MAIB
MARINE ACCIDENT INVESTIGATION BRANCH

ACCIDENT REPORT

VERY SERIOUS MARINE CASUALTY | REPORT NO 13/2018 | JULY 2018

Fatal man overboard from fishing vessel *Varuna* west of Camusterrach on the north-west coast of Scotland 20 November 2017

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SUMMARY

At about 1415 UTC[1] on 20 November 2017, the single-handed creel boat *Varuna* was found aground and unmanned on Eilean nan Naomh, a small island to the west of Camusterrach.

Varuna had left its mooring earlier in the day and had been seen working creel strings to the west of Applecross Bay. Radar data obtained from the nearby BUTEC[2] Range Control indicated that *Varuna* left its fishing grounds at 1332 and then headed back towards its mooring in Poll Creadha.

In the aftermath of the accident, an extensive sea, land and air search failed to locate the boat owner/skipper, who had been the only person on board. However, almost 3 weeks after the accident, his body was found ashore in Staffin Bay on the Isle of Skye.

It is likely that the owner/skipper, who did not routinely wear a lifejacket or other buoyancy aid, fell overboard during *Varuna*'s return passage to Poll Creadha.

Figure 1: Fishing vessel *Varuna* moored at Poll Creadha

[1] Universal Co-ordinated Time

[2] The British Underwater Test and Evaluation Centre (BUTEC) is a range used to evaluate submarine acoustics operated on behalf of the Ministry of Defence by Qinetiq.

As this report was being drafted, the Maritime and Coastguard Agency (MCA) was preparing legislation to implement the recently ratified International Labour Organisation Work in Fishing Convention (ILO188). The draft legislation included a provision designed to effectively make it compulsory for commercial fishermen to wear either a personal flotation device (PFD) or fall restraint harness when working on open decks where there is a risk of them falling overboard. Recent changes to the mandatory requirements for fishing vessels of less than 15m length overall have introduced the compulsory carriage (immediately for new vessels and from 23 October 2019 for existing vessels) of an emergency position indicating radio beacon (EPIRB) or, for vessels of less than 10m length overall, a personal locator beacon (PLB) for each crew member on board.

No recommendations are made in this report. However, the MAIB has formally responded to the consultation on the implementation of ILO 188 emphasising the need for the impending legislation to address the safety issues identified in this report.

FACTUAL INFORMATION

Narrative

At about 0900 UTC on 20 November 2017, Alasdair Macleod, the owner/skipper of *Varuna*, left home to prepare his boat for a day's fishing. The boat was moored near Aird-Dhubh pier in Poll Creadha **(Figure 1)**, and he accessed it by means of a small tender. *Varuna* departed the mooring and, at 1017, the boat's radar echo appeared on the BUTEC Range Control radar, which, shortly afterwards, was temporarily shut down for maintenance.

Alasdair's normal fishing grounds were 3 to 4 miles north-west of *Varuna*'s mooring. Entries in his notebook found on board following the accident indicated that during the morning he worked three strings of creels over a period of about 2½ hours.

At 1332, *Varuna*'s radar echo again appeared on the BUTEC Range Control radar, which had been reactivated following the earlier maintenance **(Figure 2)**. The radar echo tracked in a south-easterly direction until 1348, when it altered about 20º to the south before gradually returning to approximately its original track direction. At approximately 1400 the boat's track again altered about 20º to the south. Radar contact was lost at 1405, when *Varuna*'s final radar echo return indicated that the boat was very close to Eilean nan Naomh (Saint Island).

At about 1415, a Qinetiq helicopter transporting personnel from the BUTEC shore support base at the Kyle of Lochalsh to Range Control facilities on the island of Rona, passed close to Saint Island. One of the passengers noticed what appeared to be a fishing vessel aground on the island with its engine still running. Qinetiq staff at Range Control confirmed that they had not received any distress alerts, where upon the helicopter returned to Saint Island and confirmed that the fishing boat was aground with nobody visible on board. Qinetiq Range Control operators then reported the situation to CGOC[3] Stornoway, who noted the report at 1429, and requested the Qinetiq helicopter to commence a local search while other search and rescue assets were activated and deployed to the area.

At 1442, CGOC Stornoway tasked the RNLI's[4] inshore lifeboat from the Kyle of Lochalsh and coastguard rescue helicopter R948 from Stornoway. Both the lifeboat and helicopter arrived on scene by 1515, at which time the Qinetiq helicopter was released from search duties. At 1605, the RNLI's Portree all-weather lifeboat arrived on scene and assumed co-ordination of the sea search, which by then included other local fishing vessels. Concurrent with the sea search, police, kayakers and a coastguard rescue team carried out coastal searches.

