

Assessing the state of the Akyatan and Tuzla lagoons of the Mediterranean coast of Turkey

N. M. Mingazova^{a,*}, E. G. Nabeyeva^a, A. Turker^b, G. Chetinkaya^b, and F. F. Bariyeva^a

^aKazan State University, Kazan

^bCukurova University, Adana, Turkey

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Abstract

We report evidence for the physical-geographical characteristic of two large water areas of Turkey's wetlands, the Tuzla and Akyatan lagoons of the Mediterranean coast. Their location, morphometric parameters, and the characteristics of the hydrological regime are provided. For the first time, an assessment is made of the state of the lagoons from physicochemical and hydrobiological indices. The pioneering monitoring studies are used to make recommendations for optimization and the possible restoration of the lagoons.

Keywords: lagoons, restoration, hydrobiological indices

Introduction

Wetlands are areas of land such as swamps, marshes or bogs; they hold much significance as regards conservation of biodiversity of the ornithofauna and other animal species. With the purpose of studying the wetland resources having an international significance, in 2002–2003 we investigated a number of large marine lagoons within the delta of the Seyhan, Ceyhan and Berdan on the Turkish Mediterranean coast which is historically known as the “Cukurova delta”.

The Cukurova delta with an area of about 5500 km lies in the south-east of the Turkish Mediterranean coast, stretching to 110 km from west to east and 50 km from north to south (Fig. 1). It is the country's largest delta and boasts varied landscapes: partly forested sand dunes along the coast; ancient and modern channels of the Seyhan, Ceyhan and Berdan rivers; three isolated lagoons (Tuzla, Akyatan, and Ayatan) connected with the sea via canals; the large open Yumurtalik lagoon in the Iskanderun Bay, and salinized marshes around the lagoons. All this forms extensive wetlands of international importance.

All in all, the delta has four lagoons: Tuzla, Akyatan, Ayatan, and Yumurtalik; the largest of them are Akyatan and Yumurtalik [1–3]. Their shores are home to national parks, and the Akyatan lagoon is categorized as a “Ramsar zone”, in accordance with the Ramsar Convention on Wetlands of International importance.



Fig. 1. The south-east of the Mediterranean coast of Turkey.

Boundaries: 1 – Cukurova delta, 2 – Ramsar zone.

On the whole, the Cukurova delta is of significant international importance as the habitat of valuable bird species: every year as many as 200 thousand individuals (268 species) use the delta for wintering [1, 2]. Also, the coastal dunes are used by rare species of sea turtles for egg-laying.

Natural habitats within the Cukurova delta are adversely affected by agriculture (the use of large amounts of pesticides, herbicides and fertilizers), primarily cotton-growing. Pasturing, irrigation, cutting of trees and shrubs, planting exotic plant species on the dunes, burning of pastures, gathering of plants of the wild flora, construction of dams, roads, drain canals and summer cottages, recreational utilization, and other factors exert also an adverse influence [3, 4]. The marine lagoons are experiencing an especially serious impact, resulting in siltation, anthropogenic eutrophication and pollution.

* Corresponding author.

E-mail address: Nafisa.Mingasova@ksu.ru (N. M. Mingazova)