Diverse pathways for climate resilience in marine fishery systems

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Environmental Defense Fund

There is broad consensus that fisheries need to be **climate-resilient**…

Illescas Peninsula, Peru

There is broad consensus that fisheries need to be **climate-resilient**…

but .. what does it *actually look like* for your fishery, the people, your institutions?

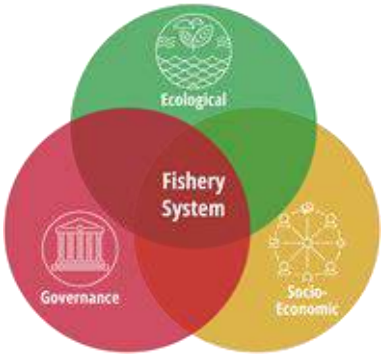
Illescas Peninsula, Peru

How do you move from *understanding climate impacts*

to *building a resilience strategy*?

Illescas Peninsula, Peru

Approaches: Multi-dimensional view of resilience

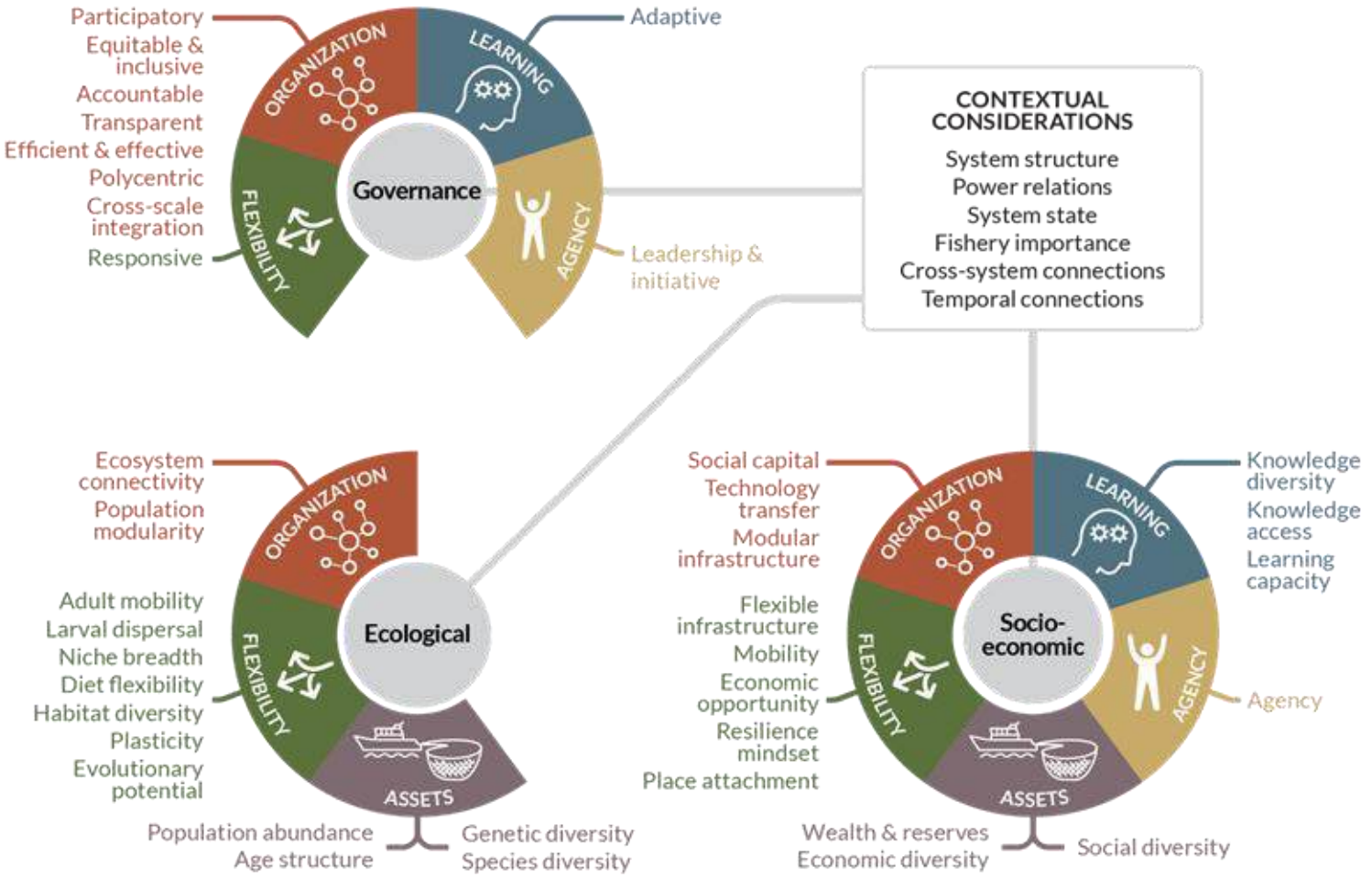


Resilience attributes

Approach: generate and refine attributes from literature and expert knowledge

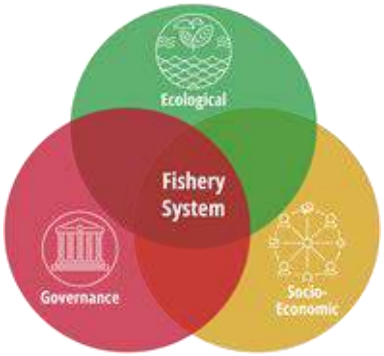
6 recent review papers, expert working group, and an iterative review

