



Estimating the Cumulative Risk of Marine Biodiversity Loss

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Develop a universal rapid methodology to estimate **the cumulative risk of losing marine biodiversity** at a given area and under different ecological, social, and political scenarios. By using a **universal approach**, we intend to make results **comparable** across case studies.

Aim

Framework

Hazards: Expert elicitation on a list of stressors: warming, habitat loss, invasive alien species, and overfishing. Future scenarios also evaluated.

Exposure: Proportion of critically endangered, endangered, and vulnerable species of each functional group.

Sensitivity: Life history traits and laboratorial-measured responses.

Adaptive capacity: Management actions applied to lower sensitivity or hazards.

Vulnerability: Sensitivity - Adapt Capacity

Impact: Hazard * Exposure

Risk: Impact * Vulnerability

Audience

Decision makers and **academics** from the marine realm that want to assess the risk of losing biodiversity due to the cumulative effect of different stressors. The method will be accessible through an online tool.

Units of analysis

The assessment is conducted considering **biodiversity groups** (e.g., marine mammals, seabirds). But since species within a biodiversity group could respond in opposite ways to a stressor, we consider those **native species with Vulnerable or higher IUCN category**. These species are stated at the beginning of the assessment and vary for each stressor, following the criteria of the practitioner.

Expected outcomes

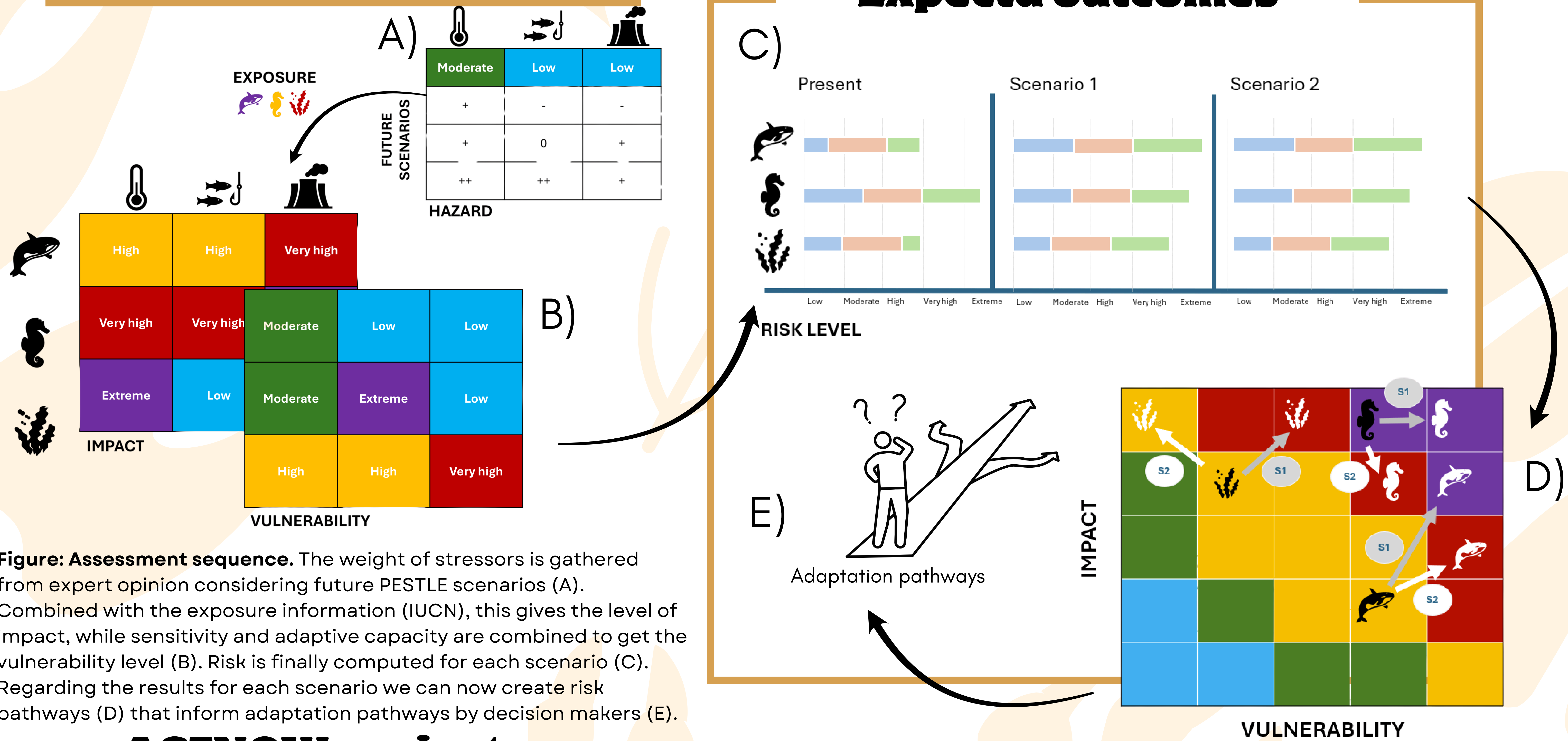
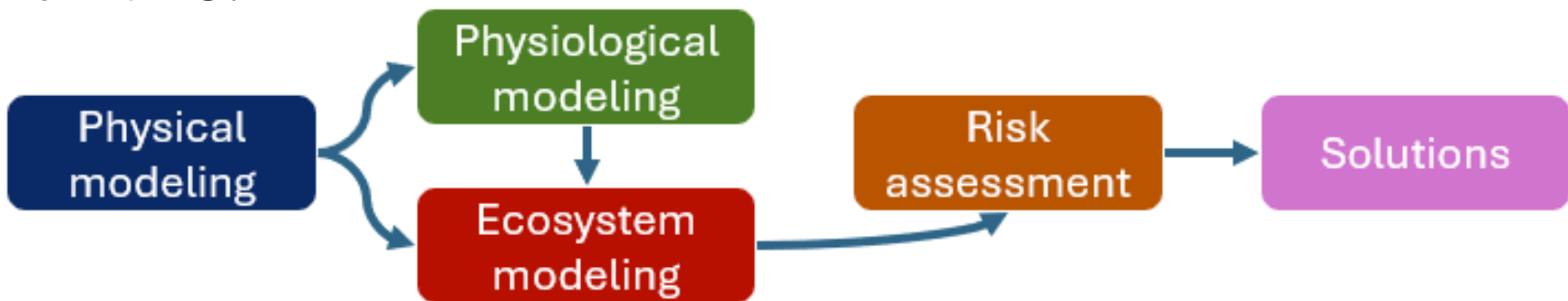


Figure: Assessment sequence. The weight of stressors is gathered from expert opinion considering future PESTLE scenarios (A). Combined with the exposure information (IUCN), this gives the level of impact, while sensitivity and adaptive capacity are combined to get the vulnerability level (B). Risk is finally computed for each scenario (C). Regarding the results for each scenario we can now create risk pathways (D) that inform adaptation pathways by decision makers (E).

ACTNOW project

ACTNOW is a H2020 European Project trying to advance knowledge on the cumulative impacts on marine biodiversity, ecosystem functions, and services for human wellbeing. The workflow includes physical modeling under future scenarios, physiological and ecosystem modeling. The risk assessment takes from all this to finally provide solutions.



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