

Use of GPS and sensor data “BLACK BOX” in the Danish mussel dredge fishery

Control, monitoring, nature conservation and research

State of play in Denmark

- In 2011 the minister for Food, Agriculture and Fishery decided, that vessels fishing inside N2000 sites should be equipped with Black Box
- Since 2014 it has been mandatory for vessels fishing for shellfish to be equipped with an electronic monitoring system – Black Box
- Today 55 vessels have installed af Black Box
- The smallest vessel is 7,10 meters l.o.a.
- The longest vessel is 40,15 meters l.o.a.

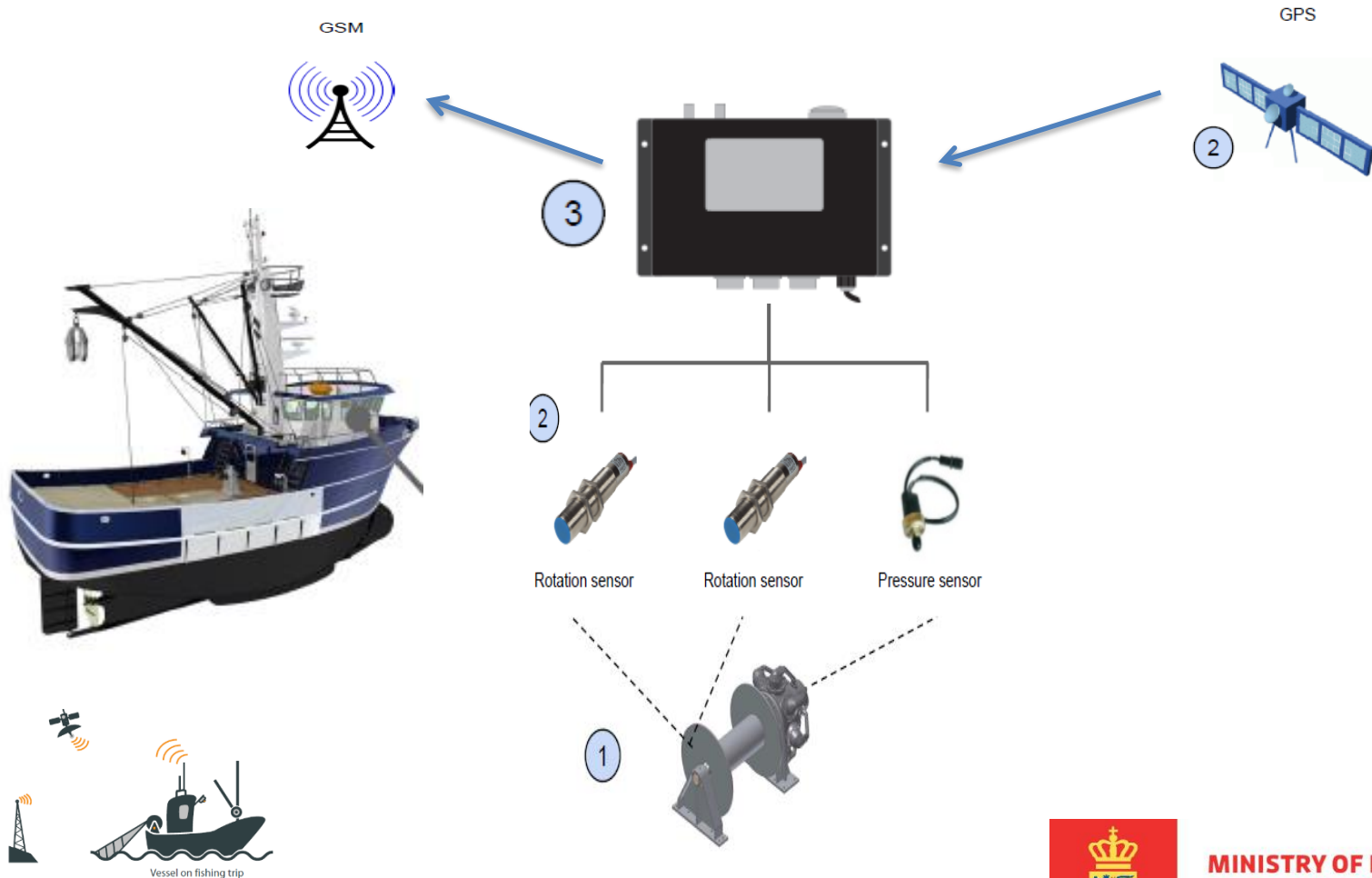


4. December 2018



**MINISTRY OF FOREIGN AFFAIRS
OF DENMARK**
Danish Fisheries Agency

What is a Black Box

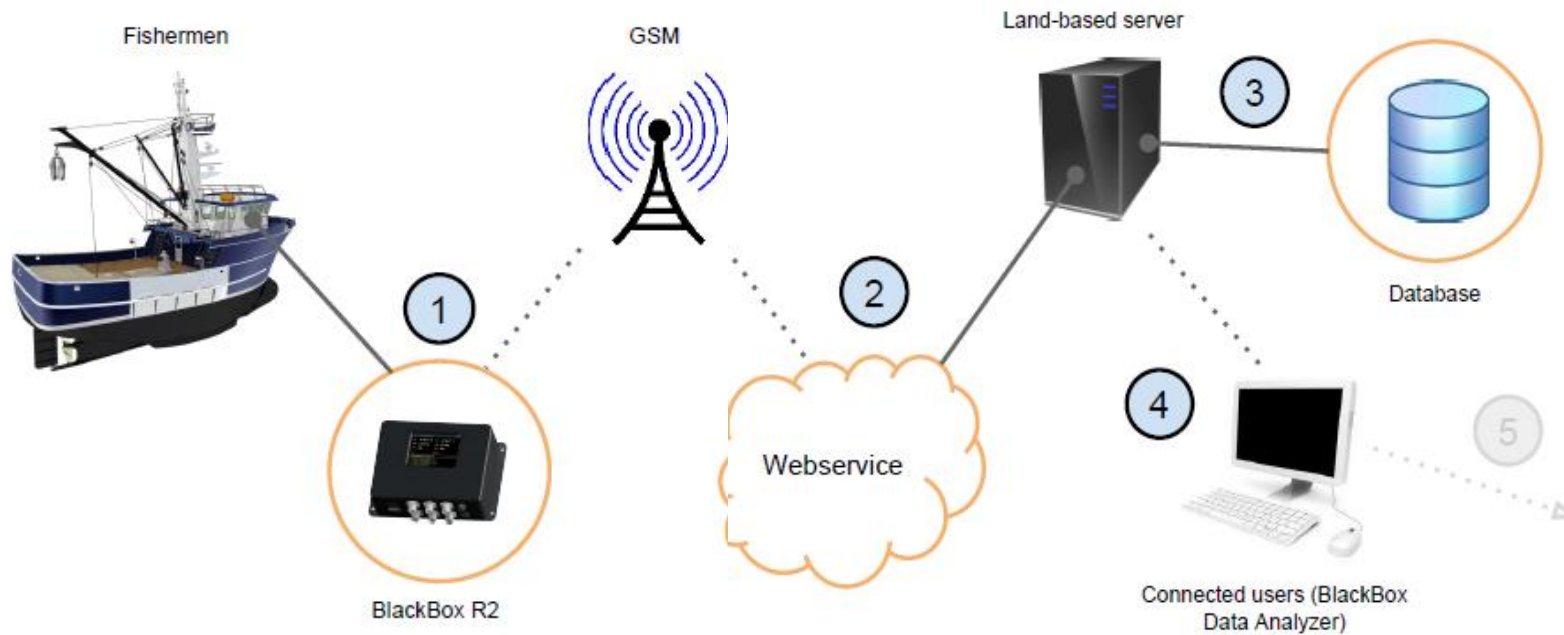


4. December 2018



**MINISTRY OF FOREIGN AFFAIRS
OF DENMARK**
Danish Fisheries Agency

What is a Black Box



Now we have data - what then?