Mason, Eurich, Lau et al. 2022 *Fish and Fisheries*
https://doi.org/10.1111/faf.12630



Mason, Eurich, Lau *et al*. (2022) *Fish and Fisheries*

Approaches: Multi-dimensional view of resilience

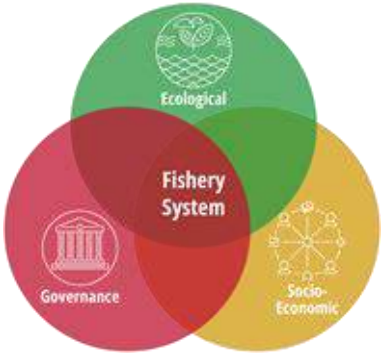


Resilience attributes

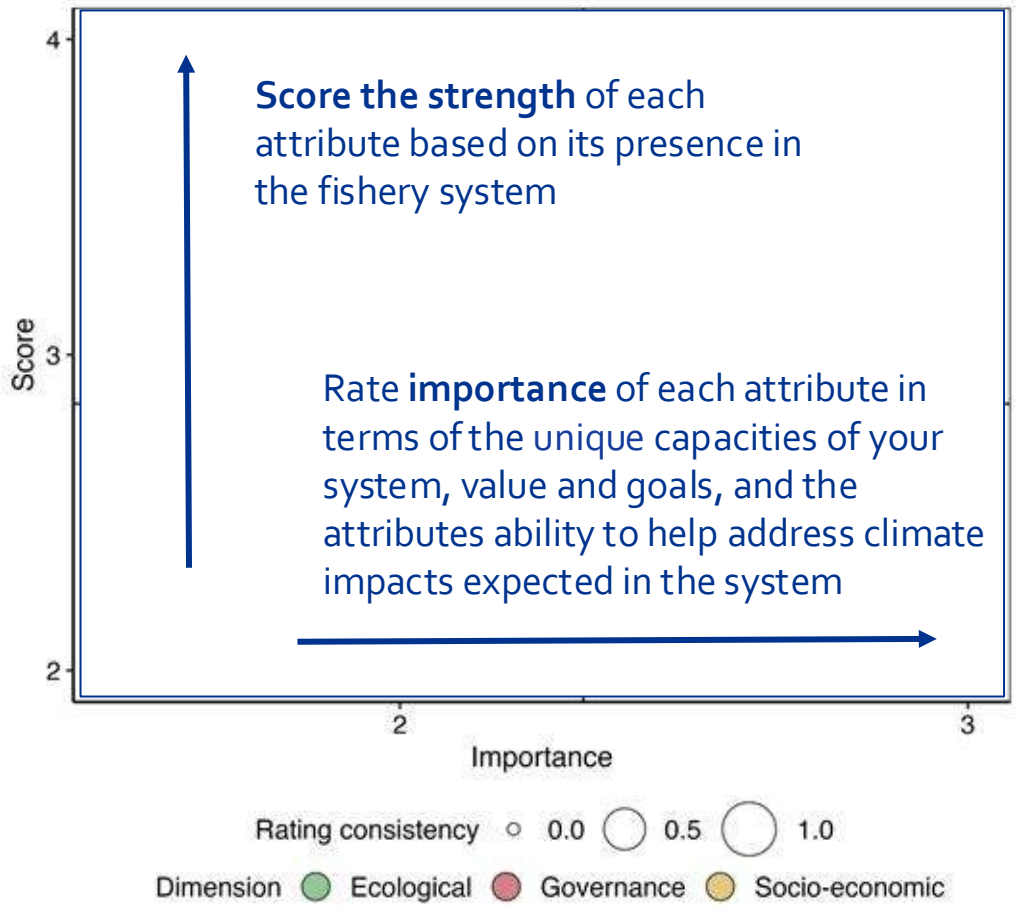
Mason, Eurich, Lau et al. 2022 *Fish and Fisheries*
https://doi.org/10.1111/faf.12630

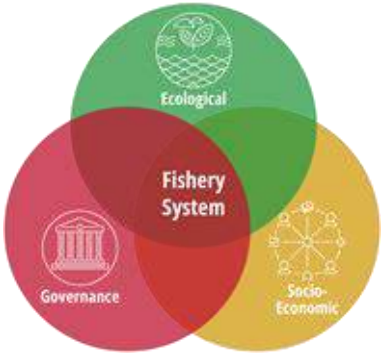
Pathways to resilience

Eurich, Friedman, Kleisner, Zhao et al. 2024 *Fish and Fisheries*
https://doi.org/10.1111/faf.12790



