MAIB
MARINE ACCIDENT INVESTIGATION BRANCH

ACCIDENT REPORT

SERIOUS MARINE CASUALTY | REPORT NO 10/2014 | APRIL 2014

Collision between tug *CHRISTOS XXII* and its tow, *EMSSTROM*, Hope's Nose, Tor Bay, England 13 January 2013

Email: maib@dft.gsi.gov.uk
Tel: 023 8039 5500
Fax: 023 8023 2459

SUMMARY

At 2058 on 13 January 2013, the tug *Christos XXII* was struck by her tow, the former fisheries protection vessel *Emsstrom*, while anchoring off Hope's Nose, Tor Bay, England. *Emsstrom* had developed a list while under tow from Emden, Germany, to Aliaga, Turkey and *Christos XXII*'s master was anchoring to enable him to investigate the cause of this list. *Christos XXII* was holed below the waterline in way of its engine room and required significant assistance to control the subsequent flooding.

The master was unfamiliar with operating in tidal waters and had not taken account of the tidal conditions when anchoring. He anchored *Christos XXII* downtide of *Emsstrom,* leading to it being carried by the tide into the stationary *Christos XXII*.

Emsstrom sank at 1326 the following day, and its loss was under criminal investigation by European authorities.

Figure 1: *Christos XXII*

FACTUAL INFORMATION

Background

Christos XXII was owned by Christos XXII Spanopoulos Tugs and was registered under the Greek flag in April 2012. Predominantly used for international tows, *Christos XXII* was well maintained and was operated under a voluntary ISM[1] compliant safety management system.

Emsstrom was built in 1968 as the German fisheries protection vessel *Frithjof* and had been laid up alongside a quay in Leer, Germany, from 1998 until 31 December 2012 as a non-profit nautical training centre. The vessel was de-registered and its ownership was transferred to World Towage & Salvage Corp of Panama on 9 January 2013. Following the accident, it was not possible to establish contact with the owners. The vessel‘s loss was investigated by European authorities for suspected waste disposal fraud.

Narrative

On 3 December 2012, a seaworthiness certificate was issued for *Emsstrom* by a surveyor working on behalf of Avalon Maritiem BV of the Netherlands, which had been contracted by World Towage & Salvage Corp to arrange for the vessel to be towed from Leer to Harlingen in the Netherlands. The Waterways and Shipping Office, Emden issued a permit for the vessel to be towed in German waters on 4 January 2013.

On 3 January *Christos XXII* arrived at Emden to collect *Emsstrom*. *Christos XXII*’s draught was too deep for the tug to collect the vessel from Leer, so river tugs were arranged to move *Emsstrom* from Leer to Emden.

On 7 January, *Christos XXII*’s master and chief engineer attended *Emsstrom* with the surveyor who had issued the seaworthiness certificate, and agreed a towing plan for the tow to Harlingen.

At 1030 on 9 January, *Emsstrom* was pulled clear of the berth at Leer by river tugs. It had been sitting on the bottom at the berth and, once clear, developed a list of 5-10° to starboard. *Emsstrom* arrived at Emden at about 1200 the next day. However, on seeing the list, *Christos XXII*’s master refused to accept the tow and *Emsstrom* was moored alongside the quay to enable Avalon Maritiem staff to correct the list. This was achieved by transferring ballast water using a salvage pump from *Christos XXII,* which formed part of the equipment kept on board *Emsstrom* in accordance with the towage plan.

Once *Emsstrom* was upright it was inspected by the master, who noted that the bilges were dry. He also requested that, before he accepted the tow, two empty containers that were stowed on deck be re-lashed.

At 1915 on 10 January the tow commenced, assisted by a river tug. A pilot was embarked on *Christos XXII* and two employees from Avalon Maritiem BV were embarked on *Emsstrom*. Once clear of Emden the river tug was released, and it collected the personnel from *Emsstrom,* leaving the tow unmanned.

The pilot left *Christos XXII* at 0050 on 11 January when the vessels were clear of the river Ems, following which the master increased the scope of the tow to 300m.

At about 0200, Spanopoulos Group operations instructed the master to tow *Emsstrom* to the Mediterranean, where the tow would be transferred to another tug bound for Aliaga, Turkey. Following the accident, it was found that the authorities in Harlingen had not been consulted regarding the tow and no arrangements had been made to receive *Emsstrom* in that port.

