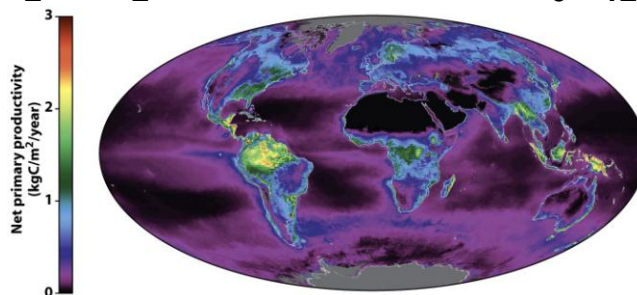
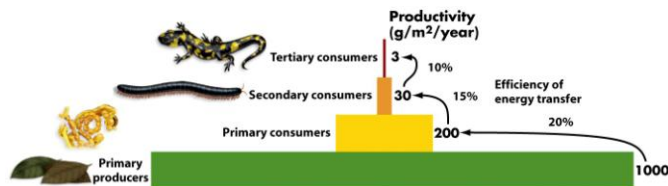


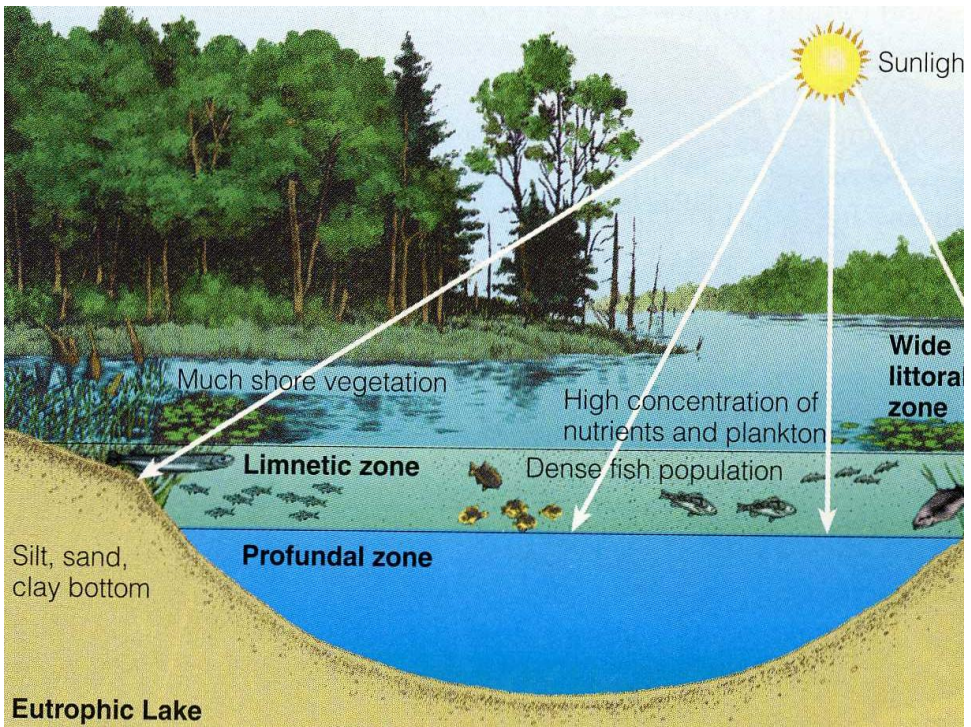
Mekong River Vegetation:

(First Principle in the)

Past, Present & Future

BIOLOGICAL PRODUCTIVITY

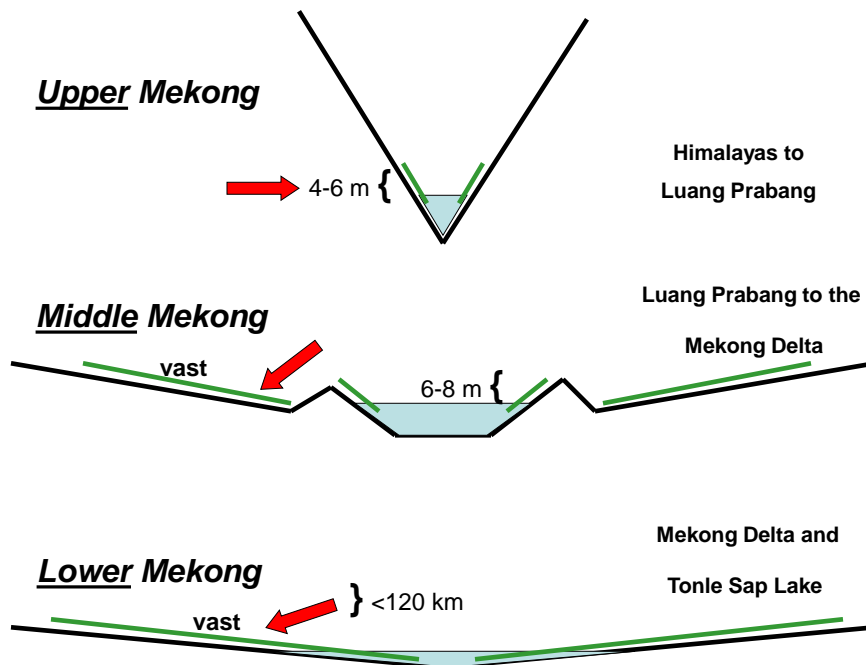
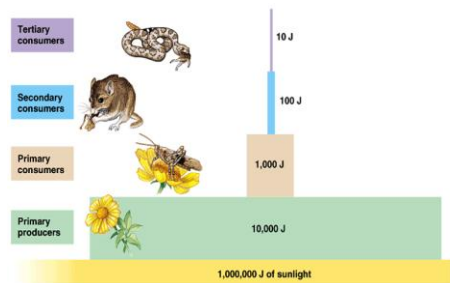