4. December 2018



**MINISTRY OF FOREIGN AFFAIRS
OF DENMARK**
Danish Fisheries Agency

Analyzing data in the Black Box analyzer

BlackBox Analyzer (64-bit) - Fiskeristyrelsen

Start Search for trips Messages Live View Live map Area impact Settings GFX: Intel Admin Admin Help Log out

Start L491 - Berit

Filter

Search

Sorting Latest da Desc

Vessel group Limfjorden - BMS

Inactive vessels Show Last in list

L491 - Berit
Bo Husted Kjeldgaard

Country: DNK
Harbour: Jegindø
Latest data: 15-11-2018
Setup: 2 x dual sensor winch
Hardware: R-Cubed - A022

Area impact - Muslingeområder 2011

2018 - Vessel: 2,473,635 m²
2018 - All: 64,157,445 m²
Week 46 - Vessel: 119,156 m²
Week 46 - All: 2,168,026 m²

Events Trips Alarms Notes

Search & Filter 700 shown events

Event	Time	Time
L491	data from 15-11-2018	16-11-2018 02:00
L491	data from 14-11-2018	15-11-2018 01:59
L491	data from 13-11-2018	14-11-2018 02:08
L491	data from 12-11-2018	13-11-2018 02:19
L491	data from 11-11-2018	12-11-2018 01:58
L491	data from 10-11-2018	11-11-2018 02:07
L491	data from 09-11-2018	10-11-2018 02:03
L491	data from 08-11-2018	09-11-2018 02:08
L491	data from 07-11-2018	08-11-2018 02:06
L491	data from 06-11-2018	07-11-2018 02:04
L491	data from 05-11-2018	06-11-2018 02:07
L491	data from 04-11-2018	05-11-2018 01:47
L491	data from 03-11-2018	04-11-2018 01:53
L491	data from 02-11-2018	03-11-2018 01:55
L491	data from 01-11-2018	02-11-2018 01:49
L491	data from 31-10-2018	01-11-2018 01:41
L491	data from 30-10-2018	31-10-2018 06:00

