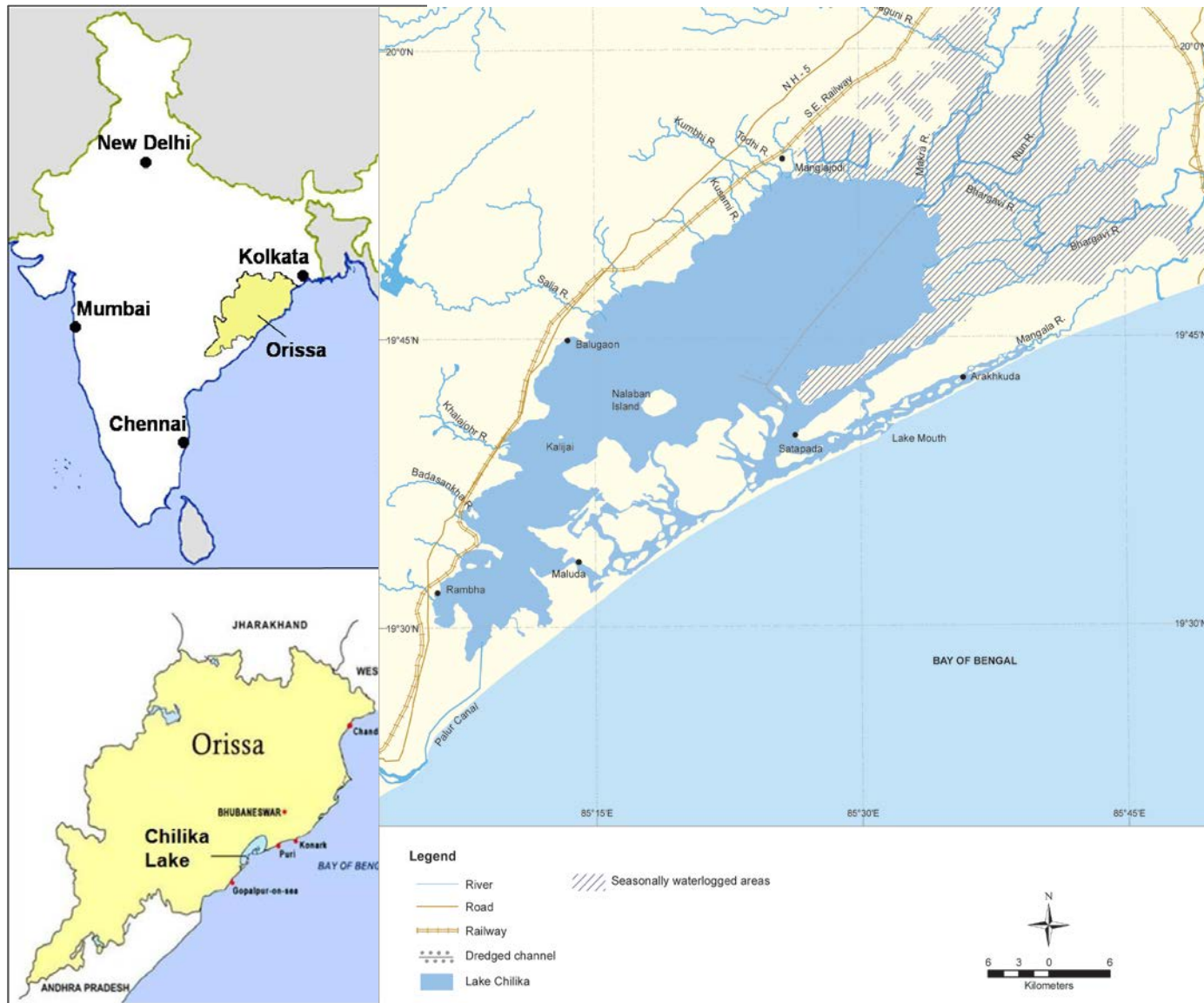


A line of traditional wooden boats with thatched roofs on a body of water. The boats are dark brown and have a simple, functional design. The roofs are made of layered wooden planks or thatch, supported by vertical poles. Several people are visible on the boats, some standing and some sitting. The water is a calm, greyish-blue, and the sky is a pale, overcast blue.

