



Vulnerability Assessment and Adaptation Strategies

Module 4: Climate Change and Ocean Health
Duration: 1 Hour

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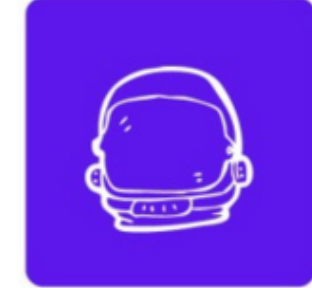


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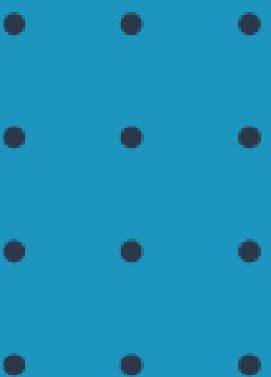


Cyprus



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SustainaBlue
HEIs stands for Higher Education Institutions

Vulnerability

- The propensity or predisposition to be adversely affected. It encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt (IPCC 2014a, p. 39).

Coastal Communities are highly vulnerable

- Vulnerable to climate change with impacts distributed unequally amongst human communities

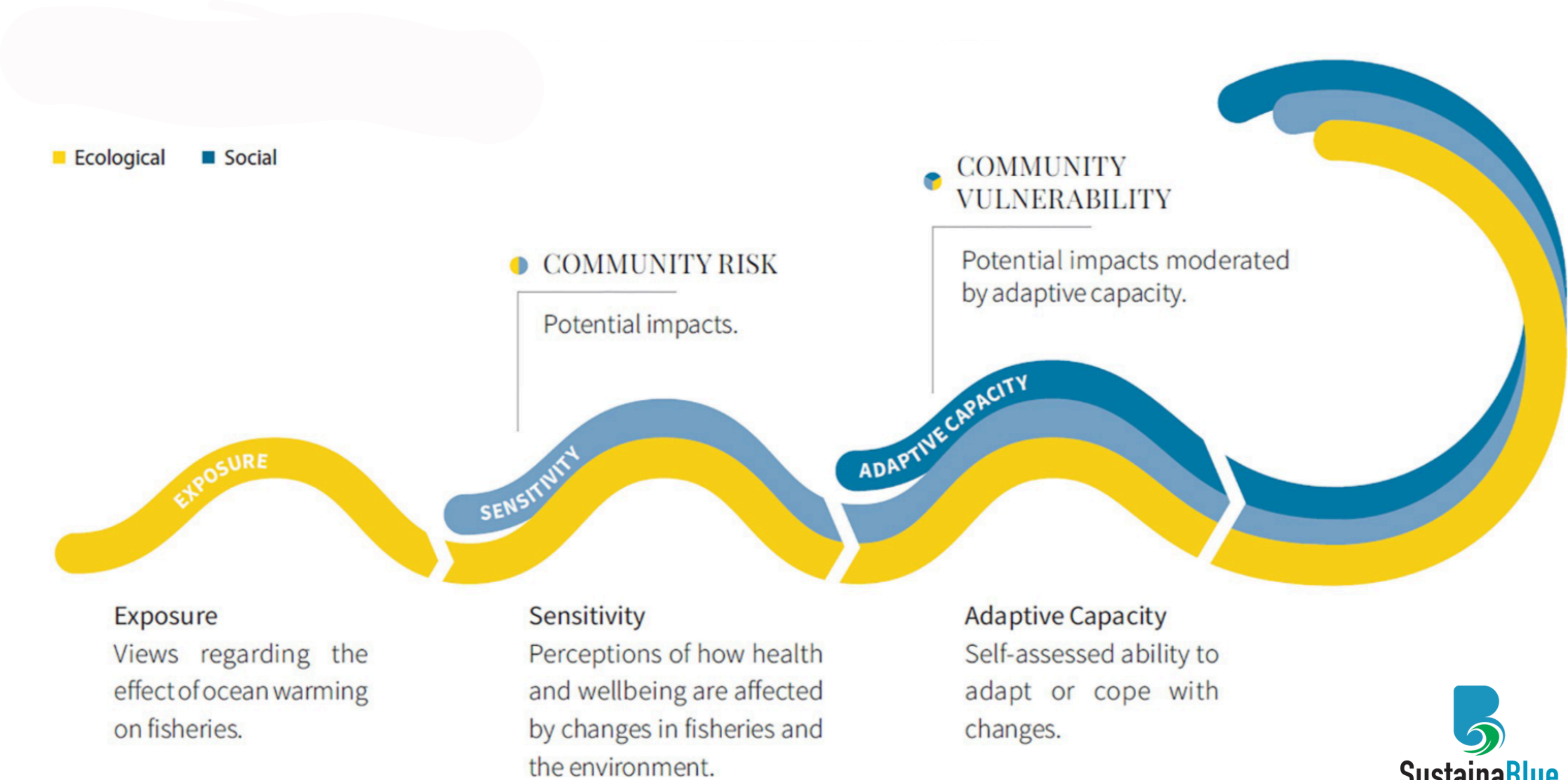


Vulnerability's Components

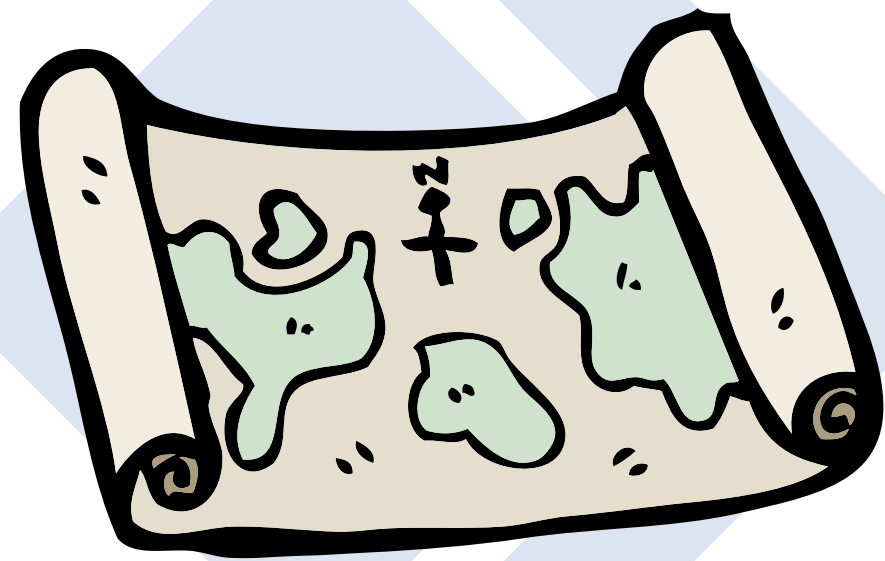
- **Sensitivity**
 - Include ecological or physical attributes of a system as well as social, economic and culture attributes
 - I.E. Type of soil on agriculture fields, Water retention capacity for flood control, Age structure, Income structure
- **Adaptive Capacity**
 - The ability of system, institutions, humans and other organisms to adjust, or respond to consequences
 - Such as, Knowledge to introduce new farming methods
- **Exposure**
 - Relevant elements of the SES system, encompassing of people livelihoods, assets, species and ecosystems that could be affected by negative impacts
 - E.g. Population density in an area affected by drought

Fig 1. Perceptions of vulnerability framework. Perceived vulnerability of fishers was assessed by combining perceived exposure, sensitivity, and adaptive capacity.

(Source: Nelson et al., 2023)



Method for Assessments



Map



Indicators



Survey

Climate Vulnerability in the U.S. Current Fishers



- Developed a survey consisting of three sections:
 - 1) Demographic and fishery participation information,
 - 2) Observations of ocean change
 - 3) Perceptions of wellbeing and vulnerability
- The survey consisted predominately of **Likert-scale questions**, but also included **open-ended opportunities**

Results of the U.S. Current Fishers

The findings of a survey conducted with fishers in Washington, Oregon, California, and Alaska, focusing on their perceptions of climate vulnerability and environmental changes.

