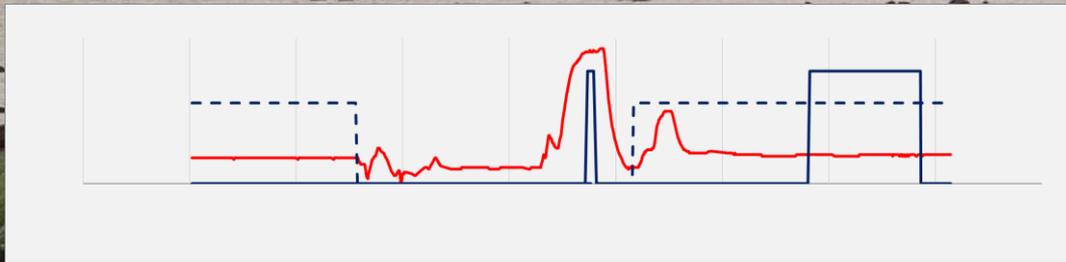


# Monitoring areas with fishing restrictions in Sweden



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# Content of the presentation

- Setting the scene and legal requirements
- Challenges with vessel monitoring
- Analytical tool for indicative picture of fishing activity
- Real life example
- Conclusions

# Legal requirements

## Bratten

Marine Protected Area with fisheries conservation measures (art. 11 of CFP) - delegated act (EU) 2017/118

- Requirement to use AIS for all vessel lengths
- 18 areas, 900 x 1500 meter



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## Koster

National park - Regulated through national legislation

- 11 small areas, from 90 x 360 meter
- Requirement to use AIS for all vessel lengths
- Special permit

Length class (meter)	Number of vessels using AIS	Total number of vessels
> 15	97	97
12 – 15	52	52
8 – 12	200	453

# Challenges with monitoring fishing activity



Current available monitoring tools (AIS, VMS) show **position**:

- BUT the position does not indicate the activity of the vessel
- AND it is the activity that determines if the vessel is permitted within the restricted area or not

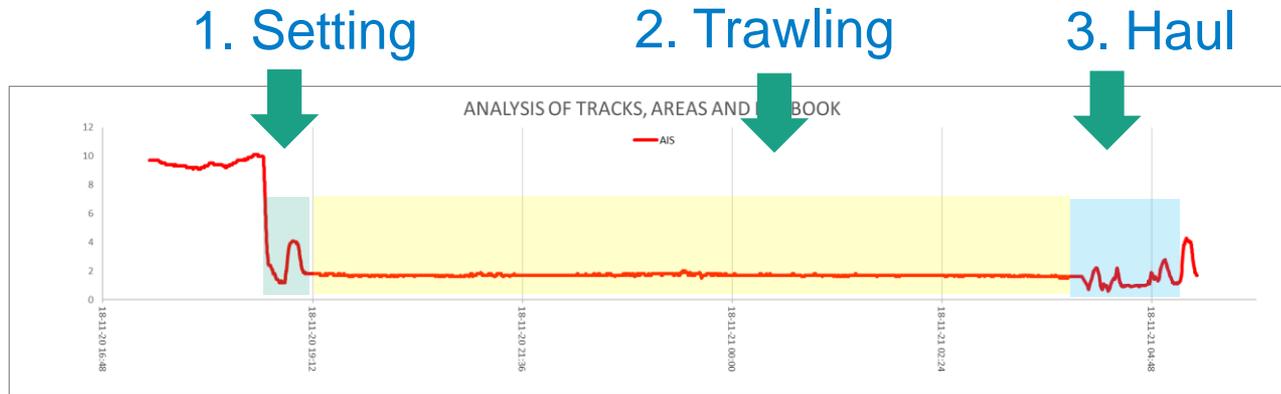
Reported fishing **activity** cannot be validated in real-time:

