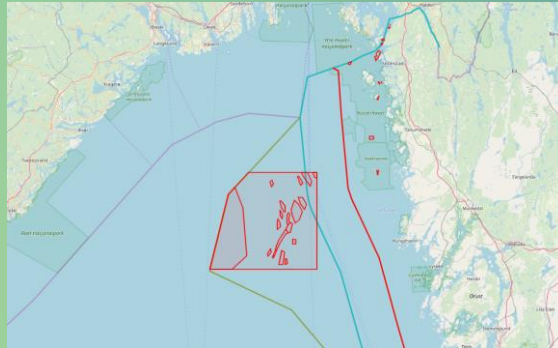


Kontroll med stöd av AIS

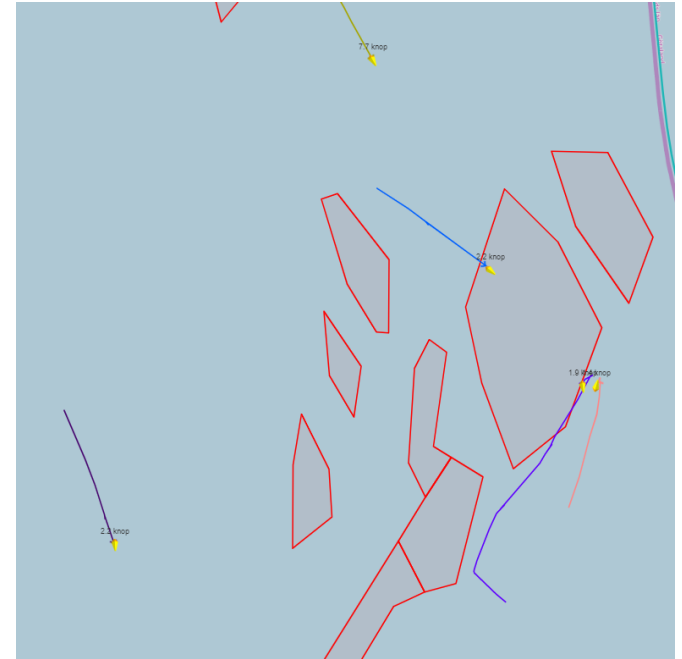
Hur fungerar det i praktiken?



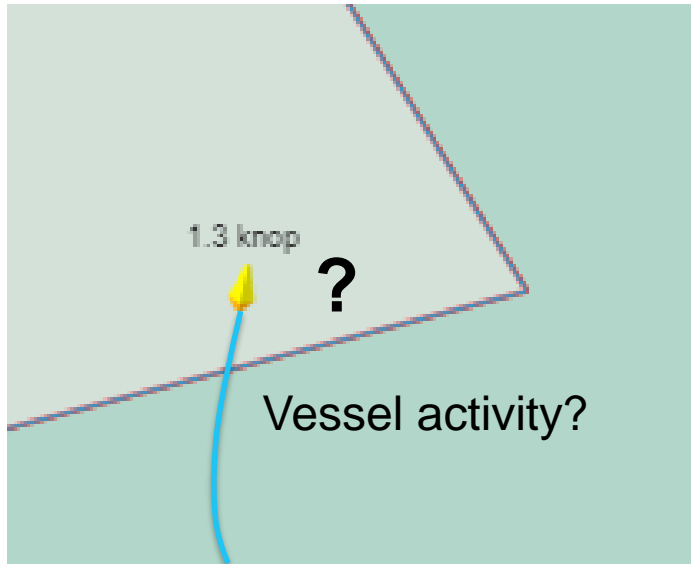
Hans Grimby och Mats Börje 2020-01-24

Surveillance – 24/7 and analyses

- Input AIS and VMS
- Sjöbasis – display positions on map
- Layer of areas
- Warnings by criteria
- Analysis of vessels track
- Logbook



Location – Activity

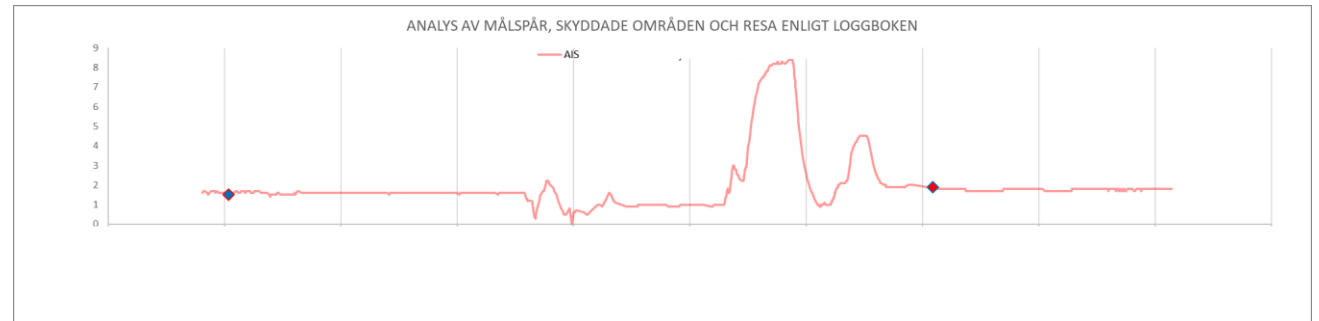


- Regulation often states that compliance shall be monitored by a position system
- It is **the activity** that determines if the vessel is allowed in an area
- The activity is not known until many **hours** or **days later**
- **How can fishing activity be controlled with the position reports only?**

