

Keenjhar Lake

Introduction

If one imagines a lake with deep blue waters, one can not but imagine Keenjhar Lake in district Thatta. It is one of the largest perennial freshwater lakes in Pakistan, with extensive reed-beds and flowering plants of lotus. This lake supports a very diverse flora, fauna and is an important breeding, staging and wintering ground for a wide variety of waterfowl. Keenjhar lake is a Wildlife sanctuary and a Ramsar site.

Historically, Keenjhar Lake is formed by the union of two lakes, namely Sonehri and Keenjhar, through the construction of a bund (embankment) on their eastern side. The purpose of constructing the bund was to supply drinking water to the residents of Karachi during the 1950s. The local people recount, that prior to the construction of the bund, the two lakes would join every year during the rainy season due to overflow. The main source of water for the lakes at the time was a dozen hill torrents on the western side. Originally, both the lakes came into existence when River Indus changed its course.

Geographical location

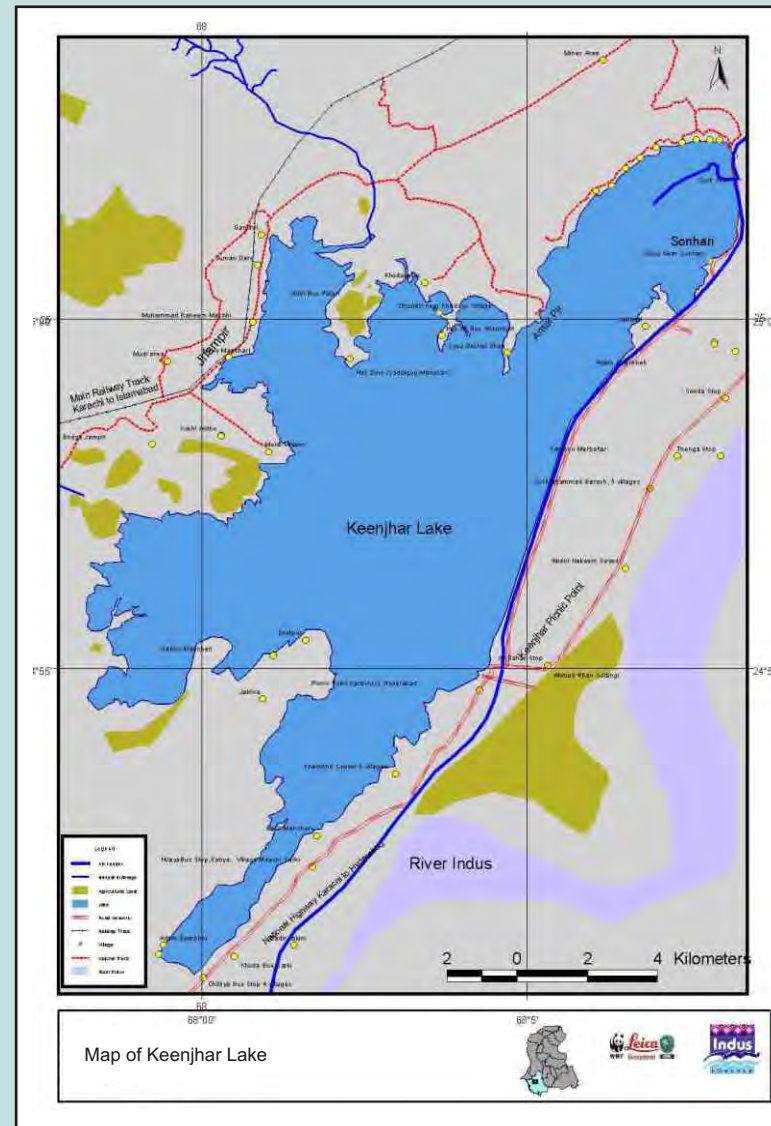
The lake (24° 57'N 68° 03' E) is situated at a distance of about 19 km north and north-east of Thatta town. It is about 24 km long and 6 km wide with an irregular shoreline of about 192 km. Its maximum depth is 26 feet and the total area of the lake is approximately 9842 Ha.

Cultural significance and livelihoods

The famous folklore of "Noori-Jam Tamachi" is associated with this lake. The raised tomb at the centre of the lake is said to be that of *Noori* the beautiful fisher girl whom Jam Tamachi, the then ruler of Sindh, married. Many other folk stories are associated with Keenjhar including that of Jhum-Pir and Sonehri, the prince and the fairy. This lake has inspired folk poetry and the great poet of Sindh, Shah Abdul Latif Bhitai also praised this lake by saying:

هيٺ جر مٽي مڇر، پاسي ۾ وٽراءَ
اچي وڃي وڃ ۾، تماڇيءَ جي ساءَ
لڳي اتر واءَ ته ڪينجهر هٽور وٺئي

This phrase harkens to the glorious past of the lake whose banks were once lush green with vegetation and richly endowed with fish. Bhitai also invites us to imagine how wind blowing from the north makes the lake a cradle.



