



# Newsletter Wet Notes

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The quarterly newsletter of the Pakistan Wetlands Programme (PWP) is published to inform donors, scientists, academics, researchers, environmentalists and environmentally concerned individuals of all qualifications and ages about the Programme, its projects and upcoming events while giving insights and updates on research, education and habitat management activities. The PWP's objective is to conserve the globally important wetlands biodiversity in Pakistan while alleviating poverty. It is a progressive initiative of the Federal Ministry of Environment and is being implemented by the World Wide Fund for Nature, Pakistan (WWF-P). It is funded by a consortium of national and international donors including, the Global Environment Facility (GEF), United Nations Development Programme (UNDP), the Embassy of Kingdom of Netherlands (EKN) and WWF Global Network.

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Mangrove plantation.

## Programme updates

### » PWP-MCWC 30,000 Mangrove Plants Nursery at Kawari

The Makran Coastal Wetlands Complex, or MCWC, raised 30,000 plants of mangroves in a nursery in Kawari village, to help rehabilitate mangrove forests. The purpose of the nursery is to plant mangrove container plants in off season.

### » Training Workshop on "Fish Quality Assurance" at Jiwani

A one day training workshop on fish quality assurance was held for fishermen, fish processing companies and members of WCCs, Jiwani. Participants included fish processors, fishermen, mole holders and members of WCC, Jiwani. Ahmed Nadeem, Deputy Director Technical and Research from Balochistan Coastal Development Authority (BCDA) conducted the training.

The thematic areas of the workshop were fishing activities and fish values from past to present, post-harvest care in the sea and methods of preservation, from sea to factory. Meanwhile, the issue of how to arrest bacterial growth in a factory hall and fish tissues besides problems faced by fishermen were also looked into through open discussion.

### » National Competition on Mountain Conservation

The Pakistan Wetlands Programme's Makran Coastal Wetlands Complex organised a ten-day national competition on "Mountain Conservation 2009" for school children in Kaghan and Islamabad. The children were sensitized to environmental management and ecological balancing through environmental clubs, celebration of cleaning days, installation of dustbins,

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raising plantations, organising camps, and study of fauna and flora. Such activities enhance children's understanding of the environment and ecological balance. On the last day, participants were awarded certificates and the programme ended with a grand closing with traditional music and dances.

### » Marine Turtle Nesting at the Beaches of Daran Village

The Pakistan Wetlands Programme's Makran Coastal Wetlands Complex collected data on marine turtle nesting at three beaches of Daran Village. These are globally known for nesting of green turtles. Three members of the Village Conservation Committee, Daran, were engaged to collect nesting and hatchling data.

The stakeholder community strives to control issues like poaching of turtle eggs by foxes, eagles, seagulls, and ghost crabs. Based on last season's data, the community rescued more than 3,000 turtle hatchlings and released them into sea.

### » Training & Capacity Building

In this quarter a series of trainings on Integrated Wetlands and Natural Resource Management were conducted by the Training and Capacity Building component of the

Pakistan Wetlands Programme. These trainings were conducted in Gilgit, Skardu, Khaplu, Teru and Karachi. Highly qualified and skilled resource persons were hired to conduct these training courses. In this quarter a total of six training courses were organised in which approximately 300 participants were trained.

Our big achievement in this quarter is that we have also launched our first bureaucratic level training course in Karachi. Most of the trainings were conducted in Gilgit-Baltistan because it contains immense natural resources and in order to preserve and conserve them it is important that the communities should be well aware of their importance. Through these training courses communities not only become aware of their natural resources, they start thinking about preserving them.

Most communities are well aware of their natural resources but they need proper direction in conserving them, and the intention behind designing these training courses was to educate and prepare the communities in conserving, protecting and restoring natural resources.

The communities and the participants showed keen interest in these training courses because they provided them with enhanced skills. Some comments from the participants were:



This was the first training of its kind on wetlands, very impressively conducted. We hope that many such training courses expect will be conducted in future so that the communities can benefit. The workshop was very good and informative and such workshops should be conducted more often. I suggest these workshops be conducted in other cities of Pakistan and we be invited.