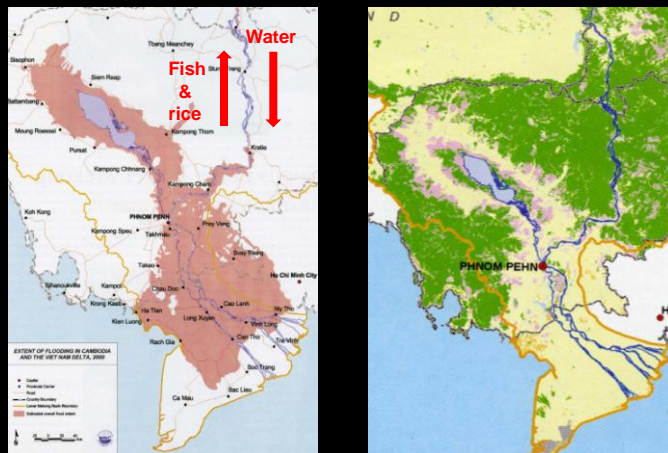


*** **Plant productivity** determines the **BIOMASS** of biotic communities

*** **Plant Diversity** determines the **BIODIVERSITY** of biotic communities

*** **Plants ARE the Environment**





Historical Distributions of Productive Floodplain and Floodplain Vegetation

ca. **80%** of historical flooded forests are now rice fields

Diversity of plant communities

Differing vulnerabilities to water flow and its timing in channels and floodplains

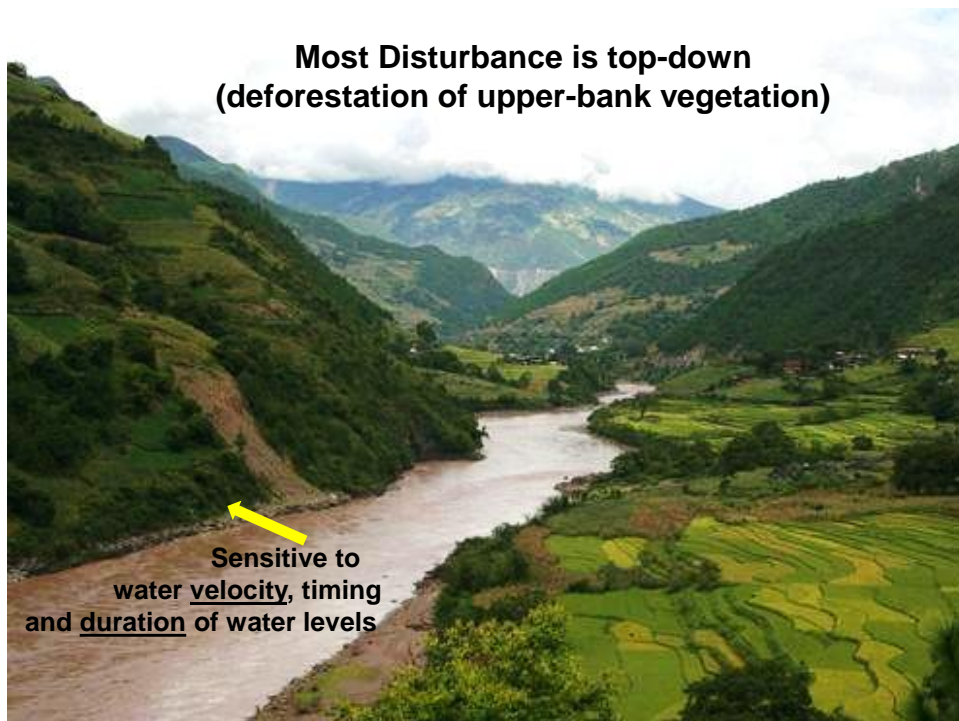
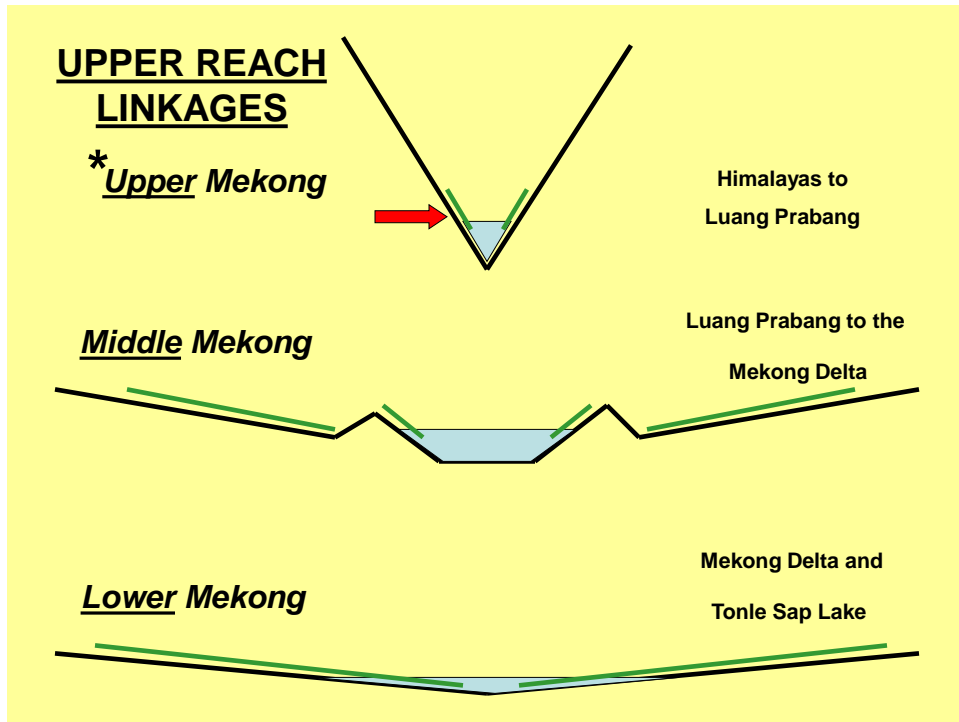
Cover and biomass are **not** entirely dependent variables

