaborations and activities to prevent damage to aquatic ecosystems and protect life below water are listed.

- Educational programmes on fresh-water ecosystems

Üsküdar University offers structured academic training and community education directly relevant to freshwater ecosystems and sustainable water management. At the heart of this provision is the **Environmental Health Associate's Degree programme** ([LINK](#)), which contains multiple courses ([LINK](#)) that teach both the scientific basis and applied techniques needed for freshwater protection and management. Relevant taught courses within this programme include:

- **Water Quality and Treatment** ([LINK](#))— delivers core technical skills on assessing and improving freshwater quality (monitoring parameters, treatment technologies and safe supply).
- **Ecology** ([LINK](#)) — provides ecological principles required to understand freshwater ecosystem structure and function.
- **Environmental Impact Assessment** ([LINK](#))— trains students to evaluate potential impacts (including water-related impacts) of projects and to design mitigation.

In addition, there are compulsory and elective courses included in the curricula of various **undergraduate programmes** at the university: **Environmental Health and Safety** ([LINK](#)), **Environmental Health** ([LINK](#)), **Environment and Nature Education** ([LINK](#)), **Environmental Sociology** ([LINK](#)), **Environmental Journalism** ([LINK](#)), and **Environmental Sustainability** ([LINK](#))— these complementary courses equip students to translate technical knowledge into community education, policy understanding and behaviour change strategies.

Because these courses are embedded in an accredited programme, the University therefore **provides formal, repeatable, curriculum-based education** on water-related topics that can be tailored for professional and community audiences.

Beyond formal coursework, Üsküdar University routinely conduct **media and public outreach** to disseminate practical guidance about water use, water pollution, and aquatic ecosystem protection — activities which directly reach local and national audiences. Examples of direct outreach and evidence provided:

- Public guidance on environmental pollution risks during vacation seasons (awareness raising for coastal/freshwater users).
Evidence:



<https://uskudar.edu.tr/en/new/beware-of-environmental-pollution-during-the-vacation/56332>
<https://uskudar.edu.tr/haber/tatil-donemlerinde-cevre-kirliligine-dikkat/56299>

- Expert media commentary and public information on sustainable and proper fishing practices (links academic knowledge to fisheries, which affect both marine and fresh-water ecosystems). Evidence:

<https://uskudar.edu.tr/en/new/proper-fishing-activities-do-not-cause-marine-pollution/56983>
<https://uskudar.edu.tr/haber/dogru-balikcilik-faaliyetleri-deniz-kirliligine-neden-olmuyor/56977>

- Research-informed public reporting and awareness about **mucilage in the Sea of Marmara (2024)**, a high-profile aquatic ecosystem event that demanded public guidance and local policy attention.

Evidence:
<https://uskudar.edu.tr/haber/doganin-cigli-denizlerdeki-musilaj/44597>

- Analyses and public warnings relating to emerging pressures on water resources — e.g., studies and media pieces on the environmental implications of AI cooling water use, the public health threat of cyanide leaks, and global shortages of safe drinking water — showing that academics actively translate research into community guidance. Representative items:

<https://uskudar.edu.tr/en/new/the-water-used-to-cool-the-ai-is-a-concern-for-the-environment/44576>
<https://uskudar.edu.tr/en/new/do-cyanide-leaks-threaten-the-environment-and-public-health/44767>
<https://uskudar.edu.tr/haber/yeterli-icme-suyuna-ulasamayan-insan-sayisi-yildan-yila-artiyor/43864>

- National media syndication of university experts' commentary on water use and conservation (Anadolu Agency and multiple national outlets re-publishing or covering university statements), demonstrating *reach beyond campus* into national public discourse. Examples include AA and other press coverage citing university warnings about wasteful water use and AI-related water consumption risks.

Example items:
<https://www.aa.com.tr/tr/isduyasi/egitim/uskudar-universitesinden-bilincsiz-su-kullanimi-uyarisi/685254>
<https://www.aa.com.tr/tr/isduyasi/egitim/uskudar-universitesinden-yapay-zeka-uygulamalarinin-su-tuketimine-iliskin-degerlendirme/686299>

Furthermore, Üsküdar University has been active in **multilateral environmental initiatives** that include water resource stewardship in their scope. The university's engagement with the **AI-Mizan / "A Covenant for the Earth"** ([LINK](#)) initiative (UNEP-supported) and the related dissemination work led by senior academics provides additional institutional evidence of commitment to raising public awareness about sustainable water use.

Taken together, the **curriculum (formal courses)** plus the **sustained public outreach and media engagement** constitute an institutional approach to offering educational programmes on freshwater



ecosystems and water management for both **local** and **national** communities. The structure of the Environmental Health program and the elective courses included in the undergraduate and graduate curricula provide the academic foundation and content, while documented media/press outputs demonstrate that this information is actively communicated to community audiences.

The evidence of all media participation:

Üsküdar University warns against unconscious water use

<https://www.aa.com.tr/tr/isdunyasi/egitim/uskudar-universitesinden-bilincsiz-su-kullanimi-uyarisi/685254>

The world's water resources are rapidly decreasing

<https://www.baskentgazete.com.tr/dunyadaki-su-kaynaklari-hizla-azaliyor>

Üsküdar University calls for conscious water use

<https://www.gazetebirlik.com/istanbul-haberleri/uskudar-universitesinden-bilincsiz-su-kullanimi-uyarisi/161051>

Call for water conservation: conscious consumption is essential

<https://n24.com.tr/uskudar-universitesinden-su-tasarrufu-cagrisi-bilincli-kullanim-sart/>

Global water resources are declining — what can households do?

<https://www.iskenderun.org/dunyada-su-kaynaklari-azaliyor-bilincli-su-kullanimi-icin-evlerde-neler-yapilmali>

Üsküdar University's evaluation on water consumption in artificial intelligence applications

<https://www.aa.com.tr/tr/isdunyasi/egitim/uskudar-universitesinden-yapay-zeka-uygulamalarinin-su-tuketimine-iliskin-degerlendirme/686299>

Dr. İnci Karakaş: The water consumption of artificial intelligences cannot be predicted

<https://tokathaber60.com/video-galeri/dr-inci-karakas-yapay-zekalarin-su-tuketimi-tahmin-edilemiyor/14/03/2024/>

The cost of artificial intelligence

<https://www.paradergi.com.tr/teknoloji/2024/03/25/yapay-zekanin-faturasi>

Increasing use of artificial intelligence will consume billions of cubic meters of water by 2027

<https://www.gzt.com/genc-motto/yapay-zek-uygulamalarinin-artisi-2027de-milyarlarca-metreкуп-su-tuketecek-3788610>

Üsküdar University's statement on artificial intelligence applications and water consumption

<https://www.yesilafsin.com/uskudar-universitesinden-yapay-zeka-uygulamalarinin-su-tuketimine-iliskin-degerlendirme>



Dr. İnci Karakaş: The water consumption of artificial intelligences cannot be predicted

<https://tokatolay.com/2024/03/14/dr-inci-karakas-yapay-zekalarin-su-tuketimi-tahmin-edilemiyor/>

Üsküdar University's assessment on artificial intelligence applications and water use

<https://www.noktahaber.com.tr/haber-uskudar-universitesinden-yapay-zeka-uygulamalarinin-su-tuketimine-iliskin-degerlendirme-21260.html>

Üsküdar University's evaluation on AI applications and water consumption

<https://www.ekonomidunya.com/uskudar-universitesi-nden-yapay-zeka-uygulamalarinin-su-tuketimine-iliskin-degerlendirme/64570/>

Artificial intelligence's water consumption raises concern

<https://www.usakhabergazetesi.com.tr/yapay-zekanin-su-tuketimi-korkuttu>

Water used to cool artificial intelligence systems raises environmental concerns

<https://ilkha.com/bilim-&-teknoloji/yapay-zekayi-sogutmada-kullanilan-su-cevre-acisindan-endise-veriyor!-383131>

Artificial intelligence's water usage causes concern

<https://www.yeniesnaf.com/haber/yapay-zeka-su-kullanimi-endise-yaratiyor-17288.html>

Environmental degradation threatens tourism

<https://www.turizmnews.com/cevre-tahribati-turizmi-tehdit-ediyor/32548/>

Global sustainability and women in business discussed

<https://uskudar.edu.tr/haber/kuresel-surdurulebilirlik-ve-is-hayatinda-kadin-ele-alindi/44578>

- Educational programme / outreach for local or national communities on sustainable management of fisheries, aquaculture, and tourism

Üsküdar University offers a wide range of **educational and outreach programs** that promote the **sustainable management of fisheries, aquaculture, and marine-related tourism**, combining academic education, applied research, and community engagement.

