

Shore-based or live-aboard crewing?

A response to “Crewing on CalMac Vessels” by CalMac Ferries Ltd



11/10/22

In early September a discussion paper laying out CalMac Ferries’ approach to crewing models (live- aboard versus shore-based) was publicly distributed. The paper appears to conclude that the current crewing regimes are optimal and should not be changed. We believe the issue is more complex than that, with competing pros and cons.

	Shore Based Crewing	Live-aboard Crewing
Local economy	Greater benefit to the local economy and community, since crews and their families live and work locally. 89% of minor vessel crew members (all shore-based) live within 1 hour of the vessel*. (*FOI, 2021)	Crew recruited from across the UK and even internationally. Of the 61 MV Isle of Mull crew members, 14 live within 1 hour of Oban; 41 live more than 1 hour of Oban but within Scotland; 5 live outside Scotland in another part of the UK, and 1 lives outside the UK*. (*FOI, 2021)
Availability of accommodation	Accommodation can be hard to find in island and rural locations, making recruitment from outside the local area sometimes difficult.	Accommodation guaranteed.
Availability of crew	<p>We have no evidence that there is a shortage of minor vessel crew members on established routes, but it is likely that the recruitment pool will be more restricted. As a job however, full time marine roles that do not require living away from home are attractive, particularly to crew with children.</p> <p>In the CalMac paper, specific reference was made to the Loch Frisa and the difficulty in recruiting locally for her new crew. This is not a fair example, because a) recruitment was compressed into a five month period. For any new vessel seeking shore-based crew the lead-in time would be much longer – at least two years, in parallel with the vessel build. b) The number of crew being sought was very high at around 40.</p>	Crew residence is not limited to the local area and therefore the recruitment pool is larger.
Crewing costs	<p>All crew positions are directly related to ship operations – ie no ‘auxilliaris’ such as Mess Cooks / Officer Stewards. Crew travel costs are low to nil if permanently living locally. If providing purpose-built shore-based accommodation for crew from outwith the area, this would be on a self-catering basis and management of the accommodation could be outsourced.</p>	<p>Additional crew members are required to care for the live-aboard crew, eg Mess Cooks / Officer Stewards Also, crew travel costs to and from work are paid by the company, to anywhere in the UK (until very recently this included foreign destinations also).</p>

Shore Based Crewing

Live-aboard Crewing

Cost of providing accommodation

For crew living at home, there are no accommodation costs to the company. However, if local crew cannot be found (eg in the rush-case of the Loch Frisa) then temporary accommodation will be needed.

If the pool of local labour is insufficient and likely to be for the long term, then it may be necessary to create purpose-built accommodation on shore.

Using a typical build cost of £3,000 per square metre (including land cost; based on various online sources) and 20 square metres per unit, a single-person unit in a multi-occupancy building may cost approximately **£60,000** per crew member.

For a typical 15-strong crew, purpose-built shore-based crew accommodation would therefore cost around £0.9m

These units could be sold or sub-let for other uses on a temporary or permanent basis if the needs of the ferry operator (eg availability of local labour) changed over time. Whilst the property would require ongoing maintenance (in common with the ship-based accommodation), it would be an appreciating asset with a very long life, rather than a short-lived depreciating one.

An alternative approach involving multiple government departments would be to construct additional housing units near to ferry ports. Lack of housing is already recognised by the SG as a crisis, in the Loch Frisa case resulting in year on year avoidable costs of running ferry services. This strategic approach has been suggested to Transport Scotland.

Another approach, adopted by ferry operators such as Fastcat of the Philipines is to [develop crew accommodation in their ports that also operate as hotels](#).

The capital cost of crew accommodation on-board vessels is much higher than building the equivalent accommodation ashore.

Using the [public statements of CMAL](#) and data from the [Islay vessel replacement](#), we know that the Islay vessels have 40% of the superstructure, or 680m² used for crew accommodation. CMAL have attributed £3 million of the Islay build costs to the provision of enhanced crew space, [versus a Norwegian comparator](#) with 20 fewer crew members. If we moderate that cost delta to £2m (given the broad categorisation of the stated cost) then each crew member requires 22 square metres at £4,500 per square metre, or a total cost per crew member of **£100,000**.

