



Fish 2030

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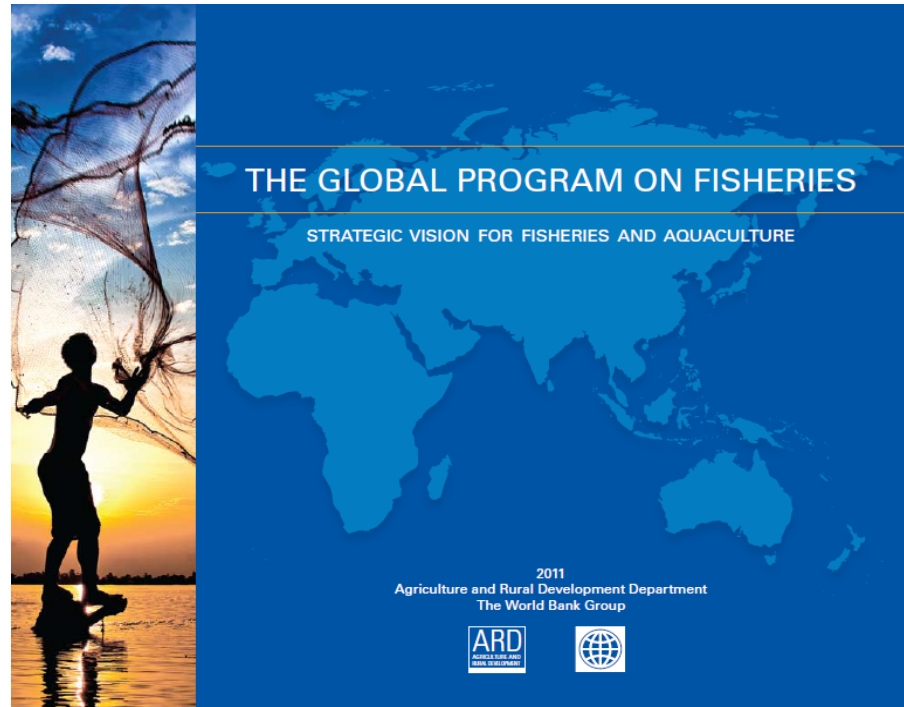
GOAL 2011

Santiago, Chile, Nov. 6-9, 2011

The World Bank

Global Program on Fisheries & Aquaculture

- The Bank reengaged in fisheries in 2005
- 2011 expanded commitment to fisheries and aquaculture



Why is the World Bank interested?

The Opportunity – Capture Fisheries

Fisheries sectors have basically two options:

- **Option 1:** Open access or ‘command and control’ regulated open access.
- **Option 1 has been a failure:**
 - An estimated **\$50 billion is lost annually** as a result of poor governance in fisheries (Sunken Billions, World Bank, 2009)...**This loss is unnecessary!...This is bad for fish and the capture fishing sector...**
 - **But it creates a great opportunity for the aquaculture sector**



The Opportunity – Capture Fisheries

Option 2: Rights-based systems (catch shares, days at sea, individual quotas, community quotas, fisheries association quotas, territorial use rights, indigenous fishers quotas, formalizing tradition rights, vessel quotas, MPAs).

- Rights- based systems have consistently shown to generate sustainable wealth. NOT necessarily more fish – but at lower cost, with higher quality and higher net revenue.
 - This is good for fish and the fishing sector...It is also good for the aquaculture sector!
 - A responsibly governed fishery will *enhance food security, nutrition, create wealth, conserve biodiversity and create a better market for the entire fish industry (capture and aquaculture).*



The Opportunity – Aquaculture

- Aquaculture is the **world's fastest growing** food production system
- Feed conversion rates for many **farmed fish are more efficient** than those of land-based animal production
- Aquaculture is an **efficient user of water** – beef cattle aren't.
- Future fish supplies will be **dominated by aquaculture systems**
- Aquaculture can provide **alternative employment**
- **BUT, Good governance is required** to reduce disease risk, maximize efficiency, minimize pollution and meet market demands



Global Program on Fisheries : Mission

Promote and facilitate the contribution that fisheries and aquaculture can make to sustainable economic growth



Help design and implement good governance systems through World Bank-funded projects & partnerships

