CASUALTY REPORT

August 18, 2003
Case 199927017

# Collision on 12 August 2002 between the Danish fishing vessel EATON and the Finnish cargo vessel FINNMERCHANT

DIVISION FOR INVESTIGATION

ACCIDENT INVESTIGATION BOARD • FINLAND •

oke@dma.dk
www.dma.dk

MINISTRY OF ECONOMIC AND
BUSINESS AFFAIRS

AIB Finland
Sornaisten rantatie 33 C
00580 Helsinki
FINLAND

*This casualty report has been made in co-operation between the Accident Investigation Board of Finland and the Division for Investigation of Maritime Accidents of Denmark.*

# 1. Preface

The Finnish flagged roro cargo vessel FINNMERCHANT was on her way from Helsinki, Finland to Felixstowe U.K. on August 12, 2002. She collided with a Danish fishing vessel EATON on West coast of Jutland. EATON sank soon after the collision but her crew of three persons got to an inflatable life raft and were rescued by fishing vessel AULIS.

Accident Investigation Board Finland appointed its expert, captain Sakari **Lehtinen** and maritime accident investigator, captain Risto **Repo**, to be the investigators of the case in the Finnish investigation.

The Division for Investigation of Maritime Accidents of the Danish Maritime Authority appointed ship surveyor Lars Gerhard **Nielsen** to be the investigator of the case in the Danish investigation. It was decided between the two investigation bodies to make a joint investigation and produce one report: The report is published in the Danish form of reports.

The investigators have interviewed the personnel of both vessels. The master of FINNMERCHANT gave his Maritime Declaration in Helsinki Sea Court at September 16, 2002. This took place behind closed doors, and was decided by the Judge to be confidential for two years (until 16/9 2004) or until the master of EATON has given his Maritime Declaration. The investigators have got the permission from the lawyer of Finnlines Ltd to use the information given in the maritime declaration in order to conduct the investigation. This however, does not change the status of the confidentiality of the maritime declaration until September 16, 2004.

The master and owner of FINNMERCHANT accept, that information derived from the maritime declaration is published in this report.

Captain Kari **Larjo**, an expert of AIB Finland, has reconstructed the tracks of the vessels on the time of the collision. This has been based on the prints of FINNMERCHANT's radar data just before the collision and some time after the collision.

This investigation report was written to improve safety and prevent new accidents. The report does not address the possible responsibility or liability caused by the accident. The investigation report should not be used for purposes other than the improvement of safety.

According to the Danish Order concerning investigation of accidents at Sea: *The purpose of investigating accidents at sea is to obtain information about the actual circumstances of the accident and to clarify the causes and the sequence of events that led to the accident in order that the Danish Maritime Authority or others can take measures to reduce the risk of recurrences. The aim of such investigations is not to take a position on the aspects of criminal liability or liability for damages in connection with the accidents.*

EATON


FINNMERCHANT

# 2. Index



# 3. The Casualty

| | |
|---|---|
| *Type of casualty:* | Collision |
| *Location of casualty:* | The North Sea on position 57.06' N – 008.08' E |
| *Date and time:* | 12 August 2002 at approx. 0305 hrs local Danish time (UTC +2) |
| *Weather conditions:* | Calm weather and dense fog |
| *Injuries:* | None |

# 4. Ship Particulars

| | | |
|---|---|---|
| *Name of ship:* | FINNMERCHANT | EATON - L 660 |
| *Home Port:* | Helsinki | Thyboroen |
| *Call sign:* | OIPZ | OXVC |
| *IMO No:* | 8020604 | |
| *Type of ship:* | RoRo cargo ship | Fishing vessel – trawler |
| *Construction year:* | 1983 | 1956. Wood. |
| *Tonnage:* | 21195/8425 Gross | 49,91 Brt. |
| *Length/breadth/draft* | 154,9 m / 25,11 m / 8,45 m | 18,53 m / 5,49 m / 2,44 m |
| *Engine Power:* | 13200 KW | 250 KW |
| *Crew:* | 20 | 3 |
| *Owner:* | Finnlines Ltd. | Owned by skipper and mate |
| *Classification Society:* | Lloyd's Register of Shipping | None |

# 5. Collecting of data

**EATON:**
The Danish Investigation Division was in Thyboroen on 13 August 2002 where the skipper and the mate of EATON gave statements.

The Division has received supplementary information from the skipper, mate and fisherman in February 2003.

**FINNMERCHANT:**
As FINNMERCHANT arrived at Finland, the Finnish investigator paid a visit on board. The company's designated person ashore and a lawyer were present. The personnel on the bridge on the accident date were interviewed preliminary to Maritime declaration. Some copies of relevant data were also collected.

The Master gave his declaration on the accident in the Maritime Court of Helsinki on 16/09/2002. The Maritime Court of Helsinki decided, based on the chapter 18 provision 11 of the Maritime Act, to receive the maritime declaration of the Master behind closed doors.

# 6. Narratives

**Narrative based on the evidence from the skipper, mate and fisherman of EATON:**
EATON departed from Thyboroen on 11 August at 2400 hours. EATON was going on pair trawl fishery with the partner ship AULIS. On board were three persons, skipper, mate and a fisherman.

EATON was steering NtW (348 ¾ degrees) and the speed was 8 knots. EATON was showing masthead light, sidelights and sternlight. The vessel was steered by autopilot. One radar was in use.

A fisherman was on watch until approx. 0300 hours. Some time before watch shift the fisherman had altered course to avoid collision with another vessel. Before the watch shift this vessel was aft of EATON, and EATON was back on course 348-349°.

The mate took over the watch at 0300 hours. The weather was calm with dense fog. The range on the radar was set on 1,5 nm. The fisherman told the mate, that EATON had passed a vessel, and that another vessel was approaching. The mate saw the vessel approaching on the radar. The distance to the vessel was then 1,5 nm. The vessel was approx. 30 degrees on the starboard side of the stem of EATON. The other vessel was steering approx. SSW (202 ½ degrees) according to the mate. The mate estimated from what he saw on the radar, that the other vessel would pass ahead of EATON, but close. He did not plot the ship and he did not use the bearing line on the radar. Because of the fog, it was not possible to see the other vessel visually. The mate only saw the vessel on the radar.

When the distance to the other vessel was 500-700 fathoms, the mate turned EATON starboard over until EATON was on an eastbound course.

Just before the collision the mate heard the whistle from the other vessel. He had not heard sound signals before that. From EATON no sound or light signals were given.

The collision occurred shortly after. The stem of the other vessel hit EATON aft in the port side. The angle of collision was approx. 80 degrees from the stem of EATON. The other vessel turned out to be FINNMERCHANT. The mate had not seen FINNMERCHANT or the navigation lights from FINNMERCHANT visually before the collision, because the fog was very dense. EATON was heading east when the collision occurred. At the collision EATON slid alongside the port side of FINNMERCHANT.

EATON had two VHF radios. One was set on canal 11 and the other was perhaps set on canal 16, but the mate does not remember this for sure. He heard no call from the other ship before the collision.

The mate is of the opinion that FINNMERCHANT must have turned to port before the collision. Otherwise the other ship would have passed west of EATON.

The partner vessel of EATON, named AULIS was proceeding 1,5 nm aft of EATON on the same course – NtW (348 ¾ degrees) - and with the same speed – 8 knots. There were no other vessels in the vicinity at the time of the collision according to the mate.

At the collision the skipper and the fisherman were in the berths in port side of the cabin aft of the wheel house. The skipper was sleeping and the fisherman had just gone to the berth. The fishing

vessel heeled to starboard. The bulkhead at the berths was pressed into the cabin. The skipper heard that EATON scraped along the shipside of the other ship. They both went to the wheel house. The mate went to the top of the wheelhouse and launched the liferaft. The skipper called the partner vessel AULIS on the VHF radio and told, that they have had a collision with another ship. The connection was not very good, because the antenna had fallen down, but AULIS received the call and answered that they would come.

