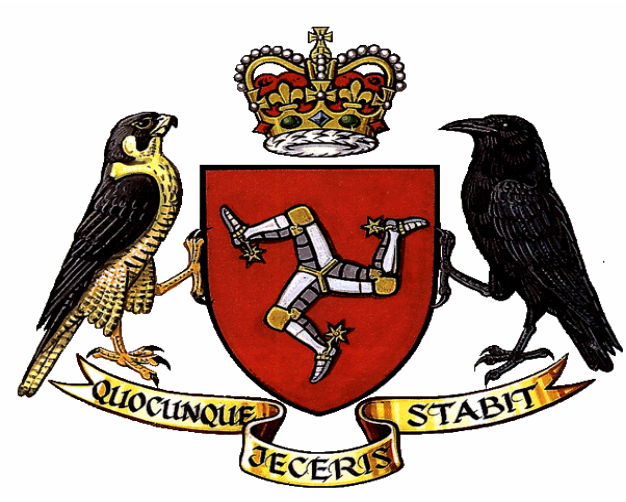


Casualty Investigation Report CA 86

Sinking of Isle of Man registered fishing vessel

PL 17 “TETSUKO”

on the

Ramsey Banks, Isle of Man

in position

Latitude 54° 21.468’ North

Longitude 004° 19.218’ West

on the

11th February 2004

Isle of Man Government Marine Administration

Reiltys Ellan Vannin Oaseriys Lhuingys

CONTENTS

ABBREVIATIONS AND DEFINITIONS

Coaming:	Raised sill to prevent water entering a space
DoT:	Department of Transport
Freeboard:	Distance from the waterline to the main deck edge
Freeing Port:	Opening in the bulwark at deck level to allow water on deck to escape back to sea
Free Surface:	Unrestricted water movement
GMT:	Greenwich Mean Time
RAF:	Royal Air Force
Scallop Dredging:	A method of fishing by dragging a wire net-bag behind a heavy tow bar, with wheels on the ends which roll along the sea bed. Shell fish which are buried in the sand are disturbed by a bar with metal teeth fitted along the bottom edge of the mouth of the bag
Sheave Block:	A grooved wheel within a wooden case allowing a moving rope to pass for lifting equipment and nets
SAR:	Search and Rescue
Warping Drum:	(Capstan Head) Free to rotate steel drum attached to a winch motor able to turn in two directions
Watertight Bulkhead:	Under deck partition wall dividing the below deck volume into one or more separate spaces

SUMMARY

The *Tetsuko* was a 9m fishing vessel, built in 1979 for angling and potting. Between 1998 and 2003 she was modified for stern trawling by fitting a winch and aft gantry. Just prior to the incident she had been converted for scallop dredging by fitting spreaders (transverse extensions) to the gantry, dredging gear and a lifting pole above the transom for lifting the dredges over the stern. She was being operated single-handed.

At approximately 0530 hours on the morning of the 11th February 2004 the *Tetsuko* departed from Ramsey harbour to engage in scallop dredging within Ramsey Bay, Isle of Man. The visibility was good, wind was from the West to North West force 3 to 4, sea state slight with no swell and air temperature approximately 8 degrees Celsius.

At approximately 1530 hours on 11th February 2004 *Tetsuko* sank in Ramsey Bay, Isle of Man in approximately 15 metres of water whilst lifting the port side dredge over the stern, with the starboard side dredge suspended from the gantry spreader. Unfortunately, despite an extensive SAR operation, the skipper was not saved.

The report concludes that the *Tetsuko* was not suitable for scallop dredging.

The recommendations from this report mainly pertain to ensuring that these small fishing vessels are suitable and properly equipped for the type of fishing they conduct.

Tetsuko, converted to stern trawler 1998-2003

1. NARRATIVE OF EVENTS

Introduction

The following text provides an account of the history of the *Tetsuko* and the events leading up to her loss on the 11th February 2004. As there were no witnesses to the incident, the report is based upon sources of information from parties who were fishing in the area with the *Tetsuko* on the 11th February 2004. Other sources were Douglas Harbour Control, Peel lifeboat, Ramsey Harbour Office, the crew of the Barrule (Manx Fisheries Protection vessel), other fishermen and shore repair contractors.

All times indicated are GMT and are approximate.

1.1 1979 – the fishing vessel was built in Sunderland and designed for use as a potting or angling vessel. She was constructed of steel, 8.98m long and 3.05m wide. She had a depth of 1.04m giving a Gross Tonnage of 4.56.

1.2 25th June 1998 *Tetsuko* was first registered in the Isle of Man. She was then used infrequently as a stern trawler spending much of her time laid up in Douglas inner harbour.

1.3 2nd August 2003 *Tetsuko* was inspected by the Isle of Man Marine Administration. At this time she was rigged for stern trawling (as per photo in the summary). Although the vessel's registration had not lapsed, Harbours Division requested the Isle of Man Marine Administration to inspect the vessel at this time, because it was being reactivated after a long period of lay-up. The scope of the inspection was Safety Equipment, Fire Fighting Apparatus, Collision Regulations and Medical Equipment requirements.

Again outside the scope of the inspection, the owner was recommended in writing to have the hull and deck plating ultrasonically tested for thickness and to fit a bilge alarm.

Although outside the scope of the inspection, the attending Marine Administration Surveyor noted that the vessel was marginal with regard to stability and had a minimal freeboard. He strongly recommended that no additional top weight should be fitted, such as lifting poles for scallop dredging, which could adversely affect the stability of the vessel and furthermore that the freeing ports should be maintained in a fully operation condition at all times to keep the deck free of water.

The owner was further reminded about the above issues, by letter dated 22nd August 2003 from the Isle of Man Marine Administration, where these recommendations were specifically stressed.

1.4 4th August 2003 *Tetsuko* sailed from Douglas to Ramsey.

1.5 2nd September 2003 *Tetsuko* 63/64 shares were sold and the new owner was entered into the original register. The original owner retained 1/64 shares to retain the fishing licence which was not sold.

1.6 2nd September 2003 – 1st October 2003 *Tetsuko* fished out of Ramsey with 2 days fishing completed. During this period she was converted for scallop dredging. A lifting pole was fitted to recover the dredges over the stern, and spreaders (transverse extensions) were fitted to the gantry to help separate the port & starboard dredges when turning. It has proved impossible to ascertain exactly when and where the conversion took place.

1.7 2nd October 2003 *Tetsuko* was towed into Ramsey harbour with engine trouble.

1.8 6th November 2003 *Tetsuko* sailed to Peel.

1.9 21st November 2003 *Tetsuko* sailed back to Ramsey.

1.10 18th December 2003 – 24th January 2004 *Tetsuko* fished intermittently.

1.11 25th January 2004 - 8th February 2004 during this period traces of water were discovered in the main engine lubricating oil. The main engine cylinder head was removed, skimmed and refitted with a new head gasket. It has proved impossible to ascertain exactly when and by whom this engine work took place.

1.12 11th February 2004 *Tetsuko* departed from the port of Ramsey at approximately 0515 to 0530 hours with the *S'aalin Madran,* another Manx registered fishing vessel of similar size.

1.13 Each vessel proceeded to separate fishing grounds once clear of the Ramsey breakwater. *Tetsuko* set course to Ramsey Bay to commence fishing for scallops.

