

# WEBINARS

## Fisheries Subsidies: Refresher sessions

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### Session 2: Assessing options for combining prohibitions with exceptions

Friday 29 January | 9-11:00 a.m. CET



# Global Fishing Effort of Developing Nations, Based on Satellite Data

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Anthony Rogers

Sea Change Economics

*January 2021*

# Industrial-scale Fishing Patterns

## Global Fishing Watch data (2019)

- All AIS-equipped (some VMS) vessels
  - Typically only larger, industrial fishing
  - More than 300,000 vessels (of 2.9 million)
  - More than 50% of all fishing effort >100nm from shore
  - As much as 80% of the fishing in the High Seas
- Designation based on flag vessel is registered under

# Global fishing effort on the High Seas

Global Fishing Effort		
	Effort	Percent of Global Effort
<b>fishing hours</b>	5,623,092	13.78%
<b>kw/h</b>	4,902,978,253	23.15%

		Regional Fishing Effort	
Region		Percent of Regional Effort	Percent of Global Effort
Asia			
	<i>hours</i>	23.17%	11.04%
	<i>kw/h</i>	42.50%	16.69%
Europe			
	<i>hours</i>	3.38%	1.15%
	<i>kw/h</i>	9.20%	4.05%
Americas			
	<i>hours</i>	12.64%	0.87%
	<i>kw/h</i>	12.05%	1.15%
Africa			
	<i>hours</i>	8.50%	0.25%
	<i>kw/h</i>	10.53%	0.43%
Middle East			
	<i>hours</i>	0.00%	0.00%
	<i>kw/h</i>	0.00%	0.00%
Oceania			
	<i>hours</i>	22.09%	0.47%
	<i>kw/h</i>	28.48%	0.81%

# Global fishing effort in foreign EEZs + on the High Seas

Global Fishing Effort		
	Effort	Percent of Global Effort
<b>fishing hours</b>	10,348,138	25.36%
<b>kw/h</b>	8,684,815,843	41.00%

		Regional Fishing Effort	
Region		Percent of Regional Effort	Percent of Global Effort
Asia			
	<i>hours</i>	31.91%	15.20%
	<i>kw/h</i>	56.89%	22.35%
Europe			
	<i>hours</i>	23.01%	7.80%
	<i>kw/h</i>	34.06%	15.01%
Americas			
	<i>hours</i>	16.45%	1.14%
	<i>kw/h</i>	17.50%	1.68%
Africa			
	<i>hours</i>	17.82%	0.53%
	<i>kw/h</i>	21.41%	0.88%
Middle East			
	<i>hours</i>	2.02%	0.004%
	<i>kw/h</i>	1.35%	0.001%
Oceania			
	<i>hours</i>	32.44%	0.70%
	<i>kw/h</i>	38.18%	1.09%

# Fishing effort by the fleets of all developing WTO members, in their own domestic territorial sea

Global Fishing Effort		
	Effort	Percent of Global Effort
<b>fishing hours</b>	8,158,614	20.00%
<b>kw/h</b>	2,105,889,740	9.94%

Region		Regional Fishing Effort	
		Percent of Regional Effort	Percent of Global Effort
Asia			
	<i>hours</i>	39.42%	18.78%
	<i>kw/h</i>	22.62%	8.88%
Europe			
	<i>hours</i>	1.52%	0.51%
	<i>kw/h</i>	0.65%	0.29%
Americas			
	<i>hours</i>	4.91%	0.34%
	<i>kw/h</i>	4.10%	0.39%
Africa			
	<i>hours</i>	10.44%	0.31%
	<i>kw/h</i>	8.53%	0.35%
Middle East			
	<i>hours</i>	28.05%	0.06%
	<i>kw/h</i>	22.10%	0.02%
Oceania			
	<i>hours</i>	0.22%	0.00%
	<i>kw/h</i>	0.13%	0.00%

# Fishing effort by the fleets of all developing WTO members, except China, in their own EEZ

Global Fishing Effort		
	Effort	Percent of Global Effort
<b>fishing hours</b>	4,029,940	9.88%
<b>kw/h</b>	2,137,166,944	10.09%

		Regional Fishing Effort	
Region		Percent of Regional Effort	Percent of Global Effort
Asia			
	<i>hours</i>	9.27%	4.41%
	<i>kw/h</i>	6.80%	2.67%
Europe			
	<i>hours</i>	1.65%	0.56%
	<i>kw/h</i>	0.74%	0.32%
Americas			
	<i>hours</i>	30.01%	2.07%
	<i>kw/h</i>	37.39%	3.58%
Africa			
	<i>hours</i>	81.40%	2.40%
	<i>kw/h</i>	77.29%	3.19%
Middle East			
	<i>hours</i>	87.42%	0.17%
	<i>kw/h</i>	70.96%	0.08%
Oceania			
	<i>hours</i>	11.96%	0.26%
	<i>kw/h</i>	8.88%	0.25%

# All fishing effort by the fleets of all least developed countries (LDCs), total

<b>Global Fishing Effort</b>		
	<b>Effort</b>	<b>Percent of Global Effort</b>
<b>fishing hours</b>	286,309	0.702%
<b>kw/h</b>	208,647,703	0.99%



# All three exceptions together, total

<b>Global Fishing Effort</b>		
	<b>Effort</b>	<b>Percent of Global Effort</b>
<b>fishing hours</b>	10,830,623	26.56%
<b>kw/h</b>	3,862,746,279	18.24%

# WTO members' marine fisheries reconstructed catches by artisanal fleets and in specific areas

**Maria L.D. Palomares and S.L. Noël**

*Sea Around Us*, Institute for the Oceans and Fisheries,  
University of British Columbia (Vancouver, Canada)

Fisheries Subsidies Session 2: Assessing options for combining prohibitions with exceptions

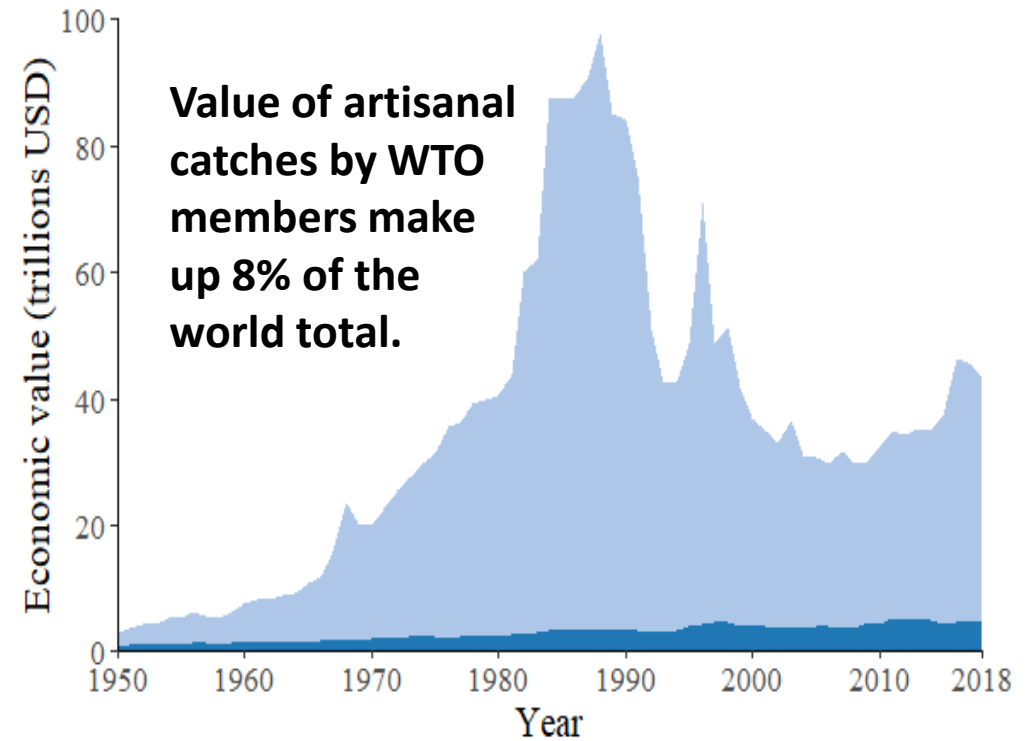
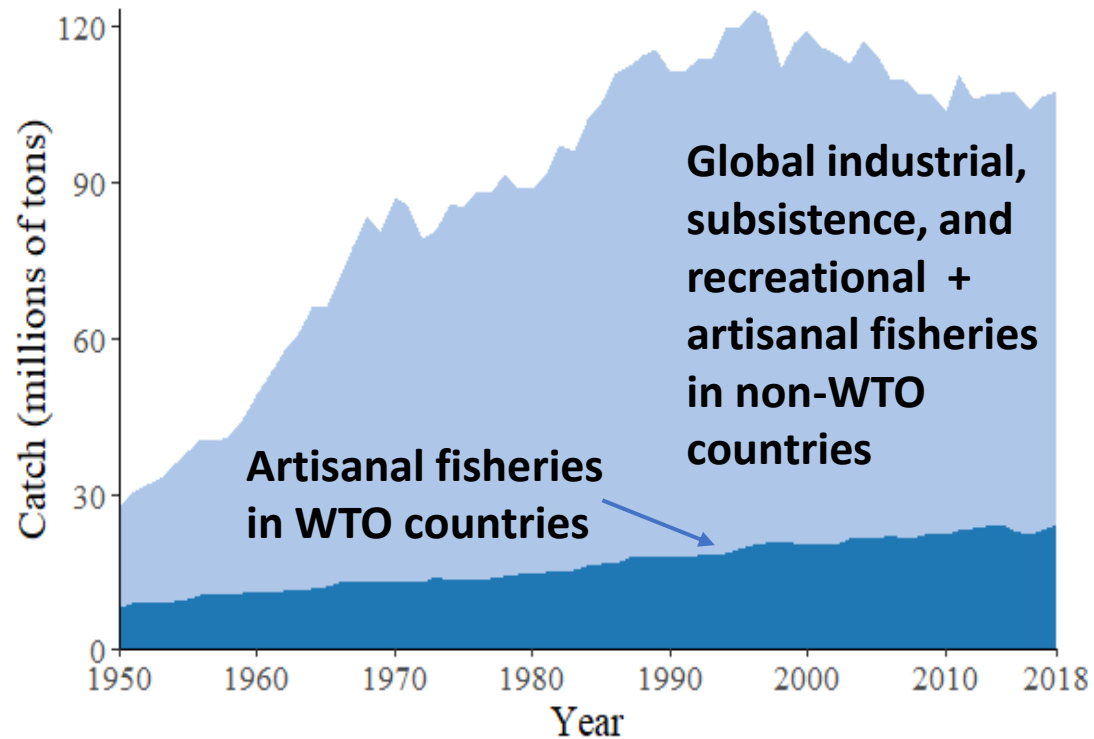


*UBC is located in the traditional, ancestral, and unceded territory of  
the Musqueam, Squamish and Tsleil-Waututh First Nations*



# Artisanal catches by WTO members make up 17% of the world's maritime fisheries catches total for 1950-2018

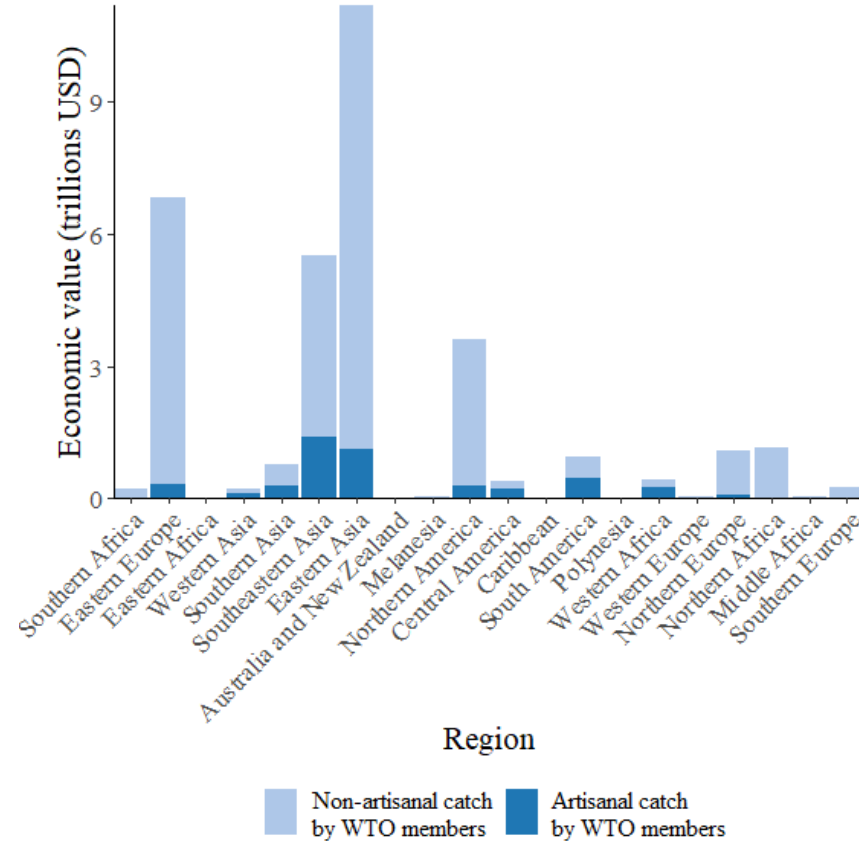
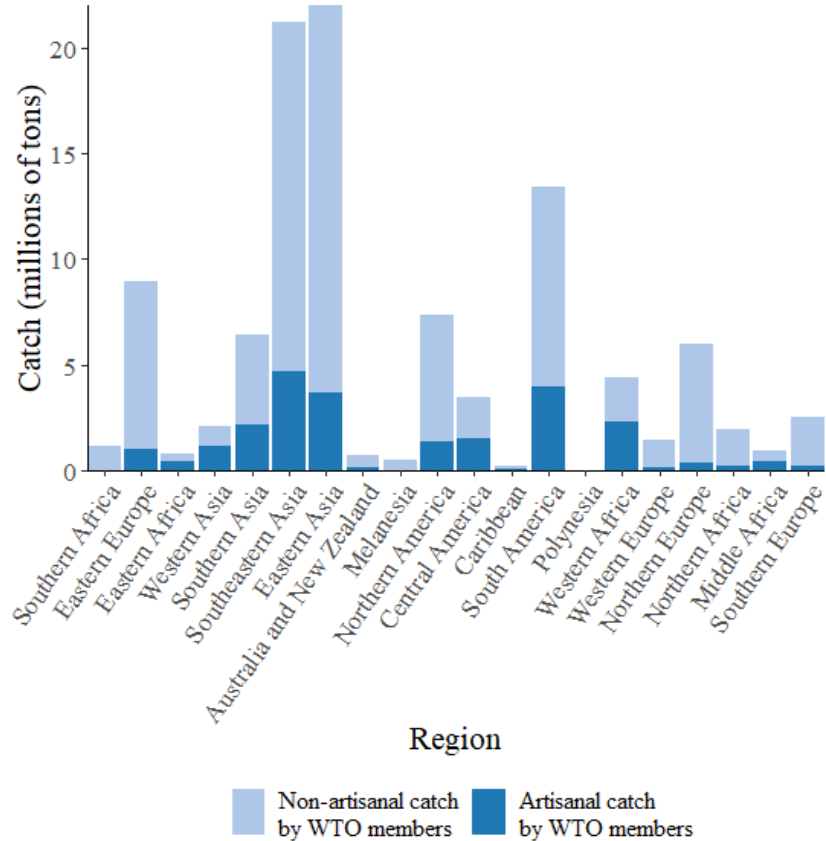
**In 2018, artisanal catches in WTO countries made up 22% of total global catches, which represented 14% of global economic value of the catch**



Global catches total over 6 bt over 66 years averaging 90 mt per year; peaked in 1996 and has since decreased by an average of 1.2 mt per year (Pauly and Zeller 2016, *Nature Communications*). Artisanal catches in WTO countries make up 1/6 of global at just over 1 bt during the 66-year period, averaging at 16 mt per year.