The fisherman, who was wearing a life jacket, went up on the top of the wheelhouse to help the mate. The skipper went back into the cabin, were they had slept; to get life jackets and immersion suits. There was water in the cabin now. He got the life jackets and put one on and brought one to the mate. He could not get the immersion suits from the cabin, because of the incoming water.

They launched the liferaft on the port side of the wheelhouse. They pulled a couple of times in the line and the liferaft inflated, as it should. The skipper climbed into the liferaft and the two other jumped after from the top of the wheelhouse. The skipper and the fisherman were only wearing underwear. At first they could not find the knife in the liferaft. The skipper untied the line between the ship and the liferaft, before the mate had found the knife.

When AULIS arrived approx. 5 minutes after the collision, the wheelhouse of EATON was under the water surface, but luckily the crew of EATON were in the liferaft at this moment and they were rescued by AULIS. EATON sank very fast with the stern first. Only the stem was over the water at last. EATON sank approx. 10 minutes after the collision.

The fishermen saw the EPIRB from EATON floating in the water. The EPIRB transmitted signals. They took the EPIRB on board AULIS. The skipper of EATON called Hanstholm Harbour (on the VHF on board AULIS) and told what had happened. Hanstholm Harbour called Lyngby Radio and the skipper talked with Lyngby Radio. The skipper also called the insurance company.

When the skipper had finished his call to the insurance company, FINNMERCHANT called on VHF canal 16. The skipper of AULIS talked with FINNMERCHANT in English language. The skipper of EATON saw on the radar (on board AULIS), that the other ship was now 4 nm from AULIS. FINNMERCHANT returned to the place of the collision. With a searchlight at the ship they saw, that the name of the other ship was FINNMERCHANT, homeport Helsinki.

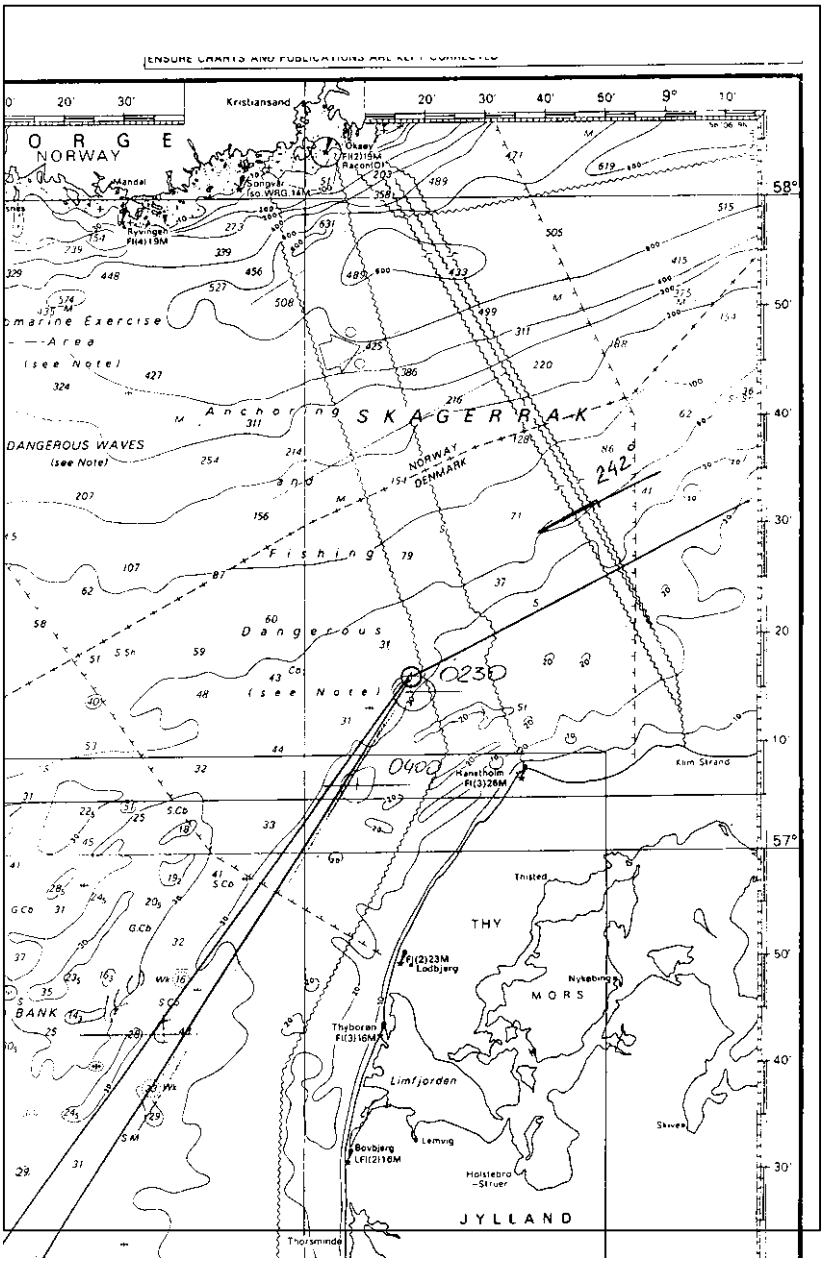



Chart from FINNMERCHANT.

**Narrative based on the evidence brought forward within the Maritime Declaration by the master, the 2nd mate and the look-out of FINNMERCHANT.**

FINNMERCHANT departed from Helsinki on August 9, 2002 at 2230 hours on a voyage to Felixstowe in England. The voyage to Skagerrak was normal and uneventful.

At midnight after passing Skagen the watch was taken over by the 2nd officer and he had an Ordinary Seaman with him as a look out. The visibility was approx. 1 nm but improving.

At 0230 hours when FINNMERCHANT was north west of Hanstholm on position 57°14,7' N - 008°18,2' E, the 2nd officer altered the course to 215°. The visibility was then approximately 5 nm.

Range on the radars was set on 6 nm. on one radar and 12 nm. on the other radar. Both radars were set on off centre, relative motion with true vectors.

After altering the course the 2nd officer observed two echoes on the radar from vessels heading north in distance approximately 9 nm from FINNMERCHANT and bearing approx. 30° on the port bow of FINNMERCHANT. There were also echoes from other vessels but there were no risk of collision with those vessels. The 2nd officer observed that the two vessels heading north would come close to FINNMERCHANT and he plotted the vessels on the ARPA radar. Both vessels were heading 355° and the speed was 7.5 knots. The northernmost of the two vessels, which later turned out to be EATON, would pass relatively close. The other vessel, which later turned out to be AULIS, was following aft of EATON and would pass aft of FINNMERCHANT with a good margin.

When the distance to EATON was 6 nm, the 2nd officer saw on the radar that EATON altered course 40-45° to starboard. At this course alteration EATON would pass FINNMERCHANT port to port with a CPA (closest point of approach) of 0.7 nm. The 2nd officer was satisfied with this CPA. The 2nd officer did not observe EATON visually.

When the distance to EATON was approx. 3.5 nm the 2nd officer saw on the radar, that EATON was altering course to port. He changed the distance scale on the radar down to 3 nm. The 2nd officer could still not observe EATON visually, and he began to realise that the visibility was getting worse. The 2nd officer tried at once to contact EATON on VHF by giving the position, speed and courses of the vessels. The 2nd officer would ask EATON to turn starboard again, but he received no answer from EATON.

While EATON was altering course to port, FINNMERCHANT ran into a local fog bank. The 2nd officer switched on the automatic fog sound signals. The look-out was now ready at the helm.

When the distance to EATON was a little more than 2 nm, EATON was on a course so the vessel would pass the heading line of FINNMERCHANT approx. 0.7 nm ahead of FINNMERCHANT. EATON would now pass FINNMERCHANT starboard to starboard and the CPA would be 0.3 nm. The 2nd officer decided to keep speed and course because EATON was going to pass ahead and AULIS was going to pass aft of FINNMERCHANT. He printed out the situation from the chart pilot at 03.02:42 (see appendix 1). The course and speed of FINNMERCHANT were 214,9° and 16,9 knots respectively.

