

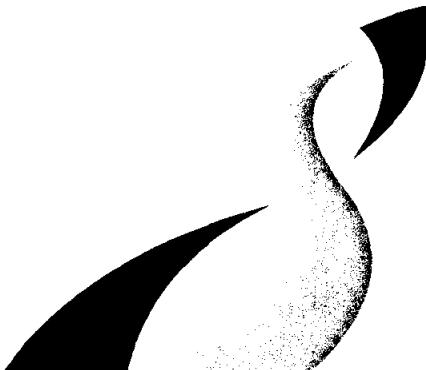


Marine Accident Report 5/98

Report of the Inspector's Inquiry into the Grounding of the Bahamas Registered Passenger Ship

ALBATROS

on 16 May 1997
in Saint Mary's Sound, Isles of Scilly



November 1998

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Department of the Environment, Transport and the Regions
Carlton House
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19 August 1998

*The Right Honourable John Prescott MP
Deputy Prime Minister and Secretary of State
for the Environment, Transport and the Regions*

Sir

I have the honour to submit the Marine Accident Investigation Branch report on the grounding of the Bahamian registered passenger vessel ALBATROS in Saint Mary's Sound, Isles of Scilly, on 16 May 1997.

I have the honour to be
Sir
Your obedient servant

J S Lang

J S Lang
Rear Admiral
Chief Inspector of Marine Accidents

**Extract from
The Merchant Shipping
(Accident Reporting and Investigation)
Regulations 1994**

The fundamental purpose of investigating an accident under these Regulations is to determine its circumstances and the causes with the aim of improving the safety of life at sea and the avoidance of accidents in the future. It is not the purpose to apportion liability, nor, except so far as is necessary to achieve the fundamental purpose, to apportion blame.

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Glossary of Abbreviations

ARPA	Automatic Radar Plotting Aid
CHA	Competent Harbour Authority
EDM	Electromagnetic Distance Metre
ETA	Estimated Time of Arrival
GPS	Global Positioning System
GT	Gross Tonnage
IMO	International Maritime Organization
INMARSAT	International Maritime Satellite
IOPP	International Oil Pollution Prevention
m	Metres
MRCC	Maritime Rescue Co-ordination Centre
MPCU	Marine Pollution Control Unit
MSA	Marine Safety Agency (now the Maritime and Coastguard Agency)
VHF	Very High Frequency (Radio)

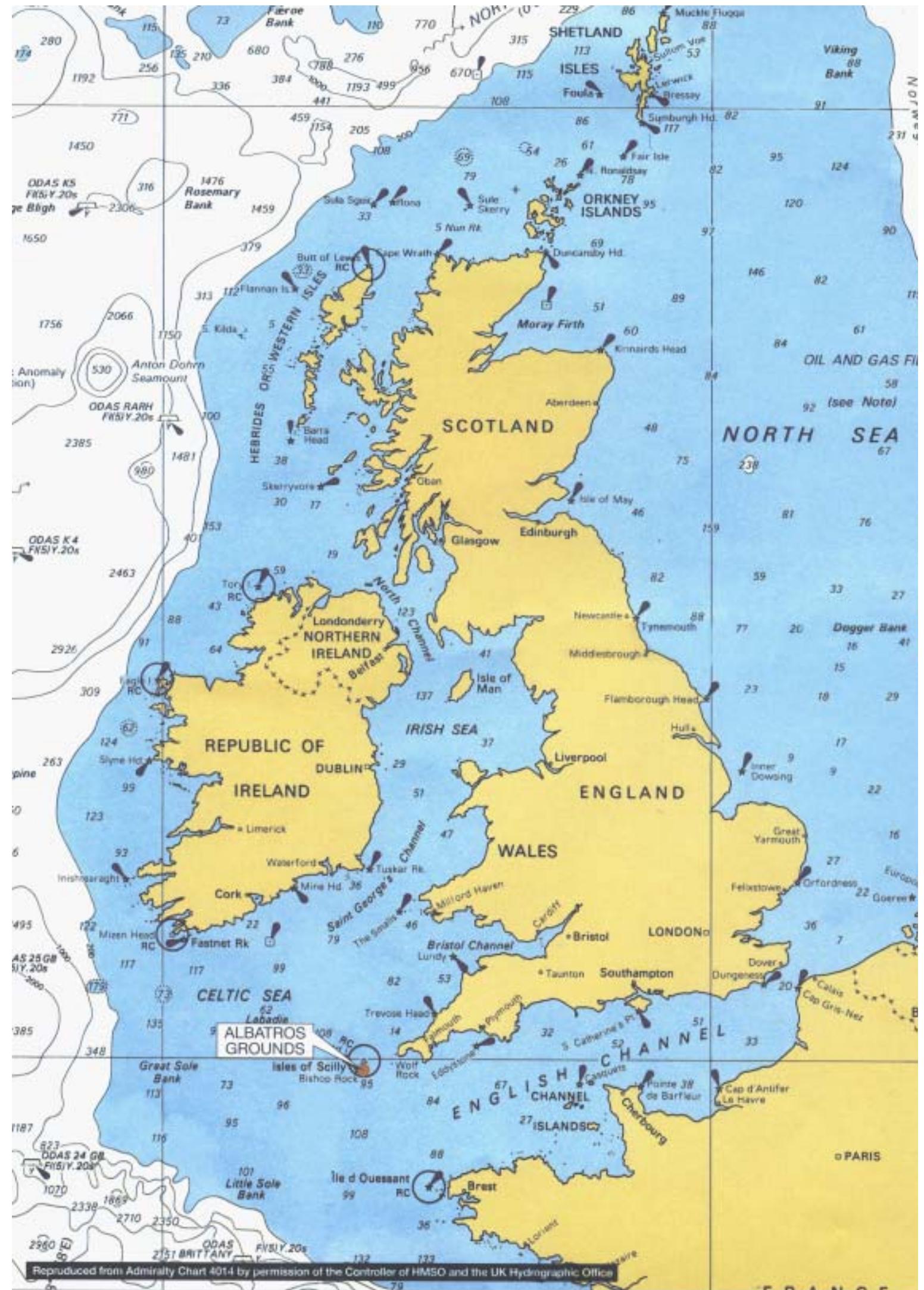
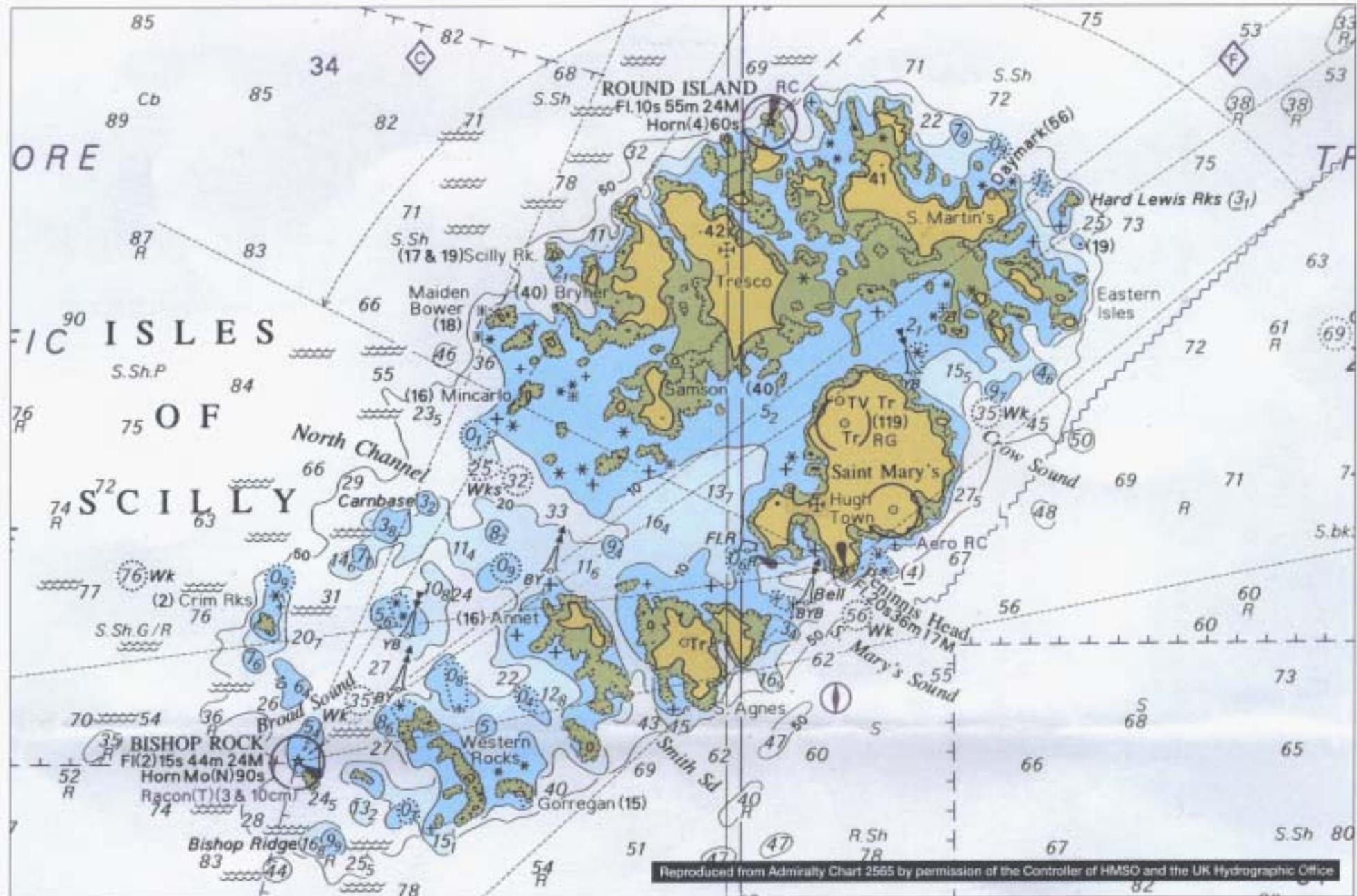


Figure 2: The Isles of Scilly



Synopsis

The accident was notified to Marine Accident Investigation Branch (MAIB) at about 1630 on Friday, 16 May 1997. The MAIB investigation was conducted by Captain P Kavanagh. It was also investigated by the Bahamas Maritime Authority.

The accident occurred when the passenger ship ALBATROS, of 24,803 GT, was departing from the Isles of Scilly after a short visit as part of a round Britain cruise. While exiting Saint Mary's Road and entering Saint Mary's Sound, the liner grounded on North Bartholomew Rock just outside the southern side of the navigable channel.

The Pilot was not on board at the time of the accident. With the Master's agreement, the Pilot was leading the vessel out to the open sea from a launch.

After weighing anchor, the Master had to execute a large turn to port before lining up for the narrow passage through Saint Mary's Sound. Navigation was conducted by eye, supported by radar parallel indexing and advice from the Pilot by VHF radio.

ALBATROS completed the turn but was too far to the south of the safe channel and struck a clearly charted rock. The damage to the hull was extensive; mainly on the starboard side. Despite a number of fuel oil tanks being ruptured, very little leakage of oil occurred. The vessel remained for a further nine days at anchor in Saint Mary's Road whilst the passengers and non-essential personnel were disembarked, and fuel oil from damaged tanks was transhipped to a coastal tanker.

The initiating cause of the accident was the Master's failure to execute and monitor the turn to port to ensure ALBATROS was safe as she approached Saint Mary's Sound.

An interim recommendation that vessels liable to compulsory pilotage should have a pilot embarked has been made to the Competent Harbour Authority of the Isles of Scilly.

The Report includes further recommendations to review the navigational aids and pilotage in the Isles of Scilly; to consider extending the Competent Harbour Authority's harbour limits to encompass the whole of the Isles of Scilly and for the Management Company of ALBATROS to enhance their procedures for identifying and assessing potential risks before agreeing to a previously unvisited port being used by a particular vessel.



Figure 3: ALBATROS at anchor in Saint Mary's Road

Vessel and Incident Particulars

Vessel Particulars:

Name	:	ALBATROS
Previous Names	:	DAWN PRINCESS – 1993, SITMAR FAIRWIND and FAIRWIND – 1988, SYLVANIA – 1968
Type of Ship	:	Cruise Passenger
Owner	:	Happy Days Shipping Ltd (Nassau)
Manager	:	Shipping Management S.A.M. of Monaco (Registered Tradename – V Ships)
Flag	:	Bahamas
Port of Registry	:	Nassau
Official Number	:	5347245
Classification Society	:	Lloyds Register of Shipping
Construction Material	:	Steel
Year Keel Laid	:	1955
Place of Build	:	John Brown & Co. (Clydebank) of Glasgow in Scotland
Gross Tonnage	:	24,803
Length	:	185.4 metres
Breadth	:	24.49 metres
Propulsion	:	Four Pamestrada steam turbines geared to two shafts providing 18,021 kW and a service speed of 19.5 knots
Bunker Capacity	:	Heavy fuel oil – 3068 tonne Diesel oil – 77 tonne Lubricating oil – 34 tonne Fresh feed water – 1255 tonne
Bow Thruster	:	Variable pitch of 1,343 kW
Passenger Capacity	:	1295
Certificates	:	Passenger, IOPP and Load Line Certificates were valid at the time of the Accident. The manning of the ship was in compliance with the Safety Manning Certificate.

Incident Particulars:

Date of Accident	:	16 May 1997
Time of Accident	:	1505 Universal Co-ordinated Time (UTC) +1
Location of Accident	:	Saint Mary's Sound, Isles of Scilly
Injuries	:	None
Pollution	:	Light oil sheen observed only on 17 May 1997
Damage to Ship	:	Extensive underwater hull damage

ALBATROS was not fitted with a Voyage Data Recorder

SECTION 1

Factual Information

All times are UTC + 1.

1.1 BACKGROUND TO VOYAGE

ALBATROS is a Bahamas registered passenger ship cruising throughout the year in different parts of the world. The accident occurred during a round Britain cruise which had started at Bremerhaven, Germany, on Wednesday 7 May 1997. There were 305 crew members and 504 passengers on board. Prior to visiting the Isles of Scilly, the ship had called at Invergordon, Kirkwall, Oban, Belfast, Liverpool, Dublin and Cobh. After the Isles of Scilly she intended calling at Cowes, Tilbury and Amsterdam before returning to Bremerhaven. It was the first time that ALBATROS, or any of her bridge team, had visited the Isles of Scilly.

Five days before arriving at the Isles of Scilly, the Master informed the Port Agent that his ETA at the pilot boarding station would be 0630 on 16 May and that he intended sailing at about 1500 the same day. He added that the maximum draught of the ship would be 9 m and her overall length was 185 m. He instructed the Agent to pass this information to the Pilot and the Harbour Master of Saint Mary's Pool.

On 15 May, whilst in Cobh, the weather deteriorated sufficiently to prompt the Master to telephone the Agent to convey his concerns about the possible weather conditions in the Isles on the following day. Had the weather been as bad in the Isles, the Master proposed to cancel the call. He was reassured by the Agent who informed him that the weather was good and the Pilot would board to the south of Peninnis Head at the seaward end of Saint Mary's Sound.

