

# *Endurance*

## Conservation Management Plan

April 2024



UK  
ANTARCTIC  
HERITAGE  
TRUST





Front cover image: *Endurance* beset in the ice and listing to the port. Hurley, F. © Scott Polar Research Institute

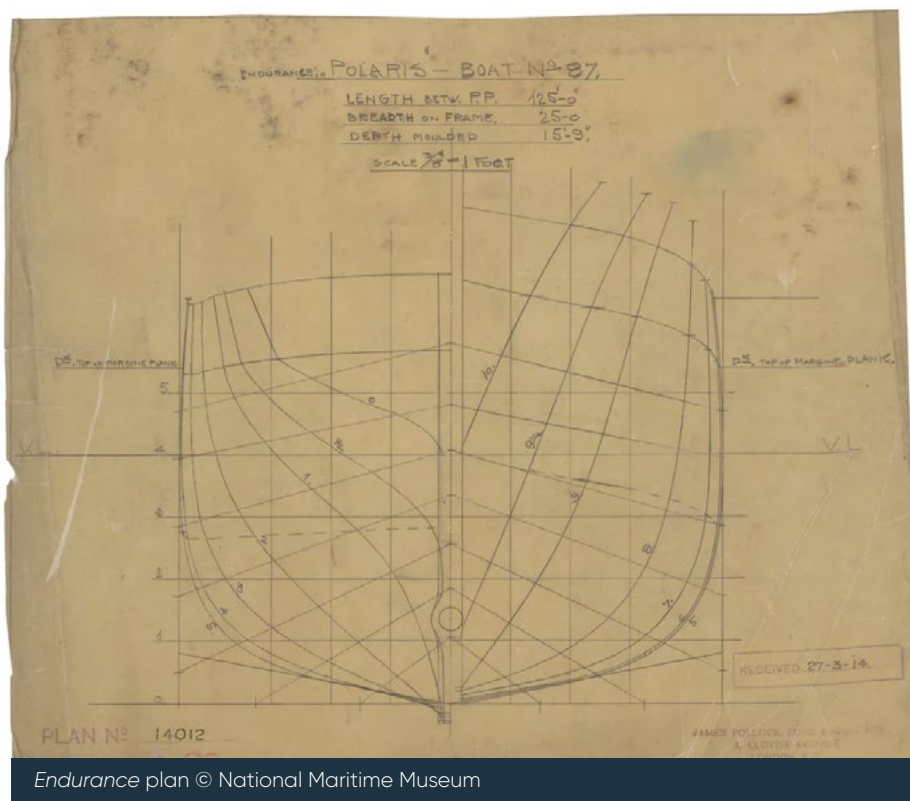
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	The ongoing management of the wreck should be transparent and collaborative, and based on clear policies outlined in this Conservation Management Plan.				

## Abbreviations

ATCM	Antarctic Treaty Consultative Meeting	ICOMOS	International Council on Monuments and Sites
ATS	Antarctic Treaty System	ICUCH	International Committee on Underwater Cultural Heritage
AUV	Autonomous Underwater Vehicle	IPHC	International Polar Heritage Committee
BAS	British Antarctic Survey	ITAE	Imperial Trans-Antarctic Expedition
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources	MEDIN	Marine Environmental Data and Information Network
CEP	Committee for Environmental Protection	NERC	Natural Environment Research Council
CMP	Conservation Management Plan	RGS	Royal Geographical Society
ECDIS	Electronic Chart Display Information System	ROV	Remote Operated Vehicle
EIA	Environmental Impact Assessment	SPRI	Scott Polar Research Institute
FCDO	Foreign, Commonwealth and Development Office	UKAHT	United Kingdom Antarctic Heritage Trust
HE	Historic England	UKHO	United Kingdom Hydrographic Office
HIA	Heritage Impact Assessment	UNESCO	United Nations Educational, Scientific and Cultural Organization
HSM	Historic Site & Monument	VME	Vulnerable Marine Ecosystem
IAATO	International Association of Antarctica Tour Operators	WSMPA	Weddell Sea Marine Protected Area
ICMM	International Congress of Maritime Museums		



Endurance plan © National Maritime Museum



# 1 Introduction

## 1.1. Summary

The Imperial Trans-Antarctic Expedition (ITAE) is perhaps the greatest story of exploration, peril, leadership and survival ever told. An ambitious expedition to be the first to cross the Antarctic continent, but one that came close to tragedy as one of the expedition ships, *Endurance*, was lost to the Weddell Sea in 1915. Shackleton's leadership and courage in unthinkable and seemingly irretrievable circumstances, to bring home all the men of the Weddell Sea Party, is the stuff of legend and cemented his reputation as a leader and celebrated explorer.

