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“The sole objective of the investigation of an accident under the Merchant Shipping (Accident Reporting and Investigation) Regulations 2012 shall be the prevention of future accidents through the ascertainment of its causes and circumstances. It shall not be the purpose of such an investigation to determine liability nor, except so far as is necessary to achieve its objective, to apportion blame.”

NOTE

This report is not written with litigation in mind and, pursuant to Regulation 14(14) of the Merchant Shipping (Accident Reporting and Investigation) Regulations 2012, shall be inadmissible in any judicial proceedings whose purpose, or one of whose purposes is to attribute or apportion liability or blame.

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**Capsize of an unnamed Bayliner Capri 2000 speedboat,
resulting in the loss of three people off Lowestoft**

10 March 2014

SUMMARY

At 1015 UTC¹ on 10 March 2014, three men left Great Yarmouth in a 5.7m Bayliner Capri 2000 (**Figure 1**) speedboat to go fishing off Lowestoft, Suffolk. At 1352 the coastguard received a report that the capsized hull of the boat had been seen about 100m offshore of Lowestoft, and the local lifeboat was tasked to attend.

The body of one of the men, who had been wearing a buoyancy aid, was recovered, but despite an extensive search the others were not found.

The MAIB investigation established that the men, who were recreational anglers, had been in the area to recover longline fishing gear that they had laid the previous day. When the lifeboat arrived at the capsized hull, it was observed that the boat's propeller had been fouled by rope similar to that used for the fishing gear.

Subsequent examination of the hull found that the freeboard² at the stern was low, at 36cm. It was also noted that there was an opening in the stern for the engine control cables, the lower edge of which was 26cm above the waterline.

Weather conditions had been deteriorating before the accident and it is probable that the boat became disabled when its propeller was fouled by the rope from the fishing gear. This line acted to anchor the boat by the stern. Waves would have entered the boat over the stern, causing it to become unstable and capsize, throwing the men into the water.

No recommendations have been made in this report, but the Chief Inspector has written to the editors of major sea angling publications inviting them to bring the safety lessons identified in this report to the attention of their readers.

¹ UTC (Universal Co-ordinated Time) is used throughout the report

² Freeboard - height that the outboard edge of the deck is above the waterline



Figure 1: Similar boat

FACTUAL INFORMATION

Background

The Bayliner Capri 2000 was a model of speedboat designed for inshore recreational water sports. The boat involved in the accident was built in the United States of America in April 1987.

Andy Porter had purchased the boat, which was fitted with a 60hp³ Johnson outboard motor, from a private internet vendor in June 2013. He stored it at his home before mooring it in Great Yarmouth harbour in December 2013. Mr Porter was a keen shore angler, but this was the first boat he is known to have owned.

The boat was taken to sea on three occasions between 21 January and 7 March 2014 for short angling trips. The worst weather experienced on these trips was a southerly force 4 wind, on 6 March, when Mr Porter had returned to port after 14 minutes at sea.

Narrative

At 0810 on 9 March 2014, the Bayliner Capri left Great Yarmouth with Mr Porter (46) and his friends, Peter Chambers (43) and Malcolm Sayer (79) on board. The men took the boat south from the harbour towards Lowestoft (**Figure 2**) and laid longline fishing gear on the seabed off Corton (**Figure 3**). They returned to Great Yarmouth at 1129.

The fishing gear consisted of a central 'long' line that had short lines with baited hooks attached at intervals along its length. The rope used for the longline itself was a 7mm diameter, weighted plaited line, which was anchored to the seabed and marked with buoys and poles with flags attached.

At 1015 the following day, the three men set out in the boat to recover the fishing gear. The wind was north-west force 4 with a slight sea, and the forecast was for the wind to veer and increase to north-east force 5. The sea temperature was 6°C.

The boat's departure was observed and logged by the National Coastwatch Institution's (NCI) lookout at Gorleston, and was also recorded on the Great Yarmouth Harbour Authority's CCTV⁴ system. All three

³ 60hp (horsepower) approximately equivalent to 44kW (kilowatt)

⁴ Closed-circuit television



Figure 2: The men leaving Great Yarmouth on 9 March, heading south towards Lowestoft

men appeared to be wearing waterproof foul weather clothing. Mr Chambers was the only man on board seen to be wearing a buoyancy aid as the boat left port. He was also wearing a surgical support on his lower leg having broken his leg some weeks before the accident.

