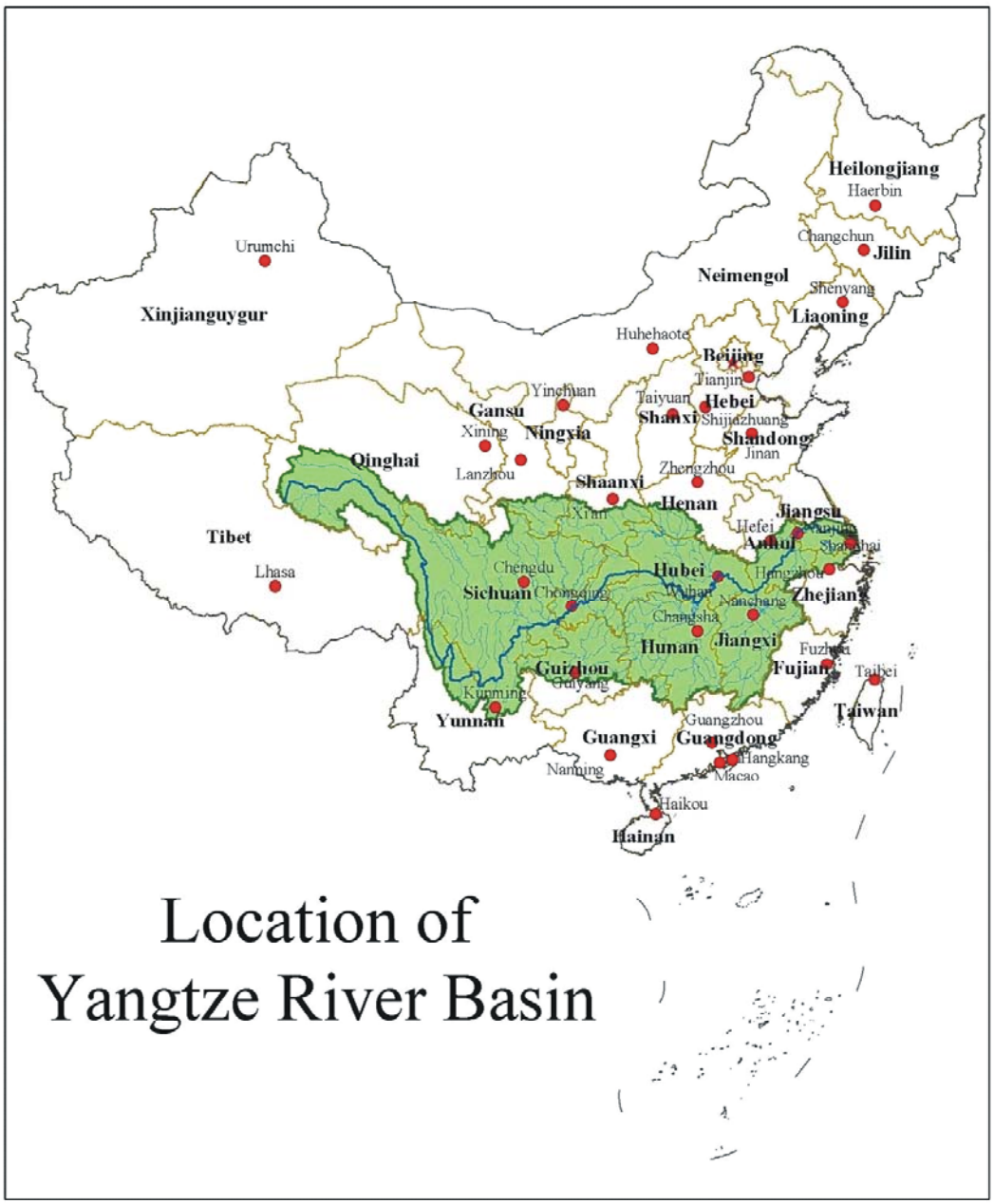
Paper No. 284

YANGTZE FLOODPLAIN RESTORATION AND BASIN MANAGEMENT – PROGRESS AND LESSONS LEARNED POST THE 1998 FLOOD

Dr. Lifeng Li

YANGTZE FLOODPLAIN RESTORATION AND BASIN MANAGEMENT – PROGRESS AND LESSONS LEARNED POST THE 1998 FLOOD

Dr. Lifeng Li
WWF International



THE YANGTZE PROFILE

- 6,300 km length, China's longest and the world's third longest river
- 1.8 million km^2 of basin area
- 35% of China's freshwater, annual run off of 996 billion m^3 (996 000 GL)
- rich biodiversity, home for 347 fish species (2/3 endemic)
- producing 40% of China's annual GDP
- 420 million people, accounting for 1/3 of China's population
- flowing through 11 provinces/municipalities/autonomous regions
- 'Golden Waterway' – navigation and shipping



