EXPEDITION – IN SEARCH OF GHARIALS AND GANGETIC DOLPHINS IN THE RIVER HOOGHLY

Towards the possible formation of a new

Gharial and Dolphin Conservation Reserve

Involving local communities living on the banks of River Hooghly

Report on second phase of survey and mass awareness work
conducted from 29th November, 2009 onwards

A joint initiative of

iREBEL, SEARCH , HOOGHLY ZILLA PARISHAD & WEST BENGAL BIODIVERSITY BOARD

Supported By

BMC KETUGRAM-II PANCHAYET SAMITI

INTRODUCTION

After completing the first phase of our gharial search expedition in a 220-km stretch of the Hooghly, we received many reports of the presence of gharials in that stretch and also other locations in the river. Most importantly, we suspected they are breeding in the Hooghly, so a more comprehensive and thorough search was needed to get a complete picture of the status of gharials throughout the river stretch from Farakka in the north to Tribeni in the south.

We approached Hooghly Zilla Parishad for support for a larger survey and mass awareness campaign effort; however, the most important portion of the river for the gharial (due to remoteness and low levels of disturbance by humans) lies upstream, outside of Hooghly Zilla Parishad's jurisdiction. To address this gap, we proposed a collaboration with West Bengal Biodiversity Board, which sanctioned 40,000 rupees for the project within a short time.

As information about gharial sightings was coming from all over the stretch we were monitoring, we were confident of their presence, so for the second effort we focused on mass awareness campaigning, especially in fishing villages near the riverbanks. Because almost all recorded gharial deaths are due to accidental entanglement in fishing nets, we wanted to target and try to minimize this factor, as well address general ignorance about the gharial, as top priorities. Collecting gharial sighting data, locating new habitat areas, and creating a new base of local people who could give us field reports on gharials were our secondary priorities.

During our month-long second expedition in a 500km stretch of the Hooghly, and concurrent monitoring through our informer base, we collected 173 anecdotal reports of the presence of gharials and made two direct sightings. We campaigned at every ferry ghat and in almost every fishing village along the riverbanks, distributing leaflets, information brochures, and posters. As a result, we are assured that local people have great interest in these animals and no intent to harm them. Our work shows that implementing new, gharial-safe fishing practices, as well as keeping up mass awareness efforts, are key to ensuring that local people have the tools and knowledge to support the gharial's survival in the Hooghly.

ACKNOWLEDGEMENTS

For a professional naturalist, working for the conservation of a critically endangered animal like the gharial is a rare gift but also a great challenge. Therefore, I want to thank all those who made it possible. Expressing my gratitude to all individuals would be lengthier than this report, so I duly apologize to all those not named here. Your contributions were indispensable to this study.

I wish to thank the West Bengal Biodiversity Board for its wholehearted support of the project.

Special thanks goes to the Honourable Shabhadhipati of Hooghly Zilla Parishad, Mr. Asit Patra, without whose support and encouragement in every possible way this project would not have been possible.

The study would have been inconceivable without generous help and information from all the villagers, boat conductors, and fishermen working and living along the Murshidabad, Burdawan and Hooghly stretches of the Ganges.

I am also indebted to Lee Ann Merrill, Mr. Dhruvajoyti Basu, Joydip & Suchandra Kundu, Mr. V.K Yadav, Mr. Dipak Mitra, Sabhapati of Balagarh Panchayet Samiti, and Tarun Ghosh, without whose contributions (logistical and informational support, office work and encouragement) the field work would not have been possible.

IMPORTANCE OF THIS EXPEDITION

According to the IUCN Red Data List, the gharial (*Gavialis gangeticus*) is critically endangered. Fewer than 200 breeding adults survive in the wild, and there are indications this number is declining precipitously. It has been extirpated from most of its historic range, including from Pakistan, Bangladesh, Bhutan, and Myanmar. It can now be found only in small and highly fragmented habitats in India and Nepal.

In light of these dismal prospects, establishing the presence of gharials in areas of their historic range where they have not been officially documented for over 40 years is tantamount to granting the species a possible reprieve from oblivion. Of course, it is crucial to also identify and protect suitable breeding habitat for newly identified specimens if they are to have a chance to persist and flourish, so this study necessarily includes an assessment of the extent and quality of potential gharial habitat within the study area. Equally vital is addressing threats to specimens or the viability of its habitat. In this study, we tried to identify such threats.

