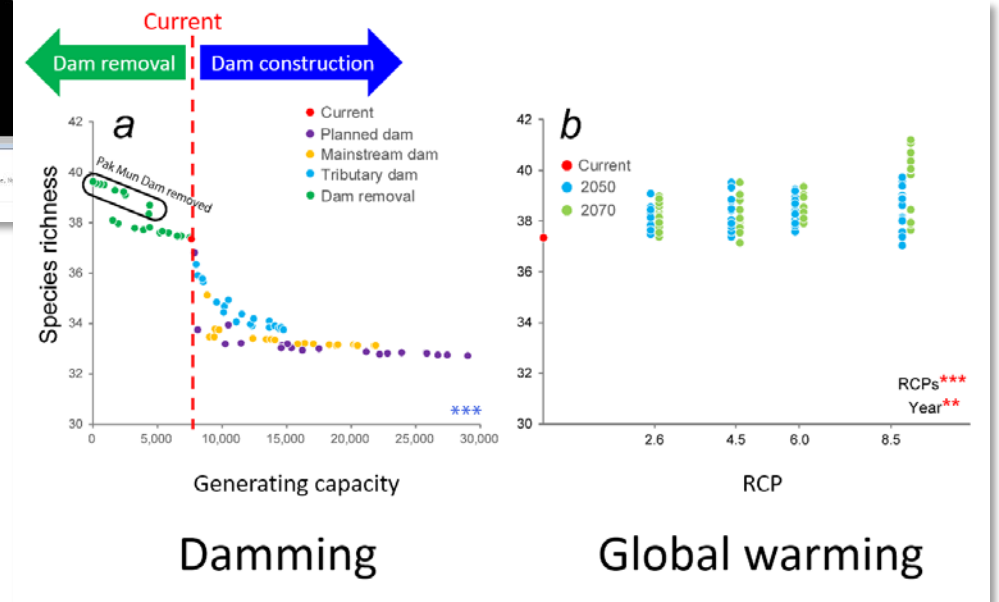
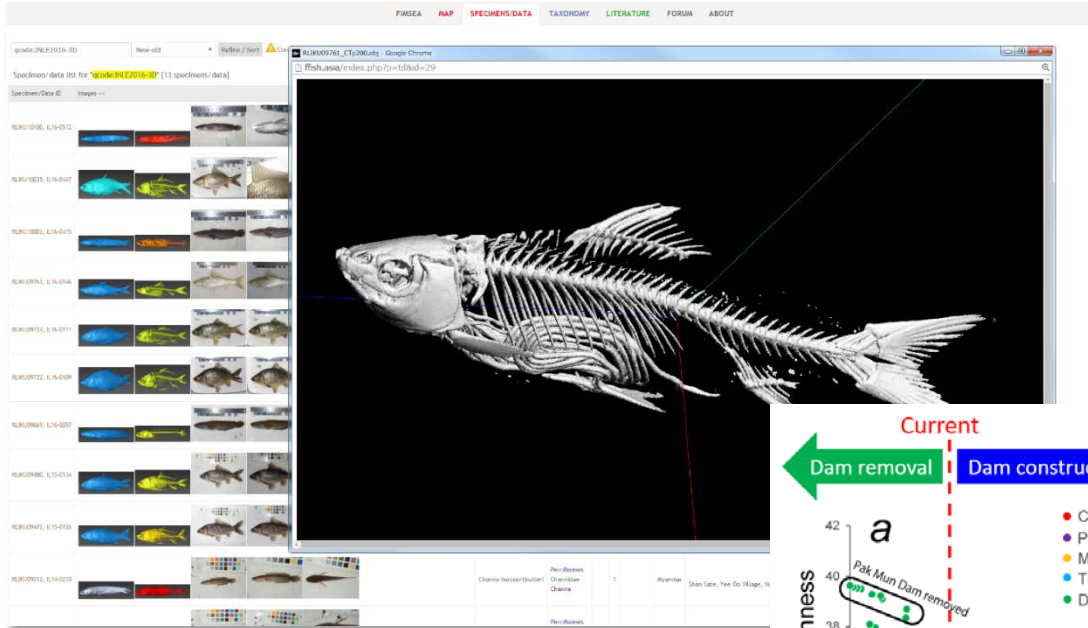


# Database of freshwater fishes in SE Asia and its contributions



http://ffish.asia

From 2013~

Ichthyol Res (2013) 60:293–295  
DOI 10.1007/s12251-013-0346-8

#### NEWS AND COMMENTS

### An online database on freshwater fish diversity and distribution in Mainland Southeast Asia

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Mainland Southeast Asia, the region that includes Cambodia, Laos, Thailand, Vietnam and Peninsular Malaysia, is known for its high diversity of freshwater fishes (e.g., Myers et al. 2000; Dudgeon 2005; Kang et al. 2009). Recently, however, intensive exploitation pressures have been threatening this biodiversity. While some studies on fish fauna of the region have been made (e.g., Taki 1994; Rainboth 1996; Kritikal 2000; Vidhavanon and Panchanun 2002), most have been of limited duration and geographical scope, and the full extent of the effect of this exploitation on the fish diversity is not fully understood.

The main obstacles standing in the way of a proper understanding of the threats to this biodiversity and determining the means to alleviate them have been hindered by several factors: one is a general shortage of

trained scientists in the region proficient in fish taxonomy, another is that exchange of the results of the taxonomical studies done by scientists in the region are few and far between. And finally there is a general lack of awareness of the significance of species diversity in ecosystems.

Beginning in 2007, the Nagasaki Natural Environment Foundation (NEF), from Japan, has been working to improve this situation in the Mekong-Chao Phraya region, the results of which are presented in a new online database, "Fishes of Mainland Southeast Asia (RMSEA)" (Fig. 1; URL: <http://ffish.asia>).

Since the outset of the project, the NEF has worked in collaboration with a number of counterpart institutions in the region, namely: Can Tho University (Vietnam), The Island Fisheries Research and Development Institute

