

**Report of the investigation of a
manoverboard fatality from**

GRADELY

**off the west coast of the Island of Mull
on 28 October 1999**

Extract from
The Merchant Shipping
(Accident Reporting and Investigation)
Regulations 1999

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

GRP	-	Glass reinforced plastic
m	-	metres
kg	-	kilograms
MAIB	-	Marine Accident Investigation Branch
UTC	-	Universal co-ordinated time
MCA	-	Maritime and Coastguard Agency
FISG	-	Fishing Industry Safety Group
SW	-	South-west
VHF	-	Very high frequency



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SYNOPSIS

During the afternoon of 28 October 1999, the Marine Accident Investigation Branch (MAIB) received information about a manoverboard accident, west of the Island of Mull. The accident had occurred at 1146 (UTC) that day. An investigation began on 1 November, and was conducted by MAIB inspector, Richard Barwick.

The fishing vessel *Gradely* was fishing for crabs and lobsters near the Treshnish Isles, which are west of the Island of Mull. Her crew were about half-way through the last string of pots. Mr George Campbell was standing at the starboard gunwale shooting the pots when his left foot became caught in a loop of the back rope, which then dragged him overboard. He was a non-swimmer and was not wearing a lifejacket at the time of the accident.

Gradely was stopped, put astern, and then manoeuvred towards Mr Campbell. She had just come alongside when Mr Campbell sank below the surface. His body has not yet been found.

Recommendations are made with regard to safety training, a safer method of handling pots, and the wearing of lifejackets on deck.

VESSEL AND ACCIDENT PARTICULARS

Name	:	<i>GRADELY</i>
Type	:	Fishing vessel (potter)
Port of registry	:	Oban
Fishing number	:	OB 42
Official number	:	A12830
Owner	:	Peter Riley Ardchiavaig Cottage, Bunessan, Island of Mull
Built	:	1986, by Cygnus Marine in Cornwall
Material of construction	:	GRP
Length	:	11.56m (38') - Registered
Breadth	:	4.27m
Depth	:	2.00m
Gross tonnage	:	15.79
Position of accident	:	56°27'N 006° 33'W
Time and date	:	1146 UTC on 28 October 1999
Casualties	:	One fatality

General views of *Gradely* are shown in **(Figure 1)**.



Figure 1 - *Gradelly* anchored at Bull Hole



SECTION 1 - FACTUAL INFORMATION

1.1 WEATHER

The wind was south-west force 3 - 4, with moderate seas and moderate to good visibility.

1.2 CREW

Three crew were on board at the time of the accident:

Colin MacKellar, skipper, age 23. He originally trained as a mechanic, but had been fishing on *Gradely* for about 3 years.

George Campbell, deckhand, age 25. He had been working on *Gradely* for about 7 years during the period September to December, when crab and lobster fishing was good. He fished single-handedly for velvet crabs and salmon, from his own small boat at other times of the year. He also worked as a gamekeeper. He was a non-swimmer. He had planned to go on holiday, the week following the accident, to the Canary Islands. He was also planning to build a house.

William Noble, deckhand, age 39. He had been a fisherman for about 3 years and had worked on *Gradely* since June 1999. Before becoming a fisherman he had worked in a boatyard. He is referred to as the other deckhand in this report.

The crew were not certificated, nor had they received any basic safety training. *The Fishing Vessels (Safety Training) Regulations 1989*, require uncertificated fishermen born on or after 1 March 1954 to undertake training in basic survival at sea, basic fire fighting and prevention, and basic first-aid.