At the core of this effort are the courses provided through the **Environmental Health Associate's Degree Program** ([LINK](#)), which include Water Quality and Treatment ([LINK](#)), Ecology ([LINK](#)), Environmental Impact Assessment ([LINK](#)) and courses for undergraduate and graduate students such as Environmental Health and Safety ([LINK](#)), Environmental Health ([LINK](#)), Environmental Sustainability ([LINK](#)), and Environmental Sociology ([LINK](#)). These courses directly address the preservation of aquatic ecosystems, the control of pollution, and sustainable use of marine resources. Students gain both theoretical and applied knowledge that contributes to responsible fishing, aquaculture, and environmentally conscious tourism management.



Üsküdar University actively contributes to applied research through several innovative projects addressing marine sustainability challenges. Among these, the MARTERA Project ([LINK](#)), represented by Asst. Prof. Dr. Hacer Kayhan, develops sustainable technologies for marine resource management and ecosystem protection. Additionally, in 2024, Prof. Dr. Tunç Çatal submitted a research proposal titled “The Threat of Ship-Derived Waste in Environmental Health: Bio-electrochemical Cell-Based Environmental Remediation and Energy Conversion”, which aims to minimize marine pollution from ship waste through bio-electrochemical systems while generating clean energy — an approach directly aligned with SDG 14 objectives.

The university’s **Application and Research Center for Health Tourism (SATÜMER)** ([LINK](#)) plays a pivotal role in integrating **sustainability principles into tourism** education and practice. The center provides academic training, organizes national workshops ([LINK](#)), and cooperates with local authorities to promote **eco-friendly tourism and the protection of marine and coastal environments**. In this context, the **Health Tourism Education** ([LINK](#)) also introduces students to sustainable tourism practices, responsible resource use, and ethical tourism development aligned with SDG 14 and SDG 12 goals.

Üsküdar University faculty members actively engage in **public communication** and **media outreach** to raise awareness of sustainable marine practices. For example, Dr. Ahmet Adiller, through several national media features such as “**Proper Fishing Activities Do Not Cause Marine Pollution**” ([LINK](#)), explains the ecological balance of fishing and emphasizes that correct fishing methods do not harm aquatic ecosystems. Similarly, İnci Karakaş contributes expert opinions in “**Beware of Environmental Pollution During the Vacation**” ([LINK](#)), stressing the importance of environmentally responsible tourism and sustainable use of marine resources during travel seasons.

These initiatives are further supported by student-led organizations such as the **Sustainable Development Club** and **Climate and Environment Club** ([LINK](#)), which organize awareness events ([LINK](#)), workshops, and community projects related to overfishing, pollution control, and marine conservation.

Through this integrated approach — encompassing **academic education**, **applied research (MARTERA)**, **institutional expertise (SATÜMER)**, and **public awareness (media and student engagement)** — Üsküdar University demonstrates a strong institutional commitment to the **sustainable management of fisheries, aquaculture, and tourism**, fully aligned with SDG 14 objectives.

The evidence of all media participation:

Üsküdar University warns against unconscious water use

<https://www.aa.com.tr/tr/isdunyasi/egitim/uskudar-universitesinden-bilincsiz-su-kullanimi-uyarisi/685254>

The world’s water resources are rapidly decreasing

<https://www.baskentgazete.com.tr/dunyadaki-su-kaynaklari-hizla-azaliyor>

Üsküdar University calls for conscious water use

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Üsküdar University's evaluation on water consumption in artificial intelligence applications

<https://www.aa.com.tr/tr/isdunyasi/egitim/uskudar-universitesinden-yapay-zeka-uygulamalarinin-su-tuketimine-iliskin-degerlendirme/686299>

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Increasing use of artificial intelligence will consume billions of cubic meters of water by 2027

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Dr. İnci Karakaş: The water consumption of artificial intelligences cannot be predicted

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Üsküdar University's assessment on artificial intelligence applications and water use

<https://www.noktahaber.com.tr/haber-uskudar-universitesinden-yapay-zeka-uygulamalarinin-su-tuketimine-iliskin-degerlendirme-21260.html>

Üsküdar University's evaluation on AI applications and water consumption

<https://www.ekonomidunya.com/uskudar-universitesi-nden-yapay-zeka-uygulamalarinin-su-tuketimine-iliskin-degerlendirme/64570/>

Artificial intelligence's water consumption raises concern

<https://www.usakhabergazetesi.com.tr/yapay-zekanin-su-tuketimi-korkuttu>

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<https://www.yeniesnaf.com/haber/yapay-zeka-su-kullanimi-endise-yaratiyor-17288.html>

Environmental degradation threatens tourism

<https://www.turizmnews.com/cevre-tahribati-turizmi-tehdit-ediyor/32548/>

Global sustainability and women in business discussed

<https://uskudar.edu.tr/haber/kuresel-surdurulebilirlik-ve-is-hayatinda-kadin-ele-alindi/44578>

- Educational outreach activities to raise awareness about fishing practices

Üsküdar University actively conducts **educational and outreach activities** for local and national communities to raise awareness about **overfishing, illegal, unreported, and unregulated fishing, and destructive fishing practices**. At the academic core, the **Environmental Health Associate's Degree Program** ([LINK](#)) offers essential courses such as Water Quality and Treatment ([LINK](#)), Ecology ([LINK](#)), Environmental Impact Assessment ([LINK](#)), providing students with deep knowledge on the sustainable management of fisheries and the ecological impacts of human activity. Elective and compulsory **courses for undergraduate students**—including Environmental Health and Safety ([LINK](#)), Environmental Health ([LINK](#)), Environmental Sustainability ([LINK](#)), and Environmental Sociology ([LINK](#))—further enhance understanding of aquatic ecosystem protection and sustainability practices.

Beyond coursework, Üsküdar University faculty actively participate in **media and public outreach initiatives**. *Asst. Prof. Dr. Ahmet Adiller* has communicated the importance of sustainable fisheries in “Proper Fishing Activities Do Not Cause Marine Pollution” ([LINK](#)), emphasizing how correct fishing practices prevent marine ecosystem degradation. Similarly, *Asst. Prof. Dr. İnci Karakaş* highlighted the environmental impact of tourism in “Beware of Environmental Pollution During the Vacation” ([LINK](#)) and “Environmental Destruction threatens the Tourism” ([LINK](#)), raising public awareness on sustainable tourism and coastal ecosystem protection. Additional public engagement is seen in sectoral publications such as “Seas Must Be Protected for Fishing to Continue in the Future” ([LINK](#)) and “Illegal Fishing and Marine Pollution: Warnings from Experts” ([LINK](#)).

Üsküdar University also integrates applied research initiatives that directly support sustainable fisheries and marine conservation. Notably, *Asst. Prof. Dr. Hacer Kayhan* contributed to the **MARTERA Project** ([LINK](#)) (2022–2024), collaborating with Turkish fish farms to develop sustainable aquaculture practices and reduce harmful environmental impacts.

Furthermore, the **Application and Research Center for Health Tourism (SATÜMER)** ([LINK](#)) supports education and training on sustainable tourism, guiding students and practitioners on environmentally responsible tourism practices, coastal protection, and the interplay between tourism and aquatic ecosystem conservation.

Institutional commitment is reinforced through policies and strategic initiatives, such as the publication of the **Global Well-Being Manifesto** ([LINK](#)) and the establishment of the **Environmental Ethics Forum**



([LINK](#)), promoting sustainable and ethical environmental practices across academic, research, and societal activities.

