

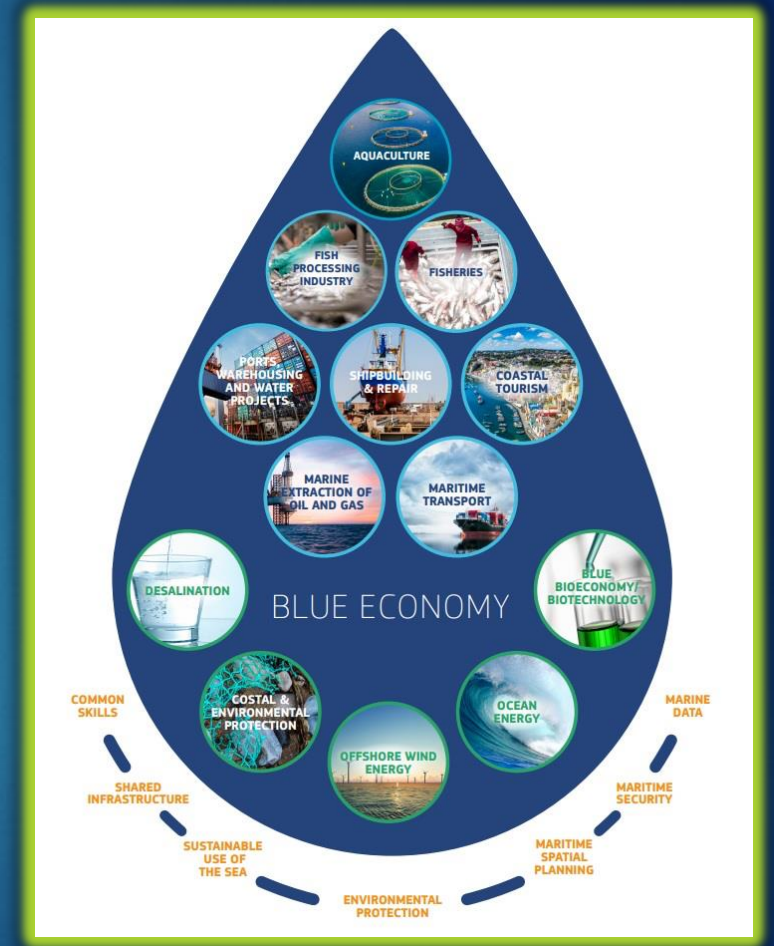
Earth Observation Data to Combat IUU Fishing and Support Safety of Artisanal Fishers in West Africa

Prof. George Wiafe
GMES & Africa Project
University of Ghana

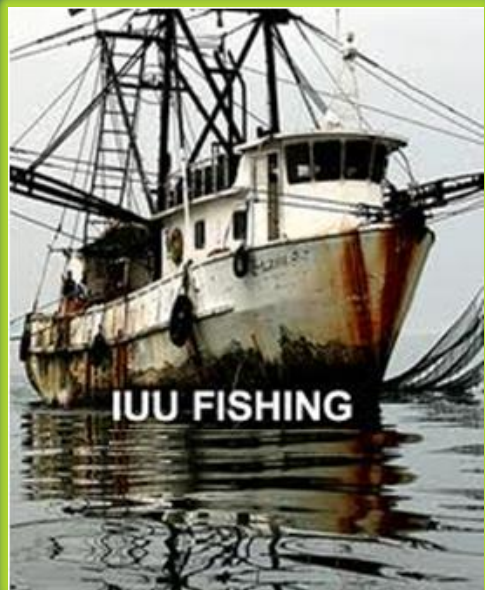


The Blue Economy: Prospects

- ▶ Major source for Africa's wealth and a catalyst for socio-economic transformation.
- ▶ Marine spatial planning & ecosystem-based management
- ▶ Policy harmonization
- ▶ National, Regional and international collaboration