# Connecting wetland conservation and livelihoods: the case of Lake Chilika

**Dr. Ritesh Kumar, Wetlands International South Asia**  
**Ward Hagemeyer, Wetlands International**

# Chilika

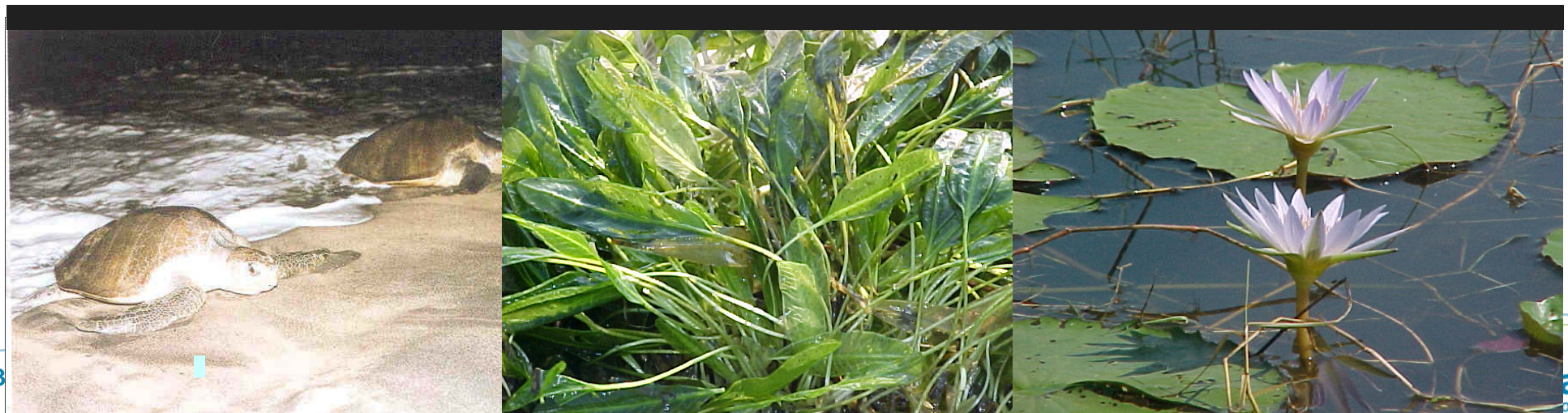


# Chilika



Hotspot of biodiversity

*211 bird species; largest Irrawaddy Dolphin population; 217 fish species*



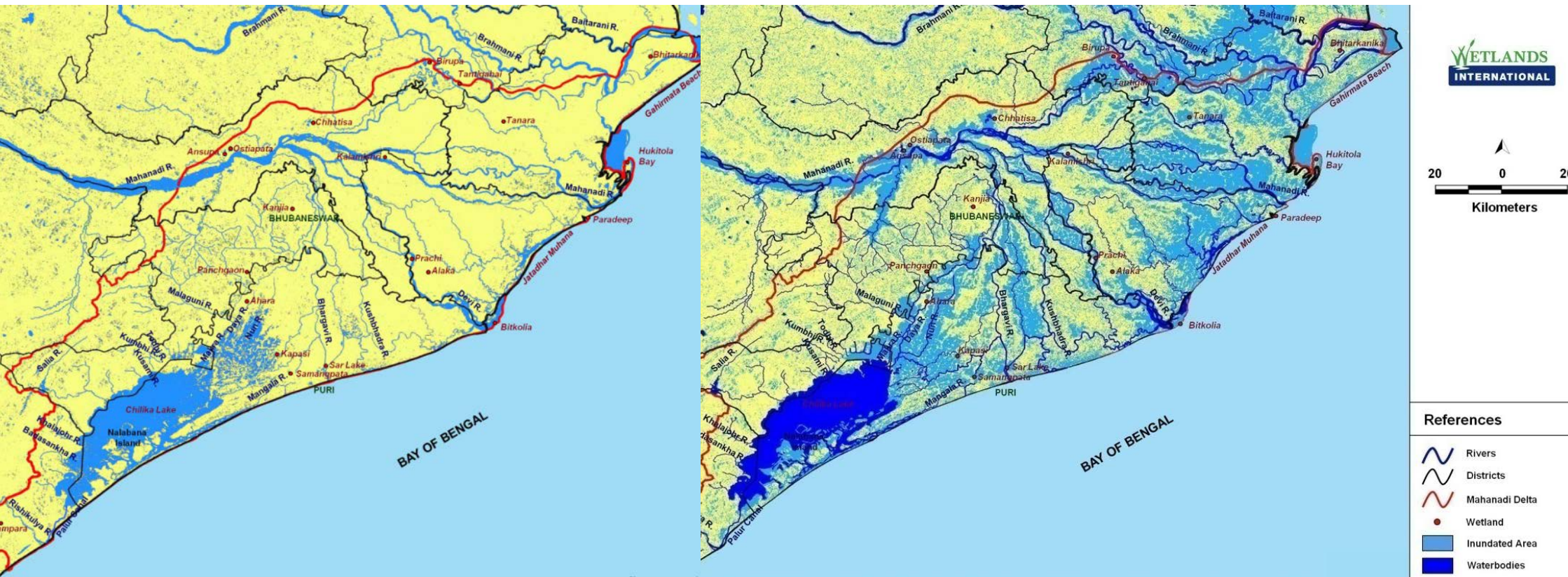
