

1.0 Assignment 4: Critical Reflection of Roles and Responsibilities

- 1.0.1 In 2019, MSDS Marine were commissioned by the National Museum of the Royal Navy (NMRN) to produce a Conservation Management Plan (CMP) for three Coastal Forces vessels that the museum had recently acquired; Motor Torpedo Boat (MTB) 331, MTB 71, and Rescue Motor Launch (RML) 497. The Coastal Forces division of the Royal Navy was established during World War I and was re-instated during World War II. The division was principally developed for the protection of the coast of Britain and comprised around 2,000 craft that were mainly crewed by wartime sailors and volunteers. These vessels were responsible for a great variety of tasks including minesweeping, larger vessel support, submarine chasing, and torpedo launching. The Coastal Forces vessels collectively fought over 1,000 actions during both World War I and II.
- 1.0.2 Few examples of these vessels survive, and as such the three vessels acquired by the NMRN represent historically significant monuments by merit of their evidential and historical value. The NMRN commissioned CMPs to be produced for each vessel in order to establish the extent of conservation works required in order for these vessels to become stable and accessible museum exhibits. The CMPs were to include background information, complete physical records, condition surveys, and a statement of significance for each vessel. A variety of tasks were undertaken to complete the CMPs
- 1.0.3 I was principally involved in the production of the CMP for RML 497, a rescue motor launch built in 1941 by Southampton Steam Joinery Ltd (National Historic Ships n.d.) (see Figure 1). This vessel was used as a 'floating hospital' during World War II. After the war it was operated as a ferry named "Western Lady IV", although it was subsequently repainted in its original colours and renamed to RML 497. It was used as a ferry until being sold to the NMRN. The team for this CMP comprised Sally Evans (Project Manager), Tom Harrison (Senior Project Officer), Kim Roche (Conservator), and myself (Project Officer). The various tasks involved in the production of the CMP were shared according to the individual skills of the project team; I was assigned to undertake desk-based research into the history of the vessel, and participate in fieldwork to create a photographic record of the features, fixtures, fittings, and form of the vessel, create photogrammetric models of the bow and stern of the ship, and to establish monitoring points to observe the effectiveness of the vessel storage solution. I collaborated with the other members of the project team, mainly under the supervision of Sally and Tom, to complete my tasks.



Figure 1 RML 497 in 2008, operating as a ferry.

- 1.0.4 MSDS Marine is a Registered Organisation with the Chartered Institute for Archaeology (CIfA), and all employees are CIfA members. As such, the project team were careful to abide by the CIfA Code of Conduct for all project work (CIfA 2014).

1.1 Background Research

- 1.1.1 I undertook the majority of the background research of the vessel independently. This involved researching the history of the vessel including details of its construction, use during war time, and use as a ferry in the post-war period. In order to undertake this research, I consulted books, online resources, and a previous owner of the vessel. I was able to use this information to create a detailed timeline of the vessel and a thorough description of its history. This research concluded that the vessel had undergone significant change since construction, including the rearrangement of the internal bulkheads, and repurposing of rooms. The vessel had also been subject to an attempted restoration by a previous owner. The background research was included within the CMP (see Appendix 2, pg. 12-19), and was also instrumental in determining the significance of the vessel (see Appendix 2, pg. 52-62). While undertaking this task, I engaged with individuals identified as project stakeholders, including previous owners of the vessel. In all communication I ensured to conduct myself in an appropriate manner, in accordance with Principle 1, Rule 1.1 of the CIfA Code of Conduct which requires members to “conduct themselves in a manner which does not and is not likely to bring archaeology or the Institute into disrepute”. Behaving in this way enabled me to build a strong relationship with the previous owner of the vessel; this good rapport resulted in a greater willingness to provide me with information on the repairs and restoration works he undertook on the vessel, whilst also making him feel valued by the archaeological community. The previous owner kindly provided me with an extensive photographic record that became key for understanding the phasing of the vessel.

1.2 Photography

- 1.2.1 Part of the project requirement was to undertake a photographic survey of the features, fittings, fixings, and form of the vessel (see Figure 2). This task contributed to the recording of the vessel and condition survey. I systematically worked my way through the vessel taking photographs of each feature. I requested to be accompanied by Tom, who was the ship construction expert of the project team. Under Tom’s guidance I was able to fully record all of the features in each area of the vessel and on the deck. At the time, my knowledge of ship construction, and the context and function of vessel components was very limited, and so without Tom’s help I would have been unable to ensure that all features of importance were recorded as I would not necessarily have been able to identify them. Working alongside Tom I was able to significantly increase my knowledge of ship construction, and particularly wooden vessels of this period, and towards the end of the survey I was able to identify features and components myself.



Figure 2 Image of me undertaking the photographic survey of RML 497 with appropriate PPE, at a safe distance from the cavity in the deck.

- 1.2.2 Prior to fieldwork commencing a risk assessment was produced for the fieldwork activities which included provision for a dynamic risk assessment to be undertaken during fieldwork, a dynamic risk assessment is required to be undertaken where risks may have changed, and the risk assessment was required to be updated whilst on site.
- 1.2.3 The project brief required a full photographic record of the vessel, however, upon accessing certain areas within the ship it became clear that there were potential risks to the health and safety of the project team. In attempting to gain access to the chain locker, I identified that the floor was unstable, potentially rotten, and structurally unsound in areas. This meant that the egress point would be difficult to access once in the chain locker itself. I raised this issue with Sally, who agreed that entering the chain locker would be a risk to health and safety, and as such we concluded that photographs of the chain locker could be taken from the small access door, rather than from within the room itself. This approach conformed with the risk assessment produced by MSDS Marine prior to fieldwork and aligns with Principle 4 of the ClfA Code of Conduct requiring members to take into consideration the health and safety of colleagues (ClfA 2014). The choice not to enter the chain locker also aligned with Principle 2 of the ClfA Code of Conduct which requires members to strive to conserve archaeological sites and materials (ClfA 2014). Had I entered the chain locker, it is likely that I would have damaged the floorboards, potentially compromised the structural integrity of the vessel, and thus negatively impacted its conservation.
- 1.2.4 Following the fieldwork, I added my photographs to a Microsoft Access database that was created by Sally in which she had input a written record every feature of the vessel detailing attributes such as type, location, condition, and whether it was an original feature or a subsequent addition. By collaborating on this task, we were able to produce a comprehensive

record of all of the features within the vessel in a “comprehensible, readily usable, and durable form” as per Principle 3, Rule 3.4 of the ClfA Code of Conduct (ClfA 2014).

1.3 Photogrammetry

- 1.3.1 Another task I was assigned was to produce photogrammetric models of the stern and bow of the vessel. During fieldwork I systematically took a total of 1,477 photographs of the bow and 1,856 photographs of the stern at a range of heights and angles in order to fully capture all of the visible elements of these features. In doing this I was aiming to align with Principle 3, Rule 3.3 of the ClfA Code of Conduct which requires members ensure that recording procedures are adequate for the project. My understanding of photogrammetry was that I would need a large number of photographs, commensurate with the size of the feature I was photographing, to produce high quality models.
- 1.3.2 Following the fieldwork, I used these photographs to create photogrammetric models using Agisoft Metashape (3D modelling software). Upon processing the photographs, I realised that I had taken a surplus; in order to produce models of the bow I only required fifty-eight photographs, and for the stern I only required seventy-eight photographs. Had I not taken so many photographs of the bow and stern I may have had time to exceed the project requirements and record the rest of the vessel and thus produce a model of the entire ship. However, the models of the bow and stern were the main targets of the photogrammetry task and comprehensive models of both features were created successfully (See Appendix 1: Photogrammetric Models). This task provided a learning opportunity for me; I came away with a better understanding of the requirements of photogrammetric recording which will allow me to be more efficient in future projects.

1.4 Monitoring Points

- 1.4.1 RML 497 is presently stored in a large, purpose built warehouse and sits in a custom cradle. One of the key elements required of the project was to identify method for determining the suitability of the cradle for long term storage. During the September 2019 visit, Sally and I determined that the bow was at risk of sagging due to the limited supported offered by the cradle. We devised a method for monitoring movement so that the NMRN might be able to select appropriate areas to reinforce the cradle or vessel itself. I selected eight points on the starboard site of the bow and measured the distance from these points to a fixed point (the floor) (see Appendix 2, pg. 93). I selected points that could be easily relocated and took detailed pictures of each so that these measurements could be retaken. I undertook this task independently, following a discussion with Sally about the appropriate number of control points and an assessment of the risks of reaching the higher control points. Undertaking this task, while also a part of the project brief, aligns with Principle 2, Rule 2.1 of the ClfA Code of Conduct which requires members to strive to conserve archaeological sites and material (ClfA 2014). The task helped to contribute to the understanding of the conservation requirements of the vessel.

1.5 Conclusion

- 1.5.1 In participating in the project to produce a CMP for the Coastal Forces vessel RML 497, I was able to work effectively as part of a team while adhering to professional and ethical conduct

standards set out by ClfA. The project provided me with opportunities to learn from my colleagues and develop my professional skills. My contributions to the project were also valuable; my skills in desk-based research were key to establishing the phasing of the vessels construction, repair, and restoration, as well as to determining its significance as a historical monument.

2.0 References

- 2.0.1 CIfA (2014) Code of conduct: Professional ethics in archaeology. Available at: <https://www.archaeologists.net/sites/default/files/Code%20of%20conduct%20revOct2021.pdf>. Accessed 17.12.2021
- 2.0.2 MSDS Marine (2020) Conservation Management Plan: RML 497. Report for National Museum of the Royal Navy.

3.0 Appendix 1: Photogrammetric Models



Figure 4 Stern of RML 497.



Figure 3 Bow of RML 497.

4.0 Appendix 3: RML 497 CMP

Conservation Management Plan

RML 497

Project Name	Conservation Management Plan: RML 497
Client Project Number	
MSDS Marine Project Number	MSDS19111
Author and contact details	Tom Harrison, Kim Roche, Phoebe Ronn and Sally Evans sally@msdsmarine.co.uk 07791217114
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Reviser (s)	Sally Evans
Date of last revision	20/03/2020
Quality Assurance Approval	Sally Evans
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Part 1: Understanding the Asset

1.0 Introduction

- 1.1.1 MSDS Marine were commissioned in November 2018 to produce Conservation Management Plans (CMPs) for a series of vessels, including MTB 71 and MTB 331. Work for the CMP for RML 497 was formally approved in July 2019 by the NMRN. This Conservation Management Plan is for RML 497.

1.2 Relevant Guidance

- 1.2.1 Relevant guidance relating to the recording and management of historic vessels was published by National Historic Ships in three volumes:
- Volume 1: Recording Historic Vessels (2007)
 - Volume 2: Deconstructing Historic Vessels (2007)
 - Volume 3: Conserving Historic Vessels (2010)
- 1.2.2 The most relevant piece of guidance to this Conservation Management Plan is *Volume 3: Conserving Historic Vessels* (2010) as the processes relating to the development of a conservation management plan are detailed in full. The volume was based on the structure proposed by Kerr in his *The Conservation Plan* (1996). Heritage Lottery Fund guidance on Conservation Planning is also highly relevant (Heritage Lottery Fund, n.d.). In addition, Historic England also published useful guidance for the assessment of heritage assets.
- Conservation Principles, Policies and Guidance (2008)
 - The Setting of Heritage Assets (2017)
- 1.2.3 Guidance from these documents indicates that overarching purpose of conservation is to identify, manage, retain and wherever possible enhance the significance of heritage assets and their settings for present and future generations (English Heritage 2008: 7; National Historic Ships 2010: 18-21). National Historic Ships have produced key principles which should guide the conservation of historic vessels, which bring together the overarching aims of conservation with practical guidance; factors which should be intertwined throughout the Conservation Management Process and have guided the development of this Conservation Management Plan for RML 497.

Conservation Principles

Historic Vessels

1. Historic ships and boats should be conserved according to their significance
2. The aim of conservation is to retain the significance that has been identified and pass it on to future generations
3. All aspects of significance should be dealt with in a considered and thoughtful way
4. Rigorous maintenance is a key to good conservation practice for all vessels
5. Make and keep records throughout including recording all changes to the vessel and what happened to any material which has been removed
6. When in doubt do the absolute minimum. Conservation demands a cautious approach to change
7. Replace like for like wherever possible and practicable
8. Conjecture should be avoided in all conservation projects
9. The best knowledge, skills, techniques and types of management available and affordable should be employed in all types of conservation
10. Do things in a logical order

National Historic Ships, 2010: 18-21

1.3 Scope and Structure of the CMP

- 1.3.1 The CMP has been structured with reference to the guidance set out in *Understanding Historic Vessels – Volume 3: Conserving Historic Vessels* (National Historic Ships 2010), and Heritage Lottery Fund guidance (Heritage Lottery Fund, n.d.). For consistency and as requested by the National Museum of the Royal Navy, the document has also been created with reference to the HMS *Victory* CMP.
- 1.3.2 The document includes five parts:
- Part 1: Understanding the Asset
 - Part 2: Statement of Significance
 - Part 3: Risks and Opportunities
 - Part 4: Policies
 - Part 5: Action Plan
- 1.3.3 A separate volume includes appended material. The key appendix is the gazetteer, which is based on a bespoke access database created to record detailed information about the vessel during the survey work. The database contains details relating to individual components of the vessel including the vessel as a whole, structural elements, fittings and fixtures and the cradle, providing insights into the vessel as a whole and its elements. The details recorded include the current condition assessment for each component, its history and originality, its material type, significance, conservation proposals and management considerations. Images are also included to illustrate each component and aid the user.

1.4 Methodology

- 1.4.1 The production of this CMP has been undertaken in a series of steps, each of which has informed the next. Historical, archival and contextual research was first conducted, alongside collation of existing condition surveys, conservation and repair histories. A survey of the vessel was then undertaken, and a gazetteer of components compiled, with historical information and a current conservation assessment for each component of the vessel combined into individual records. In addition to the research and survey information input from stakeholders which has been gathered throughout the project was also a key source. Photographs of the bow and stern were also collected for the production of photogrammetry models, and measurements were taken to provide monitoring points for assessing movement at the bow.

The information from these stages all fed into the statement of significance. Risks and opportunities were then identified, both with reference to this information and the current plans for the vessel. Conservation management policies were then produced taking into account significance, risks and opportunities, followed by an Action Plan.

1.5 Key Sources

- 1.5.1 There are a number of key sources which provide information on RML 497. These include archival sources, primary and secondary sources, new surveys and stakeholder information. All have been utilised in the production of this CMP.
- 1.5.2 The archives of a number of repositories were searched for documentation relating to RML 497. These include The National Archives, Kew (February 2019); The National Maritime Museum (February 2019); and the Brass Foundry (National Archives at Woolwich, London), (April 2019).
- 1.5.3 While aspects of the construction and wartime records of the vessel are well represented within historical sources, records relating to the history of the RML when in private ownership are sparser though key stakeholders including Sandie Armstrong, who owned the Western Lady ferries, have provided important information about the vessel's post-war life.

1.6 Construction of the vessel: Sources

- 1.6.1 The key sources relating to the construction of the vessel are the extensive, and the Brass Foundry holds over 120 plans of the vessel in its stores. These plans contain a wealth of information relating to the original construction of the vessel from profiles and deck plans to more detailed diagrams for features such as the fuel system and engine room controls. Plans are referenced in text by their archive number.
- 1.6.2 Further details about the construction and specification of the vessel are found in various secondary sources (Brown 2009; Brown 2010; Konstam 2010 and North 1972).

1.7 Use and Life of the vessel: Sources

- 1.7.1 Sources relating to the use and life of the vessel are more restricted, and in some cases contradictory. However, war diaries and action reports available at the National Archives, Kew, (Reference ADM 199/360, ADM 178/263, ADM 199/2413, ADM 199/645, ADM 199/416, ADM 199/417, ADM 199/629) provide limited information about the vessel movements during the war. The National Archives collection of war diaries and action reports highlight patrols and action undertaken by vessels. Information involving RML 497 is limited to the 1943 Portland Command war diary (ADM199/629).
- 1.7.2 One of the vessel's wartime crew, Les Parkinson, also wrote his memoirs of the war, covering his time as part of the engine crew from 1944 up until the end of the war (Parkinson, n.d.)¹. While the vessel's wartime history is evidenced by archival documents cited here, the memoirs of Parkinson provide colourful stories associated with the RML. Unfortunately, the events recounted within Parkinson's memoirs have not been verified by other sources and without corroboration it is not possible to confirm their accuracy. The accounts also appear to be contradicted by other sources in places (C. Hunt, *pers. comm.* 2019). Nonetheless, the memoirs

¹ Les Parkinson was born in Wallasey on May 7, 1916. He served in the British Army from 1930 to 1939, after which he joined the Manchester City Police. In 1942, he volunteered to serve with the Royal Navy. Events referred to within this CMP relate to his unpublished memoirs: *Me By Me: Memoirs of a Nobody*.

provide an insight into the stories recounted by veterans after the war, and provide a demonstration of themes and events which must have been within the consciousness of many of the Coastal Forces crews during WWII.

- 1.7.3 Engagement with stakeholders, and in particular with Sandie Armstrong who worked with the Western Lady ferries, has been vital for understanding post-war use. Ms Armstrong has provided details about the vessel's past, upkeep and condition, including photographs of the vessel during her time as *Western Lady III*. Engagement with other stakeholders has also provided additional information about her post-war life.
- 1.7.4 Additional information on the post war use of the vessel are found in several sources, although information from these sources is limited (Brown 2009, Brown 2010, Konstam 2010 and North 1972).

1.8 Survival of the Vessel: Sources

- 1.8.1 The primary sources for understanding survival have been the original shipwright's plans held by the Brass Foundry, a former MCA survey (Grave 2016) and the archaeological assessment undertaken during the production of this CMP. Some of the wartime sources provide information on action undertaken by the vessel which aids understanding of her survival. These sources of evidence have been compared to build up an understanding of the survival of original features and later additions.
- 1.8.2 These sources have been used to feed into the methodology for phasing the vessel. There are a large number of considerations when assessing whether a part of the vessel is original or of later date. For RML 497 these include:
 - Comparison of current form of features (timbers, joints etc) with historic plans;
 - Comparison of current and original material;
 - Material and layout of fastenings;
 - Location and form of joints (e.g. all original stringer joints are scarfs which sit behind frames and bulkheads);
 - Planking which does not run the full distance from top deck to keel and, if only running part of that distance, planking which does not terminate on the 4th or 8th stringer;
 - Planking with terminal ends which do not form a right angle with the plank itself;
 - Pencil lines crossing multiple planks (possibly indicating earlier repairs or original alignments);
 - Red felt tip crosses (indicating later repairs in the planking);
 - Number of paint layers;
- 1.8.3 Condition of timber is not a good indicator of phase, as repairs and original timbers alike have extensive dry rot in places. Condition instead largely relates to material type. These considerations have been used to develop an understanding of the phasing of the vessel. However, it must be noted that due to the paint cover and the practice of using like-for-like

replacements during the vessel's life as a ferry (Armstrong *pers. comm.* 2019) the phasing for the majority of the vessel is not certain.

- 1.8.4 However, the phasing of the vessel, as currently understood, is presented in a series of figures (see Section 3.0). The figures use different colours to show timbers which are original, likely original, replaced, likely replaced, missing, obscured and additional.

1.9 Condition of the Vessel: Sources

- 1.9.1 The current condition of the vessel has taken into account past approaches to conservation along with past conservation assessments and the new conservation assessment conducted as part of the production of this CMP. A report by the MCA in 2016 by Simon Grave also provides a recent condition report (Grave 2016) which has been an important source.

1.10 Assessment of Significance

- 1.10.1 The assessment of significance has been conducted in line with key guidance including Historic England's (then English Heritage) (2008) publication, *Conservation Principles, Policies and Guidance*, and National Historic Ship's (2010) publication, *Conserving Historic Vessels*.

1.11 Conservation Gateway

- 1.11.1 According to the structure set out within National Historic Ships *Conserving Historic Vessels, Volume 3* (2010: 88) after the assessment of significance has been conducted sufficient evidence should be available on which to base 'the decision about the best conservation method to adopt in order to retain her significance'. This 'Conservation Gateway' is concerned with whether the vessel is to be concerned for operational use or for her fabric.

- 1.11.2 The decision associated with this conservation gateway has a bearing on the conservation process. This process can include four key elements (National Historic Ships, 2010: 109-161):

- **Preservation:** Preservation means keeping part or all of a vessel's fabric as far as possible in its existing state and retarding deterioration.
- **Restoration:** Restoration means returning the existing fabric of part of the fabric of a vessel to a known earlier state by removing additions or re-assembling existing components with the minimum introduction of new material.
- **Reconstruction:** Reconstruction means returning all of the fabric or part of the fabric of a vessel to a known earlier state but is distinguished from restoration by the introduction of significant new material into the fabric
- **Adaptation:** Adaptation means modifying a vessel to suit a proposed new use.

- 1.11.3 These elements have been taken into account in the policies and action plan which form Parts 4 and 5 of this document.

1.12 Stakeholders

1.12.1 A number of key stakeholders were identified during the production of this CMP. These are listed below. It should be noted that other stakeholders may come to light, and the list below may not be exhaustive.

- Management bodies (NMRN);
- Coastal Forces Trust;
- National Historic Fleet;
- Hartlepool Council;
- Specialist staff (e.g. shipkeepers, conservators, structural engineers etc.);
- Contractors;
- Previous owners;
- Volunteers;
- Visitors (present and future).

1.12.2 Many of the stakeholders were consulted during the production of this CMP, and have provided important information on the history, condition or management considerations which apply to the vessel. Others, such as Hartlepool Council, may have a role going forward in determining applications which affect the environment or setting of the vessel.