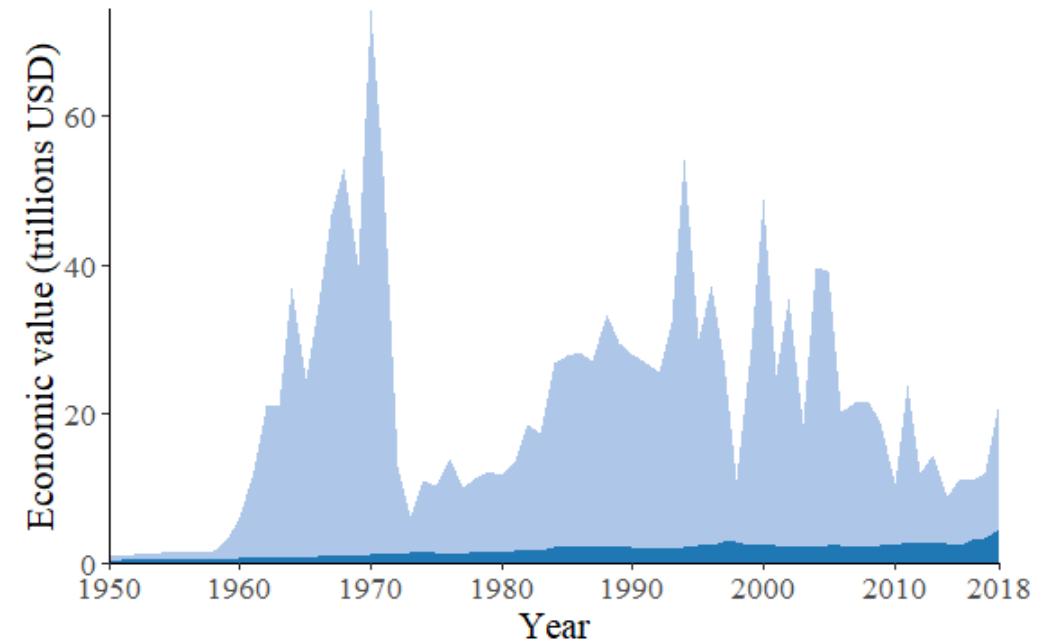
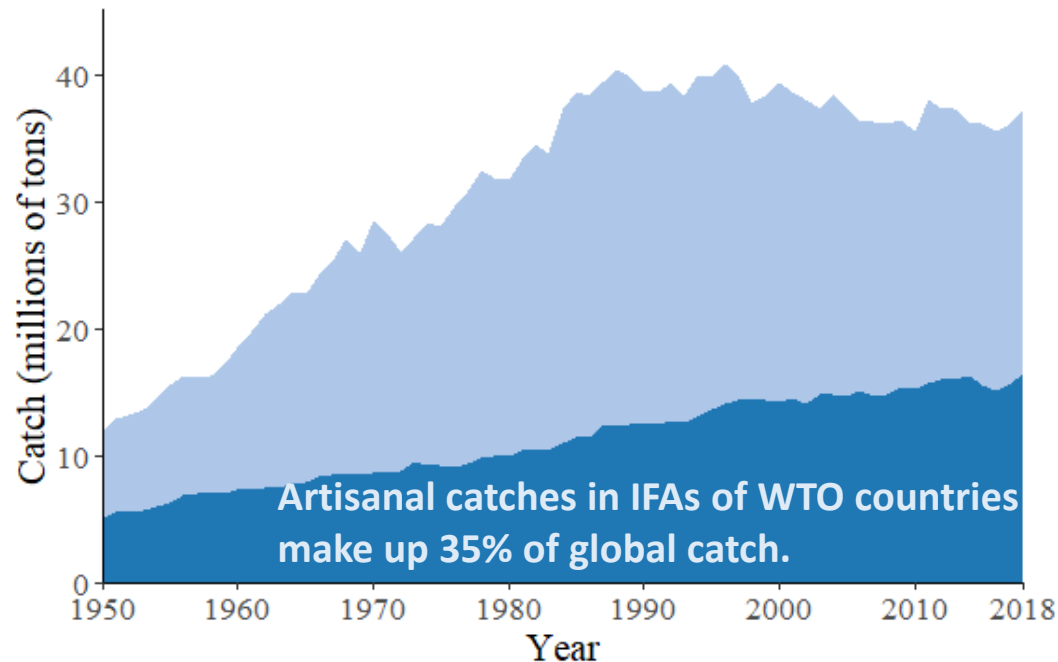
# 2018 artisanal catches by WTO members by region

**In 2018, artisanal catches in developing countries represent 15% of global catch and 10% of global economic value of the catch**



# Artisanal catches in the inshore fishing areas (IFA) of WTO members make up 35% of global artisanal catch for 1950-2018

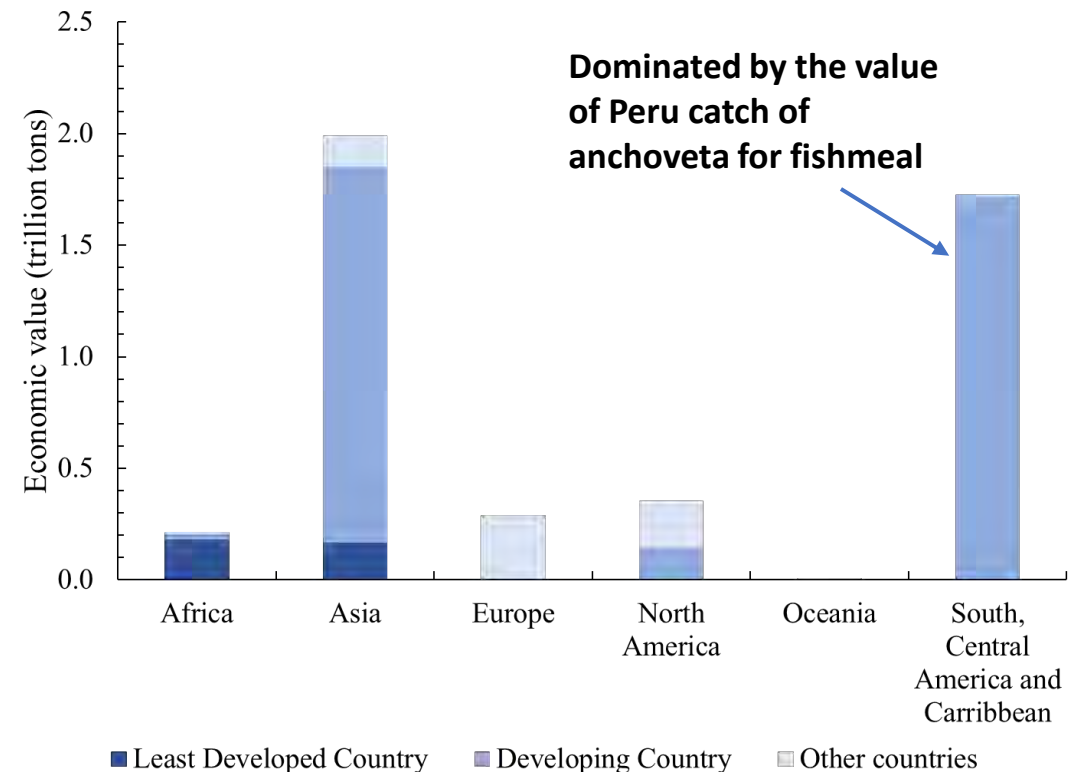
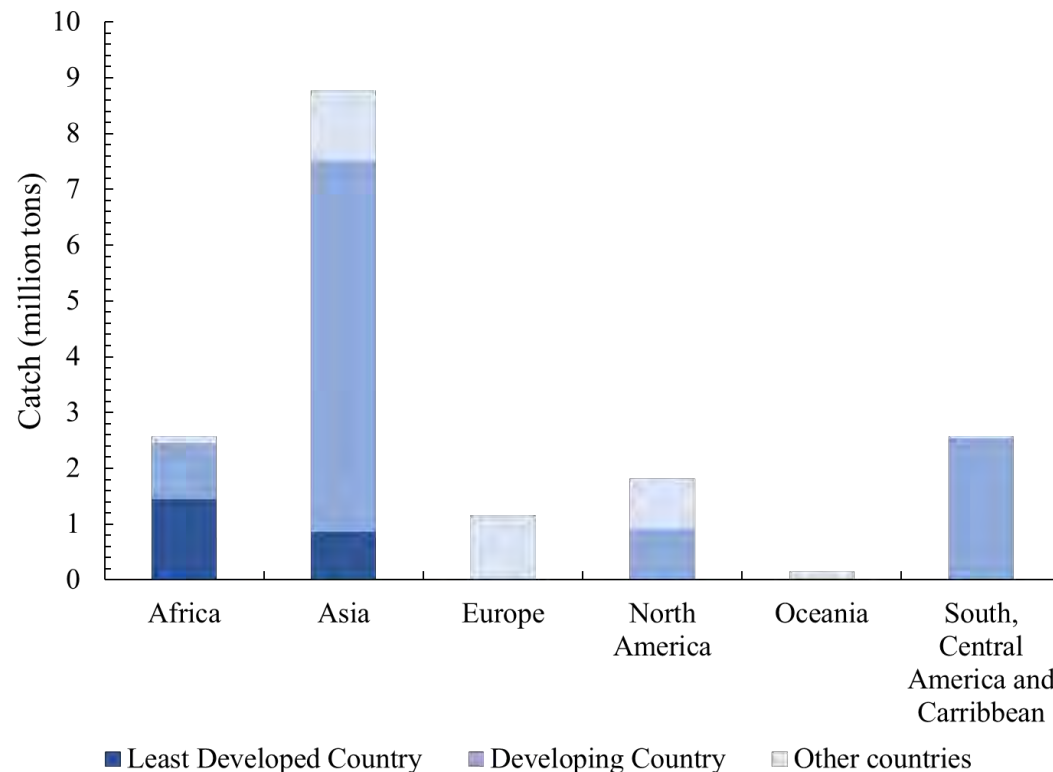
**In 2018, artisanal catches by WTO members in their IFA made up 16% of total global catches, which represent 14% of the global economic value of the catch**



IFA is the area that extends from shore to either 50 km offshore or to the 200 m depth contour, whichever comes first (Chuenpagdee *et al.*, 2006). Territorial seas limit is 12 nm from shore, roughly 22 km or half of IFA. Global artisanal catches in IFAs totaled 2mt over 66 years, averaging 78 thousand tons per year.

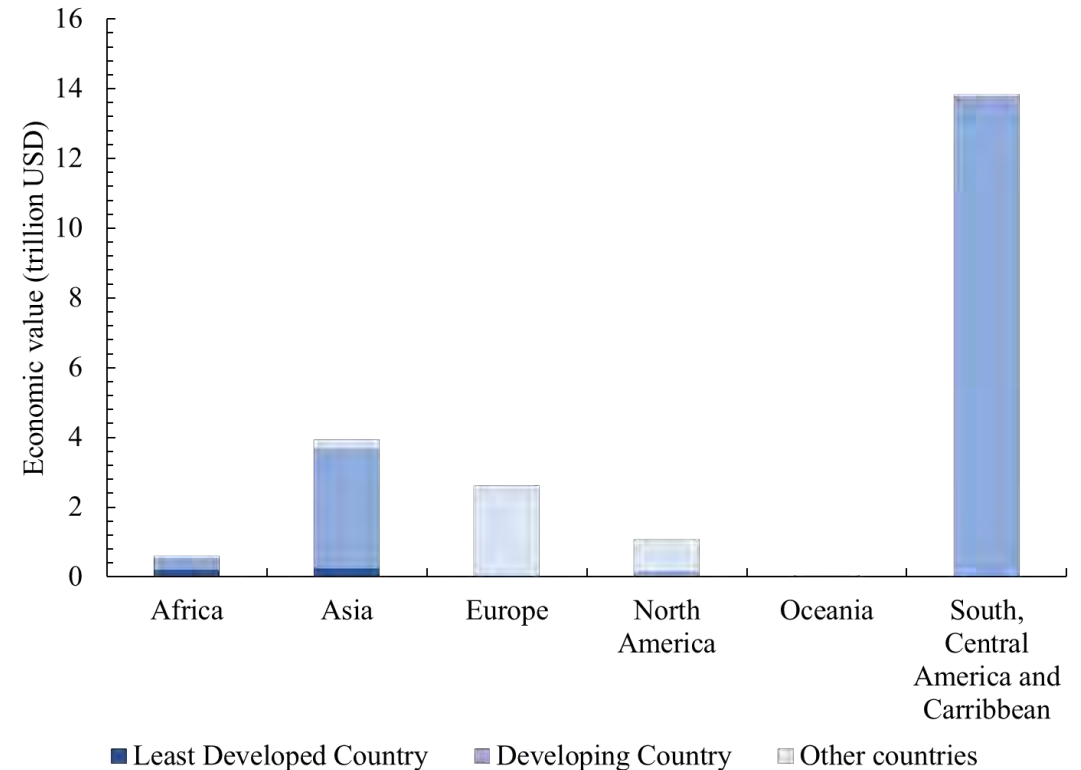
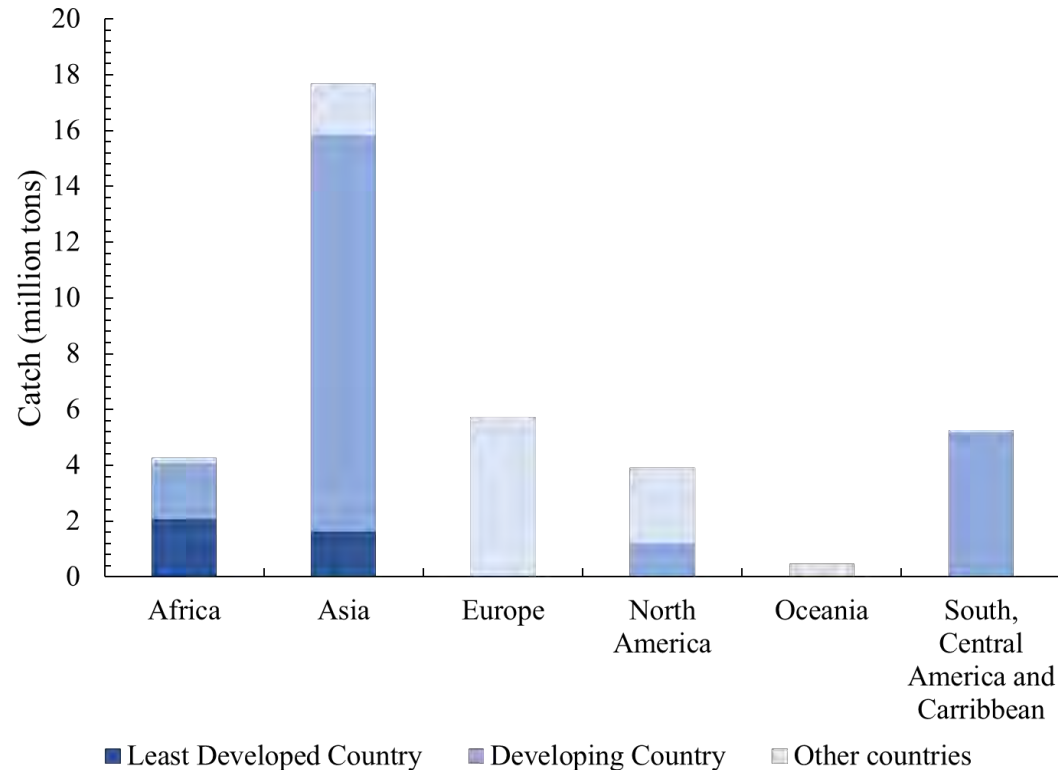
2018 catches of artisanal fleets in IFAs of WTO members total to 16 million tons, an economic value of 4.5 trillion USD

**In 2018, the domestic IFA catch by developing country artisanal fleets represent 10% of global catch, and 11% of global economic value of the catch**



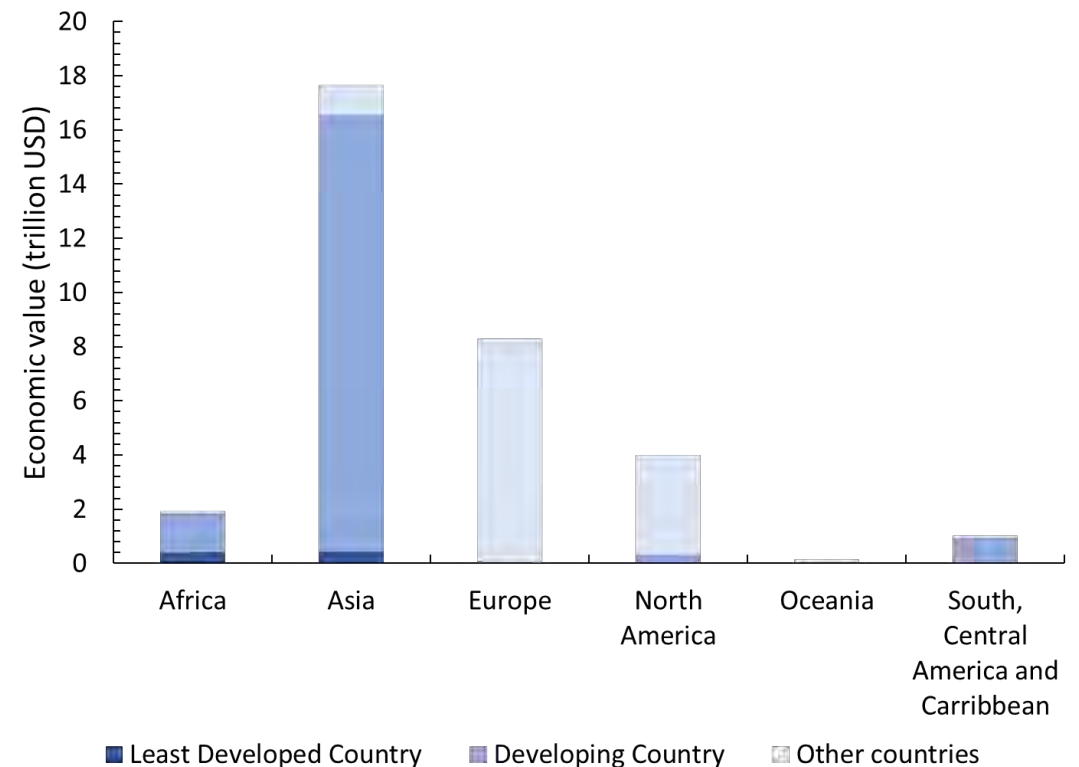
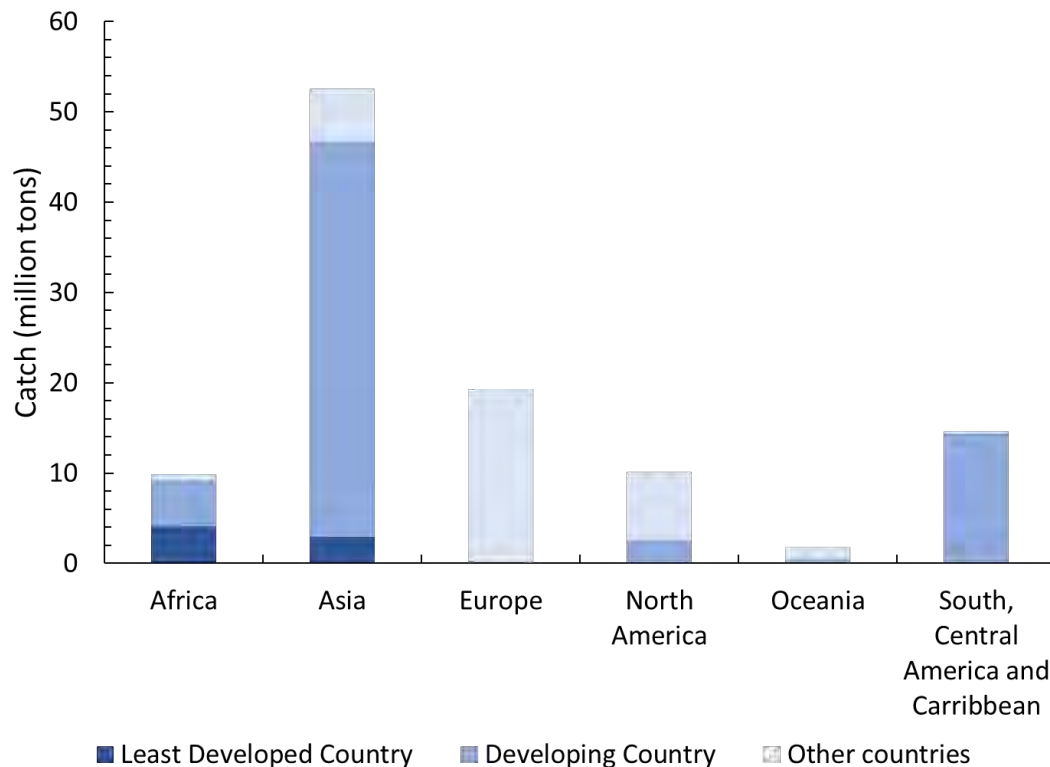
# Aggregate catch of all fleets in inshore fishing areas in 2018 total to 36 million tons, an economic value of 22 trillion USD