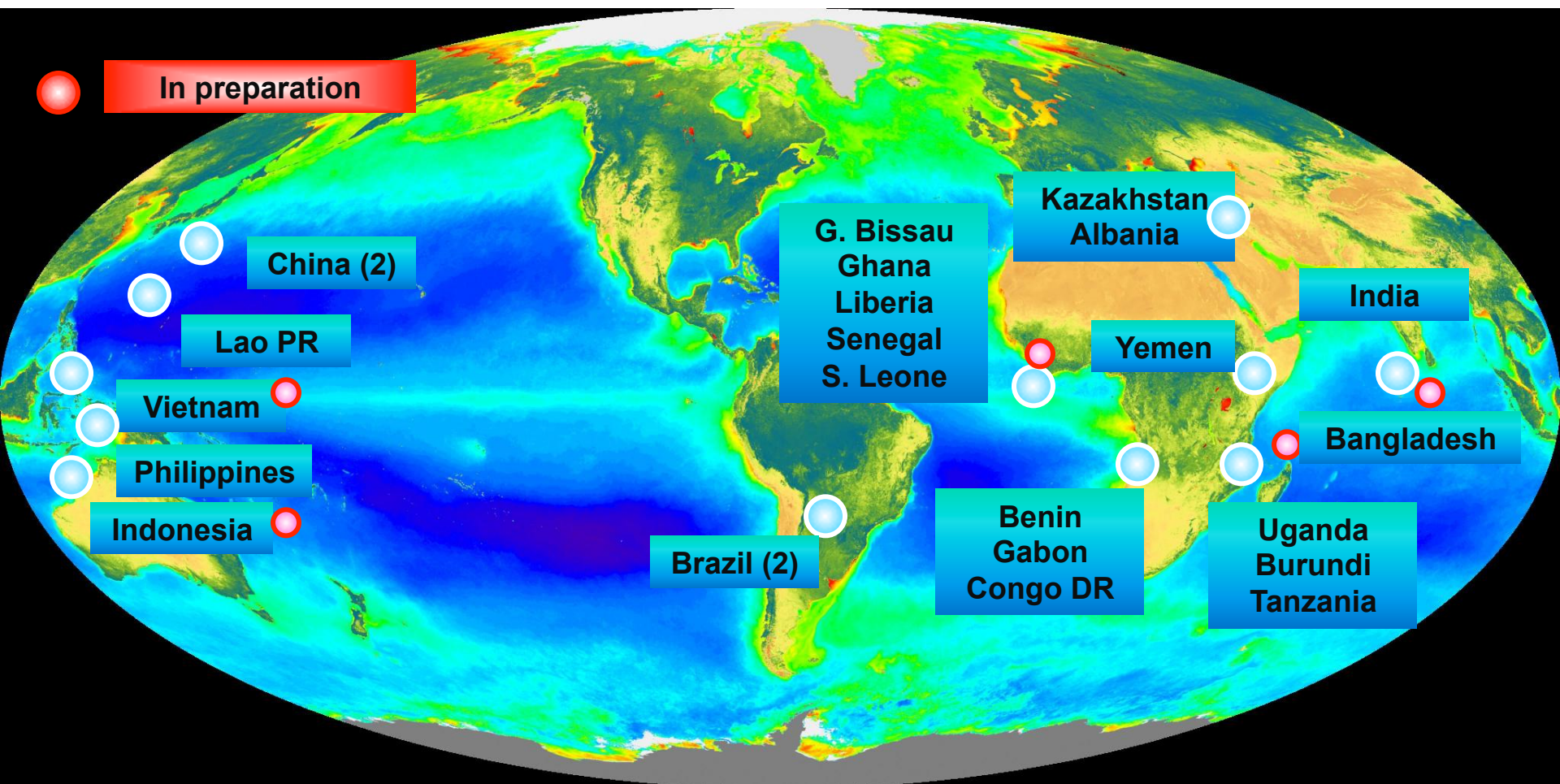


Provide information to help ensure that fisheries and aquaculture create sustainable wealth and reduce poverty



WORLD BANK FISHERIES

PORTFOLIO



US\$ 600+ million in dedicated fisheries and aquaculture projects (including pipeline) – over \$1 billion including projects with fisheries components

The World Bank's Portfolio in Fisheries and Aquaculture is Growing Quickly

We need to know what to expect, hence

The Fish to 2030 Project



Snapshot of Fish 2030

- **Cooperation with International Food Policy Research Institute (IFPRI – Siwa Msangi), University of Arkansas, (Madan Dey) and FAO**
- **Builds upon the 2003 project “Fish to 2020” – but takes a much closer look at aquaculture and its potential for future growth to meet demand**
- **Starts from a new modeling framework**



Some Key Features of the Model

- **IFPRI's global IMPACT** model and operates at 115 region-level
- **Currently a 'draft' stand alone fish model has been developed**
- **15-level production system classification** on the supply-side
- **Demand** is defined in terms of **8 commodity groups**
- **Country-level balance** b/w supply/demand/trade
- **Balance of net exports** globally for each commodity
- **Fishmeal production is linked** to the reduction/low-value species
– and fishmeal consumption is linked to feed demand from protein-intensive aquaculture