Observed Environmental Changes and Impacts:

- 60% observed an increase in ocean temperatures in the last five years
- 71% felt a decrease in the availability of their target species.
- 75% observed a range shift in target species when comparing the last five years to 30 years ago
- 49% reported a shift in the time of year they fish
- 43% believed their ability to catch fish was negatively impacted by climate change

(Source: Nelson et al., 2023)

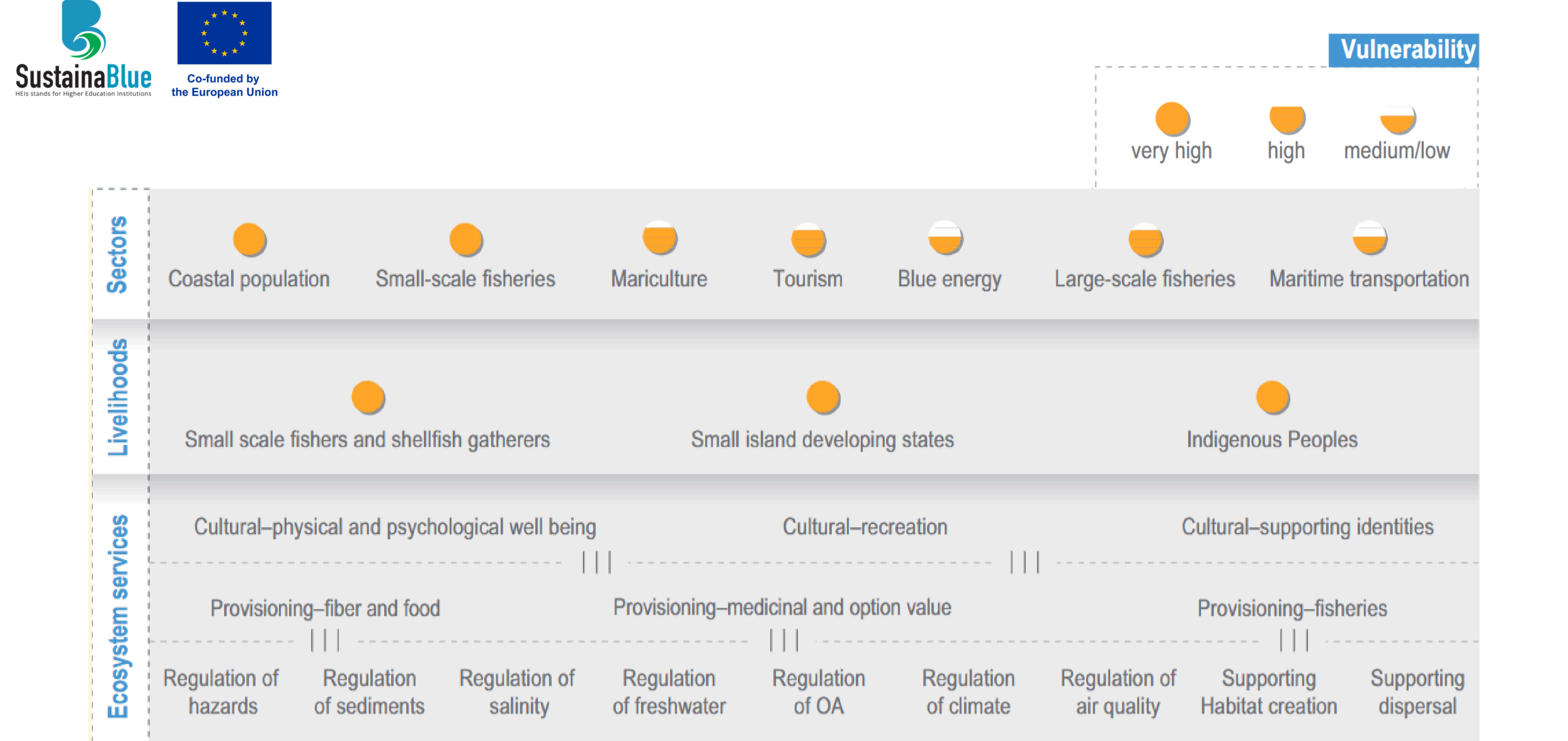


Figure 3.4.1 | Illustration of vulnerable ocean and coastal groups, the climate-induced hazards they experience, and anticipated outcomes for human systems.