**In 2018, domestic IFA catch by developing country fleets represent 21% of global catch, and 54% of global economic value of the catch**



Catch across all fishing sectors of WTO members in 2018 total to 106 million tons, an economic value of 33 trillion USD

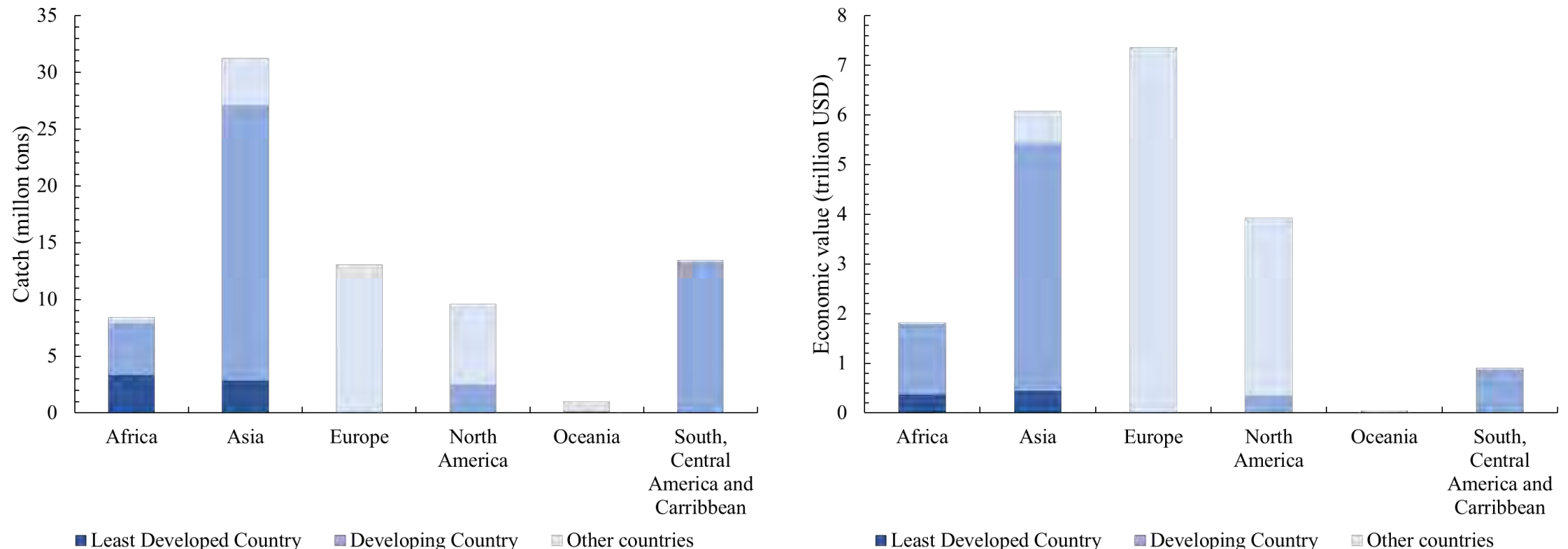
**In 2018, catch of least developed countries represent 6.8% of global catch, and 2.7% of the global economic value of the catch**





Aggregate catch of all fleets of WTO members (minus China) in EEZs in 2018 total to 75 million tons, an economic value of 20 trillion USD

**In 2018, catch of developing countries (minus China) represent 42% of global catch, and 23% of the global economic value of the catch**



**Aggregate catch of China inside its EEZ in 2018 make up 9.7% of global catches in EEZs (14% of economic value) and make up 7.6% of the world's maritime fisheries catches (10% of economic value).**



# THANK YOU



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Lucile Packard  
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# The global fisheries subsidies divide between small- and large-scale fisheries



Anna Schuhbauer

January 28<sup>th</sup> 2021

IISD – Fisheries Subsidies Session 2: Assessing option for combining prohibitions  
with exceptions

# Methods: Split subsidies into SSF and LSF



Assessed 61 countries, representing 92% of global subsidies.

- Remaining 8% estimated based on subregion/subtype averages and original SSF subsidies database (Schuhbauer et al. 2017).

## Definition of SSF:

- based on each country's definition;
- if non-existent used EU definition for EU member states;
- for remaining countries used Sea Around Us definition

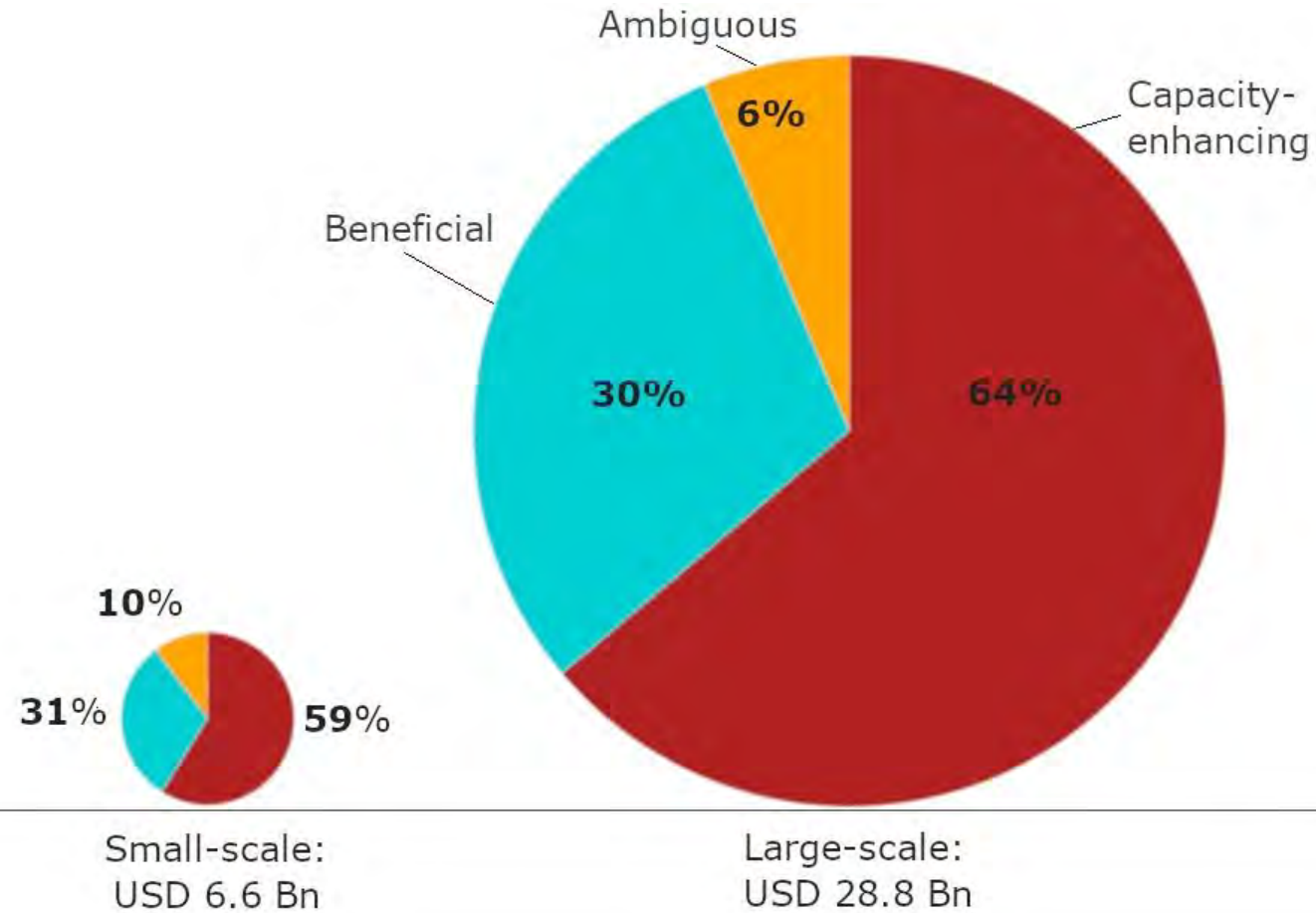
# Results

Global total: 35.4 billion USD

19%



81%



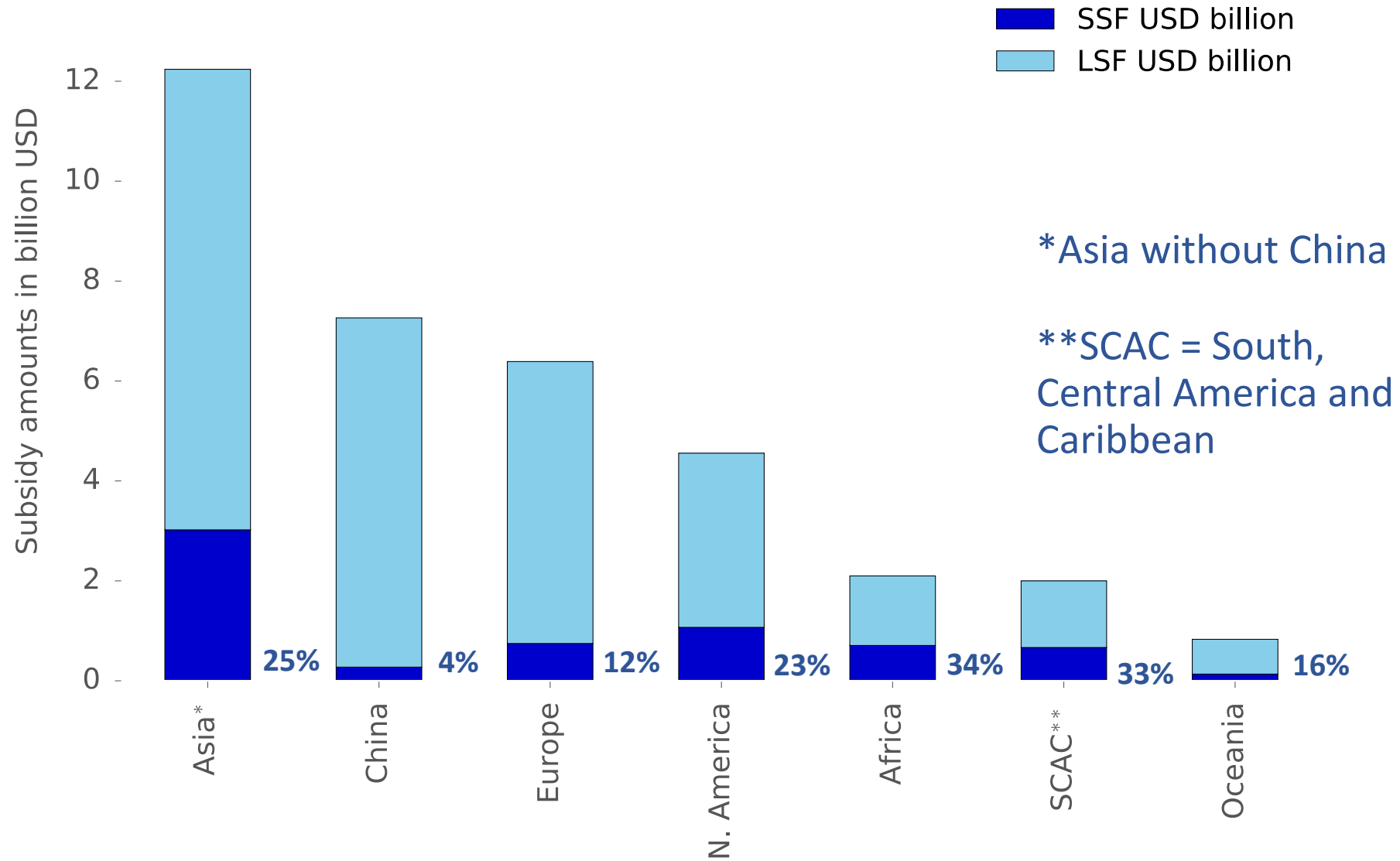
# What does this mean?

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- A large-scale fisher receives **4 times** more money when assessing subsidies per number of fisher and
- **2 times** more when looking into subsidies per dollar landed;
- **Inequity** undermines economic viability of SSF.



# Subsidy amount by major region





# Conclusions

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- Majority of subsidies towards large-scale capacity-enhancing;
- SSF low HDI countries receive smallest share of beneficial subsidies;
- Capacity-enhancing increase since 2009 not only globally but also increase % to SSF especially in developing/low HDI countries

Eliminating overall capacity-enhancing subsidies would impact small-scale fisheries less than large-scale fisheries.





# Recommendations

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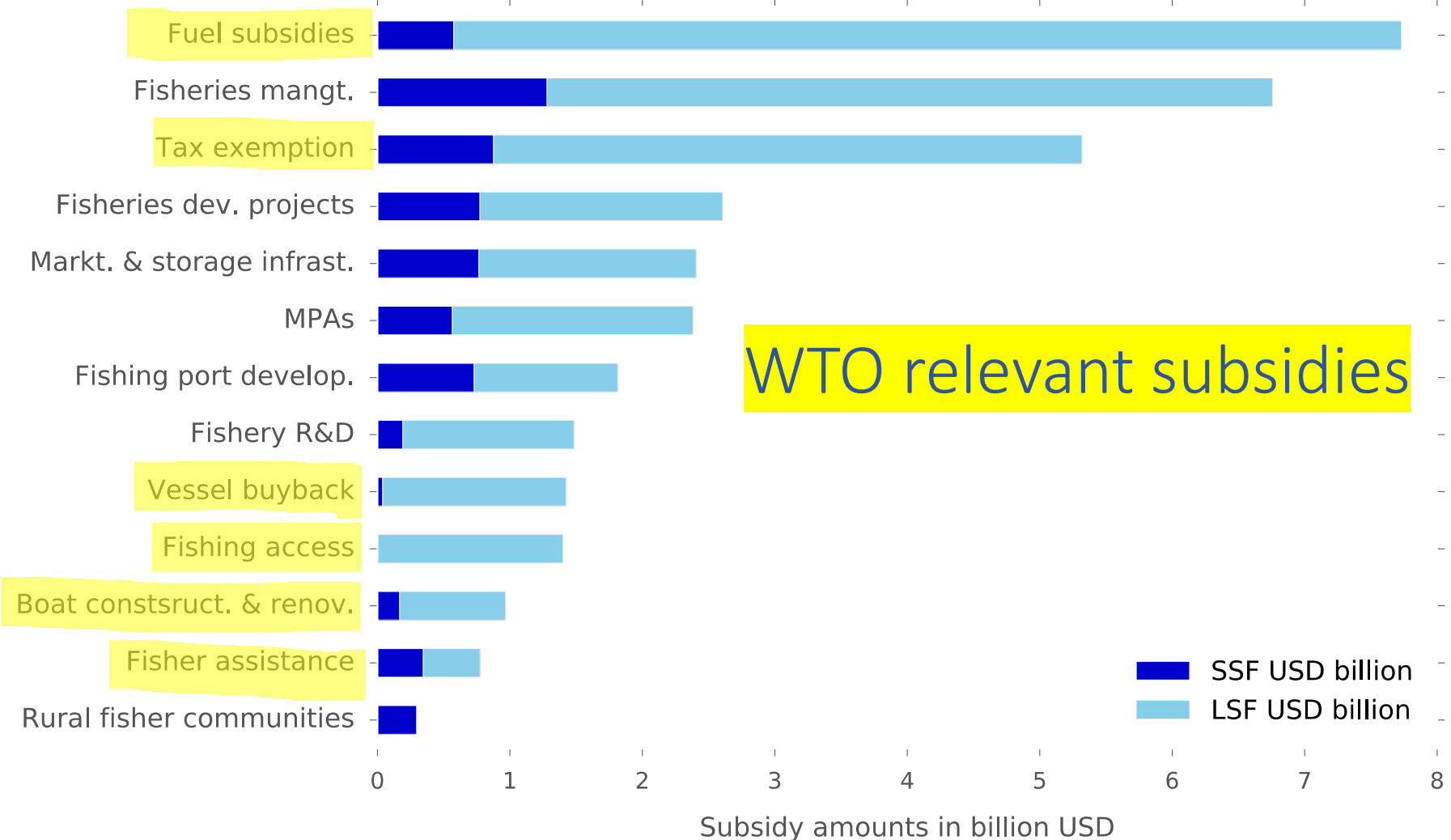
- Reduce/eliminate capacity-enhancing fisheries subsidies across all fishing sectors;
- food security and the maintenance of livelihoods should be in the foreground for which capacity-enhancing subsidies are not the solution;
- funds currently used for capacity-enhancing subsidies should be redirected with long term goals in mind to work on projects for coastal communities that help them achieve social equity, economic viability and resilience.