The Blue Economy: Challenges



Increasing
population
pressure

Habitat
degradation
and pollution

Rising ocean
temperatures
& species
migration

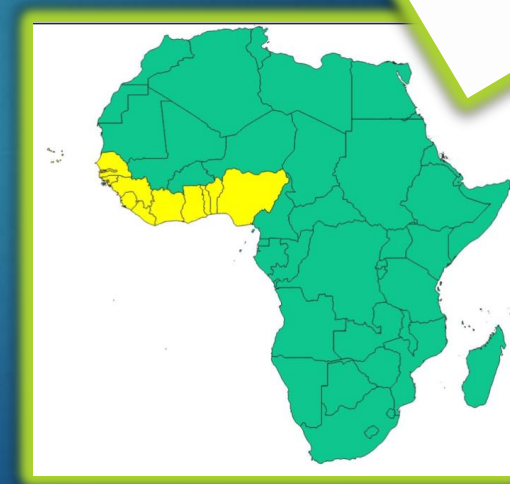
Weak
enforcement
capacities

- West Africa IUU fishing = \$7.15 billion/year



ECOWAS Maritime Strategy

- ✓ Strengthen maritime governance
- ✓ Maritime security and safety
- ✓ Maritime environmental management
- ✓ Optimise ECOWAS maritime economy
- ✓ Promote maritime awareness and research



GMES & Africa Initiative

GMES & Africa → Global Monitoring for Environment and Security, & Africa

Goal

Provide decision makers with
information and tools for
effective coastal
management

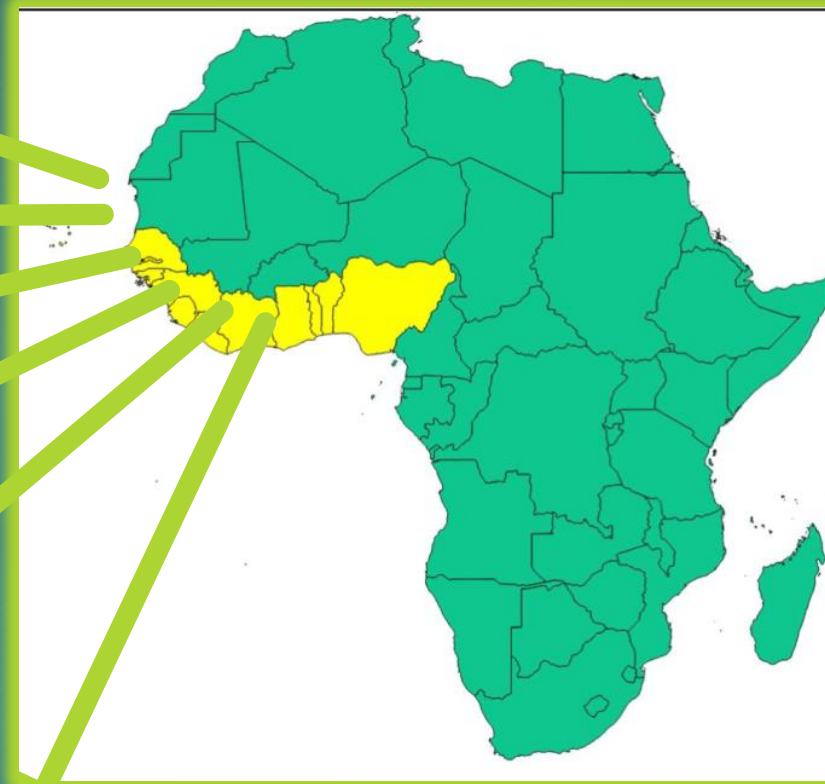
Pillars

-  Data Access
-  Operational service
-  Support decision making
-  Capacity strengthening



