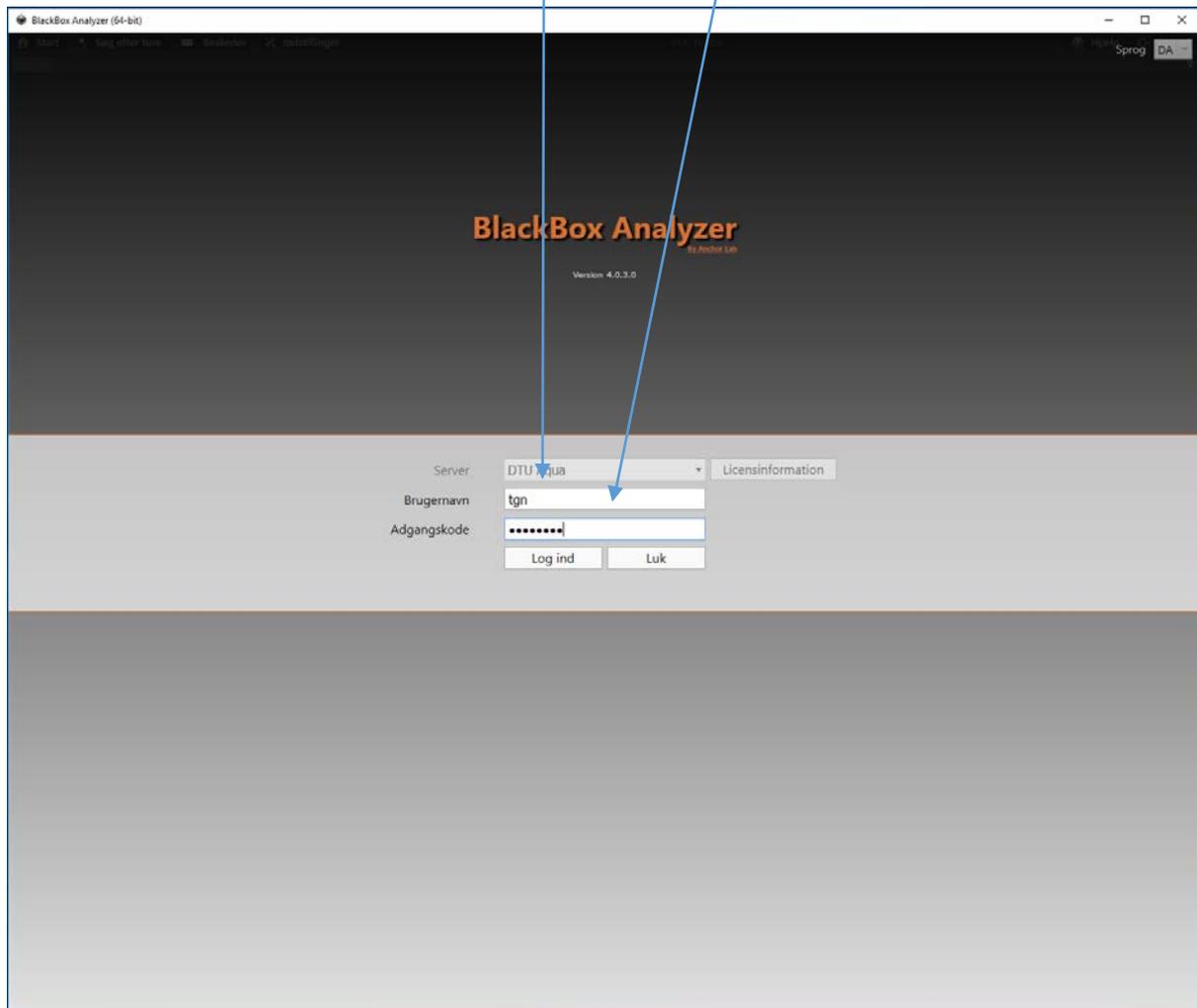


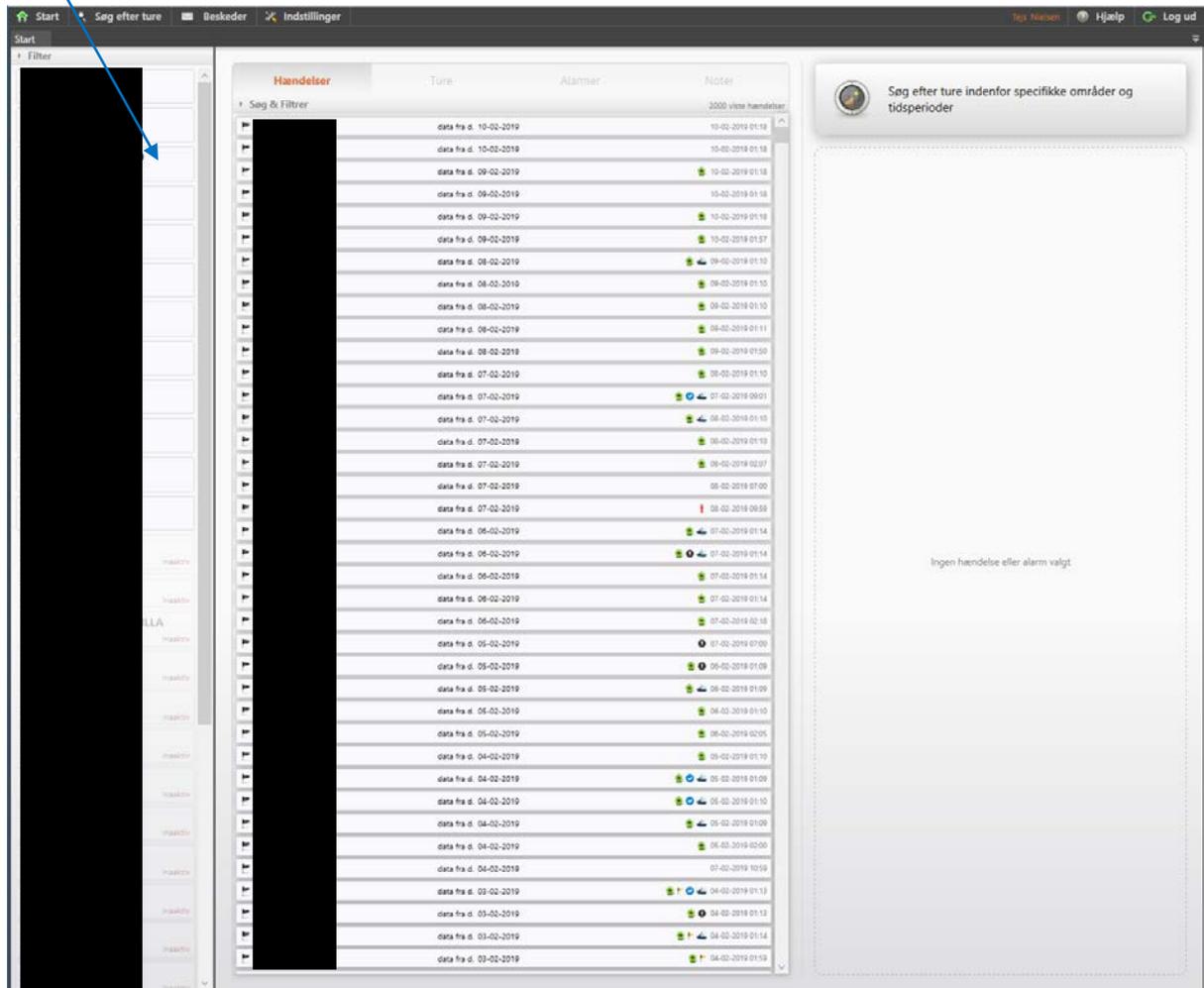
BlackBox Protocol

for handling CCTV data – bycatch of protected and endangered species

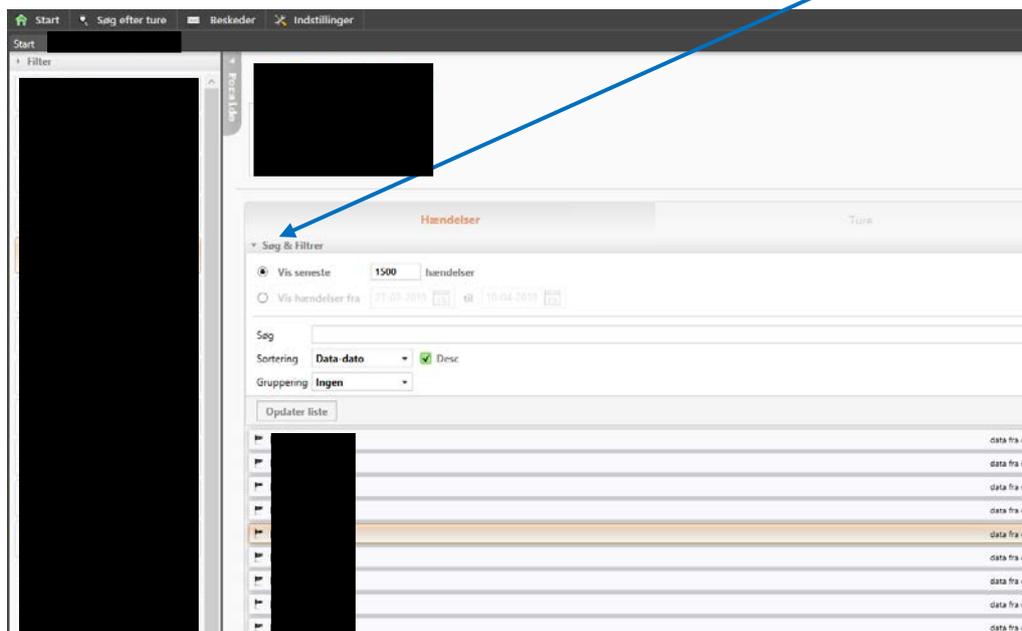
Blackbox login screen: log in using your **Username** and **Password**



Opening page shows the most recent data in BlackBox. In the left side you can choose the specific vessel you wish to work on. This way, you can make sure you only see data from that specific vessel.