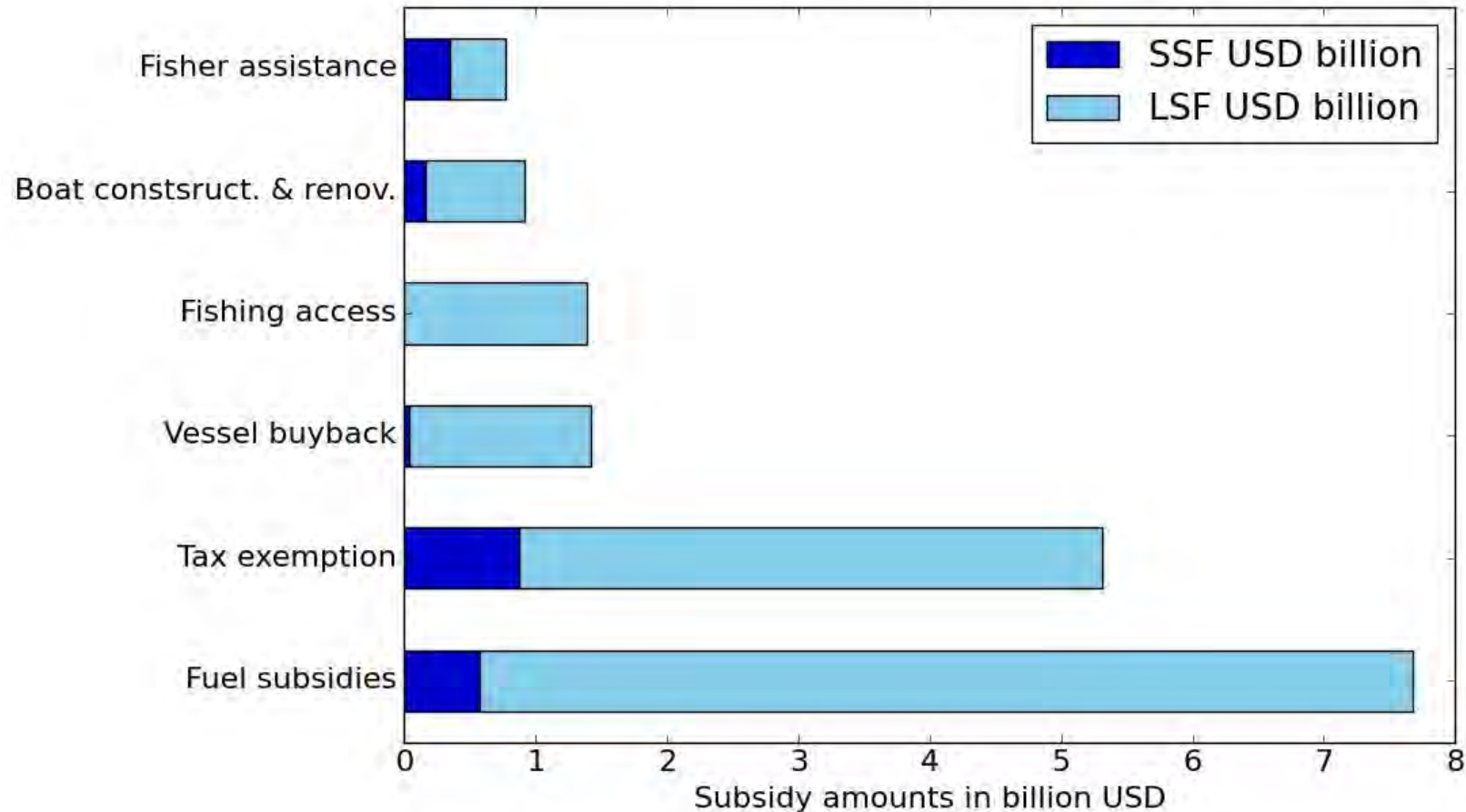
# Global fisheries subsidies relevant to WTO negotiations

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# Global fisheries subsidies relevant to WTO negotiations

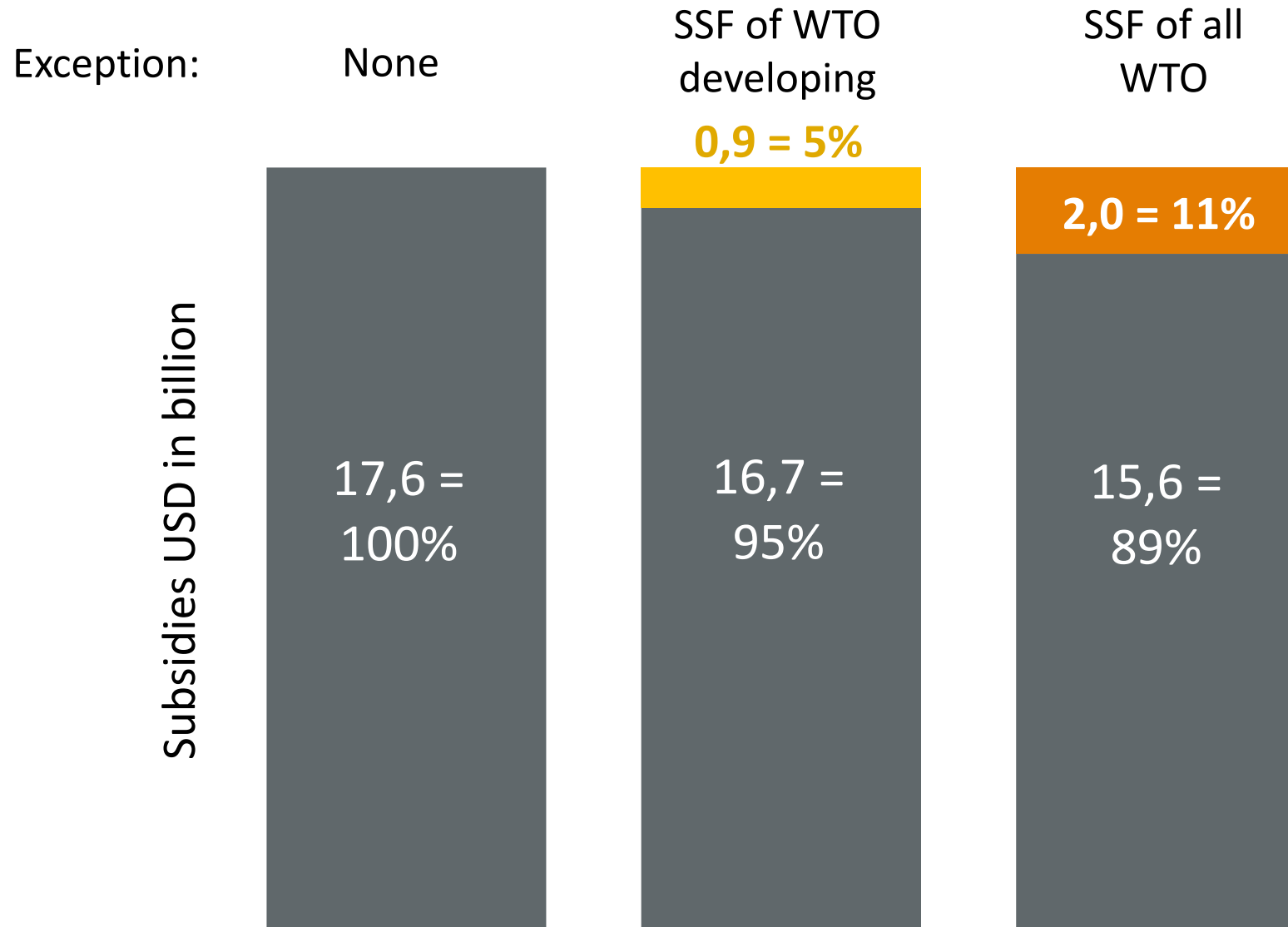


# Global subsidies relevant to WTO negotiations



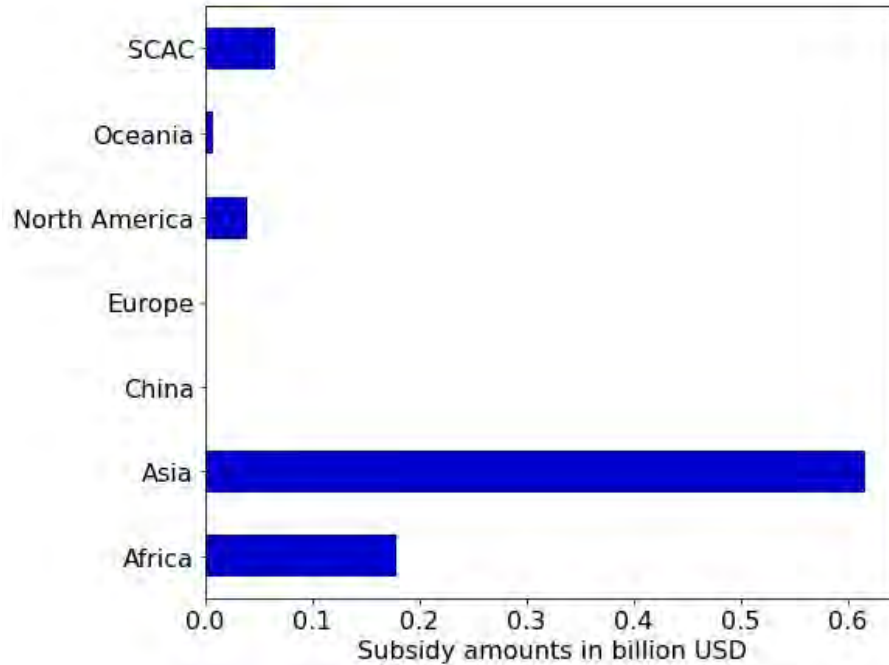
Out of USD 17.6 billion, **11%** (USD 2.0 B) provided to SSF

# Scenarios where exceptions to SSF could apply

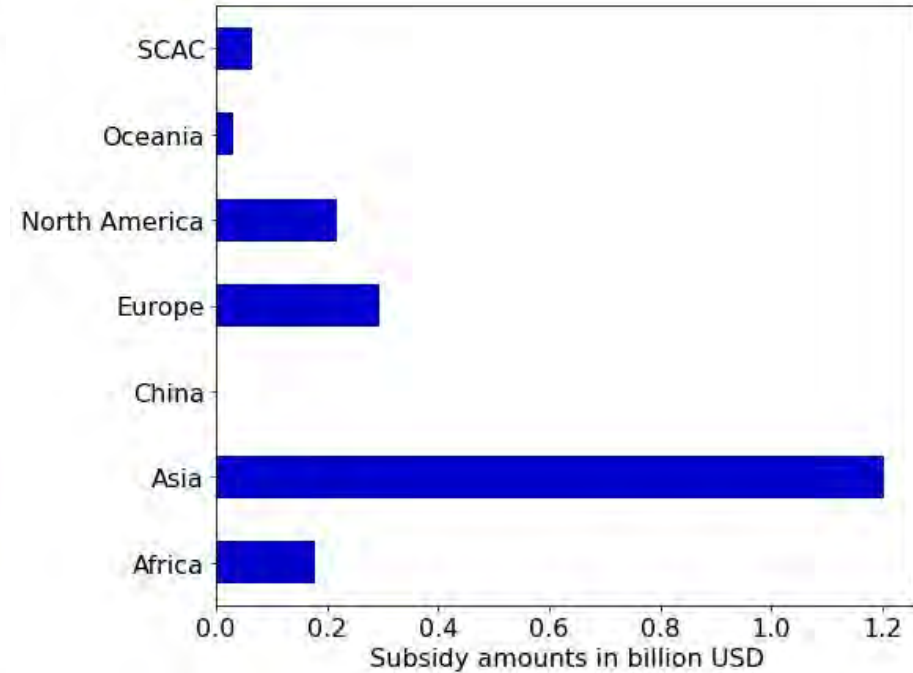


# SSF subsidies exceptions break down by region

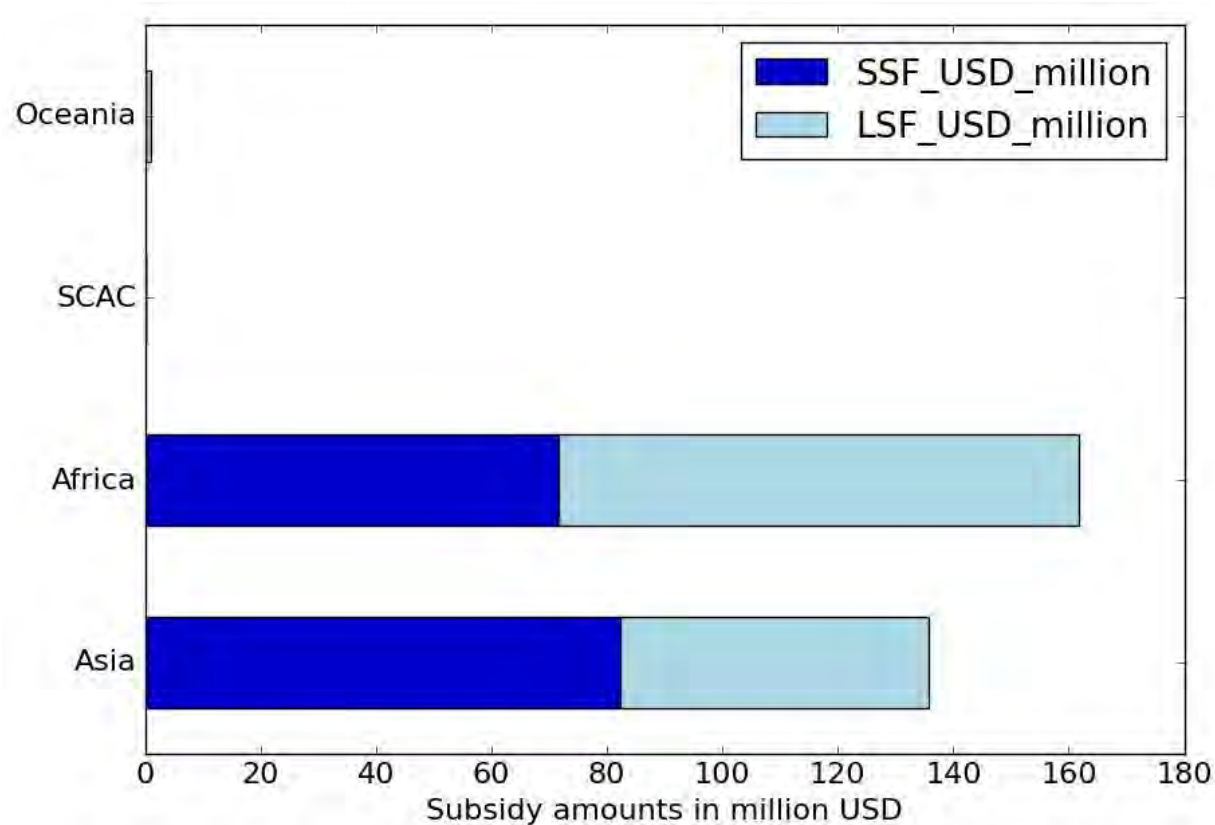
Subsidies to SSF of WTO developing country members  
(total = 0.9 Bn USD)



Subsidies to SSF of all WTO members  
(total = 2.0 Bn USD)



# Fisheries subsidies to Least Developed Countries (LDC)



A total of USD 154 million is provided to small-scale fisheries and USD 144 million to large-scale fisheries of all WTO least developed country members.

Thank you.

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Twitter: @acschuhbauer

The screenshot shows the top portion of a research article page on the Frontiers website. The header includes the Frontiers logo and the journal title "Frontiers in Marine Science" with the subtitle "Marine Fisheries, Aquaculture and Living Resources". A navigation bar contains links for "SECTION", "ABOUT", "ARTICLES", "RESEARCH TOPICS", "FOR AUTHORS", and "EDITORIAL BOARD", along with social media icons and an "ARTICLE ALERTS" button. Below the navigation bar, a breadcrumb trail shows "Articles". The article is identified as an "ORIGINAL RESEARCH ARTICLE" published in "Front. Mar. Sci." on 29 September 2020, with a DOI link. The title of the article is "The Global Fisheries Subsidies Divide Between Small- and Large-Scale Fisheries". The authors listed are Anna Schuhbauer<sup>1</sup>, Daniel J. Skerritt<sup>1</sup>, Naazia Ebrahim<sup>1</sup>, Frédéric Le Manach<sup>2</sup>, and U. Rashid Sumaila<sup>1,3</sup>. Footnotes provide affiliations for each author: <sup>1</sup>Institute for the Oceans and Fisheries, The University of British Columbia, Vancouver, BC, Canada; <sup>2</sup>BLOOM, Paris, France; and <sup>3</sup>School of Public Policy and Global Affairs, The University of British Columbia, Vancouver, BC, Canada. The beginning of the abstract is visible, starting with "In 2015 the Sustainable Development Goals of the United Nations stipulated that certain forms of subsidies that the fishing sector receive must be prohibited. However, the global fishing sector is complex and varied, and".