# Chilika



Livelihood base of 200,000 fishers and 400,000 farmers

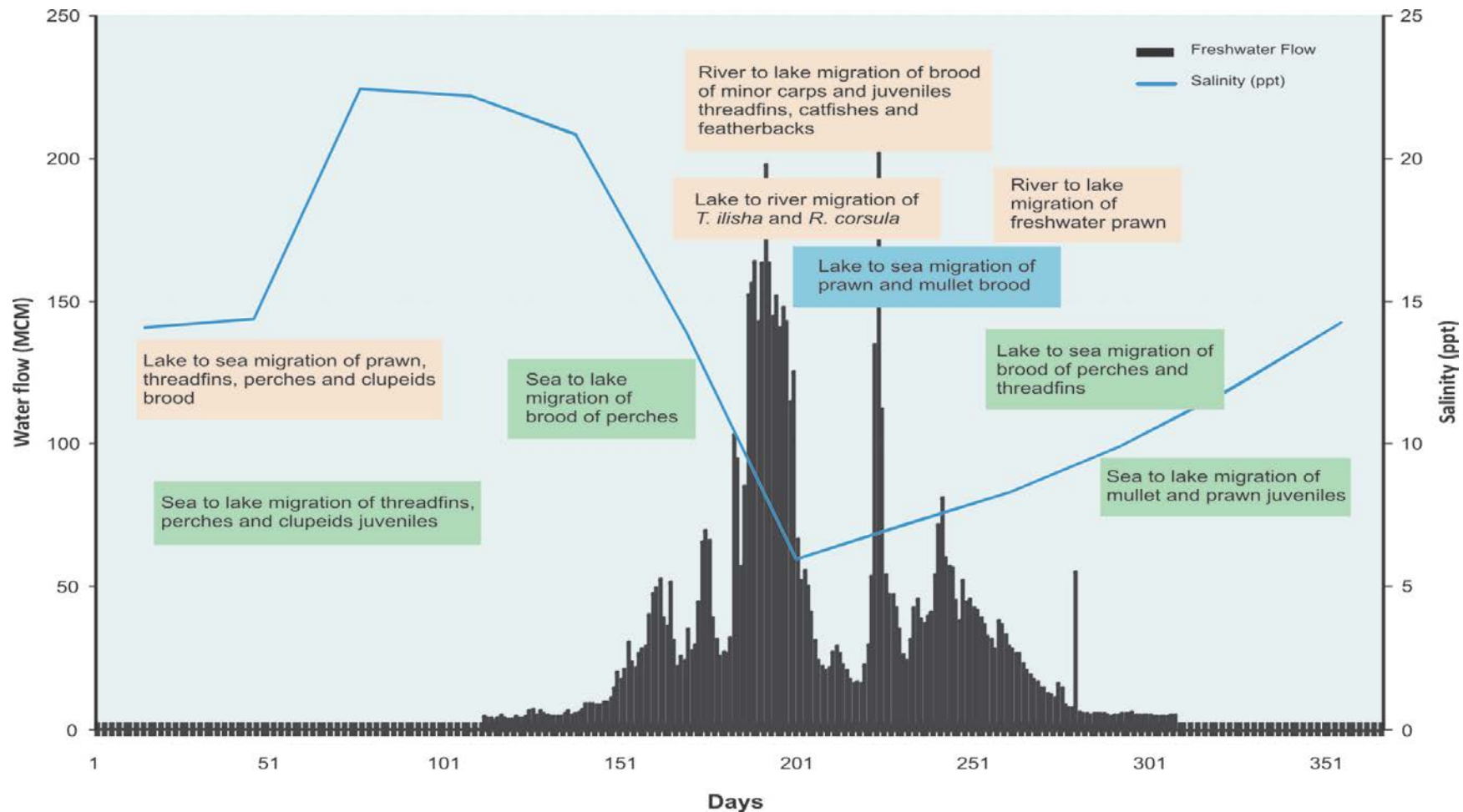


# Chilika : Riverine and Coastal Processes



Dynamics of water, sediment, nutrient and species exchange defines biodiversity and ecosystem services of wetland

# Chilika : Riverine and Coastal Processes



314 fish species (64 true freshwater, 94 marine and 156 brackish water species); 29 species of prawn; 35 species of crab