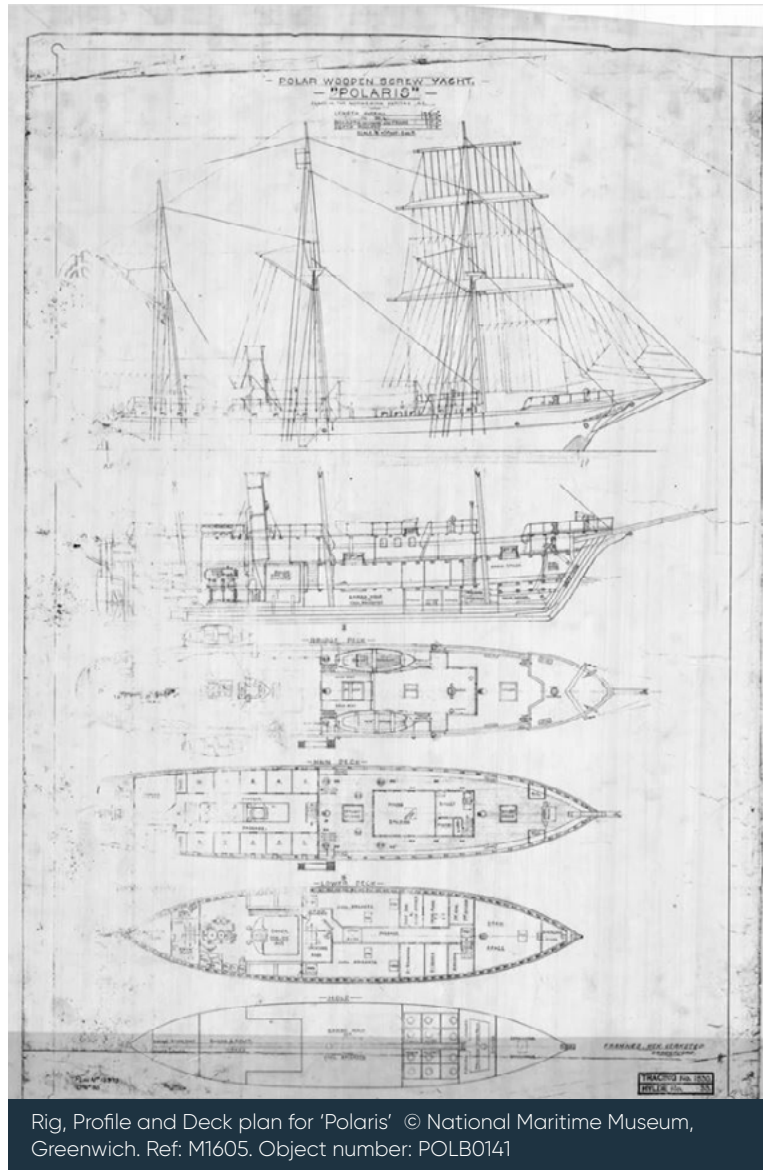
*Endurance*, crushed by the ice and swallowed by the Weddell Sea in 1915 was thought to be lost forever. But in 2022 one hundred and seven years later, its resting place on the floor of the Weddell Sea, at some 3000m depth was discovered by the Endurance22 Expedition in rare favourable conditions. Locating the wreck was considered almost impossible. However, the expert team defied the odds, by combining cutting edge subsea technology with historical archival research from the original expedition, and located the ship only a few miles from where Frank Worsley, the Captain of *Endurance*, had recorded it in 1915.

Taking its place alongside *Titanic* as one of the most famous shipwrecks of all time, *Endurance* is a historic and important artefact and site of pre-eminent international significance.