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Articles

ORIGINAL RESEARCH ARTICLE  
Front. Mar. Sci., 29 September 2020 | <https://doi.org/10.3389/fmars.2020.539214>

The Global Fisheries Subsidies Divide Between Small- and Large-Scale Fisheries

Anna Schuhbauer<sup>1</sup>, Daniel J. Skerritt<sup>1</sup>, Naazia Ebrahim<sup>1</sup>, Frédéric Le Manach<sup>2</sup> and U. Rashid Sumaila<sup>1,3</sup>

<sup>1</sup>Institute for the Oceans and Fisheries, The University of British Columbia, Vancouver, BC, Canada  
<sup>2</sup>BLOOM, Paris, France  
<sup>3</sup>School of Public Policy and Global Affairs, The University of British Columbia, Vancouver, BC, Canada

In 2015 the Sustainable Development Goals of the United Nations stipulated that certain forms of subsidies that the fishing sector receive must be prohibited. However, the global fishing sector is complex and varied, and



# Additional material

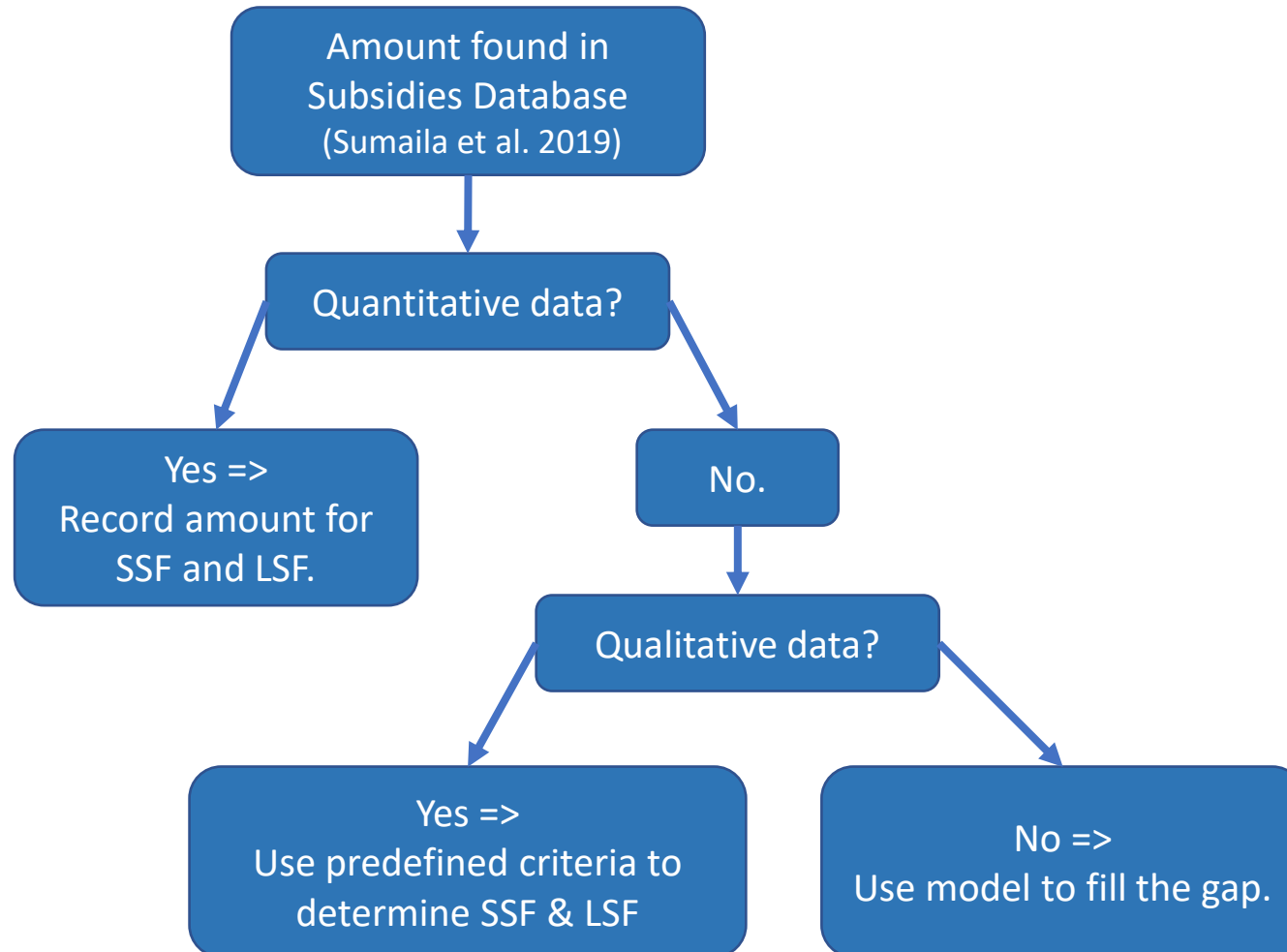
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# Challenges and caveats of analysis

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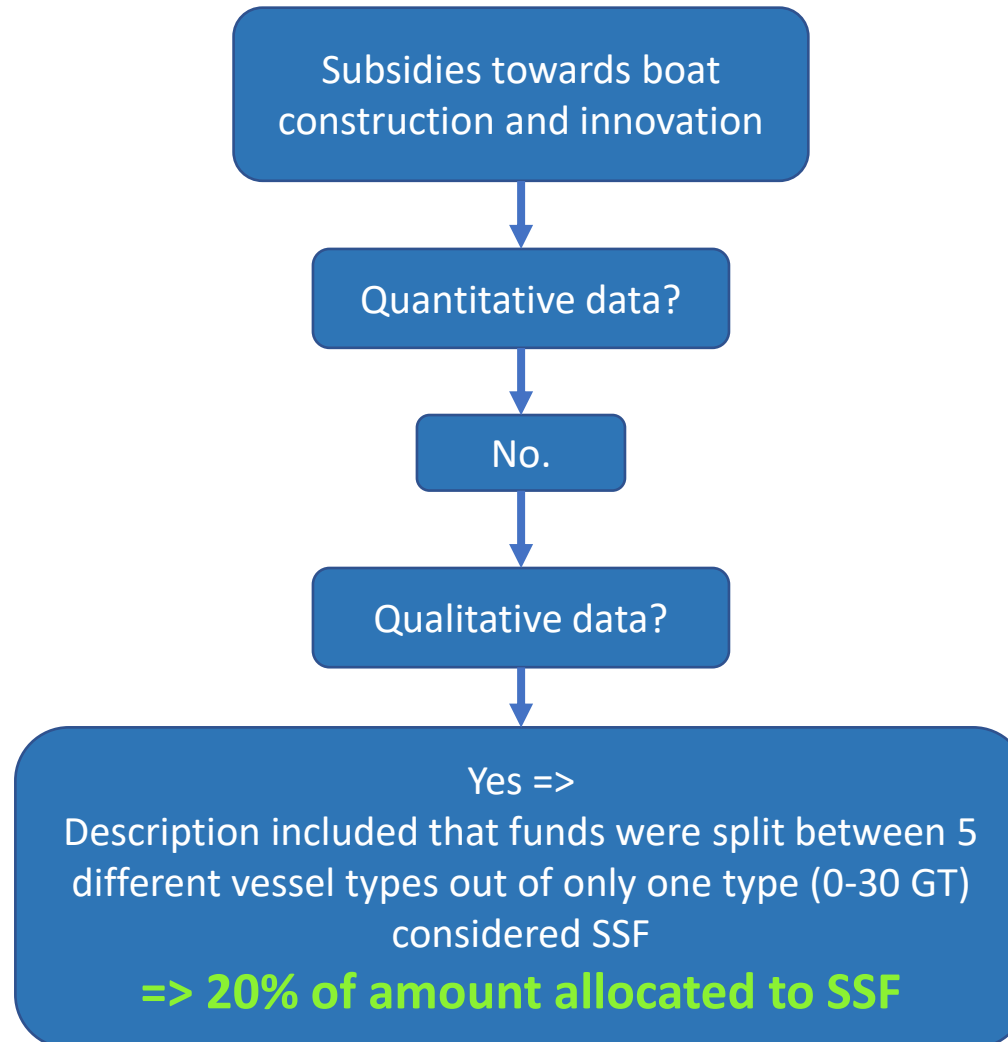
- Lack of data, details and transparency;
- using assumptions such as catch data as a proxy for sector size can lead to some bias;
- regions with especially low information availability include Middle and western Africa, Western Asia, Micronesia and Polynesia.
- database could be improved through in depth regional/national/local studies.

# Methods: Split subsidies into SSF and LSF

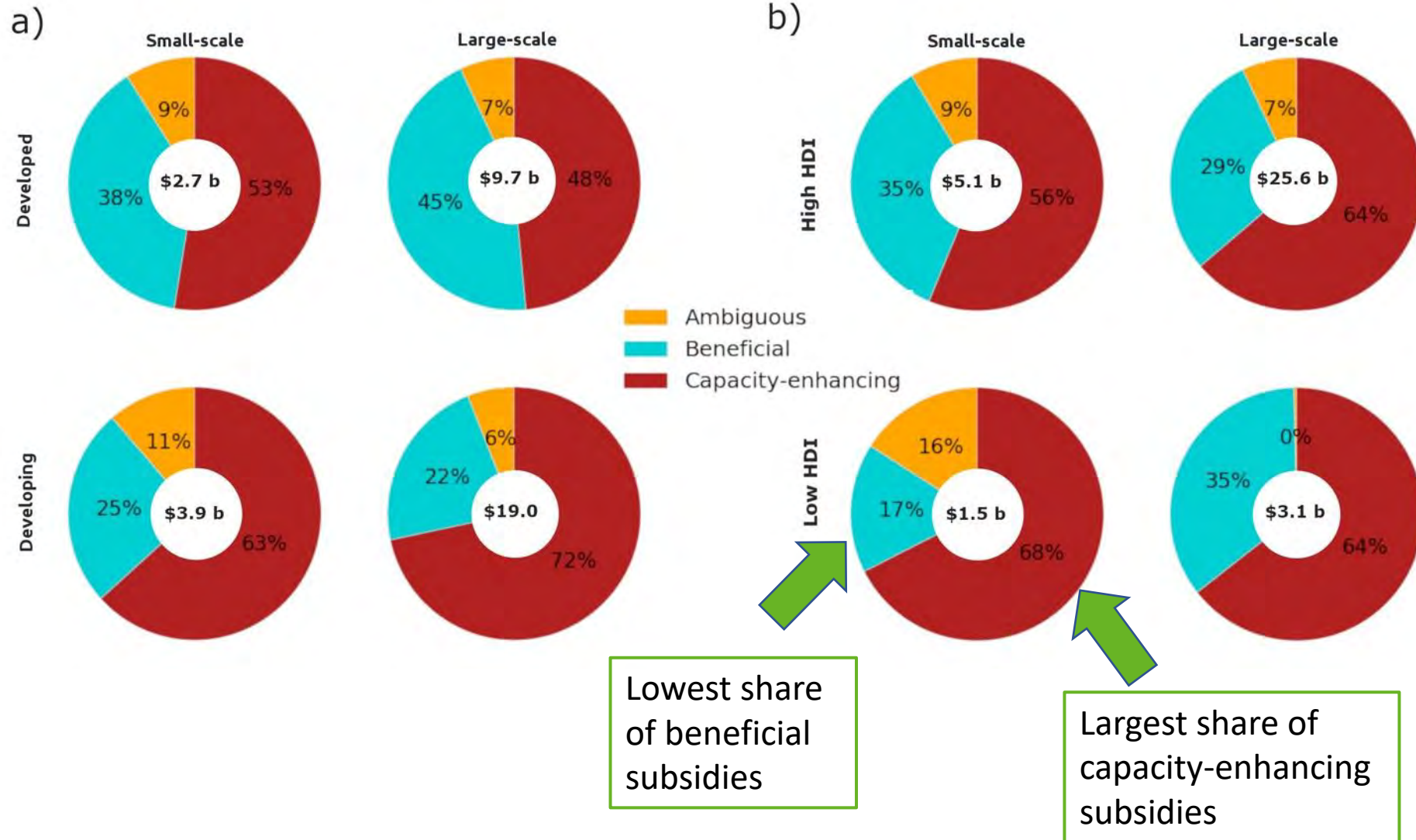


# Methods: Example from Indonesia

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# Developing vs developed and Low vs high HDI countries

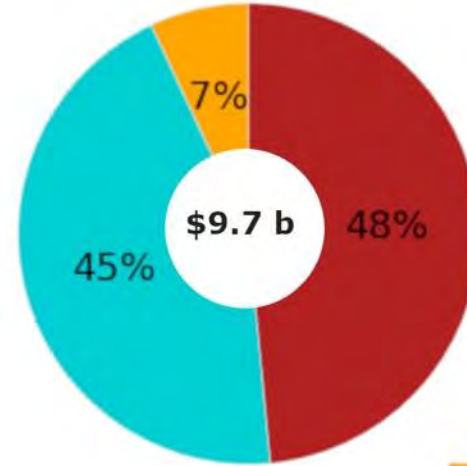
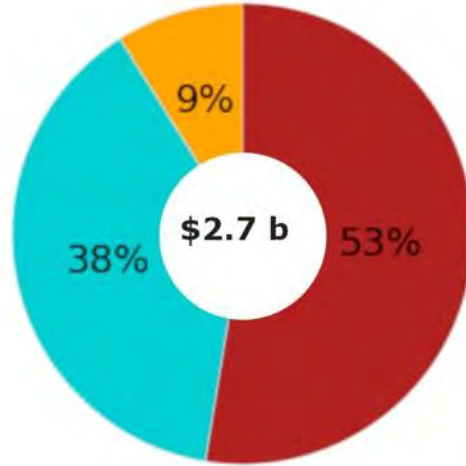


# Compare data from 2009 with 2018

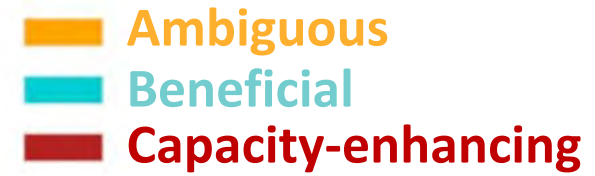
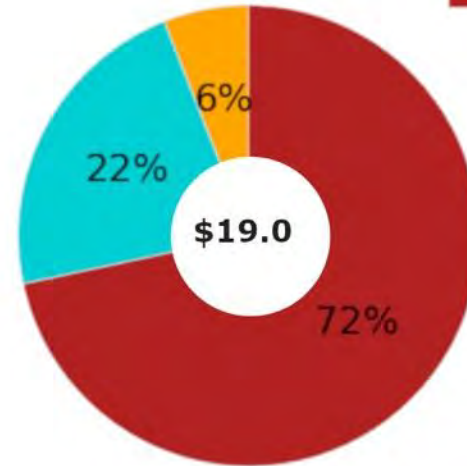
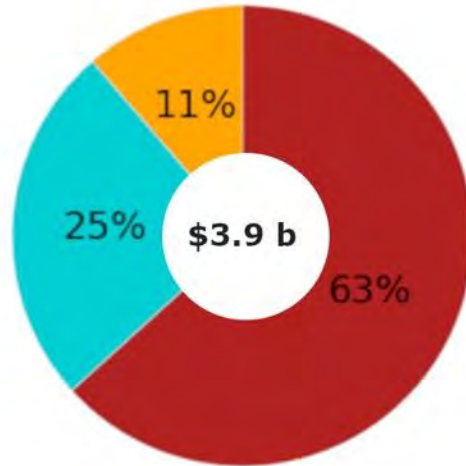
2018



Developed



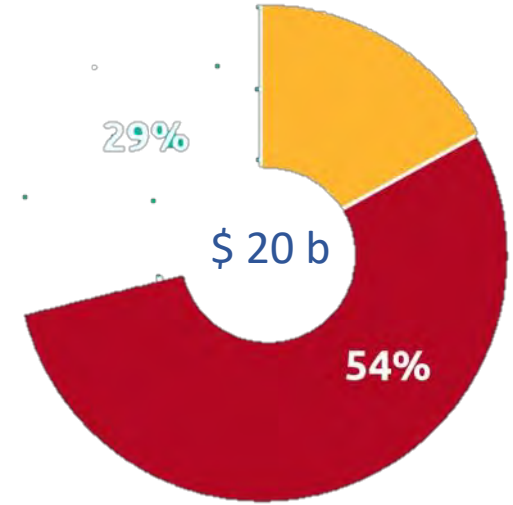
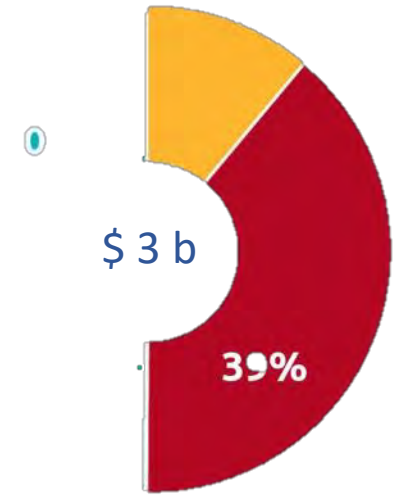
Developing