[1] ISM - International Safety Management Code

Image courtesy of Emsrevier H.Scheffler

Figure 2: *Emsstrom* showing list to starboard

At 1700 on 12 January, *Christos XXII* was in deeper water and the scope of the tow was increased to 480m. The following morning, at 1100, the tug was in the English Channel when *Emsstrom* was seen to have developed a list of about 10° to port. The master informed the tug's managers, Christos XXII Spanopoulos Tugs, and then called MRCC[2] Brixham by VHF[3] to request permission to enter Tor Bay to seek shelter and investigate the cause of the list. In preparation for this, he reduced the scope of the tow to 200m and altered course towards Tor Bay.

As *Christos XXII* approached Tor Bay, the master was informed by the coastguard that he would need to take a pilot to enter the bay since he was not simply seeking shelter, but intending to board *Emsstrom*. The master decided to anchor the tug and tow in the deep anchorage outside Tor Bay, where no pilot was required.

The weather at the deep anchorage was light winds, slight sea and good visibility. The tidal stream was north-easterly about 0.9kt.

Before anchoring, the master decided to investigate the list by bringing *Christos XXII* alongside *Emsstrom* stem to stern, and transferring the second officer (2/O) and a seaman to the tow. However, once on board *Emsstrom*, the 2/O considered the list to be too severe to safely work on the vessel and the master ordered them to return to *Christos XXII*.

The master then continued with his original plan of anchoring the tug and then boarding *Emsstrom* himself to investigate the cause of the list. He reduced the length of the tow further, to 100m, and stopped *Christos XXII.* The 2/O officer was forward with a seaman and the master and the chief engineer were on the bridge. *Emsstrom* was about 60m away when the master ordered the 2/O officer to let go the port anchor and put 1 shackle of chain in the water. At this point, control of the anchor windlass was transferred to the bridge and the cable was walked out. When 1½ shackles were in the water, the master stopped walking out the anchor cable and used the searchlight to locate *Emsstrom*, which had been lost visually. A few seconds later, *Emsstrom* was seen closing the port side of *Christos XXII* at right angles.

[2] MRCC, Maritime Rescue Co-ordination Centre

[3] Very High Frequency radio

The master immediately put the bow thruster to starboard, the starboard engine full ahead and the port engine full astern in an attempt to move *Christos XXII* sideways away from *Emsstrom* and avoid a collision. However, at 2058, *Emsstrom* struck *Christos XXII* just aft of midships on the port side.

*A*s the master attempted to manoeuvre clear, the motorman called the bridge from the engine room by telephone, informing him that there was major water ingress to the engine room. It was found that *Emsstrom*'s bow had penetrated *Christos XXII*'s shell plating below the waterline in way of the hydraulic motors in the engine room.

The master called the coastguard on VHF, advised them that the engine room was flooding and requested immediate assistance.

Figure 3: Damage to shell plating in engine room

Post-collision actions

At 2104, MRCC Brixham broadcast a "Mayday relay" and tasked RNLI lifeboats and rescue helicopter R169 to attend. Two warships and three other vessels responded to the "Mayday" and headed to assist.

Following the report of water ingress into the engine room, the chief engineer went to investigate and started the engine room bilge pumps. However, it quickly became apparent that the pumps could not keep up with the rate of flooding.

The hydraulic pump motors were covered with water and failed, resulting in the immediate loss of all hydraulic power, which disabled the windlass. The vessel was well equipped to deal with salvage situations and the crew attempted to stem the ingress using the damage control kit and mattresses. However, the water pressure made this difficult so, concerned that the vessel may sink, at 2114 the master released the tow and put both engines full ahead in an attempt to dredge the anchor into shallower water. He informed the coastguard of his intentions and was advised that Torbay lifeboat would be with him shortly.

Torbay lifeboat arrived alongside *Christos XXII* at 2124 and requested that the master stop the vessel to enable the crew to be evacuated. The master kept the engines going until the anchor held at 2128, when he stopped both engines. He then ordered the crew to evacuate to the lifeboat; he remained on board with the chief engineer. Electrical power was lost soon afterwards. The lifeboat crew placed a salvage pump on board *Christos XXII* at 2140 and, once this had been set up to pump water from the engine room, the situation began to stabilise.