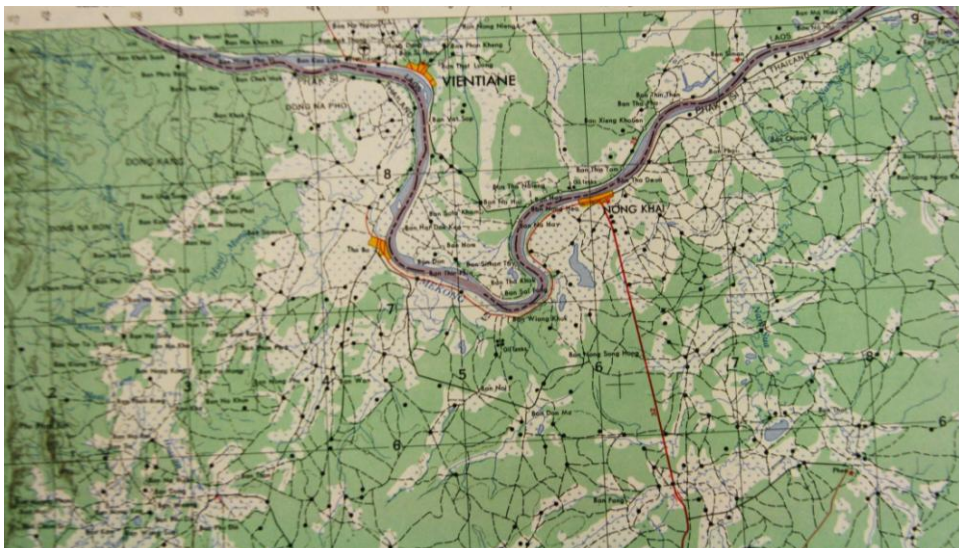
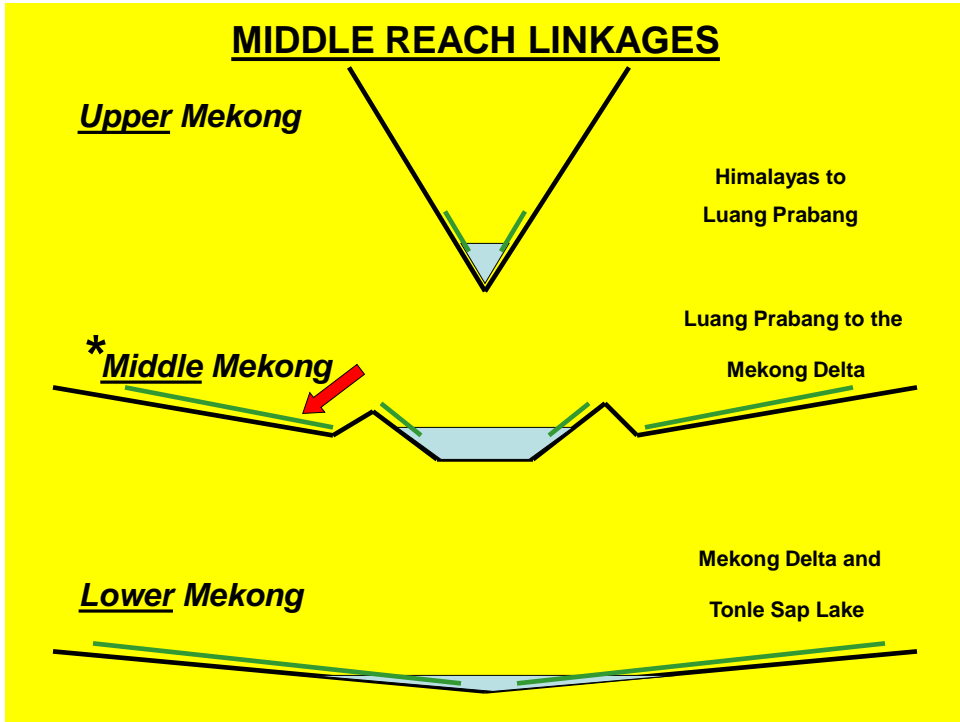
Historical changes vary between localities and different plant communities