With its discovery, a new chapter is unfolding for the ship. Despite its extreme and remote location and the hostile conditions of the Weddell Sea, interest in the ship will inevitably grow now that the location is known. As heritage of international significance, it is important to define the future for the site, so it can be protected and safeguarded for future generations.

This Conservation Management Plan (CMP) describes how the United Kingdom, as the designated 'Party undertaking management' (Measure 12 (2019)), will encourage the international community to protect the wreck, promote responsible access for further study and encourage more people across the world to discover and be inspired by the story of the ship. As a historic site *Endurance* is one of the most remote and inaccessible in the world. It is also arguably one of the most stable, and its management is less about practical preservation interventions than it is about managing understanding of the site.

The UK Antarctic Heritage Trust (UKAHT) has led on the development of this plan, working with Historic England and a group of key stakeholders. The plan is intended to present a shared vision for the future of *Endurance*, and we hope the CMP guidance will be followed by all Antarctic Treaty Parties. The aim is that this plan will inspire an international effort to protect and promote understanding of *Endurance* for the benefit of current and future generations.



Rig, Profile and Deck plan for 'Polaris' © National Maritime Museum, Greenwich. Ref: M1605. Object number: POLB0141

## 1.2 A vision for *Endurance*

The wreck of *Endurance* will be preserved for future generations to learn from and be inspired by its remarkable story. The unique environment, biodiversity and ecology of the site will also be studied and protected to contribute to a greater understanding of the Antarctic ecosystem.

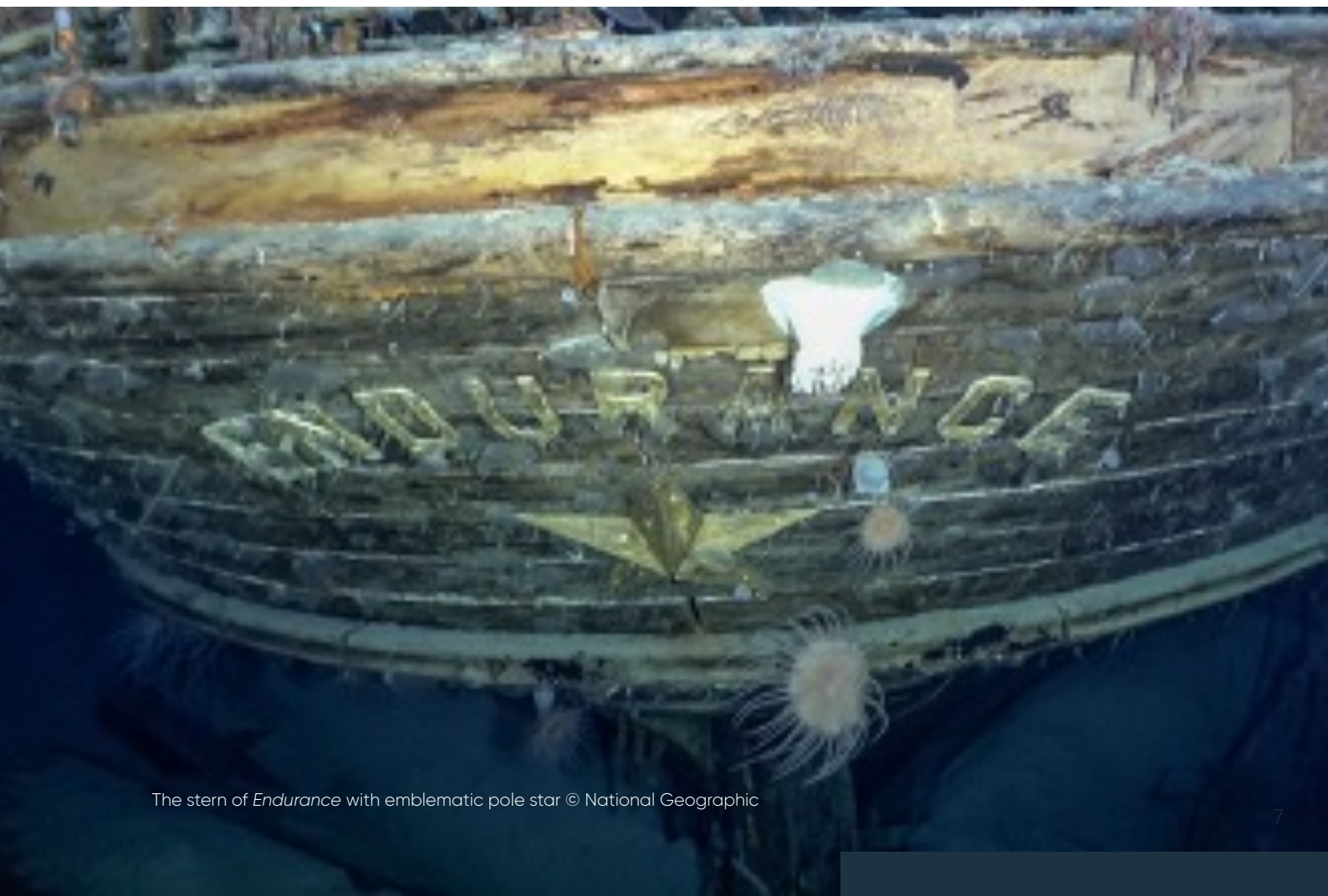
*Endurance* will be an exemplar of heritage protection, research and international collaboration and will be enjoyed and cherished by people across the world.