38 attributes
18 case studies





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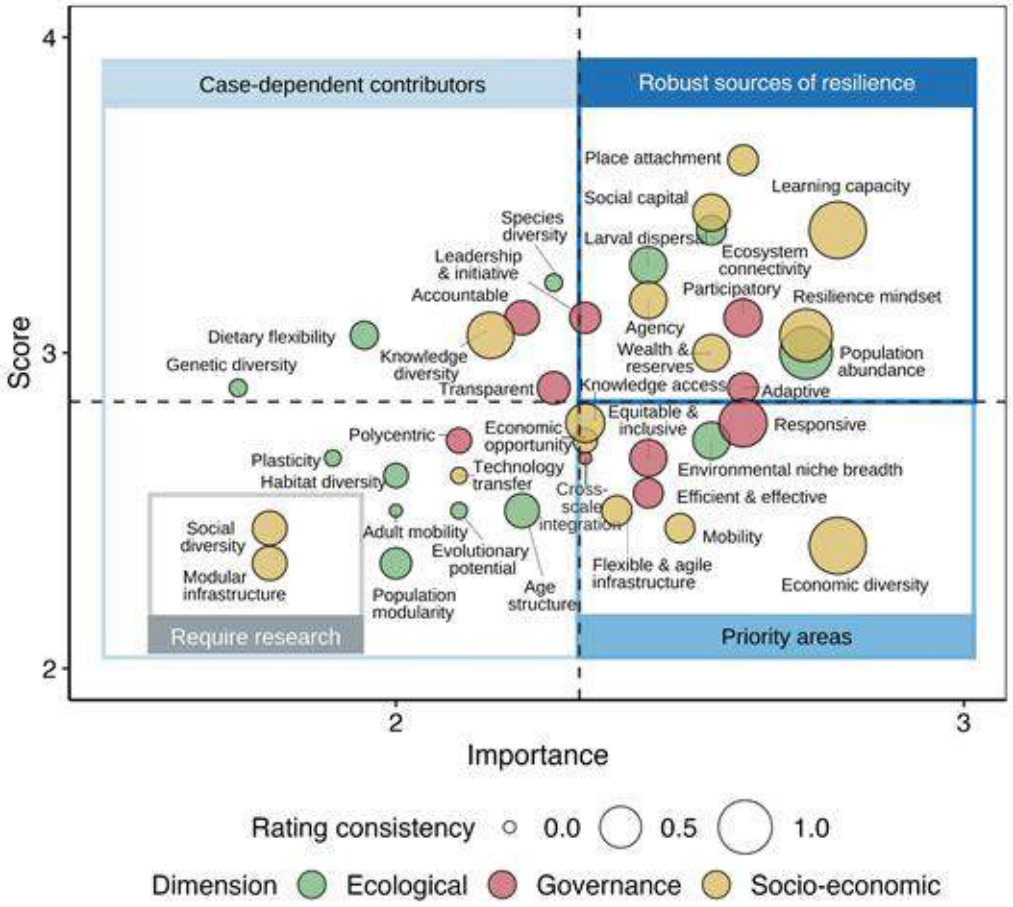