1.14 During the course of the day various communications were made with the *Tetsuko* from other fishing vessels. *Tetsuko* was fishing offshore from Shellag Point to some 1 to 2 miles off the shoreline. The weather during the day of the 11th February 2004 was reported as N to NW force 3 to 4, with sea state slight, sky being cloudless with clear visibility. The air temperature was reported to be 8 degrees Celsius at dawn and rising to a maximum of 11 degrees Celsius during the day.

The tide was ebbing during the mid afternoon. High water at Ramsey was at 1431 hours. *Tetsuko* was dredging in an East/West direction across the tide with various courses on each turn but steady headings, between 100 and 280 degrees during the straight line dredging.

1.15 At about 1400 hours the skipper of the *S'aalin Madran* called the *Tetsuko* and he stated that he was going into Ramsey. The skipper of *Tetsuko* replied that the *Tetsuko* would be into Ramsey port about 1520 hours after recovering the final haul. The skipper of the *S'aalin Madran* saw the *Tetsuko* on his way into Ramsey harbour and expected to see the *Tetsuko* later. The fishing vessel *Cair Vie* called the *Tetsuko* at about 1430 hours but received no answer.

1.16 At about 1445 hours the fishing vessel *New Dawn* was crossing Ramsey Bay on her way to Peel and observed the *Tetsuko,* from a distance of about 1 to 2 miles away, underway with her dredge lines out. There was no sign of the skipper on deck and no contact was made between the *New Dawn* and *Tetsuko.* This was the last reported sighting of the *Tetsuko*.

1.17 No immediate concerns were raised about the whereabouts of the *Tetsuko,* during the afternoon of the 11th February 2004. It was common that the skipper of the *Tetsuko*, after completion of his fishing activities, would proceed to Peel (his home port) rather than entering Ramsey harbour.

1.18 It was not until the early evening of the 11th February 2004 when the wife of the skipper of the *Tetsuko* contacted the skipper of the *S'aalin Madran,* expressing her concern for her husband's safety and late arrival.

1.19 At 2350 hours a telephone call was received by Douglas Harbour Control Station to alert the Coastguard that the *Tetsuko* had not returned to the ports of Ramsey or Peel.

1.20 At 2355 hours the message was relayed to Liverpool Coastguard Office, which is the co-ordinating SAR agency for the Isle of Man.

1.21 Between 0000 and 0030 hours fishery patrol vessel *Barrule* was tasked to commence a SAR operation within the Ramsey Bay area. The Peel and Ramsey lifeboats were launched and proceeded to the Ramsey Bay area to liase with the *Barrule*.

1.22 The SAR operation continued through the night and into the early morning of the 12th February 2004.

1.23 At about 0630 hours the *Barrule,* still on location within Ramsey Bay identified an oil slick in the water streaming to the north and proceeded to investigate the source.

1.24 At 0750 hours the *Barrule* identified the source in position Latitude 54° 21.468' North, Longitude 004° 19.218' West; this position was later identified as the wreck position of the *Tetsuko*. The *Barrule* stood by the position and placed a shot-line down to mark the position until the arrival of DoT divers.

1.25 At about 1235 hours on the 12th February 2004 the DoT diver's vessel arrived at the wreck site and divers commenced sweeping the wreck and video footage of the site was recorded. The divers identified the wreck as the *Teksuko*. At 1324 hours a second dive was carried out to further investigate the site for the skipper however no person was found.

1.26 The SAR operation was further expanded on the 12th February 2004 with the attendance of a SAR helicopter from RAF Valley in North Wales engaging in the sea surface search for the skipper along the NE coastline of the Isle of Man and out to sea.

1.27 The SAR operation had initially gathered sea surface vessels only during the hours of darkness and it was not until daylight hours, after finding the location of the *Tetsuko* but no person being found, that helicopter services were tasked to provide a wider surface coverage for the skipper.

1.28 It is recorded that at 1730 hours on the 12th February 2004 a decision was taken that the chances of finding the missing skipper had been exhausted and SAR services were stood down.

1.29 On the 15th February 2004 between 1400-1630 hours, DoT divers returned to the wreck and conducted a detailed examination of the wreck with an audio and visual link to an Isle of Man Marine Administration investigating officer in the dive vessel. *Tetsuko* was found as shown in Figure 1, page 8.

1.30 On the 12th March 2004 at 0910 hours a member of the public found a body near Castletown beach. The body was later identified as the skipper of the *Tetsuko*.

1.31 Castletown beach is 15 miles to the approximate SSW of the wreck.

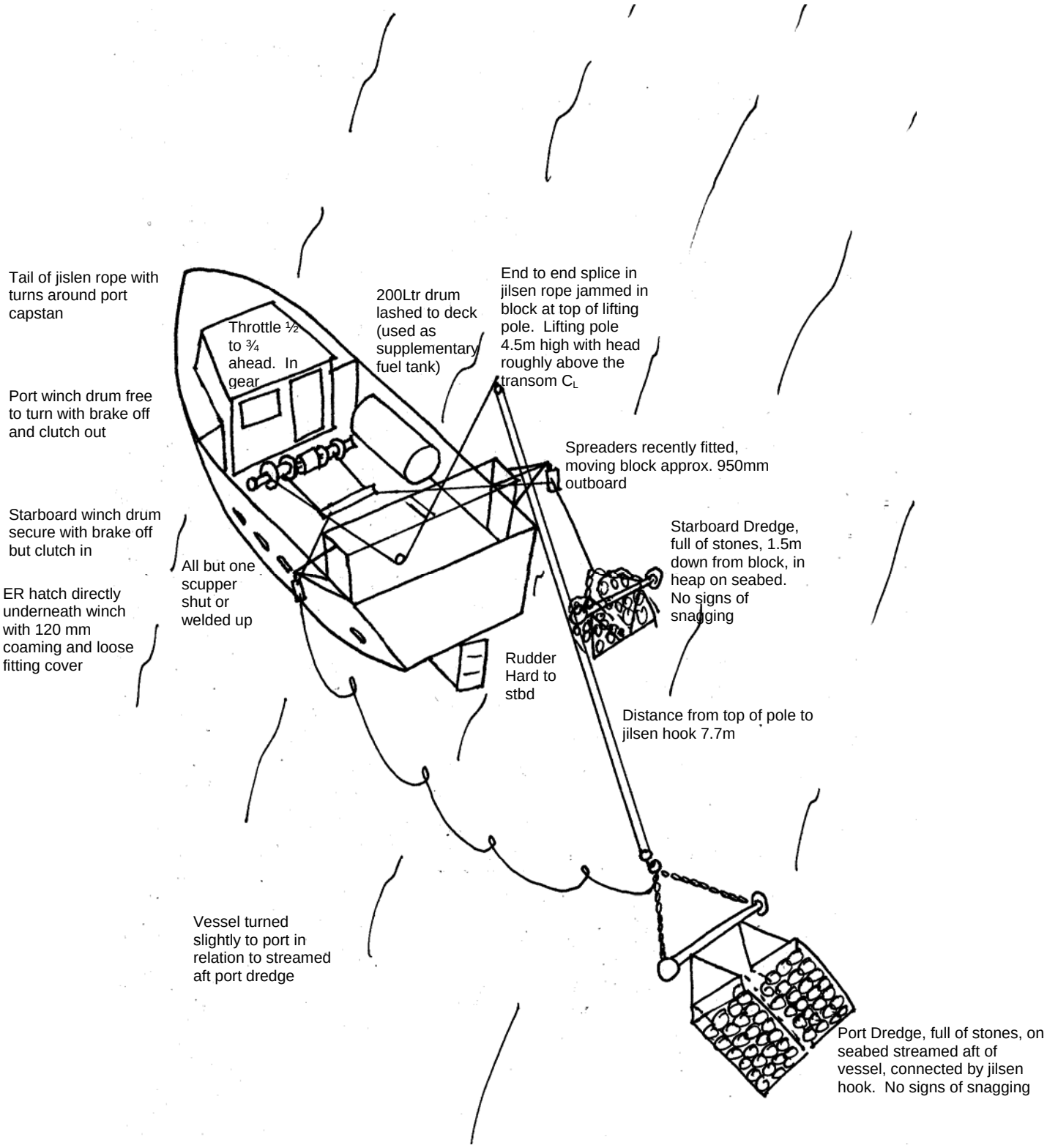


FIGURE 1

HOW THE *TETSUKO* WAS FOUND ON THE 15TH FEBRUARY 2004
FISHING VESSEL IS LYING ON THE SEA BED, LEANT OVER ON HER STARBOARD BILGE

