

Extract of Furuno FEA-2107 ECDIS Operations Manual

11. Chart Alarms

11.1 General

The ECDIS can detect areas where the depth is less than the safety contour or detect an area where a specified condition exists. If you plan a route or if prediction of own ship movement goes across a safety contour or an area where a specified condition exists, the system will display a visual alarm or sound an audible alarm to alert you to impending danger. For this function, the ECDIS utilises the chart database (S57 charts) stored on the hard disk in SENC format. Note that the ECDIS calculates dangerous areas using the largest scale chart available, which may not be the visualised chart.

You can choose objects which are included for calculation of danger area (for example, restricted areas). A window lists the various areas which activate danger warnings.

You can also define your own safe area by creating a user chart area. The system can utilise these areas when calculating chart alarms. This is very useful with raster chart material such as ARCS.

The ECDIS can check the following for you:

- Predicted movement area of own ship
- Planned route with an easy to use locator function to find dangerous areas

The ECDIS will highlight the following for you:

- Dangerous areas inside predicted movement area of the own ship
- Dangerous areas inside your monitored route
- Dangerous areas inside your planned route

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11.2 Chart Alarms

Official S57 chart material contains depth contours which can be used for calculation of chart alarms. A chart database also includes different types of objects which the operator can use for chart alarms. The procedure for setting chart alarms is outlined below.

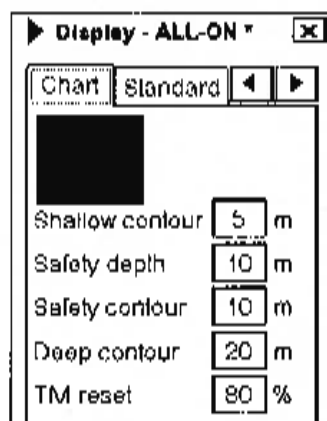
1. Choose suitable safety contour for your own ship. See paragraph 11.2.1 "Choosing safety contour".
2. Check that "Chart Alarms" is set for display. See paragraph 11.2.3 "Highlighting chart alarm". If you want chart alarms to be included in some other objects or areas, choose them for indication or alarm. See paragraph 11.2.2 "Choosing objects in chart alarms".
3. In the route planning mode, define a new route or choose an existing one. Make a chart alarm calculation of the route if there are indications of danger areas in the route. For more information, see paragraph 11.5 "Route Planning". Modify your route if necessary and do the chart alarm calculation again.
4. Choose route as monitored route.
5. Set watch sector for your own ship.

The system is now ready for chart alarm calculation of monitored route and estimated own ship position.

11.2.1 Choosing safety contour

User has to choose safety depth suitable for the own ship. To choose suitable depth, do the following:

1. Spin the thumbwheel to display Chart Display/Info/Standard Display in the mouse functions area and then push the left mouse button.
2. If the Chart page is not displayed, click the Chart tab to display it.



3. Enter desired depth in the Safety contour field.

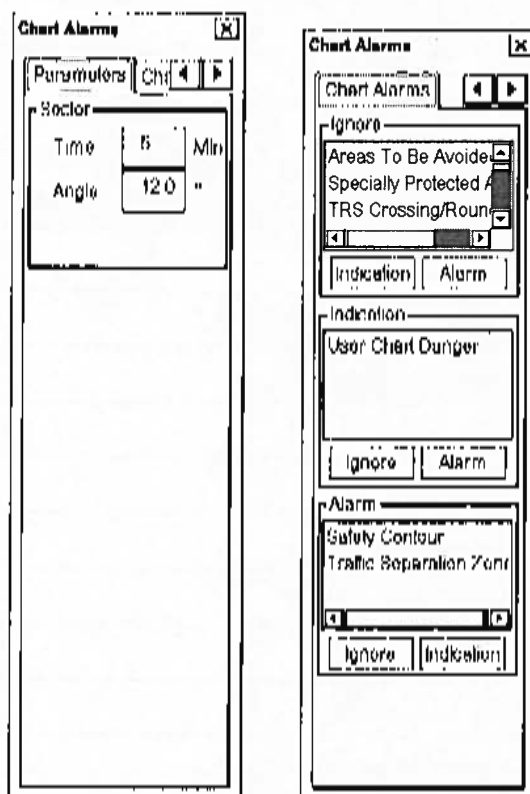
Note: If the chart does not contain chosen depth contour, the system will automatically choose next deeper contour.

In the example above the safe water depth is set for 10 m.