At 1145 a watchkeeper at the NCI lookout scanned the sea area off Corton with binoculars and saw a boat that was probably the Bayliner Capri.

At 1352 a member of the public telephoned the coastguard to report debris in the water about 100m off Lowestoft Ness (**Figure 3**).

Search and rescue

The coastguard tasked the Lowestoft Coastguard Rescue Team (CRT) to proceed to the shoreline in that area, and at 1401 mobilised the Lowestoft lifeboat.

The coastguard received several telephone calls relating to the accident from members of the public, some of which reported a body in the sea and an upturned hull off Lowestoft.

The Lowestoft lifeboat proceeded to the scene and the coastguard alerted vessels off Lowestoft to maintain a good lookout in the area. The lifeboat arrived and confirmed that there was the upturned hull of a boat, with its propeller fouled by fishing gear, approximately 0.5nm off Lowestoft Ness.

The lifeboat continued to search the area and at 1425 found Mr Chambers, who was wearing a buoyancy aid, face down and apparently lifeless off Claremont Pier, Lowestoft.

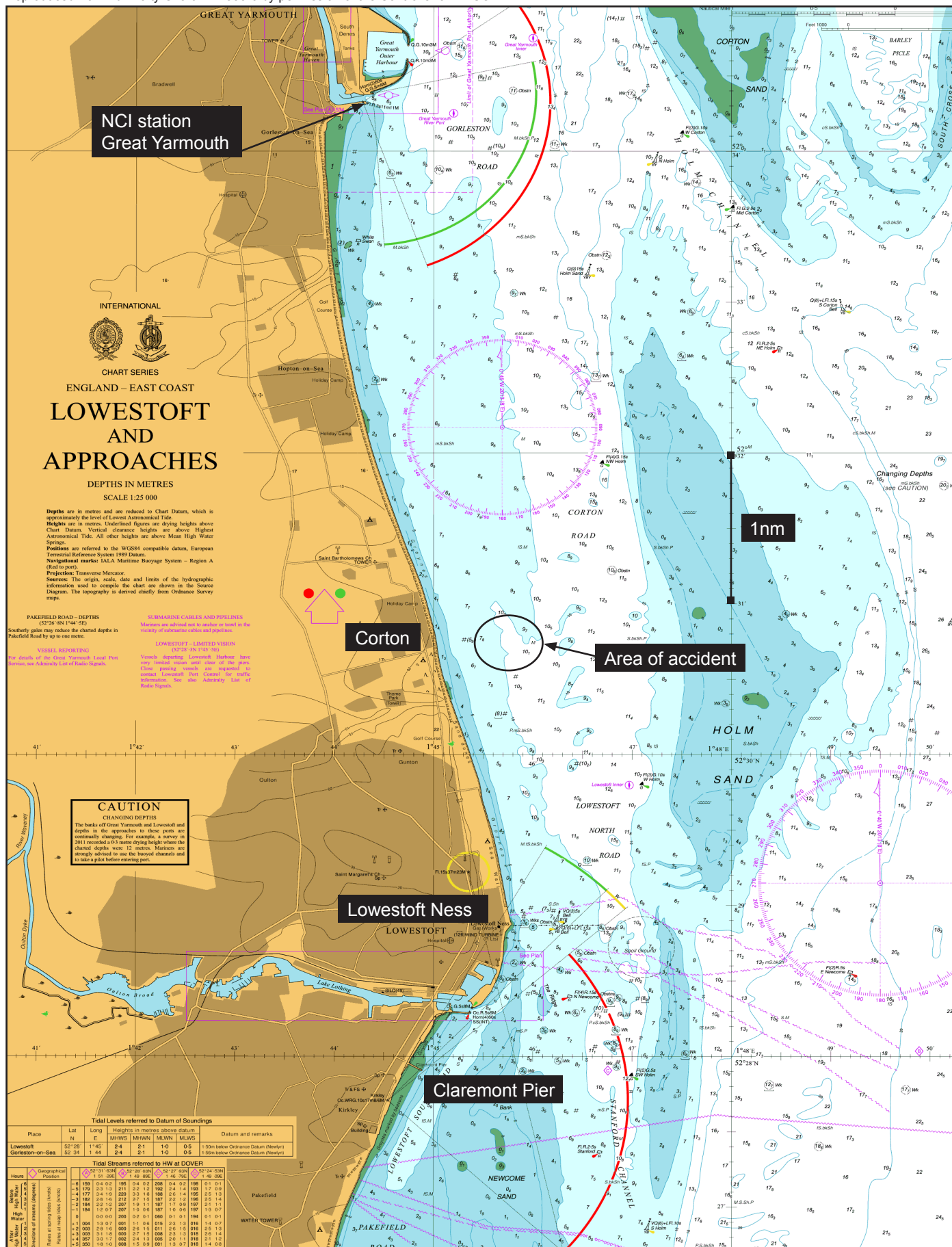


Figure 3: Location of the accident

The lifeboat recovered Mr Chambers and returned to port to transfer him to an ambulance. Despite the efforts of the lifeboat crew and the ambulance staff, Mr Chambers could not be resuscitated. Subsequent post mortem examination confirmed the cause of death to be drowning. Two mobile telephones were recovered from his clothing.

At 1428 the coastguard contacted the NCI at Gorleston and were informed that a white hulled speedboat with three persons on board had left Great Yarmouth that morning.

The Lowestoft lifeboat returned to sea at 1517, its crew manoeuvred the lifeboat close to the upturned hull and managed to cut away the fishing lines that were fouling the propeller. At this time there was a moderate sea in the area, with waves of up to 2m in height, and the bow of the lifeboat made contact with the upturned hull during this manoeuvre.

By 1530, the coastguard had also tasked the Great Yarmouth all weather and inshore lifeboats, the Southwold lifeboat and a rescue helicopter to assist in the search for the two missing men. The police and ambulance service helicopters were also in the area and assisted the CRT's search of the shoreline to the north and south of Lowestoft.

Several items were recovered during the search, including a buoyancy aid, clothing and seats that were assumed to have come from the upturned boat.

At 1628 the rescue helicopter arrived on scene and joined the lifeboats in searching the sea area designated by the coastguard. This continued until the initial area had been fully searched. At 1830 the search units were temporarily stood down to allow them to refuel.

At 2020 the upturned boat was recovered onto a beach at Lowestoft by the RNLI⁵, the Fire and Rescue Service and the CRT. Following an initial inspection, it was hauled up the beach (**Figure 4**) and transported by road to secure storage. Shortly after this, the coastguard tasked the Lowestoft and Great

⁵ Royal National Lifeboat Institution