Map of Keenjhar Lake

Our Mission

WWF - Pakistan aims to conserve nature and ecological processes by:

- Preserving genetic, species and ecosystem diversity
- Ensuring that the use of renewable natural resources is sustainable, both now and in the longer term
- Promoting actions to reduce pollution and the wasteful exploitation and consumption of resources and energy

Vision of the Indus Ecoregion Programme

"Mankind coexists with nature in complete harmony and biodiversity flourishes in its respective habitat"

Indus For All Programme, WWF - Pakistan

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Keenjhar Lake

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A Wildlife Sanctuary and Ramsar Site

Keenjhar Lake

Indus For All Programme, WWF - Pakistan

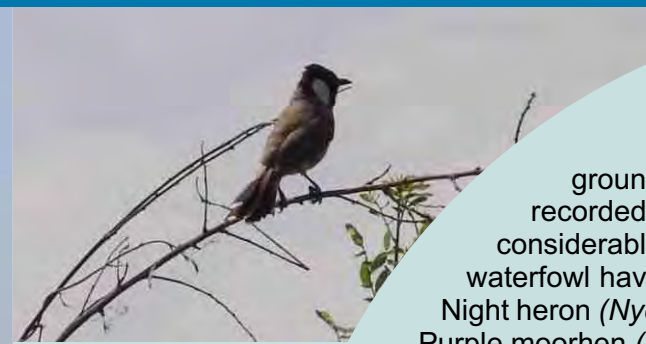
Natural Resources

Features of Keenjhar Lake

Surface area	9842 Ha
Storage capacity	0.508 million acre feet
Usable capacity	0.38 million acre feet
Average depth	6 m
Length of embankments	31 Km
Maximum height of embankments	9 m
Deposition of silt per year	4335 acre feet
Original life expectancy	132 years
Reduced life after silting	87 years
Life expectancy after construction of link canal (by-passing Keenjhar Lake)	192 years
Main water supply source	Kalri Baghar Feeder (Upper)
Outlet	Kalri Baghar Feeder (Lower) & KDA Canal

Common Birds

Common name	Technical name	Status
Common teal	<i>Anas crecca</i>	Migrant
Common pochard	<i>Aythya ferina</i>	Migrant
Common coot	<i>Fulica atra</i>	Migrant
Great cormorant	<i>Phalacrocorax carbo</i>	Migrant
Indian shag	<i>Phalacrocorax fuscicollis</i>	Migrant
Little grebe	<i>Tachybaptus ruficollis</i>	Resident
Little cormorant	<i>Phalacrocorax niger</i>	Resident
Mallard	<i>Anas platyrhynchos</i>	Migrant
Pintail	<i>Anas acuta</i>	Migrant
Shoveller	<i>Anas clypeata</i>	Migrant
White breasted water hen	<i>Amurornis phoenicurus</i>	Resident



Keenjhar Lake supports a rich biological diversity. Being situated along the Indus flyway, the lake has been an important breeding, staging and wintering ground for a wide array of waterfowl. Mid-winter waterfowl census has recorded up to 205,000 birds in the past (1987/88) which has reduced considerably in the recent years (13,760 in 2006). Some 65 species of waterfowl have been recorded here. The resident or breeding species include Night heron (*Nycticorax nycticorax*), Cotton teal (*Nettapus coromandelianus*) and Purple moorhen (*Porphyrio porphyrio*). Common species of mammals found at the lake include jackals, foxes and porcupines. Reptiles include Indian cobra, Saw-scaled viper and Monitor lizards. During a recent survey 48 different fish species were recorded from Keenjhar Lake.

The natural terrestrial vegetation of Kinjhar Lake includes a wide variety of plant families. During a survey conducted in September 2006, 136 species belonging to 104 genera and 41 families were identified. The major plant families which contributed in the formation of vegetation in the area are Poaceae (10.7%) followed by Amaranthaceae (8.9%), Aizoaceae (7.1%) and Tiliaceae (7.1%). Timber producing species such as Babul (*Acacia nilotica*) and Bahan (*Populus euphratica*) have been replaced by Mesquite (*Prosopis juliflora*).

Fishing is the major source of livelihood. Some community members seek employment in stone extraction around the lake. Mat-making is another significant source of income. Some people are engaged in subsistence agriculture as well as in tourism. Literacy in the area is very low. Due to the reduction in fish population, many people have turned to stone quarrying as an alternative source of livelihood.