In our previous study, we noted that most of the gharials are dying in this range due to accidental entanglement in fishing nets and to general ignorance. So our first priority for this second study phase was to educate those living or working near the gharial habitat areas and most likely to be encountering or involved in the conflicts, especially members of the the fishing communities. Our second priority was to locate new gharial habitats along the 500km stretch of the Hooghly.

Specific goals of this study were:

1. **Mass awareness campaigning among the people living near the gharial habitats in the study area**
2. **Identification of new suitable gharial habitats**
3. **Creating a new informer base**
4. **Directly sight and photograph gharials if possible**
5. **Document the presence of other faunal species to augment scant knowledge of wildlife in the study area**

METHODOLOGY

Methodological steps for this study were as follows (not in strict chronological order):

- Identify new gharial habitat areas based on anecdotal reports
- Research and evaluate pertinent data such as satellite photos/maps
- Consult with area locals in the field (anecdotal evidence)
- Conduct brief reconnaissance forays to locales of reported gharial sightings
- Observe and document entire study area by boat (Ganges River mainstream) and on foot (walking banks)
- Document mid-river islands (potential critical habitat)
- Take photographs
- Raise awareness among locals of significance of gharial presence and enlist them in protection activities
- Disseminate study findings

DURATION

This survey was initiated on December 9, 2009, and work is ongoing. Locating gharials is extremely challenging because they are nocturnal, spending most of the day submerged (except during winter basking, which was the reason for planning this study for winter). In the study area they are additionally elusive due to high levels of passenger and fishing boat activity on the Ganges. Since opportunities for the photographic documentation necessary to a biological study are rare and unpredictable, an ideal study period would be longer. Funding constraints dictated that we conclude and report on this second study phase as of late March 2010.

TARGET FAUNA

Due to the brief timeframe and limited scope of this study phase, we concentrated on gharials but included information on other faunal groups, as described below, where feasible.

STUDY AREA

In our first survey we were able to cover a 170-km river stretch from Natungram near Murshidabad border in north to Tribeni of Hooghly district in the south. Several months after completing the first survey, we traveled another 50-km river stretch to try to make additional gharial sightings. Subsequently we initiated the creation of a new informer base along the Hooghly riverbanks from Farakka barrage in Murshidabad district to Tribeni in Hooghly district – a 500-km stretch. Communicating with people living near the riverbanks was very productive – we received a great deal of gharial sighting information, so we targeted studying the entire 500-km stretch.

We started the journey from Katwa and moved northward towards Farakka. Our first objective was to initiate communications with people from the "new" study area (the 500-km stretch less the "old" 170 km stretch from the first study) to generate a single, enlarged set of contacts and information on gharial sightings that we could study and follow up on as a whole.

COMMUNICATION AND AWARENESS RAISING

After the completion of our first expedition there was no doubt about the presence of gharials in the River Hooghly – the questions were how many of them were inhabiting the area and how to stop their accidental killing. The most expeditious way of addressing both questions immediately and within the constraints of our study actions was to visit as many key locations along with river and talk with as many people as possible about the significance of gharials in the river ecosystem. Those who make their living fishing and carrying passengers and cargo up and down the river, and those inhabiting villages on the banks, acted invaluably as our eyes and ears on the ground to pinpoint where gharials likely had been and where they might be presently found. From the outset of our work, we made contact with every person we encountered on the river to inform them of what we were looking for (including distributing copies of an informational brochure, posters and leaflets on gharials), what actions they should take if they encountered a gharial (including contacting us via mobile phone), and the necessity of preventing the gharials from being disturbed. We encouraged everyone we spoke with to spread the word with others whose livelihood is directly involved with the river.

We stopped at literally every ferry ghat, fishing community, and village along the 500-km stretch to spread the gharial conservation message. We also targeted gathering places, such as fish markets, to maximize the number of people we reached. Overwhelmingly, everyone we spoke with was curious about the gharials and our study work and was eager to provide whatever information he had. A few individuals, especially those fishermen who had had direct encounters with gharials, were initially wary of involving themselves in our effort due to fear of possible enforcement actions by the Forest Department. Once we'd gained their confidence, they related stories of gharials swimming and basking in the sun, and several incidences of gharials entangled in fishing nets.

Talking with the political leaders and local authorities was necessary to ensure that our activities were conducted with maximum efficiency, cooperation and safety.

