

Marine and coastal area situation in Cambodia



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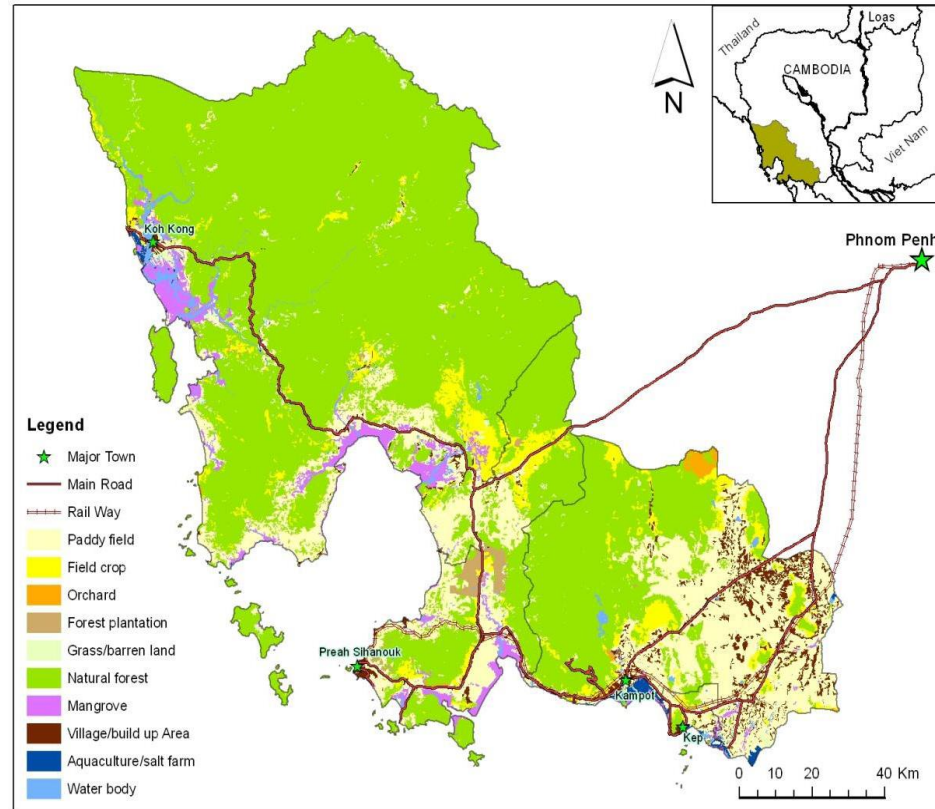
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Introduction

- Coastline: 435 km
- Coastal area: 17,237 km²
- 64 islands
- Infrastructure have been developed
 → People have migrated to the coastal area for economic opportunity reasons (Rizvi and Singer 2011)



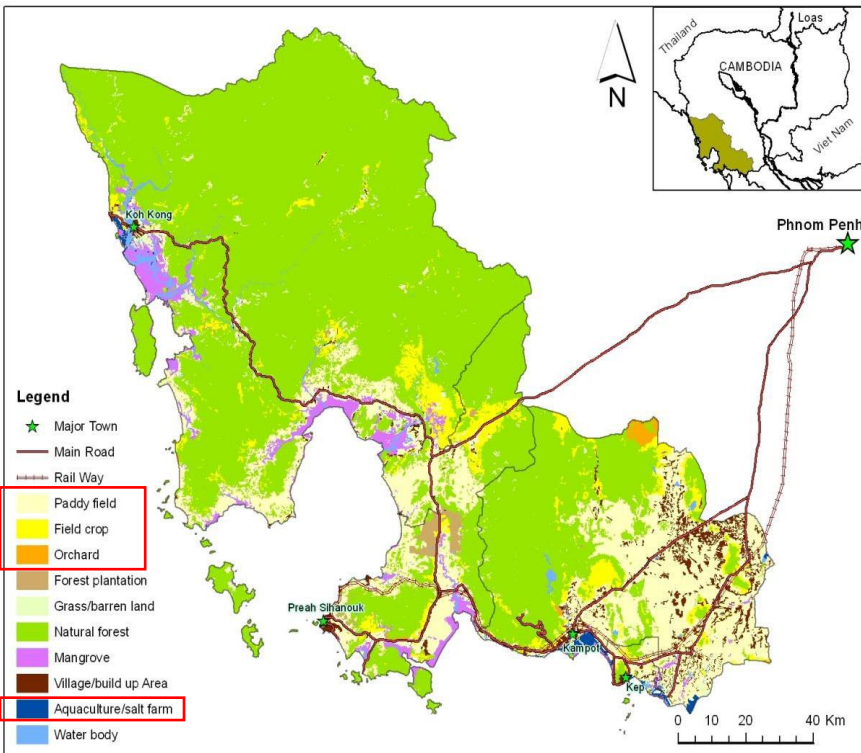
Map shows land uses in coastal zone of Cambodia in 2011 (adapted from MoE 2013).



