Workshop on electronic technologies for fisheries

Part III: Systems adapted for small-scale vessels

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Structure of the Presentation

1. Objectives of the project
2. Background
3. Outcome of the case studies
4. Conclusions
5. Recommendations

1. Objectives

- Provide useful, authoritative and timely information of the 'The role of electronic technologies for fisheries – Systems adapted for Small Scale Fisheries (SSF)'.
- Provide an overview of the latest developments, potential benefits and risks of electronic technology systems adapted for small-scale vessels.
- Explore best-practice examples and provide policy recommendations.

2. Background

Issues in relation to SSF:

- The EU fishing fleet consisted in 2019 of app. 81,000 fishing vessels where app. 69,000 fishing vessels were below 12 m in total length (SSF).
- The SSF landed in 2019 app. 400,000 tonnes.
- Fishing vessels below 12 m are not obliged to use VMS and vessels below 10 m are in general not obliged to carry an EU logbook.
- The SSF fleet segment is characterised as a fleet segment **not providing sufficient information** on its fishing activities for sustainable management of the fisheries and the marine ecosystem.

3. Case studies

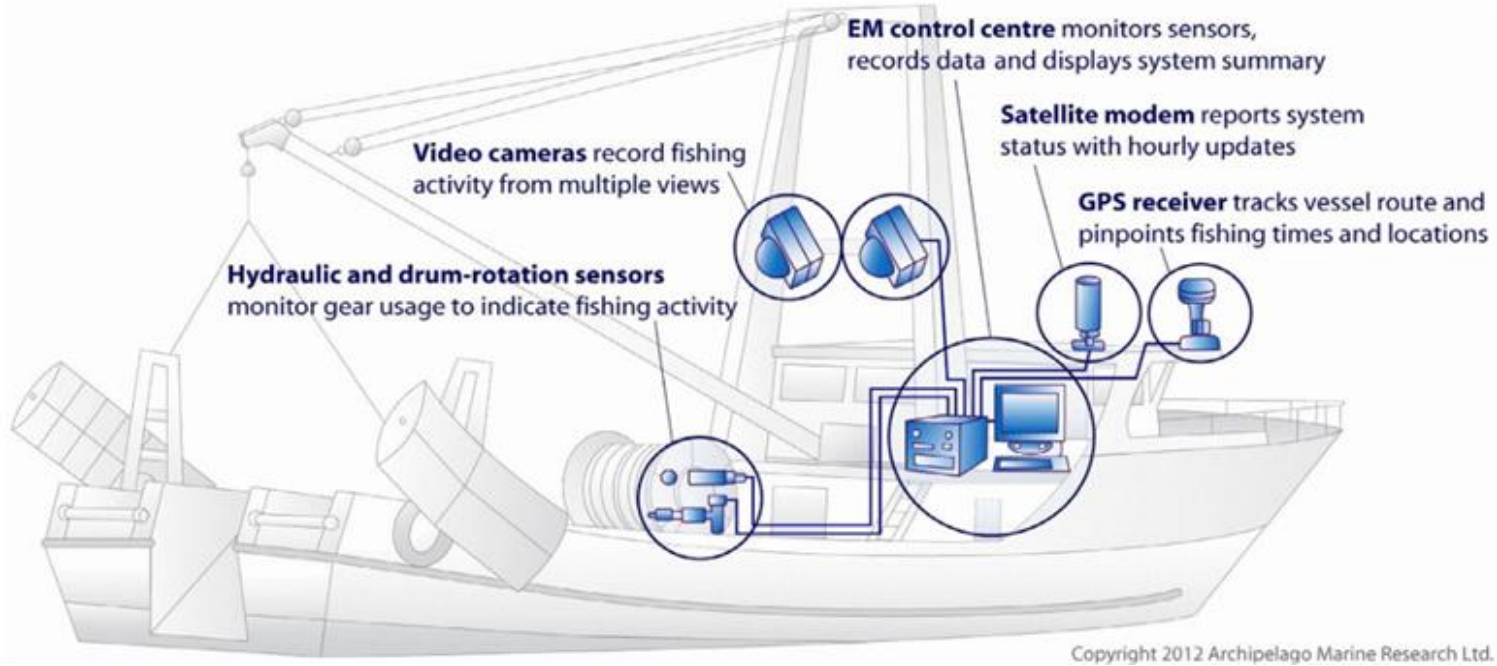
Objectives of the case studies:

- Describe examples of electronic reporting and monitoring technologies for the SSF, and how **surveillance and monitoring programmes** using **state of the art electronic technologies** can be designed for any fishery.