PHOTOS OF SOME LOCATIONS WHERE WE ARRANGED MASS AWARENESS CAMPAIGN

In our proposal submission we stated we would arrange four general mass awareness meetings in a 220-km stretch of the River Hooghly from Manganpara in Murshidabad to Tribeni in Hooghly District. Once in the field, we determined we should extend our range to Farakka in Murshidabad District, enlarging our study area to comprise 500km. We also realized that directly engaging small- to medium-sized groups of fishermen in interactive discussion would be more effective than addressing them en masse. So, **We stopped at literally every ferry ghat, fishing community, and village along the 500-km stretch to spread the gharial conservation message.**

Some of the key locations are depicted below:

Baharampur

Jirat Panchayet Office

Patuli

Manganpara

Purbasthali

Agrwadwip

Gadir char

Azimgunj

Kalna

Chowrigacha

Sitesh Naar

Jangipur

STUDY OUTCOMES

Photographing a cryptic animal like gharial in a heavy human activity zones like the Hooghly requires a huge investment of time and preparation. For the first study phase, it was crucial to make this investment to establish the gharials' presence. For the second study phase, since their presence had been established and in order to work within study constraints and prioritize actions to raise awareness and stop accidental killings, our primary goals were to make as many contacts as we could with local people to spread awareness and create an expanded informer database and to gather the maximum amount of reliable (albeit primarily anecdotal) data on gharial sightings.

As discussed above, we spoke with every person we met on the river, addressed every gathering we encountered in every ferry ghat, and visited every fishing village, distributing information brochures, leaflets and posters – making for a slow and methodical journey. The further north we went towards Farakka, the more frequent the reports of gharial sightings became. People were very aware of the gharials' presence, but due to general ignorance the animals' furtive habits, many people perceived

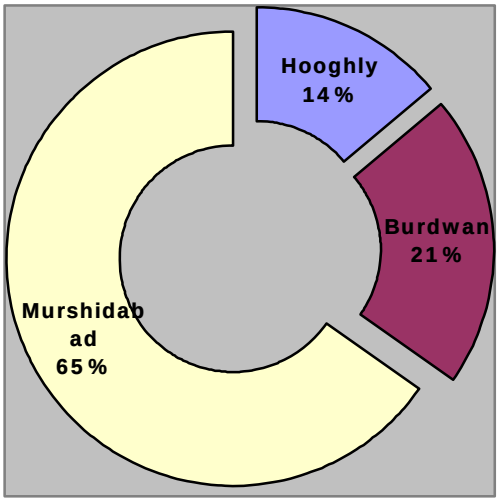
them as a potential danger. Although members of the fishing communities knew they did not directly harm humans, they still perceived gharials as an indirect threat because fishing nets are damaged or destroyed when gharials are caught in them and because they are perceived as competitors for fish resources.

Within the study area we located several important habitat areas, including inaccessible islands, that are supporting thousands of migratory and resident birds; mammals including smooth-coated otters, jackals, Bengal foxes, jungle cats, fishing cats, and dolphins; and reptiles such as terrapins and tortoises. We even received reports of a python on one island. These islands also appeared to be suitable gharial nesting sites.
Over the course of the four-month survey we identified 11 regions of maximum gharial occurrence, as evidenced by both anecdotal reports and our own team's sightings: Sabujdwip and Balagarh in Hooghly district; Nabadwip, Patuli-Agradwip, and Ketugram II block of Burdwan District; Manganpara islands and Satui/Chowrigacha area in Murshidabad District; Sitesh Nagar and its surroundings; Balia-Kismat gadir char – Gadir char, Ahiran–Jangipur barrage area; and feeder canal, especially near Farakka barrage. Although gharials occur in the entire study area, these 11 specific areas should be prioritized for immediate conservation efforts because of the indicated highest levels of gharial presence and activities, and because they are relatively free from human disturbance.

Throughout the study area we gathered a total 173 reports of gharial sightings over the last 25 years. Reports from earlier in the period are less numerous, perhaps because there truly were fewer gharials or perhaps because witnesses had died, moved away, or were otherwise unavailable to us. Starting from about five years ago, the reports show a steady occurrence, as detailed in the table below:

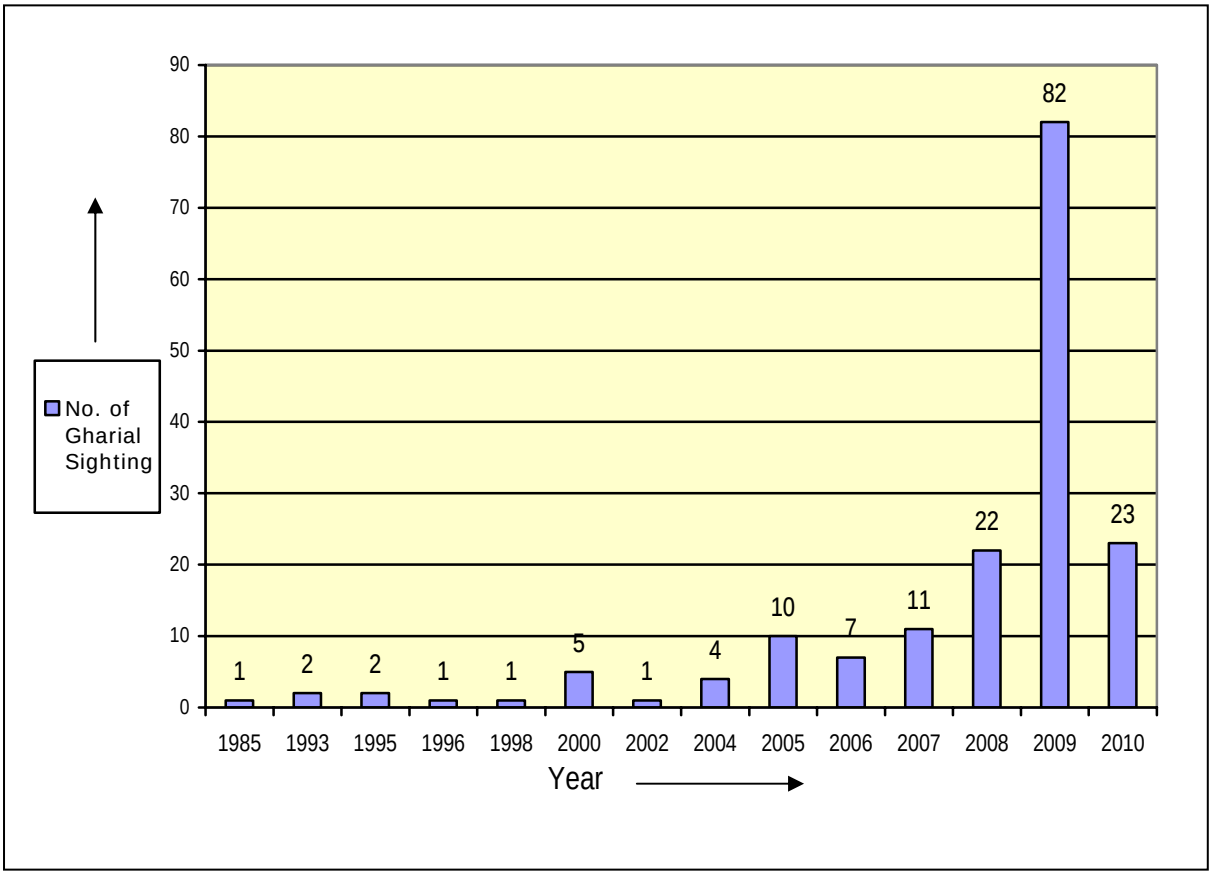
Year	No. of Gharials Sighted
1985	1
1993	2
1995	2
1996	1
1998	1
2000	5
2002	1
2004	4
2005	10
2006	7
2007	11
2008	22
2009	82
2010	23