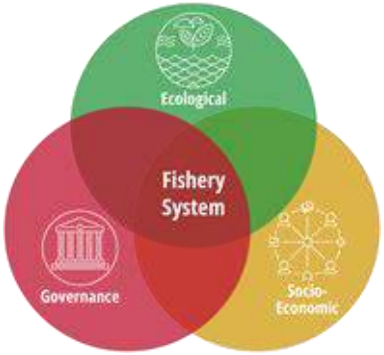

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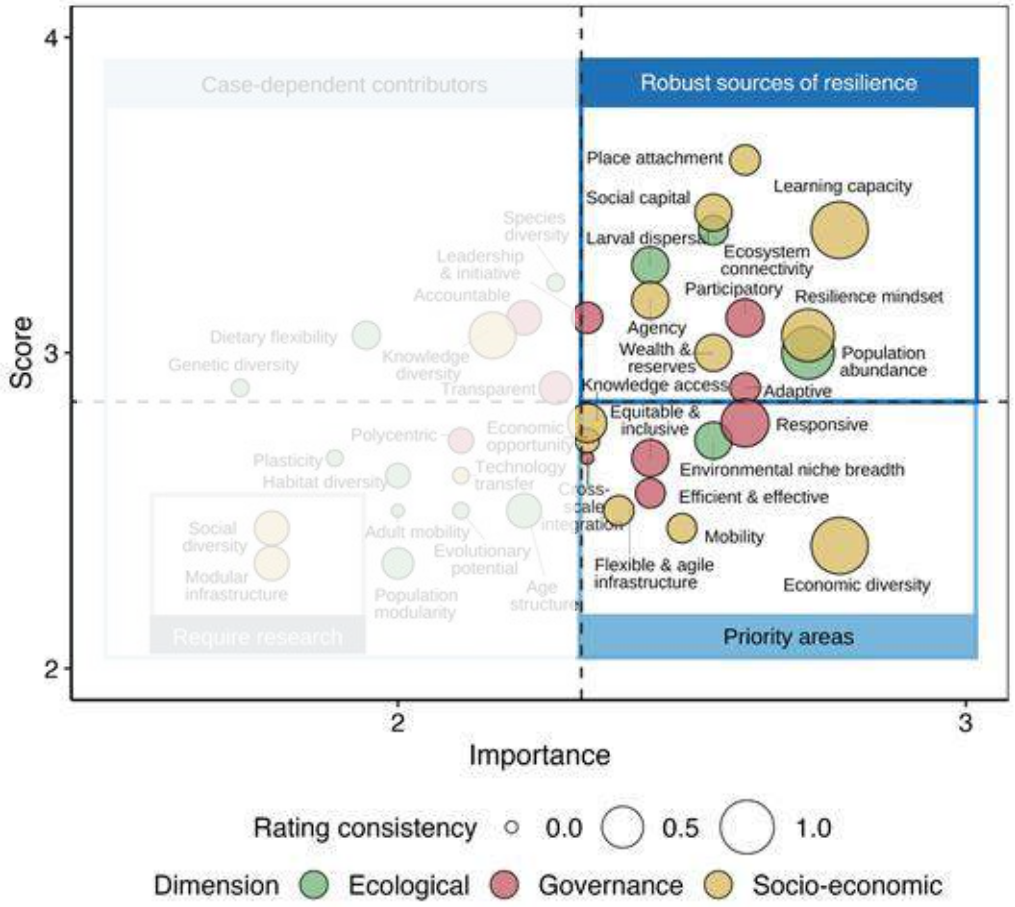



Planning *for* change…
… requires a fishery
climate-resilience plan.

Climate-Resilient Fisheries Planning Tool

CLIMATE–RESILIENT FISHERIES PLANNING TOOL

Decision support for fishery managers, stakeholders, and communities seeking to increase resilience to climate change.

Components

- Climate hazards and risks
- Adaptation approaches and interventions to buffer climate impacts
- Capacities and limitations based on resilience attributes
- Climate resilience strategies

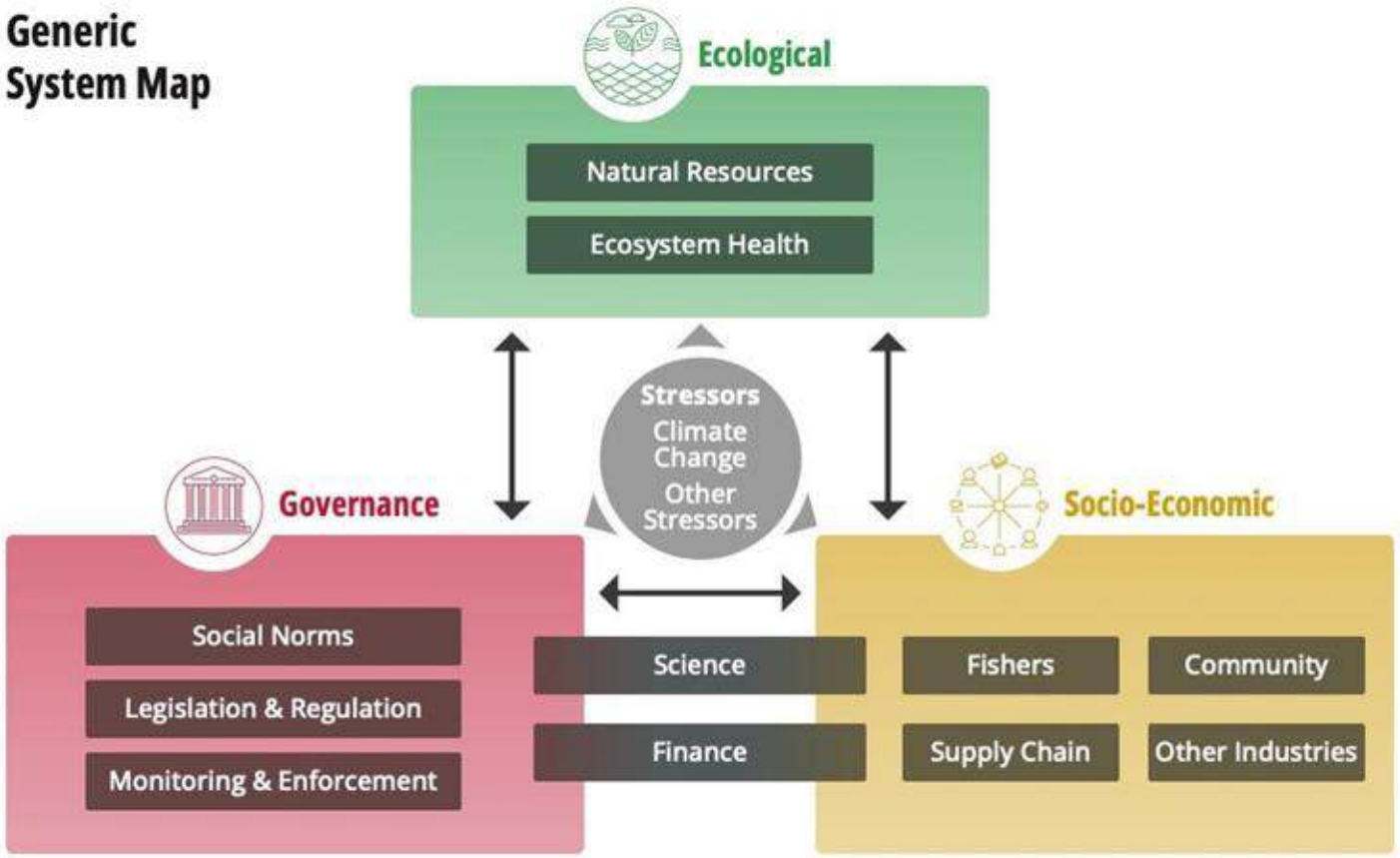
Climate-Resilient Fisheries Planning Tool