The 2nd officer printed out the situation again at 03:03:00 (see appendix 2), when EATON was 0.7 nm ahead of FINNMERCHANT. The CPA would then be 0.3 nm passing starboard to starboard.

When EATON had passed the heading line and was approx. 20 ° on the starboard bow of FINNMERCHANT, the 2nd officer saw on the radar, that EATON was altering course to starboard. The 2nd officer at once gave 5 short sound (and light) signals manually and decided to call the master to the bridge.

The 2nd officer and the outlook could still not observe EATON visually, and when the distance was approx. 0.4 nm the echo of EATON was lost on the radar. The 2nd officer gave one very long signal with the whistle.

The 2nd officer suddenly saw a white light approx. 10° on the starboard bow of FINNMERCHANT. He estimated the distance to be 80-100 meters. The outlook saw three white lights, but neither of them saw red or green sidelights. The 2nd officer took the joystick and turned the rudder to port in an attempt to avoid collision. The joystick over rule other steering equipment. The white light disappeared. When FINNMERCHANT had begun to turn to port for maybe 15 or 20 seconds the 2nd officer turned the rudder to starboard, because he knew that AULIS was approaching on the port side. Shortly after he switched to manual steering and he ordered the outlook to steer 215°.

The collision occurred at approximately 03.05 hours on position 57°06,8'N - 008°07,5'E.

At the collision the master and the outlook felt a small shock in the vessel and heard noise.

The 2nd officer printed out from the chart pilot again at 03:08:24 (see appendix 3).

The master came to the bridge shortly after the collision and took command. He asked the 2nd officer to call the fishing vessel on VHF. The master decided to turn back to the position of the collision. The speed of FINNMERCHANT was reduced. Before the OOW altered course the visibility became better and he saw a light of another vessel in distance 4 nm on the starboard side. When FINNMERCHANT returned the visibility became worse again.

After a while FINNMERCHANT got in contact with AULIS and later Lyngby Radio on the VHF radio. They were told that the fishing vessel EATON had sunken and that all three crewmembers had been rescued by the fishing vessel AULIS.

At 0415 hours Lyngby Radio gave FINNMERCHANT permission to continue the voyage.

# 7. Further information and investigations

**General information on the vessels**
EATON:
The Danish Maritime Authority surveyed EATON last time in December 1999.

Trading Permit (certificate) was issued on December 13, 1999 and was valid until 30 September 2002. According to the Trading Permit the vessel may be employed for limited trade, i.e. in the area south of 62 degrees N and north of 48 N latitude and east of 12 W longitude, trade in Baltic Sea, trade at the Faroe Islands and Faroe Bank.

FINNMERCHANT:
The certificates of FINNMERCHANT were valid and updated. The Safety Management Certificate had been issued on November 14, 2000 and the Document of Compliance concerning safety management system of the Company had been issued on June 11, 2001.

**Bridge design and equipment**
EATON:
The radar on board EATON was a one year old SIMRAD colour radar. There was no plotting device on the radar.

EATON was steered by autopilot.

The vessel had two GPS – Furuno and Decca.

The vessel had two Sailor SP VHF radios and one Sailor medium wave radio.

FINNMERCHANT:
The navigational equipment on FINNMERCHANT consisted of:

| | |
|---|---|
| 3 Raytheon M34 | Arpa radars |
| 1 Anschutz STD20 | gyro compass |
| 1 Kockums Sonic Steermaster | 2000 auto pilot |
| 1 Simrad IR 201 | echo sounder |
| 1 Furuno SC 120 | DGPS reciever |
| 1 Magnavox MX 200 | DGPS reciever |
| 1 Trimble NT 200 | DGPS reciever |
| 1 Atlas STN Chart Pilot | electronic sea chart |
| 1 Kockumation TU 50 | fog horn |

**Crew**
EATON:
The skipper: He has been fishing since 1962. He took a "Skipper's examination" in 1968. He has *certificate as skipper, 3rd class on fishing vessels*.

The mate: He has been fishing since 1958. He took a "Skipper's examination" in 1966. He has *certificate as skipper, 3rd class on fishing vessels*.

The skipper and the mate are owners of EATON. They have owned the fishing vessel for 15 years. It is the second vessel they have owned together.

The fisherman: He has been fishing since approx. 1954. He has no *certificate as skipper* or *mate*.

FINNMERCHANT:
The Crew of 20 persons included the Master and three deck/navigating officers, the boatswain, two AB's, two ordinary seamen, three engineers, three engine crew, three catering personnel and two apprentices.
The master had a *licence of Master mariner* and he has been at sea since 1968. He has served as master onboard FINNMERCHANT since 1996.
The 2nd officer held a *certificate of Watch officer*, which was issued at July 23, 2001. He had started onboard FINNMERCHANT as a deckhand in August 2000. He started in October 2001 as navigating officer.
The look out had the certificate of *Watch keeping rating* (Ordinary seaman) which had been issued at .9/11/2001.

**Watch keeping and watch shifts**

EATON:

The mate took over the watch at 0300 from the fisherman. The fisherman told the mate that a vessel (FINNMERCHANT) was approaching. The fisherman also told that EATON had passed another vessel shortly before.

FINNMERCHANT:

The watch system onboard FINNMERCHANT was a traditional 4/8 system. The three watch going officers had 4 hours on duty and they had during the other 8 hours off watch period from 2 to 3 hours other than navigating duties. The total length of working hours per day was from 8 to 11 hours.

During poor visibility on day time and the night hours there were the look out with the OOW on bridge. The watch shifts for deckhands acting as look out were the same as with the navigating officers.

**Human factor – Fatigue**

EATON:

EATON had departed at midnight just 3 hours before the collision. The fisherman had the first watch before the collision.

FINNMERCHANT:

The 2nd officer's working hour history of 96 hours prior to the accident shows that he had had the possibility to rest prior his watch. In the interview in Hamina he and the look out said they had rested enough before the watch and did not feel any kind of tiredness.

Alcohol tests were performed on board FINNMERCHANT at 04.40 after the collision. This was done by the chief officer according to the Company's advice and it was recorded in to the Ship's Log. All results showed 0,0 ‰.

**Prints of the electronic chart of FINNMERCHANT (chart pilot)**

As the 2nd officer realised that there might be a close situation with another vessel(s), he pushed the print screen button in the ARPA radar to record the movements of the vessels. *(This is recommended by the master/company to learn from close situations afterwards.)*

There are prints from the electronic chart showing the situation at 03.02.42 and 03.03.00 shortly before the collision (see appendix 1 and 2). The vessels in the vicinity, which were plotted on the ARPA radar are shown on the prints. The tracks of the vessels plotted are marked for every three minutes. EATON and AULIS are shown on a course of approx. 355 degrees. There are also other vessels in the vicinity. One vessel on a north easterly course has passed between EATON and AULIS and is shown on the print on the port side of FINNMERCHANT in distance approx. 1 nm. Another vessel is approx. 4 nm ahead of FINNMERCHANT on the same course as FINNMERCHANT.

The speed of FINNMERCHANT is 16,9 knots.

EATON is shown on the prints on the heading line of FINNMERCHANT approx. 0.7 nm ahead. The track of EATON shows, that EATON was on a north easterly course until approx. 6 minutes before the print was taken.

Another print was taken at 03.08.24 after the collision. This print shows that FINMERCHANT first turned to port and then turned to starboard. According to the position

of EATON on the print of 03.03.00 the collision must have taken place approximately where FINNMERCHANT begins to turn to port (see appendix 3).

**Information on the visibility**

FINNMERCHANT

According to the evidences given at the Maritime Declaration, the visibility was 1 nm at watch shift at 0000 hours and getting better. When the course was changed at 02.30 the visibility was 5 nm. From 0230 hours and until just before the collision EATON and AULIS were not observed visually. Just before 0300 hours the mate saw lights from a vessel on starboard side of FINNMERCHANT in distance 4,5 (according to the evidence given by the master). When EATON altered course so that the course of EATON was crossing the heading line of FINMERCHANT, FINNMERCHANT went into dense fog (according to the evidence of the 2nd officer).

