Report on the investigation of

two serious injuries on board

the IMX 38 yacht

Roaring Meg of Cowes

in

Southampton Water

3.3 cables south-west of Hamble Point Buoy

on 20 May 2006

Marine Accident Investigation Branch
Carlton House
Carlton Place
Southampton
United Kingdom
SO15 2DZ

Report No 29/2006
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Extract from

The United Kingdom Merchant Shipping

(Accident Reporting and Investigation)

Regulations 2005 – Regulation 5:

"The sole objective of the investigation of an accident under the Merchant Shipping (Accident Reporting and Investigation) Regulations 2005 shall be the prevention of future accidents through the ascertainment of its causes and circumstances. It shall not be the purpose of 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 13(9) of the Merchant Shipping (Accident Reporting and Investigation) Regulations 2005, 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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GLOSSARY OF ABBREVIATIONS AND ACRONYMS

CG	-	Coastguard
GPS	-	Global Positioning System
H&S	-	Health and Safety
m	-	metre
MAIB	-	Marine Accident Investigation Branch
MCA	-	Maritime and Coastguard Agency
MGN	-	Marine Guidance Notice
MSN	-	Merchant Shipping Notice
nm	-	nautical mile
RYA	-	Royal Yachting Association
SI	-	Statutory Instrument
SPICE	-	Special Programme of Initiative, Challenge and Excitement
VHF	-	Very High Frequency
VTS	-	Vessel Traffic Services
YDSA	-	Yacht Designers and Surveyors' Association
Code	-	The *Safety of Small Commercial Sailing Vessels - Code of Practice*
Genoa	-	A large foresail that extends aft, behind the mast.
Gybe	-	The swinging over of a fore and aft sail when running before the wind. It can be a controlled manoeuvre, or it may happen accidentally.
Reef	-	A method of reducing the sail area by folding or rolling.
Sheet	-	A rope attached to a sail so that it can be trimmed.
Tack	-	To turn the bow of a yacht through the wind so that it blows across the opposite side.

SYNOPSIS

At approximately 1429 on 20 May 2006, the IMX 38 yacht, *Roaring Meg of Cowes,* owned by Sail (UK) Ltd of Poole, was crossing Southampton Water towards the River Hamble. The wind force was 6-7 gusting 8 from the west-south-west. The yacht made two accidental gybes. The first resulted in one of the yacht's crew sustaining multiple fractures to one of his legs, and the second caused a second member of the crew to suffer a severe head injury.

Nine people from a social and adventure activities group booked, what was advertised as, a "sailing taster" with Sail (UK) Ltd for 20 May 2006. During the previous afternoon, *Roaring Meg of Cowes* was put into the water, following 8 months on a hard standing. The skipper, who had been nominated by Sail (UK) Ltd to supervise the group, arrived during the afternoon to prepare the yacht. Feeling unwell, he contacted the director of Sail (UK) Ltd during the afternoon, and again at 0800 on 20 May. By this time, it had become evident that the nominated skipper was not well enough to supervise the group that day, so the director immediately drove from Poole to Hamble to assume the role of replacement skipper.

The group began to arrive at 0845. They were surprised that there was no one to meet them, but they eventually found *Roaring Meg of Cowes* berthed outboard of three other yachts. By about 0920 the replacement skipper arrived with the last of only eight members of the group to board the yacht. The replacement skipper decided that the unwell skipper could stay on board, in his bunk, during the trip. He also discovered that one of the group held an RYA Day Skipper's qualification and had regularly sailed.

Because of the weather forecast, and the inexperience of the group, the replacement skipper decided that the group would be restricted to sailing in Southampton Water.

A very limited safety brief was then given to the eight members of the group. They were reminded to keep their lifelines clipped on and to keep well clear of the boom. No roll-call was taken and there was no explanation given why the ninth member of the group had failed to turn up.

The yacht was ill prepared, the domestic arrangements were poor, ropes were tangled and some were covered in algae. The yacht was generally dirty, both on deck and between decks and it appeared to have suffered neglect. The group were very disappointed with the organisation and, at that point, some of them considered leaving the vessel.

After taking on fresh water and fuel, *Roaring Meg of Cowes* finally motored away from her berth at 1130. The group, now much happier, enjoyed the voyage up Southampton Water. They settled into the business of sailing and completed a number of tacks. The lady who was to suffer the head injury, operated the traveller gear competently and was acutely aware of the need to keep low, under the boom.

After a light lunch, the yacht turned and headed back down Southampton Water. The qualified day skipper of the group was now on the helm with his harness clipped to the back stay. The weather began to worsen, the wind had picked up and there were white horses on the wave tops. By that time, some of the group were becoming unsettled.

The replacement skipper then appeared to make a quick decision to return to the marina. Some heard the decision, others did not. The skipper began to tack back up Southampton Water as he asked the day skipper to start the engine. The day skipper unclipped his harness and checked that the engine control lever was in neutral. He found it to be seized, but having released it, he went in front of the wheel, to go down below to start the engine. He came to an abrupt stop because his safety line became taut, his line not having been released as first thought. The skipper, now distracted, turned round to release the safety line and, a few seconds later, the yacht conducted an accidental gybe. The boom moved rapidly from starboard to port, trapping the day skipper's right leg with the mainsheet, causing multiple fractures to his leg. The boom immediately returned to the starboard side.

The day skipper clambered to the forward part of the cockpit. At the same time, another of the group, with the help of the unwell skipper, managed to start the engine. At about 1432, the replacement skipper mentioned the need to lower the mainsail, but he did not direct his instruction to anyone in particular. The lady operating the traveller stood up, possibly to help with the sail, or as a result of the boat's sudden heel to port, and at the same time the yacht conducted another accidental gybe. The boom moved rapidly from starboard to port, hitting the lady on the right side of her head, causing her severe injuries.

It was a further 5 minutes before the sail was fully lowered and the yacht brought under control. At 1437, a VHF "Pan Pan" call was transmitted to Solent CG. The CG arranged for the emergency services to attend the yacht on berthing at nearby Warsash, from where the casualties were transferred to hospital.

Both accidents were caused by the replacement skipper's failure to properly anticipate the likely effects of the prevailing wind conditions relative to the course the yacht was being steered. Events leading to the first accident were compounded by the day skipper's lifeline becoming snagged around the wheel as well as the distraction caused by the need to unclip the lifeline. Concern felt by the replacement skipper following the first accident undoubtedly contributed to the second event.

A number of safety issues relating to Sail (UK) Ltd were identified. These include:

- Boat handling and decision-making processes by the skipper.
- The poor condition of the vessel, its preparedness and lack of equipment.
- The poor standard of the safety briefing.
- Manning levels that were not in accordance with the relevant regulations.
- Unclear Safety Policy and lack of comprehensive risk assessments.
- Delay in alerting the emergency services to the injuries.

The MAIB has made recommendations to Sail (UK) Ltd to review:

- The company's Safety Policy, risk assessments and associated documentation.
- Procedures, to ensure yachts are properly prepared for use.
- The need for passage planning well in advance of the intended voyage.
- Safety briefings' procedures, and ensure that injuries are promptly reported.
- Procedures, to ensure that vessels are manned in accordance with the relevant regulations.

The RYA has been recommended to:

- Promulgate to its members, the safety issues identified in the investigation report.

Figure 1

Roaring Meg of Cowes

SECTION 1 - FACTUAL INFORMATION

1.1 PARTICULARS OF *ROARING MEG OF COWES* AND ACCIDENT

Vessel details (Figure 1)

Registered owner	:	Sail (UK) Ltd, Poole, Dorset
Port of registry	:	Cowes, Isle of Wight
Official No		900891
Type	:	IMX-38 Bermuda Rigged Auxiliary Sloop
Built	:	Built in 1995 by X-Yachts AS of Denmark
Construction	:	Glass Reinforced Plastic
Length overall	:	11.36m
Beam	:	3.62m
Depth	:	1.67m
Gross Tonnage	:	10.96 tonnes
Engine type and power	:	Volvo MD 2003 developing 20.89kW
Sail Wardrobe	:	Mainsail, No 2 genoa, tri-sail and storm jib
MCA Approved Operating Category		Category 2 – up to 60 miles from a safe haven
Maximum persons allowed on board	:	10

Accident details

Time (UTC +1) and date	:	First casualty at 1429 on 20 May 2006 and second casualty at 1432 on 20 May 2006
Location of incidents	:	50º 50'.062N 0011º 9.161W and 50º 50'.065N 001º 18.708W - 3.3 cables south-west of Hamble Point Buoy
Persons on board	:	10
Injuries/fatalities	:	One casualty with a serious head injury and one with multiple tibia and fibula fractures
Damage	:	None

1.2 BACKGROUND

1.2.1 Special Programme of Initiative, Challenge and Excitement (SPICE) UK

SPICE UK was established over 20 years ago and has 15000 members nationwide. There are nine regional franchises that are run by full-time co-ordinators who offer their members group adventure, social and leisure activities.

In March 2006, SPICE UK's London franchise website and brochure advertised a 1-day sailing adventure in the Solent on Saturday 20 May 2006. The activity, advertised as a "sailing taster", was deemed suitable for those without any sailing experience. The day was programmed to start with breakfast at 0900 on board a yacht berthed at Port Hamble Marina on the River Hamble in Hampshire. It was due to end with the group departing at 1700, following a day's sailing when they would effectively be acting as the yacht's crew. The cost included a safety briefing, food, refreshments, safety equipment, waterproofs and marina and fuel fees. The IMX 38 yacht and an RYA qualified skipper were to be provided by Poole-based, Sail (UK) Ltd. (A copy of the website advertisement is at **Annex A**.)

Seven female and two male members/guests of SPICE UK booked up for the 'sailing taster'. They each subsequently received from Sail (UK) Ltd literature which provided them with directions to the marina and a summary of the SPICE UK website advertisement. There was also advice on clothing and equipment, although this was based on the requirement for overnight passages. It also confirmed that the Hamble based IMX 38 yacht, *Braveheart*, would be used for the group activity **(Annex B)**.

SPICE UK had used Sail (UK) Ltd's facilities since March 2000. Until this accident occurred no safety concerns had previously been raised and no accidents reported to the MAIB relating to Sail (UK) Ltd vessels.

1.2.2 The SPICE UK group's sailing experience

Two of the group, one male and one female, held RYA day skipper qualifications, however, neither had previously skippered a yacht. Others in the group had either no, or very little sailing experience. On 20 May, the male holder of the day skipper's qualification was the only group member who declared that he was an experienced yachtsman.

Sail (UK) Ltd was unaware of the experience or sailing qualifications of the group before their arrival on board the yacht.

1.3 NARRATIVE

1.3.1 Sail (UK) Ltd actions on 19 May 2006

During the afternoon of 19 May 2006, Hamble Yacht Services transferred Sail (UK) Ltd's, IMX 38 yacht, *Roaring Meg of Cowes,* from its hard standing at Port Hamble Marina, to an afloat berth, outboard of three other yachts. The original plan to use *Braveheart* had changed because she was in better condition and more suited to the requirements of another corporate customer group, who had arranged for an overnight passage. However, members of the SPICE UK group were not advised of this change.

The nominated skipper for the SPICE UK group's outing arrived later in the afternoon and fitted the yacht's log and echo sounder. These had been removed when the yacht was last taken out of the water on 3 October 2005.

Feeling unwell with flu-like symptoms, the skipper did little else to prepare the yacht for the arrival of the group the following morning, and he did not obtain a weather forecast for the following day. He did, however, advise the director of Sail (UK) Ltd, and also the skipper of *Braveheart,* that he was unwell, before retiring to his bunk at about 1815.

1.3.2 Pre-sailing activities on 20 May 2006

At about 0800 on 20 May 2006, the skipper of *Roaring Meg of Cowes* once again advised the director of Sail (UK) Ltd that he did not feel well enough to skipper the yacht. The director immediately left his home in Poole to drive to Hamble and take over as the replacement skipper.

