

# Fisheries and Livelihoods in The Lower Mekong Basin: Benefits and Challenges of Community-based Participatory Research

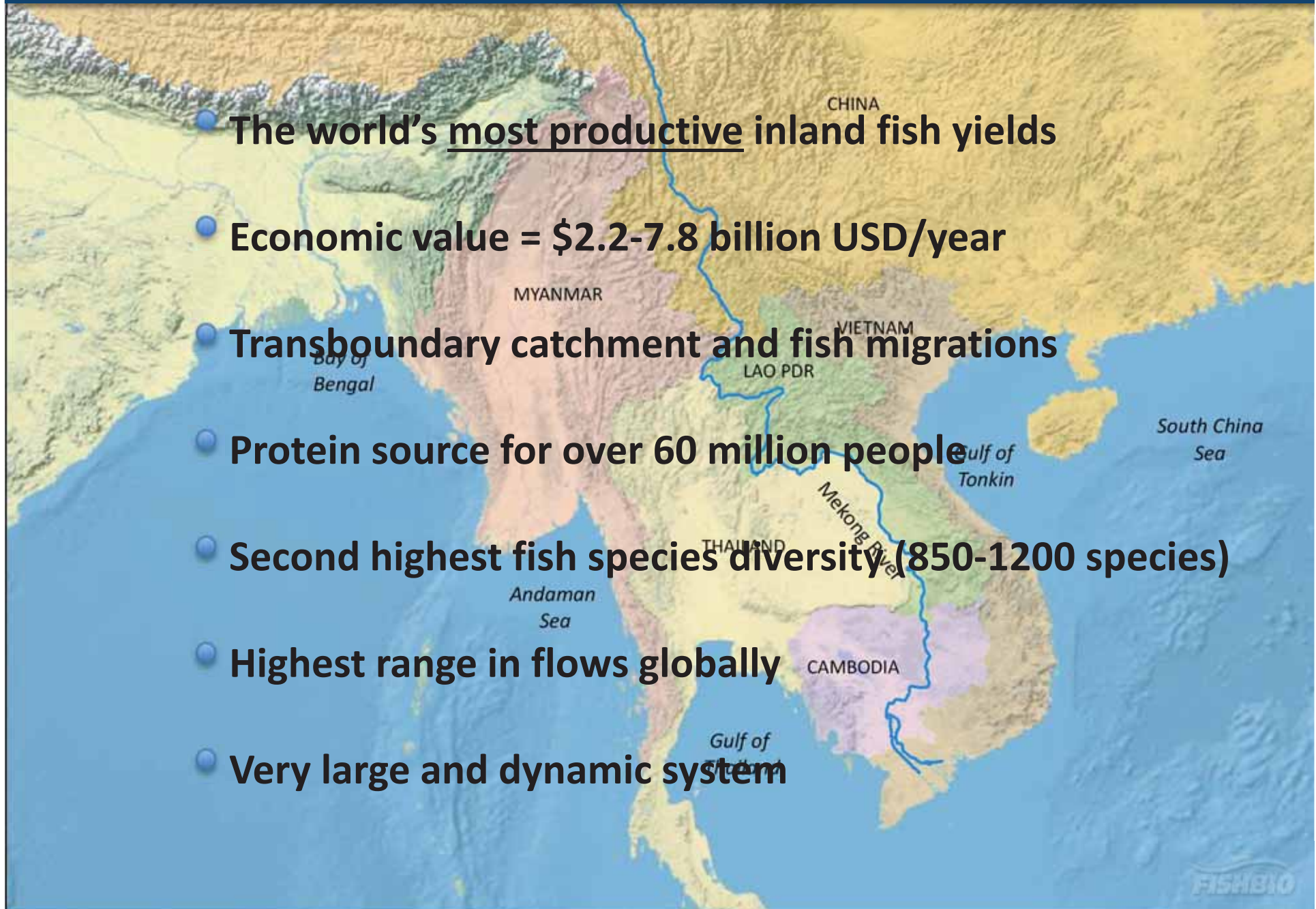


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## What makes the Mekong special?