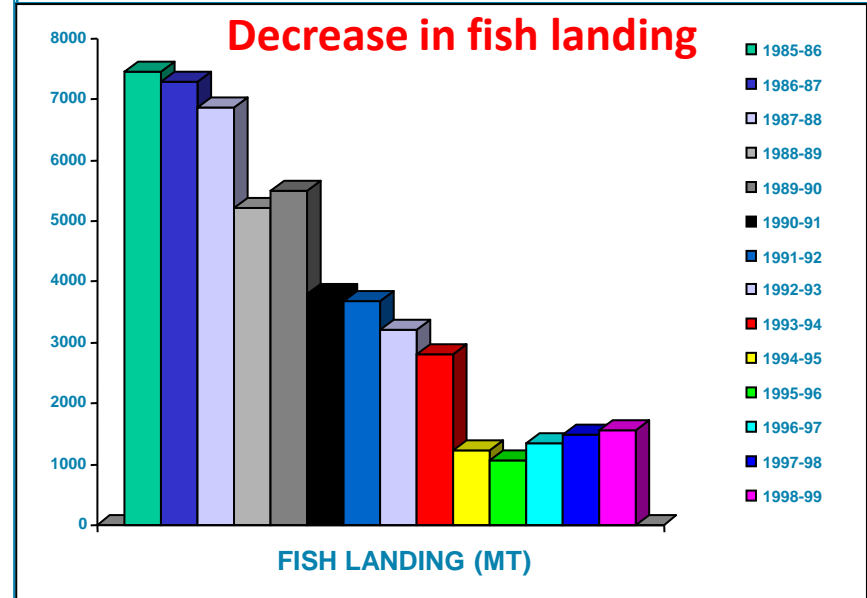
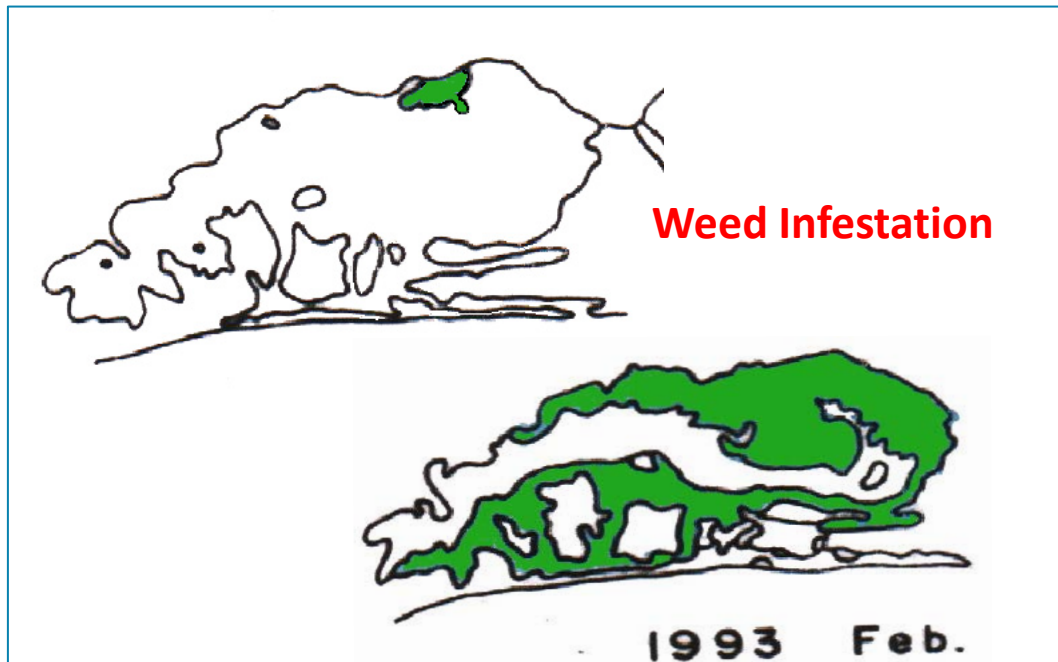
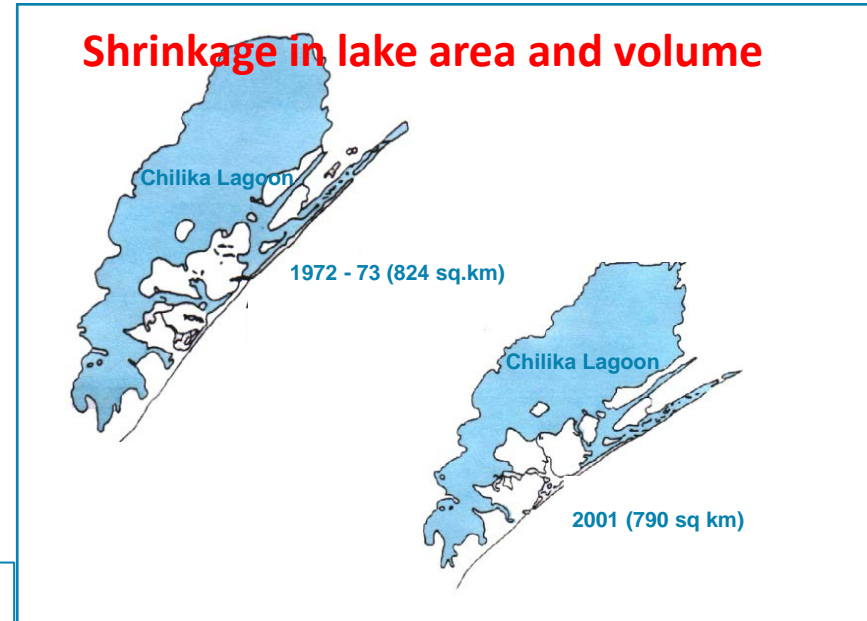
62 species contribute to the commercial landing