EATON:

According to the mate on board EATON it was dense fog.

According to the Danish Meteorology Institute the visibility in Skagen and Thyboroen on 12 August 2002 at 0200 hours was approx 1-2 nm. According to the Institute it is possible that the visibility at sea could have been shifting. It is therefore possible that EATON was in dense fog, while FINNMERCHANT was proceeding outside the border of the fog and was able to observe vessels more westerly.

**Traffic in the area**

As can be seen on the print from the electronic chart of FINNMERCHANT, there are some traffic of merchant ships, which have passed or are going to pass off Hanstholm on their voyages from or to the Skagerrak and the Baltic Sea. This is a normal situation in this area. Also in this area it is normal that the fishing vessels from the Danish ports Thyboroen and Hanstholm are crossing the traffic of the merchant vessels.

**Search and Rescue activities**

RCC Karup received a Cospas-Sarsat alarm from the EPIRB of EATON on 12 August 2002, at 01.28 UTC (03.28 local time). The alarm contained no position, but it gave information on the identity of EATON. The EPIRB was taken on board AULIS shortly after the collision.

Because the crewmembers of EATON were rescued by AULIS at once and this was reported to the port authorities in Hanstholm, no other rescue operation was initiated.

The life raft was launched and inflated without problems. They had difficulties in finding the knife to cut the line.

They got lifejackets on, but had no time to get the immersion suits, before the cabin aft of the wheel house, where the suits were placed, was filled with water.

# 8. Description of the course of collision

**The following chronology are based on statements from the crews of both vessels and the prints of the electronic chart of FINNMERCHANT**

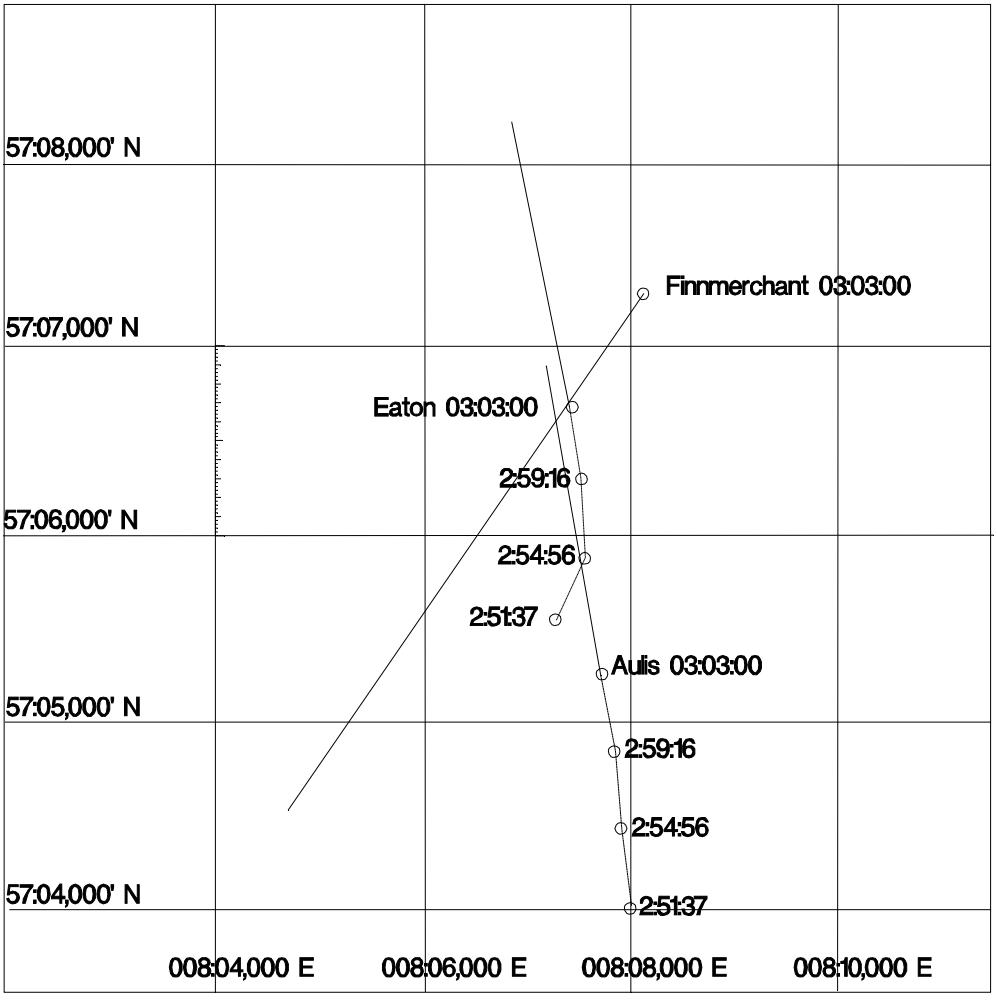
**Approximate chronology of the collision**

0230: The 2nd officer followed the two targets (EATON and AULIS) when he altered course to 215 degrees. EATON and AULIS were observed on the radar in distance 9 nm and approx. 30 degrees on the port bow of FINNMERCHANT. The vessels were plotted. Course and speed of EATON and AULIS were 355 degrees and 7.5 knots.

Approx. 0240: The two fishing vessels were now in distance 6 nm from FINNMERCHANT On board FINNMERCHANT it was observed on the radars, that the first fishing vessel (EATON) altered course to starboard to course approx. 040 degrees. The 2nd officer on board FINNMERCHANT supposed that EATON now would pass port to port with a CPA of 0.7 nm.

At approx. 0254 hours when the distance was approx. 3.5 nm between FINNMERCHANT and EATON, the 2nd officer on FINNMERCHANT observed on the radar, that EATON again altered the course and now to port. In the reconstruction no.1 based on the prints from FINNMERCHANT at 030300 hours, it can be seen on the track of EATON and AULIS that EATON changed course to port crossing the heading line of FINNMERCHANT.

Reconstruction no. 1



According to the fisherman on board EATON, he altered course some time before watch shift to avoid collision with another vessel. He returned to course approx. 349 degrees before the mate took over the watch. The fisherman had probably not observed FINNMERCHANT on the radar before he returned to course 349 degrees, because the distance on the radar was set on 1.5 nm and the distance between the vessels was more than 3 nm.

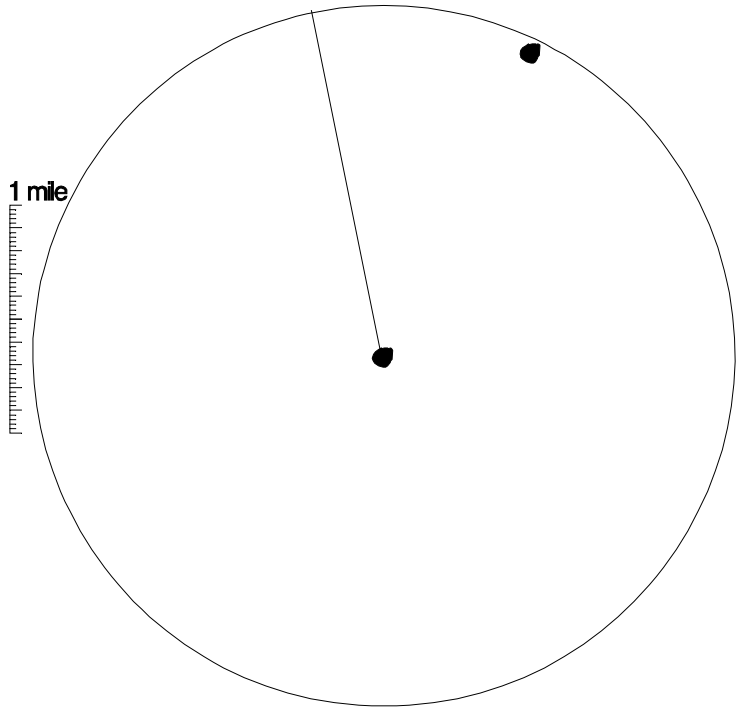
The 2nd officer on FINNMERCHANT now began to realise that the visibility was restricted as he could not see the plotted objects and soon after FINNMERCHANT ran into dense fog.