Figure 4: Boat recovered onto the beach

Yarmouth lifeboats to resume the search of an expanded sea area off Lowestoft while the CRT resumed its search along the shoreline. At 2115 a rescue helicopter joined this search, which was completed at 0010 on 11 March. Mr Porter and Mr Sayer were not found.

Inspection of the boat

The Bayliner Capri 2000 was built and sold prior to 1998 and so was not required to comply with the RCD⁶. However, a similar boat today would probably be classified as a category C boat, meaning that it would be designed for inshore voyages in coastal waters, large bays, estuaries, lakes and rivers with conditions up to wind force 6 and significant wave heights up to 2m.

The stern freeboard of the boat was 36cm. However, the original hole in the transom for the engine control cables and fuel pipe had been enlarged into an irregularly shaped 18cm x 12cm opening (**Figure 5**). A partial patch had been fitted to this opening. The CCTV recording of the boat leaving harbour on the morning of 10 March appears to show the patch in place, but when the boat was inspected following its recovery the patch was no longer present, although some silicone-based sealant was found loosely attached to the edges of the opening. The lower edge of this opening was 26cm above the waterline.

There was a gash in the hull near the engine, with red coloured paint at its edges consistent with the antifouling applied to the Lowestoft lifeboat's hull. Other damage observed was to the propeller blades, the engine casing and the boat's topside, all of which was consistent with the righting and recovery of the boat onto the beach at Lowestoft.

The boat did not have a fixed VHF⁷ radio installation and no evidence was found to suggest that it had been equipped with flares or a distress beacon.

Immersion in cold water

Sudden immersion in cold water (deemed to be water under 15°C) can be fatal in the following ways⁸:

- a. Cold shock response. On immersion in cold water the sudden lowering of skin temperature causes a rapid rise in heart rate, and therefore blood pressure, accompanied by a gasp reflex followed by uncontrollable rapid breathing. The onset of cold shock occurs and peaks within 30 seconds and lasts for 2-3 minutes. Cold shock is considered to be the cause of the majority of drowning deaths.
- b. Loss of dexterity and coordination. In cold water, cooling of the hands, arms and legs can result in loss of dexterity and coordination resulting in loss of ability to swim or conduct survival tasks, such as firing a flare. The colder the water, the more rapid the loss of dexterity, with swimming ability being lost in as little as 10 minutes in water of 5°C.
- c. Hypothermia. Continued immersion in cold water causes body core temperature to reduce leading to slowed mental function, unconsciousness and, eventually death. The rate at which an individual will cool will vary depending on a number of factors, with survival time dependent on the rate at which core temperature is lost. Predictions vary, but in water of 5°C survival time for a lightly clad individual is around 2 hours or less.