The first of the SPICE UK group started to arrive at Port Hamble Marina at 0845, but there was no-one from Sail (UK) Ltd to meet and greet them, or direct them to the yacht. As other members arrived, the harbourmaster was asked to locate *Braveheart.* Unable to do so, he directed some of the group to an office believed to have been used by Sail (UK) Ltd. From there, directions were given for *Braveheart'*s berth. However, a member of *Braveheart*'s crew advised that the vessel was not SPICE UK's nominated yacht.

The situation became very confused as others of the group arrived, only to see *Braveheart,* their nominated yacht, depart the berth. Fortunately, one of the group telephoned the skipper's mobile telephone number, which had been provided by Sail (UK) Ltd at the request of one of the group. Consequently they were advised that *Roaring Meg of Cowes* was now the allocated yacht for the day and the group were directed to its berth.

The skipper acknowledged the first of the group that arrived on board just before 0900. He briefly mentioned that he was unwell and that a replacement skipper would arrive soon. He issued some orders to the first three female members of the group to arrive, which seemed to indicate that he wanted to move the yacht. They did not understand the technical terms used or what they were being asked to do, so the skipper went back down below, leaving them alone on the deck. Some time later he re-appeared and set about organising some of the yacht's lines.

By about 0920, the director of Sail (UK) Ltd had arrived on board *Roaring Meg of Cowes* and taken over as skipper of the yacht. Almost immediately afterwards, the eighth and final member of the SPICE UK group boarded the yacht. There was no formal roll-call or introduction by the replacement skipper to the group as a whole. Neither was there any explanation why the expected ninth member of the group had failed to arrive.

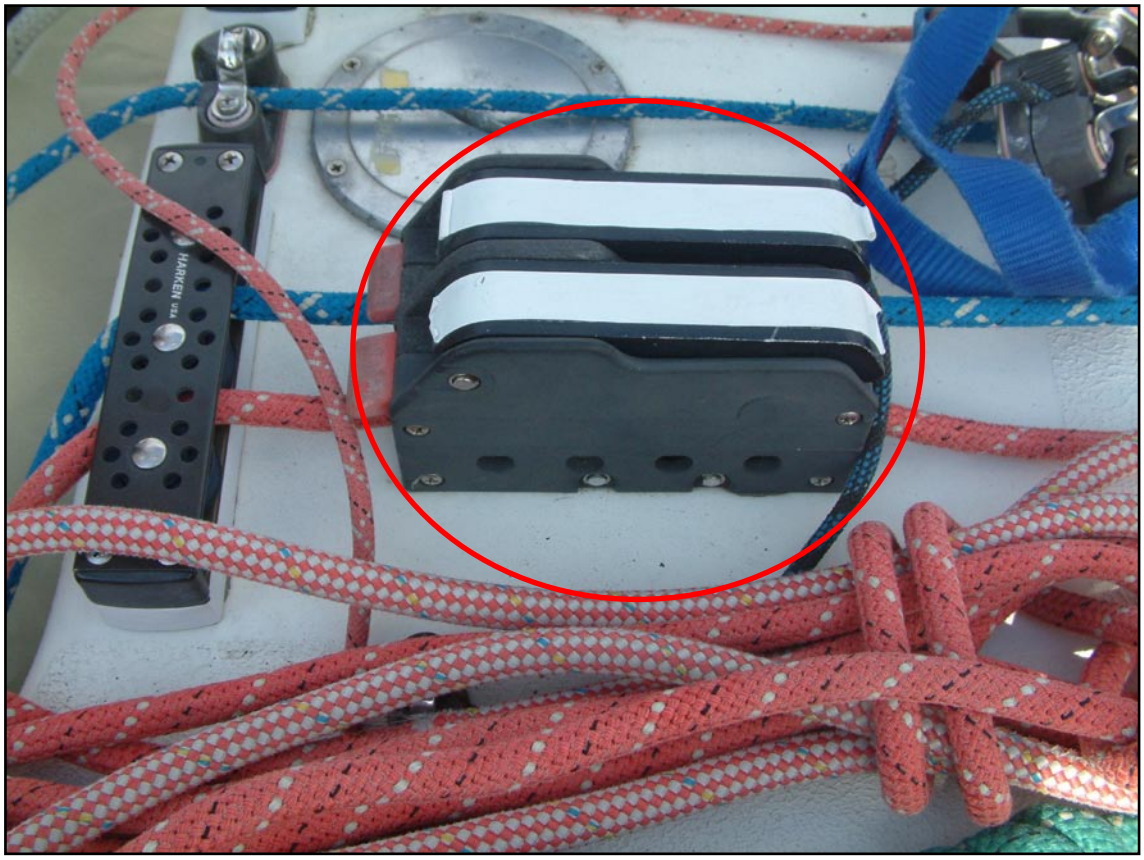
The yacht was extremely untidy between decks, with dirty crockery and a generally uncared for appearance. The upper deck was dirty, there was verdigris on the deck itself, some of the ropes were green and slimy, other ropes were tangled and there were no winch handles on board until the replacement skipper obtained some from a nearby yacht. Snack bars were provided for breakfast, but there was no method to light the cooker to provide hot drinks, so one of the group had to go ashore to obtain matches. The spirits of the group were by now low, and confidence rapidly failing in both the state of the equipment and the company's organisation. To exacerbate the situation, the weather was dull and overcast and the wind strength was increasing. At this point, some group members were so apprehensive that they considered leaving the yacht.

The unwell skipper, now looking ashen, discussed his situation with the replacement skipper. They agreed that he should remain on board, in his bunk, until the yacht arrived back at the marina later in the day. The unwell skipper then went back down below to his bunk and played no further part in proceedings until just after the first accident in the afternoon.

At about 1000, it had started to rain as the replacement skipper arranged for the group to rig the single reefed mainsail and the genoa. He indicated that probably only the genoa would be used because of the wind conditions on Southampton Water. The mainsail repeatedly jammed in the boom track, but it was eventually rigged and secured to the boom with ties. Some of the group also noticed that several of the jamming cleats on top of the coach roof were very difficult to operate, and failed to “lock off” effectively allowing the rope to be pulled through the cleat. Despite identifying labels being affixed to the cleats, the text had been abraded, so the group were unable to identify the purpose of individual ropes or cleats **(Figure 2)**.

At this point, the replacement skipper enquired about the group’s sailing experience. Only the male qualified day skipper indicated that he had recent experience. The skipper acknowledged this.

Figure 2



Locking cleat and worn identification label

At about 1015, the skipper assembled the group in the cockpit and outlined the intentions for the day. Because the wind was forecast to be force 6-7, he intended to tack up Southampton Water as far as the liner berths at the dock head. It was then planned to return towards Calshot for the group to view the Volvo 70's yacht race that was taking place in the Solent, before returning to the marina **(Figure 3)**. With something more positive to look forward to, the group became a little happier.

There followed a rudimentary safety briefing. The replacement skipper advised the group to keep clear of the open companionway, to avoid falling and to keep well down, out of the range of the swinging boom during tacking. He emphasised that the group were to always keep their safety harnesses clipped on to the jack stays. The use and operation of lifejackets, and the need for them to be constantly worn, was discussed. The checks to ensure that they were correctly worn and fastened were largely left to the group's male day skipper.

The skipper then briefly described the sailing rig, tacking procedure, use of the traveller rig, and the purpose of the various ropes and the warnings to be given prior to tacking the yacht. He described the mainsheet winch operation and how to "lock off" the ropes, although some of the group had difficulty in doing this. He then allocated the group their various tasks. The group's day skipper then went down below to familiarise himself with the yacht's layout. He checked the fuel gauge, engine starting controls and found the VHF radio **(Figure 4)**, which was switched off. The day skipper switched the radio on, but at no time did the replacement skipper carry out any checks on the radio.

At about 1100, the replacement skipper manoeuvred the yacht, under engine power, firstly to a berth to load fresh water and then onto a nearby fuelling jetty to take on diesel fuel. Finally, at about 1130, *Roaring Meg of Cowes* motored down the River Hamble towards Southampton Water.

Before leaving the river, the skipper assessed the conditions. The wind was south-westerly 5-6, and he decided to use the mainsail instead of the genoa because it was easier to handle. He asked the group's male day skipper to arrange for the mainsail to be rigged. Much of the preparation of the mainsail was left to the day skipper as the skipper was at the wheel at the after end of the cockpit **(Figure 5)**. Despite difficulty with the mast's mainsail track, the sail was rigged, the engine was stopped, and *Roaring Meg of Cowes* entered Southampton Water just before midday.

1.3.3 Voyage in Southampton Water

The earlier concerns of most of the group faded as the yacht moved into Southampton Water, and they settled down to the business of sailing. The group conducted a series of tacks, making between 5 and 6 knots towards Southampton Docks. Their confidence grew, and some opted to change positions, as suggested by the replacement skipper. The exception was the lady who was to suffer the serious head injury. She had been efficiently operating the traveller rig under the direct instruction of the replacement skipper, and remained in that position throughout **(Figure 6)**.

A light lunch was made at about 1320. The group's day skipper then asked if he could take the helm. The skipper was grateful because he was suffering from back pain following a recent Atlantic crossing in a yacht. The day skipper clipped his personal safety harness to the rod backstay situated behind the wheel at the transom **(Figure 7)**.

Reproduced from Admiralty Chart 2036 by permission of
the Controller of HMSO and the UK Hydrographic Office

