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## VMS System in Albania

Establishing and Strengthening a Monitoring, Control  
and Surveillance (MCS) System for Fisheries in Albania

Europeaid/128433/C/SER/AL


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### What is VMS and Purpose of Implementation

- VMS is not a replacement for any existing technology it is an additional tool in the enforcement toolbox that make enforcement more efficient and effective.
- The objective of VMS is to prove an offence in court.
- Every investigation should be treated as though it will be contested in court.

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## The Vessel Monitoring System

**A database and GIS that collects near real-time target vessel positional data and other geographical data to display information and identify possible breaches of national law.**

**VMS System is able to exchange information also with the RADAR System already in place for cost guard implemented by Lockheed Martin Corporation**

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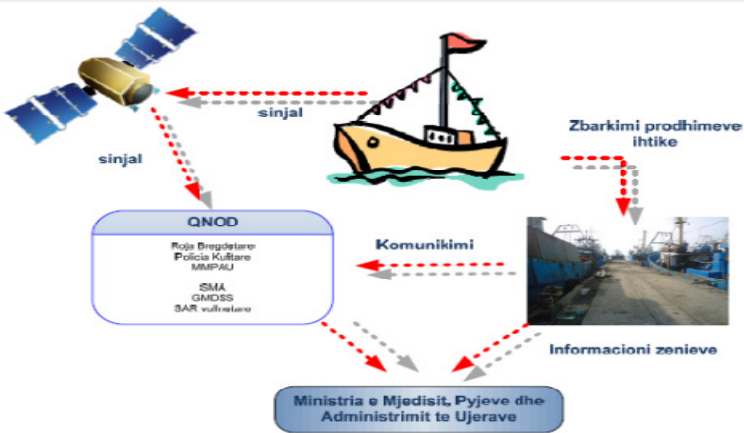




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## Overview of VMS



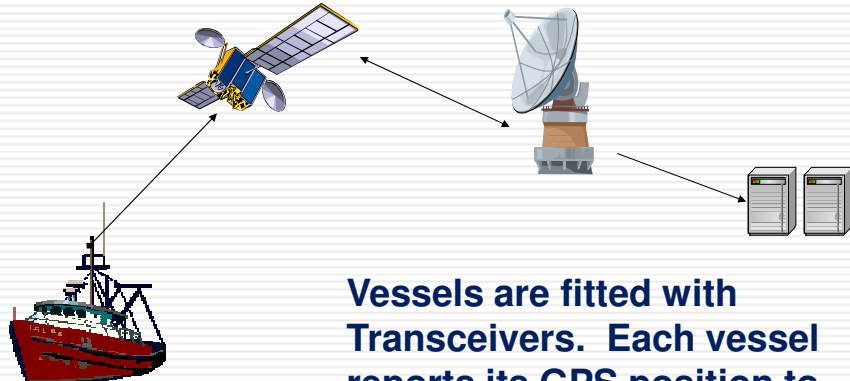
The diagram illustrates the VMS system components and data flow. A satellite in orbit sends and receives signals ('sinjal') from a fishing vessel. The vessel is connected to the QNOD (National Vessel Monitoring System) via 'Komunikimi' (communication). The QNOD box lists: 'Rojë Bregdetare', 'Policia Kufitare', 'MUPAJ', 'SMA', 'GMOSS', and 'SAR vullnetare'. The QNOD sends 'Informacioni zenieve' (vessel information) to the 'Ministria e Mjedisit, Pyjeve dhe Administrimit te Ujerave'. Additionally, the vessel is linked to 'Zbarkimi prodhimeve ihtike' (fish catch landing) and a photograph of a port area.