# Lake degradation

Choking of mouth to the sea

Dominance of freshwater environment

Included in Montreaux Record in 1993



# Creating Strategic Partnerships

## Research Institutions

NIO, Goa  
CWPRS, Pune  
IIT, Madras  
CIFRI, Kolkata  
NRSA, Hyderabad  
BNHS, Bombay  
ZSI  
BSI  
Utkal University  
Berhampur University  
CDS, Bhubaneswar  
KIIT, Bhubaneswar  
NISER, Bhubaneswar

## International and National Organizations

Wetlands International  
Ramsar Centre, Japan  
JICA, Japan  
JFGE, Japan  
DHI, Denmark  
Ministry of Environment and Forests, India  
Space Application Centre, India  
ICMAMPD, Chennai  
ICZMPD, Bhubaneswar

## Chilika Development Authority

## Community Based and Non Governmental Organizations

Bird Protection Committee  
CCCL, Chilika  
Centre for Environment Education  
Primary Fishermen Cooperative Societies  
Watershed Communities  
Wildlife Orissa  
Women Self Help Groups

## State Government Departments and Agencies

Department of Agriculture  
Department of Fisheries and Animal Resources Development  
Department of Revenue and Disaster Management  
Department of Water Resources  
Orissa Remote Sensing Application Centre

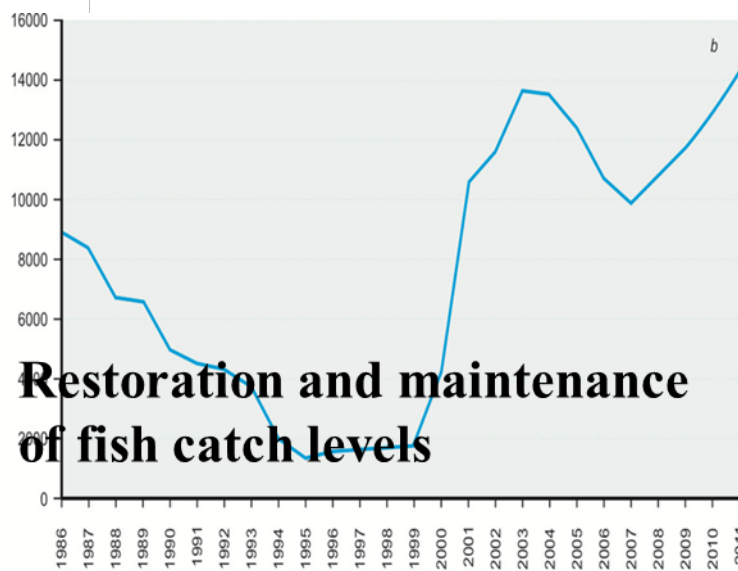
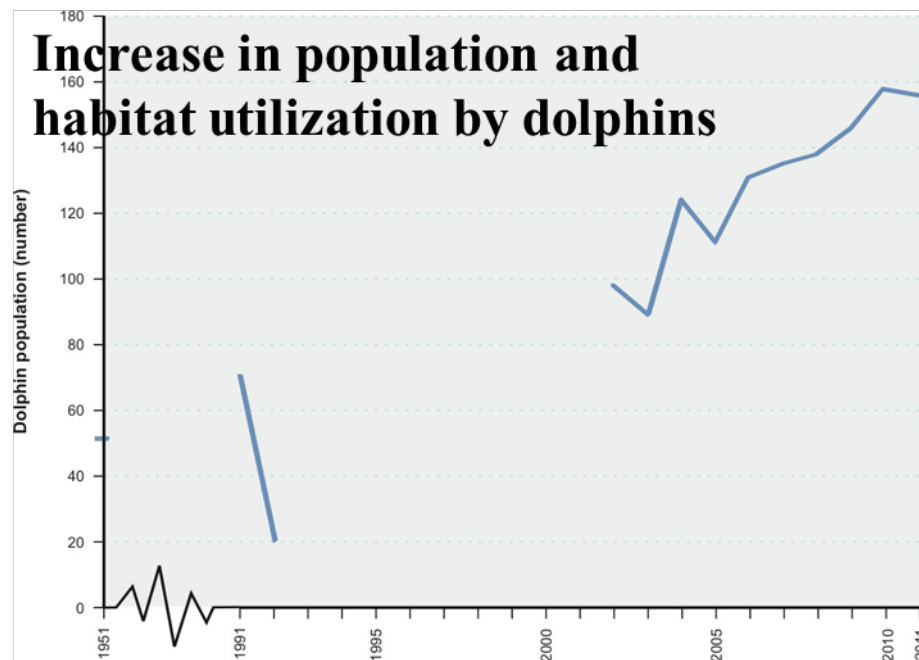
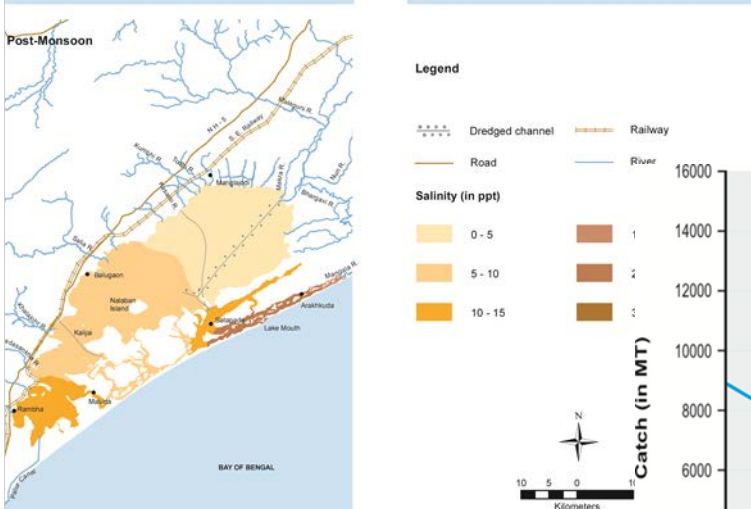
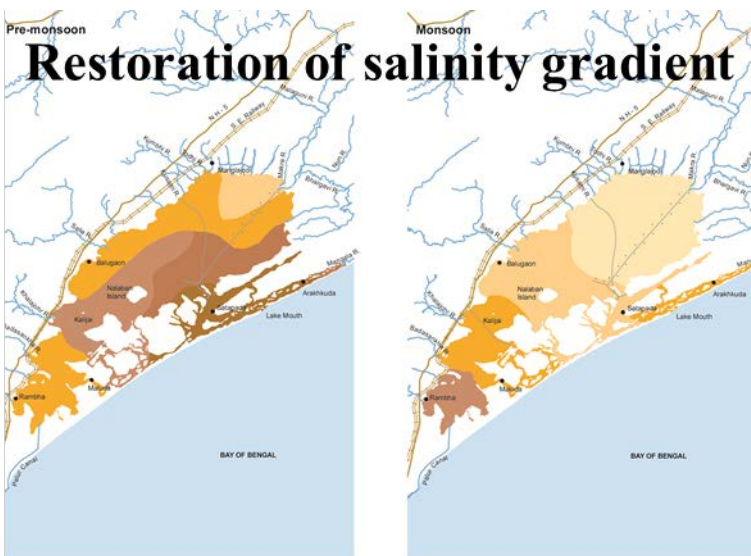