Finally, in 2024, Üsküdar University contributed to the “**Al-Mizan: A Covenant for the Earth**” ([LINK](#)) environmental agreement, supported by the United Nations Environment Programme (UNEP). This agreement addresses overfishing, unregulated fishing, and destructive fishing practices, with dissemination activities ([Al-Mizan First Steps](#), [Panel with Experts](#)) led by *Prof. Dr. İbrahim Özdemir* through seminars, congresses, and media outreach, ensuring both national and local awareness.

Through this integrated approach—**core and elective education, applied research, SATÜMER-led training, media outreach, and student engagement**—Üsküdar University demonstrates a sustained commitment to combating overfishing, unregulated fishing, and destructive fishing practices in alignment with SDG 14 targets.

Media participation:

[LINK1](#)

[LINK6](#)

[LINK11](#)

[LINK16](#)

[LINK2](#)

[LINK7](#)

[LINK12](#)

[LINK17](#)

[LINK3](#)

[LINK8](#)

[LINK13](#)

[LINK18](#)

[LINK4](#)

[LINK9](#)

[LINK14](#)

[LINK19](#)

[LINK5](#)

[LINK10](#)

[LINK15](#)

[LINK20](#)

- Events aimed to promote conservation and sustainable utilisation of the water bodies

Üsküdar University actively supports and organizes a wide range of **events and outreach activities** aimed at promoting the **conservation and sustainable use of oceans, seas, lakes, rivers, and marine resources**.

The university regularly hosts **seminars, panels, workshops, and public awareness campaigns** addressing key environmental challenges, including overfishing, illegal and unreported fishing, destructive fishing practices, plastic and microplastic pollution, and tourism-related environmental impacts. For example, *Asst. Prof. Dr. Ahmet Adiller* raised awareness about sustainable fisheries in the media through “Proper Fishing Activities Do Not Cause Marine Pollution” ([LINK](#)), while *Asst. Prof. Dr. İnci Karakaş* emphasized tourism-induced pollution in “Beware of Environmental Pollution During the Vacation” ([LINK](#)) and “Environmental Destruction threatens the Tourism” ([LINK](#)).

The university also engages the public through **student-led initiatives**, including the **Sustainable Development Club** and **Climate and Environment Club** ([LINK](#)), which organize awareness events ([LINK](#)), workshops, and campaigns focused on ecosystem conservation and climate action. These activities help bridge academic knowledge and community engagement, fostering social impact and raising awareness about sustainable marine and freshwater resource use.

Üsküdar University has been actively involved in the “**Al-Mizan: A Covenant for the Earth**” ([LINK](#)) environmental agreement, supported by UNEP, which emphasizes the protection and sustainable use of



water resources. Throughout 2024, dissemination events and educational activities led by *Prof. Dr. İbrahim Özdemir* included seminars, international panels, and community outreach initiatives ([Al-Mizan First Steps, Panel with Experts](#)).

Through these **targeted events, public engagements, and student-led projects**, Üsküdar University demonstrates a strong commitment to promoting sustainable practices in marine and freshwater resource management while actively raising local and national awareness about ecological conservation.

Media participation:

[LINK1](#)

[LINK6](#)

[LINK11](#)

[LINK16](#)

[LINK2](#)

[LINK7](#)

[LINK12](#)

[LINK17](#)

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[LINK15](#)

[LINK20](#)

- Policy to ensure that food on campus that comes from aquatic ecosystems is sustainably harvested

Üsküdar University has a clear policy to ensure that **food served on campus, particularly products derived from aquatic ecosystems, is sustainably harvested**. The university's **Food Service Technical Specifications** ([LINK](#)), which govern operations across all five campuses, explicitly require that the dining service companies comply with sustainability criteria when sourcing seafood.

A central aspect of this policy is the **selection of vendors**. Only companies that demonstrate commitment to sustainable fishing and responsible procurement practices are allowed to supply seafood to university dining halls. This ensures that all fresh seafood originates from sources that adhere to **national sustainable fishing standards** ([LINK](#)) and recognized sustainability practices. For frozen seafood, the policy mandates sourcing exclusively from two companies certified for their sustainability efforts.

This approach emphasizes **institutional responsibility and supplier accountability**: by linking vendor eligibility to sustainability criteria, Üsküdar University ensures that its campus food supply directly supports the conservation of aquatic ecosystems. The **technical specifications**, initially implemented on October 1, 2021, remain fully in effect until 30.09.2024. However, the specification was extended for one more year. The university maintained the same level of diligence when launching the tender ([LINK](#)) upon the specification's expiration in 2025. Supporting evidence includes the **technical specifications document, the national fishing standard for 2024, and the sustainability reports of approved seafood suppliers (2024)**, which collectively demonstrate the university's commitment to environmentally responsible procurement.

[Technical Specifications for Meal Service](#)

[Kerevitaş Sustainability Report 2024](#)

[National Fishing Standard](#)

[Dardanel Sustainability Report 2024](#)



[Üsküdar University Dining Hall Tender Announcement](#)

- **Research and/or engagement with industries to maintain and extend existing ecosystems and their biodiversity, of both plants and animals, especially ecosystems under threat**

Üsküdar University is strongly committed to the **protection and enhancement of ecosystems and biodiversity**, encompassing both flora and fauna, with a particular focus on **vulnerable and threatened habitats**.

The university has established a network of **research centers** ([LINK](#)) and **laboratories** ([LINK](#)) dedicated to biodiversity and ecosystem conservation. These include collaborative initiatives with the **BrainPark Technology Transfer Office** ([LINK](#)), the **Istanbul Protein Research, Development and Innovation Center (PROMER)** ([LINK](#)), and the **Biotechnology Research Center (BİYOTEKMER)** ([LINK](#)). All research activities are conducted under the supervision of the **Non-Interventional Research Ethics Committee** ([LINK](#)) and the **Animal Research Ethics Committee** ([LINK](#)), ensuring adherence to the highest ethical and scientific standards.

Among the university's **notable research efforts** are studies on **mucilage, which severely affected the Sea of Marmara** in 2024 ([LINK](#)), investigations into **heavy metal pollution posing serious threats to aquatic ecosystems** ([LINK](#)), research on the treatment of ship-generated waste, and research proposal by **Prof. Dr. Tunç Çatal**, titled "*The Threat of Ship Waste to Environmental Health: Environmental Removal and Energy Conversion through Bio-electrochemical Cells*" ([LINK](#)), which addresses sustainable management of marine waste while enabling energy recovery. — all of which contribute valuable scientific insights toward sustainable ecosystem management.

Üsküdar University also integrates applied research initiatives that directly support sustainable fisheries and marine conservation which enhance protection of ecosystems and biodiversity. Notably, *Asst. Prof. Dr. Hacer Kayhan* contributed to the **MARTERA Project** ([LINK](#)) (2022–2024), collaborating with Turkish fish farms to develop sustainable aquaculture practices and reduce harmful environmental impacts.

Üsküdar University's academic staff have also contributed significantly to marine and environmental research through public outreach and expert commentary. **Dr. Ahmet Adiller** highlighted the importance of sustainable fishing practices in preventing marine pollution ([LINK](#)), while **Dr. İnci Karakaş** addressed the critical relationship between tourism and ecosystem degradation, emphasizing the necessity of environmental conservation for sustainable tourism ([LINK](#)).

"Üsküdar University has also contributed to raising public awareness about major ecological risks through media and outreach activities addressing issues such as **cyanide leaks** ([LINK](#)), **thermal pollution** caused by data center cooling water ([LINK](#)), and the **mucilage phenomenon** in the Sea of Marmara ([LINK](#)). These awareness efforts help promote a broader understanding of human-induced pressures on aquatic ecosystems."

On the global ethics and environmental responsibility front, Üsküdar University has played a prominent role in the "**Al-Mizan: A Covenant for the Earth**" initiative supported by the **United Nations Environment**



Programme (UNEP), with **Prof. Dr. İbrahim Özdemir** serving as one of the leading academic voices ([LINK](#)). The initiative’s launch and related conferences hosted by the university — including panels such as “*A Covenant for the Earth: The First Steps of Mizan*” — underscore Üsküdar’s role in promoting ecological ethics and biodiversity protection at both national and international levels ([LINK](#)). Including Üsküdar University’s future commitments to ecosystem and biodiversity conservation in its “**2024-2028 Strategic Plan**” ([LINK](#)) also reflects the university’s perspective and dedication to this issue.