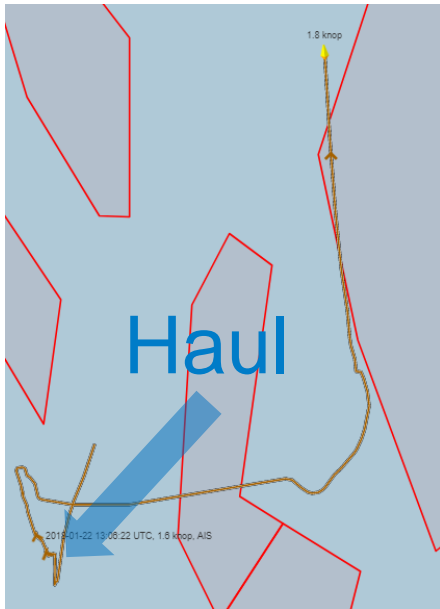
Speed and Time graph analysis

- Combines data from several sources
 - AIS (speed, course, COG)
 - Regulated areas
 - Time, date, position of catches, gears used – fishing logbook
 - AIS and VMS report frequency
- The result
 - Quickly understand vessels activity

Speed and time graph

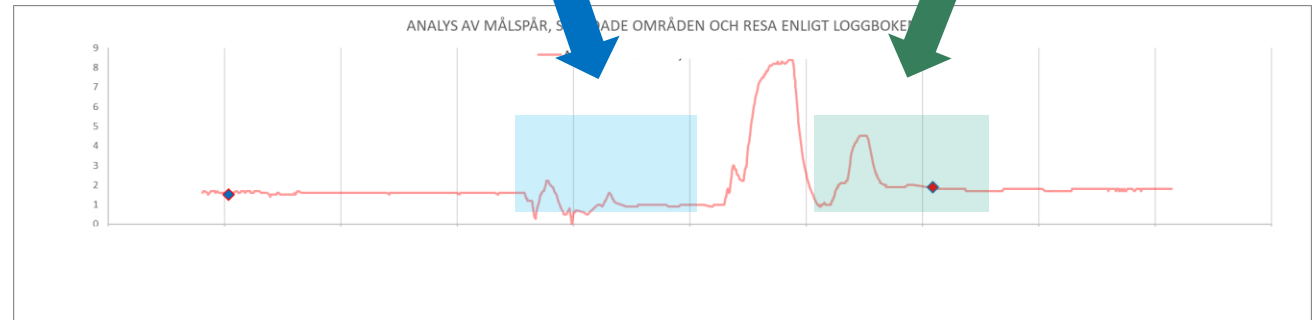


Speed and time graph

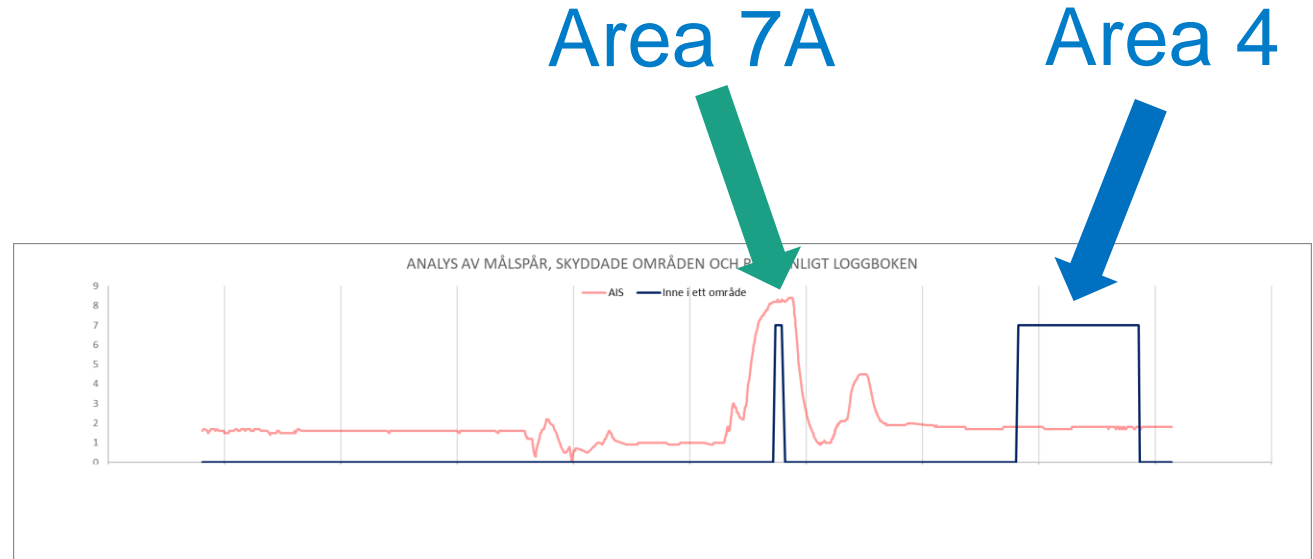
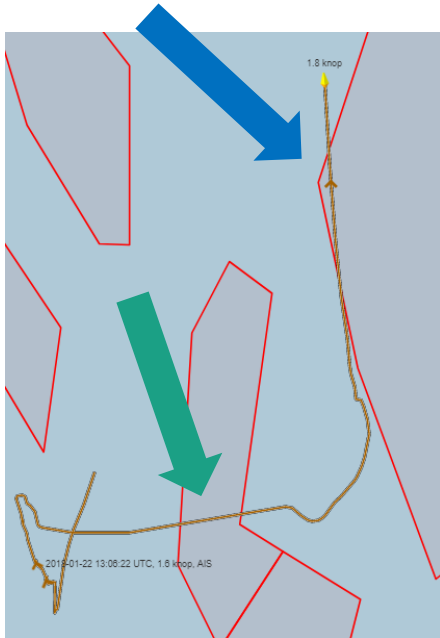