The three core objectives to achieve this vision are:

- *Endurance* will be protected *in situ*
- Further research will enhance understanding of *Endurance* and its story
- *Endurance* and its story will be shared for the benefit of current and future generations

These will be achieved through application of the following policies:

- All activity relating to the site will be undertaken with the aim to preserve and/or enhance the significance of the site. There will be a presumption in favour of non-destructive survey in preference to any recovery of the wreck structure or artefacts.
- The biodiversity, habitats and ecology of the wreck of *Endurance* will be studied, recorded and conserved.
- Long term challenges to the significance of the wreck of *Endurance* will be identified, and mitigation methods explored with stakeholders and partner organisations.
- Access to the wreck site will be managed to ensure that activities are not detrimental to the significance of the site.
- The significance of the site will be enhanced by maximising opportunities for knowledge enhancement and its public dissemination.
- The ongoing management of the wreck will be transparent and collaborative, and based on clear policies outlined in this Conservation Management Plan.



## 1.3 Purpose of this plan

This document sets out a Conservation Management Plan for *Endurance*, a shipwreck in the Weddell Sea protected as HSM No. 93 under Annex V to the Protocol on Environmental Protection to the Antarctic Treaty. It is intended to relate to wider strategies and plans for heritage in Antarctica, but stands alone in its articulation of the vision for the site and the recommendations for its future protection and study. It defines how the UK will meet its obligations relating to the ongoing care of the site.

This CMP has been produced to enable the United Kingdom, as the proposing party and the party responsible for the management of the historic site, to define best practice conservation principles for the future management of the *Endurance*, and to provide a shared vision of how the values and features of *Endurance* can be conserved, maintained and enhanced, and how national and international stakeholders could support that vision. The UK will delegate the responsibility for this to UKAHT, the organisation with responsibility for the care and conservation of British heritage in Antarctica and expert advisor to the UK Government on Antarctic heritage. UKAHT in turn will collaborate with stakeholders and experts, including Historic England, to achieve the best outcomes.

The document provides a framework for understanding the long-term management of the site, and clear guidance for the parties to the Antarctic Treaty System (ATS), as well as other states on how the future protection of *Endurance* might be attained through responsible and thoughtful decision-making. Risks facing the site are identified, with suggestions made for their measurement and mitigation. Opportunities for education, outreach and academic research are explored.

This plan is not intended to provide a detailed and definitive history or technical analysis of *Endurance*, such information is widely published and recommendations for further reading are provided. It should however provide sufficient detail to give substance to the declaration of significance and to motivate a range of international stakeholders to collaborate for *Endurance's* future.

At the time of writing the detailed findings and data from the Endurance22 expedition which discovered the wreck had not been published. Such data, once available in the public domain, will significantly enhance the content of this management plan and the detail on the planned outcomes of the policies. This document provides the best guidance based on the available information to date.

The aims of this Conservation Management Plan will be achieved through the following objectives.

- Understanding *Endurance*,
- Assessing the significance of *Endurance*,
- Identifying where the significance of *Endurance* is vulnerable, through the assessment of risk to the site,
- Identifying policies for conserving the significance of *Endurance*, and outlining measures for enhanced protection,
- Realising the public value of conservation of *Endurance*.