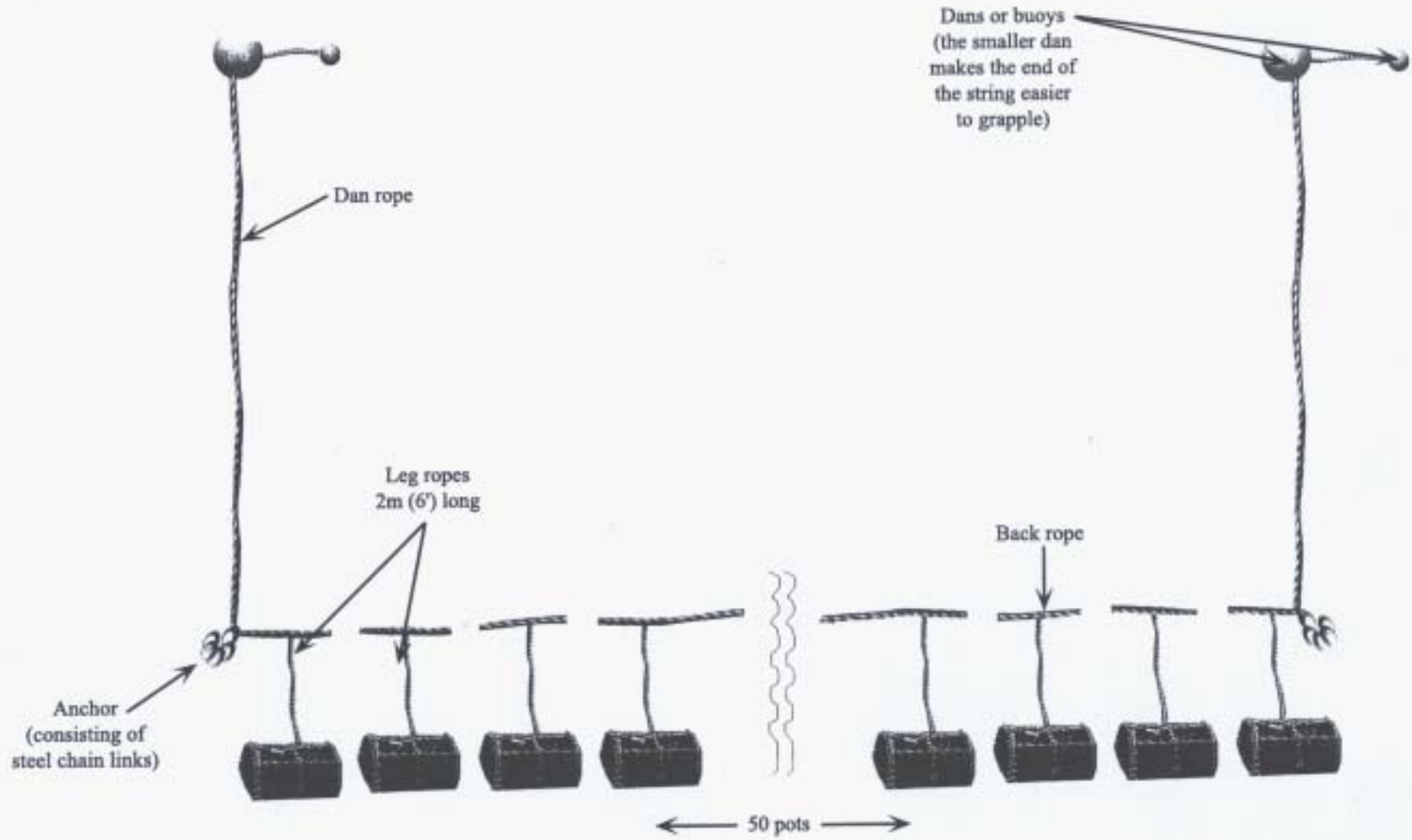
Peter Riley was the owner and skipper of *Gradely*. The four crew operated a rota system, with each member taking a day off in turn. At the time of the accident it was Mr Riley's day off; he often used his day ashore to do the paperwork associated with fishing. He had owned *Gradely* since new.

1.3 POTTING OPERATION

Six strings of pots were usually hauled and shot each day. There were 50 pots to each string (**Figure 2**). A maximum of one string was on board at any time during fishing, although sometimes two strings were carried when pots needed to be shifted to another area, but this was only carried out in fine weather. The pots were laid either east to west or west to east. The sea area being used was very popular with potters; there were about 6000 pots there. To prevent the ropes from getting tangled, they were laid in the same direction. During hauling and shooting, *Gradely* was steered by the auto-pilot.

A string of pots took about 6 minutes to deploy. There was 22m (72') of back rope between each pot. The vessel was motored at about 6 knots, so a pot was deployed about every 7 seconds.

Figure 2 - String of pots



The arrangement of equipment and crew on the deck during shooting was as shown in (Figure 3). The leg ropes/back rope were kept tight to the bulwark at the shooting position. It was important that the deckhand undertaking the shooting kept his left foot firmly planted on the deck, so that ropes could not get under his feet; he could shift his right foot to maintain balance if necessary.

