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- independent investigation of transport accidents and other safety occurrences
- safety data recording, analysis and research
- fostering safety awareness, knowledge and action.

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Publication Date: 13 March 2012

ISBN: 978-1-74251-241-9

Released in accordance with
section 25 of the Transport Safety
Investigation Act 2003

Marine Occurrence Investigation No. 289

MO-2011-009

Final

Steering gear breakdown on board the New Zealand registered tug *Tuahine* off Queensland 31 October 2011

Decisions regarding whether to conduct an investigation, and the scope of an investigation, are based on many factors, including the level of safety benefit likely to be obtained from an investigation. For this occurrence, a limited-scope, fact-gathering investigation was conducted in order to produce a short summary report, and allow for greater industry awareness of potential safety issues and possible safety actions.

FACTUAL INFORMATION

Tuahine

Tuahine (MNZ No. 105436) is a conventional twin screw, twin rudder harbour tug which was built in 1965 (Figure 1). It has an overall length of

14.94 m, a beam of 4.6 m, a moulded depth of 2.56 m and a 7 tonne bollard pull¹.

At the time of the incident, *Tuahine* was owned and operated by Bay Underwater Services, New Zealand. It had a crew of three appropriately qualified and experienced New Zealand nationals.

The incident

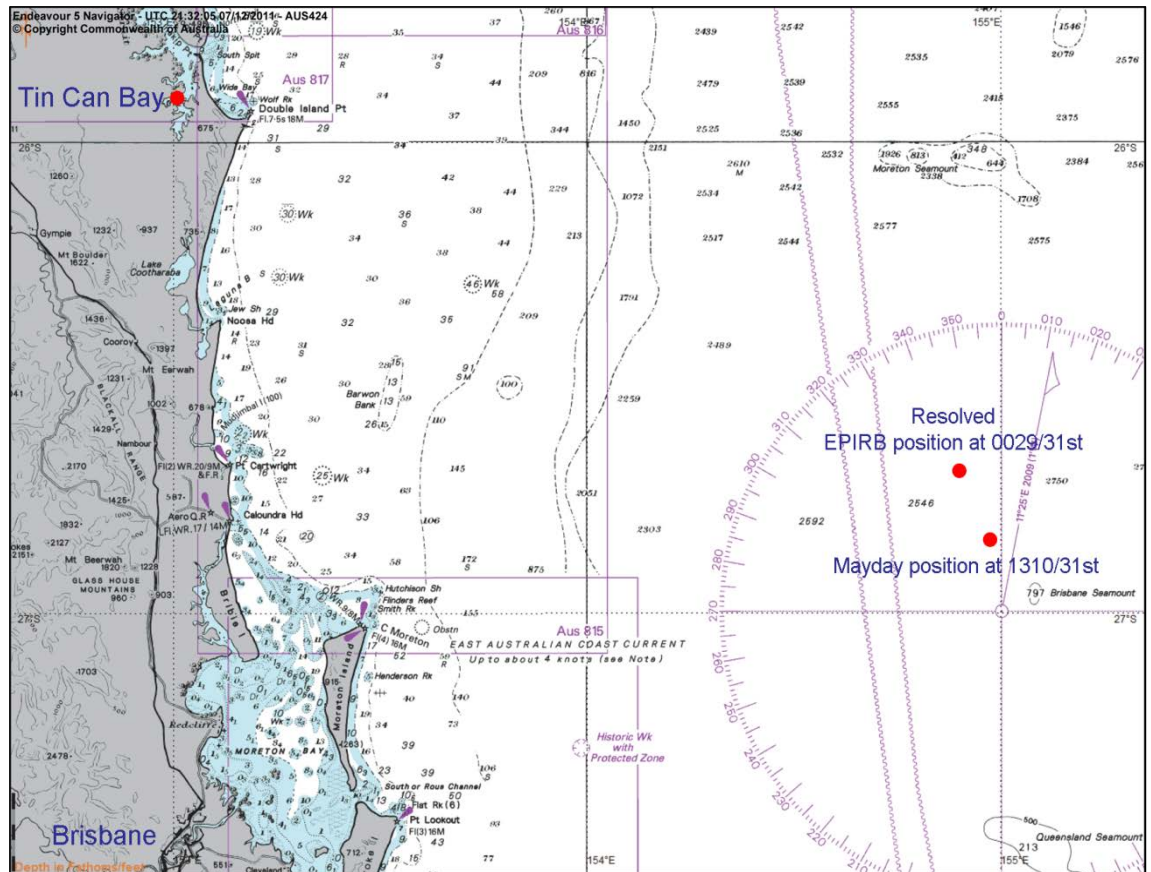
On 3 October 2011, *Tuahine* arrived in Tin Can Bay, Queensland. While berthed there, various tasks were undertaken by its crew to prepare the tug for its upcoming voyage to New Zealand. One of these tasks was the removal of the rubber tyres, which were in use as fenders, as these had been found to hinder the vessel when in a seaway. After their removal, the tyres and a 500 mm long x 100 mm

Figure 1: *Tuahine* in the Brisbane River



¹ The pulling power of a tug, expressed in tonnes.