11.2.2 Choosing objects used in chart alarms

You can also include calculation areas which have to be noted when sailing (for example, restricted areas). To include these areas in chart alarms, do the following:

1. Spin the thumbwheel to show Menu/Info/Chart Menu in the mouse functions area and then push the left mouse button.
2. Choose Initial Settings from the menu and then push the thumbwheel.
3. Place the cursor on the triangle inside the Initial Settings dialog box to open the Initial Settings menu.
4. Choose Chart Alarm parameters and then push the thumbwheel.
5. Click the Chart Alarms tab to show the Chart Alarms dialog box. In the Ignore box at the top of the window, use the left mouse button to click the alarm item you wish to process.
6. Choose what alarm type you desire. Click the **Indication** button to display visual alarm, or **Alarm** button to get the audible alarm. The item chosen is moved from the Ignore box to the Indication or Alarm box as appropriate.
7. To remove an alarm, click it in the Indication or Alarm box with the left mouse button and then click the **Ignore** button. To change an alarm alert method, click it in the Indication or Alarm box with the left mouse button and then click the **Indication** or **Alarm** button as appropriate.
8. Click the Parameters tab with the left mouse button.
9. Time and sector angle are explained in paragraph 11.4 "Activating Own ship Check". Set them appropriately.



In the above example, the system will display a visual indication when crossing "User Chart Danger" and the audible alarm when crossing "Safety contour" and "Traffic Separation Zone".

11. Chart Alarms

List of areas

There are the areas which the ECDIS detects and provides the audible alarm or visual indication if estimated own ship position or planned or monitored route cross the area defined on the Chart Alarms page. You can choose from the following areas:

Fairway	Cargo Transshipment Area
Restricted Area	User Chart Danger
Caution Area	Traffic Separation Zone
Offshore Production Area	TRS Crossing/Roundabout
Military Practise Area	TRS Precautionary Area
Seaplane Landing Area	Two Way Traffic Route
Submarine Transit Lane	Deep Water Route
Fishing Ground	Recommended Traffic Line
Pipeline Area	Inshore Traffic Zone
Cable Area	Ice Area
Anchorage Area	Channel
Anchorage Prohibited	Fishing Prohibited
Dumping Ground	Spoil Ground
Incineration Area	Dredged Area

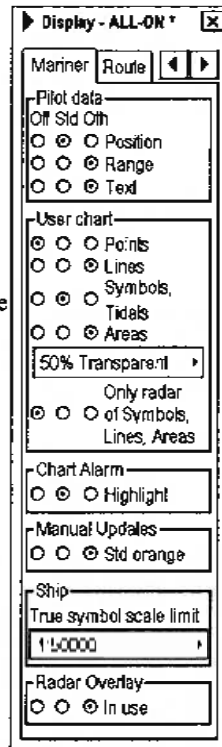
Note: Areas To Be Avoided and Specially Protected Areas are collections of certain types of areas. If you choose either of them, a group of areas will trigger an indication or audible alarm. The table below shows which areas are chosen if Areas To Be Avoided or Special Protected Areas is chosen.

Areas To Be Avoided	Specially Protected Areas
Fairway	Fishing Ground
Restricted Area	Pipeline Area
Caution Area	Cable Area
Offshore Production Area	Anchorage Area
Military Practise Area	Anchorage Prohibited
Seaplane Landing Area	Dumping Ground
Submarine Transit Lane	Incineration Area
	Cargo Transshipment Area

11.2.3 Highlighting chart alarms

The user can choose the level of transparency of the chart alarm highlight. Follow the procedure below to choose the level of transparency.

1. Spin the thumbwheel to show Chart Display/Info/Standard Display and then push the left mouse button.
2. Click the right or left arrow tab to choose the Mariner page, as shown right.
3. In the User chart box, place the cursor in the combo box, spin the thumbwheel to choose level of transparency desired and then push the thumbwheel.
4. In the Chart Alarm box, choose Std or Other position to enable highlighting of alarm area.



11.3 Inserting User Chart Symbols, Lines and Areas in Chart Alarm

Symbols

For user chart symbols, use the option Danger Symbol in the Symbol page of the Plan User Chart dialog box. To display this box, do the following:

1. Place the cursor on UserChart on the status bar.
2. Click the Plan button to show the Plan User Chart dialog box.
3. Click the Symbol tab.

To include symbols in the chart alarm, first check the Enables changes box and then check the Danger Symbol box of the Plan User Chart dialog box. Danger Symbol must be checked, otherwise danger symbols of a user chart cannot be used in the chart alarm. The dangerous symbol is drawn in red instead of dark yellow (color may be different depending on Palette in use).

In the Symbol page, you can include symbols in the chart alarm by checking Danger Symbol.

Lines

To include lines in the chart alarm, check the Danger Line box in the Line page of the Plan User Chart dialog box. Danger Line must be checked, otherwise danger lines of a user chart cannot be used in the chart alarm. The dangerous line is drawn in red instead of dark yellow (color may be different depending on Palette in use).

