

A flamboyance of migratory flamingos opens their wings at Maharloo Wetland, southern Iran, on November 21, 2026.
TAHEREH ROKH BAKHSH/ISNA

in the wetland. Artemia is the only organism capable of surviving in the wetland's saline waters. Besides using the wetland as a migratory destination, these birds also reproduce there, and their chicks can be observed during certain seasons.

Has the increase in Maharloo's bird population in recent years resulted from the wetland's favorable conditions?

One of the principal reasons for the increase in Maharloo's bird population is the desiccation of other wetlands in Fars Province, including Parishan and Bakhtegan. When other wetlands dry up, birds lose their suitable habitats and are compelled to relocate. Consequently, the bird population at Maharloo has now increased.

However, not all these birds enjoy favorable conditions. Certain species that depend on specific food resources, such as fish, encounter limitations in Maharloo's saline waters and may have been compelled to inhabit this area because of the loss of their primary habitats.

Migratory birds generally arrive in the region in early autumn, and some remain at the wetland until late winter and early spring, before resuming their migratory journeys. However, certain species move in and out throughout the winter, while others have established a permanent presence at Maharloo.

What services does Maharloo Wetland provide to the environment and surrounding communities that have received insufficient attention?

One of the wetland's most important services is precisely its provision of habitats for birds. The presence of migratory birds and their species diversity constitute a major contribution to biodiversity, a service valuable not only to Iran but also to the global ecosystem.

A substantial portion of the diet of certain wetland birds consists of insects, and these birds can help regulate populations of certain insects, including pest species.

Another important service provided by the wetland is regional climate moderation. Maharloo Wetland, particularly when it has an adequate water expanse, can help reduce ambient heat during summer and moderate temperatures in neighboring cities, including Shiraz and Sarvestan. This water expanse functions as a natural temperature regulator.

Furthermore, the wetland plays a role in absorbing and controlling regional floods, contributes to the replenishment of groundwater resources, and, by generating humidity in the area, helps create favorable conditions for vegetation across the surrounding mountainous watershed.

These are the services the wetland provides to the area, and we benefit from them as long as it remains alive. However, if the wetland dries up, we will face consequences such as dust emissions and the displacement of sediment from its bed. Given the accumulation of pollutants, this sediment can pose a serious threat to human health.

What causes the pink and red coloration of Maharloo Wetland? Is this phenomenon an indication of the wetland's favorable condition?

The wetland's red and pink coloration is primarily associated with algal growth and algal blooms in saline water. When nutrient concentrations, such as nitrates and phosphates, entering the wetland through agricultural, industrial, and urban wastewater increase, conditions become conducive to algal proliferation.

If the concentration of these substances remains within the wetland's natural assimilative capacity, the ecosystem can absorb and filter them. However, when nutrient inflows exceed the wetland's capacity, it moves toward nutrient enrichment, or eutrophication.

In freshwater wetlands, this eutrophic condition may be accompanied by increased growth of plants such as reeds and reed beds. In saline wetlands, however, it can trigger algal blooms that produce red or pink coloration.

This phenomenon is exceptionally beautiful from a visual perspective, but at Maharloo, it can indicate increasing nutrient concentrations and pollution. Tourists visiting the wetland may be unaware of this, and may enter the water or come into contact with it, even though the water quality is not such that contact can be recommended without concern.

What tourism potential does Maharloo Wetland possess, and can this potential be harnessed for the region's economic development?

I am an unequivocal advocate of tourism, particularly sustainable tourism. Maharloo possesses considerable tourism potential, but its tourism infrastructure remains relatively underdeveloped.

A limited number of pedal boats operate around the wetland during seasons when water levels are high. However, this capacity falls considerably short of the wetland's actual potential.

On the other hand, caution is necessary when developing tourism because of water pollution. Tourism can be a positive development, provided that it is accompanied by an understanding of the wetland's environmental conditions, adequate public information, and standardized infrastructure.

What are the most significant threats currently facing Maharloo Wetland?

One of the most significant threats is the influx of pollutants into the wetland. Some pollution originates from surrounding agricultural lands, while another substantial portion is conveyed through the Chenar-Rahdar River, which flows toward the wetland from the southern and western parts of Shiraz.

Along this river, some wastewater from the Shiraz Industrial Town also enters the wetland. This is an extremely alarming environmental issue, and serious measures must be considered for wastewater management and treatment.

Another major threat is the depletion of the wetland's water resources and the restriction of river inflows. The construction of the Tang-e Sorkh Dam upstream of Shiraz, to its west, could affect the volume of water entering through the Chenar-Rahdar River and, consequently, Maharloo's water resources.

What measures should be undertaken to improve the wetland's condition and reduce its pollution?

The first measure is to reduce pollution sources and prevent pollutants from entering the wetland. Agricultural, urban, and industrial wastewater must be properly managed, and pollutant inflows must be prevented to the greatest extent possible.

At the same time, the wetland's water resources must not be restricted. Rivers flowing into the wetland must be allowed to maintain their natural flow, and barriers to water inflows, particularly rainwater and seasonal floodwaters, must be studied.

Wastewater management is also a complex issue. On the one hand, wastewater must be treated to prevent threats to human health and the environment. On the other, treated water resources must be managed in a manner that does not disregard the wetland's water allocation rights and environmental requirements. Therefore, protecting Maharloo requires comprehensive planning for water management, pollution control, and due consideration of the wetland's environmental water requirements.

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Finally, what would you like to say about Maharloo Wetland's future and the necessity of protecting it?

Maharloo Wetland may be one of the last hopes for the wetlands of Fars Province. Because of its saline waters, encroachment upon its lands has been less extensive than at certain other wetlands, and opportunities for its conservation still remain.

I hope that, through preventive planning, we can prevent the wetland's condition from deteriorating further. The most important measures are reducing pollutant inflows and raising public awareness. Maharloo provides significant environmental services and is important even at the international level, particularly for migratory birds and migratory flyways.

This wetland possesses the potential for international registration and recognition, and the Department of Environmental Protection is also pursuing initiatives in this regard. Ultimately, if we can make people aware of the wetland's value and encourage them to participate in its conservation, we can have greater hope for Maharloo's future.

Tourists engage in water activities at Maharloo Wetland, southern Iran, on May 9, 2026.
AMIR SADEGHIAN/TASNIM