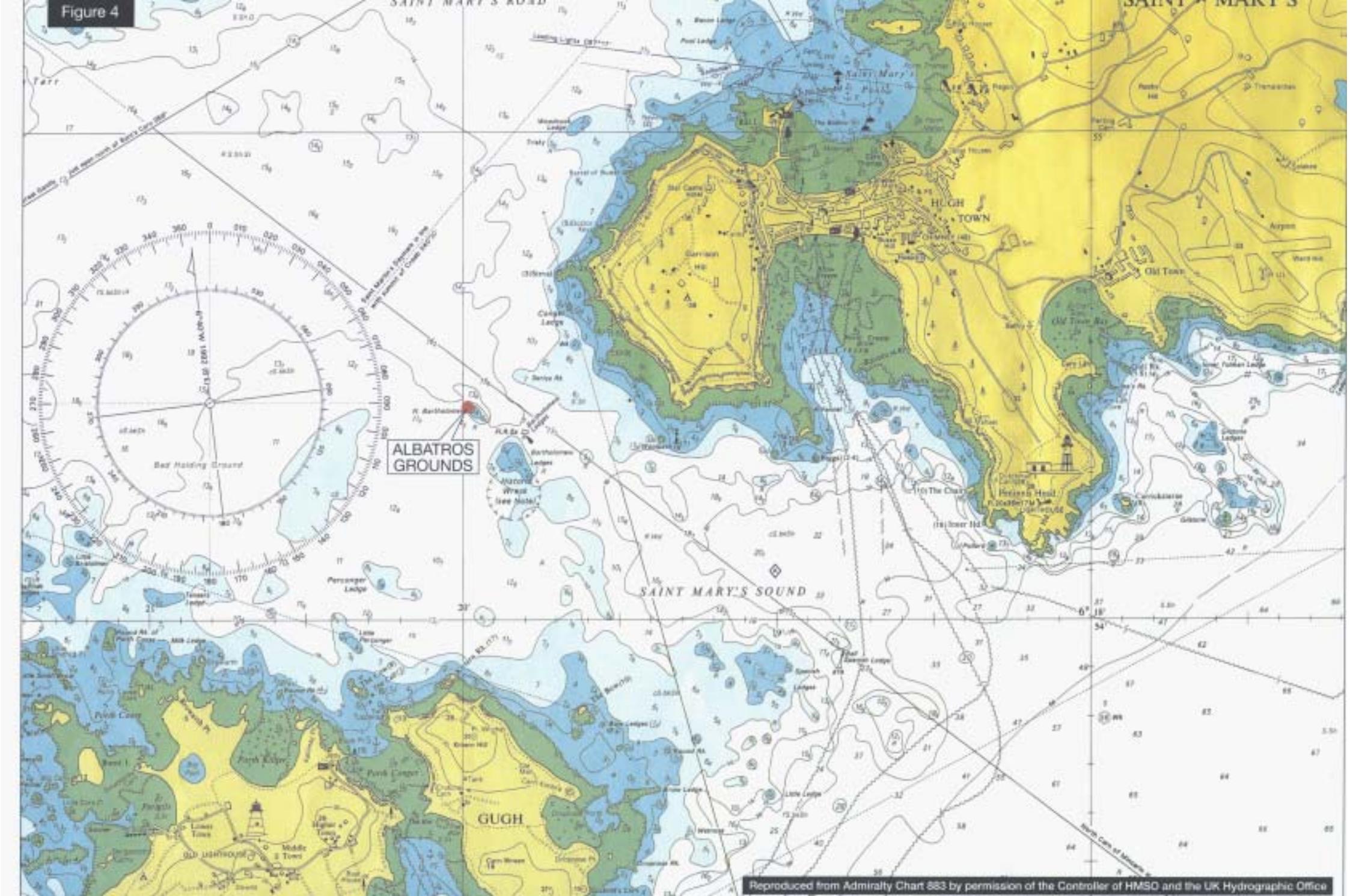
ALBATROS departed Cobh at 2000 on 15 May and, after an overnight passage, approached Saint Mary's from the east.

As ALBATROS approached Peninnis Head from seaward, the Pilot headed out to meet her in the inter-island passenger launch SURPRISE. The wind was east-south-east force 5 with visibility less than one mile in mist. On meeting the open sea, the Pilot decided that sea conditions were too rough to embark safely and informed the Master on VHF that he would board in the vicinity of Bartholomew Ledges Buoy.

With SURPRISE leading the way, ALBATROS entered the Sound and, at 0651, the Pilot boarded to the north-west of the buoy. The vessel anchored off Saint Mary's Pool harbour with four shackles on the port cable.

During the day, the passengers were taken on excursions ashore. The Master planned to sail at 1500 for Cowes departing through Saint Mary's Sound.

Figure 4



1.2 THE GROUNDING

Before boarding ALBATROS for the 1500 departure, the Pilot assessed the sea conditions at the seaward end of Saint Mary's Sound from a vantage point at Porth Cressa. The sea conditions were, in his opinion, still too rough. With the wind against the tide, he considered it inadvisable to disembark from ALBATROS off Peninnis Head but did not then inform the Master.

At 1445 the Pilot, on board the inter-island passenger launch KINGSLEY II, approached ALBATROS which was on an easterly heading weighing anchor. He informed the Master by VHF radio that the sea state was too rough to permit a safe disembarkation outside Saint Mary's Sound, and asked whether he would agree to following the launch out to sea. The Master said he was happy.

The Pilot advised the Master that the ship's head should be 215° after weighing anchor. He stationed the launch at a distance of about 250 m on ALBATROS' starboard bow to indicate the direction in which he wanted the ship to head.

Between 1445 and 1452 when the anchor was aweigh, the Master gave various engine orders to turn the ship to starboard to the initial course recommended by the Pilot. At 1455 the Master ordered slow ahead on both main engines and, shortly afterwards, half ahead.

While conning the vessel, the Master moved between the centre line of the bridge and the working chart on the folding table next to the operational radar. Sharing the bridge with him were the Staff Captain, the Second Officer(1), a Navigating Cadet and the Quartermaster.

The Staff Captain was responsible for maintaining the VHF radio link with the Pilot and also for plotting positions on the chart using radar bearings and distances.

The Second Officer(1), stationed next to the Quartermaster on the wheel, was responsible for ensuring the Master's helm orders were executed correctly. The Cadet operated the engine telegraph and assisted the Staff Captain in plotting the ship's position. The telegraph movements were automatically recorded.

As ALBATROS gathered way on a heading of about 215°, the launch crossed ahead onto the port bow and steered south to indicate the approach to the turn into Saint Mary's Sound. The Master interpreted this as the start of the turn and ordered hard-a-port and, at 1457, increased to full ahead on both engines to increase the rate of turn. He went to the starboard bridge wing to look aft for the islands of Great Minalto and the North Carn of Mincarlo, which, when in transit, would indicate the charted leading line of 127° through the Sound. He found these islands difficult to identify and failed to see the transit.

Throughout the turn, the Pilot, who was monitoring the ship's progress from the launch on the port bow and ahead of ALBATROS, had been concerned by the slow rate of turn. There is conflicting evidence as to whether or not he reported his concern to the ship over the VHF and whether or not he was informed the wheel was hard-a-port.

When the ship's head had reached 140°, the Master ordered the wheel amidships, to allow the ship's swing to port to continue. He returned to the starboard bridge wing in a second attempt to sight the leading line marks but, once again, failed to do so.

ALBATROS next reported her course as 126° to the Pilot. Satisfied, the Pilot replied it should be maintained. However, the ship continued to turn to port until she reached 117°, although 125° was the Pilot's planned course.

Meanwhile both Pilot and Master had become concerned by the presence of a yacht under sail which was tacking across the ship's bow. As ALBATROS was about to commit herself to the narrow deep water channel, the Pilot's launch headed towards the yacht to warn it to keep clear. At the same time ALBATROS made five short blasts on her whistle. The yacht immediately started its engine and the launch altered back to resume station ahead of the ship.

Shortly afterwards, at 1505, ALBATROS shuddered, rolled momentarily to port and then to starboard. The Master realised immediately his ship had struck a submerged object on the starboard side. He ordered hard-a-starboard to prevent the starboard propeller from hitting the obstruction. He stopped engines, ordered the watertight doors to be closed, went hard-a-port to regain the planned track, and then came dead slow ahead on the engines.

Meanwhile, ahead of ALBATROS, the Pilot remained unaware of anything untoward until the Master called him on VHF to inform him the ship had touched an underwater object. He added he would be returning to the anchorage to assess the damage. The Pilot, confident that the ship was in the deep water channel and clear of danger, expressed incredulity. The Master repeated his message and requested the Pilot to board ALBATROS.

1.3 POST GROUNDING EVENTS

Following the impact, the First Engineer, who was on duty in the bow thruster compartment, saw the space start to flood. He immediately vacated it and went to the engine room to inform the Chief Engineer. A report was made to the bridge and the electrical supply to the forward section of the ship was isolated. Instructions were given to the other engineers to check all machinery spaces for flooding or damage.

Assessing the situation, the Master concluded the damage had been contained since the ship had neither listed nor changed trim. Officers and crew initiated the ship's General Emergency procedures. The crew alert alarm was sounded at 1506 and within thirteen minutes all lifeboat and liferaft preparation parties had been mustered.

The Master informed the Harbour Master and the ship's Managers of the incident and said he intended to return to the anchorage. The Master informed the passengers of the situation and his intentions over the public address system.

ALBATROS continued to head seaward, turned to create a lee for the launch and embarked the Pilot without difficulty. She returned to the anchorage via Saint Mary's Sound.

After boarding ALBATROS at 1530, the Pilot reported the incident to Falmouth Coastguard MRCC but did not request assistance. Shortly before 1600 the Coastguard telephoned the ship using INMARSAT and learned there were 809 people, and 1700 tonne of fuel oil on board. The Coastguard asked to be kept informed of any changes in the circumstances.

By the time ALBATROS re-anchored at 1600 it was confirmed that flooding was confined to the bow thruster compartment and there had been no injuries. Although there was no

immediate evidence of pollution, the Council of the Isles of Scilly activated its Emergency Plan, and the Master asked the Harbour Master to arrange for local divers to inspect the hull for damage.

At 1700, contingency arrangements were made for the opening of Joint Operations and Rest Centres on Saint Mary's in case it became necessary to evacuate passengers from the ship.

A diver's initial inspection of the hull was made later that night and found evidence to show the ship had struck rocks.

On being notified of the accident by the ship, the Management Company implemented its contingency plans, in which its office in Monaco was manned on a 24-hour basis and several technical and safety personnel were dispatched to the Isles of Scilly.

The Chief Executive of the Council of the Isles of Scilly, the Harbour Master of Saint Mary's, a local police officer and a Lloyd's surveyor boarded the ship that evening to interview the Master, the Pilot and the Chief Engineer and to ensure the integrity of the ship and the safety of passengers and crew. The police officer breathalysed both Master and Pilot. The results were negative.

On Saturday 17 May, a further and detailed inspection of the hull was made by local divers who found extensive damage. A number of fuel oil tanks had been ruptured but no significant pollution was apparent. However, the Marine Pollution Control Unit (MPCU), on being alerted by the Coastguard, had already mobilised their equipment and had arranged for surveillance aircraft to overfly the area.

In view of the extensive damage to the hull, arrangements were made to disembark the passengers.

During the evening, a meeting was convened in which the Master, the Harbour Master of Saint Mary's, representatives of the Local Authority, Insurer and the ship's Manager were present. Chaired by the Chief Executive of the Isles of Scilly Council, it covered:

- the extent of the damage;
- the risk posed by the ship in her present position;
- the requirements needed to ensure the safe evacuation of the passengers and crew; and
- the requirements to limit the effects of the damage.

As a precautionary measure it was decided to remove any remaining oil in the damaged fuel oil tanks before the ship departed for a repair port.

The Council's Crisis Management Team, together with representatives of the Duchy of Cornwall, established an incident control room on board.

On Sunday 18 May a further underwater inspection was undertaken. The divers' video revealed damage to four double bottom tanks, a cofferdam and a number of other tanks (see Section 1.14 for details). Following concern that latent damage may have occurred to the ship's main propulsion system, the Lloyd's Surveyor specified that an escort tug would be needed for the passage to her next port in case engine failure occurred.

By 1100 all passengers had disembarked to return home.

The salvage company Smit Tak was contracted to remove the fuel oil from the damaged tanks.

The salvage team arrived on Monday 19 May, carried out a damage assessment and arranged to off-load the oil. Salvage equipment arrived on board the following day and the transhipment of fuel oil to a coastal tanker commenced at 1030.

Later in the week it was decided to dry-dock the ship in Southampton. The transhipment of oil was completed on Saturday 24 May but, because of the weather restrictions imposed on the ship, the Master delayed sailing until Sunday morning.

A passage plan and other contingency arrangements had been made which included:

- the requirement to have two additional pumps and Smit Tak retaining their salvage equipment on board;
- the provision of an escort tug;
- weather limitations of force 5 wind and a wave height of not more than 2.5 m;
- limiting the speed of the ship to 10 knots;
- having to make regular reports to HM Coastguard during the passage; and
- MPCU surveillance aircraft overflying the ship on departure and at intervals during the passage.

ALBATROS weighed anchor at midday on Sunday 25 May and, with the Pilot on board, departed Saint Mary's Road. The outward passage through Saint Mary's Sound was completed safely and without incident.

No pollution occurred during her passage from the Isles of Scilly to Southampton.

ALBATROS arrived safely off the A & P dry-dock in Southampton at 1600 on 26 May. Once in dry-dock, full repairs were carried out and she finally sailed on Monday 14 July.

1.4 THE CREW

At the time of the accident there were 305 crew on board comprising of Italians, Poles, Germans and Filipinos.

The bridge team consisted of the following personnel:

The Master, an Italian national, was 47 years old and had been at sea since 1967. He served exclusively on passenger ships since the issue of his Italian Master's Foreign Going Certificate of Competency in 1976. In 1981 he took his first command of a passenger ship of about 12,000 GT. He was employed by Shipping Management S.A.M. of Monaco in November 1995 and joined ALBATROS that month as Staff Captain. He was appointed Master of the ship in July 1996.

The Staff Captain, an Italian national, was 35 years old and had been at sea since 1982. He held an Italian Master's Foreign Going Certificate of Competency and had six years of experience in passenger ships, prior to joining ALBATROS in April 1997.

The Second Officer (1), an Italian national, was 54 years old and had been at sea since 1963. He held an Italian Master's Foreign Going Certificate of Competency since 1972 and had been serving on board ALBATROS for about one month prior to the accident.

The Navigating Cadet, a Polish national, was 22 years old and had been at sea for about 10 months. He was due to return to the Merchant Marine Academy of Gdynia to complete a five year 'sandwich' course. He had been on board ALBATROS for about a month.

The Quartermaster, a Filipino national, was 46 years old and had been at sea since 1989. He was promoted Able Seaman in 1990 and had been on board ALBATROS for about three months.

The Chief Officer was off watch during the departure.

The members of the bridge team were well rested prior to departure.

1.5 MANAGEMENT

Shipping Management S.A.M. of Monaco had nine cruise ships under their management in 1997. The schedules for each vessel were planned by the Owner or the charterer between one and two years beforehand. When the schedule had been completed, it was passed to the Managers to carry out the marine planning. Part of that process involved the Planning Officer, an experienced passenger ship master of the Cruise Planning Department, carrying out extensive research into the ports of call. This involved contacting the local agent in each port to confirm the initial findings and to arrange logistics, such as tugs, bunkers and other amenities. When any doubts arose, such as perceived difficulties in navigation, the Planning Officer would visit the port concerned. Officials within the Cruise Planning Department do not, as a matter of course, visit a new port of call. They did not visit the Isles of Scilly. Responsibility for all navigational aspects is vested in the master of the vessel concerned.

The Company supplies its ships with updated information on ports throughout the world. Bridge teams compile their own port guides, recording navigational observations and other information not available from other sources.

1.6 THE PILOT

The Pilot, who is the more senior of two pilots for the Isles of Scilly, was 58 years old at the time of the incident and was born in the Isles. After a period at sea serving in general cargo ships, he obtained a Mate's Home Trade Certificate of Competency. In the late 1960's he returned to the Isles of Scilly and purchased an inter-island passenger launch. Between 1969 and 1989 he served as relief Chief Officer on the Isles of Scilly Steam Ship Company ferry, which operated exclusively between Penzance and Hugh Town, Saint Mary's. The Pilot is the Secretary for the Royal National Lifeboat Institution and is responsible for the assessment of sea conditions and the launch of Saint Mary's Lifeboat.

In 1988, shortly after the death of the previous pilot, he was appointed by the Duchy of Cornwall as Pilot for the Isles of Scilly on the recommendation of Trinity House Pilotage Service. This recommendation was implemented under Trinity House procedure, whereby he was examined by the Sub-Commissioners of Pilotage for the Trinity House, Isles of Scilly District. (On 30 September 1988, Trinity House ceased to be involved in the licensing or the annual re-licensing of district pilots when provisions of the Pilotage Act 1987 came into force.) His competency was not re-examined since he was first authorised. There is no legal obligation to do so.

The Pilot's authorisation was not restricted to any particular tonnage. The original examination was conducted on an assumption that pilotage service would be related to the size of vessel normally using the port. Relatively large cruise ships were already calling at the Isles of Scilly in 1988.

The Pilot for the Isles of Scilly has the status of being an independent professional who navigates ships as a principal and not as a servant of the Duchy of Cornwall.

The Duchy of Cornwall sets the pilotage charges, and the payments for the acts of pilotage are paid directly to the Pilot. The charge made for the operation of a pilot boat for embarking or disembarking the Pilot is also set by the Duchy.

Since 1988, the Pilot has provided the pilotage service for the Isles on vessels varying from relatively large cruise ships to fishing vessels, and tugs with barges carrying stone for the coastal defence work. In the recent past, pilotage has been exclusively concerned with cruise ships. The Pilot has examined officers from the local ferry and cargo ship for pilotage exemption certificates, and also boatmen for the Isles of Scilly Council.

1.7 NAVIGATION

1.7.1 Equipment and Publications

ALBATROS was well equipped with modern navigational aids including two GPS navigators, an echo sounder and two gyro compasses.

She was fitted with three radars: one was in use when ALBATROS sailed on 16 May, the other two were on stand by. The operational radar was ARPA fitted, gyro stabilised in the north-up-mode and was interfaced with GPS for log speed. It had a daylight viewing facility.