In the Line page, you can include lines in the chart alarm by checking Danger Line.

Areas

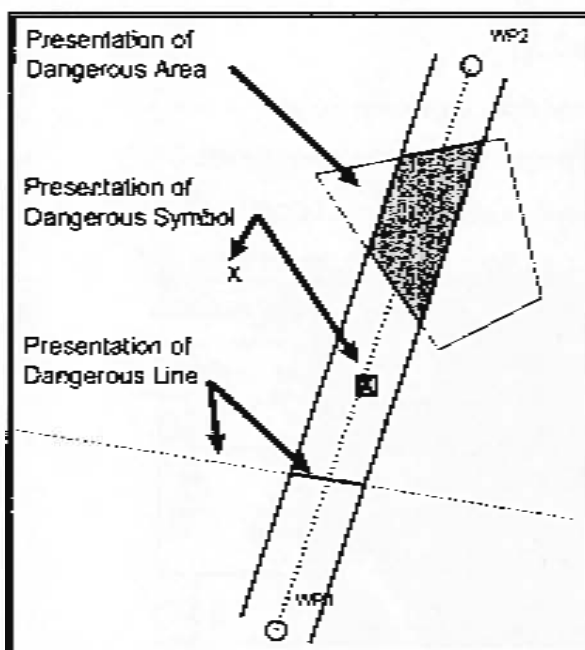
To include areas in the chart alarm, check the Danger Area box in the Area page of the Plan User Chart dialog box. Danger Area must be checked, otherwise danger areas of a user chart cannot be used in the chart alarm. The dangerous area is drawn in red instead of dark yellow (color may be different depending on Palette in use).

In the Area page, you can include areas in the chart alarm by checking Danger Area.

Total	2
Name	MUSKAMA
<input checked="" type="checkbox"/> Of Radar	
<input checked="" type="checkbox"/> Danger Area	
<input type="button" value="Add"/> <input type="button" value="Import"/> <input type="button" value="Delete"/>	

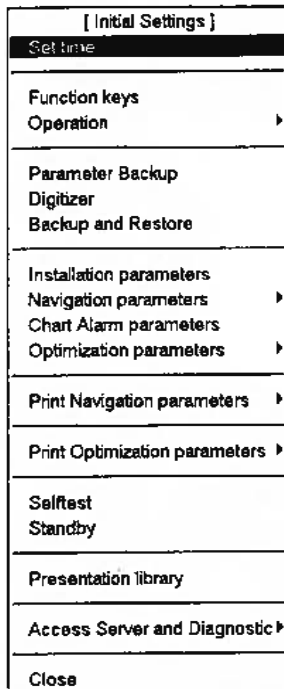
Corner Points of Area	
Current	1
Total	3
	60°22' 138 N
	028°29' 231 E
<input type="button" value="Add"/> <input type="button" value="Delete"/>	

The figure below shows the behaviour of a dangerous symbol, line and area in the chart alarm check.

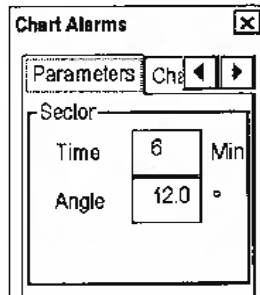


11.4 Activating Own Ship Check

Calculation of own ship predicted movement area is done using watch sector from own ship position. Sector size is defined by time and angle. To set them, do the following:

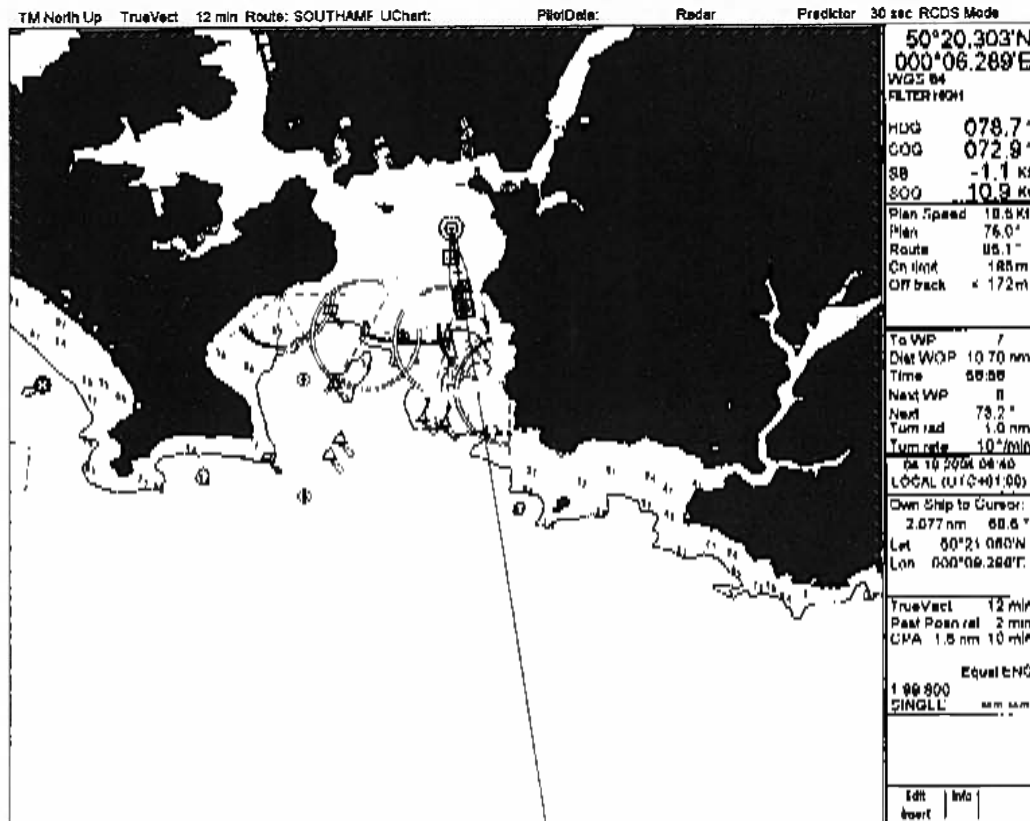


1. Spin the thumbwheel to show Menu/Info/Chart menu in the mouse functions area and then push the left mouse button.
2. Roll the wheel to choose Initial Settings and then push the thumbwheel.
3. Place the cursor in the Initial Settings dialog box to show the menu displayed at left.
4. Roll the thumbwheel to choose Chart Alarm parameters from the menu and then push the thumbwheel.
5. Click the Parameters tab.



6. Set the sector time and sector angle as appropriate.
7. Click the X at the top right corner to close the dialog box.

The figure below and on the next page shows how a watch sector is displayed on the ECDIS screen.