2. COMMENTS AND ANALYSIS

The purpose of a casualty investigation is to determine the reasons why the incident occurred and then to use this information to help to prevent recurrence and to improve the safety of life at sea and pollution prevention.

For this casualty a number of questions need to be asked:-

- Why did it take so long for the alarm to be raised?
- Was the vessel properly equipped and designed for the operations she was conducting?
- Did the on board operations result in the loss?
- How did operations on board affect stability?
- Why did the vessel sink?
- Was the life saving equipment provided sufficient?

2.1 Why did it take so long for the alarm to be raised?

2.1.1 The *Tetsuko* was fitted with a single VHF, however this was weak and the skipper had problems communicating between Ramsey Bay Harbour Control and other fishermen at Maughold Head. No other vessels in the near vicinity heard any 'Mayday' on the VHF. Evidence from SAR services indicated that no Mayday was received. The vessel had no other means of alerting the rescue services.

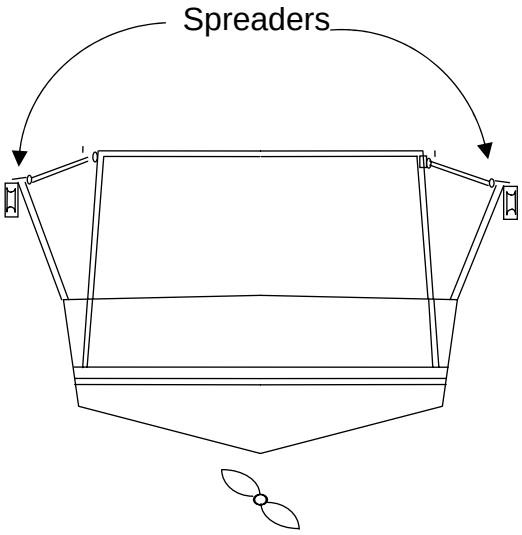
2.1.2 When the vessel did not come into Ramsey on the afternoon of the 11th February 2004 it was presumed that she had proceeded to Peel, her home port. By the time the alert was made by the skipper's wife at least 8 hours had elapsed since the incident.

2.1.3 It is likely that the local fleet were looking out for and communicating with the *Tetsuko* effectively, but this system broke down at the end of the day. If the alarm had been raised immediately the SAR area would have probably been confined to Ramsey Bay. However at least 8 hours on, the SAR area was much bigger and growing by the minute.

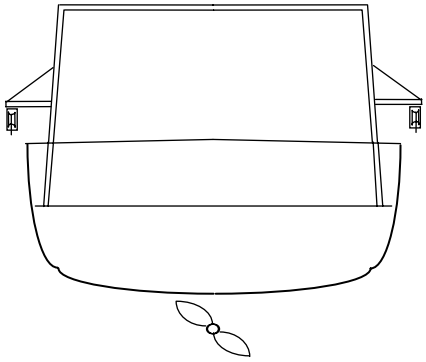
2.2 Was the vessel properly equipped and designed for the operations she was conducting?

This vessel was originally designed and built as a potting or angling vessel. The vessel was then converted to a stern trawler by fitting a winch on the main deck amidships and a gantry aft. The vessel towed trawls fishing for fish and queen scallops. Just prior to the incident, she had been converted to a scallop dredging fishing vessel.

2.2.1 During this last conversion to scallop dredging, spreaders (transverse extensions, see photos) were fitted to the gantry to allow sufficiently long tow bars to be towed without clashing.