There is no evidence to suggest that variable range marker accuracy was known at the time of sailing. The IMO Radar Performance Standard requires that the fixed range rings and the variable range marker should have an accuracy of 70 m or 1.5% of the range scale in use. On the one mile range scale the maximum allowable error is nearly 28 m.

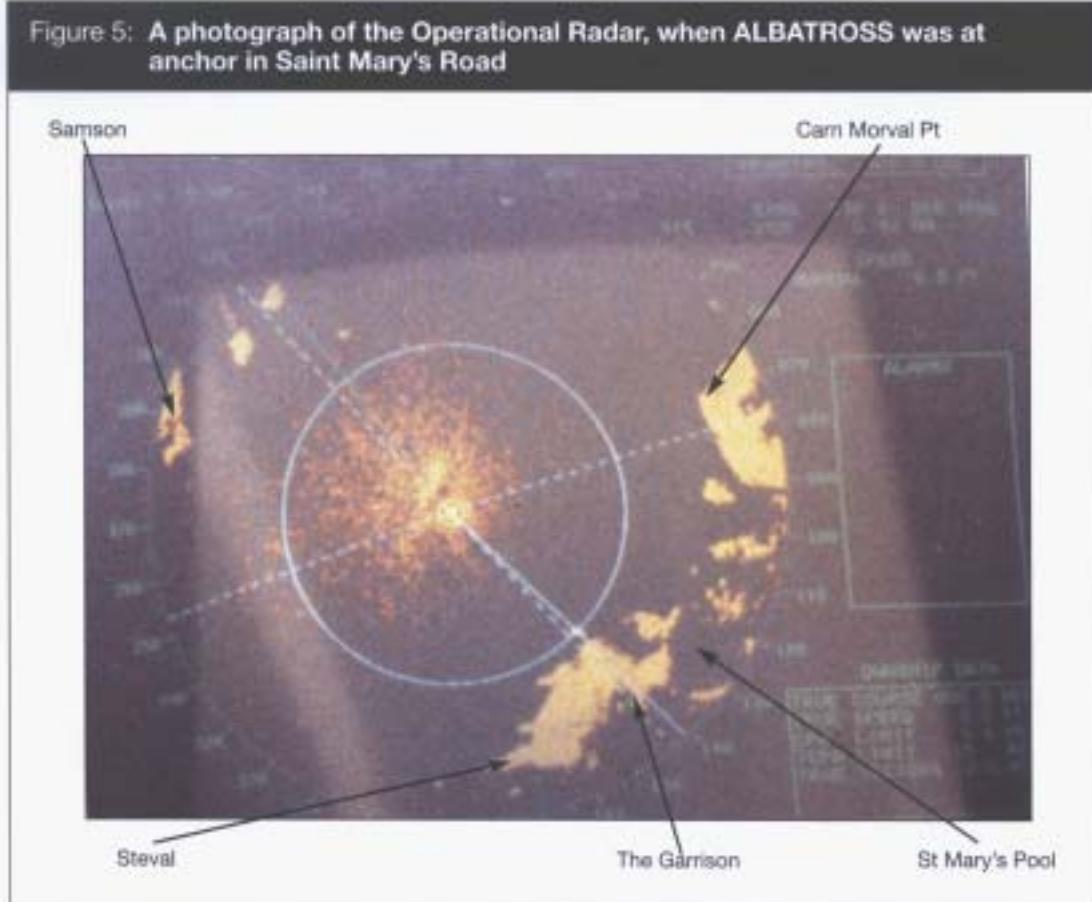
On sailing, the radar was switched to the one mile range scale.

A gyro compass repeater with an azimuth ring was situated on each bridge wing.

A rudder indicator was sited at the front of the bridge.

The ship carried a full set of charts and those required for the voyage were corrected up-to-date.

Figure 5: A photograph of the Operational Radar, when ALBATROSS was at anchor in Saint Mary's Road



The Company's and Master's Standing Orders on navigation were carried on board.

Manoeuvring and turn data for ALBATROS was prominently posted near the main chart table.

1.7.2 Preparation

The Second Officer(2), who kept the 12 to 4 watch, was responsible for planning the departure. The actual planning involved drawing the course to be steered through Saint Mary's Sound on the chart and cross hatching one or two danger areas including North Bartholomew Rock. Tidal information was added.

No clearing bearings or wheel-over positions were either calculated or marked on the chart. Although alternative exit routes were available, no alternative plans for exiting Saint Mary's Road were drawn up.

No attempt was made to verify Bartholomew Ledges Buoy's position despite having several hours to do so before sailing. The Admiralty Mariners' Handbook states:

"... a ship's position should be maintained with reference to fixed marks on the shore whenever practicable. Buoys should not be used for fixing but may be used for guidance when shore marks are difficult to distinguish visually; in these circumstances their position should be first checked by some other means."

The Master, Staff Captain and other officers had expected the Pilot to be on board for sailing to offer advice on safe navigation through Saint Mary's Sound to the open sea. The proposed procedure was for the Pilot to conduct the pilotage while the bridge team

monitored progress by using an electronically generated parallel index line and radar ranges and bearings. Prior to sailing, the Staff Captain drew a parallel index line on the chart and reproduced it electronically on the radar.

With less than fifteen minutes to go before weighing, the Pilot informed the Master of his concerns for a safe disembarkation and suggested that he should remain in the launch instead and offer advice from there. Although the Master could have insisted on the Pilot boarding and, if necessary, being carried over to the next port of call (Cowes), he agreed to the proposal.

The Master had previously carried out many acts of pilotage without a pilot embarked and was confident of his ability to navigate safely on this occasion. No changes or additions were made to the original departure plan and, although alternative exit tracks were available, none were planned. The Pilot did not offer to come onboard ALBATROS to discuss the exit plan nor did the Master request that he should do so. The manoeuvring characteristics of the ship were not discussed. Apart from the Pilot not being on board, it was just another routine departure.

Figure 6: Half Speed Turning Circle Characteristics as shown on board ALBATROS

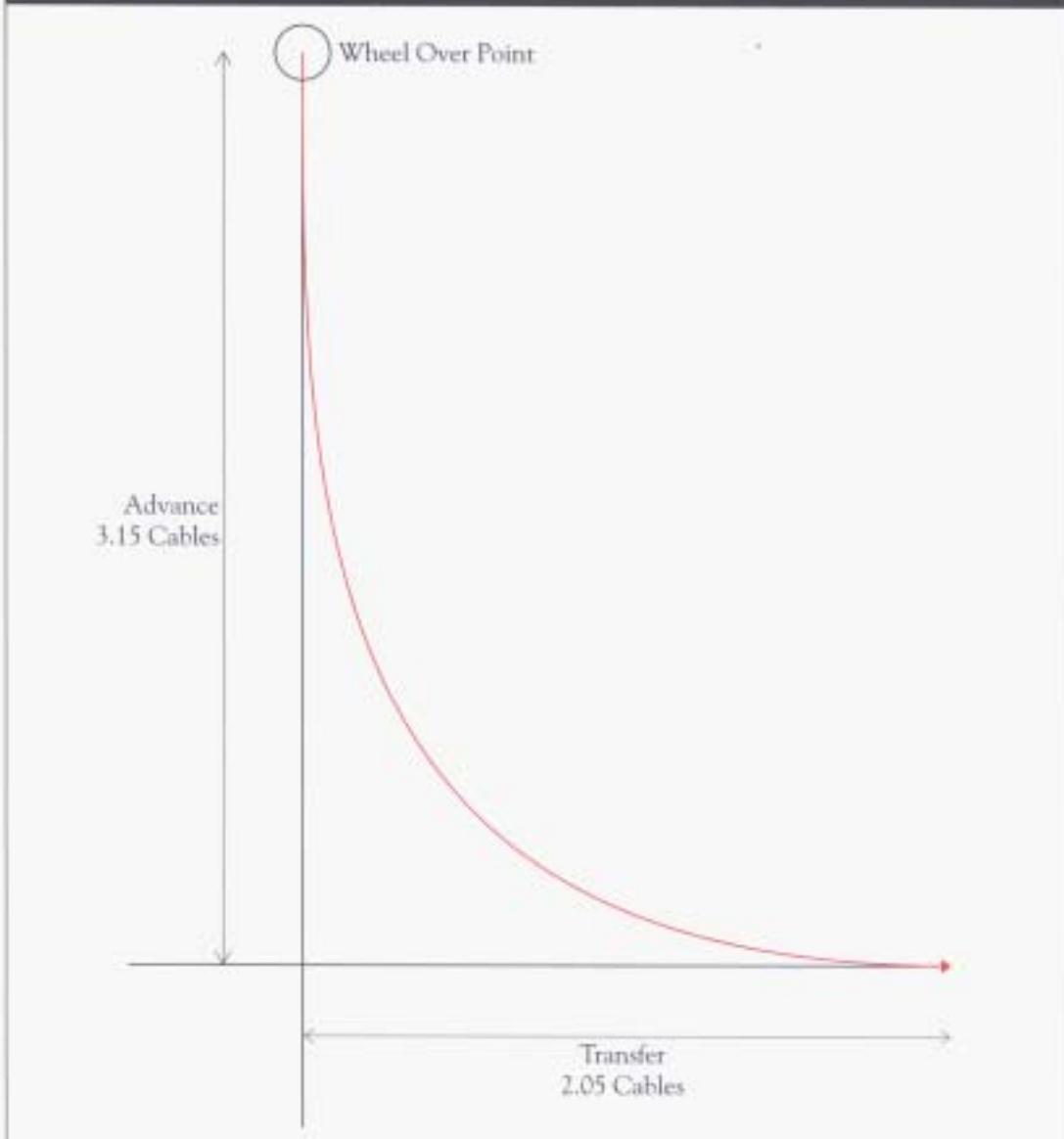
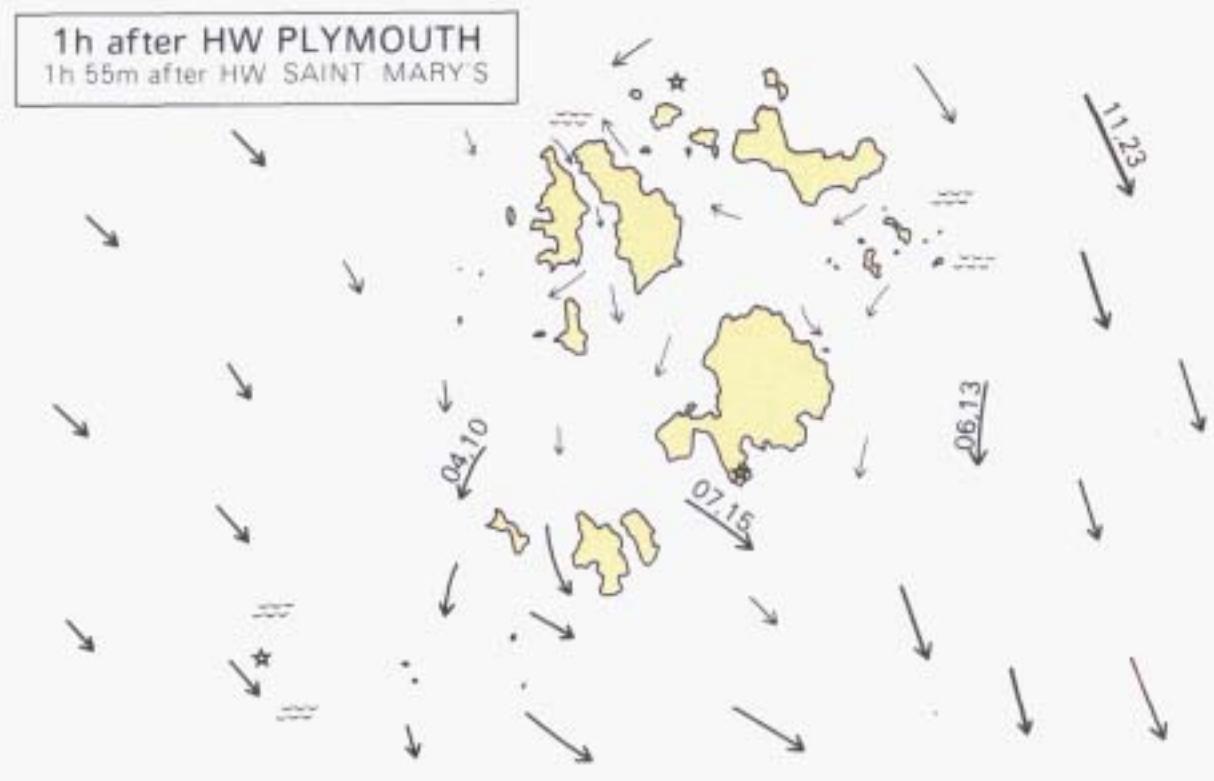


Figure 7: A diagram showing the tidal streams at the time of the accident



Reproduced from Admiralty Chart No 34 by permission of the Controller of HMSO and the UK Hydrographic Office

The tidal stream in Saint Mary's Sound runs from the north-west to the south-east from two and a half hours before High Water to two and a half hours after High Water. ALBATROS sailed one and a half hours after High Water.

The maximum rate of the tidal stream at neaps is 0.75 knot and, at springs, is 1.75 knots. Neaps occurred on 15 May.

1.9 THE ISLES OF SCILLY

The Isles of Scilly, an archipelago of some 200 islands, lie some 28 miles west of Lands End. The Duchy of Cornwall has owned title to the Isles since 1337.

The Isles have an economy based on tourism and the production of flowers for export. They form the only Marine Park in the United Kingdom, contain 23 sites of Special Scientific Interest and support many species of flora, bird and marine life. The Area is designated as one of Outstanding Natural Beauty and Heritage Coast.

1.10 CRUISE SHIP VISITS

The Isles of Scilly have been an increasingly popular port of call for cruise ships. About twenty cruise ships visit each year with the season beginning towards the end of April and ending in September. Most calls are made in June and July. The ships lie at anchor in Saint Mary's Road with passengers disembarking by launch to go ashore.

1.7.3 Execution

From weighing anchor the Master conducted the navigation primarily by eye. The pilot launch preceded ALBATROS by about 250 m in the initial stages but this reduced to about 100 m later. VHF communications between Pilot and ship were good and advice and instructions were passed and acknowledged.

The large scale Admiralty chart in use, No 883, was on a fold-away table at the front of the bridge so the Master could refer to it as necessary.

The approach to Saint Mary's Sound from the Road involved making a 90° turn to port and required the wheel-over to be ordered at the right time to bring the vessel onto the safe track through the Sound. The accurate execution of the manoeuvre on this occasion was crucial. The turn to port started at about 1500.

The turn was monitored visually by the Master and on radar by the Staff Captain. Radar ranges and bearings were taken by the Staff Captain and plotted by both himself and the Cadet at 1458, 1500, 1502 and 1504. Each fix took several moments to obtain and plot. No visual bearings were taken and two unsuccessful attempts were made to sight the natural leading marks to the north-west. Because of the ship's superstructure aft, they were only visible from one side until she steadied on course. Nobody was on the bridge wing to search for, identify and take bearings of the two islands that formed the natural transit indicating the safe leading line.

The Pilot thought the rate of turn was too slow, but the Master had already ordered hard-a-port and increased to full ahead to expedite the rate of turn.

Throughout the turn, the Master's attention was primarily focused on the Bartholomew Ledges Buoy and Spanish Ledge Buoy. As the ship approached the heading of 126°, his attention was drawn to the presence of a yacht in the channel ahead of him. The ship's head continued to swing to port placing the buoy on his starboard bow. He was satisfied ALBATROS was in safe water and nobody on the bridge suggested otherwise. Ahead of him, the Pilot had been distracted by the presence of the yacht but was satisfied with the ship's position. Everyone concerned with the safe navigation of the vessel was satisfied she was safe.

Shortly afterwards, ALBATROS hit the well charted North Bartholomew Rock.

1.8 THE ENVIRONMENT

1.8.1 The Weather

On sailing, the wind was south-east force 3 to 4, and against the tidal stream. Visibility was moderate due to mist. There was very light cloud cover and the sun was shining to produce well scattered glare on south-south-westerly bearing.

1.8.2 Tidal Information

On 16 May, High Water at Saint Mary's was predicted to occur at 1323 with a height of 4.12 m. Low Water was at 1948 with a height of 2.01 m. The height of tide at 1500 was predicted to be 3.78 m. This information was available to the bridge team from the on board computer using the Admiralty Hydrographic Office's "Tidal Prediction System" programme.

Cruise ships are not charged port dues for anchoring in Saint Mary's Road but a small charge is levied for each passenger landed at Hugh Town and for each of the ship's launches used to ferry passengers ashore. Cruise ships sometimes charter local passenger launches from Saint Mary's Boatmen's Association.