⁶ Recreational Craft Directive 94/25/EC, as amended by Directive 2003/44/EC

⁷ VHF = Very High Frequency radio

⁸ Golden, F and Tipton, M (2002). Essentials of Sea Survival. Human Kinetics: Leeds, UK

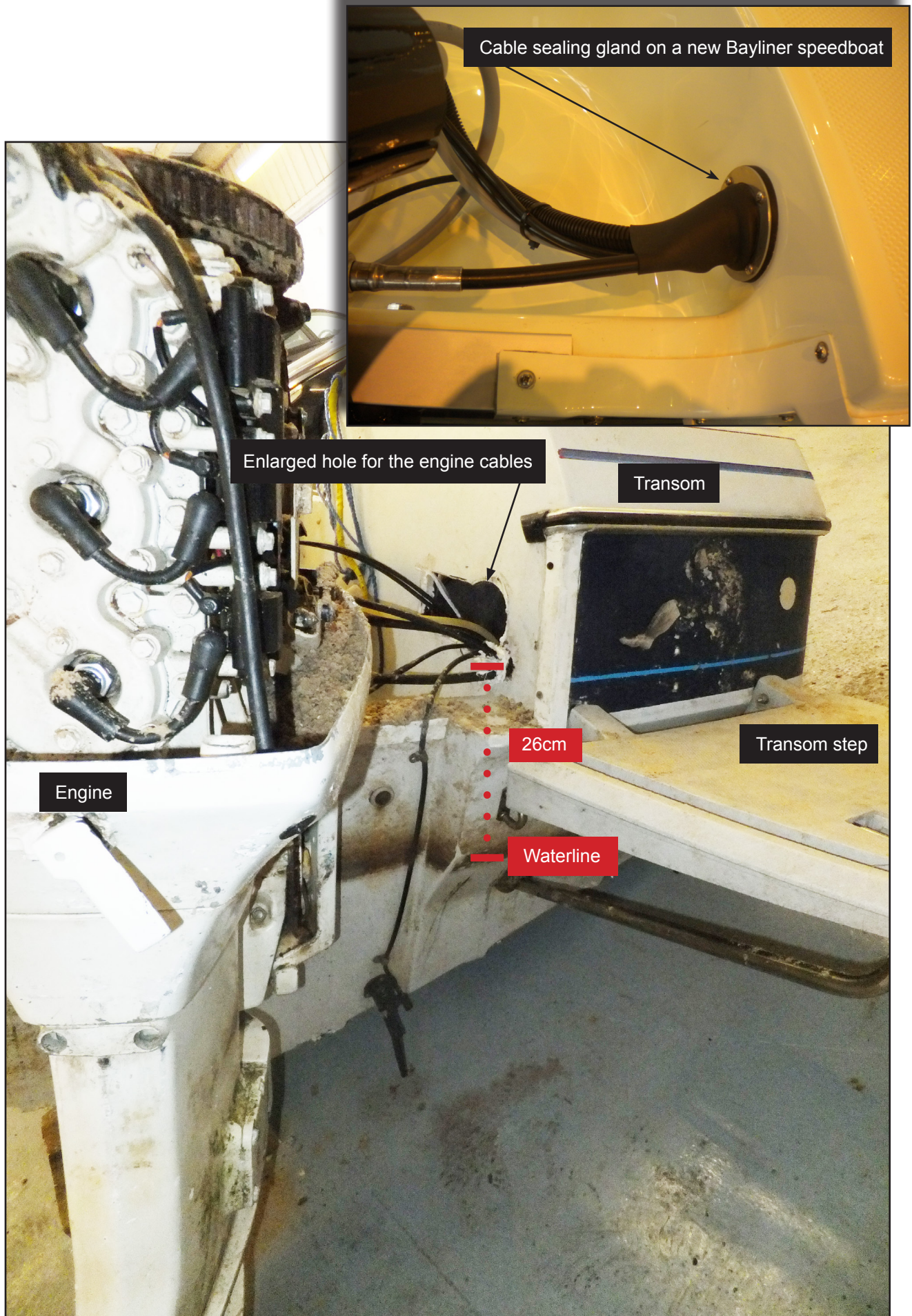


Figure 5: Stern view showing enlarged hole cut in transom for engine cables (inset: showing cable seal on a new boat)