2.0 RML 497: Timeline

2.1 Introduction

2.1.1 This section provides a discussion of the history of RML 497, including all information gleaned from published and archival sources, and information from stakeholders. While the construction of the vessel occurred in 1941 her significance cannot be fully appreciated without an understanding of the context. The history of the vessel set out below is therefore split into the following sections:

- Pre-construction context
- Phase 1: Construction of the vessel (1941)
- Phase 2: Wartime action (1941- 1945)
- Phase 3: Post-war history (1945- present)

2.1.2 Section 3 contains information on the survival of the vessel, including its current condition and survival of original features. This section is broken down into two main areas including key structure; compartments and areas.

2.2 Pre-Construction Context

2.2.1 The Coastal Forces of the Royal Navy was established during World War II having developed from the small defensive flotillas operated during World War I. It was dedicated to the protection of the coasts of Britain, particularly those adjacent to the English Channel and the North Sea. The Coastal Forces were made up of around 2000 craft manned by volunteer reserves and wartime sailors. The fleet was made up of Motor Torpedo Boats (MTBs), Motor Gun Boats (MGBs), and Motor Launches (MLs)- collectively they were affectionately known as the Navy's 'Little Ships'. These boats fought nearly 1,000 actions which resulted in the sinking as many as 400 enemy vessels. The primary purpose of the MLs was to defend British Coastal waters from attack (Cocker 2006: 13).

2.2.2 Despite the strength of the Royal Navy at the start of the war, it lacked small craft to protect coastal convoys and defend the coasts and shipping lanes of Britain. The Admiralty, supported by a number of boat-building companies developed the vessels that would make up the Coastal Forces fleet. The British Power Boat Company, Thornycroft Marine, and Vosper designed and produced MTBs and MGBs for the Admiralty, but a third company produced craft that would make up a third of the fleet; the Fairmile Marine Company.

2.2.3 The Fairmile Marine Company was established in 1939 by car manufacturer Neil Macklin in response to rising tensions between Germany and the UK. Fairmile produced designs for a series of motor launches intended to protect the coastal waters of the UK. The first craft designed was called the Fairmile A. The primary purpose of this 110ft vessel was to chase and attack submarines.

- 2.2.4 The MLs were developed to fill the gap in the market left by the MTBs and MGBs. The MTBs were designed with speedboat-style hulls so that they might skim over the water but also be very manoeuvrable. They have been likened to bomber aircraft; they could speed in to drop their charges, and then speed out again. The MGB design was developed from the MTB, and indeed many MTBs were repurposed to become MGBs. These were fast and well-armed boats likened to Spitfire aircraft. For both craft, speed was vital. The MLs, however, were larger and slower than the MTBs or MGBs, first intended to chase submarines. They were also able to accommodate crew permanently on board which gave them an edge on longer missions.
- 2.2.5 After an initial rejection by the Admiralty, Fairmile was awarded a contract to produce eleven Fairmile A boats in 1939. Their manufacturing strategy of distributing boat kits to different boatyards around the UK to be assembled proved to be very efficient. Shipyards were sent the boat parts in six packages with staggered delivery in order to make production smoother, and to not to congest boatyards. Outsourcing construction in this manner led to the need for detailed plans for the assembly of the kits. These plans provide detailed information on the construction of the Fairmile designs.
- 2.2.6 The Fairmile A design was refined and altered by William Holt of the Admiralty. This new craft was to be the Fairmile B. Like Fairmile A, the B type was also designed as a submarine chaser, although they were often adapted for other roles. Some were used as motor torpedo boats and others as minesweepers.
- 2.2.7 There were 668 Fairmile B kits issued in the UK, and the design was eventually produced in 13 countries during the war (Davies n.d.). The UK shipyards constructing the Fairmile Bs developed somewhat of a competition for the fastest assembly time; the average was 24 weeks per craft, but the fastest was 14 weeks (Nighthawk News 2013).
- 2.2.8 The Fairmile B was the result of a need for a relatively fast but stable, multipurpose vessel. They were designed using a rounded bilge hull form constructed of double-diagonal mahogany planking on plywood frames which produced a very strong and stable hull. The vessels were built on the lines of a destroyer, with the dimensions 112ft (length) x 18.3ft (beam) and 4.6ft (draught). These long and narrow boats were capable of moving at speeds of up to 20 knots while retaining stability in the water at all speeds. The vessels were slower than the MTBs and MGBs, however the rounded bilge hull form provided greater stability. The MLs were also much larger than the MTBs and MGBs, allowing them to stay at sea for longer periods and provided more space for crew or passengers.
- 2.2.9 The Fairmile B motor launches were built to a standardised design, although they were intentionally adaptable. They were originally intended to be submarine chasers and so were armed appropriately with ADSIC and depth charges, however, the armament could be swiftly changed to suit different purposes. 50 Fairmile Bs were fitted with 21-inch torpedo tubes for anti-invasion purposes, and 50 were fitted with sickbays to become floating hospitals intended to rescue downed aircrew and casualties from sea-battles (North 1972). These were the Rescue Motor Launches, and were numbered RML 492-500, and RML 511-553 (Lenton and Colledge 1973: 523-530).

- 2.2.10 The Fairmile A and B designs were followed by the Fairmile C – a Motor Gun Boat, and D- a Motor Torpedo Boat. Although these designs were successful, they were not mass produced as the Fairmile B was.

2.3 Phase 1: Construction of the vessel (1941)

- 2.3.1 The Fairmile Company was given the task of designing and creating these prefabricated vessels, the final construction of which was handed out to numerous boat building yards, 43 in the UK and 38 abroad (Armstrong 1993). RML 497 was assembled in 1941 by Southampton Steam Joinery Ltd (National Historic Ships n.d.).
- 2.3.2 RML 497 was constructed from a variety of materials. The timbers used in her construction were cut and shaped by the Fairmile Company prior to delivery to Southampton Steam Joinery. Major timbers such as the keel, hog, stem, stern and planking were made from hardwoods, while other timbers such as the frames were originally plywood. Pine was used for packing pieces, stringers and stiffening. The use of a variety of timber types is in contrast to the MTBs which tended to be made of hardwoods throughout.
- 2.3.3 The earliest Fairmile's used a new epoxy glue to fasten the keel, bulkheads, engine bearers and bilge frames. However, the early use of this new epoxy created some issues, with too much or too little being used in places, or the mix being incorrect, leading to some cases of vessels coming apart in rough seas (Armstrong 1993). To fix this issue, c. 2tons of copper rooved nails were used instead, making the vessel exceedingly strong, with many cases of vessels returning under their own power after suffering heavy damage (Armstrong 1993). RML 497 appears to have been constructed using the later method of copper rooved nails.
- 2.3.4 RML 497 was constructed with a large number of internal compartments, specialised for its work at sea. From bow to stern, at lower deck level these included the oil skin locker, storage areas, magazines, chain locker, forward heads and washroom, main accommodation, lobby area, lavatory, officer's quarters, wireless operators office, galley, engine room, fuel tank room, ward room, officer's heads, provision store, aft lobby, officer's pantry, aft store cupboard, magazine, bosun's store and steering compartment. Within the bilges were water tanks, and on the top deck was the wheelhouse, bridge and the sick bay, located on deck aft of the engine room hatch.
- 2.3.5 She was originally designed to take three engines. However, due to wartime shortages the Fairmile B was reduced to two engines. This decreased the top-speeds of the vessels but allowed for an increased number of vessels to be completed (Armstrong 1993). The MLs were originally fitted with Hall-Scott Defender engines, producing c.600 bhp each and a top speed of 20 knots (North 1972: 54). These American-made engines were supplied under the lend-lease agreement owing to the shortage of engines in the UK.
- 2.3.6 The vessel was also built with features which would allow her to be armed as other MLs were. These included reinforcement for torpedo tubes and chute mines, though the weaponry was never fitted.

- 2.3.7 The vessel plans held by the Brass Foundry also indicate that there were a number of designs for the RMLs, which included variations to the steering gear, bosun's store area, bridge and deck arrangement. Comparison of these plans with the vessels surviving structure indicate which she was built to (see Figure 27 for as-built steering gear arrangement). A detailed discussion of the original form of the vessel is given in section 3.0, to demonstrate the originality of different surviving features.

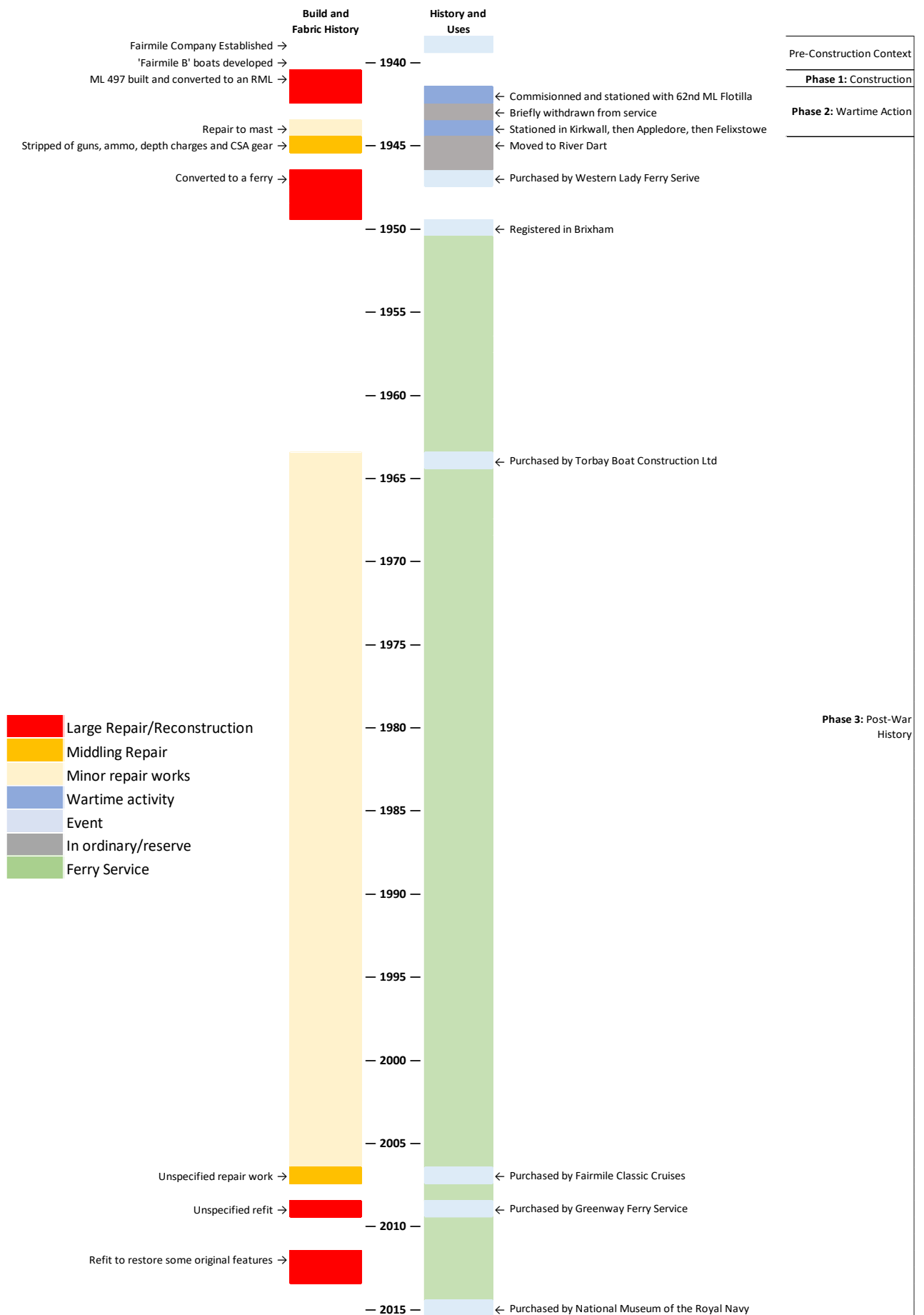


Figure 1: Timeline for RML 497

2.4 Phase 2: Wartime Action (1942-1944)

- 2.4.1 RML 497 was commissioned in 1942 and stationed with the 62nd ML Flotilla based at Portland, Dorset. Records of the wartime actions of the vessel are sparse, though it appears that she continued to operate on regular patrols out of Portland until February 1943 (ADM 199/629).
- 2.4.2 On 17th February 1943, RML 497 and the 62nd Flotilla sailed to Newhaven to take over Air/Sea rescue duties in the adjacent waters (ADM 199/629). However, the vessel was withdrawn from these duties on the 24th July 1943 and the original crew was reassigned (ADM 199/629). It is not known why she was withdrawn.
- 2.4.3 In January 1944 she was moved to Kirkwall, Orkney for anti-submarine target towing duties. Scapa Flow was an important naval base in World War I due to the distance from German occupied Europe, and the area was again chosen to be the main naval base during World War II. Early in the war the battleship HMS *Royal Oak*, was sunk in Scapa Flow by German submarine U-47, killing 833 of the crew. For the remainder of the war efforts to defend the bay from further submarine attacks were increased. RML 497 was stationed in these waters at a time when construction of the Churchill barriers, which closed off the eastern channels to provide protection from submarine attacks, were nearing completion, and during a period when Kirkwall required support from anti-submarine vessels.
- 2.4.4 A new crew was assigned, including the Skipper who was a Lieutenant Royal, Sub-lieutenant 'Jimmy the One', and other crew members Barney Hedridge, Gunner Taffey Evans, Gunner Chick Henderson, Ray Hodgson, Bungy Williams, Paddy Swann, Reg Thaley, Vic Powell, Stocker Biff Fenton, Stocker Monty Hale and Les Parkinson, the author of the unpublished memoirs (Parkinson n.d.).
- 2.4.5 While stationed in Kirkwall RML 497 took part in Air/Sea rescues and patrols, but her main task was towing targets for fighter pilots. It is unclear how long RML 497 was stationed at Kirkwall, but Parkinson was only onboard for around a month before moving to Appledore, Devon (Parkinson n.d.). The move took place at some point early in 1944, and RML 497 was sent to Appledore to undertake Air/Sea rescues, patrols and U-boat hunting. Parkinson recalls some of this time in his memoirs, which was largely uneventful. One incident included searching for survivors of a sunken US vessel, though none were located, and another was the recovery of the body of a local swimmer (Parkinson n.d.). It is clear from his memoirs that the crew spent time with the local Appledore community. Parkinson also recalls the day they threw RML 497 a birthday party.
- 2.4.6 In April 1944, RML 497 was assigned to the Royal Marine Commando unit based in Appledore, and spent time in the Tenby area involved in underwater demolition training with the Commandos (Parkinson n.d.). The vessel remained in this area during the D-Day invasion, after which she moved on to Dartmouth. While in Dartmouth RML 497 took part in escort and patrol duties. Parkinson's memoirs recite exciting events including a Commando raid on the Channel Islands (Parkinson n.d.). According to the memoir this mission was a prisoner raid involving eight commando's and four kayaks for reaching shore. On completion of the raid they came under heavy gunfire and lost the top of the main mast to shrapnel (Parkinson n.d.). There are no dates included in Parkinson's memoirs for the raid, and he mentions that this was the first

and only time he had faced enemy gunfire. Unfortunately, the event has not been verified by other sources.

- 2.4.7 Shortly after this April 1944 RML 497 joined the 69th Flotilla at Felixstowe (Boyle n.d.). While stationed in Felixstowe RML 497 continued Air/Sea rescue duties and patrols. Parkinson recalls an incident of friendly fire from a Beaufighter, but no damage was caused. He also reports that RML 497 was involved in the rescue of RAF aircraft during this time, a US flying fortress (Dartmouth Directory 2015), the crew from the Flying Fortress was able to walk along the wing and into RML 497 (Parkinson n.d.). However, the only sources for this are Parkinson's memoirs, and a report in the Dartmouth Directory which appears also to rely on Parkinson. As such this event is not verified.
- 2.4.8 Parkinson's memoirs also recount a risky mission to bury at sea a German Mechanic who had been pulled from the water by RML 497's crew when called to support British ships caught in action off the Dutch coast in 1944. While the memoirs provide fascinating stories, their details have not been verified.
- 2.4.9 RML 497 continued to run patrols out of Felixstowe until the end of the war. Parkinson mentions in his memoirs that the guns were never fired in anger, and that they hadn't had a fire onboard or any other notable incidents (Parkinson n.d.).
- 2.4.10 Wartime images of RML 497 show the vessel marked as both RML 497 and Q 497. All Royal Navy vessels were provided with pennant numbers grouped by type of vessel; this allowed the boats to be easily identifiable visually, and for communication about them to be clear. The Coastal Forces vessels were given letters (called flag superiors) that preceded their vessel number: the MTBs were 'V', the MGBs and CMBs were 'S', and the MLs were 'Q' (Niehorster 2015). Photographic evidence indicates that many Coastal Forces vessels were not marked with their pennant numbers, and instead were marked with their vessel type (MTB, ML, etc.). The diary by Les Parkinson (Parkinson n.d.) mentions that RML 497 was repainted while he was stationed on the vessel, and as such it is possible that the vessel was repainted with her intended flag superior, which accounts for the change in pennant number seen on historic photographs. The NMRN hold a wartime image of RML 497 where the vessel is shown painted in the scheme known as 'Dark Scheme'.
- 2.4.11 At the end of the war, RML 497 was taken to the River Dart, Dartmouth. Here MTB's and MGB's were stripped of their guns, ammo, depth charges and CSA gear (Parkinson n.d.). It is likely that the Lend-Lease engines were also removed at this point. Parkinson also mentions taking the ship's badge with him as a memento (Parkinson n.d.). The original badge from the vessel (made by Les Parkinson) is in the possession of his descendants in Canada. The NMRN hold a replica of the badge.
- 2.4.12 Much of the colour of RML 497's wartime action comes from Parkinson's memoirs. Unfortunately, it has not been possible to verify some of the events given in this source. If the events did not take place then RML 497 was likely involved in little action, but her general life history does reflect the day-to-day duties of an RML, involved in anti-submarine work and Air/Sea rescue searches. She was also stationed at some of the key locations of WWII, notably Scapa Flow.

2.5 Phase 3: Post-war history (1945 - present)

- 2.5.1 Four British RMLs were purchased by the Western Lady ferry Service in 1947 for conversion to passenger ferries for use between Brixham and Torquay. They were renamed *Western Lady* (RML 535), *Western Lady II* (RML 542), *Western Lady III* (RML 497), and *Western Lady VI* (RML 526). The first to be converted, *Western Lady* (RML 535) was stripped of her gun mounts, her engine room was lined with asbestos sheeting that was overlaid with steel sheeting and ventilators were added. Many of the internal divisions were also removed at this time, and new ones added in places. Railings with wooden tops were added to the deck and the vessel was intended to seat 140 passengers. Much of the original pipework, gauges, auxiliary generators and electrics were retained, along with the armour plating on the hull. The bulkheads required strengthening and a few watertight interior doors were sealed. Originally, the RMLs were powered by two Hall Scott petrol engines, with a maximum power of 1200 bhp, allowing a top speed of 20 knots. However, these engines had been removed after the war due to their lend-lease status and *Western Lady* (RML 535) was fitted with two 65 hp Gardner diesel engines in replacement, producing a top speed of 10 knots. *Western Lady II* (RML 542) was the second craft to be converted into a passenger ferry. *Western Lady III* (RML 497) was the third, and *Western Lady IV* (RML 526) was the final addition to the fleet (Tripp 1948: 664). All underwent similar modifications. The new ferries were painted blue and white. All but *Western Lady* (RML 535) were stripped of their steel anti-submarine feet. The sickbays of the RMLs were removed and lined up at the boatyard and used as storage and tool sheds.
- 2.5.2 After *Western Lady III* (RML 497) had been purchased in 1947, a forgotten detonator cap exploded on her deck, blowing a hole in her side. The hole was supposedly large enough that the workmen could enter the hull at this point. However, due to the ease of repair to double-diagonal construction, this was swiftly repaired and evidence of the repair could not be seen (Armstrong 1993).
- 2.5.3 *Western Lady III* was registered in Brixham on the 21st June 1950 under ownership of Ernest Edhouse. Notably the engines were registered at that time as two Thornycroft 130bhp diesel engines manufactured in 1945 which were likely fitted after purchase of the vessel. The original Hall Scott engines would have been removed by the Navy for return to the US under the lend-lease agreement (DSR/BRI/1/6). RML 497 is currently fitted with Gardner engines. These replaced the post-war Thornycroft engines noted in the ship's registration, possibly donated from *Western Lady* (RML 535) after she was laid up. There are documents dating to the 1970s which were passed on with the vessel regarding the Gardner engines, suggesting that the current engines were fitted at this time. The NMRN hold these documents.
- 2.5.4 Owner Ernest Edhouse died 19th November 1963, leaving *Western Lady III* to Ronald Leslie Edhouse of Laitwood, Burton street, Birdham and Marjrine Lilian Markham, 7 Kings Avenue, Paignton. Ownership was transferred on the 17th February 1964 and registration completed on the 6th April (DSR/BRI/1/6). Ownership was then rapidly transferred to Torbay Boat Construction Limited, having previously purchased the vessel on the 9th March 1964. Mr M.J. Perrett, owner of Torbay Boat Construction Ltd, purchased the Western Lady ferry service and

continued to run the service as originally intended (DSR/BSI/1/6, Ships Monthly 1993). For a short time in 1967, *Western Lady III* (RML 497) also appears to have operated cruises around Dublin Bay, having been sponsored by the Irish Government (Langley and Small 1984).