11. Chart Alarms

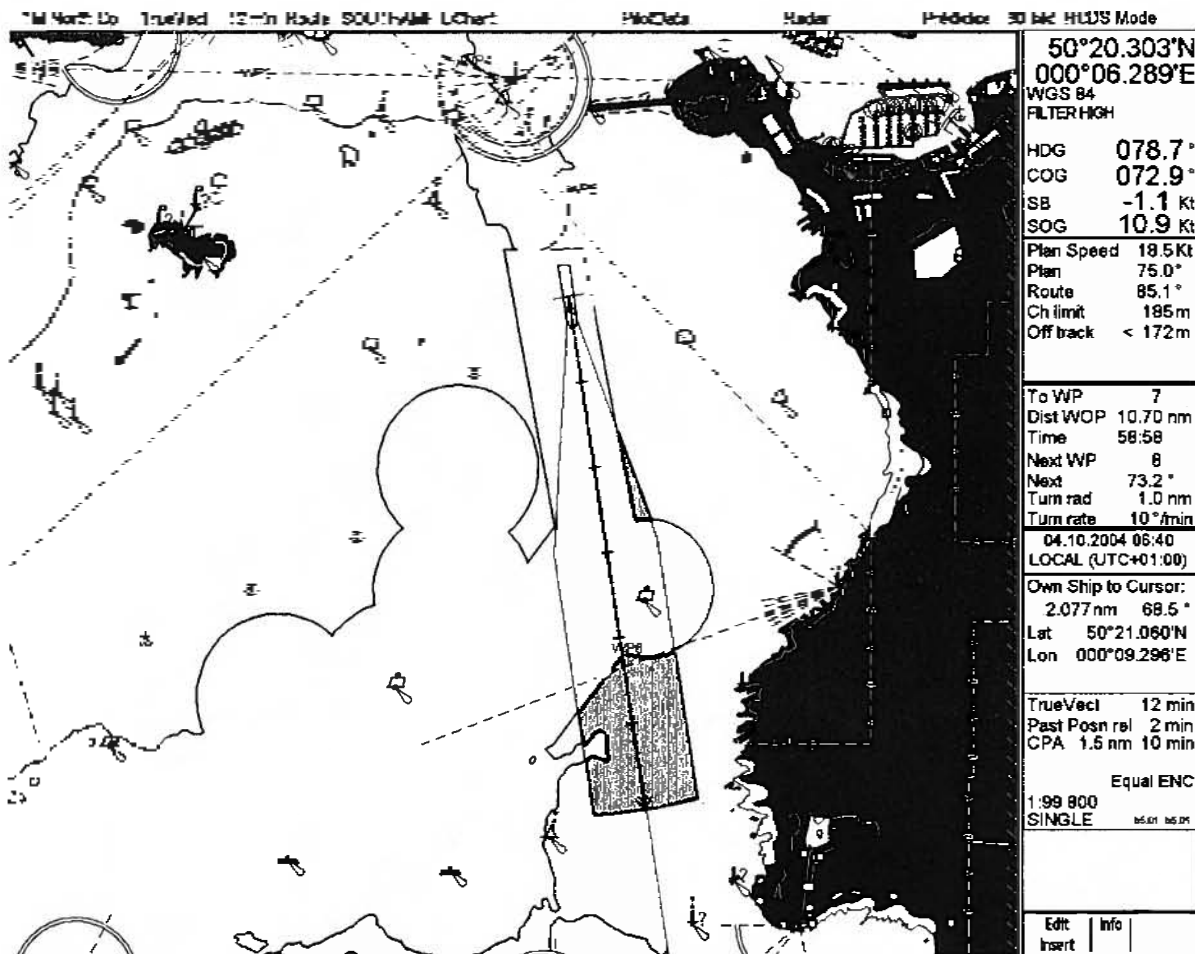


Chart alarm always uses the largest scale chart available no matter which chart is chosen for display.

11. Chart Alarms

11.5 Route Planning

The system will calculate chart alarms using user-defined channel limit for routes. Danger areas are shown highlighted if safety contour or user-chosen chart alarm areas are crossed by the planned route. For more information on route planning, see the chapter on route planning.

Note: If your voyage is going to take a long time or you are planning it much earlier than it is to take place, use display and approve dates corresponding to the dates you are going to sail.

You can generate a list of chart alarms which cross by the planned route. This can be done as follows:

1. Enter safety contour you want to use. See paragraph 11.2.1.
2. Plan a route; define waypoints and other necessary information. See the chapter on route planning.
3. Choose dangerous objects to be monitored during route monitoring, on the Alarms page in the Plan Route dialog box, shown below.
 - a) Open the Plan Route dialog box by selecting UserChart-Plan from the status bar.
 - b) Click the Alarms tab.
 - c) Check the Enable changes box, and then click the alarm to process from the Ignore during monitoring list and then click the Indication or Alarm button as appropriate to choose what type of alarm you want.

4. Click the Check tab and then click the Start button to generate a list of chart alarms.

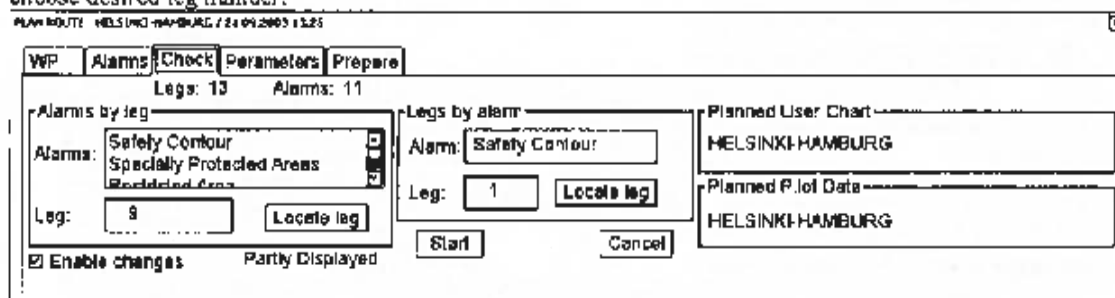
The system will check a route leg by leg and when finished you will see the number of Legs and Alarms below the tab buttons.

The figure above shows the alarms to be monitored. If there are alarms included in the planned route, check alarms leg by leg, or check alarms by using category of alarm.

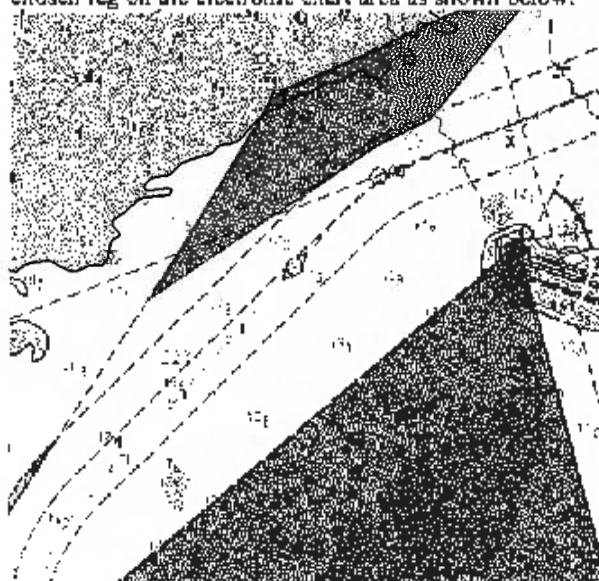
11.5.1 Finding chart alarms leg by leg

After you have done chart alarm calculation, the system is able to show you legs on the route where danger areas are located. All the alarms for each leg where alarms occur are shown in the Alarms list. The list of alarms is based on selections made in the Chart alarm parameters sub menu. To find chart alarms by route leg, do the following:

1. In the Check page of the Plan Route dialog box, the Alarms by leg field has a selection box where you may choose desired leg number.