It is a very good training programme on Integrated Wetlands and Natural Resource Management. We gained lot of knowledge from this training programme. All the trainers were effective in their approach.

Besides Integrated Wetlands and Natural Resource Management, a training course on Emergency First Aid with CPR was also organised in this quarter with the collaboration of Pakistan Red Crescent Society (PRCS). Professional trainers from PRCS delivered this training.

The Pakistan Wetlands Programme will organise such kind of training courses in future to fulfil the needs of communities, departments and individuals in the conservation of natural resources.

### » Computer Training Courses for WVCC Pishukan



Skills enhancement courses were designed for wetland users to open up new avenues of income generation, so that pressure on wetlands can be minimized. Twenty-eight participants, both male and female (teachers, members of WVCC, social and health workers) participated in the training. Certificates were distributed among the participants by Mr. Muhammad Ayub, UC Nazim

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## » International Symposium on Indian Ocean Cetaceans



This symposium was held in the Maldives and focused on conservation and scientific research on cetaceans (whales, dolphins and porpoises) in the Indian Ocean. Scientists from different countries presented their work on cetaceans and shared their findings with participants. Abdul Rahim presented a scientific paper "Stranding Status and Threats to Cetaceans at Balochistan Coast", covering the work done so far by PWP and various threats that cetaceans are confronted with.

The Balochistan Coast has a variety of fishes. Fishermen use various methods to catch maximum fish (including long line, harpoon, cast net, trawling, gill net, encircling net, wire-net fishing). Some methods have adverse effects on other marine life by destroying seaweed/grasses, corals, sponges, mollusc, cetaceans, etc. A large number of stranded dolphins and whales have been found dead at the Balochistan Coast. Fishermen use dolphin flesh as bait in shark fishing. Biotoxin used for fishing has red tide effect due to upwelling, is also a factor in the death of cetaceans. In this regard, PWP is trying to develop a better management plan for their conservation.

Towards the end of the symposium, a platform was formed for coordination among the regional countries and the next meeting programme schedule was shared with participants.

## » Lady Health Worker - Tujhay Salam



In collaboration with PAIMAN, the Pakistan Wetlands Programme's Makran Coastal Wetlands Complex (MCWC) organised a mega event called "Lady Health Worker - Tujhay Salam" at Gwadar. Different organisations were invited to put up stalls highlighting their roles regarding health related issues. The MCWC arranged an information centre on coastal wetlands displaying posters, brochures, Wet Notes and badges for distribution, besides water purifiers provided free of cost. More than one thousand visitors came to the information centre and applauded the efforts that PWP is making in the conservation of wetlands

## » Sea Buckthorn

### Initiatives in Broghil Valley

Mr. Himmat Mir, Research officer at KARINA was requested to conduct a course on sea buckthorn. He visited the area in May/June, met the local community members, explained the economic value of sea buckthorn and assessed its

potential in Broghil Valley. Field training for the communities was agreed for late September; to wait for sea buckthorn berries to ripe. He also analyzed the linkage of community to the market in Ghizer and assured purchase of 160kg berries. This will also help access to other markets outside of Gilgit-Baltistan.

## » National Children Mountain Conservation Meet

As part of its awareness and capacity building initiatives the NAWC-PWP facilitated five students and a community representative from a school in Broghil Valley to participate in the meet. The event was organised by Adventure Foundation Pakistan from July 1 to 10, 2009. The activity was meant to enhance the knowledge of schoolchildren regarding the importance of conservation and environment by exposing them to grand areas of the country.

## » A Visit to Broghil Valley

A fourteen member team of NAWC-PWP and the Khyber-Pukhtunkhwa Wildlife Department visited Broghil Valley from July 17<sup>th</sup> to 24<sup>th</sup>, 2009. Mr. Ahmad Said, Site Manager and Mr. Imtiaz Hussian, DFO Wildlife Chitral led the team. On the recommendations of Regional Programme team to provide protected area status to Broghil Valley, the Khyber-Pukhtunkhwa Wildlife Department developed a PC-I for Broghil National Park. The visit had two objectives: (i) assess the community perception regarding the establishment of National Park; and (ii) mark the park's geographic limits. In this regard, meetings were held with custodian communities followed by sustainable livelihood analysis to understand their reservations and remove doubts about the proposed national park.

