



Bundesstelle für Seeunfalluntersuchung
Federal Bureau of Maritime Casualty Investigation
Federal Higher Authority subordinated to the Ministry of
Transport, Building and Urban Affairs

Investigation Report 191/05

Very Serious Marine Casualty:

**Loss Over Board of the Skipper
SY ANDREA
on 28 May 2005
in Swedish Waters Near Ellös**

15 March 2006

The investigation was conducted in conformity with the law to improve safety of shipping by investigating marine casualties and other incidents (Maritime Safety Investigation Law - SUG) of 16 June 2002.

According to this the sole objective of the investigation is to prevent future accidents and malfunctions. The investigation does not serve to ascertain fault, liability or claims.

The German text shall prevail in the interpretation of the Investigation Report.

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1 Summary of the marine casualty

During a sailing trip with SY ANDREA among the Swedish skerry islands, the boom of the main sail swung round as a result of a sudden gust in the afternoon of 28 May 2005¹, struck the skipper on the head, and flung him over board.

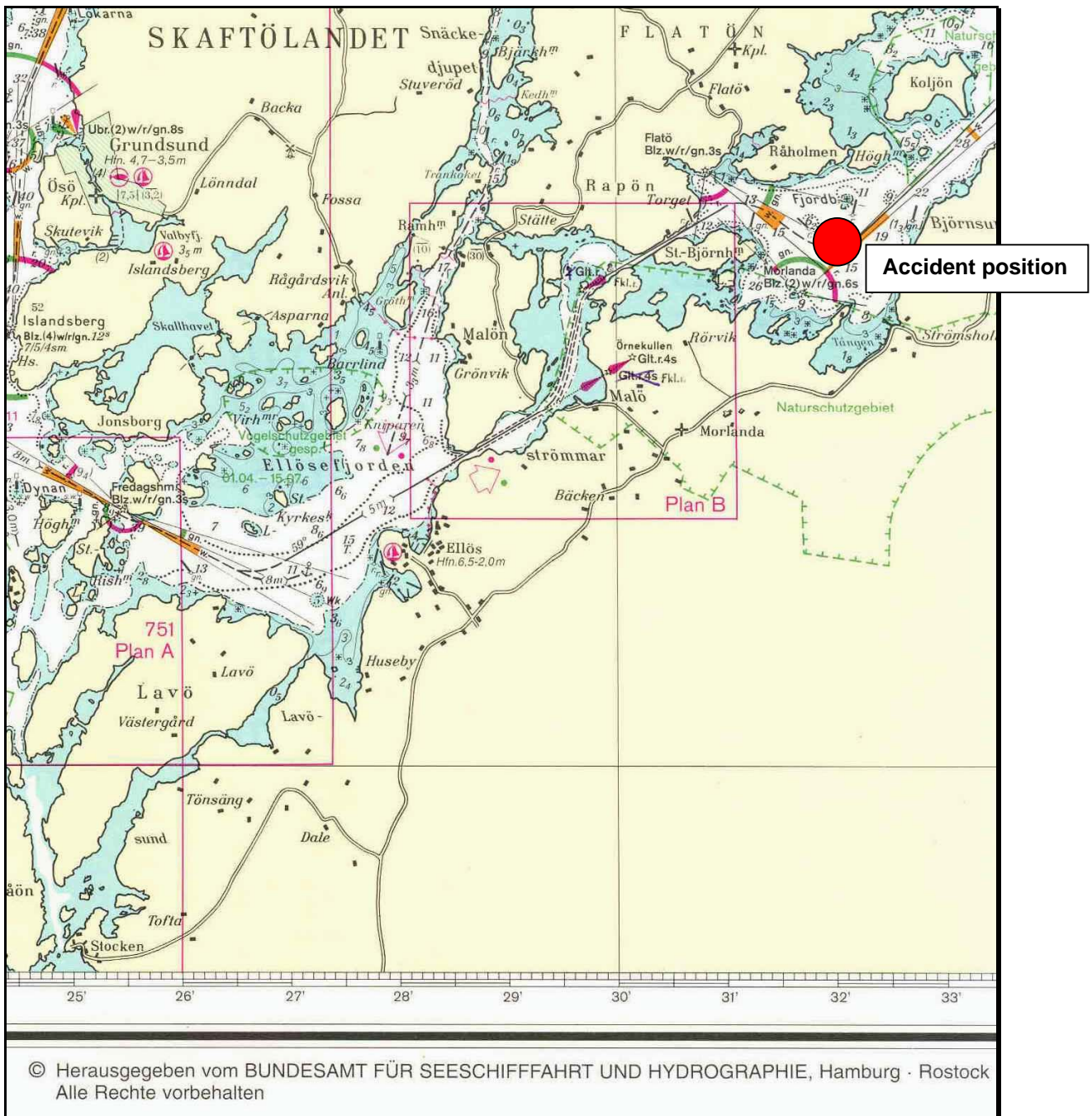
Despite the rescue measures initiated immediately, the skipper could only be recovered dead three days later by divers.