Prior to May 1997 the largest ship to have visited the Isles was approximately 37,000 GT with an overall length of about 200 m. ALBATROS is 24,803 GT and 185.4 m long but, with a draught of 8.95m, is the deepest draught cruise ship to have called.

1.11 NAVIGATIONAL AIDS

The Isles of Scilly are well marked by fixed navigation aids for passing or approaching vessels. There are two major lighthouses; Bishop Rock at the western extremity of the Isles and Round Island to the north. Peninnis Head Light provides an easily identifiable mark for vessels approaching Saint Mary's from the south and east, whilst the Seven Stones Reef to the north-east of the Isles is clearly marked with an automated light vessel.

For navigation within the archipelago there are a number of buoys of which the Bartholomew Ledges Buoy is the only one that is lit.

All lights were functioning correctly at the time of the accident and no reports have been received to indicate that any buoys were out of position.

In addition to the lights and buoys, a number of unlit beacons on the islands, and many leading marks and transits are formed by both natural and man-made features. Once correctly identified they are effective and reliable. They are, however, ineffective if misidentified or obscured in poor visibility. Apart from one set of leading beacons marking the approach to Saint Mary's Pool, none are lit.

In general, responsibility for the superintendence, management, maintenance and correct operation of these aids, in and around the Isles of Scilly, lies with the Corporation of Trinity House. Its role is to ensure a uniform and consistent system of aids to navigation for a seamless passage between general and local waters. The Inspector of Seamarks makes annual inspections of local aids and, in the case of the Isles of Scilly, his review takes into account representations, if any, from local users and the Harbour Master but not from the masters of visiting cruise ships.

Responsibility for jetties on the outer Isles, and navigational aids within the parameters of the harbour at Hugh Town, lies with the Saint Mary's Harbour Master.

Saint Mary's Sound

Saint Mary's Road has five channels leading to it of which Saint Mary's Sound, Broad Sound and North Channel are the main ones capable of use by deep draught vessels. The Master of ALBATROS used Saint Mary's Sound for both entry and departure to Saint Mary's Road. The Admiralty Sailing Directions state:

"Saint Mary's Sound between Saint Mary's and Gugh is the easiest entrance for Mariners approaching from the East or South. Least depth, exactly on the leading line, is 9.9 m situated 1.75 cables WSW of Woolpack Rock."

The Admiralty Sailing Directions go on to say of the leading line through the Sound:

"From a position SE of the entrance to Saint Mary's Sound the alignment of the West extremity of Great Minalto with the North Carn of Mincarlo leads through Saint Mary's Sound ...

Caution. This leading line is good and distinct and must be followed accurately".

With a depth of more than 10 m, the channel is 180 m wide at its narrowest.

Bartholomew Ledges Buoy

The Bartholomew Ledges Buoy featured largely in the investigation. Given Trinity House's experience of this station and with respect to depth of water and prevailing weather conditions, the buoy was laid about 220 m to the east-south-east of North Bartholomew Rock in 13.4 m of water. The buoy is fitted with a five-metre bridle and is moored by 54 m of chain to a three tonne sinker. The effect of this relatively lengthy mooring chain for the depth of water can make the buoy appear to be displaced by as much as 30 m from its charted position.

As the tidal stream runs parallel to the channel, the buoy, in most circumstances, can be displaced by between 20 and 30m in the direction of the tidal stream but such displacement does not affect safe navigation through the Sound. This relatively large radius of swing did not have a bearing on the accident.

Following the accident, Trinity House's GPS-equipped helicopter, and one of its vessels, checked and found the buoy to be in its correct position. A further, independent, check was made for the Duchy of Cornwall on 21 May.

On the basis of the above information, the Bartholomew Ledges Buoy was within the limit of its scope and in the charted position at the time of the accident.

North Bartholomew Rock

There was speculation that ALBATROS had struck a submerged container on the sea bed. This theory had arisen because less than three months earlier a feeder container ship, CITA, had run aground on the east coast of Saint Mary's and lost her load of containers. By mid May some of these containers were still unaccounted for, leading to the suspicion that one or two had drifted into the Sound, sunk and become dangers to navigation.

In order to establish beyond doubt that ALBATROS had struck the North Bartholomew Rock, an underwater survey was carried out using local divers. They established the rock had been recently damaged and that pig iron and rivets were present. The plates of ALBATROS' hull were secured by rivets.

There was further speculation that the rock was not in the position charted. The MAIB commissioned a survey to establish its precise position using divers, an Electromagnetic Distance Meter and a theodolite. It was found to be in the precise position as charted.

Figure 8: Extract from South England Pilot of Isles of Scilly showing Leading Lines

27

South England Pilot Isles of Scilly

Leading Lines

Depths in Metres
0 10
Nautical Miles

This plan should not be used for navigation.

Experimental Area

New Germany C.

K2

K1

Round I

R. 10m 24m

Horn M. 40m

St. Helen's

Man-a-vue

(25)

Old Greenway S.

O

Tash

Goats Pt

Goats Pt

St. Martin's

Great Manick

Lodge

St. Martin's

Bay

Daymark 585 RW

White I

(28)

St. Martin's Head

ST. MARTIN'S

Higher Town

St. Martin's

Fields

EASTERN

ISLES

Harague (19)

Mouls (2)

Great Innuvalas (23)

Menawethan (13)

Great Arthur

Biggal (11)

McTracy Re

Ridge Higher Count

F

CROW SOUND

H

Dawn Re

Bans Cap

Tr Mast (118)

Ro Mast

Telegraph Tr (83)

Ro Mast

Talbot L. (12)

Windm. e

Gap Pt

Airport

Ro Mast

Hugh Town

St. Mary's

Road

BB

Woodcock ledge

Stevens

Whale

PL. S.

AA

Bartholomew

Ledges

Old Wreck

Bell

Great Sound

W

Gemera Ledge

(23)

Gasper

X

BROAD SOUND

Y

Old Wreck

Great Sound

Z

Ruddy Haystacks (13)

Corn Islands

Shark's Head

Old Wreck

Great Sound

AA

Bartholomew

Ledges

Old Wreck

Great Sound

BB

Great Sound

C

GUTH

Great Sound

DD

Great Sound

EE

Great Sound

FF

Great Sound

GG

Great Sound

HH

Great Sound

II

Great Sound

JJ

Great Sound

KK

Great Sound

LL

Great Sound

MM

Great Sound

NN

Great Sound

OO

Great Sound

PP

Great Sound

QQ

Great Sound

RR

Great Sound

SS

Great Sound

TT

Great Sound

UU

Great Sound

VV

Great Sound

WW

Great Sound

XX

Great Sound

YY

Great Sound

ZZ

Great Sound

AA

Great Sound

BB

Great Sound

CC

Great Sound

DD

Great Sound

EE

Great Sound

FF

Great Sound

GG

Great Sound

HH

Great Sound

II

Great Sound

JJ

Great Sound

KK

Great Sound

LL

Great Sound

MM

Great Sound

NN

Great Sound

OO

Great Sound

PP

Great Sound

QQ

Great Sound

RR

Great Sound

SS

Great Sound

TT

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Great Sound

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Great Sound

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Great Sound

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Great Sound

YY

Great Sound

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Great Sound

AA

Great Sound

BB

Great Sound

CC

Great Sound

DD

Great Sound

EE

Great Sound

FF

Great Sound

GG

Great Sound

HH

Great Sound

II

Great Sound

JJ

Great Sound

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Great Sound

MM

Great Sound

NN

Great Sound

OO

Great Sound

PP

Great Sound

QQ

Great Sound



Figure 9.1

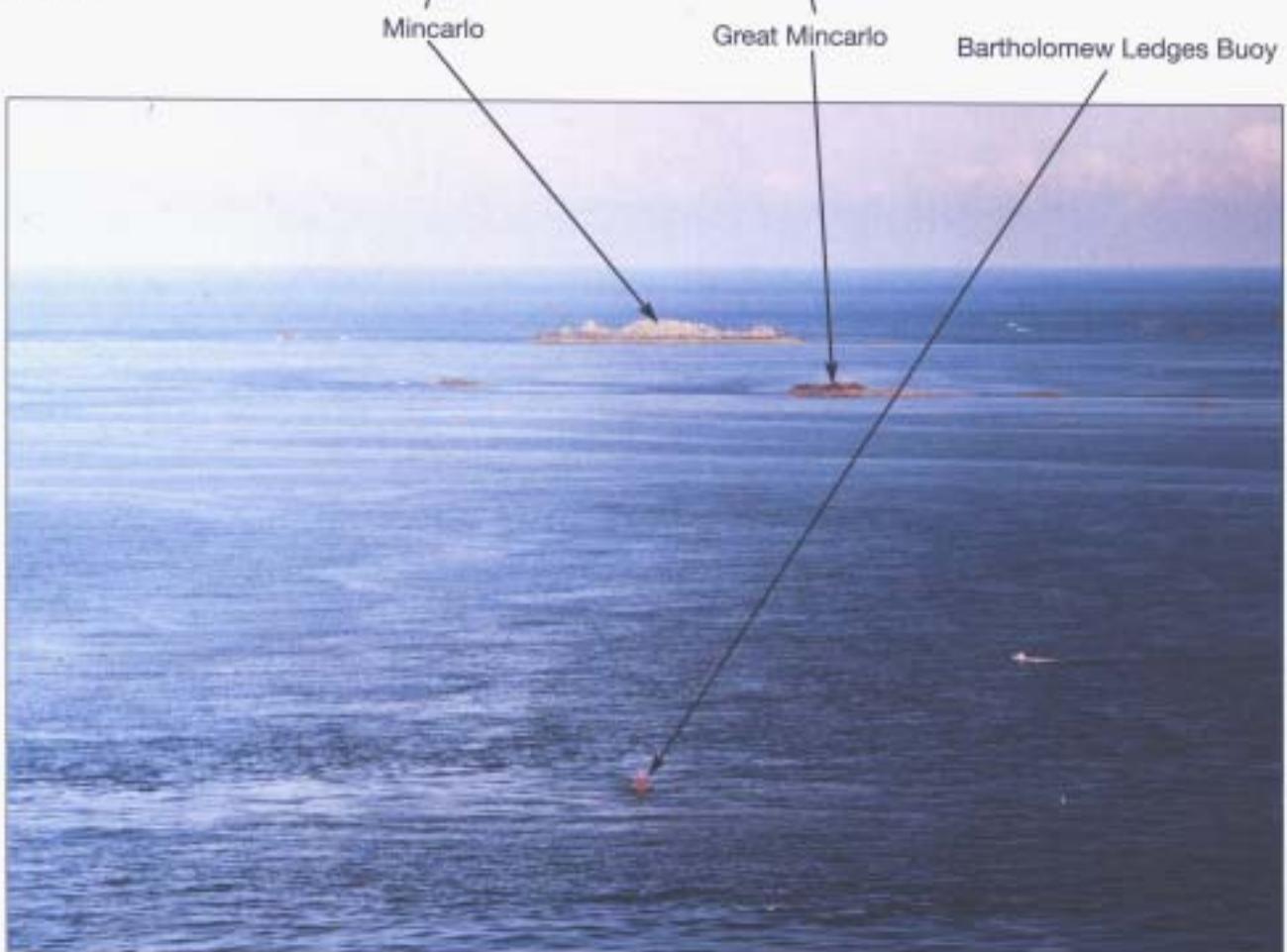


Figure 9.2

1.12 PILOTAGE

The 1987 Pilotage Act transferred pilotage responsibilities from various authorities to 'Competent Harbour Authorities' (CHA). The Duchy of Cornwall assumed responsibilities from Trinity House for the Isles of Scilly.

The Isles of Scilly (Pilotage) Harbour Revision Order 1988 made pilotage compulsory for all ships within a radius of six nautical miles from the southern point of the island of Sampson excluding the area of Saint Mary's Harbour (Hugh Town), with the following exceptions:

- (a) Her Majesty's ships;
- (b) Trawlers under 47.5 m in length; and
- (c) Yachts under 20 m in length.

Compulsory pilotage requires a pilot to be on board, but

"where it is not possible due to weather or any other conditions for the Pilot to board or disembark, then at the discretion of the Pilot, pilotage may be provided by such pilot on board another craft in close attendance to that ship, trawler, or yacht when navigating inside the limits of jurisdiction."

This discretion was exercised in the case of ALBATROS.

The Competent Harbour Authority (CHA) for pilotage in the Isles of Scilly is the Duchy of Cornwall with responsibility vested in the Land Steward resident in Saint Mary's. There is only one Harbour Master whose jurisdiction, with a few small exceptions, lies solely within the harbour limits of Saint Mary's Pool and consequently has no control over the two pilots. In practice, the Pilot and the one deputy pilot enjoyed a degree of autonomy not enjoyed by pilots in many other regions of the United Kingdom. Whilst the Land Steward, the pilots and the Harbour Master at Saint Mary's Pool were in frequent contact with each other, their formal relationship was less apparent. However, the Harbour Master was concerned about the physical fitness of the Pilot in early 1997 and, through the Land Steward, recommended he should take a medical examination. He did so and passed.

No formal management for the Pilot existed to ensure high standards were maintained.

1.13 THE LAUNCHES

There are no dedicated or custom built pilot launches in the Isles of Scilly.

Prior to the accident the Pilot employed an inter-island launch for carrying him to and from vessels requiring his services. He normally uses the 14.29 m wooden passenger launch SURPRISE or, in the event of her being used elsewhere, the slightly larger KINGSLEY II which is also constructed of wood. SURPRISE was built in 1948 and KINGSLEY II in 1934.

The embarkation and disembarkation position for the Pilot is between one and two miles south of Peninnis Head or the same distance west of the Bishop Rock Lighthouse. These positions can be affected by weather.



Figure 10.1: Kingsley II



Figure 10.2: Kingsley II

Since the launches are made of wood and designed primarily for carrying passengers between the islands, their relatively light construction makes them susceptible to damage when manoeuvring alongside a large vessel in a seaway. Any damage so incurred could deprive the owners of a primary source of income.

On the 16 May the Pilot assessed the conditions as being too rough to disembark at the normal position. The conditions were not unusual and were well within limits experienced by pilots in other parts of the country.

1.14 DAMAGE TO ALBATROS

The following significant defects and damage to ALBATROS were observed by the ship's engineering department:

- sea water leakage from the port and starboard stern tube seals;
- heavy leakage from the mechanical seal of the starboard inboard main sea water pump, which was not operating at the time of the accident;
- detached lagging on steam pipes;
- falling brickwork from the superheater recess of one of the three boilers was detected; and
- large steam leakages from flanges of the saturated steam distribution system on two of the boilers.

The initial surveys found that the majority of the damage was on the starboard side from frame 72 through to frame 205. In this area the bottom plating was heavily set up, locally holed, torn open or scored. Internal sections were affected and damage was in way of strakes A, B and C. The keel strake and the keel doubler plate were unaffected.

The following compartments were flooded or pressurised:

- bow thrust room flooded via No.1 double bottom;
- No.1 double bottom (water ballast) – holed;
- No.2 starboard double bottom (fuel oil) – holed;
- No.3 starboard double bottom (containing 250 tonne of pig iron ballast) – holed;
- deep tanks A1 (pressurised by pig iron being pushed up from No.3 double bottom), A3, A5, A6 (all fuel oil tanks) – pressurised;
- No.1 starboard deep tank – pressurised;
- No.5 port double bottom (fuel oil) – pressurised by internal pipework connections with other spaces;
- No.5 starboard double bottom (fuel oil) – holed;
- No.6 starboard outer double bottom (boiler feed water) – holed; and
- cofferdam at frames 91/92 – holed.

Whilst the above was the basis for the repair specification, the actual repairs were more extensive than at first envisaged because of deformations to internal floors.