The default setting only lets you see the latest 100 days of data. Open "Søg & Filter" ("Search & Filter"), and change the number to e.g. 1500 or 2000 days (or trips).



After choosing a specific vessel, you can only see dates from this vessel. In the middle is the list of all the data received from this vessel.

The screenshot shows the BlackBox Analytix (64-bit) - DTU Aqua software interface. The window title is "BlackBox Analytix (64-bit) - DTU Aqua". The menu bar includes "Start", "Sejlfiler ture", "Beskeder", and "Indstillinger". The main interface is divided into several sections. On the left, there is a "Filter" sidebar. The central area is titled "Hændelser" and contains a list of data entries. On the right, there is a "Seneste tur" section with a "Se på kort" button and a "Dato for data: Onsdag, 6 februar 2019" label. Below this is a button that says "Intet tur-data fundet". The data list in the center contains 30 entries, each with a date and time, such as "data fra d. 26-10-2018" at "10:00". Blue arrows point from the text above to the "Filter" sidebar, the "Hændelser" list, and the "Seneste tur" section.

Date and Time	Time	Alarm	Note
data fra d. 26-10-2018	10:00		
data fra d. 27-10-2018	08:59		
data fra d. 26-10-2018	08:59		
data fra d. 26-10-2018	02:04		
data fra d. 26-10-2018	01:15		
data fra d. 26-10-2018	01:14		
data fra d. 22-10-2018	01:17		
data fra d. 21-10-2018	01:17		
data fra d. 20-10-2018	01:13		
data fra d. 19-10-2018	01:11		
data fra d. 18-10-2018	01:15		
data fra d. 17-10-2018	01:13		
data fra d. 16-10-2018	01:16		
data fra d. 15-10-2018	01:16		
data fra d. 14-10-2018	01:11		
data fra d. 13-10-2018	01:15		
data fra d. 12-10-2018	01:15		
data fra d. 11-10-2018	01:26		
data fra d. 10-10-2018	01:00		
data fra d. 09-10-2018	01:00		
data fra d. 08-10-2018	01:00		
data fra d. 07-10-2018	01:02		
data fra d. 06-10-2018	01:02		
data fra d. 05-10-2018	01:02		
data fra d. 04-10-2018	01:02		
data fra d. 03-10-2018	01:02		
data fra d. 02-10-2018	01:02		
data fra d. 01-10-2018	01:02		
data fra d. 30-09-2018	01:00		
data fra d. 29-09-2018	01:01		
data fra d. 28-09-2018	01:23		
data fra d. 27-09-2018	01:15		

The left column indicates the name of the vessel.

The middle column contains the date, which should be written in the excel sheets.

The right column has information about what happens on the date with different logos.

Hændelser	Ture	Alarmer	Noter
	data fra d. 28-10-2018		29-10-2018 10:00
	data fra d. 27-10-2018		29-10-2018 09:59
	data fra d. 26-10-2018		29-10-2018 09:59
	data fra d. 25-10-2018		26-10-2018 02:04
	data fra d. 24-10-2018		25-10-2018 01:15
	data fra d. 23-10-2018		24-10-2018 01:14
	data fra d. 22-10-2018		23-10-2018 01:17
	data fra d. 21-10-2018		22-10-2018 01:17
	data fra d. 20-10-2018		21-10-2018 01:12
	data fra d. 19-10-2018		20-10-2018 01:11
	data fra d. 18-10-2018		19-10-2018 01:15
	data fra d. 17-10-2018		18-10-2018 01:13
	data fra d. 16-10-2018		17-10-2018 01:18
	data fra d. 15-10-2018		16-10-2018 01:16
	data fra d. 14-10-2018		15-10-2018 01:11
	data fra d. 13-10-2018		14-10-2018 01:15
	data fra d. 12-10-2018		13-10-2018 01:15
	data fra d. 11-10-2018		12-10-2018 01:29
	data fra d. 10-10-2018		11-10-2018 01:03
	data fra d. 09-10-2018		10-10-2018 01:03
	data fra d. 08-10-2018		09-10-2018 01:03
	data fra d. 07-10-2018		08-10-2018 01:02
	data fra d. 06-10-2018		07-10-2018 01:02
	data fra d. 05-10-2018		06-10-2018 01:02
	data fra d. 04-10-2018		05-10-2018 01:02
	data fra d. 03-10-2018		04-10-2018 01:02
	data fra d. 02-10-2018		03-10-2018 01:02
	data fra d. 01-10-2018		02-10-2018 01:02
	data fra d. 30-09-2018		01-10-2018 01:02
	data fra d. 29-09-2018		30-09-2018 01:01
	data fra d. 28-09-2018		29-09-2018 01:23
	data fra d. 27-09-2018		28-09-2018 01:15

Logos/symbols meanings:

- A boat indicates that the vessel has left the harbour
- The green camera symbol = video is present
- The grey camera symbol = no video (it exists but has not been uploaded yet, or it has been deleted)
- The blue check-symbol indicates that this date has been checked and that it is a day with gillnet fishing.
- The black symbol indicates that this date has been checked and that it is a date without gillnet fishing

Mark a date that you want to look at and click on the “Se på kort” (“View on map”) button in the top right corner to open the data of that date.

The screenshot shows the BlackBox Analyzer (64-bit) - DTU Aqua interface. The main window displays a list of events under the 'Hændelser' tab. The list is sorted by date, with the most recent event at the top. The selected event is dated 13-02-2018. A blue arrow points from the text above to the 'Se på kort' button in the event detail panel on the right.

data fra cl.		
27-02-2018 01:12		
26-02-2018		
25-02-2018 01:16		
24-02-2018		
23-02-2018 01:17		
22-02-2018		
21-02-2018 01:16		
20-02-2018		
19-02-2018 01:16		
18-02-2018 01:13		
17-02-2018 01:18		
16-02-2018 01:16		
15-02-2018 01:19		
14-02-2018 01:16		
13-02-2018 01:13		
12-02-2018 01:13		
11-02-2018 01:11		
10-02-2018 01:16		
09-02-2018 01:16		
08-02-2018 01:17		
07-02-2018 08:00		
05-02-2018 01:16		
01-02-2018 01:13		
01-02-2018 01:16		
31-01-2018 01:14		
30-01-2018 01:16		
28-01-2018 01:15		
28-01-2018 01:15		
27-01-2018 01:13		
25-01-2018 08:00		
05-12-2017 01:14		