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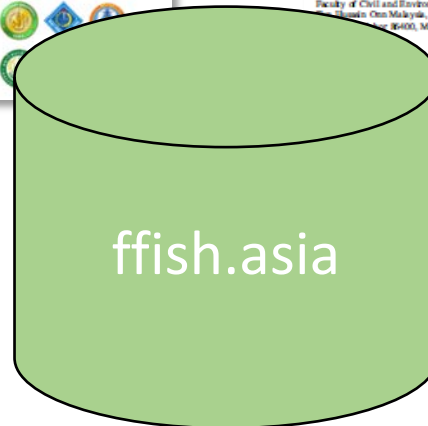
N. So · P. Thach  
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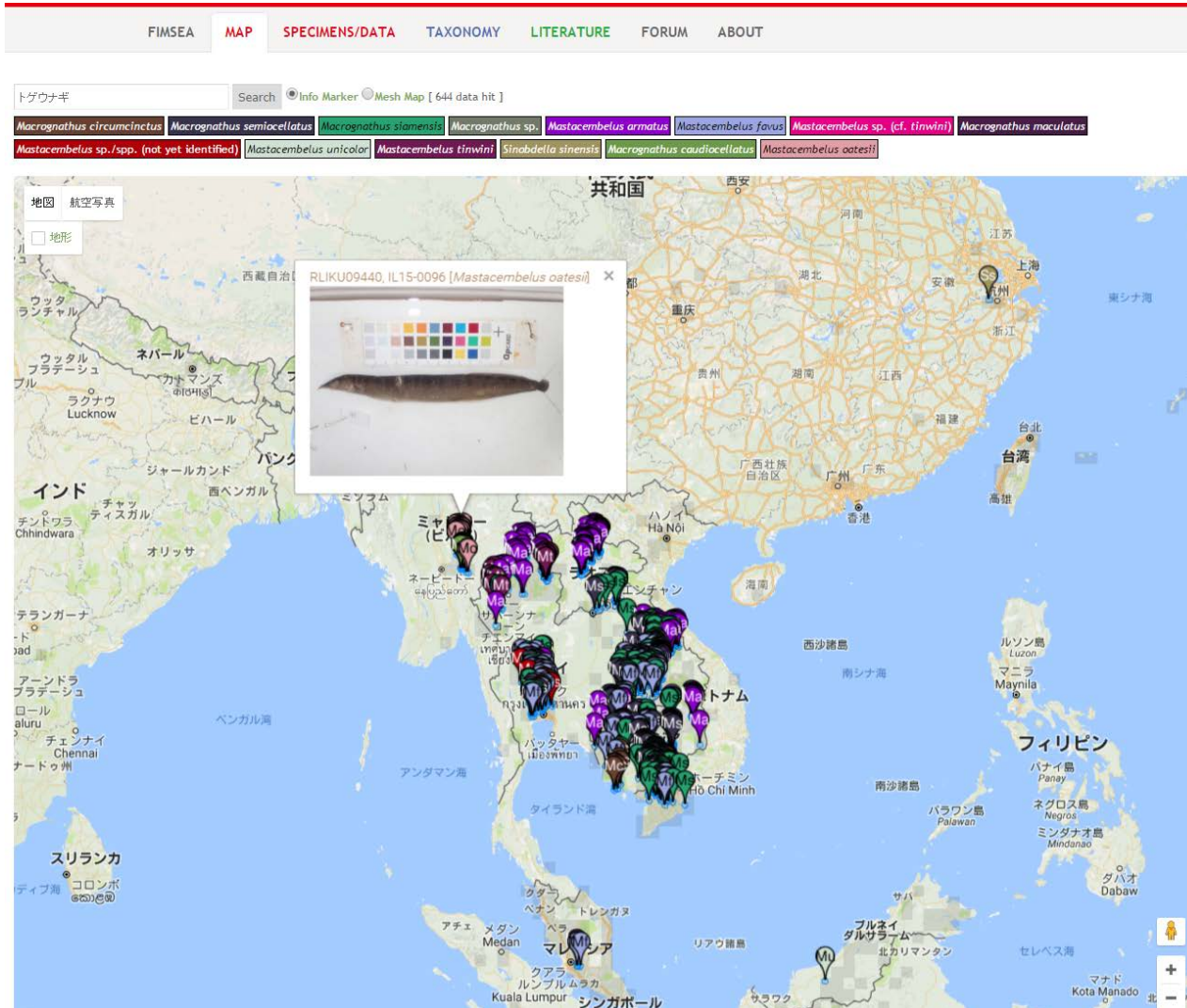
P. N. Thach · D. D. Tam  
Department of Fisheries Management and Economics,  
College of Aquaculture and Fisheries, Can Tho University,  
92 street, Ninh Kieu, Can Tho, Vietnam

Springer

Object: freshwater fish  
Scale: SE Asia  
Contents: distribution,  
photo images, 3D  
models, literatures



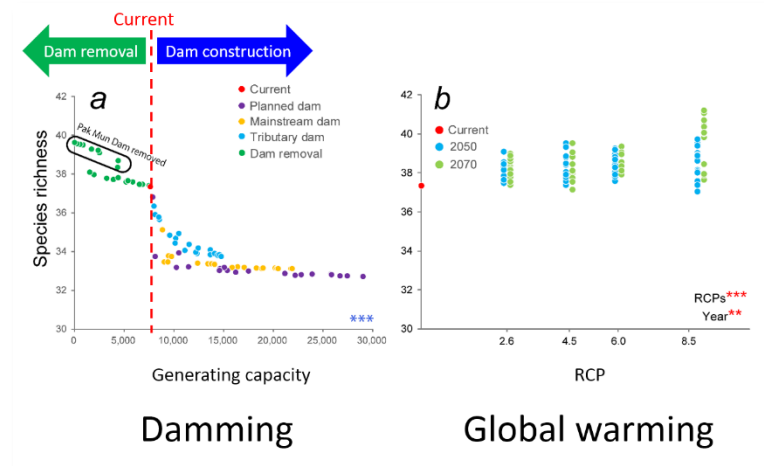
# Spatial extent: Cambodia, Thailand, Vietnam, Malaysia, Myanmar



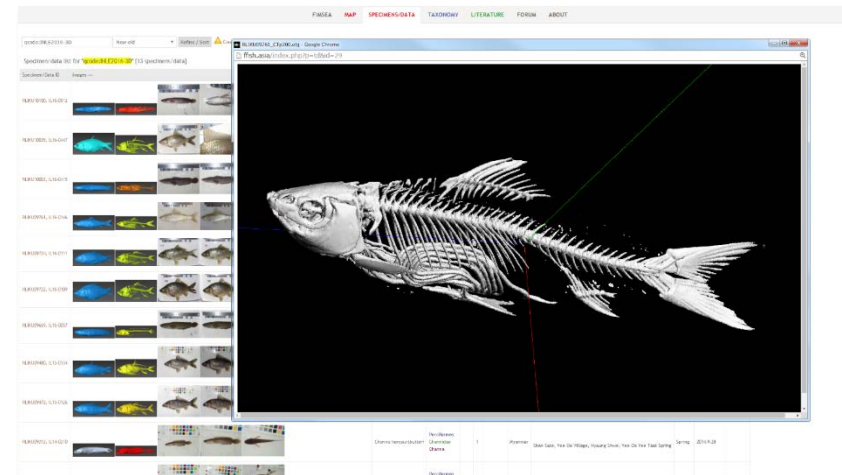
e.g. Search result for “spiny eel”