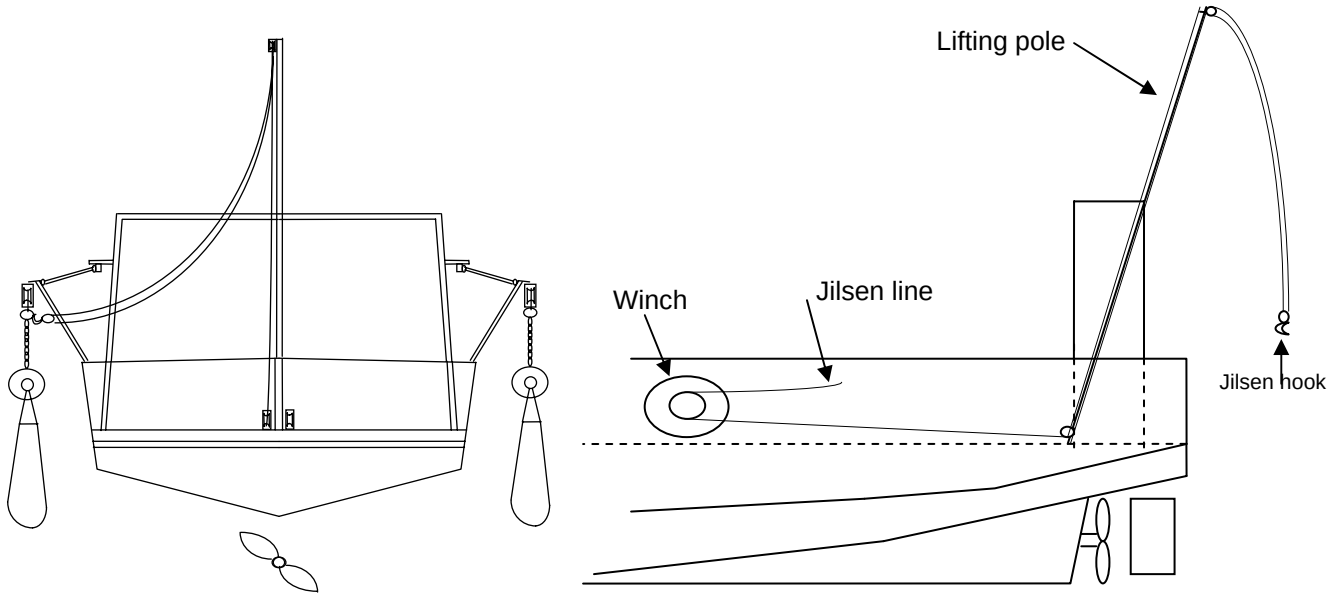
Tetsuko



Conventional arrangement
spreaders are smaller and lower

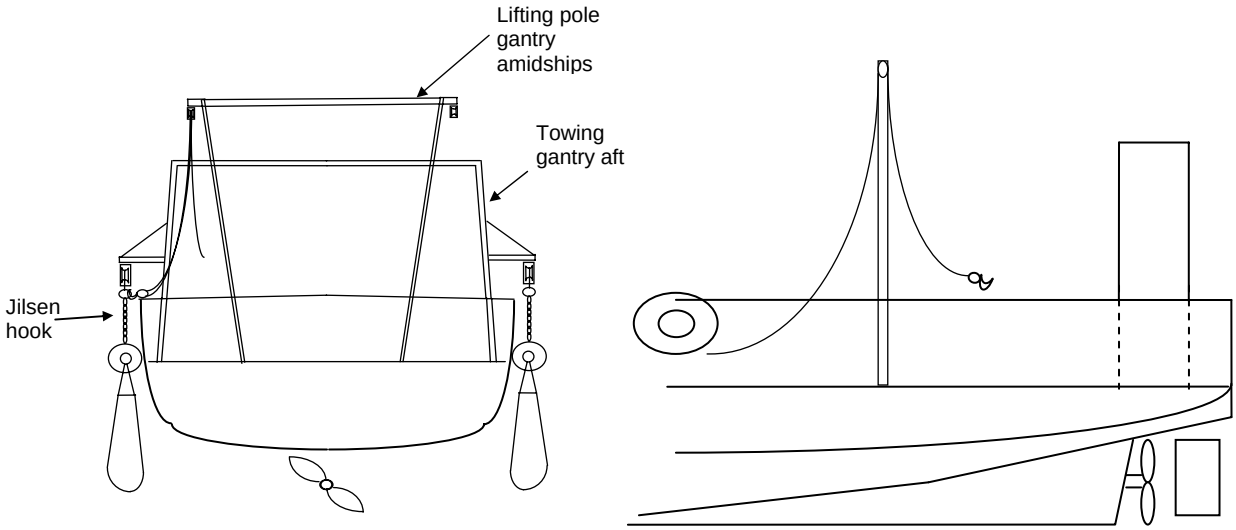
The spreader beams fitted to the gantry raised the suspension point of the dredges upwards and outwards. Both the amount of extension over the side (approximately 950mm) and the height above the deck raised the centre of gravity of the vessel, when the scallop dredges were suspended from them. This would have a detrimental effect on stability. The sizes of the spreaders fitted to the *Tetsuko* were bigger and higher than on other vessels of a similar size.

A lifting pole was fitted aft, with the top of the pole directly, or just aft of the transom, on the centreline.



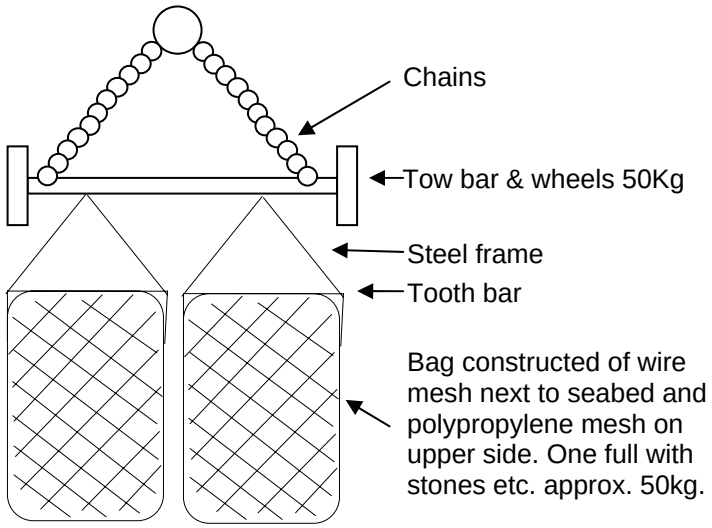
Tetsuko fitted with single aft central Lifting Pole 4.5m high

The height of the lifting pole for the recovery of fishing gear was 4.5m above the deck. This is far in excess of that required to lift the scallop dredges on board. Once the weight is taken on the pole then the centre of gravity effectively moves to the point of suspension, at the top of the pole, with consequent rise in the vessel's centre of gravity and a reduction in stability. In addition, such a large weight suspended from such a height would swing like a pendulum, adding dynamic loading as the vessel rolls.



Conventional arrangement with lifting points (P&S) further towards amidships

2.2.2 The *Tetsuko* towed two dredges, one port and one starboard. Each dredge consisted of: -



Chains + frames + tooth bars = approx 50kg

Dredge Total Weight = 200kg approx

This weight of 200kg per side would have a significant effect on the stability of the *Tetsuko*, especially when suspended from a height.

2.2.3 The *Tetsuko* had a freeboard of about 100mm, this was identified as being much less than other vessels of a similar size designed for scallop dredging. The majority of the freeing ports on board *Tetsuko* had been welded up or partially plated over. Without these freeing ports being free to open any additional water on deck would necessarily accumulate resulting in the *Tetsuko's* deck being much closer to the sea surface and, moreover, a free surface of water, running across the deck would diminish stability even more.

2.2.4 The vessel had no transverse watertight bulkheads (i.e. a single open compartment below deck). If this compartment became flooded, there would have been no reserve in buoyancy and the vessel would have sunk. *Tetsuko* was not fitted with a bilge level alarm.

2.2.5 In order for the *Tetsuko* to recover (haul) and deploy (shoot) the trawls a lifting winch was fitted on board. The installation of the winch was placed directly over the access hatch from the main deck to the engine compartment. The access hatch coaming to the engine compartment was 120mm and was found during the dive investigation to be fitted with an unsecured wooden cover.

The result of the winch installation was such that it was not possible for a person of the stature of the skipper to gain any proper access down below the deck to allow him to turn off a sea cock, change a blocked filter or affect emergency repairs. The unsecured cover gave little protection against water on deck and possible prevention of flooding below deck. With the freeing ports welded closed, water on deck could not be discharged and hence would pour under deck into the one open space below.

2.2.6 The vessel had a 200 litre oil drum lashed down on the main deck starboard. It appears that this was being used as a supplementary fuel tank because the vessels existing fuel tanks were of insufficient capacity to receive the minimum fuel delivery of 450 litres from a road tanker. At the time of the incident, the drum on deck was empty and the fuel tanks below deck were nearly full.

The practice of having a temporary fuel tank on deck and then siphoning the fuel into the main fuel tanks is not recommended. It may cause fuel spillage on deck leading to a slippery surface, pollution of the sea and increased fire risk.

In addition, the situation where the deck tank is full and the main fuel tanks below deck are empty would raise the centre of gravity of the vessel reducing the stability of the vessel still further.

2.2.7 Considering the foregoing with regard to the re-design, extra weights, addition of spreaders, single high lifting pole, small freeboard, lack of freeing ports, unsecured engine compartment coaming cover and unsafe practices it is concluded that the vessel was unsuitable for the mode of fishing in which she was engaged.

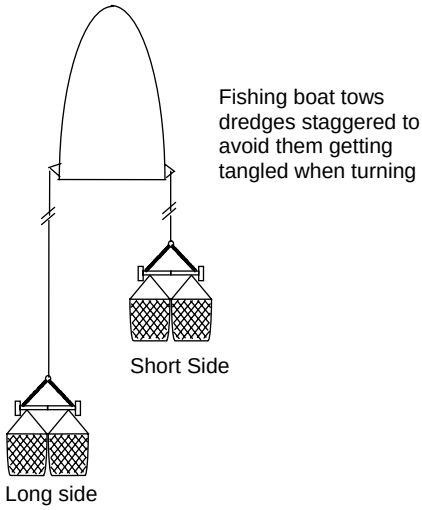
2.2.8 The re-design/conversion was carried out subsequent to the Isle of Man Marine Administration's inspection. The responsibility for conversions made to the vessel lies with the owner who should take safety, watertight integrity and stability into account.