Figure 11: A schematic diagram showing the layout of the double bottoms and deep tanks

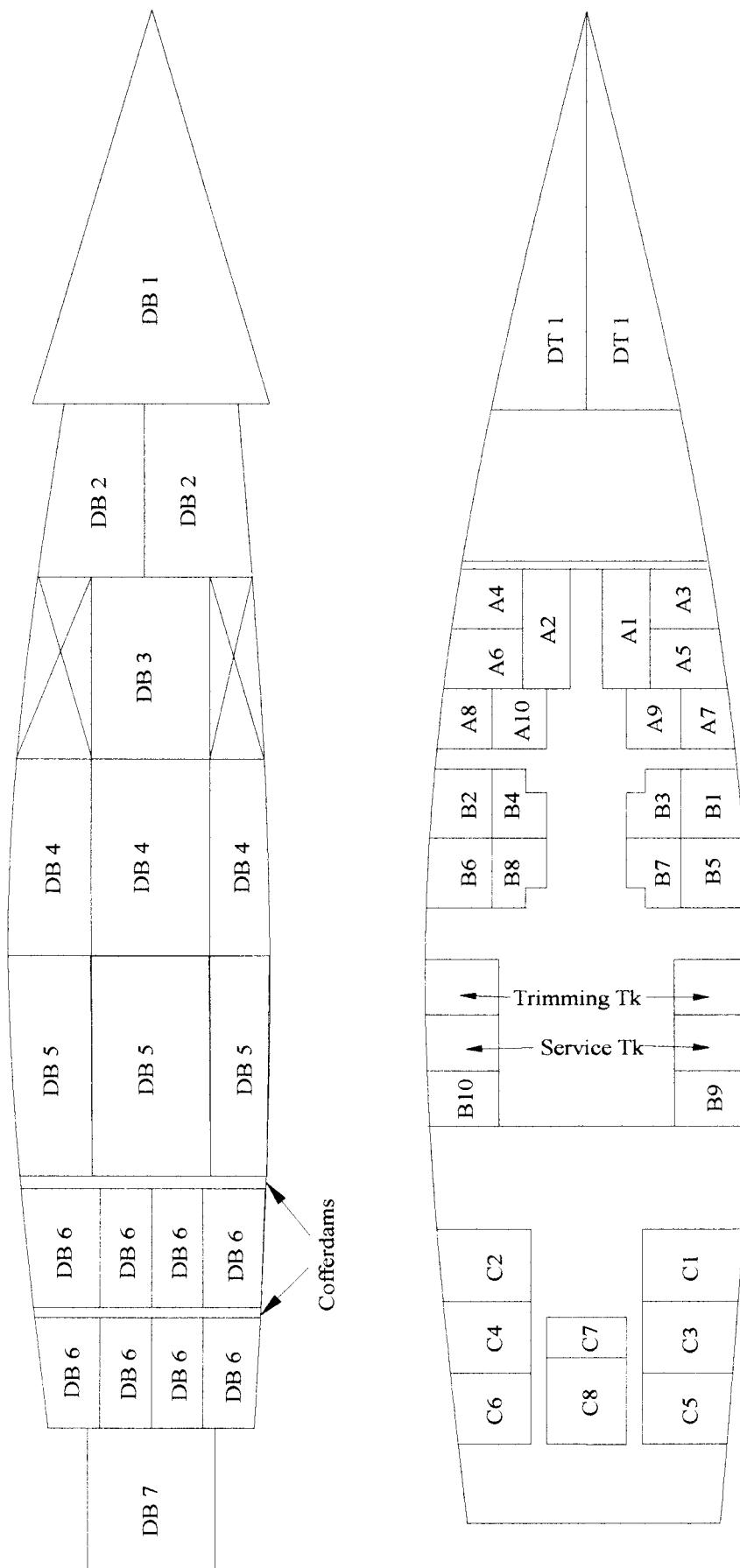




Figure 12.1: Looking forward on the starboard side towards the forefoot.



Figure 12.2: Looking aft from the same stand-point as 12.1 above. Note large hole in the aft end of No 3 double bottom.

SECTION 2

Analysis

The Investigation set out to answer four questions:

- (1) Why did ALBATROS make contact with the North Bartholomew Rock?
- (2) Are the Isles of Scilly safe for visiting cruise ships?
- (3) Are the existing navigation aids adequate for large vessels?
- (4) Are there shortcomings with the Isles of Scilly pilotage system?

2.1 THE GROUNDING

2.1.1 Navigational Preparation

The presence of North Bartholomew Rock had been recognised on board ALBATROS at the outset; the Second Officer had cross hatched it on the chart as a potential danger. There was no evidence, however, to show that the Master or ship's officers had considered how the departure was to be executed other than rely on the advice given by the Pilot and to monitor progress in the manner normally adopted on board.

There is no evidence to indicate that any alternative to using Saint Mary's Sound was planned. Alternative deep water passages exist but are more exposed and are not particularly well marked. Their use would have necessitated longer passages to the next port of call but the navigable channels were wider. Nonetheless, Saint Mary's Sound is a well used and safe channel provided vessels using it take the advice in the Admiralty Sailing Directions and follow the leading line accurately. The problem for departing ships is that the transit for the leading line is astern and can be hard to identify especially if the visibility is not good. The situation is aggravated if the person looking is unfamiliar with it. Furthermore, time to settle on the transit before being committed to the passage through the Sound, can be very limited.

The western approach to the Sound requires unusual attention to detail and meticulous planning. There is little scope for error. The importance of this should have been clear to the Master from the outset. The three aspects of the plan requiring particular attention were the need to establish an accurate wheel-over position to ensure ALBATROS was safe as she approached the western end of Saint Mary's Sound, the requirement to fix the ship accurately in the turn and a recognition that it should be completed in sufficient time to enable any adjustments to be made before passing North Bartholomew Rock. None of these requirements were adequately addressed.

Officers in a well organised ship will calculate clearing bearings and draw them on the chart. They might be duplicated in a notebook for ease of reference and committed to memory. The time delay between taking a fix and plotting it, has to be recognised and

overcome. Taking visual fixes can be faster than using radar, especially if two people are involved. Many features were available for taking visual fixes. The additional manpower required to execute this technique was available in ALBATROS yet none of these preparations was considered.

Reliance was placed on the use of radar but there is no evidence to indicate that a check was made on the accuracy of the variable range marker. There was at least a possibility that small inaccuracies in radar ranges might have existed although there is no evidence to indicate they did.

An important decision facing the Master was to calculate the precise moment the wheel-over to port should be applied at the start of the turn into the Sound. There is no evidence to indicate this was done. The Master of ALBATROS was relying to an extent on the competence and experience of the Pilot to navigate the ship safely to sea with his own bridge team monitoring progress.

The Pilot did not board so his experience on which the Master had hoped to rely, was not ready to hand. Nonetheless he agreed to being led out by the Pilot in his launch and was content for instructions and advice to be passed by VHF. No additional preparations to those already made on the bridge were thought necessary. Although he had never previously visited the Isles of Scilly, the Master was confident that by following the launch he would be able to navigate safely using his experience and ability to navigate by eye.

2.1.2 Navigational Execution

To support the Master navigating by eye, radar fixes were taken every two minutes. There was an appreciable interval between taking fixes and plotting the results, and examination of the chart used indicates that unidentified errors existed in the plotted fixes. The relationship of one fix to another clearly shows this. Superficially the fixes indicated the ship was probably safe but the Master placed little reliance on them because of the ship's speed and proximity to land.

The timing of the wheel-over to port was based on 'feel'. The Pilot's standard reference for the wheel-over position from the west was when Peninnis Head light house appeared from behind the land of Garrison Hill, which he modified according to the size of vessel. Because the turn must be started at precisely the right moment, judging it from a launch positioned at an unknown number of metres ahead of the ship's conning position was, at best, flawed. The Master had made no such calculation and to a certain extent relied on the Pilot's advice.

Once the swing to port had started, the Master ordered full ahead to increase the rate of turn. Neither the Master, Pilot nor ship's officers voiced any doubts about the position of the ship during the turn. The ship's course recorder shows the final heading to be 117°, rather than the 126° which was conveyed to the Pilot. This suggests a further course alteration to port had either been ordered, steered in error or the ship's head had been allowed to swing past 126° without being corrected. The helmsman was being monitored by the Second Officer(1) throughout. The reported heading gave the Pilot the impression the ship was well clear of the buoy and any danger. It is also possible the Master knew ALBATROS was too far to the south and "allowed" the ship to come further to port to regain track.

The only sure method available to indicate whether ALBATROS was on the leading line was by following the directions in the Admiralty Sailing Directions and ensure the west

extremity of Great Minalto was in transit with the North Carn of Mincarlo. Although the Master attempted to do this twice he was unable to identify the marks despite his advantageous height of eye. Given adequate visibility, those with local knowledge find the transit marks easy to identify. To those unfamiliar with the waters they are not immediately obvious, and the absence of any unmistakable feature means time is spent looking for them. The Master did not have the luxury of time to look on this occasion, nor did he direct anyone else to do it for him. He therefore denied himself the opportunity of relating the ship's position to the leading line.

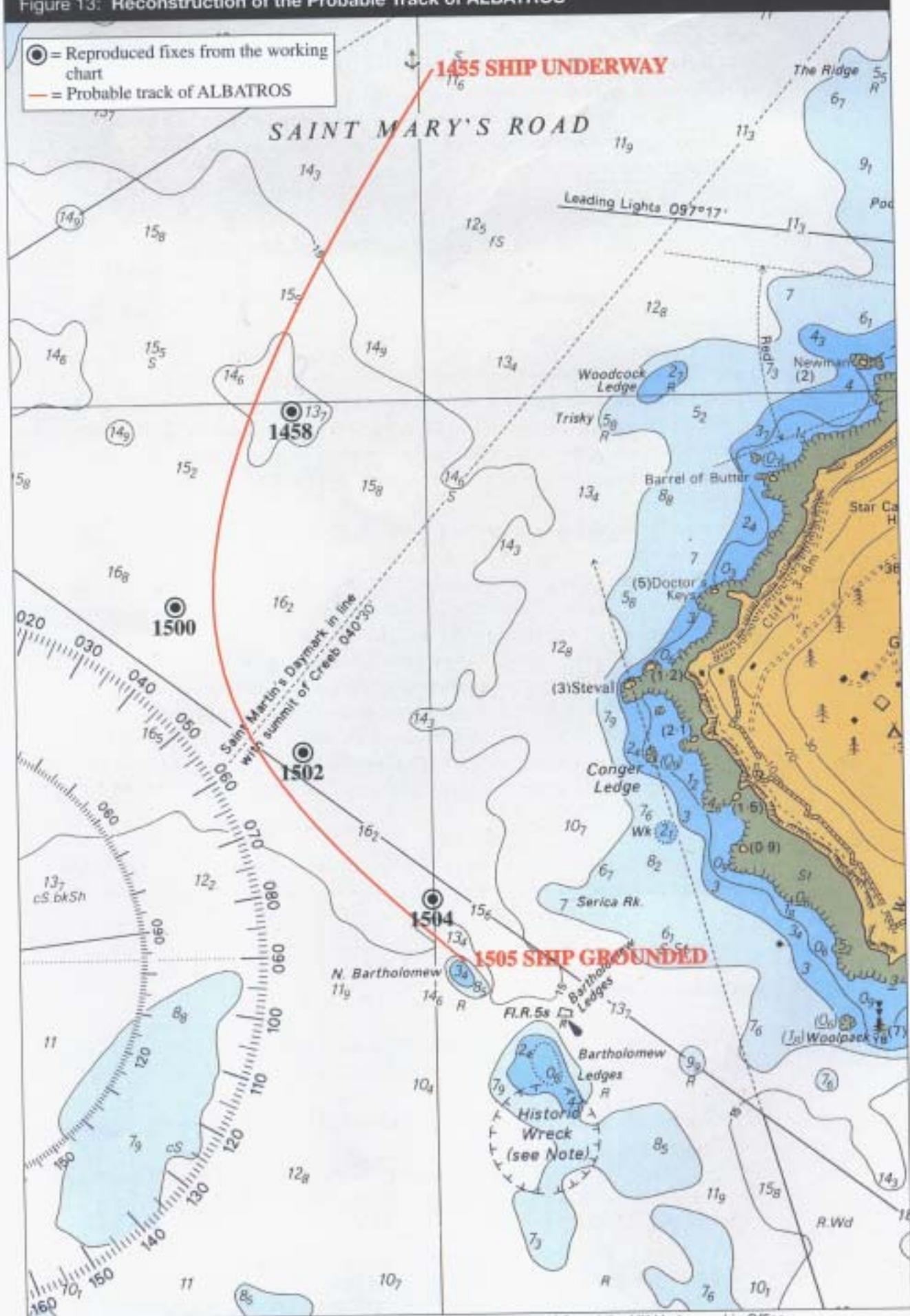
The well established and normally reliable technique of navigating using parallel indexing on the radar was used but its failure to indicate that ALBATROS would overshoot her turn to port denied the Master a crucial warning that he was standing into danger. This failure can be attributed to a number of possible errors; an unknown variable range marker error, poor radar operation, an inability of the single parallel index line to indicate the ship was overshooting the turn, misplaced confidence in an ability to conduct visual pilotage and a disregard for the radar information being presented. Whatever the reason, interpretation of information provided by the radar failed to warn anyone in ALBATROS that the track being followed would result in her contacting the North Bartholomew Rock.

The Master relied very heavily on judging his position relative to the Bartholomew Ledges and Spanish Ledge Buoys, which he assumed were in their correct positions. At no stage was a bearing taken of the Bartholomew Buoy which might at least have alerted him to the possibility he was too far to the south of the planned track. Judging the ship's position by eye failed to give any indication of impending danger. The echo sounder digital display, above the forward bridge windows, gave no warning the ship was about to hit a rock. It is poor navigational practice to rely solely on buoys or other floating marks, without first verifying their positions.

The immediate cause of the accident was the Master's failure to execute and monitor the turn to port to ensure ALBATROS remained safe as she approached Saint Mary's Sound.

The Pilot was unaware ALBATROS was dangerously off course either before hitting the rock or immediately afterwards. He provided no warning to the Master.

Figure 13: Reconstruction of the Probable Track of ALBATROS



Reproduced from Admiralty Chart No 883 by permission of the Controller of HMSO and the UK Hydrographic Office

2.2 MANAGEMENT

Nobody from Shipping Management S.A.M visited the Isles of Scilly to assess the possible risks involved before ALBATROS arrived. Had they done so and considered the implications of scheduling a deep draught vessel to visit a port where the pilotage services were limited by the type of pilot launch, and practical difficulties existed in identifying crucial navigation marks, contingency plans might have been made, which could have prevented the accident.

2.3 THE SUITABILITY OF THE ISLES OF SCILLY FOR CRUISE SHIPS

The investigation considered whether the Isles of Scilly were a suitable or safe destination for cruise ships the size of ALBATROS.

The limitations of the Saint Mary's Road as an anchorage are clearly stated in the Admiralty Sailing Directions and, in fair weather, it presents a safe and comfortable haven. The various entrances to the Road vary in complexity and convenience but, provided ships can navigate with the necessary degree of accuracy, the risks are manageable. Both the North Channel and Broad Sound are acceptable alternatives to Saint Mary's Sound for use by large ships.

The waters of the Isles of Scilly are well charted.

Ship managers must make their own judgement about the risks involved by scheduling cruise ship visits but the Isles have certain features that require special attention. Over the past few years ships of increasing size have been calling without the authorities significantly improving any of the navigational aids or providing a pilotage service capable of operating in conditions accepted as normal by sea going vessels. Although masters, rightly, must always take full responsibility for the safe navigation of their ships, owners and managers must satisfy themselves that the risks are taken fully into account before the schedule is agreed and published. This can be achieved most effectively by a competent person visiting the Isles to satisfy himself that all the risks are identified and allowed for. This did not happen with ALBATROS.

The Isles of Scilly are safe for cruise ships provided maximum care is taken and the risks allowed for. It is recommended, however, that improvements are necessarily required to minimise these risks further.

2.4 NAVIGATION AIDS

The transit for Saint Mary's Sound is formed by natural features. In good visibility these are reasonably easy to identify, especially if one is familiar with them and when inbound.

Departure through the Sound is not so easy and the risks escalate. The leading marks lie astern, are not easy to identify, can be wooded by superstructure, obscured in limited visibility and give no indication of the extent of the safe deep water channel if slightly offset to one side. As ships rely on them for both arrival and departure, their contribution to safe navigation is limited.

Broad Sound and North Channel, the alternative channels to and from the anchorage, are deeper and wider than Saint Mary's Sound but are less well marked and more exposed.

It is concluded that serious shortcomings exist in providing easily identified navigation aids for use by the large ships using Saint Mary's Road anchorage. For ships arriving, the risks involved are low, but they escalate for those departing and, more crucially, if no pilot is embarked.

The lack of easily identifiable aids to navigation was a contributory factor in this accident.

2.5 THE PILOT

Despite the expertise and experience of the Pilot, he failed to provide advice to the Master of ALBATROS to prevent the ship hitting a rock.

Prior to ALBATROS sailing, the Pilot assessed that conditions were too rough for his safe disembarkation. This was not the first occasion on which such a decision had been made. The principal reason for his reluctance to disembark in the open sea was that he considered it would be unsafe for him to board an open launch in the prevailing weather conditions.. The alternatives to disembarking were to either lead ALBATROS to sea from the launch or to board and be carried over to the next suitable disembarkation point. Although far less convenient the latter course of action would have been the most sensible in ship safety terms.

By being in the launch rather than on the bridge of ALBATROS the Pilot lost the opportunity to discuss the departure plan in any detail with the Master, was unable to establish the turning characteristics of the ship and was in no position to benefit from the support likely to be forthcoming from the bridge team.