Figure 3

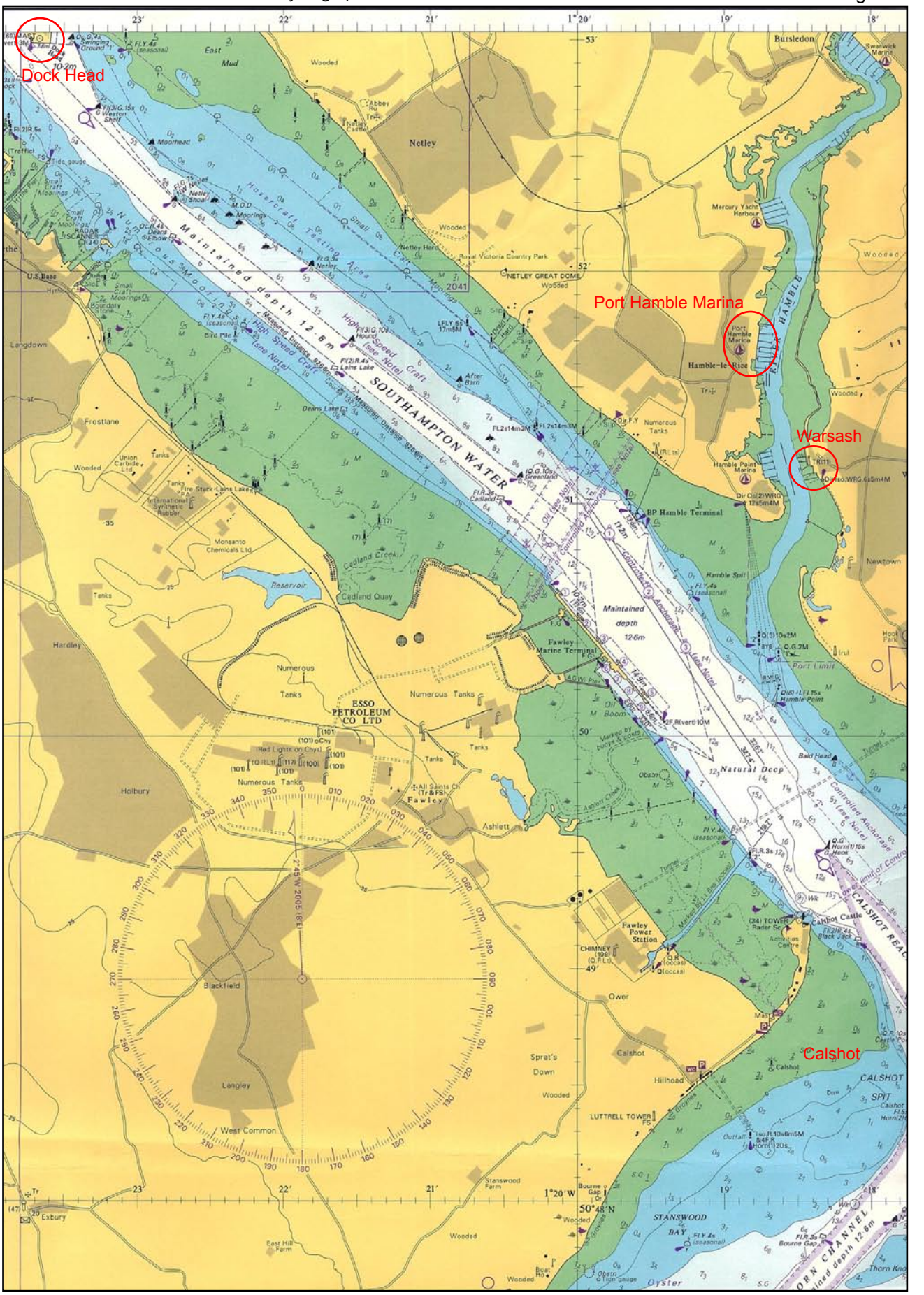
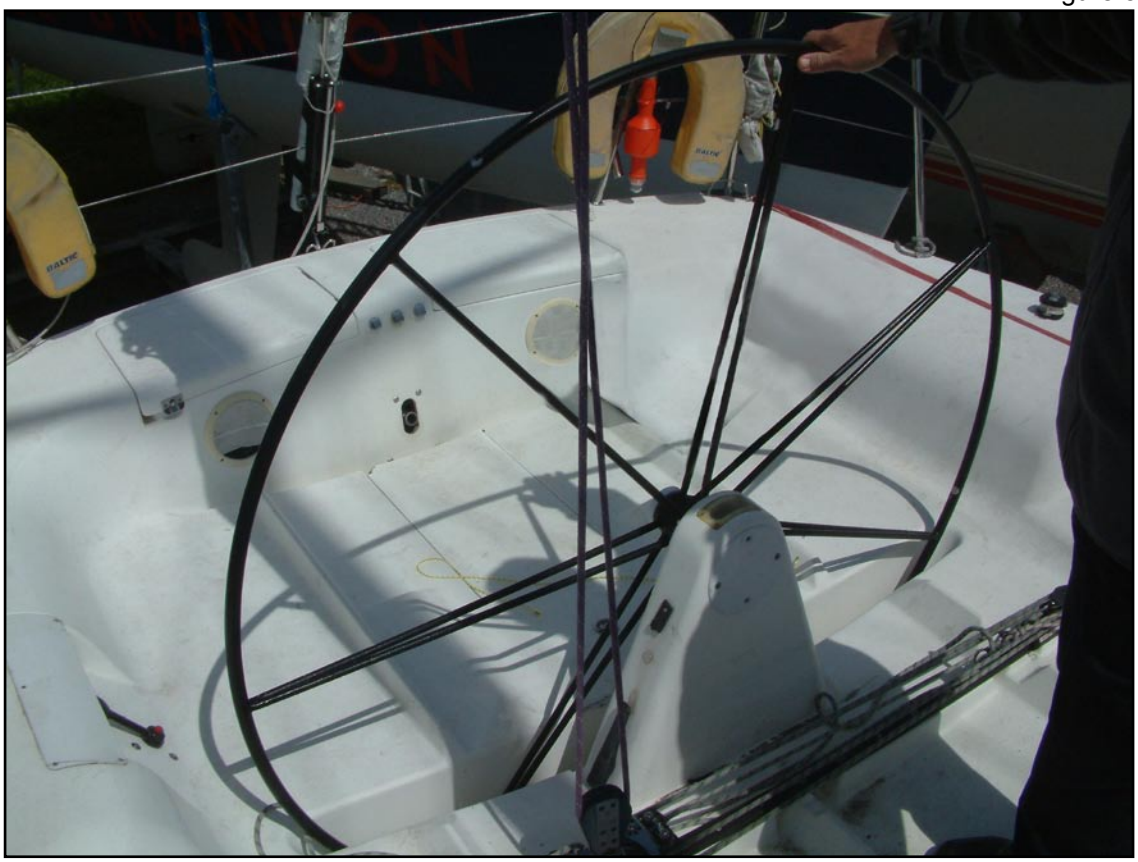


Figure 4

ICOM Marine IC M-59 VHF radio

Figure 5



Wheel position

Figure 6

Traveller operating position

Figure 7

Position of day skipper's safety harness on rod backstay

At about 1345, the yacht was turned and headed back down Southampton Water, towards Calshot.

Progress was rapid as the boat approached Calshot, with the yacht making up to 7 knots over the ground. By that time, the wind was gusting WSW, force 8, the sea surface was disturbed and there were white horses on the wave crests. Some of the group were becoming nervous, and they all moved into the cockpit area, which became cramped. As *Roaring Meg of Cowes* closed Calshot, the yachts involved in the Volvo 70s race were clearly visible. A number of the group commented on the worsening weather conditions, and that it appeared that their yacht was the only one sailing on Southampton Water.

By now, the yacht was heeling to port. The replacement skipper asked some of the group to sit on the high side of the yacht as he demonstrated how to sail in gusting winds, by de-powering the mainsail using the traveller and mainsheets. Some of the group were uneasy about this although the heel was only a few degrees.

Because of the deteriorating conditions, the replacement skipper suddenly announced to the group that he was going to take the yacht back to Port Hamble Marina. This surprised some of the group as they had expected to be sailing for longer; others were content with the decision because they were becoming unsettled by the weather and sea conditions. The skipper did not give the group a proper briefing of his intentions regarding the passage across Southampton Water and approach to the marina.

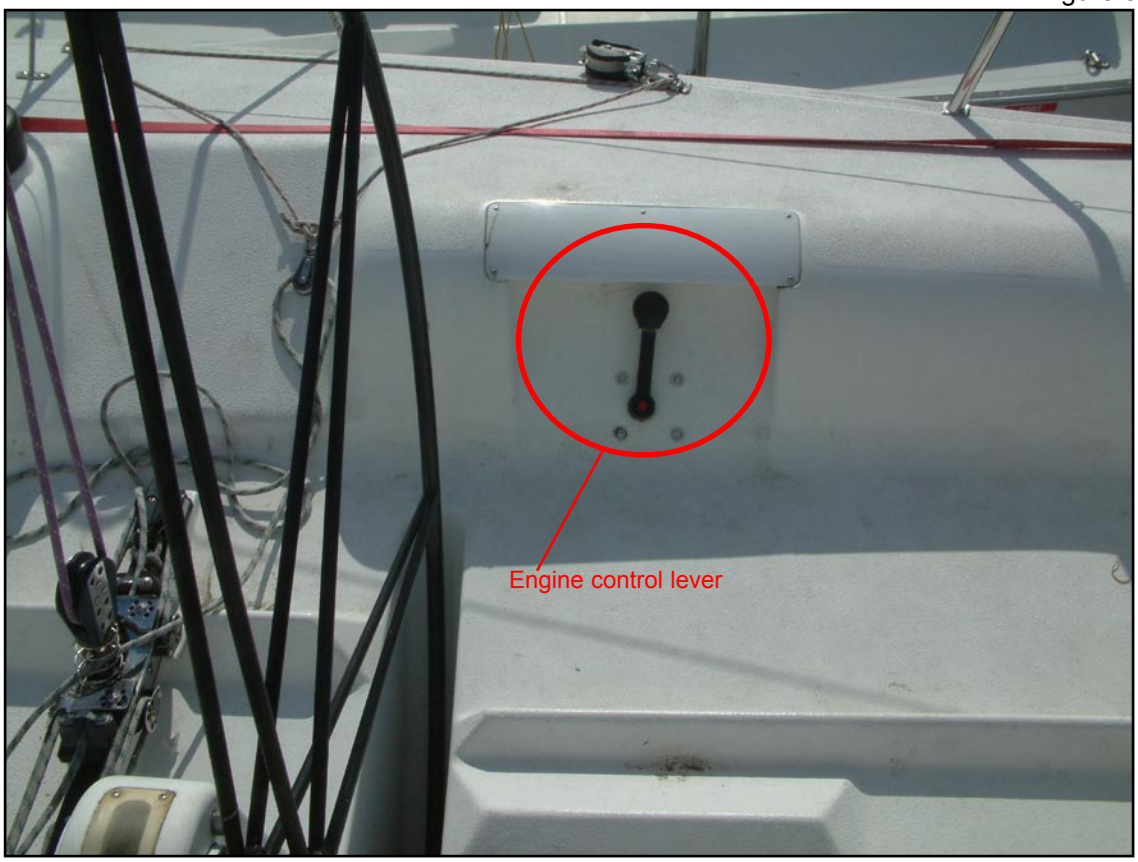
1.3.4 Approach to the River Hamble and resultant two accidents

At about 1426, the skipper took the helm from the day skipper and asked him to start the engine. The yacht then tacked back up Southampton Water in preparation for the approach towards the River Hamble. The day skipper unclipped his safety harness and checked that the engine control lever, located at the starboard side of the cockpit **(Figure 8)**, was in the neutral position. He found it to be seized, and spent the next 2 minutes releasing it.

At about 1429, *Roaring Meg of Cowes* was starting to cross Southampton Water, the wind direction and strength was west-south-westerly, force 7. As the day skipper moved in front of the wheel to go down the companionway to start the engine, he came to an abrupt stop. His safety harness, which he believed he had released, became taut around the right-hand side of the wheel. The skipper, who was now on the wheel, turned to face aft, and released the day skipper's safety harness clip, which was still attached to the rod backstay. The yacht moved violently and the day skipper's right leg became entangled in the traveller rig **(Figure 9)**. His leg was then forced down by the mainsheets against the traveller as the yacht did an accidental gybe. The boom moved rapidly from the starboard to the port side, and then quickly returned to the starboard side.

Now crying out in severe pain and believing his leg to be broken, the day skipper managed to pull himself to a position at the port forward corner of the cockpit, where he was attended by two of the group. In the meantime, the skipper concentrated on trying to regain control of the yacht.

Figure 8



Engine control position

Figure 9

Day skipper's leg position on the traveller rig

A female member of the group volunteered to attempt to start the engine. The replacement skipper gave her some instructions on how to do this. She went down below to try to start the engine, but because she did not fully understand the instructions, she was unsuccessful. She went back to the companionway, where the skipper gave her additional instructions. As she went down below once again, she was met by the unwell skipper, who helped her start the engine. By now the group were very frightened because the yacht seemed to be out of control and the skipper was becoming very animated. At this point, the replacement skipper made a general comment that the sail needed to be lowered, but this was not directed to anyone in particular.

At about 1432, the yacht lurched violently to port. At about the same time, the lady who was operating the traveller stood up. The person controlling the port mainsheet winch let go of the mainsheet as she, and many others of the group, were thrown to the deck together. Simultaneously, the yacht carried out another accidental gybe. The boom moved very quickly from starboard to port, and unfortunately struck the right side of the head of the lady operating the traveller.

The injured lady was thrown partially overboard, but was restrained by her safety line which was attached to the jack stay. The replacement skipper pulled her back into the cockpit, where she slumped in the starboard after corner. The lady was slipping in and out of consciousness, was bleeding profusely from her nose, mouth and ears, her breathing was shallow and she was very clearly in deep trauma.