2.3 Did the on board operations result in the loss?

The practice of hauling scallop dredges over the stern with such a high lifting pole over the transom can lead to both dredges coming onto one side as the vessel rolls and naturally heels in that condition. With heavy weights in the dredge bags this could lead to a situation as depicted in Figure 2 (Page 20) with disastrous consequences.

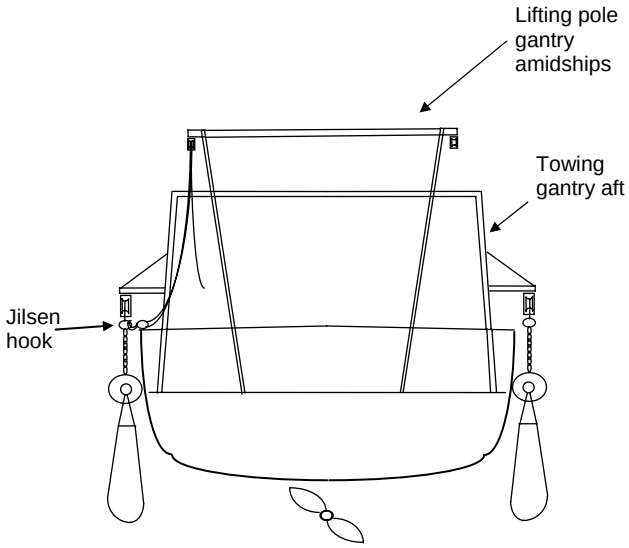
2.3.1 Conventional dredge shooting and hauling sequence

2.3.1.1 Scallop dredge fishing operations deploy their dredges in a staggered formation to prevent fouling.

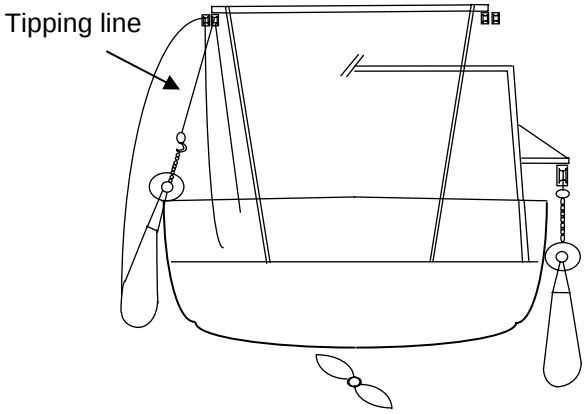


2.3.1.2 The dredges are recovered one by one to the side of the vessel to the spreaders. The skipper will hold both dredges on the brake band at the lifting winch and de-clutch each side in turn after being satisfied all is safe.

2.3.1.3 To recover the dredges to the deck, the skipper will use a hauling line with a hook (known as a 'Jilsen Hook & Rope' which is a small metal hook connected to the line). This arrangement is then connected to the head of the net and passes through a sheave block at the top of the lifting pole gantry amidships. The tail of this rope is then turned around the warping drum at the end of the lifting winch.



2.3.1.4 When all is secured, the skipper, standing at the winch controls, will heave on one side only with the jilsen rope on the warping drum and recover the tow bar to the gunnel. A tipping line will be used to lift the bottom of the bag and empty the catch onto the deck.



2.3.1.5 The repeat process of this routine will then be carried out on the opposite side of the vessel. The system is controlled at all stages of the recovery by the skipper.

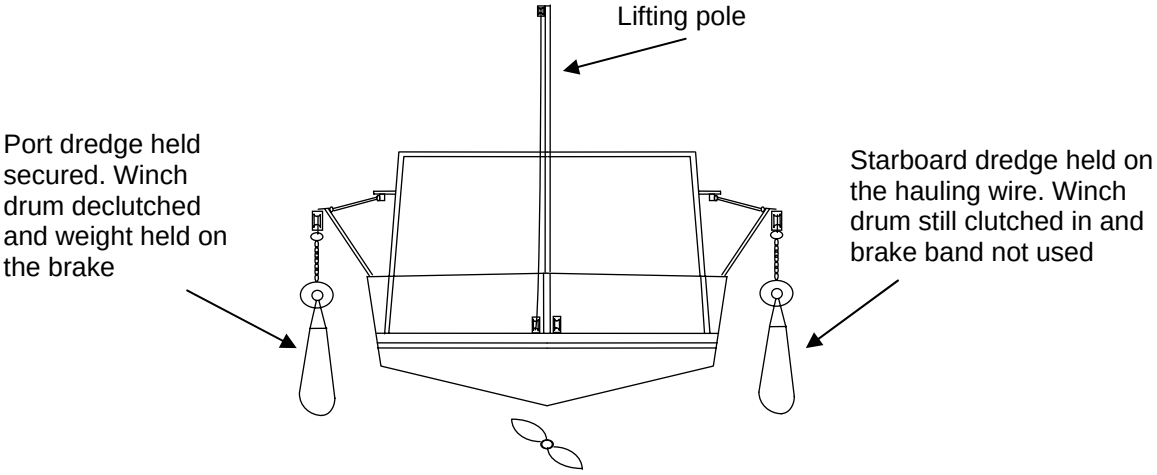
2.3.2 What happened on the Tetsuko

2.3.2.1 On the 11th February 2004 the *Tetsuko* was on station and about to commence recovering her dredges over the stern.

2.3.2.2 She was moving ahead through the water with the propeller engaged, rudder to starboard.

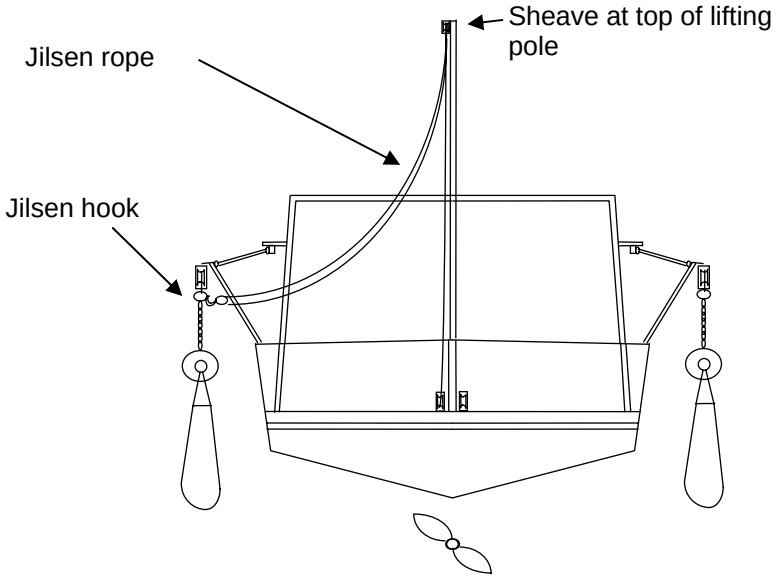
2.3.2.3 The portside dredge was brought up to the port spreader and secured in place by the brake on the winch with the clutch being disengaged on the portside.

2.3.2.4 The starboard dredge was then hauled up to a position at the starboard spreader and the winch was stopped. The starboard brake band was not applied and the dredge was held in place with the winch clutch still in place.



2.3.2.5 It is probable that the starboard brake was not capable of holding the starboard dredge (full of stones). Therefore, the starboard clutch was left in and the starboard dredge held on the hydraulics.