# Two recent contributions using our database

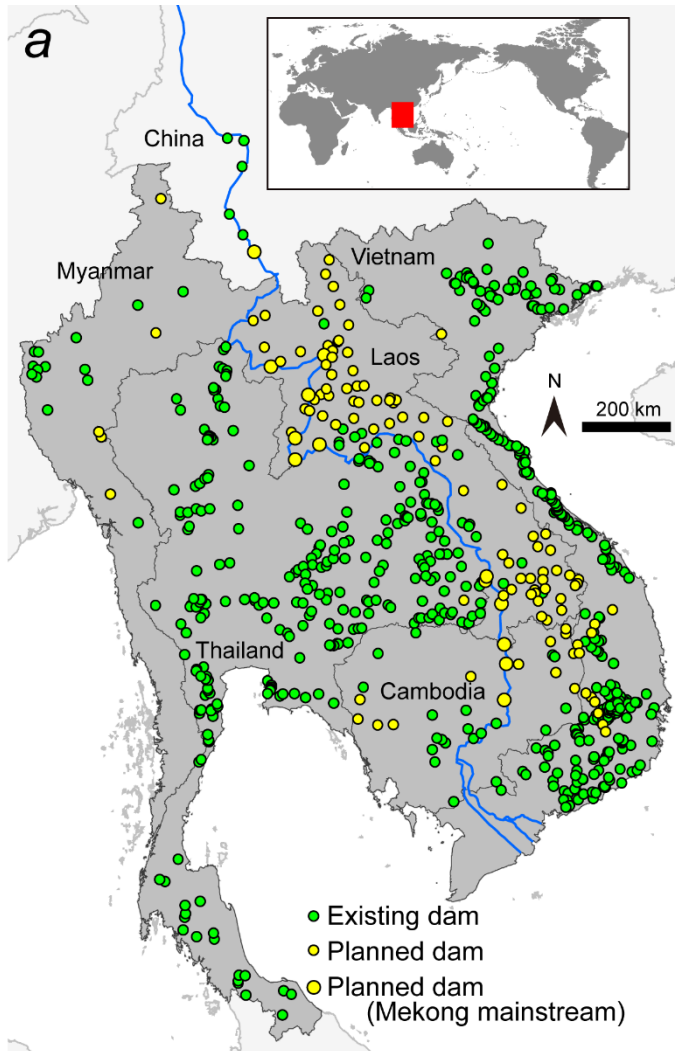
## 1) Impacts of dams and global warming around the Mekong River



## 2) Fish fauna of Inle Lake was elucidated for the first time in 100 years



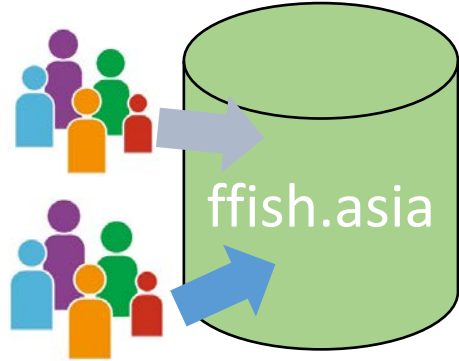
# Recent contribution 1: SDM analysis using data of the database in Mekong-Chaophraya



Global warming

Hydropower dam issues

## Database

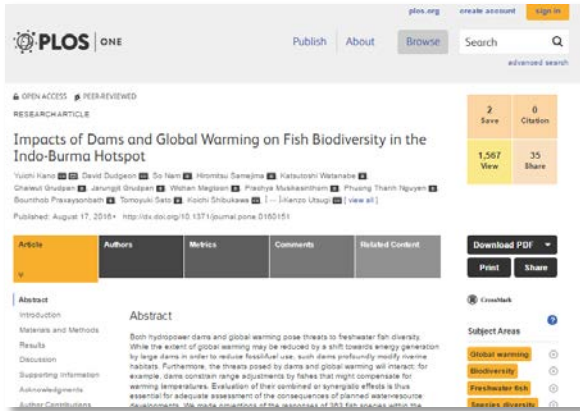
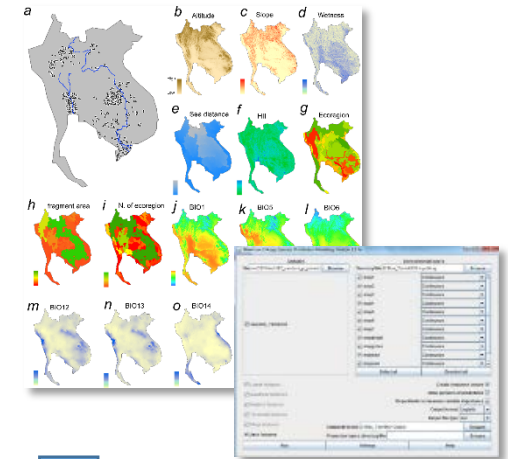


Local researchers

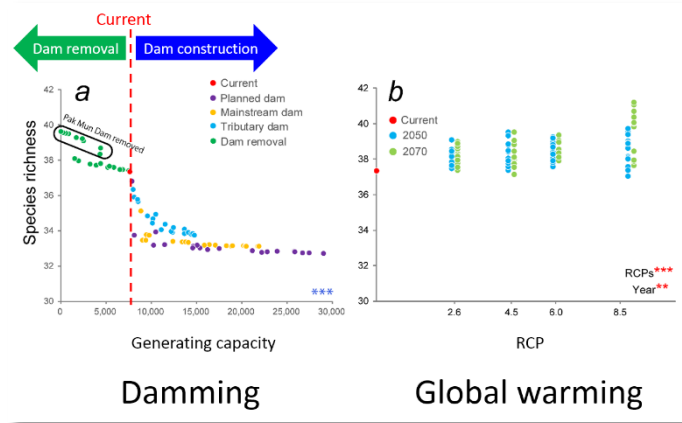
## Distribution data

	A	B	C
1	species	x	y
2	Acantho co	99.66258	19.27219
3	Acantho co	98.36644	17.78086
4	Acantho co	98.37061	17.75889
5	Acantho co	99.47934	18.77903
6	Acantho co	99.48483	18.83153
7	Acantho co	99.50324	18.81019
8	Acantho co	99.45561	18.40189
9	Acantho co	100.4084	19.89428
10	Acantho psc	104.0988	15.34289
11	Acantho psc	99.98547	14.96239
12	Acantho psc	106.9807	13.66463
13	Acantho psc	104.9923	15.47739
14	Acantho psc	105.0176	14.69972
15	Acantho psc	105.4225	14.70178
16	Acantho psc	104.4034	15.13538
17	Acantho psc	104.1582	15.33678
18	Acantho psc	104.0025	15.14557