- The world's most productive inland fish yields
- Economic value = \$2.2-7.8 billion USD/year
- Transboundary catchment and fish migrations
- Protein source for over 60 million people
- Second highest fish species diversity (850-1200 species)
- Highest range in flows globally
- Very large and dynamic system





# Diverse System



## Research challenges in a large and dynamic system

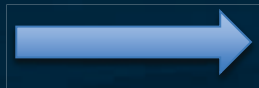
- High number, widely distributed fishers
- Subsistence, artisanal, and commercial scale fisheries
- Women, men, children participate
- Fishing wide variety of habitats
- Over 250 gear types used
- High species diversity
- Massive migrations



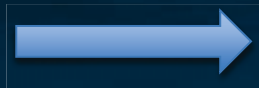


# What is the “best” way to conduct research considering...

- Rich diversity and massive migrations → Need extensive geographic coverage
- Productive fishery → Need different scales of harvest surveys; economics
- Extreme hydrography → Need seasonally stratified sampling
- Importance for food and income → Need consumption and market sampling
- Hydropower development → Need to quantify migrations



Use interdisciplinary/integrated approach



Essential to work closely with villagers through participatory research

## What is community-based participatory research?





# Nam Kading River, Lao PDR



## Methods: Community-Based & Participatory

- Consultation with communities and resource managers to identify goals
- Train local field technicians to collect data in their own villages
- Develop MS Access database in Lao and English languages
- Support Lao M.Sc. Student: Tuition, data for thesis, advise on thesis committee at NUoL, training in methods, training in MS Access





# Methods: Field Collections

## Catch Data:

- Species ID, photos, biomass, lengths and weights, gear, time of day, effort, income, kg sell vs. consume

## Consumption Data:

- ID all food items, weight, geographic origin, production source, family demographics, monthly income, main activity that day

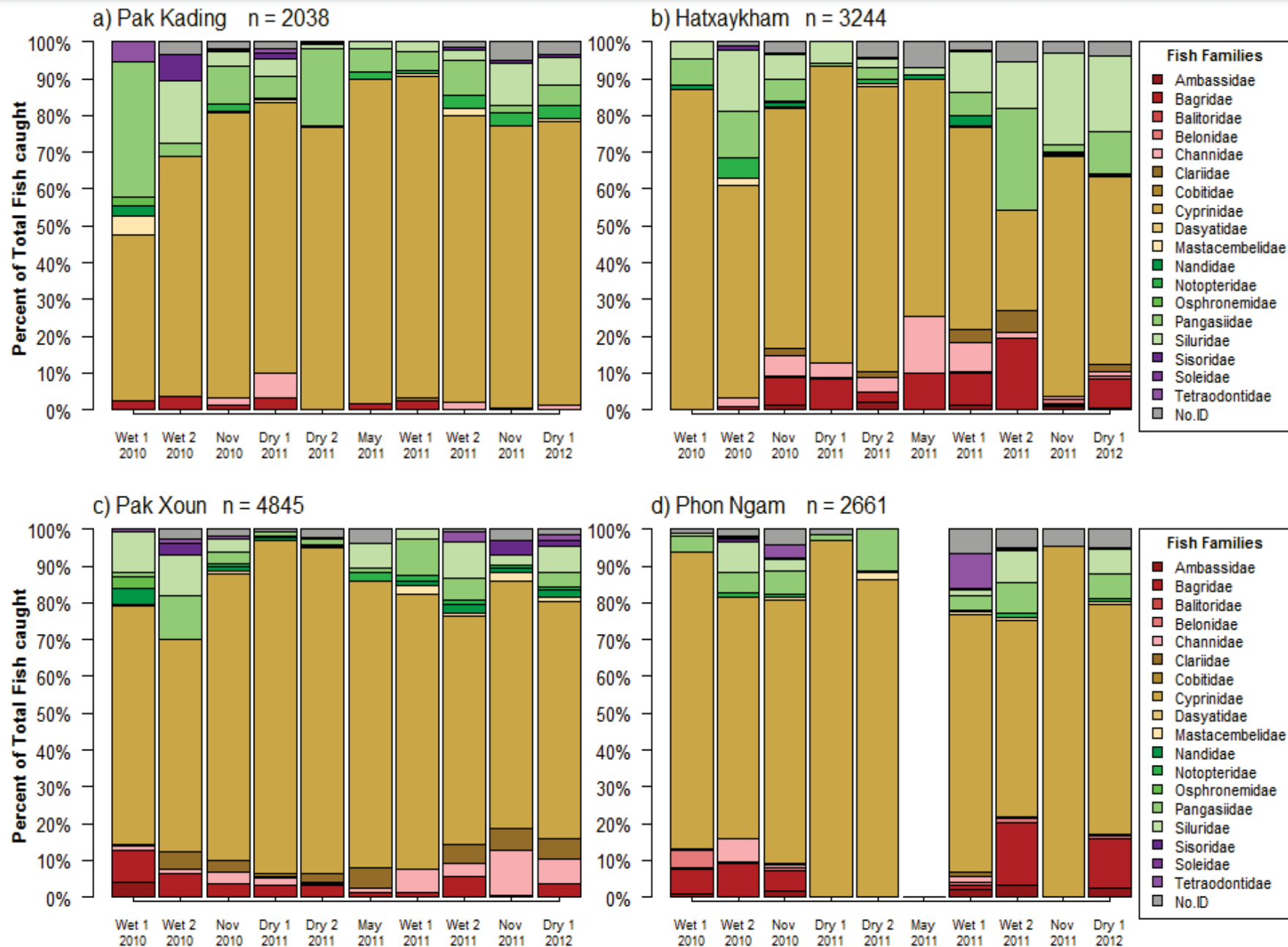
## Market Data:

- For each vendor: ID species, weight for sale at market open, price/kg/species, source of fish, relative demand, total sold (kg), income at market close





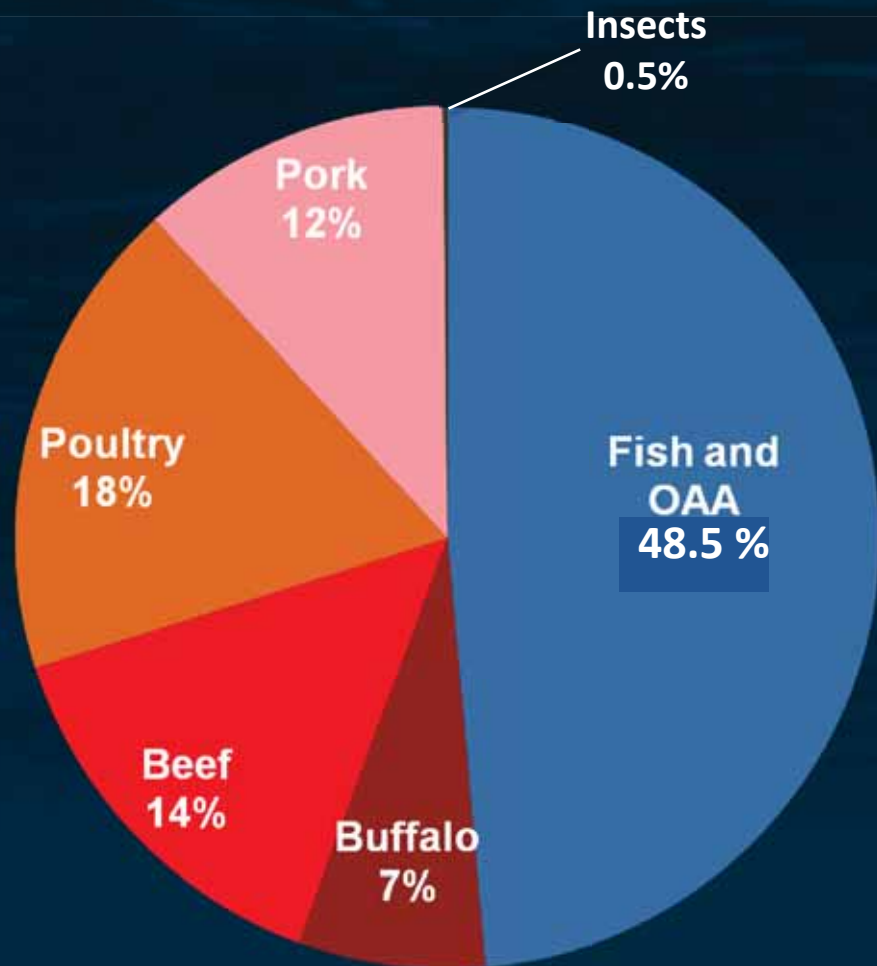
# Results: Fish Family Diversity



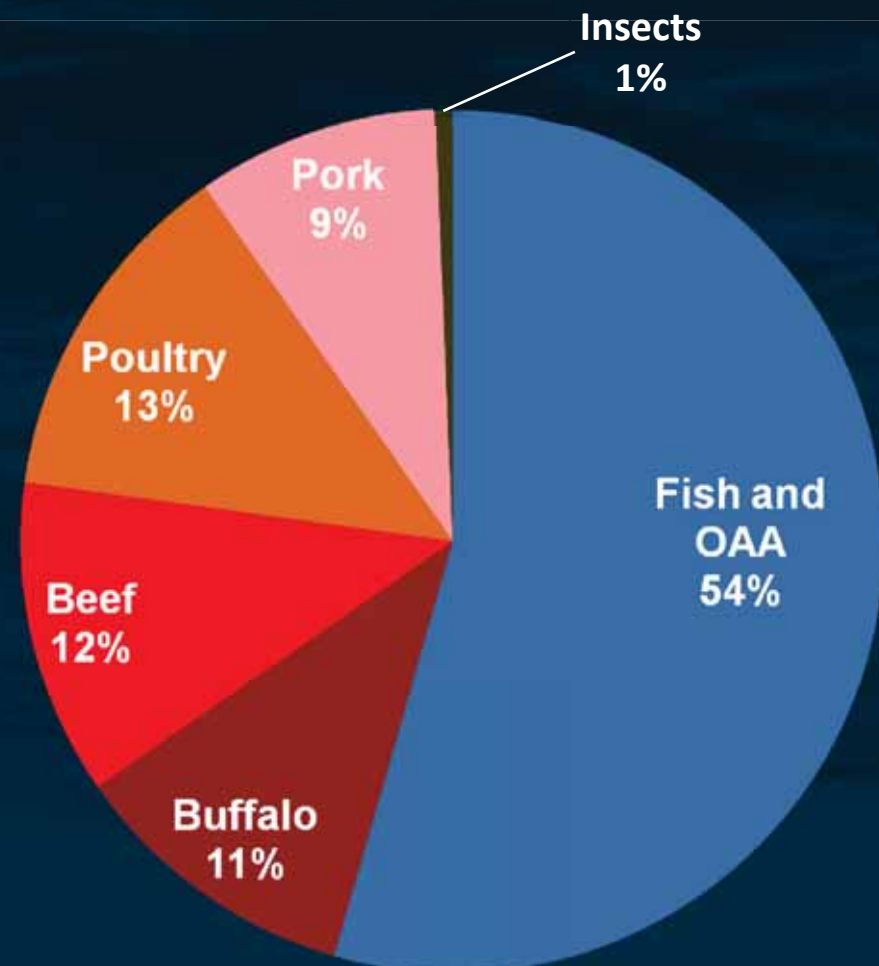


# Results: Animal Protein Consumption

Dry Season  
November – April



Wet Season  
May – October





# Opportunities and Challenges of participatory research

- **Opportunities:**
  - **Greater frequency and geographic coverage of sampling**
  - **Access to households and markets**
  - **Builds capacity, engages communities, fosters conservation awareness**
- **Challenges:**
  - **Data accuracy, species ID (local vs. scientific names)**
  - **Seasonal activities by villagers (ie. rice planting and harvesting)**
  - **Retention of technicians (family obligations, opportunities for other work)**