Dams, agriculture and exotic invasives are increasingly influential

Indicators

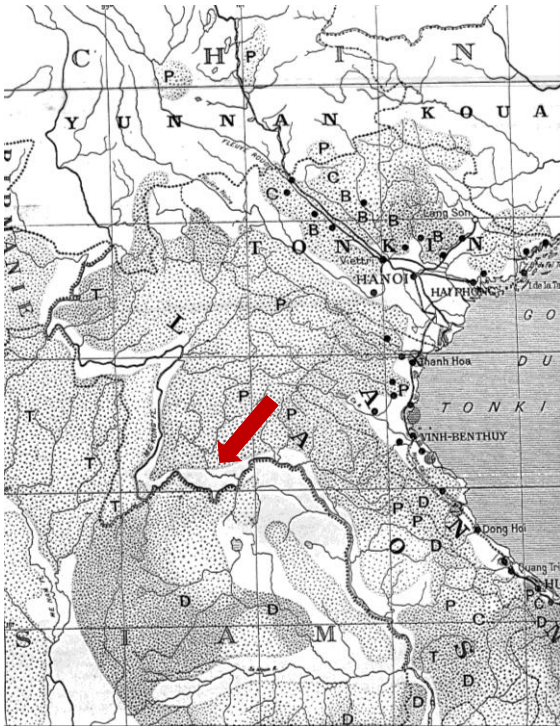
Focus Areas →	1	2	3	4	5	6	7	8
Channel: <u>Extent</u> of upper bank vegetation cover	x	x	x	x				
Channel: Extent of lower bank vegetation cover	x	x	x	x				
Channel: Extent of herbaceous marsh vegetation		x	x	x				
Channel: <u>Biomass</u> of riparian vegetation	x	x	x	x				
Channel: Biomass of algae	x	x	x	x				
Channel: Wetland <u>Community Structure</u> and Sp. Diversity	x	x	x	x				
Floodplain: Extent of flooded forest cover			x	x	x	x	x	x
Floodplain: Extent of herbaceous marsh vegetation			x	x	x	x	x	x
Floodplain: Biomass of riparian/aquatic cover			x	x	x	x	x	x
Floodplain: Biomass of cyanobacteria			x	x	x	x	x	x
Floodplain: Biomass of algae			x	x	x	x	x	x
Floodplain: Wetland Community Structure and Sp. Diversity			x	x	x	x	x	x
Floodplain: Extent of Invasive riparian plant cover			x	x	x	x	x	x
Floodplain: Extent of floating and submerged invasive plant cover					x	x	x	x





Beginning of Mid-reach Floodplains of Mekong River

Vientiane (1950-1954)