Event

View on map

L491 - Berit

Created: Wednesday, 14 November 2018

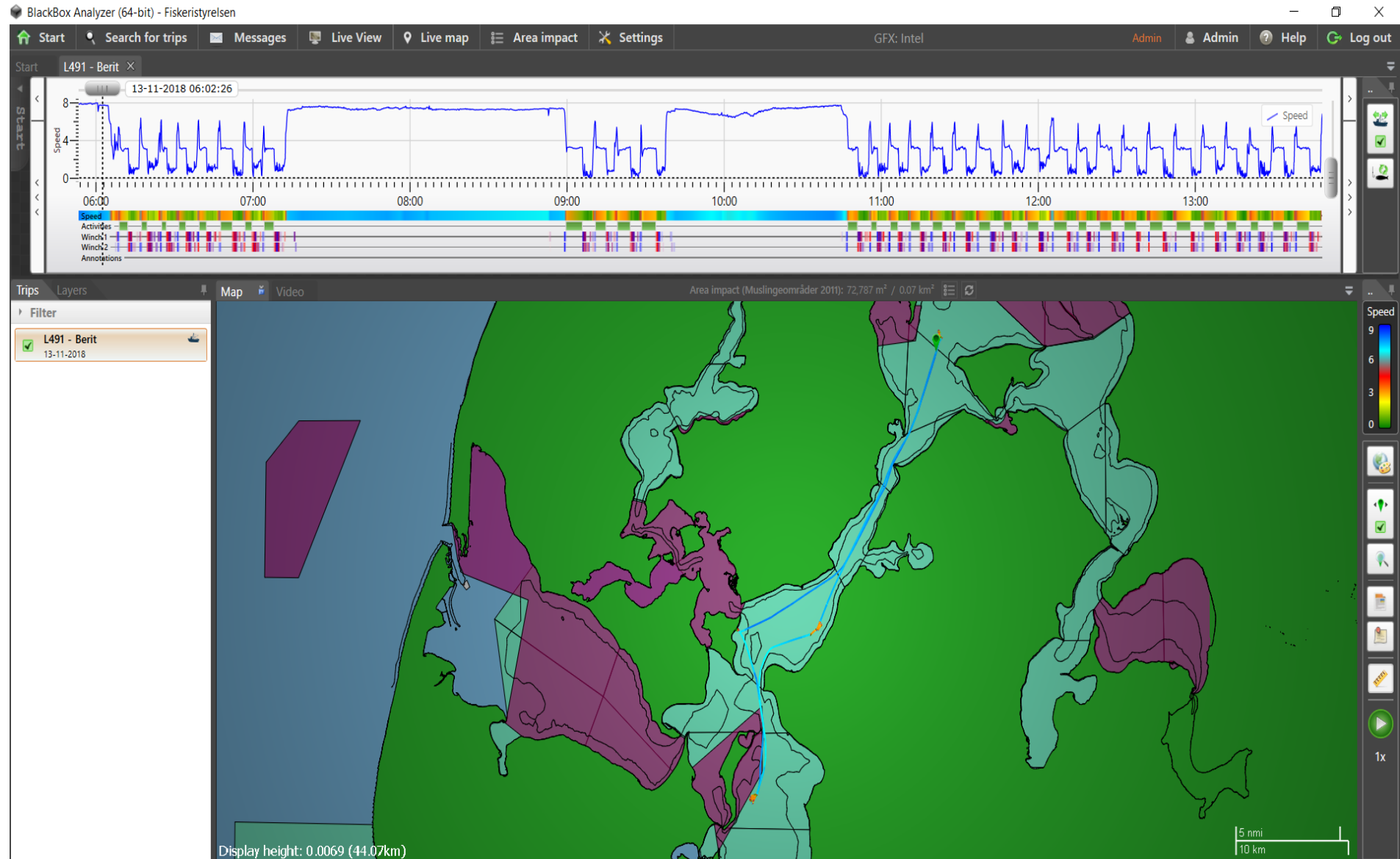
Data is from: 13-11-2018