Haul

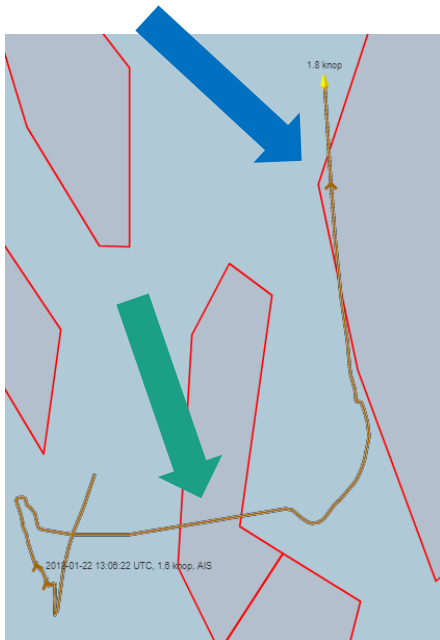
Setting



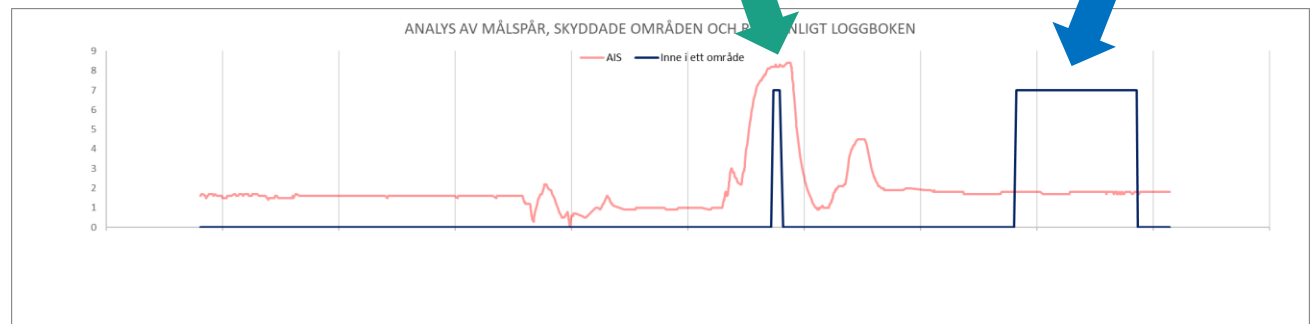
Speed, time and area graph



Speed, time &

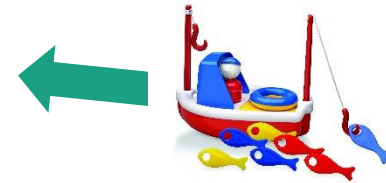


INFO	Bratten 7A	Bratten 4
Area	Bratten 7A	Bratten 4
Time for entry	18-01-22 13:47	18-01-22 14:47
Time for exit	18-01-22 13:50	18-01-22 15:17
Time in area	00:02	00:30
Distance in area	637	1 624
Avg. speed in area	8,4	1,8
Pos entry Lat	58,424	58,450
Pos entry Lon	10,512	10,543
Pos exit Lat	58,425	58,465
Pos exit Lon	10,523	10,541



Enhancements - course

- AIS gives course over ground (COG)
- Heading is often included in AIS
- COG-heading gives us?