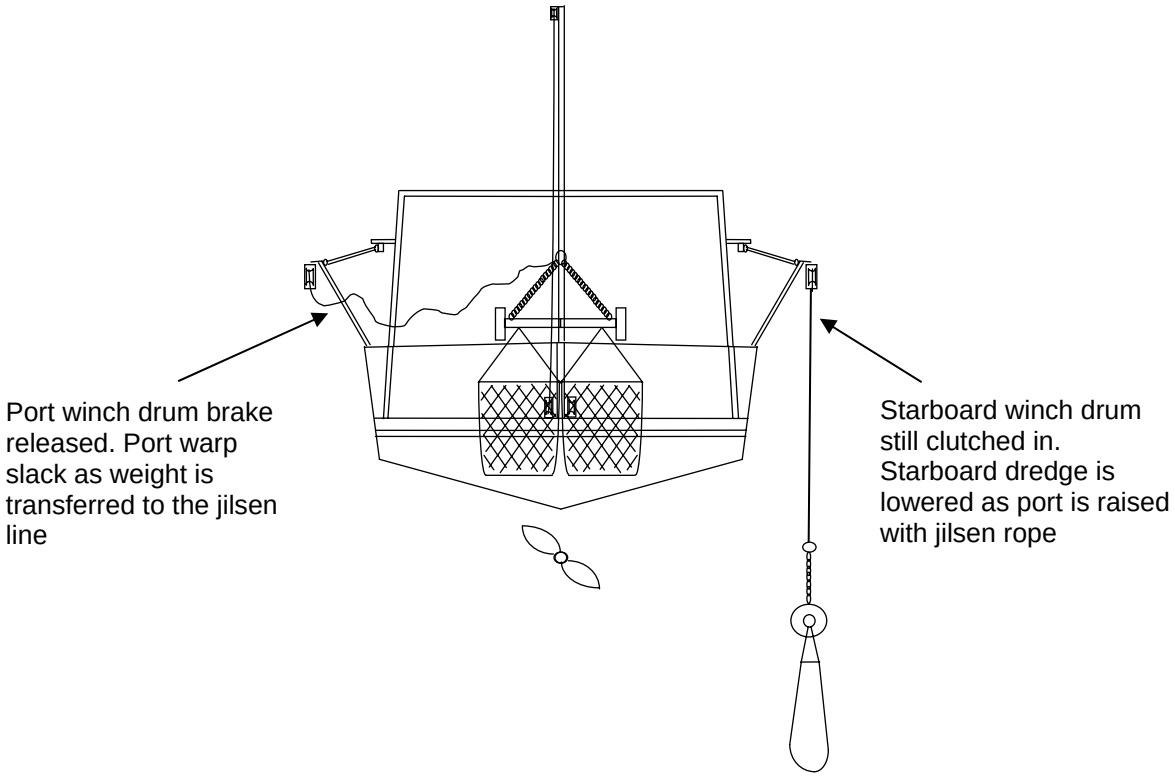
2.3.2.6 The jilsen hook and rope were connected to the port dredge.



2.3.2.7 The jilsen rope turns were reversed around the port capstan. The winch control lever was put in lower mode (anti-clockwise), to hoist the port dredge, whilst the starboard dredge was slowly lowered.

2.3.2.8 To manoeuvre the dredge bar onto the top of the transom gunwale the skipper would have had to walk aft with the tail of the jilsen rope turned round the winch capstan head. This indicates that the skipper would have to leave the winch controls for a significant time.

2.3.2.9 As the weight of the portside dredge was taken up on the jilsen rope & lifting pole, the dredge moved across the stern towards the centreline directly under the lifting pole.



2.3.2.10 The vessel at this time started to heel to starboard.

2.3.2.11 It is probable that in an attempt to bring the *Tetsuko* upright, the rope on the port dredge was released with the hope that it would free run back to the sea-bed and free the excess weight from the head of the lifting pole. This could have possibly recovered the situation.

2.3.2.12 The jilsen rope had been spliced along part of its length and became jammed in the block at the top of the lifting pole, suspending approximately 7.7 metres of rope with the dredge attached under water (see Figure 2, Page 20).

2.3.2.13 Bolt croppers were found in the wheelhouse under the bench seat in a locker. These were not used to cut the lines and lose the dredges. Generally if things start going wrong the safe procedure would be to release the winch drum brakes allowing the gear to run free. Normally the bitter ends of the warps are connected to the drum with a weak link, which would break in an emergency. In the case of *Tetsuko* this would be ineffectual because the starboard drum was still clutched in and the port dredge was connected to the jilsen with the splice jammed in the top of the lifting pole. It is not known why the skipper did not use the bolt cutters to ditch the fishing gear.

2.3.2.14 The one-man operation on *Tetsuko* was cumbersome and slow. The decks were a mess of ropes with equipment being kept in an untidy order. The fact that the skipper was single-handed was not a major contributory cause of the incident. A properly designed, maintained and equipped vessel of this size can be operated safely under single-handed manning.

2.4 How did the on board operations affect stability?

2.4.1 The diver's video showed that the propeller was engaged and the rudder hard to starboard and the winch motor lever in the forward position. With the steering gear in this position the vessel would turn to starboard as the haul was retrieved. This turning moment would swing the portside dredge hung over the transom from the top of the lifting pole, across to the starboard side to bring both dredges on the same side.

2.4.2 It is likely that the weight of the portside dredge moved further over to the starboard side due to the weight transfer induced and influenced the vessel to heel over further to starboard. This transfer of weight increasing the capsizing levers of *Tetsuko* to starboard (see Figure 2, Page 20).

2.4.3 The length of rope from the top of the pole to the port dredge and from the starboard spreader to the starboard dredge was less than the water depth. Therefore, at the time of the incident the dredges had been recovered from the seabed. The evidence indicates that the vessel did not sink because the dredges became snagged upon obstructions on the seabed. The effect of the tide was negligible as the dredges were above the seabed.

2.5 Why did the vessel sink?

2.5.1 A large angle of heel was generated due to the weight transfer at the stern (as described in 2.3 above), sufficient to allow water to flood aboard and below leading to the vessel sinking. The sequence of events during this time occurred very rapidly and gave the skipper little or no chance to escape from the prevailing circumstances or to help himself.

2.6 Was the lifesaving equipment provided sufficient?

2.6.1 The skipper had lifejackets on board but these were of the inherent buoyant type, these were stored under the foredeck. There was no lifejacket found on the skipper at Castletown on the 12th March 2004.

2.6.2 Fishermen find solid type lifejackets unsuitable for wearing constantly whilst working on deck. However, there are now available inflatable lifejackets, which are worn by some fishermen and are standard equipment in the emergency services, yachting, offshore and merchant marine industries for constant use when working on deck. An inflatable lifejacket may have helped to save the skipper's life, keeping him afloat longer, being highly visible for rescue purposes and having a whistle for drawing attention.

2.6.3 The life raft, which had previously been on board, had been removed because it had not been serviced. For this size of vessel the carriage of a life raft is recommended but not mandatory.

2.6.4 If a floatation device such as a liferaft (released by a hydrostatic device) or a buoyant apparatus (1.5m x 1.5m square high visibility, solid but very buoyant raft) had come to the surface after the vessel had sunk, there is a good chance the skipper would have been able to swim to it. With the prevailing calm weather this would have improved his chances of survival dramatically.