For a typical 15-strong crew, live-aboard crew accommodation would therefore add around £1.5m to the build cost.

For a typical 30-strong crew (similar to most CalMac major vessels), live-aboard accommodation would add around £3m to the build cost.

These costs will have to be repeated every 20-30 years as the vessel is replaced.

Shore Based Crewing

Live-aboard Crewing

Vessel operating hours	<p>Crews can work shifts enabling the ferry to operate up to 24 hours per day (as was done on the Kyle-Kyleakin ferry prior to the Skye bridge being built, and similar to what is done now on the Loch Frisa).</p> <p>The typical operational day for CalMac vessels with shore-based crews and only 1 shift per day is 12 hours.</p> <p>The typical operational day for the only 'minor' vessel in the fleet with shore-based crews and 2 shifts per day (Loch Frisa) is 18 hours.</p>	<p>24-hour operation is also possible on live-aboard vessels, but is rare in the CalMac fleet (only the Loch Seaforth). Typical crewing levels are very much higher on CalMac ferries compared with commercial comparators (for example – MV Loch Frisa has a crew of 8; when operated in Norway as the Utne the crew was 4. The Norwegian comparator to the new Islay vessels requires just 10 crew members versus Calmac's 27.</p> <p>With typical CalMac crewing levels, it is very challenging to incorporate sufficient crew cabins for the double-crewing that longer operating hours require. The Norwegian comparator can operate for 24 hours per day with a total live-aboard crew of 10. For the new Islay vessels to operate 24 hours per day, the cabin requirement would likely be in excess of 40, which becomes more difficult to accommodate on a vessel of this type and size. For CalMac to offer 24-hour operation with a live-aboard crewing regime, crewing levels would need to be closer to those of commercial operators.</p> <p>The typical operational day for CalMac vessels with live-aboard crewing is 14 hours.</p>
Operating Costs associated with the crew	<p>Very low – daytime amenities only.</p>	<p>Live-aboard crews need to be fed; the vessel needs to be heated and powered 24 hours/day. It also requires a laundry, mess and gym, with all of their associated costs.</p>
Vessel design	<p>With minimal crew spaces required, other design criteria are little compromised.</p>	<p>Crew cabins suitable for long-term occupancy must be situated on top of the vessel, increasing the vessels windage and weight. The weight of the extra superstructure also reduces the available deadweight capacity of the vessel. Private outside exercise space also has to be designed in, together with all the other common spaces and services that the crew require.</p>
Daily operational impacts	<p>For a vessel that rarely needs to leave its daily operating area, shore-based crewing presents few operational constraints.</p> <p>For a vessel that is required to operate to various ports, or over-nights in a different port each night, shore-based crewing is more restrictive and may therefore be inappropriate.</p>	<p>Without the need to return to a home port for the crews' sake, operational and timetabling frequency is much more flexible. Particularly for longer-distance routes or those where over-nighting can occur in a variety of ports, live-aboard crewing presents fewer restrictions and more flexibility. This is the key advantage of live-aboard regimes.</p>

Shore Based Crewing

Live-aboard Crewing

Impacts on resilience and redundancy	<p>For a fleet without a spare vessel; or routes dependent on a single vessel; the requirement to re-deploy vessels from one route to another at times of breakdown is compromised by shore-based crewing.</p> <p>This can be addressed by several strategies:</p> <p>A. Retention of a roving spare for relief, without the need to disturb vessels in operation. This has the added benefit of reduced service disruption, and is the strategy already deployed for the CalMac minor vessel fleet. A roving spare for the major vessel fleet (which currently does not exist) would require to have live-aboard crewing.</p> <p>B. More vessels in the operational fleet, with multiple vessels on all routes that can justify it. A breakdown on one vessel will therefore have less impact on a route with multiple vessels; and for a route with only one vessel a relief could come from a neighbouring route with several. Donation of a vessel from a route with two or three in operation would be less impactful to the donor route.</p> <p>C. Provision of short-term on-board cabins, enabling an otherwise shore-based crew to occasionally work away from the home port for short periods. This is very common practice in commercial fleets.</p>	<p>Vessels with live-aboard crews are inherently much more easily re-deployed. Therefore, in a network where there is high interdependency between routes or no roving spare (as is currently the case with the CalMac major vessel network), then liveaboard crewing is required to enable easy and flexible redeployment.</p> <p>In a network with a roving spare, the resilience argument in favour of having a large proportion of the fleet with live-aboard crewing is weakened.</p>
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From the above therefore, it is obvious common sense that for a small vessel on a short and high-frequency route, shore-based crewing is most appropriate. Conversely, it is not practical to operate a long-distance low-frequency route or one that routinely berths in various ports with a shore-based crew. There is a wide spectrum between these two extremes however, with a variety of local and operational considerations to balance up.