Beneficiaries

12 Countries



Policy & Decision
makers

Resource
managers

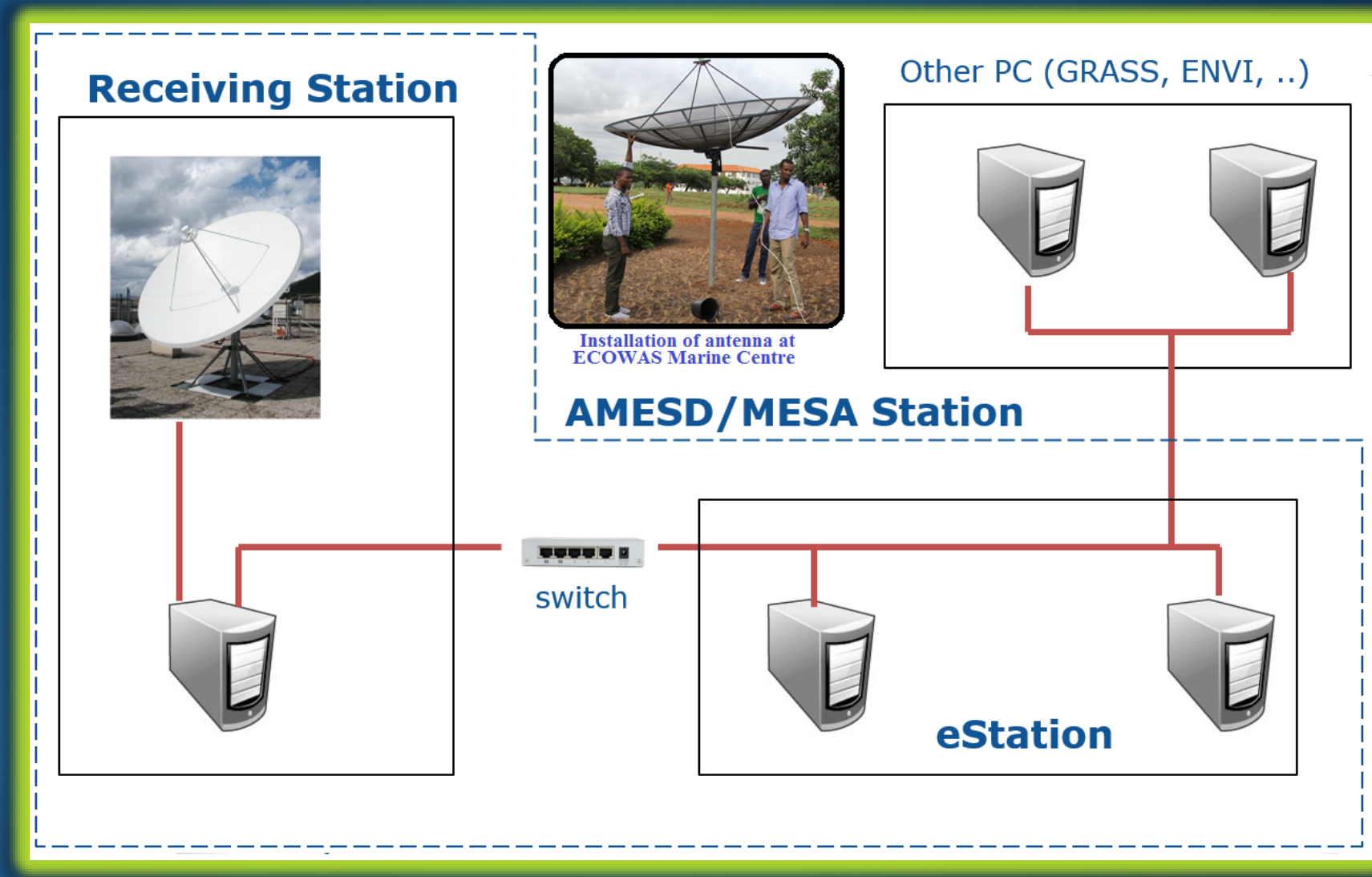
Private sector

Meteorological
Departments

Coastal communities
& fishermen

Academia/
Researchers

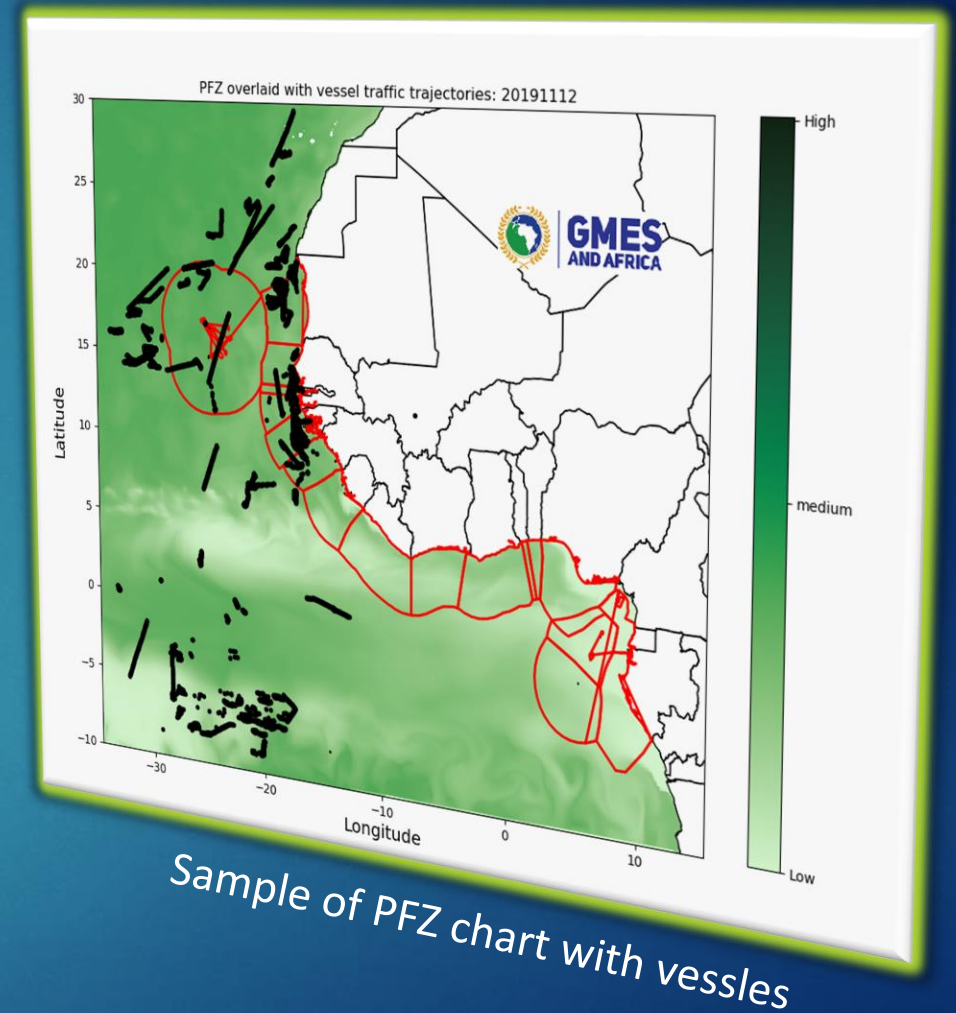
Data access architecture



Service on Fishing activities

- **Products:**

- Potential Fishing Zones charts
- PFZ charts overlaid with fishing vessel traffic