The plot on the radar on FINNMERCHANT showed, that EATON would pass ahead of FINNMERCHANT. The CPA was now going to be 0.3 nm passing starboard side to starboard side.

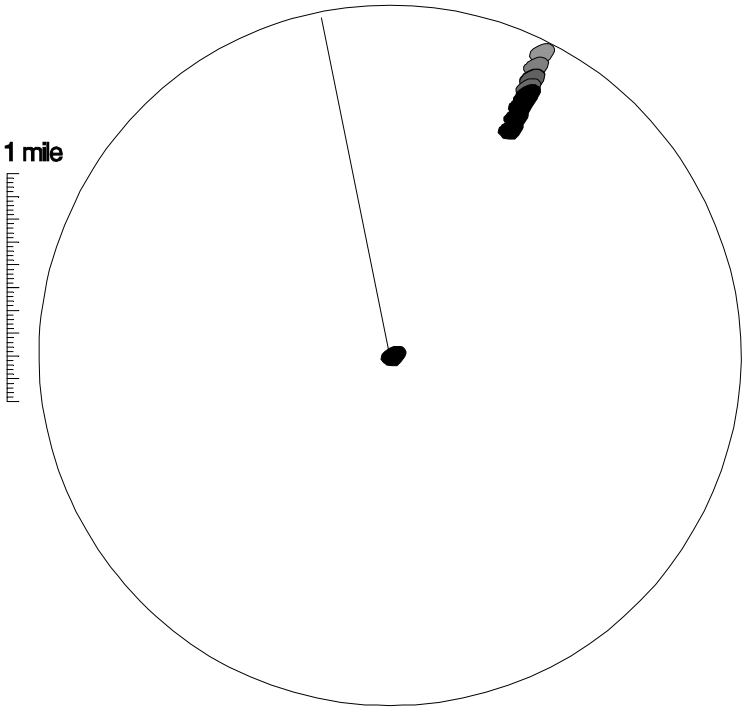
Approx 0300: Watch shift on board EATON. The mate was informed about the echo of FINNMERCHANT approaching on the radar in distance 1,5 nm. The mate estimated that FINNMERCHANT would pass ahead of EATON, but he did not make a plot.

0303: The print shows that EATON was on the heading line of FINNMERCHANT. The distance was 7 cables (0.7 nm.).

Approx 0303: As the echo comes closer the mate on EATON got nervous and decided to alter course hard to starboard. The distance was then according to him approx. 5-7 cables.




Eaton's radar on 1,5' range at 03:01.
Finnmerchant appears aproximately on 1,5' range




Eaton's radar on 1,5' range at 03:02.
Finnmerchants reletive movement on the radar is 202 degrees.

Reconstruction no. 2.

Approx 0304: The 2nd officer on FINNMERCHANT observed on radar that EATON altered course to starboard. The echo on the radar was soon after lost.

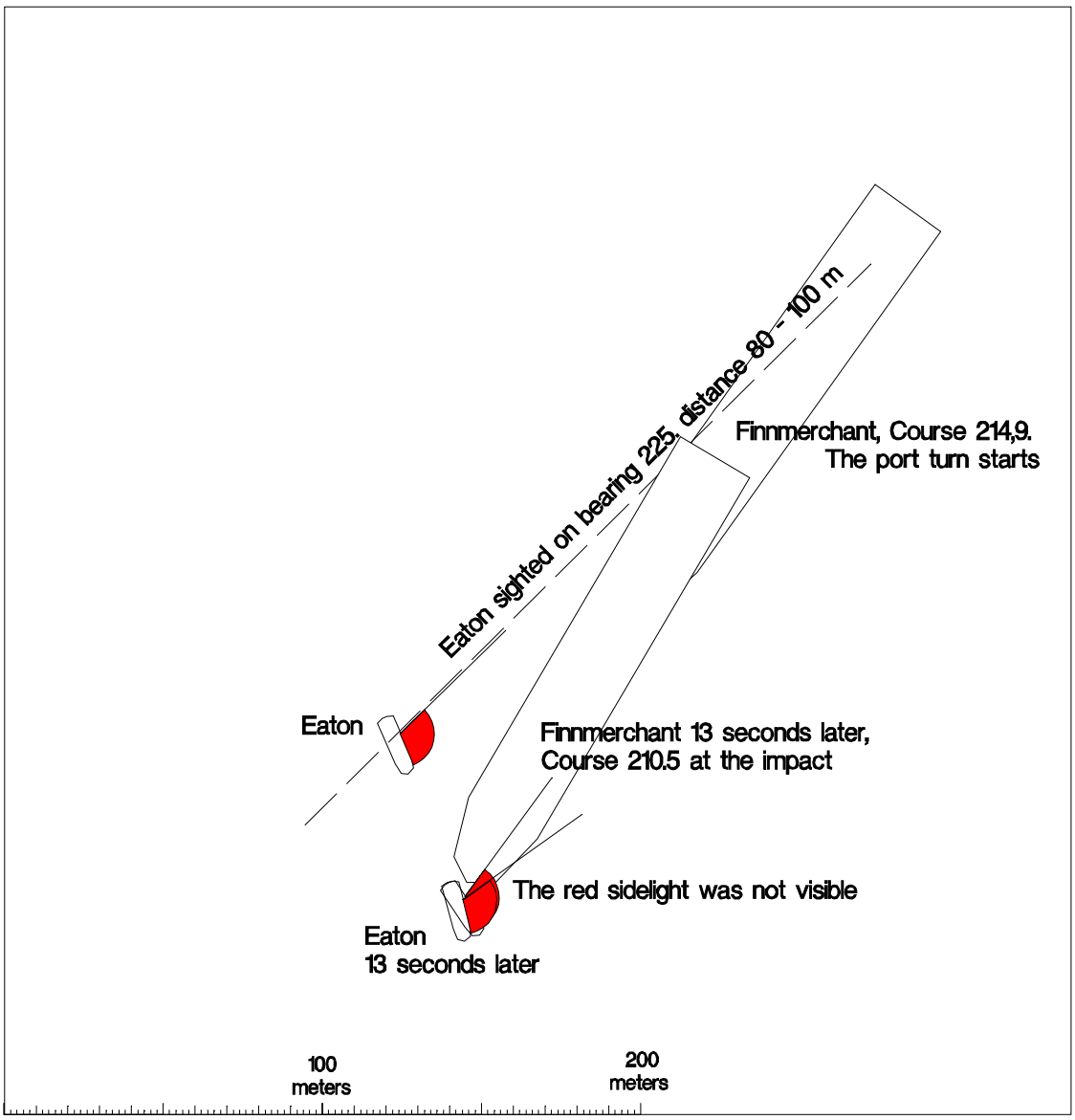
Approx 0305: The 2nd officer of FINNMERCHANT visually observed a white light in the fog approx. 10 degrees on the starboard side of FINNMERCHANT. The distance to EATON must have been approx. 100 meters. The 2nd officer set the rudder joystick hard to port.

Approx 0305: The look-out and the captain (in his cabin) noticed a list due to the port turn of FINNMERCHANT just before they noticed a little shock/bump in the vessel.