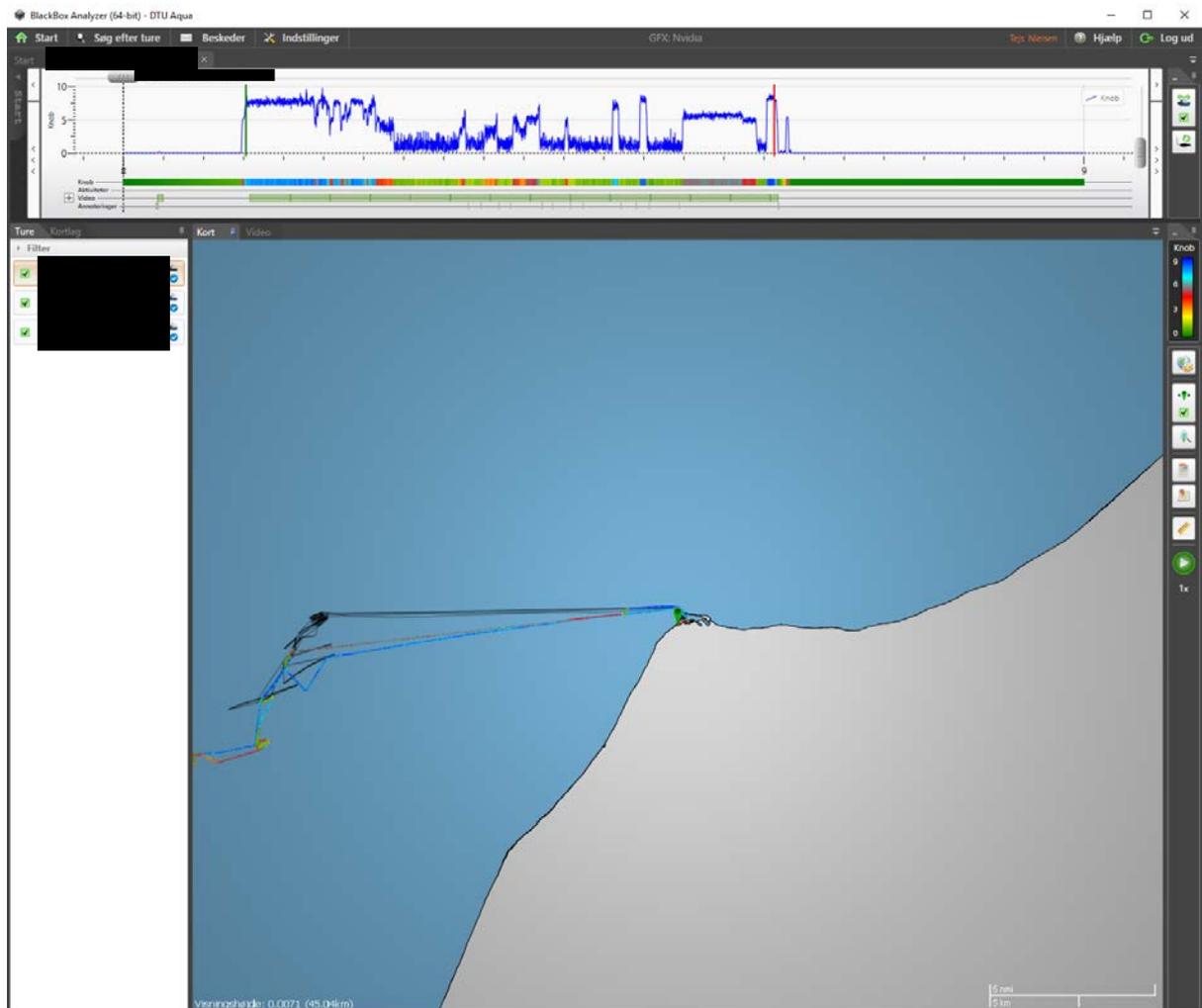
Hændelse

Se på kort

Oprettet: Onsdag, 14 februar 2018
Data for data: 13-02-2018
Hændelsestype: Dags-data uploadet

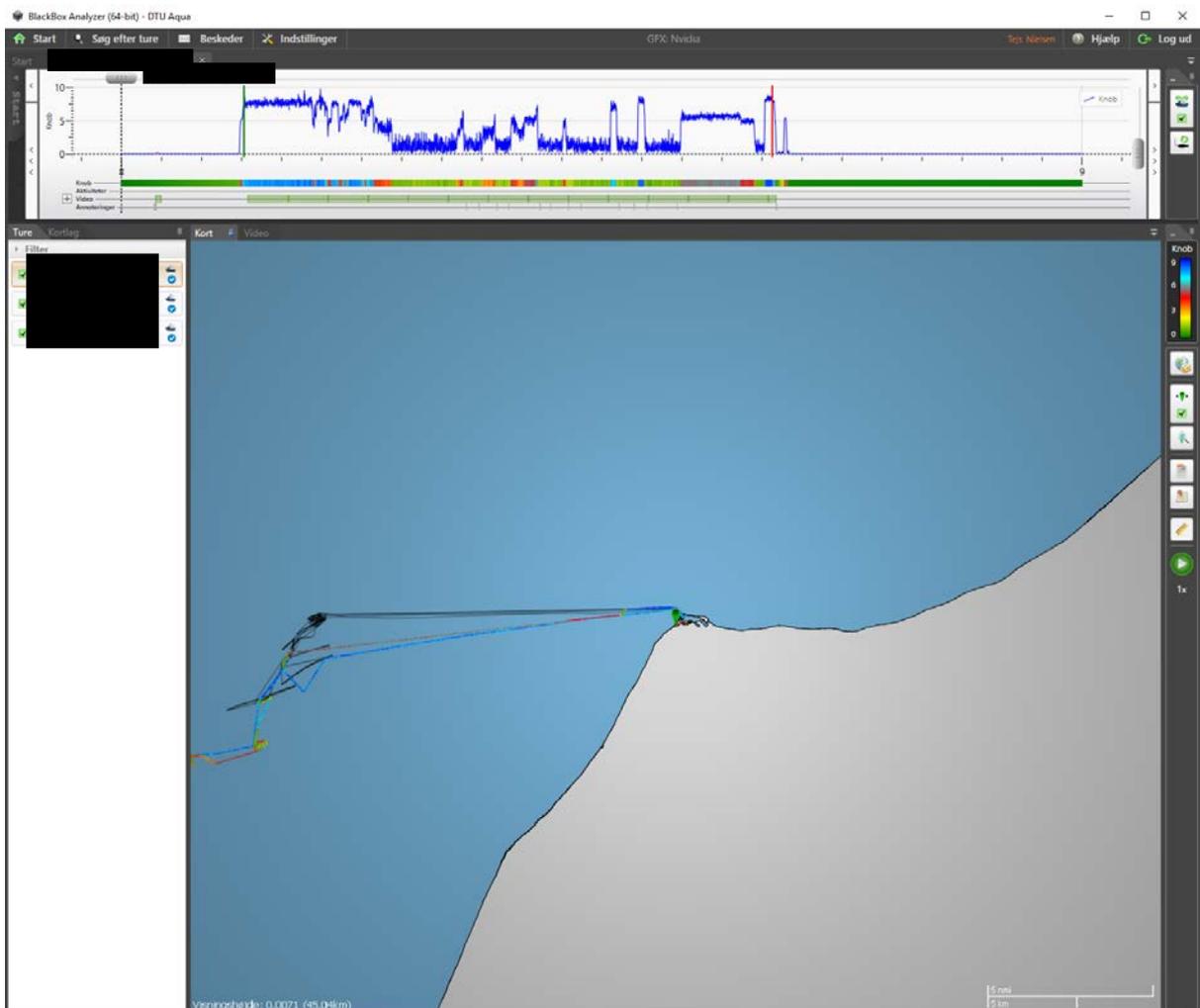
Tur start: 06:40:29 (13-02-2018) → Tur stop: 12:51:52 (13-02-2018)

Once the data from a specific day is open, the layout looks like the following:



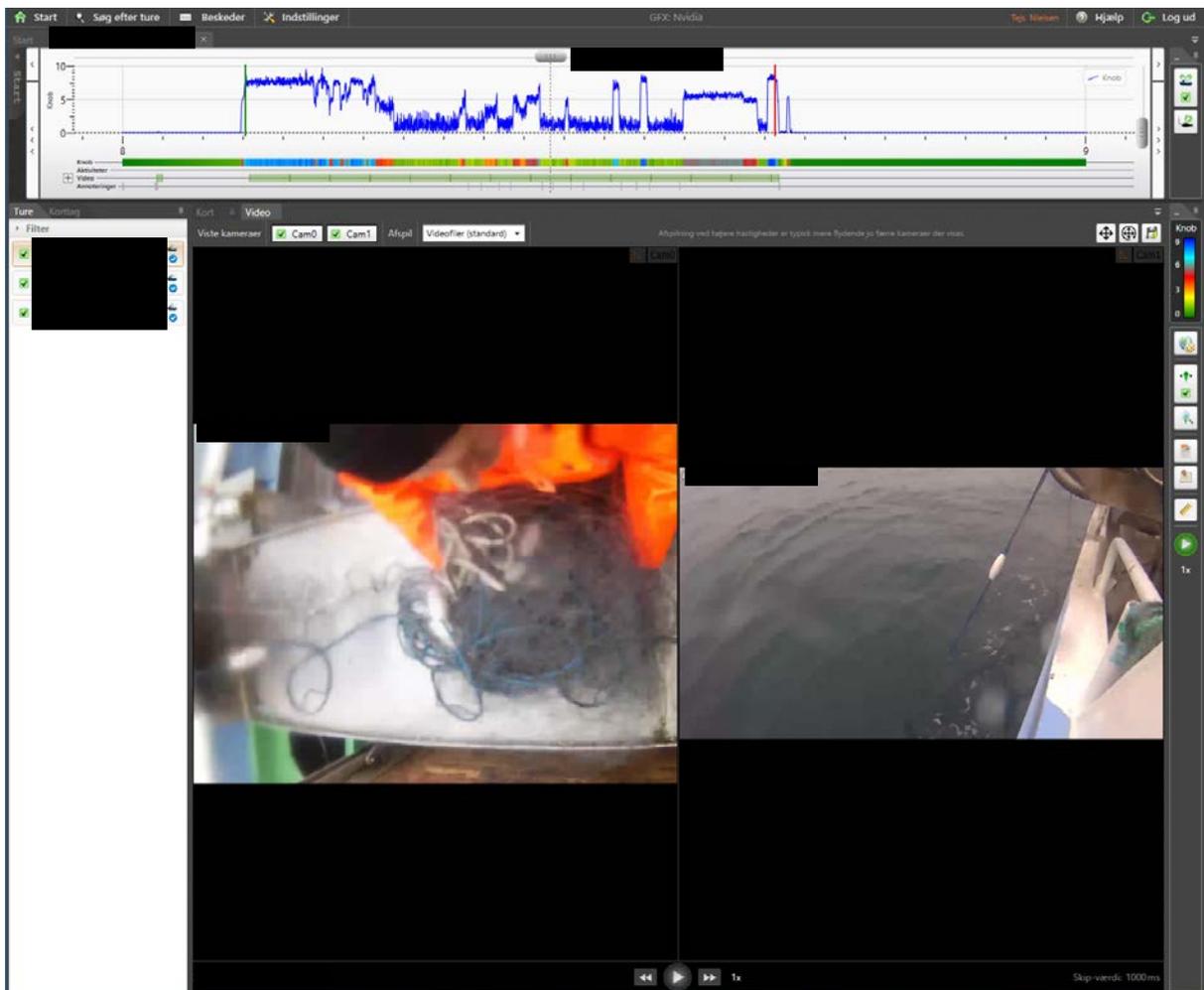
- In the left column, next to the map, you can choose which date to watch.
- Days not chosen will still be shown as shadow lines in the background. These can be removed by unchecking the boxes.
- The layout of the map can be changed above the dates. Here, you can apply certain layers to the map e.g., Restricted areas.
- By using the scroll function on the mouse, it is possible to zoom in and out on the map, as well as on the top panel (with the blue speed line and the colours).
- There are several additional tools available on the right side of the map that can be helpful. Read more about these in the BlackBox manual.
- It is possible to add filters/layers to the map by clicking on the “Kortlag” (“Layers”) button located just above the days on the left side. Read more about this in the BlackBox manual.