https://climateresilientfisheries.net

Climate-Resilient Fisheries Planning Tool

DEFINE

Specify the fishery system -- generic system mapping

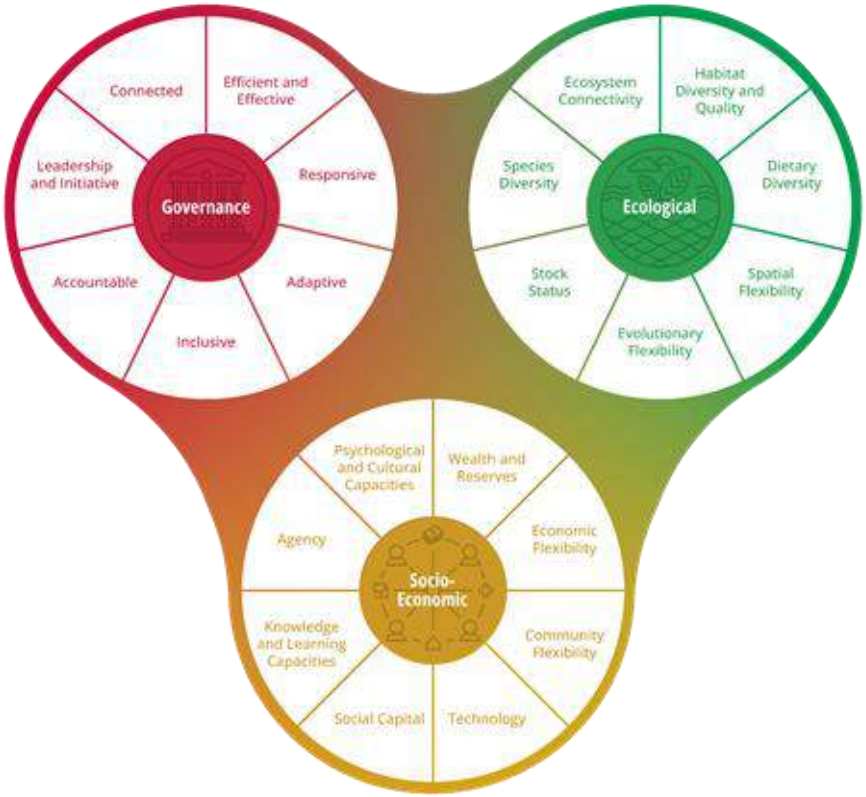


Climate-Resilient Fisheries Planning Tool

ASSESS

The tool facilitates an assessment of governance, ecological, socio-economic dimensions of a fishery system using the resilience attributes presented on earlier

22 recommended attributes score 'strength' and 'importance'