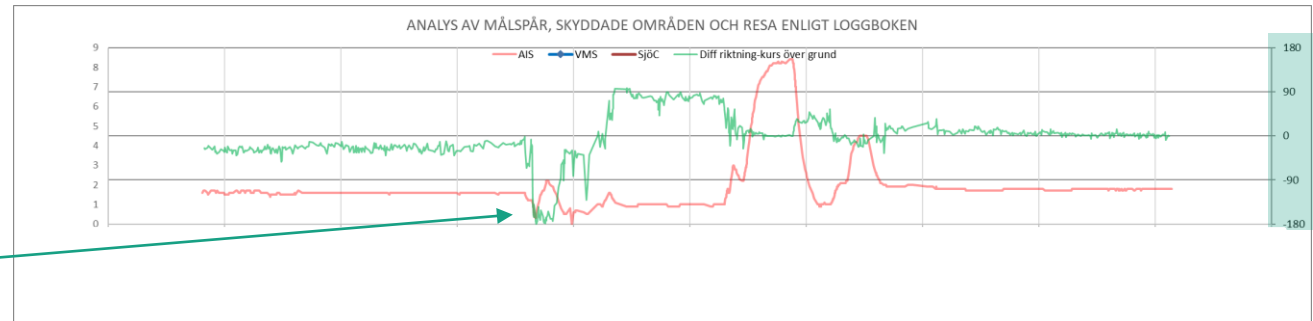


- Diff = 0



- Diff = +/- 180

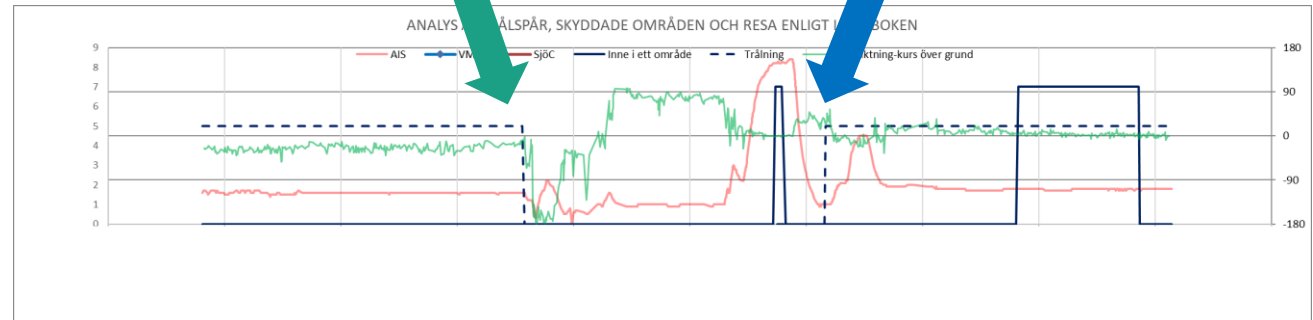
Speed, time, area, log book and course diff graph



Speed, time, area and log book graph

Please note!

**The logbook information is
not available until hours/days later.**



AIS and VMS report frequency



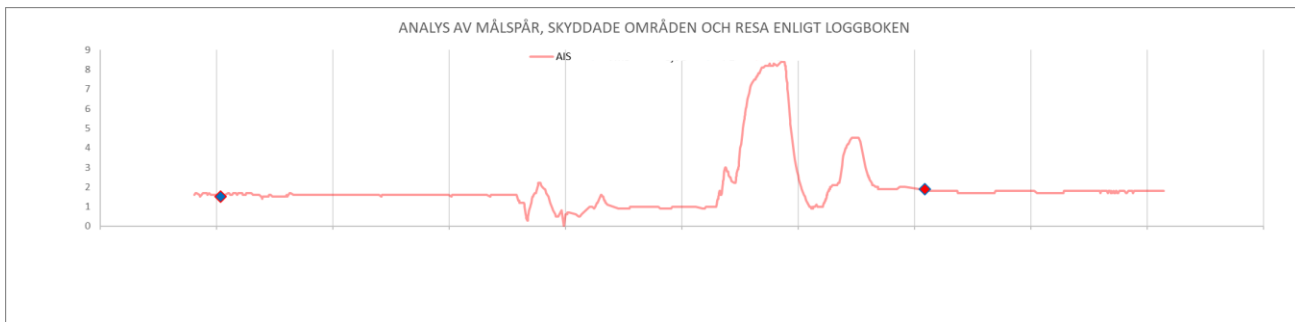
VMS avbrott (markeras i diagrammet som punkter 7,5 knop) 1 tim mindre än gränsvärdet

VMS avbrott	Start	Slut	Område start	Område slut	Kommentar
07:27:50	2018-12-04 02:28	2018-12-04 02:28	Bratten	Bratten	OBS! Från start av spåret till första VMS positionen.

AIS avbrott (markeras i diagrammet som punkter 5,5 knop)

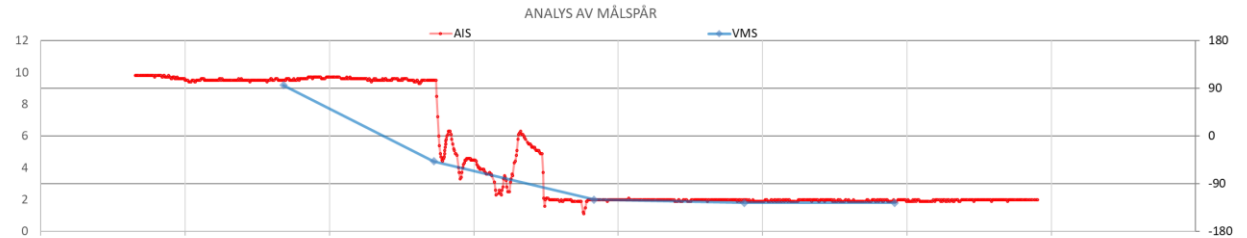
AIS avbrott	Start	Slut	Område start	Område slut	Kommentar
01:26:35	2018-12-04 15:18	2018-12-04 16:45	Bratten	Bratten	