## Maxent Analysis

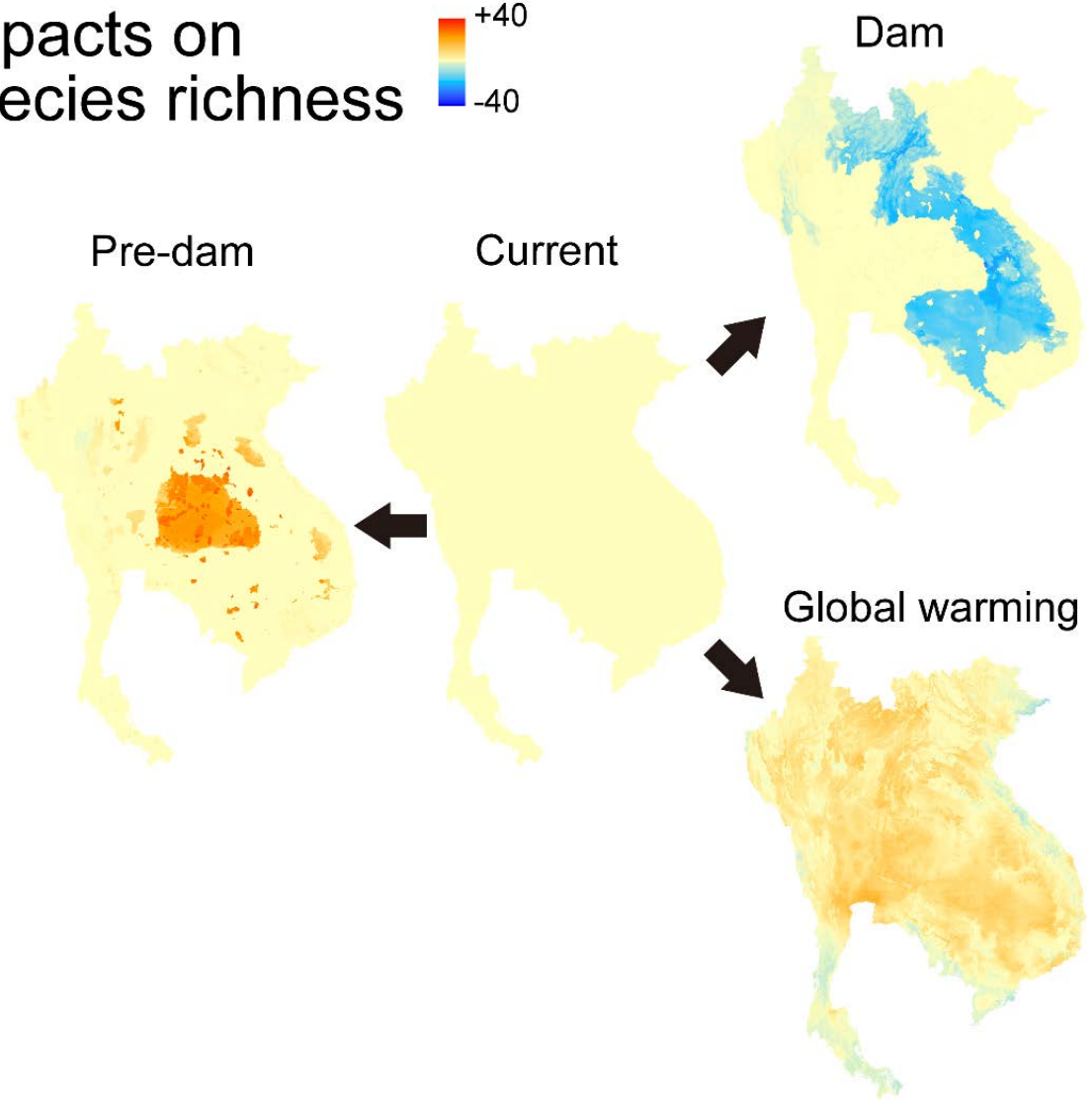
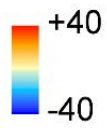


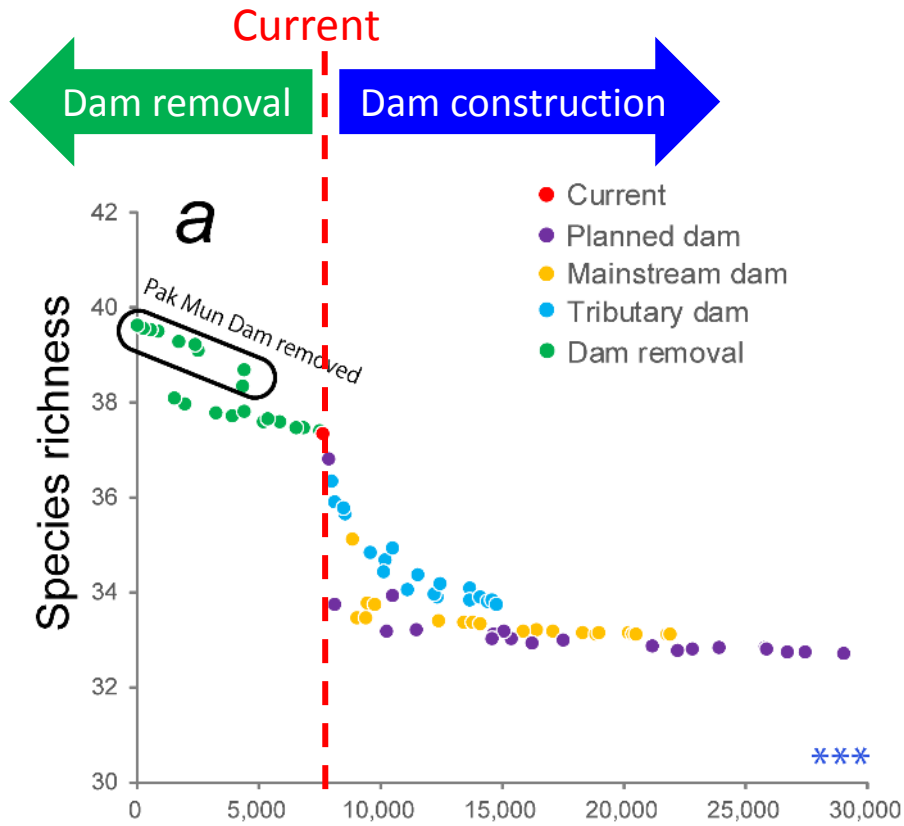
Publication of scientific paper  
(Kano et al., 2016)



