

Ecological character

Bays within the site provide rich food reserves for fish and birds. Bays cover nearly 180,000 square meters with maximum depths of nearly 10 meters and prevailing depths of 5-7 meters. Vast communities of macrophyte algae and benthos have formed there, with a total estimated bio-mass of 700,000 tons. The benthos of the bay includes 855 species of algae and invertebrates.

The coastal area, foothills and ridges of the northern shore of Turkmenbashy Bay is the most diverse in ecosystems and species. It consists of undulating coastal sands and alkaline soils, sandy, pebble and oozy- sand beaches, with narrow strips of alluvial deposits with bushes of glassworts and tamarisks, ravines, loamy and rubble canyons and rocky slopes with small caves, niches and tali of weathered deposits. Plant diversity is high (400 species) and attracts numerous insects and other invertebrates, which, in turn, are feeding objects for green toads (*Bufo viridis*), reptiles, birds, insectivorous mammals and greater animals. Nearly 200 bird species have been recorded. This area is one of the sites of mass wintering of White-tailed Eagle (*Haliaeetus albicilla*), which has been recently included in the Red Data Book. On some days more than 20 individuals can be observed. The adjacent shallow waters preserve their significance as places of rest, feeding and wintering for many migrating birds.

Land areas of the coastal buffer zone is a zone of sand beaches, alkaline soils, small-bump coastal sands, barchan and ridge-barchan sands of aeoline origin.

Coastal islands are major nesting sites for colonies of terns, gulls and sandpipers as well as habitats of water snakes and seals. They include the small coastal islands on the entrance to Turkmenbashy Bay and islands on the northern shore of the Cheleken Peninsula. Several species nest there: Great-crested Grebe (*Podiceps cristatus*), Great Cormorant (*Phalacrocorax carbo*), Little Ringed Plover (*Charadrius dubius*) Snowy Plover (*Charadrius alexandrinus*), Gull-billed Tern (*Sterna nilotica*), Sandwich Tern (*Sterna sandvicensis*), Common Tern (*Sterna hirundo*) and Little Tern (*Sterna albifrons*) (from Hazar Reserve management plan).

The vegetation of the bays is represented by groups of lower plants (seaweeds) and higher flowering plants (sea grasses). Green (28 species), red (11 species) and brown (1 species) seaweeds form thickets on the shores down to a depth of 6m. In addition to these macroscopicals, there are many hundreds of species of microscopic seaweed - in the plankton and benthic organisms.

Ecological services of the site include the following:

While most of Turkmenbashy Bay is a strictly protected area of Hazar State Reserve, fishing is allowed by some local government directive, and this contributes to local economy, especially for small villages around the bay. Estimated 200 fishermen use the site for fishing with more than 1000 people in total depending on fishery resources. Until recently, the northern part of the bay was an official hunting ground, with at least 500 hunters depending on hunting of birds during autumn and winter times. 40% of food and income for families come from resources from the bay. At present, the Hazar Reserve prepares documents on the inclusion of the north of the site into the protected area as sakaznik with controlled use of biological resources and other economic activities.

Other ecosystem services of the site including supporting services (purification of polluted waters), cultural services (cultural, intellectual and spiritual inspirations) and preserving services, are yet to be studied and discovered.