By now, the lady who had gone to start the engine had returned to the deck. As the situation worsened, the replacement skipper came under increasing pressure. He screamed at the group to lower the sail, which was flapping very badly. Unfortunately, the group were unsure of which ropes to operate. Soon after, the unwell skipper appeared at the companionway. The replacement skipper asked him to assist and he therefore gave instructions to the group on how to lower the mainsail, but did not go onto the deck. As the sail was being lowered, the replacement skipper's view was obscured, so the day skipper, although injured, pointed out the head of the yacht, to assist the replacement skipper in steering a safe course. In the confusion, one of the female group members fell partially overboard as the yacht walled and the sail billowed to starboard, which, by that time, had three large rips in it. She recovered herself on board, but this added to the general confusion. After the sail had been collected, the unwell skipper went back down below.

Sleeping bags were brought up from below to cover the injured lady, while one female member of the group concentrated on keeping her airways clear. The group day skipper repeatedly asked the replacement skipper to send out a "Mayday" and request assistance. There was no response from the replacement skipper, and the group felt he appeared to be overwhelmed as he concentrated on getting the vessel towards Warsash which, by then, was less than 10 minutes away.

With the sail down and the situation now stabilising, the replacement skipper instructed the unwell skipper to send out a "Pan Pan" call and request the attendance of paramedic support. Solent CG received the call at 1437 and immediately set about arranging emergency support. They directed the replacement skipper to take *Roaring*

Meg of Cowes to the River Hamble Harbourmaster's pier at Warsash, where she berthed at about 1449. She was met by the CG's Hillhead Coastal Rescue Team, the harbourmaster's team and an ambulance. A paramedic team, accompanied by a doctor arrived soon after. The lady with the head injury was stabilised and, at about 1516, was transferred to Southampton General Hospital. A little later, the day skipper was also taken to the hospital, in separate transport.

The injured lady's identification was eventually discovered and her next-of-kin were contacted **(see Section 2.10)**.

The GPS recorded tracks for the voyage are at **Figure 10**. A detailed GPS track showing the key accident points is at **Figure 11**.

1.3.5 Injuries

For the first few days, the injured lady remained in a critical but stable condition. On 31 May 2006, she was well enough to be transferred to the Royal Surrey Hospital at Guildford, to be nearer her home. There, she made a good recovery and was discharged from hospital on 3 July 2006.

The group's day skipper suffered multiple fractures to his right tibia and fibula, and severely torn, right knee ligaments. On 1 July 2006 he was well enough to resume limited work.

1.4 POST ACCIDENT INSPECTION BY THE MCA

Two MCA surveyors inspected *Roaring Meg of Cowes* on 22 May 2006. Because of the high number of deficiencies identified, a Prohibition Notice was served **(see Section 4 - Actions Taken)**. This prevented the vessel from being used until the deficiencies had been cleared.

1.5 ENVIRONMENTAL CONDITIONS

The Meteorological Office forecast at 0500 on 20 May was for west or south-west winds at force 5-7 occasionally gale 8 near exposed headlands. Visibility was forecast to be moderate to good with seas moderate to rough.

Visibility throughout the day varied between 5 -10 nm. Civil twilight was at 2038. The wind was at force 6-7 gusting 8 from the WSW. Wave heights were approximately 1.5m and the tide was flooding at about 0.2 knot. High water at Warsash was predicted to be at 1738 with a height of 4.0m, and it was 30% between neaps and spring tides.

Copies of weather recordings from the Bramble Beacon and Southampton VTS Centre, covering the period 1000 – 1600 on 20 May are at **Annex C**.

1.6 *ROARING MEG OF COWES'* RIGGING ARRANGEMENTS

1.6.1 General

Roaring Meg of Cowes is an IMX 38 yacht, designed by X-Yachts of Denmark and built in 1995. Sparsely outfitted, the fast racing yacht design achieved good results in handicap yacht racing. The large wheel is recessed in the cockpit sole and, although space is limited, it is able to accommodate up to 10 crew. At the time of the accident, the sail wardrobe comprised a mainsail, No 2 genoa, tri-sail and storm jib.

Figure 10

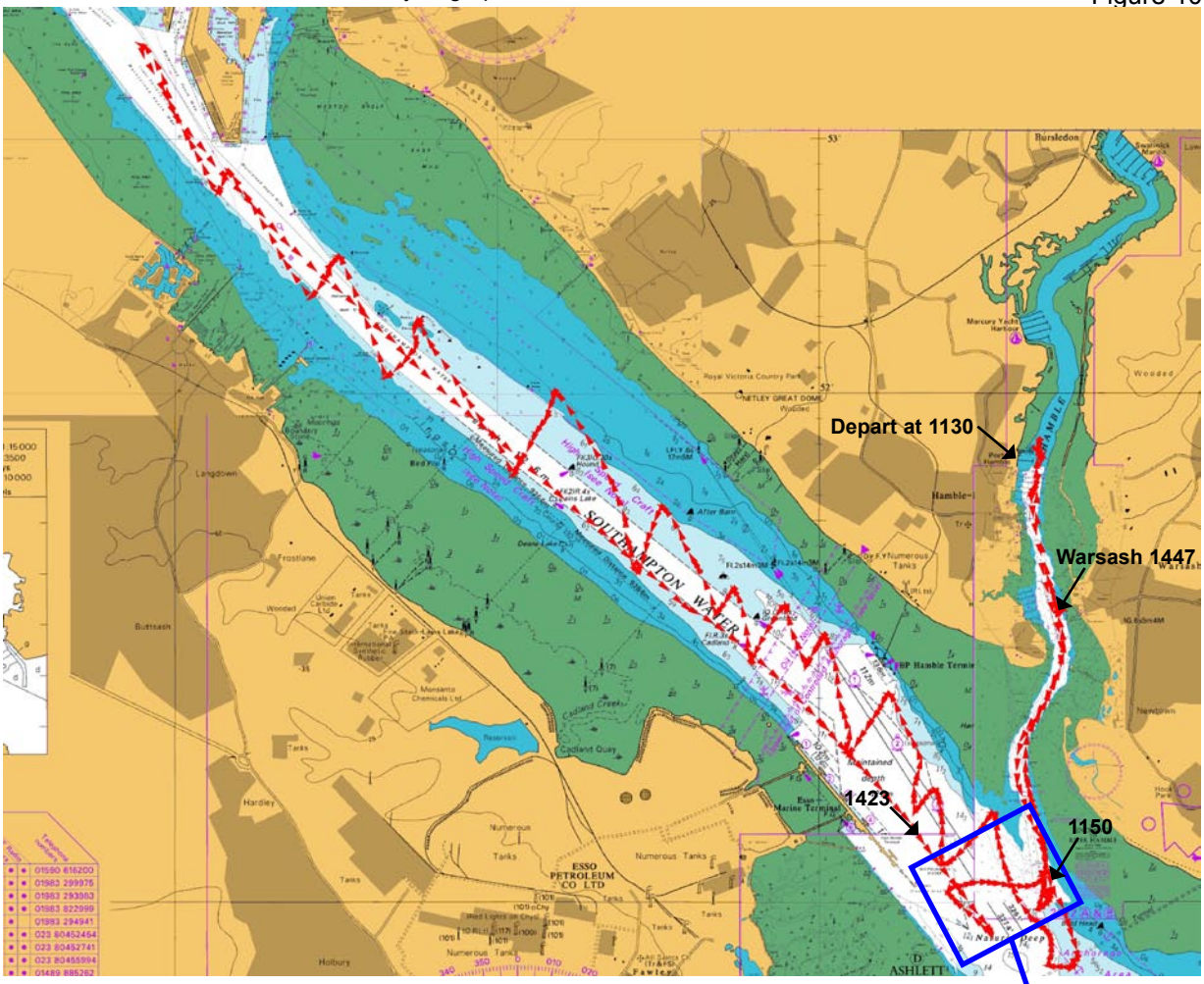
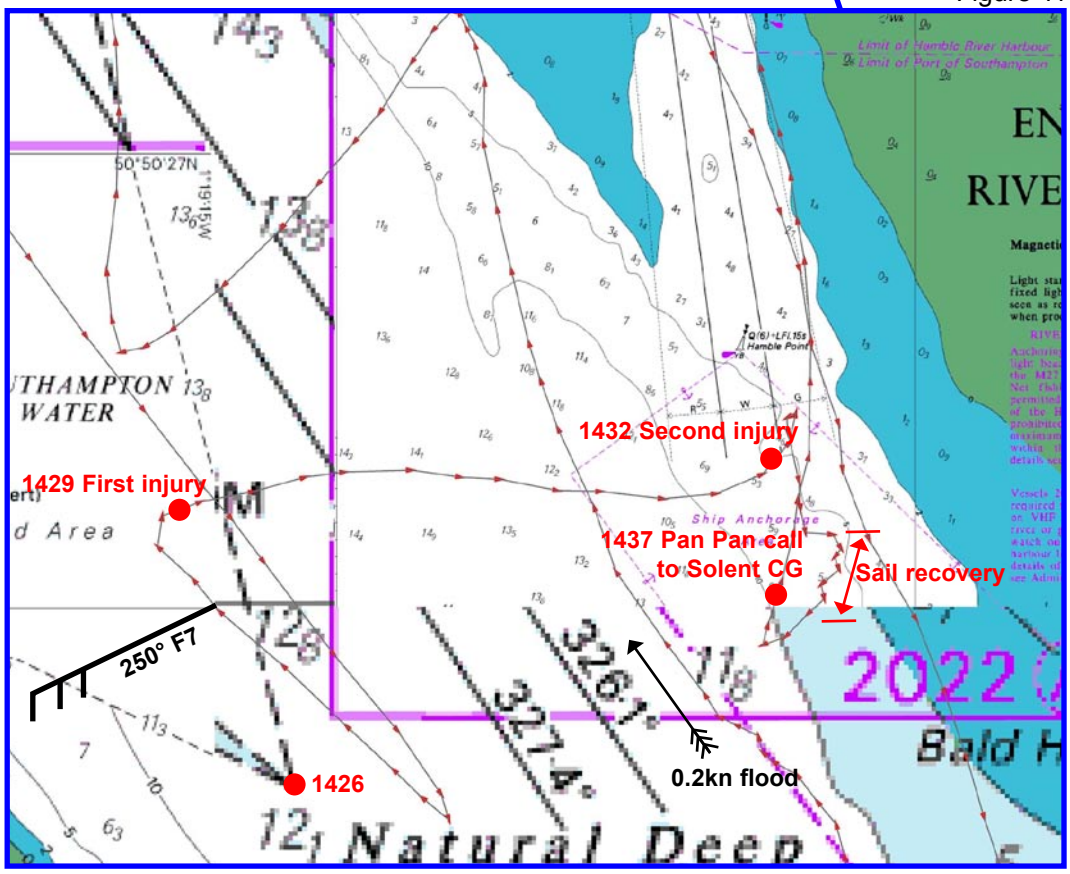


Chart 2036 with superimposed GPS track

Figure 11



Detailed GPS track - showing key accident points

1.6.2 Rigging overview

The IMX 38 is fitted with a masthead rig and what is known as a “German” mainsheet system. A conventional traveller positioned forward of the wheel on the cockpit sole has a simple block that leads the main sheet up to a double block at the after end of the low boom. On each side of the boom, these are then led forward to a position just aft of the gooseneck, where they are directed through deck blocks and angled down to the deck to further blocks situated behind the shroud chainplates. The lines then pass aft, to winches mounted on each side of the cockpit. Mainsheet operation and trimming can, therefore, only be carried out using either of the two mainsheet winches. The rigging layout is shown in **Figures 12 and 13**.

1.6.3 Traveller

The purpose of the traveller is to trim the boom to suit the prevailing conditions. Typically, this is done to maximise performance or to make the motion of the yacht more comfortable. The traveller is controlled by a 6:1 purchase on either side of the sheet block with cam cleats mounted on the mainsheet traveller car.