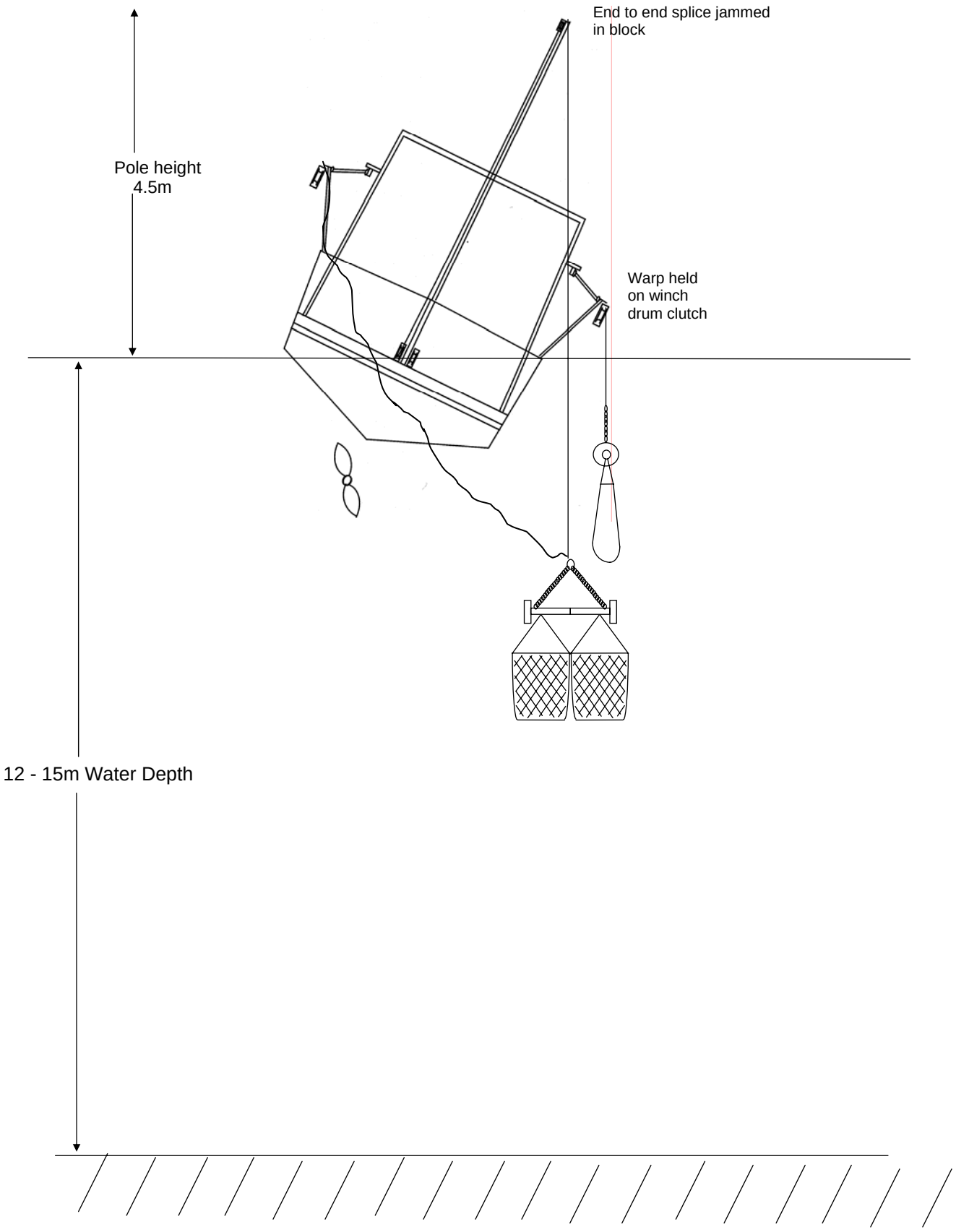


FIGURE 2

POSSIBLE ARRANGEMENT AT THE TIME OF THE INCIDENT

3. CONCLUSIONS

The following conclusions are not intended to apportion any blame to any individual involved in this accident:-

3.1 The weather conditions at the time of the incident were favourable and not seen as contributing to the loss of the *Tetsuko*.

3.2 The fishing gear was up at the time of the incident. The fishing gear did not snag on the seabed causing the vessel to capsize. The tide would not have effected the vessel at the time of the incident.

3.3 There is no evidence to indicate that the health of the skipper was contributory to the loss of the *Tetsuko.* If the skipper had suddenly become incapacitated, whilst hauling the catch, the conclusions and recommendations of this report would not change.

3.4 The fact that the skipper was single-handed was not a major contributory cause of the incident. A properly designed, maintained and equipped vessel of this size can be operated safely under single-handed manning.

3.5 If the alarm had been raised quickly, the SAR area would have been immensely reduced and the chances for survival of the skipper greatly improved.

3.6 The procedure for hauling dredges over the transom from a high lifting pole may have been a contributory factor leading to the sinking.

3.7 The port dredge was attached to the Jilsen rope and this had an end to end splice midway along its length which was jammed in the block at the top of the lifting pole. The starboard dredge was suspended up at the gantry attached to the warp on the starboard winch drum, which was clutched in.
It is concluded that in this situation the skipper would not have been able to remove the weight of the dredges quickly from the pole or the gantry, to recover the vessel from an unstable situation.

3.8 The vessel did not have sufficient watertight integrity, water freeing arrangements for the deck and internal sub-division. A large amount of water on deck would not be freed and would cause the vessel to become unstable or sink.

3.9 The fact that the skipper was not at the winch controls for lengthy periods of time indicates lack of safe operating procedures during deck operations.

3.10 Considering the re-design, extra weights fitted, addition of spreaders, single high lifting pole, poor water freeing arrangements, poor watertight integrity and unsafe practices it is concluded that the vessel was unsuitable for the mode of fishing in which she was engaged.

3.11 An inflatable lifejacket may have helped to save the skipper’s life, keeping him afloat longer, being highly visible for rescue purposes and having a whistle for drawing attention.

3.12 If a floatation device such as a liferaft (released by a hydrostatic device) or a buoyant apparatus (1.5m x 1.5m square high visibility, solid but very buoyant raft) had come to the surface after the vessel had sunk, there is a good chance the skipper would have been able to swim to it. With the prevailing calm weather condition this would have improved his chances of survival dramatically.

4. RECOMMENDATIONS

4.1 The Isle of Man Marine Administration should implement a system for certifying fishing vessels for certain modes of fishing. Prior to changing mode, proposals should be submitted to the Marine Administration for consideration and final agreement. Upon completion of any conversion on board a fishing vessel, a re-survey by the Marine Administration should take place.

4.2 The Marine Administration and DoT together should assess the current condition of all active fishing vessels as a special review aimed at detecting any which have been modified and which may not be suitable or fit for purpose.

4.3 Fishermen should ensure that they have immediate means available of ditching the fishing gear in an emergency at all times. Jilsen and tipping lines should be capable of running free in the event of an emergency and be continuous without joins or splices.

4.4 The Marine Administration should, as part of current review of fishing vessels, examine the option for requiring the provision of liferafts, buoyant apparatus or equivalent, for vessels which currently do not require them.

4.5 The Isle of Man Marine Administration should, as part of current review of fishing vessels, examine the option for requiring the wearing of inflatable lifejackets whilst working on deck.

4.6 The Marine Administration should, as part of current review of fishing vessels, examine ways of ensuring that winches are not routinely left unattended whilst still operating and in gear.