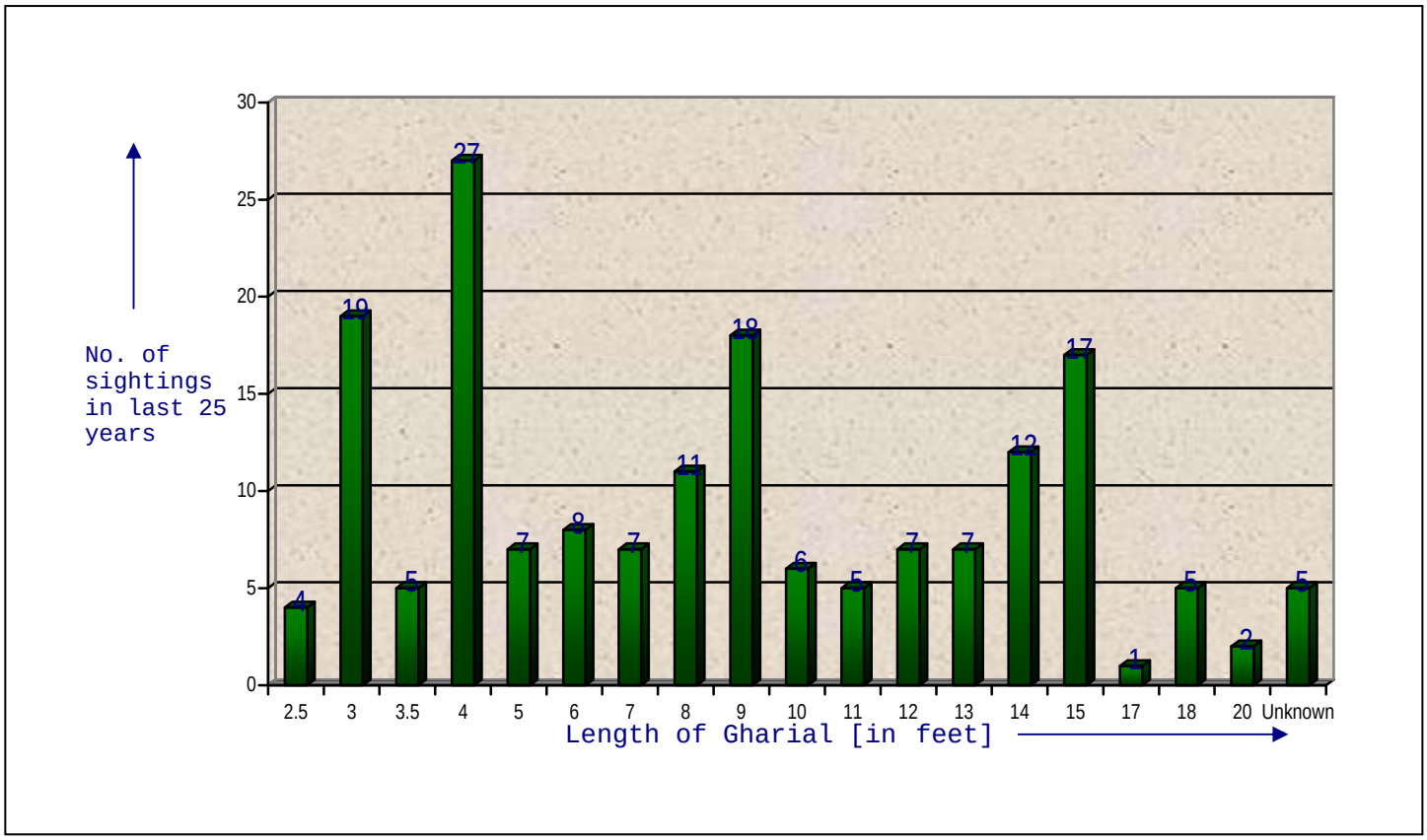
Size of Gharial [length in feet]	No. of Sightings
2.5	4
3	19
3.5	5
4	27
5	7
6	8
7	7
8	11
9	18
10	6
11	5
12	7
13	7
14	12
15	17
17	1
18	5
20	2
Unknown	5