## » Visit to PWP Nursery at Kishmanjah Village

On July 18<sup>th</sup>, 2009 the team visited the nursery and assessed the



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success rate of plants grown. Mr. Naveed, Research Assistant briefed the visitors of the objectives of nursery and highlighted the problems encountered while establishing the nursery - the first ever endeavor in Broghil Valley. Plant raised would be used for plantation on marginal lands and thus help in reducing pressure of fuel and grazing, besides reducing soil erosion.

### » Signboards for Broghil Valley

Creating and maintaining an optimum level of awareness about sustainable management and conservation of natural resources is what PWP stands for. The Programme has been using various tools to educate stakeholders to earn support for wetlands conservation through awareness raising and consensus building. For this purpose signboards bearing conservation messages and slogans were installed at prominent places to discourage illicit activities leading to resource depletion and to educate the stakeholders about biological significance of Broghil Valley.

### » Tour of (proposed) Broghil National Park

Effective and sustained conservation efforts are possible only when stakeholder communities are taken on board. The rationale behind this approach is to benefit from the experiences of the locals in natural resource management and to ensure their support. For this purpose, a meeting was organised at Chilmaraabad on July 18, 2009. Establishment of a national park is in the best interest of local communities as it will promote tourism, trophy hunting, and employment opportunities. Needless to say, a national park doesn't deprive the local communities of their traditional use rights to grazing, fodder collection, etc. rather strategies and management plans are prepared in consultation with local communities to ensure prudent use of available resources and identify new ones.

### » Breeding of Ruddy Shelduck Confirmed in Broghil Valley

Known for its unique wetlands ecosystem and allied biodiversity, the valley is home to more than 35 lakes. The NAWC-PWP has confirmed breeding of the ruddy

shelduck in Broghil Valley. It enters the valley in April, breeds in July and leaves in November. Confirmation of its presence would add value to the site and draw attention of professionals, scientists and line departments for further improvement of the valley's protected status.

## Public events

### » World Environment Day

Celebrated every year on June 5<sup>th</sup>, World Environment Day has become one of the United Nations' primary ways to raise global awareness of environmental issues and to help stimulate political attention, public action, and personal commitment to environmental preservation.

World Environment Day was celebrated all over the World on June 5<sup>th</sup>, 2009. The theme for the year 2009 was "Your Planet Needs You - UNite to Combat Climate Change". As elsewhere around the globe, the day has special significance to Pakistan as well. In this regard, the Ministry of Environment declared the year 2009 as the National Year of the Environment, to mitigate the effects of climate change in Pakistan and its related problems.

PWP celebrated a variety of activities around the country. The day was celebrated in Islamabad as well as in all regional PWP complexes. The activities included screening of environmental videos, launching of nature clubs, speeches and debates on environmental issues. Seminars and workshops and radio and TV talk shows were also arranged on national and regional level.

A massive number of persons - 3,000+ - took part in the event representing various walks of life.

Venue of the event was Rawal Lake View Park, Islamabad. Awareness material - brochures, Wet Notes, stickers of National Year of the Environment, buttons, and posters - were distributed among the participants. A song titled Socho zara (think!), composed by PWP, was presented to commemorate World Environment Day.

The Federal Minister for Environment, Mr. Hameed Ullah Jan Afridi was the chief guest at the occasion.

### » Breaking Records the conservation way



Planting trees can be a lot of fun – especially if you do it to break a world record!

The Guinness Book of World Records had India holding the record for the most trees planted in a specific amount of time: 447,874 saplings. The Pakistan Wetlands Programme, or PWP, knew how badly mangrove trees are being depleted in the Indus Delta. Bring the two together, and you have the obvious answer.



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Why not plant mangroves, a whole lot of them, and help replenish the vast mangrove forests that used to cover Pakistan's coastline for miles and miles? There used to be eight species at Partition in what is now Pakistan. Local communities had to use mangroves for fuelwood because they had no alternatives for decades, so the mangroves were cut down and not replanted for decades. Then, when Pakistan started running out of water and the Indus River started drying up, its delta suffered, and since mangroves need a steady supply of both fresh and sea water, what mangroves were left started dying. Now, there are only three species left, and they're fast disappearing. So Pakistan Wetlands Programme, in conjunction with the Ministry of Environment and the Sindh Forest Department, decided to hold a tree plantation drive at Keti Bandar, in Sindh. Actually, the Programme decided to plant trees on more than three hundred hectares..!