• Importance of the marine and coastal zone:

- Supporting industrial (e.g. port: transport)
- Tourism
- Agriculture
- Fisheries

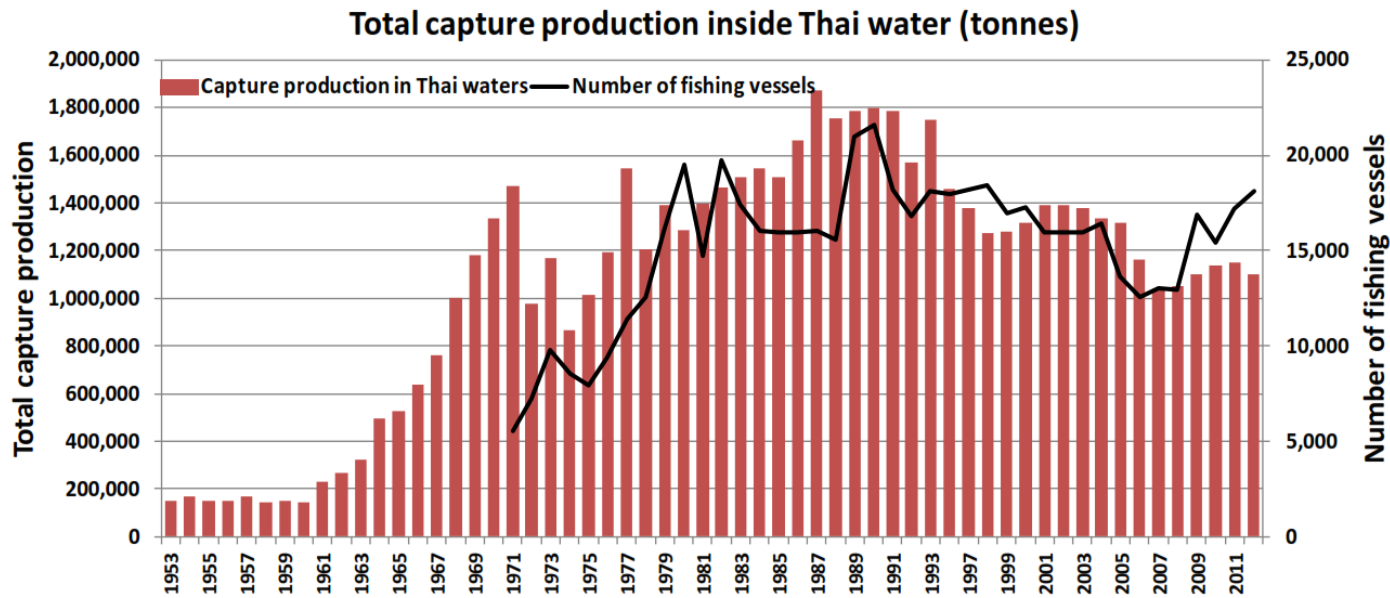
International port



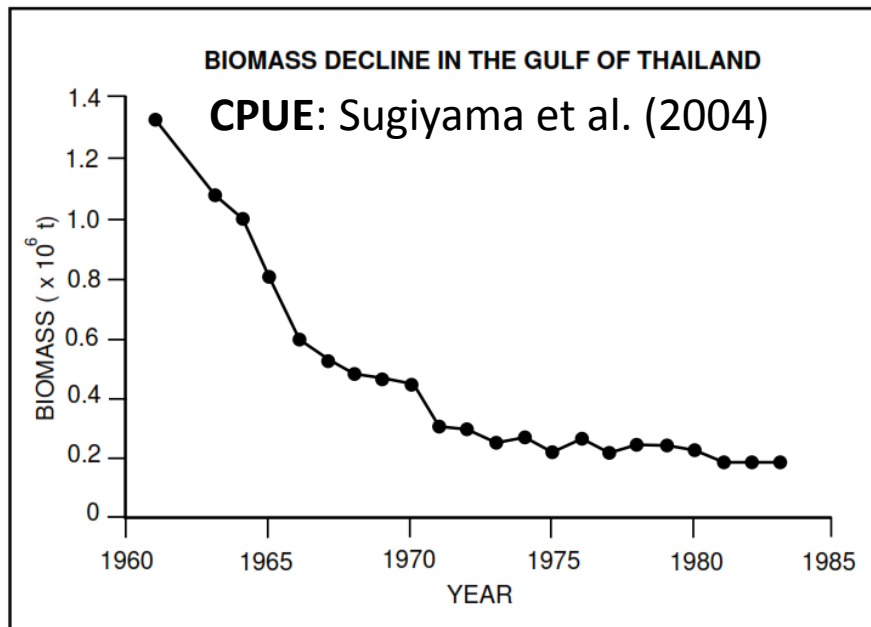
Map showing land use in coastal zone of Cambodia in 2011 (adapted from MoE 2013).

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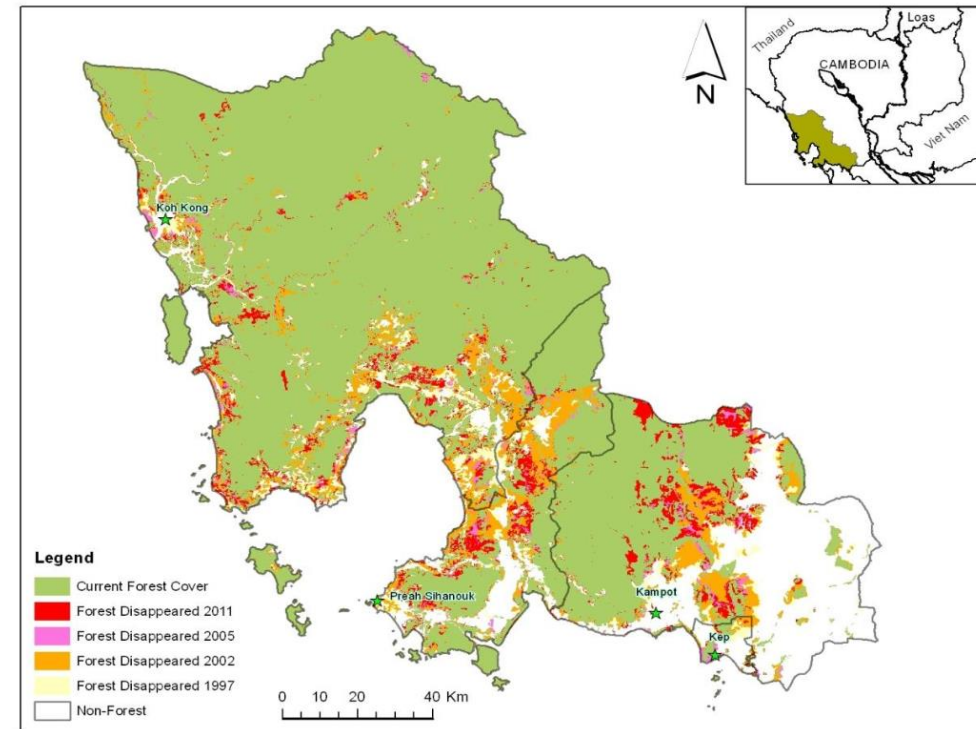
Source: Department of Fisheries, Thailand (2015)



- Rapid expansion of fisheries has raised **considerable economic and environmental concerns about their management.**

- **E.g. Cambodia**

- Increase number of fishing boats with the catch;
- Land use change



Map showing change in Forest Distribution from 1993 to 1997, 2002, 2005 and 2011 (adapted from MoE 2013).