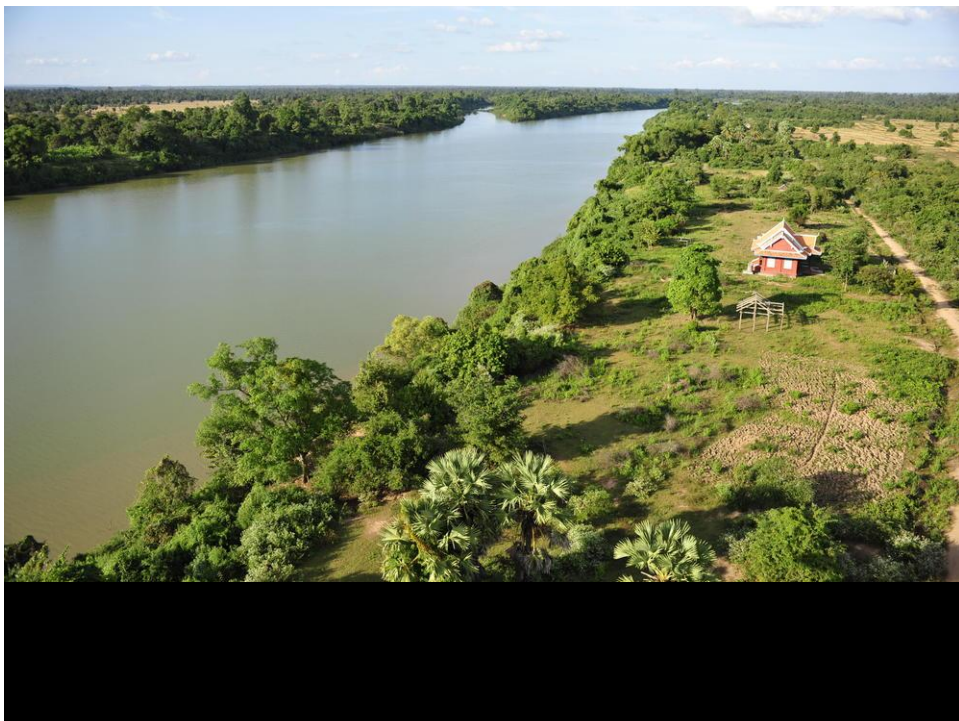


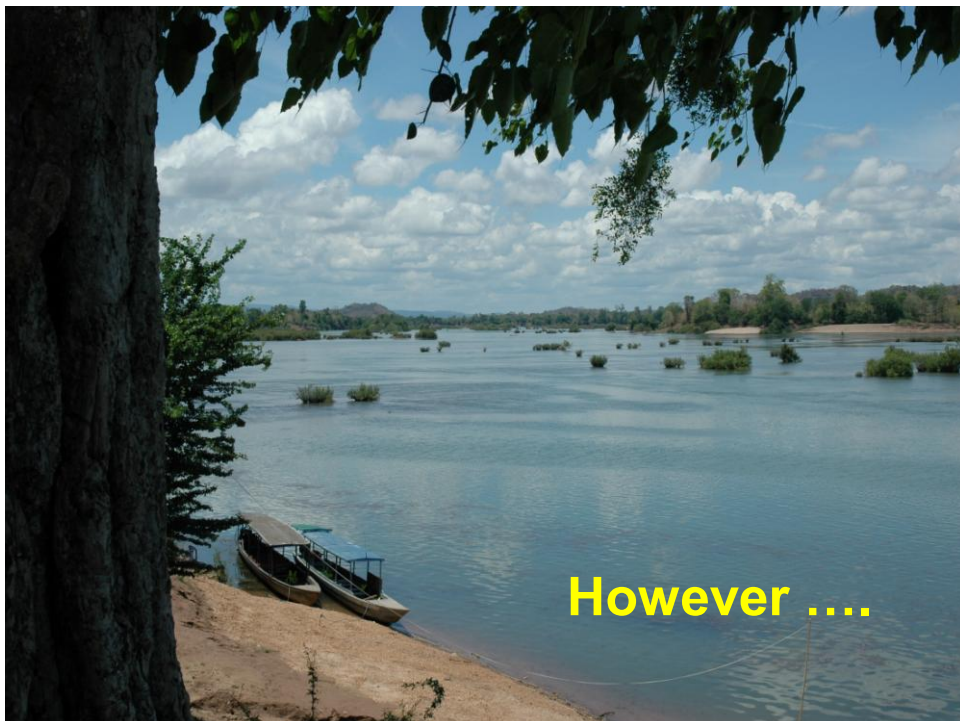
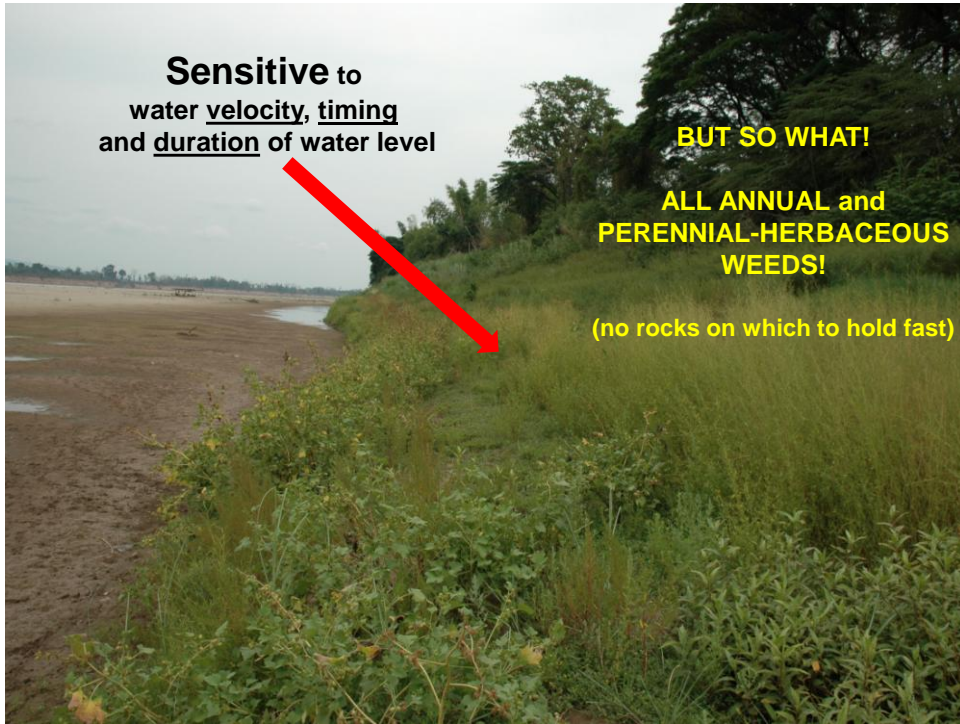
Forest Vegetation Map

In 1926

(LeCompte)

Floodplains in upper reaches of Mekong already converted to rice fields





Focus Areas →	1	2	3	4	5	6	7	8
Channel: Extent of upper bank vegetation cover	x	x	x	x				
Channel: Extent of lower bank vegetation cover	x	x	x	x				
Channel: Extent of herbaceous marsh vegetation		x	x	x				
Channel: Biomass of riparian vegetation	x	x	x	x				
Channel: Biomass of algae	x	x	x	x				
Channel: Wetland Community Structure and Sp. Diversity	x	x	x	x				
Floodplain: Extent of flooded forest cover			x		x	x	x	x
Floodplain: Extent of herbaceous marsh vegetation			x		x	x	x	x
Floodplain: Biomass of riparian/aquatic cover			x		x	x	x	x
Floodplain: Biomass of cyanobacteria			x		x	x	x	x
Floodplain: Biomass of algae			x		x	x	x	x
Floodplain: Wetland Community Structure and Sp. Diversity			x		x	x	x	x
Floodplain: Extent of Invasive riparian plant cover			x		x	x	x	x
Floodplain: Extent of floating and submerged invasive plant cover					x	x	x	x



... but among **mid-reach** channels

Riparian FOREST and SHRUBS (rheophytes)