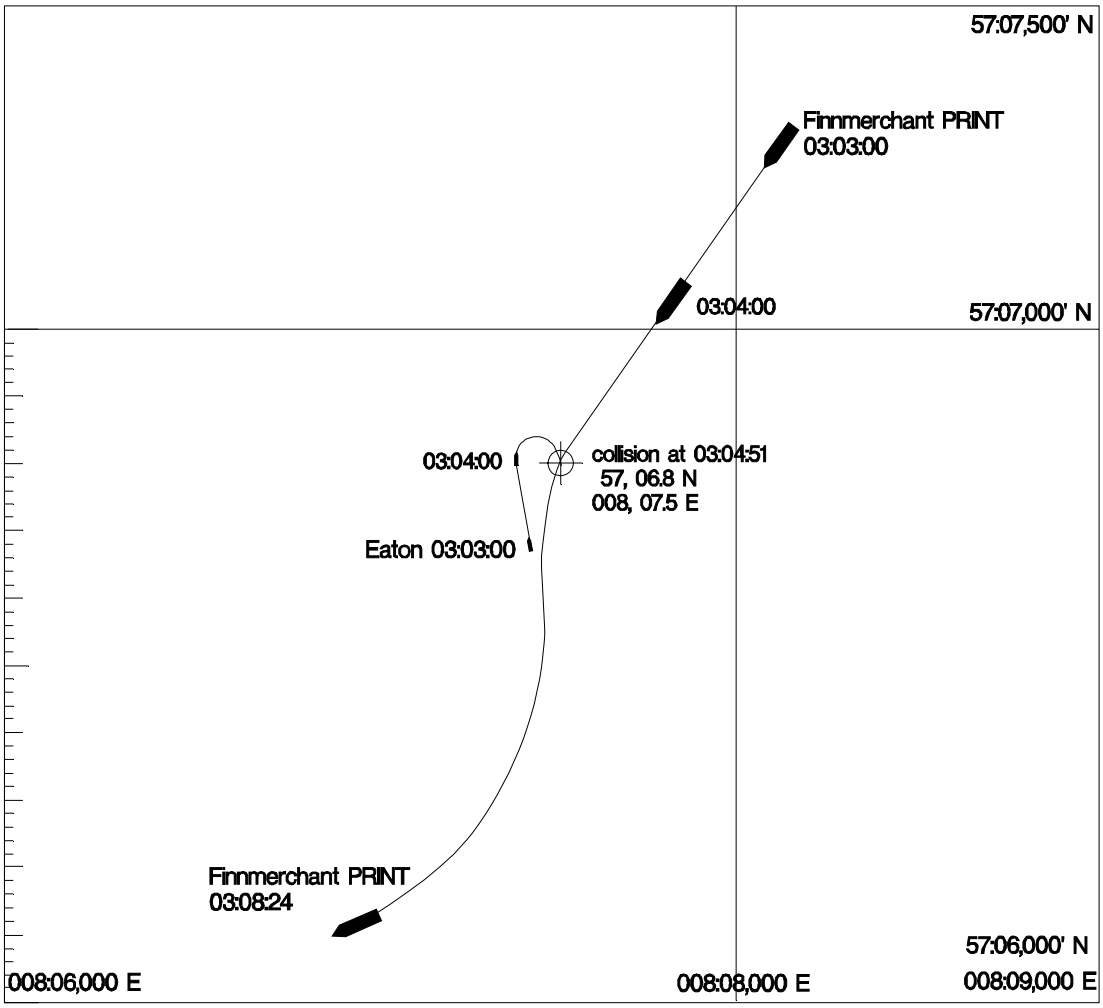
The main contact between the vessels was on FINNMERCHANT's port bow and EATON got damages in port side.

FINNMERCHANT

Reconstruction no. 3



Reconstruction no. 4




*The figure illustrates Eaton's turn.*

AULIS heard the VHF emergency message from EATON and came on site and rescued the crew from the life raft. FINNMERCHANT slowed speed and returned to the site to ensure that the rescue operation has been successful.

# 9. Analysis

**Comments from the Accident Investigation Board of Finland and the Division for Investigation of Maritime Accidents of Denmark concerning the acting of the crew of EATON**

The fisherman on watch on board EATON altered course to starboard some time earlier before 03.00 in order to give way to another vessel. That vessel EATON gave way to was probably the vessel 4 nm ahead of FINNMERCHANT as seen on the prints from FINNMERCHANT.

Approx. 5 minutes before the shift of watch the fisherman altered the course back to approx. 350 degrees. This alteration changed the situation. EATON was instead of passing port to port going to pass ahead of FINNMERCHANT. The CPA also decreased from 0.7 to 0.3 nm. The distance to FINNMERCHANT was in this moment more than 3 nm and the radar on EATON was set on 1,5 nm scale. Therefore the fisherman had probably not observed, that FINNMERCHANT was approaching, when he altered the course of EATON port over to approx. 350 degrees.

The fisherman should have used long-range scanning on the radar to find, that FINNMERCHANT was approaching[1].

If the fisherman had observed, that FINNMERCHANT was approaching, he should not have altered the course to port less than 10 minutes to the CPA of passing FINNMERCHANT[2].

Neither the fisherman nor the mate, who took over the watch at 0300 hours, plotted the vessels in the vicinity. The radar had no automatic plotting device, but the mate neither used the bearing line and the distance ring(s) on the radar to determine if risk of collision existed. Therefore they only had a very uncertain and narrow picture on board EATON of the course and speed of other vessels in the vicinity. See footnote 1.

When the mate took over the watch at 0300 hours he estimated from the echo, which had just appeared on the radar, that FINNMERCHANT would pass ahead of EATON. This estimation was wrong. When the distance between the vessels was approx. 0.6 nm the mate decided to alter the course of EATON to starboard to avoid close passage of FINNMERCHANT. This decision was also wrong. If he had plotted FINMERCHANT from the beginning of his watch, he would have realised that EATON was on or had passed the heading line of FINNMERCHANT.

The fisherman had long experience, but the investigators do not know his abilities of using radar. He did not have the required certificate to be watch keeping on board EATON.

Fog signals were not sounded on board EATON[3].

The shift of watch took place in a situation where a close passing was known to happen soon. The mate who took over the watch did not have time enough to familiarize himself with the situation.

---

[1] Rule 7 (b) in COLREG prescribes: *Proper use shall be made of radar equipment if fitted and operational, including long-range scanning to obtain early warning of risk of collision and radar plotting or equivalent systematic observation of detected objects.*

[2] Rule 19 – *Conduct of vessels in restricted visibility* - (d) prescribes: *A vessel which detects by radar alone the presence of another vessel shall determine if a close-quarters situation is developing and/or risk of collision exists. If so, she shall take avoiding action in ample time, provided that when such action consists of an alteration of course, so far as possible the following shall be avoided:*

*(i) an alteration of course to port for a vessel forward of the beam, other than for a vessel being overtaken;*

(ii) ……..

[3] COLREG rule 35.

**Comments from the Accident Investigation Board of Finland and the Division for Investigation of Maritime Accidents of Denmark concerning the acting of the crew of FINNMERCHANT**

When the distance between FINNMERCHANT and EATON was approx. 3,5 nm the 2nd officer on FINNMERCHANT began to suspect that the visibility was restricted, because he was not able to observe EATON and AULIS visually.

Taken into consideration that there also were other and larger targets in the vicinity and these were observed only by the radar, and the visibility at the watch shift at midnight also had been restricted, the 2nd officer should have realised on an earlier stage that the visibility ahead of FINNMERCHANT was restricted.

The 2nd officer could rely only to radar with his navigation as to the targets on the port bow, because the visibility was restricted. He did not reduce speed and he did not call the master. This was not according to the COLREG rules or according the company's/master's standing orders[4].

When EATON altered course to port shortly before 03.00 hours and the CPA became 0,3 nm and crossing FINNMERCHANT's heading line, the 2nd officer on FINNMERCHANT should had reduced speed[5].

The 2nd officer turned the rudder hard to port, when he saw a white light from EATON on the starboard side of FINNMERCHANT just before the collision. At that moment the 2nd officer did not know which course EATON was heading, and he chose a port turn because he estimated that this would be the best way to avoid collision. In the situation this choice must be seen as a natural reaction from the 2nd officer.

