

Saving River Dolphin : Report of an *in situ* Conservation Project of Lahore Zoo carried out in association with Sindh Wildlife Department, Pakistan

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Whales, dolphins and porpoises belong to the Order Cetacea, which contains two suborders, Mysticeti and Odontoceti. The Baleen whale belongs to the Mysticeti suborder, while the Toothed whales, dolphins and porpoises make up the suborder Odontoceti. Altogether, the two suborders contain eighty one (81) known species, separated into thirteen different families. Dolphins inhabit both marine and fresh water habitats. There are five species of dolphin found in rivers as follows: Baiji 'white dolphin' (*Lipotes vexillifer*); Chinese river dolphin, Boto (*Inia geoffrensis*); Amazon River Dolphin, Franciscane (*Pontoporia blainvillei*) La Plata; River Dolphin. Indus and Ganges River dolphin populations previously considered as separate species have recently been reduced to a subspecies of single species. The new species name of the Ganges River Dolphin is (*Platanista gangetica*) with two subspecies *Platanista gangetica gangetica* and *Platanista gangetica minor* or Indus River Dolphin. The Indus River dolphin (*Platanista minor*) is an endemic species of Pakistan. It is listed in 1976, as the second most endangered species of river dolphin after the Yangtze River dolphin IUCN Red List. It is on Appendix-I of the Convention on International Trade in Endangered Species (CITES) and hence required strict protection (IUCN,1988).

Distribution

The Indus River dolphin was common formerly and distributed throughout 3,500 km of the Indus River system, including all the main tributaries (Jehlum, Chenab, Ravi, and Sutlaj) in Pakistan, from the Himalayan foothills, where the river entered the plains to Indus Delta (Akbar *et. al* 2004). The Indus River dolphin also exists in Punjab Province, but its population is reported to be declining. The main reason for the decline of the Indus River dolphin from the historical distribution of approximately 3,500 km of river length to a range of less than 700 km of river length is due to the development of the vast Indus Basin irrigation System. This development practice has severely affected the dolphin population within a network of barrages (low, gated, diversion dams) and water diversion has dramatically reduced the extent of dolphin habitat (Braulik, 2003). In addition, dolphins no longer occur in the lower reaches of the Indus because upstream water extraction leaves downstream channels virtually dry for several months each year. Accidental capture in fishing nets and hunting for meat, oil and traditional medicine have also had an impact.

Habitat

The Indus River Dolphin (*Platanista minor*) generally occur in the deepest river channel and are less common in secondary channel and small braids (Bhatti and Pilleri, 1982). Reported habitat preference includes channel constrictions, confluences, and deep, low-velocity water. During the low-water season (October to April), barrages divert almost all river water such that dolphin habitat downstream of Sukkur Barrage and in some tributary segments has been eliminated. As water levels drop in the

winter, dolphins are concentrated in the remaining deep areas, including the head ponds upstream of barrages.

Conservation Actions

In 1972, dolphins were protected under the Wildlife Act of Sindh and in 1974 the government of Sindh declared 170km stretch of Indus River between the Sukkur and Guddu Barrage as Indus Dolphin Sanctuary. The Government of Punjab prohibited deliberate killing of dolphins in the Punjab Wildlife Protection Act in 1974 and established the Taunsa Wildlife Sanctuary and Chashma Wildlife Sanctuary in 1983 and 1998 (Reeves *et al* 1991). Enforcement of regulations prohibiting dolphin hunting helped to arrest the rapid population declines in these river segments.

Embarkment on Indus Dolphin Rescue Unit

Lahore Zoo is the one of the oldest Zoo of the world with a mission "To provide recreational and educational facilities to the general public and to actively contribute to Pakistan's international commitment in terms of the conservation on biological diversity by providing suitable opportunity for the *ex-situ* and *in-situ* conservation of species". Therefore, in order to conserve the remaining population of the Indus dolphin, the Lahore Zoo, together with the Sindh Wildlife Department and World Wide Fund for Nature WWF-Pakistan, embarked on an *in-situ* conservation programme. A project proposal was submitted to United Nations Development Programme (UNDP) that was approved on 1 December 2000 with an allocation of \$45,933 for a period of three years (from 1 December 2000 to 30 November 2003) under its Global Environment Facility-Small Grants Programme (GEF/SGP). With an extension of 2 year period for the completion of the project, the 5 year duration will be over by November 2005.