July 15 was chosen for the great event. On the island of Khedewari in the delta, three hundred volunteers got together to plant mangrove saplings.

Working in groups of three, they started early in the morning. It was

grueling work – you have to bend and dig and lift the heavy sapling, which is sensitive so you have to be really careful. Then you have to make sure it's properly planted in the ground and since mangroves live in places where there is lots of water, you can imagine how demanding it was!

But it was so much fun. Imagine, if you can, a sandy shore where the sea just touches the land and the river water meets the sea in channels all around you. A cool breeze from the distant horizon ruffles your hair. People around you race to plant the saplings in time. You're all united in this great purpose to restock the grand mangrove forests that swathed the delta in their beautiful green bounty a couple of generations ago...

Schoolchildren were there as well as dignitaries, and people from the media and the fishing communities who live all around the delta. PWP was ready with an information desk to tell them everything they wanted to know. Marvi Menon, MNA, was there, as well as Dr Tahir Qureshi from the World Conservation Union. Hamidullah Jan Afridi, Pakistan's Environment Minister; Kamran Lashari, Secretary Environment; Dr Iqbal Sial, Inspector General

Forest; and Sasi Palijo, Minister of Culture and Tourism, Sindh were there as well.

And then, there was Adil Ahmed, Guinness Book of World Records Adjudicator. He would decide if we had broken the record, or not!

As the day wore on, folk singers appeared with their musical instruments. It was like a huge picnic, or a party, where you had a lot of fun and worked very hard at the same time.

Towards sundown, everyone put down their shovels and straightened their aching backs. Adil Ahmed went off with a team to count the saplings. When the team got back, everyone waited with bated breath to hear the result.

The volunteers had planted 541,176 mangrove saplings! Pakistan had broken the record!

This means so much for the delta. It means that a forest has been planted, a great carbon sink that will help in the fight against global warming.

Oh, and we beat India at the record. Cheers, neighbour! Why don't you plant another forest, and then we'll plant another too, then it'll be your turn, then ours... we'll end up replanting all the forests in the subcontinent this way, which is kind of like the aim anyway!



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» **PWP-MCWC Plant  
Thirty Thousand Plants in  
District Gwader and  
Celebrate National Tree  
Plantation Day at Makran  
Coast.**

The Pakistan Wetlands Programme's Makran Coastal Wetlands Complex organised the National Tree Plantation Day at Makran Coast. As per schedule of

National Year of Environment, August 18 was declared as National Tree Plantation Day. The MCWC planted more than 20,000 saplings in Gwader. For tree plantation in a main city, plantation was done at Koh-e-Bathel in collaboration with Pakistan Navy and Pakistan Coast Guards. Aim of the activity was to raise awareness about the environment. The same day, a separate activity for mangrove plantation was held at Kalmat

Lagoon by planting 15,000 container plants provided by the Balochistan Forest and Wildlife Department. Mr. Pasand Khan Buledi, DCO Gwader, inaugurated the plantation urging the participants to plant more trees besides highlighting the importance of mangrove forests in the perspective of their economic and environmental values.



## Interns Corner

I am a student of BS (Hons) with a major in Environmental Sciences from the International Islamic University, Islamabad. I joined Pakistan Wetlands Programme (PWP) as an intern for two months. I have worked under the supervision of Col. Mushtaq Ahmed and Miss. Nazreen Ahmed for capacity-building of civil and military bureaucracy. Very knowledgeable and kind, my supervisors gave me an opportunity to gain skills leading

to professionalism and leadership. During my internship, a workshop was organised by Col. Mushtaq Ahmed in Scouts Cadet College, Batrasi. I attended the workshop as a Natural Resource Management Training Facilitator and learned about the practical implications of natural resource management from an array of professionals. I enjoyed working as NRM interne as it deals essentially with capacity building of new entrants. Being a

student of Environmental Sciences, PWP is of immense interest to me. I have not only gained knowledge of training and capacity building, this internship has polished my communications skills which will greatly help me when I enter my professional life. I most sincerely thank the PWP for affording me this invaluable learning opportunity.