As the investigators have got the prints from FINNMERCHANT's electronic chart the course of the accident is well documented. Taking the prints shows that the 2nd officer realised that the situation might grow critical. Documenting then situation by taking prints shows that he was confident in his actions.

---

[4] Rule 6 - *Safe speed* - prescribes:

*Every vessel shall at all times proceed at a safe speed so that she can take proper and effective action to avoid collision and be stopped within a distance appropriate to the prevailing circumstances and conditions. In determining a safe speed the following factors shall be among those taken into account: (a) By all vessels: (i) the state of visibility; (ii) the traffic density including concentrations of fishing vessels or any other vessels; etc….*

[5] Rule 19 (e) prescribes:

*(e) Except where it has been determined that a risk of collision does not exist, every vessel….. which cannot avoid a close-quarters situation with another vessel forward of her beam, shall reduce her speed to the minimum at which she can be kept on her course. She shall if necessary take all her way off and in any event navigate with extreme caution until danger of collision is over.*

# 10. Conclusion

The causes of the collision:

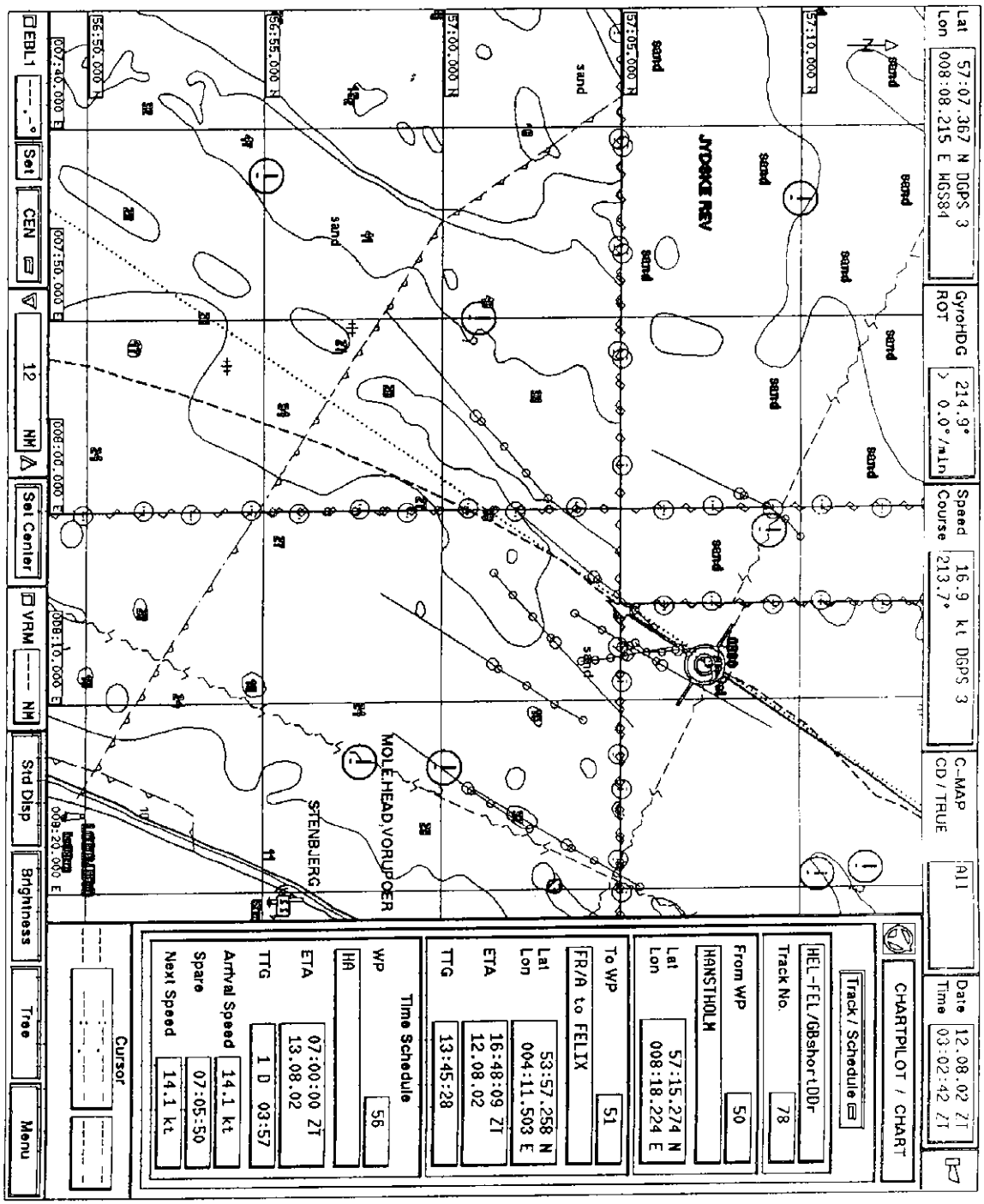
- Short time before the shift of watch on board EATON, EATON turned port to a course ahead of FINNMERCHANT. The fisherman on watch had probably not at this moment observed by long-range scanning on the radar, that FINNMERCHANT was approaching.
- Neither the fisherman nor the mate on EATON used the radar in an appropriate way to determine if risk of collision with FINNMERCHANT existed. The mate on EATON therefore misjudged the situation and turned starboard over again to a course ahead of FINNMERCHANT just before the collision.
- The 2nd officer on FINNMERCHANT did not reduce the speed, when he realized that the vessel was approaching an area, where the visibility was restricted.

# 11. Recommendations

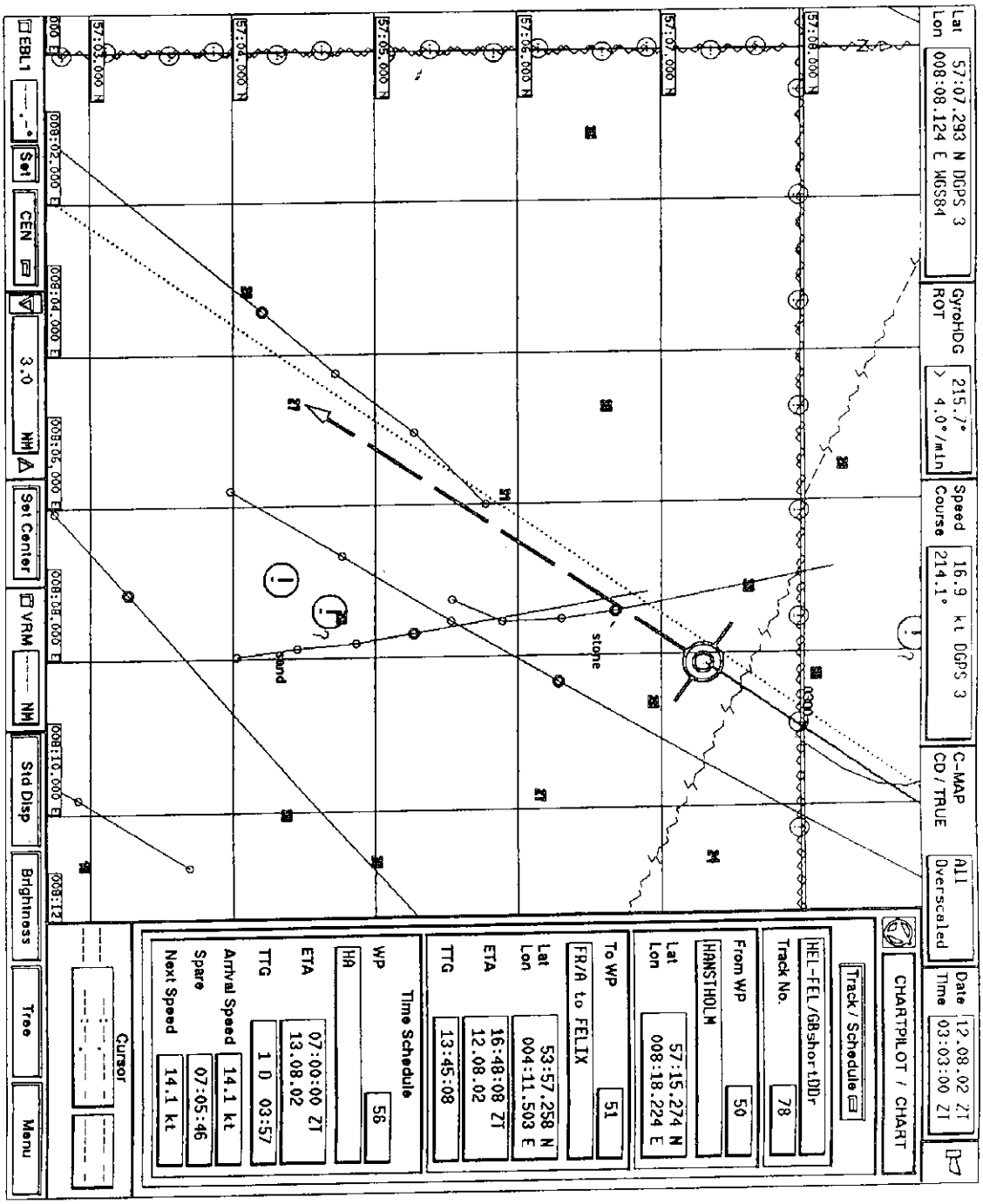
The investigators do not make any specified recommendations in this casualty report, but they want to highlight the importance of proper plotting and avoidance of close CPA's with normal speed in restricted visibility.