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## 1.4 Preparation of this plan

### 1.4.1 COMMISSION

The UK Government Foreign, Commonwealth and Development Office (FCDO) commissioned UKAHT to produce this Conservation Management Plan for *Endurance*. UKAHT in turn, commissioned Historic England to collaborate on the preparation of this plan in consultation with the Endurance22 Expedition team, British Antarctic Survey, and the descendants of Sir Ernest Shackleton.

### 1.4.2 CONSULTATION

The CMP is also informed by consultation with a range of recognised experts in relevant fields.

Full acknowledgements of those who contributed are included in Appendix 2.

### 1.4.3 AUTHORSHIP

This document was originally drafted by Hefin Meara, Historic England, on behalf of the UK Antarctic Heritage Trust, with Ruth Mullett and Camilla Nichol of UKAHT and with contributions from the key partners listed above.



## 1.5 How is heritage managed and governed in Antarctica?

### 1.5.1 THE ANTARCTIC TREATY SYSTEM

The Antarctic Treaty System (ATS) includes the Treaty and additional agreements made under its auspices, whose primary purpose is to ensure *"in the interests of all mankind that Antarctica shall continue forever to be used exclusively for peaceful purposes and shall not become the scene or object of international discord"*. At the time of writing there are 56 Parties to the Treaty who uphold in law the articles of the Treaty and associated protocols. Key provisions in the Treaty relevant to this plan are the freedom of scientific investigation in Antarctica and cooperation (Article I); *that scientific observation and results from Antarctic shall be exchanged and made freely available* (Article III); *and that the provisions of the Treaty relate to the area south of 60° South Latitude, including all ice shelves, but nothing in the Treaty shall prejudice or in any way affect the rights, or the exercise of the rights, of any State under international law with regard to the high seas within that area* (Article VI).

### 1.5.2 ENVIRONMENTAL PROTOCOL

The *Protocol on Environmental Protection to the Antarctic Treaty* (1991) (known also as the Madrid Protocol) designates Antarctica as a *"natural reserve, devoted to peace and science"*, and sets out basic principles and a series of rules applicable to all human activities in Antarctica to enable the comprehensive protection of the Antarctic environment.

Annex V of the Madrid Protocol provides guidance on the designation and management of Historic Sites and Monuments (HSM) in Antarctica. Article 8 describes how sites or monuments of recognised historic value might be proposed for designation as an HSM for approval by Parties to the Treaty, and that once listed they *"shall not be damaged, removed or destroyed."*

Guidelines adopted in 2009 (ATCM Resolution 3 (2009)) enable proposing parties to designate and manage HSMs responsibly.

### 1.5.3 HISTORIC SITES AND MONUMENTS

From its inception the Antarctic Treaty Consultative Meeting (ATCM) has emphasised the need to protect sites or monuments of historic interest, which led in 1972 to the establishment of an official list of HSMs. Currently, the list includes 95 HSMs, which are designated and protected according to guidelines adopted in 2009. These are a range of sites from historic bases and buildings, memorials, graves, cairns, geographical locations of historic significance, historic vehicles and shipwrecks.

### 1.5.4 ANTARCTIC SPECIALLY PROTECTED AREAS

Annex V to the Environmental Protocol also allows for the designation of Antarctic Specially Protected Areas (ASPAs). Designation of an area, including marine area, as an ASPA can be made to protect identified outstanding environmental, scientific, historic, aesthetic or wilderness values of an area of Antarctica, as well as any ongoing or planned scientific research being undertaken in the area. Access to and conduct of activities within an ASPA are prohibited, restricted or managed in accordance with management plans adopted under the Annex.

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Location of the wreck of *Endurance*

© British Antarctic Survey, UK Research and Innovation, 2023. Data: SCAR Antarctic Digital Database, GEBCO, Esri 2023.