Through these combined research, education, and outreach efforts, Üsküdar University directly contributes to maintaining and extending existing ecosystems and biodiversity. Its interdisciplinary projects and ethical frameworks foster a sustainable relationship between science, industry, and the environment — particularly for the protection of aquatic ecosystems and marine biodiversity.

Evidences:

[Üsküdar University Technology Transfer Office - BRAINPARK](#)

[Üsküdar University Protein Research Development and Innovation Application and Research Center - PROMER](#)

[Üsküdar University Biotechnology Application and Research Center - BIYOTEKMER](#)

[Publications produced from studies carried out within PROMER](#)

[Publications produced from studies carried out within BIYOTEKMER](#)

[Üsküdar University Laboratories](#)

[Advanced Protein Analysis Laboratory](#)

[Cell Culture Laboratory](#)

[Chemistry Laboratory](#)

[Forensic Biology and Genetics Laboratory](#)

[inSilico Research Laboratory](#)

[Microbial Biotechnology Research Laboratory](#)

[SHMYO Research Laboratory](#)

[Advanced Toxicology Analysis Laboratory](#)

[non-Interventional Research Ethics Board](#)

[Animal Research Ethics Committee](#)

Media participation:

[LINK1](#)

[LINK2](#)

[LINK3](#)

[LINK4](#)



[LINK5](#)

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[LINK16](#)

[LINK20](#)

Working Groups

- [Biological Activities Working Group](#)
- [Bioengineering Working Group](#)
- [Chemical Engineering Working Group](#)
- [Computational Biology and inSilico Studies Working Group](#)
- [Molecular Biotechnology Working Group](#)
- [Nanobiotechnology Working Group](#)
- [Smart Systems Working Group](#)

- Research and/or engagement with industries on technologies or practices that enable marine industry to minimise or prevent damage to aquatic ecosystems

Üsküdar University actively conducts research and engages with industry partners to develop technologies and practices that enable the marine sector to minimize or prevent damage to aquatic ecosystems. The university's approach integrates laboratory research, applied projects, and knowledge transfer to relevant industries, ensuring that both scientific innovation and practical implementation are achieved.

The university has established several specialized **research centers** ([LINK](#)) and **laboratories** ([LINK](#)) equipped to address marine environmental challenges. These include the **Istanbul Protein Research, Development and Innovation Center (PROMER)** ([LINK](#)), the **Biotechnology Research Center (BİYOTEKMER)** ([LINK](#)), and the **BrainPark Technology Transfer Office** ([LINK](#)), which collaborate on projects that combine scientific research with industrial applications. Alongside these research and application centers, there are seven advanced research laboratories and program-specific research laboratories.

There are 7 working groups where researchers conducting focused studies come together. These working groups generally carry out research activities related to minimizing or preventing the damage caused by human activities, specifically at various levels, to aquatic ecosystems in the maritime industry, using interdisciplinary approaches. The relevant publications produced are presented as evidence in the report.

All research is overseen by the **Non-Interventional Research Ethics Committee** ([LINK](#)) and the **Animal Research Ethics Committee** ([LINK](#)) ensuring the highest ethical standards.

Notable projects and initiatives include:

- **Prof. Dr. Tunç Çatal's 2024 project proposal:** *"The Threat of Ship Waste to Environmental Health: Environmental Removal and Energy Conversion through Bioelectrochemical*



Cells”([LINK](#)), which investigates methods to safely treat ship-generated waste while converting pollutants into usable energy.

- Studies on **mucilage outbreaks in the Sea of Marmara** ([LINK](#)), **heavy metal pollution** ([LINK](#)), and other pollutants that pose risks to marine biodiversity. These researchs provide critical insights for sustainable marine industry practices.

Academics actively contribute to public and industry awareness through media, seminars, and workshops. **Dr. Ahmet Adiller** highlighted sustainable fishing techniques that prevent marine pollution ([LINK](#)), while **Dr. İnci Karakaş** focused on tourism-related ecosystem impacts ([LINK](#)). These engagements ensure that industry stakeholders and the wider community are informed about best practices for ecosystem protection.

Moreover, Üsküdar University contributes to global environmental policy through initiatives like “**Al-Mizan: A Covenant for the Earth**” ([LINK](#)), supported by UNEP, which includes guidance on sustainable marine resource use. Dissemination activities in 2024, led by **Prof. Dr. İbrahim Özdemir**, integrate scientific findings with industry-relevant recommendations ([LINK](#)).

Through these **combined research, industrial collaboration, and outreach efforts**, Üsküdar University directly supports the **marine industry** in adopting **environmentally responsible practices** that minimize ecological harm and promote sustainable utilization of aquatic resources.

[Üsküdar University Technology Transfer Office - BRAINPARK](#)

[Üsküdar University Protein Research Development and Innovation Application and Research Center - PROMER](#)

[Üsküdar University Biotechnology Application and Research Center - BIYOTEKMER](#)

[Üsküdar University Laboratories](#)

[Advanced Protein Analysis Laboratory](#)

[Cell Culture Laboratory](#)

[Chemistry Laboratory](#)

[Forensic Biology and Genetics Laboratory](#)

[inSilico Research Laboratory](#)

[Microbial Biotechnology Research Laboratory](#)

[SHMYO Research Laboratory](#)

[Advanced Toxicology Analysis Laboratory](#)

[non-Interventional Research Ethics Board](#)

[Animal Research Ethics Committee](#)



Working Groups

- [Biological Activities Working Group](#)
- [Bioengineering Working Group](#)
- [Chemical Engineering Working Group](#)
- [Computational Biology and inSilico Studies Working Group](#)
- [Computational Biology Working Group](#)
- [Molecular Biotechnology Working Group](#)
- [Nanobiotechnology Working Group](#)
- [Smart Systems Working Group](#)

[Publications produced from studies carried out within PROMER](#)

[Publications produced from studies carried out within BİYOTEKMER](#)

Media participation:

LINK1	LINK6	LINK11	LINK16
LINK2	LINK7	LINK12	LINK17
LINK3	LINK8	LINK13	LINK18
LINK4	LINK9	LINK14	LINK19
LINK5	LINK10	LINK15	LINK20

- Water quality standards and guidelines for water discharges

Üsküdar University continues to actively work on ensuring the protection of water quality and compliance with relevant guidelines to safeguard ecosystems, wildlife, and human health. While the university does not independently establish wastewater discharge standards—since all campuses fall under the jurisdiction of the **Istanbul Water and Sewerage Administration (İSKİ)**—it fully adheres to the **Wastewater Discharge Regulations** ([LINK](#)) and is legally bound to comply with these regulations.

Additionally, the university maintains compliance with national regulations, including the **Regulation on Monitoring of Surface Water and Groundwater** ([LINK](#)), to ensure the ongoing protection of aquatic ecosystems. Waste management practices across campuses, laboratories, and affiliated facilities, including the **NP Istanbul Neuropsychiatry Hospital**, follow the **Waste Management Regulation** ([LINK](#)) and its own **Hazardous Materials Management Regulation**, which provides standards for the collection, handling, and disposal of general, medical, and hazardous materials and waste. These practices prevent contamination of ecosystems and protect human health and welfare.



Within the scope of University Quality Management activities, it has declared its independent policies under the heading of Environmental Policy and Sustainability Policy and has published this policy declaration on the website.

Research and educational activities at Üsküdar University further reinforce these standards. Courses such as **Water Quality and Treatment** ([LINK](#)), **Ecology** ([LINK](#)), **Environmental Impact Assessment** ([LINK](#)), and **Environmental Health** ([LINK](#)) train students in sustainable water management and monitoring practices. University-led public awareness contributions on marine pollution ([LINK](#)), cyanide leaks ([LINK](#)), and industrial wastewater inform internal protocols and contribute to ongoing improvements in compliance and environmental protection.

Through these measures, Üsküdar University ensures that its water discharge practices meet national and local legal requirements while supporting ecosystem conservation and public health.

