

Fisheries (and Aquaculture) in the face of Climate Change: to adapt or not to adapt

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1965 - COFI established



1950 – The World Census of Agriculture



1951 - Headquarters move to Rome



Undernourished people (Million)







Global Marine Fisheries Production: 1970 - 2017

Production (tonnes) by country over time.





⊙2015 Paris Agreement includes a long-term adaptation goal, <u>in a manner</u> <u>that does not threaten food production</u>, alongside mitigation goals





Bindoff et al. 2020. SROCC



Free et al. 2019. "maximum catch potential from 235 fish stocks worldwide from 1930 to 2010 decreased by 4.1%"

ADAPTATION to WHAT?



Changes in

25 15 10

-10

-15 -25

Changes in Productivity





NEWS



OPINION

Grimsby far from EU ideal as locals fixate

Despite Humberside town's shift to processing of fish, the locals see Brexit as desirable

LIFE & STYLE

Middle East Asia-Pacific Brexit Morant Cris

BUSINESS

on cod war losses

(3 Sec. av) 16 (2014, 01-0

theguardian

Thu, Feb 9, 201

CULTURE

News US World Sports Comment Culture Business Money

Environment Fishing

Britain prepares for mackerel war with Iceland and Faroe Islands

Scottish fishermen and politicians call for EU action after two countries raise combined quota from 27,000 to 215,000 tonnes

Caroline Davies The Guardian, Sunday 22 August 2010 11.05 EDT







ADAPTATION to WHAT?



Changes in Range





ADAPTATION, WHY?





ADAPTATION, WHERE?

Country climate change indicators Approach





Climate change risk Priority Countries for Adaptation

- Bangladesh ٠
- Benin •
- Cambodia
- Cameroon •
- Gambia •
- Guinea ٠
- **Guinea Bissau**
- Haiti •
- Kiribati •
- Liberia ٠
- Madagascar •
- Marshall Is. •
- Mauritania ٠
- Mozambique ٠
- Salomon Is.
- Sao Tome and Principe •
- Senegal •
- Sierra Leone
- Timor Leste
- Togo
- Vanuatu

the designations used on this map do not imply official endorsement or acceptance by the United Nations.

Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined.

Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has

Overall Climate Change Risk (on Fisheries)



Low 🦰 Medium 🥅 High 📰 Very high No data

Projection: Robinson (EPSG:53030)

Inland Capture Fisheries



Food and Agriculture Organization of the United Nations



146 countries and 6 river basins assessed. Of the top producing countries:

- Pakistan, Morocco, Turkey Stressors will move from High to Very High in future
- Turkmenistan, China, Mexico, Malawi, Iran, Kazakhstan – Stressors will move from Medium to High
- Myanmar, Cambodia, Kenya, Chad, Lao People's Democratic Republic, Congo, South Sudan under low stress and projected to remain low in the future

Future climate, water and population stress



Barange et al. 2018. FAO TP. 627



Food and Agriculture Organization of the United Nations

Aquaculture



Vulnerability of Freshwater farming systems

	Storms	Flash- floods	Temperature increase	Rainfall increase	Rainfall decrease	Decreased water availability	Drought	Flooding
Intensive catfish farming	н	н	н	L	м	VH	VH	VH
Semi- intensive pond polyculture of tilapia, silver barb and carps	н	н	н	М	VH	м	н	VH
Extensive pond polyculture of carps and tilapia	м	м	м	L	м	н	н	н
/ulnerability indications: VH – very high; H – high; M – medium; L – low.								

Barange et al. 2018. FAO TP. 627

- Unfavorable impacts predominate in developing countries, but adaptation measures are available.
- Vulnerability reduction depends on broader adaptation measures beyond the aquaculture sector.
- Higher risk countries:
 - Viet Nam, Bangladesh, Lao PDR, China (Freshwater);
 - Viet Nam, Ecuador, Egypt, Thailand (Brackish);
 - Norway, Chile (Marine)

ADAPTATION, HOW?



- Adaptation is placed and context based
- On-going and iterative
- Adapt to the possible rather than the probable
- Adaptation is not a zero-sum game: it can have very positive results
- Coordinated adaptation essential
- Political commitment + Societal support + Industry leadership



FAO Fisheries and Aquaculture – Climate Change Adaptation Portfolio

GEF-funded Adaptation

FAO and partners Adaptation

NAP support



EAF Nansen Programme





Session 6 – Fisheries Management in the face of a changing climate - MESSAGES

- 1. <u>Transformative</u> adaptation
- 2. Focus on attain robustness to variability rather than stability
- 3. Develop spatial management mechanisms able to adapt to the fast pace of climate change
- 4. Negotiate <u>trade-offs</u> and build on climate justice and equity considerations
- 5. Promote <u>value-adding</u> to compensate for decreasing productivity
- 6. Account for gender differences in terms of vulnerability
- 7. Invest in innovation



RISK vs REWARD

THE *1 NEW YORK TIMES BESTSELLER BY THE AUTHOR OF

THE BLACK SWAN

SKIN in the GAME

Hidden Asymmetries in Daily Life



NASSIM NICHOLAS TALEB







Food and Agriculture Organization of the United Nations

Thank you

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