Formal searches were suspended after 3 days. Alasdair's body was found ashore at Staffin Bay on the Isle of Skye almost 3 weeks later.

[3] Coastguard Operations Centre

[4] Royal National Lifeboat Institution

Reproduced from Admiralty Chart 2480 by permission of HMSO and the UK Hydrographic Office

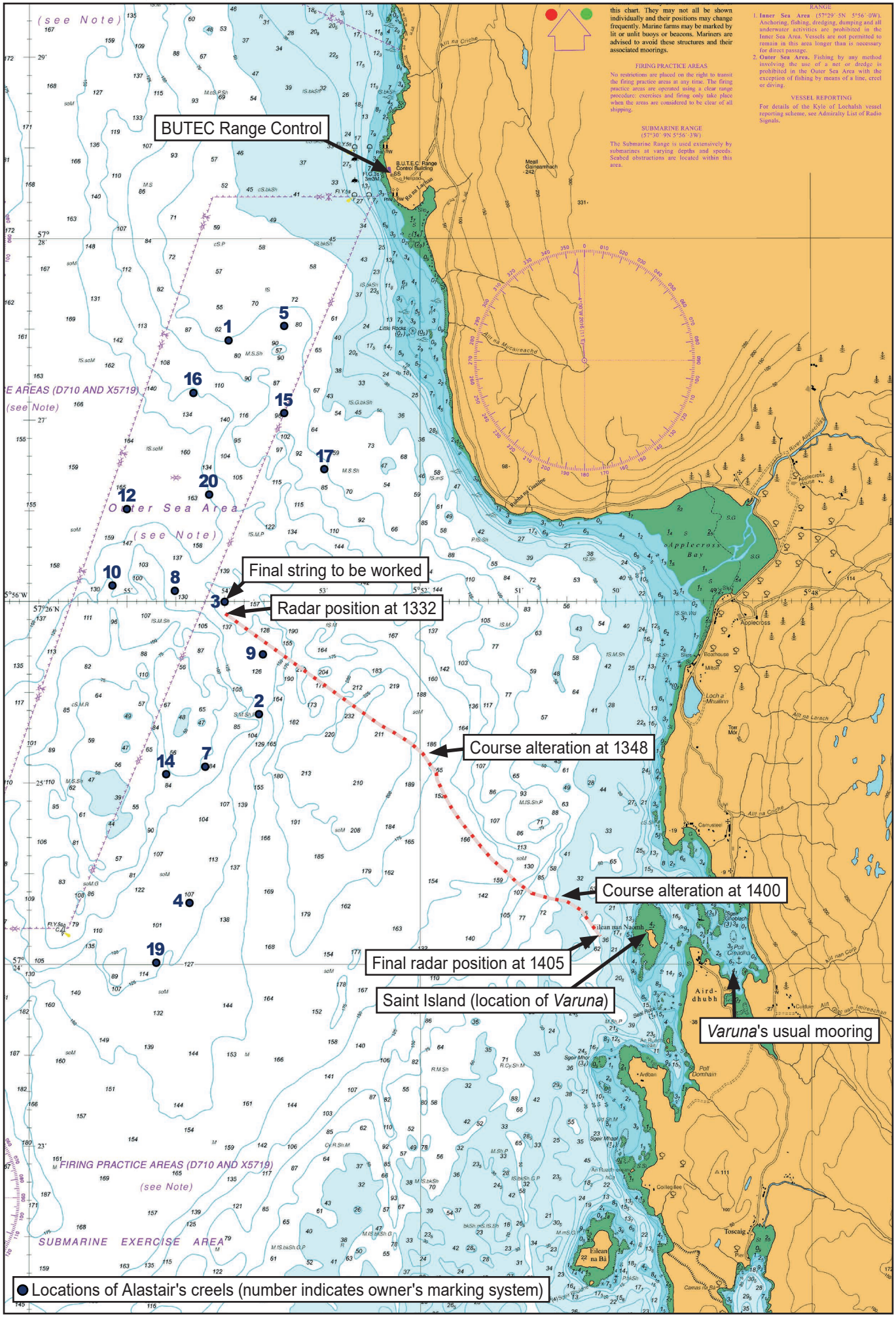

Figure 2: Chart showing *Varuna*'s track and creel locations

Varuna

Alasdair had owned *Varuna*, a Kingfisher 26, since it was built by RS Gillies, Boatbuilders of Skye, in 2005.

The boat was last surveyed by the MCA on 21 September 2012 against the requirements of The Fishing Vessels (Code of Practice for the Safety of Small Fishing Vessels) Regulations 2001. Although deficiencies identified during the survey were recorded as having been rectified, a Small Fishing Vessel certificate had not been issued, pending Alasdair's registration of his VHF[5] radio, which the MCA pursued until 2014. Alasdair had not completed the annual self-certification declarations required in accordance with those Regulations.

