ADB esa

"Space in Support of International Development Assistance"

Better Data for Better Decisions

Wednesday, 12 May 2021 • 3:00–5:00 p.m. *(GMT+8 Manila time)*

Sustainable Coastal and Marine Fisheries Project

Alvin Lopez, Senior Natural Resources and Agriculture Specialist

Southeast Asia Department, ADB

Contribution of Fisheries to the Cambodian Economy

Key contributor to food security and nutrition -61% of households' animal protein intake.

Capture fisheries sector - estimated 601,100 tons (2019)

Marine catch - 122,250 tons (underestimate)

Fisheries accounts for almost 6%–9% of GDP

Key Problems to be Addressed by the Project

- Unregulated and unsustainable practices in key coastal and marine ecosystems that sustain ocean health and productive fisheries;
- Lack of appropriate post-harvest infrastructure and technologies;
- Limited access to finance for smallholders and MSMEs, and lack of access to wider markets

Proposed Solutions

- Enhance coastal and marine ecosystem management and monitoring;
- Improve climate resilient post-harvest infrastructure;
- Promote investment in safe and sustainable fisheries value chains;
- Establish and pilot the “Cambodia Marine Financing Facility”

Output 1: Coastal and Marine Ecosystems Enhanced

a system for assessment and monitoring the status of coastal and marine fisheries and associated ecosystems (e.g. mangroves) using earth observation, drone mapping, in coordination with ESA;

strengthening capacity of community fisheries in community-based eco-tourism investments for income diversification and natural resources management (e.g. mangrove restoration);

promotion of blue economy for **sustainable mariculture**; and

increased **regional cooperation** to promote coastal and marine ecosystem health and sustainable fishing practices.

Output 2: Climate Resilient Post-Harvest Infrastructure Improved

- Upgrading landing sites, cold chain, community service centers
- Integration of climate change risk considerations in the infrastructure design
- Piloting of **public–private** partnership approaches for the development of post-harvest infrastructure

Output 3: Investment in Safe and Sustainable Fisheries Value Chain Promoted

- Provide credit options to promote investments in competitive marine fisheries that are safe, climate friendly, and energy efficient.
- Establish Hazard Analysis and Critical Control Points (HACCP) for targeted fisheries processing MSMEs;
- Establish business partnerships between the marine fisheries SMEs, cooperatives, and fishers, digital marketing skills, and enhance food quality and safety;
- Provide equipment and training support for identified laboratories for microbial and chemical testing for compliance with international food safety protocols;
- Digitization of seafood production

Alignment with Strategy 2030

Strategy 2030 Priority	*Project Intervention*
1. Addressing remaining poverty and reducing inequalities (OP1)	- Establish business partnerships between the marine fisheries MSMEs, cooperatives, and fishers, capacity building, digital marketing skills - A catalytic financing initiative for the innovative use of public funds to mobilize private investment.
2. Tackling climate change and disas resilience, and enhancing environmental sustainability (OP3)	- Coastal zone ecosystem assessment and monitoring using remote sensing; - Community-based natural resources management - Promotion of blue economy for sustainable mariculture and tourism
3. Promoting rural development and food security (OP5)	- Climate resilient post-harvest infrastructure and connectivity improved - Community-based eco-tourism and livelihood diversification
4. Fostering regional cooperation an integration (OP7)	- Increased regional cooperation to promote ocean health and sustainable fishing practices in support through the GMS platform.
5. Accelerating progress in gender equality (OP 2)	- A gender-responsive and inclusive financing facility that channels funds from various multilateral/ bilateral agencies.