- 2.5.5 The mortgage for the vessel was cleared on the 25th April 1969 and *Western Lady III* (RML 497) ran the ferry service under the same master, Captain Don Jacobs, from 1967 to 1992 (DSR/BRI/1/6, Ships Monthly 1993). Throughout this service the vessel retained her name as *Western Lady III*. *Western Lady III* and IV (RML 497 and 526) were eventually maintained by parts stripped from *Western Lady* (RML 535) which was laid up and used as a donor vessel. While part of the Western Ladies fleet, the RMLs underwent yearly inspections and maintenance by both the Torbay Boat Construction Co and the MCA. General maintenance and replacement work was carried out every winter, with the Gardner engines being stripped and rebuilt every three years. The RMLs were kept as original as possible, with non-ferrous parts being custom-made by the ship yard and correct building techniques and knowledgeable shipwrights used (Armstrong *pers. comm.* 2019). These annual repairs have led to complex phasing within RML 497.
- 2.5.6 In 2007 *Western Lady III* (RML 497) was sold to Alistair Oliver and Colin Breach of Fairmile Classic Cruises, and was put to work operating five cruises per day along the Dorset coast (Brown 2010; Boyle n.d.). When sold in 2007, it was noted that the stem and apron of RML 497 were in poor condition. Repair work was reportedly undertaken at Poole by the new owners. However, Armstrong (*per comm.* 2019) noted that little changed and reportedly large amounts of filler was used to make the repairs and one of the vessel's former shipwrights refused to work on the vessel again after this (Armstrong *per comm.* 2019). Under ownership of Fairmile Classic Cruises, RML 497 only operated for one season before being impounded by the MCA in June 2009. It is not clear why she was impounded, but shortly afterwards RML 497 was sold to Greenway Ferry Services, returning to Brixham on 26th June 2009 (Brown 2010). Upon purchasing RML 497, Greenway Ferry Services sent the vessel for a £35,000 refit at C. Toms & Sons, Polruan, Cornwall. An extensive refit to pass MCA standards was obviously undertaken, however, the exact work undertaken could not be confirmed by C. Toms & Sons (*per comms*). At this time RML 497 was renamed *Fairmile* to honour her military background and re-entered service as a ferry in late 2009 (Boyle n.d.). Will Ford, the director of the Greenway Ferry Company, is quoted in an online article saying that *Fairmile* appeared in the 2009 film 'The Boat That Rocked' (Newcombe 2013).
- 2.5.7 The *Fairmile* (RML 497) was refitted in 2012/2013 in an attempt to restore some of her original features and continue to function as a passenger craft. The craft was painted in her original English Channel camouflage, the original sick bay was reinstated and turned into a sick bay themed bar selling 'alcoholic medicine'. This replaced the lounge bar that had been a part of RML 497's original conversion to *Western Lady III*. The saloon was removed and 75% of the deck replaced. The wardroom was converted to another bar, a porthole canopy was added to the upper deck, the craft was re-floored, two new double sheaved bulkheads were added, and the craft was rewired (Greenway & Dittisham Ferry 2013a; Greenway & Dittisham Ferry 2013b). Greenway Ferry ceased their Torbay service in July 2015 and sold their vessels, including the *Fairmile* (Dartmouth Directory 2015).

2.5.8 RML 497 was bought in 2015 by the National Museum of the Royal Navy (NMRN) using a grant from the National Lottery's Heritage Fund and donations from the Coastal Forces Heritage Trust and the NMRN. Between 2016 and 2019 the vessel berthed at Kemps Quay Boat Yard, Southampton. She was then transported from Portsmouth to Hartlepool where she will be housed and undergo conservation treatment before going on display at the Museum (NMRN n.d.).

3.0 Description of Survival and Condition of the Vessel

3.1 Overall Survival

- 3.1.1 The phasing of RML 497 is complex, due to the annual repairs which have been punctuated by large-scale structural work and refits during her time as a ferry. Overall the hull form represents the original shape of the vessel, and some dominant features on her top deck, such as the wheelhouse and bridge, are largely original though other areas have seen significant alteration affecting the aft end of the vessel and internal areas. The internal configuration of the vessel is much changed from her original form. Many internal compartments have been removed and those which remain are altered. Detailed consideration of survival is set out within the discussion below.

3.2 Overall Condition

Past approaches to conservation

- 3.2.1 The current overall condition of the vessel is a product of the combined effects of its original materials, history and uses, and past approaches to conservation. Of the latter, in its former life as a ferry the vessel's owners while she was a Western Lady ferry valued the historic fabric and form of the vessel and made like-for-like replacements wherever possible, to ensure retention of its historic appearance while maintaining the vessel for operational use (Armstrong *pers. comm.* 2019)
- 3.2.2 Following a change in ownership other refits were undertaken in a less historically-sensitive manner. The details of an extensive refit undertaken in 2009 are not clear, though work was undertaken to maintain the vessel for operational use. In 2012/2013 the vessel again underwent work. The aim of the work had been to restore some original features and character while maintaining the vessel for operational use. However, this work appears to have largely been focused on restoring the vessel to the wartime 'theme', while installing and modifying other areas of the vessel to provide amenities such as bars. True authenticity is lacking throughout the work undertaken during this refit and many modern materials such as gold coloured plastic in the ward room and a fibreglass like material used on top of plywood boards in areas where the deck was replaced, instead of the original mahogany planking.

Current Condition

- 3.2.3 The current conservation issues here affect both original components and replacements alike.
- 3.2.4 The stability of RML 497 has been previously assessed by Nat Wilson, MCA, and Amgram Ltd, all of which are thought to have been carried out whilst the vessel was moored on the River Itchen. The vessel has since been re-assessed after docking in the cradle and transportation to Hartlepool, where it is currently stored on its cradle within a custom-built enclosed structure at the National Museum of the Royal Navy.
- 3.2.5 The findings of the conservation assessment and survey undertaken as part of the production of this CMP largely correspond with the findings of previous surveys, though the change in environment and passage of time have caused some additional issues and exacerbated existing

ones. The findings reported here have focused on key issues, with further detail set out in Appendix 2.

3.2.6 Generally, RML 497 is in poor condition due to structural instability, persistence of damp, and previous repairs and refits of poor quality. Since docking, drying out, and relocation to a secure facility, many of the concerns raised in the previous surveys persist despite measures taken to stabilise and support the hull. The measures included installation of temporary hull bracing and removal of some of the ballast.

3.2.7 The key findings of the conservation assessment undertaken as part of the production of this CMP are:

- Now that the hull is no longer supported by water, existing structural concerns and creep will be exacerbated in the short-term. Significant features, such as the steering gear and possibly the wheelhouse, are not sufficiently supported in situ and may experience significant damage if their current support systems were to fail. The steering gear is currently fixed to a heavily decayed and fragmented plywood support. This could fall through the hull at any moment which could result in the steering cables ripping through the entire vessel and the steering gear falling through the hull, the likelihood of which is increased due to the rot issues which affect the majority of the stern. This is a risk to the vessel and a significant health and safety risk. The wheelhouse appears at some point to have caused the bulkhead at frame 9 to buckle. Metal (ferrous) supports have been installed, probably to support the wheelhouse and take the strain off the bulkhead, but these are now seriously corroded by the bilge water. It is not clear how long these will last, and the bulkhead may be unable to support the weight of the wheelhouse if they fail.
- Extensive fungal growth and metal corrosion are evidence of the high moisture in the vessel, whether by relative humidity (RH) in the compartments or moisture content in the wood itself. Dry rot is also present at numerous locations within the vessel affecting structural and superficial timbers.
- Standing water in the bilges is promoting active decay of wood and metal components and is a health and safety risk. The area around the engine room also has oil or fuel present which is leaching through the timbers to the external planking.
- As well as structural issues affecting original and replaced components of the vessel, there are also superficial original features which are at risk. These include the lettering recording the 'Bosuns Store' etc. This lettering marks original compartments and are situated on bulkheads whose timbers are suffering badly from dry rot. It is likely that the lettering no longer survives on the timbers, and the paint may be the only surviving evidence of the lettering.

3.2.8 General survival and condition trends from the assessment were also noted:

- Softwoods such as pine and some grades of plywood are more susceptible to fungal growth and rot (Watkinson and Eastwood 2012). Where hardwoods such as mahogany are affected, it is generally as a result of adjacent pine.

- Flat ledges and corners where moisture accumulates are more susceptible to fungal growth as a result of this moisture which is evidenced throughout the vessel.
- Moisture and iron are both nutrient sources for fungi which will exacerbate corrosion of metal surfaces and should be treated with a fungicide as well (Schmidt 2007; Watkinson and Eastwood 2012).
- Generally, due to the aforementioned susceptibility of softwoods to rot and fungal growth, condition cannot be considered representative of phase or originality for this vessel. The exception to this is where original hardwood has been replaced with softwood.
- The presence of ferrous fastenings is generally indicative of later additions or repairs.
- A number of areas on the vessel are inaccessible and therefore not covered in this assessment. This generally relates to areas below lower deck level. Paint also obscured many surfaces.

3.3 Survival of the Hull and Key Structure

- 3.3.1 The hull gives a clear demonstration of the original form and design of the vessel. Her rounded bilges and destroyer-like lines can be easily appreciated and the overall impression is one of originality. Many of her major timbers are original, though with multiple phases of repair, while other key timbers have seen more extensive replacement particularly associated with the working life of the vessel as a ferry. Thus, while those elements of her original construction hold evidence of wartime naval construction, replacements and repairs largely represent later 20th-century technology.
- 3.3.2 The key longitudinal timbers include the keel, which is made up of a number of timbers and is affixed by the false keel below and the hog above, bow timbers, stem timbers, beam shelf arrangement and stringers. Key transverse timbers include frames, bulkheads, beams, deck stringers. The keel and hog are likely original (Figure 2), though the false keel is not shown on the original plans and is likely a later addition.

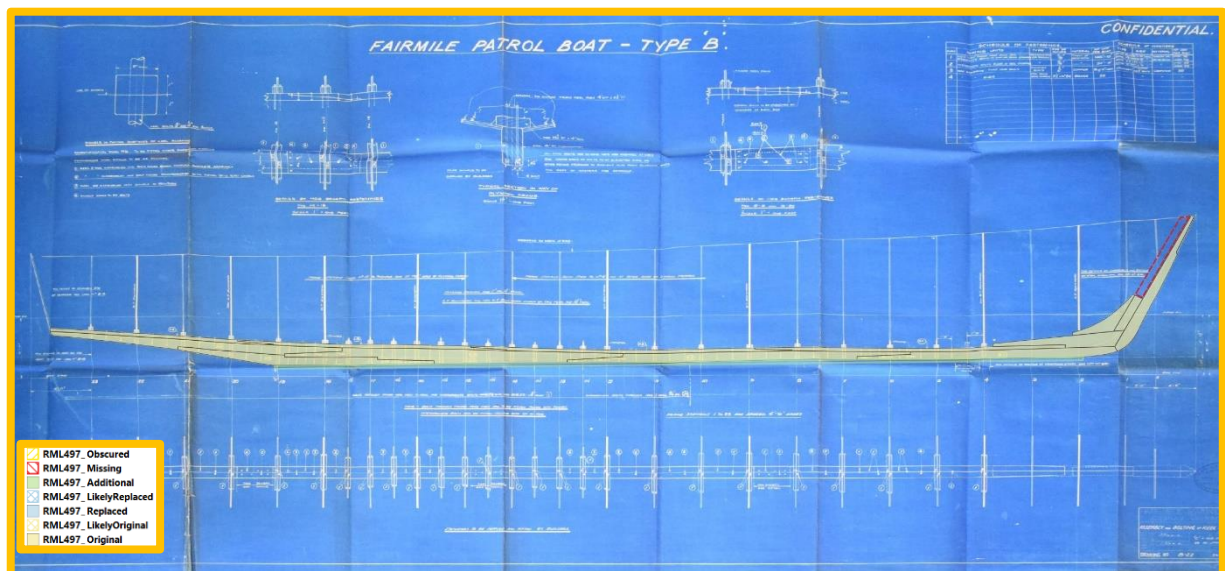


Figure 2: Phasing of the keel and associated timbers

- 3.3.3 The bow was constructed of a number of probable oak timbers including a stem post, internal apron, deadwood and stem knee. Originally the vessel was also fitted with a cutting shoe; a metal plate which according to historic plans was 'ground to a knife edge' and fitted externally at the join between the stem post and keel, likely intended to allow the vessel to ram submarines (Drg B212; Figure 3). The components that are present are likely to be original fabric, though with some elements, such as the upper portion of the apron and the cutting shoe, removed.
- 3.3.4 The stern was constructed with a series of vertical and horizontal timbers, horizontal planking, knees and packing pieces. Overlaying these was the transom beam which was bolted at either side into the shelf and clamp arrangement. As with the bow, these timbers are thought to be largely original.

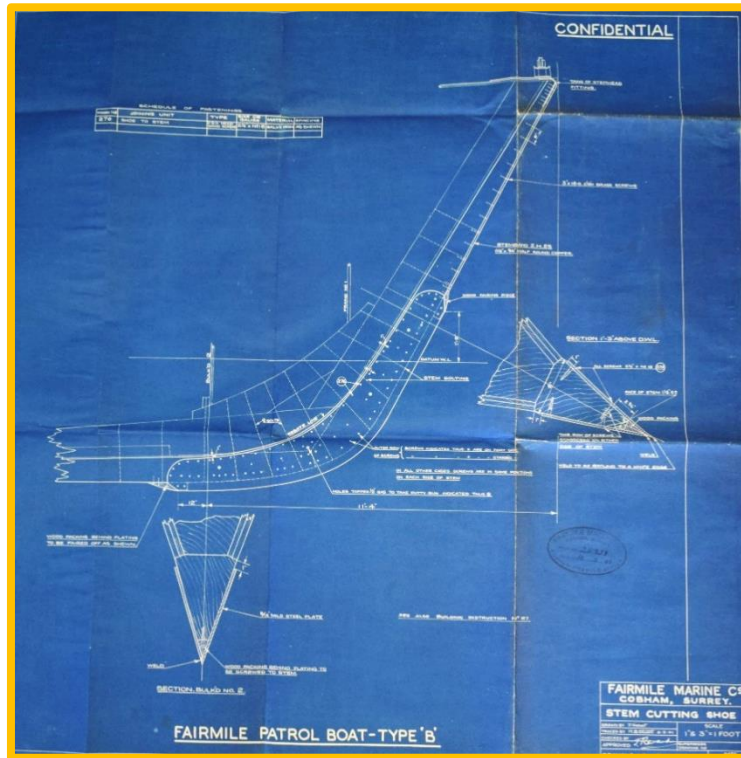


Figure 3: Metal Cutting Shoe

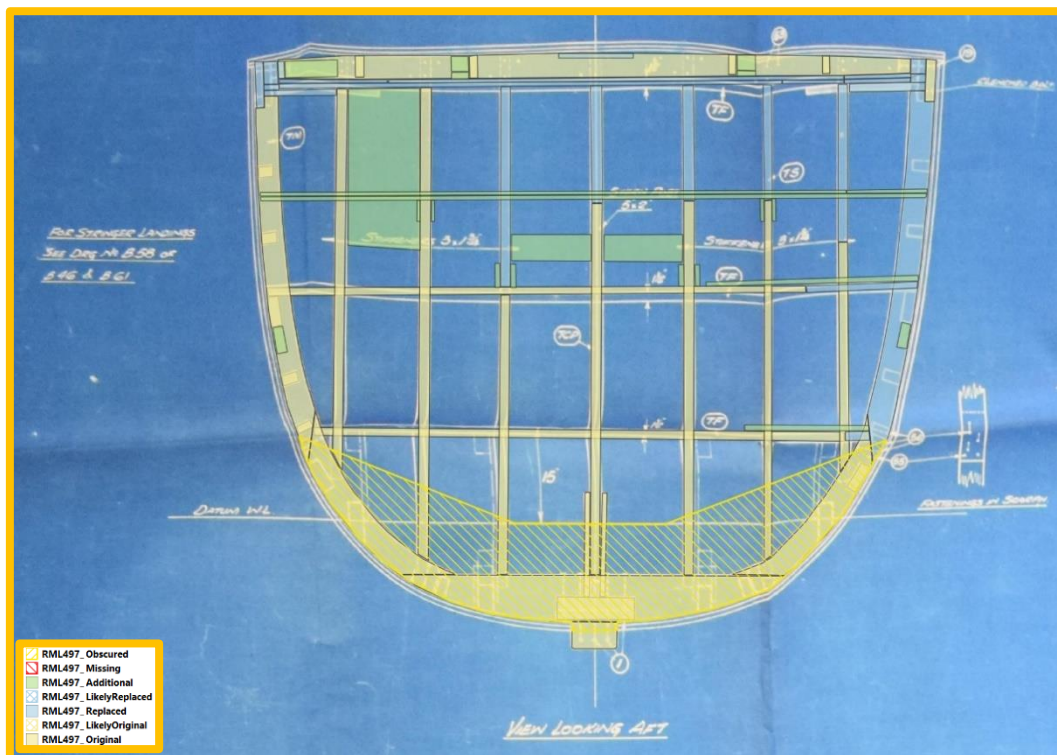


Figure 4: Phasing of the transom

- 3.3.5 There are eight bulkheads positioned throughout the vessel (Amgram Ltd 2018). These divisions were originally constructed at frames 2, 3, 4, 9, 12, 16, 20, and 22 with watertight bulkheads at frames 2, 9, 12, 16, and 22 constructed of double-diagonal mahogany, cut 5/8" thick and set at a 45-degree angle. Different phases of replacement have been noted, but original timbers

appear to persist in part (e.g. Figure 5). A watertight bulkhead at frame 18 has been completely removed and sources also suggest that two of the bulkheads were added in 2012/2013 (Amgram Ltd 2018; Greenway & Dittisham Ferry 2013a,b) though identification of these bulkheads was not possible due to paint cover. Lettering marking original compartments indicates that the final bulkhead at frame 22 is original.



Figure 5: Phasing of bulkheads 2 and 4

- 3.3.6 When the vessel was constructed notches were cut into the frames to accommodate the side stringers. There were a maximum of 10 stringers in total either side of the centre line spaced at a distance of 12". Dimensions were as follows: 4th and 8th stringers 5" x 2"; 1st and 3rd stringers: 2 ½ square; all others: 3" x 1 ¾". Scarf joints for the stringers were all situated behind either a frame or bulkhead, and are a good indication of phasing within the vessel (Figure 6).

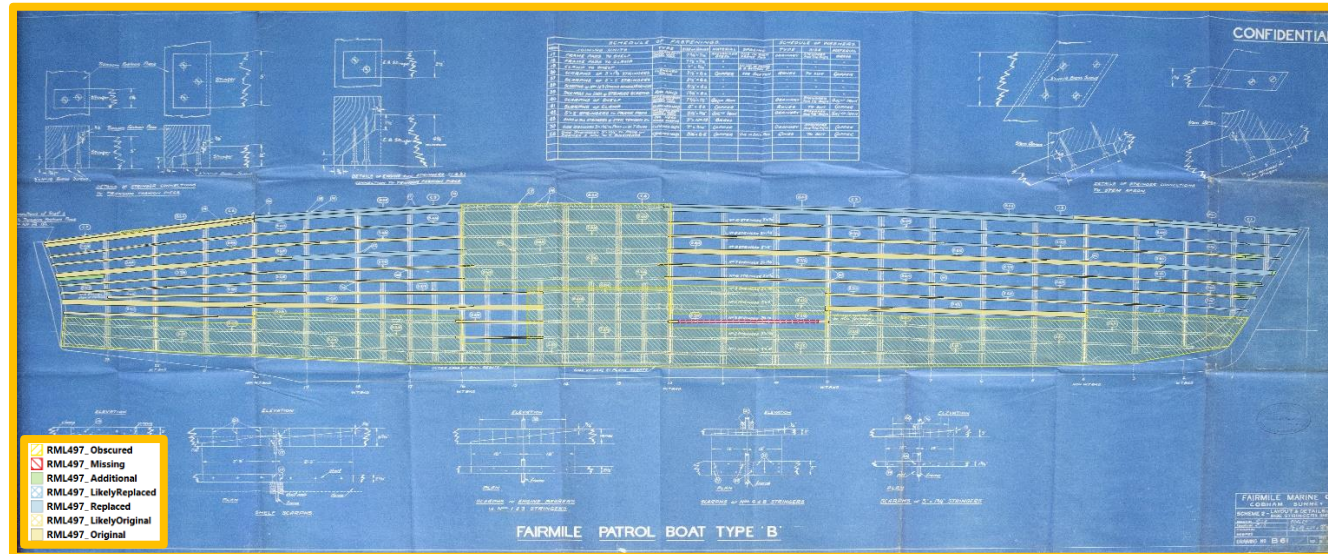
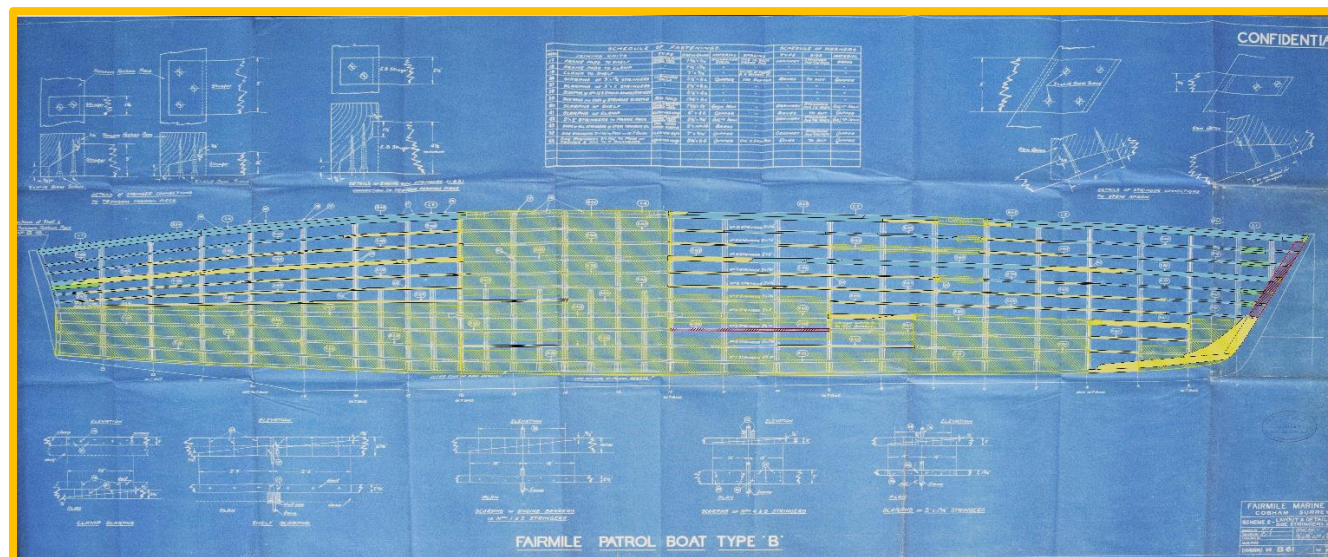


Figure 6: Phasing of the side stringers, port and starboard

- 3.3.7 The beam shelf arrangement, on which the deck beams sit, was constructed of a series of timbers including a beam shelf, clamp, shelf pad and clamp pad. In the sections closest to the bow there was also shelf packing, obscured from view by the remainder of the beam shelf arrangement and gunwale. These timbers formed key supports for the deck beams, running from port-starboard. The deck beams supported the deck stringers, which ran fore-aft and supported the deck.