- The map shows the coordinates of the vessels on the selected date/dates.
- The grey pin can be used to choose at what time of the trip you wish to watch.
- The speed is shown in two ways: A blue line indicating speed (knot/knots) by height, and a bar below the blue line indicating speed (knot/knots) by colour (slow → medium → Fast). The coloured speed bar matches the tracking line of the vessel on the map.
- The video bar indicates that video is present at the given time.
- The bottom bar (“Anmodninger” or “Annotations”) contains all annotations.
- The green marker (📍) on the map is linked to the grey pin (in this case in the harbour) and shows the location of the vessel at any given time.



When opening the video tab, the layout looks like this.

- There are usually two cameras (1 showing the outside, and 1 showing the inside of the gillnet), but this can vary from vessel to vessel. The cameras are linked to the grey pin.
- Above the video-windows, the camera names are shown (cam0, cam1, cam...). You can choose which camera are showing video here, by checking/unchecking, or simply by double clicking on the video frame you wish to enlarge.
- To zoom in on the cameras simply scroll in on them with the mouse.
- The placement and size of the cameras can be changed on the  button, right of the camera names.
- At the bottom, you can select the watching-speed on the   buttons and play/pause of the video on the  button (this is easier with key bindings / using the keyboard, see the manual for more details on how to set it up).
- You can move back and forth frame by frame, using the keyboard up and down arrows.



NB: You can zoom in on the cameras by using the scroll function on the mouse.

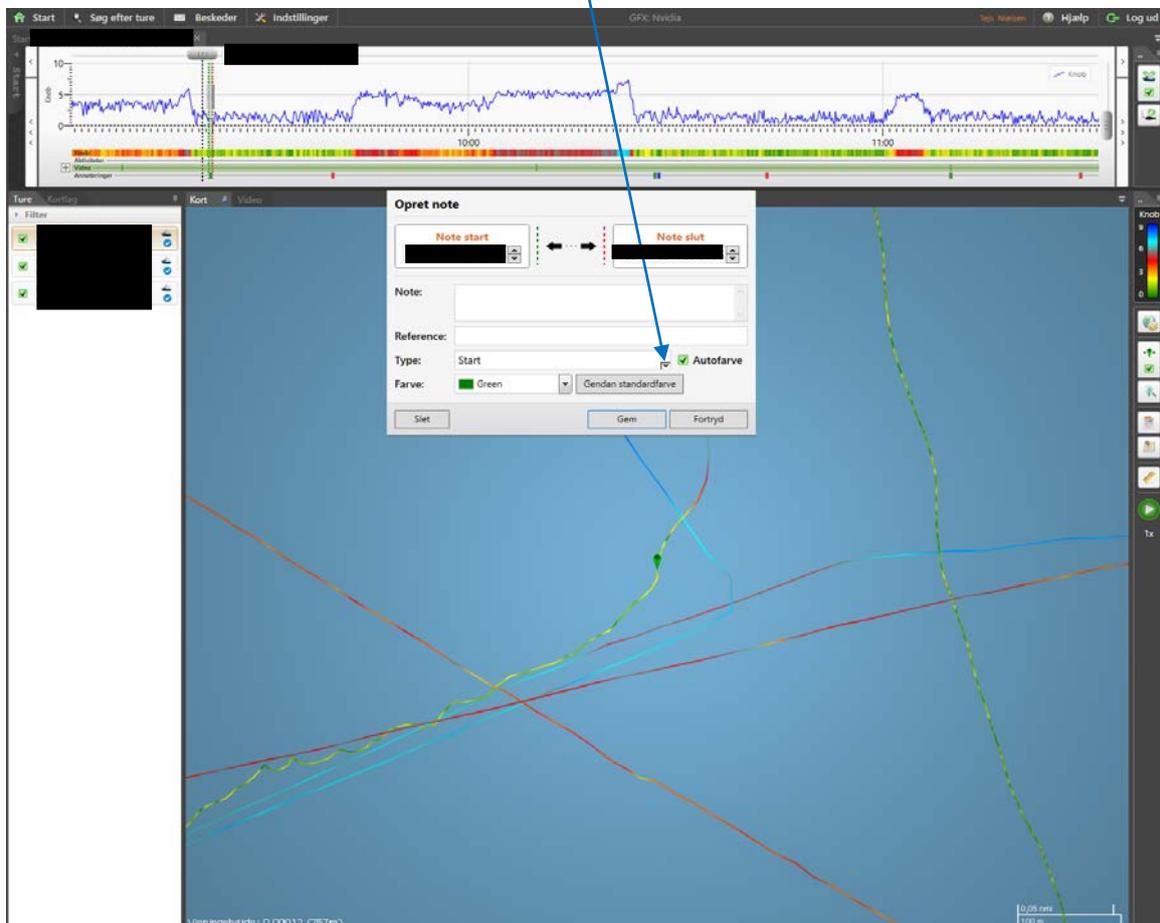
It is important to make annotations at the right moments, as this is usable data, and ensures that the data is easily controlled. Make sure to place the annotations as precise as possible, the annotation is placed where the grey pin is. Annotation categories are colour coded and symbolize different scenarios. To create a new annotation, press “CTRL+n”, then select the desired type between:

- Anchor 1 (**palegreen**) marks the start of setting a net.
- Anchor 2 (**Lightsalmon**) marks the end of setting a net.
- Andet (**orange**) is used for anything you find worth mentioning, use it as a note.
- Bird (**blue**) marks a bycaught bird (**1 annotation per bird caught**)
- Mammal (**black**) marks a bycaught mammal (**1 annotation per mammal caught**)
- Pinger (**yellow**) marks a pinger.
- Plastic (**purple**) marks any type and size of plastic (**1 annotation per piece of plastic**)
- Seal damage (**pink**) marks fish damaged by seals (**1 annotation per seal damage caught**)
- Start (**green**) when the net hauled emerge from the water.
- Stop (**red**) marks when the last of the net hauled enters the boat.

Feel free to write anything relevant to that particular annotation in the note box, e.g., write “bird falls out of net”, in the bird (blue) annotation if this is the case.

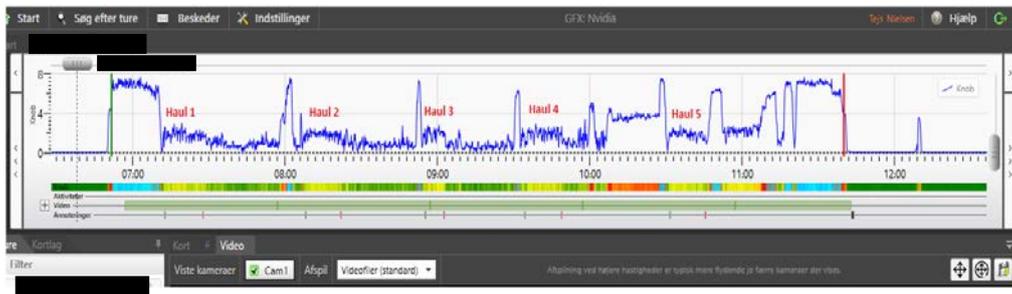
For general notes use the “Andet” (orange) annotation e.g., “he caught a shark”.

You find the different types of annotation [here](#) (the colour of the annotation is preset and will show when you select the type of annotation – remember: DO NOT select colour, but type), and annotations will be shown in the bottom of the panel section.