Chinese River Dolphin (Baiji) (*Lipotes vexillifer*)



Yangtze Finless Porpoise (*Neophocaena phocaenoides asiaeorientalis*)

Issue 1: Vegetation Degradation

- Forest: 1950-90, forest coverage decreased from 30% to 10%
- Grassland: overgrazing, desertification

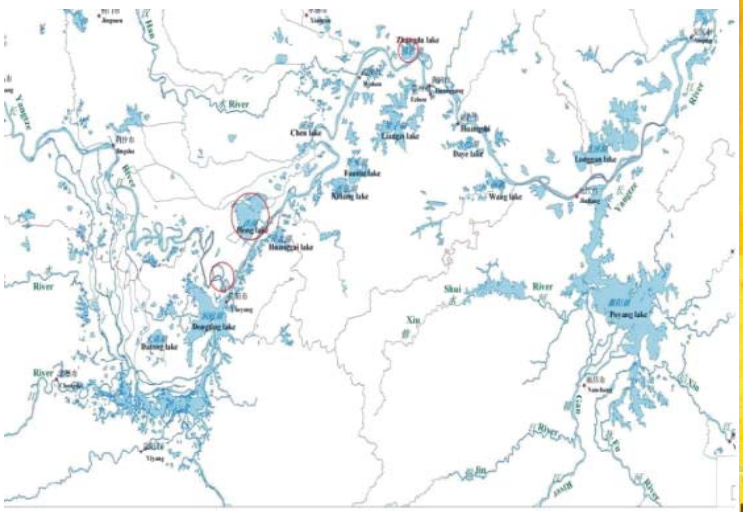


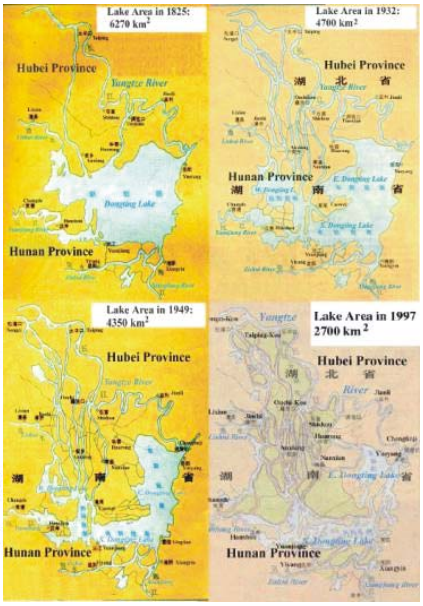
Issue 2: Shrinking Wetlands

Shrinking of lakes and wetland due to reclamation

> 100 lakes disconnected due to embankment and sluice gate construction

1/3 of lakes disappeared and more than 12,000 sq km of wetlands have been converted into farmlands; loss of flood retention capacity of 8 billion cubic meters;





