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# Leveraging Earth Observation for Sustainacble Fisheries: MMCC Zone F'S Role in Combating IUU Fishing in West Africa

### **BACKGROUND:**

West Africa's coastal waters are vital to the region's economy and the livelihoods of millions, but their sustainable management is threatened by challenges such as IUU fishing, overfishing, and maritime safety issues. To address these concerns, the GMES and Africa project developed the Fishing Vessel Traffic Monitoring Service. Using Earth observation and AIS data, this system provides real-time tracking and oversight of fishing activities within the region's Exclusive Economic Zones (EEZs), enabling authorities to detect and deter IUU fishing, enforce fisheries regulations, and enhance maritime safety.







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#### END-USER'S PROFILE:

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GMES

AND AFRICA

The **Multinational** Maritime **Coordination Centre (MMCC) Zone** F is a regional hub established



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#### **MULTINATIONAL MARITIME COORDINATION CENTRE** (MMCC) ZONE F

Leveraging Earth Observation for Sustainacble

**Fisheries: MMCC Zone F'S Role in Combating** 

**IUU Fishing in West Africa** 

to monitor maritime activities and events within Maritime Zone F, encompassing eight (8) coastal and landlocked countries in West Africa. Established in March 2018 under the Support for West African Integrated Maritime Strategy (SWAIMS) project, MMCC Zone F implements the Yaoundé Code of Conduct and the ECOWAS Integrated Maritime Strategy. Its member states include Burkina Faso, Ghana, Côte d'Ivoire, Liberia, Sierra Leone, and Guinea. By consolidating maritime intelligence, MMCC Zone F is responsible for creating a unified Maritime Situational Awareness Picture to support coordinated decision-making and combat maritime crimes, including illegal fishing, piracy, smuggling and other unlawful activities.

#### END-USER NEEDS:

Since 2018, MMCC Zone F has been actively involved in the GMES and Africa project, participating in various regional events and stakeholder workshops including Regional Policy and Advisory Committee meetings. Through these engagement activities, MMCC Zone F's needs have been identified, particularly the need for routine reports detailing vessel positions, movement patterns, and activity trends, enabling the identification of suspicious maritime activities.

# INFORMATION PROVIDED:

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The Fishing Vessel Monitoring Service (FVMS) utilizes satellite-based Automatic Identification System (AIS) data and Sentinel-1 Synthetic Aperture Radar (SAR) imagery to produce fishing

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density maps and detailed fishing vessel reports within the Exclusive Economic Zones (EEZs) of member countries. These products are generated daily and distributed to end-users and beneficiaries in image and text file formats via email. recent enhancement A to the service is a webbased platform, accessible

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at <u>https://oil-vessel-detection.vercel.app</u>/. This application provides MMCC Zone F with real-time information on vessel positions and potential transshipment activities, further enhancing their capacity for maritime monitoring and decision-making.

## **USAGE:**

The University of Ghana being the lead of the consortium, has provided technical training and support services to staff of MMCC Zone F on the use of the platform and interpretation of other products. Demonstrations of the portal have also been conducted during regional meetings and online trainings. So far, beneficiaries (Fisheries Ministries within Zone F) use

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information from the service to detect unauthorized fishing activity or abnormal behaviors detected within monitored waters, ensuring timely interventions. Also, the MMCC Zone F in collaboratyion with FCWC use the fishing density maps to identify and investigate suspicious activities indicative of illegal, unreported, and unregulated (IUU) fishing.

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#### **IMPACT:**

The integration of Satellite AIS and Sentinel-1 SAR data with existing Vessel Monitoring System (VMS) infrastructure has greatly improved MMCC Zone F's ability to monitor maritime activities. By providing complementary datasets, the service has exposed vessels attempting to evade detection by tampering with or disabling monitoring devices, uncovering previously undetected IUU fishing activities. SAR data, unaffected by weather or daylight, ensures continuous surveillance, even when AIS signals are turned off. Cross-referencing these datasets with VMS records has enabled MMCC Zone F to identify discrepancies, flag non-compliant vessels, enforcement and strengthen actions,

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Incidents	2022	2023	2024
Fired Upon	4	1	
Armed Robbery	9	9	1
Hijacking	2	2	2
Kidnapping	5	6	5
Theft	15	7	7
Boarding	3	6	3
Suspicious Approach		2	2
Attempted Incidents	1	3	3
SAR			1
MEDEVAC		1	
STOWAWAY		1	
IUU	1		
Total	40	38	23

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serving as a deterrent to future violations. Based on the statistics received from MMCC Zone F incidence reports, there has been a decrease in the number of reported activities in the Gulf of Guinea. The service has also been instrumental in monitoring fishing operations during the closed fishing seasons in Ghana and Cote d'Ivoire.

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# **OUTREACH AND SUSTAINABILITY:**

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MMCC Zone F, through the GMES and Africa project, has participated in targeted outreach activities, including workshops, seminars, and national meetings, to demonstrate the capabilities of the Fishing Vessel Monitoring Service. These engagements provided stakeholders with hands-on experience and fostered valuable feedback, which was instrumental in refining the system and adding features like the web-based monitoring platform. The service's visibility has been significantly boosted through active social media engagement and focused training activities, which have further encouraged its use and amplified its impact.