2. Choose the Alarm from the Alarms by leg field and then click Locate leg button. The system will display chosen leg on the electronic chart area as shown below.



11. Chart Alarms

11.5.2 Finding chart alarms by category

After you have done chart alarm calculation, the system is able to show you legs on the route where the chart alarms are located. The system can show alarms by their category. To find chart alarms for a route by alarm category, do the following:

1. In the Check page of the Plan Route dialog box, the Legs by alarm field has a selection box where you may choose desired leg number.

PLAN ROUTE - HELSINKI-HAMBURG / 24.09.2003 13:25

WP Alarms **Check** Parameters Prepare

Legs: 13 Alarms: 11

Alarms by leg

Alarms:

Leg: 11 **Locate leg**

Legs by alarm

Alarm: Caution Area

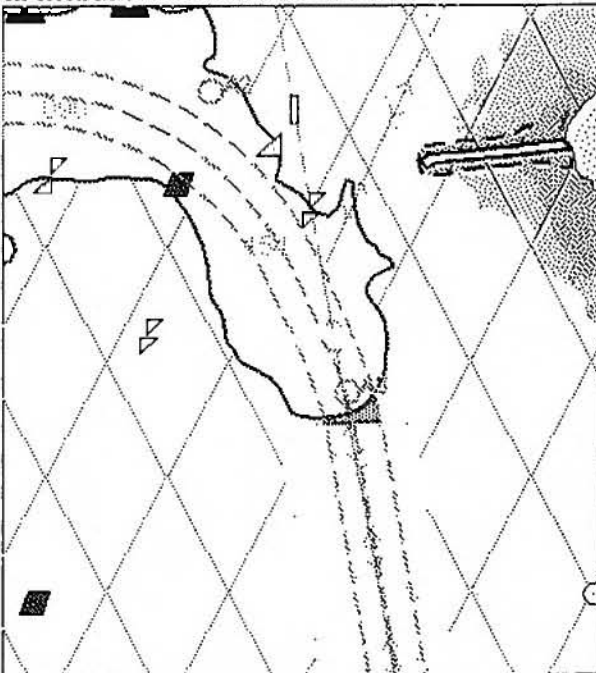
Leg: 8 **Locate leg**

Planned User Chart
HELSINKI-HAMBURG

Planned Pilot Data
HELSINKI-HAMBURG

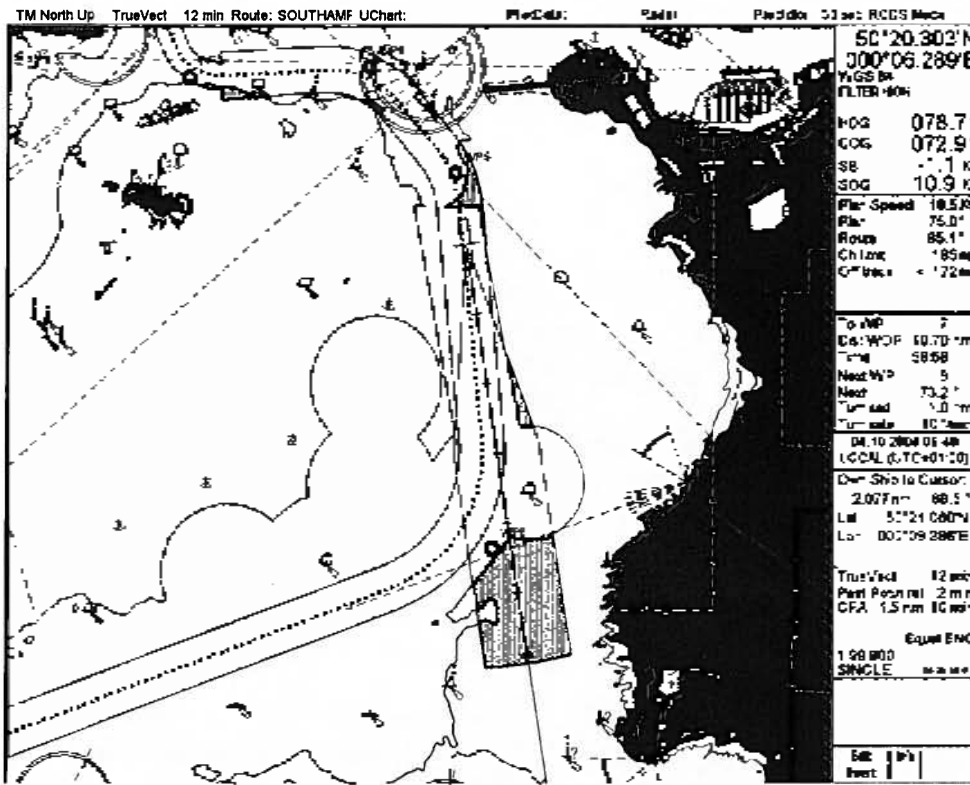
Enable changes Partly Displayed **Start** **Cancel**