¹ All times stated in the report are CEST = UTC+2h

2 Scene of the accident

Nature of the incident: Very serious marine casualty, loss of skipper over board
 Date/Time: 28 May 2005 / approx. 14:50 h CEST
 Location: 1 nm east of Malö Strömmar
 Latitude/Longitude: ϕ 58°12,63' N λ 011°32,05' E

Figure 1: Scene of the accident - Chart



(Excerpt from Chart 752 - BSH)

3 Vessel particulars and photo



Figure 2: SY ANDREA

Name of vessel:	Andrea
Port of registry:	Heiligenhafen
Nationality/flag:	Federal Republic of Germany
Official number:	134174 S
Call sign:	DD 8283
Type of vessel:	Sailing yacht Type: Vindö 43
Crew:	2
Year built:	1997
Building yard:	Regina af Vindö Yachts AB
Length over all:	13.26 m
Width over all:	4.00 m
Max. draft	1.80 m
Deadweight:	12.0 t
Main engine	Inboard Yanmar 43H2
Engine rating	65 kW

4 Course of voyage/circumstances of accident

The owner and a co-sailor were on board the Motorsailer ANDREA.

Both of them had many years of sailing experience. Generally the skipper made any necessary changes in course during the voyage from the inboard steering stand as long as the autopilot was working. In isolated instances he came on deck and corrected the course manually or via a command to the co-sailor.

At about noon on 28 May 2005 the sailing trip began in Vindön (Nötesund), under full sail, with the vessel bound for Henan. Neither of the sailors was wearing a life jacket. According to the statement made by the co-sailor, ANDREA had followed the navigation channel in a south-westerly direction. The skipper had had the chart lying on the saloon table and went down to look at it from time to time to check the position. A GPS unit of type Raymarine had been used for this purpose.

Shortly before the accident the navigation channel had made it necessary to change course to starboard at the entrance of Malö Strömmar, and this was to be done manually. However, the skipper had wanted to keep sailing a little further on the previous course until the sails were in a better position to the wind, so that the main sail could then be taken onto the other side. Up to this time the wind had been coming from aft, the Genoa was sailed on the port side and the main boom was resting against the starboard shroud.

The co-sailor had been at the steering-wheel on this morning, under the command of the skipper. He had thus been on the seat directly behind the rudder. Shortly before the change of course the skipper had decided to take over the helm. He had stood on the port bench seat and steered the boat by grasping the steering-wheel behind him. While the co-sailor still in his previous seated position had begun to take off his oilskins, a sudden change in the direction of the wind had led to an accidental gybe in other words the main boom had swung over to the port side. The boom had struck the skipper on the right side of his head and hurled him over board.

After a few seconds the skipper had come up out of the water and drifted motionless on the surface for a short time.

The co-sailor had immediately started the engine and actuated the MOB-key² on the GPS unit, and returned to the scene of the accident with open sails. A further yacht had hurried to assist and issued a distress call. All present had kept a lookout for the victim of the accident but could not locate him again.

A few minutes later a helicopter and a coastal patrol boat had reached the scene of the accident and they took over the further coordination of the rescue measures.

SY ANDREA was transferred to Ellös. A first accident report was recorded there.