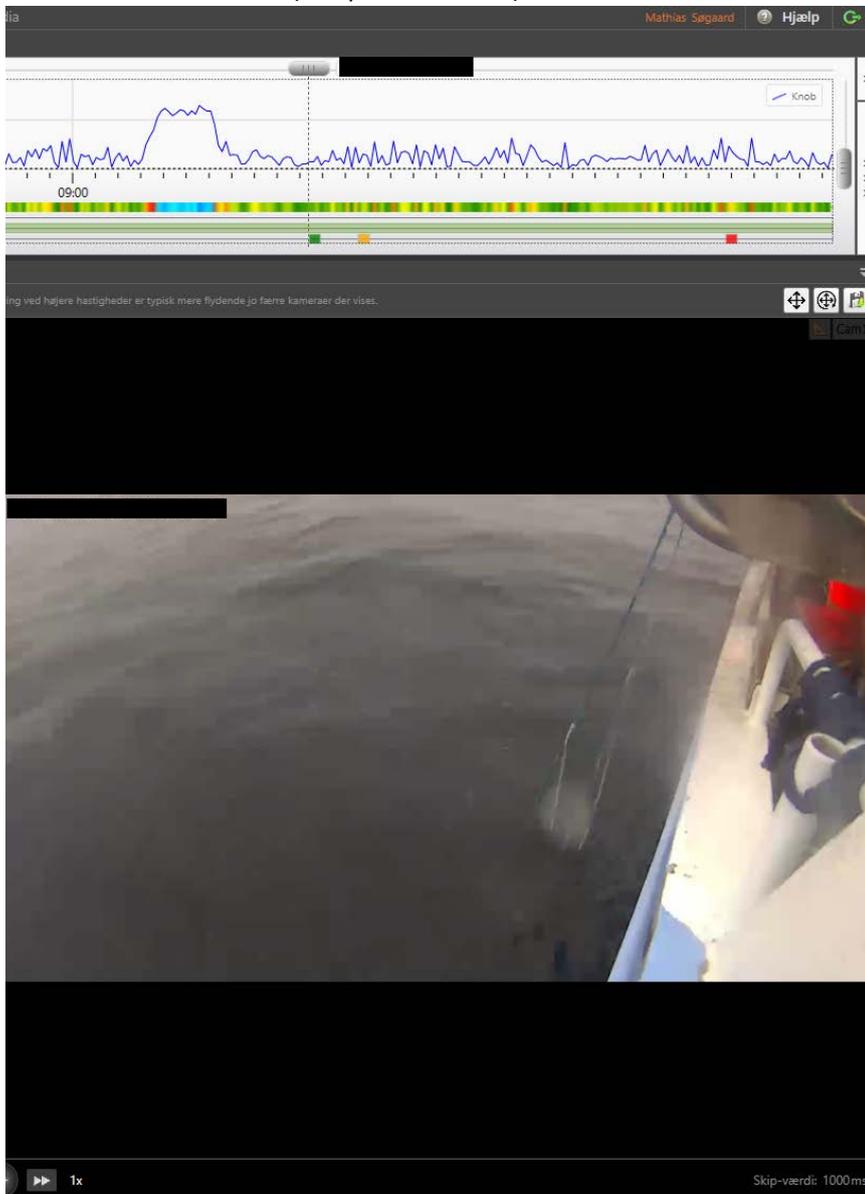


NB: there might be other annotation types than mentioned above, but do not use them.

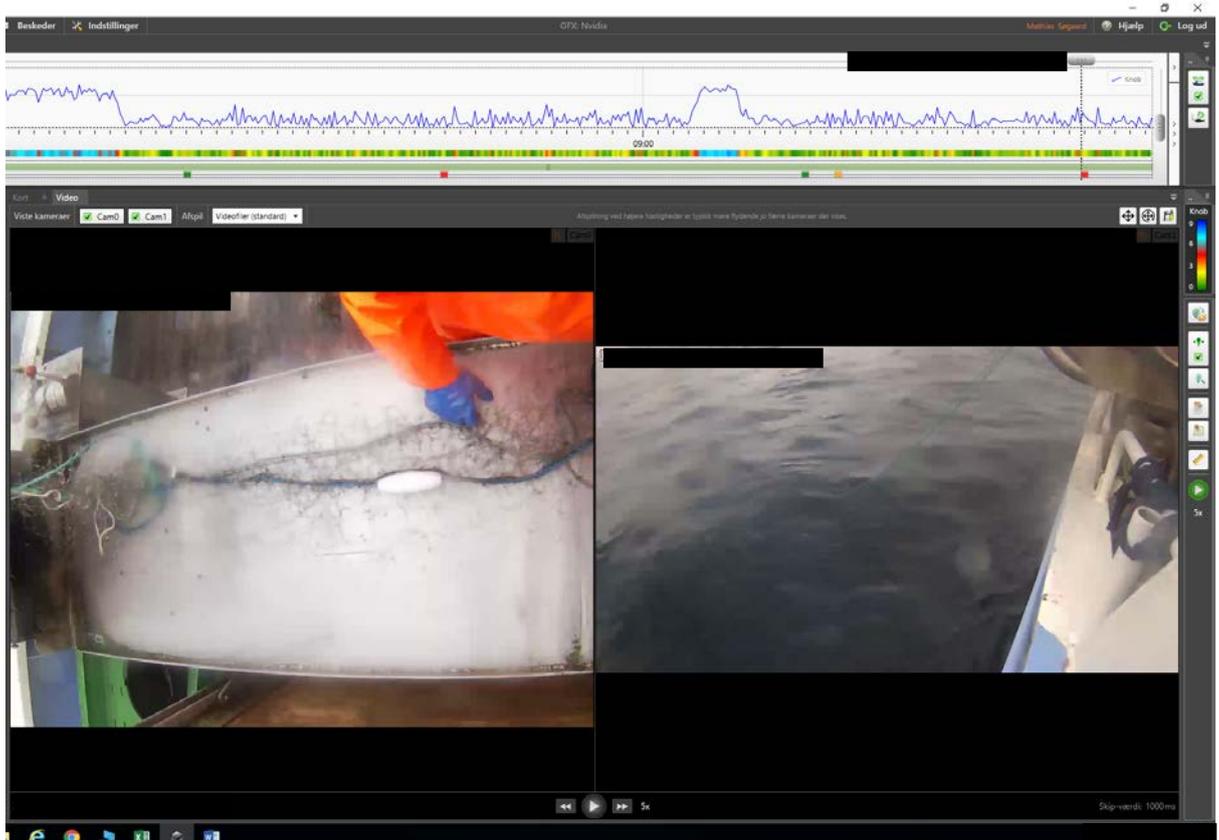
Hauls are usually easy to spot, as they have a distinct pattern on the blue line (speed / knob) (individual for vessel and season).



- When you have detected a possible haul, you check on the video to ensure that it is a haul.
- Then mark the start of the haul with the “**START**” annotation when the net emerges from the water (see picture below).

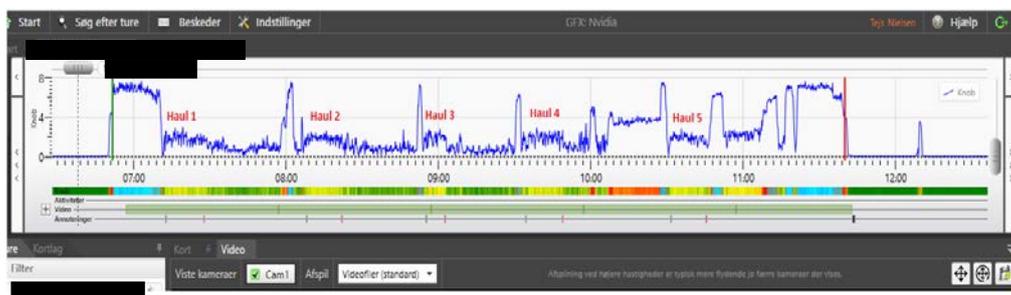


When the net has been hauled, mark the end of the haul with the “STOP” annotation, as the last part of the net leaves the water.



NB: It is VERY important to finish a haul before leaving the office! Do NOT leave a “start” annotation without a corresponding “stop” annotation after it!!! Always watch a haul all the way through! DO NOT LEAVE A HAUL UNFINISHED!

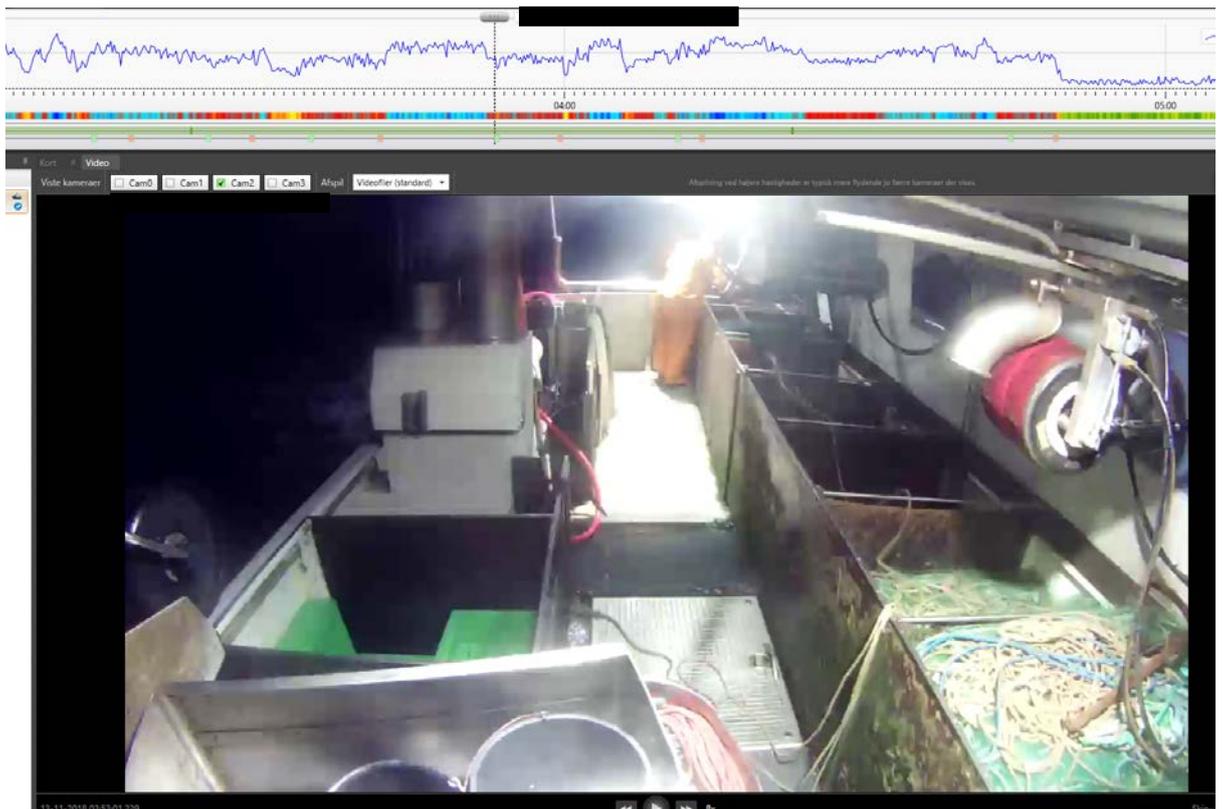
- In cases where there is no video, it is still possible to mark the hauls and sets. This is done by recognizing the specific haul and set pattern, of the vessel.
- Here it is possible to set the 5 hauls, without watching the video!
- In these cases, make sure to write *estimated* in the annotation note box, and in the column “comment” in the excel sheet.