(Source: Glavovic, 2022)



● **Adaptation Solutions**

A key adaptation solution is:

- Improving access to credit and insurance to buffer against variability in resource access and abundance.
- Inclusive decision-making processes, access to resources and land for Indigenous Peoples, and participatory approaches in management.
- For the fishing industry, international fisheries agreements and investing in sustainable mariculture and fisheries reforms is often recommended.
- Immediate adaptations to other challenges by early warning forecasts, public communications, and education.



(Source: Glavovic, 2022)

Community-based Adaptation (CBA)

A community-led process based on meaningful engagement and proactive involvement of local individuals and organisations (Remling and Veitayaki, 2016; p. 380).

Challenges of CBA:

- For example, **Pele Island**, Vanuatu, implementation of CBA projects has experienced significant failures due to elite capture of project management, internal power dynamics within communities, and different priorities of communities living

(Source: Mycoo et al., 2022)



Livelihood Responses

Communities across small islands are adapting to the impacts of climate change across a range of livelihood activities:

- By employing several activities ranging from diversification of livelihoods to changing fishing grounds and considering weather insurance

Improved Technologies

Seeking better training

Advanced equipment

Changing fishing grounds

Seeking better education

Vanuatu – Efate

The majority (87%) of the fishermen used livelihood diversification as an adaptation strategy whereas 53% also searched for new fishing areas as a result of the changing conditions.

- Continue to use to varying degrees traditional adaptive strategies designed to reduce their vulnerability to tropical cyclones.
- I.E. Planting a diversity of different crops within household and communal gardens to ensure that not all crops are destroyed by an extreme event, and the storage and preservation of certain foodstuffs (so-called famine foods).

(Source: Mycoo et al., 2022)

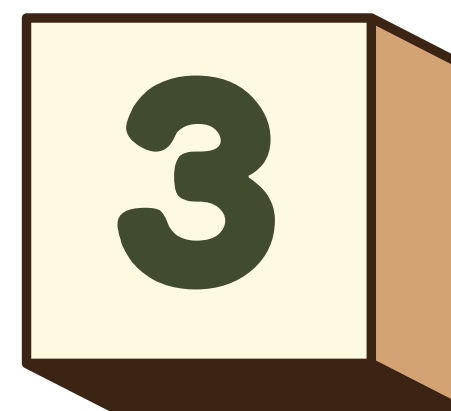
Activity: Adaptation Brainstorm

Pick one

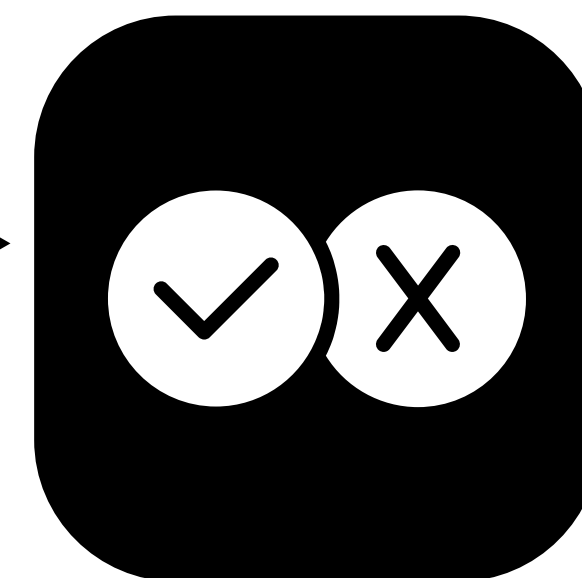


Costal Village

**Propose 3
Adaptation
strategies**



Discussing



Pros and Cons

SUMMARY

The framework of vulnerability includes exposure, sensitivity, adaptive capacity:

- **Exposure:** The risk of experience concerning socio-ecosystem events that can affect negatively
- **Sensitivity:** Perception of how socio-ecosystem affect
- **Adaptative Capacity:** The ability to adjust, or respond to consequences

Adaptation strategies were introduced, ranging from engineering solutions to community preparedness, especially CBA or Community-based adaptation, which refers to a community-led process based on meaningful engagement and proactive involvement of local individuals to address all circumstance peacefully through deeply understanding and less costly for solving the problems. To success these goals, it need to build mutual trust in relationships between parties in order to plan effectively and inclusively.


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THANK YOU

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