- Periodic bulletin with daily list of fishing vessels, trip metrics etc.



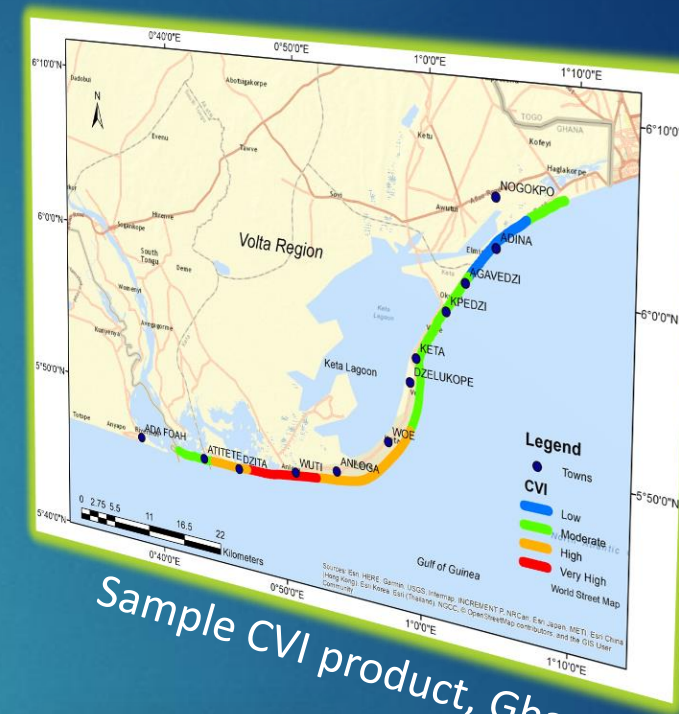
Service on Coastal Vulnerability

• Products

- Map of Coastal Vulnerability indices (CVI)
- State of Environment Report
- Risk and hazard maps
- Forecast of shoreline change

• Data source

- Sentinel-1 shoreline data
- Historic aerial photos
- Geomorphologic coastal maps
- SPOT; Landsat data
- Waves and Tides data
- Sea surface height data
- Digital elevation data



