# Conservation Management Plan

**MTB 71**

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Conservation Management Plan: MTB 71</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client Project Number:</td>
<td>N/A</td>
</tr>
<tr>
<td>Author</td>
<td>Tom Harrison</td>
</tr>
<tr>
<td>Origination date</td>
<td>09/05/2019</td>
</tr>
<tr>
<td>Reviser (s)</td>
<td></td>
</tr>
<tr>
<td>Date of last revision</td>
<td></td>
</tr>
<tr>
<td>Version number:</td>
<td>Partial Draft 1</td>
</tr>
<tr>
<td>Summary of changes</td>
<td></td>
</tr>
</tbody>
</table>
1.0 Understanding the Vessel

1.1 MTB 71: Sources of Information

1.2 Construction of the vessel: Sources

1.2.1 A number of sources which relate to the construction of the vessel are in existence. These include primary archive and secondary published sources.

1.2.2 The National Maritime Museum (NMM) hold a number of documents which provide information on the built form of the vessel within their archives. These include several plans of the vessel, profiles of the MTB, and deck plans. More detailed information relating to features such as the fuel system and engine room controls are also held by the NMM.

1.2.3 The National Archives, Kew hold limited information relating to the original order of the vessel by the Norwegian Navy (Reference ADM 371/23675).

1.2.4 An article on Vosper 60ft boats appeared in the World Ship Society Small Craft Journal No 7, published in April 1999 which provides details on these vessels. Further details about the construction and specification of the vessel are also found in a number of published sources (Brown 2009, 2010; Konstam 2010; North 1972).

1.2.5 These sources have informed the details relating to the construction of the vessel set out within this CMP.

1.3 Use and Life of the vessel: Sources

1.3.1 Sources which give detail relating to the use of the vessel include documents relating to the wartime history of the MTB, and documents relating to the post-war life of the vessel. Wartime documents include:

- 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);

- Coastal Forces action report logs held by the National Maritime Museum dating between 1939 and 1945, (Reference ADL/Z/48/1);

1.3.2 The British Military Powerboat Trust (BMPT), who took care of the vessel from 2001, include some detail of the post-war use of the vessel on their website (http://www.bmpt.org.uk/other_boats_history/MTB-71/index2.htm). Additional information on the post war use of the vessel are found in several sources, although information is limited, (Brown 2009; 2010, Konstam 2010; North 1972);

1.4 Survival and Condition of the vessel: Sources
1.4.1 Sources which concern the survival of the vessel and the repairs and refits are more limited. However, as with the use of the vessel these can be split into two phases: those which relate to wartime events which affect the survival of the original fabric of the vessel, and those which relate to its current state of survival.

1.4.2 Of the former, the National Archives collection of war diaries and action reports which highlight any damage sustained to MTB 71 during service provide some information, although in general the sources lack detail and do not include and repair information (Reference ADM 199/360, ADM 178/263, ADM 199/2413, ADM 199/645, ADM 199/416, ADM 199/417, ADM 199/629).

1.4.3 The most beneficial sources relating to the vessel’s current state of survival are shipwright surveys conducted by Richard Ayers (2008), Diana Davis (2018) and Bryan Matthews (2018). These surveys have all been completed since 2008 and while the vessel has been under the care of the Imperial War Museum (IWM) or Fleet Air Arm Museum (FAAM).

1.4.4 Richard Ayers Ltd was contracted by John Delaney, the collections manager for the IWM Duxford, to produce a condition survey and report for MTB 71 in 2008. The shipwright condition report produced is highly detailed and provides a useful overview of the complete condition of the vessel.

1.4.5 A rapid condition assessment was conducted by Diana Davis in October 2018. The vessel was stored at Cobham Hall storage building at FAAM. This was a short report detailing obvious conservation issues in the vessel. The conclusion of the assessment includes initial and immediate recommendations for the stabilisation and conservation.

1.4.6 Bryan Matthews completed a shipwright’s survey in October 2018 on behalf of the NMRN. The report is brief and includes current stability, recommendations for stabilisation and immediate recommendations. The survey was conducted on MTB 71 and MTB 331 at the same time, the final report concentrates on MTB 331, with limited conclusions for MTB 71.