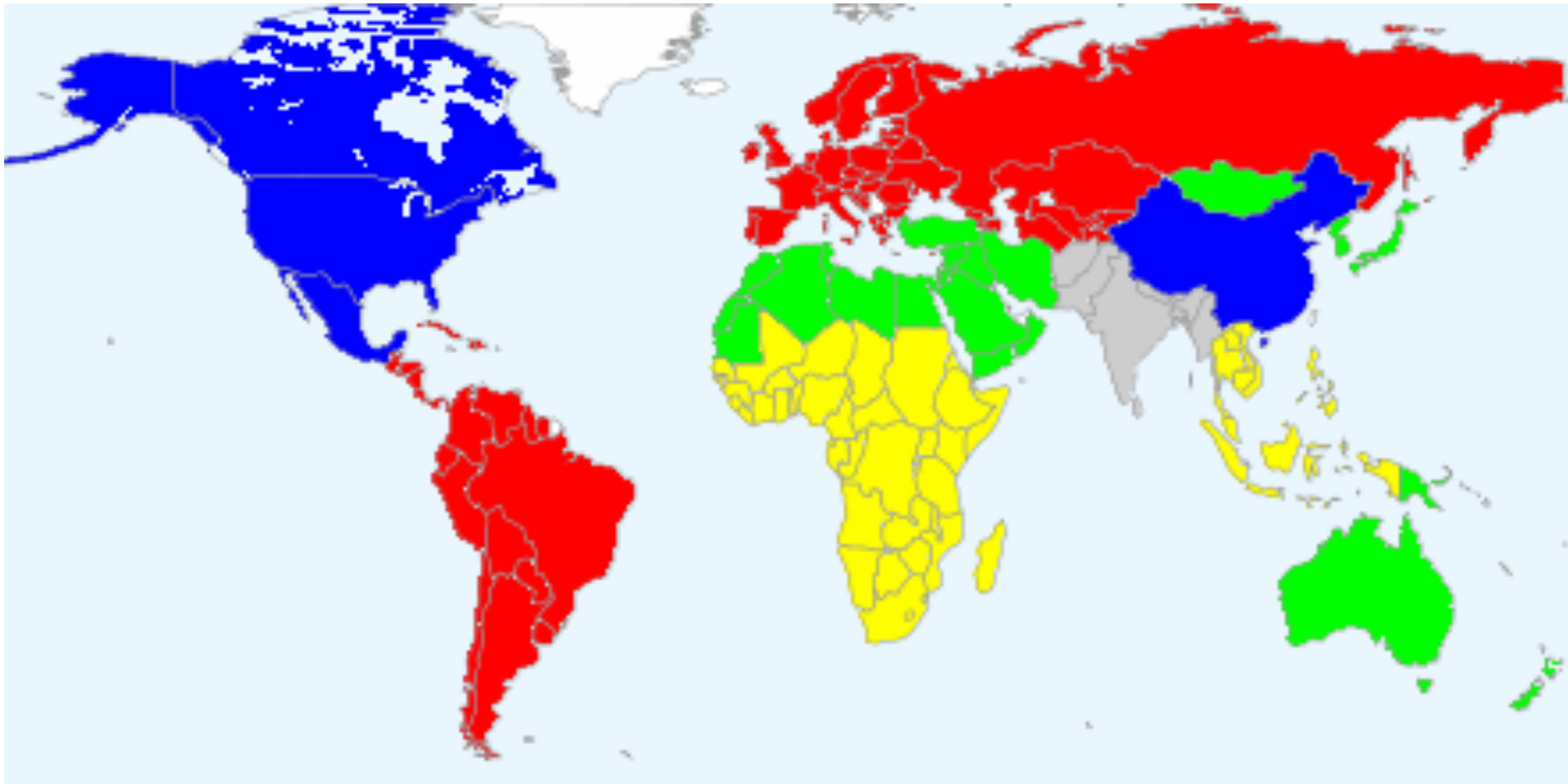


Definitions of Regions

Region	Countries Included
China	China
South East Asia	Philippines, Thailand, Indonesia, Vietnam, Cambodia/Laos
South Asia	India, Pakistan, Bangladesh, Myanmar, Sri Lanka
Other East Asia	Japan, Korea(s), Australia, New Zealand, and Pacific Islands
Latin America	Brazil, Chile, Peru and South/Central America – incl. Caribbean
North America	US, Mexico, Canada
Europe	Western, Central & Eastern Europe, incl. Scandinavia & Russia
SS Africa	South of Sahara Africa