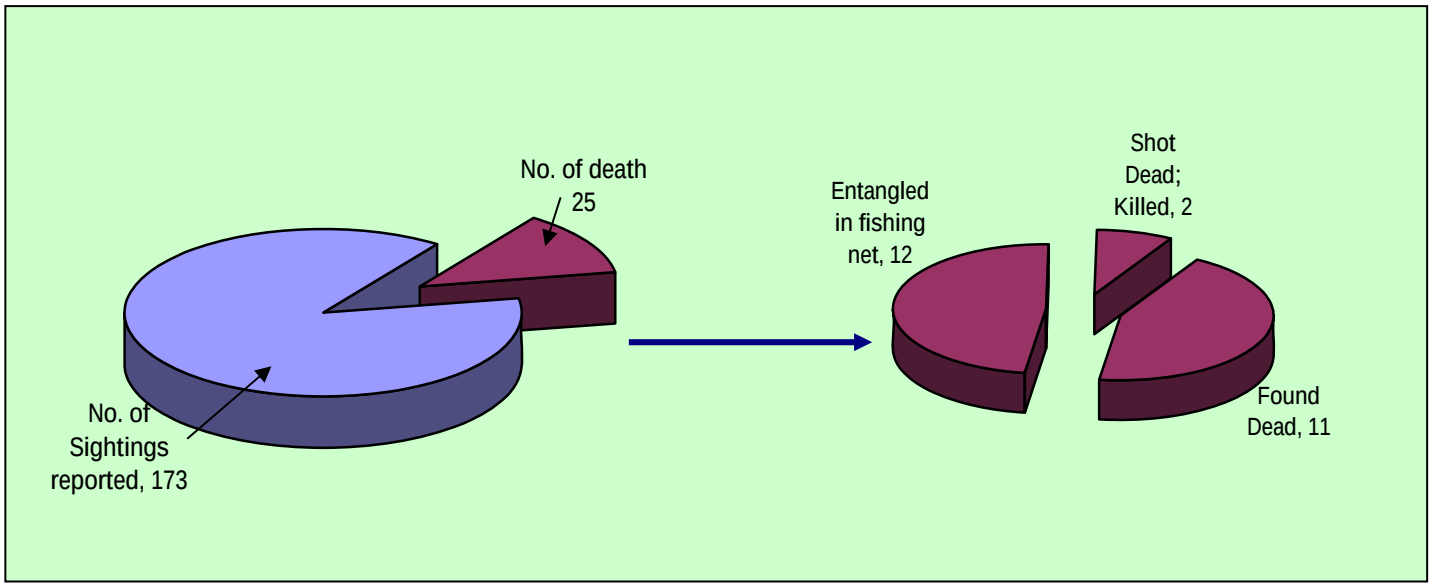


No of Gharial Reported per district included wholly or partly in study:

Hooghly: 24
Burdwan: 36
Murshidabad: 113

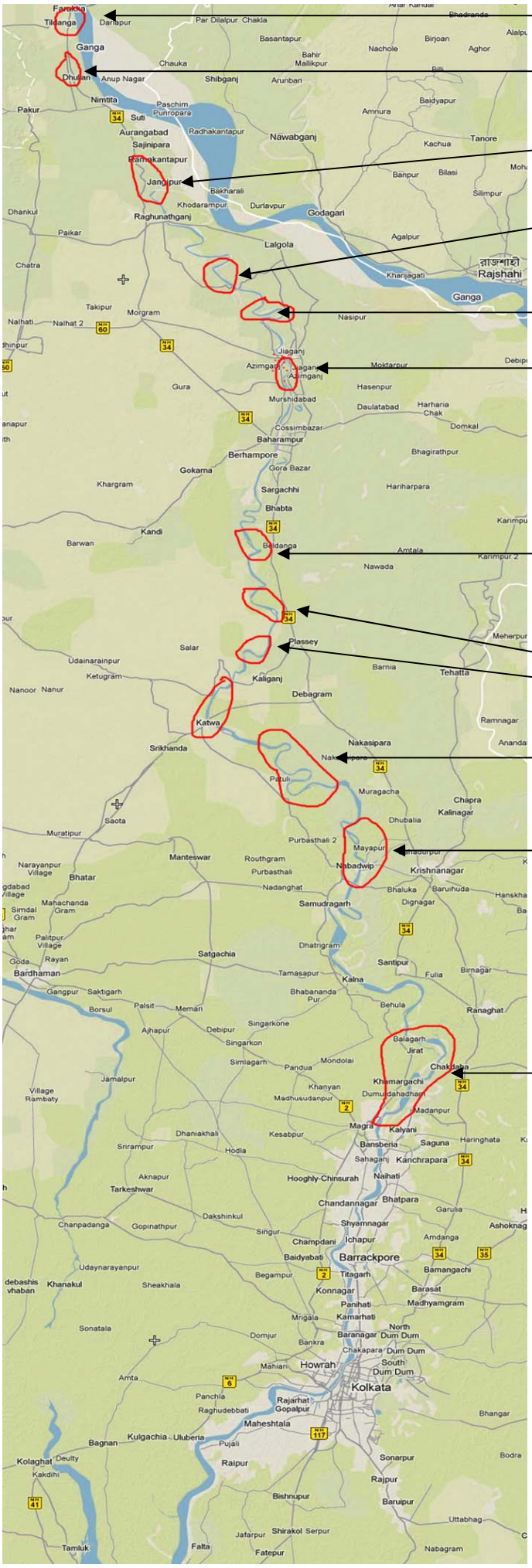






Among the 173 gharials reported were 25 dead due to a number of causes – from entanglement in fishing nets to gunshot. A few of the deaths have no attributed cause. In several cases of reported fishing net entanglement, the fishermen disposed of the bodies in the river to avoid the threat of harassment from police.