2.6 THE LAUNCHES

Many of the decisions taken on 16 May stem from the inadequacies of the launch used by the Pilot to disembark from the ship in the relatively modest sea state to seaward of Saint Mary's Sound. The decision to disembark or not was rightly vested in the Pilot; his options were constrained by the type of launch available. Its light construction made it unsuitable as a pilot boat and its use was a contributory factor in the accident.

The lack of an adequately robust launch to enable the Pilot to embark and disembark in all reasonable sea states was a serious shortcoming and had led to a lower standard of pilotage service than ship-owners could reasonably expect.

2.7 DAMAGE

The tears and holes in the double bottom fuel oil tanks were on the bottom or horizontal sections of the hull and water pressure contained the oil in these compartments. If damage had been sustained to the side or vertical sections of the fuel tanks, the leakage of oil would have been significant and pollution would have occurred.

Because she was built in 1958 ALBATROS is transversely framed, has heavier scantlings than a modern build and is therefore better able to withstand damage caused by grounding than a ship built today.

SECTION 3

Conclusions

3.1 FINDINGS

- i. Nobody from Shipping Management S.A.M, visited the Isles of Scilly before deciding to include the islands in ALBATROS' summer cruise programme to satisfy themselves that the pilotage services and navigational aids were satisfactory for a ship of her size.
- ii. Neither the bridge team nor the Pilot were affected by fatigue or alcohol.
- iii. The Pilot was not on board the ship, either prior to, or at the time of the accident.
- iv. The Master of ALBATROS had the con at the time of the accident and was navigating primarily by eye during the departure.
- v. The bridge team failed to provide the Master with any warning that the vessel was standing into danger.
- vi. The ship's navigation was deficient in a number of ways; no visual fixes or clearing bearings were taken; no one was posted to monitor and report the progress of the ship with respect to the natural transit; the wheel-over position was not pre-planned; parallel indexing techniques were rudimentary and the fixes plotted on the chart were inaccurate.
- vii. ALBATROS grounded on the north-east extremity of North Bartholomew Rock.
- viii. North Bartholomew Rock was in the position shown on British Admiralty charts.
- ix. Bartholomew Ledges Buoy was in the position shown on British Admiralty charts.
- x. The Pilot chose not to embark ALBATROS because he was concerned with the dangers of disembarking into an open boat in the prevailing sea state.
- xi. The Pilot was unaware of the degree to which ALBATROS was off track and standing into danger. He offered no direction to prevent the grounding.
- xii. The practice of carrying out an act of pilotage by leading a large vessel out of Saint Mary's Road to the open sea via Saint Mary's Sound is unsatisfactory.
- xiii. The autonomy under which the Pilot worked did not provide an efficient pilotage service for the Isles of Scilly.

- xiv. The Pilot had extensive knowledge of the waters around the Isles of Scilly but no authority had ever checked his competence following his initial appointment.
- xv. The launch being used for pilotage duties on 16 May 1997 was inadequate for the purpose, due to the prevailing sea conditions.
- xvi. There were no malfunctions in any of the ship's systems that might have contributed to the accident.
- xvii. Had the scantlings been any lighter than those typically found in a ship built in the 1950's, the damage might have been more extensive and the outcome more serious.
- xviii. The damage did not adversely affect the stability of the ship.
- xix. A light oil sheen was observed on Saturday 17 May 1997 but there was no resulting damage to the environment of the Isles of Scilly.
- xx. Had the damage to the ship been sustained higher up in the hull, and where fuel oil tanks are situated, serious pollution might have occurred.
- xxi. The transit marks of the western extremity of Great Minalto and the North Carn of Mincarlo are not ideal for providing a clearly distinguishable leading line for ships exiting Saint Mary's Sound.
- xxii. The management of the Competent Harbour Authority of the Isles of Scilly is not structured to ensure satisfactory standards for the provision of pilotage services.
- xxiii. The Coastguard was kept informed of the situation and the status of ALBATROS and her personnel following the grounding.
- xxiv. The chain of the North Bartholomew Ledges Buoy is unnecessarily long for the depth of water.
- xxv. No alternative plan to the one adopted for exiting Saint Mary's Sound was made.

3.2 CAUSES

3.2.1 Immediate Cause

The immediate cause of the accident was the Master's failure to properly execute and monitor the turn to port to ensure ALBATROS was safe as she approached Saint Mary's Sound.

3.2.2 Contributory Causes and Underlying Factors

Contributory causes and underlying factors were identified as:

- i. The lack of a standard procedure for Shipping Management S.A.M. to inspect as a matter of course, a previously unvisited port by a particular vessel during the cruise planning process in order to identify and assess possible risks with regard to navigation and pilotage issues;
- ii. The Master's failure to construct and discuss an effective departure plan with the Pilot;

- iii. The Master's agreement to the Pilot's proposal that he should lead the ship to the open sea from a launch;
- iv. The Isles of Scilly Competent Harbour Authority did not fully monitor the methods in which the pilotage duties were being undertaken;
- v. The unsuitability of the launches being used by the Pilot;
- vi. The Pilot's inability to detect the ship was standing into danger or offer any advice to the Master to prevent the ship grounding;
- vii. The lack of an easily identifiable transit for safe navigation while exiting through Saint Mary's Sound, for a vessel the size of ALBATROS;
- viii. The difficulty in identifying crucial natural transit marks to aid safe navigation, for a vessel the size of ALBATROS;
- ix. Poor standards of basic navigation by the bridge team and its failure to warn the Master that the ship was standing into danger;
- x. The Master's failure to position anyone on the bridge wing to monitor the leading line transit.

SECTION 4

Recommendations

One Safety Bulletin was issued during the investigation. On 12 August 1997 the following recommendation was addressed to the Duchy of Cornwall, which they accepted:

“Amend Paragraph 3 of the Pilotage Direction to remove the provision for pilotage through Saint Mary’s Sound from another craft, by the addition of the following sentence:

This supplementary provision shall not apply to any transit through Saint Mary’s Sound, where vessels liable to compulsory pilotage shall be under the pilotage of a pilot on board.”

The following recommendations are made:

4.1 THE DUCHY OF CORNWALL TO:

- i. Review, in its capacity as the Competent Harbour Authority, the present arrangements for pilots and pilotage. The review should aim to ensure that high standards are set, maintained and regularly reviewed.
- ii. Ensure that any launches used for pilotage duties meet the minimum requirements as laid down.
- iii. Consider extending the Competent Harbour Authority’s harbour limits to encompass the whole of the Isles of Scilly.

4.2 THE CORPORATION OF TRINITY HOUSE TO:

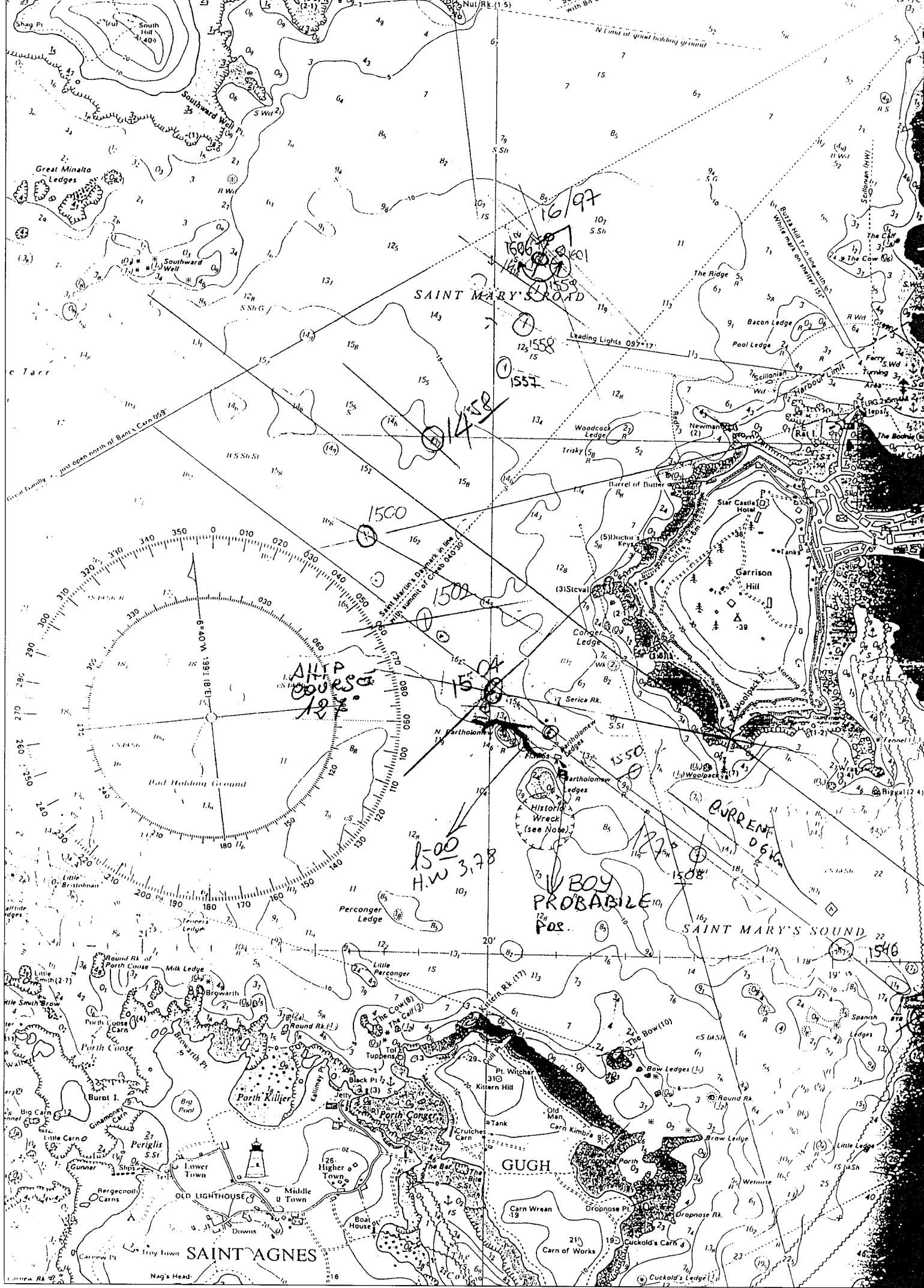
- i. Consider a different method of mooring the North Bartholomew Ledges Buoy to reduce its radius of swing.
- ii. Review the navigational aids within the Isles of Scilly to ensure that large vessels can navigate safely when arriving at, and departing from, Saint Mary’s Road. The review should specifically address any difficulties experienced by mariners requiring easily identifiable leading marks for the transit of Saint Mary’s Sound, especially when outbound. All channels capable of being used by large vessels should be featured in the review.
- iii. Review existing arrangements for allocating responsibility for navigation matters within the Isles of Scilly.

4.3 SHIPPING MANAGEMENT S.A.M TO:

- i. Ensure that all previously unvisited cruise ports by a particular vessel are inspected by competent staff to review the facilities, including navigation aids and pilotage arrangements, and to enhance the potential for identifying and assessing possible risks, before agreeing to the port being used by the vessel concerned.
- ii. Remind masters that Company Standing Orders are to be complied with at all times and, in particular, that a detailed navigational plan is to be prepared in advance when in pilotage waters, whether or not a pilot is on board.

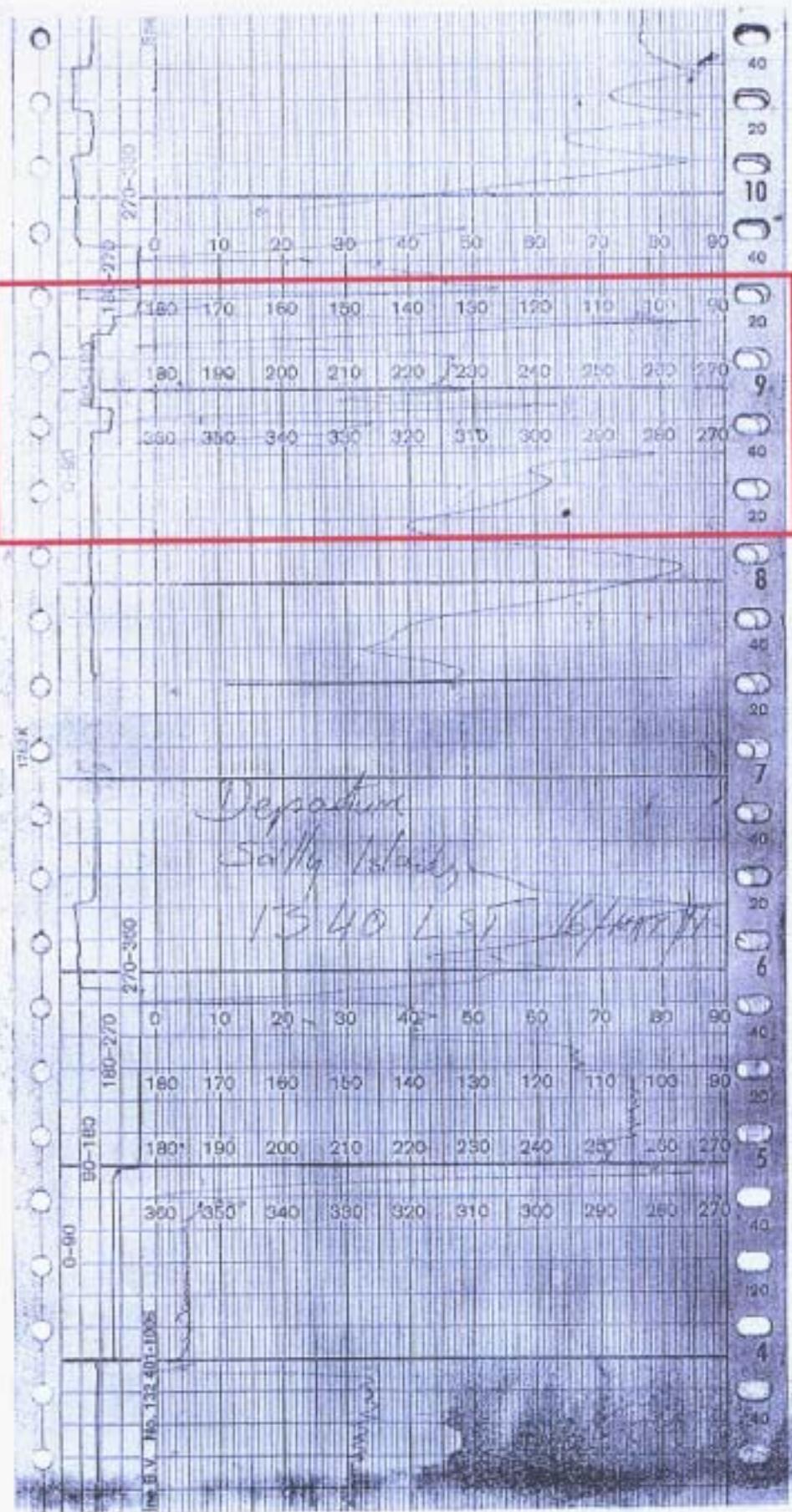
ANNEXES

1. A Copy of the Working Chart
2. Extracts from the Course Recorder Tracing
3. Glossary of Terminology

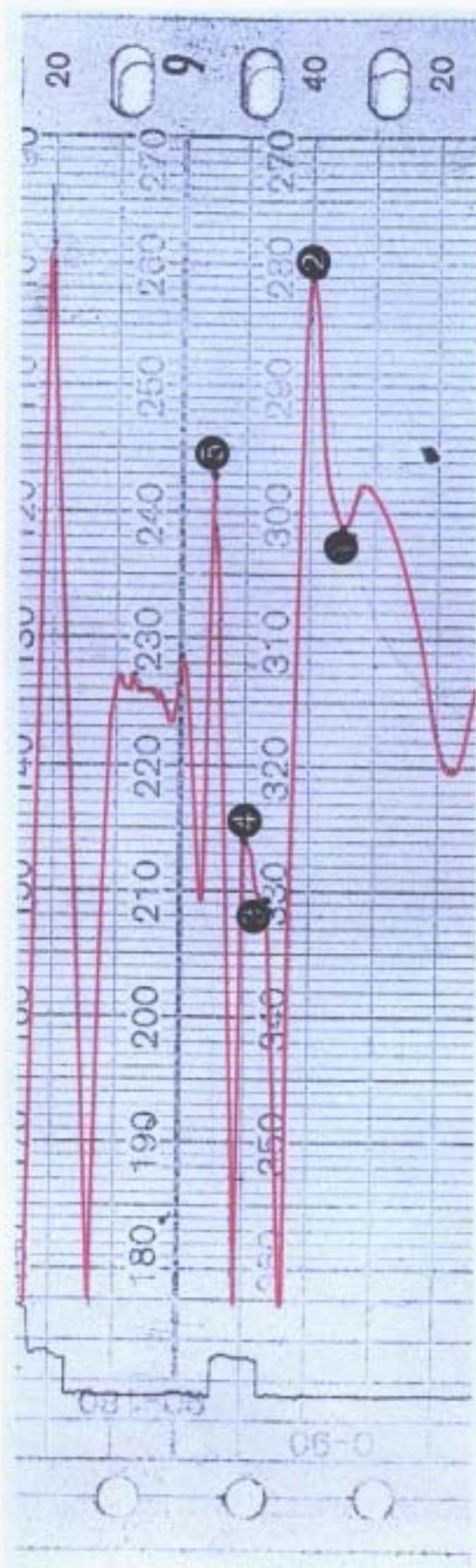


Annex 2 Part A: Extract from the Course Recorder Tracing

See ANNEX 2
Part B for detail



Annex 2 Part B: Detail of relevant portion of Course Recorder Tracing



1. = 1445 - Heading 121° - Commence weighing anchor
2. = 1450 - Heading 101°
3. = 1457 - Heading 210° - Reduced rate of turn
4. = 1500 - Heading 214°
5. = 1505 - Heading 117° - Grounded

Glossary of Terminology

Bow Thruster	: A propeller placed in a transverse tunnel at or near the bow to assist in manoeuvring.
Brought up	: Said of a ship when she rides to her anchor after dropping it.
Cable	: One tenth of a nautical mile.
Cofferdam	: Watertight space between two bulkheads or floors.
Condenser	: Chamber in which exhaust steam is led to the outside surface of a number of pipes, through which sea water is circulated.
Deep Tank	: Tanks extending down as far as the double bottom.
Double Bottom Space	: Space between inner and outer bottom plating of the hull.
Floors	: Transverse sub-divisions, erected vertically, between the inner and outer bottoms.
Frames	: Girders to which the outer shell plating is attached.
Leading Line	: Line passing through two or more clearly defined charted objects and along which a vessel can navigate safely.
Parallel Indexing	: A method of continuously monitoring a vessel's movement by observing the movement of the radar echo of a navigation mark with respect to track lines previously prepared on the radar screen.
Pig Iron Ballast	: Ingots of metal which are used for permanent ballast.
Scantlings	: Dimensions of structural items of a ship such as frames, girders and plating.
Superheater	: Arrangement of small steam pipes in exhaust gases of furnaces and used for increasing temperature of steam.
Transit	: In navigation when two fixed objects are observed in line.
Trinity House	: The lighthouse and buoyage authority for England and Wales.
Weigh Anchor	: To heave in an anchor.