1.4 NARRATIVE

Gradely was moored just north of the Isle of Iona, in a sheltered anchorage called Bull Hole. On 28 October 1999 the skipper and Mr Campbell used a dinghy to get from Fionnphort to the vessel; Mr Campbell wore a flotation suit (Figure 4) for this transfer, but when he got on board *Gradely* he took it off as he felt it was too hot to work in. The vessel was then taken back to Fionnphort to pick up the other deckhand and the bait. They were seen off by the owner. At about 0740 UTC *Gradely* headed out to sea. They reached the fishing area at about 0815 UTC.

The crew fished for crabs and lobsters near the Treshnish Isles which are west of the Island of Mull. Just before the accident Mr Campbell stood at the starboard gunwale shooting the pots, the other deckhand collected the pots from the stowage position at the aft end. The skipper was in the wheelhouse steering the vessel while keeping an eye on the working deck behind him. None of the crew wore a lifejacket. Mr Campbell wore oilskins with a hood over his head to protect himself from sea water spray.

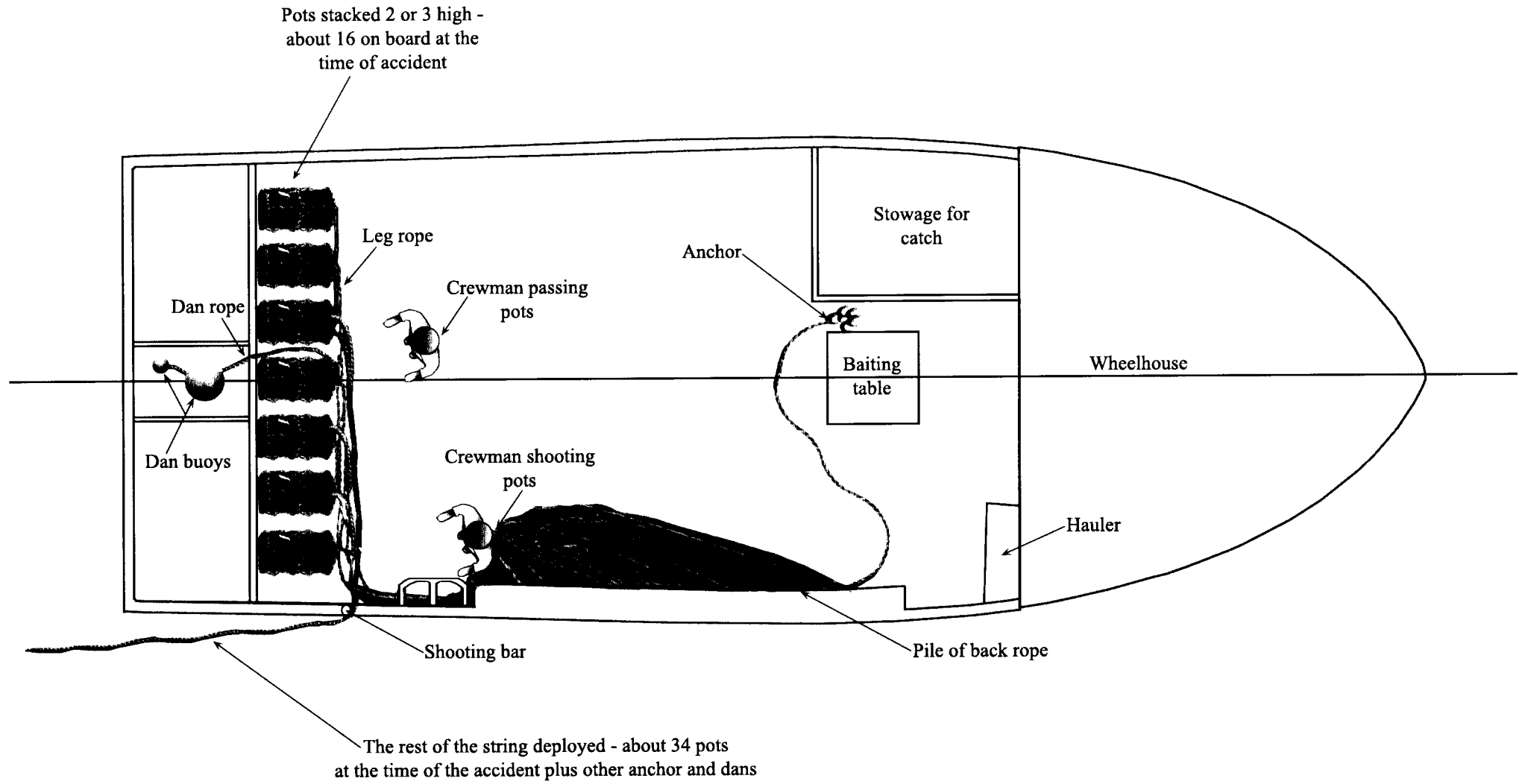
Just before 1200 UTC, they were shooting the last of the 6 strings of pots, which were being laid approximately east to west. The vessel was not rolling much in the south-westerly wind. When they were just over half-way through the string Mr Campbell's left foot became caught in a loop of the back rope, and he was dragged overboard.