2. Choose the leg number from the Leg field and then click **Locate leg** button. The system will display chosen leg on electronic chart area as shown below.



11.6 Route Monitoring

Route monitoring can be divided into two categories: own ship estimated position and monitored route.



The figure above shows how the system highlights chart alarms inside channel limits of a monitored route and inside predicted movement area of own ship.

Note: The system has a route monitor which facilitates safe use of routes. You can check your route plan for safe water and you can attach a user chart and pilot data which you intend to use together with a route plan. To show the route monitor, choose Route-Monitor from the status bar and then push the left mouse button to show the Monitor Route dialog box.

If the text "Checked conditions differ" appears at the bottom of the Monitor Route dialog box, use the Alarms page in this dialog box to verify difference between actual and planned situation.

▶ MONITOR ROUT ... [X]

Monit Alarms [Left Arrow] [Right Arrow]

To WP 8

Timetable

ETA WP []

Time

Distance nm

Final WP 20

Time 05 Oct 04 06:14

Distance 212.1 nm

Plan final 05 Oct 04

Off plan -74 min

Suggested 12.2 kt

Trail 11.4 kt

Spd Trail ▶

Checked conditions differ

Circular letter NTD 1/2008



Circular letter : NTD 01 / 2008

To : CFL Patron / CFL Performer / CFL Prospect / Saline / *CFL Prudence.*

Cc : Directors / Nautical Technical Department

Subject : Grounding at Haisborough Sand 12-05-2008

Date : 20-5-2008

Good day,

One of our vessels was grounded at the East Cost of England according the initial investigation and statement of the master the following report is made and first conclusions are drawn.
Final conclusions will be made after receipt of the report made by the "Marine Accident Investigation Branch".

To improve the vessels eta the Master decided to deviate from the original voyage plan, and new way points were entered on the ECDIS charts. The decision made was based on Economical criteria to arrive at the high tide and not based on Safety or Environmental reasons.

Due to a mistake the vessel approached Haisborough sand, the Officer of the Watch (2nd) noted that something was wrong when he felt vibration of the vessel, and set propeller pitch to zero. By inertion the vessel was making way and at a certain moment touched ground by her SB side bottom edge. The master gave full astern and was able to continue the voyage after 15 – 20 minutes. The Master sent Ch. Officer and Ch. Engineer to sound ballast tanks and monitor temperatures. After one hour both reported that nothing was found and everything OK, vessel continued with her voyage.

The Master concluded that the incident happened because:

- 1) The change of route was made on a scale 1: 50.000 were depth of less then 10 mtr are **not** seen.
- 2) After the modification of the route there was **not** check off all parts of the route on the larger scale charts.

We furthermore can add that the checklist for grounding was not used or not followed, although soundings were made the position was **not** entered in Log book and the DPA was **not** informed.

According the Checklist daily navigation the watch officer should have checked whether all courses plotted safely pass coastlines and if there is sufficient depth. The 2nd officer did **not** use the data available in the ECDIS chart but relied on the echo sounder.

The 2nd officer therefore did **not** see that the vessel was heading to the Haisborough sand with less than 2 meter depth.

We can conclude that the incident was a result of the sum of different errors:

- 1) Initially a judgement mistake by the Master,
- 2) it is also believed to be a result of poor understanding of the use and functions of a ECDIS installation.
- 3) Not following the operational procedure for voyage planning
- 4) Not following the procedure and check list for daily navigation
- 5) Not following the procedure and check list for emergencies and communication

On behalf of
Rhoon, 20 May 2008.

Circular letter NTD 12/2008



Circular letter NTD 12/2008

to : CFL Prospect, CFL Performer, CFL Prudence, CFL Patron, Saline
cc : Vertom,
from : Safety and Quality Assurance Department
date : 30 September 2008
subject : Improvement plans after grounding of CFL Performer

Dear Master and crew,

Shortly after the grounding of mv CFL Performer several procedures were changed and the fleet was notified by circular letter NTD 01/2008.

