Changing Water Body Habitats in Turkey

Three-quarters of the Earth's surface is covered by water, which houses numerous living creatures. The underwater life away from the eyes is collapsing gradually. Human activities cause the habitats to decay and make it more challenging for local creatures to survive. Over the last couple of years, Turkey's aquatic life has been facing mass deaths, massacres, of marine animals (Marine Pollution).

FACTS BEHIND

All 303 water bodies in Turkey are adversely affected by human behavior. The reasoning behind can be analyzed in many dimensions, categorizing as the results of the climate crisis and water pollution.

The undeniable change occurring in climate also affects underwater life. According to a report published by Prof. Erhan Ünlü , due to rising temperatures, the evaporation levels have increased three times the rain rate. This drastic difference in between disrupts the water balance, resulting in drought. Prof. Celalettin Şimşek from Dokuz Eylül University, article's interviewee, supported: "Especially in summer, we have examined the detrimental effects of global warming like mass deaths in many water resources." Nowadays, many places in Turkey lack water, like Lake Van. Nevertheless, the drought in Lake Van was seen several years ago, people's callousness brought the situation up to this point; where the shoreline has receded more than 1 km, causing life to cease (Varol).

Drought in Van Lake with a Single Life Trace (Varol)

Another aspect of unbalanced evaporation is that even though a certain amount of water is still present, it carries separate characteristics. An example from Şimşek: “the fall of lake and dam waters causes the oxygen level to decrease.” Just as importantly, the discrepancy in temperature alters the water conditions, damaging the living habitats. In October 2021, Dicle River shores filled with dead fishes and were seen by concerned locals. The reason behind this scene was researched by our article’s interviewee zoologist Prof. Erhan Ünlü. Ünlü warns: “Freshwater systems are considerably threatened by massive changes in streams such as habitat loss, pollution, the emergence of non-native species, water consumption, dam construction and require immediate action to ensure their protection for future generations”. Furthermore, he connects the water usage from the Dicle River to major drought problems around this area, creating unfavorable conditions for aquatic life and resulting in massive fish kills.

Fish Kill in Dicle River (Erbay)

Another matter that should be addressed regarding endangered marine life is water pollution. Marine pollution consists of industrial waste, oils mixing into sewage, land wastes, and inefficient purification. Since water is essential for life, pollution is a factor that deeply affects the health of all livings, including humans, and has sociological impacts. Although land forests are known as the lungs of the earth, the real "lungs of the Earth are actually underwater" (Yazıcı). Interviewee, environmental engineer Doğuhan Yazıcı said "Oceans are the sources of every breath out of two" since "50% to 70% of the oxygen is supplied from oceans." Due to human activities, water bodies are poisoned by wastes and toxic substances. This contaminated water spreads to all living things, whether directly or through the water cycle or the food pyramid. From a piece of garbage being thrown into the water to the litter of waste coming out of factory pipes, every unnatural substance changes the marine habitats.

One of Turkey's most notable water pollution incidents was the Sea of Marmara mucilage. The first critical mucilage emerged in 1994 and for 27 years gradually destroyed sea life. People were unaware of it until June 2021 due to political reasons and scientists' negligence. Another interviewee of this article, Assoc. Prof. Neşe Üzen, addressed the main reasons as "...the rise in seawater temperature and the stagnation of the seas". In addition, she claimed that "Pollution is also one of the causes of this frightening scene and the pollution growth led Phytoplankton to proliferate rapidly, resulting in the development of mucilage" (Üzen). The government didn't react to the mucilage until life in the Sea of Marmara was nearly destroyed. Now, Marmara has gotten rid of mucilage; but it damaged and ended various marine animals' lives, went down on history, harmed sociologically and economically. Still, there is no assurance of avoiding similar future events (*TÜBA Müsilaj*).

The Mucilage in the Sea of Marmara (Arslan)

POLLUTION TO SOLUTION

Even though our environment is suffering, this state of marine circumstances can be improved. A great amount of toxic chemicals infuses with the water when factories release their wastes into the environment. Instead of covering up for the industries' irresponsible activities with economical and political reasonings, results can be avoided beforehand by regular audits and legislation.

