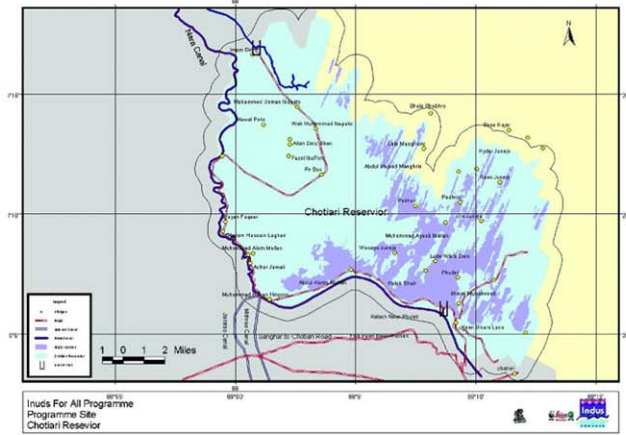


MAP OF CHOTIARI WETLANDS COMPLEX



Indus for All Programme, WWF - Pakistan
Programme Management Unit (PMU)

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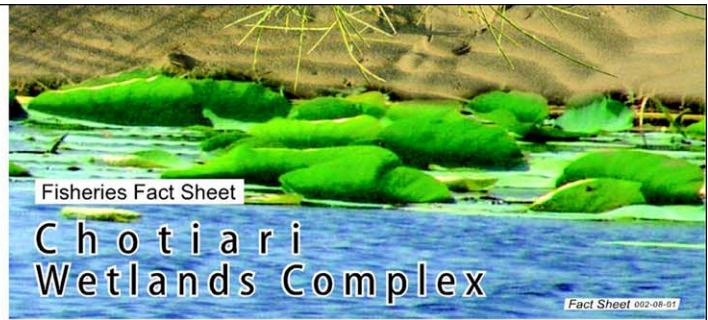
Chotiari Wetlands Complex
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Fisheries Fact Sheet

Chotiari Wetlands Complex

Fact Sheet 002-08-01

Fishing is a prehistoric practice; in its early age people fished for their food needs. Initially, bone pieces were used instead of hooks and lengths of creeping plants as lines. The increasing food needs has, however, now led this tradition to be a global trade industry. Fishing, therefore, has become one of the major sources of food, income, jobs, and recreation for millions of people around the world.

Chotiari Wetlands Complex lies in District Sanghar of Sindh Province. Spreading over 13 x 16 kilometres and occupying an area of about 64,000 acres, it is delimited with "Achro Thar" desert in north and west and lower Nara Canal in east. Initially, Chotiari Reservoir was a complex of around fifty small and large natural lakes and water bodies. Some of those lakes were known as Bakar, Sen, Tajar, Akarwari, Phulai and Sahoo Naro.

According to a survey conducted in 2006 by the Indus for All Programme of WWF - Pakistan, Chotiari Reservoir harbours about fifty-seven fish species belonging to seventeen families. The reservoir is also full of aquatic vegetation like *Typha*, *Phragmites*, *Polygonum*, *Equisetum*, *Bacopa*, *Phyla* and other species. These aquatic plants provide breeding centres for the fish species that breed in stagnant waters and nursery grounds for fish fries and fingerlings.



Dahi (*Labeo calbasu*)

Some of the Fish Species found in Chotiari Wetlands Complex

Species	Local Name
<i>Labeo gonius</i>	Suriyo
<i>Labeo rohita</i>	Kurro/Rahu
<i>Osteobrama cotio</i>	Makhi
<i>Puntius soughore</i>	Popri
<i>Puntius ticto</i>	Popri
<i>Sperata sarwari</i>	Seenghare
<i>Mystus cavasus</i>	Thenghino
<i>Rita rita</i>	Khago
<i>Wallago attu</i>	Jerki
<i>Heteropneustes fossilis</i>	Luhar
<i>Clupeosoma girius</i>	Dhongi
<i>Xenentodon cancella</i>	Kang
<i>Channa marulius</i>	Chito
<i>Channa punctata</i>	Shakur
<i>Colisa faciat</i>	Kangi
<i>Glossogobius giuris</i>	Gullo
<i>Oreochromis mossambicus</i>	Dayo
<i>Mastacembelus armatus</i>	Goj
<i>Gudusia chapra</i>	Paini
<i>Notopterus notopterus</i>	Gandhi
<i>Cirrhinus mrigala</i>	Morakhi
<i>Cirrhinus reba</i>	Ganer
<i>Gibelion catla</i>	Thehi
<i>Labeo calbasu</i>	Dahi



Khago (*Rita rita*)

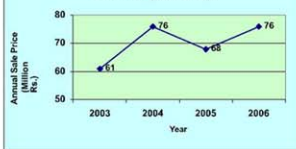


Indus for All Programme
WWF - Pakistan

Contribution of the Chotiari Wetlands Complex Fisheries in Livelihoods and Local Economy

Like many other areas of Sindh, fishing is one of the major sources of livelihood for the communities residing around Chotiari Wetlands Complex. Fishing from the reservoir is not only a major livelihood source for about 8000 to 10000 people of around 15 villages/hamlets (four villages inside the wetlands complex, five on embankments of the reservoir and six in the surroundings), but it also contributes a major share to the economy of the district. A recent estimation of the accumulated fish catch at three main collection points near the reservoir—Baqaar, Awad, and Sahrn—reveals that the total harvest from the reservoir during the year 2006 was 694 metric tons worth approximately Pak. Rs. 76 million. The contribution of fisheries in the local economy over a period of four years (2003-2006) is presented in Fig. A.