Immediately before the accident, the other deckhand had faced aft to collect another pot, and heard a shout from Mr Campbell. When he turned back towards the shooting position he saw Mr Campbell being pulled over the side feet first; he then shouted to the skipper to stop the vessel. The skipper throttled back, took *Gradely* out of gear, and then selected reverse. When Mr Campbell went into the water he disappeared under the surface for a few seconds and then came up waving his hands. The other deckhand jammed the next pot of the string under the gunwale to stop him being dragged down by the pots already deployed.

The skipper grabbed the back rope and secured it over the hauler, with the intention of pulling Mr Campbell back. As he was about to do this he saw that Mr Campbell had been able to release the back rope from his foot by removing his boot.

When *Gradely* had stopped, Mr Campbell was about 30m (100') away. The back rope was then cut so that it would sink to the bottom with the pots, otherwise there was a danger that it would foul the propeller. With the back rope clear, the skipper manoeuvred *Gradely* towards the casualty. When this was achieved, the other deckhand leaned over the side to grab Mr Campbell, but could not reach him due to *Gradely*'s high freeboard. The skipper then threw a lifebuoy into the water, but by this time Mr Campbell had sunk below the surface.

Figure 3 - Shooting operation



The skipper called the coastguard on VHF radio channel 16, stating that there was a man overboard and giving the position of *Gradely*. The coastguard broadcast a “Pan-Pan” relay message. The remaining crew of *Gradely* then began a search, and were soon assisted by other fishing vessels in the vicinity. The search continued until dark and then *Gradely* returned to Fionnphort.

The body of Mr Campbell has not been found, despite extensive searches by coastguard staff and others.

1.5 INSPECTION

Gradely was inspected by the MAIB on 1 November 1999.

Some general views of the working deck are shown in (Figure 5).

Two fishermen, not related to the accident, were asked to stand in position as if they were shooting pots (Figure 6).

There were 16 pots on board at the time of the inspection.

1.6 LIFESAVING EQUIPMENT

Lifesaving equipment required

Under the *Fishing Vessel (Safety Provision) Rules 1975*, *Gradely* should have carried the following lifesaving equipment:

- Two lifebuoys, one of which should have attached to it a buoyant heaving line, and
- Six red star distress signals.

Additionally, under the *Fishing Vessel (Life-saving Appliances) Regulations 1988* she should have carried:

- Four lifejackets, of which three were required to be fitted with a lifejacket light.

or

Under a general exemption to the above rules dated 1 April 1998, the following lifesaving equipment should have been carried:

- One lifejacket with whistle, light, and retro-reflective tape; for each person on board.
- Two lifebuoys, one with 18m of buoyant line attached; or one lifebuoy with 18m of buoyant line attached, plus one buoyant rescue quoit and line.
- Three parachute flares, plus two hand-held flares, plus one smoke signal.

Figure 5 - General views of the working deck



Looking aft/port

Note: This photograph does not accurately reflect the arrangement of the deck when *Gradely* was fishing



Looking forward/port

Figure 6 - Deckhands in position for shooting pots



Looking aft/starboard

Lifesaving equipment actually carried

- Two lifebuoys.
- Three parachute flares, plus two hand-held flares, plus one smoke signal.
- Four self-inflating lifejackets, two buoyancy waistcoats, and one flotation suit.
- A liferaft was carried on board *Gradely*, and although MCA strongly recommend one be carried, it is not required by the regulations.