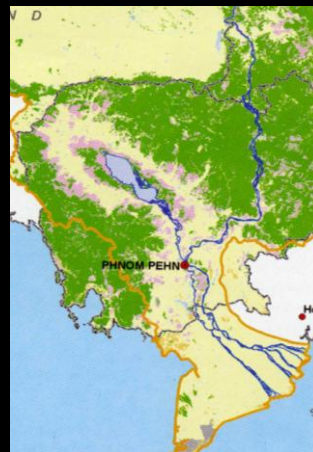
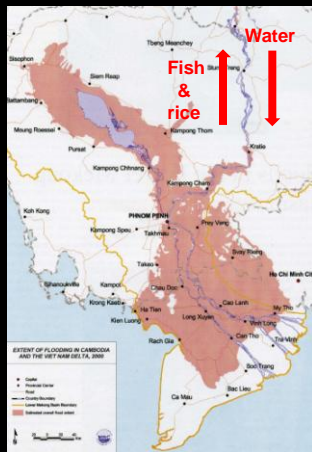
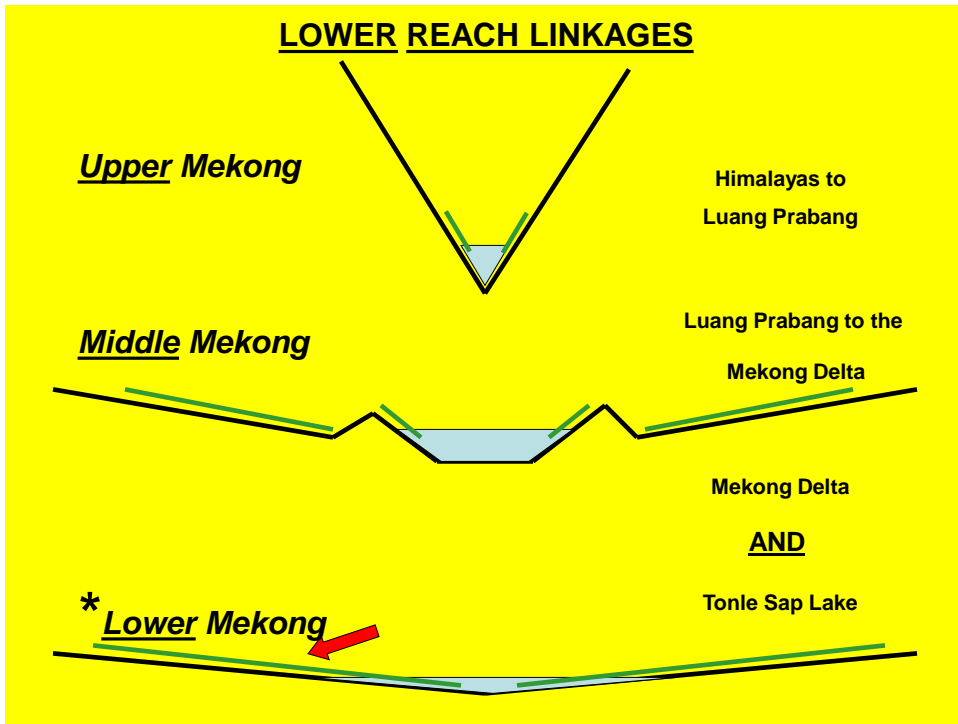
are **HIGHLY SENSITIVE**

to water velocity, timing
and duration of water levels





Focus Areas →	1	2	3	4	5	6	7	8
Channel: Extent of upper bank vegetation cover	x	x	x	x				
Channel: Extent of lower bank vegetation cover	x	x	x	x				
Channel: Extent of herbaceous marsh vegetation		x	x	x				
Channel: Biomass of riparian vegetation	x	x	x	x				
Channel: Biomass of algae	x	x	x	x				
Channel: Wetland Community Structure and Sp. Diversity	x	x	x	x				
Floodplain: Extent of flooded forest cover			x		x	x	x	x
Floodplain: Extent of herbaceous marsh vegetation			x		x	x	x	x
Floodplain: Biomass of riparian/aquatic cover			x		x	x	x	x
Floodplain: Biomass of cyanobacteria			x		x	x	x	x
Floodplain: Biomass of algae			x		x	x	x	x
Floodplain: Wetland Community Structure and Sp. Diversity			x		x	x	x	x
Floodplain: Extent of Invasive riparian plant cover			x		x	x	x	x
Floodplain: Extent of floating and submerged invasive plant cover					x	x	x	x