1.4.7 Basic information on the vessel’s survival can be found in publications, (Brown 2009, 2010; Konstam 2010; North 1972) and through the BMPT who cared for the vessel from 2001 (http://www.bmpt.org.uk/other_boats_history/MTB-71/index2.htm).

1.5 MTB 71: Understanding the Vessel

1.6 Construction of the vessel

1.6.1 MTB 71 was one of four 60ft Vosper MTBs ordered by the Norwegian Navy in May 1939 (designated boats 5-8). These were the only 60ft Vosper boats built during the Second World War (Vosper job number 2019). The vessel was laid down on the 28th June 1939 at Vosper’s Broad Street, Camber yard. Originally built for the Norwegian Royal Navy as boat 7, she was due to be handed over on the 5th June 1940. However, the vessel was requisitioned by the Royal Navy in 1940, re-designated MTB 71 and accepted into service on 2nd July 1940.

1.6.2 As with other MTBs the vessel was built for speed. With a length of 60ft, a beam of 15’4” and a draft of 3’6”, the hard chine hull was constructed using triple diagonal mahogany planking on
the bottom and double diagonal mahogany topside. The outer layer of planking below the chine was ½” thick and between 6.5” and 8” wide. The two diagonal layers beneath were a thinner ¼” mahogany. Above the chine the outer planking was 7/16” thick and the inner layer ¼”. An oiled fabric was placed in between each layer of planking to aid in waterproofing. The planking layers were fastened using copper clenches and rooves and connected to the internal structure using bronze screws.

1.6.3 The frames, 51 in total, were also constructed of mahogany, spaced at 14” centres throughout. The frames above the chine were 4 ¾” moulded and 1” sided, and those below 5 ¾” moulded and 1 ¾” sided. The lower frames were larger around the steering flat. Steel structural plates were fastened to the lower frames.

1.6.4 The keel was constructed of two overlaying parts. The upper measured 5 ½” across, and the lower does not protrude below the external hull planking. Teak was used for the keel timber, which the inner and outer stem were made of oak. The keel was joined by four rooved copper nails between each set of frames.

1.6.5 Watertight bulk heads were constructed within the MTB, positioned at frames 18, 31 and 41. The bulkheads were constructed of ½” double diagonal copper-clenched teak and supported by 3” x 1 5/8” vertical stiffeners.

1.6.6 Steel frame knees were fitted at every frame along the hull chine and steel hanging knees were installed at every deck beam.

1.6.7 The top deck of the vessel was also made of double diagonal mahogany. The under layer being ¼” thick and the outer layer ½” thick. The latter was laid parallel with the centreline of the vessel. The deck itself was laid over sawn mahogany deck beams measuring 6 ¾” moulded by 1 ¾” sided and spaced at 28” intervals.

1.6.8 The vessels were shaft driven twin screw via reversing gearboxes and fitted with two very powerful Italian Isotta Fraschini, 24 cylinder, petrol engines producing c.1100bhp each and giving a maximum speed of approximately 40 knots. The Norwegian Navy purchased these from Italy in exchange for 700 tons of dried fish (FO 371/23675). Shortly after this purchase Italy’s involvement in the war put an end to the exchange of further Isotta Fraschini engines. An additional two Ford V8 auxiliary engines were fitted to the MTB for slow approaches and while in port.

1.6.9 With two fuel tanks fitted in the stern of the vessel, each vessel could carry up to 1125 gallons of 87 Octane petrol fuel. Additional deck tanks could be fitted, giving the vessels a maximum range of around 450 miles.

1.6.10 The vessel was fitted with two 18” torpedo tubes port and starboard and a twin 0.303” Lewis machine gun positioned amidships. Additionally, it was to be armed with four depth charges, CSA (Chloro-sulphonic acid) smoke gear and Asdic sonar for submarine detection (World Ship Society 1999).
1.6.11 MTB 71 first arrived for service at Dover on 21st July 1940. It is noted in the Dover war diary that the vessel was painted black at this time, with its Admiralty number painted in red (ADM 199/360).