Issue 3: Depletion of Fishery Resource

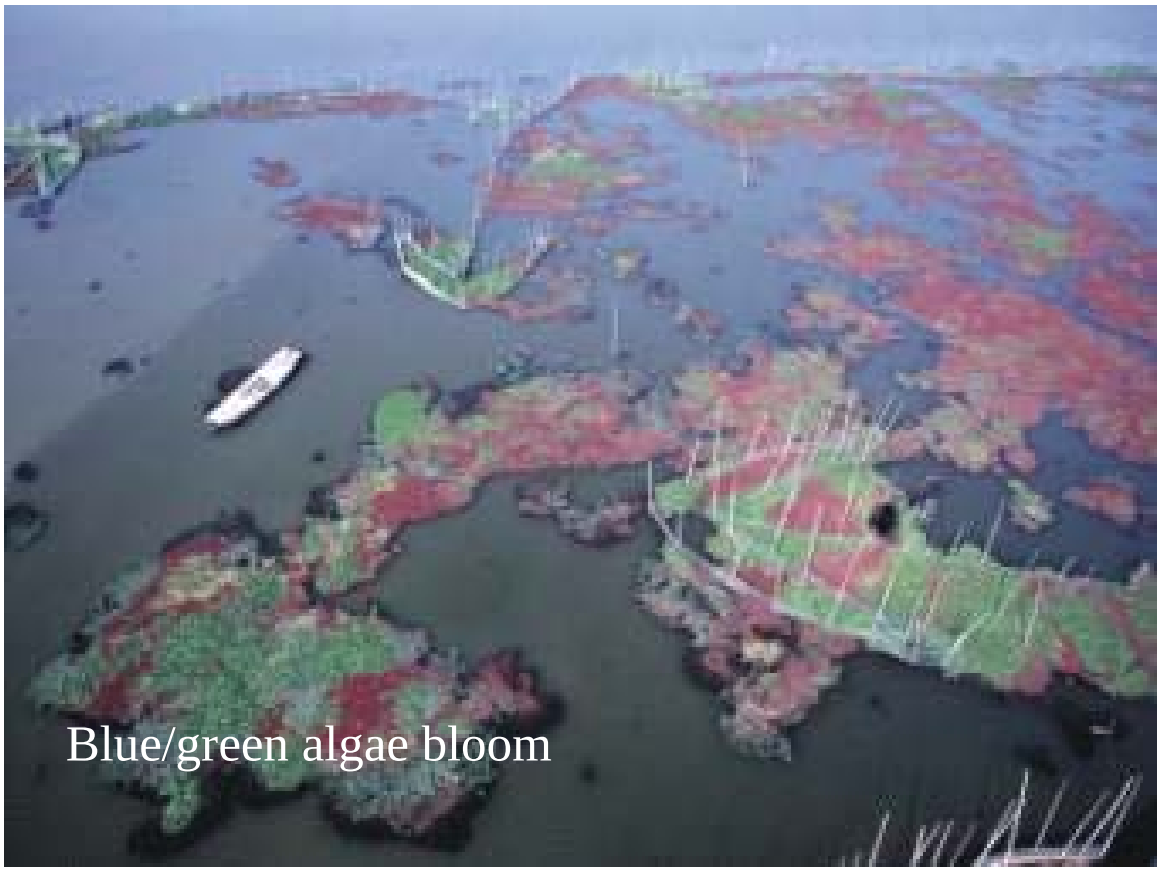


Issue 4: Disordered Hydropower Development



By 2005, 48,000 reservoirs in the Yangtze basin, with total storage capacity of 220 billion m^3 (>1/5 of total discharge 996 billion m^3); constructed and planned hydropower stations 2441.

Issue 5: Degradation of Aquatic Environment



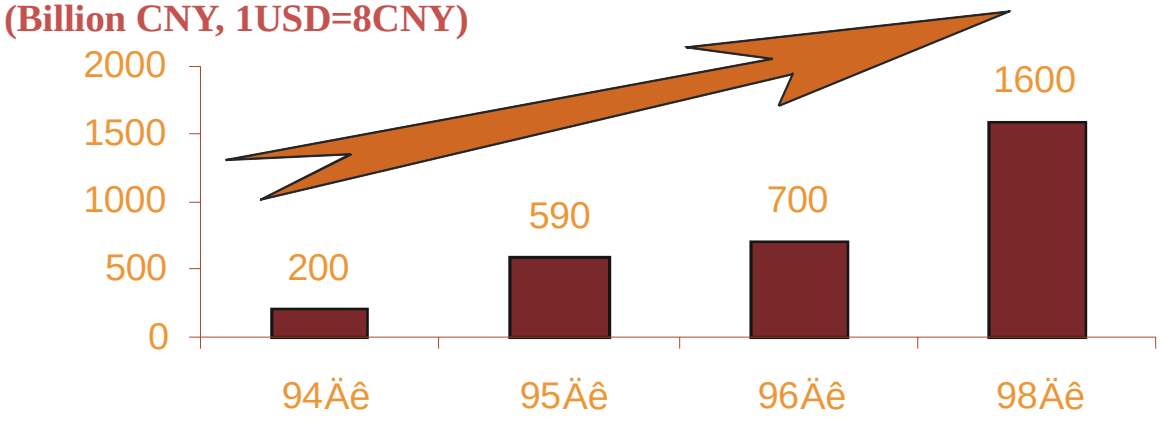
Pollutants from industrial, domestic, and agricultural sources.