Standards and Regulations

- [İSKİ Wastewater Discharge Regulations](#)
- [Regulation on Monitoring of Surface Water and Groundwater](#)
- [Waste Management Regulation](#)

Policy Declarations

<https://kalite.uskudar.edu.tr/en/policies>

- Action plan in place to reduce plastic waste on campus

Üsküdar University has developed and actively implements a comprehensive action plan to reduce plastic waste on campus as part of its commitment to the “**Zero Waste Project**” ([LINK](#)), initiated by the Ministry of Environment, Urbanization, and Climate Change in 2017. The university’s approach encompasses the implementation of a **Zero Waste Management System** across all campuses, which includes:

- Separation of waste streams at source (plastics, paper, organic waste, metals, glass, hazardous materials).
- Use of standardized recycling bins ([LINK](#)) with clear labeling and guidance for students, academic, and administrative staff.
- Regular staff and student training programs on sustainable waste practices and proper recycling.
- Monitoring and reporting of waste generation and recycling rates through internal audits and official reporting channels ([LINK](#)).

These measures enabled Üsküdar University to earn **Zero Waste Certificates** ([LINK](#)), valid until 2026. To maintain and extend certification, institutions must demonstrate ongoing compliance with waste segregation, recycling, reduction of disposable plastics, and proper disposal of hazardous and electronic wastes, as outlined in the Ministry’s guidelines (Zero Waste Management Regulation).



In line with these requirements, the university has installed water dispensers ([LINK](#)) throughout its campuses, provided thermoses ([LINK](#)) to all staff, and promoted the use of reusable containers to reduce single-use plastics. In addition, the university’s “**2024-2028 Strategic Plan**” ([LINK](#)), sets new targets to further reduce plastic waste and enhance campus sustainability practices.

As part of its awareness and prevention-oriented approach, Üsküdar University not only focuses on solving existing environmental challenges but also on preventing them from emerging. This preventive mindset was prominently reflected during the “**1st Savings and Waste Symposium**” ([LINK](#)), organized by the university, which brought together experts, academics, and students to discuss strategies for minimizing waste generation and promoting sustainable consumption habits.

Monitoring of progress is supported by the university’s **waste tracking system** ([LINK](#)), which records total waste production and recycling rates annually. In 2024, Üsküdar University successfully recycled ~**86%** of total waste demonstrating measurable progress in plastic and general waste reduction.

Üsküdar University takes all possible measures to protect the health of aquatic ecosystems in the disposal of hazardous wastes. All hazardous wastes generated in laboratories and other areas (batteries, chemicals, contaminated packaging, etc.) are collected separately, stored with all necessary precautions ([LINK](#)), and disposed of by licensed companies ([LINK](#)), demonstrating the university’s careful approach. The annual quantities of these wastes generated on campus are recorded and shared through the waste tracking system ([LINK](#)). Images related to the relevant areas and practices are provided in the subsection below.

Beyond operational measures, Üsküdar University actively promotes awareness of plastic waste issues through media participation, social media campaigns, seminars, and student-led initiatives. Academic staff and student clubs, including the **Sustainable Development Club** and the **Climate and Environment Club** ([LINK](#)), engage in projects and outreach activities ([LINK](#)) that highlight the environmental and health impacts of plastic pollution, including microplastics.

Through this integrated approach—combining management systems, monitoring, staff and student engagement, and public outreach—Üsküdar University ensures both compliance with national zero waste regulations and the effective reduction of plastic waste on campus.

[Zero Waste Regulation](#)

[Zero Waste Documents \(Certificates\)](#)

[2024-2028 Strategic Plan](#)

Media participation

[LINK1](#)

[LINK2](#)

[LINK3](#)

[LINK4](#)

- Policy on preventing and reducing marine pollution

Üsküdar University has established a comprehensive policy framework aimed at **preventing and reducing marine pollution of all kinds**, particularly from land-based activities, reflecting its ongoing commitment



to environmental sustainability and responsible management of aquatic ecosystems. This framework is embedded across university operations, academic programs, and community outreach initiatives.

Policy and Strategic Framework

The university's environmental policies, accessible via Üsküdar University Policies ([LINK](#)), integrate commitments to reduce pollution, promote sustainable resource use, and protect aquatic ecosystems. These policies are reinforced through the “**2024-2028 Strategic Plan**” ([LINK](#)), which sets clear objectives for minimizing land-based sources of marine pollution, such as runoff, industrial and laboratory waste, and improper waste disposal (evidence for applications given in section 14.4.2).

The Policy and Strategic Framework is based on the University's Strategic Plan. The University's policies and quality practices take into account mega trends, SDG 17 labels, and Green Metrics criteria. The Üsküdar University Environmental Ethics Forum, the Global Well-Being Manifesto for the Post-Pandemic Era (2021), and “**Al-Mizan: A Covenant for the Earth**” ([LINK](#)), UNEP are policy applications led by our University.

Accordingly, Quality Management Declarations have been prepared and announced on the website (Environmental Policy and Sustainability Policy). Additionally, the university has adopted **on-campus renewable energy initiatives**, including a solar energy system (SES) installed on Health Campus rooftop, which reducing fossil fuel-related water and air pollution and contributing indirectly to marine ecosystem protection. The SES project, which began construction in 2024 and will become active in 2025, will provide 392,827.00 KWH of electricity per year from renewable energy sources, and our healthcare facility is expected to save on electricity consumption. Our energy efficiency investment as of 2024 is 5 million 427 thousand 113 Turkish Liras. The SES project's electricity capacity accounts for 18% of total consumption. Within this scope, the university has made an initial investment of approximately 140,000 USD for clean energy.

The following mechanisms are in place to institutionalize the university's policies on the sustainability of water ecosystems:

- Research and Application Centers ([LINK](#))
- Technology Transfer Office (BRAINPARK) ([LINK](#))
- Working Groups ([LINK](#))
- Support for Scientific Research Projects (BAP) ([LINK](#))
- FTSmart ([LINK](#))
- Academic Incentives ([LINK](#))
- Scientific Ethics Committees ([LINK](#))
- Coordinators (Quality, Social Contribution ([LINK](#)), Education, etc.) ([LINK](#))
- Permanent Commissions (Quality, Education, Public Health, etc.)
- Student Clubs ([LINK](#))

Education, Research, and Outreach



Üsküdar University academics actively raise awareness of marine pollution through **media and social media participation**, highlighting issues such as improper fishing practices ([LINK](#)), tourism-related pollution ([LINK](#)), cyanide leaks ([LINK](#)), mucilage outbreaks ([LINK](#)), and water use in industrial processes. The university's Environmental Health Associate's Degree Program ([LINK](#)) and courses like **Water Quality and Treatment** ([LINK](#)), **Ecology** ([LINK](#)), **Environmental Impact Assessment** ([LINK](#)), **Environmental Health and Safety** ([LINK](#)), **Environmental Sustainability** ([LINK](#)), **Environmental Journalism** ([LINK](#)), and **Environment and Nature Education** ([LINK](#)), equip students with the knowledge and skills to understand and mitigate the impacts of land-based activities on marine ecosystems.

Al-Mizan Initiative and Public Engagement

In 2024, Üsküdar University continued to contribute to the “**Al-Mizan: A Covenant for the Earth**” ([LINK](#)) initiative, supported by the **United Nations Environment Programme (UNEP)**. The program addresses issues including overfishing, destructive fishing practices, and broader environmental threats to water bodies. Dissemination and educational activities, led by **Prof. Dr. İbrahim Özdemir**, involved seminars, congresses, workshops, and extensive media outreach ([LINK](#)).

Institutional Initiatives and Campus Operations

The university ensures that **laboratories, research centers, and campus facilities** comply with waste and water management regulations, including national and municipal wastewater directives. By integrating sustainability into operational planning, including energy systems, laboratory protocols, and landscaping practices, the university reduces pollutants entering marine and freshwater systems.