1.7 HEALTH AND SAFETY AT WORK

System of Work

The Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997, which came into force on 31 March 1998, require that a risk assessment is carried out for activities such as shooting pots. The *Seafish Fishing Vessel Safety Folder*, which was recently produced to assist fishing vessel owners in completing risk assessments, identifies the hazard, in relation to potting, of a crew member becoming tangled in the back rope when shooting, and being dragged overboard. Noted appropriate control measures include limiting the number of pots per string, sensible shooting speeds, rope barriers, and ensuring that all crew members are aware of the dangers.

Lifejackets

The Merchant Shipping and Fishing Vessels (Personal Protective Equipment) Regulations 1999, which came into force on 25 October 1999 (three days before the accident), require personal protective equipment to be used when risks cannot be avoided or reduced to an acceptable level by means of safe systems of work and without risk to health, or by other equally effective means. Specifically, they identify in *Merchant Shipping Notice MSN 1731 (M-F)* a requirement for a lifebuoy with sufficient line attached ready for immediate use, and either an MCA approved lifejacket or a lifejacket (conforming to an appropriate European Norm standard), to be provided and used during any work carried out from an overside position or in an exposed position where there is a reasonably foreseeable risk of falling or being washed overboard, or during any work carried out in or from a ship's boat. Under the regulations, the employer has an obligation to take all reasonably practicable steps to ensure that any personal protective equipment provided to workers is used as instructed.

SECTION 2 - ANALYSIS

2.1 ACCIDENT

When shooting pots on *Gradely* it was very important for the fisherman involved to keep his left foot firmly planted on the deck. Mr Campbell was well aware of this, but it was near the end of the day's fishing, and possibly he was tired. His attention might have lapsed briefly while he was engaged in this repetitive task, particularly as he was about to go on holiday and was planning the building of a house. It only needed a couple of seconds of inattention, for his foot to be caught in the back rope (**Figure 7**). Once this occurred, he was pulled overboard almost instantly. He did well to remove his left boot, which released the back rope. The skipper and the other deckhand acted quickly and correctly in cutting the back rope and manoeuvring the vessel towards him; it is tragic that they were just too late to save him.

2.2 VESSEL CONDITION AND SAFETY EQUIPMENT

Gradely was a seaworthy vessel, quite able to cope with the conditions in which it was operated. The safety equipment carried on board was adequate. The carriage of a liferaft is strongly recommended, although it is not a requirement on this size of fishing vessel; the owner is commended for having one on *Gradely*.

2.3 TRAINING

None of the crew had received basic safety training. Although a course had been arranged for the fishermen of Mull in April 1999, this was cancelled due to insufficient numbers.

Mr Campbell came very close to being rescued. Had he attended the basic survival at sea course, he may have been able to stay on the surface a few seconds longer, and a successful rescue may have been achieved.

2.4 SYSTEM OF WORK

The inherent danger with the current shooting arrangement on board *Gradely* (**Figure 3**), which is common on small potting vessels, is the close proximity of the leg ropes/back rope to the feet of the crewman undertaking the shooting of pots. This danger is eliminated by the toggle system (**Figure 8**).

The toggle system is now used by most large potting vessels. Some fishermen believe that it requires more deck space and therefore will be difficult to operate on small vessels. If this is the case, the simple remedy is to work less pots.

The key to this system is a toggle clip which connects into a loop to join together the two piece leg rope at a point quite close to the pot. By slipping the toggle clip out of the loop, the pot can be detached from the back rope enabling it to be stored anywhere and without worrying about sequence. On hauling, the pots are lifted on board as normal, but once on board, the toggle is disconnected and the loop, which it fits into, is slipped over a vertical steel