Fig. A. Fisheries Income from Chotiari Reservoir (2003-2006)



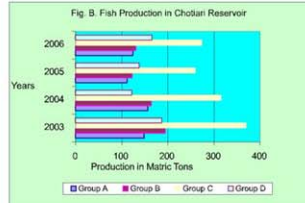
Source: Contractor's manual record maintained at three fish collection points (Baqaar, Awad and Sahrn) during 2007.

Fish Catch Status of Chotiari Wetlands Complex

The same estimates, made through studying the record of the contractors in the business of fishing at the reservoir, also show a significant decline in the quantity of production at the three collection sites. In this respect, a four year comparative analysis shows that in the year 2003 the total fish catch was 899 metric tons that fell to 694 metric tons in 2006. The graphical presentation given here (Fig. B) indicates a considerable reduction in catch status of various fish species with Group C species showing a substantial decline. The decreasing trends are due to various reasons, some are listed below:



Kurro/Rohu (*Labeo rohita*)



Group A: Kurro/Rohu (*Labeo rohita*), Morakhi (*Cirrhinus mrigala*), Thehi (*Gibelion catla*)
Group B: Chito (*Channa marulius*), Seenghare (*Sperata sarwari*), Juniko (*Wallago attu*)
Group C: Shakur (*Channa punctata*), Dahi (*Labeo calbasu*), Suriyo (*Labeo gonius*), Gandhi (*Notopterus notopterus* & *Chitla chitla*), Popri (*Puntius soughore* & *Puntius ticto*)
Group D: Other Fish Species

Source: Contractor's manual record maintained at three fish collection points (Baqaar, Awad and Sahrn) during 2007.



Dayo (*Oreochromis mossambicus*)

Unsustainable Fishing Practices



The use of unsustainable fishing practices—such as over-fishing and use of harmful nets—by the contractors is undermining the long-term sustainability of fishing in the lakes. Degradation of fisheries resources poses a potential threat to the livelihood of local fishermen communities engaged in small-scale fishing. The shortage of freshwater is also affecting the hydrological regimes of different lakes in the area.

Eutrophication

Chotiari reservoir falls in tropical areas with very hot summers. The water temperature reaches to 33°C during the summer season. As the water temperature rises, the dry and dead parts of the abundant vegetation begins decaying subsequently releasing extra nutrients in the lake ensuing in more vegetation and algal blooms. The phenomenon causes eutrophication in addition to inducing a sudden deficiency in the dissolved oxygen making it difficult for the aquatic species to survive. This situation is more dangerous during night when there is no photosynthetic activity and the dissolved oxygen is taken up by the decaying organic matter and the phytoplankton.

COMMON FISHING PRACTICES

The Cost Net, Gill Net and Lines are the most common type of fishing gears. Some of the net use techniques are locally called as: Jaar, Bhandho, Pathiro, Pirr, Kurhi and Dhaar.

Discharge of saline water in the reservoir also affects water quality and causes a decline in fish stocks and other aquatic resources.

Main Fish Landing Centres Baqaar, Awad, Sahrn

Number of Fishermen Involved 1100 (Approx)
Number of Boats being used 1100 (Approx)



Morakhi (*Cirrhinus mrigala*)

Lack of Hatching Facility with the Reservoir

All the lakes in the Chotiari reservoir area are regularly auctioned for fishing activities. During flood years, a substantial amount of fish seed is received by the lakes from the river. However, when there are no floods, sometimes for many consecutive years, fish stocks in the lakes get depleted as restocking is non-existent in such a situation due to absence of proper hatching facilities.



Khago (*Rita rita*)



Thehi (*Gibelion catla*)

What can be done to Promote Sustainable Fishing at Chotiari Wetlands Complex?

Fisheries Management: Regulation of appropriate fishing nets, seasonal opening and closings, critical habitat area protection, ban on juvenile fish catch, introduction of quota system are few of the management prescriptions for the sustainable utilization of fisheries resources in the reservoir. Moreover, community participation in joint fisheries management is imperative to ensure effective utilization of fisheries resources.

Capacity-building and Trainings: Strengthening of fisheries department is essential to ensure fisheries management. In this regard, the department should be upgraded with necessary equipment and trained human resource.

Establishment of Hatcheries: For sustainable fisheries exploitation, a network of hatcheries must be established on different points around the reservoir so that a continuous introduction of commercially important fish species is ensured into the lakes. This will result in an increase in the income of fishermen on one hand and in the Government exchequer on the other as the lakes will be auctioned at a higher rate.



Jerki (*Wallago attu*)

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