At 2241, R169 was able to place further salvage pumps on board the vessel, and 25 minutes later a Royal Navy damage crew boarded the vessel and started to work on slowing the ingress of water. By 2330 they had reduced the ingress to about 60% and the salvage pumps were keeping up with the rate of flooding. By 0330 on 14 January all Royal Navy crew had left the vessel and the salvage was completed by crew from the tug *Brent*.

Emsstrom's position had been monitored throughout, and attempts were made by one of the other vessels that responded to the "Mayday", to tow the vessel. However, *Emsstrom* sank in 25m of water at 1326 on 14 January.

Image courtesy of Rodge Musselwhite

Figure 4: *Emsstrom* sinking

Four Emergency Wreck Marking Buoys were later laid around the wreck and a Temporary Exclusion Zone was also established. This was revoked on 18 November 2013 following works on the wreck to increase underwater clearance.

ANALYSIS

The accident

When the master ordered the release of *Christos XXII*'s port anchor, the tug was downtide of *Emsstrom*. The anchoring had the effect of pivoting *Christos XXII* to port, stopping it in the water, side-on to the tide and in the path of *Emsstrom*, which maintained its momentum, leading to the collision.

The master had not assessed the tidal conditions when making his anchoring plan. The majority of his experience had been gained in the non-tidal waters of the Mediterranean and in planning how best to achieve his goal of investigating the list on *Emsstrom,* he forgot to take account of the tidal conditions and the effect they would have on the towed vessel.