The corpse was only found by divers at a depth of 15 m on 31 May 2005.

² MOB = Man over Board: This position is assumed to be the accident position in the following.

5 Consequences of the accident

No visible damage was sustained by SY ANDREA. The owner died of the severe head injury in conjunction with water in the lung. The co-sailor suffered shock.

6 Analysis

6.1 Qualification of the skipper

The owner and skipper of ANDREA had been in possession of the German Sailors Association Licence for Yachts for Inland Sailing (A) since 1982. In March 1986 he obtained the Leisure Craft Skipper's Licence Sea and in October 1987 the Yacht Skipper's Licence Coastal Waters (BR) for yachts under sail and under engine power. In addition he held the Radio Operator's Certificate II.

The frequent sailing trips in the area of the Swedish skerry islands were documented by many logbooks, photo albums and other personal records. Accordingly the skipper was familiar with the localities and the climatic features of this region.

6.2 Qualification of the co-sailor

The co-sailor had been in possession of the German Sailors Association Licence for Yachts for Inland Sailing since 1993. In August 1995 he obtained the Yacht Skipper's Licence Coastal Waters (BR) for yachts under sail and engine power, and in April 1997 the Leisure Craft Skipper's Licence Sea.

6.3 Weather

According to the official weather expertise of the Germany's National Meteorological Service (DWD), a ridge of low pressure with individual thunderstorms passed over the Malö Strömmar area in the early afternoon of 28 May 2005. Initially an easterly wind was blowing at medium wind forces of 4 Bft, and after the front had passed the wind turned to south-west and retained the same force.

Individual thunderstorm gusts with forces of up to 7 to 8 Bft can have occurred briefly as the weather front passed.

It can be assumed that a sea with wave heights below 0.5 m was able to develop under these wind conditions.

6.4 Forensic Expert Opinion

On 2 June 2005, at the instigation of the Police Directorate Västra Götland, a forensic examination of the victim of the accident was conducted. The examination produced the following conclusions:

- ◆ Injuries to the head had been caused by a blunt object, whereby the nature of the force applied could no longer be proven. However, a blow with a sail boom was possible.
- ◆ Distended lungs, indicating that the examined person had still been breathing in the water so that water was able to enter the lungs.
- ◆ Skin damage, presumably due to attacks by animals after death.

The post-mortem findings closed with the statement that the head injury was the cause of death.

6.5 Investigations at the scene

Within the framework of international cooperation, the SWEDISH MARITIME SAFETY INSPECTORATE (SMSI) conducted an investigation on the spot on behalf of the Federal Bureau of Maritime Casualty Investigation (BSU) in order to be able to reconstruct the course of the accident. For this purpose the building yard was visited to have the yacht measured. Since SY ANDREA had already been unrigged, the accident situation was reconstructed on a yacht of the same construction.