The main objectives of *in situ* conservation programme for Indus River Dolphin were as follows:

- Reduce the mortality of Indus River dolphins stranded in irrigation canals by setting up a rescue unit.
- Increase our understanding of the species and undertake the future actions.
- Organize a river-based rehabilitation centre for those animals that need veterinary attention prior to release.
- Create awareness among the local fishermen about the significance of the species and importance in maintaining the ecological balance.
- Involve and train local people for the rescue operation to make the project more sustainable.
- Bring about the awareness amongst the school children through Lahore Zoo Education Programme.
- Collaboration between the two provincial department;

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Sindh Wildlife Department, Punjab Wildlife Department and Parks Department.

- Establish zoo outreach programme through *in-situ* conservation.
- Community participation in the conservation programme.

***In-situ* Conservation of Indus River Dolphin Establishment of Dolphin Rescue Unit**

To achieve above mentioned objectives, a dolphin rescue unit was established at the office of the Sindh Wildlife Department (SWD) at Sukkur that is managed by a coordinator from SWD.

The game watchers of SWD were provided by two community-based auxiliary game watchers, who monitor the area and also remain in constant contact with the local communities to gather additional information about the sightings. Community participation is ensured throughout the project area; therefore, local fishermen are also involved in a rescue operation. Their knowledge and understanding about the habitat and species has been an useful asset. This effort has been very useful in establishing and linking the community and building reliance between the two provinces.

Rescue operations

The major reason that compels dolphins to leave their habitat is the decline in the number of small fishes, which are their main food supply in the Indus River. The rescue and relocation operation is carried out during annual closure of the canals in winter. During this task period, different rescue operations were carried out e.g. 17 dolphins were rescued in 30th October 2001. During the course of rescue operation, their body measurement, weight, blood and respiratory culture samples were taken and recorded. Eighteen stranded dolphins were rescued on 18th February 2002 and during this operation a 7 foot, 110Kg female was rescued. The biggest rescue operation was carried out near the Ruk Railway crossing on the Khirthar Canal on 14th January, 2005. The project Stakeholders' team, accompanied by 10 local fishermen, conducted the rescue operation in about 30-meter wide and 8-meter deep pool of water under the railway bridge in Shikarpur District. This was one of the biggest rescues of its kind about 13 dolphins, 6 males and 7 females, were captured alive, which is a record to date, and released near the Satyoon-Jo-Asthan between Rohri and Sukkur in the River Indus. However, two of male dolphins died of stress during the rescue operation. This operation received much attention by the media that promoted awareness about conservation actions.

Conservation through education

Education, one of the components of the project was done through the Lahore Zoo Education Programme, by involving school students in rescue operations. These students are encouraged to participate with trips arranged through which students have the chance to visit the wild habitat of this unique mammal and witness the event by themselves. Such efforts are playing a pivotal role in creating awareness at very basic level. Different educational materials such as rescue reports, research papers and posters with conservation messages in Urdu, Sindhi and English were printed with the help of WWF-Pakistan. The purpose of

these materials is to create awareness in people about the importance of dolphin, to convey that the dolphin is not harmful to fisher folk. Also the posters inform people about the risk to dolphins by entrapment in canals and provide details of who to inform if a dolphin appears to be trapped in a local canal. The posters also persuaded people to tell others about this programme and its importance.

These posters were displayed at different sites such as rural schools, post offices and general stores, as well as distributed in schools, colleges, universities and also to the visitors of Lahore Zoo.

Achievements: Total dolphins rescued 2000-2005.

The project has been very successful in conserving stranded dolphins. Since December 2000, 28 dolphins have been rescued until December 2003, out of these, 24 dolphins (10.14) were successfully rescued and 4 dolphins (1.3) died during the rescue process. In addition 1 skeleton was also recovered. After the extension of Rescue Project up to November, 2005, a total of 45 dolphins have been handled till 18 January 2005, in which 31 dolphins (13.18) were successfully rescued while 11 dolphins (8.3) expired due to stress during operation. And it was alleged that 3 dolphins were killed by local community, but the carcasses were not found. In conclusion, a total 74 dolphins were handled during the 5 year project period of which 55 survived.

Impact on local community

The Indus Dolphin Rescue Project is the first project that involved an inter-provincial joint venture and is a benchmark for similar submissions in the future. The Project has been proved very effective in creating awareness about the species. Before the implementation of this project, many people among the public did not even know fresh water mammal which is endemic to Pakistan existed. The participation of both national and international media have emphasized the conservational significance of species.