ADB's Value Addition and Innovations

- Adoption of nature-based solutions through ecosystem and coastal zone improvement (e.g., restoration of mangroves)
- Improved fisheries and coastal ecosystem monitoring and management with the use of earth observation and remote sensing in collaboration with ESA
- Establishment of a catalytic financing initiative for the innovative use of public funds to mobilize private investment (Marine Financing Facility)

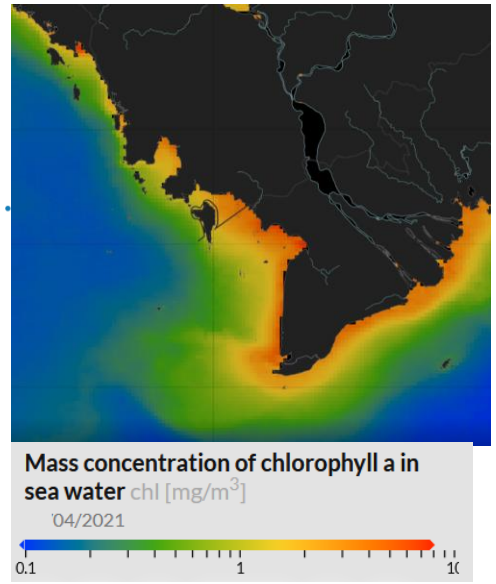
Monitoring Coastal Eutrophication

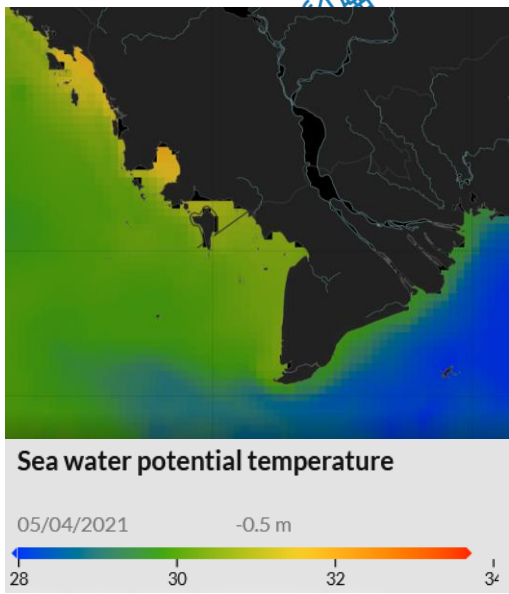
Ocean colour and inferred chlorophyll concentration, together with sea temperature can be used for:

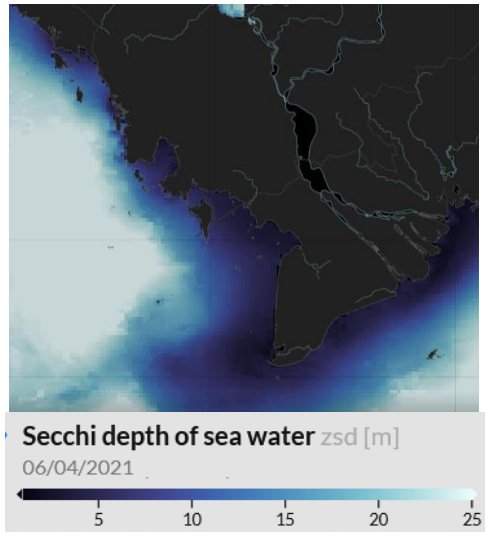
- studying phytoplankton dynamics at seasonal and inter-annual scales,
- understanding of the role of phytoplankton in marine biogeochemistry
- assessing the response of marine ecosystems to climate variability

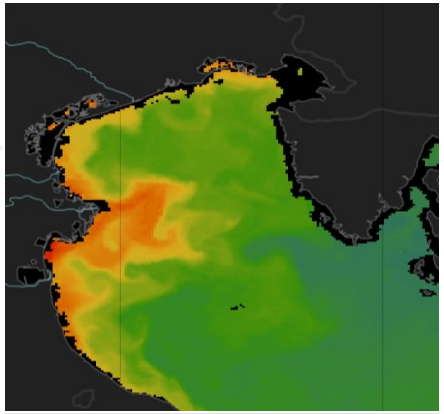
Also have a role in

- Operational observation systems monitoring coastal eutrophication, harmful algal blooms, and sediment plumes









phnompenhpost.com

Algal blooms off Kep coast lead to swimming and seafood scares

The ocean water off of Kep province, as pictured above on Saturday, has been tinted dark green by an explosion of algae that can result in the deaths of sea life and can even prove harmful to humans. Photo supplied

Brent Crane and **Pech Sotheary**
Phnom Penh
Publication date 04 April 2016 | 10:00 ICT