Figure 7

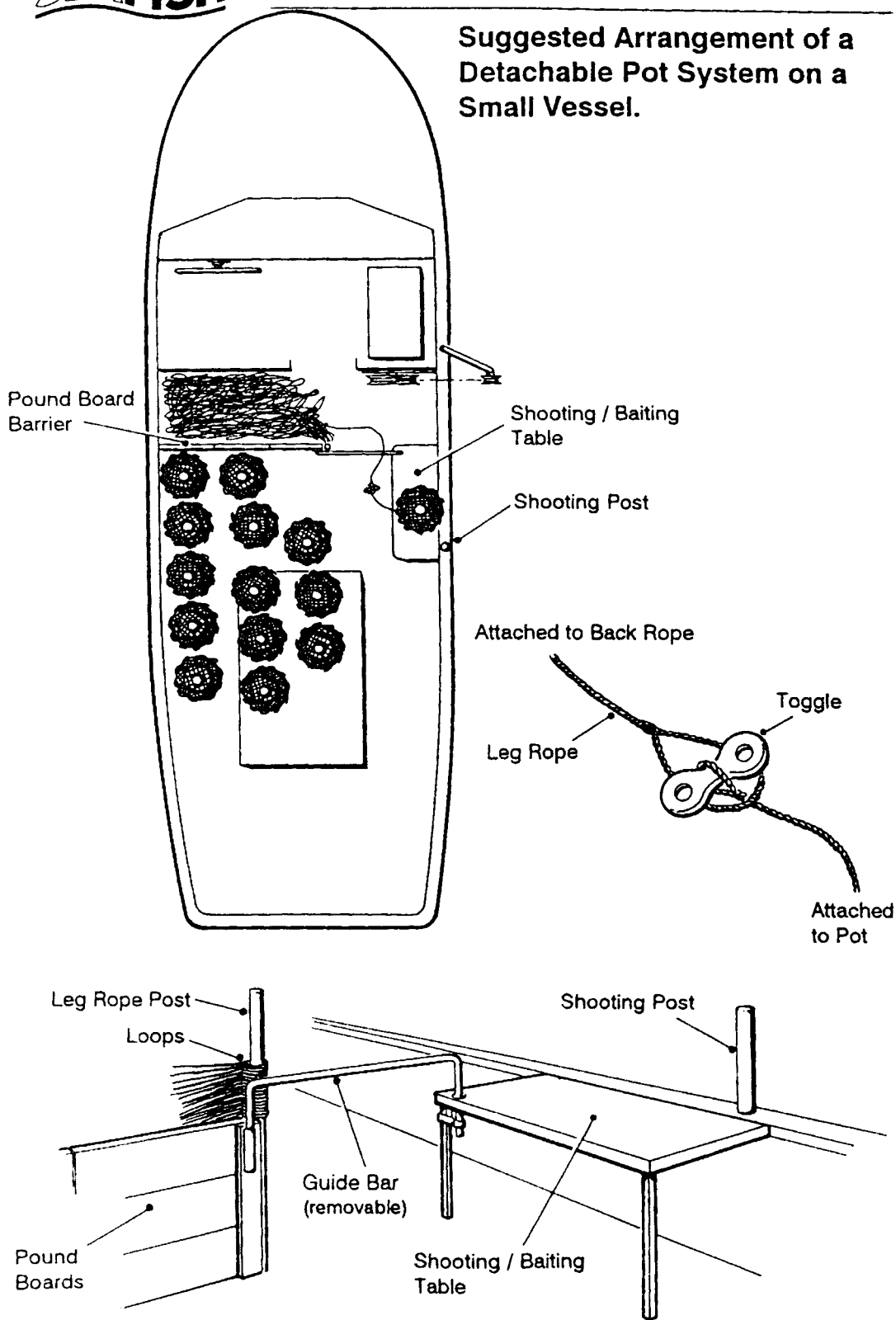


Pile of
back rope

Looking forward/starboard



Suggested Arrangement of a Detachable Pot System on a Small Vessel.



pole. The pot, now separate from the back rope is emptied, baited and stacked. The back rope, as normal, is allowed to pile up on deck, and the loop of each disconnected leg rope, is dropped over the pole in sequence. Thus at the end of the haul, the back rope is in a pile on the deck with each leg rope leading to the pole. The pots are stacked 'wherever' on the vessel, as there is no need to keep them in sequence.

During the shooting operation, the pot is placed on a shooting table and the first leg rope loop removed from the pole. The toggle is slipped into the loop, thus connecting the pot which is pulled into the sea when the back rope tightens. The next pot is placed in position and connected to the next leg rope from the pole. Thus the shoot proceeds with one man connecting the toggles and one man bringing the pots to the shooting table.

Aside from the ability to stack the pots out of sequence, the system gives more compact storage of the back rope with all the leg ropes leading to the pole. There is a division to separate the ropes from the deck area where the crew handle the pots.

It is considered that the toggle system would satisfy the requirements of *The Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997* in relation to the risk of a crew member's leg becoming tangled in the back rope when shooting.

2.5 LIFEJACKETS

Mr Campbell was a non-swimmer. If he had been wearing a lifejacket, it is almost certain that his life would have been saved.