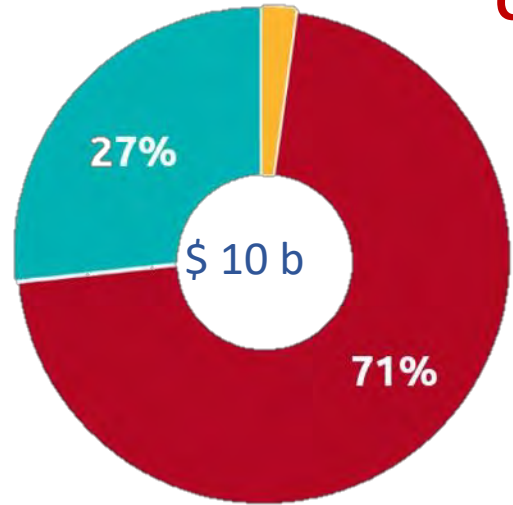
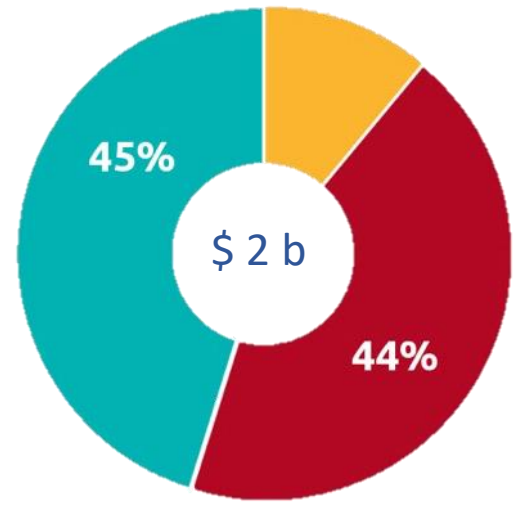
2009



Developed



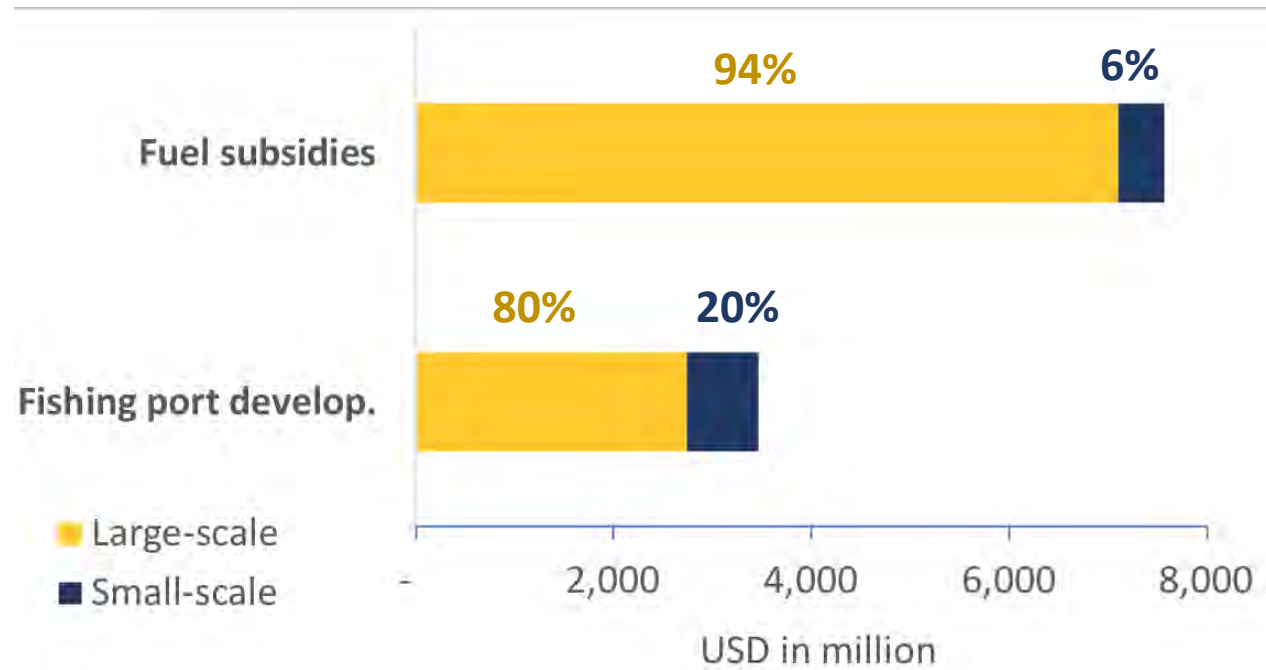
Developing



Beneficial  
Capacity-enhancing  
Ambiguous



# Capacity enhancing fisheries subsidies 2009



## Fuel subsidies:

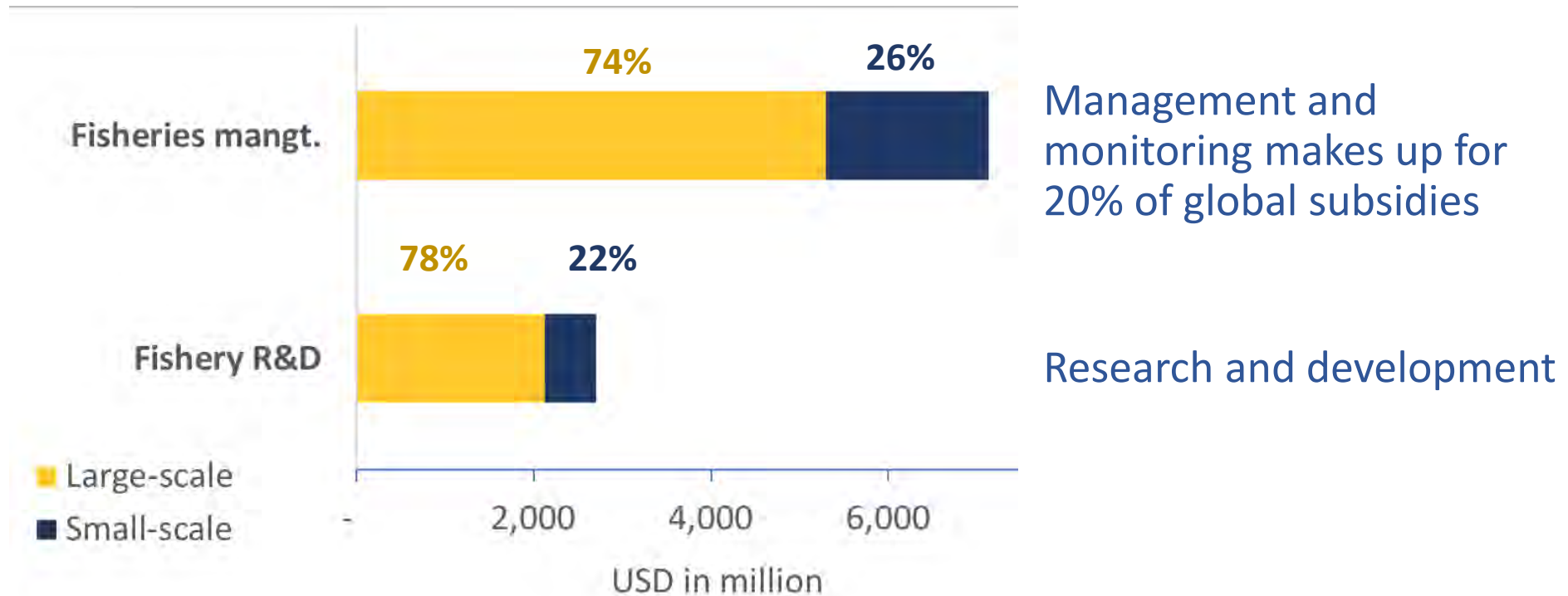
- 21% of global subsidies

## Port development:

- SSF receive 20%, of which 92% come from developed countries.

Globally **11.4 %** of all capacity-enhancing subsidies are provided to SSF.

# Beneficial fisheries subsidies 2009



Globally 24.4 % of all beneficial subsidies are provided to SSF.



# Global Artisanal Fishing Fleets

Yannick Rousseau, PhD

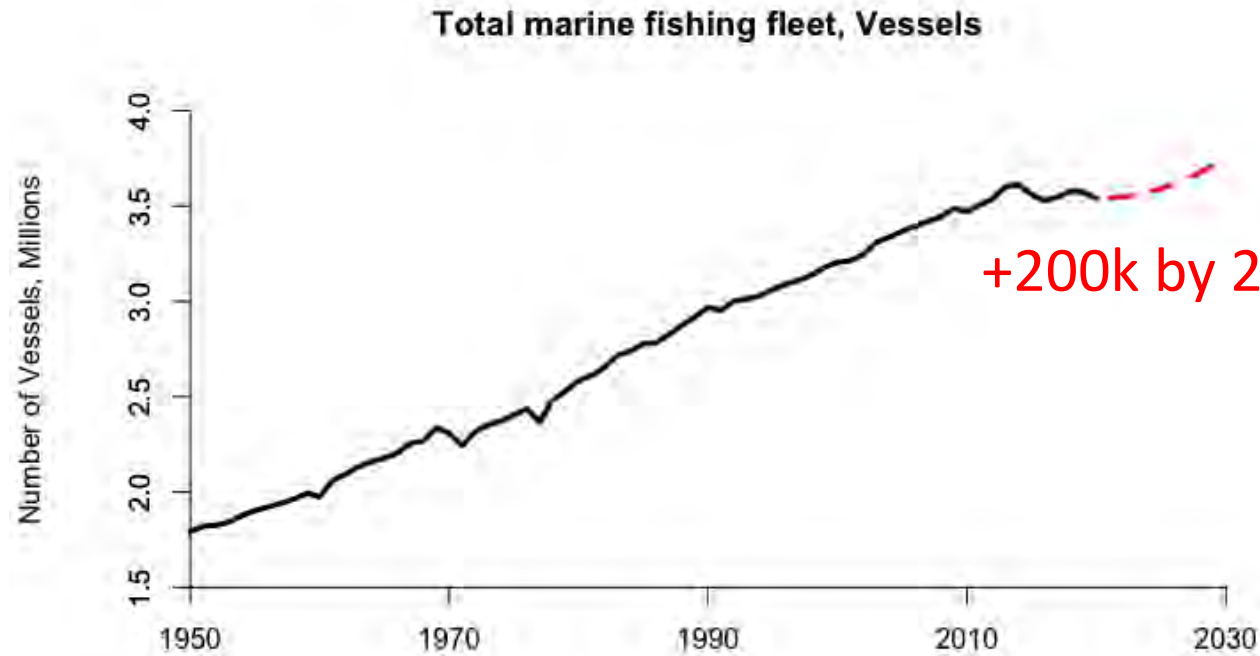
29 Jan 2021



# Artisanal?

- Each study has their own
- In (this) fleet study, legal definition
  - Indiscriminating between terms (artisanal, small scale, subsistence, non commercial)
  - Using the most sensible
  - Proxy when non available or difficult to apply
- Valid for this study only

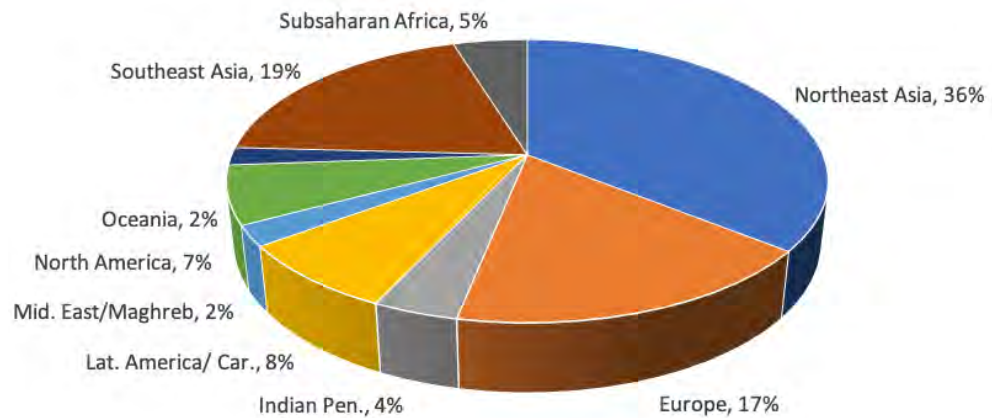
# Marine Fishing: number of vessels



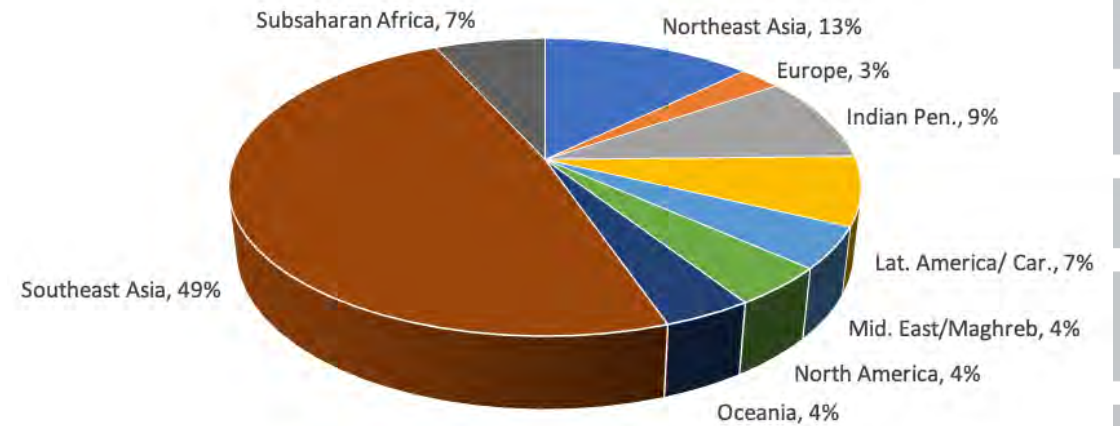
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# Marine Fishing: number of vessels