Policy Brief



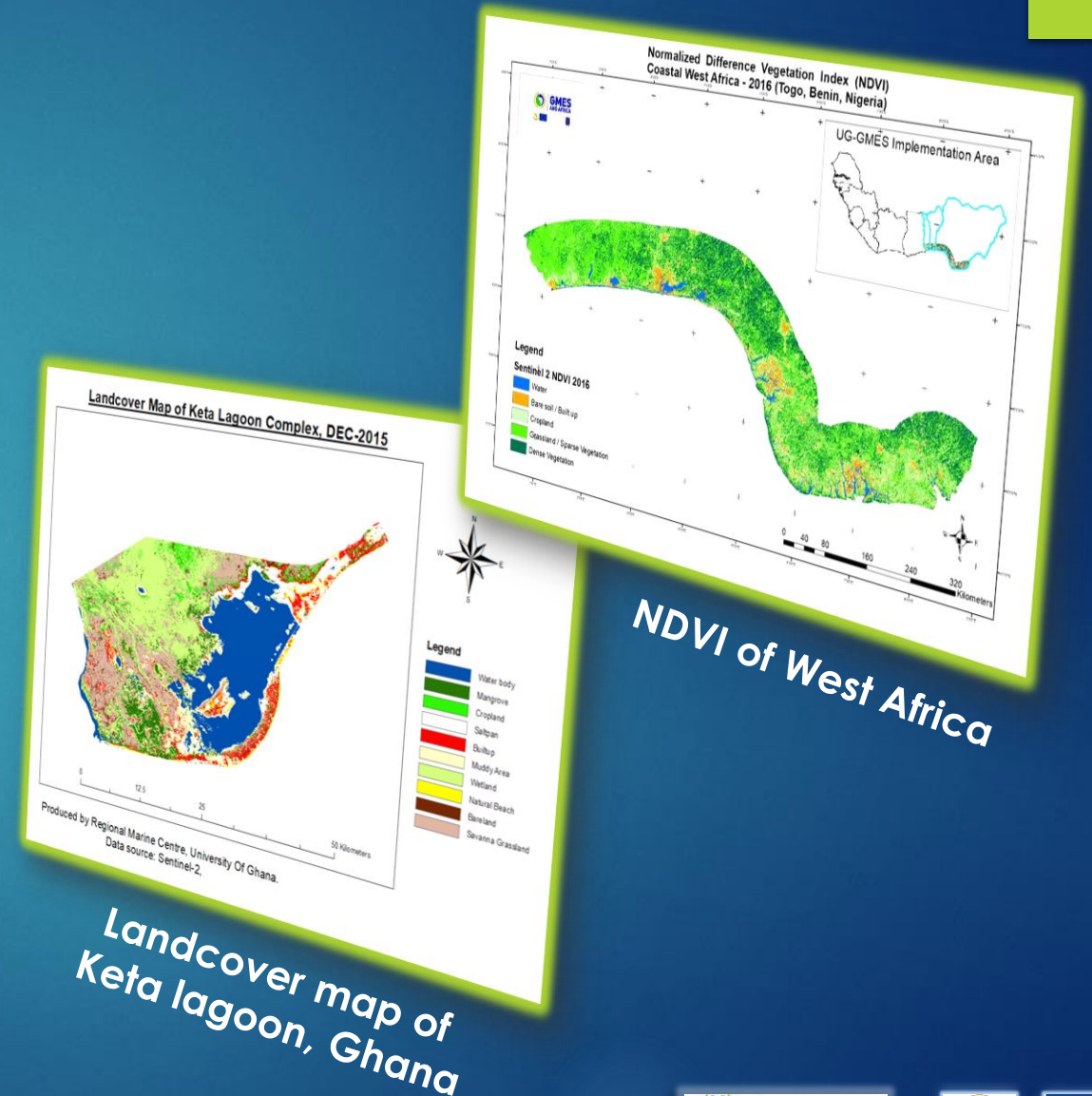
Service on coastal habitat Mapping

- **Products**

- Land cover/change maps
- State of the environment reports

- **Data source**

- Historical data of coastal area
 - ❑ Orthophotos
 - ❑ Vector files (shoreline, vegetation cover, sensitive habitats, etc.)
 - ❑ Satellite images (Landsat, SPOT, GeoEye, QuickBird, etc.)