Tid mellan AIS positioner		
Tid	Antal	% av tid
1	3	0%
2	20	0%
3	50	1%
4	47	1%
5	24	1%
6	21	1%
7	21	1%
8	21	1%
9	105	7%
10	97	7%
11	86	7%
12	22	2%
13	7	1%
14	8	1%
15	6	1%
16	3	0%
18	11	1%
19	43	6%
20	64	9%
21	44	6%
22	3	0%
23	2	0%
24	2	0%
25	1	0%
26	2	0%
27	1	0%
28	2	0%
29	13	3%
30	26	5%
31	21	5%
32	6	1%
34	1	0%



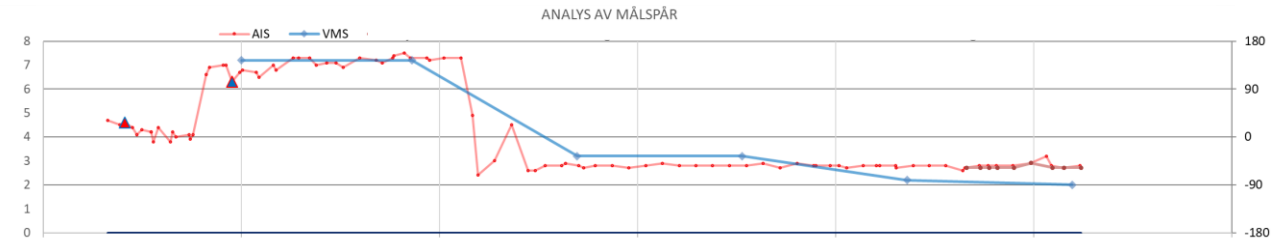
Example of track resolution

AIS 10 sec



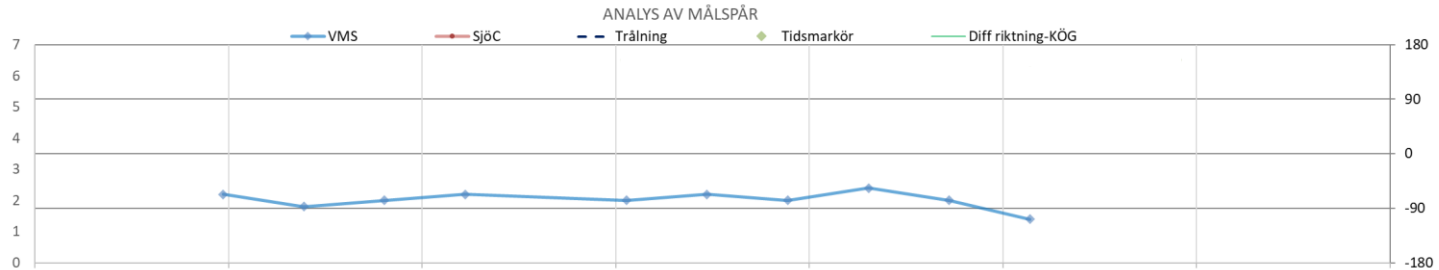
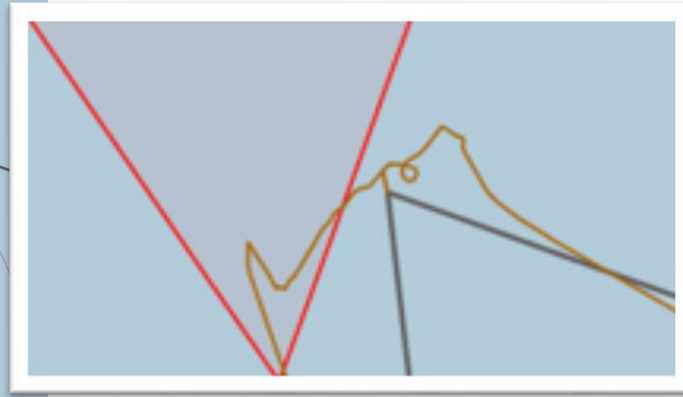
AIS 1-6 min

VMS 1 hour (blue)



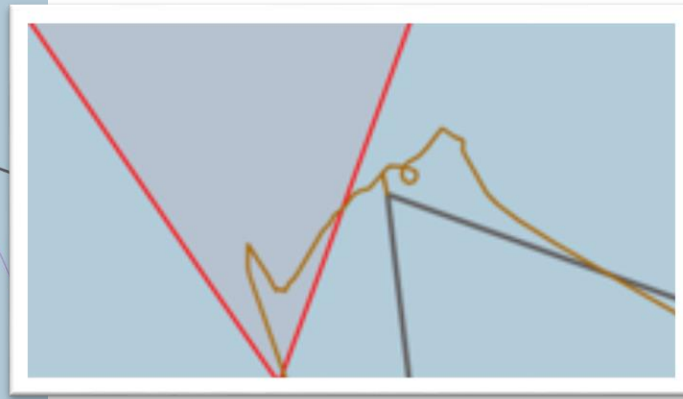
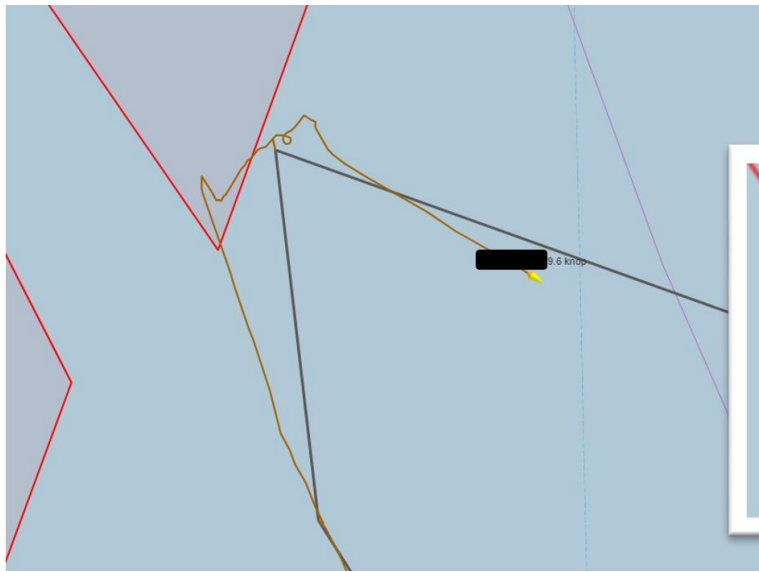
AIS vs VMS