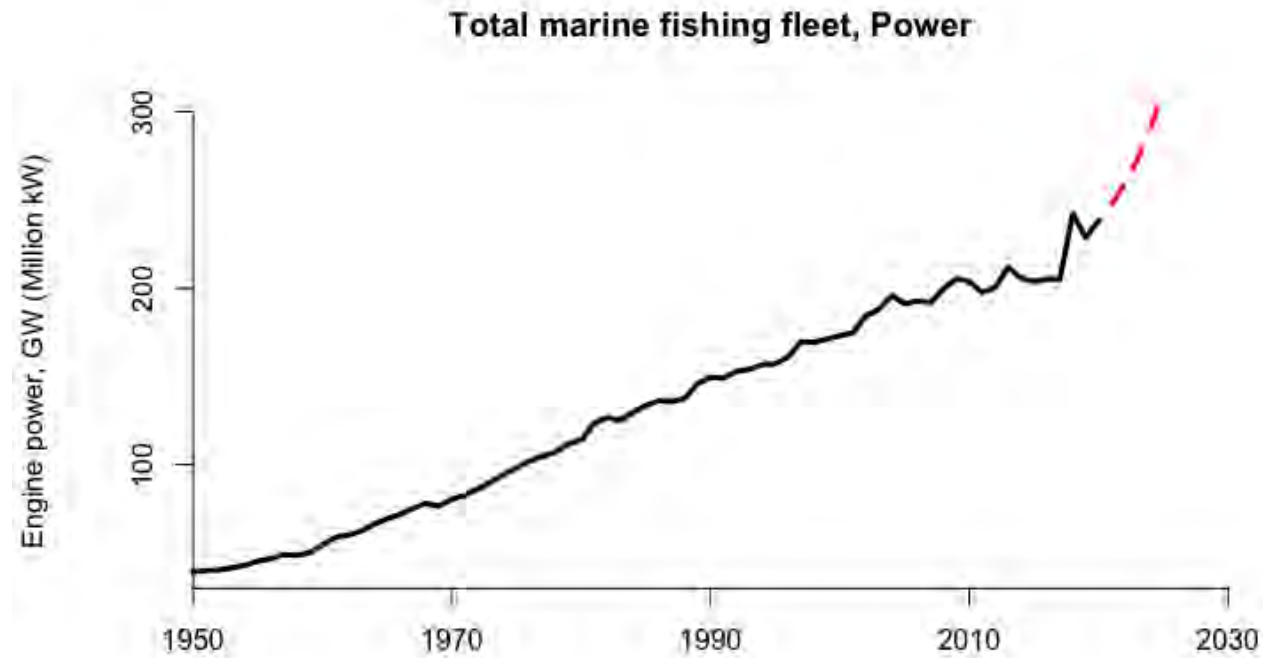
## 1950



## 2020

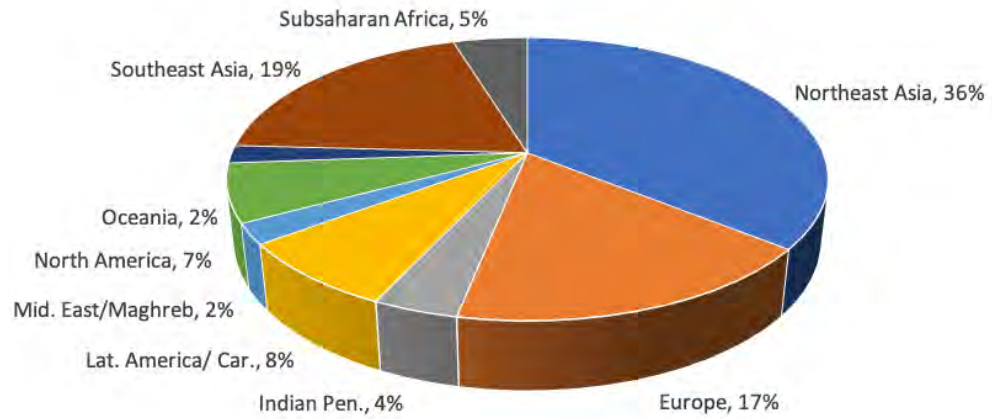


# Marine Fishing: engine power

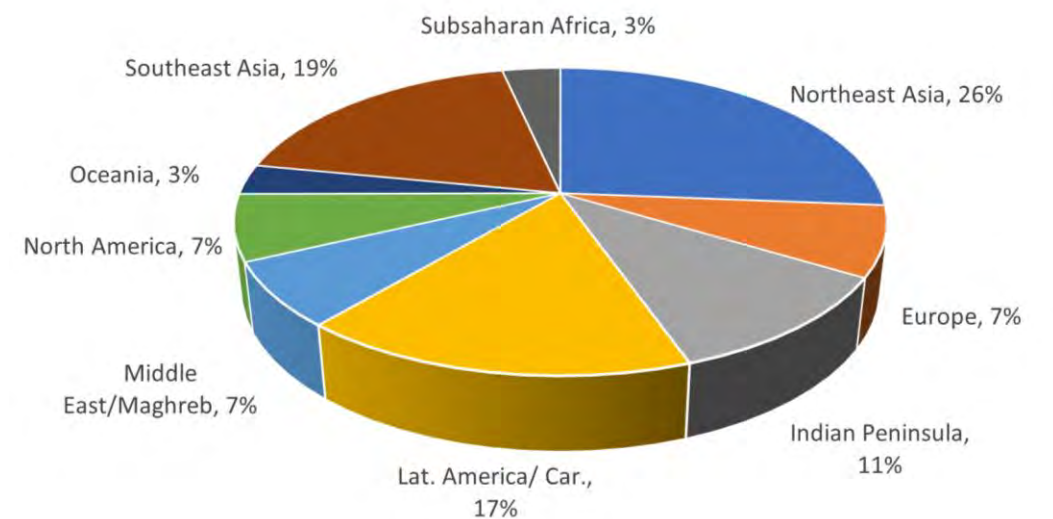
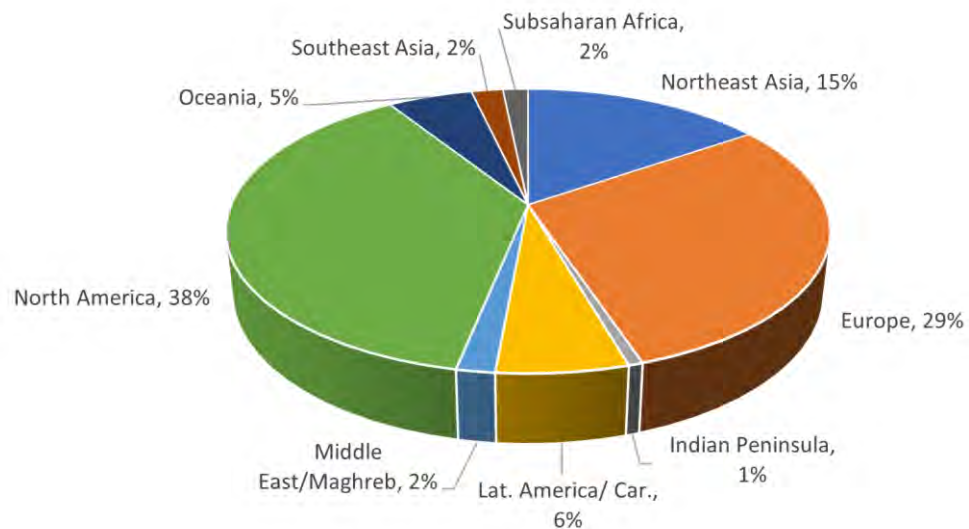
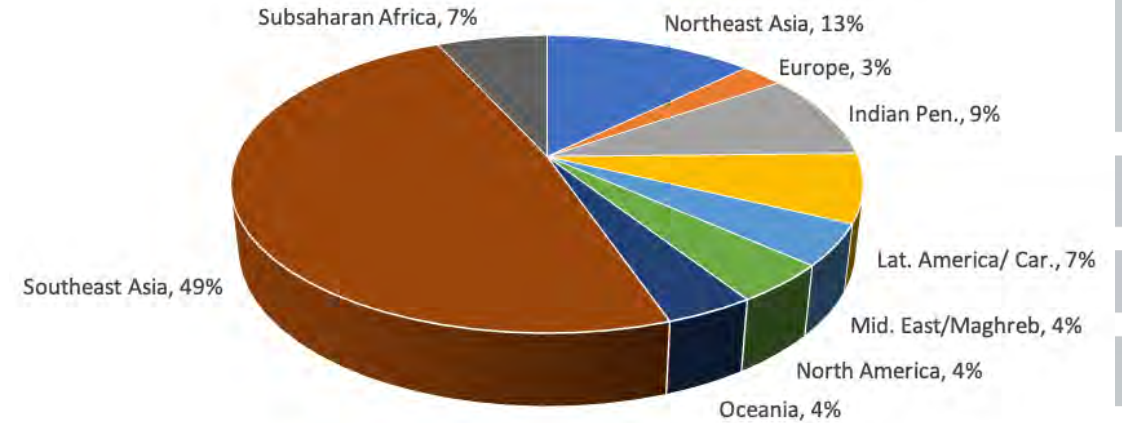