Regional Definitions

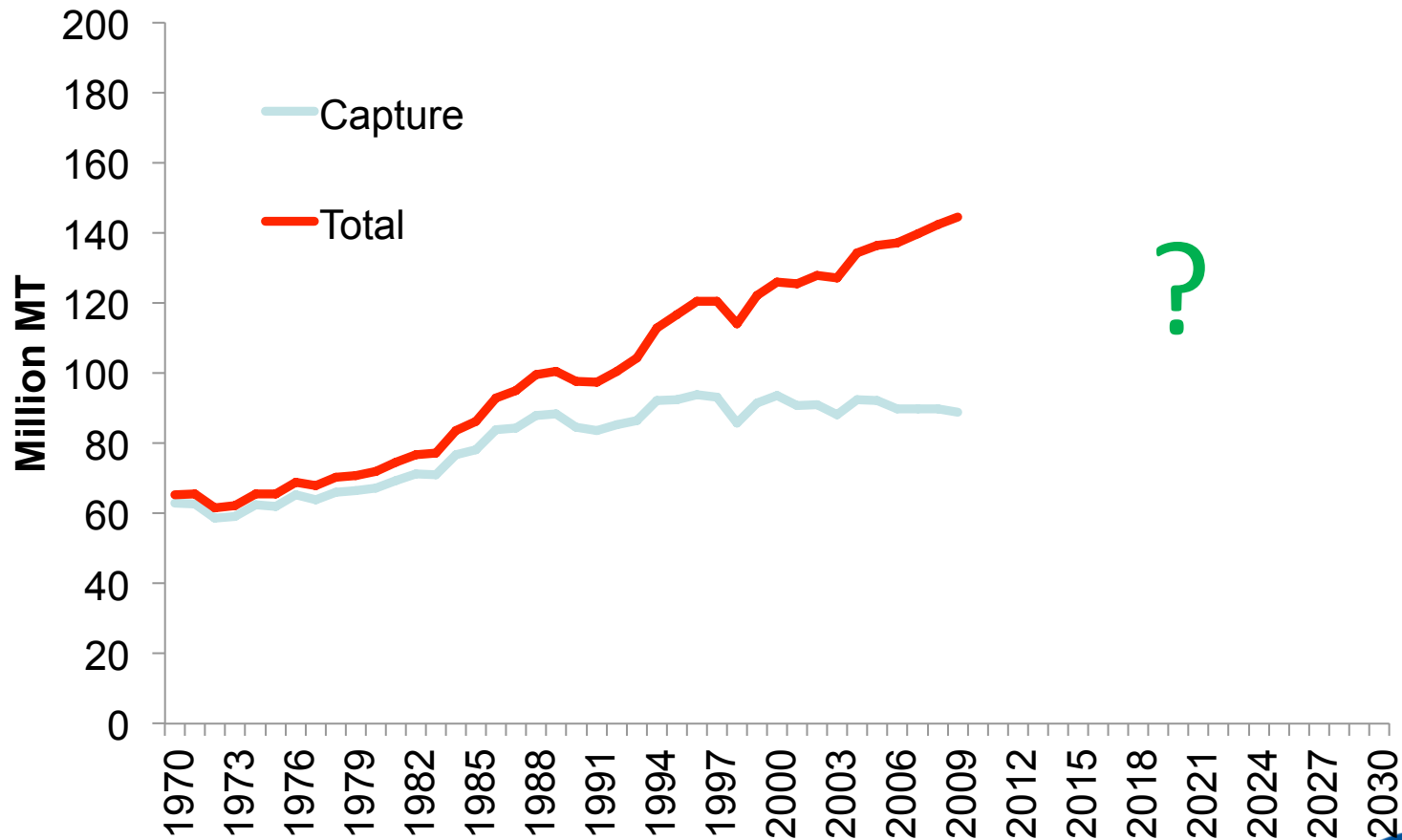


Definitions of Fish Species Used

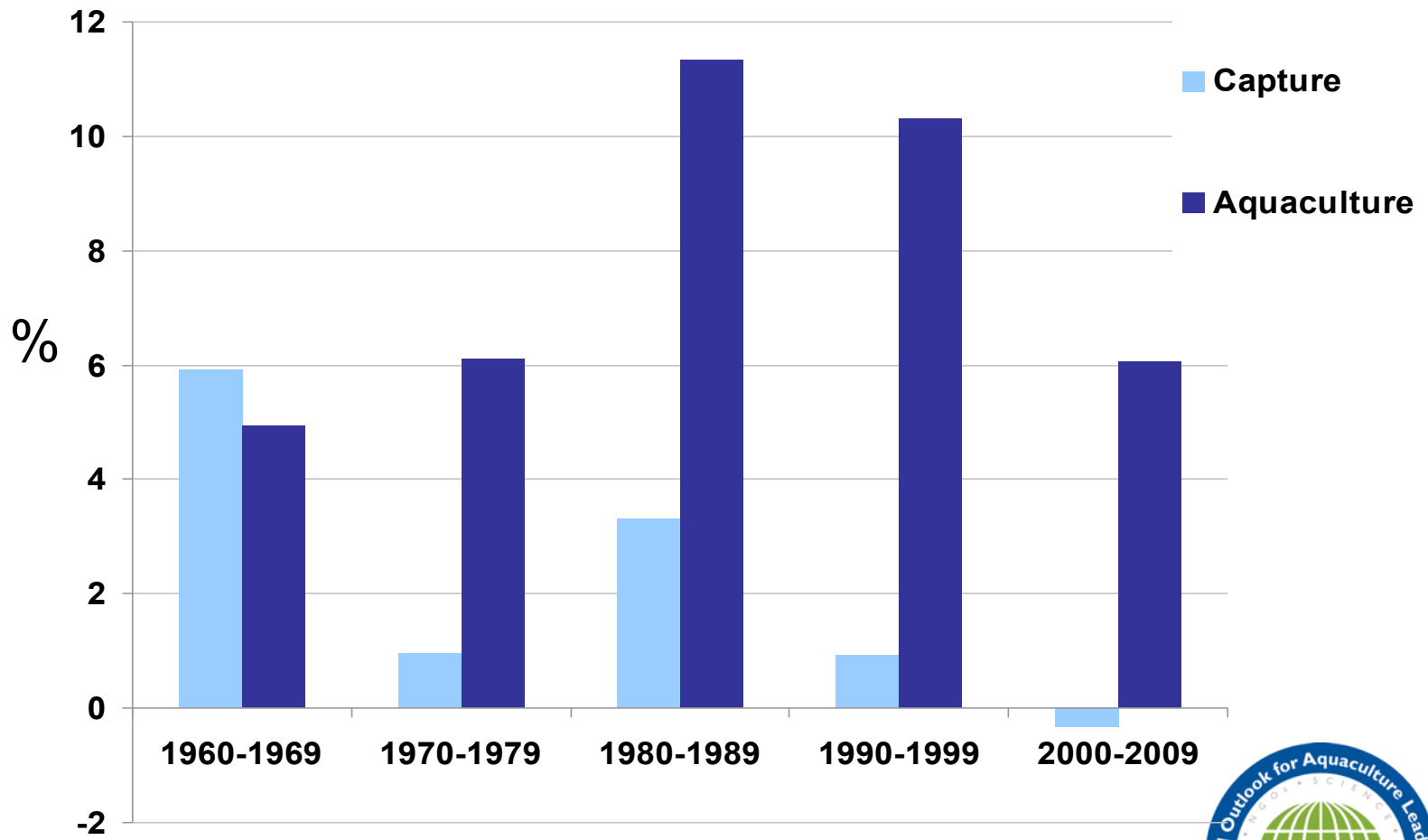
Abbreviation	Category
Shrimp	Shrimp & Prawns
Crustn	Other Crustaceans (Lobster, crab, etc)
Mllsc	Mollusks (oyster, clam, scallops etc)
Salmon	Salmon and trout
Tuna	Tuna
FrshDiad	Freshwater and Diadromous (<i>Tilapia, Pangasius, catfish, carp, sturgeon, eels etc</i>)
ODmrsl	Demersals (Cod, flounder, AK pollock, etc)
OPelagc	Pelagics (<i>herring, anchovy, other pelagics</i>)
OMarine	Other Marine fish



Total seafood production: 1970-2009 (FAO 2010)



Capture Fisheries are not growing and aquaculture production is growing , but at a decreasing rate



Some Key Trends and Drivers of Change

- Aquaculture will dominate
- Fewer species will increasingly dominate the bulk of the market (In US - salmon, shrimp, catfish and tilapia)
- Disease will continue to be a key problem in aquaculture
- Improved distribution and logistics – will increase globalization
- Governance reform in fisheries will reorient the sector on market needs. In general, capture fisheries will become more profitable but will not supply substantially more fish.