- Electronic logbook: ½ to a day later
- Paper logbook: days later

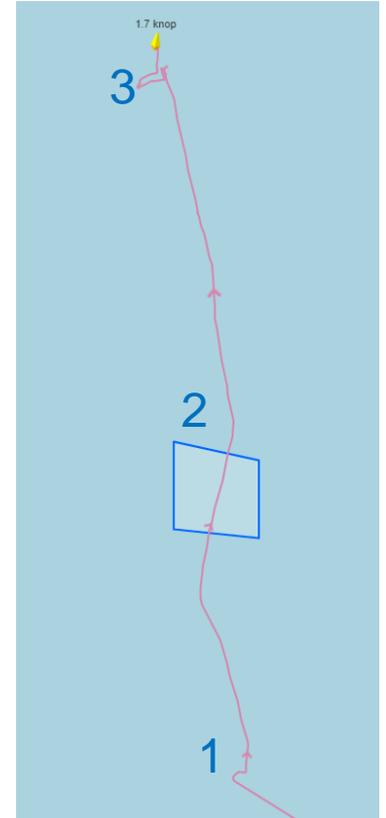
➡ With the analytical tool SwAM is provided with an indicative picture of fishing activity within areas with fishing restrictions.

# Analytical tool for indicative picture of fishing activity

- The vessels positions are displayed as a track in the monitoring system
- Positions from the track are exported and displayed in a graph
- Fishing activities can be identified by typical signatures



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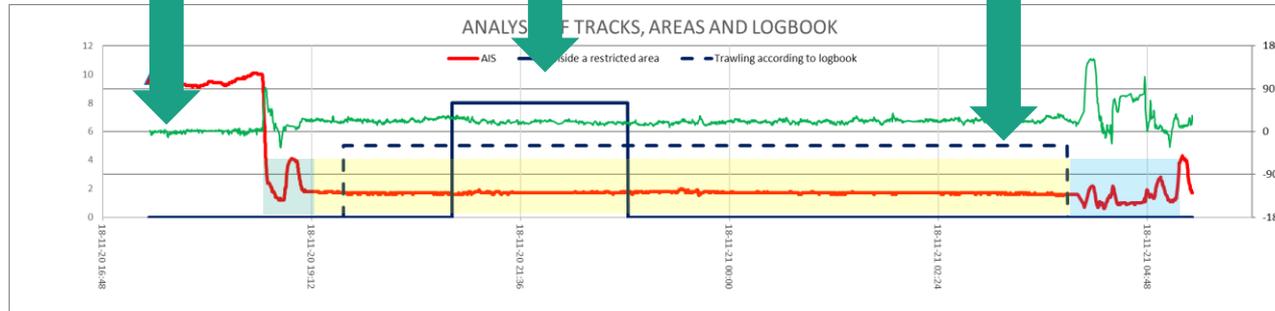


# Combining more data to the graph - provides a better understanding of the fishing activity

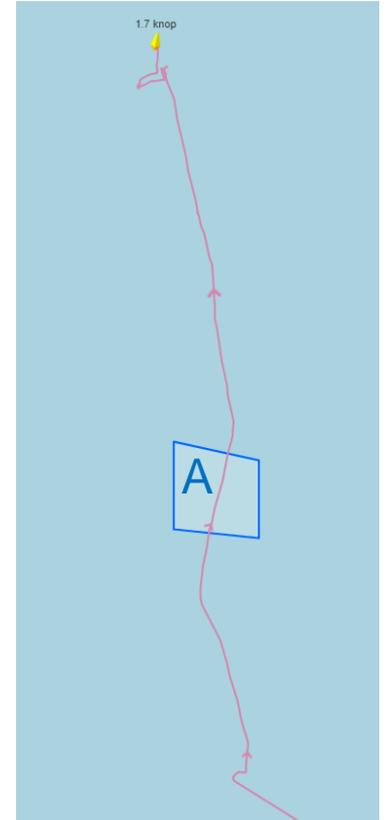
COG/Heading

A. Restricted area

Logbook



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# Facts

## Costs:

- Development: 300 h
- Input: Data already available in monitoring system
- Tool: Excel (Visual basic) based analytical tool