Tracking and reporting data on species aside from gharials is outside the scope of this study; incidental activity that we were able to conduct is reported on below.


Farakka barrage
feeder canal
Ahiran–Jangipur barrage area
Balia-Kismat gadir char – Gadir char,
Sitesh Nagar and its surroundings;
Azimgunj area
Satui/Chowrigacha area
Ketugram II block of Burdwan District
Patuli-Agradwip
Nabadwip
Sabujdwip and Balagarh in Hooghly district;

As mentioned above, we have gathered and included data on species other than gharial outside the scope of this study, as follows:

Gangetic Dolphins

We were very surprised to record only 34 dolphin encounters over the 500 km stretch of river during the course of our work, even after spending time in the most ideal habitat areas. At six locations in the study area we observed congregations of between three and nine dolphins. Our best encounters from the standpoint of proximity to and number of individuals were at Khayaramarir char near Kharmargachi (four individuals); Sabuj dwip in Hooghly District (three individuals); Purbasthali (three individuals); Nayachar (six individuals); Shankai (four individuals); and Kalayanpur ghat (seven individuals). Other dolphins were dispersed throughout the study area.

We received several reports of dolphin deaths throughout the area due to entanglement in fishing nets. Where at all possible we did mass awareness campaigning for dolphin protection during our study work but fear that populations of this animal are decreasing alarmingly. A research expedition to determine the condition of dolphins in the Hooghly is needed immediately.

Small Cats

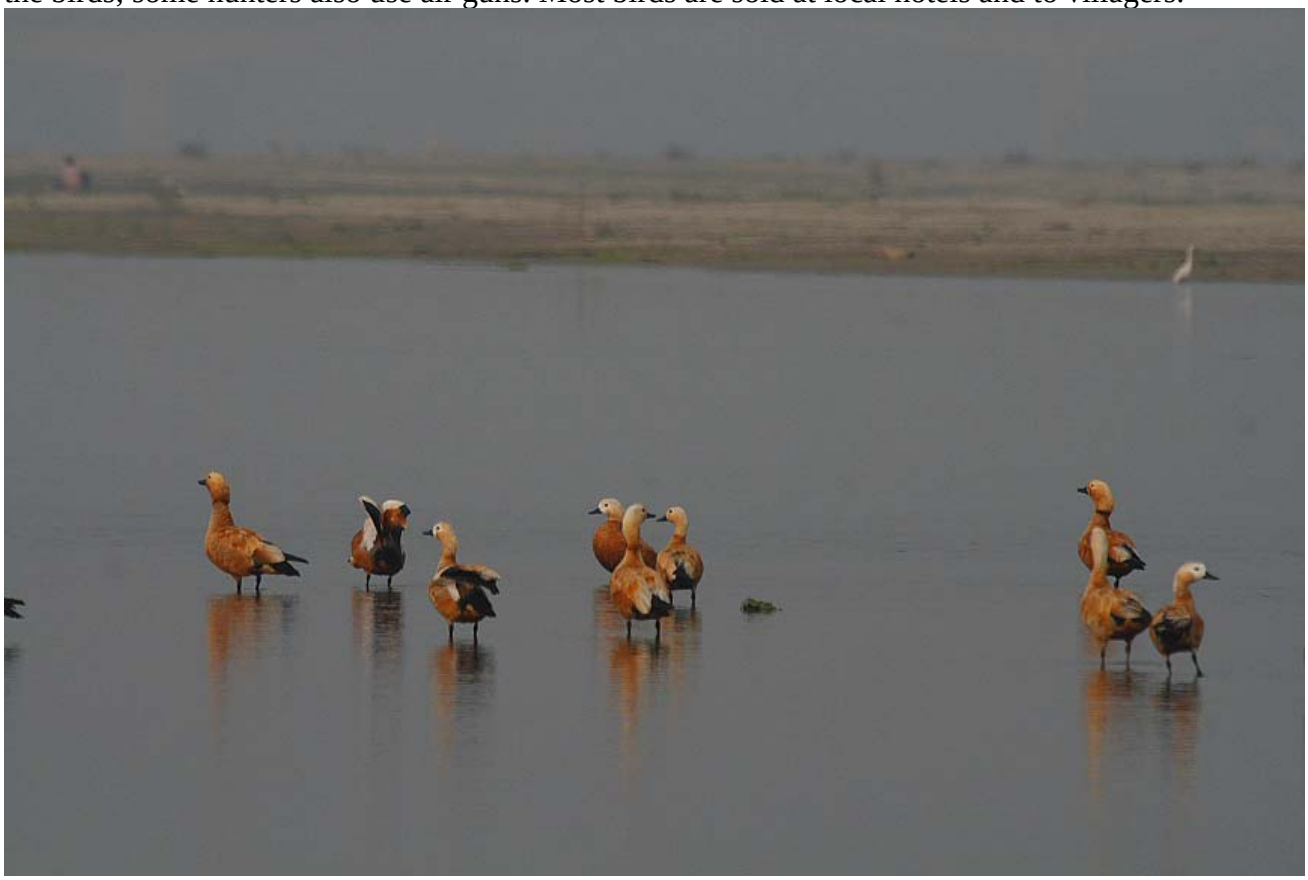
Two small cat species – Jungle Cat and Fishing Cat - inhabit the study area. We made no sightings, but frequently observed footprints.