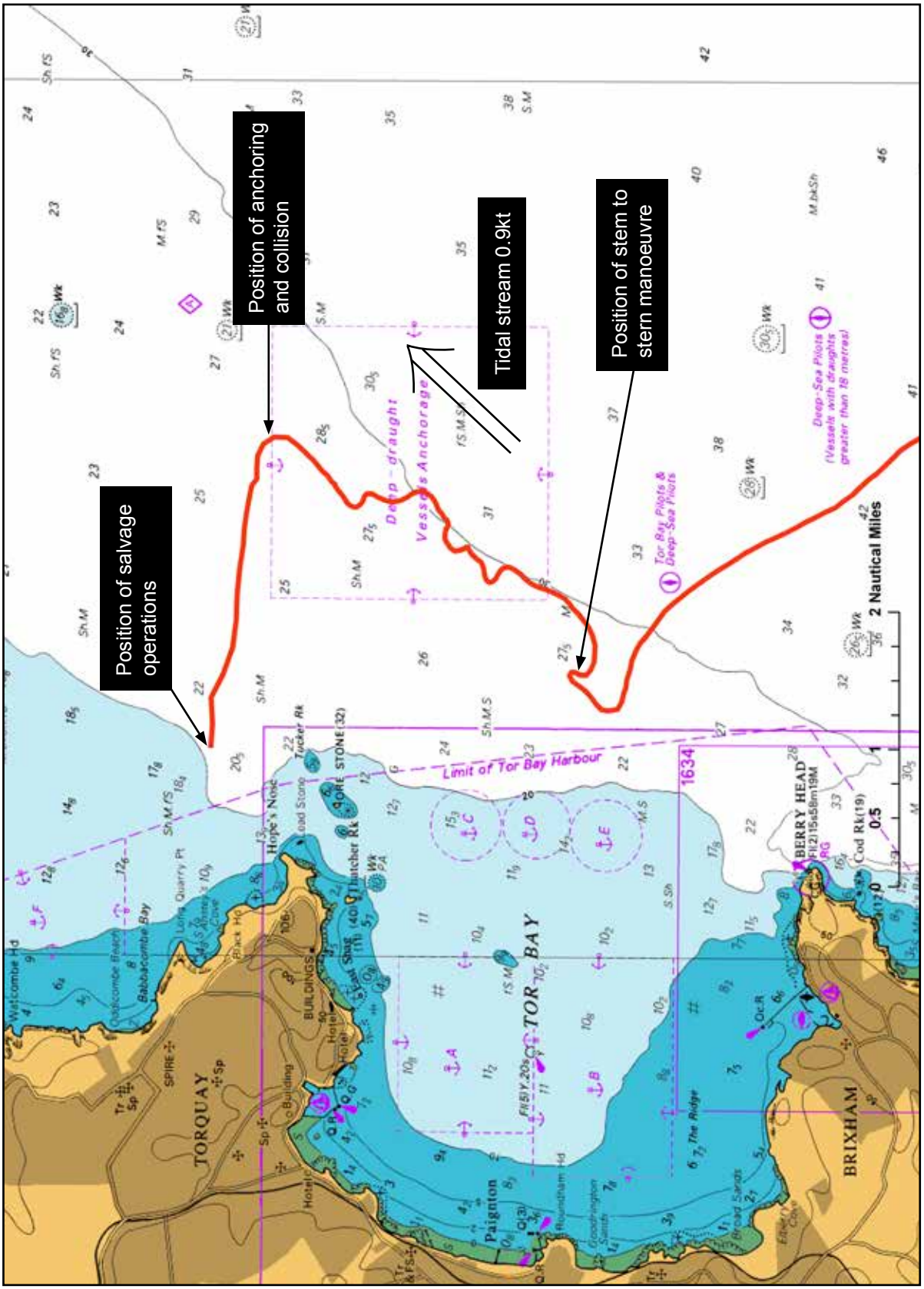

Figure 5: Track of *Christos XXII*

Had the master taken a pilot and entered Tor Bay to investigate the list on *Emsstrom*, the subsequent anchoring would have been better prepared and therefore not have resulted in a collision. However, to avoid the expense of taking a pilot he decided to investigate *Emsstrom*'s condition without entering the bay.

The master contacted the company as soon as he became concerned about the list on *Emsstrom.* However, there were no instructions or guidance in the company's procedures regarding the use of senior, experienced staff from the management company to assist masters in planning their response to crisis situations such as this. Given the limited bridge team on board *Christos XXII* and the dynamic nature of the situation, input from such a crisis cell, would have enabled the master to discuss the situation and develop a safe plan for assessing the cause of the list on *Emsstrom.* Had such support been available a more complete anchoring plan may have been developed that would have taken full consideration of the tidal conditions.

Integrity of *Emsstrom*

The need to investigate *Emsstrom*'s increasing list caused the master to seek shelter and stop, ultimately leading to the collision. However, the cause of this list remains unknown.

Emsstrom had been surveyed and passed fit for towage to the limits of German waters by the German surveyor. *Emsstrom* developed a list when pulled clear of the berth in Leer, but this had been rectified and no water ingress was apparent when the master inspected it prior to accepting the tow at Emden. Questions remain regarding the cause of the loss of *Emsstrom* and the late change in destination to Turkey, from Harlingen, where it had never been expected. These areas were under criminal investigation by European authorities and are not covered in this report.

CONCLUSIONS

The accident was a result of the master's lack of appreciation of the dangers resulting from tidal effects on the tow when anchoring. This was probably due to his inexperience in anchoring in tidal waters and his focus on establishing the cause of the list on *Emsstrom*. Had he developed a plan in conjunction with senior, experienced staff from the company, it is likely that the tidal conditions would have been taken into account.

ACTION TAKEN

Actions taken by other organisations

No actions have been taken by the owners of *Christos XXII.*

RECOMMENDATIONS

Christos XXII Spanopoulos Tugs is recommended to:

2014/112 Develop a crisis response management cell and associated procedures to provide support to ships' staff in crisis situations.

SHIP PARTICULARS

Vessel's name	*Christos XXII*	*Emsstrom*
Flag	Greece	Not applicable
Classification society	Lloyd's Register	Not applicable
IMO number/fishing numbers	7230135	Not applicable
Type	Tug	Not applicable
Registered owner	Christos XXII Spanopoulos Tugs	World Towage & Salvage Corp.
Manager(s)	Christos XXII Spanopoulos Tugs	Not applicable
Year of build	1972	1968
Construction	Steel	Steel
Length overall	43.85m	76.00m
Registered length	43.53m	66.68m
Gross tonnage	545 (477.21 GRT)	1636.93 (475.58 GRT)
Minimum safe manning	4	Not applicable
Authorised cargo	Not applicable	Not applicable

VOYAGE PARTICULARS

Port of departure	Emden, Germany
Port of arrival	Not applicable
Type of voyage	Commercial
Cargo information	Not applicable
Manning	8

MARINE CASUALTY INFORMATION

Date and time	13 January 2013 at 2058
Type of marine casualty or incident	Serious Marine Casualty
Location of incident	Hope's Nose, Tor Bay, England
Place on board	Not applicable
Injuries/fatalities	None
Damage/environmental impact	Vessel holed below the waterline, no environmental impact
Ship operation	Normal, towage
Voyage segment	Mid-water
External & internal environment	Light winds, good visibility, slight seas, 0.9kt tide
Persons on board	8