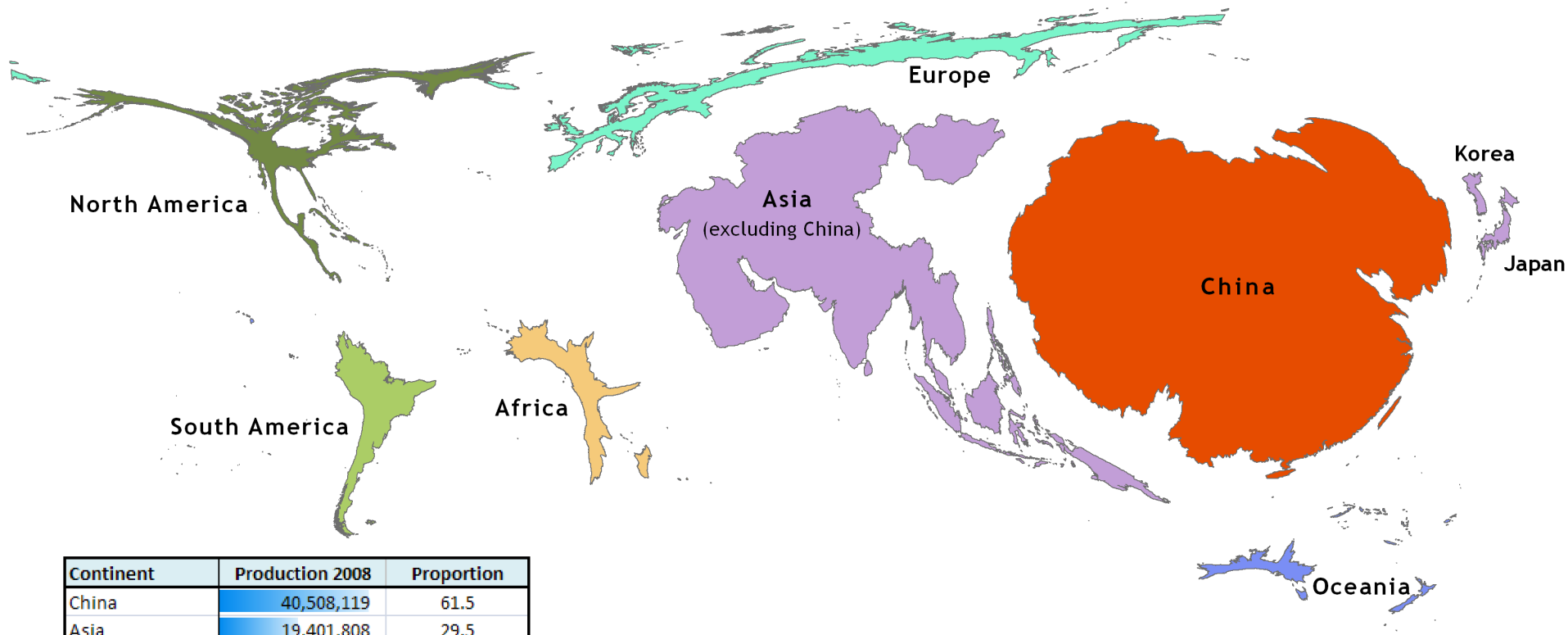


Some Key Trends and Drivers of Change

- Competition in aquaculture sector will cause costs to decline and relatively low profitability – low cost producers will tend to win.
- Relatively higher fishmeal and fish oil prices will drive change and shifts species
- Technological, nutrition, genetic gains in aquaculture are still in the beginning.
- Seafood safety and traceability
- CHINA



Who Grows the Fish?