Issue 6: Flood and Drought Threats



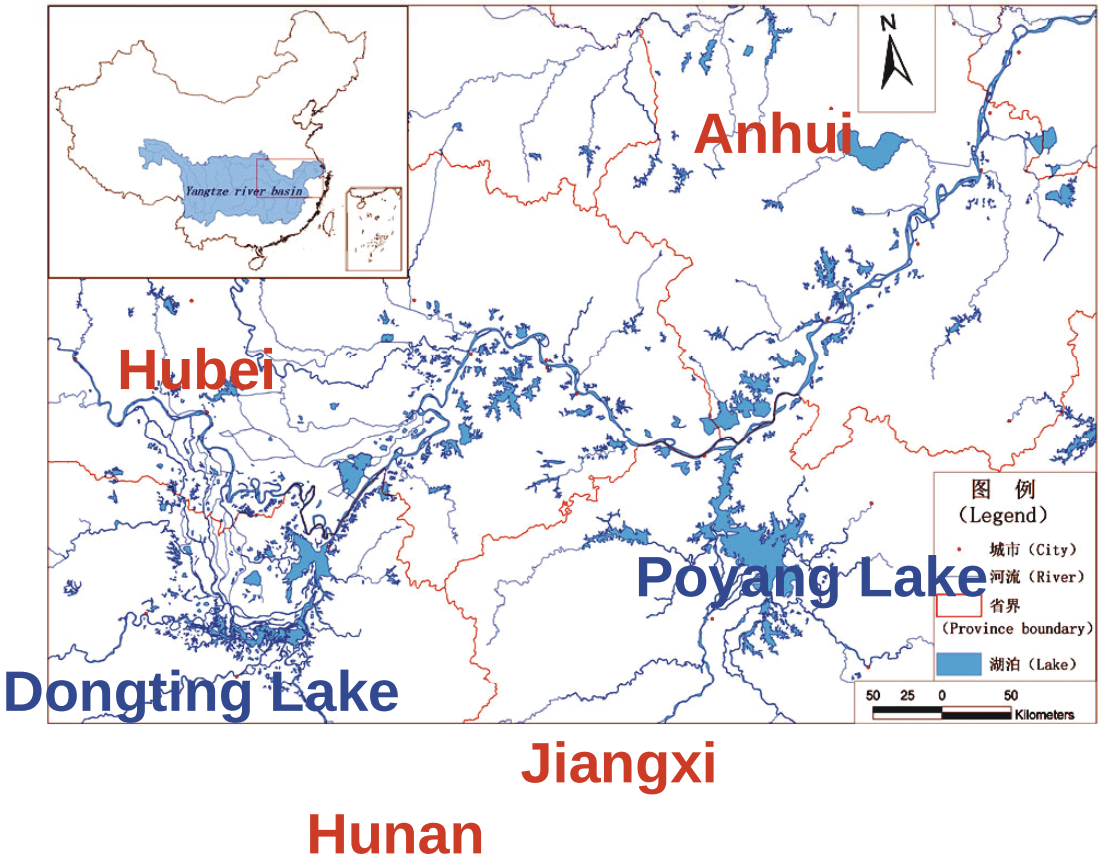
Economic Loss of Floods

1/3 flood retention capacity lost, about 8 billion m^3.