- Aims at exploring trends in marine and coastal activities and patterns of their association with socio-economic variables, based on accessible secondary data over the last two decades.

Methods

- Accessible secondary data (1990 – 2015): **annual marine catch** (fishes, shrimps, squids and molluscs)

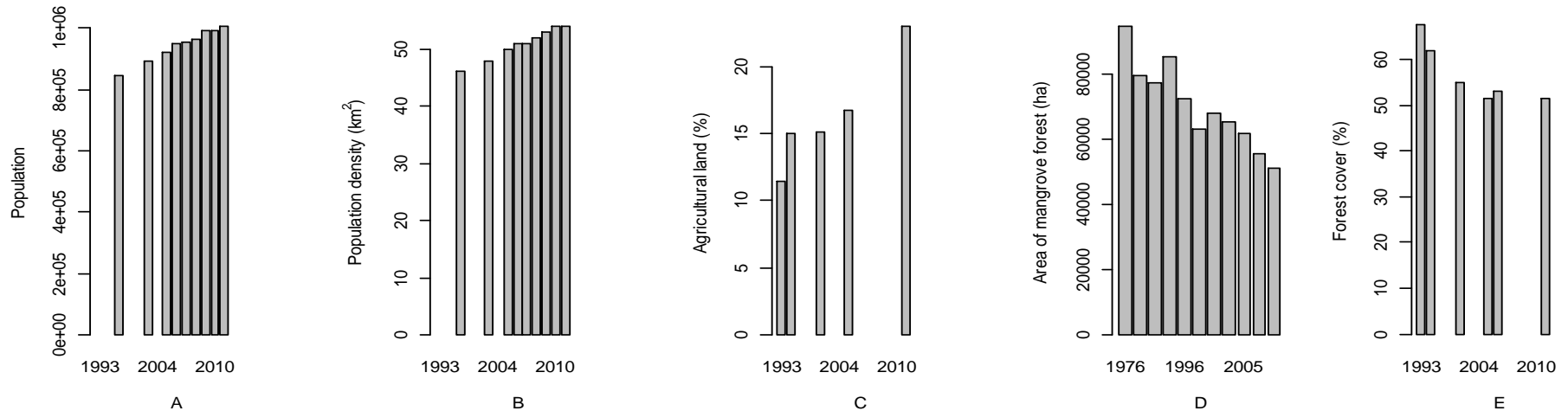


- **Socio-economic variables** (mangrove forest area, agricultural land area, human population and population density, international tourist arrivals to Cambodia)