1.7 Use and Life of the vessel

Wartime Action

1.7.1 MTB 71 arrived at Dover on the 21st July 1940, and was assigned to the 11th MTB Flotilla stationed at HMS Wasp, Dover Command along with two 70ft Vosper boats (MTB 69 and 70), and the sister ships (MTB 72, N5 and N6 (Norwegian Navy)). The flotilla was assigned to night time E-boat patrols and crash-boat duties (Air/Sea rescue). MTB 71’s first patrol was on the 22nd July 1940, searching for E-boats off Dungeness (ADM 199/360).

1.7.2 It is unclear who MTB 71’s first CO and 1st Lieutenant were, but it is known that Lieutenant Cristian Peter Evensen RNVR and Sub Lieutenant William Reynolds-Albertini RNVR were appointed to her crew on the 2nd of September 1940 (World Ship Society 1999).

1.7.3 MTB 71 continued to operate out of Dover and Portsmouth with the 11th MTB Flotilla until September 1940, conducting patrols, convoy escort duties and air/sea rescues (ADM 199/360).

1.7.4 On the 11th September 1940 Dover was hit by a German air-raid, followed by fire from the Framzelle Battery in Northern France. Approximately 20 shells fell in the harbour, damaging MTB 71. Information on the damage is limited but it is recorded to have been damaged “more severely” than MTB 29 and also damaged by a resulting fire (ADM 199/360).

1.7.5 According to the Dover Command war diary by the end of September 1940 MTB 71 was no longer in service at Dover (ADM 199/360). She may have been moved to Whitstable for repairs at that time, until January 1941.

1.7.6 By May 1941 MTB 71 was back at Dover Command with the 11th MTB Flotilla. On the 29th May 1941 MTB 71 was again damaged during action. The action was subject to inquest and a board of inquiry was undertaken. During action MTB 71, 72 and N5 spotted an armed trawler. MTB 71 fired her port side torpedo, which shortly after was followed by a deep-water explosion just forward of the bow. The upheaval from the explosion caused the engine revolutions to drop drastically and the port exhaust began producing thick blue smoke. MTB 71 turned away and with support of N5 returned to Dover (ADM 178/263). The inquiry concluded that a lack of experience and organisation among the Flotilla was the main fault of the action. During this time MTB 71’s CO remained Lieutenant C.P. Evensen RNVR.

1.7.7 On the night of June 21st/22nd 1941, MTB 71 was on patrol with Portsmouth Command. The war diary for Portsmouth Command reports that MTB 5 and 72 were involved in “indecisive action against E/V. No torpedo targets seen” (ADL/Z/48/1). However, some sources state that MTB 71’s petty officer stoker was killed during action on that night suggesting that MTB 71 may too have been involved alongside MTB 5 and 72.

1.7.8 MTB 71 saw action again two days later, on the night of the 23rd/24th July 1941, when she sustained damage during action with an enemy tanker in tow with three other vessels. MTB 49 fired two torpedoes and missed, MTB’s 51 and 71 did not fire or gain a visual on the enemy but
the enemy vessels opened fire, damaging MTB 71 below the waterline with a heavy shell (ADL/Z/48/1).

1.7.9 Between September and November 1941, MTB 71 was undergoing repairs on the Thames, possibly for the shell fire damage sustained on the 23rd/24th July.

1.7.10 Late in 1941, MTB 71 was transferred to the 1st MTB Flotilla station at HMS Beehive, Felixstowe. Operating under Nore command, MTB 71 was recommissioned with a Norwegian crew.

1.7.11 While under Norwegian command, MTB 71 saw brief action with enemy E-boats off Kwinte Bank. The action report states “Sighted and had brief brush with EB’s but guilty of bad enemy reporting so supporting MGB’s never arrived.” Assumingly MTB 71 was not damaged during this action (ADL/Z/48/1).

1.7.12 In early 1942 MTB 71 was transferred back to the Royal Navy and on the 15th January arrived at Ramsgate.

1.7.13 MTB 71 again failed in action on the 8th/9th February. While operating with MTB 32, they spotted three enemy destroyers. The attack was unsuccessful and it is concluded that “As to MTB 71, the lack of success can in the main be attributed to the small amount of operational experience her commanding officer has had in command” (ADM 199/416).