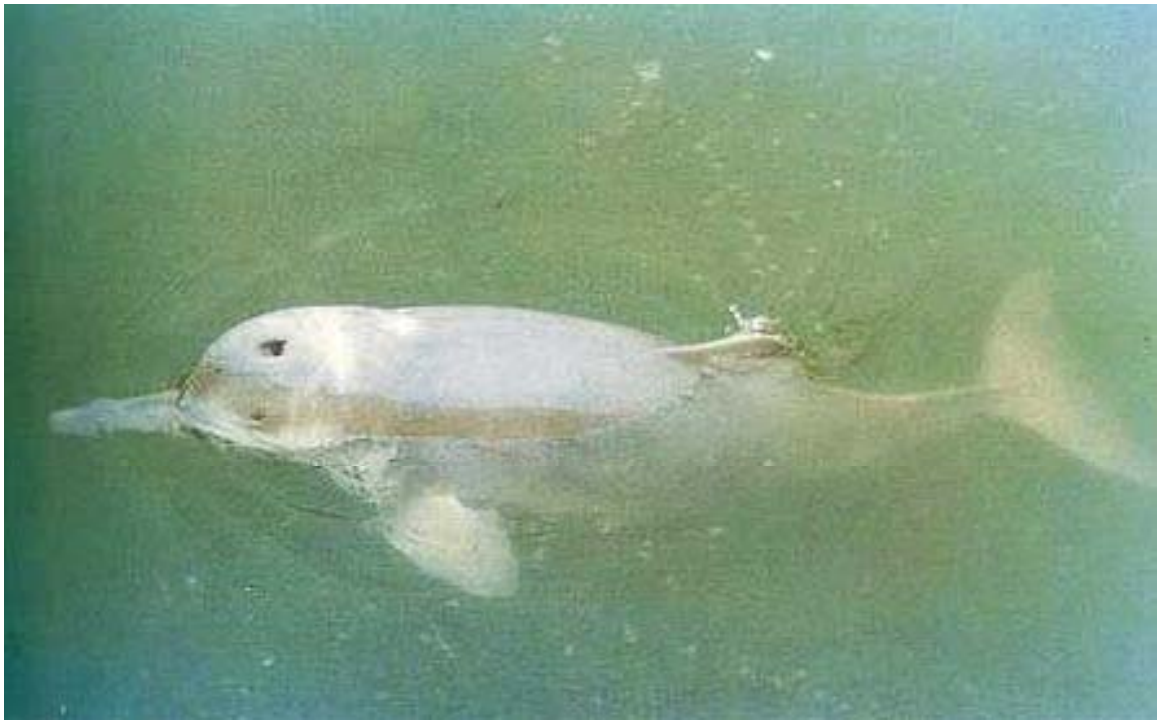
A Unique Ecoregion of Global Importance



Biodiversity Crisis

- Destroyed fish spawning, breeding, and migrating ways -> declined fishery
- Destroyed birds habitats due to stable water level







GOVERNMENT RESPONSES AND POLICY CHANGES POST 1998 FLOOD

32-Character Policy:

1. Stopping logging and fostering forest *(the Logging Ban)*
2. Converting cultivated slope land to forest and grass *(Grain for Green)*
3. Breaching the polders for floods
4. Converting cultivated land to lakes (wetland restoration)
5. Resettling the people in the flooded polders and establishing new town for them
6. Reinforcing the key dykes
7. Dredging up the river course
8. Giving people work in place of relief subsidies

WWF's Interventions

- Restore destroyed wetlands ecosystem – reduce non-climate pressures
- Reconnect river and lakes – improve connectivity between habitats
- Promote eco-agriculture, e.g. eco-fishery and eco-farming of livestock – focus on the human-use interactions with ecosystems
- Manage ecosystem effectively – develop the Central & Lower Yangtze Wetlands Conservation Network

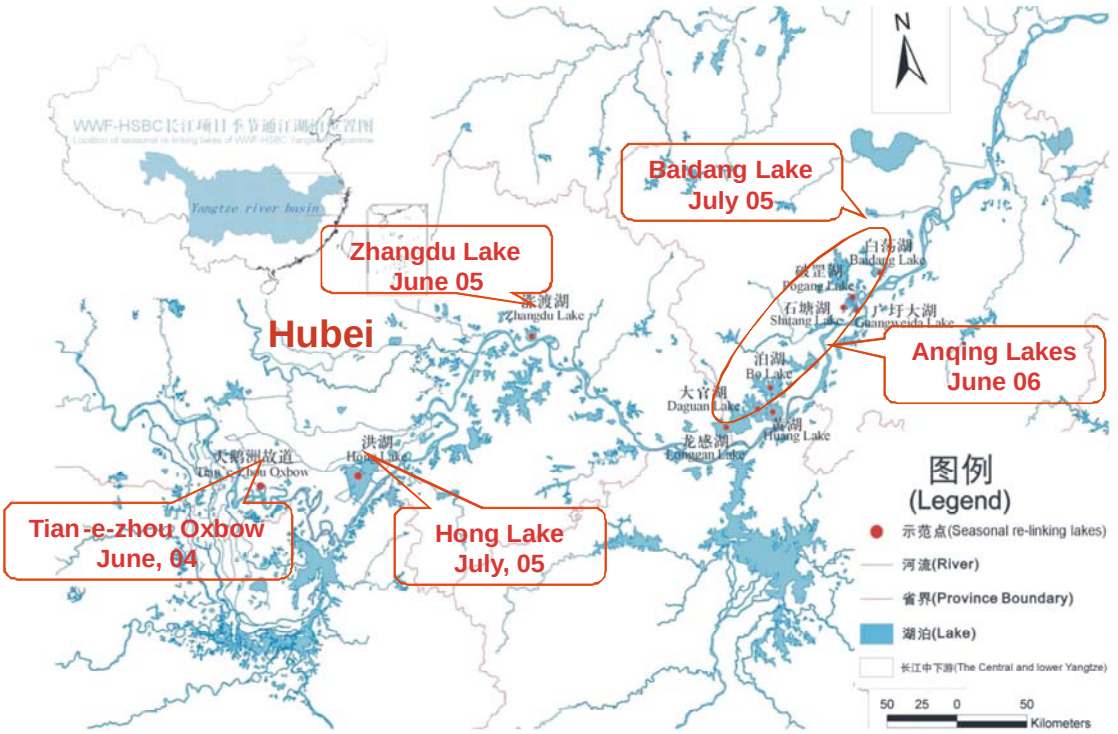
- Facilitate research to find the solutions, and engage the stakeholders to reach agreements