Event type: Daily data uploaded

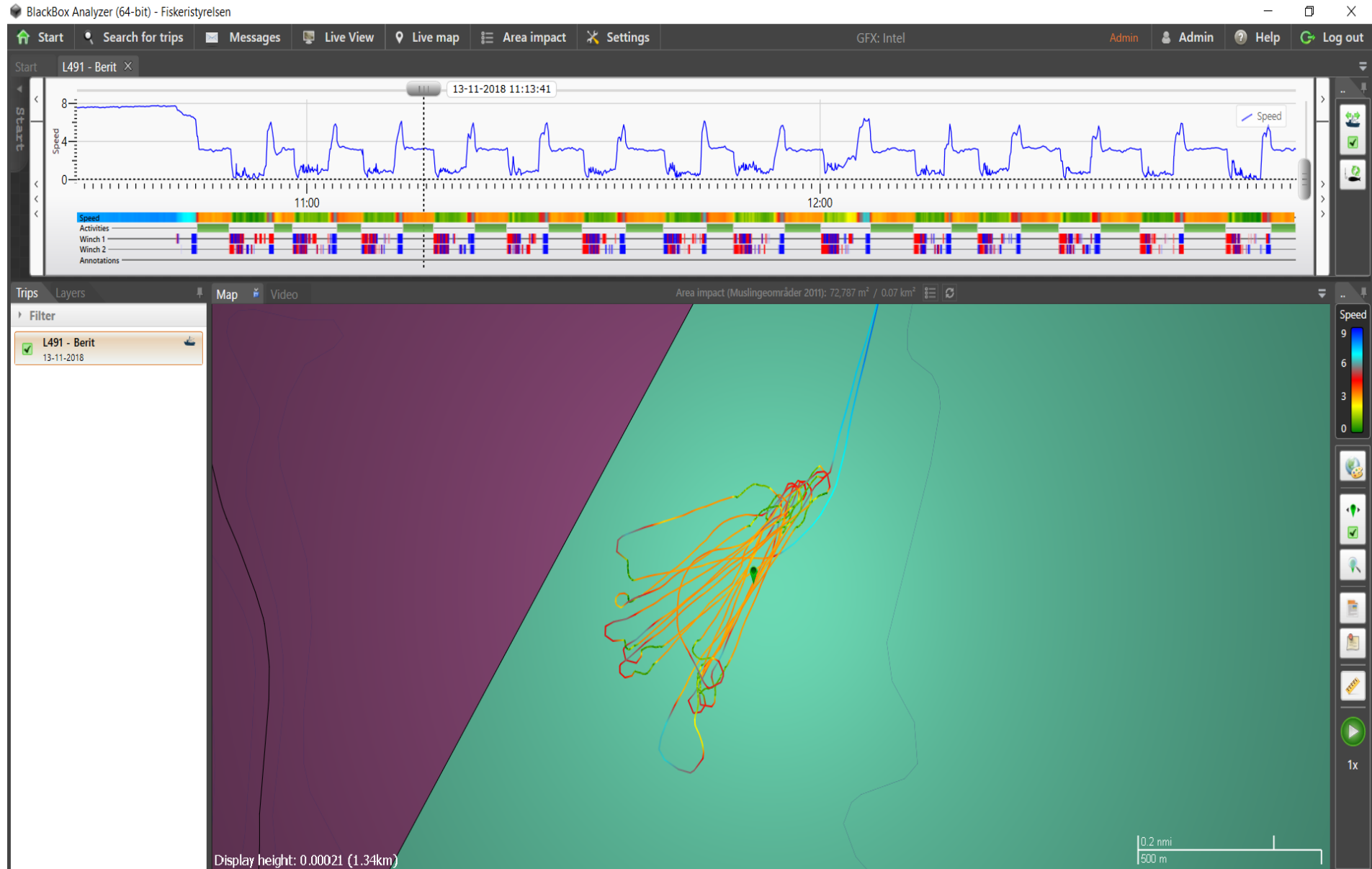
Trip start: 04:00:36 (13-11-2018) → Trip stop: 15:51:51 (13-11-2018)