1.7.14 MTB 71 again saw action on 12th February, and sustained damage. Records report that “MTB 71 suffered damage to six frames on the foremost mess deck port side, and five were fractured on the starboard side. Two athwart ship stiffening plates for longitudinals distorted, and the bulkhead between messdeck and galley fractured in three places” (ADM 199/416).

1.7.15 By this time, MTB 71 had its twin 0.303 machine gun replaced by 4 barrelled Bickers K gun and two single 0.303 Lewis guns (World Ship Society 1999).

1.7.16 Following the damage sustained on the 12th February the Dover Command war diary suggests that temporary repairs were undertaken at Ramsgate and Dover and competed by 19th February (ADM199/416) as MTB 71 departed for Harwich on the 22nd February 1942 (ADM 199/2413).

1.7.17 MTB 71 underwent full repairs at Brightlingsea between 24th February and 14 August 1942 (BMPT). MTB 71 was paid off during this period, on the 10th April 1942 (ADM 199/2413). Late in 1942 MTB 71 had another armament change. This time replacing the Vickers K guns with twin 0.5” Vickers machine guns. These guns were placed further aft of the original turret (World Ship Society 1999).

1.7.18 It is probably that MTB 71 spent some time in Portland until the 19th November 1942 when the vessel is reported to have arrived in Dover from Portland. The following day MTB 71 continued on to Felixstowe to join the 4th MTB Flotilla (ADM 199/417).

1.7.19 MTB 71 operated out of Felixstowe under Nore command, conducting patrols and attempting to intercept enemy shipping. During this time the BMPT report that damage to the electrical wiring between the bridge and the engine room had been sustained following action with armed trawler, and repairs were undertaken at Brightlingsea between 18th February and 18th
March. No action was reported in the war diaries; however, it is possible that MTB 71 was involved in actions reported in Peter Dickens book “Night Action” (2008) which reports that on the 19<sup>th</sup> January 1943, MTB’s of the 21st and 4<sup>th</sup> MTB Flotillas were in action off the Hook of Holland with three armed enemy trawlers (World ship society 1999).

1.7.20 On the night of the 13<sup>th</sup>/14<sup>th</sup> April 1943 while on usual patrols and escorts, four MTB’s of the 4<sup>th</sup> Flotilla, including MTB 71, intercepted 4 or 5 armed enemy trawlers. The trawlers opened heavy fire at the MTB’s, causing “slight damage to MTB 71” (ADM 199/629).

1.7.21 MTB 71 was reportedly paid off again on the 14<sup>th</sup> June 1943 (BMPT, Brown 2009) and transferred to the Army and the 615 Water Transport Company where the vessel was laid up under “care and maintenance” along with the sister ship MTB 72 (World Ship Society 1999, BMPT, Brown 2009).

1.7.22 In early 1944, MTB 71 was cannibalised in order to repair MTB 72, which was in a better state. MTB 71 likely remained out of service until she was returned to the Royal Navy at HMS Hornet, Gosport, in September 1944 (BMPT; Brown 2009).

**Post-war history**

1.7.23 On the 14<sup>th</sup> August 1945 MTB 71 was sold to MR A L Lake of Chichester by the Director of Small craft Disposals (World Ship Society 1999). Nothing else is known of this period until MTB 71 is sold to Mr Cyril Pudney in 1947, reportedly for £115 (mtb71.blogspot.com) and renamed Wild Chorus. Mr Pudney used Wild Chorus as a houseboat, moored at Birdham on the Chichester canal until his death in 1992.

1.7.24 Following the death of Mr Pudney, MTB 71 (Wild Chorus) was acquired by Hampshire County Council in conjunction with Mr David Watson of the MTB 71 Group, a charitable organisation set up in order to help conserve the vessel.

1.7.25 MTB 71 remained at Birdham until 1995, when on the 30<sup>th</sup> June she was moved to Basin No1 HM Naval base, Portsmouth.

1.7.26 On 8<sup>th</sup> August 1997, MTB 71 was moved from No1 Basin into the canal within Number 4 boathouse. Later lamination problems with the lower hull caused MTB 71 to be moved again, this time to a dry trailer.

1.7.27 In October 1998, MTB 71 was sent over to Bergen, Norway, on board the RNN Valykrien, to go on public display for the Norwegian MTB Jubilee. MTB 71 was retuned to Portsmouth following the display.

