

Khor-e Bahu international wetland and Gwadar Bay with an area of 29500 hectares are in the farthest end of the country's southeast in Sistan and Baluchestan province. They have been shaped on the west side of Gwadar Bay where the Bahoukalat river joins the Oman sea. The Khor-e Bahu wetland is located in an 85km distance from Chahbahar and close to the Iran-Pakistan coast. Its eastern part is in Pakistan and western part in Iran. For this reason, this area is very important for security and strategic reasons. Khor-e Bahu and Gwadar estuaries are located in the Iranian part, and Jiva estuary is located in the Pakistani part of the bay.

This bay is reckoned as a part of the Gando Protected area, which enjoys unique ecological values. This ecosystem totally includes the Bahukalat river, estuary, and Gwadar Bay. With the code of 1006, it fell into the list of Ramsar's international wetlands in 1999. It was also classified as a protected region in the classification of the Department of Environment.

This wetland has been classified into the sea-coastal wetlands group. It encompasses 60km of the Bahukalat river, Bahu estuary, Gwadar estuary, and a part of Gwadar Bay. It is also important for its marine creatures, especially dolphins' immigration, mangrove forests, aqueous birds, and desirable habitation and harborage conditions. It is also counted as the biosphere storage of the region and registered in the wetlands' global system with the R01921 international code.

Sensitive areas like Khor-e Bahu wetland and Gwadar Bay that are formed by Mangrove forests are one of the richest wetland habitations and have irreplaceable importance and multifaceted functions. Mangrove forests are also known as coastal and tropical forests. Mangrove plays a crucial role in creating a shelter for marine animals and emit a large number of organic matters that are used as food, and the most diverse aquatic organisms live in this region in the estuaries entering the bay.

By having three estuaries and two rivers, Gwadar Bay enjoys good conditions in terms of its marine ecosystem and has highly diverse aquatic organisms. So far, 93 species of phytoplankton, 31 species of zooplankton, 14 species of benthos, 85 species of fish, 24 species of crustaceans, 36 species of algae, and other different aquatic species have been identified. Moreover, the presence of mangrove forests plays a crucial role in the region's ecosystem. Seemingly, one of the main factors in the seasonal changes in the environmental conditions of Gwadar Bay is the presence of monsoon storms in the region.

On the whole, the west part of the Indian Ocean is annually influenced by two main climatic currents, namely summer and winter monsoons. The cause of these storms is the temperature difference giving rise to the movement of the air masses and thus causing storms

and heavy rains in the region. The severity of these air (climatic) currents is to the extent that it impacts and limits all fishing activities in summer. The monsoon currents have led to the upwelling phenomenon in the west-northern part of the Indian Ocean. As a result, they increase the number of nutrients in surfaces. In the months after the monsoon storms, the living conditions of the species become suitable due to the presence of nutrients and also sea calmness. Therefore, the production rate increases in the different parts of the region in October, November, December, and January. In Gwadar wetland, due to the emergence of a suitable environment, we witness an increase in biomass abundance in the mentioned months, especially in December and January, such that the abundance rate of plant and animal plankton and benthic, macrofauna, meiofauna organisms rises, and, consequently, the abundance rate of nektons increases as well. Concerning the increase in the abundance of different organisms in November, December, and January, we can consider these months as the peak time of biologic production in Khor-e Bahu wetland and Gwadar Bay. The role of mangrove forests in the periphery of the estuaries of Gwadar Bay is also among the reasons for an increase in production rate. The fall of leaves and branches of these plants on the coastal regions, especially estuaries, heightens the production rate in these regions. At the same time, their roots and aerial stems trigger the aggregation of earth fines and thus the heightened rate of organic matters within precipitations. However, these communities help with the fertility of the region and the equilibrium in its environmental conditions. Disparate rainfalls in some months of the year (December, January, July, and August) cause the inrush of nutrients to estuaries and Gwadar Bay through the region's drainages. On the other hand, the presence of Bahukalat and Dasht-e Khor rivers in the region intensifies the importation of nutrients to the inside of Gwadar Bay in the raining season.

Management plan

The purpose of compiling a management program is to prepare a document for leaving behind the current conditions and moving towards desirable ones in the future besides a framework for managerial decisions and executive actions based on what rules are executed by which institutions and be an obligatory instruction. Besides noticing the active roles and responsibilities of the involved individuals in the wetland protection and management, such programs endeavor to establish an equilibrium among conservation and development and trigger the realization of wisely exploitation from the wetland and sustainable management by planning at the basin level.

The compilation process of the wetland management program was performed by the participation and attendance of people and institutions that affected this management or were

affected by it. This participation should be established from the first phases of the process, and the presence of two groups is important. The first group includes local people, relevant groups, exploiters, affiliates, tourists, and individuals who are somehow concerned with the wetland. The second group embraces governmental institutions undertaking the accountability for (developmental) activities at the level of the basin and wetland management.