Varuna was configured to operate as a single-handed creel boat with a hydraulic hauler and remote engine and steering controls. It had a cut-out 'shooting gate' in the transom to facilitate shooting the creels **(Figure 3)**. There was a slot-in door secured to the port bulwark, which could be fitted in way of the shooting gate on completion of shooting. The door was found secured to the port bulwark following the accident and there was no evidence to indicate that it had ever been used.

Varuna's navigational aids included a Simrad CP31 chart plotter, a Simrad AP35 autopilot and a Suzuki color [sic] sounder ES-2035 fish finder **(Figure 4)**. The boat was also fitted with a Vespermarine XB8000 AIS[6] transponder which, although switched on, was not functioning during the period leading up to and following the accident.

Inspection of the boat following the accident found significant amounts of debris and detritus around the working areas and evidence that some of the remote controls were defective. Items of lifesaving equipment were found to be overdue for replacement or service. No PFDs were sighted but two inherently buoyant 'statutory' lifejackets were found in the wheelhouse[7].

Figure 3: *Varuna*'s shooting gate

[5] Very High Frequency

[6] Automatic Identification System

[7] MSN 1871 (F) defines lifejackets as items required to be carried by statute that are designed, tested and maintained to a standard appropriate to the vessel type and area of operation. It defines PFDs as lifejackets, buoyancy aids or wearable buoyancy devices that provide a person with buoyancy in the water, and that are intended to be constantly worn when on deck in case of falling overboard.