Simulate impacts of dams and global warmings

# Impacts on species richness

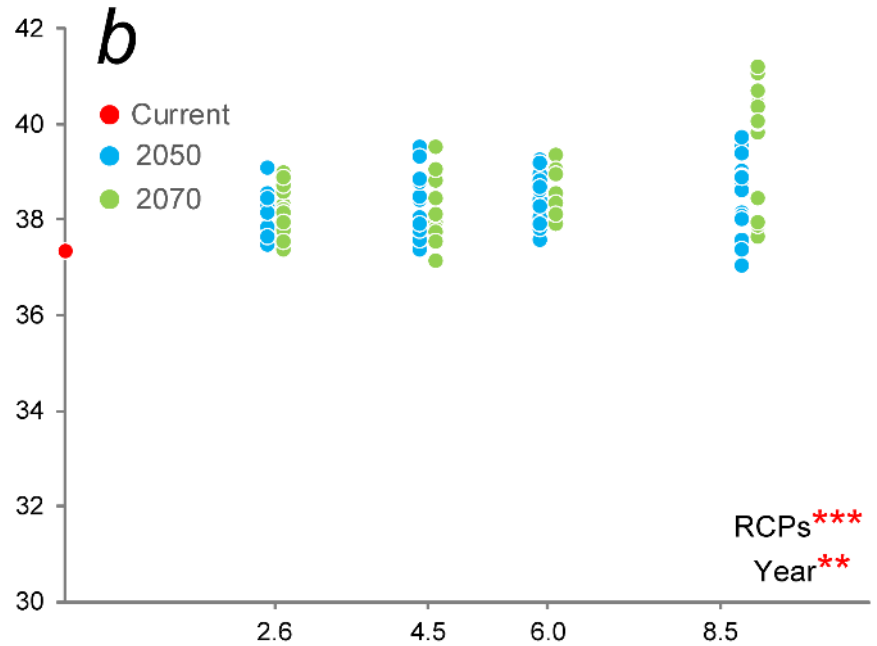




Generating capacity



Damming



RCP

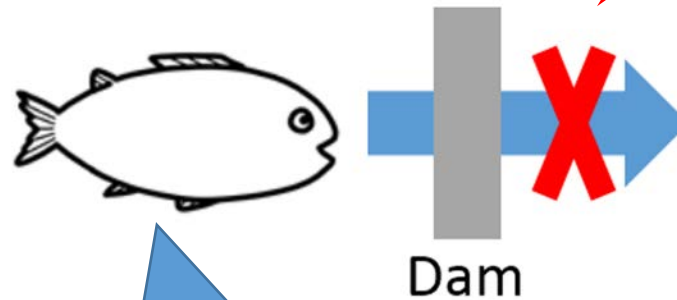
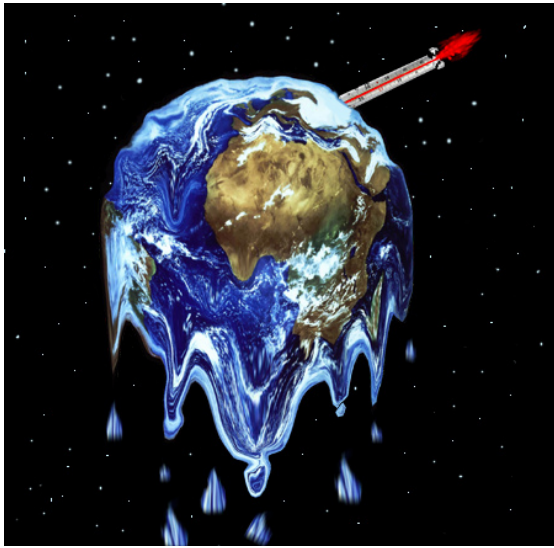


Global warming



Impacts of damming and global warming are not independent....

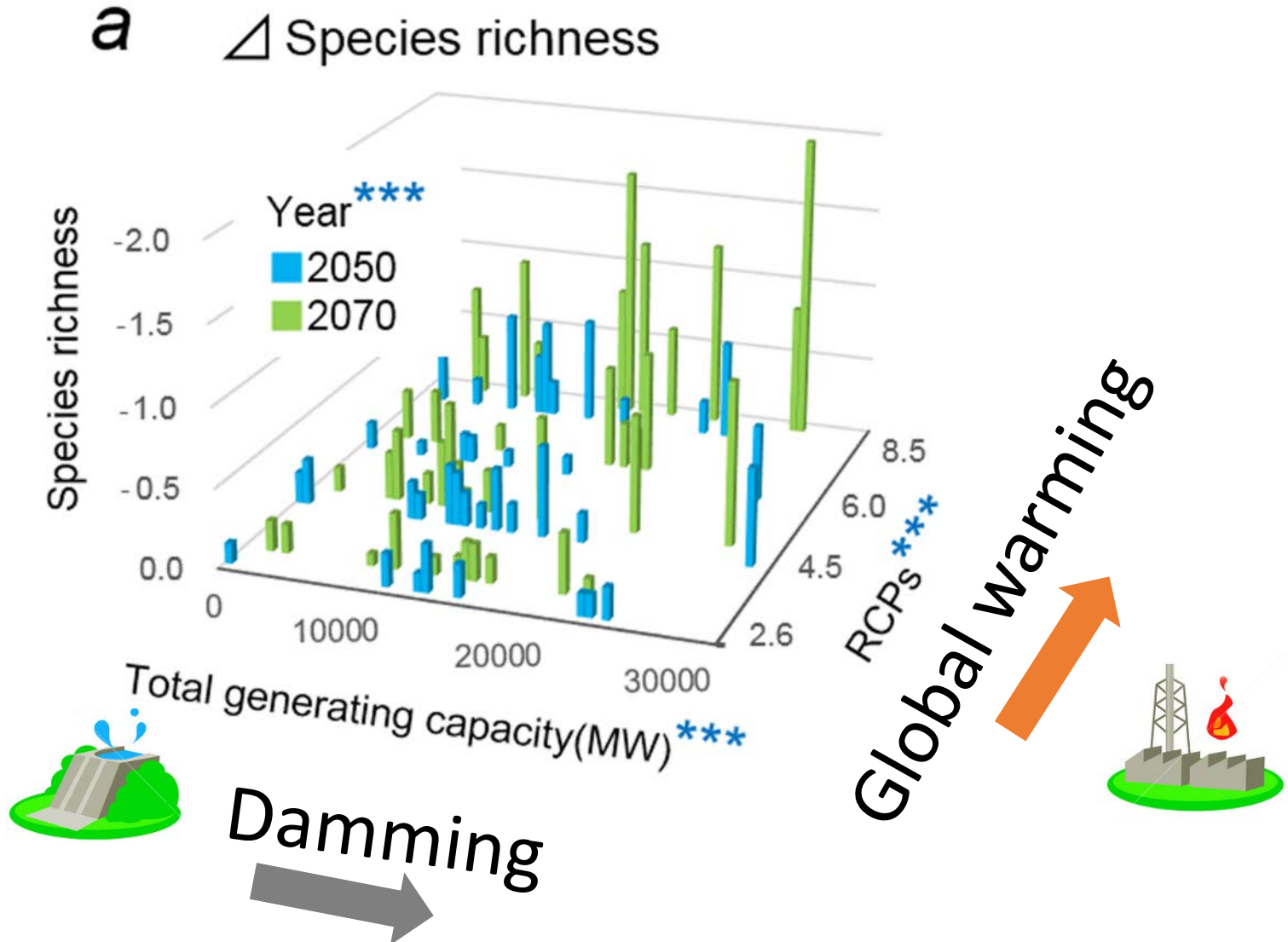
## Global warming



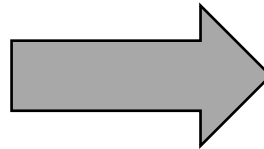
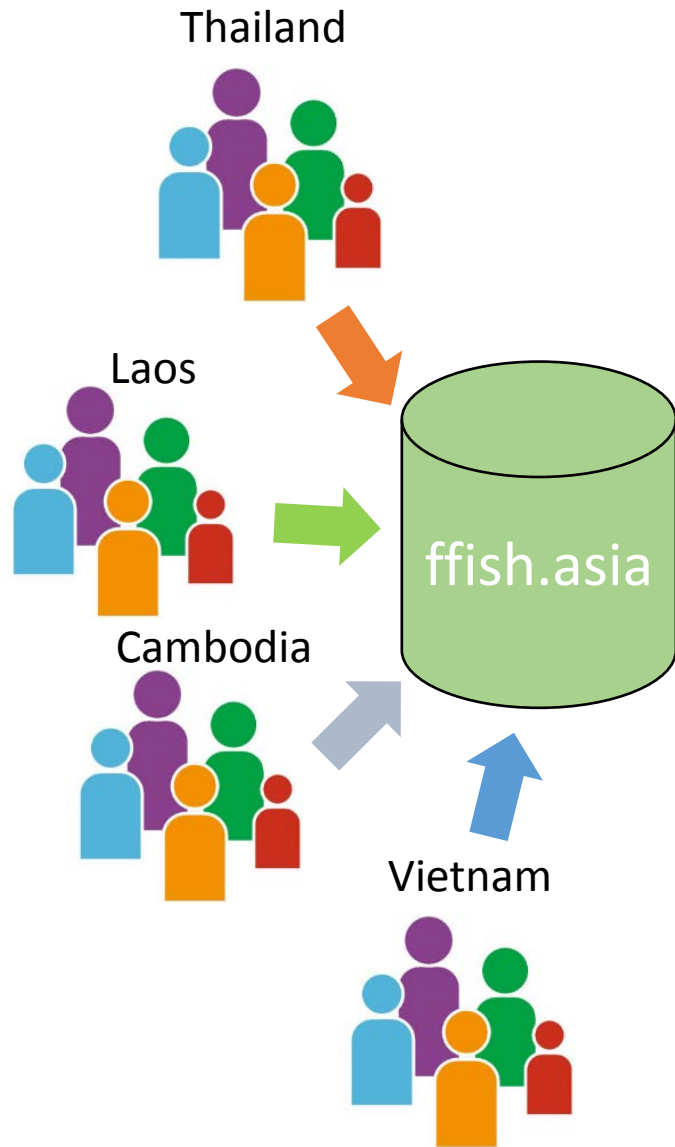
Synergistic  
impact