Although the final report of the MAIB, who is conducting a thorough examination of the incident that took place in the territorial waters of the United Kingdom, is not yet completed we would like to give a explanation of our actions and improvements carried out.

As a first and preliminary conclusion of the incident we are convinced that a lack knowledge of the ECDIS is a major factor leading to the grounding of the CFL Performer.

After the impulsive decision of the master to change the voyage plan, no new voyage plan was made, and the Master was relying on the information of the ECDIS.

The importance of a proper knowledge of ECDIS systems in general, resulted in the specific requirement to the crew mangers to select only officers with a ECDIS certificate.

The familiarization procedure was adapted in such way that a hand-over meeting of at least one working day is stipulated.

The procedures used on board must establish that the officers can work with the key equipment of the vessel (technical and nautical).

Therefore an additional familiarization form (4.3.2.01A) for the bridge equipment was entered into the Safety management System, to guaranty that all bridge equipment is properly addressed during the familiarization.

Until the outcome of the above mentioned report of the MAIB we expect that we have made the correct improvements to prevent the same in the future.

During the visits on board we will focus on the new procedures and verify if the new procedures are followed and if they are effective.

Best regards,
Rhoon, 30 September 2008

Vertom as agents to owners

Circular sent by Canada Feeder Lines BV

Dear Captains and officers of the CFL Prospect, CFL Performer, CFL Patron and our latest addition MV CFL Prudence,

Please read this message carefully and make sure that it is shared with all officers onboard.

By means of this message we would like to inform you that an incident occurred last week with the CFL Performer. Whilst the vessel was approaching the port of Grimsby (UK) the captain decided to deviate from the originally planned course in order "to save some time"

The altered course however did not activate the ECDIS alarming properly and moreover the officer on duty had a too large scale chart presentation in front of him whilst on duty so the shallow depths in that area were not reported. This resulted in the vessel to get grounded shortly thereafter. This incident occurred during daytime with clear visibility and good weather conditions and lasted abt. 20 minutes.

Let alone the grounding which was embarrassing enough as a sole incident, the captain considered it not necessary to inform the DPA (Vertom) of the incident which is contrary to the ISM procedure on this matter.

We find it rather naïve to think that any ship gets away unnoticed nowadays realizing that all ships are being monitored in busy traffic areas like the UK Channel, North Sea area, US coast etc.

Immediately after the incident, the UK coast guard visited the vessel and commenced their investigations. Prior doing so, we as owners, were obliged to advance GBP 2.000 in order for the civil servants to start doing their job. During that same day, also the classification society Lloyds Register attended the vessel.

All in all the port state detained the vessel with the following 3 major non conformities (copies of detention notification and major non-conformities will be forwarded to you soonest);

1.

With vessel draft of 5.9 m. voyage plan routed vessel over Haisborough sand where chartered depths are under 2.0 m in places resulting in grounding of vessel. Also officer on duty (2nd. Officer) was apparently not using Ecdis correctly at time of grounding.

2.

Although safety certification shows vessel as an Ecdis ship without paper charts, the ship's officers apparently have not received any Ecdis training and are unable to produce any verification of Ecdis training (6.5 ISM code).

3.

Grounding incident occurred at 16.05 hrs. 12/05/08 and not reported to DPA until 14.45 hrs 13/05/08.

It took us more than two days in port (with two people from our Dutch company attending as well) to convince the authorities, to agree upon corrective measures to be taken and to have us released from the port of Grimsby. Needless to say that (that the whole incident did not only result in considerable loss of reputation but that it also resulted in severe economic damage (estimate of abt. Euro 15.000- 20.000 all together; a.m. advance of Gbp 2.000, fees LR, involvement of the Dutch shipping inspectorate, loss of hire, involvement of Radio Holland on Ecdis etc. etc.)

In summary we come to -a refreshment of- the following instructions;

1. All 4 vessels are on timecharter.

Therefore, we should move at the required speed within normal shipping practices, but never against normal nautical customs and/or general safety.

2. All incidents big or small should be reported instantly. If in doubt inform the DPA anyway.
3. All officers should have proper, adequate and demonstrable ECDIS training. Our crewing agent Global crewing will see to it that for now and the future all officers do have appropriate training and demonstrable examination on Ecdis.
4. There is more to life than just Ecdis !! Ecdis is a great tool but one may never rely on it fully and solely. When the incident with the CFL Performer happened it was clear daylight , with good visibility and fine weather conditions. Whilst approaching Grimsby (and other ports) there are several other ways of checking one's course; azimuths, buoys, lighthouses, echo sounder and common sense (eyes & ears) etc.

Your understanding and commitment is highly appreciated.