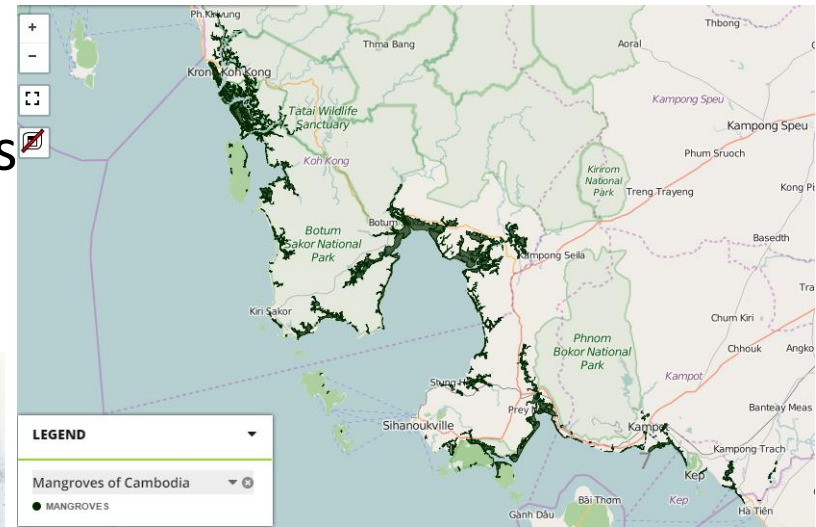


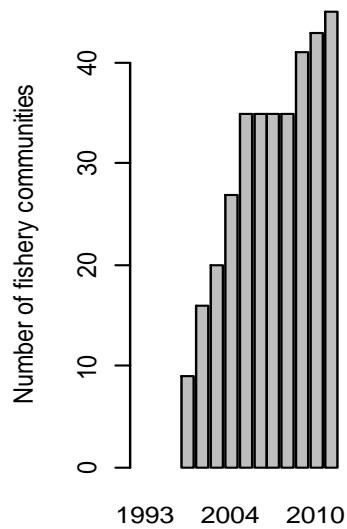
- 1961 – 2015 annual catch: **forecasting the next 15 years, 2016 – 2030**

Results and discussion

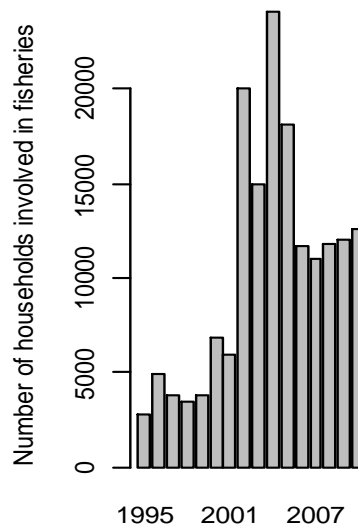


- Population in 2015: 1.01 M; 54 persons/km²
- 1998 – 2011: 19% increase
- Mangroves are cut for shrimp farming, firewood, charcoal, and building materials and burning to control mosquitoes and other insects (MoE 2009).