Outcomes: Summary

- Wetland restoration: 2900 sq km^2
- Reconnected Lakes: about 40 lakes
- Increased floodwater retention capacity: 13 billion m^3 (22 billion m^3 of water storage capacity of the Three Gorges Dam)
- Yangtze Wetlands Conservation Network: 2 m ha, 40 nature reserves



Sluice gates opened for 17 lakes, with total area of more than 1200 sq km



Lakes reconnected with the Yangtze

Central & Lower Yangtze Wetland Conservation Network



22 Nature Reserves of 6 different types as the first group of network members, covering an area of 1.2 M hm^2.

Environmental Benefits: Zhangdu Lake

- 285.6 million m^3 of water flowed into the lakes, nurturing 448km^2 wetland and improving water quality
- 14 fish species entered into the lake, of which 9 were / has disappeared from the lake. 526.7 million of fish fries flowed into the lake. 1 bird species returned to the lake due to improved habitant



Socio-economic Benefits : Zhangdu Lake

- Fish production in 2005 increased 17.33% due to improved water quality and more fish fries flowed into it.
- Recognized as an example of environmental flows by the central government.

Impacts & Magnification

- Recognized as an example of environmental flows by MWR.
- Municipal governments developed regulations on river-lake reconnection and sluice gate management.
- The river-lake reconnecting was adopted and included into the *Action Guideline of China Hydrobiological Resources Cultivation and Protection Initiative* issued by the China State Council on February 14, 2006.
- A national project to restore the City of Hundred Lakes in Wuhan under implementation.

River Basin Management

- River basin authority should be the speaker for the river, especially for the ecosystem and environment
- Harmony between people and water
- Balanced conservation and development
- Revision of the Yangtze Basin Management Plan
- Yangtze Forum – a high level platform for decision makers

Lessons Learnt

- "Soft" nature infrastructure for flood management
- Compromise/balance of socio-economic and environmental objectives
- Stakeholders participation
- Policy and government will
- Monitoring, improving, magnifying
- Conservation network across the river basin



"A healthy river is clean and free-flowing; is home for fish, where people live in harmony with water."

"River basin organizations should speak for the rivers!"

- Former Minister Prof. WANG Shucheng



Giving more space to the river (Room for River)



Transforming agricultural management of floodplains into nature management



Dike set back, combined with floodplain restoration




WWF
HSBC 汇丰
还长江生命之网
还长江生命之网
Restoring the Web of Life in the Yangtze River
长江是一条生命之河，
她的活力来自于干流、支流、
湖泊和湿地的血脉沟通、
自由流淌形成的独特生命系统
长江也是流域内所有生命形式的发源地和载体，
一条有生命活力的河流，
才能哺育出欣欣向荣、
和谐共存的生命世界
世界自然基金会长江项目呼吁，
还河流「生存空间」，推动退田还湖，
恢复通江湖泊，重建河流生命网络，
逐步恢复长江的生命活力
世界自然基金会长江项目（WWF Yangtze Programme）
www.wwfchina.org www.livingyangtze.org