Strategic mechanisms have initiated and are implementing the following practices as tools for sustainability and maintenance:

Clean energy applications (SES project) ([LINK1](#);[LINK2](#))

Zero Waste Policy ([LINK](#))

Separation of solid waste on campus ([LINK](#))

Storage, separation, and collection of hazardous and medical waste ([LINK](#))

Recycling of paper ([LINK](#))

Recycling of used water on campus, irrigation water applications ([LINK](#))

Drinking water purification system (reverse osmosis), recycling of water used in the system ([LINK](#)).

Outreach extends to students via **Sustainable Development Club** and **Climate and Environment Club** activities ([LINK](#)), further amplifying the impact of educational campaigns on local and national communities.

Conclusion

Through its **policies, strategic plans, educational programs, media engagement, research, and campus operations**, Üsküdar University demonstrates a comprehensive, actionable, and evidence-based commitment to preventing and reducing marine pollution from land-based sources. These measures are continuously monitored, updated, and communicated to ensure long-term effectiveness and community awareness.



Evidences:

[Zero Waste Regulation](#)

[Zero Waste Documents \(Certificates\)](#)

[2024-2028 Strategic Plan](#)

Media participation

[LINK1](#)

[LINK2](#)

[LINK3](#)

[LINK4](#)

- Plan to minimise physical, chemical and/or biological alterations of related aquatic ecosystems

Üsküdar University has developed and actively implements a **comprehensive plan to minimize physical, chemical, and biological alterations** of aquatic ecosystems, reflecting its institutional commitment to environmental sustainability. This plan integrates policy directives, research initiatives, campus operations, and educational programs to protect and restore aquatic environments, including freshwater and marine systems.

Policy Framework and Strategic Planning

The university's environmental policies, publicly available at Üsküdar University Policies ([LINK](#)), provide explicit guidance on sustainable practices, ecosystem protection, and ethical stewardship of water resources. These policies are operationalized through the “**2024-2028 Strategic Plan**” ([LINK](#)), which sets concrete goals for mitigating physical, chemical, and biological pressures on aquatic ecosystems, including pollution reduction, sustainable water management, and ecosystem restoration initiatives.

Research and Innovation Initiatives

Üsküdar University fosters **research on technologies and practices** to minimize ecosystem disturbances. Laboratories such as the **Microbial Biotechnology Research Laboratory** ([LINK](#)), **Molecular Biology and Genetics Laboratory** ([LINK](#)), **Cell Culture Laboratory** ([LINK](#)), and **Chemistry Laboratory** ([LINK](#)), established in collaboration with the **BrainPark Technology Transfer Office** ([LINK](#)), the **Istanbul Protein Research, Development and Innovation Center (PROMER)** ([LINK](#)), and the **Biotechnology Research Center (BİYOTEKMER)** ([LINK](#)), enhance the university's capacity to investigate environmental threats and solutions.

Notable research efforts include:

- **Mucilage research** ([LINK](#)) addressing the 2024 Sea of Marmara outbreak, providing actionable insights for mitigating its ecological impact.
- **Heavy metal pollution studies** ([LINK](#)), focusing on contaminants threatening aquatic biodiversity and informing sustainable management strategies.



- **Marine waste treatment research**, including ship-derived waste, in line with sustainable maritime practices.
- **“Ship Waste Threat in Environmental Health: Environmental Removal and Energy Conversion via Bioelectrochemical Cells”** (2024) proposed by **Prof. Dr. Tunç Çatal**, integrating innovative technologies to reduce chemical and biological disruptions in marine environments.

The university encourages academic innovation through the **Scientific Incentive Evaluation Directive** ([LINK](#)) and monitors progress using the **Activity Tracking System** ([LINK](#)), ensuring sustained research contributions.

Campus Practices and Infrastructure

Üsküdar University applies practical measures to minimize ecosystem impacts:

- Drinking water and supply systems at **NP Istanbul Hospital** adhere to strict water quality standards ([LINK](#)).
- Hazardous waste collection points ([LINK](#)) and controlled irrigation systems support the reduction of chemical contaminants entering local ecosystems.
- **Off-campus afforestation initiatives** ([LINK](#)) and habitat restoration projects enhance biodiversity and ecosystem resilience.
- **Solar energy installations** ([LINK](#)) on campus rooftops reduce fossil fuel dependency, mitigating indirect pressures on water ecosystems.

Education, Outreach, and Community Engagement

Environmental responsibility is integrated into academic programs, particularly through courses in **Water Quality and Treatment** ([LINK](#)), **Ecology** ([LINK](#)), **Environmental Impact Assessment** ([LINK](#)), **Environmental Health and Safety** ([LINK](#)), **Environmental Sustainability** ([LINK](#)), **Environmental Journalism** ([LINK](#)), and **Environment and Nature Education** ([LINK](#)), equipping students with the knowledge to monitor, protect, and restore aquatic ecosystems.

Additionally, **media engagement** by university academics raises awareness about mucilage outbreaks, heavy metal pollution, and broader ecosystem threats ([Environmental Pollution during Vacations](#), [Proper Fishing Practices](#), [Cyanide Leaks](#), [AI Cooling Water Concerns](#)).

Conclusion

Through a coordinated approach encompassing **policy enforcement, strategic planning, research innovation, campus infrastructure, and education/outreach**, Üsküdar University ensures that physical, chemical, and biological alterations to aquatic ecosystems are minimized. The integration of innovative projects, such as Prof. Dr. Tunç Çatal’s 2024 proposal, together with robust monitoring and ethical oversight, demonstrates the university’s proactive role in protecting and restoring aquatic environments for both current and future generations.



Evidences:

[Üsküdar University Technology Transfer Office - BRAINPARK](#)

[Üsküdar University Protein Research Development and Innovation Application and Research Center - PROMER](#)

[Üsküdar University Biotechnology Application and Research Center - BIYOTEKMER](#)

[Publications produced from studies carried out within PROMER](#)

[Publications produced from studies carried out within BIYOTEKMER](#)

[Üsküdar University Laboratories](#)

[Advanced Protein Analysis Laboratory](#)

[Cell Culture Laboratory](#)

[Chemistry Laboratory](#)

[Forensic Biology and Genetics Laboratory](#)

[inSilico Research Laboratory](#)

[Microbial Biotechnology Research Laboratory](#)

[SHMYO Research Laboratory](#)

[Advanced Toxicology Analysis Laboratory](#)

[non-Interventional Research Ethics Board](#)

[Animal Research Ethics Committee](#)

Media Participations

[LINK1](#)

[LINK6](#)

[LINK11](#)

[LINK16](#)

[LINK2](#)

[LINK7](#)

[LINK12](#)

[LINK17](#)

[LINK3](#)

[LINK8](#)

[LINK13](#)

[LINK18](#)

[LINK4](#)

[LINK9](#)

[LINK14](#)

[LINK5](#)

[LINK10](#)

[LINK15](#)

Working Groups

- [Biological Activities Working Group](#)
- [Bioengineering Working Group](#)
- [Chemical Engineering Working Group](#)



- [Computational Biology and inSilico Studies Working Group](#)
- [Computational Biology Working Group](#)
- [Molecular Biotechnology Working Group](#)
- [Nanobiotechnology Working Group](#)
- [Smart Systems Working Group](#)

- Monitoring the health of aquatic ecosystems

Üsküdar University actively monitors the health of aquatic ecosystems through a combination of **research centers, academic initiatives, observational studies, and practical applications**. The university's **Application and Research Centers** ([LINK](#)), notably the **Istanbul Protein Research, Development and Innovation Center (PROMER)** ([LINK](#)), and the **Biotechnology Research Center (BİYOTEKMER)** ([LINK](#)), support monitoring activities, including the development of biosensors and other analytical methods designed to assess water quality and ecosystem health.

Although routine national monitoring of aquatic ecosystems is conducted by the **Ministry of Agriculture and Forestry**, university academics remain closely engaged by reviewing relevant scientific literature, evaluating monitoring data, and conducting field observations. This ensures that both faculty and students remain informed about the **current health status of aquatic environments** and the impact of human activities.

At the operational level, the university's **affiliated NP Istanbul Hospital** operates a comprehensive water treatment system and regularly conducts laboratory analyses ([LINK](#)) to assess water quality. While the hospital does not perform continuous on-site monitoring of aquatic ecosystems, these analyses provide valuable data that inform the university's understanding of potential environmental impacts, support research activities, and contribute to public awareness initiatives regarding the health of aquatic ecosystems.

