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WWF - Pakistan and LUMS-SSE -

understanding dolphins together!

The Indus dolphin is an endangered species. If we are to conserve it, a better understanding of its biology, habitat and the species as a whole is required. The School of Science & Engineering (SSE) at the Lahore University of Management Sciences (LUMS) is the first private research school for science and engineering in Pakistan. It aims to produce excellent graduates who are problem-solvers; and to create useful knowledge applicable to global as well as local issues. This is where collaboration between WWF - Pakistan and LUMS-SSE comes in.

WWF - Pakistan and LUMS SSE signed an MoU to take joint action for saving the Indus Dolphin/ WWF - Pakistan

The research laboratory for Cyber Physical Networks and Systems (CYPHYNETS) at SSE will use hydrophones (devices that records underwater sounds) and will develop automated acoustic observation systems to study dolphin vocalizations. These systems, based on the submarine sonar principle, will help in providing information on the exact dolphin numbers in small pools within the river, in individual recognition of dolphins and will also help in unveiling information of their behaviour and social interactions. This study will also compare the acoustics of the Indus dolphin with other closely related dolphins such as the Ganges dolphin.

A well organised technical unit to rescue dolphins stranded in canals already exists, and supplementing this unit with an electronic surveillance systems developed by WWF - Pakistan and LUMS-SSE will help the rescuers locate stranded dolphins, so that they can be rescued quickly.

What is the Indus dolphin?

Fifty million years ago, when the world-encompassing supercontinent we call Pangaea broke up, the new landmasses started travelling to their present positions. In our part of the world, the subcontinental tectonic plate crashed into the Asian plate, on which we're sitting right now. And thereby hangs a tale.

The Indus dolphin evolved from a marine mammal in the Tethys Sea, an inland sea left over when the two tectonic plates collided. Over the eons as the sea dried up, it went into the rivers, and then the Indus River. The water here was murky and silt laden, so the dolphin's eyesight was no long necessary and gradually evolutionary changes/adaptation took place, leading to a highly developed echolocation in present day Indus dolphins with eyes that can only differentiate between light and dark.

Now there are species of freshwater dolphin in the Ganges River, the Brahmaputra, the Yangtze and the Amazon, as well as the Indus. These are obligate - they can live only in freshwater. Then there's the Irrawaddy dolphin that is found in the Bay of Bengal and parts of Southeast Asia. This lives in both freshwater and the sea.

Photos: Uzma Khan / WWF - P
WWF-Canon / François Xavier Pelletier

Designed by: Saadia Tajammal

The problem

When humankind came onto the scene, water infrastructure development took place to irrigate our lands for agricultural purposes. Headworks development restricted the movement of the dolphins. Therefore dolphins that were found in all the five major rivers in Pakistan became restricted to only the Indus. Fisher-folk often mistakenly caught dolphins in their fishing nets, and gradually commercial fishing replaced subsistence fishing, leading to ever increasing competition between people and dolphins for fish. Agriculture laden with pesticides and effluents from factories enter the river degrading the quality of the habitat, and enter the food chain of both dolphins and people. Sometimes dolphins wander into irrigation canals, leading from the river, and in winter when the canals are closed for cleaning, they get stuck in small pools with no food, and die.

The efforts

The dolphin population survey carried out in 2001 showed that there were only about 1,200 left then, down 80% from their original population. WWF has been dedicated to dolphin conservation for over a decade. We rescue dolphins stranded in canals, in conjunction with the Sindh Wildlife Department. We work with the farmers to improve agricultural practices by reducing the use of pesticides and fertilizers so that their agricultural runoff doesn't damage the river. We work with the fisher-folk so that they take care when fishing and not catch dolphins, and leave enough fish for the dolphins to eat. We monitor dolphin populations, study habitat features and quality, and track the dolphins.

The result of all this is that we have saved 80 dolphins stranded in canals, rushing them in our dolphin ambulance to the main river. The amounts of chemical fertilizer and pesticides have come down dramatically. Farmers have, to a large extent, taken up better fishing practices and started leaving something for the dolphins to eat. In a survey in 2006, there were between 1,600 and 1,750 dolphins in the Indus River!

We're not there yet

However, this population is divided into five populations because of barrages, and some of them are not viable populations: there are only eleven dolphins between Sukkur and Kotri barrages, and there is only one between Jinnah and Chashma barrages!

So there the problem lies. But keeping in mind the new efforts by WWF and LUMS-SSE, maybe in ten more years, we'll count the dolphins again and find ten thousand… now that would be something to celebrate!

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