Conservation issues

Reduction in fish stocks: Commercial fish production in the lake has substantially declined in the last 20 years leading to the decreased livelihood opportunities.

The decline in fish populations is mainly due to the lack of conservation measures; diversion of freshwater through the bypass canal during monsoon season when juvenile fish are present in the river; unsustainable harvesting; fishing of juvenile stock; pollution; eutrophication; and introduction of alien invasive species of fish and plants.

Comparison of fishermen and their boats

Year	Number of Fishermen	Number of Boats
1988-89	24,355	2,200
1998-99	11,900	1,710
2005-06	10,320	820

Source: Keenjhar Fishermen Welfare Society (KFWS), Thatta, 2006.

Livelihoods and Conservation Issues

Water Pollution

Keenjhar Lake's freshwater wetlands ecosystem is being degraded by increased urban and domestic effluent discharge particularly through the Kalri-Baghar Feeder canal.

Tourism

The tourists visiting this lake also pollute it. Over 15,000 tourists visit the lake each week. Environmental damage has been caused by the absence of environment-friendly infrastructure facilities, and weak enforcement of environmental regulations.

Alien Invasive Species

The introduction of alien species, either plant or animal, may have led to the disappearance of some species and or abnormal population build-up of certain undesired species. One example of this is the *Tilapia spp* which were introduced during the late 50s.

Habitat Destruction

With the decreasing fish populations, fishing communities have found employment in stone extraction and mining around the lake which has defaced the landscape and impacted many land animals including reptiles, small mammals and crustaceans.

Agriculture in Catchment Area

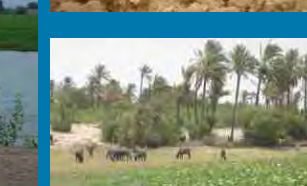
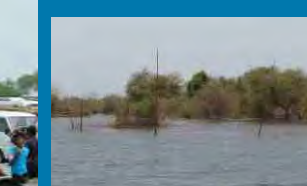
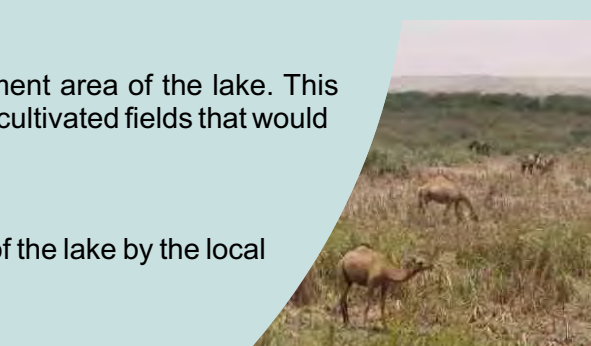
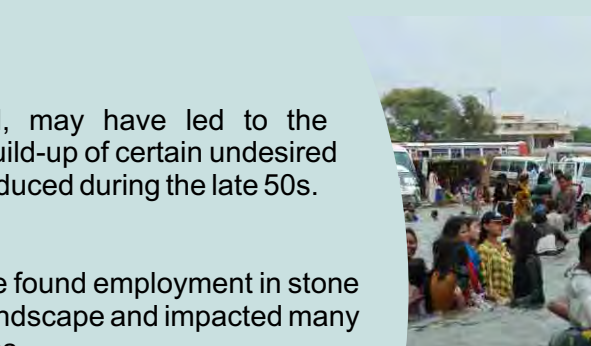
Agriculture through land reclamation is growing in the catchment area of the lake. This could produce runoff of chemical fertilizers and pesticides from cultivated fields that would seep directly into the lake.

Logging and Deforestation

There is heavy logging and deforestation on the eastern bank of the lake by the local people, mostly for fuel-wood and fodder.

Illegal Hunting and Shooting

Illegal hunting and shooting of resident and migratory birds by locals as well as visitors is a continuing practice. This disrupts the web of life and has begun to destroy the prevailing ecosystem.



Conservation Priorities

The aim of the Indus for All Programme is to achieve sustainable natural resource use and improve livelihoods of the local communities at Keenjhar Lake. The improvement of livelihoods will be supported through increasing community awareness and promoting their active participation in the Programme interventions. This approach will be undertaken to enable the communities to manage their natural resources which will include initiatives such as afforestation, adoption of alternative fuels, control of hunting and improving fish stocks, especially of commercially important species upon which their livelihoods depend. The Programme also intends to increase the professional capacities of the line departments working in the area i.e. Fisheries and Wildlife Departments. Establishment of an Information Centre on the bank of the lake is one of the priorities of the Programme.

Summary of Fish Production of Keenjhar Lake

Year	Total fish catch (kg)
2001-02	194861
2002-03	178839
2003-04	59037

Source: Sindh Fisheries Department Report 2005 (subsistence fishing not included)