1.7 DANGERS OF GYBING

1.7.1 Principles of gybing

Gybing takes place when a vessel under sail alters course such that the wind direction passes around its stern causing the sails to set on the other side. This is unlike tacking, where the wind passes around the bow and the mainsail (being supported at the windward edge by the mast) simply flaps as the boom slowly moves from one side to the other. In a gybe, the wind will suddenly fill the mainsail from the other side and, because it is not supported on its windward edge, will cause the boom to swing across quickly. The force with which the boom will do this will depend upon the apparent wind speed and the sail area of the mainsail. The schematic at **Figure 14** illustrates the principles of gybing.

1.7.2 Controlled gybe

To mitigate the hazards associated with gybing, one should sheet in as much of the mainsheet as possible before steering the boat through the gybe. Once the boom has swung across a relatively small distance, the sheet can be let out by the desired amount. In a controlled gybe, the skipper will ensure that everyone on board is aware that the manoeuvre is about to take place, and what their role is to ensure that it is completed safely. The schematic at **Figure 15** illustrates the controlled gybing procedure.

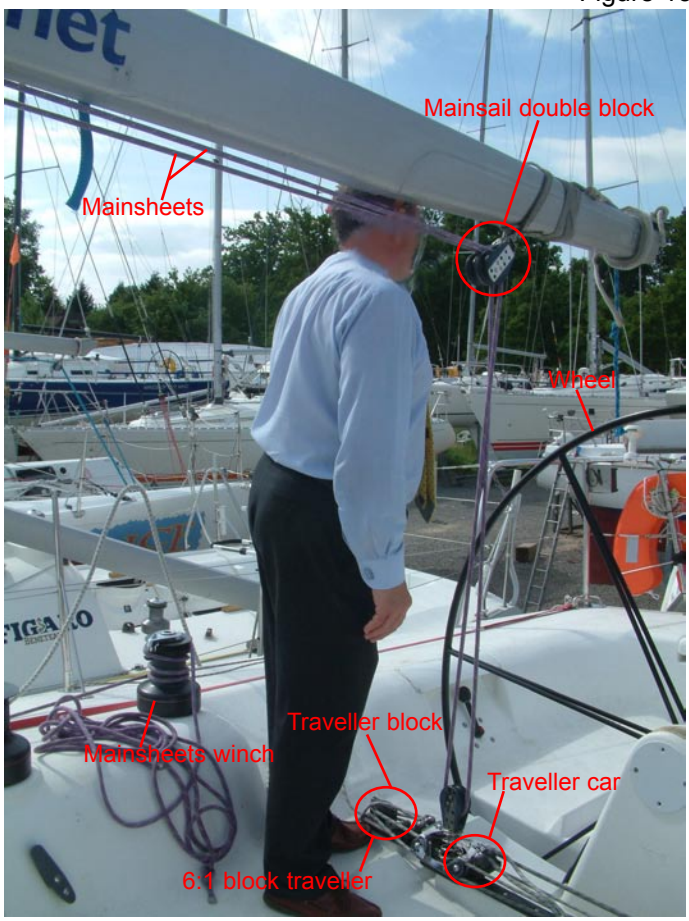
1.7.3 Accidental gybe

When sailing downwind, it is important to monitor the heading of the boat relative to the wind. If the boat is allowed to wander off course, or there is a wind shift, so that she is ‘running by the lee’, that is, the wind direction has passed through the eye of the wind astern and is now coming from the same side of the boat that the boom is on, the danger of an accidental gybe exists. With the mainsheet let well out, the boom has a greater distance to travel and will be moving at considerable speed when crossing the cockpit. Crucially, if the crew have not been given notice of the gybe, there is a greater danger of injury.

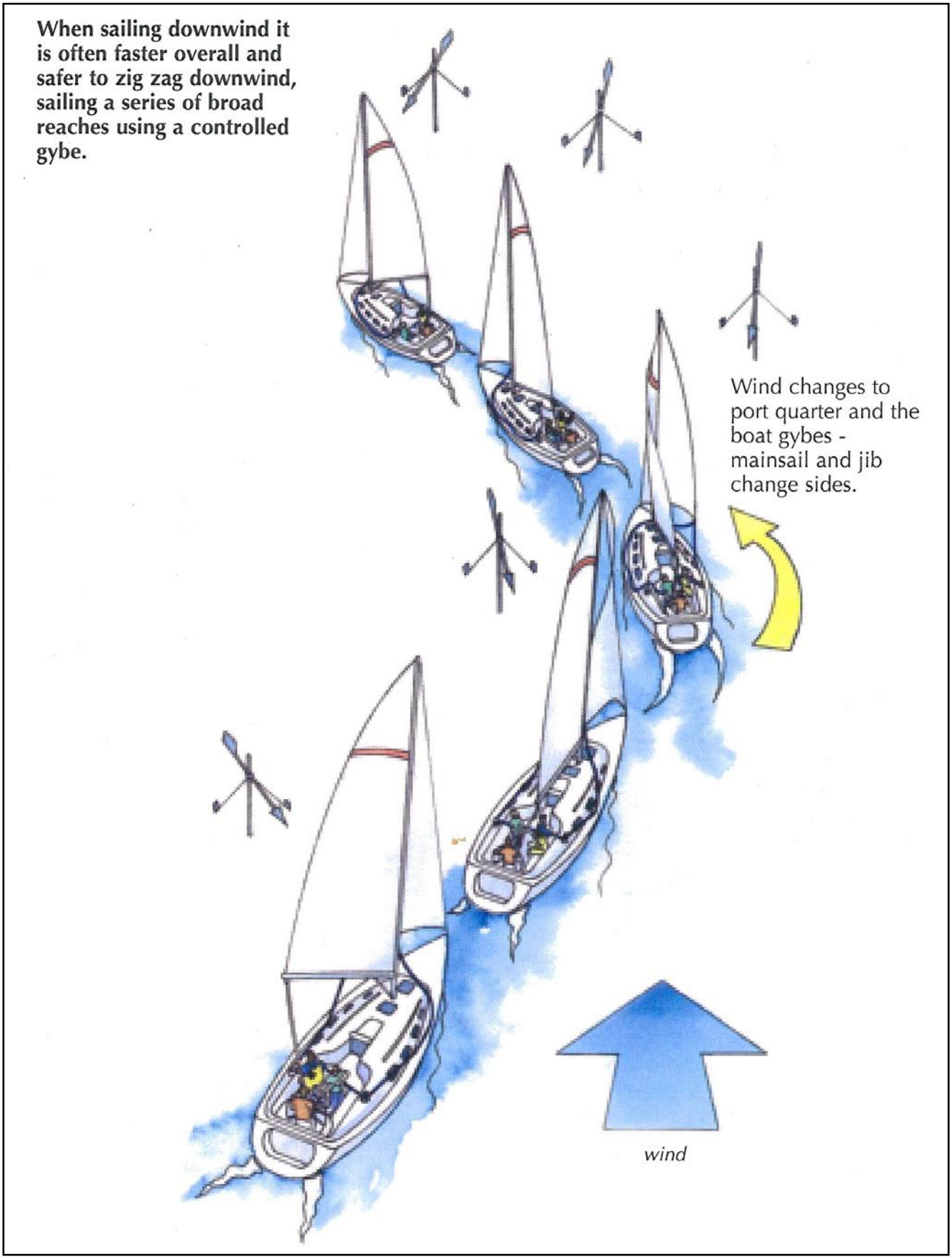
Figure 12

Rigging layout - forward perspective

Figure 13



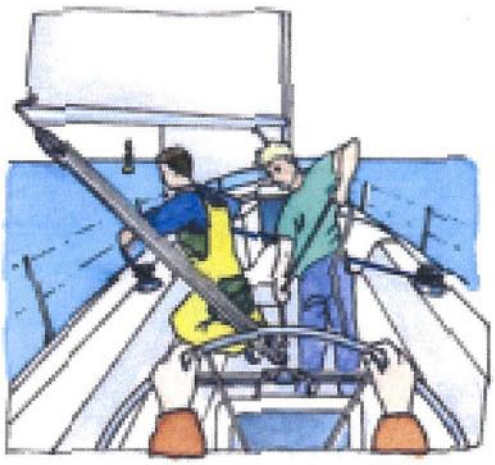
Rigging layout - after perspective



Principles of gybing

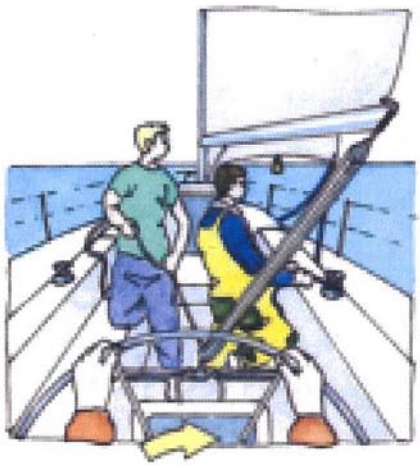
A controlled gybe from a broad reach or a run is a safe procedure.

The helmsman starts the sequence by calling 'stand by to gybe'. If a gybe preventer is rigged it is released. The crew sheets the mainsail in and prepares the headsail sheets.



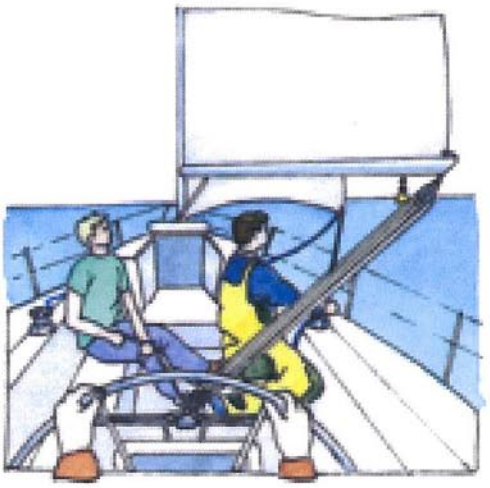
When the main is in the middle the helmsman turns the wheel to gybe.

The main flips across, sheet the jib in on the same side as the main and when it is under tension release the other sheet.



The mainsheet is eased out.

The crew make final adjustments to sail trim. The gybe preventer may be rigged again.



Controlled gybe

1.8 SAIL (UK) LTD

1.8.1 Background

Sail (UK) Ltd was founded in June 1988 and was based in Poole in Dorset. The current director bought the company on 11 August 2005. Following the change of ownership, the SPICE UK co-ordinator for the Thames Valley Group visited Sail (UK) Ltd. He confirmed that arrangements remained satisfactory and, as a result, SPICE UK confirmed that it would still be using *Roaring Meg of Cowes* and *Braveheart* for their activities, the yachts they had used since March 2000.

The business is divided into two parts. The first deals with chartering yachts for corporate events, such as the SPICE UK group booking and racing events, e.g the Round the Isle of Wight Race. As an RYA-approved training centre, the other, and entirely separate part of the operation, is dedicated to the provision of RYA training courses.

Business had been slow during the early part of 2006, with few bookings for RYA courses or corporate events. However, it had not been necessary to lay off any staff.

1.8.2 Employees

There were three full-time employees: the director, who was also the principal of the training centre; a skipper, who was the chief instructor; and an administration manager. There were also two part-time employees involved in finance and maintenance. A contact list of qualified skippers was held and these were employed on a temporary basis, as demand required.

1.8.3 Vessels

Sail (UK) Ltd owned six yachts, three based at Port Hamble in Hampshire and three at Dolphin Yacht Haven at Poole in Dorset.

At Poole, two Sadler 34s – *Sea Hawk* and *Sea Tern,* and a single Bruce Roberts-Goodsen designed Sadler 434, *Bold Explorer*, were used for the company's RYA training courses. The Hamble charter vessels comprised two IMX 38s – *Braveheart* and *Roaring Meg of Cowes,* and *Communicator,* which was a Tripp 36 Class yacht.