# Hydrological Intervention - 2000

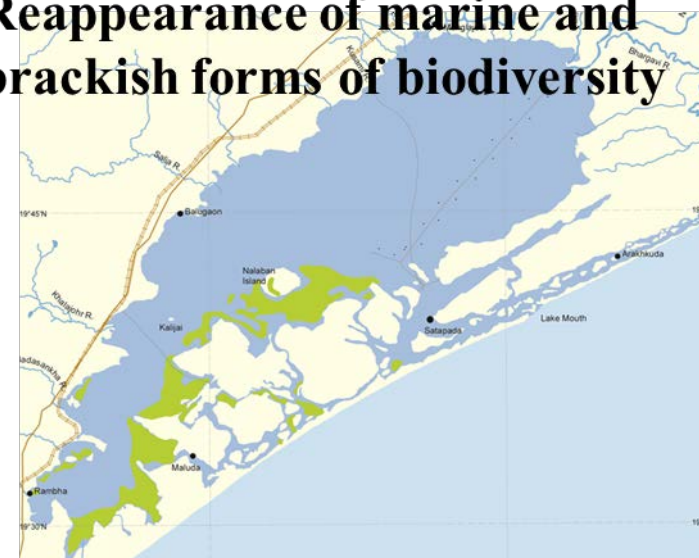


Rejuvenating  
sea  
connectivity

# Reviving ecology



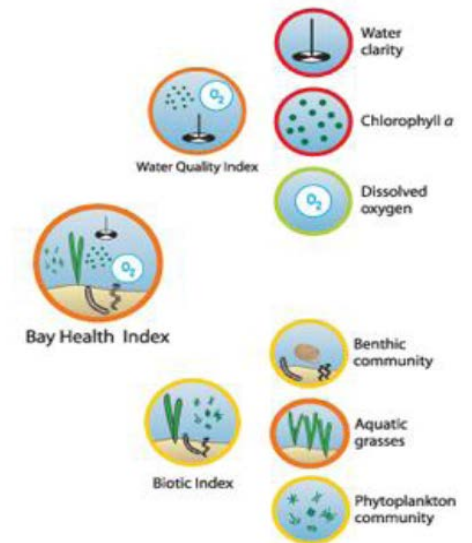
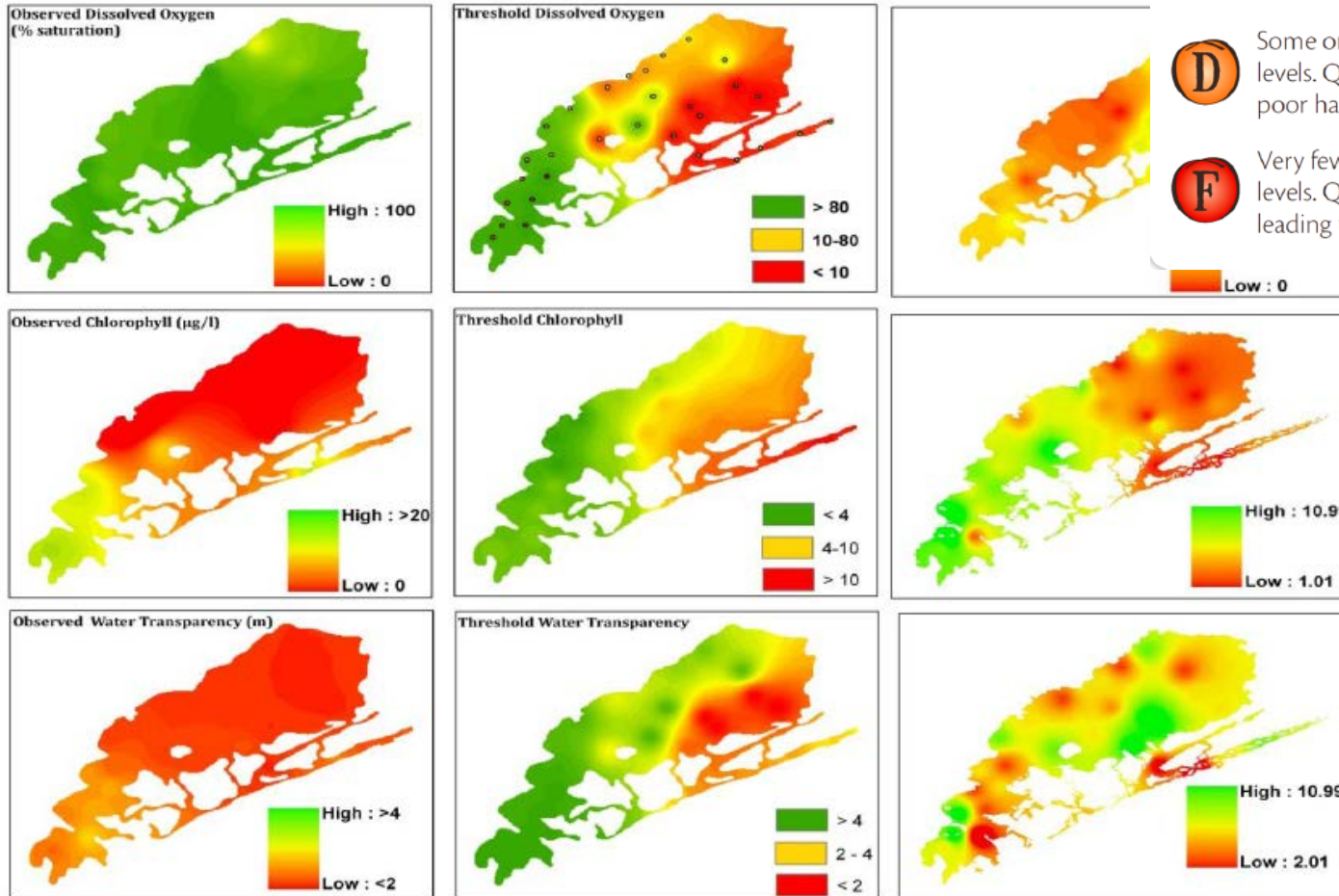
## Reappearance of marine and brackish forms of biodiversity



# Communicating Chilika

## What do the grades mean?

- A** All water quality and biological health indicators meet desired levels. Quality of water in these locations tends to be very good, most often leading to very good habitat conditions for fish and shellfish.
- B** Most water quality and biological health indicators meet desired levels. Quality of water in these locations tends to be good, often leading to good habitat conditions for fish and shellfish.
- C** There is a mix of good and poor levels of water quality and biological health indicators. Quality of water in these locations tends to be fair, leading to fair habitat conditions for fish and shellfish.
- D** Some or few water quality and biological health indicators meet desired levels. Quality of water in these locations tends to be poor, often leading to poor habitat conditions for fish and shellfish.
- F** Very few or no water quality and biological health indicators meet desired levels. Quality of water in these locations tends to be very poor, most often leading to very poor habitat conditions for fish and shellfish.