A common feature of fishing vessel fatalities, is crew not wearing lifejackets. Some factors relevant to the wearing of lifejackets are as follows:

1. Working pots is hot work. Oilskins are essential for crew on the open deck, as protection against salt water spray. If a lifejacket is donned it must be worn on top of the oilskin. Even a compact self-inflating lifejacket, makes the oilskin close fitting around the neck. This makes the crewman hot.
2. The crew had non-inflating buoyancy waistcoats on board *Gradely*, which can be worn under oilskins. The buoyancy in these devices is a thick layer of insulation which makes the crew hot.
3. Some manufacturers are starting to produce lifejackets which are integral with oilskins. These are not widely available at present, so experience is needed in their use.
4. When pots are lifted, they are held against the chest. If a lifejacket is worn, pots sometimes snag on the fittings and fastenings attached to the lifejackets.
5. Potting is hard, dirty work; when lifejackets are worn they get soiled and sometimes damaged. Some fishermen believe that by not wearing lifejackets they are protecting their safety equipment. This is valid to some extent, but usually lifejackets are needed

instantly, so must be worn to be effective. There is often no time to collect lifejackets from their stowage positions in an emergency.

6. Lifejackets with integral buoyancy are too bulky to work in. Only self-inflating lifejackets are practical for wearing constantly. Some fishermen believe that self-inflating lifejackets are prone to being activated at the wrong time, when crew are being soaked in spray. This was a significant problem in the early designs of this type of lifejacket, but with the latest designs this unsatisfactory feature has been minimised. There are plenty of approved self-inflating lifejacket designs on the market.
7. Some fishermen believe that wearing a lifejacket does not fit the macho image of the industry. However, it is apparent that Mr Campbell did not have this attitude, because he wore a flotation suit during the trips to and from *Gradely*. This dinghy trip was probably the most dangerous part of the day's work, because the waters between Fionnphort and Bull Hole can be quite rough.
8. Although there are problems with lifejackets, some fishermen do wear them all the time when working.
9. Some owners of fishing vessels recognise the importance of lifejackets and insist that their crews wear them.

The Merchant Shipping and Fishing Vessels (Personal Protective Equipment) Regulations 1999 require that where there is a reasonably foreseeable risk of a crew member falling or being washed overboard, an appropriate lifejacket is to be provided by the employer and worn by the crew member concerned. It is considered reasonable to extend the applicable criteria to circumstances in which there is a reasonably foreseeable risk of the crew member being dragged overboard by the fishing gear in use.

SECTION 3 - CONCLUSIONS

3.1 FINDINGS

1. The skipper and the other deckhand acted quickly and correctly after the accident [2.1]
2. *Gradely* was a seaworthy vessel, and the safety equipment carried on board was adequate. *Gradely* was fitted with a liferaft even though this was not a requirement for a fishing vessel of her size. [2.2]
3. None of the crew had received basic safety training. Although a course had been arranged for the fishermen of Mull in April 1999, this was cancelled due to insufficient numbers. Mr Campbell came very close to being rescued. Had he attended the basic survival at sea course, he may have been able to stay on the surface a few seconds longer, and a successful rescue may have been achieved. [2.3]
4. The inherent danger with the current shooting arrangement on *Gradely*, is the proximity of the leg ropes/back rope to the feet of the crewman undertaking the shooting. This danger is eliminated by the toggle system. [2.4]
5. If Mr Campbell had been wearing a lifejacket, it is almost certain that his life would have been saved. [2.5]

3.2 CAUSES

Immediate cause:

Mr Campbell's left foot became caught in a loop of the back rope and he was dragged overboard. [2.1]

Contributory factors:

He was possibly tired. [2.1]

His attention might have lapsed briefly. [2.1]

He had not undertaken training in basic survival at sea. [2.3]

The back rope was in close proximity to his feet when shooting the pots. [2.4]

He was a non-swimmer. [2.5]

He was not wearing a lifejacket. [2.5]

SECTION 4 - RECOMMENDATIONS

The owner of *Gradely* is recommended to:

1. Ensure that basic safety training has been completed by all the crew on board his vessel(s). [3.1.3]
2. Adopt the toggle system, or an equally safe system of work, for shooting pots on board his vessel(s). [3.1.4]
3. Review the operating procedures on *Gradely*, and where there is a reasonably foreseeable risk of crew members falling or being washed or dragged overboard, take all reasonably practical steps to ensure that they wear appropriate lifejackets when working on deck. [3.1.5]

Marine Accident Investigation Branch
April 2000