Forecast of ocean conditions

- **Products:**

- Alerts to fishermen
 - #1 = CALM
 - #2 = ROUGH
 - #3 = DANGEROUS
- Coloured flags used at landing beaches

- **Target users**

- Artisanal Fishers
- Semi-industrial
- Marine Operators
- Navies and Coast Guards
- Fisheries Ministries
- Disaster Mgt. Organizations



Types of fishing fleet in West Africa



Over 250 industrial fleet monitored by VMS/AIS; operate from two ports



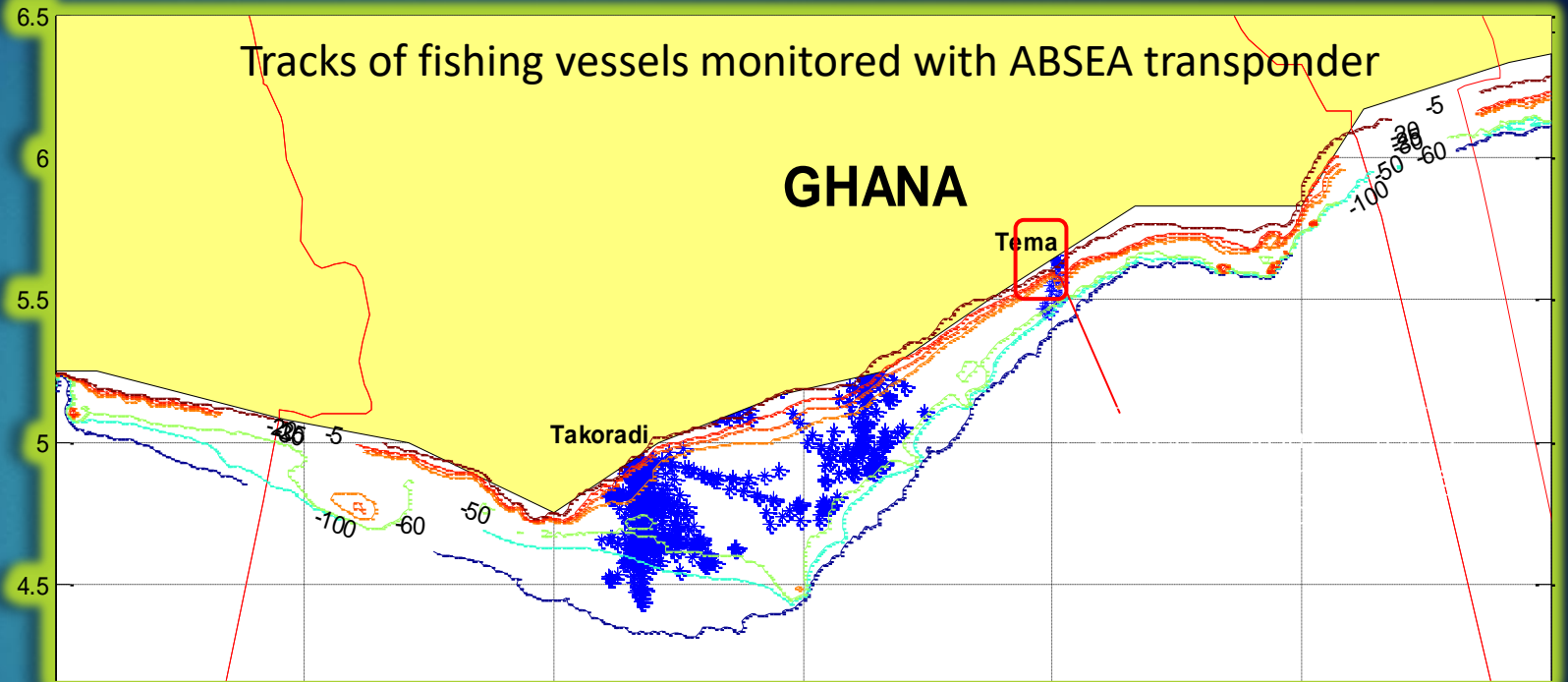
450 semi-industrial vessels operating from 6 landing sites; not monitored



12,000 canoes operating from 308 landing sites; not monitored

- Bigger boats involved in IUU fishing
- Smaller boats used for transshipment and illicit activities
- Coastal communities are mostly artisanal fishers

Start-ups and innovations



✓ Innovative solutions by start-ups to support fisheries sector

Conclusion

- ▶ Reinforce cooperation and coordination among stakeholders
- ▶ Enhance information sharing
- ▶ Political will to prosecute offenders and provide economic security
- ▶ Involvement of start-ups to develop innovative solutions



Thank you



- **Geoportal:** <https://geoportal.gmes.ug.edu.gh/>
- **Blog:** <https://regionalmarinecentreug.blogspot.com/>
- **Website:** <https://gmes.ug.edu.gh/>
- **Twitter:** https://twitter.com/ug_gmes
- **Facebook:** <https://www.facebook.com/RegionalMarineCentre>
- **YouTube channel:** UG-GMES_Regional Marine Centre