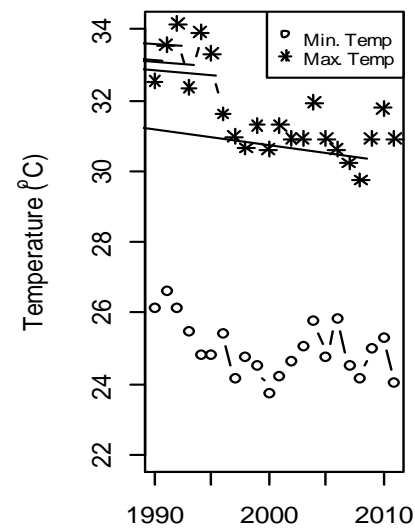




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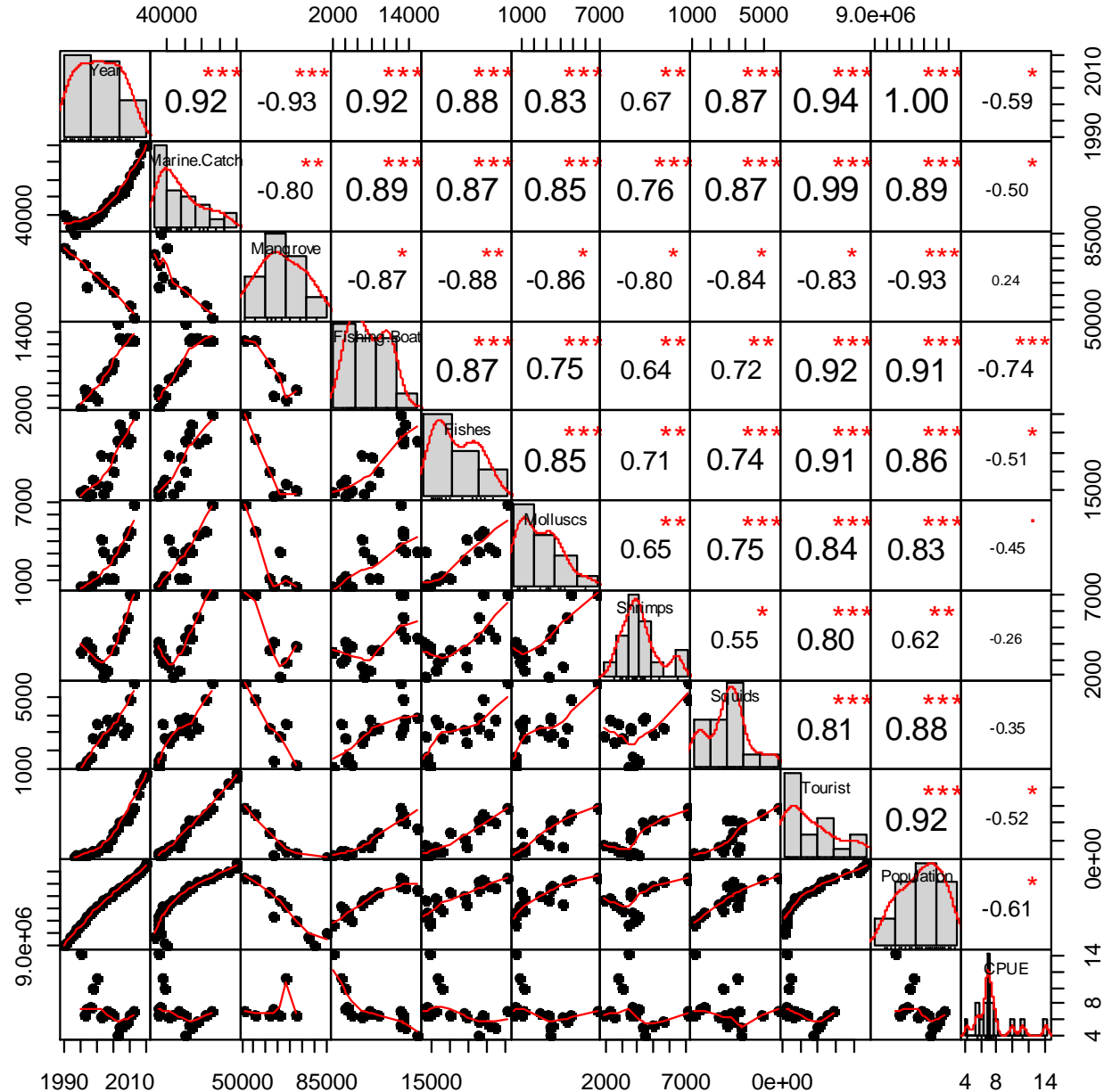


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- Fishery communities established for coordination