Area impact: 72,787 m² / (Muslingeområder 2011) 0.07 km²

Analyzing data in the Black Box analyzer



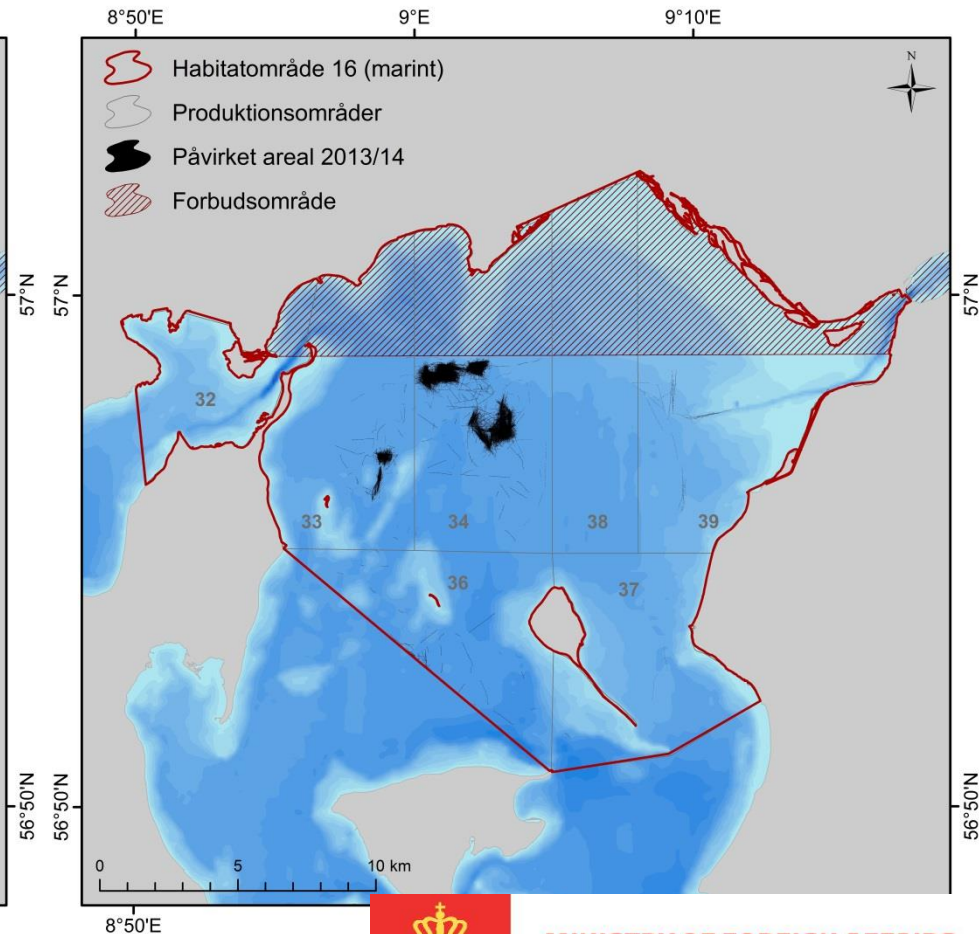
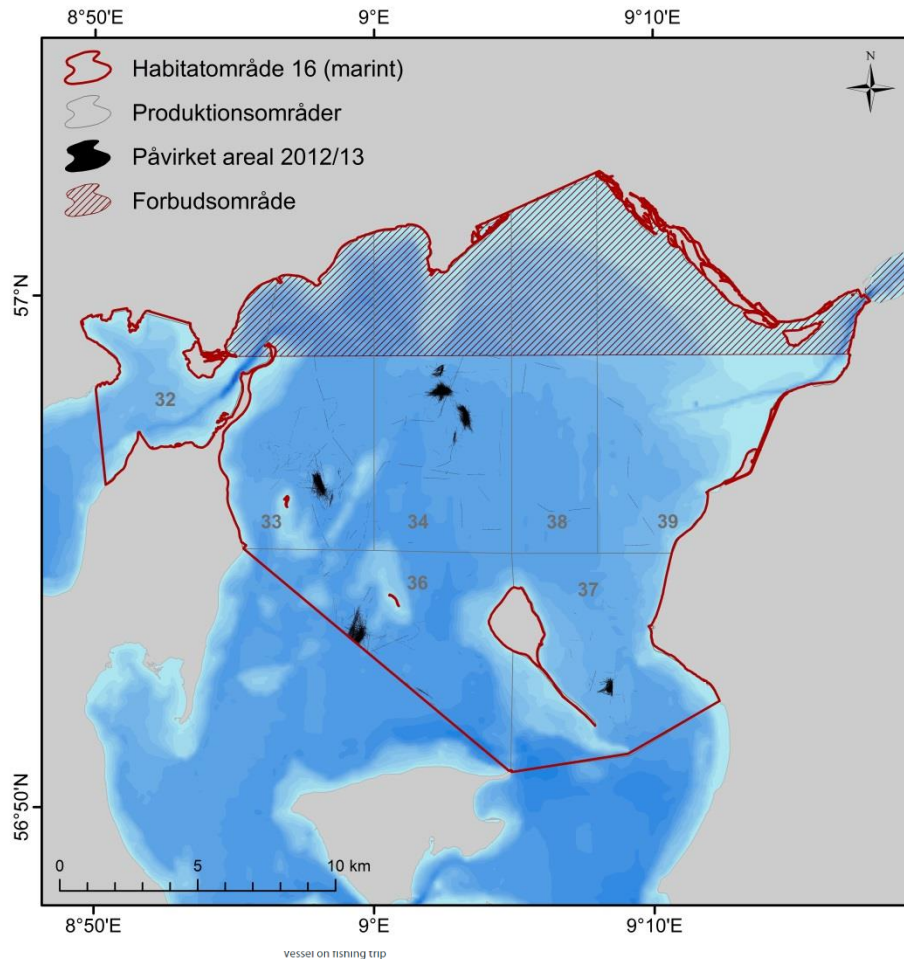
Analyzing data in the Black Box analyzer