But within the spectrum of services in the CalMac network, there is both opportunity and need to reassess the crewing model deployed. Much of the CalMac network – routes, practices and timetables – is shaped by history as much as operational or strategic design. The ferry to Craignure on Mull is a crossing of just 45 minutes, but is operated by a live-aboard crew (with full hot-food dining, a bar and shop), in great part because that service is the vestigial remnant of a longer mail steamer route from the 18th century. The crewing regime has been inherited from its predecessors. Contrast that with the much newer Berneray – Leverburgh service across the Sound of Harris introduced in 1996. This longer (one hour) service is operated by a minor vessel (no on-board facilities), and crewed by people who live at home locally, not on the ship. Similarly, the Mallaig-Armadale route is served by two ships – one uses a shore-based crew, and the other live-aboard; as a result of vessel deployment happenstance. Or compare the operating models of CalMac’s route across the Clyde to Bute to that of Western Ferries – CalMac maintain two live-aboard ferries despite these vessels serving no other ports, whilst Western Ferries provides a much more frequent service with shore-based crews and a larger number of smaller vessels.

What might crew prefer?

There is often resistance to change, but it is healthy to question the status-quo. It is interesting to note that at the time of writing, the crew working for the Isle of Man Steam Packet Co are [negotiating for shift patterns that allow them to return home each night](#) rather than live-aboard. Perhaps there might be similar preferences among CalMac crew – take for example the 14 crew members who live aboard the MV Isle of Mull, yet have their homes in Oban; the port where the vessel berths each night almost exclusively.

What might be the best crewing model for Craignure-Oban services?

MIFC are advocating for a three vessel service for the route, because that will offer high frequency, in-built redundancy and long operating hours. The current vessel (MV Isle of Mull) has a live-aboard crew, enabling her to be re-deployed to other services even if that requires an over-night stay. Those events are relatively rare however. In the four years between 2015 and 2019 (according to an FOI request), the Isle of Mull made 108 relief voyages, of which only four resulted in the vessel over-nighting somewhere other than Oban. The vast majority of relief sailings undertaken were to Coll, Tiree, Colonsay and Islay, with the ferry returning to the home port of Oban as usual. That said, for these unplanned events and also for routine dry-dock cover when deployed to another service for many weeks, there is operational advantage to having a live-aboard crew. The live-aboard crew also enables the vessel to occasionally over-night in Craignure, offering late night and early morning services to Mull (prior to the arrival of a permanently island-based vessel in 2022).

Since onboard crewing adds significantly to capital and operating costs, the advantages gained need to be justified. In a circumstance where the Oban-Craignure service is operated by three vessels, the justification for liveaboard crewing of all three vessels is thin:

- Longer operating hours can be delivered more cost-effectively by a shore-based crew
- Transport Scotland and CalMac have a stated policy of allocating a roving 'hot spare' vessel, that when delivered will reduce the likelihood of needing to re-deploy a Mull vessel in the event of breakdown
- Relief events in the operating area are typically to Coll, Tiree and Colonsay. These can be accomplished by a crew living ashore near to either Oban or Craignure.
- Redeployment to other services during winter for service cover could be achieved by using temporary shore accommodation (eg motorhomes as is common when crew move around the minor vessel fleet)

Cost-benefit analysis may point toward a hybrid solution – ie shore-based crewing but with 'occasional cabins' that enable crew to travel with the ship when necessary; or perhaps full live-aboard crewing of one vessel, and shore-based crewing of the other two. Options such as this will need further analysis. It should not be assumed that because the service used live-aboard crewing now, it should remain so in the future.