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### Vessel Monitoring Systems in Albania

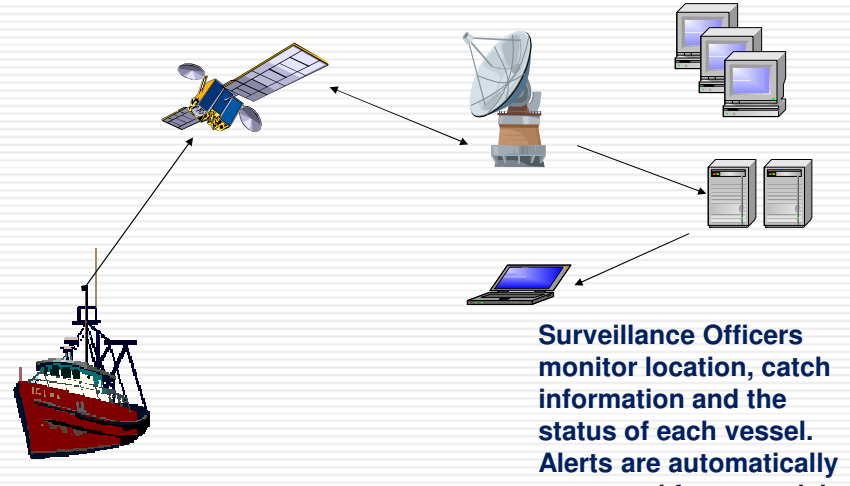


Vessels are fitted with Transceivers. Each vessel reports its GPS position to the Fisheries Monitoring Center (FMC)

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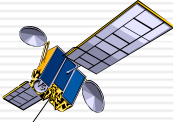



### Vessel Monitoring Systems



Surveillance Officers monitor location, catch information and the status of each vessel. Alerts are automatically generated for potential violations.







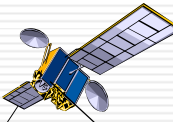

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### Vessel Monitoring Systems

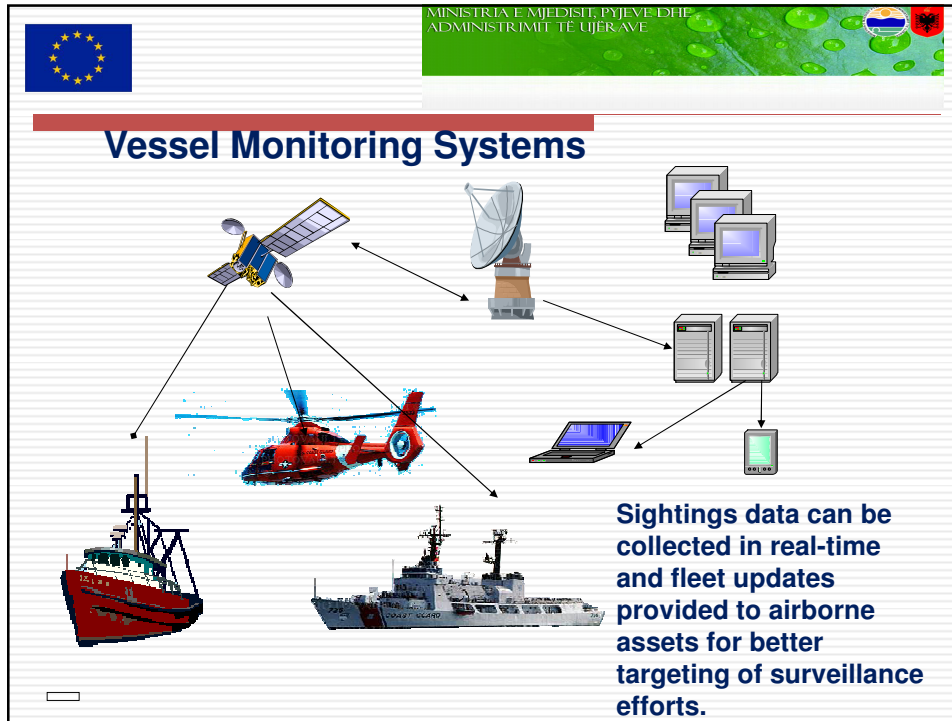
Enforcement Officers received alerts and access vessel track data via Laptop, PocketPC or Cellphone.

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### Vessel Monitoring Systems

Coastguard/Navy patrol vessels access the system during Coastal Surveillance & Search/Rescue missions.