For the pre-existing problems, conducting water quality tests periodically will allow detecting any problems or anomalies. Thus, actions can be taken to solve the issue by raising awareness among society. Citizens of Turkey don't always seem to act against these problems but there are still people working on various projects to reduce human-driven destruction. One of the most recent projects, "#TemizkenGüzel" is initiated by Unilever. They developed garbage collecting mechanisms that clean the Bosphorus called "Çöp Kapar." Each machine collects 15 kg daily, gathering 110 tons of waste annually. Şimşek also added "There's been water council and management plan, which borne outed by the president of the republic," indicating "there will be more efficient solutions in the future." He also suggests a purifier for water sources that will provide the essential water for fields like agriculture by saving on water.

Besides the protections and methods of solution to reverse past actions, people also should be concerned about future actions. Further upon controlling the industries and shore inspection, people should change their daily habits, which can help as Üzen suggested "minimizing the organic pollutant load in the seas." Herewith a persistent change can be achieved.

READING OUR WAY TO CONCLUSION

Investigating the mass death of marine animals and the leading consequences, reasons like climate crisis and water pollution emerged. Indeed, this is not only valid for Turkey, but also the world. Marine life throughout the world is threatened by human activities, which will be followed by the loss of biodiversity, mass deaths, aggravating the survival of living creatures, and more. However, it isn't too late to take action to stabilize the changing water body habitats and the outcomes. Knowing a lot of time and effort is required to solve this problem, people should rapidly react with the proper precautions and ways of solutions that lead this problem to convalesce before the consequences evolve to become irreversible.

Works Cited

Arslan, Gökçe Çiçek. *Mucilage in the Sea of Marmara*. 24 June 2021. Photograph.

Cif, and Unilever. "Temizken Güzel." *Cif*, temizkenguzel.com/. Accessed 28 Feb. 2022.

Erbay, Vecdi. *Dicle'de balıklar neden ölüyor?* 12 May 2021. *Duvar Gazete*, www.gazeteduvar.com.tr/diclede-baliklar-neden-oluyor-haber-1522077. Accessed 28 Feb. 2022.

"Marine Pollution." *National Geographic Society*, www.nationalgeographic.org/encyclopedia/marine-pollution/. Accessed 23 Feb. 2022.

Şimşek, Celalettin, Prof. Doc. Instant messenger interview. Conducted by Gökçe Çiçek Arslan and Azra Hocaoğlu, 3 May 2022.

TÜBA Müsilaj - Deniz Salyası Değerlendirme Raporu. *Türk Bilimleri Akademisi*, tuba.gov.tr/tr/haberler/akademiden-haberler/tuba-musilaj-deniz-salyasi-degerlendirme-raporu. Accessed 29 Feb. 2022.

Ünlü, Erhan, Prof. *FISH FAUNA OF ILISU AREA ON THE TIGRIS RIVER, BEFORE IMPOUNDMENT OF THE ILISU DAM (TURKEY)*. 23 Mar. 2021. *Given by the author*.

Ünlü, Erhan, Prof. Doc. Telephone interview. Conducted by Gökçe Çiçek Arslan and Azra Hocaoğlu, 2 Mar. 2022.

Üzen, Neşe, Doç. Dr. Telephone interview. Conducted by Gökçe Çiçek Arslan and Azra Hocaoğlu, 2 Mar. 2022.

Varol, Mesut, and Necmettin Karaca. "Kuraklık nedeniyle Van Gölü'nde yeni adacıklar ortaya çıktı." *Anadolu Ajansı*, www.aa.com.tr/tr/cevre/kuraklik-nedeniyle-van-golunde-yeni-adaciklar-ortaya-cikti/2399947. Accessed 28 Feb. 2022.

Yazıcı, Doğhan. Interview. Conducted by Azra Hocaoğlu and Gökçe Çiçek Arslan, 2020.