Swedish Agency
for Marine and
Water Management



AIS vs VMS

Swedish Agency
for Marine and
Water Management



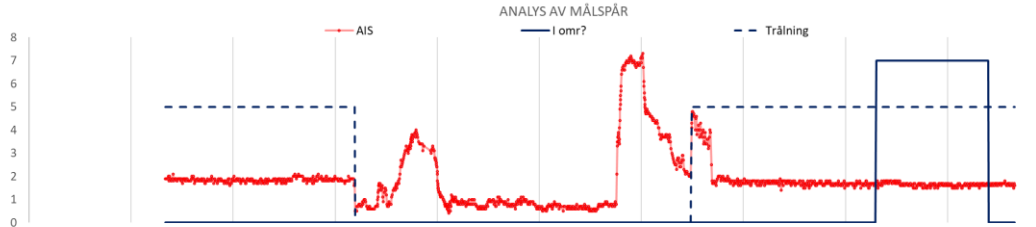
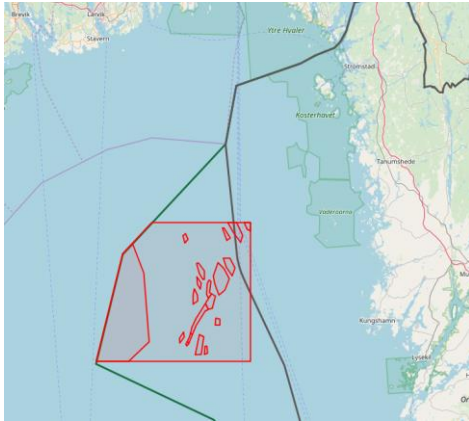
ANALYS AV MÅLSPÅR



Examples of situations

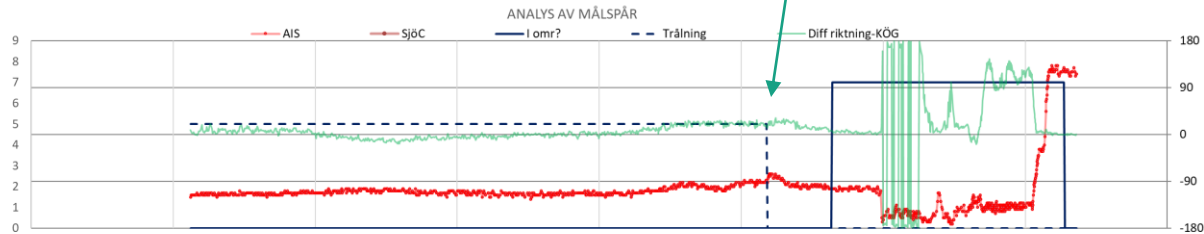
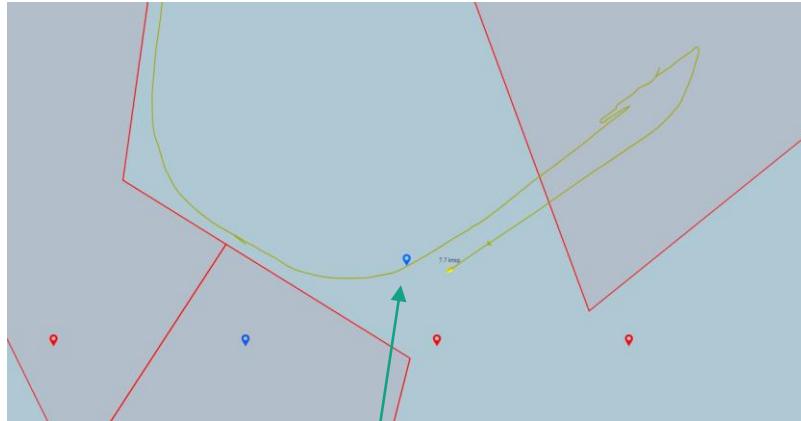
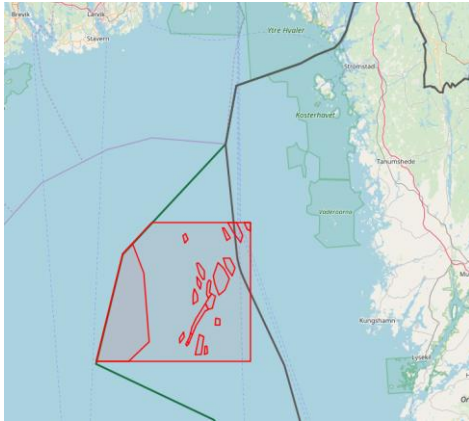
- Trawling through an area
- Preparing
- Hauling inside an area
- Drifting into an area during a haul
- AIS reports missing
- Inconclusive