1.7.28 The responsibly for care of MTB 71 was given to the British Military Powerboat Trust (BMPT) in June 2001. She was moved from Portsmouth to Husbands Shipyard, Southampton, where she was put on display.

1.7.29 The BMPT’s lease on Husbands Shipyard was expiring in autumn 2005 and without another facility MTB 71 was handed over to the Imperial War Museum and transported to IWM Duxford.

**1.8 Survival and Condition of the vessel**
1.8.1 MTB 71 was one of four 60ft Vosper MTB’s built during the Second World War. Only four 60ft boats were built by Vosper originally specifically for the Norwegian Navy (designated boats 5-8). Boats 5 and 6 were both delivered to the Norwegian Navy. Boat 5 was lost to heavy weather and boat 6 was sunk in harbour. Boats 7 and 8 were both requisitioned by the Royal Navy and re-designated MTB 71 and 72. The final fate of MTB 72 is not known exactly but it is likely to have been sold or broken up following the war. Thus MTB 71 is likely to be the only remaining vessel of the four 60ft Vosper MTBs built during the Second World War.

1.8.2 While located at the IWM Duxford a detailed shipwright’s survey was completed for MTB 71 by Richard Ayers Ltd (2008). The survey found that overall, much of the interior of the vessel has been removed including equipment, floors and structural supports. A number of key features of the vessel are either missing completely or are unattached but remain with the vessel. However, other portions and some potentially historic (wartime) repairs may survive.

1.8.3 The detailed findings of this survey are highlighted below.

1.8.4 The hard chine hull was constructed using double diagonal mahogany planking above the chine. Planking is known to be decaying around the aft lifting eye on the port side, affecting 4 or 5 planks. Many of the topside planking has shrunk considerably and has been repaired with a filler, possible decorators caulk. When removed it is noted that the inner and outer planking layers have a gap between them and the oiled fabric that would have provided a watertight barrier has degraded.

1.8.5 This membrane is similarly degraded around the entire vessel. Gaps have been noted between the planking layers, this leaves voids which over time have become filled with dried salt, marine sediment and dried bedding compound.

1.8.6 The majority of the bronze screw fastenings around the vessel have degraded through dezincification and many samples tested during the survey reportedly sheared the screw head. Many of the timbers around copper fastenings have experienced some shrinkage, this has left the fastening nails loose in the timbers.

1.8.7 A large patch of plywood is present inside the hull on the port side, aft of frame 7 and close to the upper deck. Some of the internal planking is also found to be loose, with splits visible along the lines of the fastenings.

1.8.8 On the starboard side the topside planking is noted to been heavily decayed in an area 3’ from aft. The full extent of this decay could not be ascertained during the shipwright’s survey without removal of the paint and destructive testing. Spike testing suggests that the decay may go through to the inner layer of planking. Another large area of decay has been patched with plywood, this is between 5’ to 11’ aft. Between 15’ and 22’ and again at 30’ aft there are further patches of plywood in place of the mahogany planking.

1.8.9 Inside the vessel the planking between frames 18 and 22 on the starboard side show signs of heavy decay of the inner planking, additionally, there are no chine knees remaining in this area. In the same area there is also a repair to the port beam shelf. On the starboard side the beam
shelf has decayed between frames 24 and 31. Further decay of internal planking is found at the chine and centreline.

1.8.10 Below the chine, the planking is triple layered with mahogany. On the port side it is noted that 4’ aft there is considerable decay to the outer planking immediately outside the centreline and filler is present. Some planking has been renewed four to five planks up from the centreline. The garboard strake is heavily decayed, and the 2\(^{nd}\) plank up, longitudinal splits are evident. 10’ aft there is heavy wear to the outer planking, possibly from gribble combined with regular grounding during its time as a house boat. 14’ aft planks have shrunk along their width, exposing large amounts of dry powder in the cracks, this maybe a mix of salt and old powdered lead rich putty.

1.8.11 The majority of the planking found on the underside of the chine has some level of decay, with between 1/8” up to the full thickness of the planks missing. The shipwrights survey concludes that in most places, the planking is delignified, lacking strength and pliability.