1.8.4 Dry sailing and maintenance

The Hamble based yachts were subject to dry sailing contract arrangements with Hamble Yacht Services. This meant that the yachts were taken from the pontoon following a period of use and placed in a cradle on a hard standing until they were required once more. This was a cost effective way of having a vessel available at short notice without incurring expensive "wet" berth costs.

With the yacht in a cradle, the vessel can be more easily maintained. Since October 2005, the skipper had occasionally been on board to carry out some refurbishment between decks. Both the unwell skipper and the replacement skipper of Sail (UK) Ltd visited the yacht during the week preceding the accident while the vessel was on the hard standing. They carried out routine maintenance of the engine, some minor electrical re-wiring and general refurbishment between decks. No obvious maintenance work or cleaning was done to the upper deck areas, and the sails were not hoisted in their tracks to prove they were free and easy to operate.

1.8.5 Safety-related documentation

Sail (UK) Ltd's safety documentation includes:

- Safety Policy
- Risk assessments
- Training policy
- Emergency/accident procedures, including reporting
- Emergency contact details.

A copy of the Safety Policy was issued to each member of staff **(see Annex G)**.

1.9 SKIPPERS' QUALIFICATIONS AND EXPERIENCE

1.9.1 Original skipper

The original skipper, who subsequently became unwell, was 59 years old. He first went to sea at the age of 18 and has spent most of his life working in marine-related activities. He held a commercially endorsed Yachtmaster Offshore certificate, valid until 6 April 2009. He averaged between 3-4000 yachting miles per year and crewed *Braveheart* during the spring of 2006.

1.9.2 Replacement skipper

The 50 year old replacement skipper, who was also the director and principal of Sail (UK) Ltd, was previously the owner of a building business before he entered yachting as a profession 4 years ago. He held a commercially endorsed Yachtmaster Ocean certificate, valid until 11 July 2007. He also gained his Yachtmaster Instructor qualification on 22 October 2005 on the third attempt.

He often took students for RYA Day Skipper Course assessments, predominantly in the Poole area. He had also skippered between six and eight corporate events, as well as skippering two Fasnet race entries and associated qualifying races. He had completed three trans-Atlantic crossings, one as crew and two as a skipper, as well as one circumnavigation of the UK. In all, he had amassed well over 21000nm sailing experience.

1.10 MCA CODE COMPLIANCE EXAMINATIONS

1.10.1 Commercial operations requirement

All commercially operated vessels are required, by statute, to comply with an appropriate Code of Practice. The primary aim of the Code is to set standards of safety and protection for those on board.

1.10.2 *Blue Code* and *Harmonised Code*

The *Safety of Small Commercial Sailing Vessels – Code of Practice* is commonly known as the *Blue Code.* The *Code* relates to commercially operated vessels of less than 24 metres Load Line length that do not carry cargo or more than 12 passengers. The *Code* was applicable to *Roaring Meg of Cowes*. The *Code* also sets out manning and crew qualification requirements.

The *Code* was endorsed by SI 1998 No 2771 and amended by SI 2000 No 482 – The Merchant Shipping (Vessels in Commercial Use for Sport or Pleasure 2000).

The *Blue Code* has now been incorporated, with various other Codes of Practice, into a document known as the *Harmonised Code*. It has not yet been endorsed by statute, but was published in October 2004 by the MCA as MGN 280 (M) – *Small Vessels in Commercial Use for Sport or Pleasure, Workboats and Pilot Boats – Alternative Construction Standards* and its use has been approved by the MCA as an alternative to the small commercial vessel Codes of Practice.

1.10.3 Certifying authorities and examinations

The MCA delegates the responsibility to examine vessels, issue and sign declarations, examinations and certificates to a number of approved Certifying Authorities. The Yacht Designers and Surveyors Association (YDSA), based in Petersfield, Hampshire, undertook the *Blue Code* compliance examinations for *Roaring Meg of Cowes*. The yacht was last examined, prior to the accident, on 26 August 2004 and was certified for 5 years from 30 September 2004.

On change of ownership, all certificates are cancelled and the new owner has to apply for the vessel to be re-examined. Following the accident, the certificate was suspended due to confusion over the vessel's ownership status. Following legal argument, a short-term certificate was issued, which was valid between 1 and 6 June 2006, to cover a short charter period. The yacht was then re-examined on 6 June and was found to be satisfactory, and the remainder of the 5 year certificate, issued on 30 September 2004, was reinstated.

The Certifying Authority for Sail (UK) Ltd's, Poole based, RYA approved training centre, is the RYA. The source documents for these examinations are the *Blue* and *Harmonised Codes*.

1.11 LICENSING REQUIREMENTS, MANNING, COMPETENCIES AND COMMERCIAL ENDORSEMENTS

1.11.1 Licensing requirements

Commercial vessels operating in the sheltered waters of the Solent area, ie in Categorised Waters as defined in MSN 1776 (M)[1], are required to be licensed by the appropriate local authority.

The Solent Harbour Masters Association is responsible for, and provides requirements for licensing. In its September 2005 guidelines it states that:

> *"A license under this section shall not be required for any boat or vessel duly licensed by or under any regulations of the Maritime and Coastguard Agency (or for a person in charge of or navigating such a boat or vessel)"*

This means that, even when *Roaring Meg of Cowes* operated in Categorised Waters the requirements set out in the *Blue Code* applied. As the *Blue Code* applies to vessels proceeding to sea, there is no specific provision for operations in Categorised Waters. However, to ensure the vessel is safely manned the MCA would expect manning levels to be in accordance with the minimum operating area laid out in the *Blue Code*.

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[1] In MSN 1776 (M) lakes, lochs, rivers, canals, tidal seas and estuaries (ie waters not regarded as "sea") are categorised A – D based on the depth of water and/or significant wave height.

1.11.2 Manning and competencies

Roaring Meg of Cowes was certified by the YDSA as being suitable to operate with a maximum of 10 persons on board, in Area Category 2. This is defined in the *Blue Code* (see Paragraph 1.10.2) as being:

> *Up to 60 miles from a safe haven*.

The associated manning level applicable to *Roaring Meg of Cowes* is defined as one person holding one of the following commercially endorsed certificates:

- Yachtmaster Ocean Certificate of Competency
- Yachtmaster Offshore Certificate of Competency or Service.

Additionally, there should also be at least one person on board who holds a Radio Operator's Certificate for the radio equipment on board, and an appropriate first-aid qualification.

When operating in Area Category 2 waters, the *Blue Code* also requires that:

> *There should also be onboard a second person deemed by the skipper to be experienced.*

On 20 May 2006, the yacht was being operated in Categorised Waters (see 1.11.1) and so the manning requirements should have been in accordance with Area Category 3/4 of the *Blue Code* which requires:

- The skipper to hold a commercially endorsed Certificate of Competency as Coastal Skipper (Sailing).
- A person holding an appropriate radio and first-aid certificate should also be on board.

To support this minimum manning requirement the *Blue Code* also states that the owner has a responsibility to ensure that there is to be sufficient additional, suitably qualified crew on board having due regard to the type and duration of voyage being undertaken.

The *Blue Code* states that the manning levels for operations in all Area Categories should be provided by dedicated crew and not from other sources, i.e. fee paying customers.

1.11.3 Commercial endorsements

Commercial endorsements to Certificates of Competency are specified in the *Blue* and *Harmonised Codes*. The endorsement is awarded following evidence that the certificate holder holds an appropriate Basic Sea Survival Course Certificate and a personal medical certificate.

1.12 RYA COMPETENCY ASSESSMENT CHECKS AND APPROVED TRAINING CENTRE INSPECTIONS

1.12.1 Assessment procedures

The RYA employs a number of experienced yachtsmen assessors who are trained in examining candidates for the various certificates of competency. Assessments are subjective and last typically between 8-12 hours for a Yachtmaster Offshore examination. A man overboard drill forms part of the examination, and occasionally other emergency situations are included at the discretion of the examiner.

The assessors are subjected to validation by a small RYA team, who arrive unannounced during assessments. The whole process is subject to periodic MCA auditing procedures, which were started in 2005.

1.12.2 RYA approved training centre inspections

All approved RYA centres are subject to RYA annual inspections. The inspection includes yachts used by the training centre. Sail (UK) Ltd was due to be inspected in early 2005, but because of the change in ownership, the inspection was deferred.

The director of Sail (UK) Ltd did not advise the RYA of the change of ownership until 7 May 2006, 15 months after he had taken over the company. The annual inspection was eventually conducted on 16 July 2006.

1.13 HEAD PROTECTION

Head protectors were not carried on board the vessel, and they are not specified as a requirement in the *Blue Code*. This is further discussed at Section 2 of this report.

1.14 SIMILAR ACCIDENTS

Since 2000, there have been 23 boom-related accidents reported to the MAIB. Seventeen have been attributable to accidental or planned gybe situations. Of these, 14 involved varying degrees of head injury, there was 1 related death and 2 chest injuries.

As a consequence of the apparent increase in the number of accidents resulting in serious injuries caused during gybes on yachts, the Chief Inspector of Marine Accidents issued MAIB Safety Bulletin 2/2006. A copy of the Safety Bulletin is at **Annex D**. The RYA also emphasised the MAIB's concerns on its website under the title *Gybing Caution*; a copy is at **Annex E**.

SECTION 2 - ANALYSIS

2.1 AIM

The purpose of the analysis is to determine the contributory causes and circumstances of the accident as a basis for making recommendations to prevent similar accidents occurring in the future.

2.2 CAUSE OF THE ACCIDENTS

2.2.1 General

The two accidents occurred as a result of separate accidental gybes due to poor helmsmanship.

The first occurred when the replacement skipper became distracted from his conning duties when he unclipped the day skipper's safety line and the line was snagged around the yacht's wheel as it became taut. The second can be largely attributed to a lack of appreciation of the likely risks posed by the course being steered on the yacht in the prevailing weather conditions, which was undoubtedly exacerbated by the concern felt by the replacement skipper following the first accident.

2.2.2 Accident events and causation

The GPS track, at **Figure 11**, shows that the yacht completed her south-easterly run at 1426. At this time, the replacement skipper elected to tack back up Southampton Water. Having moved onto a port tack, he sailed approximately NW for about 2 minutes, before bearing away close to the oil jetties on the west side of Southampton Water. The first accident happened almost immediately afterwards.

As the day skipper went to start the engine, his safety harness became taut against the wheel. The skipper then became distracted by having to turn around to unclip the day skipper's harness. As a result, the yacht began to run by the lee and made an involuntary gybe onto a starboard tack resulting in the day skipper's injuries. Immediately after, the boom swung back to starboard and the yacht returned onto a port tack. It is possible that the day skipper's taut harness moved the wheel and contributed to the gybe, especially as the replacement skipper had to use both hands to release the harness. However, neither the replacement skipper, nor any of the group can confidently recall whether this happened.

The replacement skipper now came under increasing pressure. He had an injured person on board, the yacht had just completed an unplanned manoeuvre with him at the helm, and the engine could not be started. He then steered a course between 075ºT and 101ºT before experiencing another involuntary gybe, once again onto a starboard tack, about 3 minutes after the first one. This resulted in the head injuries to the second crew member as the boom swung across the cockpit from starboard to port with great force.

During the safety briefing, the skipper particularly emphasised the need to keep clear of the boom at all times. Mindful of this, the lady who suffered the head injury had been very careful as she moved from side to side while operating the traveller rig. Indeed, members of the group and the replacement skipper commented on her skill and her safety conscious attitude.