Climate-Resilient Fisheries Planning Tool

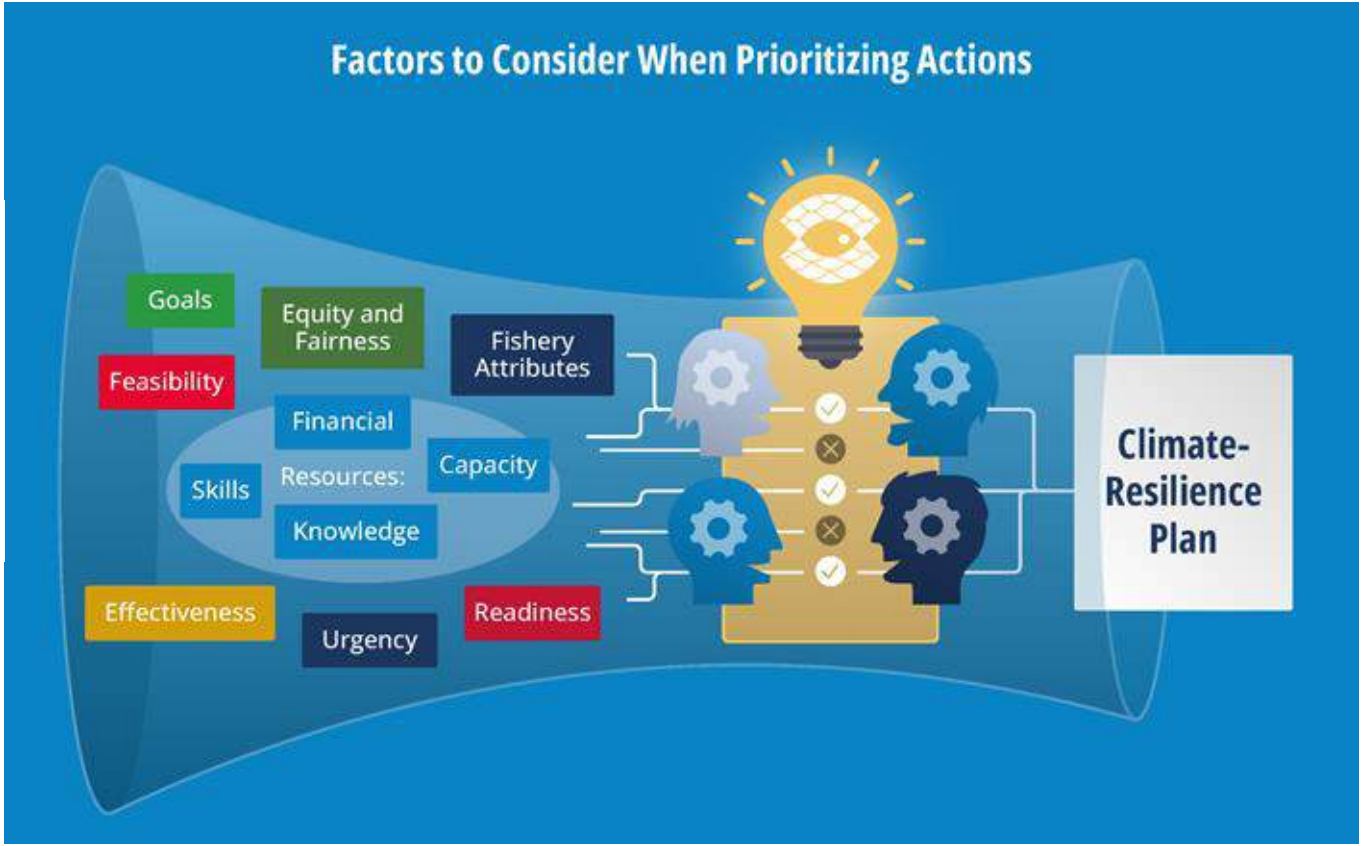
PLAN

STEP 6

Identify Priority Actions

In this step:

- Consider the feasibility of actions
- Prioritize actions for implementation and/or further planning efforts



CLIMATE—RESILIENT FISHERIES PLANNING TOOL

ABOUT THE TOOL STEPS 1-6 CRF CASE STUDIES

climateresilientfisheries.net

CLIMATE–RESILIENT FISHERIES PLANNING TOOL

Step 1: Specify the Fishery System

Instructions:

1. List the key types of ecosystem features and fishery actors in your system loosely as a brainstorm. We suggest considering the ecological, socio-economic, and governanc
2. Consider the boundaries of the system as defined above. Are there ecosystem features or actors you won't consider in this assessment and planning process? If so, you
3. Organize the features and actors from the brainstorming exercise into groups using lists, visuals, symbols, or other approaches you prefer, and then describe or visualize
4. List external stressors that can influence or impact the system.

Find more information and resources for this step on the tool website.

Ecological	Socio-Economic	Governance	External stressors

Step 4: Evaluate Climate-Resilience Attributes

Instructions:

1. Become familiar with the definition, mechanisms, and examples from case studies of each climate resilience
2. Score the strength of each climate resilience attribute based on its presence and strength in the fishery syste
3. Rate the Importance of each resilience attribute in terms of the unique capacities of your system, your value
4. Be sure to capture your sources and reasoning as Notes.

Find more information and resources for this step on the tool website.

Dimension	Climate Resilience Attribute *Component Attributes (if present)*	Brief Description	Example Questions to Consider	Score	Importance	Notes
Ecological	Habitat diversity and quality	The availability, variety, and caliber of suitable habitats.	Are diverse habitat types available? Are the habitats ecologically healthy?			
	Dietary diversity	The range of prey items a species can exploit.	Is the species a generalist feeder, or does it eat only a few types of prey?			
	Spatial flexibility: *(1) Adult mobility* *(2) Environmental niche breadth*	The ability of a population to tolerate changing conditions or move to new locations to find suitable conditions.	Can the species tolerate a range of environmental conditions and/or habitat types in one location? Can it easily move to track its preferred environmental conditions?			