1.8.12 The underside of the vessel has had a hard filler applied and a sheathed with a heavy layer of fibre glass. Much of this is no longer present, but small areas remain.

1.8.13 31’ aft there is a large yellow metal plate, this is believed to be part of the transponder for the Asdec sonar equipment. From this area to the bow the planking around the chine-rail is degrading. Some minor improvement of the external planking has been made around the propeller shaft exit and aft hull supports.

1.8.14 On the starboard side, below the chine, there is a heavily decayed section of both the inner and outer planking around 3’ aft. Between 8’ to 12’ there has been plywood replacement planks fitted with very worn first and second planks from the centreline and 2 planks beneath the chine to 16’ aft.

1.8.15 Between 16’ and 25’ there is heavy degradation in pockets with a thick polyester filler still in place. Further heavy degradation is found outboard between 25’ and 35’. Heavy degradation is also noted around the aft fore foot of the hull, losing the entire external veneer.

1.8.16 The transom is constructed using 7.5” wide, ½” thick planking. This is laid horizontally, with the inner diagonal layer being 5/16” thick. A large repair has been made in the top port corner. This is described in the shipwright survey to have been “carried out to a poor standard”.

1.8.17 The stem has some minor damage and repairs. An epoxy resin and plywood repair has been made to the upper inboard portion, and the inner stem is split from the top down.

1.8.18 Between frames 26 to 31 (starboard) and 27 to 31 (port), all of the original frames have been replaced by laminated plywood. These are found in varying conditions. The shipwright conducting the survey concluded that these may well be from a major repair while in active service.

1.8.19 Aft of frame 46, two of the four frames have been replaced and the inner planking is in good condition. This suggest a refit at some time in the past. The newer frames are 5” moulded x 1 ¾” sided (compared to 5 ½” x 2”).
1.8.20 The shipwright survey suggests that approximately 40% of the frames required repair.

1.8.21 At the time of the shipwright survey it was found that although the vessel was sitting on a cradle, the bow had sagged forward of the support, and this portion was supported with a propeller.

1.8.22 The watertight bulkhead are positioned at frames 18, 31 and 41, deterioration is visible on the bottom where originally, stiffening would be applied. A non-structural bulkhead is also present at frame 7, forming the aft end of the heads. At frame 18 an additional doorway has been cut through the bulk head, the original water tight doors are missing throughout the vessel with exception of the forward collision bulkhead door.

1.8.23 The internal structure consisted of steel knees, floors and a plated floor, additionally two girders ran the length of the vessel. Much of the vessel’s important structural components are now missing, significantly weakening the vessel. Original steel plate floors are present on frame 1-3. Originally, these would have extended 2’ up the hull side from the centreline in places (around frames 7 to 10). The frames that these plates and the steel chine knees (now missing) would have fastened to in this area of the vessel which has considerable decay.

1.8.24 Within the engine compartment (aft of frame 31), all of the original girder and structural internal stiffening has been removed. In the engine compartment a large plywood patch has been applied to the portside, underneath the deck. Another plywood patch is applied below the deck between frames 26 and 31 to the starboard of the centreline, this is beneath the aluminium wheelhouse. Although the aluminium wheelhouse is present, it is not fitted to the vessel.

1.8.25 On deck, the deck hatches are present and installed. Some of the original cowl vents from the deck are loose inside the vessel, but the Dorade type boxes aft are missing. There are no guardrails remaining.

1.8.26 Many of the internal areas of the ship have been removed including equipment, floors and structural supports. The original heads sink is still in position to port forward.

1.8.27 The vessel’s original drive train, steering gear and machinery is no longer present. However, one of the Italian Isotta Franchini engines is displayed outside of the vessel and parts of the steering wheel were observed loose inside. All other parts of the hydraulics, rudders, propellers and shafts are missing.

1.8.28 The two Ford V8 auxiliary engines are shown on the Vosper drawing, but it is not known whether these were ever installed.

1.8.29 The two fuel tanks and the water tanks are not present.

1.8.30 Other parts of the original vessel have been reconstructed. The gun mounting is a plywood mock-up of the original, however the position is incorrect for the later arrangement when the upgraded turret was moved further aft. Additionally, the torpedo tubes are mock-ups for display.