and management of fishery resources and conservation.
- Households involved in fisheries decreased recently, due to CPUE.
- CPUE: 14.3 t (1995) to 7.2 t (2011)

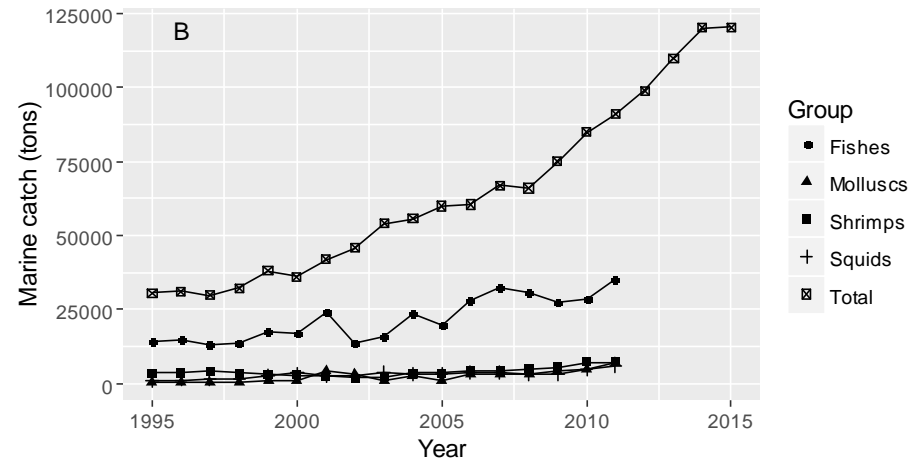
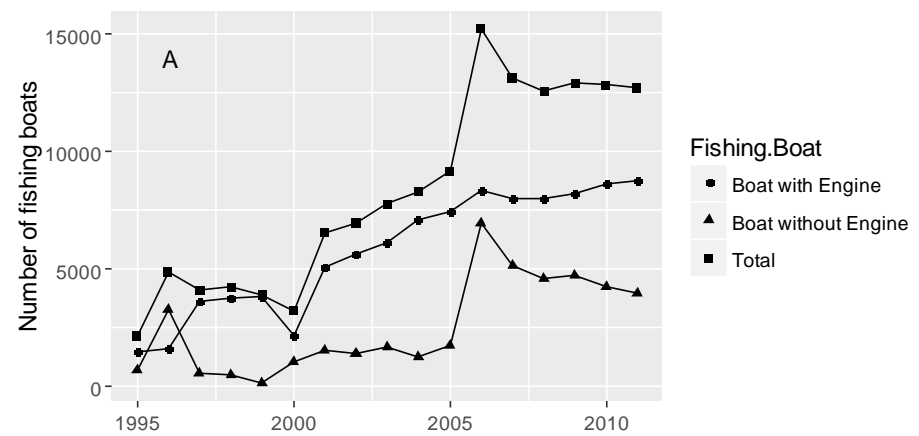