Step 5: Brainstorm Climate-Resilience Actions

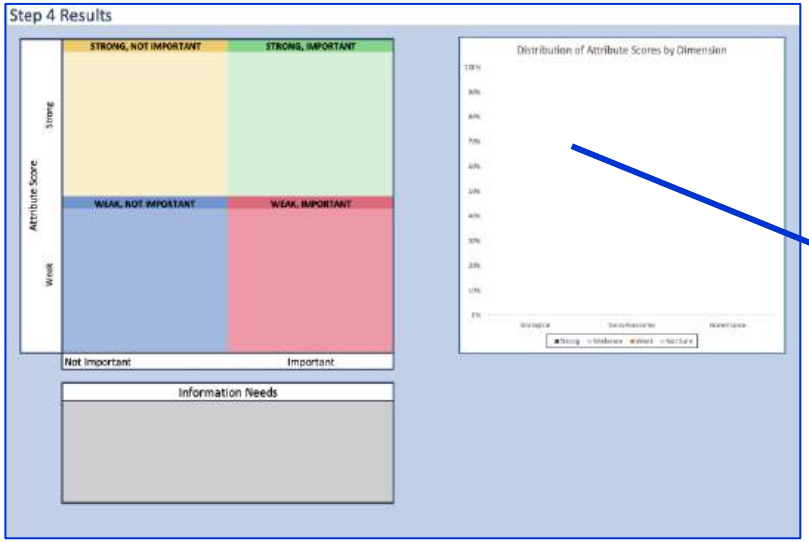
Instructions:

1. Revisit your goals from Step 2. If you would like to modify them or add new goals based on insights you have gained from earlier steps in this assessment and planning process, do so now.
2. Consider your goals, climate-related impacts, resilience attributes, values, and resources and brainstorm potential actions you might want to take. Examples are available on subsequent pages.
3. For each action, identify which goals it will support, climate-related impacts it will address, and/or resilience attributes it will enhance.

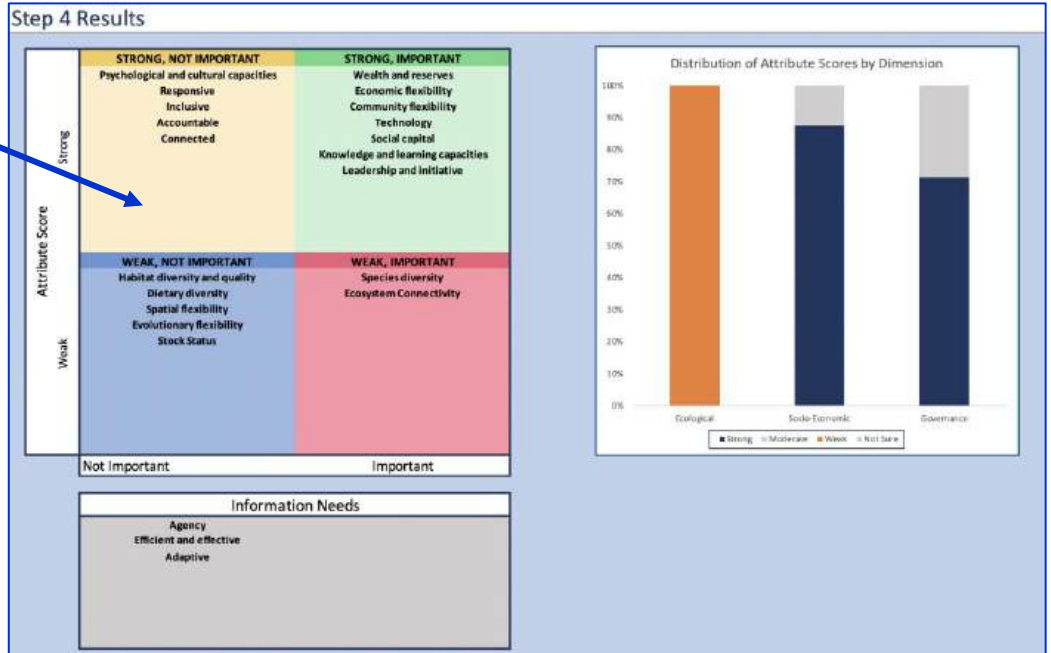
Modified Goals

#	Brainstormed Action	Goal(s) supported, Impact(s) addressed, Resilience Attribute(s) enhanced
1	*Example: Set up volunteer mangrove seeding program*	*Mangrove health; Helps reduce erosion; Habitat diversity and ecosystem connectivity*
2		
3		
4		
5		