Had she been able to remain in her seated position, she would not have been injured. Measurement of the height of the boom above the cockpit deck, compared to the lady's height, confirmed that she must have stood up just before the second accidental gybe. The lady cannot recall the reason why she stood up. It was possible that she was responding to the replacement skipper's animated, general comment that the sail needed to be lowered, and she was preparing herself to assist, or as a result of the sudden heel to port. Had the replacement skipper given a proper brief covering his intentions for the return trip to the marina, the group might have had a plan to work to. They would have known what to expect, so the chances of an accident might have been reduced.

After the second accident, the GPS track shows the yacht being brought closer to the wind, but following an erratic course, as the crew struggled to get the mainsail down. Once this was achieved, the replacement skipper steered straight for the river entrance.

2.2.3 Options

Bearing in mind the inexperience of the group, and the wind direction, which made the chance of an accidental gybe more likely, a safer course of action would have been to start the engine before tacking onto the WNW course. This would have given sufficient time to haul down the mainsail well in advance of motoring across Southampton Water towards the River Hamble.

2.3 HUMAN FACTORS – MANAGEMENT AND DECISION-MAKING

When the unwell skipper declared himself unfit on 19 May, there was an opportunity to assess the situation. Had Sail (UK) Ltd's director been fully aware of the composition and experience of the crew, as well as the unwell skipper's true state of health, he might have elected to cancel the trip or seek an alternative skipper or another qualified sailor to assist him. However, commercial pressure might have persuaded him against cancellation. By deferring any decision until the morning of 20 May, the replacement skipper had left himself effectively no alternative to persevering with the trip, as his clients would have already left home for Port Hamble Marina. It seems likely that he had not fully considered the possible scenarios on 20 May when he deferred his decision on the previous evening. This is suggested by the fact that he arrived 20 minutes after the planned start time, and the vessel was ill-prepared for the trip.

When the replacement skipper arrived on board, it was clear to him that the yacht had been poorly prepared. The ropes lying in knots, missing winch handles, dirty crockery and a group that were clearly unhappy with their reception, combined to build up the pressure on him during the early stages of the day.

Although the period of early sailing went without incident, the replacement skipper's almost impulsive decision to cross Southampton Water, without properly briefing the group, suggests that either he did not have a clear plan in mind, or he did not consider all the options available to him, since he did not elect to start the engine early and drop the mainsail with the boat head to wind.

Following the first accidental gybe, the replacement skipper was anxious because the weather was deteriorating and he was aware that, with one injured person on board, the group had become very unsettled. As a result, he might have been less able to focus on the need to navigate the yacht safely in the increasingly challenging conditions, and this might have led to the second accidental gybe. At this point,

the replacement skipper appears to have temporarily lost control of the situation. It seems that his ability to prioritise tasks, to think clearly and purposefully, provide clear directions to the group and to make decisions, might have been compromised by the worsening situation.

Overall, the replacement skipper's ability to manage events and make sensible proactive decisions became less effective as the situation became more difficult and stressful. It is possible that the voyage on 20 May had seemed to him not to warrant serious planning or forethought. Inadequate preparation and planning make stressful situations worse. Once things started to go wrong, it is likely that anxiety, failing confidence and apprehension further compromised the replacement skipper's decision-making ability.

2.4 SAIL PLAN

Roaring Meg of Cowes carried a mainsail, No 2 genoa, tri-sail and storm jib. Both the mainsail and genoa were prepared. Once at the River Hamble entrance, the skipper opted to use the mainsail with a single reef. This decision was based on the actual wind conditions which seemed to have moderated a little to force 5-6. This was reinforced because a number of other yachts in the vicinity were also using just their mainsails.

Given the experience of the group, the boat being used and the forecasted weather conditions, the use of a non-overlapping headsail could have made the rig easier to control and would have removed the potential hazards caused by the boom. However, the skipper's sail choice was limited. The use of the single reefed mainsail was not in itself unsafe, and the accidental gybes should have been avoidable with the application of careful helmsmanship.

2.5 SUITABILITY OF THE IMX 38 YACHT

It is a matter of conjecture whether the high performance IMX 38 class racing yacht was a suitable choice for use with an inexperienced crew. A cruising yacht, on the other hand, generally has higher guardrails, a continuous toe rail (which the IMX 38 does not have) and there tend to be more hand-hold areas on deck. Most importantly, they generally have booms which are much higher, so the chances of a related accident are reduced.

The director of Sail (UK) Ltd wished to maximise the use of his assets, so he made the decision to use *Roaring Meg of Cowes* for both racing and corporate charters. He did consider some of the risks in using the high performance vessel with a novice crew in the predicted poor weather conditions. As a result, he made a conservative sail selection and decided to sail in the calmer area of Southampton Water instead of venturing out into the Solent. While the sea conditions were more benign in Southampton Water, the wind was still gusting force 8, and thus the decision to sail was bound to bring with it heightened risk.

2.6 VESSEL PREPAREDNESS

Roaring Meg of Cowes was last lifted out of the water on 3 October 2005, and was not placed back into the water until 19 May 2006, the day before the accidents occurred. In comparison, *Braveheart* had been lifted in and out of the water five times in 2006, and *Communicator* was last taken out of the water on 19 December 2005 and placed back into the water on 11 May 2006.

The fact that *Roaring Meg of Cowes* had not been in use for 7 months goes some way to explain why she appeared to have suffered general neglect, with the rigging, lifebuoys and deck in a dirty and slippery condition. Clearly, the company should have ensured that the vessel was safe in all respects, and was properly prepared and equipped before bringing it back into service. The deficiencies identified by the MCA surveyors **(Annex F)** indicates that insufficient attention had been paid to the suitability of the vessel for charter and to the company's duty of care.

Although the locking cleats had labels attached to them, they had been abraded and were indecipherable. The replacement skipper, having other issues to deal with, did not seem to appreciate that his novice group of clients would find the sailing rig more difficult to manage because of the lack of identifying labels.

2.7 MANNING

The maximum number of persons permitted on board *Roaring Meg of Cowes* was ten. The levels had been set so that the yacht could be safely operated in the Area Category 2 or lesser category waters. The maximum number specified included the crewing complement: in this case a skipper and other crew deemed necessary for the voyage intended (see Paragraph 1.11.2). A risk assessment, taking into account the poor weather conditions and lack of the clients' sailing experience, should have identified the need for an additional, experienced crew member to help sail the yacht and assist in dealing with emergencies.

The sailing day details for 20 May did not specify the need for any client sailing experience, and Sail (UK) Ltd was unaware of the group's experience until they arrived on board. Had the day progressed as first planned, the original unwell skipper would have taken the yacht out, with, potentially nine totally inexperienced clients. In this case, there could not have been a second person on board, deemed by the skipper to be suitably experienced; therefore, *Roaring Meg of Cowes* would not have been properly manned as required by the *Blue Code*.

Fortunately, and by chance, only eight customers arrived, so even with the unwell skipper still on board, the permissible maximum number on board was not exceeded. While it could be argued that the unwell skipper fulfilled the additional crew member requirement, he was incapacitated, and was not immediately available to the skipper. As such, Sail (UK) Ltd contravened the spirit of the *Blue Code*.

Sail (UK) Ltd interpreted that fee paying customers were able to fulfil the additional crew requirement. Not only is this contrary to the *Blue Code*, but it is also a potentially dangerous interpretation as an individual client's skill and competency is unlikely to be known, and the client will almost invariably be unfamiliar with the vessel's handling characteristics and equipment.

2.8 SAFETY BRIEFING AND RADIO CHECKS

2.8.1 Safety briefing

A thorough safety briefing is essential in preparing those on board to react to an emergency in a correct, timely and safe manner so that the chances of it escalating are reduced. Ultimately, the effectiveness of the briefing may save lives, the vessel, or both.

Sail (UK) Ltd's Safety Policy document **(see Annex G)** states that the following areas are to be covered in the safety briefing:

- *Fire prevention and fire- fighting*
- *Sinking and the use of the liferaft*
- *Man overboard recovery*
- *Gas spillage prevention and removal techniques*
- *Use of flare and other distress signals*
- *Use of VHF radio in distress and emergency situations*
- *Helicopter rescue*
- *Use of lifejackets and safety harnesses.*

It is noted that engine starting and stopping procedures, and the method of engine control, is missing from the list. These should be included, as specified in the *Blue Code* **(see Annex H**).

The briefing on the day of the accident was superficial and did not properly prepare the inexperienced group for an emergency situation. Some of the group who had been to sea before were surprised that there was no mention of: where the first-aid kit was stowed; how to operate the liferafts; the location of the liferafts; how to operate the radio; start the engine; what action was to be taken in the event of a man overboard; or of the use of the emergency flares. Despite their concerns over these omissions, none of the group asked questions about these important points.

Sail (UK) Ltd's Safety Policy (pages 1 and 2) at **Annex G**, clearly states that the principal, who was also the skipper, accepted overall responsibility for safety. It is, therefore, very difficult to reconcile the poor standard of briefing given, when compared with the company's own Safety Policy requirements and that specified in the *Blue Code* **(see Annex H)** - all of which the replacement skipper should have been fully aware of.

It is possible that the briefing was cut short because the replacement skipper was under time pressure as the yacht had not been properly prepared.

2.8.2 Radio checks

As the yacht was a charter vessel, the male day skipper was most surprised that, when he went down below (see paragraph 1.3.2), there were no obvious signs of a hand-held VHF radio or radio operating instructions posted, and the main radio was still switched off. The requirement for instructions to be clearly posted is stated in the *Blue Code*.

The replacement skipper did not check that the VHF radio was switched on as part of his pre-sailing checks. Consequently, he would not have been able to react to an emergency request for assistance should one have been made by another vessel. While the day skipper did switch on the set, it was clearly the responsibility of the crew to do this. Had they done so, they should have identified that the instructions were missing. In explanation, the replacement skipper assumed that the unwell skipper had checked the radio, but he did not confirm this. Clearly, the handover procedure between the two skippers was incomplete.

A hand-held VHF set was seen during visits to the yacht by MAIB inspectors. It is possible that the day skipper merely failed to notice where it was stowed on 20 May.

2.9 "MAYDAY" DISTRESS CALL

The purpose of the "Mayday" distress call, as defined in the 1979 Search and Rescue Convention, is to alert the emergency services to:

> *Grave and imminent danger to a person, ship, aircraft or other vehicle requiring immediate assistance*

The replacement skipper did not alert the coastguard of the day skipper's obvious serious leg injury. Following the second accident, it was clear that the lady had also suffered severe injuries, because she was bleeding profusely from her mouth, ears and nose. Despite this, and repeated requests by the day skipper to transmit a "Mayday" distress call, a further 5 minutes passed before any action was taken.

The unwell skipper eventually sent a "Pan Pan" call instead of a "Mayday", which suggested that the emergency did not fall into the distress category. In the event, the coastguard had to ask for the message to be repeated a number of times because the voice procedure was very poor. It is not unreasonable to expect that, as a holder of a valid Radio Operator's Certificate, the unwell skipper's voice procedure should have been instinctive and crisp, to avoid confusion and delays.

The skipper had been unwell for almost 24 hours, and had remained in his bunk all day. This might have resulted in him feeling slightly disorientated, and could have contributed to the unclear voice message sent out by him.

During this period of high activity, the replacement skipper was faced with a very stressful situation. Two crew members were injured, one seriously and one apparently critically. His confidence in his ability to maintain a safe course and plan ahead was probably considerably shaken, and the difficulties experienced by the crew in lowering the mainsail can only have added to the stress levels and could explain the reason for his delay in alerting the CG. Despite most of the group having mobile telephones with them, none appeared to have considered using them to alert the emergency services. This might have been because they were waiting for advice on what to do by the skipper.

Notwithstanding the above, the most effective way of alerting the coastguard and other potential responders to an emergency is via the vessel's radio.