Smooth-Coated Otter

We received several reports of occurrence of smooth coated otter in the study area. The best otter habitat we found was at Khayaramarir char in Hooghly District. Purbasthali-Patuli-Agradwip area in Burdwan district. But everywhere people reported that these animals are decreasing alarmingly.

Birds

We observed fifteen areas in the study zone with thousands of migratory birds of various species; a preponderance of gharial sighting reports also clustered around these areas. It appears that protection of these areas will benefit both the gharials and bird species. Unfortunately, most areas are under the threat of hunting, primarily from Nadia district. Generally they use paddy mixed with poison to lure the birds; some hunters also use air guns. Most birds are sold at local hotels and to villagers.



THREATS TO GHARIALS IDENTIFIED

In our second survey, we again identified threats to gharials and found they were the same as those we determined in our first survey, as follows:

- Fishing – especially with gill nets and set nets. Juvenile gharials often get entangled and die.
- Excessive human disturbance, especially in the upper portion of our study area.
- Destruction of sandbanks associated with brick factories
- Industrial pollution
- Perception that gharials are man-eaters like other crocodiles

RECOMMENDATIONS

- Most of the time gharial deaths are due to fishing practices (including accidental entrapment in various fishing devices), so research and development of gharial- friendly fishing tools and practices is vitally important to save the species from extinction.
- Vigorous mass awareness campaigning throughout the 500km stretch is urgently needed.
- Fishing net compensatition or insurance scheme should be developed as quickly as possible to save the gharial from intentional killing (fishermen often kill ensnared gharials in order to save their nets).
- More detailed research is needed to identify gharials' breeding and places so they can be protected from human disturbances and appropriately managed long-term.

- Alternative income sources for fishermen, such as controlled and responsible wildlife tourism should be developed for fishermen in the gharial-inhabited zone.

THE TEAM

Tanmoy Ghosh (iREBEL)

- Wildlife photographer and researcher
- Recipient of 16 awards from various national and international organizations
- Former field supervisor for WWF India's man-animal conflict project in the Sundarbans Tiger Reserve
- Led several biodiversity survey expeditions and research projects in eastern and northeastern India
- Worked as a wildlife resource person for BBC Natural History Unit and other production houses
- Sixteen years experience in wildlife conservation and nature study
- Involved as a naturalist with five reputed organizations

Suvendu Mukherjee (SEARCH)

- Photographer, social worker, specialist in archeological photography

Suman Paul (iREBEL)

- Naturalist, award-winning wildlife photographer, working for wildlife conservation- related issues for the past 13 years

Ganesh Chowdhury (iREBEL)

- Naturalist, student, working for various conservation issues for the last 6 years - excellent in spotting and ethology

Sanjay Ghosh (iREBEL)

- Teacher, social worker, excellent in field and camp management

Mrinmoy Ghosh (iREBEL)

- Zoologist, social worker, teacher, working for various conservation issues for more than 6 years

Devjit Sil (iREBEL)

- Computer specialist, teacher, accountant, journalist. He is working as a naturalist in sunderban tiger reserve for last 5years.

Ashoke Hazra (iREBEL)

- Has worked with iREBEL for eight years as a manager of habitat regeneration programme. Excellent wildlife spotter/informer. Specialist in river ecosystem-related issues.

Soumen Roy (iREBEL)

- Social worker, nature lover, coordinates health-related issues.

Biplab Adhikari (iREBEL)

- Naturalist, social worker, coordinates for wildlife rescues and man-animal conflict related issues. Conducts mass awareness campaigns on reptiles.