CLIMATE—RESILIENT FISHERIES PLANNING TOOL

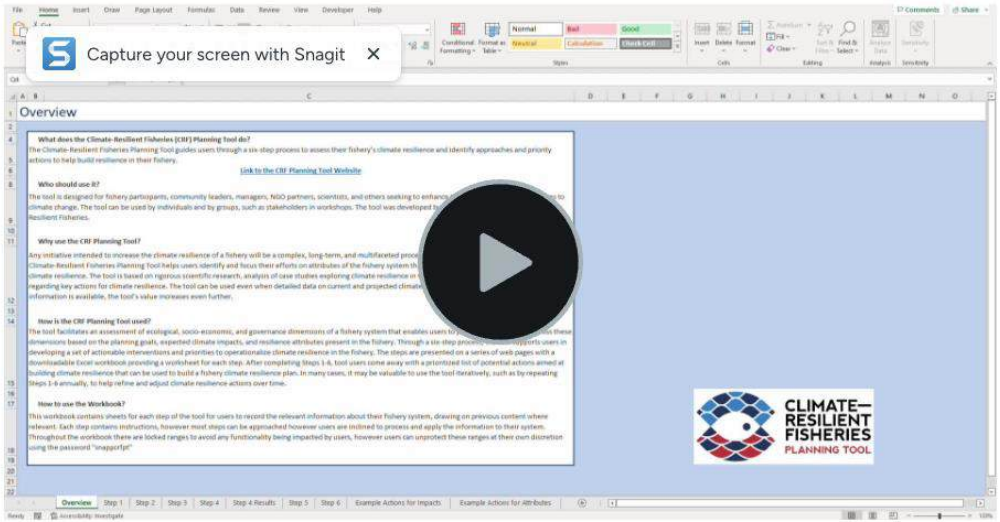


Chilean fishery resilience assessment - Aristoteles Stavrinaky, May 2025



CLIMATE—RESILIENT FISHERIES PLANNING TOOL

Video: Introduction to the CRF Planning Tool Workbook



CLIMATE—RESILIENT FISHERIES PLANNING TOOL

Climate-Resilient Fisheries Planning Tool: Facilitators' Guide

Decision support for fishery managers, stakeholders, and communities seeking to increase resilience to climate change

Contact information: climateresilientfisheries@gmail.com

I. Introduction

This document is the Facilitator's Guide companion for the Climate-Resilient Fisheries Planning Tool (CRF Planning Tool). The guide is not intended as a stand-alone product, but rather to concisely provide guidance to participants who are bringing the CRF Planning Tool to a fishery or community and facilitating a climate resilience assessment and planning process.

The purpose of this guide is to outline an in-person collaborative approach that engages a selection of fishery participants, community members, or other partners in (1) understanding and assessing their current fishery system, (2) considering the current and anticipated effects of climate change, and (3) brainstorming and prioritizing actions they can take to improve the climate resilience of their system and interventions to address immediate climate risks. While this guide is intentionally non-prescriptive, it draws on case studies and external resources to present a broad set of tools.

The CRF Planning Tool is available as a website with instructions geared for multiple fishery or community participants to work through together; it is also available as a downloadable PDF for offline environments. Along with this companion document, the tool has a worksheet, provided both as an Excel document and a PDF. The worksheet will help participants record the outcomes of each step, along with thoughts and considerations that arise along the way. Its use throughout the assessment and planning process is highly recommended.

CLIMATE–RESILIENT FISHERIES PLANNING TOOL

Download the Tool Workbook

Download Workbook (PDF format)

The PDF file is a printable version of the workbook. It does not offer auto-populating spreadsheets and other interactive features. However, it can be used in situations where computers are unavailable.

Spanish Translation: Descargar libro de trabajo (formato PDF)

Bahasa Translation: Unduh Buku Kerja (format PDF)

Download Facilitators' Guide (PDF format)

This guide supports users facilitating the CRF Planning Tool in a fishery or community setting. It outlines a collaborative, in-person approach to assess climate resilience and identify priority actions. Use alongside the CRF Planning Tool website and workbook.

Spanish Translation: Descargar guía para instructores (formato PDF)

Bahasa Translation: Unduh Panduan Fasilitator (format PDF)

Slide and Image Bank for Facilitators (format PPTX)

Paso 6: Determinar las acciones prioritarias

Instrucciones:

1. Para priorizar su lista de acciones identificadas en el paso 5, analice las condiciones existentes para apoyar la ejecución de cada acción, así como las condiciones que es preciso mejorar o desarrollar para avanzar en la ejecución (Apoyo existente y necesario).
2. Estudie un cronograma adecuado para cada acción en función de varios factores como la urgencia y la preparación.
3. Además de lo anterior, hay muchos otros factores que pueden determinar cómo priorizar sus acciones. Utilizando los ejemplos de preguntas para guiar su reflexión, anote cualesquier otras consideraciones para cada acción.
4. Indique las acciones prioritarias utilizando la función de resaltado, una nueva hoja u otros métodos que prefiera.

Acc.	Apoyo existente y necesario	Cronograma	Otras consideraciones
1	*Ya se conocen subvenciones para proyectos relacionados con los manglares, la comunidad los apoya y está implicada*	*Varios años*	*Beneficios generales para el ecosistema más allá de la mejora de los hábitats de cría*
2			
3			
4			
5			

Conclusions

- **Many pathways, shared principles**: co-development and local relevance are non-negotiable
- **Move from plans to action**: a resilience framework complements the ecological and socio-economic tools presented this week
- **The framework is flexible**: it can be tailored to IATTC's species, scales and management structures
- **Scaling requires equity**: least-resourced members need aligned support, policy and funding




Questions & discussion

Jacob Eurich, PhD – jeurich@edf.org

CRF Planning Tool – climateresilientfisheries.net