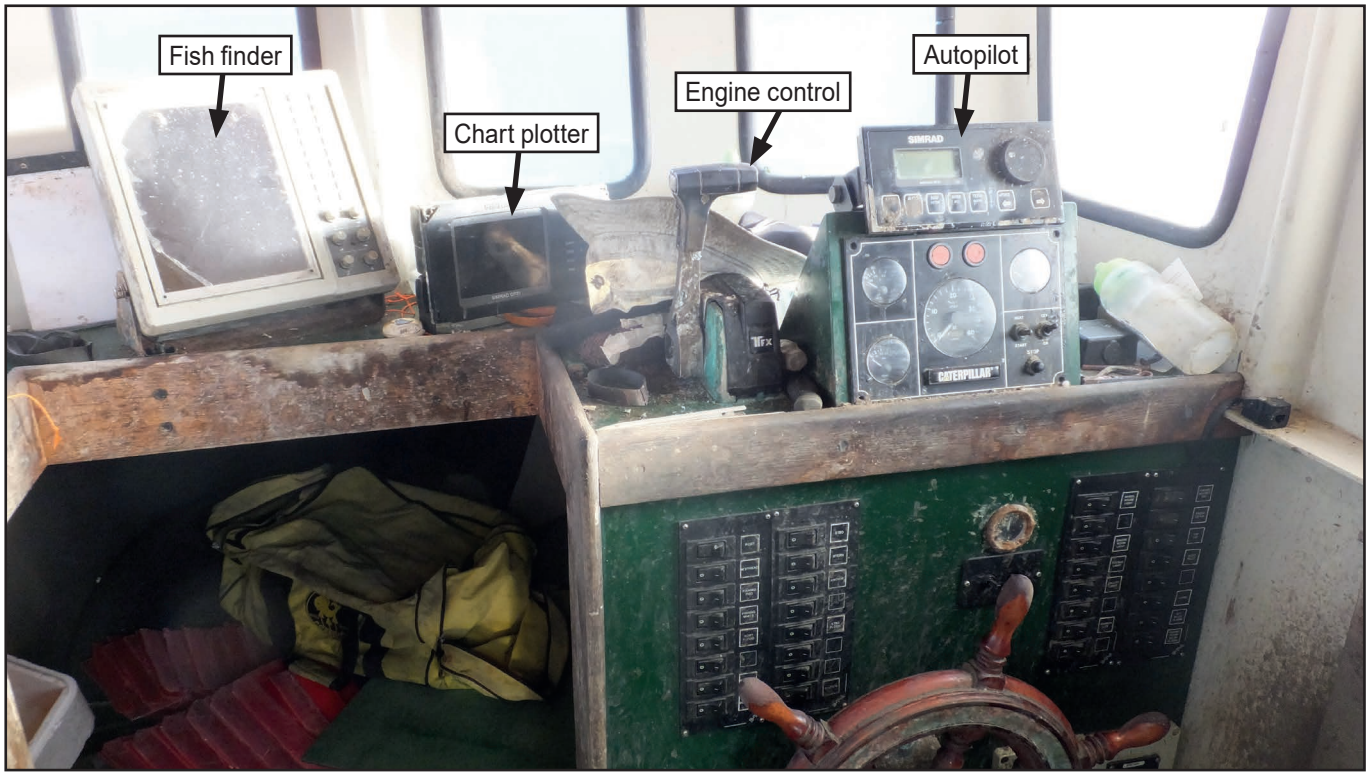

Figure 4: *Varuna*'s wheelhouse

The throttle control was found to have been set at about two-thirds ahead, which would have resulted in a boat speed of 4 to 5 knots through the water. There were no creels on board. However, there was one box containing recently caught prawns, a bucket of tailed squat lobsters and some unused bait. The plotter did not contain any information relating to Alasdair's fishing pattern, but a handwritten notebook found in the wheelhouse had been used to record the positions of his strings of creels.

Owner/skipper

Alasdair Macleod was a 57-year old, third generation fisherman. He had graduated from Edinburgh University in 1982 with an honours degree in history. To supplement his income from fishing, Alasdair worked as 'front of house' in the Applecross Inn. However, it was always his desire to follow his family tradition of fishing and he was reported as enjoying the hours he spent out on *Varuna*.

Alasdair also played an important role in the local community, as director of the Pier Users Association, chairman of the Community Council, and director of the Apple Juice (Applecross) Community Benefit Society, through which the community built and owned a hydro-electric scheme. He was also involved in fishing policy, and had provided evidence to both a Holyrood committee and Marine Scotland.

Alasdair held the four mandatory basic safety training qualifications to operate *Varuna.* These consisted of first-aid (02/11/89), fire-fighting (03/11/89), sea survival (20/01/91) and safety awareness (09/03/03). He did not carry a PFD or PLB on board and was not known to wear a PFD either when accessing the boat via his tender or during fishing operations.

Fishing pattern

Alasdair generally fished for prawns and squat lobsters in the waters of the Inner Sound. He owned approximately 1,000 prawn creels, which were arranged in strings with 60 creels per string. He usually had up to 16 strings in use, which were shot in a north/south configuration in depths of up to 220 metres.

While returning from his fishing grounds to the boat's mooring in Poll Creadha, it was Alasdair's normal practice to engage the autopilot, allowing him to prepare his catch and then wash down the working deck. *Varuna*'s catch of prawns and squat lobsters was sold locally.

Applicable regulation

In 2012 *Varuna* was surveyed against the requirements of The Fishing Vessels (Code of Practice for the Safety of Small Fishing Vessels) Regulations 2001, which required the boat to carry a lifejacket for each person on board, and recommended that it carried an EPIRB. There was no requirement for the vessel to carry PLBs.

On 23 October 2017, the Code requirements were superseded by The Code of Practice for the Safety of Small Fishing Vessels of less than 15m Length, MSN[8] 1871(F). The new Code introduced a number of new requirements that included:

- *'EPIRBs and/or Personal Locator Beacons with a built in GPS receiver capable of transmitting the position to a satellite are required as follows:*
  - *An EPIRB for all vessels of 10m (L) and over (vessels that are operated single handed may replace the EPIRB with a Personal Locator Beacon);*
  - *One EPIRB or Personal Locator Beacons for all crew members on vessels of less than 10m (L);*
- *The requirement for EPIRBs and PLBs comes into force on 1 October 2019 for existing vessels. New vessels must comply immediately.'*

In respect of decked vessels of less than 10m length, Annex 1.4 to the Code stated:

> *'…It is recommended that if you carry the Satellite EPIRB, you also carry Personal Locator Beacons for each member of the crew, and if you carry Personal Locator Beacons, you also carry a Satellite EPIRB…'*

MSN 1871(F) also included the following:

> *'4.4 Due to the numbers of fishermen that have died after falling overboard, the Code recommends that all crew, whilst working on the open deck of a vessel that is underway, wear a Personal Flotation Device or a safety harness. This is not a mandatory requirement. Attention is also drawn to The Merchant Shipping and Fishing Vessels (Personal Protective Equipment) Regulations 1999 which set out the general rule that Personal Protective Equipment must be used when risks cannot be avoided or reduced to an acceptable level. MSN 1870 (The Merchant Shipping and Fishing Vessels (Personal Protective Equipment Regulations 1999) says that for any work where there is reasonable foreseeable risk of going overboard then a lifejacket or Personal Flotation Device should be worn.'*

The MCA considered that The Merchant Shipping and Fishing Vessels (Personal Protective Equipment) Regulations 1999 were not applicable to self-employed fishermen.