Figure 7 Beam shelf between frames 9-10 on starboard side, with dry rot

- 3.3.8 The beam shelves, deck beams, deck stringers, side stringers, and floor deck beams are largely original pine with modern pine and plywood replacements and additions in some locations, though some of the beam components are missing entirely.
- 3.3.9 The outer hull planking of the Fairmile B was constructed using double-diagonal mahogany. The inner planking was 5/8" thick and the outer 3/4". The transom planking was constructed using a double layer of staggered horizontal planks. Waterproof calico sheets were placed between the two layers, and rooved double-clenched copper nails were used to secure the planking, with fastening patterns supplied by the Fairmile Company. Original planks were generally long enough to stretch from top deck to the keel, and any short ends were joined at the larger stringers 4 and 8 (Armstrong 1993). Planking with joins in other locations generally indicates replacements, and numerous replacements are also visible where the joins with original mahogany are not in alignment².
- 3.3.10 The vessel was constructed with a top deck and an internal deck. The top deck was made from a double-diagonal layer of teak, with a covering board running around the perimeter edge. Outboard of this a semi-circular timber rubbing strip was added. The internal deck consisted of

² Other indicators of phase are given in Section 1.8.

longitudinal planking which ran throughout the vessel. Little of the original fabric of the top deck remains following numerous refits, and large areas have been replaced with a possible fibreglass material on plywood boards.

- 3.3.11 The gunwale runs the length of the outer side of the vessel, on the port and starboard sides, exterior to the beam shelf where the top deck planking and external side planking join. This timber is fitted with a ferrous rubbing strip which runs along the sides of the gunwale aft of the wheelhouse. Further aft, it is capped with an additional metal strip. In between the gunwale and the top deck planking, there is an additional timber running the length of the vessel.
- 3.3.12 The lower deck is constructed from planking and deck beams. The floor beams are largely made from pine with some modern repairs or replacements. Although the beams are largely inaccessible due to decking, where accessible original timbers appear to be present but with multiple phases of repair including pine uprights. There are safety issues which also inhibit access and the detailed phasing could not be ascertained without removal of internal decking and draining of the bilge.
- 3.3.13 When RML 497 was constructed hatches were inserted to allow access from the top deck to the interior of the vessel. The forward-most hatch led through the top deck forward of frame 2 for access in to the oil skin locker. The chain locker area and forward heads were not accessed via hatches, but by doorways within the vessel. A large access hatch between frames 5 and 6 provided access to the main accommodation area. Further aft, the main hatch to the officer's compartment and radio room was positioned just behind the bridge, directly over frame 11. The engine room had two access points, a small hatch present on the starboard side of the funnel between frames 12 and 13 (forward end of the engine room), and a second larger hatch positioned between frames 15 and 16. The fuel room was accessed by a small hatch on the centreline just forward of bulkhead 18. At the stern a large access hatch situated between frames 21 and 22 provided access to the officer's quarters. Finally, a small hatch just aft of bulkhead 22 provided access into the steering gear and aft stores (Drg B216; L/S/238).
- 3.3.14 In total there are eight hatches through the top deck of three main types. Small, rounded, ferrous deck hatches sit over the bow compartment, engine room, and bosun's locker. These are likely original. Two rectangular ferrous deck hatches are positioned over the engine room and ward room and are likely later additions. Three larger main hatches with stairs and pine carlings are also set into the deck above the main accommodation, officer's quarters, and aft ancillary area. Some of these have been repaired with modern pine or plywood or are later additions entirely.
- 3.3.15 Reinforcement is present within the internal areas of the vessel, provided by knees, longitudinal timbers and metal components. Hanging knees on frames are a later addition, and the role of the knees was originally played by the shape of the frames themselves. The replacement knees are in a variety of forms, though largely made from plywood which are in excellent condition with a continuous layer of paint and do not appear delaminated or warped.
- 3.3.16 The engine bearers which provided additional longitudinal structural support for the engines were situated below the lower deck, and ran along stringers 1 and 3 on port and starboard sides. Believed to have been made of a hard wood, the bearers were 2 ½" thick and finished 7"

below waterline (WL) Datum. These timbers were originally sided by plywood boards between frames, cut $\frac{3}{4}$ " thick. Some of the timbers also had circular holes cut through the centre, used for routing pipe work. Access to the engine bearers is restricted due to the presence of the lower deck planking, so a complete assessment was not possible. However, it is highly likely that large portions of the engine bearers have been replaced, and multiple phases and fastenings were visible.

- 3.3.17 Areas of additional reinforcement for standard Fairmile B armament were also fitted within the vessel. These included timbers fitted to the underside of the top deck between frames 9 and 14 running diagonally to meet towards the centreline at frame 14. These reinforcements were to accommodate the installation of the torpedo tubes (Drg B216; see Figure 8).

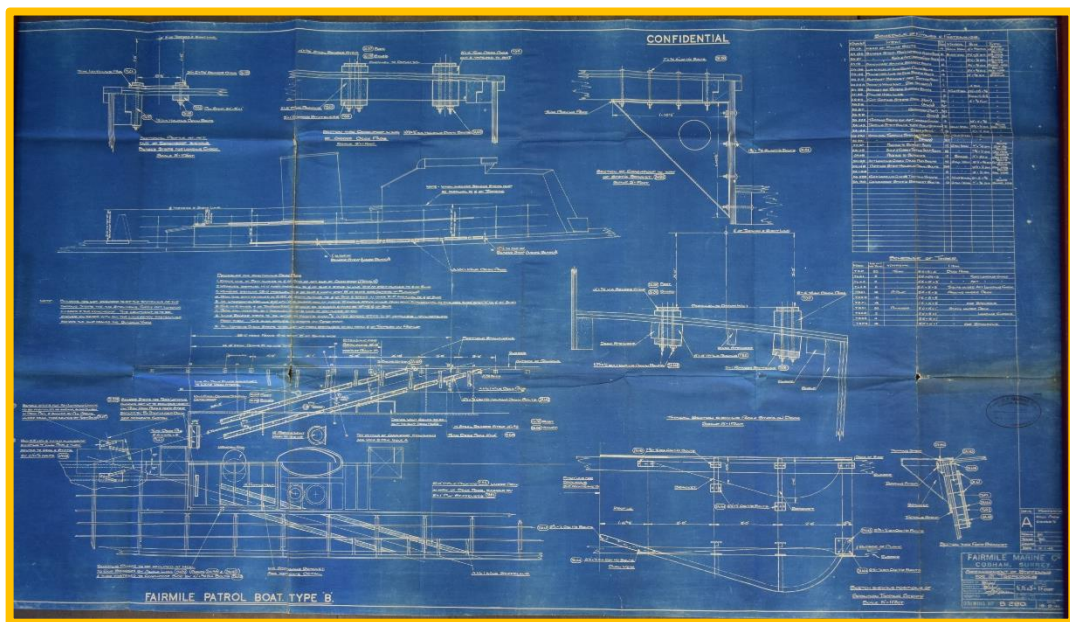


Figure 8 Plan showing wooden reinforcements for torpedo tubes



Figure 9 Steel knees added to support mark 1 mine chutes

- 3.3.18 Steel knees were also added within the vessel to provide additional support for the mark 1 mine chutes. RML 497 was never fitted with torpedoes or mine chutes, however, the construction of the reinforcement for this armament within the vessel demonstrates the use of the standard designs for all Fairmile Bs, constructed as versatile vessels which could be rapidly modified to suit multiple purposes (Figure 9). It also demonstrates that the specific role of the Fairmiles was decided late into the construction process, after generic features had already been added.
- 3.3.19 Other areas of reinforcement sit beneath the wheelhouse. This structure was originally supported by four metal 1 ¼" tubular pillars which bolted directly to the tip of the inner engine bearers with oval brackets held by 3/8" screws (Drg B162), in addition to the support provided by the bulkhead. These survive in place, and additional reinforcement has also been added apparently to support the wheelhouse, probably due to structural issues with bulkhead 9.
- 3.3.20 Modern reinforcement has been installed into the officer's quarters, ward room, and aft ancillary area.
- 3.3.21 The vessel is supported by a modern purpose-built cradle.

3.4 The Hull: Key Conservation Issues

- 3.4.1 The conservation assessment of the vessel identified a series of key risks to the hull:
- The vessel has recently been moved out of the water, installed on a cradle and transported to Hartlepool. These represent drastic changes to the environment of the vessel which pose a risk to all elements of the structure as she settles into her new environment and dries out;

- The keel is warped, is not in line with the cradle, and there is material loss within this major timber;
- Structural bulkheads are suffering from a range of issues including buckling, extensive and active rot and corrosion of ferrous components. Bulkheads 9 and 22 are of particular concern and may no longer be structurally sound;
- Ferrous reinforcements which have been added to support the wheelhouse are in poor condition and are showing signs of warping from stress. Coupled with the structural issues with bulkhead 9 this may threaten overall stability in the midships area;
- A range of timbers are in poor condition affected by fungal growth, rot and pest activity which is leading to damage to original and replacement materials. Incremental damage to timbers can also accumulate to cause issues with overall stability;
- Loss of integrity of the deck planking affecting areas of the top and lower deck pose a risk to health and safety as well as the physical fabric of the vessel;
- Tangential shrinkage and longitudinal cracking with localised occurrences of pest and fungal activity and salt efflorescence affecting the planking;
- Ferrous components are corroding leading to damage to those components and surrounding timbers;
- The vessel has not yet fully dried out and there is a relatively large volume of standing water in the bilges and likely a higher moisture content in timbers, which will exacerbate issues with rot and corrosion;
- Modern, recent, reinforcement is already deteriorating;
- The cradle is in good condition though the wooden supports have begun to crack in places and high moisture content of the vessel could lead to corrosion of the cradle;
- Phasing is uncertain for many aspects due to a range of issues.



Figure 10: Buckled section of bulkhead 4, forward face, port side.



Figure 11: Base of large metal support with close up of support in bilge water below decks



Figure 12: Plank shrinkage on external hull on starboard side close to stern



Figure 13: Keel sitting off-centre on the cradle, and cracking in cradle timber

3.5 Compartments, Fittings and Areas

- 3.5.1 The compartments and areas of the vessel have seen significant reworking. The majority of the main original watertight bulkheads survive though many former compartments have been removed, inhibiting overall understanding and evidence of the wartime layout of the vessel. However, there are some important original features and systems which do survive. These include the steering system, aspects of the lubrication system and ventilation system. Other fittings such as shelves and desks have largely been removed, though the engine room and wheelhouse have a higher level of survival of these features.

Below decks

- 3.5.2 In the lower part of the vessel there were originally eight fresh water tanks ranging from 95 to 140 gallons capacity in each. These sat in the bilges and between the central space created by the engine bearers, from frames 4 to 12. They were positioned directly over the centreline of the hull one between each frame. These do not survive in situ, but three are stacked within the officer's compartments. These are likely to be original.

Lower Deck and Internal Compartments

- 3.5.3 At lower deck level, the forward compartment was constructed and used as the oil skin locker (see Figure 14). This compartment occupied the area from the stem post to the bulkhead at frame 2, accessible through the starboard side forward hatch. It is currently occupied by rope, and likely has a similar character to that of wartime. However, there has been considerable replacement in the components which make up the forward part of this compartment.



Figure 14: Bow compartment

- 3.5.4 The area created by bulkheads 2 and 3 was originally divided into three compartments. The starboard side was used as a storage area, the port side as the forward magazine and the central section was segregated off to house the anchor chains (see Figure 15) (L/S/238). The majority of the internal divisions no longer survive, which inhibits understanding of the original function and character of this area, and the compartment is now used solely as a chain locker, though evidence of former internal divisions survives.



Figure 15: Chain locker

- 3.5.5 Between the bulkheads at frames 3 and 4 the area was originally sectioned into the port and starboard sides. The port side was fitted with wash basins and mirrors, while the starboard side was used as the forwards heads for the crew. The internal division no longer survives and the compartment is currently occupied by a single Blake toilet (Figure 16; Figure 17). The toilet is original, is an important feature and serves as a connection with MTB 71 which maintains two original Blake toilets.



Figure 16: Blake toilet on RML 497



Figure 17: Forward heads

- 3.5.6 The main accommodation (Figure 18) was positioned between the bulkheads at frames 4 and 9. Originally this area was constructed with storage box seating positioned down both sides from frame 6 to 9, which survives today, and twelve hinged cot beds attached to the sides of the hull between frames 5 and 9 which do not survive. At the forward end of the main accommodation room, a space for hanging clothes and a cupboard of blankets was originally constructed on the port and starboard sides and in the centre of the room at frame 8 there were two tables and benches, and a coal fired stove was installed forward of bulkhead 9 on the port side (L/S/238). None of these features survive, and the compartment has generally lost its original character as an accommodation area. The benches are highly multi-phased, but some original fabric survives. Additionally the original watertight door from the forward mess and lobby, which fell from its hinges during transport, lies on the floor in this room.



Figure 18: Main accommodation facing aft toward bulkhead 9

- 3.5.7 The area aft of the main accommodation (frames 9 to 12) (see Figure 19) originally included a series of compartments. A central lobby in this area allowed access into the adjoining rooms. On the port side from frames 9 to 10 was a lavatory with shelves and a small cupboard, and aft of this was one of the officers' quarters (Drg B173), fitted with a hinged storage bed, table and storage. The galley, located between frames 10 and 12 on the starboard side, contained a stove,



Figure 19 Officers compartment looking aft to the forward face of bulkhead 12

sink and storage (L/S/238). The wireless operator's office was forward of this, and cut into the bulkhead at frame 9. It sat below the access/communication hatch through the deck into the wheelhouse (Drg B173). The internal divisions and features between the bulkheads at frames

9 and 12 have been removed, and the area is one large space with bar related equipment relating to the use of the vessel as a ferry. There is little evidence of the former uses of the space though a patched-up hole through the funnel base marks the former location of the galley stove chimney, and the communications area is still marked by a recessed area in bulkhead 9.

- 3.5.8 The engine room was located between the bulkheads at frames 12 and 16 (Drg B173) (see Figure 20). The two original Hall-Scott engines sat between frames 13 and 15, positioned over the inner and outer engine bearers (stringers 1 and 3) on either side of the centreline. Each engine was fitted with two exhausts which exited the compartment through the funnel located between frames 12 and 13 (Drg BE29). The funnel itself was oval shaped, and covered an area 6'5" x 3'6", and stood 6'3" tall. It was constructed of steel, capped with a cover plate with four holes for the exhausts and one for the galley stove flue, and externally painted in two coats of battleship grey aluminium paint (Drg BE29). Within the engine room were features including a workbench, storage cabinet, bench and work desk (L/S/238). Many of these original features and much of the original layout survives, and the room as a whole retains the character of an engine room. The room has the notable later insertion of the fuel tank in the aft portion. The room is now clad in metal insulation sheeting which covers the majority of the hull features.



Figure 20 Engine room

- 3.5.9 The main engines sit on steel frames atop the engine bearers. The original engines were removed after the war, replaced by Thorneycroft engines, followed by two Gardner engines and one auxiliary engine (see Figure 21). The Gardner engines, which are thought to have been installed in the 1970s, now sit side by side, port and starboard of the centre line of the vessel, and the auxiliary sits to the starboard.

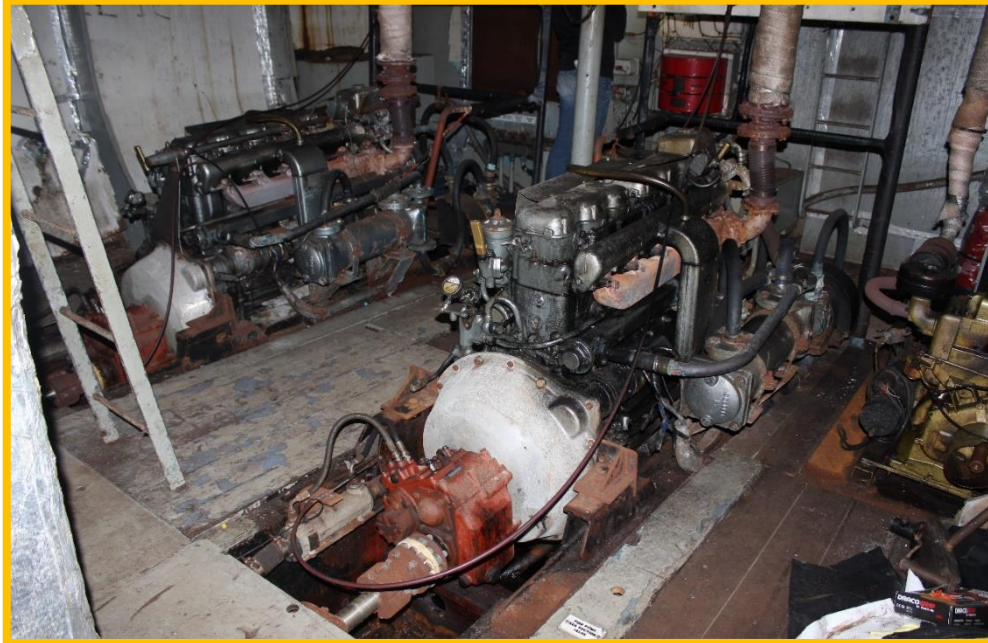


Figure 21: Replacement Gardner engines



Figure 22 Work bench in engine room

- 3.5.10 In contrast to the majority of the rest of the vessel, internal fittings including the work bench and desk have survived in the engine room (see Figure 22), although the location of the latter has been altered. Other systems in this room including the lubrication system have original features, and the greaser has a plaque with 'Fairmile' inscribed on it.
- 3.5.11 The ward room is located between the bulkheads at frames 16 and 20 (see Figure 23) although an original bulkhead at frame 18 has been removed at some point during the vessel's use (Drg B173). This area, forward to bulkhead 16, was originally the fuel tank room. Five fuel tanks were fitted with capacities ranging from 407 to 542 gallons. Around the perimeter of the compartment a fire system was fitted with twelve spray heads providing fire protection to the compartment (Drg BE34 and BE50). The fuel tank now sits in the engine room, and the bulkhead at frame 18 has been removed. The ward room, which originally occupied the area between frames 18 and 20, was fitted with hinged storage beds, shelves, storage and a desk. A coal fired stove was also fitted on the port side of the centreline (L/S/238).



Figure 23: Ward room



Figure 24: Propeller shafts and greasers below decks in Ward Room

- 3.5.12 With the exception of hull planking and some side stringers there is very little original structure within the ward room and as a whole the room does not retain an original character, dominated by a modern bar, gold walls and the use of plastics (Figure 23 and Figure 24). Above lower deck level, the internal structure has largely been replaced with modern plywood and pine.
- 3.5.13 A series of compartments were originally situated between frames 20 and 22. On the port side was the officer's heads and aft of this a provision store. The central area was a lobby with steps to the deck hatch and a watertight access hatch to the bosun's store aft of frame 22. The starboard side was made up of an officer's pantry with a sink, and aft of this a store cupboard. Further aft again was a magazine (Drg B173, L/S/238). The area has been largely reworked from its original design to include modern lavatories on the port side, and an open space to starboard. However, the bulkhead at frame 22 is likely to be original, as it appears to be made of mahogany with the inscription "BSN STORE 3 TONS" painted in relief on the bulkhead (Figure 25).
- 3.5.14 The stern section beyond the bulkhead at frame 22 was originally made up of a bosun's store from frame 22 to 23 and then aft of frame 23 was the steering gear (Drg B173). The vessel appears to have been built in this manner, according to the plan shown in Figure 27. There is, however, another plan which shows a different form of steering gear associated with a different stern layout. In this plan the Bosun's store was sectioned off to leave a central lobby with storage on the port and starboard sides (L/S/238). Interestingly there are the remains of internal divisions within the vessel which cut across the patched-up door to the Bosun's store, suggesting that the internal divisions from the second plan were installed possibly at a later date, resulting in the aft section of the vessel having a layout which is a combination of both plans (see Figure 27 for comparison).