## Users and training:

- Users: FMC (on-line/off line)
- Training: 1 day

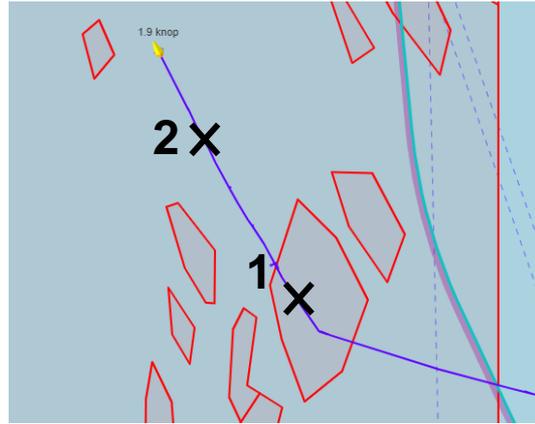
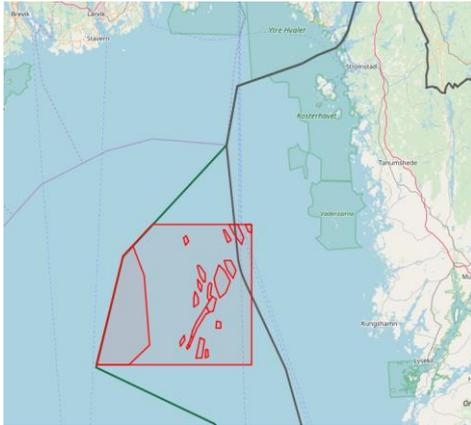
## Future development:

- Possibilities for coast guard/fisheries inspectors
- Currently in process to fully automatize

# Thursday 31 August 2018

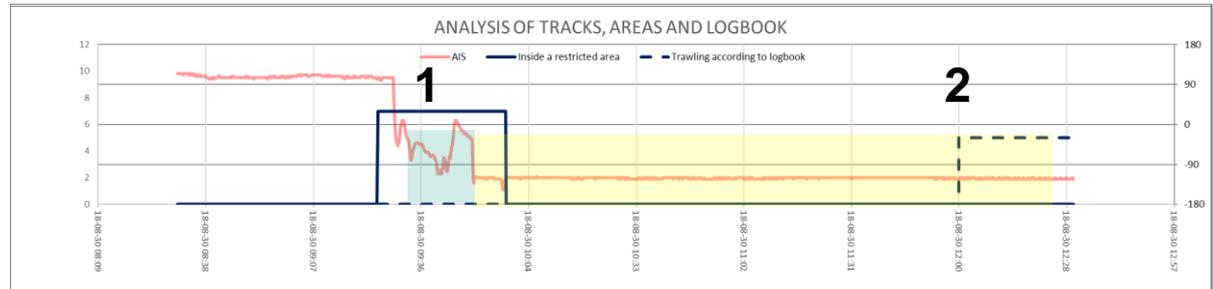
A vessel set the trawl in a restricted area and starts to trawl

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1. Setting trawl in area and trawling out
2. Setting time according to logbook (information available the next day)

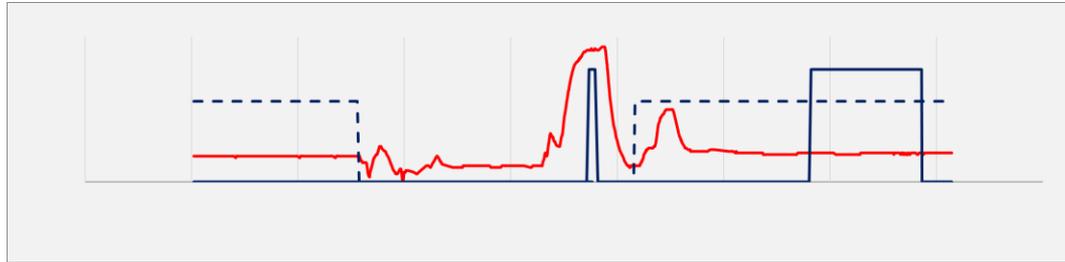
INFO	
Area	<b>Bratten 4</b>
Time for entry	18-08-30 09:24
Time for exit	18-08-30 09:58
Time in area	<b>00:34</b>
Distance in area	<b>4 629</b>
Avg. speed in area	<b>4,4</b>
Pos entry Lat	58,440
Pos entry Lon	10,597
Pos exit Lat	58,468
Pos exit Lon	10,543



# Conclusions

- Combining data generates an indicative picture of the fishing activity
- Ability to act in near real time
- AIS already in use and regulated in EU legislation
- Further development needed to ensure full automation of the analysis
- The need for sensors is obvious!

# Thank you



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