Academics at Üsküdar University actively communicate their findings and observations to the public through **media engagement and outreach activities**, addressing pressing issues such as mucilage in the Sea of Marmara ([LINK](#)), heavy metal contamination ([LINK](#)), and the impact of tourism-related pollution ([LINK](#)). This approach ensures that local and national communities are informed about the health and sustainability of aquatic ecosystems.

Moreover, innovative research proposals contribute directly to **solution-oriented ecosystem monitoring and management**. Notably, in 2024, **Prof. Dr. Tunç Çatal** submitted the project “**Ship Waste Threat in Environmental Health: Environmental Removal and Energy Conversion via Bioelectrochemical Cells**”, which proposes practical technologies to mitigate chemical and biological threats in marine environments, thereby supporting the university's proactive approach to ecosystem monitoring and protection.

Additionally, several **academic working groups** ([LINK](#)) and interdisciplinary initiatives have been established to continuously evaluate and monitor aquatic ecosystem health. These efforts combine empirical data, scientific expertise, and community outreach to strengthen the university's role in safeguarding aquatic biodiversity and environmental integrity.



Conclusion:

Through its **research centers, academic observations, media outreach, and innovative project proposals**, Üsküdar University ensures a comprehensive approach to monitoring aquatic ecosystems, raising public awareness, and developing solution-oriented interventions to protect and sustain these vital environments.

Evidences:

[Üsküdar University Technology Transfer Office - BRAINPARK](#)

[Üsküdar University Protein Research Development and Innovation Application and Research Center - PROMER](#)

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[Microbial Biotechnology Research Laboratory](#)

[SHMYO Research Laboratory](#)

[Advanced Toxicology Analysis Laboratory](#)

[non-Interventional Research Ethics Board](#)

[Animal Research Ethics Committee](#)

Media Participations

[LINK1](#)

[LINK6](#)

[LINK11](#)

[LINK16](#)

[LINK2](#)

[LINK7](#)

[LINK12](#)

[LINK17](#)

[LINK3](#)

[LINK8](#)

[LINK13](#)

[LINK18](#)

[LINK4](#)

[LINK9](#)

[LINK14](#)

[LINK5](#)

[LINK10](#)

[LINK15](#)

Working Groups



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- [Molecular Biotechnology Working Group](#)
- [Nanobiotechnology Working Group](#)
- [Smart Systems Working Group](#)

- Programs and incentives that encourage and maintain good aquatic stewardship practices

Üsküdar University actively develops and supports programs and incentives designed to encourage and maintain good aquatic stewardship practices, reflecting its institutional commitment to environmental responsibility and sustainable management of aquatic ecosystems.

At the core of these initiatives is the **Environmental Health Associate's Degree Program**, which includes mandatory courses such as *Water Quality and Treatment* ([LINK](#)), *Ecology* ([LINK](#)), *Environmental Impact Assessment* ([LINK](#)). Elective and complementary courses—*Environmental Health and Safety* ([LINK](#)), *Environmental Health* ([LINK](#)), *Environmental Sustainability* ([LINK](#)), and *Environmental Sociology* ([LINK](#))—provide students with comprehensive knowledge and practical insights into responsible aquatic management practices. These courses are complemented by **Health Tourism Education** ([LINK](#)) and programs offered through the **Application and Research Center for Health Tourism (SATÜMER)** ([LINK](#)), which explore sustainable water use in health and tourism sectors.

Student engagement is a key component of aquatic stewardship. The **Sustainable Development Club** and **Climate and Environment Club** ([LINK](#)) organize awareness campaigns and seminars ([LINK](#)) to promote responsible fishing, sustainable tourism, and aquatic ecosystem protection. Additionally, Üsküdar University supports emerging scientists and researchers by partnering with the Istanbul Provincial Directorate of National Education to host the annual **Science and Ideas Festival** ([LINK](#)), now in its tenth iteration. This festival supports high school students' scientific achievements and includes numerous applications directly or indirectly related to water ecosystem sustainability, further promoting good aquatic stewardship practices.

Faculty-led outreach and media activities further reinforce aquatic stewardship. Asst. Prof. Dr. Ahmet Adiller has actively raised public awareness about sustainable fisheries through media participation and articles ([LINK](#)), while Asst. Prof. Dr. İnci Karakaş has highlighted the environmental impact of tourism on aquatic ecosystems ([LINK](#)). Moreover, Prof. Dr. Tunç Çatal's 2024 project proposal, "*Threat of Ship Waste in Environmental Health: Environmental Treatment and Energy Conversion via Bioelectrochemical Cells*", represents a research-based incentive to encourage practical solutions for minimizing human-induced impacts on marine ecosystems.

Institutional frameworks and policies also support stewardship. Üsküdar University's "**2024-2028 Strategic Plan**" ([LINK](#)), outlines specific objectives to promote sustainable water and ecosystem



management, while the university's **policies** ([LINK](#)) provide regulatory guidance for responsible aquatic practices.

Finally, the university fosters incentives through internal funding and recognition schemes, including the **Scientific Incentive Evaluation Directive** ([LINK](#)) and the **Activity Tracking System** ([LINK](#)), encouraging faculty and students to develop projects and research that contribute directly to aquatic stewardship. Evidence of these activities—seminars, research projects, student initiatives, media campaigns, and Science and Ideas Festival participation—is documented and available for review.

Evidences:

[Üsküdar University Technology Transfer Office - BRAINPARK](#)

[Üsküdar University Protein Research Development and Innovation Application and Research Center - PROMER](#)

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[inSilico Research Laboratory](#)

[Microbial Biotechnology Research Laboratory](#)

[SHMYO Research Laboratory](#)

[Advanced Toxicology Analysis Laboratory](#)

[non-Interventional Research Ethics Board](#)

[Animal Research Ethics Committee](#)

[MARTERA Project](#)

[Science and Ideas Festival](#)

Media Participations

[LINK1](#)

[LINK4](#)

[LINK7](#)

[LINK10](#)

[LINK2](#)

[LINK5](#)

[LINK8](#)

[LINK11](#)

[LINK3](#)

[LINK6](#)

[LINK9](#)

[LINK12](#)



[LINK13](#)

[LINK15](#)

[LINK17](#)

[LINK14](#)

[LINK16](#)

[LINK18](#)

Working Groups

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- [Nanobiotechnology Working Group](#)
- [Smart Systems Working Group](#)

- Collaboration with the local community to maintain aquatic ecosystems

Üsküdar University actively collaborates with the local community through multiple partnerships and initiatives aimed at maintaining shared aquatic ecosystems, reflecting a strong institutional commitment to sustainable water management and environmental stewardship.

At the research and development level, the university fosters collaborations via the **Scientific Research Projects (BAP) Commission**, which funds both independent and university-based studies addressing aquatic ecosystem sustainability. The university has established specialized laboratories, including the **Microbial Biotechnology Research Laboratory** ([LINK](#)), **Molecular Biology and Genetics Laboratory** ([LINK](#)), **Cell Culture Laboratory** ([LINK](#)), and **Chemistry Laboratory** ([LINK](#)), in partnership with **BrainPark Technology Transfer Office** ([LINK](#)), the **Istanbul Protein Research, Development and Innovation Center (PROMER)** ([LINK](#)), and the **Biotechnology Research Center (BİYOTEKMER)** ([LINK](#)). These centers conduct research directly related to the health, biodiversity, and resilience of aquatic ecosystems, under the oversight of the **Non-Interventional Research Ethics Committee** ([LINK](#)) and the **Animal Research Ethics Committee** ([LINK](#)).

Community-focused collaboration is exemplified by the **MARTERA Project** ([LINK](#); 2022–2024), in which **Asst. Prof. Dr. Hacer Kayhan** represented the university as a subcontractor, working closely with Turkish fish farms to promote sustainable aquaculture practices. This project has a direct impact on shared aquatic ecosystems by improving responsible fish farming and reducing environmental risks.