# Flow perceptions



Structural  
Engineers

Reduced flows ->  
Reduced silt ->  
Longevity of wetland  
systems



Fishers

Floods - > Flush the  
system and keep  
mouth open -> high  
fish productivity



Farmers

Floods - > bring silt -  
> high agricultural  
productivity  
Embankments  
create waterlogging

Knowledge Systems

Scientific measurements



Anecdotal

# Economic arguments to safeguard flows for a living delta

- Incremental cost benefit analysis indicated **annual loss of US\$ 604 million** due to proposed reduction in freshwater flows by 60%
- Maintaining present levels of freshwater flows **gives annual benefit of US\$ 10,930 million** through fisheries and agriculture

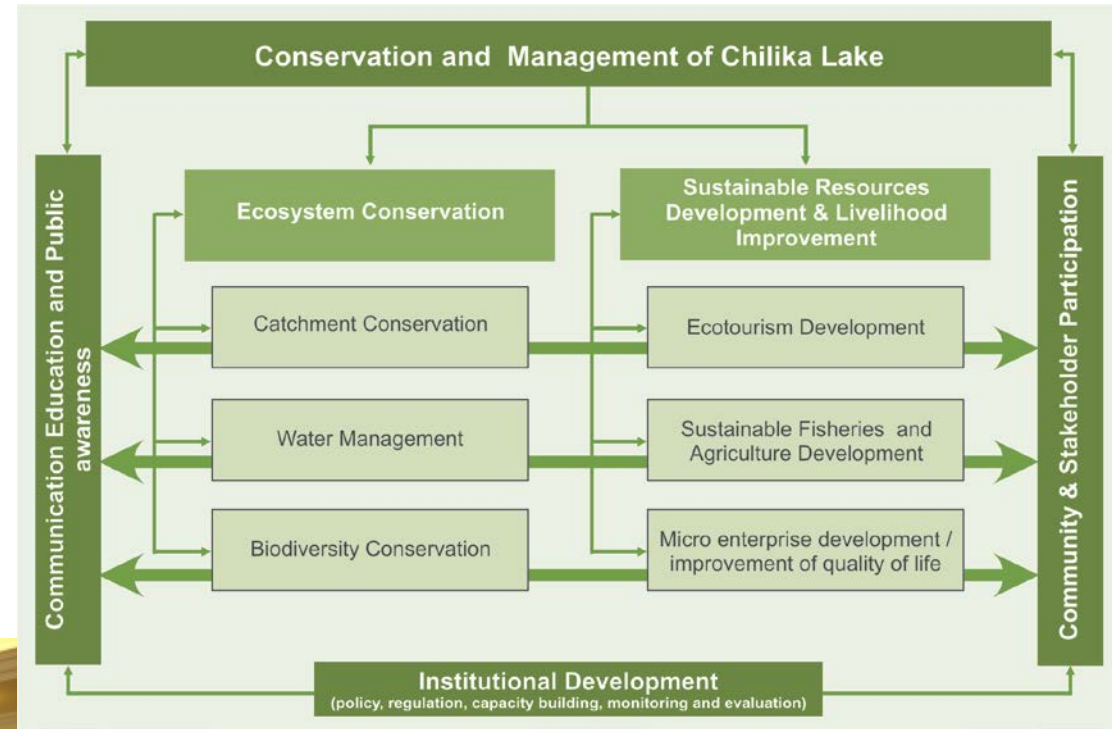
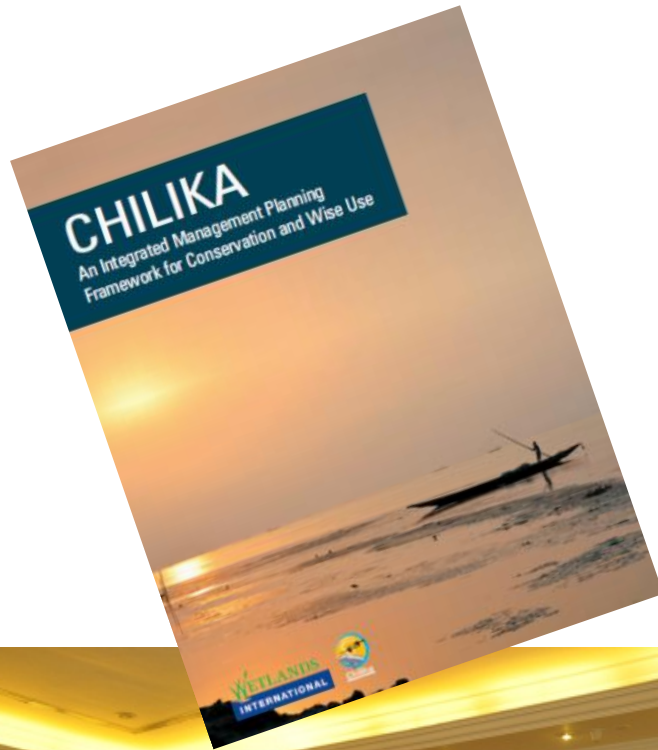


# Sharing restoration benefits



- Regulating destructive fishing through Chilika Fisheries Rules
- Building capacity of Fisher Cooperatives
- Incentives -> better storage systems for higher values
- Conservation strategies, participatory mapping of fish migratory routes
- Institutional strengthening for 'responsible fisheries'

# Integrated management planning



# In Conclusion

- Wetland management needs adaptive institutions with ability to work at multiple scales and engage with diverse stakeholders
- Managing social transformation is a vital component of ecological restoration





# Connecting wetland conservation and livelihoods: the case of Lake Chilika

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[ward.hagemeijer@wetlands.org](mailto:ward.hagemeijer@wetlands.org)



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