NB: You need experience and also to be familiar with the specific vessel to be able to recognize sets and hauls without video.

Identifying and marking the setting of nets with “Anchor1” and “Anchor2” uses the same principles as marking the hauls:

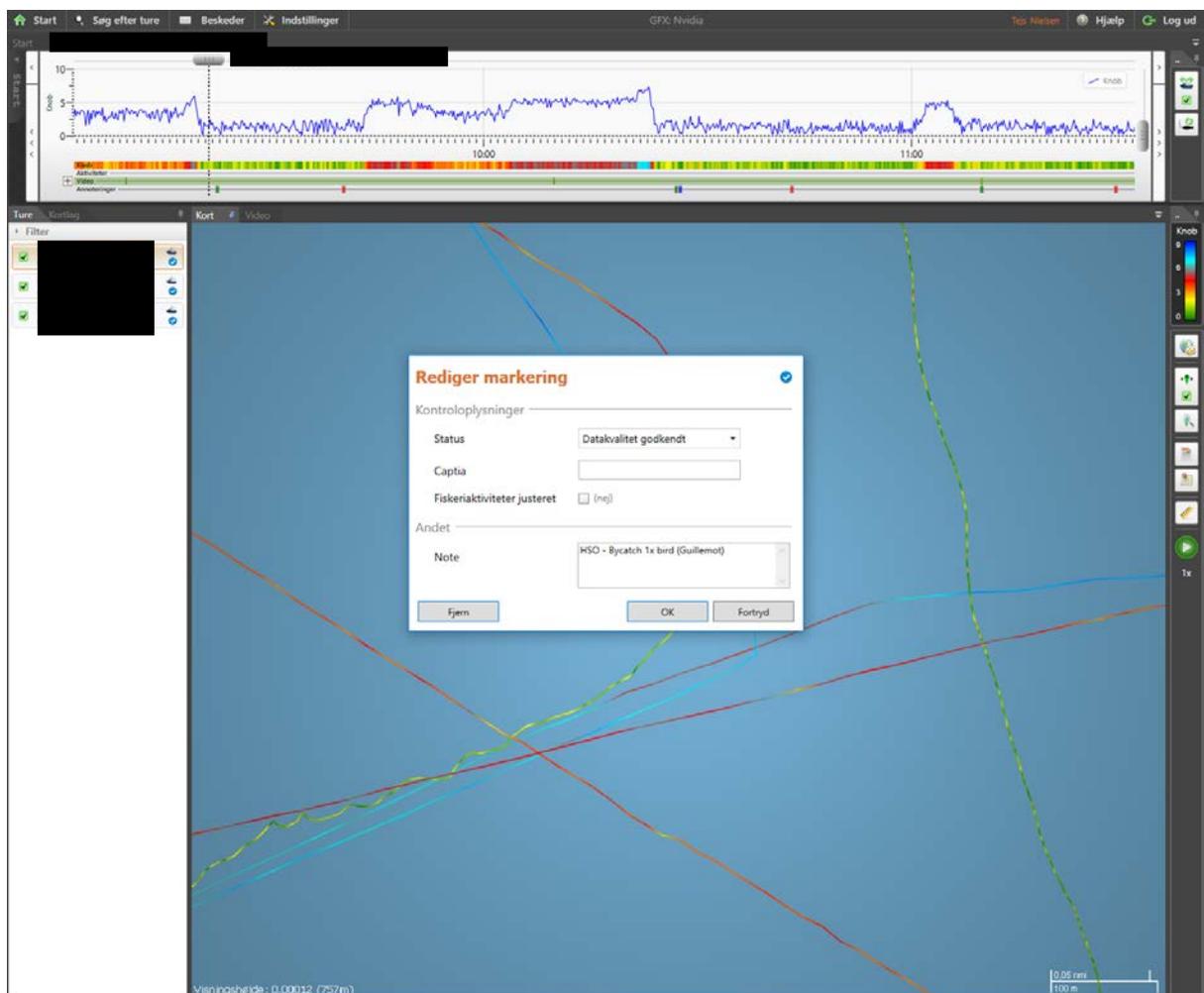
- Find a possible setting of net, and verify with video if possible (e.g., the fisherman throwing an anchor or buoy into the water or going to the back of the vessel several times).
- Use the “Anchor1” annotation when the first anchor is thrown in the water, and “Anchor2” annotation when the last anchor is thrown.
- If there is no video, make sure to write *estimated* in the note box of the annotation, and in the column “comment” in the soak time excel sheet.

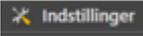


NB: You need experience and also to be familiar with the specific vessel to be able to recognize sets and hauls without video.

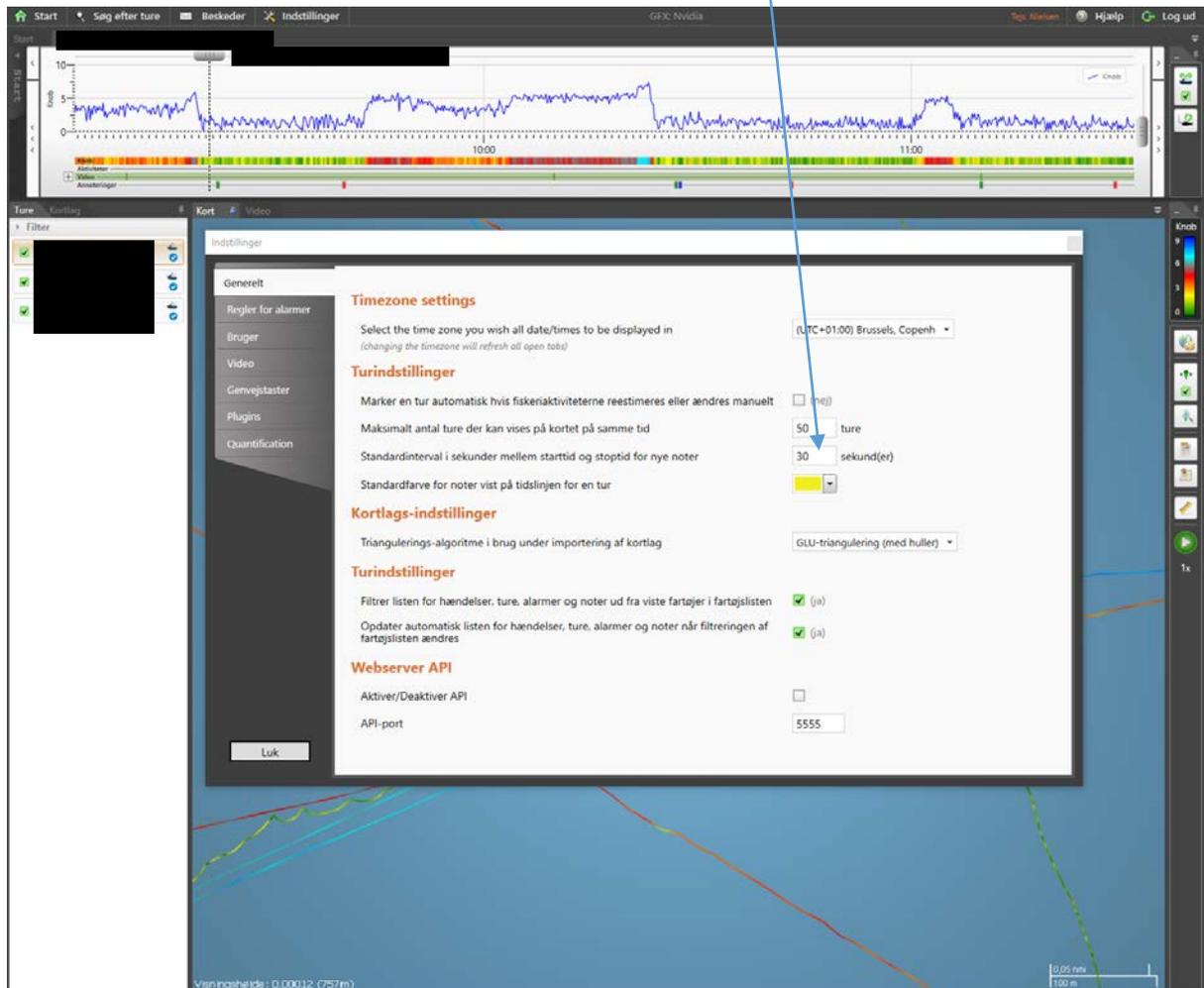
- When all the video has been watched and all annotations are placed, you need to mark that the date has been watched. This is done by clicking on the notepad  on the right side of the screen.
- If there was hauling of gillnets on the trip, and you have watched it all, you give the status: **“Datakvalitet godkendt”** (**“Data quality approved”**) and the date will receive a blue checkmark.
 - You then write your initials, and **“OK”** in the note box, as well as with any important information e.g., *bycatch caught* (as shown on the picture, the specific species of bycatch is not required).
- In cases with no hauling of gillnets, you give the status: **“Andet”** and the date will get a black exclamation mark.
 - You write your initials and NF or No Fishing in the note box.