ANALYSIS

Accident summary

It was not possible to establish the circumstances that led to the capsize of the Bayliner Capri 2000 and the loss of the three men. However, the following is considered to be the most likely scenario:

- It is probable that as the men attempted to recover their fishing gear, rope from the gear fouled the propeller and disabled the boat. The boat would then have been anchored by the fishing gear with its stern being held into the prevailing seas.
- The wind had veered from north-west to north-east and increased to force 5, as forecast, at around 1200. The tide changed at 1220, putting it in the same direction as the wind and, as a result of the long fetch in the area where the men were fishing, this would have rapidly led to waves of around 2m in height. Such waves would have been at the upper limit of the boat's operational capability. However, the boat was anchored to the seabed by its stern with its area of lowest freeboard facing the waves. As the men worked together to clear the propeller the freeboard at the stern would have been further reduced leading to waves entering the boat over the stern. If the temporary cover around the opening in the stern for the engine controls had been dislodged at this time, the boat's freeboard would have been lower still, increasing its vulnerability to flooding.
- As the amount of water in the boat increased, its stability would have reduced until it eventually capsized. That two mobile telephones were recovered from Mr Chambers' body, and that there were no records of any emergency calls from the men, suggests that the capsize occurred suddenly. From the known position of the fishing gear, the tidal stream and the position where Mr Chambers was recovered, it is likely that the capsize occurred around 1230.

No damage was found to the hull other than that consistent with the contact made by the lifeboat during the recovery and the subsequent hauling of the boat up the beach.

Experience of the crew

This was the first boat that Mr Porter is known to have owned and, although the three men were keen shore anglers, no evidence was found to indicate that they had any collective recent experience of operating a boat at sea.

It is significant that on 6 March in winds of force 4 the boat had been returned to port after just 14 minutes. This suggests that the men were aware of the boat's limitations in adverse weather conditions, and indicates that they were not expecting the conditions encountered on the day of the accident, despite these having been forecast. Forecasts were available from the Great Yarmouth Harbour Master's office and the Met Office.

Suitability of the boat

The Bayliner Capri 2000 was well built and capable of high speeds in sheltered waters. However, the sea conditions on the day of the accident were at the upper limit of the boat's capabilities. Once the stern became anchored by the fishing gear, the boat would have quickly started shipping waves over the relatively low stern freeboard.

At some point after manufacture, the hole in the stern through which the control cables and fuel pipe for the outboard engine were fed through a sealing gland, as seen on a new, similarly sized Bayliner (**Figure 5 inset**), had been altered. The hole had been enlarged, the gland had been removed and a partial cover had been secured in place using silicone-based sealant. This partial cover was missing following the

accident. Although it is not known exactly when the cover detached, the silicone-based sealant used to fix it in place was not appropriate given that the plate was essential to maintaining adequate freeboard at the stern.

Raising the alarm

The crew of the Bayliner Capri 2000 might well have considered they did not need to carry a VHF radio or flares on board. The boat was fishing less than half a mile offshore, potentially well within the coverage of the mobile telephone network and within sight of land. In the event, the crew did not have time to use their mobile phones, and their situation was not reported for over an hour.

Although it is believed that the boat capsized rapidly, had a VHF radio been fitted, or a hand-held unit been available, there would likely have been time between its propeller becoming fouled and the capsize for the crew to call the coastguard to indicate they were in difficulties, preferably using a “Pan Pan”⁹ transmission. Having made this contact, a follow-up call could have been made as the situation worsened, or the DSC distress button could have been pressed if matters deteriorated quickly. In any event, had an early call been made to alert the coastguard, action to initiate a search would have been taken once the crew failed to make contact again.

No evidence was found that the boat was carrying a flare pack. Given the boat’s proximity to land, using any of a parachute flare, hand-held flare, or smoke would likely have been sufficient to raise the alarm.

Survivability

Assuming the Bayliner Capri 2000 capsized rapidly such that its occupants could not send a distress signal before they were immersed, they then faced three challenges: surviving the cold shock response, raising the alarm, and staying alive until rescue arrived. They were ill-equipped for all of these tasks.