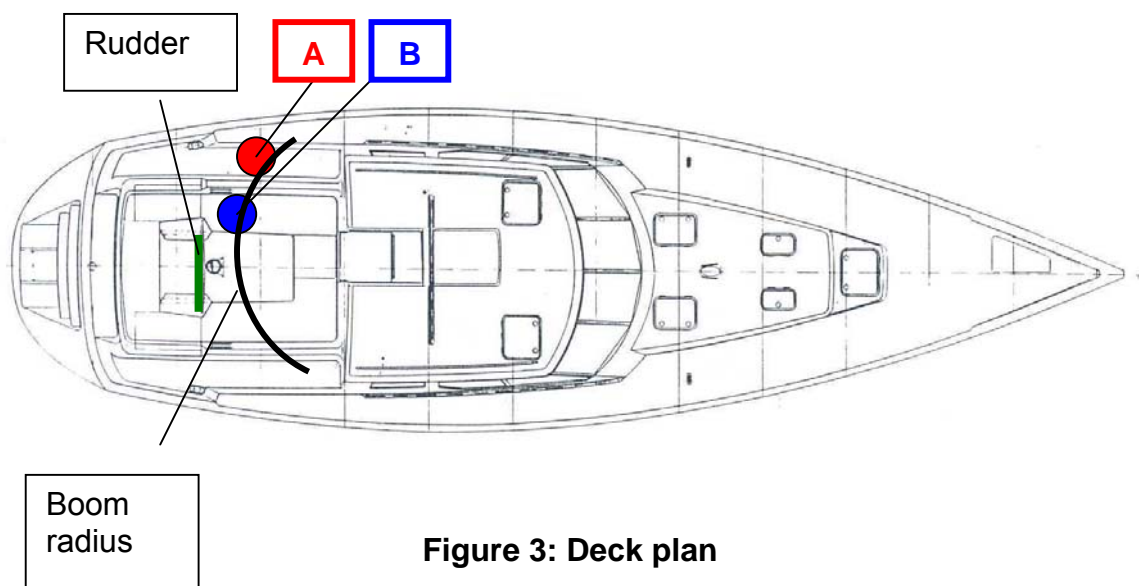


Figure 3: Deck plan

(Not to scale)

The radius of the boom (5.40 m) is shown in the drawing. Points A and B are the possible places where the skipper can have been standing. Point A (the winch deck) is approx. 0.50 m above the cockpit deck. A person standing upright there would not have been hit on the head, but at most on the shoulder.

Point B (the bench seat) is approx. 0.40 m above the cockpit deck. The boom would hit a person standing there on the head if such a person were standing upright. If the person wanted to reach back to the helm at the same time, the person would have to lean back strongly and could then not be hit by the boom.



Figure 4: Reconstructing of the accident position

(Photo: Staff member of SMSI)

6.6 Conclusions

The skipper and the co-sailor had many years of sailing experience, especially in this region. Neither of them were fatigued and neither were under the influence of alcohol. The yacht was in a sound condition and the weather was good.

It could not be determined why the skipper positioned himself such that he was within the swivel area of the boom, even though he knew that it was possible for sudden changes of wind to occur in this area.

The co-sailor's statement regarding the head injury is backed up by the forensic expert opinion, which also states that water was ascertained in the lung. It is therefore not improbable that the accidental death was accelerated or even caused solely by breathing in water in a state of unconsciousness.³ Therefore the fact that the skipper was not wearing a life jacket can have promoted the consequence of the accident.

The investigation by the Swedish authority comes to the conclusion that it is not possible to steer the yacht and be hit on the head by the boom at the same time. It is therefore assumed that the skipper was standing in a position in which he could have been hit on the head, but was not holding the wheel in his hand at the time.

³ Note: Prof. Dr. med. K. Püschel, Director of the Institute of Legal Medicine at the Hamburg-Eppendorf University commented on the Forensic Expert Opinion from Gothenburg for the BSU

7 Safety recommendations

The Federal Bureau of Maritime Casualty Investigation (BSU) takes this marine accident as an occasion to draw attention once again to the following:

The BSU recommends all persons on board leisure craft to wear life jackets as soon as they are on deck. A life jacket worn properly prevents drowning and substantially supports the finding and recovery of persons who fall over board.

Furthermore, the BSU recommends that all persons on the deck of sailboats should be constantly aware of the danger of beating sails and should avoid danger areas as far as possible.

The BSU recommends that skippers of crafts under sail maintain control over the course of the boat at all times. Special attention is necessary in areas where changing winds are known. Above all, when crafts are sailing with aft winds there is always a danger of sails beating over.

Sources

The investigation report relates to the investigations by the BSU and to

- investigations by the Police Directorate Västra Götland
- the investigation by the SWEDISH MARITIME SAFETY INSPECTORATE Gothenburg
- written comments by the co-sailor
- statements and documents of the family of the accident victim
- vessel particulars from the yard Regina af Vindö Yachts AB
- official weather expertise by Germany's National Meteorological Service (DWD)
- Expert Opinion by the Forensic Department Gothenburg
- Photo of the vessel SY ANDREA – daughter of the owner
- Excerpt from Chart 752 (Federal Maritime and Hydrographic Agency (BSH))
- Figure 3: Deck plan - Regina af Vindö Yachts AB
- Figure 4: Reconstructing of the accident position - SWEDISH MARITIME SAFETY INSPECTORATE (SMSI) Gothenburg