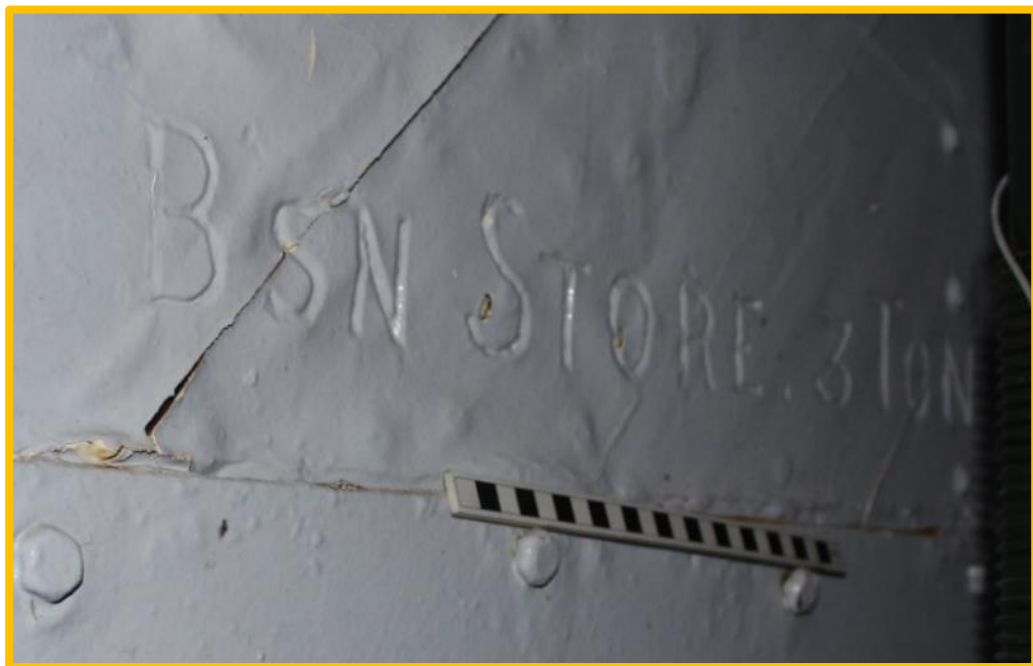


Figure 25: Original lettering on bulkhead 22 marking the location of the bosun's store



Figure 26: Bulkhead at frame 22, with brown rot

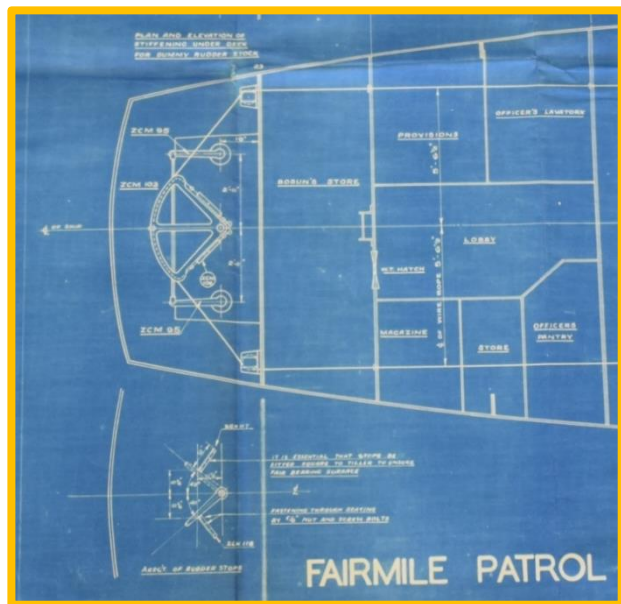


Figure 27: Original and alternate layout for the stern section of a Fairmile. RML 497 has features from two different layouts.

3.5.15 The steering quadrant and column were located in the final compartment of the vessel (see Figure 28). The steering quadrant was fixed to a 1" thick plywood box structure supported by pine stantions, and to the top deck aft of frame 23. The quadrant connected to the rudder tillers on both sides and wooden rudder stops were installed giving the rudders a 40-degree

movement to both port and starboard (Drg B173). Where the steering column joined to the deck a socket-style fitting allowed for the emergency steering arm to be attached (Drg B173). The steering column was, however, primarily controlled by the steering cable. This cable ran port and starboard around the back of the quadrant, guided by pulleys on frame 23. The cable ran forward from here at ceiling level, guided along its way by eyes attached to the deck beams and bulkheads. The cable was left open except for the fuel tank room (frames 16 to 18) where it was encased by a pipe (Drg B173). The cable ran upward through the top deck to the wheelhouse and bridge. The steering system is largely in place and original.



Figure 28 Top to bottom, left to right: Steering quadrant on plywood box; hole on the port side of the plywood box; plywood box sagging beneath weight of the steering gear; underside of plywood box showing lack of support

Top Deck, Wheelhouse and Bridge

3.5.16 On the top deck, the wheelhouse was constructed above the main accommodation and officer's compartment. The front of the structure was angled and joined the deck between frames 6 and 7, and extended back to frame 10. The raised section of the deck continued back

to just aft of the funnel at frame 15. The wheelhouse was constructed of a series of timbers including vertical stiffeners, beams, an aft bulkhead, knees and planking (see Figure 30) (Drg B97). The wheelhouse floor was accessed from the main accommodation, where the floor is set down into the ceiling of the compartment, lowering its height in the footprint of the wheelhouse. It is made up of a lattice of mostly pine timbers. The wheelhouse has largely retained its original fabric, both internally and externally.

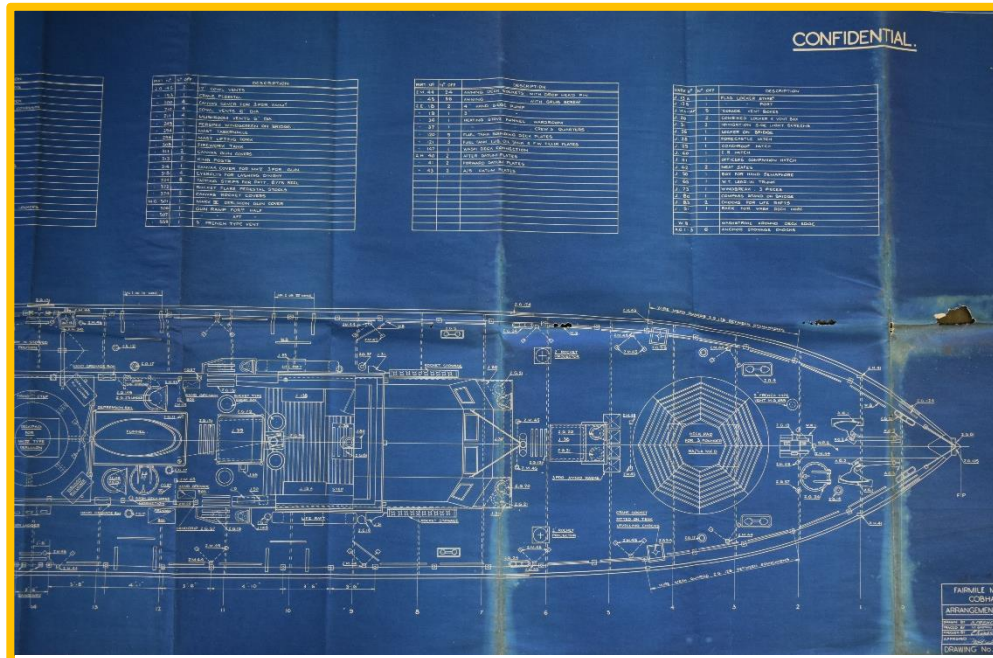


Figure 29: Plan of deck fittings showing wheelhouse

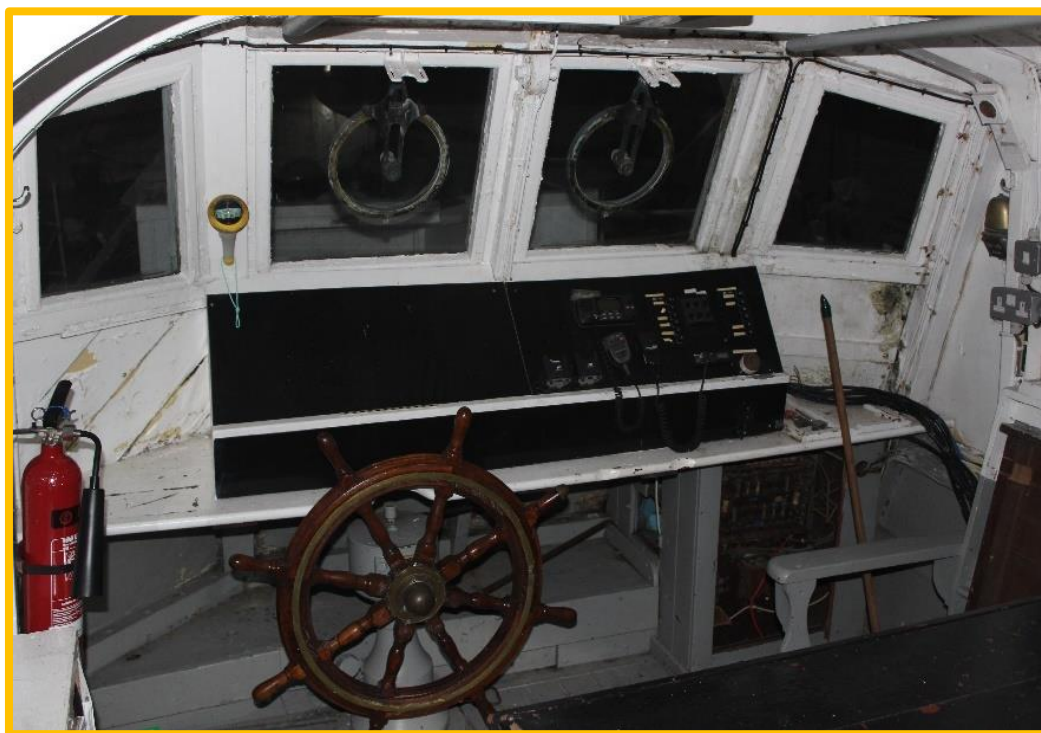


Figure 30 Interior of the wheelhouse, forward section

- 3.5.17 Access to the wheelhouse is via the original timber-framed and double-diagonal planked door in the aft face of the wheelhouse (Drg B97). Once inside it is clear that many of the original internal features and fittings have been retained, though there are also clear modern additions. The wheel is positioned toward the forward face, to the port side of the dash, and was originally surrounded by engine room telegraphs and the compass binnacle (see Figure 30). A series of voice pipes were also installed running below decks and the fuse box for the electrics was positioned below the dash (Drg B150). A chart case and document box were located to port, below the window and a rack for the Lewis guns was by the door. The phone and starter switch were positioned on the starboard side wall. On the aft wall a barometer, bookshelf and telescope rack were located, in addition to the steering column for the bridge wheel, and on the floor to the starboard side was a hatch to allow communications with crew in the radio room (Drg B150). The wheelhouse also has eight Perspex double-pane windows which may be original or of an early date, four on the forward face and two each on the port and starboard sides, some of which contain copper alloy components and iron fastenings. Those facing forward have Kent screens fitted. The windows and the majority of the surrounding timber frames are likely original except for the timber above the starboard window which is a plywood replacement.
- 3.5.18 Aft of the wheelhouse was the bridge, which formed a raised steering platform (see Figure 31). The sides of the bridge and the additional windshield structure were originally protected with armour plating which no longer survives (Drg B246). The floor of the steering platform was formed of slat-laid planks, arranged on a transverse orientation, and with spacing between. Sunk in to the deck on the port side of the steering position was the well for the wheelhouse door. To the starboard of this was a step locker positioned on the floor. The aft edge of the bridge decking was cut into by the mast and the square mounting bracket that attached to the deck. The forward windscreen which was constructed on the forward face of the bridge protected the dash, where the compass was positioned on the centreline. A voice pipe ran from the dash in to the wheelhouse. The external ship's wheel was positioned on the centreline, and the steering arm for this ran through into the wheelhouse at an angle to join the line of the internal wheel. A clutch assembly on each wheel allowed each wheel to be individually engaged and disengaged (Drg B298). There are numerous modern fittings on the dash.



Figure 31 The bridge, facing forward

- 3.5.19 The top deck has undergone changes to its original form. Originally the top deck included features such as two anchors which sat side by side at the bow, multiple fairleads, bollards and cleats and a winch for the anchor which sat on the deck between frames 2 and 3. Pairs of fairleads were fitted between frames 0 and 1, also at frame 6, frame 15 and at the stern. Bollards were fitted at frames 3, 7, 15 and 23 (L/S/238). The vessel's plans also indicate that she is likely to have been constructed to carry armament. The armament could be adapted and Fairmile B's could carry a combination of 1, 2, 3 and possibly 6 pounder guns as the main armament and 0.303, 0.50cal Vickers machine guns as well as 20 mm Oerlikon cannons as secondary weapons. Rocket flare projectors were also fitted in some cases (National Historic ships n.; North 1972: 54). The vessel has no armament today, though areas of reinforcement within the vessel indicate its planned former locations, although it is likely that it was never fitted out with the torpedoes or chute mines for which it was reinforced.
- 3.5.20 Instead, the top deck of the vessel now largely has the character of a ferry. There are now handrails around the deck, and other modern fixtures include benches and bar equipment (Figure 32).



Figure 32 Ferry features of the top deck include seating (bow depicted) and the sick-bay themed bar

- 3.5.21 The vessel was fitted with numerous types of ventilation, including ventilation boxes, cowl vents and mushroom vents (L/S/238), (see Figure 33). Vents and ventilation ductwork remain present throughout the vessel to form the ventilation system.



Figure 33: Mushroom vent

3.5.22 There are 30 original, composite portholes present throughout the vessel (see Figure 34). There are two in the forward heads, nine in the main accommodation (one is missing and has been patched over), four in the Officer's Quarters, six in the engine room, six in the ward room, and three in the aft ancillary area (L/S/238).



Figure 34: Porthole in the Ward Room

Propellers and Rudders

3.5.23 The stern tubes for the propeller shafts were 11 ½ inches wide and exited the underside of the hull between frames 18 and 20 (see Figure 35). The steel propeller shafts were constructed with a diameter of 2 ¼ inches. The brackets for the propellers were mounted on the underside of the hull below frame 22. The vessel was originally fitted with two three-bladed bronze propellers, with a diameter of 33" (Drg BE22). Two propellers survive today, though it is not certain whether these are original.



Figure 35: Stern of the vessel

3.6 Compartments, Fittings and Areas: Key Conservation Issues

- The steering gear is original but at risk due to the structural instability of the plywood box on which it sits, unsupported. This also places at risk a large part of the vessel as a whole, as the steering gear is connected to the steering cables which run throughout the vessel to the wheelhouse. The collapse of the plywood box could therefore have a knock-on effect which places at risk numerous original features, overall structure, and poses a health and safety risk;
- The wheelhouse is an important original feature but may not be properly supported due to potential structural issues with the bulkhead and reinforcement below;
- The engine room contains many original features along with much of its original layout, and character. Rot and corrosion threaten this room, exacerbated by the standing water in the bilges;
- Original features are at risk associated with the degradation of bulkhead 22. These include lettering indicating the original position of the bosun's store;
- The aft compartment is badly affected by rot with all timbers at risk of loss through active deterioration;

- Loss of original internal compartments and historic character has affected some parts of the vessel. This loss is most evident in the ward room and former fuel tank room which now has a distinctly modern appearance, with a modern bar, gold walls and the use of plastics.

Part 2: Statement of Significance

4.0 Introduction

- 4.1.1 Historic vessels have numerous potential sources of significance. These sources of significance tend to be related to the physical fabric of the vessels or with the associations they have gained over time through involvement with notable people or events, or in the perceptions of today's communities. Often significance is derived from a combination of physical fabric and historical or contemporary associations and perceptions.

4.2 Statutory Protection

- 4.2.1 There are a number of designation regimes that cover different types of heritage assets and provide them with different levels of protection. Historic vessels can be designated under the Planning (Listed Buildings and Conservation Areas) Act, 1990, as is the case for the *Cutty Sark*. This designation can be sought if the vessel is of special architectural or historic interest. Listing is awarded by grade (I, II*, or II) according to the importance of the heritage asset.
- 4.2.2 RML 497 currently has no statutory protection, and is therefore considered in planning terms as a non-designated heritage asset. The National Planning Policy Framework (NPPF) identifies two types of non-designated heritage asset: those which are of equivalent significance to designated assets; and those which are of lesser significance but still of archaeological interest.
- 4.2.3 Due to their nature historic vessels cannot be protected as Scheduled Monuments under the Ancient Monuments and Archaeological Areas Act. Under the National Planning Practice Guidance (NPPG) historic vessels are 'incapable of being designated by virtue of being outside the scope of the Ancient Monuments and Archaeological Areas Act 1979 because of their physical nature' (NPPG para. 040, 23/07/2019). However, NPPF (para. 194, footnote 63, 2019) states that 'non-designated heritage assets of archaeological interest, which are demonstrably of equivalent significance to scheduled monuments, should be considered subject to the policies for designated heritage assets', demonstrating that lack of designation via scheduling does not necessarily denote lack of equivalent significance.
- 4.2.4 For assets which are not of designable quality, the NPPF (2019, para. 197) directs planners to take account of impacts to these non-designated heritage assets and to provide a balanced judgement which takes account of the scale of harm and the significance of the asset.
- 4.2.5 Determination of the significance of a heritage asset is therefore key to understanding how it should be treated by planners.
- 4.2.6 The following section includes an assessment of significance of RML 497.

4.3 National Register of Historic Vessels

- 4.3.1 The National Register for Historic Vessels is a register of vessels with historical value held by National Historic Ships UK. This government funded, independent organisation provides advice to the UK government bodies, local authorities, funding bodies, and the historic ships sector on

all matters relating to historic vessels in the UK. RML 497 is one of over 1300 vessels registered on the National Register for Historic Vessels (certificate number 307).

4.3.2 Vessels on the National Register for Historic Vessels are subject to certain criteria, vessels must:

- Be at least 50 years old;
- Have demonstrable and significant UK associations including at least one of the following:
 - Built in the UK
 - Built abroad for a specific purpose related to the UK
 - Connected to the UK by a significant event or person
 - Have spent at least 50% of its working life in UK waters
- Be more than 33ft in length overall;
- Be substantially intact.

4.3.3 RML 497 meets all of the criteria for inclusion on the register; it was built in 1941 and as such is 78 years old at the time of writing in 2019. It was built in the UK and as part of the Coastal Forces fleet. It is connected with World War II. It has spent its whole working life in UK waters. At just under 112ft, it exceeds the minimum required length of 33ft. RML 497 is also intact and though she has been altered to suit different purposes throughout her life, she retains many original features and her current overall form is not starkly different to her original form.

4.3.4 RML 497 is also a part of a subgroup of vessels within the National Register for Historic Vessels- The National Historic Fleet. There are approximately 200 vessels in this group. Vessels added to the National Historic Fleet are distinguished by:

- being of pre-eminent national or regional significance
- spanning the spectrum of UK maritime history
- illustrating changes in construction and technology
- meriting a higher priority for long term conservation.

4.4 Significance of RML 497

What is the vessel's ability to demonstrate history in its physical fabric? (Evidential Value)

4.4.1 Phasing is of key importance for determining the evidential value of the physical fabric of the vessel. In particular distinguishing between wartime and post-war material is of importance. The phasing of RML 497 is extremely complex, and although broad phasing has been established (see Section 3), detailed phasing for the production of this CMP has not been possible due to the presence of paint which masks timbers, joints and fastenings, and due to the practice of conducting repairs in an original style with original materials when the vessel

was a *Western Lady* ferry. Although detailed phasing, including identification of all original and replaced timbers, was not possible, it was possible to gain a general understanding of original components and features on a broad scale.

- 4.4.2 The hull gives a clear demonstration of the original form and design of the naval vessel. Her rounded bilges and destroyer-like lines are evident within her physical fabric. They demonstrate the purpose of the vessel as a relatively fast yet stable naval ship. This forms a key component of her evidential value. Her lines are also of relevance for understanding the connection between form and function, which contributes to RML 497's significance and is discussed further below.
- 4.4.3 Original and wartime components make a contribution to overall significance, as they reflect the wartime history and original purpose of the vessel. Original components include key timbers such as the keel, bow and stern, stringers and many beams. The frames largely represent replacements, though frame 13 in the engine room is a notable exception, but in poor condition. Other original features include the shelf and desk in the engine room, steering gear and the majority of the wheelhouse.
- 4.4.4 In addition to these original areas, enigmatic clues to the former presence of lost internal divisions and compartments survive. These include packing pieces for internal divisions which no longer survive, the patched-up hole in the funnel marking the location of the former flue for the stove in the galley, and more legible evidence such as inscriptions marking the location of the Bosuns Store or Steering Compartment (Figure 36). Unfortunately, the bulkhead on which these inscriptions are located (at frame 22) has suffered heavily from rot, and it is likely that the letter itself is preserved only within the paint layers rather than the timber which has deteriorated badly due to the effects of the rot. The steering compartment lettering has been further affected by the installation of wiring running across the text.



Figure 36: Lettering marking the location of the steering gear on bulkhead 22

- 4.4.5 Reinforcements for armament including torpedo tubes and mine chutes also form important clues to RML 497's history which are evident within the physical fabric of the vessel. The armament itself does not survive, however, the construction of the reinforcement for this armament within the vessel demonstrates the use of standard designs for all Fairmile Bs.
- 4.4.6 Removal of internal compartments and reworking of those which remain has, however, reduced the evidence inherent within the physical fabric of the vessel relating to her wartime layout and function. This layout and the compartments included all that was necessary for life on board a naval vessel, including sleeping quarters, a galley, lavatories, storage areas, magazines, control rooms and communication rooms as well as the necessary engine room and fuel store, along with areas such as the sick-bay which allowed her to fulfil her specialised role as an RML. Unfortunately, the majority of these compartments no longer survive, likely removed for the vessel's time as a ferry, and those compartments which do survive have largely lost their original character. Notable exceptions are the engine room, steering gear compartment and wheelhouse. These retain their original characters, and many original components.
- 4.4.7 The top deck has also undergone significant reworking. The deck itself has been largely replaced, and as a whole the area has the character of a ferry rather than a naval vessel. There is no armament, and passenger seats, handrails and a sick-bay themed bar dominate the top deck. The benches which provided seating for vessel passengers are not original, though other fittings such as the winch, and likely many of the bollards, cleats and fairleads are. The complex patchwork of repairs throughout the vessel are also testament to this part of the vessel's history, evident within her physical fabric. The vessel's time as a ferry is also part of her significance, however this part of her history contributes less to overall significance than her wartime connections.
- 4.4.8 While original components do survive it must be noted that the vessel as a whole is in poor condition and many areas, including original fabric, are at risk from a variety of issues including structural instability, rot and corrosion (see Section 3).

