Threats and future of freshwater fish biodiversity in East and Southeast Asia
Our field works 2008-2018
Issues of freshwater fish biodiversity and the habitats in SE Asia

- Pollution
- Hydropower dams
- Habitat loss
- Alien
- Global warming
- Land-use change (Plantation)
Habitat loss

China, Tioxi River

Individual density

- Natural bank: High density
- Artificial bank: Low density

Species richness

- Natural bank: High richness
- Artificial bank: Low richness
Pollution

Peninsular Malaysia

Individual density

Species richness

Pollution

Pollution
Species richness

- Primitive forest
- Secondary forest
- Acacia plantation
- Oil-palm plantation

Land-use change:

Sarawak, Malaysia
Hydropower dams

Mekong River

Simulation by actual data of 1500 locality

Species richness

Total generating capacity (MW)

Lower Mekong scale

Dam removal

Current

Dam construction
Synergistic impact with hydropower dams

Global warming

Mekong River

Synergistic impact

Too hot!
I want to go upstream, but cannot go!

Global warming

Total generating capacity (MW)

Year
- 2050
- 2070

Negative impact on species richness

RCPs
Discussion tomorrow

Next long-term monitoring of freshwater fish biodiversity in SE Asia
Possible monitoring sites

- Inle Lake
- Mekong (Ubon Ratchathani)
- Mekong (Steung Treng)
- Baleh River

Issues:
- Alien
- Pollution
- Hydropower dams
- Plantation
Methodology

How can we standardize the sampling effort?

• Fishing gear
• Sampling area
• Sampling time
• Number of people

Simpler better?

e.g. No new species for 30 minutes or 2 hours by 3 persons (any fishing gear)
Methodology

Is market survey effective? and how?