By Naila Yasmin

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## Articles

### » Organic Matter Contents in Selected Peatlands and Wetlands of Pakistan: The Role of Water Level



Pakistan is home to different wetland types including lacustrine wetlands and alpine peatlands. To our knowledge, very little and/or nothing is known about the amount of organic matter stored in soils of these ecosystems, which could be playing a significant role in atmospheric CO<sub>2</sub> sequestration. The key aim of this research was to quantify the amount of soil organic matter above and below the water table in northern and southern wetlands and peatlands of Pakistan. Samples were collected from five lacustrine wetlands in central Pakistan (32° 33' 29.1" N - 072° 01' 30.3" E - Elevation 761m), five peaty wetlands in northern Pakistan (36° 51' 39.8" N - 073° 24' 49.8" E - Elevation-3588m) and four northern Peatlands (36° 50' 35.9" N - 073° 30' 51.7" E - Elevation:3650m). A total of 84 soil samples were taken above and below the water table. They were analyzed for the determination of organic matter by using the sequential loss-on ignition technique which is a standard technique used worldwide. According to the results peatlands contained significantly larger amounts of organic matter than in northern and southern wetlands. In peatlands, organic matter averaged 47% above the water level compared to 59% below the water level. Even though most of the biomass is produced by surface peat moss, the amount of organic

matter stored in layers below the water level is larger due to saturated water conditions. Compared to peatlands, organic matter in northern lacustrine wetlands was lower averaging 41% and 44% in surface and sub-surface sediments, respectively. The net amount of organic matter stored in northern lacustrine wetlands was about 7 times larger than those stored in central lacustrine wetlands. Organic matter averaged 6.3% and 5.6% in surface and sub-surface sediments of southern lacustrine wetlands, respectively. Although growing season is significantly larger in southern wetland areas than in northern environments, the net amount of organic matter stored in southern wetlands is low due to faster decomposition rates triggered by higher soil temperatures. These results demonstrate that northern lacustrine wetlands and Peatlands are significant sinks of carbon and any lowering of water level due to predicted climate change or drainage for livestock grazing could result in loss of the stored organic matter.

Mean percent organic matter content determined through loss on ignition method in above and below the groundwater table in different Peatlands (Fig 1), alpine Wetlands (Fig 2) and southern Wetlands (Fig 3) of Pakistan. Error bar shows standard error of the mean.

With global warming and climate change, warmer temperatures are expected that may result in enhanced decomposition and hence loss of OM to CO<sub>2</sub>. The concentration of CO<sub>2</sub> in the air has increased from 280 ppm to 380 ppm due to fossil fuel combustion, loss of forests and wetlands/Peatlands. With warmer temperatures loss of OM to CO<sub>2</sub> through decomposition will further increase CO<sub>2</sub> concentration in the air contributing to global warming.

Degrading peatlands in Gilgit-Baltistan should be focused on because rising temperatures can

potentially warm them up the peat resulting in faster decomposition rates of organic matter. Similarly, warm conditions increase evapotranspiration that results in lowering soil moisture that facilitate diffusion of atmospheric O<sub>2</sub> resulting in faster decomposition. With the future climate change scenarios in Pakistan, warmer climates with less precipitation may lower the water table leading to greater loss of OM. Additionally, higher evapotranspiration due to potential warmer temperatures can lower the water table. As the water table lowers, more organic matter is expected to decompose. This research has highlighted the role of soil temperature and soil moisture in regulating the amount of biomass produced and decomposed in two geographic locations of Pakistan - southern lakes, and northern lakes and peatlands. Results show that peatlands are large reservoirs of organic matter, followed by alpine wetlands. These carbon reservoirs can play a significant role in controlling global warming, at least at the landscape level. Similarly, southern wetlands may be producing more biomass than alpine wetlands, yet the amount stored in southern lakes is less due mainly to warmer temperatures that enhances decomposition of biomass produced. This enhanced decomposition in southern lakes due to warmer temperatures supports deterioration of the food chain that is the base for food production for worms and aquatic macro organisms that eventually support fishes, water birds and other wildlife species. This productivity has economic significance for the region. This research has established the role of soil temperature, and moisture influencing organic matter accumulation rates in northern peatlands, alpine peatlands and southern wetlands. As this research is a background study undertaken