Future legislation

At the time of writing this report the MCA was undertaking a public consultation in respect of measures to implement the International Labour Organisation Work in Fishing Convention, ILO 188[9]. The measures included a proposed change to The Code of Practice for the Safety of Small Fishing Vessels of less than 15m Length as follows:

> *'3.17 ...MCA considers that, unless measures are in place which eliminate the risk of fishermen falling overboard, all fishermen must be provided with, and must wear, PFDs or safety harnesses. The measures eliminating the risk of Man Overboard must be documented in a written risk assessment…'*

[8] Merchant Shipping Notice

[9] ILO 188 came into force internationally on 16 November 2017. The UK is expected to ratify and implement the Convention by May 2018.

The provision would apply to all commercial fishermen regardless of their employment status.

The measures under consultation also included a proposed Marine Guidance Note, which included in its summary:

> *'Unless it can be demonstrated that the risk of falling overboard has been eliminated, failure to ensure the provision and wearing of Personal Flotation Devices or fall restraint harnesses by all fishermen working on open decks will be considered by the MCA to be a breach of health and safety legislation.'*

The consultation documentation was not specific on whether or not the MCA intended to apply the above proposed measures to single-handed owner/skippers.

Formal guidance

The MCA's Fishermen's Safety Guide provides guidance on safe working practices and emergency procedures for fishermen that includes the following:

> ***Single Handed Operations***
>
> *Dangerous by nature, clearly there is nobody to raise the alarm when things go wrong.*
>
> *The single hander should consider the risks. A risk assessment here is essential because once all the risks are identified, solutions can be applied.*
>
> *Carry out a risk assessment! Think about the following;*
>
> - *What can go wrong?*
> - *Have you told someone where you are intending on going and when you expect to be back?*
> - *Are you wearing your Personal Floatation Device (PFD) whilst on deck…will you float for long enough to be rescued?*
> - *Do you wear a PLB with GPS Satellite Capability?*
> - *If you have gone over the side, can you get back onboard? (Ladders or rope strops around the boat to aid boarding if you fall into the water)?*
> - *Is there anyway of stopping the vessel if you go over?*
> - *Can you stop machinery remotely? Are the emergency stops accessible from your main place of work?*
> - *Can you free yourself from gear? (Rescue knife on belt?)*
> - *Have you removed as much of the risk as possible before you leave port? Non slip decks. No bights of rope. Bulwark height. VHF Radio checked etc.*
> - *Are you able to keep a good lookout?*
>
> *These are all ideas; every type of vessel and operation is different so consider each case as different.*

MGN[10] 570(F) – Fishing Vessels: Emergency Drills and MGN 571(F) – Fishing Vessels: Prevention of Man Overboard both reiterate the recommended practice of wearing a PFD and a PLB, particularly when working single-handedly.

[10] Marine Guidance Note

Pertinent safety campaigns

In 2012, the Fishing Industry Safety Group (FISG)[11] coordinated a UK wide initiative to use European Fisheries Fund grants to provide every commercial fisherman with a free, MSN 1870 (M+F) compliant PFD. The scheme, which required fishermen to apply for a free PFD, was publicised through industry media and at fishing shows, and promoted by the fishing associations and training providers. In Scotland, these PFDs were issued by the Scottish Fishermen's Federation. Neither Alasdair nor other fishermen operating from the Applecross area had applied for PFDs under the scheme.

An ongoing campaign led by the RNLI entitled 'Useless Unless Worn', aimed at and featuring commercial fishermen, highlights the need to wear a PFD whenever working on deck.

Following the recent loss of the fishing vessel *Solstice,* resulting in the death of a crew member, the bereaved families have been active in a 'wear them for us' campaign, and Plymouth City Council has launched an initiative to provide local fishermen with PFDs and PLBs.

Previous accidents

The MAIB database of marine accidents between 2000 and 2015 records 139 fatal drowning accidents. Of these, 17 casualties were wearing a PFD and 93 were not. In the remaining 29 cases, it was unknown whether or not a PFD was worn.

Harvester – 28 April 2016

The potter *Harvester* (M999) grounded on rocks in Abereiddy Bay, North Pembrokeshire, and sank a short time later. There was no indication of any crew on board at the time of the grounding. A large-scale search and rescue operation commenced and the body of a crew member was recovered from the water 3 miles from where *Harvester* had foundered. He was wearing neither a lifejacket nor other buoyancy aid. The second crew member was not found despite an extensive search.

The MAIB report (No 22/2016[12]) concluded that since neither crew member was wearing a PFD their chances of survival were significantly reduced.

The report also noted that a personal locator beacon is a very useful additional means of raising the alarm particularly, as in that case, when no one is left on board and the only other means of raising the alarm remains on the vessel.

Harvester's AIS unit was switched off at the time of the accident. An historical track of the vessel's movements would have been particularly valuable to those involved in the initial search and rescue operation.