- Present technologies to be used for **documentation** of the fishery and for monitoring **compliance** with fishery regulations such as **catch limits, the landing obligation, fishing effort limits, compliance with closed areas limitations** and to improve fishery yields, profits, and conservation performance.

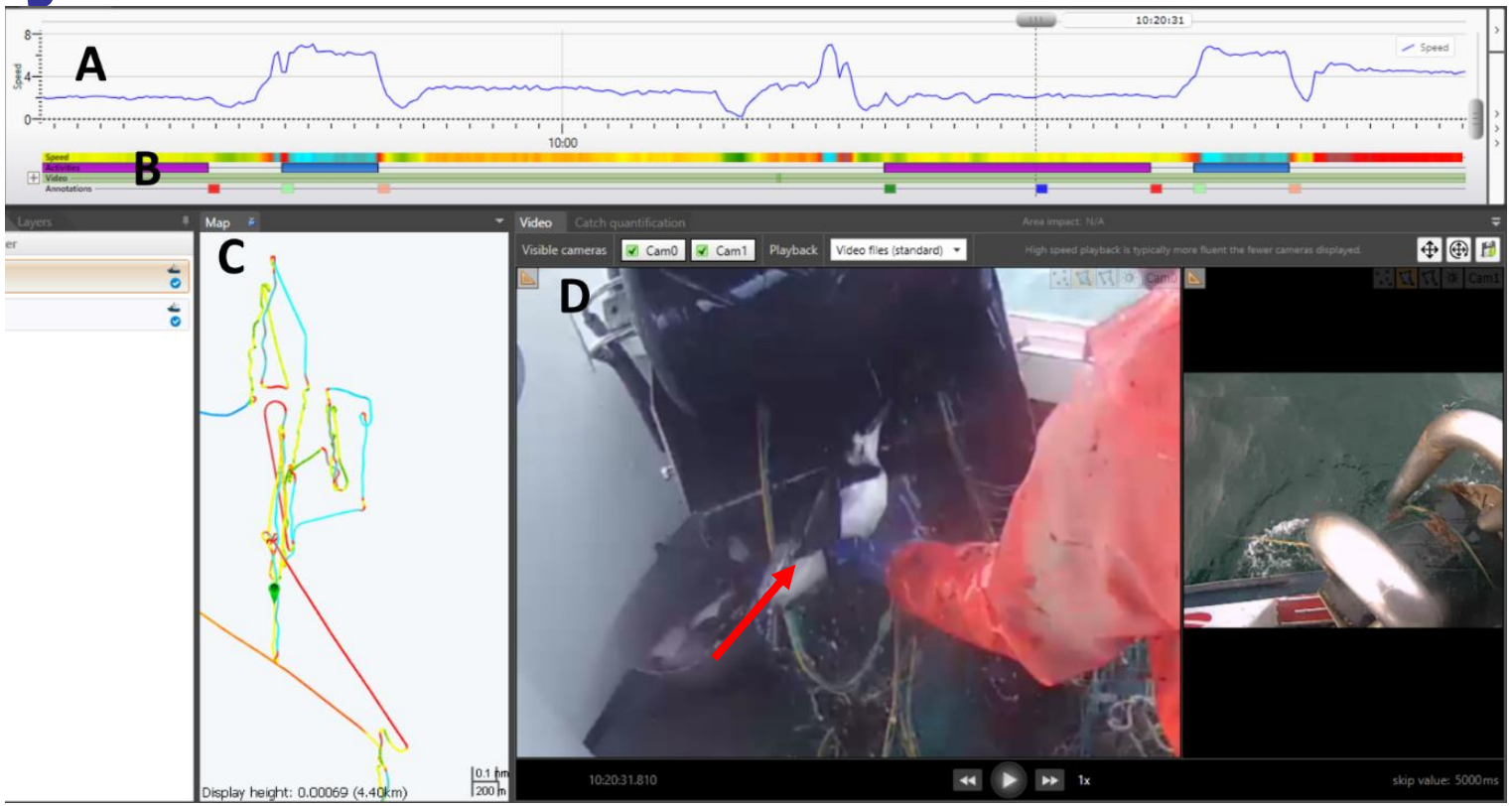
3. Case study I

Video and sensor based monitoring system:



