



Solving the Sustainability Challenges at the
Food-Climate-Biodiversity Nexus

**Golfo de Nicoya, Costa Rica case study:
Nexus of land use and nature-based solutions for
coastal small-scale fisheries under different climate
change scenarios**

**Christian Birkel, Ingo Wehrtmann, Tayler Clarke,
Astrid Sánchez & Mónica Orozco**

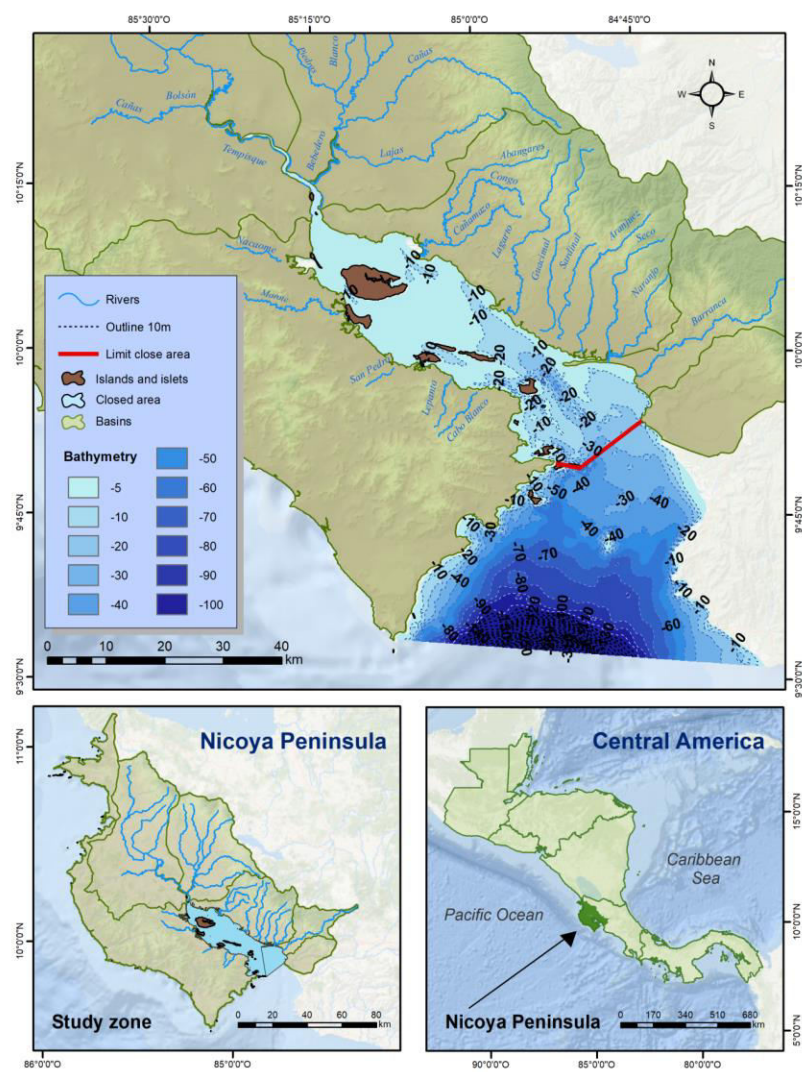
February 2023, University of British Columbia

Solving FCB

Solving the Sustainability Challenges at the Food-Climata-Biodiversity Nexus

Golfo de Nicoya, Costa Rica case study research questions:

- i) How does land use and climate change affect coastal ecosystems and fisheries?
- ii) Can potential land and ocean nature-based climate solutions co-develop for coastal fishing communities?
- iii) What should a decision support tool to elucidate the most effective and acceptable adaptation options look like?



Golfo de Nicoya, Costa Rica case study deliverables:

- i) Identified challenges for coastal fishery communities
- ii) Future water quality scenarios
- iii) Future fish stock and biodiversity scenarios
- iv) Future socio-economic and policy scenarios
- v) Future adaptation strategies
- vi) Land and ocean nature-based climate solution toolbox

Golfo de Nicoya, Costa Rica case study methods:

- **Transformative change:** ‘a fundamental, system-wide reorganization across technological, economic and social factors, including paradigms, goals and values’ (IPBES, 2022)
- The **role of values and valuation** in alternative (fair) pathways of transformation
- Behavioral approach, exploring potential for collective action