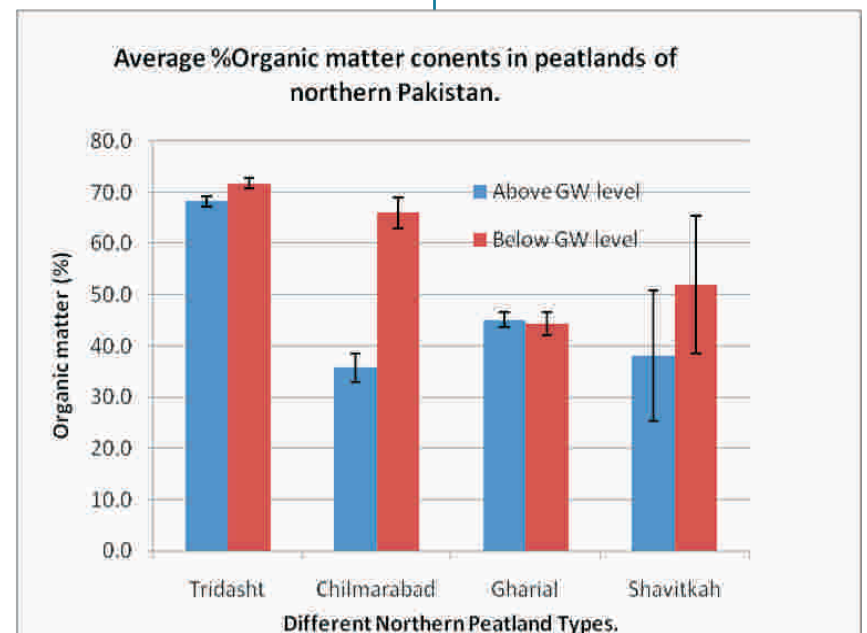
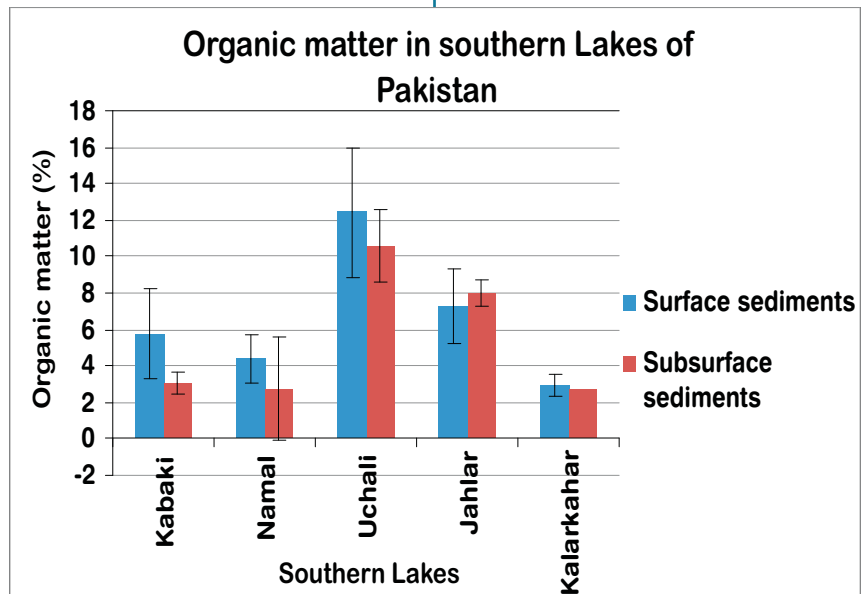
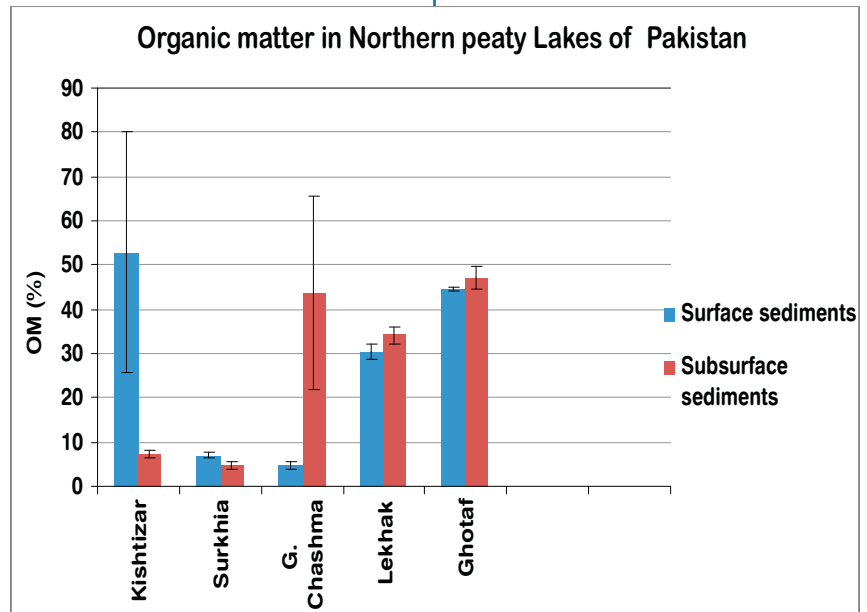
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in Pakistan for the first time, more work is needed to highlight the role of these wetlands in ameliorating climate change, ecosystem functions, and economic services. The following studies are recommended to produce a significant data base for the role of wetlands in Pakistan:

- 1) Evaluate the impact of peat harvest on organic matter accumulation;
- 2) Evaluate the role of hydrologic changes on organic matter accumulation in peatlands;
- 3) Compare peatlands, lakes and coastal wetlands in producing biomass and organic matter accumulation patterns in natural and disturbed ecosystems;
- 4) Undertake a comprehensive study on bulk densities in these wetlands to be able to quantify the amount of organic matter stored in these wetlands and contribute a figure of organic matter stored to the global community for inclusion in their calculation of global warming effect on organic matter content storage in wetlands of Pakistan;
- 5) Compare biomass production in peatlands, alpine lakes and southern lakes to validate the differences in decomposition rates;
- 6) Compare decomposition rates in polluted and natural lakes to find out the impacts of pollution on the functions and health of the lake ecosystems in southern Pakistan.

Imran Ullah  
Research Assistant,  
Supervised by Ahmad Khan



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## ➤ The Legend of The Seven Hills

In Pakistan there are eleven islands of which two are in Balochistan and nine in Sindh. Astola Island is the largest island in Pakistan, and is part of the Global 200 Eco-Regions. In the clear blue water of the Arabian Sea, at a distance of about 20 nautical miles east of Pasni, a breath-taking island stands tall over the sea - Astola Island.

The biggest offshore island in the Arabian Sea, the island is 200 feet above sea level with an area of 4 km<sup>2</sup>. The island has several deep chasms and crevices. Its sandy and rocky composition makes it ideally suited for a variety of flora and fauna. Its vegetation largely consists of scrubs and bushes. Astola is characterized by a mix of rocky and sandy habitat. It has no source of freshwater. Also known as Haft Talar (seven hills) by the local people, the island is not easily accessible and is therefore almost uninhabited.

There is no sign of permanent settlement but fishermen use it frequently and stay for several days while fishing. There is, however, a shrine and a prayer-yard – the only permanent structures on the island. According to fishermen's lore, it was built for a Ghaib Peer (absent holy man) called Khwaja Khizar who is said to have ruled the oceans and the seas. It is believed that he still visits the area occasionally and offers a prayer at this place.

A small area called Kutcha Mandar (temporary temple) is built on the cliff where Hindus visit to pray. Around 150 fisherman from Pasni and surrounding areas camp here from September through November in the hope of netting lobsters, sole and surmai fish. Fishermen stay from December to February for lobster as well as oyster fishing. From March to May fishermen use this island as a transit point while fishing. The island remains free of human interference from the end of May till mid August due to high tides and a rough sea.

