

# Mainstreaming climate change adaptation into EAF/EAA management plans

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# A relevant proportion of cature fisheries worldwide is overfished or fully fished



---Developed Countries ---Developing Countries

[As per UN standard country codes for statistical use, @UNSTATS]



- Coastal fisheries (often open access) may experience increasing pressure due to CC impacts on agriculture
- Global aquaculture at all scales continues to experience issues of poor management. Specially difficult to overcome in less developed countries
- In general, when attempting to address vulnerability of fisheries and aquaculture and adaptation measures the first measure should be to improve management and condition of resources
- CC has become a kind of "unwanted allied" opening opportunities and increasing awareness on the extra-need for improved management

- Perhaps it is too optimistic to think that most reg countries, communities can develop and impleme specific Climate Change Adaptation Plans
- Yet developing National Adaptation Plans (NAPs) F&A is very relevant
- The inclusion of F&A in the National Adaptation is also essential
- Most important, Climate Change Adaptation muse a solid component in fisheries and aquaculture management plans at all levels

Clime Fish CAP guidelines provide very useful guidance for all these levels



#### Climate change risk **Priority Countries for Adaptation**

- Bangladesh .
- Benin .
- Cambodia .
- Cameroon .
- Gambia .
- Guinea .
- **Guinea Bissau** .
- Haiti .
- Kiribati .
- Liberia ٠
- Madagascar •
- Marshall Is. ٠
- Mauritania .
- Mozambique .
- Salomon Is. .
- Final boundary between the Republic of Sao Tome and Principa Republic of South Sudan .
- Senegal .
- Sierra Leone .
- **Timor Leste**
- Togo
- Vanuatu

The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

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 not yet been agreed upon by the parties.

## Overall Climate Change Risk (on Fisheries)



This indicator combines vulnerability and potential catch change. Scenario: DBEM 2050 2.6

Low Medium High Wery high No data

**Results – DBEM 2050 2.6** 

Projection: Robinson (EPSG:53030)

### Vulnerability Assessment : the most commonly used model/approach

Exposure (E) of the fishery / aquaculture resource (Production + infrastructure) = Risk due to CC threats, R=P x M (Magnitude highly determined by status of the resource and management)

#### Sensitivity

Dependency of local Communities (direct and indirect employment by gender, tax contribution to Communities etc)

#### **Adaptation Capacity**

Capacity to prevent and mitigate (local and national governance, EWS, education level, communications, infrastructure, insurance, alternative livelihoods ) etc

## **Vulnerability** V = f((E,S) - CA))

Adapted from IPCC 2001

Chile is the second world salmon producer (600,000 tonnes) and first mussel exporter (+300,000 tonnes). Climate change is already affecting industry



Salmon farming vulnerability to climate change in relevant southern Chile counties



#### Vulnerability to climate change

#### in the next 20 to 30 years.

 $\underline{\mathbf{BS}}$  = Vulnerability considering current farming conditions

 $\underline{S4}$ = Improved capacity of adaptation including an optimal concentration of production (Soto et al 2019)

Improved management has great relevance to reduce vulnerability.

EAA managment plans for production areas are needed

# Implementation of the Ecosystem Approach to Fisheries (EAF) and Aquaculture (EAA)

- ✓ The EAF and EAA are holistic strategies for managing capture fisheries and aquaculture that integrate their ecological, socio-economic and institutional dimensions
- ✓ Both advocate participation, transparency and equitable distribution of goods and services from aquatic ecosystems
- ✓ EAF and EAA must be implemented within ecologically and operationally meaningful boundaries.
- Desired outcome is the implementation of a management plan





# Implementing the Ecosystem approach to fisheries and aquaculture (EAF/EAA) in Estero Real Nicaragua



## The EAF/A process



A typical EAF/A process identifies issues to decide on priorities and organize a plan



# Main issues

- Ecological well-being:
  - Overfishing
  - Use of destructive fishing (fishing bags)
  - Shrimp farming may have gone over the ecosystem carrying capacity (?)
    - In all cases above –damage to biodiversity and ecosystem services

## • Socio-economic:

- Poverty!!! and lack of opportunities
  - Post-harvest issues (poor quality and no added value)
  - Inequity in the income and benefit of resource use

## • Governance:

- Difficulty in harmonizing management actions across local government units
- Not enough harmonization between different institutions
- External drivers affecting fisheries and aquaculture
  - Habitat deterioration by agriculture and bad land use practices
  - Increase climatic variability and extreme events -CLIMATE CHANGE !!!!!

# The EAFA management plan had four components



# Climate change must be a cross cutting consideration in any management plan



# Focus/Scope of the approach (Management plan, VA, RA etc.) needs careful consideration



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Also the lidership, financial support and institutional involvement must be decided

# An essential minimal adaptation measure is to reduce the exposure/risk to resources by reducing overfishing, reducing stress

New efforts and collaboration are needed to implement EAF/A management plans and mainstream climate change adaptation in them