What are the vessel's associational links for which there is no physical evidence? (Historical Value)

History

- 4.4.9 RML 497's association with World War II in its role as a member of the Coastal Forces fleet provides a key associational link conferring the primary source of significance on the vessel. The Coastal Forces were integral to the defence of the UK's coastal waters during the war; they supported larger vessels in sea-battles, protected naval and merchant vessels against submarine attack, and took part in naval operations, including D-Day. The Fairmile B crafts played a variety of roles during war time- as minesweepers, submarine chasers, and rescue craft. RML 497's association with the coastal forces fleet is also reflected by her role as part of the NMRN's Coastal Forces collection.

- 4.4.10 While the wartime career of RML 497 was not illustrious³, the vessel was associated with some key locations and activities. RML 497 was, for example, stationed at Scapa Flow for a part of its wartime life. She also assisted with anti-submarine duties and took part in Air/Sea rescue missions. Overall her wartime career was representative of some of the key themes and the day-to-day activities of many naval vessels during that period.
- 4.4.11 The vessel's later history also includes associations which confer some significance. In 2010 Princess Anne launched the WWII Grand Heritage Cruise operated by RML 497 while she was named *Fairmile*, and a plaque was laid commemorating Exercise Tiger in the presence of an original RML 497 crew member (The Dart 2011). The vessel was likely chosen for this honour as a representative of the Coastal Forces Fleet, rather than any specific connection between RML 497 and Exercise Tiger. The vessel also reportedly appeared in the film 'The Boat that Rocked'. While this is not verified, if the vessel did appear in this film this would confer some cultural importance to her.

Perception

- 4.4.12 RML 497 has significance as part of the Coastal Forces fleet, affectionately known as the Navy's 'little ships'. These boats would have constituted part of the general public's perception of the war. During World War II, the coastal Forces boats would have been a physical reminder of the British war effort. The British public's backing of the war was vital to its success, and therefore a positive perception of the British forces was crucial. The British public suffered food and clothes rationing, donated their metal belongings for use in munitions and aircraft manufacture, housed children evacuated from cities, and some towns and villages adopted boats and aircraft to ensure their upkeep and readiness for battle. Having a constant reminder and physical representation of the war effort they were backing was integral to the constant support from the British public throughout the war.
- 4.4.13 During the war the vessel was stationed at a number of different locations. Residents of these areas may have memories of the vessel, and while Parkinson's accounts have not been verified he indicates that the crew spent time with the local Appledore community indicating a source of potential value.
- 4.4.14 The vessel also has post-war significance, gained during her time as a ferry. The vessel's time as a ferry is part of her life history, and many of her passengers and patrons have fond memories of the vessel conferring some aspect of communal value on this association.

Rarity

- 4.4.15 The Coastal Forces fleet totalled around 2000 vessels. The Fairmile Bs made up almost a third of this number. A total of 668 Fairmile B kits were issued and were produced in 13 countries during the war; 35 were produced by the Australian Navy, and 80 by the Canadian Navy- although the design was altered slightly in Canada to produce slightly faster vessel (Davies n.d.).
- 4.4.16 Of the 668 Fairmile Bs, 50 were fitted with sickbays in order to serve as RMLs to rescue downed aircraft and support other vessels in peril (Lambert and Ross 2018). RML 497 was one of these

³ The diary of RML 497 crew member Les Parkinson recounts a number of events during the life of RML 497. However, unfortunately these have not been verified by other sources. If these accounts can be verified they will add considerably to the significance of the vessel via her historical associations.

vessels and was reportedly involved in many rescues at sea. Of the nearly 700 Fairmile Bs constructed; 55 are recorded as wartime losses. No RMLs were lost during wartime (uboat.net n.d.).

- 4.4.17 After the war, many Fairmile Bs were sold into private hands. They proved popular as they were fairly easy to convert into leisure craft and were affordable. Some were converted into house boats or yachts. Along with four others, RML 497 was converted into a passenger ferry.
- 4.4.18 RML 497 is now the last British Fairmile B in reasonable condition, with RML 535 currently rotting at its moorings in Galmpton. The most recent loss was RML 526 which was broken up in 2019 as a result of unpaid harbour fees. Western Lady II/RML 542 was sold and converted to a private yacht in 1955 based in Nice (Boyle 2007; Lambert and Ross 2018).
- 4.4.19 Overall, RML 497 is an increasingly rare survivor from the Fairmile B group. The losses of her sister ships in recent years heightens the importance of this vessel and she is now one of the last surviving RMLs.

How does the vessel's shape or form combine and contribute to function?

- 4.4.20 The Fairmile B was originally designed as a submarine chaser, based on the lines of a fleet destroyer, with double-diagonal mahogany carvel planking laid in opposing diagonals on a system of longitudinal stringer and transverse web plywood frames, a raked stem, a transom stern, and rounded bilges (Boatshed Brixham n.d.; Davies n.d.). The destroyer design was desirable due to their endurance, high speed, and low silhouette which made them dangerously stealthy, and difficult targets in low visibility situations (Navy Department 1942: 20).
- 4.4.21 The RMLs were fitted out with Hall-Scott engines, with 1200bhp which allowed the vessels to achieve speeds of around 20 knots. While this was fast, the speeds were much lower than those of the MTBs. MTB 71 for example was fitted with two Isotta Fraschini engines of 1100bhp which could propel the much smaller vessel (60ft compared to 112ft) at speeds of c. 40 knots.
- 4.4.22 MGBs and MTBs had powerful engines and were often built with hard chine hulls which allowed them to essentially glide over the water and achieve higher speeds. The amount of wetted surface on a hull affects the speed of a vessel, and hard chine hulls are favoured on vessels intended to plane because the wetted surface is reduced in planing mode. Fairmile As were originally designed in this manner too, however, these vessels were longer, had a greater length to beam ratio, and had less powerful engines relative to their size. These vessels operated as displacement craft. When in displacement mode, a hard chine hull has a larger wetted surface than rounded bilges, and so the Fairmile B was designed with rounded bilges which were preferred for their stability while allowing good speed efficiency at lower speeds. The Fairmile Bs were known for their excellent seakeeping qualities (Davies n.d.). The lines of the vessel, and the design choices they infer, are evident within RML 497's physical fabric and make an important overall contribution to significance, particularly in light of the variety of hull types represented by the NMRN Coastal Forces craft, demonstrating technological innovation in naval architecture during WWII.
- 4.4.23 The double-diagonal planking was an ideal choice for the vessel design, because of its strength and ease of repair (Benavent 2017), both important factors for wartime craft. The two planking

layers were separated by stretched calico (Armstrong 1993). This method of construction is superior to regular carvel hulls because it is less likely to spring leaks, and is much stronger owing to the combined strength of planks laid in different directions. This method of planking is clearly evident within the surviving structure of the vessel, and while some areas of planking may have been replaced the overall double-diagonal form is clearly visible.

- 4.4.24 The Fairmile B operated well in inclement weather as a result of its stable hull form. As a result 50 Fairmile Bs were fitted with sickbays to become Rescue Motor Launches. Although the overall hull form made the vessels fit for this purpose, the primary representation of this role would have been the sickbay. However this original feature no longer survives on the vessel. Instead a sick-bay themed bar occupies part of the top deck. This provides a reminder of the wartime purpose of RML 497, however, in its style it is not historic and visually it represents an incongruent feature. Historic photographs in the possession of the NMRN depict the sick berth from the vessel, taken by John Derrick who was a Sick Berth Attendant on the RML (Figure 37).

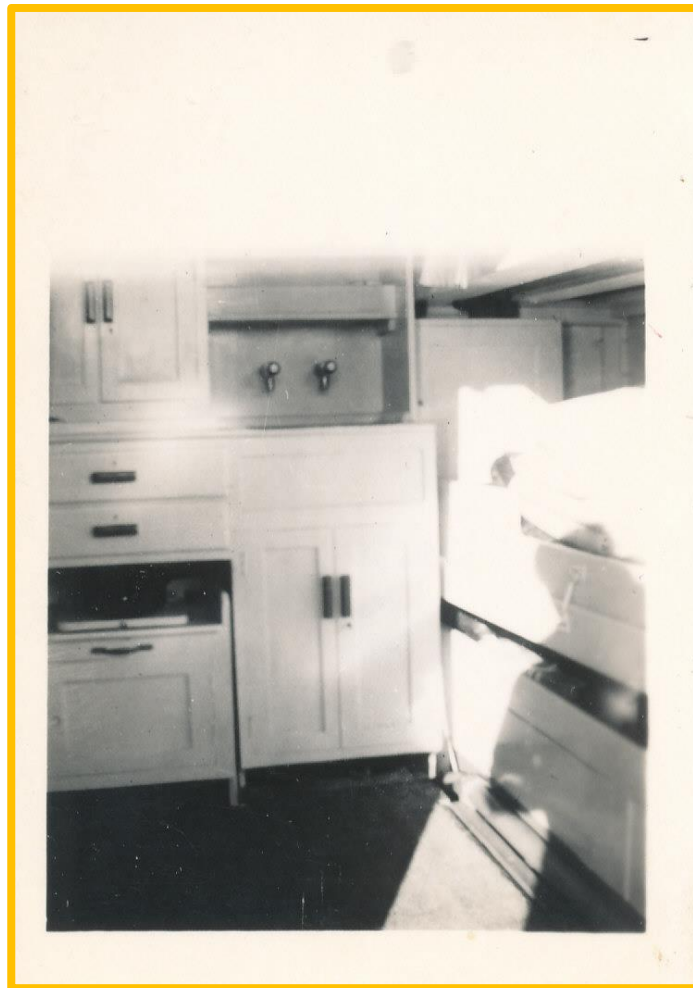


Figure 37: Sick Berth of RML 497 taken by John Derrick, Sick Berth Attendant

- 4.4.25 The Fairmile Bs were originally intended to be submarine chasers, although their versatility led to their use in many fields, including mine sweeping and as rescue vessels. This versatility, and evidence of this versatility within the physical fabric of the structure, forms part of the vessel's particular history, design and significance. The original purpose of the Fairmiles meant that they

were designed to take 12 depth charges, one 3lb gun, one set of twin 0.303-in machine guns (Davies n.d.) and an ASDIC sonar as standard. This armament was bolted down in such a way that the entire vessel could be reconfigured in a matter of days. None of the wartime armament itself is present on RML 497, and all armament would have been removed at the end of the war. As 497 was designated as an RML this vessel type is unlikely to have had such a heavy armament, compared with other Fairmile Bs used for other purposes. However, RML 497 does appear to have been constructed to carry torpedoes and mine chutes, and evidence of reinforcement for this armament survives within the vessel's historic fabric.

- 4.4.26 Internally the variety of different compartments would have allowed the naval vessel to function as she was intended. The majority of the original internal compartments have been removed, and there is nothing which remains which indicates her former specialised function as an RML. Key compartments which have been lost include the magazines and communications room. This compromises the aesthetic appreciation of the internal parts of the vessel. Other internal areas of the vessel have an incongruous character. This particularly relates to the ward room which has been converted for use as a bar, is painted gold and has plastic lining on the walls. The materials, colour and overall form of this room detract from the aesthetic appreciation of the vessel as a former naval craft. Additionally, a large amount of modern services have been added which dominate the aesthetic appreciation of some areas.

The setting of RML 497

- 4.4.27 The vessel is housed within a purpose-built but temporary metal structure located in the carpark of the National Museum of the Royal Navy, situated in Hartlepool's dockside. The building is modern, constructed after the purchase of the vessel by the NMRN in 2015. It consists of raised concrete foundations upon which the metal walls sit. The housing is accessible through two fire doors, and two larger doors at either end which are operated by pulleys. Direct access to the vessel is by two ladders, situated near the bow on both the port and starboard side. Access to the vessel is limited to those working on it. The public and volunteers are not currently able to access it due to health and safety considerations. After a period of three years the longer-term aim is to develop a permanent building and gallery for the vessel, which will also be situated at NMRN Hartlepool.
- 4.4.28 The National Museum of the Royal Navy in Hartlepool is situated in historic dockyard, shown to be in existence by the 19th century on early Ordnance Survey maps. The museum features indoor exhibits, as well as the 19th-century frigate, HMS Trincomalee, which is situated in the reconstructed historic quayside. Although RML 497 has no direct historical connections to Hartlepool, the city was a centre for shipbuilding during the Second World War, producing Empire ships frequently used in wartime convoys. This indirect connection contributes to the wider setting of the vessel through association. The wider setting also forms a backdrop against which the development of the naval fleet from the 19th century can be appreciated, with RML 497 adding a 20th-century component to this wider narrative. However, the temporary structure in which the vessel currently sits largely divorces it from this wider context inhibiting appreciation of this connection and narrative.
- 4.4.29 The wider setting also includes industrial and retail estates which surround the NMRN inland of its dock-side location. In their scale and form these areas are incongruent features in the wider

landscape. However, as RML 497 is not generally visible in the wider setting due to her location indoors this has a fairly low impact.

- 4.4.30 The original environment of the vessel was in the open air, and in the sea. The vessel is currently housed in dry storage and while the sea cannot be seen or heard from within the housing it forms part of the wider setting of the vessel.
- 4.4.31 Wider views to RML 497 are restricted by the structure in which the vessel is stored. However, once inside this structure, the vessel is visually dominant and impressive. The vessel is in dry storage and rests upright on a cradle, as such, the entire exterior of the vessel can be seen and its full size appreciated by the viewer from the floor level. From this low vantage point, the viewer looks up toward the vessel. These views give a good impression of the overall form of RML 497. It is clear that she is a narrow, sleek vessel built for speed. The appreciation of her form gained from these views makes a contribution to significance.
- 4.4.32 The large shutters to the structure in which RML 497 is housed are opened regularly to allow visitors to see the vessel. On these days interpretative material is also displayed allowing visitors to observe and understand the vessel, greatly enhancing the contribution to significance made by setting (Figure 36).
- 4.4.33 Although the vessel is not stored alongside other vessels from the Coastal Forces fleet, MTB 71 and MTB 331, which form part of the NMRN's Coastal Forces collection, comprise an important part of the wider conceptual 'setting' of the RML 497. She is contemporary with these MTBs and together they form an important representation of the WWII Coastal Forces fleet. As a group they also hold interest related to their forms, which together they demonstrate the development and variety of naval architecture during WWII. However, these vessels are not stored together and as such the overall contribution to significance made by this connection is lessened as it cannot be readily understood.



Figure 38: RML 497 during an 'Open Day'

Potential Educational Value

4.4.34 RML 497 also holds educational value. This value is derived from its rarity and representativeness, in that it is one of the last surviving vessels of the Coastal Forces fleet of the Royal Navy, originally designed and used in defence of Britain in World War Two.

4.4.35 The Nation Curriculum for Key Stage 3 can include World War Two within the topic “challenges for Britain, Europe and the wider world 1901 to the present day” (Department for Education 2013: 4). It is no longer compulsory to teach about World War Two at key stage 2.

4.4.36 As a museum exhibit, RML 497 would be of educational value; it would offer an opportunity to learn about WWII naval defence, the Coastal Forces fleet in general, as well as the specific roles of the Fairmile Bs, to visitors of all ages.

4.5 Summary of Significance

4.5.1 Overall the primary sources of significance for RML 497 are components of her original and wartime fabric, which contains evidence of Second World War naval architecture, and her role as a WWII Coastal Forces vessel. As part of the NMRN Coastal Forces collection this significance is highlighted and contextualised.

- 4.5.2 Her later life was spent as a ferry under the ownership of a number of companies. While this part of her history confers a much lower level of significance on the vessel, there are still aspects connected with this role from which she derives some importance. In particular this includes the memories of those who have used the vessel, and the opening of an historically themed cruise by Princess Anne, though the latter is inextricably connected with RML 497's original role as a Second World War naval craft.

4.6 Gaps in understanding and significance

- 4.6.1 There are a number of gaps in understanding relating to the vessel. The wartime history of the vessel is a particular area where understanding is hindered by limited source material and conflicts between sources. In particular the memoirs of Parkinson are in conflict with other sources, suggesting that some of the events depicted in the memoirs may not be associated with the vessel. This is of key importance for the significance of the craft. There are also hints at other areas where there may be gaps, including the 'Q' depicted on the vessel indicating a possible connection with the Canadian Navy. Information from stakeholders could shed light in these areas.
- 4.6.2 There are also gaps in understanding of key structural concerns. Addressing these gaps in understanding will provide evidence on which key decisions for the vessel's future should be based. Key information will be the cost and resources required to address stability issues for a range of scenarios, including allowing visitors on board the vessel, as opposed to providing access to external areas only.
- 4.6.3 The presence of paint also led to gaps in understanding within the conservation assessment and archaeological survey. The former was limited by the presence of paint masking timbers, and other issues with accessibility such as the presence of decking. To fully identify the extent of areas affected by rot paint removal would be required and the timbers re-assessed. Likewise, detailed phasing was not possible due to the presence of paint masking timbers, joints and fastenings, and due to the focus on conducting repairs in an original style with original materials when the vessel was a *Western Lady* ferry. However, during the surveys undertaken for the production of this CMP a number of considerations which would be of use for detailed phasing were noted. These have been included within the methodology, though greater success in the identification of phasing would require paint removal.

5.0 Conservation Gateway

- 5.1.1 According to the structure set out within National Historic Ships *Conserving Historic Vessels, Volume 3* (2010: 88) after the assessment of significance has been conducted sufficient evidence should be available on which to base ‘the decision about the best conservation method to adopt in order to retain her significance’. This ‘Conservation Gateway’ is concerned with whether the vessel is to be conserved for operational use or for her fabric.
- 5.1.2 Following the assessment of significance and in consultation with the NMRN the decision has been made to conserve the physical fabric of the vessel rather than opting for conservation for operational use.

Conservation Gateway

The vessel’s physical fabric will be conserved for display.
RML 497 will not be conserved for operational use.

Part 3: Risks and Opportunities

6.0 Investigating the Risks and Opportunities

6.1.1 There are a number of risks and opportunities which have been identified during the production of this CMP. These include those which are currently affecting the vessel, and those which may occur in the future. A summary of these areas of risk and opportunity is given below. Risks include:

- Recent drastic changes to the environment including removal from the water, support by a new cradle, and transport to Hartlepool, all of which pose a risk to the vessel as she settles into her new environment and dries out. These factors pose a risk to the physical fabric of the vessel which could impact upon her significance;
- Potential structural instability in areas of the hull (in particular associated with the steering gear and area beneath the wheelhouse) which pose a risk to the physical fabric of the vessel which could impact upon her significance and pose a risk to the safety of visitors and staff;
- Potential for loss of significance through the incremental damage from issues such as rot, pest activity, timber shrinkage and corrosion which affect a range of timbers and fixings;
- Loss of integrity of the deck planking which poses a risk to health and safety as well as the physical fabric of the vessel;
- Potential for loss of significance of other features such as original lettering due to rot affecting the structures on which these features are situated;
- Sourcing of materials represents a risk, particular where like-for-like replacements are preferred and material (such as hardwood) is difficult to source;
- Current high RH and standing water which could exacerbate rot and corrosion;
- Current location in a non-controlled environment which could inhibit the ability to keep humidity, temperature and other factors stable, affecting the conservation of the vessel and ultimately potentially affecting her physical fabric;
- Insertion of incongruent materials such as gold plastic sheeting in the ward room and other features such as the bars and modern services puts the overall historic character of the vessel at risk;
- Loss of features and internal divisions which related to the function of the vessel during wartime has eroded its overall historic character and layout, which places the history and significance of the vessel at risk of not being fully understood;
- Gaps in understanding the history of the vessel and conflicts between extant sources which could lead to significance not being fully realised;
- Gaps in understanding of the extent of rot and other conservation issues due to paint cover which could lead to the deterioration or loss of physical fabric;
- Gaps in understanding phasing in detail due to paint cover and like-for-like replacements in the past which could lead to significance not being fully understood;
- The availability of staff and resources to undertake necessary conservation work at present and in the future also poses a risk to the vessel;

- The transfer of the vessel from the current temporary structure to the new structure poses a series of potential risks. These include the way the vessel is moved (if transport is necessary), risk of physical damage from construction or demolition work associated with the structures, and changes to the environment. This period requires careful consideration so as not to put the vessel in undue risk;
- Organisations are under increasing pressure to improve their environmental impact by reducing energy consumption etc. Controlled indoor environments necessarily have an energy cost, and as such this trend could potentially pose a risk going forward;
- Changes to circumstances affecting the vessel may also pose unforeseen risks.