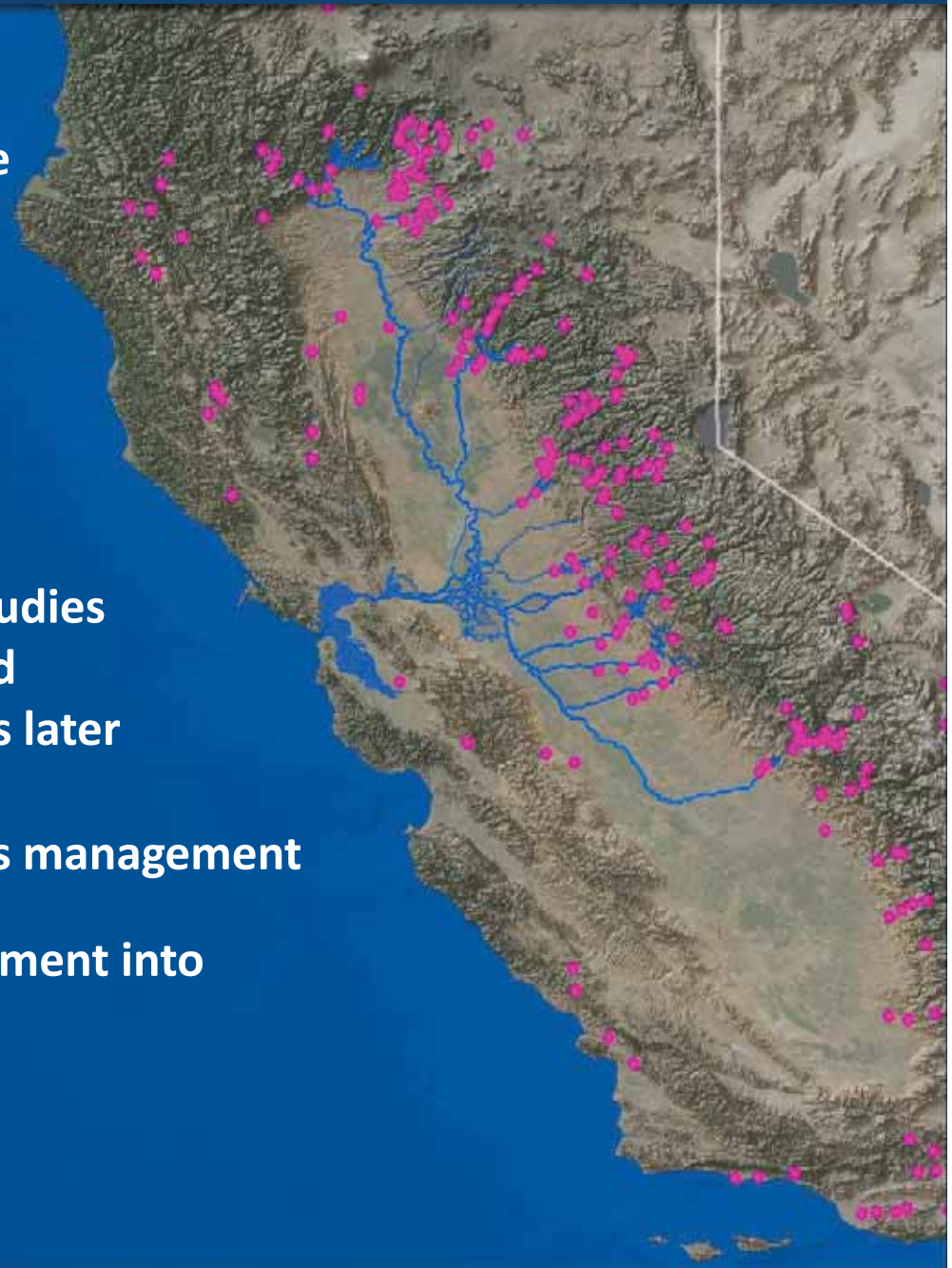
# How do we improve the effectiveness of participatory research?

- Data accuracy → verify adherence to protocols
  - frequent communication
  - more students from local universities to support techs
  - verify species ID with photos, experts, DNA samples
  - consider analysis at genus rather than species level
- Seasonal activities → Design sampling to consider such activities
  - follow proportion of villagers to rice huts
  - consider self-reporting by subset of villagers
- Technician retention → Additional incentives
  - communicate opportunities for future work using new skills



## What have we learned from water infrastructure development in California?

- 343 hydro facilities (13,057 MW), water for 38 million people, irrigate 2.3 million ha, largest water engineering project in the world
- ≈ 90% salmonids lost (?)
- Reactive < Proactive
- Critical errors: No baselines, few studies with standardized sampling, limited long-term monitoring → huge costs later
- Multi-sector participation improves management
- Must incorporate fisheries management into hydropower operating costs



## How can we use lessons learned to move forward?

- Characteristics of Mekong well aligned with participatory approach
- Great way to capture time-series; cover large area, diversity of habitats, species, and fishing methods
- Best way to access households for consumption data
- Maximize and standardize data, reduce field costs, engage resource users

➡ Ultimately building local capacity





## Tool for Building Capacity: The Mekong Fish Network

Increase and improve fisheries information by:

- Building technical capacity
- Connecting researchers across national borders and institutions
- Establishing **STANDARDIZED** methods
- Supporting long-term & participatory monitoring



Information → Good management → Food security



The Mekong Fish Network connects researchers across borders in the Lower Mekong River basin to improve the study, management, and conservation of the river's unique and valuable fish and wildlife. We need to advance the scientific capacity of regional researchers and institutions, facilitate the sharing and standardized collection of data, and help inform resource use decisions in this ecologically diverse and productive region.