Key to surviving cold shock is the ability to keep one’s head above water and the airway clear for which, in cold water, a personal flotation device is essential. Mr Chambers was the only member of the crew known to have been wearing any buoyancy device, and this would have significantly increased his chances of surviving his first few minutes in the water. The other two crew members were believed not to have been wearing any buoyancy devices, and in their case the cold shock would likely have been fatal.

Although some of the crew carried mobile telephones these would likely have been ineffective in raising the alarm once the men were in the water, possibly because they were not waterproof, but also because they would have been difficult to operate with cold hands and had a low aerial height. In such circumstances, personal locator beacons (PLBs) would have been appropriate as they could have been activated quickly both to provide the coastguard with an immediate distress alert and rescuers with a means of locating the men.

Even had the crew been able to raise the alarm immediately they entered the water, assistance would still have taken some time to arrive. In water of 6°C, they would have rapidly lost the ability to swim, but their body temperature would have taken longer to drop to fatal levels providing rescuers with ample time in which to find and recover them. Had Mr Chambers been wearing a lifejacket instead of a buoyancy aid, he would not have needed to expend energy keeping his head above water and this would have reduced his rate of heat loss. Further, a lifejacket would have kept his head above water in the event he fell unconscious. Although Mr Chambers was not recovered until an estimated 135 minutes after the time of capsize, had he been wearing a lifejacket it is possible that he still might have survived. Had he also been wearing a constant wear thermal immersion suit, this would have helped retain his body’s temperature and would therefore have further increased his survival time.

⁹ “Pan Pan” The international urgency signal (spoken)

In summary, although Mr Chambers' buoyancy aid would have helped him survive the initial effects of cold shock, it would have ceased to be effective after only a few minutes once he lost the ability to keep himself upright. All three men's chances of survival would have been significantly improved had they been wearing lifejackets and thermal suits.

CONCLUSIONS

- The crew had little experience of operating a boat at sea and were probably not expecting the sea conditions to deteriorate, despite the change having been forecast.
- The Bayliner Capri 2000 had a low freeboard at the stern, making it especially vulnerable to swamping once it was anchored stern to sea as its propeller became fouled by its fishing gear.
- It is possible that a poorly attached patch over an opening for the engine control cables failed, further reducing the available freeboard.
- Apart from mobile telephones, the crew had no means of raising the alarm as their situation deteriorated.
- Mr Chambers' buoyancy aid was insufficient to save him given the length of time he spent in the water.
- All the crew's chances of surviving the accident would have been significantly improved had they been wearing thermal flotation suits and lifejackets.

ACTIONS TAKEN

Following its investigation into the loss of the fishing vessel *Achieve*, in January 2014, the MAIB issued a Safety Flyer to raise awareness of the use of VHF radio with the DSC function. This flyer is available on the MAIB's website at www.maib.gov.uk

In addition, the Chief Inspector has written to the editors of major sea angling publications, asking them to promulgate the lessons from this accident.

RECOMMENDATIONS

In view of the actions taken and the guidance available to recreational mariners, no recommendations have been made.

SHIP PARTICULARS

Vessel's name	Unnamed Bayliner Capri 2000 Speedboat
Flag	Not Applicable
Classification society	Not Applicable
IMO number/fishing numbers	Not Applicable
Type	Open, single decked, recreational powerboat
Registered owner	Privately owned
Manager(s)	Not Applicable
Year of build	1987
Construction	Glass reinforced plastic
Length overall	5.7m
Registered length	Not Applicable
Gross tonnage	Not Applicable
Minimum safe manning	Not Applicable
Authorised cargo	Not Applicable

VOYAGE PARTICULARS

Port of departure	Great Yarmouth
Port of arrival	Great Yarmouth
Type of voyage	Recreational
Cargo information	Not Applicable
Manning	3

MARINE CASUALTY INFORMATION

Date and time	10 March 2014 between 1200 & 1350
Type of marine casualty or incident	Very Serious Marine Casualty
Location of incident	Off Lowestoft, Suffolk, UK
Place on board	Boat
Injuries/fatalities	1 fatality, 2 missing
Damage/environmental impact	Total loss/no environmental impact
Ship operation	Recreational voyage
Voyage segment	On passage
External & internal environment	Daylight; Wind: North x East Force 5; moderate sea; tidal stream 1.4kts; Sea temperature 6°C
Persons on board	3