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

# Synergistic impact



# One of a typical contribution of a local database



The screenshot shows a research article on the PLOS ONE website. The article title is "Impacts of Dams and Global Warming on Fish Biodiversity in the Indo-Burma Hotspot". The authors listed are Yuichi Kano, David Dudgeon, So Nam, Hiromitsu Samejima, Katsutoshi Watanabe, Chaiwit Grudpan, Jarungjit Grudpan, Wichan Magtoon, Prachya Musikasinthom, Phuung Thanh Nguyen, Bounthob Praxaysonbath, Tomoyuki Sato, Koichi Shibukawa, and Kenzo Utsugi. The article is published on August 17, 2016. The page includes a table of metrics (2 Saves, 0 Citations, 1,567 Views, 35 Shares), a "Download PDF" button, and a list of subject areas: Global warming, Biodiversity, Freshwater fish, and Species diversity.

**All the stakeholders included as co-authors**

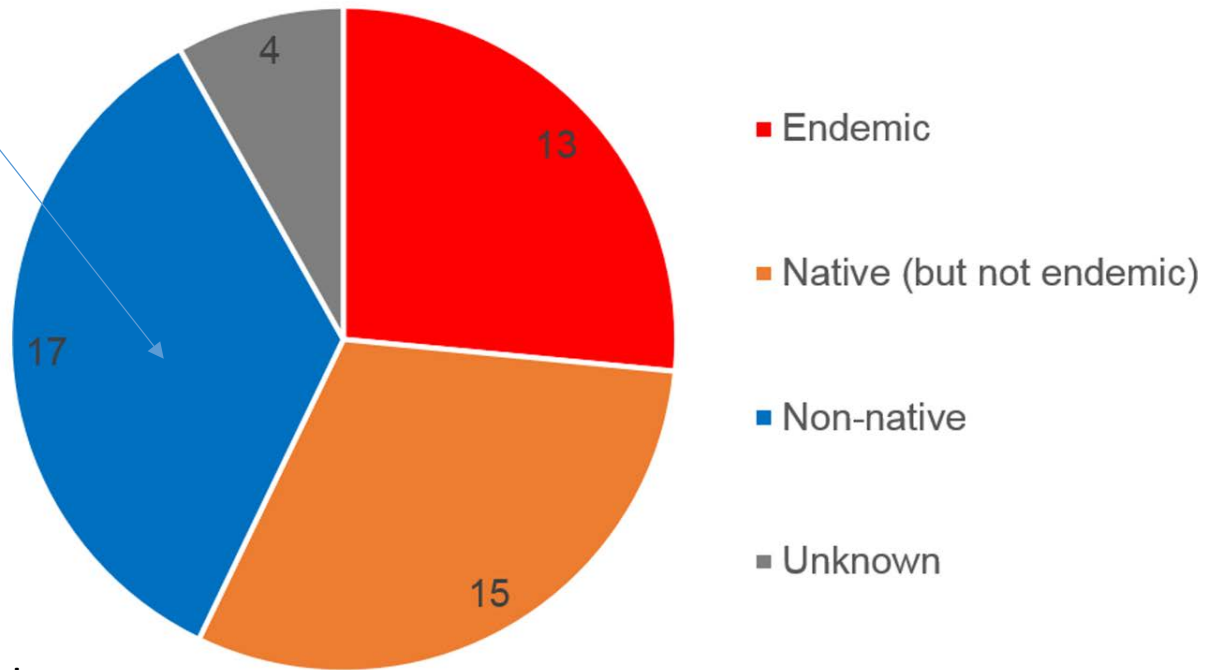
## Recent contribution 2: Fish fauna of Inle Lake



An ancient lake of Myanmar:

No records of the fish fauna have been reported since Annandale (1918)

35 % of the fish fauna was introduced species



In local markets



In biomass, > 50% is Nile Tilapia



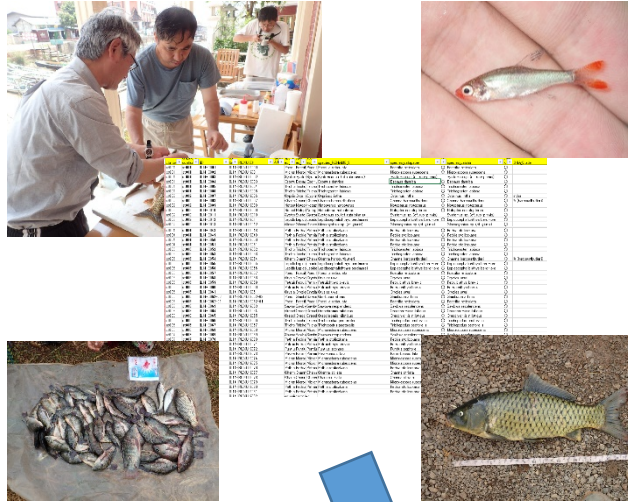
Two endemic species may be extinct

# Challenge of publishing 3D models of specimens on the browser

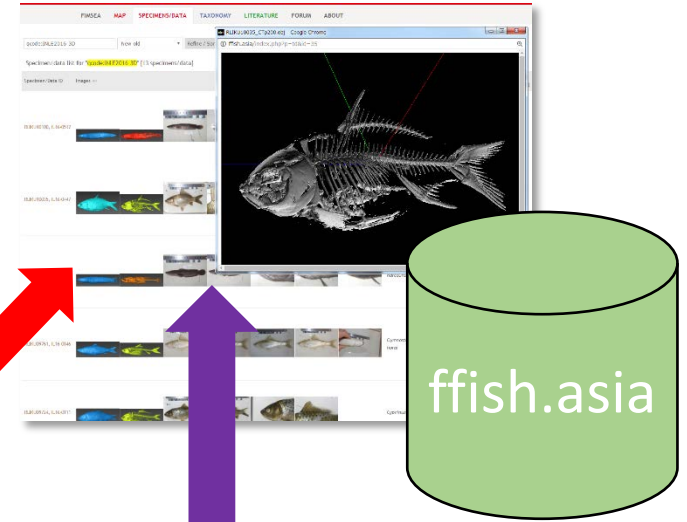
The screenshot displays a web browser window with the URL `fishbase.org/index.php?to=code&code=3A3NLE2016-3D&sporder=1&p=0`. The browser's address bar shows various search engines like 3D, FishBase, GA, Q&A, HP, Query, Mu, and Top. The website's navigation menu includes FISHBASE, MAP, SPECIMENS/DATA, TAXIDOMY, LITERATURE, FORUM, and ABOUT. A search bar at the top left contains the code '3A3NLE2016-3D' and a 'Clear' button. Below the search bar, a message states 'Specimens/data list for 3A3NLE2016-3D (13 specimens/data)'. The main content area is a table with columns for Specimen/Data ID, Images, Species, System, DNA, N, Size (mm), Country, and Locality. Each row represents a different fish specimen, featuring a grid of images: a blue 3D model, a yellow 3D model, and several photographs of the fish from different angles. The table lists specimens such as *Channa bairouti*, *Cyprinus rubrofuscus*, and *Cyprinus kribia*.