Status & Trends

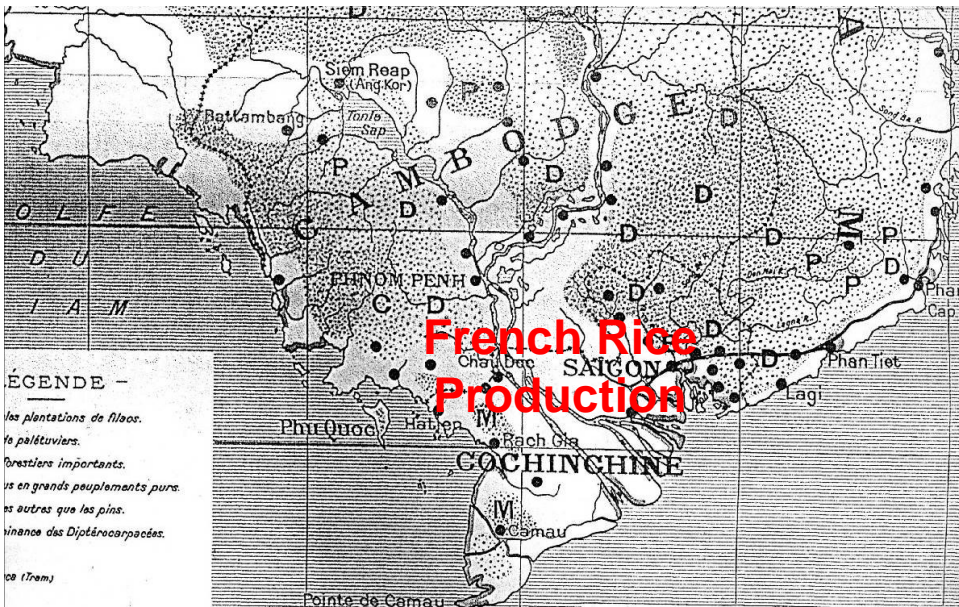
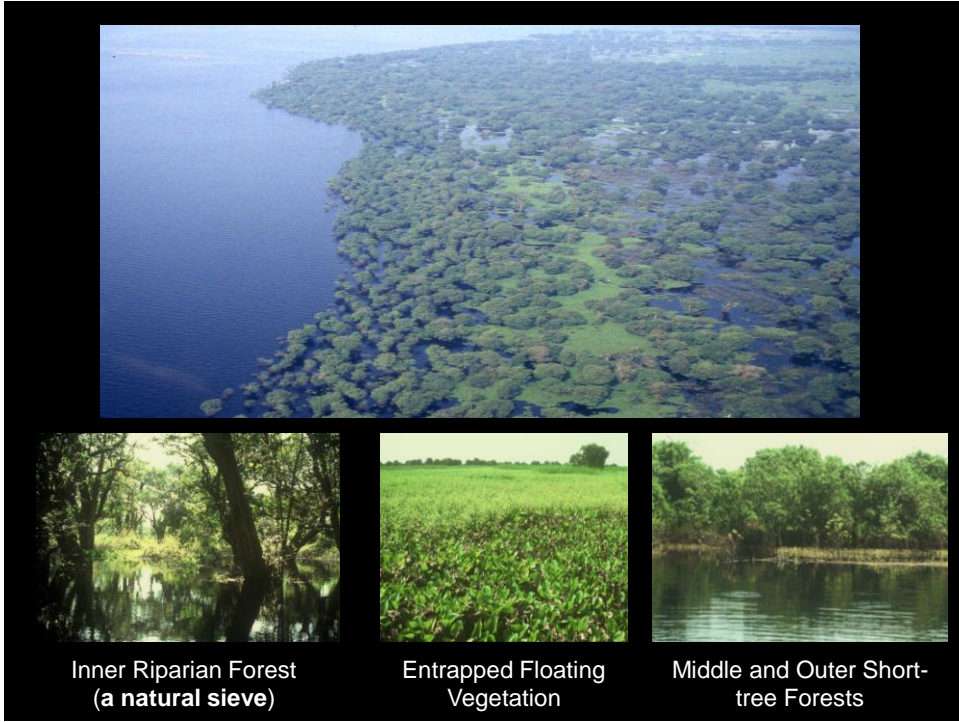
Historical Distributions of Productive Floodplain and Floodplain Vegetation

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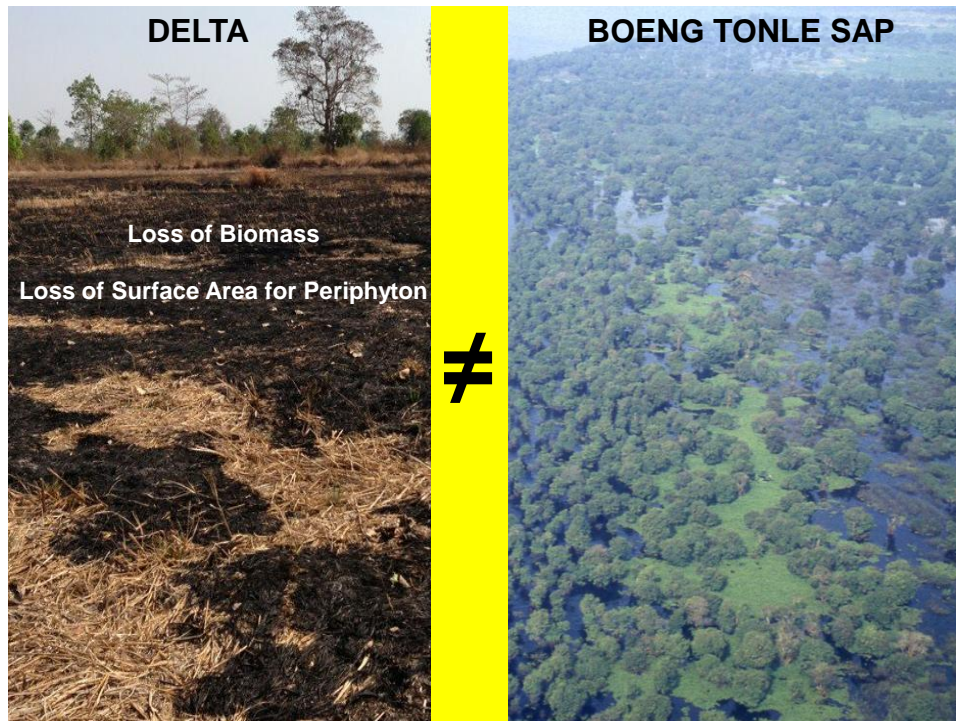
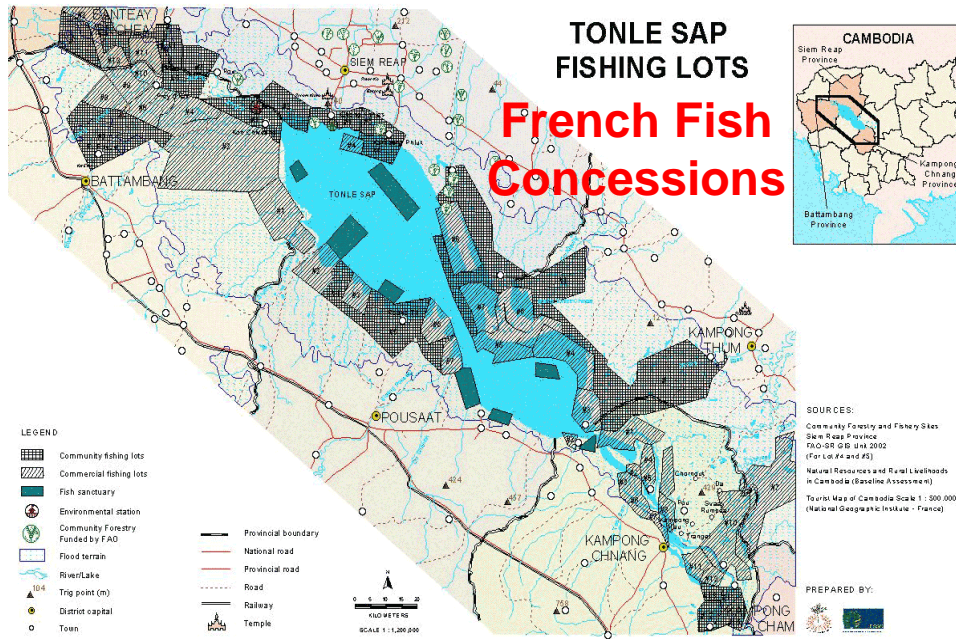