6.1.2 Opportunities include:

- Creation of the new permanent housing for the vessel which provides an opportunity for the enhancement of the vessel's environment, setting, interpretation and access. These opportunities have the potential to aid the conservation of the vessel, her significance as derived from setting and understanding of her significance. However, if not properly considered and these opportunities are not taken the results may pose a risk to the ongoing significance of the vessel;
- Current interpretation associated with the vessel is minimal and access is restricted to views of the vessel from outside of the temporary housing on 'open days'. There are opportunities to improve both interpretation and access within the current temporary structure and the new structure;
- Degree and nature of visitor and staff access to the vessel which could affect the physical fabric of the vessel and understanding and appreciation of significance. Greater visitor access to the vessel may put her physical fabric at risk, but may also provide improved opportunities for interpretation. There may be conflicting issues within this area which require careful consideration, so as not to put the vessel at undue risk;
- Changes to the wider setting also provide both a risk and opportunity. The wider setting, beyond the museum, is generally poor and as such there are opportunities to enhance this. However, the control for changes to the wider setting largely lies with Hartlepool Council and so relationships will be vital to ensure that changes to the wider setting are positive.
- Overall, the commissioning, production, adoption, implementation and review of this CMP presents a major opportunity to quantify, manage and mitigate the risks to the vessel.

Part 4: Policies

7.0 The Vision for RML 497

- 7.1.1 The conservation and management of heritage assets should aim to identify issues, both present and future, which could affect the significance of a heritage asset. The current and foreseeable key risks and opportunities have been set out in Part 3. Part 4 responds to these risks and opportunities, as well as the history and significance of the vessel set out in Parts 1 and 2, and sets out a series of conservation management policies.
- 7.1.2 Significance is derived from a combination of physical and non-physical factors, and often decisions taken regarding the future use and conservation of an asset can have a bearing on more than one facet of significance. A decision to stabilise overall structural integrity may, for example, result in the loss of portions of original fabric. The purpose of this CMP is therefore to identify issues and conflicts, and to set out a series of policies and action plan which will allow the issues to be addressed in a way which secures the ongoing significance of the vessel.
- 7.1.3 The policies have been guided by the principles set out within Conserving Historic Vessels (National Historic Ships 2010), cited in Section 1 of this CMP. The guidance within this document forms an internationally accepted framework which forms the basis and rationale for the policies and task list set out within this CMP. The policies set out here have been grouped according to themes.

Suggested Policy 1: *In the adoption of the Conservation Management Plan and all of its policies, the parties responsible for the management of the vessel commit to prioritising the works set out herein. Any works to be completed will be planned, researched and carried out in accordance with the policies in this CMP and in line with guidance set out in the National Historic Ships Principles.*

- 7.1.4 To ensure the Conservation Management Plan and Action Plan are implemented a management and project team should be identified, along with key roles and responsibilities which should clearly set out the team members responsible for the implementation of the different areas of this CMP and its overall management.

Suggested Policy 2: *A management team and key project team for the vessel and its long-term conservation and display should be established. Key roles and responsibilities should be set out which should ensure that the Conservation Management Plan, its policies and actions, are all implemented. Any gaps in experience should be identified and external contractors appointed to address these gaps. The management team should be composed of members of staff from the managing organisation, i.e. the NMRN.*

7.2 Conservation Philosophy for RML 497

- 7.2.1 The policies set out within this CMP have been guided by the key objective to conserve RML 497, not for operational use, but in order that she can serve as a static object, destined for

display out of the water and indoors, to be interpreted and provide context for the history and technology of the Coastal Forces during WWII. The overarching aim of this CMP is to conserve the significance of the vessel within this context.

- 7.2.2 Following her wartime role RML 497 was adapted for use as a ferry. During the course of her working life the vessel underwent multiple repairs, and while some owners were keen to retain historic fabric and character where possible, others undertook large scale adaptations including the removal of original fabric from the vessel. Due to the insertion of recent, modern incongruous features, such as the plastic and gold-painted ward room, the aesthetic value of the interior of the vessel is also at risk.
- 7.2.3 The principal sources of significance held by RML 497 are her physical fabric, particularly original fabric; her aesthetic appearance and her historical connections. Conservation measures will have a particular bearing on her physical fabric and aesthetics, and as such these are the focus here.

Suggested Policy 3: *Actions should seek to preserve elements from which the vessel derives significance, including original historic fabric and, to inhibit its deterioration, and sensitively restore an aesthetically authentic character where possible, though with minimal intervention. Key risks which are identified should be addressed. Reconstructive and adaptive works will be kept to a minimum and undertaken only when necessary on Health, Safety and Environmental grounds or to abide by other Legal requirements.*

- 7.2.4 The vessel's time as a ferry is also a part of her significance, and many of her passengers and patrons have fond memories of the vessel conferring some aspect of communal value on this association. Although features of the vessel's life as a ferry do not contribute to her primary source of significance as a WWII naval vessel, elements of this part of her life could be retained where possible. For example, seating could be removed from the top deck, lessening the impact of the ferry character of that area and allowing for the restoration of the original character of the top deck. The seating could then be restored for use around the exhibition as floor level seating, thus retaining the connection between the fabric of the ferry and the significance conferred by this element of her life history.

Suggested Policy 4: *A holistic approach to change will be implemented which balances the different components of the vessel's significance and considers all options for the retention and display of this significance.*

7.3 Key Structural and Conservation Issues

- 7.3.1 Many of the key aspects of significance held by the vessel are derived from her physical fabric and form, which provide evidential and aesthetic value. Retention of these elements of significance requires ongoing structural stability and retention of her physical components, particularly historical fabric. The key issues which threaten the long-term survival of the vessel and her significance are structural instability caused by insufficiently supported structural loads in specific locations, and factors affecting integrity of components of the vessel, which also have a bearing on overall stability, including pervasive rot and corrosion, exacerbated by the presence of moisture both in terms of RH and as standing water in the bilges.

Suggested Policy 5: *In adopting this Conservation Management Plan the stakeholders agree to prioritise the conservation of the overall stability of the vessel and the integrity of her components, and to address the key risks to stability, integrity and significance.*

- 7.3.2 The treatment of timbers and metal components, and the replacement of others may be necessary. Its likely that some elements will need to be replaced, to preserve the layout which survives, the form of the vessel and for structural integrity. This may also be necessary depending on whether visitor access is planned for the vessel, which may influence the load which the vessel will be required to bear. Where possible components will be replaced on a like-for-like basis. Decisions on treatment, replacement and timetabling of works will be undertaken by NMRN in consultation with specialists, and with careful consideration of the chemicals and materials to be used and the order in which the work should be undertaken. Heritage Impact Assessments will precede major programmes of work.

Suggested Policy 6: *Decisions on treatment and replacement will be undertaken in consultation with specialists and the NMRN, and all decisions will be undertaken with consideration of the significance of the vessel and will proceed in a logical order with respect to the interplay between different decisions and treatments. HIAs will be completed ahead of major works and all insertions.*

Suggested policy 7: *Replacement will generally be on a like-for-like basis unless the material is not considered fit for purpose or unless the cost is prohibitive and replacement is unavoidable in order to comply with other policies of this CMP. Material will be ethically sourced and will be visually congruent with its planned location, and all insertions will be recorded.*

- 7.3.3 Superficial elements which contribute to overall significance are at risk. While loss of these elements would not be tantamount to the loss of overall significance, their loss would result in the erosion of sources of significance. It may not be possible to save all of these elements, due to the advanced state of deterioration (particularly rot), and concerns for overall stability may require replacement of structural elements which include significant features. This includes, for example, original lettering marking the former location of the bosun's store which may now be preserved solely in the vessel's paint. In these instances, the following policy should apply:

Suggested policy 8: *Where overriding concerns for structural stability and integrity make choices necessary which result in the loss of elements which make a lesser contribution to significance, any features to be lost should be fully recorded and physical fabric preserved for display wherever possible.*

- 7.3.4 The long-term condition and preservation of the vessel will be influenced by her temporary and permanent storage. Conservation advice should be included in the design of the final storage space for the vessel and monitoring regimes should be put in place to ensure that the condition of the vessel is as anticipated following necessary works.

7.4 Conservation and monitoring

- 7.4.1 RML 497 has recently been moved to Hartlepool, transported by lorry, and situated with her new cradle in a new temporary purpose-built structure. She was, until relatively recently, in use as a ferry and kept afloat. The changes of the recent years have therefore been drastic, and the vessel has not yet dried out. She is also not likely to be fully settled within her new cradle. As such it is imperative that her condition be actively monitored for signs of change. This is a considerable period of risk for the vessel, and it is necessary that a proactive approach to monitoring and a responsive and flexible approach to conservation be applied.

Suggested policy 9: *A thorough monitoring regime should be established for the vessel owing particularly to the drastic changes in environment endured by RML 497 in recent years. Monitoring will require establishment of a detailed baseline and regular surveys to identify any change. Baseline data should include, but should not be limited to:*

- *Collection of laser scan data for the vessel and implement monitoring regime;*
- *Conservation monitoring by regularly scheduled conservation assessments and reassessments following key treatment steps;*
- *Repeat structural and conservation assessments in line with the drying out of the vessel; and*
- *Use of monitoring points (see Appendix 1, Section 13.0) to observe any settlement changes and any evidence for movement;*

Suggested policy 10: *A heritage impact assessment should be conducted for any changes noted by the monitoring surveys, and necessary steps taken to address changes which could result in an impact to the significance of the vessel or indicate a risk to other consideration such as health and safety.*

- 7.4.2 There are numerous decisions which will need to be taken in the coming years regarding RML 497. These include decisions relating to the permanent structure in which she will be housed (mentioned above) along with decisions about the form of access which will be possible for visitors. At present there are a number of factors which will influence these decisions, which require further investigation. In particular the structural stability of parts of the vessel, and costs of undertaking work necessary to stabilise her for onboard visitor access, are important and have a bearing on how the vessel will be conserved and displayed. Thus, review points will be necessary for these decisions, once sufficient evidence is available. The timing of these review points can be flexible, however, the decisions may be best taken ahead of the design of the permanent housing, in order that all requirements for stabilisation and access which flow from this decision are incorporated within design plans.

Suggested Policy 11 *Gaps in understanding which are necessary for undertaking key decisions should be addressed and review of key decisions should be undertaken.*

- 7.4.3 Once the decision regarding visitor access has been made, there will be a series of related decisions including the level of signage within the vessel, installation of health and safety related features and other concerns including the aesthetic appearance of the interior of the vessel and factors affecting this (e.g. the incongruent ward room and extent of modern services and wiring). All subsequent decisions should be undertaken following a Heritage Impact

Assessment, which should seek to identify the best way for these elements to be incorporated within or alongside the vessel, balancing health and safety considerations and requirements with aesthetic value and overall appreciation through understanding.

7.5 Setting and New Permanent Structure

- 7.5.1 RML 497 is housed within the temporary purpose-built structure in which she currently sits. After a period of three years the longer-term aim is to develop a permanent building and gallery for the vessel. Development of the exhibition surrounding RML 497 and the new structure which is intended for construction in three years' time, provide opportunities to enhance the setting of the vessel, and its environment. Particular areas in which the setting could be improved to enhance significance include installation of lighting, which would allow the vessel to be better appreciated; improvement of her links to contemporary features and vessels; and storage within a structure made with materials or in a design which is more sensitive to the vessel's period or which allows connections to the sea to be better understood. Improved access would also aid enhancement of the setting of the vessel. Specific components which could be used to enhance the setting include public realm furnishing, references to the wider setting, dockside buildings and WWII vessel construction at Hartlepool, along with way finding for visitors, lighting to improve appreciation of the vessel, places to sit and facilities to aid all abilities and children.
- 7.5.2 As noted above, the long-term condition of the vessel will be influenced by her temporary and permanent storage and as such this should also be taken into account when considering the vessel's housing. The new structure should also provide a safe working environment, which may include walkways either side of the vessel for monitoring and conservation work, railings, scaffolding or other structures to aid access to and work on the vessel.

Suggested Policy 12: *The temporary structure and development of the permanent structure designed to house and exhibit RML 497 should seek to conserve and enhance the condition and setting of the vessel. The transfer from the temporary structure to the new structure should be given careful consideration and should also seek to maintain the condition of the vessel. The new structure will be designed to provide a safe working space and environmental stability, including structures to provide access, lighting, ventilation, temperature and humidity regulation. Public realm furnishing should also be used to enhance the setting and information to emphasise important aspects of the wider setting.*

Suggested Policy 13: *NMRN need to be vigilant and will negotiate with Hartlepool Council and any other stakeholders with the authority to alter the setting of the vessel, and comment on planning applications that may affect the setting of the museum and RML 497 (and HMS Trincomalee).*

Suggested Policy 14: *Access and interpretation will be considered in the design for the new structure and display of the vessel. Access audits should inform the design of the new structure. Subject to risk assessments the design will facilitate physical access and intellectual access to the vessel through interpretation material. The visitor experience should be taken into account and way-finding, lighting and seating to aid all abilities and children should be included within the design. Intellectual access and interpretation should also be considered for the display of the vessel within the temporary structure.*

- 7.5.3 While the plan is for the vessel to remain at Hartlepool it must be noted that the contribution to significance made by setting would be greatly enhanced by placement at a location which allows her role within the Coastal Forces fleet to be understood. Location along MTB 71 and 331 would certainly aid this.

7.6 Stakeholders

- 7.6.1 External stakeholders are important to the vessel in a number of ways. Current gaps in knowledge include the accuracy of the accounts set out within Parkinson's memoirs, in addition to the extent and nature of repairs and refits undertaken while the vessel was a ferry. Discussion with stakeholders undertaken with NMRN and MSDS Marine have already shed light on these issues, but there is still much to be learned through interaction with stakeholders.
- 7.6.2 Discussions with National Historic Ships also indicates their intention to reassess RML 497 and other craft considered as part of the National Historic Fleet by 2023 (E. Laing *pers. comm* 2019). This assessment will consider the conservation principles applied to the vessel, and as such interaction with this CMP and work carried out on RML 497 will be key. Ongoing contact with stakeholders should be facilitated wherever possible and information recorded, for updates to the CMP.
- 7.6.3 A group of volunteers are also currently working with the NMRN to conserve RML 497. At present activities include removal of marine growth from the hull, however, the team are enthusiastic and keen to be involved, and represent an important resource for the ongoing preservation of the vessel.

Suggested Policy 15: *Stakeholder knowledge, involvement and input should be welcomed wherever possible and information should be recorded and used to improve our understanding of the vessel and her ongoing conservation and management.*

Suggested policy 16: *Following stabilisation of the vessel a coordinated volunteer programme will be established and tasks delegated from ship keepers to volunteers wherever appropriate.*

7.7 Heritage Impact Assessment

- 7.7.1 The coming years will require numerous decisions to be taken regarding the vessel, and conservation work, monitoring and display will be critical. To fully understand the potential impacts of decisions Heritage Impact Assessments should be undertaken at project planning stage for all works, in order that sufficient time exist for alternative options to be put in place. The overall aim of these assessments will be to ensure that the vessel's significance is considered in all decisions.

Suggested Policy 17: *All decisions and works should be preceded by a Heritage Impact Assessment in order to guide the project in a manner which will allow the significance of RML 497 to remain central to the vessel's future. Should the HIA find that negative impacts would result, and should the level of these impacts be considered unacceptable, other options should be considered and also assessed via a HIA.*

7.8 Health and Safety

- 7.8.1 In its current condition the vessel poses a number of risks to health and safety. These risks must be addressed if the vessel is to continue being worked on by staff and if, in the future, volunteers are welcome around and potentially inside the vessel. The current risks include structural instability, poor lighting, the presence of possible gas, black mould and other fungus and contaminated bilge water. A fire detection system is also absent, and escape routes will need to form a necessary part of any design for the future housing of the vessel.

Suggested Policy 18: *A health and safety audit and revised risk assessment should be conducted. All aspects of the use of the vessel will be made to comply with the current Health and Safety Regulations, to provide a safe working and visiting environment for staff, volunteers and visitors alike while also being as sympathetic as possible to the historic fabric of the vessel.*

Suggested Policy 19: *A fire detection and suppression system will be installed. The advice of the fire service and other appropriate bodies will be sought when choosing the system. The impacts of the chosen system of the vessel on physical fabric, aesthetic qualities and settings will also be considered within a Heritage Impact Assessment and impacts to significance kept to a minimum.*

Suggested Policy 20: *Protocols for any electrical equipment or hot processes to be used or undertaken on or near the ship, will be established and implemented to ensure the highest safety standards and to minimise the risk of fire.*

7.9 Disaster Management

- 7.9.1 A disaster management plan should be created for the vessel, to take into account at a minimum the risk of flooding, extreme storms, explosion or other disasters which may conceivably impact upon the vessel.

Suggested Policy 21: A disaster management plan will be created to take into account disasters which may conceivably impact upon the vessel.

7.10 Implementation, Management and Review

- 7.10.1 The CMP and Action Plan will be reviewed throughout the life of the project to ensure that new information is added, and developments in understanding and condition are incorporated into those documents to ensure that ongoing decisions are based on up to date information.

Suggested Policy 22: *The CMP will be reviewed by NMRN at appropriate points within the project, including after key decisions, assessments and treatments, and at a minimum every 5 years, and the Action Plan will be reviewed biannually to ensure that progress is in line with that set out within the Action Plan and overall CMP. The reviews will consider any improvements which can be made to the long-term sustainability of the vessel and CMP.*

Part 5: Action Plans

8.0 Outline Action Plans

- 8.1.1 The Conservation Management Policies set out in Part 4 will be achieved by adherence to the Action Plans set out below. Some areas of work may require additional documentation, such as the production of protocols or method statements, however the need for these documents is set out within the Action Plans below. Review of the CMP and Action Plan at set intervals is vital for ensuring the policies and plans continue to address risks and opportunities to the significance of the vessel.
- 8.1.2 There are a series of Action Plans as some of the work may run parallel. For example, the Action Plan for ongoing review and monitoring can run alongside the main action plan for the vessel, which primarily addresses the current risks identified, and the action plan for the design of the new structure, which largely addresses opportunities identified.

8.2 Main Action Plan for the Vessel

Action no.	Action	Type	Policy number	Responsibility	Compliance outputs	Resources/Cost
Phase 1: Establishing the Team, Adopting the CMP and creating key documents						
1	Appoint project management (PM) team and define roles and responsibilities	Decision	2	NMRN	Meeting minutes recording adoption of PM team	NMRN internal
2	Formal adoption of the CMP	Decision	1	NMRN and PM team	Meeting minutes recording adoption of CMP	NMRN internal
3	Appoint/identify internal key members of RML 497 project team including staff responsible for: ship keeping; conservation; coordination of volunteers, and liaison with stakeholders. Identify any gaps in necessary skills.	Decision	2	NMRN PM team and staff	List should be maintained of key project members with roles and responsibilities detailed. Gaps should be noted.	NMRN internal
4	Appointment of specialist teams as necessary.	Decision	2	NMRN and PM team	Written	NMRN to appoint team. Costs may be incurred in writing tender briefs and assessing bids from external parties.
5	Establish volunteer group. Using existing volunteers, the skills and experience of this group should be identified to determine tasks which may be delegated to the volunteers going forward.	Decision	2, 15, 16	NMRN	Audit of volunteer skills and experience (written), and volunteer coordinator forms part of one of the responsibilities set out by action 1	NMRN internal
6	Establish contact with stakeholders including Hartlepool Council and National Historic Ships and invite other stakeholders (via information boards at the museum and online) to contribute any	Communication	13, 15	NMRN PM Team	Contact and communication log (written)	NMRN internal

	information they have about the vessel. Record any contact with and information from stakeholders in a log.					
7	Create key documents and audits including: Health and safety audit; Access audit Revised risk assessment; Disaster Management Plan;	Survey	14, 18, 21	NMRN and PM team	Risk Assessment	NMRN internal
Phase 2: Creating pre-intervention baseline and extending access in the short-term						
8	Maintain and extend access for visitors to facilitate 'intellectual access' and sight of the vessel, in line with the risk assessment, until such time that the decision has been taken, and necessary work completed, allowing long term visitor access to the vessel (see Action 25)	Study (how to extend access)	14	NMRN and Project Team	Interpretive material (note this already exists and is displayed during 'open days' for the vessel). May be expanded.	NMRN internal
9	Install lighting within the temporary structure to ensure work within can be carried out safely. This has been completed (March 2020).	Capital works	18	Prime Contractor or NMRN Estates as necessary	Monitoring and compliance reports	NMRN/ Prime Contractor. Cost TBC
10	Conduct laser scan	Survey	5, 9	MSDS Marine	Laser scan data (processed)	c. £3700.00 (as costed in May 2019 plus management cost)
Phase 3: Short term stabilisation and/or advice for long-term stabilisation						
11	If risk assessment allows conduct short term measures to temporarily stabilise and reduce risks to the vessel and staff, including: remove gas cylinder from officer's compartment; insert temporary supports and uncouple steering cables; Drain bilges and reduce RH.	Action	5, 18	NMRN	Written documentation confirming this has been carried out	NMRN internal. Potential costs include temporary supports (jacks)
12	Conduct revised risk assessment following the short-term measures (Action 10) set out above	Survey	18	NMRN and PM team	Risk Assessment	NMRN internal
13	Liaise with structural engineer to determine whether a structural survey can be completed before paint stripping allowing extent of rot to be understood. Purpose of the survey is to obtain advice on how to make the vessel structurally sound. If paint strip and rot treatment is desirable follow the below actions (14-20).	Survey	5, 11, 18	NMRN PM team and external contractor (BMT)	Decision on structural survey at this stage and, if possible, the survey itself.	NMRN internal and BMT
Phase 4: First Interventions: Establishing the scale of the conservation issues (rot, pest activity etc)						
14	Establish protocols for working using electrical and other hot equipment on the vessel	Study	20	Prime Contractor	Approved Protocol Document	Cost TBC
15	Undertaken HIA for paint strip and rot treatment	Study	3, 17	NMRN/ Specialist Contractor	Approved HIA	Cost dependent upon internal/supplier