Specimen/Data ID	Images	Species	System	DNA	N	Size (mm)	Country	Locality
3A3NLE2016-3D-001		<i>Channa bairouti</i>	Perciformes Channidae Channa		1		Myanmar	Shan State, Inle Middle Section
3A3NLE2016-3D-047		<i>Cyprinus rubrofuscus</i>	Cypriniformes Cyprinidae Cyprinus		7		Myanmar	(location uncertain) Shan State, Waung Chien, Thabeik
3A3NLE2016-3D-045		<i>Channa bairouti</i>	Perciformes Channidae Channa		7		Myanmar	Shan State, Inle Middle Section
3A3NLE2016-3D-046		<i>Gymnocypris hainanensis</i>	Cypriniformes Cyprinidae Gymnocyprinae		1		Myanmar	(location uncertain) Shan State, Hainan, Phawng
3A3NLE2016-3D-011		<i>Cyprinus kribia</i>	Cypriniformes Cyprinidae Cyprinus		1		Myanmar	(location uncertain) Rakhay State, Lokkai, Taung
3A3NLE2016-3D-019		<i>Cyprinus rubrofuscus</i>	Cypriniformes Cyprinidae Cyprinus		4		Myanmar	(location uncertain) Rakhay State, Lokkai, Taung
3A3NLE2016-3D-007		<i>Channa bairouti</i>	Perciformes Channidae Channa	CG, SC79271, 478bp	9		Myanmar	(location uncertain) Rakhay State, Lokkai, Taung
3A3NLE2016-3D-014		<i>Cyprinus kribia</i>	Cypriniformes Cyprinidae Cyprinus		7		Myanmar	(location uncertain) Shan State, Pelon, Pelon

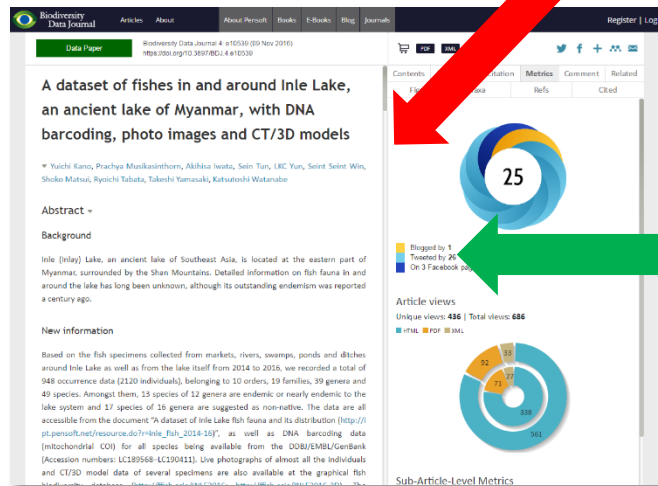
# Collecting data and specimens in Inle Lake



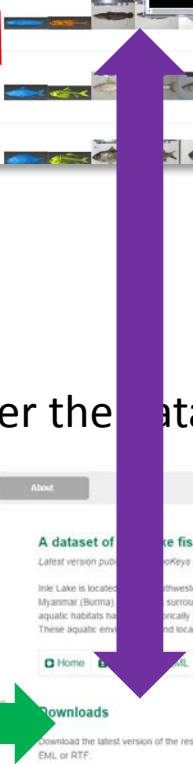
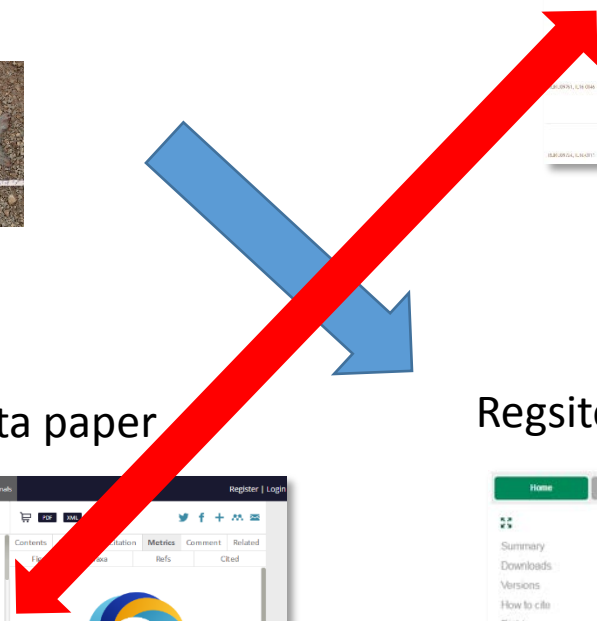
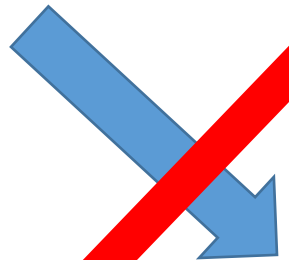
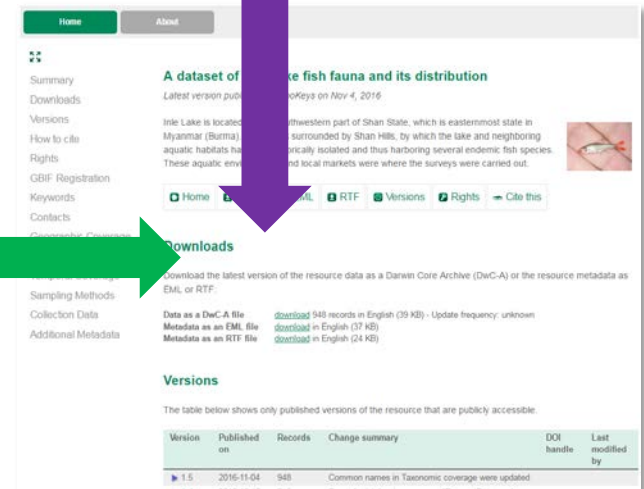
# Register the data, photo images and 3D models into the DB