Ronan Orla – 30 March 2014

The owner/skipper of the 9.98m scallop dredger *Ronan Orla*, who was operating the vessel single-handedly, was fatally injured when he became entangled on the starboard warping drum of the vessel's winch.

The MAIB report (No 12/2015[13]) concluded that the vessel and its equipment had not been adequately maintained and that it was unsafe to operate the vessel single-handedly.

[11] FISG comprises representatives from the fishing industry, including the Maritime and Coastguard Agency (MCA), national fish federations (England, Scotland, Wales and Northern Ireland) and other stakeholders to discuss the factors affecting fishing safety and identifying ways to reduce the number of death, injuries and vessel losses.

[12] https://www.gov.uk/maib-reports/man-overboard-from-potter-harvester-resulting-in-vessel-sinking-with-loss-of-2-lives

[13] https://www.gov.uk/maib-reports/accident-to-skipper-of-scallop-dredger-ronan-orla-with-loss-of-1-life

The MCA was recommended to require owners of under 24m fishing vessels to submit copies of their annual self-certification declarations to the regulator. The MCA rejected the recommendation:

> *'…on the grounds that the focus of the 10 year Fishing Vessel Strategy is to encourage fishermen to take on more responsibility for their safety. By requiring them to send in their annual self-certification forms to the MCA, this allows them to abdicate their responsibility for safety, transferring it to the MCA and runs counter to the Strategy.'*

Discovery – 9 October 2010 and *Breadwinner* – 20 January 2011

In an introduction to this combined report, the Chief Inspector of Marine Accidents noted:

> *'As in November 2009, a series of serious accidents during the winter months of 2010/11 has brought into sharp focus the risks involved in single-handed fishing operations. These accidents, five in total, resulted in three fatalities, one near fatality and the loss of a vessel following a collision. All these accidents were entirely avoidable, the common themes being poorly considered working practices and inadequate equipment design.'*

Both of these accidents resulted in the death of the skipper, who was operating single-handedly. Neither of them was wearing a PFD or PLB.

The MAIB report (No 22/2011[14]) recommended[15] that the MCA extended the guidance published in the MCA's Fishermen's Safety Guide to cover the additional safety considerations needed for single-handed operations. This was accepted and the guidance appeared in the 2016 revised version of the Guide.

MAIB Analysis of Fishing Vessel Safety 1992 to 2006

An MAIB Fishing Vessel Safety Study published in 2008 recommended the MCA to develop a coherent resourced plan for reducing the unacceptably high fatality rate in the fishing industry[16]. The recommendation remains open.

[14] https://www.gov.uk/maib-reports/persons-overboard-from-single-handed-creels-fishing-vessels-discovery-off-fraserburgh-and-breadwinner-off-bressay-scotland-with-loss-of-2-lives

[15] MAIB recommendation 2011/138

[16] MAIB recommendation 2008/174 (https://www.gov.uk/government/publications/fishing-vessel-safety-study)

ANALYSIS

The accident

The precise events surrounding Alasdair Macleod's disappearance are unknown as there were no witnesses and no direct evidence to account for his disappearance.

Varuna's track obtained from the BUTEC Range Control radar indicates that Alasdair had completed his fishing and was returning *Varuna* to its mooring. This is supported by the engine throttle position when found after the accident, which was commensurate with the boat's usual passage speed of 4 to 5 knots. The track direction change at 1348 suggests that Alasdair was on board *Varuna* at this point and manually altered course. However, his reason for doing so is unknown.

Following the alteration, the boat resumed its original track towards Saint Island, probably under the control of the autopilot, before again altering course at about 1400.

The BUTEC radar contact of *Varuna* was lost at 1405 so the boat's track after this time is unknown until it was observed aground at 1415. However, given the alterations to *Varuna*'s course it is probable that Alasdair fell overboard shortly before the boat ran aground.

The analysis aims to determine what caused Alasdair to fall overboard and why he did not survive despite the comprehensive search and rescue effort that followed.

Man overboard prevention

As *Varuna* appears to have been returning to its mooring, it is likely that Alasdair had been preparing the catch and washing down the working deck in accordance with his normal practice. As *Varuna* was on passage the open shooting gate in the transom presented an unnecessary hazard. The slot-in door had not been fitted following shooting and, with no means of fall prevention in use, there was an increased risk of Alasdair falling overboard through the shooting gate, and it is possible that he did so.

While legislation requires fishing vessel owners to conduct a risk assessment of their vessel's operation, at the time of this accident the MCA did not require owners of small fishing vessels with less than five crew to produce a documented risk assessment. A written risk assessment is no guarantee of a safer operation, but its production does require a formal consideration of risks and the identification of risk control measures. Had Alasdair been required to produce a written risk assessment, identifying the need to close the shooting gate when not in use and to wear a PFD while working on deck, it might have provided a stimulus for him to have adopted safer working practices. It is therefore hoped that the ratification of ILO 188 provides an opportunity to extend the requirement to document a risk assessment to all commercial fishing vessels.