The isolated location of the island has helped maintain endemic life

forms. The endangered [green turtle](#) and probably the [hawksbill turtle](#) nest on the beach at the foot of the cliffs. The island is also a very important area for endemic reptiles such as the Astola [viper](#), a large number of breeding water birds including coursers, curlews, godwits, gulls, plovers and sanderlings. The introduction of domestic cats in the mid-sixties on the island by some fishermen for the control of small rodents created a threat to the important wildlife of Astola Island.

In 1995, preliminary assessment of biodiversity of Astola Island was done by WWF - Pakistan. In September 2009, detailed biodiversity assessment will be done by a team of experts of WWF - Pakistan. During the programme survey of the Pakistan Wetlands Programme – Makran Coastal Wetlands Complex site office in Gwader, domestic cats were found throughout the island. It is reported that three decades ago, the fishermen of the area used to collect birds' eggs from Astola Island. During the present survey, no sign of breeding of birds was observed by the team of experts. The disappearance of breeding birds from the vicinity of the island might be a result of this artificial attempt to control rodents.

During surveys, it was also noticed that some fishermen with good

diving skills, break live coral pieces for selling in market for decoration in aquariums. This is bound to disturb this newly discovered ecosystem. The fishermen camp on the island and spread their nylon nets on the island that causes entanglement of turtles. The team also observed several dead turtle hatchlings entangled in nets. A dead female green turtle was also seen by the team. The cause of death was again the nylon net. One evening, the team observed a live female turtle struggling with a net in her body pit and rescued her. Pieces of nylon nets seem to be a serious threat to this most suitable site for turtles in Pakistan. The deposition and spreading of nylon nets all over the western side of the coast is due to tidal currents. During the survey, some activities of repairing and discarding nylon nets by fishermen were also noticed. When the fishermen from Balochistan decided to bring cats to the Island in a bid to rid it of vermin, they didn't realize that by doing so, they would trigger a change of events that would eventually lead to devastating changes in the island's habitat. The island requires conservation efforts to control damages to the local ecology. In the past, the world Conservation Union recommended this island to be assessed against standard criterion of protected areas.



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However, this didn't happen due to rumours that Pakistan Navy was planning to use this island. The proposed assessment should therefore be done as planned. A number of studies has been undertaken on the current status of biodiversity of the island. It is important to bring together findings of all these studies and make them available to all those who need such an information for research and development works.

At Astola, management measures for the conservation of marine turtles are taken by the PWP- MCWC site office, Gwadar. It is important to mention that no protective enclosures for the protection of eggs and hatchlings have been recommended. A severe threat to marine turtles is pieces of plastic nets which harm female turtles and

hatchlings. The MCWC has carried out cleaning of beaches of Astola Island to remove debris, on a daily basis, to protect turtles. PWP organised several awareness raising events for local fishermen to educate them about the importance of marine turtles. They were made aware of the serious consequences and losses to biodiversity by the introduction of domestic cats. The fishermen are also being sensitized about the importance of cleaning beaches and proper disposal of the remains after repairing nylon nets. They were involved in beach cleaning process and introduced to coral-safe anchorage to protect corals. Such an environment-friendly anchorage causes minimal damages to corals and seaweed.

The island is rich in biodiversity due to a variety of habitats found there. A

complete ecological study of fauna and flora is required to explore the potential of this island. For the protection of this unique habitat, a management plan is also required.

Sakina Nazia Memon,  
WWF - Pakistan  
Abdul Rahim;  
Site Manager  
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### The Pakistan Wetlands Programme's Site Offices

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District Muzaffar Garh.  
Tel: 06622 39553

**Central Indus Wetlands Complex**  
Indus River Dolphin Conservation Centre  
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Faiz Ul Uloom, Bandar Road, Sukkur.  
Tel: 071-5630687

**Makran Coastal Wetlands Complex**  
Bungalow # M-74 Phase-1,  
New Town Housing Project,  
Gwadar.  
Tel: 086 4211500

**Northern Alpine Wetlands Complex**  
NLI Colony, Near Imamia Eid Gah,  
Shahrae Quaid-e-Azam,  
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