4.7 DoT/DTI/Fishing vessel operators should consult to assess the effectiveness of the present communication arrangements for ensuring that all fishing boats are accounted for at the end of a days fishing.

Annex I

VESSEL PARTICULARS

Name	:	TETSUKO
Registration Number	:	M128
Date of Registration(s)	:	25/06/98 & 02/09/03
Port Letters and number	:	PL 17
Port of Registry	:	PEEL
Vessel Type	:	Fishing
Construction	:	Steel
LOA	:	8.98m
Breadth	:	3.05m
Depth	:	1.04
GT	:	4.56
Speed	:	6.0 knots approximately
Crew	:	1
Engine	:	Ford Sabre 89 kW
Date of Build/Place	:	1979 Sunderland

Annex II

SOURCES OF EVIDENCE

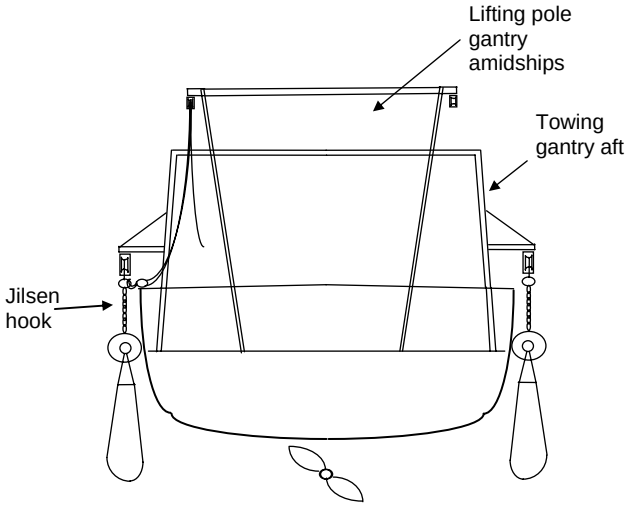
Documentation

The following documentation was collected during the investigation and was used to assist in the compilation and findings of this report:-

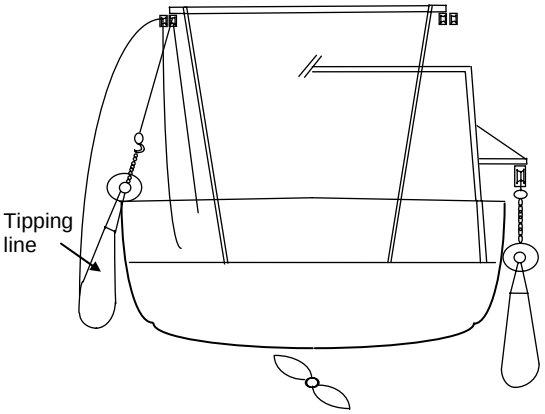
1. Interviews with various parties having association with the vessel and her owners
2. Registration of fishing vessel
3. Last survey inspection
4. Fuel delivery to the vessel on 18th December 2003
5. Bill of Sale
6. Proof of ownership
7. Landing quantities of scallops from *Tetsuko*
8. Weather report for the 11th February 2004
9. Tide heights for the month of February 2004
10. Video and photographic evidence

Annex III
HAULING SEQUENCE SUMMARY

CONVENTIONAL HAULING SEQUENCE

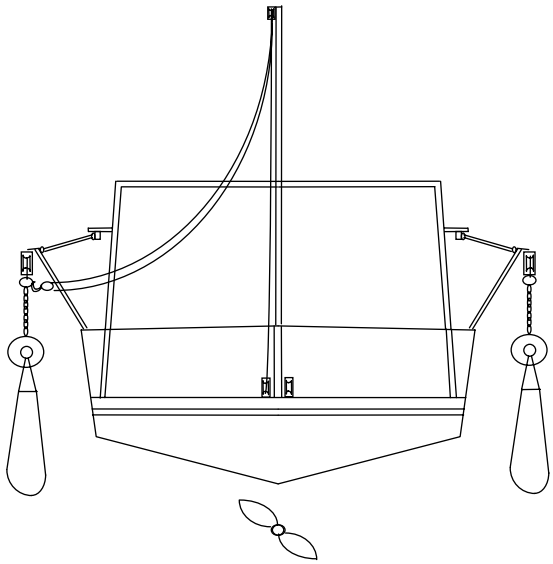


1. Short then long side dredges are hauled up to the blocks at the end of the spreaders.
2. Winch brakes put on. Slight haul on winch to ease load and then clutches taken out. Dredges held on brakes, leaving capstans free to turn without moving winch drums.
3. Jilsen hook connected to one dredge. Jilsen hook rope tail turned 2-3 times round capstan. Weight of dredge taken on jilsen rope. Winch drum brake off to allow dredge to be brought forward to roughly amidships, still hanging in the water.

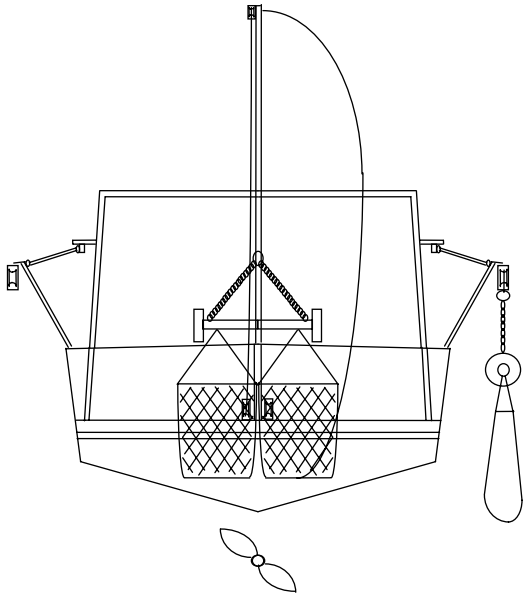


4. Tow bar hauled up to gunnel at amidships.
5. Tipping line attached individually to bottom of each bag.
6. Tipping line hoisted and catch tipped onto deck.
7. Tipping line detached, dredge lowered back into the water using the jilsen rope.
8. Weight taken back up on warp, drum braked off and then jilsen hook removed.
9. Process repeated for other side dredge.

TETSUKO HAULING SEQUENCE



Procedure for the TETSUKO is much the same except that she is only fitted with one lifting pole at the aft end, the top of which is directly above the aft end of the transom. When the jilsen hook is attached, the dredge is moved around to the ***aft end***. When the dredge is in this position it would swing like a pendulum from the top of the lifting pole, as the vessel rolls.



The tow bar is brought up to the gunnel of the ***transom*** and then the bag is tipped into the aft end of the vessel.

Photo 1
Starboard dredge

Photo 2
Port dredge

Photo 3
Jilsen hook

Photo 4
Port winch Capstan

Photo 5
Port winch clutch (out)

Photo 6
Starboard winch
clutch (in)

Photo 7
Starboard brake band (off)

Photo 8
Engine compartment

Photo 9
Lifting pole base

Photo 10
Lifting pole top
note splice in jilsen rope jammed in block

Photo 11
Rudder hard to starboard

Photo 12
Scupper (partly plated over)

Photo 13
Scupper at aft end welded up

Photo 14
Scupper welded up but with small slot cut

Photo 15
New spreader arms fitted to gantry (P)

Photo 16
New spreader arms fitted to gantry (S)

Photo 17
Throttle lever, in gear, half to three-quarters ahead

Photo 18
Main engine water header tank

Photo 19
Typical fishing boat winch