Use of Personal Flotation Devices

Alasdair was not wearing a PFD. On entering sea water at a temperature of 9°C he would have suffered the extremely debilitating effects of cold shock. If he had survived the cold shock, he would then have been subject to the rapid onset of cold incapacitation that would have impaired his ability to swim or tread water. Drowning would have been inevitable once he lost the ability to keep his head above water. While individual survival times in cold water vary, had Alasdair been wearing a PFD, and given the speed with which a search was initiated, his chances of survival would have been significantly increased.

Historically, the FISG could not agree to regulation making the wearing of PFDs on the decks of fishing vessels mandatory, and instead has promoted education backed by the provision of free, fit-for-purpose, PFDs. However, while over 80% of commercial fishermen have received a free PFD, evidence both from accident investigations and observation shows that this has done little to change the majority of fishermen's behaviour.

Where there is a foreseeable risk of an employed fisherman falling or being washed overboard, MSN 1870 (M+F) requires that an MCA approved lifejacket or PFD is provided for use and is worn. However, the MCA has been reluctant to force the fishing industry to comply with Health and Safety legislation following a court ruling[17] that self-employed (share) fishermen were engaged under a 'contract for services', and therefore were not 'workers' as defined by the regulations.

ILO 188 applies to all fishermen, regardless of employment status, and its expected ratification in the UK provides the MCA with an opportunity to make explicit its expectation that, unless other effective protection measures are in place, fishermen should wear PFDs when working on exposed decks. The draft legislation under consultation is therefore welcome, but it will need to be robustly applied if it is to succeed where education campaigns and the handing out of free PFDs have so far had limited success.

Alerting

Alasdair was not carrying a PLB, which severely limited his ability to raise the alarm after entering the water. The MAIB's *Harvester* report identified that a PLB is a very useful additional means of raising the alarm, particularly when no one is left on board and the only other means of raising the alarm remains on the vessel.

At the time of the accident, *Varuna* was not required to carry a PLB. However, recent changes to legislation will require existing vessels to carry PLBs with a GPS receiver for each crew member from 23 October 2019, unless the vessel is equipped with an EPIRB. However, even when an EPIRB is carried, the changed legislation recommends the carriage of a PLB for each crew member.

Varuna carried an AIS transponder which, although recommended, was additional to mandatory requirements. The transponder was switched on but was not functioning during the period leading up to and following the accident. As highlighted in the MAIB's *Harvester* report, an historical track of the boat's movements would have been particularly valuable to those involved in the initial search and rescue operation by enabling them to target their search activities most effectively.

Single-handed fishing – perception of risk

Despite his 40 years of fishing experience, it is apparent that Alasdair perceived a low level of risk in operating *Varuna* single-handedly. He did not wear a PFD or carry a PLB when travelling to and from *Varuna*'s mooring by tender, while on transit to the fishing grounds, or while engaged in fishing. Neither did he use the slot-in door to close the shooting gate when it was not in use. Once in the water, he had no means by which to raise the alarm. A number of simple, relatively inexpensive and easy to adopt safety measures would likely have either prevented this accident or at least have ensured it did not have a tragic outcome.

Single-handed fishing is particularly hazardous as there is no one else at hand to assist in the event of an accident, and the lone fisherman has to rely entirely on his / her own resources to resolve the situation. In such circumstances, even a simple trip or slip can result in tragic consequences. The MAIB has investigated many such accidents, and its recommendations made in the *Discovery* and *Breadwinner* report were effective in introducing formal safety guidance for single-handed operators.

Notwithstanding the publication of improved safety guidance, the frequency of serious and fatal accidents involving single-handed fishermen shows no sign of reducing. The deaths of single-handed fishermen can affect many lives and, in some instances, whole communities. There is, therefore, a continuing need for effective educational programmes targeted at those contemplating single-handed fishing that prompt them to adopt safe and professional behaviours while at work.

[17] Todd-v-Adams [2002] EWCA Civ 509

Industry oversight

It is not known to what extent Alasdair had kept abreast of changes to fishing legislation and recommended best practice since he had received safety awareness training in 2003. However, he was continuing to fish commercially in a vessel that did not have a valid Small Fishing Vessel certificate because its VHF radio was unregistered, he had not completed any of the mandatory annual self-certification inspections and, in common with the other commercial fishermen in Applecross, he had not applied for a free PFD.