Figure 2: Navigational chart Aus 424 showing initial EPIRB location and mayday positions



thick piece of rubber fendering, were stowed and secured in the tug's steering compartment.

At 1000² on 30 October, *Tuahine* departed Tin Can Bay with the intention to sail to Brisbane and then onto New Zealand. The crew had also been told about a fishing spot by a local resident and planned to stop there to fish while en route to Brisbane. The weather was good and by late in the afternoon, the tug had reached a position well to the east-southeast of Double Island Point (Figure 2).

During the afternoon, the weather started to deteriorate and the tug's motion in the seaway increased. At about 1700, the master noted a loss of steering. On investigation, one of the crew discovered that the piece of rubber fendering had come loose in the steering compartment and had damaged a steering gear hydraulic hose. This had led to a loss of hydraulic oil from the steering system and the subsequent failure of the tug's steering.

The crew attempted to repair the damaged hydraulic hose but couldn't get it to seal properly.

The oil supply on board was low and so the on-going leak proved to be unsustainable.

The weather continued to deteriorate and the master was having difficulty controlling the tug's heading using only the two propellers. One of the crew had become ill and the crew began to fear for their safety.

The master attempted to contact shore assistance by very high frequency (VHF) radio but was unsuccessful. At about 2316, he made the decision to activate the tug's Emergency Position Indicating Radio Beacon (EPIRB).

The Australian Maritime Safety Authority's (AMSA) Rescue Coordination Centre (RCC) in Canberra received notification that the EPIRB had been activated. At 0029 on 31 October, the EPIRB position was resolved³ to be 26° 41.88'S 154° 53.76'E (Figure 2), 79 miles⁴ east-northeast of Cape Moreton.

The EPIRB was registered in New Zealand and the RCC contacted New Zealand search and rescue

² All times referred to in this report are local time, Coordinated Universal Time (UTC) + 10 hours.

³ To remove the ambiguity of the initial EPIRB activation location and thereby providing an accurate position.

⁴ A nautical mile of 1852 m.

authorities to establish the identity of the vessel. The RCC then contacted the owner in New Zealand, informing him that the EPIRB on board the tug had been activated.

Despite attempts, the RCC was unable to establish direct communications with *Tuahine*. The RCC then began to task air and sea assets to the area. At 0243, a passing aircraft established VHF radio contact with *Tuahine* and determined the condition of the tug and crew.

At first light on 31 October, AMSA's Brisbane based search and rescue aircraft dropped a satellite telephone to *Tuahine*'s crew and communications with the RCC were established. The master reported that all crew were safe and the tug was adrift, beam on, heading southeast at about 1 knot⁵ and requiring a tow. AMSA then provided assistance to the tug's owner and local marine authorities in Brisbane to arrange a tow for the disabled tug.

At 1310, *Tuahine*'s master made the decision to abandon the vessel rather than remain on board overnight with the weather continuing to worsen, a sick crewmember and the tug unable to be manoeuvred. He declared a mayday and the RCC tasked a rescue helicopter to proceed to the tug's position of 26° 50.02'S 154° 59.28'E.

To assist with the rescue, *Tuahine*'s crew streamed an empty 1,000 litre plastic container, attached to the tug's tow line, to act as a drogue. They also deployed the tug's liferaft as instructed.

At 1610, the tug *Rodds Bay* departed Brisbane to rendezvous with *Tuahine* and take it in tow.

Just before 1700, a rescue helicopter arrived overhead *Tuahine* and by 1708, the three crew members had been winched on board the helicopter. They were flown to the Sunshine Coast, north of Brisbane.

At the RCC's request, the crew had left *Tuahine*'s engines running to provide power to light the tug as it drifted through the night and the EPIRB was left activated.

At 1120 on 01 November, *Rodds Bay* arrived at *Tuahine*'s position and connected a tow line to it. At about 1030 on 02 November, both tugs arrived in Brisbane.

SAFETY MESSAGE

Regardless of the length of a voyage, or their experience, the crew should always adequately prepare their vessel before departing port. The proper stowage and securing of equipment to

prevent movement in a seaway and the carriage of spare parts to repair critical equipment are essential parts of a thorough voyage preparation. The dangers of being ill-prepared for a voyage have been illustrated in previous ATSB investigations.⁶

SOURCES AND SUBMISSIONS

Sources of Information

The master and crew of *Tuahine*

Bay Underwater Services, New Zealand

The Australian Maritime Safety Authority

Submissions

Under Part 4, Division 2 (Investigation Reports), Section 26 of the *Transport Safety Investigation Act 2003*, the ATSB may provide a draft report, on a confidential basis, to any person whom the ATSB considers appropriate. Section 26 (1) (a) of the Act allows a person receiving a draft report to make submissions to the ATSB about the draft report.

A draft of this report was provided to *Tuahine*'s master and crew and Bay Underwater Services.

A submission was received from Bay Underwater Services. The submission was reviewed and where considered appropriate, the text of the report was amended accordingly.

5 One knot, or one nautical mile per hour equals 1.852 kilometres per hour.

6 ATSB Marine Safety Investigation Report, No.185 Loss of NSW registered *Tamara* – 1 September 2002; available at www.atsb.gov.au