# 12. Appendix

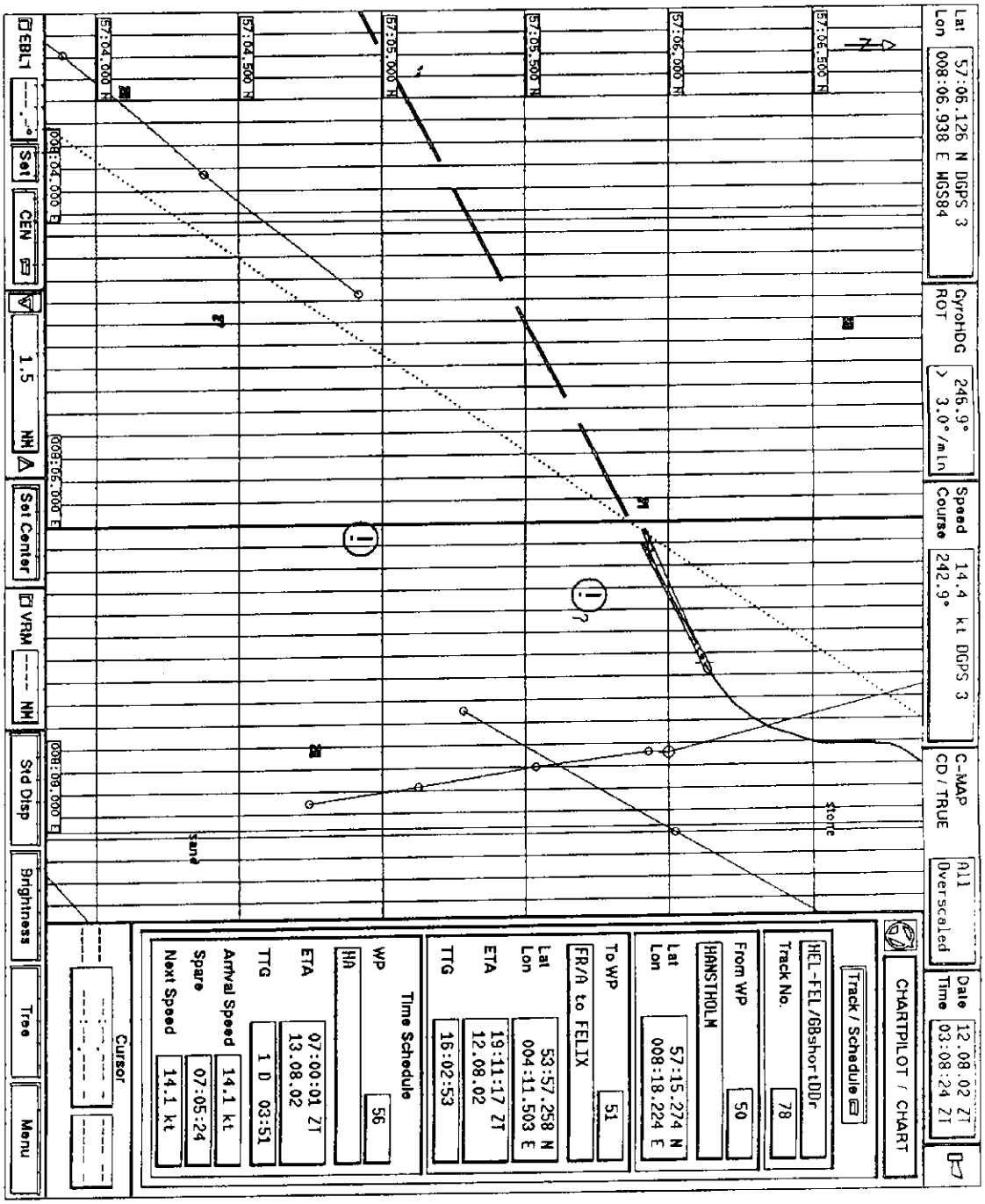
Appendix 1:



Appendix 2:


Lat
Lon
57:07.293 N DGPS 3
008:08.124 E WGS84
GyroHDG
ROT
215.7°
> 4.0°/min
Speed
Course
16.9 kt DGPS 3
214.1°
C-MAP
CD / TRUE
All
Overscaled
Date
Time
12.08.02 ZT
03:03:00 ZT
CHARTPILOT / CHART
Track / Schedule
HEL-FEL/GBshortDDr
Track No.
78
From WP
50
HANSTHOLM
Lat
Lon
57:15.274 N
008:18.224 E
To WP
51
FR/A to FELIX
Lat
Lon
53:57.258 N
004:11.503 E
ETA
16:48:08 ZT
12.08.02
TTG
13:45:08
Time Schedule
WP
56
HA
ETA
07:00:00 ZT
13.08.02
TTG
1 D 03:57
Arrival Speed
14.1 kt
Spare
07:05:46
Next Speed
14.1 kt
Cursor
EBL1
Set
CEN
3.0
NM
Set Center
VRM
NM
Std Disp
Brightness
Tree
Menu
stone
sand
008:02.000 E
008:04.000 E
008:06.000 E
008:08.000 E
008:10.000 E
008:12
57:08.000 N
57:07.000 N
57:06.000 N
57:05.000 N
57:04.000 N
57:03.000 N

Appendix 3:


Lat
Lon
57:06.126 N DGPS 3
008:06.938 E WGS84
GyroHDG
ROT
246.9°
> 3.0°/min
Speed
Course
14.4 kt DGPS 3
242.9°
C-MAP
CD / TRUE
All
Overscaled
Date
Time
12.08.02 ZT
03:08:24 ZT
CHARTPILOT / CHART
Track / Schedule
HEL-FEL/GBshortDDr
Track No.
78
From WP
50
HANSTHOLM
Lat
Lon
57:15.274 N
008:18.224 E
To WP
51
FR/A to FELIX
Lat
Lon
53:57.258 N
004:11.503 E
ETA
19:11:17 ZT
12.08.02
TTG
16:02:53
Time Schedule
WP
56
HA
ETA
07:00:01 ZT
13.08.02
TTG
1 D 03:51
Arrival Speed
14.1 kt
Spare
07:05:24
Next Speed
14.1 kt
Cursor
EBL1
Set
CEN
1.5
NM
Set Center
VRM
Std Disp
Brightness
Tree
Menu
57:06.500 N
57:06.000 N
57:05.500 N
57:05.000 N
57:04.500 N
57:04.000 N
008:04.000 E
008:05.000 E
008:06.000 E
store
sand