The following information is copy-typed from the original document provided by the Indian Government for Chilka Lake.

CHILKA LAKE

1. LOCATION:

a. Area: Chilka is the largest brackish water lake in India. It has a water spread of 1165 sq. km during monsoon and 906 sq. km during the summer.

b. Geographical position:

Location:	East coast of India in Orissa State. The greater part of the lake comes under Puri District while some portion extends into Ganjam District.
Latitude:	19°30 to 19°54'North
Longitude:	85°06 to 85°35'East
Boundaries:	North-east: cultivated plains of Daya and Bhargavi valleys. North-west and west: forests of Eastern Ghata in Puri and Ganjam Districts. South and South-east: the Bay of Bengal
Physiography:	Water spread is longish north-east - south-west over a stretch of approximately 70 km, widest in its north-east side, about 30 km. It has gradual pear-shaped taper to the south-west, narrow 3 to 5 km.

c. Climate: Moderate. it is neither very hot in summer nor very cold in winter. The average temperature ranges between 53°F and 95°F. The average rainfall is 888 mm.

d. Hydrological regime: The lake has an opening with the sea on the north-east. It is fed by two rivers on the north, Daya and Bhargavi, both branches of the Mahanadi. The two rivers along with eight smaller rivulets like Kusumi, Salia, Khalajhare etc. discharge approximately 375,000 cusecs of fresh water carrying about 13 million metric tonnes of silt annually to the lake. Silt deposit has made the lake more shallow over the years. The bottom is characterised by loose mud and silt. The depth is uneven, the northern broader part being the shallowest and the narrower southern point being comparatively deeper. The summer depth in the range of 0.94 - 2.63 meters, and the depth in the flood season is 1.78 - 3.70 meters. The natural outer channel of sandy substratum connects it with the sea after running zigzag/parallel to the sea coast for about 35 km.

The lake can be divided into 4 sectors broadly on hydro-biological factors. They are:

1. Northern sector: this sector is much wider than other parts of the lake with an average width of about 15 km. There is a maximum on flush of fresh water through the rivers Daya and Bhargavi. The average depth varies from 0.5 m to 1 m.
2. Central sector: deeper than the northern sector, with an average depth of 1.5 to 2 meters in summer and the deepest area being near Kalijai Island where the average depth in summer is about 3 meters (the natural bottom is muddy).
3. Southern sector: very narrow expanse with a width of about 3-5 meters in summer. The average depth during dry spell is about 1 meter.
4. Outer channel: the channel starts from Mager-Mukh, a place near Satpara and ends at Arkhakuda village with the sea. The entire channel is zig-zag and deep with sandy substratum, the average depth during summer being 4-5 meters.

The salinity of the lake shows extreme annual cyclic charges in the range of 0.13 - 36.02 ppt. The northern and central sectors become almost fresh during the monsoon due to the voluminous flush of fresh water. Salinity starts rising from November-December and reaches its highest values in April-June. The southern sector shows comparatively less fluctuations in salinity where the difference between maximum and minimum is about 9,5 parts per thousand. This zone is found to be the least affected by floods.

The salinity of the lake is influenced by the fresh water discharge during flood season and by sea water influx in summer. This phenomenon influences a great deal of fluctuation in the physico-chemical features of the lake which in turn governs the recruitment and production of fauna and flora of the lake.

The properties of the lake waters are subject to seasonal changes from place to place. The pH range has been found to be 6.8 to 9.7, water temperature is 17.5 to 32.5°C, dissolved oxygen content is 2.6 to 25.6 ppm, total alkalinity 25.8 to 15.7 ppm and salinity fresh water to saline water: 0.13 to 36.02 ppt.

e. Fauna and Flora:

Fauna: Chilka lake occupies a unique place for its rich avifauna, both resident and migratory. Large flocks of ducks, flamingos, pelicans, teals, geese, plovers, gulls terns etc. migrate to this lake during winter to escape from adverse climatic conditions in their habitats and in search of food. More than 100 species of birds both resident and migratory are found at Chilka Lake. There is a good population of black buck and deer in the casuarina forests on the narrow long strip of land between the lake and the Bay of Bengal.
Dolphin and the rare dugong at the mouth of the lake, spotted deer and black buck along the narrow strip of land and feral cattle are the important faunal features of the lake.
158 species of fish and prawn are known to occur in the lake of which 15 are marine, 24 fresh water and 119 brackish water species. The following species of fish mainly contribute to commercial fisheries in the lake:

1. *Mugil cephalus* (Khainga and Kabala)
2. *Liza macrolepis* (Dangla)
3. *Elautheronema iotrodecydum* (Sahala)
4. *Hilsa ilisha* (Illishi)
5. *Mamatolosa anssues* (Bolangi)
6. *Mystus gulio* (Kantia)
7. *Pesudoscisena coiber* (Borogo)
8. *Iates celearifer* (Bakti)
9. *Carres cetifer* (Jagiri)
10. *Sparus* sp. (Khuranti)
11. *Etroplus suretensis* (Kundala)
12. *Penaeus indicus* (Kantala chingudi)
13. *Penaeus monodon* (Bagda chingudi)

This lake also harbours various types of crabs of economic importance.
As regards the bottom dwelling animals foraminifera, Nematodes, Polychaetes, Copepoda, Ostracoda, Isopoda, Amphipoda, Gastropods and Lamelli branches among zoobenthos and algae and diatoms among phytobenthos, form the components of bottom biota with some variation from place to place.

Flora: The floral composition in the lake is interesting. The weeds that generally grow in the lake finally disappear during the monsoon due to sudden inflush of fresh water, since the weeds are of brackish water in nature. The common weeds that are available in the lake from December to June (High saline range) are Halophyta ovata, Potamogeton, Enteromorpha, Gracillaria (confined to rocky area), Polysiphoria, Spirogyra, Cladocera (green algae) etc. The common weeds that are available during July to November (fresh water range) are Nias, Hydrilla, Nitella, Chara, Potamogeton etc. The occurrence of plankton in natural waters has a definite and direct bearing upon the occurrence of fish life. The Chilka Lake has a good number of plankton varieties, the abundance of which fluctuates from season to season. The casuarina plantation forest exists in the narrow strip of land between Chilka Lake and the Bay of Bengal and at some of the islands inside the lake.

2. LEGAL PROTECTION

Chilka Lake has been declared as a Sanctuary under the Orissa Forest (Shooting) Rules, 1972, by the Government of Orissa, order no. 10F(W)11/73-16044/ffah, dated 15 October 1979. Notification of Chilka Sanctuary under the provisions of the Wildlife (Protection) Act, 1972 is under the active consideration of the State Government.

3. OWNERSHIP OF PROPERTY

Except the private land on the islands of Chilka Lake, the Government of Orissa is the owner of the entire Chilka Lake including the islands in the lake.

4. INTERNATIONAL IMPORTANCE

Chilka is the largest brackish water lake of the country. The aquatic habitat system and its peripheral transition habitat system of Chilka Lake spread out equally as dynamic inches for various kinds of waterfowl and waterbirds both resident and migratory. The vast water spread, the many scattered

hillocks rising from the water surface, the numerous islands, the imposing crescent of the eastern ghat and the far spread of the Bay of Bengal to the east are the enchanting natural gifts of Chilka. Chilka is and entity, a phenomenon all by itself, physiographic, biotic and bioaesthetic with no parallel in this country. Chilka is famous as a bird watcher's paradise.
It is also the dynamic habitat of aquatic animals of which marine fish, shrimps and crab form vital and economic renewable natural resources of the State of Orissa.

5. SCIENTIFIC RESEARCH

Chilka and its peripheral transition habitat system provides ample opportunities for scientific research and study in an avian aquatic life. This is a favoured place for ornithologists to carry out research and study on migratory birds. Avi Fauna Project, of the Bombay Natural History Society conducted bird ringing on an experimental basis in and around Nabalan Island in Chilka Lake during February and March 1981. Spoon-billed sandpiper, a rare bird, was recorded two or three times at the Indian sub-continent, was ringed. This programme is expected to also continue next year.
Research on salinity, temperature, turbidity of Chilka water and analysis of fish catches is being conducted by the Fishery Department of the State Government.
The ecology of Chilka Lake and its peripheral transition habitat system needs thorough study.

6. PERSONNEL

Chilka Lake lies in two Forest Divisions, namely Puri Forest Division and Ghumusur South Division. The territorial staff of these two forest Divisions are taking protective measures against illegal shooting of birds in addition to their normal forest duties. The present territorial forest staff in and around Chilka Lake are two Forest Rangers, five Foresters and eighteen Forest Guards. But as the territorial staff are engaged in varied forestry works, they are unable to pay adequate attention for rigid protection of bird life. There is no special staff for Chilka Sanctuary as such.

7. Lists of birds, mammals and reptiles are included in Annex A, B and C.