Trawling through an area

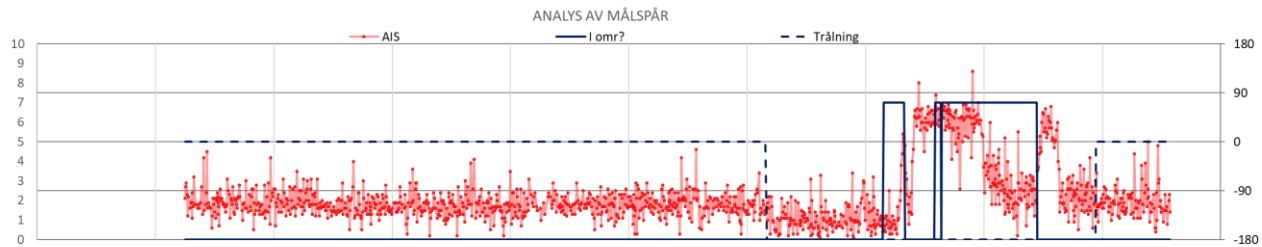
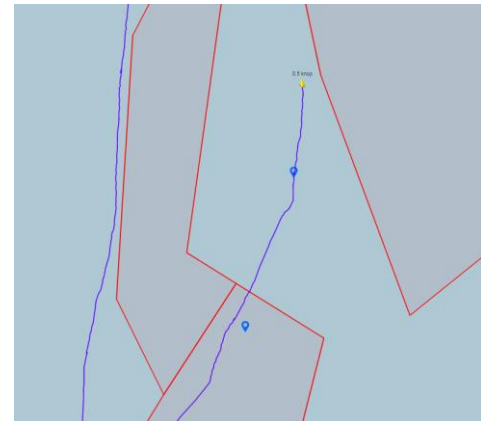
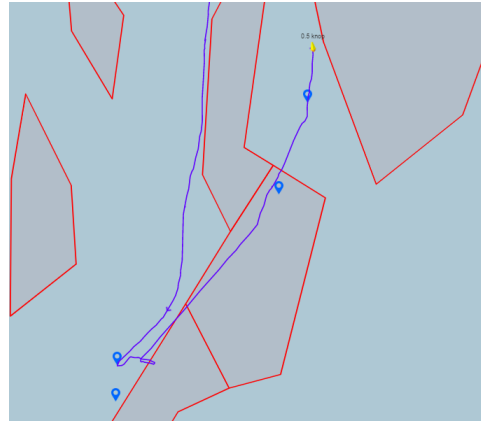
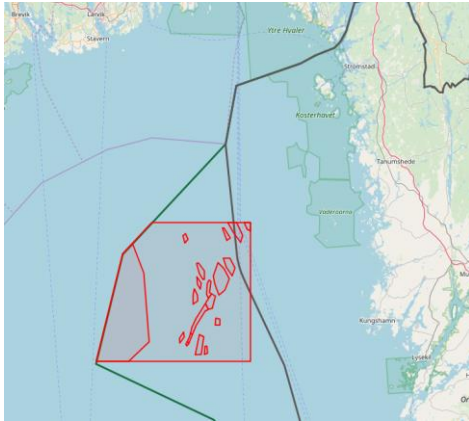


Tid mellan AIS positioner		
Tid	Antal	% av tid
1	3	0%
2	37	1%
3	75	2%
4	59	2%
5	28	1%
6	8	0%
7	12	1%
8	69	4%
9	311	19%
10	527	37%
11	321	25%
12	53	4%
18	1	0%
19	7	1%
20	12	2%
21	6	1%
22	2	0%
30	2	0%
31	1	0%
121	1	1%