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**VMS OPERATION**

- Operates continuously without breakdown
- Identifies Illegal behaviour
- Identifies unusual behaviour
- Does these functions efficiently (no false positives)
- Can link to other data sources Radar System
- Has effective Legislation
- Can produce evidence for court that is easily understood by public



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**Fisheries Monitoring Center**  
**Selection of an appropriate system (Hardware and Software)**

- Fulfils the management principals of the fishery or fisheries
- Will fulfil the future needs (scale up in size or in capability such as E-logs, observer, Quota or Remote Query)
- Provides appropriate level of security, accuracy, functionality and redundancy to satisfy legal, operational and environmental situation.


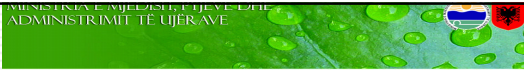
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**System Logic**

- National
  - 220+ Vessels
  - 24 positions/day average (1 hour, 30 mins, 15 mins)
  - 6,480/day, 200,880/month, 2,410,560/year


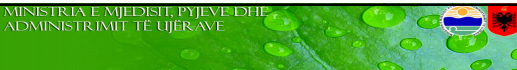
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## FMC System Logic

- **The Systems is designed to save time and money.**
- **Should distil raw information into easily prioritised investigations (Primary Evidence, Supplementary evidence, unusual behaviour that requires further investigation).**
- **Should feed into a statistical model which could include system information (ideally).**

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## Types of tracking Logic


### Stand alone Parameters


- Polygon (enter/leave or inside/outside polygon)
- Terminal (Antenna, on/off)
- Speed (Exceed Maximum, below minimum)
- Area (moved more than x metres)

### •Combination

- inside polygon and speed below 5 knots (could be fishing in area closed to fishing but not transiting)
- Add time -inside polygon and speed below 5 knots and time between 6pm and 6am (could be fishing in area closed to fishing at night but not transiting)

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## Types of Monitoring Logic

- Database ok
- Incoming/outgoing data (In LES, out Clients)
- Backup storage OK
- Back up power OK
- Comms links (LES or Clients)
- Client Status (store and forward last download)

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## Status Display

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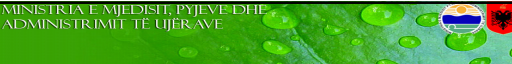
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**Legislation**

- **Must recognize all parts of the system**
  - GPS (accuracy)
  - Commssystem
  - Define boundaries accurately (no loops)
  - Vessel data
- **Evidentiary provisions**
  - Defines requirements for admissibility

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**Evidence**

**Certified document**

- Map
- Tabulated data
- System Heath
- **Mapping standards**
  - Scale
  - Origin, Author Date
  - Legend
  - Clear labelling
- **Presented and explained by the author**



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**The VMS Officer**

- **Part Technician**
  - The System
  - The Technology (GPS & Comms)
  - The Terminal (ALC, MTU, etc)
- **Part Investigator**
  - Examine the data
  - Find irregularities
  - Link the data to the offence
- **Part Prosecutor**
  - Assist the prosecution to understand the technology, the offence and the case
  - Appear as witness and explain the technology and investigation to the court



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**The Technician**

- **System is maintained to protect the evidentiary value of the data.**
- **Will explain the system to the court.**
- **Must provide the court with information that ensures the accuracy and validity of the data.**



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**The Investigator**

- **Compiles evidence to supplement and enhance the VMS data;**
  - Vessels plotter
  - Logs or records
  - Other vessels observations or records
- **Directs other investigators to gather this evidence.**
- **Sometimes investigations not fisheries/marine.**



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**The Prosecutor**

- **Is the connection between the technology and the legislation.**
- **Is crucial to evaluate the strength of the case in relation to the VMS data (Probability).**
- **Cross examination!!!**
- **May need to withdraw the case to protect the system.**

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## The VMS Officer

- Without the VMS Officer the system cannot carryout its function.
- The VMS Officer is a crucial part of the investigation and the prosecution.
- An untrained VMS Officer is a danger to prosecutions and the system.
- VMS Systems are worth thousands and sometimes millions and can be rendered useless if VMS Officer is not adequately trained.

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## Questions?

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