NB: In cases with no video or no GPS, always mention this in the notebox.

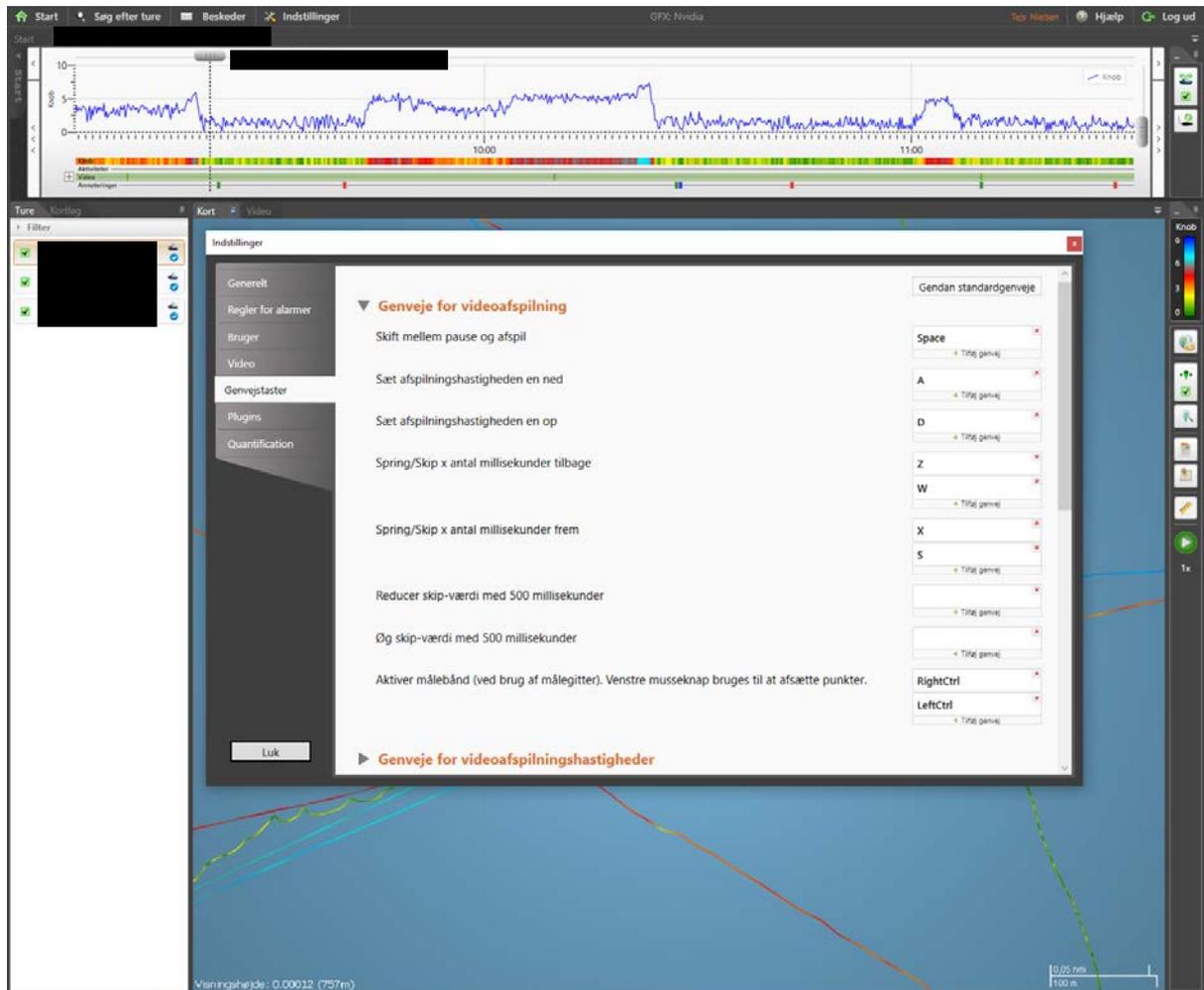


To change the setting of your BlackBox user profile, go to “Indstillinger” (), or “Settings”) in the top of the screen. You primarily only make changes in the “Generelt” section (“General”), and you can modify key bindings in the “Genvejstaster” section (“Shortcuts”).

In “General”, you can change the standard interval for annotations, which should be 30 seconds. This will also change the length of the annotation marks on the graph.



In “Shortcuts” (“Genvejstaster”) you can change the key bindings to fit how you prefer it. Whether you want to start and stop the video on “space bar”, or if you want to go back and forth or change the video speed on the arrow keys or on “WASD”.



Remember to write all data
into the correct excel sheets
(bycatch or soak)

Notes for writing data into Excel

General rules for all columns

NO spaces allowed!*

NO CAPITAL letters are allowed – only **small** letters!*

*Capital and spaces are allowed in the **comment column** and ONLY here!!!

If you are in doubt about anything, ASK!!! Either by mail or in person.

Name

Simply write your given initials, so that it is known who has written the data e.g., TGN or HSO.

Date

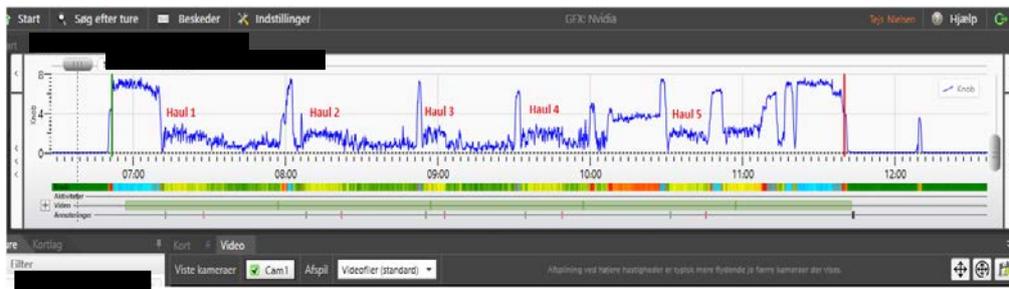
This is the date of the trip and is written day-month-year e.g., 16-03-2018 (the 16th of March 2018)

If you are writing in the date from the “**Start**” tab, make sure you use the date in the middle. The date on the right is when the data was received in Blackbox.

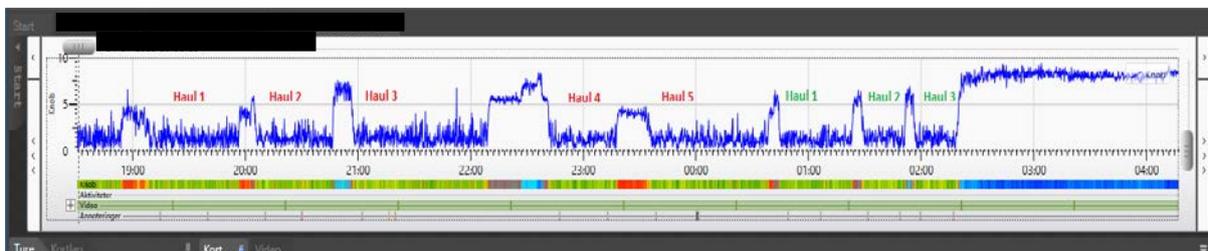
data fra d. 15-02-2018	16-02-2018 01:16
data fra d. 14-02-2018	15-02-2018 01:19
data fra d. 13-02-2018	14-02-2018 01:18
data fra d. 12-02-2018	13-02-2018 01:15
data fra d. 11-02-2018	12-02-2018 01:11
data fra d. 10-02-2018	11-02-2018 01:18
data fra d. 09-02-2018	10-02-2018 01:18
data fra d. 08-02-2018	09-02-2018 01:16
data fra d. 07-02-2018	08-02-2018 01:17

Haul number (haul – in excel)

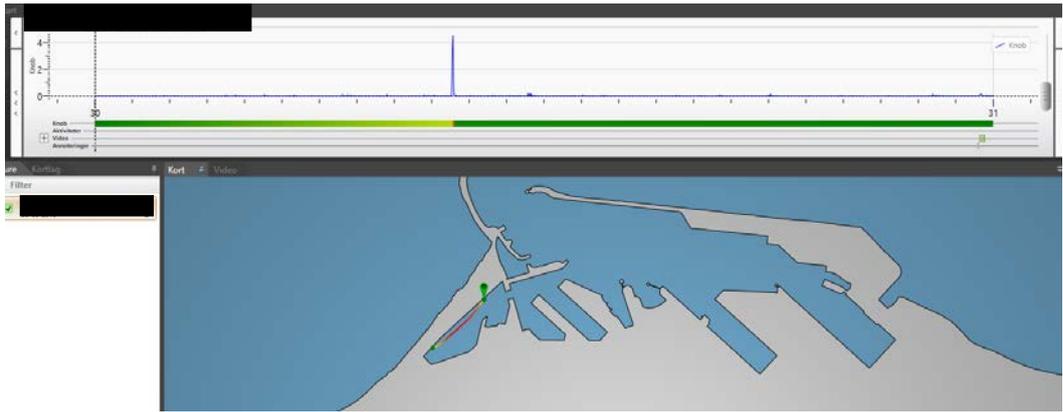
There might be several hauls in a day, so write the haul number e.g., 1, 2 or 3 etc.