- The catch increased with Population & Tourists → demand of food consumption
- The catch was negatively related to CPUE ← # of fishermen (boats) increased



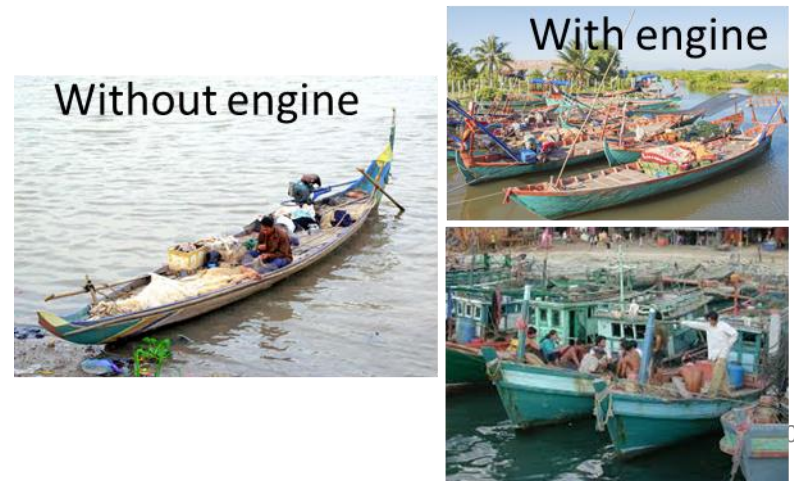
Correlations matrix of marine catch and socio-economic variables (Pearson's correlation)

- **Fishing boats:** tenfold increase over 6 years
- **Annual catch:** fourfold increase over 10 years