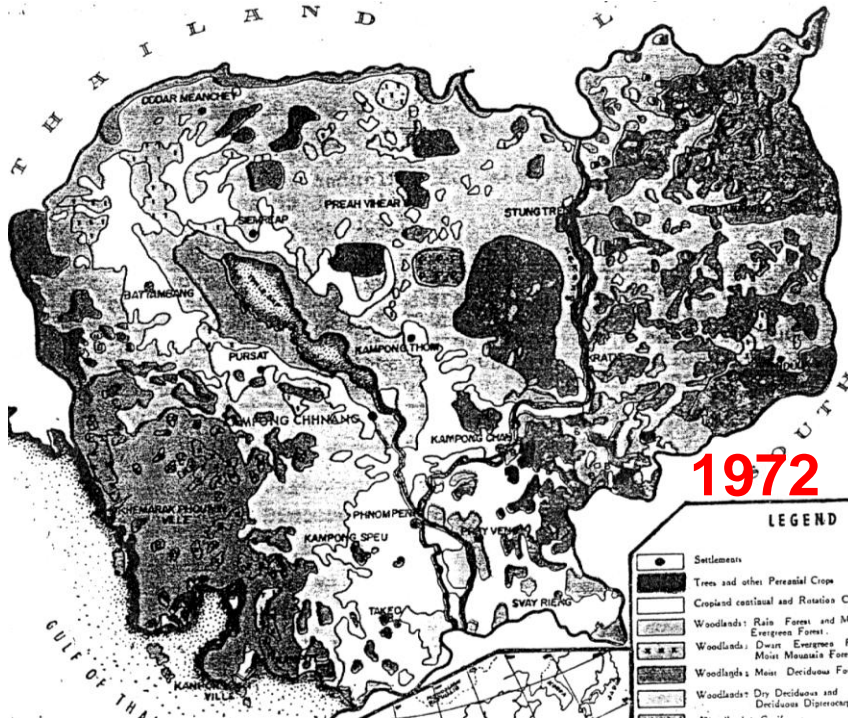
**In terms of a natural or fishery system ...
the delta region is HISTORY**





Forest Vegetation Map from LeCompte (1926)





Diminution of Flooded Forest is Increasing – primarily to agriculture

Dams will potentially dwarf those effects and encourage additional agriculture in the long-run





Google-eye view of Boeng Tonle Sap

Focus Areas →	1	2	3	4	5	6	7	8
Channel: Extent of upper bank vegetation cover	x	x	x	x				
Channel: Extent of lower bank vegetation cover	x	x	x	x				
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Channel: Biomass of riparian vegetation	x	x	x	x				
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Floodplain: Extent of flooded forest cover			x		x	x	x	x
Floodplain: Extent of herbaceous marsh vegetation			x		x	x	x	x
Floodplain: Biomass of riparian/aquatic cover			x		x	x	x	x
Floodplain: Biomass of cyanobacteria			x		x	x	x	x
Floodplain: Biomass of algae			x		x	x	x	x
Floodplain: Wetland Community Structure and Sp. Diversity			x		x	x	x	x
Floodplain: Extent of Invasive riparian plant cover			x		x	x	x	x
Floodplain: Extent of floating and submerged invasive plant cover					x	x	x	x

Dams, agriculture and exotic invasives are increasingly influential



Formerly the
largest marine wetland site
of North America
THIS IS AN OPTION!