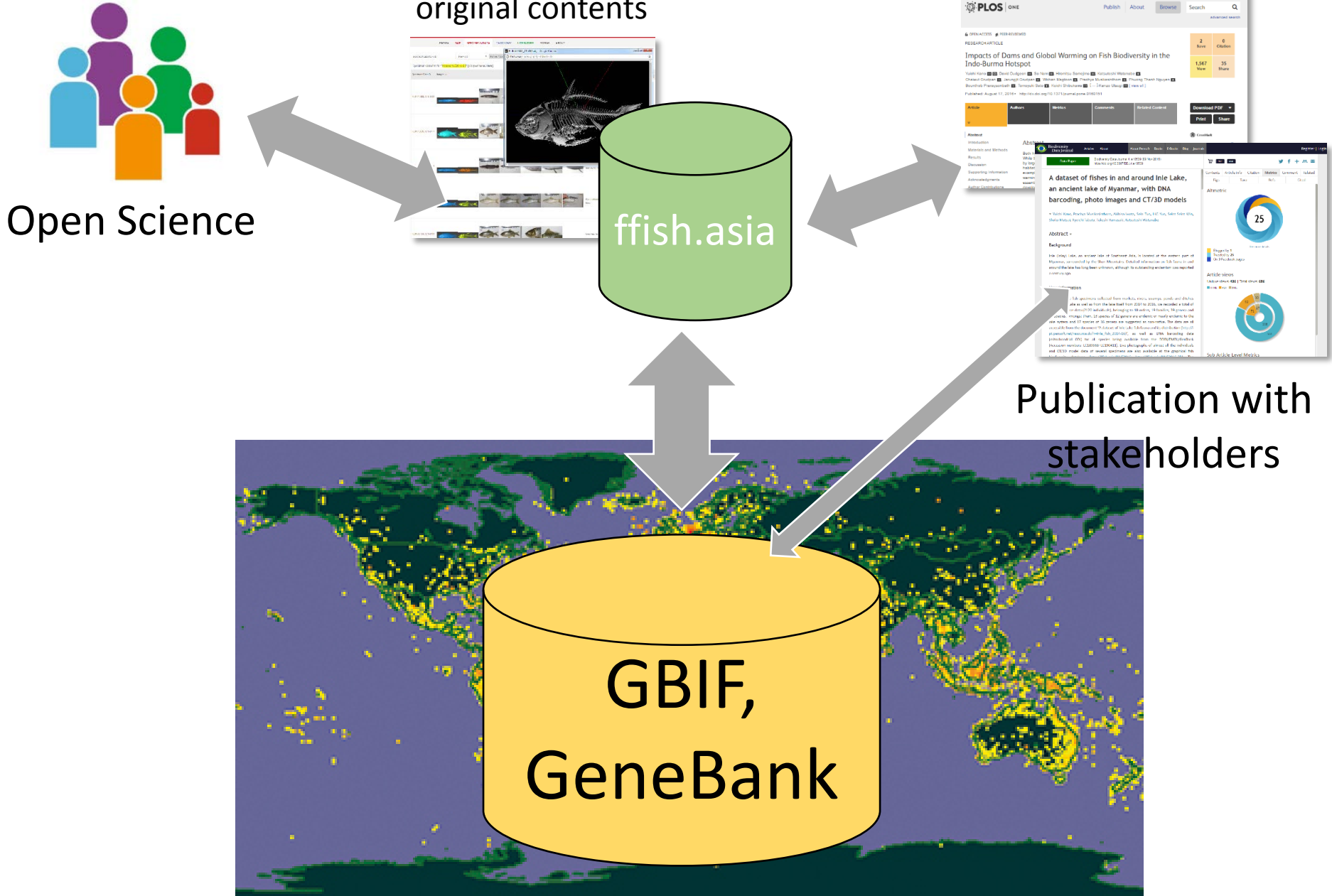
# Publication of a data paper



# Register the data to GBIF and GeneBank

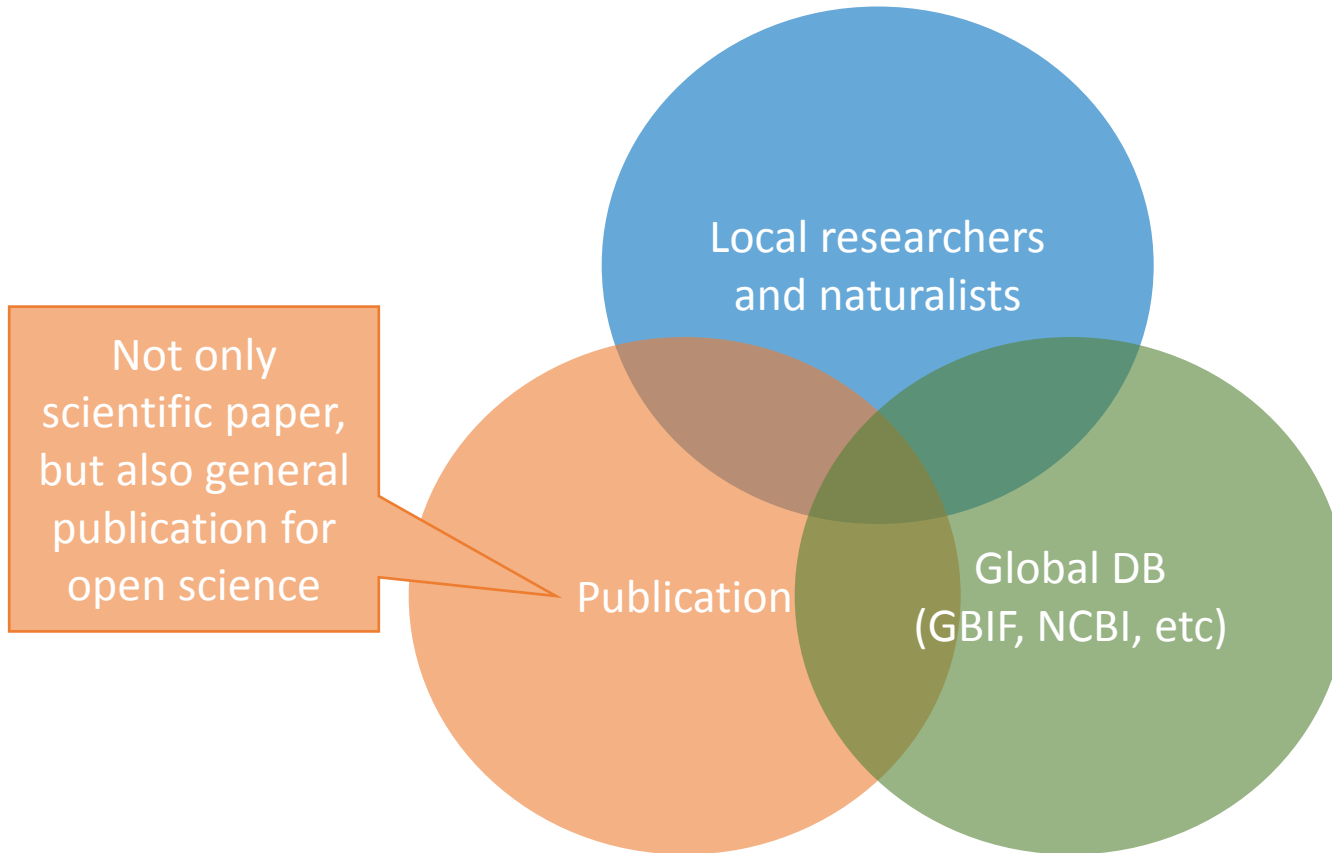


# The system of our local database

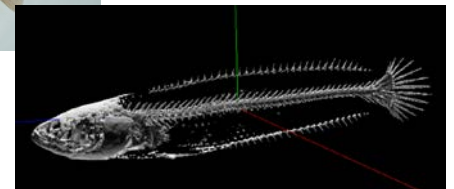




# The roles of our local database is to connect



as well as archiving digital objects such as



# One of the answers of AP-BON?