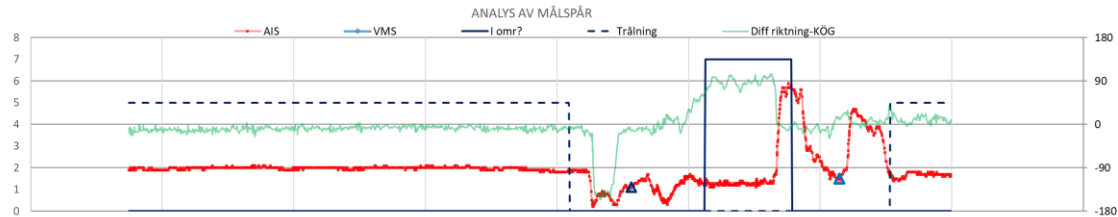
Hauling inside an area



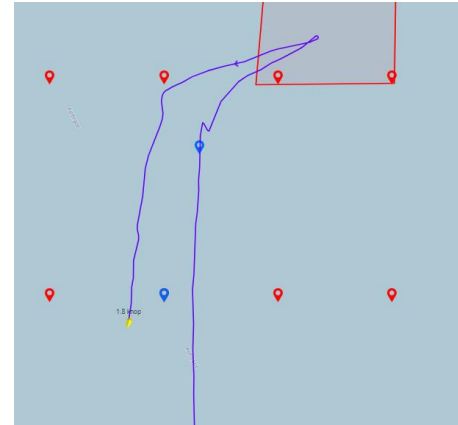
Preparing and setting in an area



Drifting into an area during a haul



Drifting into an area during a haul

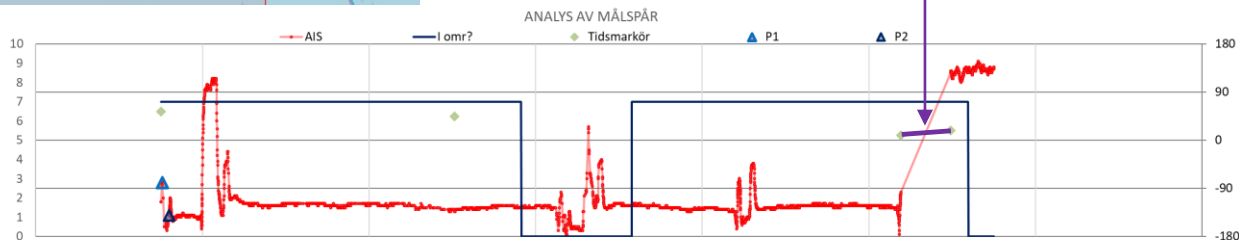


AIS reports missing



AIS avbrott (markeras i diagrammet som punkter 5,5 knop)

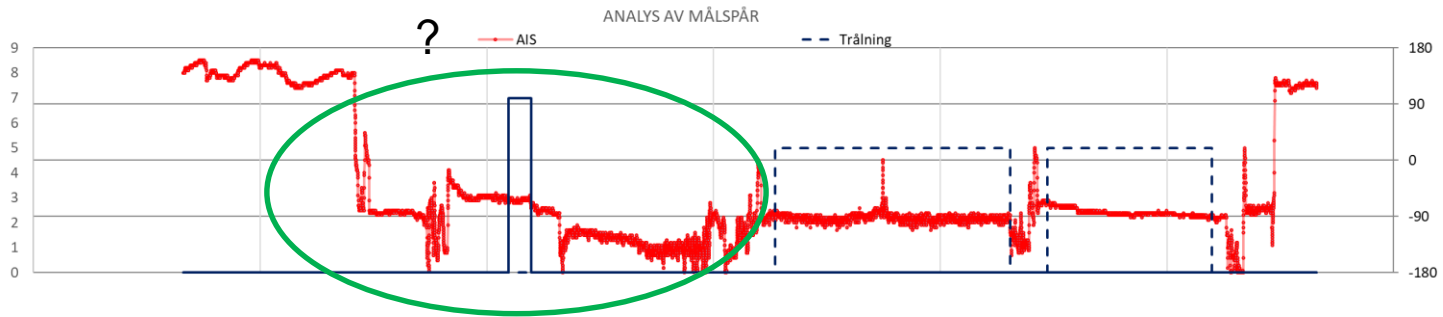
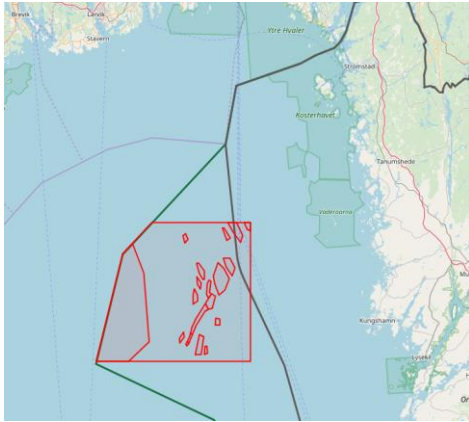
AIS avbrott	Start	Slut	Område start	Område slut	Kommentar
01:26:35	2018-12-04 15:18	2018-12-04 16:45	Bratten	Bratten	



Tid mellan AIS positioner		
Tid	Antal	% av tid
1	37	0%
2	180	0%
3	324	1%
4	285	1%
5	111	1%
6	64	0%
7	69	1%
8	197	2%
9	823	9%
10	1210	14%
11	768	10%
12	172	2%
13	13	0%
14	8	0%
15	9	0%
16	6	0%
17	5	0%
18	39	1%
19	157	3%
20	281	7%
21	180	4%
22	34	1%
23	3	0%

152	1	0%
159	1	0%
161	1	0%
171	1	0%
180	1	0%
199	1	0%
201	1	0%
209	2	0%
211	1	0%
240	1	0%
242	1	0%
279	1	0%
280	1	0%
281	1	0%
319	1	0%
361	1	0%
5195	1	6%

Inconclusive



Improvements

Vessels

- Keep a high speed inside a restricted area
- Exit an area before slowing down and preparing a set
- Plan your haul to avoid drifting in a restricted area
- Have a safety margins to all the restricted areas
- Check that your vessel has right areas in the plotter
- More correct position and time in the logbook

The end – Thank you