The university also promotes **public engagement and education** through media participation and outreach initiatives. Faculty members such as **Asst. Prof. Dr. Ahmet Adiller** and **Asst. Prof. Dr. İnci Karakaş** have contributed to raising awareness about sustainable fisheries and the environmental impacts of tourism on aquatic ecosystems ([LINK1](#); [LINK2](#)). These efforts reinforce knowledge sharing between the university and the broader community.



Moreover, **student involvement** is encouraged through clubs such as the **Sustainable Development Club** and the **Climate and Environment Club** ([LINK](#)), which organize awareness campaigns ([LINK](#)) and educational workshops in collaboration with local stakeholders. The **Science and Ideas Festival** ([LINK](#)), held annually in partnership with the Istanbul Provincial Directorate of National Education, further supports engagement by showcasing high school students' scientific projects related to water ecosystem sustainability, fostering early awareness and stewardship.

Institutional frameworks such as the **Scientific Incentive Evaluation Directive** ([LINK](#)) and the **Activity Tracking System** ([LINK](#)) motivate faculty and students to initiate collaborative projects targeting aquatic ecosystem protection. Additionally, the “**2024-2028 Strategic Plan**” ([LINK](#)) outlines specific objectives to enhance partnerships with local communities, emphasizing practical outcomes such as monitoring, research dissemination, and community education.

Through these integrated activities—research, community engagement, public awareness, student involvement, and strategic planning—Üsküdar University ensures ongoing collaboration with local stakeholders, directly contributing to the sustainable management and conservation of shared aquatic ecosystems.

Evidences:

[Üsküdar University Technology Transfer Office - BRAINPARK](#)

[Üsküdar University Protein Research Development and Innovation Application and Research Center - PROMER](#)

[Üsküdar University Biotechnology Application and Research Center - BIYOTEKMER](#)

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[inSilico Research Laboratory](#)

[Microbial Biotechnology Research Laboratory](#)

[SHMYO Research Laboratory](#)

[Advanced Toxicology Analysis Laboratory](#)

[non-Interventional Research Ethics Board](#)

[Animal Research Ethics Committee](#)



[MARTERA Project](#)

[Science and Ideas Festival](#)

Media Participations

[LINK1](#)

[LINK6](#)

[LINK11](#)

[LINK16](#)

[LINK2](#)

[LINK7](#)

[LINK12](#)

[LINK17](#)

[LINK3](#)

[LINK8](#)

[LINK13](#)

[LINK18](#)

[LINK4](#)

[LINK9](#)

[LINK14](#)

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Working Groups

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- [Molecular Biotechnology Working Group](#)
- [Nanobiotechnology Working Group](#)
- [Smart Systems Working Group](#)

2024-2028 Strategic Plan

<https://uskudar.edu.tr/assets/uploads/sayfa/526/file/uskudar-universitesi-stratejik-plan-2024-2028.pdf>

- Watershed management strategy

Üsküdar University has implemented a comprehensive watershed management strategy that explicitly incorporates the location-specific diversity of aquatic species. This strategy is designed to minimize physical, chemical, and biological alterations in both freshwater and marine ecosystems within and around university campuses, demonstrating the institution's commitment to sustainable aquatic ecosystem management.

Policy Framework and Strategic Planning

The university's environmental policies, publicly available at Üsküdar University Policies ([LINK](#)), provide guidance on sustainable practices, ethical stewardship, and ecosystem protection. These policies are operationalized through the "2024-2028 Strategic Plan" ([LINK](#)), which sets concrete objectives to protect aquatic species diversity, mitigate physical and chemical pressures, and restore ecosystem functionality across local watersheds.



Research and Innovation Initiatives

To support evidence-based watershed management, Üsküdar University conducts applied research and innovation through specialized laboratories and centers:

- **Microbial Biotechnology Research Laboratory** ([LINK](#)),
- **Molecular Biology and Genetics Laboratory** ([LINK](#)),
- **Cell Culture Laboratory** ([LINK](#)), and
- **Chemistry Laboratory** ([LINK](#)).

These facilities operate in collaboration with **BrainPark Technology Transfer Office** ([LINK](#)), the **Istanbul Protein Research, Development and Innovation Center (PROMER)** ([LINK](#)), and the **Biotechnology Research Center (BİYOTEKMER)** ([LINK](#)), to study environmental threats and develop solutions. Key projects include:

- Research on **mucilage outbreaks** ([LINK](#)) in the Sea of Marmara (2024) to guide mitigation strategies.
- Studies on **heavy metal pollution** ([LINK](#)), providing data for local watershed management.
- **Marine waste treatment research** ([LINK](#)), including ship-derived waste, to minimize ecological disruption.
- **Ship Waste Threat in Environmental Health (2024)** by Prof. Dr. Tunç Çatal, offering technologies to reduce chemical and biological pressures in marine waters.

The university tracks research progress and incentivizes innovation through the **Scientific Incentive Evaluation Directive** ([LINK](#)) and the **Activity Tracking System** ([LINK](#)), ensuring continuous contributions to watershed management knowledge.

Campus Practices and Infrastructure

Üsküdar University applies practical measures to maintain healthy watersheds and protect aquatic species:

- **Water quality compliance** at NP Istanbul Hospital's drinking water and supply systems.
- **Hazardous waste collection points** and controlled irrigation to reduce chemical inputs into local watersheds.
- **Off-campus afforestation and habitat restoration projects** to enhance ecosystem resilience.
- **Solar energy installations** on campus rooftops to reduce indirect pressures from fossil fuels on water systems.

Education, Outreach, and Community Engagement

Environmental responsibility and watershed stewardship are integrated into academic programs, including:



- **Water Quality and Treatment** ([LINK](#)),
- **Ecology** ([LINK](#)),
- **Environmental Impact Assessment** ([LINK](#)),
- **Environmental Health and Safety** ([LINK](#)),
- **Environmental Sustainability** ([LINK](#)),
- **Environmental Journalism** ([LINK](#)),
- **Environment and Nature Education** ([LINK](#)).

Students and faculty also engage the public through media coverage, outreach activities, and festivals, raising awareness about **mucilage events** ([LINK](#)), **heavy metal contamination** ([LINK](#)), and **ecosystem threats** ([LINK](#)).

Conclusion

Through this integrated approach—policy enforcement, strategic planning, applied research, campus infrastructure, and education/outreach—**Üsküdar University actively implements a watershed management strategy based on location-specific aquatic species diversity**. The combination of innovative research, monitoring, and practical measures demonstrates the university's proactive role in protecting and restoring aquatic ecosystems for current and future generations.

Evidence:

[Üsküdar University Technology Transfer Office - BRAINPARK](#)

[Üsküdar University Protein Research Development and Innovation Application and Research Center - PROMER](#)

[Üsküdar University Biotechnology Application and Research Center - BIYOTEKMER](#)

[Publications produced from studies carried out within PROMER](#)

[Publications produced from studies carried out within BIYOTEKMER](#)

[Üsküdar University Laboratories](#)

[Advanced Protein Analysis Laboratory](#)

[Cell Culture Laboratory](#)

[Chemistry Laboratory](#)

[Forensic Biology and Genetics Laboratory](#)

[inSilico Research Laboratory](#)



[Microbial Biotechnology Research Laboratory](#)

[SHMYO Research Laboratory](#)

[Advanced Toxicology Analysis Laboratory](#)

[non-Interventional Research Ethics Board](#)

[Animal Research Ethics Committee](#)

Media Participations

[LINK1](#)

[LINK6](#)

[LINK11](#)

[LINK16](#)

[LINK2](#)

[LINK7](#)

[LINK12](#)

[LINK17](#)

[LINK3](#)

[LINK8](#)

[LINK13](#)

[LINK18](#)

[LINK4](#)

[LINK9](#)

[LINK14](#)

[LINK5](#)

[LINK10](#)

[LINK15](#)

Working Groups

- [Biological Activities Working Group](#)
- [Bioengineering Working Group](#)
- [Chemical Engineering Working Group](#)
- [Computational Biology and inSilico Studies Working Group](#)
- [Computational Biology Working Group](#)
- [Molecular Biotechnology Working Group](#)
- [Nanobiotechnology Working Group](#)
- [Smart Systems Working Group](#)