3. Case study I

Video and sensor based monitoring system:



Source: DTU Aqua

3. Case study I

Key findings:

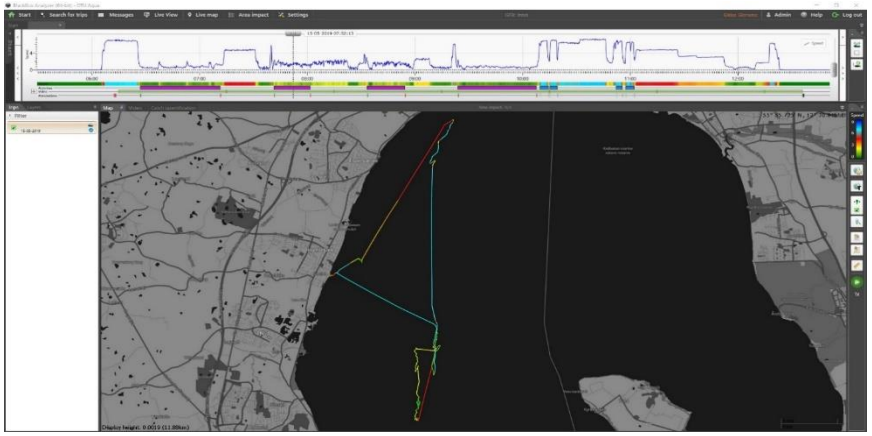
- Video-based EM systems **provide** high-resolution **fishing data** and allow documenting rare or **inconspicuous events**, including bycatch of PET species or discards.
- Video-based EM is a **cost-effective method** for fisheries **management** and **monitoring** that can complement fisheries observers and self-reported data in SSF.

Source: Anchorlab

3. Case study I

Key findings:

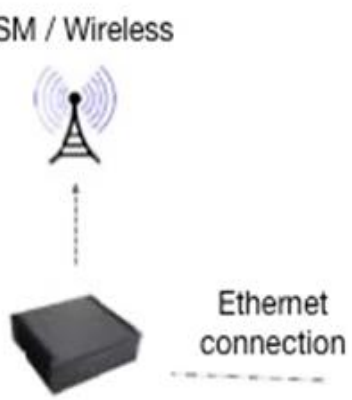
- Video-based EM can enhance **surveillance of compliance** with e.g., the landing obligation and make control and monitoring of SSF **more effective**.
- Evidence from video-based EM provides essential information to understand and assess the **impact of SSF on marine ecosystems**, e.g., bycatch of threatened taxa.

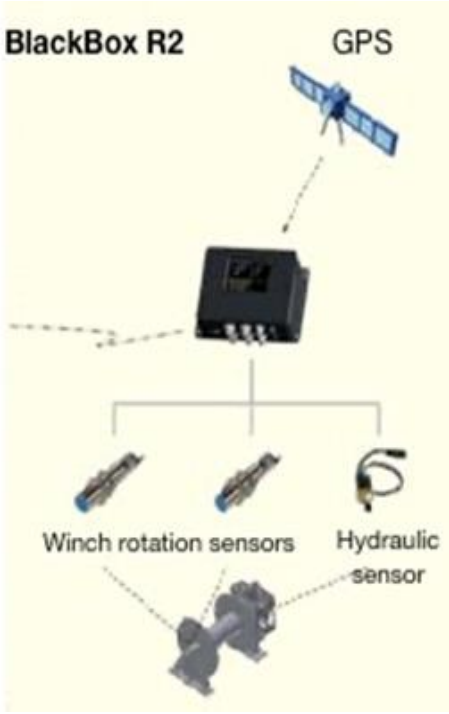


Source: DTU Aqua

3. Case study II

Sensor based monitoring system:

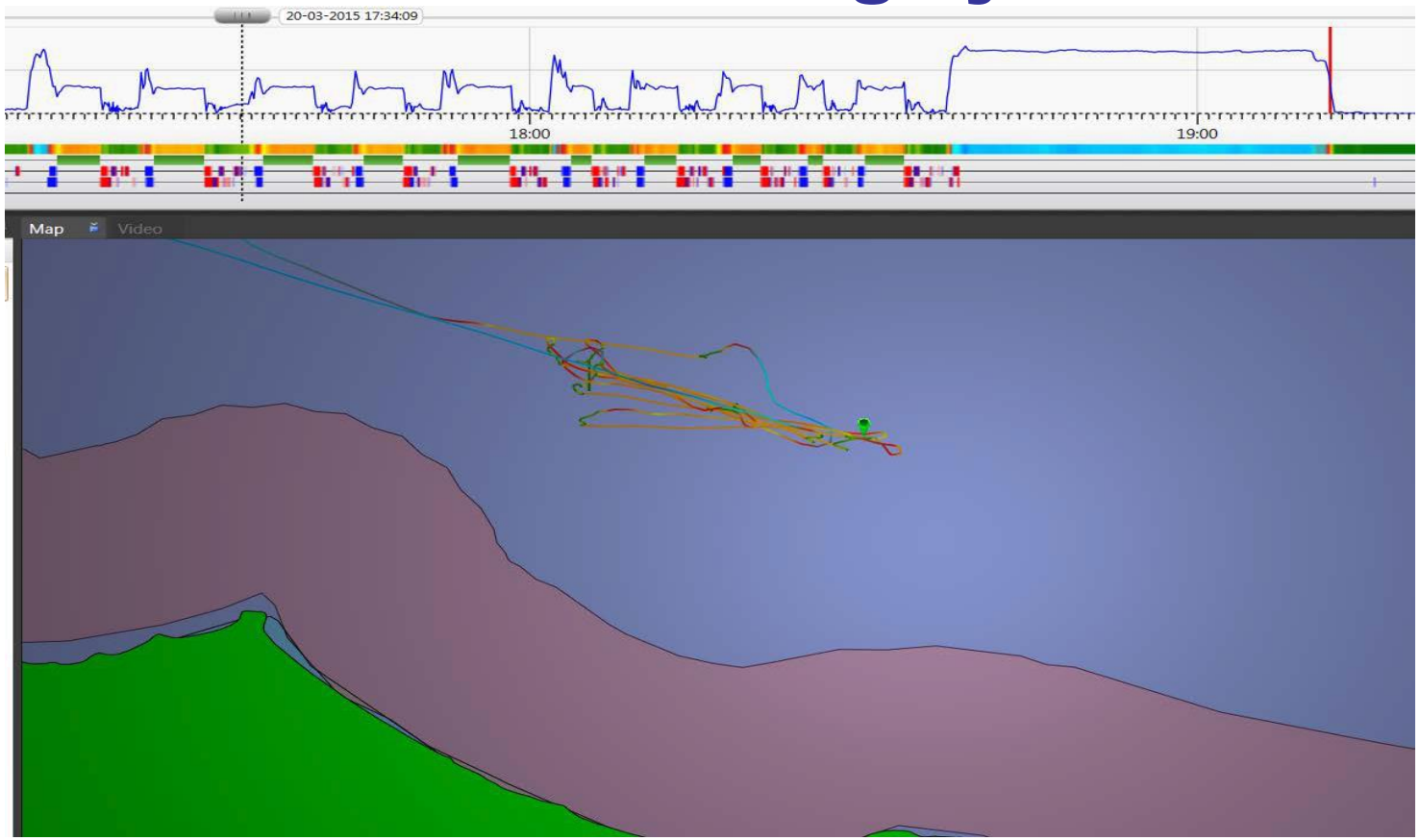




Source: Danish Fisheries Agency

3. Case study II

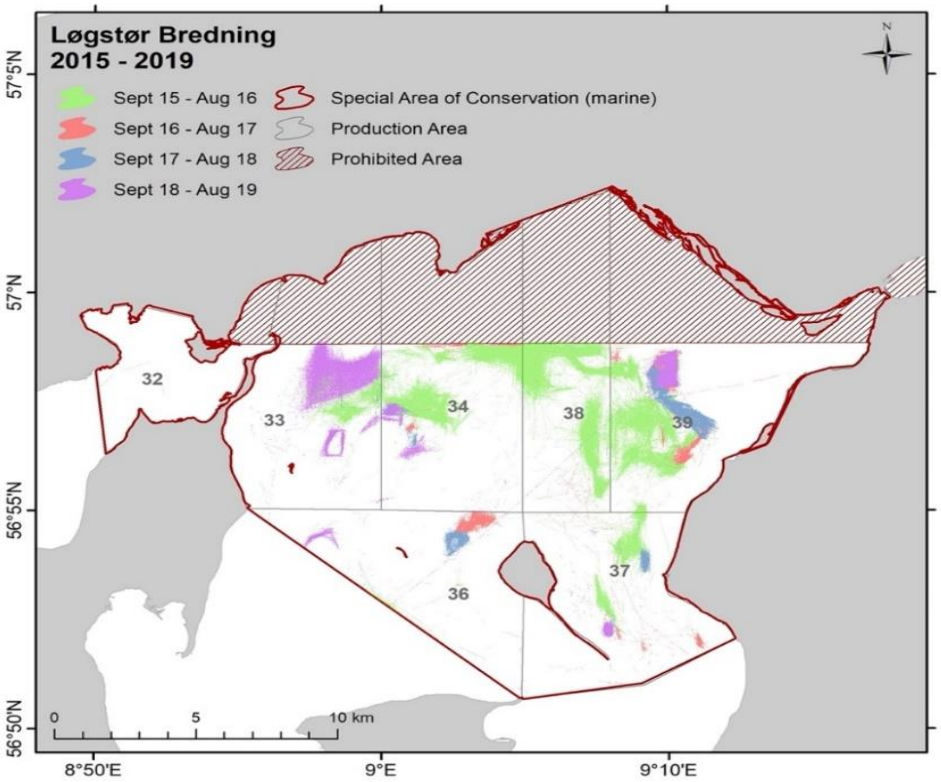
Sensor based monitoring system:



Source: DTU Aqua

3. Case study II

Example: Impacted area by bivalve fisheries Løgstør Broad, Denmark



Source: DTU Aqua

3. Case study II

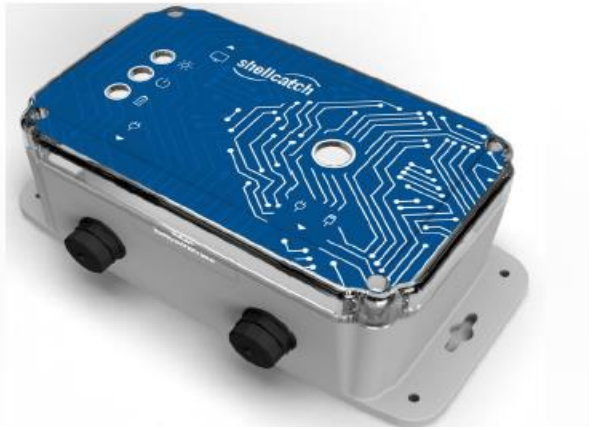
Key findings:

- Provides high-resolution fishing data by **recording** the vessel's **fishing activities** in **10 second intervals**.
- Better **control and surveillance** of the fisheries.
- Increased **accuracy and transparency** by documentation of fishing activities benefits both fisheries control authorities and fishers.
- Combined with **logbook information**, the EM sensor system data can be used to assess the area impacted by fisheries at a **high spatial** and **temporal resolution**.

3. Case study III

Mini video monitoring system:

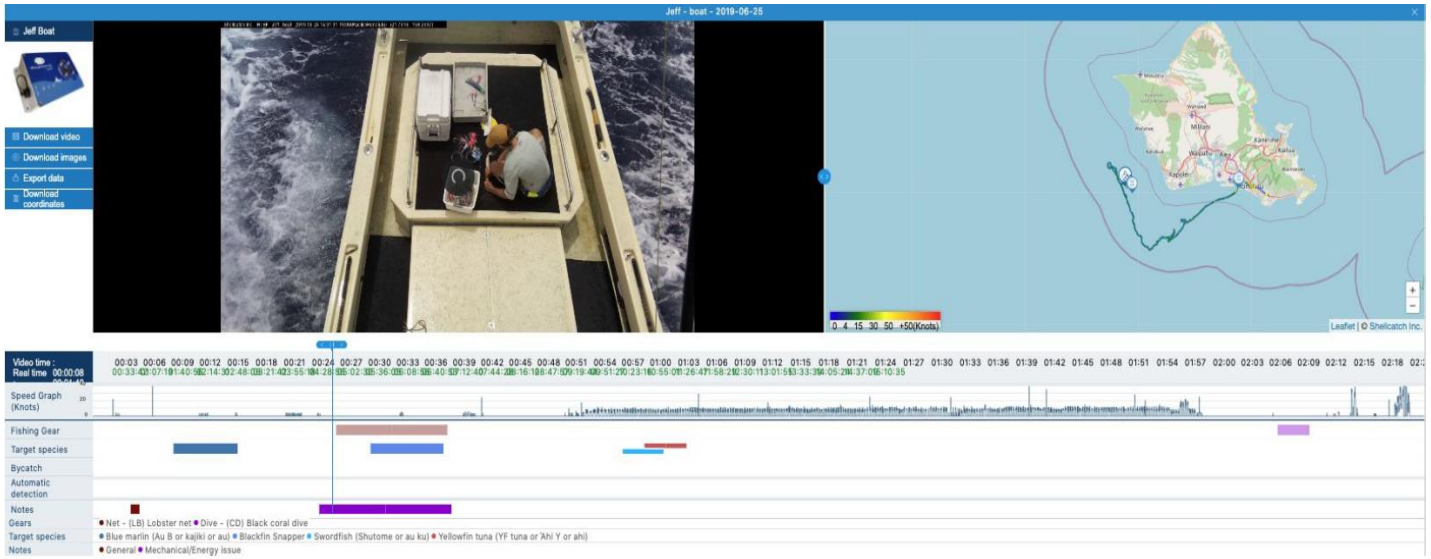
VirtualObserver - video camera (left) and uploader device (right)



Source: Shellcatch

3. Case study III

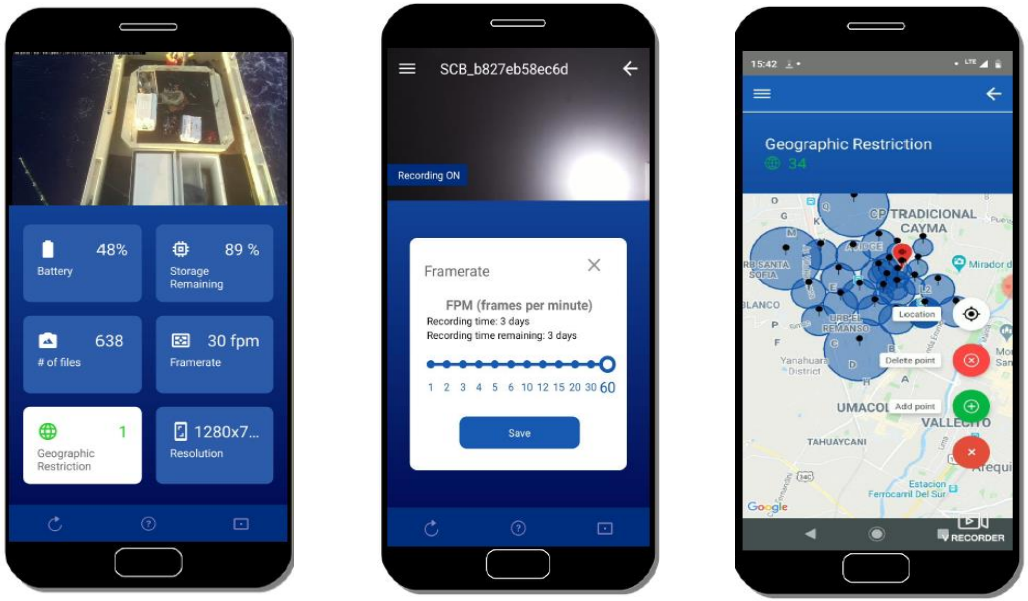
Mini video monitoring system:



Source: Shellcatch

3. Case study III

Mini video monitoring system:



Source: Shellcatch

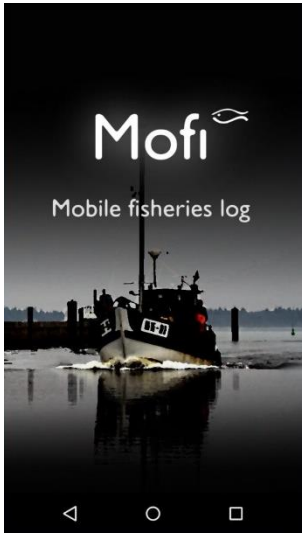
3. Case study III

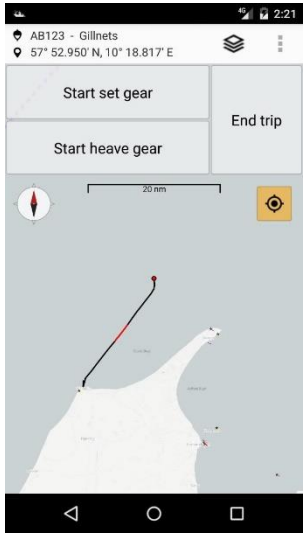
Key findings:

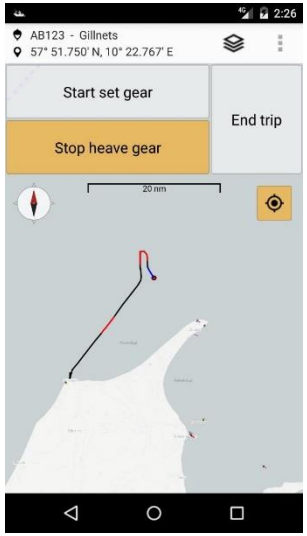
- **Camera system** fitted for small scale vessels.
- **Smart-phone applications** for the setup and configurations of the mini video system.
- It serves as monitoring technology of over 700 vessels (and growing) in **Latin America**.

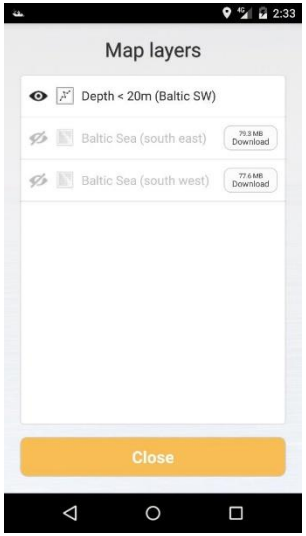
3. Case study IV

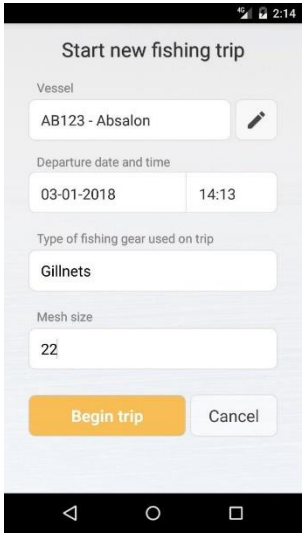
Tablets as E-log and other electronic technologies:











Source: Anchorlab

3. Case study III

Key findings:

- Portable devices (**tablets and smartphones**) can be used to **record and report** the fishing activity of vessels in SSF, via specially designed apps.
- Apps are **cost-effective** tools for all stakeholders to monitor fishing effort, and/or enforce regulation **compliance**.
- Fishers can **benefit** from the **flexibility** of portable devices for **registering or reporting** fishing activity.
- The use of tablets or smartphones can **improve data quality**.
- Rapid development of apps to enhance or replace paper logbooks and paper landings declarations in many SSF worldwide.

4. Conclusions

- Worldwide significant **development of new electronic technologies** for monitoring **all types of fisheries and for all vessels sizes**.
- Cost of hardware and software for data collection technologies may be a **barrier for small-scale fisheries vessels**. Co-funding through the EMFAF could be a solution.
- Smartphones or tablets may be an adequate solution in SSF for **improving monitoring and recording of fisheries-dependent data**.

4. Conclusions

- **The management of fisheries** and the preservation of marine ecosystems in the EU would greatly **benefit from generalizing the use of ET** in the SSF.
- The use of ET is **cost-effective** to monitor compliance of the SSF.
- Usage of ET enhance achieving **sustainable resource management**.
- **Sound and reliable data** is a **keystone in achieving effective ecosystem-based management.**

5. Recommendations

- **Video-based EM systems** could become compulsory for **monitoring compliance** of the SSF fleet segment with the **highest risk** of non-compliance with the **landing obligation**.

- **EM sensor systems** could be used for monitoring the **spatiotemporal distribution of fishing** activities in fisheries with low discard/bycatches and for controlling access to closed areas, e.g., MPAs.

- **Tablet or smartphone apps** designed to fulfil the EU reporting requirements should gradually be generalised for all vessels below 12 m.

Thank you for your attention