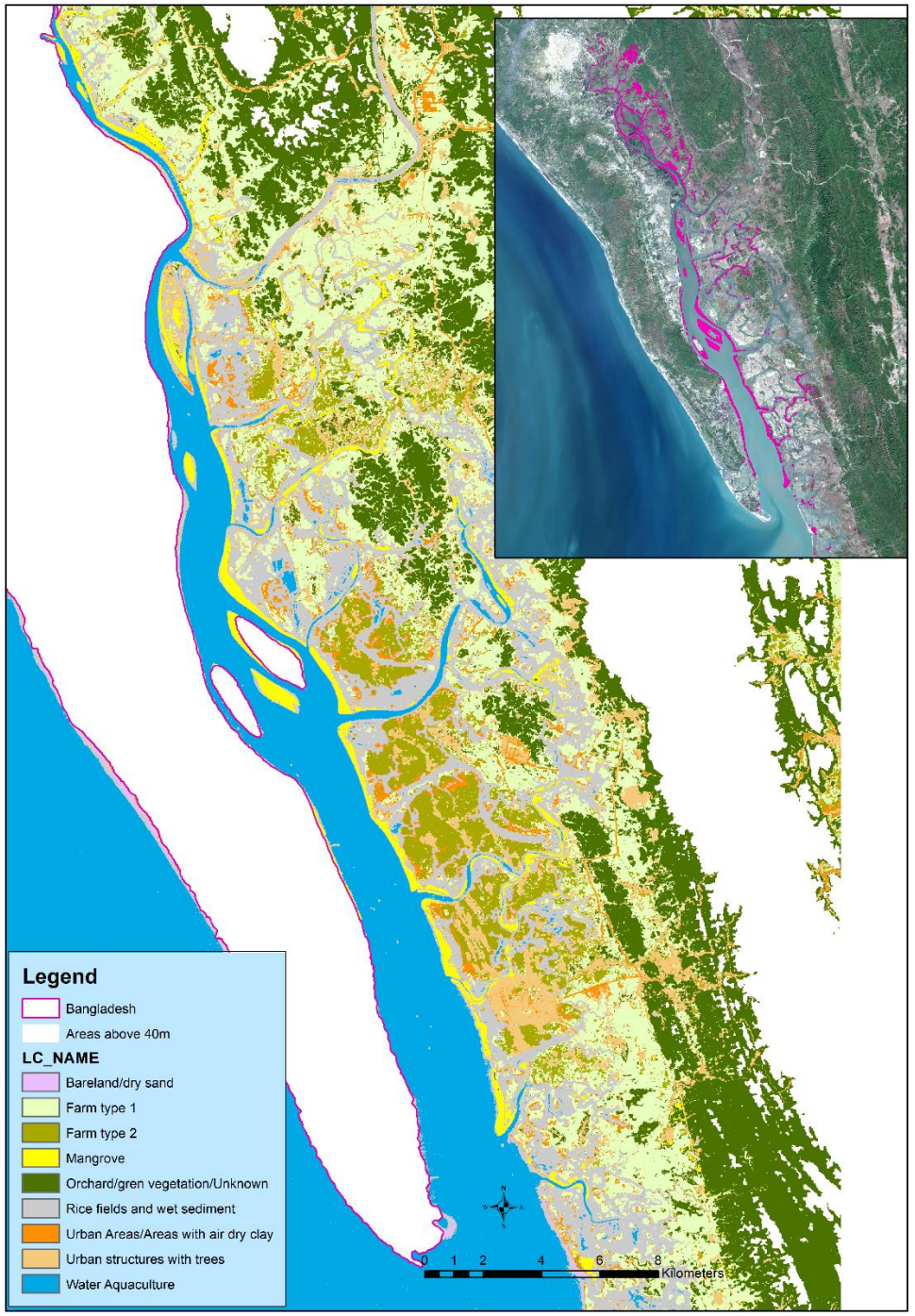
Coastal Land Cover

Habitat mapping of coastal land area up to in-shore depth of 10km

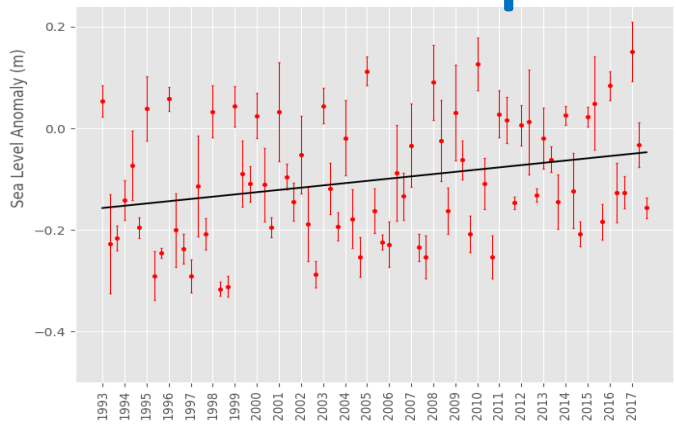
Mapping of mangroves extension:

- Use of multi-temporal Optical and Radar (SAR) sensors

- Mapping based on two levels of Machine Learning algorithms to:
  - perform general classification of natural vegetation classes
  - distinguish mangroves extension



EO-Based Services to Climate Resilience & Adaptation

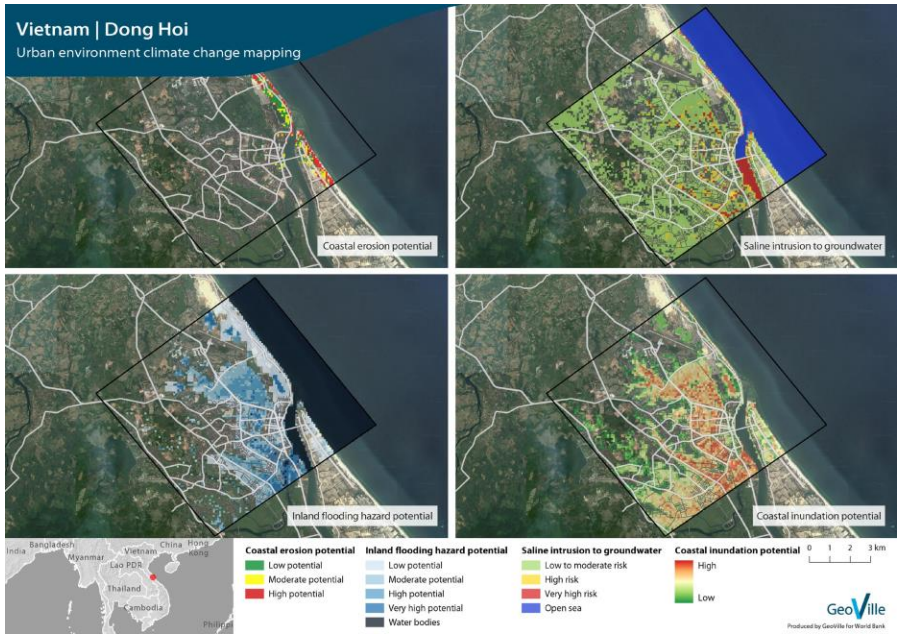


Seasonal sea level rise 1993-2017, Bangladeshi coast

Monitoring climate change impacts: slow-onset events

Climate-related slow-onset events are very dangerous but their full impact potential can take decades to manifest.

- Ocean acidification
- Salinization
- Increasing temperatures
- Sea level rise
- Coastal Erosion
- Loss of biodiversity



Climate change impact on coastal urban environment related to erosion, inland flooding, inundation and salinization

Coastal erosion in Vanuatu (Luganville Bay). Right satellite image from 2011 and coastline from 2016. Left: satellite image from 2016 and coastline from 2011. Arrows indicates strong erosion occurred.