# Marine Fishing: number of vessels / engine power

## 1950

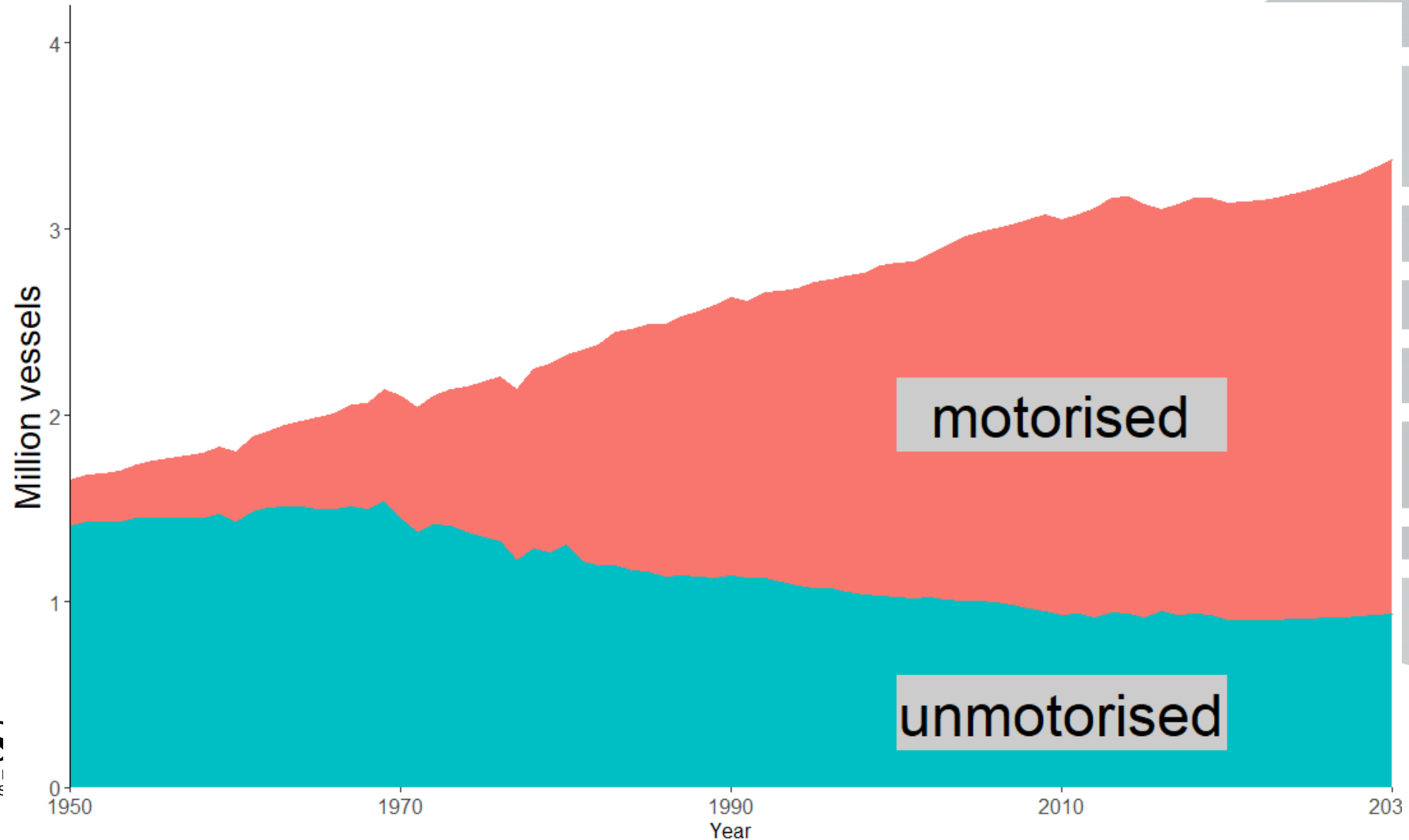


## 2020

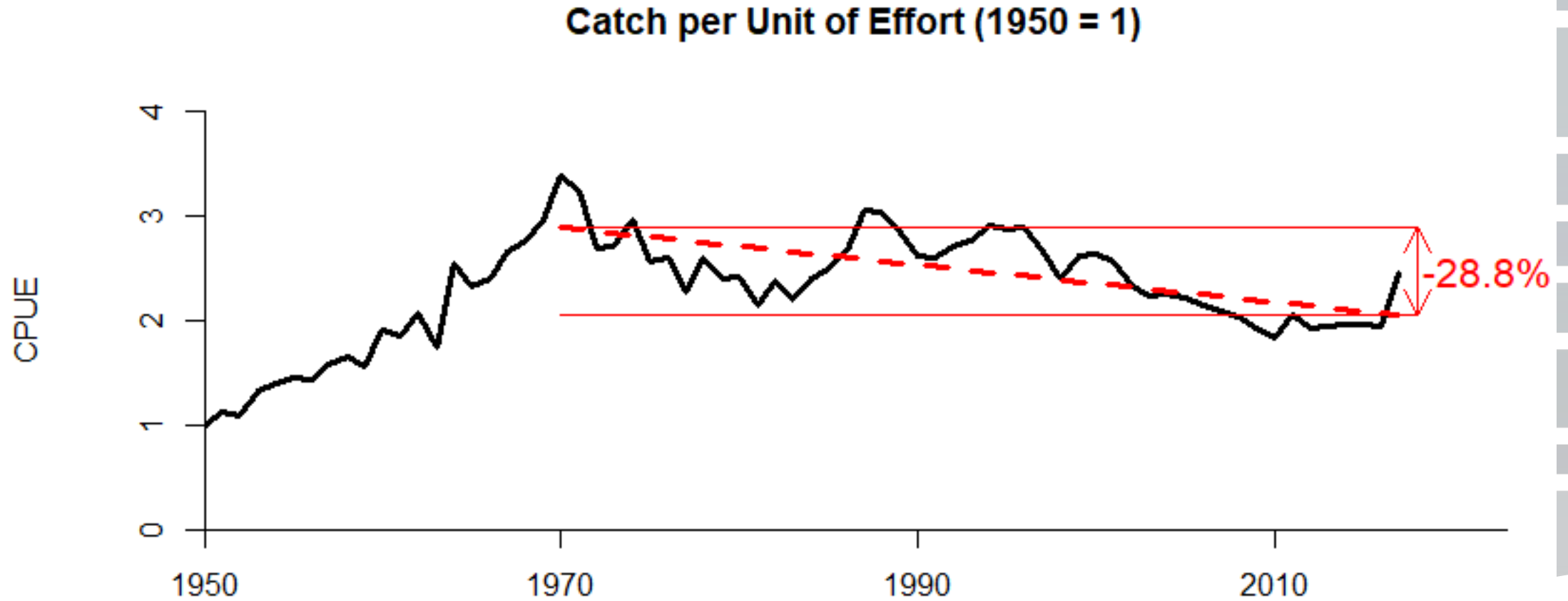




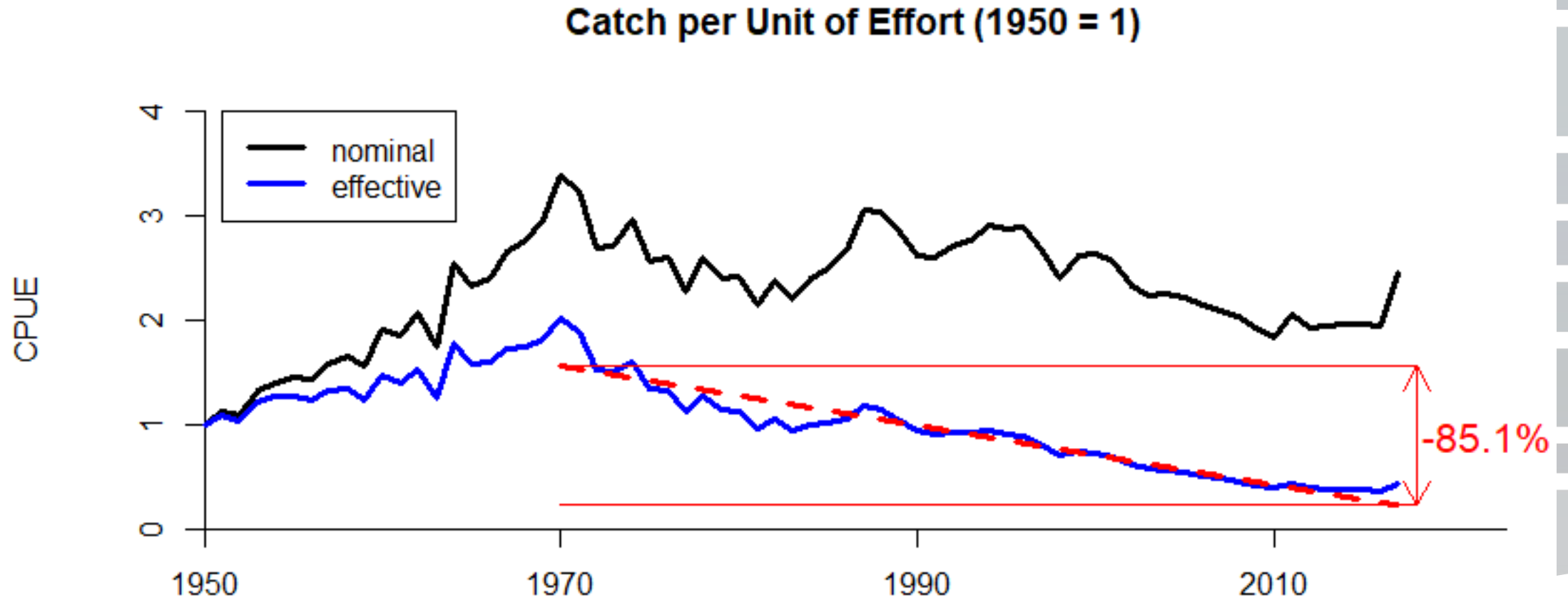
# Motorization of the Artisanal fleet



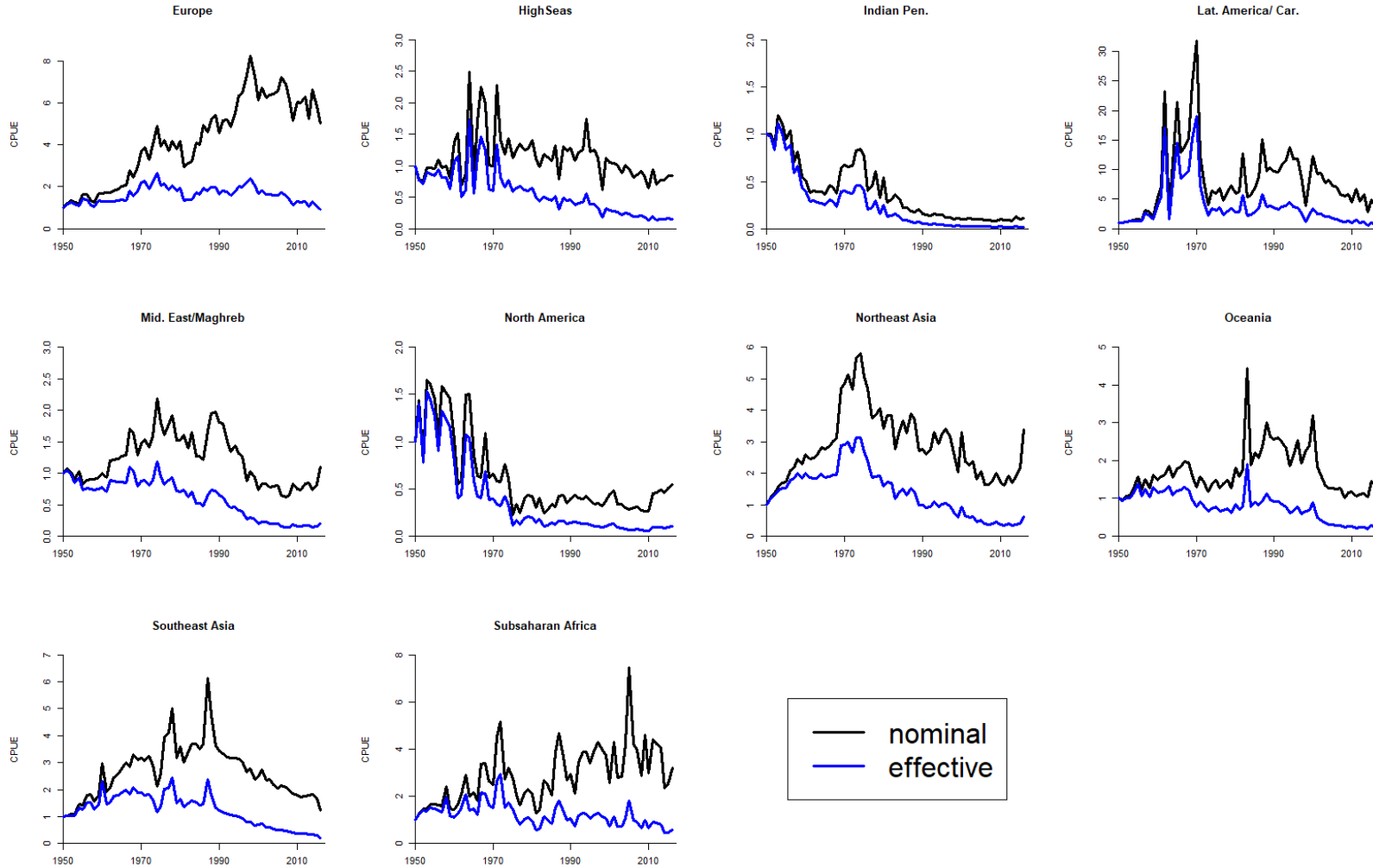
# Decrease in global CPUE



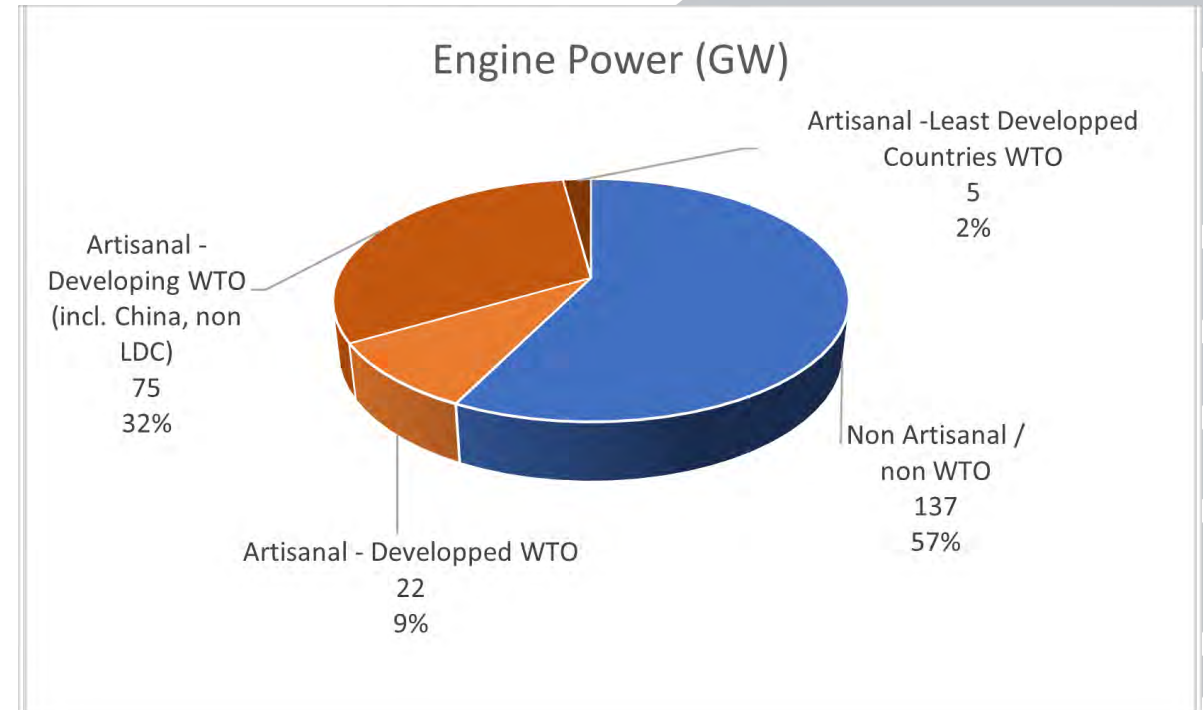
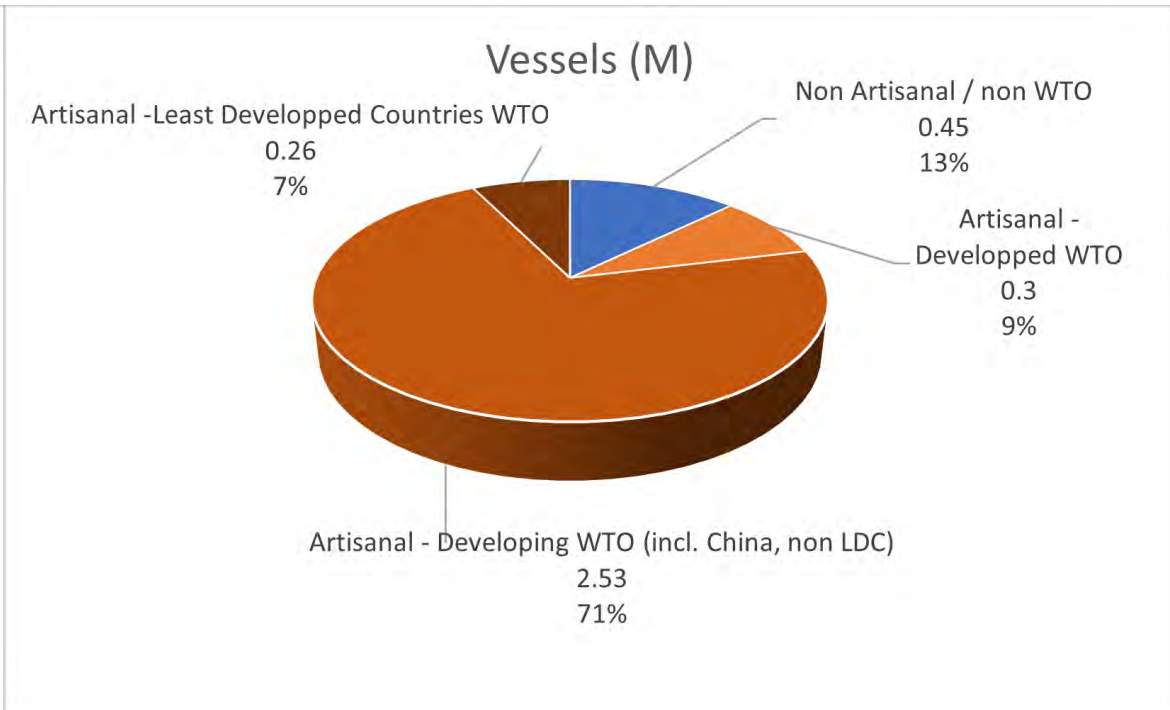
# Decrease in global CPUE



# Decrease in global CPUE (region of catch)



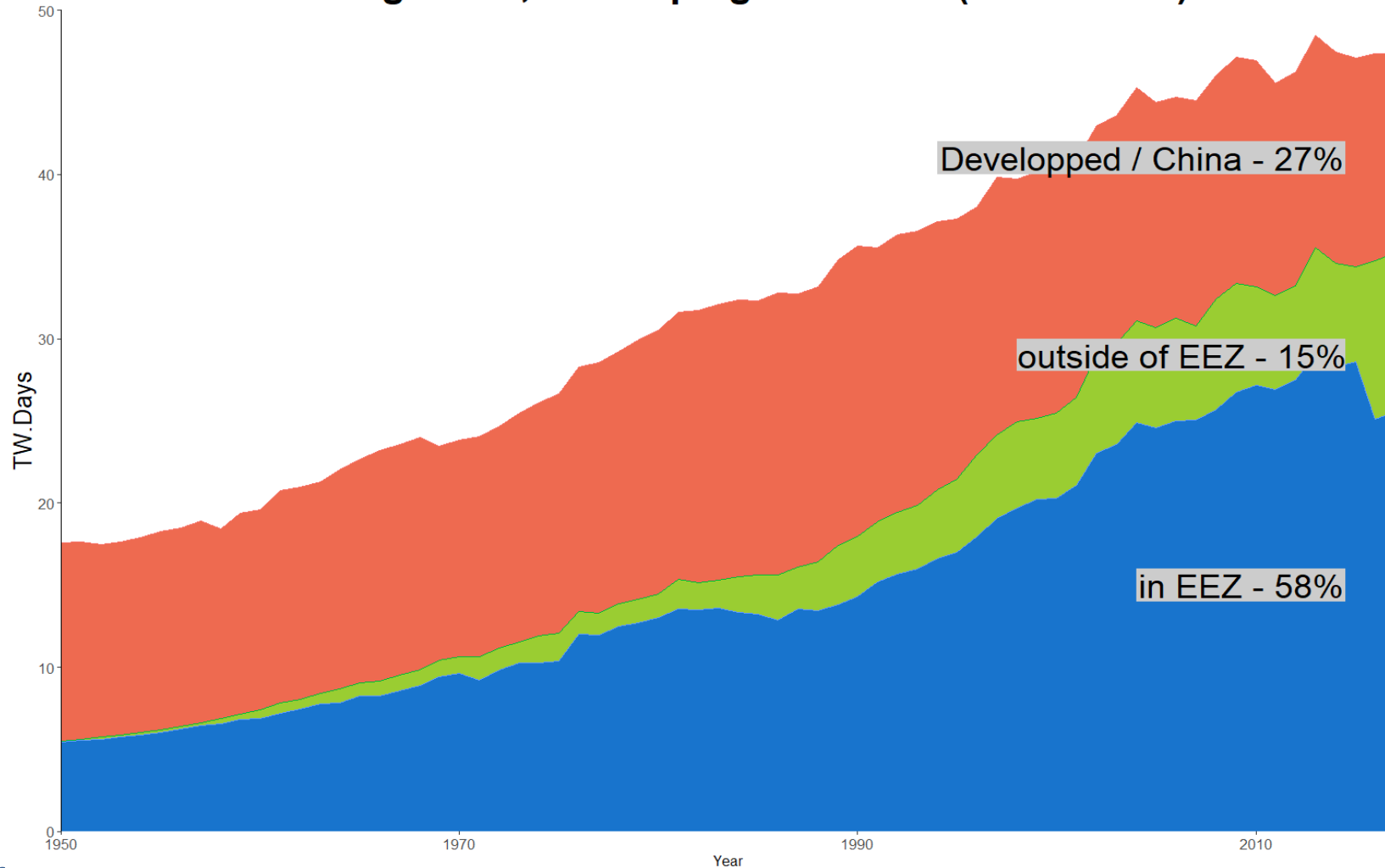
# Share of WTO in the global fleet (2020)



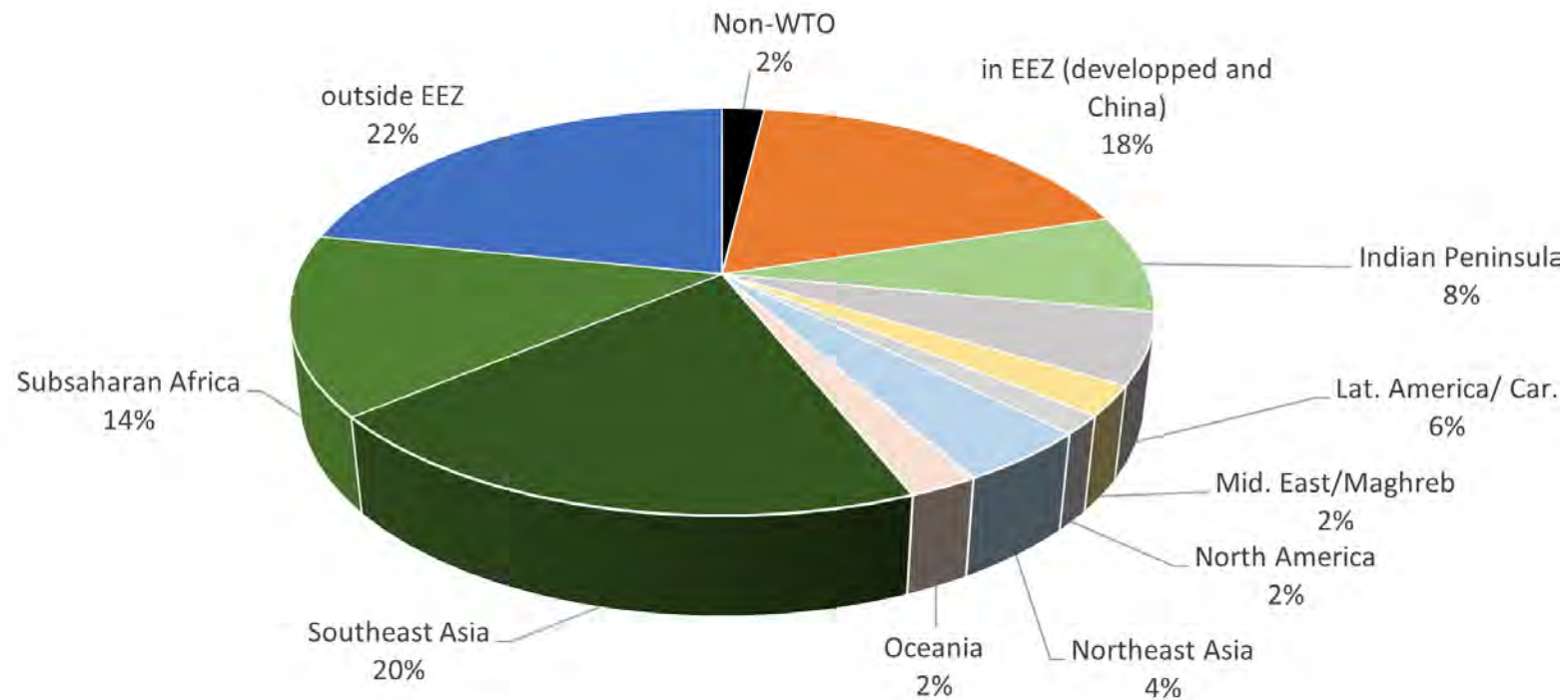
Artisanal = 3M vessels (87% vessels, 43% power)  
 LDC: 7% vessels and 2-3% power (Art / Art+Ind)

# Effort of developing countries in EEZ

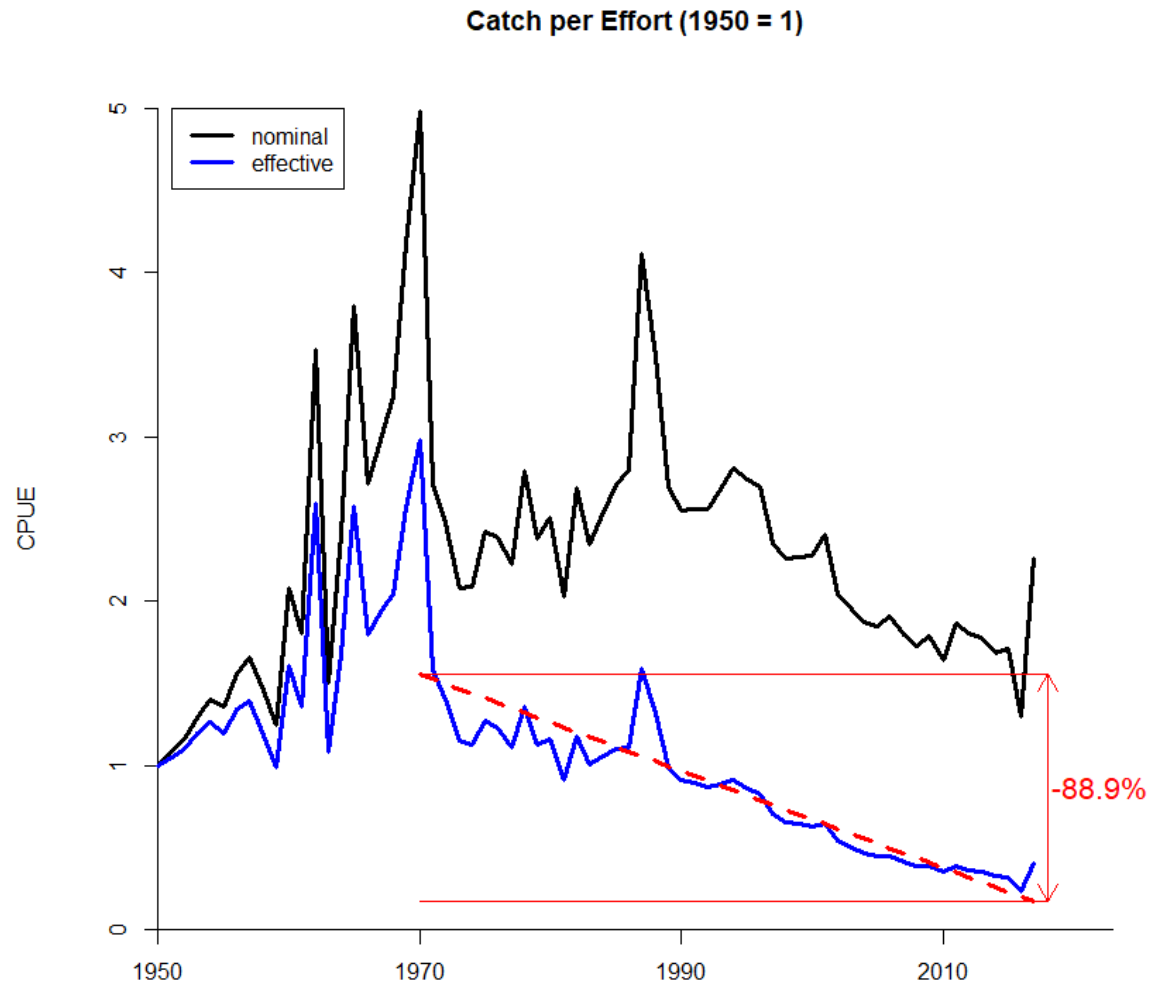
## Fishing Effort, Developing Countries (excl. China)



# Effort of developing countries in EEZ



# CPUE of developing countries in their EEZ





# Take home key points

- Artisanal fleets: 3M (87% number, 43% power)
- Number and power will keep increasing
- Contribute to decrease in global CPUE
- Developing Countries 79% vessels, 34% power
- LDC 7% vessels, ~2-3 % power
- Mostly in EEZ (80% of developing countries effort)

# Thank You