16	Take decision on paint strip	Decision	3, 8	NMRN Project Team	Meeting minutes	NMRN
17	Record details in the paint	Study	3, 8	NMRN/ Specialist Contractor	Report on recording of details	Cost dependent upon internal/supplier
18	Remove paint	Capital Works	11	NMRN Project Team/ Volunteers as appropriate ⁴	Compliance report	NMRN internal
19	Assessment focusing on determining the extent of rot (and phasing if necessary) and formation of a treatment plan.	Study	5, 6, 11	NMRN/ Specialist Contractor	Assessment report	Cost dependent upon internal/supplier
20	Treat rot	Capital works	3, 5, 9	NMRN	Compliance report	NMRN internal
Phase 5: Detailed studies prior to main interventions						
21	Repeat conservation assessment (following paint removal and first treatment of rot) including assessment of timbers, fastenings and other structural components.	Survey	9	NMRN/ Specialist Contractor	Assessment report	Cost dependent upon internal/supplier
22	Structural survey	Survey	11	Specialist Contractor	Survey report	Cost TBC (may depend on the outcome of Action 13)
23	Review findings of the structural survey	Study	5, 11, 18	NMRN PM team	Written	NMRN internal
24	Review key documents and audits including: Health and safety audit; Access audit Revised risk assessment; Disaster Management Plan;	Survey/study	14	NMRN Project Team	Audit reports and revised documents	NMRN internal
25	Consider options for long term accessibility to the vessel (for visitors and staff) with reference to the findings of the structural survey, conservation assessment and access audit, and identify related decisions which must be taken following this decision	Decision	11	NMRN PM Team with input from project team	Written	NMRN internal
26	Discuss options for stabilisation of the vessel taking into account the future use of the vessel.	Meeting	5, 8, 18	NMRN PM team and external contractor (BMT)	Meeting minutes	NMRN internal and BMT
27	Plan to make the vessel structurally stable.	Study	5, 8, 18	External contractor (BMT)	Detailed proposal	NMRN internal and BMT
28	Plan for treatments recommended by conservation assessment	Study	5, 6, 8	NMRN/ Specialist Contractor	Treatment plan and method statements	Cost dependent upon internal/supplier
29	Where replacements are needed undertake study of appropriate timber, metal fixings and fastenings	Study	7, 8	Specialist Contractor	Report with recommendations	Cost TBC (dependent upon conservation assessment following paint removal)
30	Prepare strategy for acquiring and managing timber and other materials	Study	7	NMRN/ Specialist Contractor	Proposal document	Cost TBC

⁴ Additional risk assessments may be required

31	Create proposals for removal of materials which are incongruent and harmful to historic character such as gold plastic in ward room and other features such as the bars	Study	11, 15	NMRN/ Specialist Contractor	Proposal document	Cost TBC
32	Create proposals for installation of a fire suppressant system throughout the vessel which respects historic fabric and character	Study	19	NMRN/ Specialist Contractor	Proposal document	Cost TBC
33	Create proposals for lighting within the vessel which respects historic fabric and character	Study	18	NMRN/ Specialist Contractor	Proposal document	Cost TBC
34	Prepare interpretation and display strategy taking account of information within this CMP, archival information (provided with this CMP) and any further input from stakeholders recorded as part of Action 6, in addition to any other information.	Study	4	NMRN	Interpretation and display strategy	NMRN Internal
35	Prepare HIA for completion of the work recommended by Actions 21-34 which include interventions to make the vessel structurally stable, conserve historic fabric, restore historic character, and to make preparations for safe staff and visitor access and interpretation.	Study	3, 4, 5, 6, 8, 10, 17	NMRN/ Specialist Contractor	HIA	Cost TBC (scope is dependent upon findings above)
Phase 6: Planning and Implementing Main Interventions						
36	Agree timetables for the Conservation Programme Plan (CPP) work in consultation with key stakeholders (NMRN and external contractors)	Decision	6	NMRN/ Specialist Contractors/ Other external stakeholders	Agreed CPP and schedule	Cost TBC
37	Prepare schedule and specifications for the work and pro format reporting requirements for maintenance inspections	Study	3, 6	NMRN	Maintenance schedule and pro forma	Cost TBC (dependant on scope of work)
38	Adopt the Conservation Programme Plan	Decision	3	NMRN/ Specialist Contractors	Approved CPP	Cost TBC
39	Prepare strategy for the retention/discard of historic fabric for dissemination to all contractors	Study	3, 4, 6	Specialist Contractor	Approved protocol document	Cost TBC
40	Implement works to stabilise the vessel	Capital works	3, 5	Specialist Contractor (BMT)	Monitoring and compliance reports	Cost TBC
41	Implement conservation treatment and remove incongruent materials (as per Action 31)	Capital works	3, 5, 6	NMRN/ Specialist Contractors	Monitoring and compliance reports	Cost TBC
42	Install lighting within the vessel	Capital works	12, 18	NMRN/ Specialist Contractors	Monitoring and compliance reports	Cost TBC
43	Install fire suppressant system throughout the ship	Capital works	5, 19	NMRN/ Specialist Contractors	Monitoring and compliance reports	Cost TBC
44	Commence internal modifications required to	Capital works	3	NMRN/ Specialist Contractors	Monitoring and compliance reports	Cost TBC

	implement Interpretation Strategy			(e.g. Petrichor)		
45	Undertake conservation of material which has been removed from the vessel prior to display or reinstatement (this includes flags removed from the wheelhouse)	Capital works	3	NMRN/ Specialist Contractors	Monitoring and compliance reports	Cost TBC
46	Undertake a health and safety audit and revised risk assessment	Study	18	NMRN	Health and Safety Audit Report and Revised Risk Assessment	NMRN Internal

8.3 Design and Construction of the New Structure

Action no.	Action	Type	Policy number	Responsibility	Compliance outputs	Resources/Cost
47	Design new structure to take account of: Conservation requirements including means to control RH; Interpretation programme; Access requirements; Health and Safety requirements; Fire Regulation requirements; All possibilities to enhance the setting and significance of the vessel.	Study	4, 5, 12, 14, 18, 19	NMRN and Specialist Design Contractors	Design plans	Cost TBC
48	Consideration should be given to the environment, storage or transport of the vessel during the construction of the new structure. Efforts should be made to ensure environmental stability for the vessel throughout the process of moving from the temporary structure to new structure.	Study	12	NMRN and Specialist Contractors	Plan for exchange from temporary to new structure	Cost TBC
49	A HIA should be undertaken to consider options for the specifications of the new design and plans for the transfer from the temporary unit to the new structure.	Study	17	NMRN	HIA	NMRN Internal
50	Construction of the new structure	Capital Works	12	NMRN and Construction Contractors	Compliance and monitoring reports	Cost TBC
51	Instatement within the new structure (if the vessel requires movement)	Capital Works	12	NMRN and Specialist Contractors	Compliance and monitoring reports	Cost TBC
52	Revise all necessary documentation including Risk Assessments and Working Protocols	Study	18, 20	NMRN	Revised Risk Assessments and Protocols	NMRN Internal

8.4 Ongoing Monitoring and Review

Action no.	Action	Type	Policy number	Responsibility	Compliance outputs	Resources/Cost
53	Establish a monitoring regime and schedule	Study	9	NMRN	HIA	NMRN Internal
54	Review the monitoring regime and schedule following works in the main action plan and action plan for the design and	Study	9	NMRN/ Specialist contractor	Revised CPP Schedule	Cost TBC

	construction of the new housing for the vessel					
55	Monitor the vessel as per the monitoring regime and schedule	Survey/ Capital Works	9	NMRN/ Specialist contractor	Survey pro formas and report	Cost TBC
56	Conduct a HIA if any changes are noted during monitoring surveys and take steps to address changes which could impact significance	Study	17	NMRN	HIA	NMRN Internal
57	Review CMP as required. The risks and opportunities and Action Plan should be reviewed on a biannual basis to monitor progress and identify any new areas of risk.	-	22	NMRN	Review	NMRN Internal
58	Receive regular updates from the NMRN Director General on work planned for NMRN Hartlepool and on other projects which may affect the vessel, and changes to the organisations policy which could impact the vessel (e.g. environmental policy) and conduct HIA if appropriate. Note, a tender call for regeneration works in Hartlepool has been published. RML 497 should be considered within the plans for this regeneration, and all possibilities to enhance the setting of the asset should be explored.	Communication	13, 15	NMRN	Updates	NMRN Internal
59	Review implications of visitor access on the fabric of the ship and appreciation of the significance of the vessel	Review/ Decision	4, 11	NMRN	Review	NMRN Internal
60	Conduct a HIA if visitor access is impacting on the significance of the vessel and recommendations for improvements to the situation	Study	4, 17	NMRN	HIA	NMRN Internal
61	Implement improvements	Possible Capital Works	4, 17	NMRN	Compliance reports	NMRN Internal

9.0 Summary of the connection between key risks and opportunities, policies and actions

Risk or Opportunity	Key Relevant Policies	Key Action Plan no's.
Recent drastic changes to the environment including removal from the water, support by a new cradle, and transport to Hartlepool, all of which pose a risk to the vessel as she settles into her new environment and dries out. These factors pose a risk to the physical fabric of the vessel which could impact upon her significance	Address by: monitoring, environment and intervention when necessary. Policies 9, 10 and 12.	53. Establish a monitoring regime and schedule 55. Monitor the vessel as per the monitoring regime and schedule 56. Conduct a HIA if any changes are noted during monitoring surveys and take steps to address changes which could impact significance
Potential structural instability in areas of the hull (in particular associated with the steering gear and area beneath the wheelhouse) which pose a risk to the physical fabric of the vessel which could impact upon her significance and pose a risk to the safety of visitors and staff	Vessel requires structural survey as soon as possible, followed by intervention and monitoring. Policies 5, 8 and 9.	10. If risk assessment allows conduct short term measures to temporarily stabilise and reduce risks to the vessel and staff, including: remove gas cylinder from officer's compartment; insert temporary supports and uncouple steering cables; Drain bilges and reduce RH. 13. Liaise with structural engineer to determine whether a structural survey can be completed before paint stripping allowing extent of rot to be understood. Purpose of the survey is to obtain advice on how to make the vessel structurally sound. If paint strip and rot treatment is desirable follow the below actions (14-20). 22. Structural survey 40. Implement works to stabilise the vessel
Potential for loss of significance through the incremental damage from issues such as rot, pest activity, timber shrinkage and corrosion which affect a range of timbers and fixings	Address by conservation measures. Policies 3 and 5.	41. Implement conservation treatment
Loss of integrity of the deck planking which poses a risk to health and safety as well as the physical fabric of the vessel;	Address by conservation and health and safety considerations. Policies 5, 6, 8, 18	7. Conduct health and safety audit and revised risk assessment following the findings of the current study 41. Implement conservation treatment
Potential for loss of significance of other features such as original lettering due to rot affecting the structures on which these features are situated	Address by prioritising features by significance and fully recording features which will be unavoidably lost. Policies 4, 5 and 8.	17. Record details in the paint 40. Implement works to stabilise the vessel 41. Implement conservation treatment
Sourcing of materials represents a risk, particular where like-for-like replacements are preferred and material (such as hardwood) is difficult to source	Address by considering replacement materials. Policies 6 and 7.	30. Prepare strategy for acquiring and managing timber and other materials
Current high RH and standing water which could exacerbate rot and corrosion	Address by reducing RH, removing standing water and monitoring. Policies 3, 5 and 9.	10. If risk assessment allows conduct short term measures to temporarily stabilise and reduce risks to the vessel and staff, including: remove gas cylinder from officer's compartment; insert temporary supports and uncouple steering cables; Drain bilges and reduce RH.
Current location in a non-controlled environment which could inhibit the ability to keep humidity, temperature and other factors stable, affecting the conservation of the vessel and ultimately potentially affecting her physical fabric	Address by reducing the RH, monitoring and intervention as necessary. Also address through design of new structure. Policies 5, 9 10 and 12.	10. If risk assessment allows conduct short term measures to temporarily stabilise and reduce risks to the vessel and staff, including: remove gas cylinder from officer's compartment; insert temporary supports and uncouple steering cables; Drain bilges and reduce RH. 53. Establish a monitoring regime and schedule 55. Monitor the vessel as per the monitoring regime and schedule 56. Conduct a HIA if any changes are noted during monitoring surveys and take steps to address changes which could impact significance. 47. Design new structure to take account of:

		Conservation requirements including means to control RH; Interpretation programme; Access requirements; Health and Safety requirements; Fire Regulation requirements; All possibilities to enhance the setting and significance of the vessel.
Insertion of incongruent materials such as gold plastic sheeting in the ward room and other features such as the bars and modern services puts the overall historic character of the vessel at risk;	Address by considering removal of incongruent materials which do not contribute to significance. Policy 3.	31. Prepare plans for removal of materials which are incongruent and harmful to historic character such as gold plastic in ward room 35. Prepare HIA for completion of the work recommended by Actions 21-34 which include interventions to make the vessel structurally stable, conserve historic fabric, restore historic character, and to make preparations for safe staff and visitor access and interpretation. 41. Implement conservation treatment and remove incongruent materials (as per Action 31)
Loss of features and internal divisions which related to the function of the vessel during wartime has eroded its overall historic character and layout, which places the history and significance of the vessel at risk of not being fully understood	Assess opportunities to sensitively restore the historic character. This issue should also be considered within the interpretation strategy. Policies 3, 4 and 14	31. Prepare plans for removal of materials which are incongruent and harmful to historic character such as gold plastic in ward room and other features such as the bars 34. Prepare interpretation and display strategy taking account of information within this CMP, archival information (provided with this CMP) and any further input from stakeholders recorded as part of Action 6, in addition to any other information.
Gaps in understanding the history of the vessel and conflicts between extant sources which could lead to significance not being fully realised	Address by encouraging input from stakeholders to fill gaps in understanding and ensure this information is included within the interpretative material where relevant. Policies 11 and 15	6. Establish contact with stakeholders including Hartlepool Council and National Historic Ships and invite other stakeholders (via information boards at the museum and online) to contribute any information they have about the vessel. Record any contact with and information from stakeholders in a log 34. Prepare interpretation and display strategy taking account of information within this CMP, archival information (provided with this CMP) and any further input from stakeholders recorded as part of Action 6, in addition to any other information.
Gaps in understanding of the extent of rot and other conservation issues due to paint cover which could lead to the deterioration or loss of physical fabric	Address by improving understanding of these issues. Policies 5 and 11.	18. Remove paint 19. Assessment focusing on determining the extent of rot (and phasing if necessary) and formation of a treatment plan. 20. Treat rot
Gaps in understanding phasing in detail due to paint cover and like-for-like replacements in the past which could lead to significance not being fully understood	Address by improving understanding of these issues. Policy 11.	18. Remove paint 19. Assessment focusing on determining the extent of rot (and phasing if necessary) and formation of a treatment plan
The availability of staff and resources to undertake necessary conservation work at present and in the future also poses a risk to the vessel	Address by identifying team and skills gaps early in the process. Policy 2.	1. Appoint project management (PM) team and define roles and responsibilities 3. Appoint/identify internal key members of RML 497 project team including staff responsible for: ship keeping; conservation; coordination of volunteers, and liaison with stakeholders. Identify any gaps in necessary skills. 4. Appointment of specialist teams as necessary.
The transfer of the vessel from the current temporary structure to the new structure poses a series of potential risks. These include the way the vessel is moved (if transport is necessary), risk of physical damage from construction or demolition work associated with the structures, and changes to the environment. This period requires careful consideration so as not to put the vessel in undue risk	Address by giving specific consideration to this issue and assessing impacts before making a decision. Policies 12 and 17.	48. Consideration should be given to the environment, storage or transport of the vessel during the construction of the new structure. Efforts should be made to ensure environmental stability for the vessel throughout the process of moving from the temporary structure to new structure. 49. A HIA should be undertaken to consider options for the specifications of the new design and plans for the transfer from the temporary unit to the new structure.

Organisations are under increasing pressure to improve their environmental impact by reducing energy consumption etc. Controlled indoor environments necessarily have an energy cost, and as such this trend could potentially pose a risk going forward.	Requires careful consideration, addressed by conducting a HIA before any changes in environmental policy which could impact on the vessel are implemented. Policies 15 and 17.	58: Receive regular updates from the NMRN Director General on work planned for NMRN Hartlepool and on other changes to the organisations policy which could impact the vessel (e.g. environmental policy) and conduct HIA if appropriate
Changes to circumstances affecting the vessel may also pose unforeseen risks.	Address by reviewing the CMP, Risks and Opportunities list and Action Plan on a regular basis. Policy 21.	57: Review CMP as required. The risks and opportunities and Action Plan should be reviewed on a biannual basis to monitor progress and identify any new areas of risk.
Creation of the new permanent housing for the vessel which provides an opportunity for the enhancement of the vessel's environment, setting, interpretation and access. These opportunities have the potential to aid the conservation of the vessel, her significance as derived from setting and understanding of her significance. However, if not properly considered and these opportunities are not taken the results may pose a risk to the ongoing significance of the vessel	Address by giving careful consideration to the design of the new housing to ensure all opportunities are taken. Policies 12, 14 and 17.	47: Design new structure to take account of: Conservation requirements including means to control RH; Interpretation programme; Access requirements; Health and Safety requirements; Fire Regulation requirements; All possibilities to enhance the setting and significance of the vessel. 49: A HIA should be undertaken to consider options for the specifications of the new design and plans for the transfer from the temporary unit to the new structure.
Current interpretation associated with the vessel is minimal and access is restricted to views of the vessel from outside of the temporary housing on 'open days. There are opportunities to improve both interpretation and access within the current temporary structure and the new structure	Address by assessing ways to improve interpretation. Policy 14.	8: Maintain and extend access for visitors to facilitate 'intellectual access' and sight of the vessel, in line with the risk assessment, until such time that the decision has been taken, and necessary work completed, allowing long term visitor access to the vessel (see Action 25)
Degree and nature of visitor and staff access to the vessel which could affect the physical fabric of the vessel and understanding and appreciation of significance. Greater visitor access to the vessel may put her physical fabric at risk, but may also provide improved opportunities for interpretation. There may be conflicting issues within this area which require careful consideration, so as not to put the vessel at undue risk	Address by prioritising stability and significance and by monitoring impacts of visitors. Policies 5 and 9.	25: Make decision regarding long term accessibility to the vessel (for visitors and staff) with reference to the findings of the structural survey, conservation assessment and access audit, and identify related decisions which must be taken following this decision 59: Review implications of visitor access on the fabric of the ship and appreciation of the significance of the vessel 60: Conduct a HIA if visitor access is impacting on the significance of the vessel and recommendations for improvements to the situation 61: Implement improvements
Changes to the wider setting also provide both a risk and opportunity. The wider setting, beyond the museum, is generally poor and as such there are opportunities to enhance this. However, the control for changes to the wider setting largely lies with Hartlepool Council and so relationships will be vital to ensure that changes to the wider setting are positive.	Address by establishing and maintaining a positive relationship and good communication with stakeholders who can influence the setting of the vessel. Policies 13 and 15.	6: Establish contact with stakeholders including Hartlepool Council and National Historic Ships and invite other stakeholders (via information boards at the museum and online) to contribute any information they have about the vessel. Record any contact with and information from stakeholders in a log.
Overall, the commissioning, production, implementation and review of this CMP presents a major opportunity to quantify, manage and mitigate the risks to the vessel.	Address by creating, implementing and reviewing this CMP. Policies 1, 2 and 21	1: Appoint project management (PM) team and define roles and responsibilities 2: Formal adoption of the CMP 57: Review CMP as required. The risks and opportunities and Action Plan should be reviewed on a biannual basis to monitor progress and identify any new areas of risk.

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11.0 Index 1: List of Historic Plans for Fairmile B and Photo Numbers

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13.0 Appendix 1: Monitoring Points

13.1.1 During the archaeological and conservation survey of the vessel in 2019 by MSDS Marine it was noted that the vessel may be at risk from sagging and warping due to the recent removal from the water and transport to Hartlepool. The opportunity was therefore taken to establish methods for monitoring the vessel. This was considered particularly important as laser scan data which had been due for collection was put in hold due to budgeting issues. It was felt that the NMRN required some means of establishing a baseline against which change could be assessed, and to that end photogrammetry data was collected for the bow and stern and monitoring measurements were taken. These are reported on here.

Monitoring Condition

13.1.2 The bow and stern are key areas of concern as the vessel settles. The conservation assessment conducted as part of this CMP found that both areas were in poor condition. At the bow, localised brown rot was identified on the stem post longitudinal cracking of the timber which could indicate stress. Externally, where the bow is unsupported by the cradle, creep has already been noted which would have implications for the integrity of the stem post. Internally the bow is reinforced with two ferrous breasthooks and fastenings, both of which were later additions and in poor condition. They are actively corroding resulting in spalling and significant material loss, and the corrosion products are causing physical damage to adjacent timbers and wooden features.

13.1.3 At the stern, the transom is in poor condition due to active fungal infestation. Localised areas of brown rot also affects the internal side planking and transom planking. Although only localised areas of brown rot are visible, a significant amount of dry rot spores are present on the structure and surrounding area which indicate active dry rot activity. The external transom is in good condition with general paint loss, shrinkage and cracking noted. Issues with the steering gear have also been noted in this area.

13.1.4 Measurements were taken at the time of the surveys conducted for this CMP to establish monitoring points for the bow of the vessel (Figure 39), and a photogrammetry survey of this area, and the stern, was completed (Figure 39 and Figure 40). Repeat measurements can be taken with reference to the positions and details given below, and repeat photogrammetry surveys or collection of laser scan data would provide additional means of monitoring this critical area.



Figure 39: Monitoring points established to record the bow

Monitoring Point	Distance to floor (cm)
a	114
b	118.5
c	122.6
d	129.8
e	127.9
f	145.8
g	241
h	302.3



Figure 40: Extracts from photogrammetry model of the bow



Figure 41: Extracts from photogrammetry model of the stern

14.0 Appendix 2: Gazetteer (see Vol. 2)