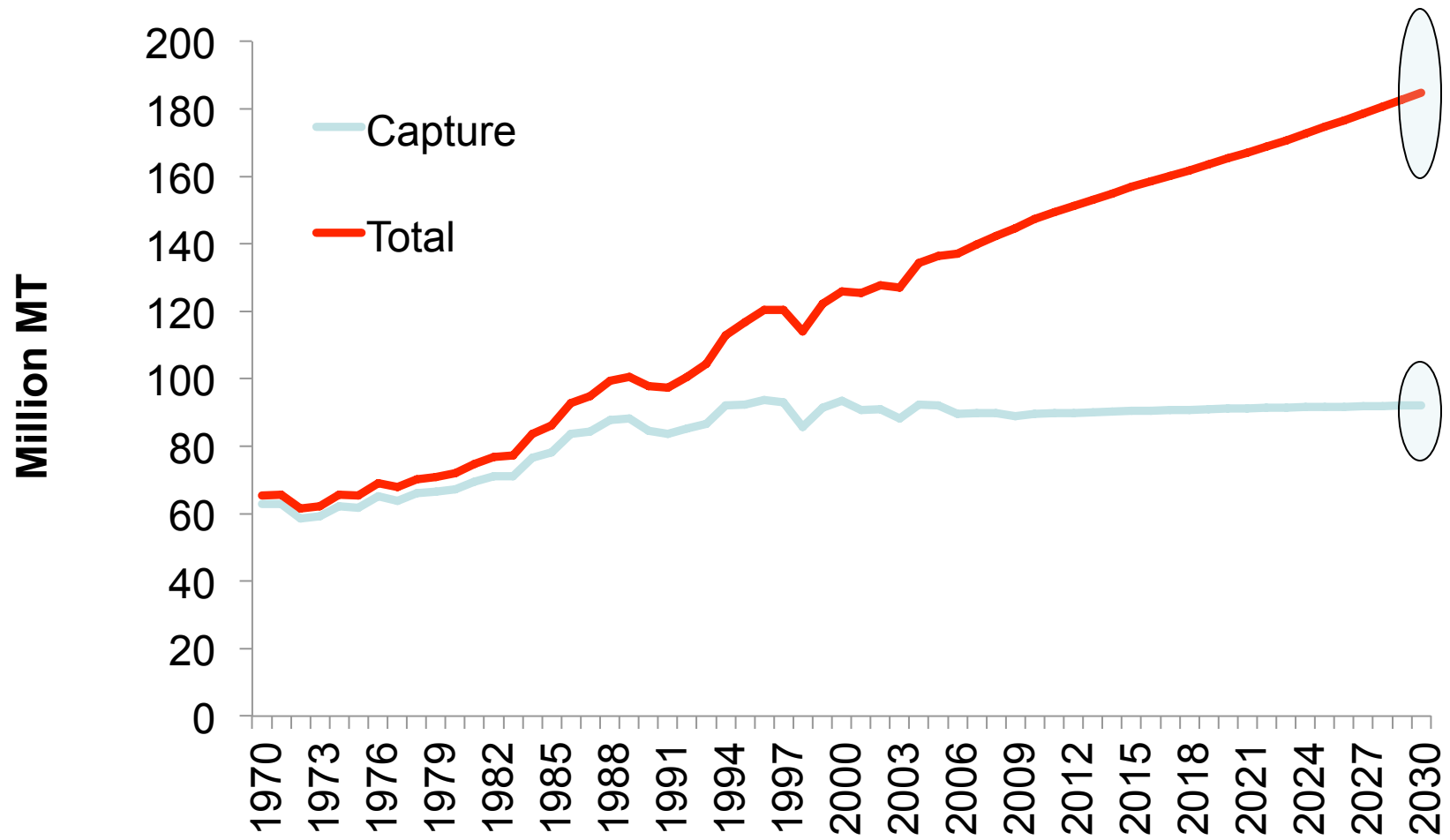


Continent	Production 2008	Proportion
China	40,508,119	61.5
Asia	19,401,808	29.5
Europe	2,341,646	3.6
South America	1,461,061	2.2
North America	965,792	1.5
Africa	952,133	1.4
Oceania	176,181	0.3

Source: Hall, S. Blue Frontiers (2011), WorldFish Centre



Total Seafood Production: 1970-2009 (FAO 2010) , 2010-30 forecast **VERY PRELIMINARY!!!**