APPENDIX

Alternative Text

Regulations 9(4) and 9(6) of the Merchant Shipping (Accident Reporting and Investigation) Regulations 1994 provide that any person whose reputation is likely to be adversely affected by the Report shall have the opportunity to comment on that part of the Report before it is submitted to the Secretary of State. If, following representations, there are passages in the Report which remain in issue and are critical of the person, alternative text can be provided by the person for the part which is in issue. Such alternative text must be included with the Report as an appendix.

A number of persons, companies and organisations have exercised their rights in this respect. The alternative texts, which have been incorporated into the relevant numbered paragraphs from the Report, are given following, together with the person, company or organisation who provided the text.

The Duchy of Cornwall

1.6 THE PILOT

"His competency has not been re-examined since he was first authorised. The Duchy of Cornwall, as Competent Harbour Authority, did not have the power to suspend or revoke the Pilot's authorisation except in limited circumstances, none of which had occurred prior to this accident. The Pilot had never previously been involved in any accident or casualty, nor was the Duchy aware of any reason to doubt his competence."

1.12 PILOTAGE

"In practice, the Pilot and the one deputy pilot enjoyed a high degree of autonomy, concomitant with their status as independent professionals who navigate as principals; a status prescribed and legally recognised by the Pilotage Act 1987."

"No formal management for the Pilot existed. This would have been inconsistent with his independent professional status."

1.13 THE LAUNCHES

"There are no dedicated or custom built pilot launches in the Isles of Scilly, but this is not unusual in the smaller ports of the United Kingdom (cf. Penzance, Padstow)."

"SURPRISE was built in 1948 and KINGSLEY II in 1934. KINGSLEY II was owned and operated by the second pilot."

"Since the launches are made of wood and designed primarily for carrying passengers between the islands, their relatively light construction makes them susceptible to damage when manoeuvring alongside a large vessel in a seaway. Any damage so incurred could deprive the owners of a primary source of income, although in fact neither of the launches have ever been so damaged, nor had the Pilot ever requested a larger or more solidly constructed vessel with which to perform his duties (although such launches were and are available in the Scilly Isles). Kingsley II and the Albatros were both fully licensed by the MSA for seasonal operational use in all conditions."

2.3 THE SUITABILITY OF THE ISLES OF SCILLY FOR CRUISE SHIPS

"Over the past few years ships of increasing size have been calling in the Isles of Scilly, without difficulty or incident, indicating that the pilotage service provided is efficient, and the navigational aids (if properly used) are adequate for use by sea going ships."

2.6 THE LAUNCHES

"Although the launches employed by the pilot were of traditional construction, the Pilot had in fact used them on numerous occasions to embark and disembark from vessels larger than the "ALBATROS". He had embarked the "ALBATROS" from the smaller of the two launches, "SURPRISE", in a wind of Force 5 ESE, that morning. He boarded the "ALBATROS" immediately after the casualty, without difficulty. If the Pilot's decision not to board the "ALBATROS" that afternoon (in wind of Force 3 ESE) was influenced by a concern to avoid the risk of damage to the "KINGSLEY II", he could and should have asked for a more robust launch

to be made available for his use. In any event the Pilot could have boarded the "Albatros" in the more sheltered waters of St Mary's Sound and been carried across to the next port of call Southampton."

"Sufficiently robust launches suitable for use as pilot boats in all reasonable sea states were (and are) present in the Scilly Isles, and would have been made available to the Pilot if requested. The absence of any such request, and the fact that Pilot had, over the years, successfully embarked and disembarked from numerous vessels larger than the "ALBATROS" using the "KINGSLEY II" and the "SURPRISE" indicate that the vessels normally employed were adequate for the Pilot's task."

FINDINGS

- xiii. *"There is no evidence to suggest that prior to this incident an efficient pilotage service had not been provided for the Isles of Scilly."*
- xiv. *"The Pilot had extensive knowledge of the waters around the Isles of Scilly. There had been no reason to question his competence following his initial appointment, and in these circumstances the Duchy had no authority to review his authorisation. He was in good health and fit for the activities involved in pilotage."*
- xv. *"If the Pilot had been concerned that the launch used for pilotage duties on 16 May was inadequate in the prevailing sea conditions, he could and should have asked for larger launch to be made available. The fact that no such request had ever previously been made indicates that the launch was adequate for its purpose."*
- xxii. *"The Competent Harbour Authority of the Isles of Scilly had complied fully and satisfactorily with its statutory obligation to provide a properly authorised pilot for the "ALBATROS"."*

3.2.2. CONTRIBUTING AND UNDERLYING CAUSES

- iv. *"the commission by the Pilot, who had been properly authorised by the Competent Harbour Authority, who was fully competent, and whose fitness was properly monitored by the Competent Harbour Authority, of an uncharacteristic and unforeseeable error of judgement in assessing the position of the "ALBATROS" while leading her out of St Mary's Sound."*
- v. *"the decision by the Pilot to use the "KINGSLEY II" as his pilot boat, despite prevailing sea conditions which allegedly caused him concern that the "ALBATROS" might cause damage to the boat while he was disembarking from the "ALBATROS" off Peninnis Head."*

4.1. THE DUCHY OF CORNWALL TO:

- (i) *"review, in its capacity as Competent Harbour Authority, the performance of all its statutory duties, and the exercise of all its statutory powers in order to achieve and maintain high standards of pilotage."*
- (iii) *"NONE. The Duchy has no power to extend the Harbour Master's jurisdiction. The provision of marks and other aids to general navigation within and around the Isles of Scilly are matters within the responsibility and expertise of the Corporation of Trinity House".*

The Master and Staff Captain

1.2 THE GROUNDING

- (2) “At 1445 the pilot, on board the launch *Kingsley II*, approached *Albatros* which was on an easterly heading weighing anchor. He informed the Master by VHF radio that the sea state was too rough to permit a safe disembarkation outside St Mary’s Sound, and asked whether he would agree to following the launch out to sea. *The Master was content with this proposal*”.
- (8) “As *Albatros* gathered way on a heading of about 215°, the launch steered south to indicate the approach to the turn into St Mary’s Sound. The Master *was monitoring the progress of the vessel and at the point he considered appropriate*, ordered hard a port and *very shortly thereafter*, at 1457, increased to full ahead on both engines to increase the rate of turn. He went to the starboard bridge wing to look aft for the islands of Great Minalto and the North Carn of Mincarlo, which, when in transit would indicate the charted leading line of 127° through the Sound. *Due to the mist and the glare of the sun he found these islands difficult to identify and was therefore unable to see the transit*”.
- (10) “When the vessel’s head had reached 140°, the Master ordered the wheel amidships, to allow the ship’s swing to port to continue *and thereafter be steadied on the required course*. He returned to the starboard bridge wing in a second attempt to sight the leading line marks but, once again, *was unable to do so*”.

1.7.2 PREPARATION

- (1) “The Second Officer (2), who kept the 12 to 4 watch, was responsible for drawing the course to be steered through St Mary’s Sound on the chart and cross-hatching areas of possible danger, including North Bartholomew rock. In addition, the Staff Captain laid off a parallel index line on the chart for the vessel’s passage through St. Mary’s Sound and reproduced it electronically on the radar. Further, prior to the vessel’s arrival at the Isles of Scilly, the Master had carried out a detailed examination of the relevant charts, including Chart BA883, as well as the Admiralty Sailing Directions and other relevant sources of navigational information. Immediately prior to departure, the Hydrographic Office Tidal Prediction System (*Tidecalc*) was used to calculate the heights of tide during departure”.
- (2) “No clearing bearings or wheel-over positions were either calculated or marked on the chart. Although alternative exit routes were available, no alternative plans for exiting St Mary’s Road were drawn up. However, on completion of anchoring after arrival at St. Mary’s, the Master had discussed the departure arrangements with the pilot. During these discussions, the Master asked which channel would be used for departure. The Master was advised by the pilot that the vessel should depart using the St. Mary’s Sound”.
- (3) “No attempt was made to verify Bartholomew Ledges Buoy’s position despite having several hours to do so before sailing. The Admiralty Mariners Handbook states:

“... A ship’s position should be maintained with reference to fixed marks on the shore whenever practicable. Buoys should not be used for fixing but may be used for guidance when shore marks are difficult to distinguish visually; in these circumstances the position should first be checked by some other means.

However, as the buoy can be displaced, due to the length of its mooring, by between 20 and 30 metres in the direction of the effective tidal stream at any given moment, then a position for the buoy obtained prior to departure may not be the same as at the time the vessel is about to enter St. Mary's Sound from the Road".

- (6) “The Master had previously carried out many acts of pilotage in more difficult and restricted waters than that of the Isles of Scilly, without a pilot embarked and was therefore confident of his ability to navigate the vessel safely on this occasion. No changes or additions were made to the original departure plan and, although alternative exit tracks were available, *it was not considered necessary to plan a departure for these alternative exit tracks based on the advice of the pilot that the vessel should depart using St. Mary's Sound.* The pilot did not offer to come on board ALBATROS to discuss the exit plan nor did the Master request that he should do so. Nevertheless, discussions regarding the departure did take place between the Master and pilot earlier that day subsequent to the vessel's arrival. The manoeuvring characteristics of the ship were not discussed on departure, however, the pilot was made aware of the relevant information when he piloted the vessel on her arrival by way of the usual pilot information card. Apart from the pilot not being on board, it was a routine departure”.

1.7.3 EXECUTION

- (1) “From weighing anchor the Master conducted the navigation primarily by eye. The pilot launch proceeded(sic) ALBATROS by about 200 metres in the initial stages but this reduced to about 100 metres later. VHF communications between pilot and ship were good and advice and instructions were passed and acknowledged”.
- (3) “The approach to St. Mary's Sound from the Road involved making a 90° turn to port and required the wheel-over to be ordered at the right time to bring the vessel *on to* the safe track through the Sound. The accurate execution of the manoeuvre on this occasion was crucial. The turn to port started *shortly before 1457*”.
- (4) “The turn was monitored visually by the Master and on radar by the Staff Captain. Radar ranges and bearings were taken by the Staff Captain and plotted by both himself and a Cadet at 1458, 1500, 1502 and 1504. Each fix took several moments to obtain and plot. No visual bearings were taken and two, unsuccessful, attempts were made by the Master to sight the natural leading marks to the north-west. These leading marks are formed by natural features. Once correctly identified, they are effectively reliable. They are, however, ineffective if mis-identified or obscured in poor visibility. At the time the Albatros was departing, the visibility was only moderate due to mist and the glare of the sun also affected detection of the leading marks. In addition, because of the ship's superstructure aft, the marks were only visible from one side until she steadied on course. Nobody was on the bridge wing to search for, identify and take bearings of the two islands that formed the natural transit indicating the safe leading lines”.
- (5) “The pilot thought the rate of turn was too slow but did not advise the Master of his concern. The Master in any event had already altered hard aport and increased to full ahead to expedite the rate of turn”.

1.8.2 TIDAL INFORMATION

- (1) “On 16th May High Water at St Mary’s was predicted to occur at 1323 with a height of 4.12 metres. Low Water was at 1948 with a height of 2.01 metres. The height of tide at 1500 was predicted to be 3.78 metres. This information was known to the bridge team from the onboard computer using the Admiralty’s Hydrographic Offices “Tidal Prediction System” programme”.

1.11 NAVIGATIONAL AIDS

Bartholomew Ledges Buoy

- (2) “As the main component of the tidal stream runs parallel to the channel, the buoy, in most circumstances, can be displaced by between 20 and 30 metres in the direction of the tidal stream. At certain states of the tide, however, there is a component of tidal flow in a southerly to south/south-westerly direction out of St. Mary’s Sound which may well have an influence on the position of the buoy. Although a displacement of the buoy from the main component of the tide should not affect safe navigation through the Sound, the combined effect of the flow out of St. Mary’s Road and that through St. Mary’s Sound may displace the buoy to the south-east of its charted position, which could affect safe navigation. It is believed that this relatively large radius of swing had a bearing on the accident”.
- (4) “On the basis of the above information, the Bartholomew Ledges Buoy was believed not to be in the charted position at the time of the accident”.

2.1.1 NAVIGATIONAL PREPARATION

- (1) “The presence of North Bartholomew Rock had been recognised on board ALBATROS at the outset; the Second Officer had cross-hatched it on the chart as a potential danger and this had been noted by the Master when he had carried out a detailed examination of the chart prior to the vessel’s arrival. After the arrival of the vessel at the anchorage that morning, the Master had discussed the departure that afternoon with the pilot. On being advised by the pilot that the vessel would depart through St. Mary’s Sound, the Master considered how the departure was to be executed but made no written plan”.
- (2) “Although the Master was aware that there were alternative channels available for departure, in his discussions with the pilot subsequent to arrival that morning, he was advised that the vessel would be departing using St. Mary’s Sound. The alternative deepwater passages are more exposed and are not particularly well marked. Their use would have necessitated longer passages to the next port of call but the navigable channels were wider. Nonetheless, St. Mary’s Sound is a well-used and safe channel provided vessels using it take the advice in the Admiralty Sailing Directions and follow the leading line accurately. The problem for departing ships is that the transit for the leading line is astern and can be hard to identify, especially if the visibility is not good, which was the case during departure of the Albatros. The situation is aggravated if the person looking is unfamiliar with the geographical features which comprise the leading marks. Furthermore, time to settle on the transit before being committed to passage through the Sound can be very limited”.
- (4) “Officers in a well-organised ship will calculate clearing bearings where appropriate and draw them on the chart. They might be duplicated in a notebook for ease of reference and committed to memory. The time delay between taking a fix and plotting it has to

be recognised and overcome. Taking visual fixes can be faster than using radar, especially if two people are involved. Many features were available for taking visual fixes. The additional manpower required to execute this technique was available on ALBATROS yet none of these preparations *were carried out*".