Project-at-a-Glance

- **Project impact**: Coastal and marine fisheries resources made sustainable and resilient
- **Project outcome**: Enhanced and sustainable coastal and marine ecosystems and fisheries value chains developed
- **Project duration**: June 2022 – May 2028
- **Indicative project amount:** $100 million (project loan and FI)
  - $50 m from ADB (OCR); $5 m from ADF-13; $5 m from the gov't; $10 m from AIF; $30 m from AFD
- **EA:** Ministry of Agriculture, Forestry and Fisheries
- **IA:** Fisheries Administration (outputs 1 & 2); Ministry of Economy and Finance (outputs 3 & 4).
- **Risk categorization:** *low risk* (B for env and resettlement, C for IP; EGM for gender)

THANK YOU!

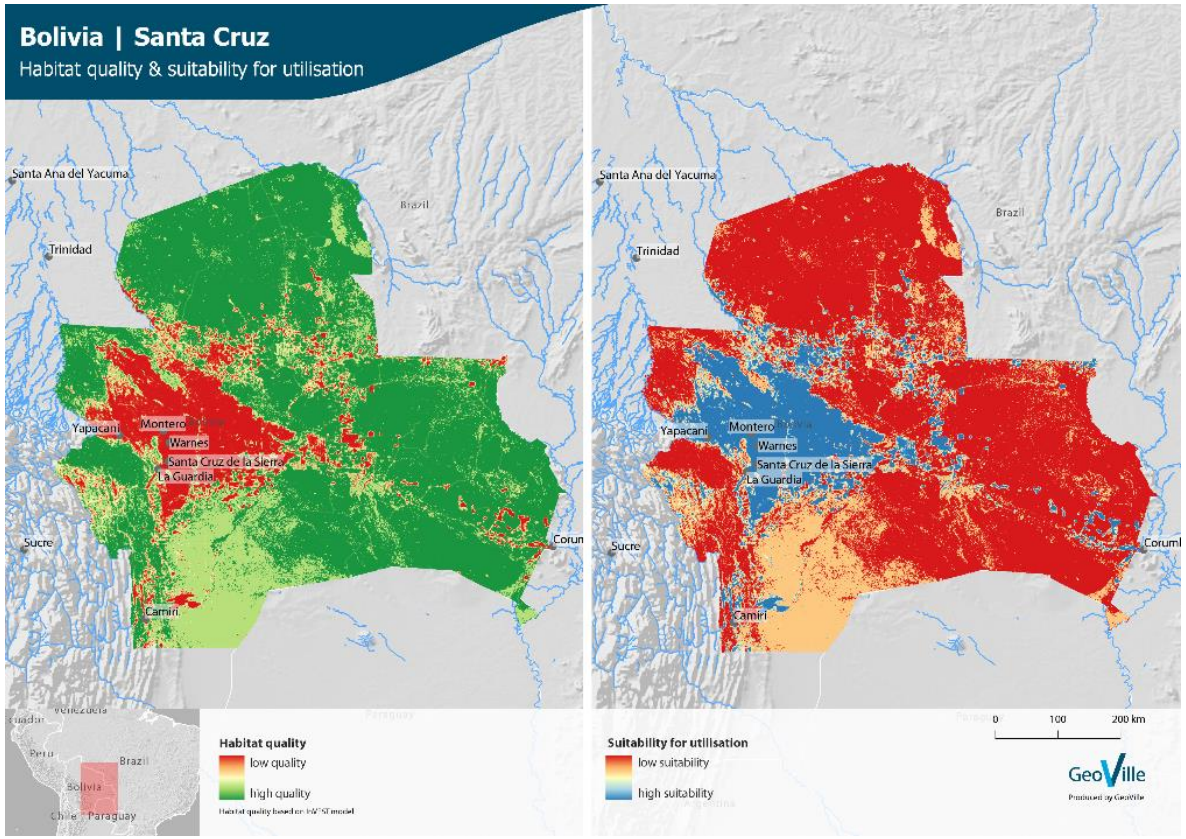
Monitoring Climate Change: Slow-Onset Events

Loss of biodiversity

- **Effective ecosystem management** increases the resilience of natural systems and human societies to climate change impacts.
- Decision makers need to know both: the **habitat quality** as well as the **suitability for utilization** for certain areas