Data used for impact assessment

Løgstør Bredning season 2012/13

Løgstør Bredning season 2013/14



4. December 2018



**MINISTRY OF FOREIGN AFFAIRS
OF DENMARK**
Danish Fisheries Agency

What do we achieve by using Black Box

- **Better control and surveillance of fisheries**
- **Documentation of fishing activities**
- **Mapping and documenting the impact of fishing in N2000 sites**
- **Better data for stock assessments**
- **Increased food safety and traceability**



4. December 2018



**MINISTRY OF FOREIGN AFFAIRS
OF DENMARK**
Danish Fisheries Agency

Black Box and analyzer - prices

Fisher paid

- Black Box R2 including, 2 winch sensors, GPS-antenna, GSM-antenna and an isolated DC/DC converter = 2.350 Euro ex. Installation
- Monthly fee for the license (Black box and updates) and all data transfer = 20 Euro
- Online access to own data = 14 Euro pr. year

Administration paid

- 1 server license and 1 klient = 9.500 Euro pr. year
- 1 server license and 5 klientes = 13.500 Euro pr. year
- 1 server license and 99+ klientes = 27.000 Euro pr. year.

Thank you for your attention

><((((°>
><((((°>
><((((°>
><((((°>

4. December 2018



**MINISTRY OF FOREIGN AFFAIRS
OF DENMARK**
Danish Fisheries Agency