- (5) "Reliance was placed on the use of the radar but there is no evidence to indicate that a check was made on the accuracy of the variable range marker *immediately prior to departure. Nevertheless, whilst the vessel had remained at anchor in St. Mary's Road, the accuracy of positions obtained by the radar were checked against positions obtained from the GPS.* There was, however, at least a possibility that small inaccuracies in radar ranges might have existed although there is no evidence to indicate they did".
- (6) "An important decision facing the Master *was the precise moment the wheel-over to port should be applied at the start of the turn into the Sound. There is no evidence to indicate that a calculation was carried out in this regard.* The Master of the ALBATROS was relying mainly on his own extensive experience of manoeuvring the ALBATROS in ports where no pilot was available and also, to a lesser extent, on the competence and experience of the pilot, to navigate the ship safely to sea with his own bridge team monitoring progress".
- (7) "The pilot did not board so his experience and advice, which the Master *had expected to be available, was only via VHF communication.* Nonetheless, the Master agreed to being led out by the pilot in his launch and was content for instructions and advice to be passed by VHF. No additional preparations to those already made on the bridge were considered necessary. Although he had never previously visited the Isles of Scilly, the Master was confident of his ability to navigate the vessel out of the Isles of Scilly, even without the assistance of a pilot, but was nevertheless content to follow the launch".

2.1.2 NAVIGATIONAL EXECUTION

- (1) "To support the Master navigating by eye, radar fixes were taken every two minutes. There was naturally an appreciable interval between taking fixes and plotting the results. An examination of the chart used indicates that unidentified errors existed in the plotted fixes. The relationship of one fix to another clearly shows this. Superficially, the fixes indicated the ship was probably safe but the Master placed minor reliance on them because of the ship's ever increasing speed, its proximity to land and that they were executing a hard over turn at the time".
- (2) "The timing by the pilot of the wheel-over to port was based on "feel". His standard reference to the wheel-over position from the west was when Peninnis Head lighthouse appeared from behind the land of Garrison Hill, which he modified according to the size of the vessel. Because the turn must be started at precisely the right moment, judging it from a launch positioned at an unknown number of metres ahead of the ship's conning position was, at best, flawed. The Master had made no such calculation but was well aware of the vessel's manoeuvring characteristics and capabilities from his extensive experience in manoeuvring the vessel. The Master did not in fact rely on the pilot's advice in this regard since he ordered the helm hard to port shortly before the pilot gave the instruction".
- (3) "Once the swing to port had started, the Master ordered full ahead to increase the rate of turn. Neither the Master, pilot nor ship's officers voiced any doubts about the position of the ship during the turn. The ship's course recorder shows the final heading

to be 117° , rather than the 126° which was conveyed to the pilot. This could either have been due to a further course alteration to port having been ordered or steered in error or the ship's head having been allowed to swing past 126° without being corrected. There is no evidence to suggest that a further course alteration to port had been ordered and the helmsman was being monitored by the Second Officer (1) throughout. The reported heading together with his visual observations gave the pilot the impression that the ship was well clear of the buoy and any danger. In addition, there is no evidence to show that the Master knew ALBATROS was too far to the south and "allowed" the ship to come further to port to regain track".

- (4) "The only sure method available to indicate whether ALBATROS was on the leading line was by following the directions in the Admiralty Sailing Directions and ensure the west extremity of Great Minalto was in transit with the North Carn of Mincarlo. Although the Master attempted to do this twice, he was unable to identify the marks, even despite his advantageous height of eye. Given adequate visibility, those with local knowledge find the transit marks easy to identify. However, during the departure of the Albatros, the visibility was moderate due to mist with very light cloud cover and the sun was shining to produce well-scattered glare on south/south-westerly bearings. To those unfamiliar with the waters the marks are not immediately obvious, and the absence of any unmistakable feature means time is spent looking for them. The Master did not have the luxury of time to look on this occasion, nor did he direct anyone else to do it for him. He therefore denied himself the opportunity of relating the ship's position to the leading line".
- (6) "The Master relied very heavily on judging his position relative to the Bartholomew Ledges and Spanish Ledge Buoys, placing minor reliance on the positions obtained by the bridge team due to the ever increasing speed of the vessel, its proximity to the land and that they were in the process of executing a hard over turn at the time. He assumed both the buoys were in their correct position and had no reason or information to believe otherwise. Although at no stage was a visual bearing actually taken of the Bartholomew Buoy, the evidence of the bridge team is that they estimated the Bartholomew Ledges Buoy to be bearing about $20-25^\circ$ on the starboard bow with the Spanish Ledge Buoy being fine on the starboard bow, shortly before the contact. Judging the ship's position by eye, however, failed to give any indication of impending danger. The echo sounder digital display, above the forward bridge windows, gave no warning the ship was about to hit a rock. It is considered poor navigation practice to rely solely on buoys or other floating marks, without first verifying their position".
- (7) "The initiating cause of the accident was the Master's failure to use all the means at his disposal to monitor the turn to port to ensure ALBATROS remained safe as she approached St. Mary's Sound".

3.2.1 IMMEDIATE CAUSE

"The immediate cause of the accident was the Master's failure to use all means at his disposal to monitor the turn to port to ensure ALBATROS was safe as she approached St. Mary's Sound".

3.2.2. CONTRIBUTORY CAUSES AND UNDERLYING FACTORS

"following contributory causes and underlying factors were identified. The order in which the findings are recorded do not indicate anything other than an approximate chronology of events.

- ii The Master's failure to *write out and fully discuss an effective departure plan with the pilot*".

The Owners and/or Managers

1.5 MANAGEMENT

"Shipping Management S.A.M. of Monaco had nine cruise ships under their management at the time of the grounding. The schedule for each vessel was planned by the owners or the charterers between one and two years beforehand. When the cruise schedule had been completed it was passed to the managers to carry out the marine planning. This process was carried out by the Planning Officer, an experienced passenger ship master in the Cruise Planning Department, undertaking extensive research into ports of call. The research involved both port and navigational aspects, including contacting local agents in each port to confirm initial findings and to arrange logistics, checking publications such as the Admiralty Sailing Directions, Guide to Port Entry, Ports of the World, tidal information, charts and reports submitted by the masters of vessels which had previously visited that port. When doubts arose, such as perceived difficulties in navigation, the Planning Officer would visit the port concerned. Officials within the Cruise Planning Department did not, therefore, visit each and every new port of call as a matter of course. Following the full and detailed analysis carried out by the Planning Officer, a visit to the Isles of Scilly was considered not to be necessary, particularly in view of the fact that the reports submitted by the masters on another managed vessel, which had made 15 calls to the Isles of Scilly, revealed no potential navigational difficulties in entering or leaving St. Mary's Road via St. Mary's Sound. In accordance with standard shipping practice, final responsibility for navigational aspects is vested in the master of the vessel concerned.

The company supplies its managed vessels with updated information on ports throughout the world. Bridge teams compile their own port guides, recording navigational observations and other information not available from other sources".

2.2 MANAGEMENT

"Although nobody from Shipping Management S.A.M. visited the Isles of Scilly to assess the possible risks involved before ALBATROS arrived, such a decision was only made after the Planning Officer had carried out a full and detailed analysis of the port. None of the reports submitted by the masters in the fleet following the 15 previous visits gave any indication of any potential difficulties in relation to pilotage services, the type of pilot launch used, nor in identifying crucial navigational marks. The Planning Officer was fully familiar with all navigational aspects relating to Albatros including her manoeuvring capabilities, draft (sic) and dimensions. Although the minimum available width of channel in St. Mary's Sound was only some 170 metres, this was deemed to be more than adequate for the ALBATROS to negotiate safely. Indeed, had it not been for navigational errors the ALBATROS should have been able to depart the Isles of Scilly without incident".

2.3 THE SUITABILITY OF THE ISLES OF SCILLY FOR CRUISE SHIPS

"The investigation considered whether the Isles of Scilly were a suitable or safe destination for cruise ships the size of the ALBATROS.

The limitations of St. Mary's Road as an anchorage are clearly stated in the Admiralty Sailing Directions but, in fair weather, it presents a safe and comfortable haven. The different entrances to the Road vary in complexity and convenience but, provided ships can navigate with the necessary degree of accuracy, the risks are manageable. Although both the North Channel and Broad Sound are alternatives to St. Mary's Sound for use by large ships, both of these channels have fewer navigational marks; the North Channel in fact having no navigational marks except for the leading marks of Great Smith and St. Agnes Old Lighthouse. The Channel Pilot (3rd edition 1996) when referring to both the Broad Sound and North Channel, cautions that the leading lines are only distinct in very clear visibility. In addition, although the Broad Sound is a recognised channel for pilotage, with pilots boarding or disembarking off the Bishop Rock Lighthouse, the North Channel is not a recognised channel for pilotage. Both channels are more exposed to the elements.

The waters of the Isles of Scilly are well charted.

Ship managers must make their own judgement about the risks involved by scheduling cruise ship visits but the Isles have certain features that require special attention. Over the past few years, ships of increasing size have been calling without the authorities significantly improving any of the navigational aids or providing a pilotage service capable of operating in conditions accepted as normal by sea going vessels. Although masters, rightly, must always take full responsibility of the safe navigation of their ships, owners and managers should satisfy themselves that the risks are taken fully into account *prior to the call* proceeding. This can be achieved in a number of ways, including a detailed examination of all the relevant source material by a competent and experienced person, reports by masters of vessels which have previously visited the port concerned and also, in certain instances by competent person from the managers visiting a port to satisfy himself that all the risks are identified and allowed for. Due to the extent of information available, both from source material and from previous visits by another managed vessel, the managers considered that a visit to the Scilly Isles by the Planning Officer was not required in the case of the ALBATROS.

The Isles of Scilly are safe for cruise ships provided maximum care is taken and the risks allowed for. It is recommended, however, that significant improvements are necessarily required to minimise these risks further".

3.2.2 CONTRIBUTORY CAUSES AND UNDERLYING FACTORS

"The following contributory causes and underlying factors were identified. The order in which the findings are recorded do not indicate anything other than an approximate chronology of events.

- i Although it is not standard procedure for Shipping Management S.A.M. to inspect a port as a matter of course before the first visit of each of their managed vessels, a risk assessment of each port is carried out by the planning Officer. Such assessment in respect of St Mary's concluded that such a visit was not necessary for the visit of the Albatros. Given that no new information (such as would have helped avoid this incident) would have been gleaned by such a visit, the decision not to visit St Mary's was justified".

Trinity House

Section 1.11 Paragraph 4 – Navigational Aids

"In addition to the lights and buoys, a number of unlit beacons on the islands and many leading marks and transits are formed by both natural and man made features. Once correctly identified they are effective and reliable. Apart from one set of leading beacons marking the approach to Saint Mary's Pool, none are lit. Having regard to the fact that the area is well charted and designated for compulsory pilotage, they provide for safe passage through the Sound for the prudent mariner."

Section 1.11 Paragraph 5 – Navigational Aids

"Responsibility for the superintendence and management of these aids, in and around the Isles of Scilly, lies with the Corporation of Trinity House. Its role is to ensure a uniform and consistent system of aids to navigation for a seamless passage between general and local waters. Its Inspector of Seamarks makes annual inspections of local aids and, in the case of the Isles of Scilly, his review takes into account representations, if any, from the Harbour Master as to user requirements."

Section 2.1.1 Paragraph 2 – Navigational Preparation

"There is no evidence to indicate that any alternative to using Saint Mary's Sound was planned. Alternative deep water passages exist and although more exposed, they are sufficiently well marked. Their use would have necessitated marginally longer passages to the next port of call but the navigable channels were wider. Nonetheless, Saint Mary's Sound is a well used and safe channel provided vessels using it take the advice in the Admiralty Sailing Directions and follow the leading line accurately. The problem for departing ships is that the transit for the leading line is astern and can be hard to identify if the person is unfamiliar with it. Time to settle on the transit before being committed to the passage through the Sound can be very limited. The lead is sufficient, however, to provide for safe passage through the Sound, having regard to the requirement for compulsory pilotage."

Section 2.1.2 Paragraph 4 – Navigational Execution

"The only sure method available to indicate whether ALBATROS was on the leading line was by following the directions in the Admiralty Sailing Directions and ensure that the west extremity of Great Minalto was in transit with the North Carn of Mincarlo. Although the Master attempted to do this twice he was unable to identify the marks despite his advantageous height of eye. Given adequate visibility, those with local knowledge find the transit marks easy to identify. To those unfamiliar with the waters they are not immediately obvious, and the absence of any unmistakable feature means time is spent looking for them. However, having regard to the requirement for compulsory pilotage they still provide for safe passage through the Sound. The Master did not have the luxury of time to look on this occasion nor did he direct anyone else to do it for him. He therefore denied himself the opportunity of relating the ship's position to the leading line, exacerbated by his decision not to insist on the pilot boarding."

Section 2.4 – Navigational Aids

"The transit for Saint Mary's Sound is formed by natural features. In good visibility these are reasonably easy to identify, especially if familiar with them and when inbound.

Departure through the Sound is not so easy and the risks escalate. The leading marks lie astern, are not easy to identify, can be wooded by superstructure, obscured in limited visibility and give no indication of the extent of safe deep water channel if slightly offset to

one side. As ships rely on them for both arrival and departure, their contribution to safe navigation is limited *however for those unfamiliar with Saint Mary's Sound, which is the main reason for compulsory pilotage for ships navigating in the area.*

Broad Sound and North Channel, the alternative channels to and from the anchorage, are deeper and wider than Saint Mary's Sound but are less well marked and more exposed.

It is concluded that, *if pilotage were not compulsory, then shortcomings exist in providing easily identified navigation aids for use by large ships using Saint Mary's Road anchorage. For ships arriving the risks involved are low, but they escalate for those departing and, more crucially, if no pilot is embarked.*

The lack of easily identifiable aids to navigation was *an underlying factor to this accident purely because the Pilot was not embarked.*"

SECTION 3 CONCLUSIONS

Section 3.2.2 – Contributory Causes and Underlying Factors – Paragraphs vii and viii

Combine these paragraphs to read:

"The Master's failure to identify the transit for safe navigation whilst exiting through Saint Mary's Sound."

SECTION 4 RECOMMENDATIONS

Section 4.2 – The Corporation of Trinity House to ... – Paragraph iii

Amend to read:

"review existing procedures for communication on local navigation matters in respect of the Isles of Scilly."

(NB the responsibilities are determined by legislation and cannot be allocated by Trinity House)

4.3 SHIPPING MANAGEMENT S.A.M. TO:

- (i) “Consider the inspection of all previously unvisited cruise ports by competent staff (to review the facilities, including navigational aids and pilotage arrangements) before agreeing to the vessel’s call, should the risk assessment provide insufficient information to assess the port’s suitability or reveal potential concerns that could make the port unsuitable. Such risk assessment should consider all communications with the port and all available port data, including visits by other vessels”.

The Pilot

Section 1.1 – Background to Voyage

"Before disembarking from "ALBATROS" the pilot mentioned to the Master the possibility that sea conditions in the Sound during the afternoon could be such that he could not be disembarked. He asked the Master whether he would be required on the bridge, in which case the pilot would be carried to the next port of call, Cowes, or whether the Master would follow the launch. The Master responded that he would follow the launch."

Section 1.2 – The Grounding

"He informed the Master by VHF radio that the sea state was too rough to permit a safe disembarkation outside St Mary's Sound. He enquired whether the Master required him on the bridge or whether the Master agreed to follow the launch. The Master responded that he was happy for the launch to lead him."

Section 1.3 – Post Grounding Events

" "ALBATROS" continued to head seaward, turned to create a lee for the launch and embarked the pilot in difficult conditions."

Section 1.7.2 – Preparation

"During the morning, before disembarking from the "ALBATROS", the pilot mentioned to the Master the possibility that the conditions in the Sound during the afternoon could be such that he could not be disembarked. He asked the Master whether he would be required on the bridge in which case the pilot would be carried to the next port of call, or whether the Master would follow the pilot launch. The Master responded that he would follow the launch. Again, with about 15 minutes to go before weighing, the pilot confirmed to the Master that he could not safely disembark in the Sound and he repeated his offer to board the vessel if required. The Master confirmed his earlier decision to follow the launch."

Section 1.11 – Navigational Aids – Bartholomew Ledges Buoy

"This relatively large radius of swing misled the pilot into the mistaken belief that "ALBATROS" was clearing the buoy to starboard and so must have passed clear of the rock. However, the buoy was wind rode to the Westward on slack water."

Section 1.12 – Pilotage

"With the agreement of the Master, this discretion was exercised in the case of "ALBATROS"."

Section 3.1 – Findings

"xi The Pilot was unaware of the degree to which "ALBATROS" was off track because she reported a heading of 125° when her actual heading was 117°. The pilot was happy with the situation as reported by the "ALBATROS" because from the launch she appeared to be shaping a course to leave Bartholomew Ledges Buoy to starboard and he was unable to detect that "ALBATROS" was off track and standing into danger."

xiii This finding to be deleted.

"xiv The pilot had extensive knowledge of the waters around the Isles of Scilly and had satisfied Trinity House in 1988 of his competence to pilot large vessels since when there had been no reason for his competence or method of operation to have been questioned."

Section 3.2 – Contributory Causes and Underlying Factors

"iii The Master's decision not to take the pilot on board but to allow the pilot to lead the ship to the open sea from a launch."