The local community/community based auxiliary game-watchers and fishermen actively played their role in conservation of this priceless freshwater mammal. Moreover, their involvement in rescue operations has motivated everyone in the rescue of stranded dolphins to a greater degree. This programme also has played a key role to change the superstitious approach of people toward this species, which has made this effort more fertile. The outcome of the awareness programme is that now fishermen do not catch fish in canals where the dolphin is stranded. Also, they guarantee the survival of stranded dolphins by reporting about it to the relevant department and by helping the rescue team as a willing stakeholder and fishing only after resurgence of the dolphin.

Scientific Data and Information

Through the project good amount of scientific data has been generated that can be instrumental for future generation. These data include genetic analysis from skin scrapping, blood report and detailed body measurements and weight of stranded dolphins. In Pakistan the research on Cetaceans has been neglected and the current project has opened up new opportunities in this field in particular. If the project is carried out further, incorporating practical

aspects such as micro-chipping of the rescued dolphins, to collect scientific information it shall be a great service to both man and animal. Further, developing a liaison with the universities to promote research on the Indus dolphins, such as their probable seasonal migration between barrages or effect of water flow through the barrages on dolphin's movements and other simple observational research involving presence of the number of dolphins in the dolphin sanctuary at different times of the year. These are some very important aspects that can be explored with continued efforts.

Futuristic Approach

Collectively then, zoos are potentially among the largest providers of environmental education on earth. Therefore, in the present time it is the responsibility of modern zoos to play their role for the conservation of biodiversity. Zoos and aquariums contribute to conservation in the wild by providing knowledge, skills and resources through initiatives in zoo breeding, translocations and reintroductions, wildlife health, research, training, education and by funding field activities. WZACS (2005).

Keeping this as base, Lahore zoo in association with Sindh Wildlife Department, Pakistan took initiative in the conservation of species in the wild by actively taking part in *in-situ* conservation, research, and education programmes. The Indus Dolphin Rescue Project is one of extension of these efforts, following futuristic suggestions and decisions has been made by all stakeholders for the *in situ* conservation of Indus Dolphins:

- Involve and encourage local community to conserve this freshwater mammal at local level for the reason that, it is bottom up approach of conservation of biodiversity.
- Formation of a Veterinary Panel of at least three vets those are well skilled/accomplished for handling, identification, treatment and management of dolphins on rescue operations.
- Release of rescued dolphins upstream between Guddu and Taunsa Barrages will also be carried out in future.
- Establishment of Rehabilitation Centre/Facility at Sukkur for cure of injured animals.
- Establishment of Indus Dolphin Research Institute at Shah Abdul Latif University, Khairpur which is well equipped with all literature/publications for valuable research work in the cetacean's field.
- Creating awareness among local people through education about the importance of biodiversity and also formulate some practical projects for the protection and continued existence of other valuable species of wildlife which are near to extinction due to human actions nationally and internationally.

Moreover, D.G Khan canal will be also included in area of action because at Taunsa Barrage (up stream) a good population of dolphin is enjoying the natural habitat three main canals i.e. i- D.G Khan Canal, ii- Muzaffargarh Canal, iii- T.P Canal and iv- Kacchi Canal (under construction) have contracted at Taunsa Barrage. Some time dolphins move toward canals due to segregation/fragmentation of habitat and pressure of water toward canal, therefore these trapped dolphins require rescue to get their way toward mainstream.

Conclusion

Indus Dolphins Rescue or its *in-situ* conservation is one of the very important step of Lahore Zoo and other associates to protect, and to allow them be cheerful in their wild habitat by actively linking local community and school students in this alliance. During this rescue operation 74 dolphins were handled which constitutes about 2.3% of existing population. We should make it clear that these innocent animals are not harmful for mankind.

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From 1 January 2005 we will not accept further LIFE memberships until further notice.

We regret that we will have to raise the price of LIFE memberships and of annual subscriptions and memberships, or arrange a different system in regard to receipt of ZOOS' PRINT magazine and Journal.

For a long time, the magazine and journal have been running at a financial loss, even with subsidies from our donor organisations. The cost of producing them far exceeds the subscription price and very quickly exceeds the Life membership fee.

We have to examine our options in this regard and see what can be done so that we can continue to publish without loss. **Editors**