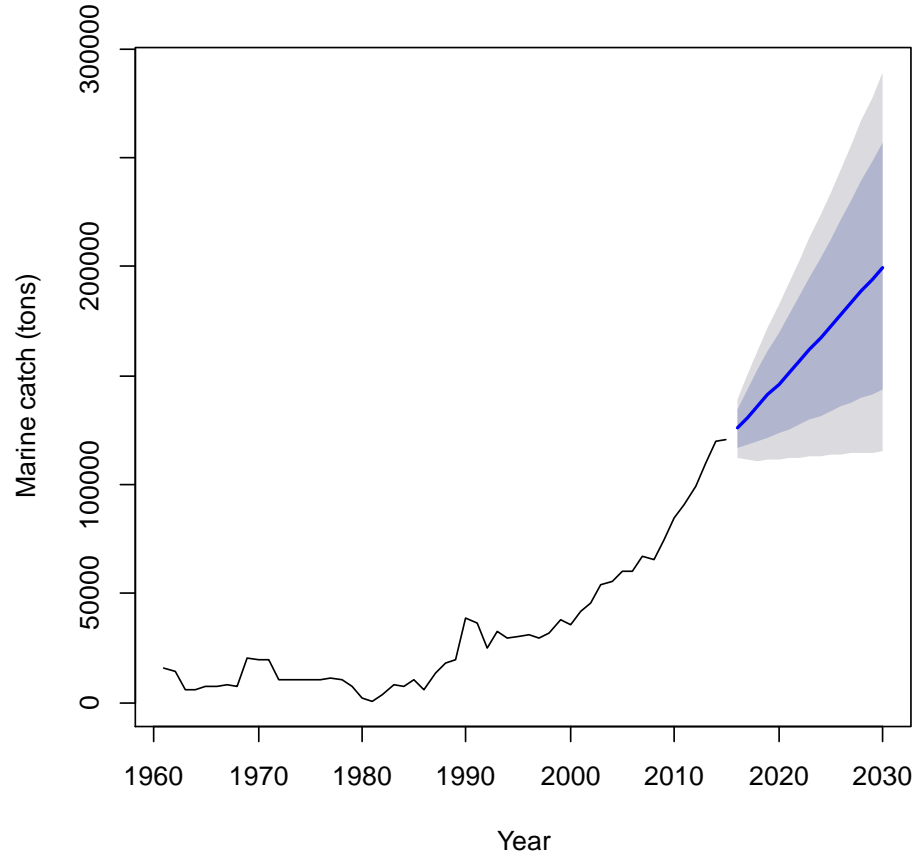


Impact:

- Loss of habitat and shelter for marine stocks
- Increased erosion and coastal water pollution

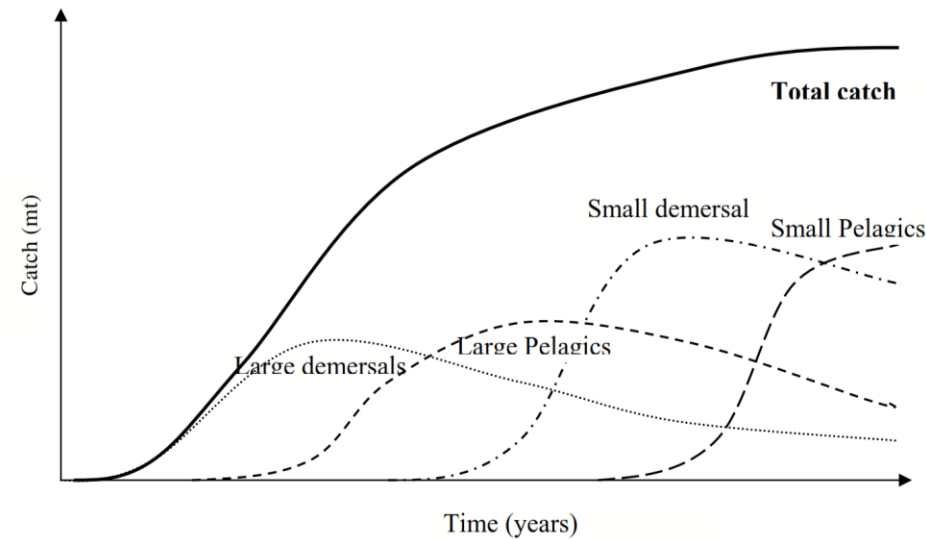


- Catch would be raised to as much as 200,000 tons by 2030.



Time-series of annual estimates for total marine catch of Cambodia from **1961 to 2030**.

**Fishing down the food chain:
A hypothetical model of the impact of
fishing on a marine ecosystem**



Sugiyama et al. (2004)

Overall

- Cambodia's marine and coastal areas are faced with many human activities:
 - **rapid expansion** of fisheries to meet the demand of food consumption,
 - **declining mangrove forest and catch per unit effort** due to the rise in number of fishermen
- The coastal fisheries are under threats by direct and indirect factors creating decline of fisheries.

- **Conservation and management** of the marine and coastal areas should be considered and include provision of alternative livelihoods to divert coastal residents from fishing to other occupations to generate income to support their families to aim for the **sustainable development** of these important areas.



Peam Krasoap - Mangrove Wetlands

Thank you for your attention!