Had the replacement skipper covered the operation of the VHF radio in the safety brief, as required by the *Blue Code*, and by his own Safety Policy, the response could have been faster and more efficiently managed and, in different circumstances, it might have saved lives.

In this case, the use of the "Mayday" procedure was more appropriate. However, discussions with Solent Coastguard confirm that there was no delay in the CG activating the emergency services despite the "Pan Pan" option being used.

2.10 IDENTIFICATION OF THE CASUALTIES

After *Roaring Meg of Cowes* berthed at Warsash, the paramedics needed to ascertain the injured lady's identification. The replacement skipper was unable to identify the lady because no formal role call had been made at the beginning of the day, and there were no records held on board of the group's next-of-kin or contacts. This was contrary to paragraph 19 of the company's Safety Policy **(see Annex G)**.

To try and identify the lady, the group were asked by the coastguard's Hillhead Coastal Rescue Team to remove all their belongings. That which remained obviously belonged to the injured lady. The telephone number of her husband was found on her mobile telephone by one of the female group members.

Despite now having the contact information, the replacement skipper did not alert the husband to the lady's injuries; one of the group volunteered to do this. It would have been reasonable, under the replacement skipper's "duty of care" responsibilities, for him to have done this, but he was still overwhelmed by the situation and felt unable to do so.

2.11 USE OF OTHER SKIPPER

The replacement skipper did not consider raising his unwell colleague when the only other experienced person on board, the day skipper, was injured.

Had he done so, the engine might have been started sooner. This would have given the skipper more options, possibly preventing the second accident. It would also have expedited the lowering of the mainsail, which would have reduced the skipper's anxiety levels and enabled him to take better control of the situation.

2.12 SAFETY-RELATED DOCUMENTATION

The contents of Sail UK Ltd's "Yachting and Safety Policy" **(Annex G)** appears to be focussed towards its RYA training activities. It is not clear whether this policy also applies to its charter business. As such, the Policy would benefit from revision to clarify that it applies to all aspects of the company's operations.

Thorough and complete risk assessments are an integral part of a company's procedures in ensuring that it fulfils its Health and Safety (H&S) obligations. However, there are only five hazards identified in the company's risk assessment documentation **(Annex G)**. These include: drowning, cold, head injuries, finger crushing and fire and explosion. The use of a totally inexperienced crew, as was the expected case on 20 May, and the implications this would have on manning, was not covered. The risk assessments' associated control measures lacked detail on how these were to be mitigated, and the company was unable to provide any other documentation in support of the assessments.

While the *Blue Code* does not specifically cover H&S issues, guidance is available in MGN 20 (M+F) – *Implementation of EC Directive 89/31 Merchant Shipping and Fishing Vessels (Health and Safety Regulations 1997)*.

The company's risk assessments would benefit from review and alignment to MGN 280(M) and MGN 20 (M+F).

2.13 RYA COMPETENCY STANDARDS, ASSESSMENTS AND INSTRUCTOR ENDORSEMENT

The RYA competency assessments are well established and audited. Where a candidate fails to reach the required standard, advice is given by the assessor on areas that the candidate needs to concentrate on before a subsequent re-assessment. There is no specified intervening period before a re-assessment can take place.

Failure at higher qualifications such as the Yachtmaster Instructor endorsement to a Yachtmaster Offshore or Ocean Certificate, sometimes results in the assessor specifying a period of additional experience before a further attempt is made. However, this remains subjective, and there seems to be no specified criteria or policy against which to measure this decision.

The fact that the assessments of the director of Sail (UK) Ltd's instructor's endorsement identified some areas for improvement before a re-examination could take place, demonstrates that the RYA procedures do indeed work. However, there may be a case for the RYA to formally specify a period of additional experience before an attempt at a competency re-assessment or instructor endorsement can be made.

2.13.1 Emergency drills

Training in realistic, stressful conditions is a fundamental element of developing the competency of, for example, the emergency services, to deal with emergency situations.

There is opinion that RYA assessments should, in addition to the prescribed manoverboard drill, include additional emergency response drills to better gauge the candidate's ability to cope in periods of stress. In reality, the candidate is normally already stressed by the day's events. He is being closely scrutinised, and assessors frequently add in unexpected events. There is no evidence to suggest that the formal inclusion of any other drills during RYA assessments would have equipped the skipper with the skills needed to deal with the events on 20 May in a different manner than he did.

2.14 SPICE UK GROUP'S CONCERNS

There is no doubt that the poor communications, domestic arrangements, ill preparedness, appearance of the yacht and incomplete safety brief all failed to meet the reasonable expectations of the fee paying group.

This view was further compounded because no-one from Sail (UK) Ltd greeted the group on their arrival at the marina. Sail (UK) Ltd's correspondence also stated that the group were to sail in *Braveheart,* when in fact *Roaring Meg of Cowes* was to be used, but the change in arrangements had not been passed onto the group.

However, the group's main concern was that the skipper appeared to have paid little attention to the wellbeing of the two casualties. While this concern is understandable, it should be put in context. The two accidents followed very closely. The skipper was aware that both of the casualties were being attended to by group members, and he had given instructions to the person looking after the lady with the head injury to keep her airways clear. At that point, the skipper's priority was, quite correctly, to stabilise the situation to ensure there were no further accidents, and to make speed towards Warsash, where the paramedics were to meet the yacht.

The group were also very concerned that, once the casualties had been dealt with, the skipper did not bring them together to discuss the traumatic turn of events or their performance. The situation was exacerbated because no-one from Sail (UK) Ltd accompanied the group to hospital, or made contact with the injured lady's next-of-kin.

Instead, both the unwell skipper and the replacement skipper busied themselves with securing the yacht and stowing sails and equipment. They both appeared to still be overwhelmed by the situation and were not quite sure how to deal with it.

2.15 HEAD PROTECTION

Head protection helmets are an obvious choice for dangerous marine sports such as powerboat racing or canoeing. Their use is, perhaps, less obvious for yachting.

The investigation identified that marine safety helmets are available for use by the emergency services, including the coastguard, and for high speed marine sports and canoeing. These are primarily designed to protect against injuries to the top of the head, and not against the side impact typically seen after boom-related accidents. Discussions with the British Standards Institute identified that there are no British or European Standards specified for yachting helmets.

In exploring this further, six sailing schools were selected at random to seek their views on the use of helmets during yachting. All emphatically objected to their use, except when teaching young children. Helmets were considered to impair wind awareness and communications and are heavy and uncomfortable when worn for lengthy periods.

The schools universally considered that the best control measures to reduce the risk of head injury were by thorough briefings on the risk of boom and sheet movements, proper control of the yacht especially to prevent accidental gybes, and warnings prior to tacking and gybing.

2.16 FATIGUE

2.16.1 Original skipper

The unwell skipper, who suffered from asthma, developed flu like symptoms during the afternoon of 19 May, and felt extremely tired as a result. He slept fitfully from 1815 on 19 May until about 0700 on 20 May, but still felt very tired and unwell, and unable to skipper the yacht.

2.16.2 Replacement skipper

The relief skipper was well rested when he arrived at the yacht. He did suffer some back pain as a result of a rough trans-Atlantic crossing which he had completed the week before.

SECTION 3 - CONCLUSIONS

3.1 SAFETY ISSUES

The following safety issues have been identified by the investigation. They are not listed in any order of priority:

Preparation and boat handling

1. The first accident occurred after the first accidental gybe when the skipper became distracted from his steering duties by releasing the group day skipper's safety harness. [2.2.1, 2.2.2]

2. The second accident occurred during another accidental gybe because the replacement skipper was under considerable stress and failed to take due account of the prevailing weather conditions. [2.2.1, 2.2.2, 2.3]

3. The skipper did not give the crew a brief on his intentions for the return trip, so they were unaware of their individual duties. [2.2.2]

4. Preparation of the vessel for the trip was poor. The vessel showed general neglect and there were a number of safety-related deficiencies. [2.6, 2.14]

5. No radio checks were carried out prior to departure. [2.8.2]

Management, procedures and control

6. Following the first injury, the replacement skipper progressively lost effective control of the situation and failed to give clear directions, so the group became confused. [2.2.2, 2.3]

7. Despite the lady with the head injury being in deep trauma, there was a 5-minute delay in alerting the coastguard to her injuries. [2.9]

8. The "Pan Pan" voice procedure was very poor and the coastguard had to repeatedly seek clarification of the message. [2.9]

9. Identification of the injured lady was delayed because no personal details had been taken by the organiser when the group arrived. [2.10]

10. The skipper did not consider rousing his unwell colleague when the only other experienced person on board, the day skipper, was injured. [2.11]

11. Sail (UK) Ltd failed to man the vessel as required by the *Blue Code*. [2.7]

12. Due consideration was not given to the safer option of starting the engine sooner, to enable the yacht to motor across Southampton Water when approaching the River Hamble and therefore reduce the risk of an accidental gybe. [2.2.3, 2.3]

Safety documentation

13. Sail (UK) Ltd's Safety Policy covering safety briefings was incomplete. The briefing given to the SPICE UK group was superficial, with many omissions, and it did not properly prepare the group for the subsequent emergency situation. [2.8.1, 2.14]

14. Sail (UK) Ltd's Safety Policy appeared to be focussed towards its RYA training activities. It was not clear whether the policy also applied to its charter business. [2.12]

15. The risk assessments were scant and did not cover the use of a totally inexperienced crew on charter vessels. The associated control measures lacked detail, and the company was unable to provide documentation to support the assessments. [2.7, 2.12]

SECTION 4 - ACTION TAKEN

4.1 MARITIME AND COASTGUARD AGENCY

On 22 May 2006, MCA surveyors from the Southampton Marine Office inspected Sail UK Ltd's yachts *Roaring Meg of Cowes, Braveheart* and *Communicator* at Port Hamble Marina. As a result, a significant number of deficiencies were identified and all three vessels were issued with Prohibition Notices. A copy of the Inspection Report for *Roaring Meg,* dated 22 May 2006, is at **Annex F**. All three Prohibition Notices were lifted on 20 June 2006 following re-instatement of the Small Commercial Vessel Certificate by YDSA.

4.2 ROYAL YACHTING ASSOCIATION

Following a review of the accident circumstances, the RYA rescinded the director and principal of Sail (UK) Ltd's Yachtmaster Instructor's endorsement on 19 June 2006. Reinstatement of the endorsement is dependent on a successful reassessment.

4.3 SPICE UK

SPICE UK has cancelled all future arrangements with Sail (UK) Ltd because of the group's reported concerns over the company's duty of care responsibilities, poor management and control of the emergency situations that developed at the time of the accidents.

SECTION 5 - RECOMMENDATIONS

Sail (UK) Ltd is recommended to:

2006/217 Review the company's Safety Policy and related documentation to ensure that:

- The Policy encompasses all the company's RYA courses and charter operations.
- Risk assessments and associated control measures fully cover the operation of the company's vessels, including when operating with a totally inexperienced crew.
- There are procedures for comprehensive safety briefings.
- Skippers and crew are fully aware of the need to alert the emergency services promptly to an emergency on board its vessels.

2006/218 Ensure that:

- Its yachts are thoroughly prepared, checked and equipped prior to use.
- Manning levels are in accordance with the *Safety of Small Commercial Sailing Vessels – Code of Practice* (*Blue Code*).
- Each voyage is carefully planned to take into account the experience of those on board.

The Royal Yachting Association is recommended to:

2006/219 Promulgate to its membership the following safety issues, which have been identified in this investigation report:

- The importance of correct manning levels when undertaking commercial activities.
- The need for thorough preparation of the vessel, comprehensive safety briefings and recording of personal details of those on board.
- The risks associated with boom impact from an accidental gybe.
- The need for owners of commercially operated yachts to conduct thorough risk assessments and develop effective control measures with respect to safety critical tasks.
- The need for careful overall planning to take account of the experience of those on board.

Marine Accident Investigation Branch
November 2006