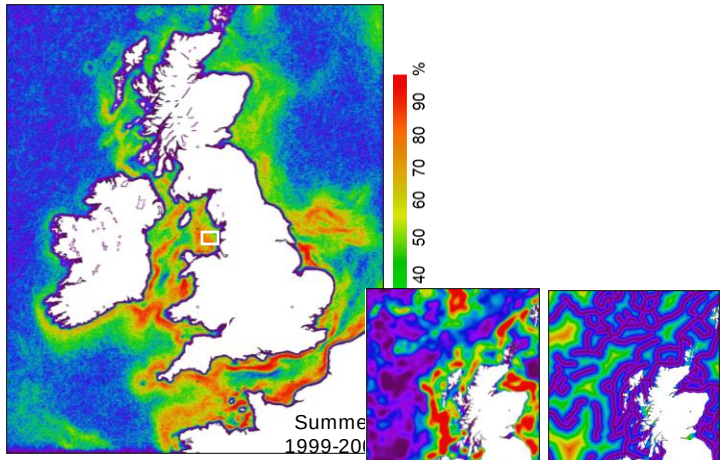
<u>Main Application</u>:

- Identification of fragmented and degraded habitats and associated biodiversity values for land planning
- Delineation of areas of low conservation value

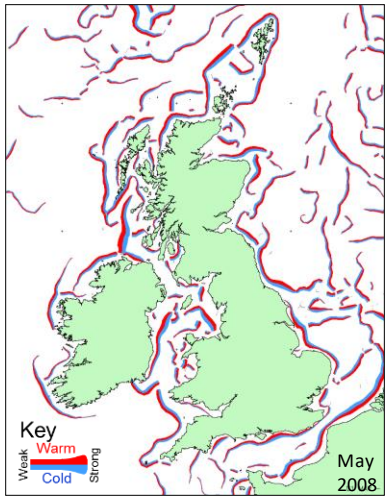


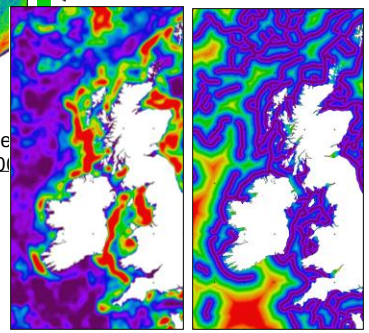
Ocean Fronts and Upwelling for Fisheries Management

Thermal front frequency, as proxy for marine animal abundance



Synoptic front chart

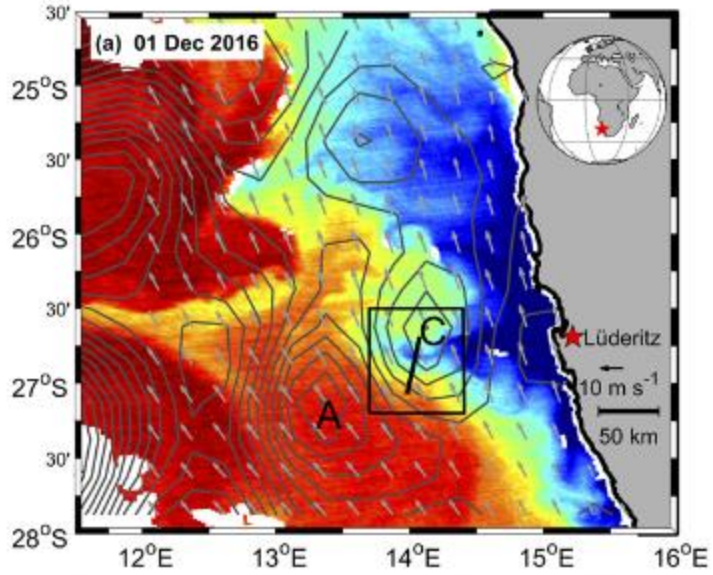




Strength

Distance

Front metrics for fisheries studies



Overview the Benguela upwelling system with satellite SST (in color), sea Level anomaly (black contour lines at 0.01-m intervals), and wind field (arrows)

Jen-Ping & al. (2020). Frontal Instability and Energy Dissipation in a Submesoscale Upwelling Filament. Journal of Physical Oceanography. 50. 2017-2035

Characterisation of upwelling phenomenon