Aquaculture Share

2010

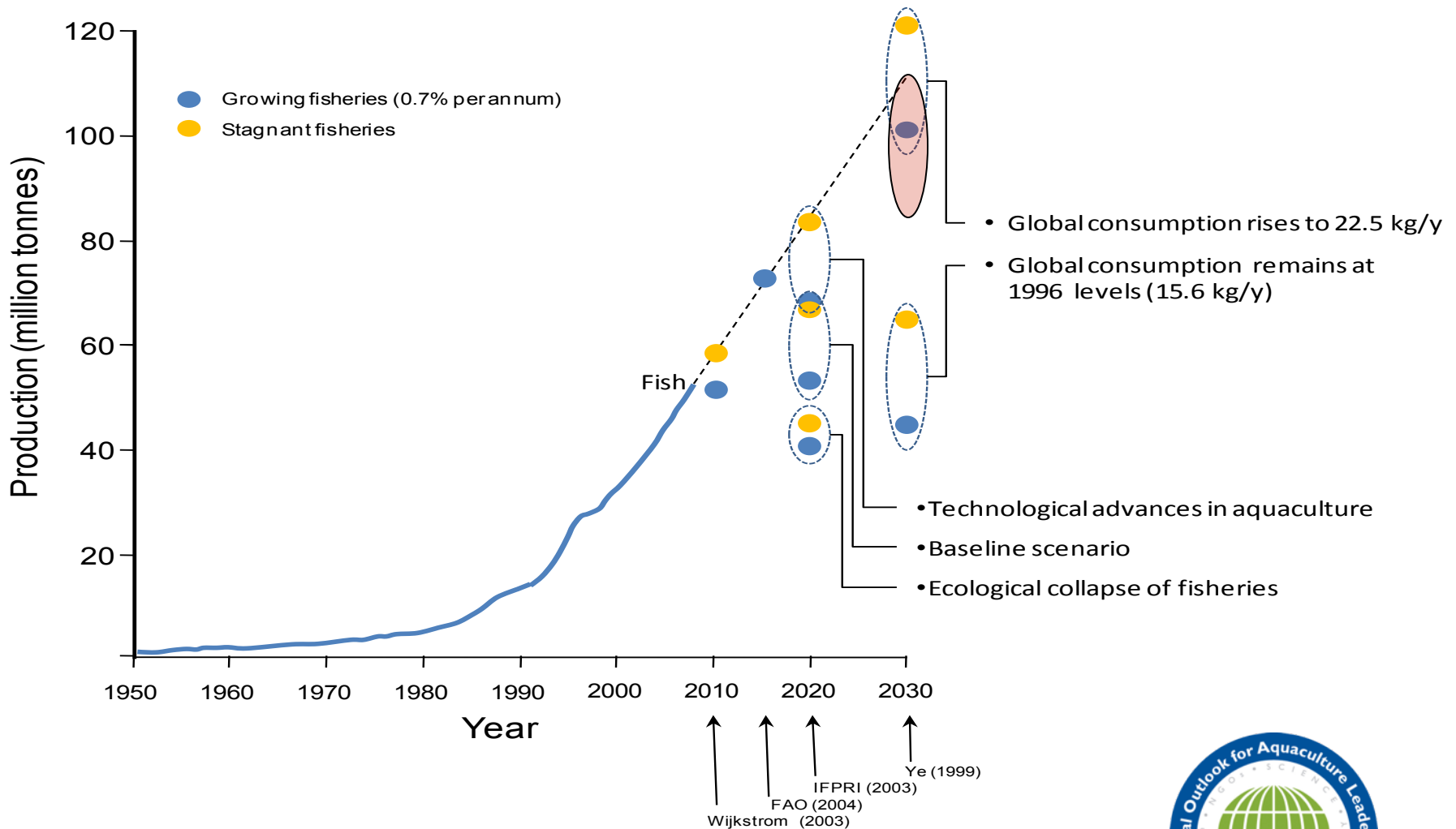
- Approx. **39%** of total harvest
- Approx. **50%** of fish for human consumption
- Aquaculture growth
2000-2010 – **79% in 10 yrs**
- Growth in total supply
2000-2010 – **17% in 10 yrs**

2030 (VERY PRELIMINARY!!)

- Around **50%** of total harvest
- Around **60%** of fish for human consumption
- Aquaculture growth
2010-2030 – about **75-85% in 20 yrs**
- Growth in total supply
2010-2030 – about **25-35% in 20 yrs**



Other Aquaculture Forecasts



Source: Hall, S. Blue Frontiers (2011), WorldFish Centre



Where Will the Growth in Production Come from?

VERY PRELIMINARY!!!

More than 20% increase from 2010 to 2030 (WILD & AQUA):

SE Asia (Thailand, Vietnam, Malaysia etc)

China

South Asia (India, Bangladesh etc)

Latin America

North America

Less than 20% increase from 2010 to 2030 (WILD & AQUA):

Other Asia (Japan etc)

Europe

Africa



What species groups will provide the growth?

VERY PRELIMINARY!!!

More than 50% increase from 2010 to 2030 (WILD & AQUA):

Freshwater fish (Tilapia, Pangasius, Catfish etc) – Accounts for most of the new production

Salmon

Shrimp

Less than 20% increase from 2010 to 2030:

Everything else



Where Will the Growth in Consumption Be?

VERY PRELIMINARY!!!

More than 20% increase from 2010 to 2030 (WILD & AQUA):

China - will dominate much of the seafood market

SE Asia (Thailand, Vietnam, Malaysia etc)

South Asia (India, Bangladesh etc)

Latin America

Africa

Less than 20% increase from 2010 to 2030 (WILD & AQUA):

Europe

N. America

Other Asia (Japan etc)



What about Prices 2010 to 2030?

VERY PRELIMINARY!!!

Likely Real (after accounting for inflation) Price Increases:

Fishmeal and Fish Oil

Likely Marginal or No Real Price Increases:

Species dominated by wild caught fish – tuna, lobster, crabs, pelagics and demersals.

Also aquaculture-dominated shrimp

Likely Real Price Declines:

Freshwater fish and salmon



Next steps....

- Further adjustments and refinements of data (as new updates come from FAO)
- Improve demand estimates
- Improve the representation of system-specific requirements for fishmeal/oil – and eventually link to larger IMPACT model
- Supply-side response will undergo further refinement



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www.worldbank.org/fish

THANK YOU!