The MCA had surveyed *Varuna* on 21 September 2012, and until 2014 had pursued Alasdair for evidence that he had registered his VHF radio. Thereafter, the Agency had ceased to follow up on the lack of registration. Had a Small Fishing Vessel certificate been issued in 2012, it would have expired before the accident and *Varuna* would have been subject to a renewal survey. However, as the original certificate had not been issued this date was irrelevant. As Alasdair sold his catch locally, his operation was not subject to any other routine checks and controls, and FISG acknowledged that while its PFD campaign was widely publicised, no attempt was made to target individual owner/skippers.

The MAIB has previously made recommendations to the MCA regarding its processes for following up on surveys and inspections, the closing out of deficiencies identified, and the need for owners to submit their annual self-certifications to the Agency. While it is the vessel owner's responsibility to ensure his / her vessel and its operation is safe and complies with legislation, the regulator is responsible for monitoring levels of compliance. Had the MCA placed a greater priority on following up the registration of *Varuna*'s VHF radio a Small Fishing Vessel certificate would likely have been issued. Even then, there would have been a 5-year period while the certificate was valid during which there would have been no active regulatory oversight of *Varuna*'s operation. The MCA rejected the MAIB's recommendation that owners submit their annual self-certification to the Agency on the grounds that it ran counter to its strategy of encouraging owners to take more responsibility for their safety. Nonetheless, the MCA needs to adopt measures to ensure that its oversight of commercial fishing is effective, and that fishing vessel owners in remote communities receive updates on changes to legislation and safety guidance in a timely manner.

CONCLUSIONS

- The precise events surrounding the disappearance of Alasdair remain unknown as there were no witnesses and no direct evidence to account for his disappearance. However, it is probable that Alasdair fell overboard shortly before *Varuna* ran aground.

- The slot-in transom door had not been fitted following shooting and, with no means of fall prevention in use, there was an increased risk of Alasdair falling overboard through the shooting gate in the transom, and it is possible that he did so.

- Alasdair was not wearing a PFD and was not carrying a PLB so his chances of survival and being rescued after entering the water were significantly reduced.

- *Varuna*'s AIS transponder was switched on but was not functioning. It would not have provided the alert required to initiate the search and rescue effort, but access to an AIS track can help those involved in the initial search and rescue operation to target their search activity most effectively.

- Had Alasdair been required to produce a written risk assessment, identifying the need to close the shooting gate when not in use and to wear a PFD while working on deck, this might have provided a stimulus for him to have adopted safer working practices. It is therefore hoped that the ratification of ILO 188 provides an opportunity to extend the requirement to document a risk assessment to all commercial fishing vessels.

- ILO 188 applies to all fishermen, regardless of employment status, and its expected ratification in the UK provides the MCA with an opportunity to make explicit its expectation that, unless other effective protection measures are in place, fishermen should wear PFDs when working on exposed decks. The draft legislation under consultation is therefore welcome, but it will need to be robustly applied if it is to succeed where education campaigns and the handing out of free PFDs have so far failed.

- There is a continuing need for effective educational programmes targeted at those contemplating single-handed fishing that prompt them to adopt safe and professional behaviours while at work.

- The MCA needs to adopt measures to ensure that its oversight of commercial fishing is effective, and that fishing vessel owners in remote communities receive updates on changes to legislation and safety guidance in a timely manner.

ACTION TAKEN

MAIB actions

The MAIB has:

- Issued a Safety Flyer to the Fishing Industry.
- Formally responded to the consultation on ILO 188 legislation emphasising the need for the impending legislation to address the safety issues identified in this report.

Recommendations

In view of recent and proposed changes to legislation, no recommendations are made in this report.

SHIP PARTICULARS	
Vessel's name	*Varuna*
Flag	United Kingdom
Classification society	Not applicable
IMO number/fishing numbers	BRD 684
Type	Fishing vessel (creel boat)
Registered owner	Privately owned
Manager(s)	Privately managed
Year of build	2005
Construction	Glass reinforced plastic (GRP)
Length overall	8.30m
Registered length	7.74m
Registered tonnage	5.07
Minimum safe manning	One
Authorised cargo	Fish
VOYAGE PARTICULARS	
Port of departure	Poll Creadha
Port of arrival	Poll Creadha (intended)
Type of voyage	Coastal
Cargo information	Fish
Manning	One
MARINE CASUALTY INFORMATION	
Date and time	20 November 2017, around 1400
Type of marine casualty or incident	Very Serious Marine Casualty
Location of incident	West of Camusterrach on the north-west coast of Scotland
Place on board	Over side
Injuries/fatalities	One fatality
Damage/environmental impact	None
Ship operation	On passage
Voyage segment	Transit
External & internal environment	Calm, good visibility, air temperature 5ºC, sea temperature 9ºC
Persons on board	One