OBS!! Hauls are numbered by date **NOT** by trip, so the date of the haul can shift in a trip, just as the **red** and **green** haul in the picture below.



In cases with no gillnet fishing on the date, there should be written NF = no fishing, and all other columns should be NA with the exception of GPS, which is still 1 = present 0 = not present.

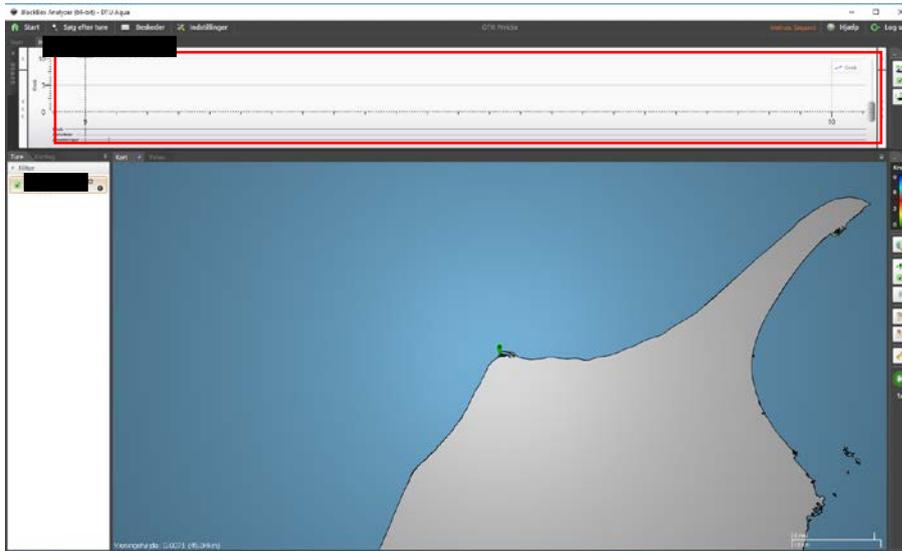


In cases with no video on the date, but with GPS present, it is possible to estimate hauls and setting of nets via the GPS. The number of hauls should be written as normal.



This is a haul based on the speed shown by the GPS, there is no video.

In cases with no video and no GPS on the same date, there should be written ND = no data, and all other columns should be NA with the exception of GPS, which is 0 = not present.



The picture is showing a ND case, as there is no GPS (blue speed line) or video present on the video bar.

Pinger

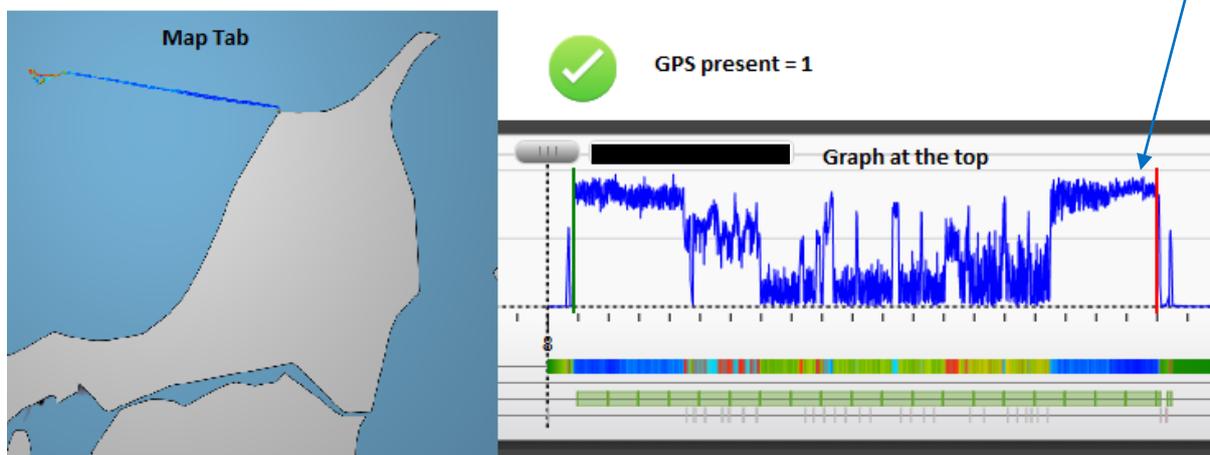
Certain vessels have pingers on the gillnets, they are visible when the net first comes out of the water, and looks like a larger floater, which holds the gillnet upright in the water.

Pingers are marked as: 1 = present; 0 = not present

GPS

The GPS is present if the route of the vessel is shown in the map tab or if the speed (the blue line) is shown in the graph at the top, when a trip is opened.

GPS is marked as: 1 = present; 0 = not present



OBS: Even when the vessel is not on a trip the GPS might still be working. Look closely at the vessel in the harbour and look for a GPS signal.

Bycatch

- If a bycatch is caught in a haul, being a mammal or a bird, register it as:
 - 1 = bycatch caught
 - 0 = no bycatch caught.

ALWAYS register the possible bycatch if in doubt, Gildas, Lotte or Anne-Mette will validate it. Remember to write in the comments column if you are not sure about a bycatch!

- We only register bird and mammal bycatches; other interesting catches may be noted in the comments and with an **“Andet”** annotation in blackbox.
 - If a live seagull is stupid enough to get caught in the gillnet, it should **not** be registered as bycatch. However, it should be written in the comments in excel and the **“Andet”** annotation.
- In cases with **multiple bycatches** in a single haul there should be made extra rows in excel so that each bycatch is represented with one row. This means that almost every column in these rows will be identical, except for the “type” and “spp” column, which might be different. The “bycatch” column may ONLY be marked 1 or 0, and NOT 2 or 3 etc!



Bird bycatch.



Bird bycatch



Porpoise bycatch



Seal bycatch

Type

Write down what type of bycatch are caught e.g., mammal or bird.

If you are unsure whether it is bycatch or not (due to bad video quality etc.), ALWAYS register it as possible bycatch with a “?” at the end of the type e.g., mammal? Or bird? And also remember to write it in the comments column.

SPP

If the bycatch is a mammal, write down what kind of mammal it is as specific as possible e.g., seal, porpoise, whale.

If the bycatch is a bird, **leave blank** in the Bycatch Sheet! Gildas will register the species himself.

Status

Leave blank in the Bycatch Sheet

This column is only for Gildas.

Sealmarks

If one or more of the fish have been partially eaten by seals, write a 1 = seal damage, 0 = no seal damage. Seals will most likely eat the stomachs of the fish and leave the head, but this can be difficult to determine.

Video Quality (Vid qual – in excel)

- 1** = Perfect quality (very rare!!)→ you can clearly see what is going on, without the camera being blurred or covered in any way.
- 2** = Good quality → The camera is a little blurred, but you can still see what is going on.
- 3** = Bad quality → it is hard to tell different species from each other, e.g., macro algae from potential birds.
- 4** = Impossible quality (very rare!)→ it is not possible to distinguish what is coming up, you can't tell a cod from a seal or even spot a whale (basically a black/grey screen).

Cameras working (Camera – in excel)

- 1** = At least 2 cameras working, 1 on the inside of the boat and 1 on the outside of the boat
- 2** = Only camera(s) on the outside works
- 3** = Only camera(s) on the inside works
- 4** = No cameras are working on the inside or the outside.

OBS!!! Cameras are only taken into account **IF** the show the gillnet!

Soak

Leave blank in the Bycatch Sheet

For further information about soaktime calculation, see soak protocol.

Comments

In this column you are free to write anything you find interesting or worth mentioning. E.g. "hard to see anything due to a lot of macro algae in the gillnet" or "2 sharks caught"

Netcolor

Write down the colour of the gillnet (not the floaters) e.g., blue, orange, green etc. Note that the net can be without colour (transparent). In cases with multicoloured net (change in net colour within a haul) write both colours in the order seen with a "+" sign between e.g., blue+orange+transparent. The net colour is most easily determined on the inside camera.



Orange net colour



green net colour

Target

- Write the main fish species the vessel is targeting.
- There can be multiple targets, which is mostly the case.
 - If there are multiple target fish, write down the fish that are caught the most and then the second most and so forth with a “+” sign in between e.g., cod+flatfish (This means that the main target is cod, but the vessel also catches a lot of flatfish).
 - Do not register fish if just 1-2 are caught in a haul, as this would not be a target fish. However, if only two fish are caught in a haul and they are known target fish, these are the target. If there are only caught 2 fish and it is 2 cod, the target is cod.
- The target varies between vessels, areas, and season. Target fish are mostly cod, flatfish, saithe. Other known targets are hake, lumpsuckers, and monkfish.

Seen

The Seen column is only referring to the bycatch, if there is no bycatch, write “NA”

IF you are SURE a fisherman has seen the bycatch. 1 = bycatch seen; 0 = bycatch not seen.