Creating connections across borders

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## Recent Blog Posts

### Building the Mekong Fish Network



February 7, 2013

A report summarizing the outcomes of the 2012 meeting of the proposed Mekong Fish Network is now available online. FISHBIO and the U.S. Geological Survey convened this meeting in Phnom Penh, Cambodia to bring together fish researchers from 20 organizations working across the Lower Mekong Basin (see Networking in the Lower Mekong Basin). Meeting participants included representatives of government agencies, universities, and non-governmental organizations from Lao PDR, Thailand, Cambodia, and ... [Read More](#)

### Outdoor classroom



February 7, 2013

Fish live in water where they are difficult to see, catch, and assess their health and abundance. That typically means research projects are labor intensive and expensive. As is evident in this picture, many people can be involved in fisheries field research. In this case, FISHBIO trained local villagers in Lao PDR to collect fish abundance and harvest data, which serves several purposes. First, hiring local staff at local prevailing wages keeps the overall cost ... [Read More](#)

### Networking in the Lower Mekong Basin



February 21, 2012

FISHBIO and the U.S. Geological Survey (USGS), with support from the U.S. State Department, hosted a workshop in Phnom Penh, Cambodia in February 2012. Gathering representatives from government, universities, and non-governmental organizations (NGOs) of member nations of the Mekong River Commission (Cambodia, Lao PDR, Thailand and Viet Nam), we discussed a proposed Mekong Fish Monitoring Network. The concept was born from a frequently cited need for researchers in the Lower Mekong Basin ... [Read More](#)

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### Regional News

#### Drought, salinity attack Mekong Delta

 VietnamNet  
February 28, 2013

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#### Thanh Hoa's stream of odd fish

 VietnamNet  
February 24, 2013

Tens of thousands of fish cram in a small stream of over 100 meters long. No one knows when they appeared. The local Muong people considered the ... [Read More](#)

#### Myanmar, Laos start building Mekong River friendship bridge

 Global Times  
19 February 2013

Myanmar and Laos have started building Mekong River-Crossing Friendship Bridge with stakes driven at both sides of the construction sites in the weekend, official media reported ... [Read More](#)

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(8) Photos

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**Mekong River Commission**  
Catch & Culture - Vol. 18,  
No. 2


**A new species of Metzlia**  
(Cypriniformes:  
Cyprinidae) from Northern  
Laos


**The Mekong Fish Network:**  
Expanding the Capacity of  
the People and Institutions  
of the Mekong River Basin  
To Share Information and Conduct  
Standardized Fisheries Monitoring

 Featuring Top 3/3 of Featured  
Publications

## Upcoming Events

**Mekong Environmental Symposium 2013**

 Starts: March 5, 2013  
Ends: March 8, 2013  
Location: Ho Chi Minh City,  
Vietnam  
[More details...](#)
**Aquatic Asia 2013: trade show for the Asia-Pacific Aquaculture business**

 Starts: March 13, 2013  
Ends: March 16, 2013  
Location: Bangkok, Thailand  
[More details...](#)
**ICFAS 2013 : International Conference on Fisheries and Aquatic Sciences**

 Starts: March 14, 2013  
Ends: March 16, 2013  
Location: Rio de Janeiro, Brazil  
[More details...](#)
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# Acknowledgements

## Funding

- U.S. Embassy to Thailand, U.S. Department of State: *Regional Environment, Science, Technology and Health Hub for East and Southeast Asia*
- FISHBIO



## Collaborators

- Wildlife Conservation Society – Lao PDR
- National University of Laos
- Provincial Agriculture and Forestry Office – Bolikhamxay Province, Lao PDR

# Thank You!

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*Learn more at...*

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