## 1.6 Designation as a Historic Site and Monument

### 1.6.1 DESIGNATION CRITERIA

The wreck of *Endurance* is considered to meet the criteria for designation as an Antarctic HSM as, in accordance with Resolution 3 (2009) the following criteria are applicable:

- A particular event of importance in the history of science or exploration of Antarctica occurred at the place
- A particular association with a person who played an important role in the history of science or exploration in Antarctica
- A particular association with a notable feat of endurance or achievement

### 1.6.2 HSM DESIGNATION

The wreck of *Endurance* was first designated as HSM No. 93 in 2019, prior to the discovery of the wreck site, by means of Measure 12 (ATCM 42 - CEP 22, Prague)<sup>1</sup>. The designation came into effect on 9 October 2019. The United Kingdom is identified as the party responsible for the management of the site.

This designation covered the wreck of the vessel and its fixtures and fittings. Also included are all artefacts contained within or that were formerly contained within the ship, which may be lying on the seabed in or near the wreck within a radius of 150m. The designation also covered artefacts which would have been the personal possessions of the ship's company.

The wreck of *Endurance* was added to the schedule of Antarctic Historic Sites and Monuments maintained by the Antarctic Treaty Secretariat and was recognised in UK law by Statutory Instrument 2021/509, which came into force on 31 May 2021<sup>2</sup>.

<sup>1</sup> [www.ats.aq/devAS/Meetings/Measure/693](http://www.ats.aq/devAS/Meetings/Measure/693)

<sup>2</sup> [www.legislation.gov.uk/uksi/2021/509/made](http://www.legislation.gov.uk/uksi/2021/509/made)

### 1.6.3 UPDATE TO HSM DESIGNATION

Following the discovery of the wreck in 2022 by the Endurance22 Expedition, the designation was updated to include the co-ordinates of the wreck and extended to cover an area within a radius of 500m of the wreck site by means of Measure 18 (2022) (ATCM 44 – CEP 24, Berlin<sup>3</sup>). The extended designated area came into effect on 31 October 2022.

### 1.6.4 MARINE PROTECTION

The wreck of *Endurance* is located within the area of the proposed Weddell Sea Marine Protected Area (WSMPA). The WSMPA was first proposed to the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) in 2016<sup>4</sup>. The current proposal (WSMPA Phase 1) was presented to CCAMLR in 2019<sup>5</sup>.

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## 1.7 Heritage Management standards

The preparation of this conservation management plan has been guided by standards and guidance provided by the ATS, from the International Council on Monuments and Sites (ICOMOS), the United Nations and UNESCO, and Historic England.

### 1.7.1 ANTARCTIC TREATY SYSTEM

The *Guidelines for the designation and protection of Historic Sites and Monuments*<sup>6</sup>, (ATCM Resolution 3 (2009)), outline the various criteria which a site must fulfil to merit designation as a HSM, and outline the responsibilities of the parties undertaking management of a Historic Site or Monument. The Guidelines encourage Parties to also give consideration to the preparation of a site management plan or conservation strategy.

The Committee for Environmental Protection (CEP) has also developed the *Guidelines for the Assessment and Management of Heritage in Antarctica*<sup>7</sup> (ATCM Resolution 1 (2022)), which seeks to aid parties in recognising, managing, conserving and promoting Antarctic heritage for the benefit of current and future generations.

Appendix A of the Guidelines outlines the suggested contents for a conservation management plan, as informed by international standards and best practice..

### 1.7.2 UNITED NATIONS AND UNESCO

There is no formal agreement between the United Nations (UN) and the ATS, and the UN General Assembly has not approved a resolution on Antarctica<sup>8</sup>. The conventions and principles of the UN and UNESCO do not have formal status in the ATS, but there is merit in the recognition and adoption of best practice principles found in those conventions and applying them to heritage in Antarctica. Article 303 of the 1982 United Nations Convention on the Law of the Sea says that all states have a duty to protect objects of an archaeological and historical nature found at sea, and that they shall cooperate for this purpose.

The UNESCO 2001 Convention on the Protection of Underwater Cultural Heritage<sup>9</sup> provides a common framework for states parties to better identify, research and protect their underwater cultural heritage, while ensuring preservation and sustainability. The UK Government along with several other nations has adopted the rules contained in the Annex to the 2001 convention as being best practice for maritime archaeology. The annex comprises a series of ethical rules concerning activities directed at underwater cultural heritage, which provide objective standards by which to assess the appropriateness of actions in respect to archaeology underwater (Historic England 2015).

<sup>3</sup> [Meetings/Measure/768](#)

<sup>4</sup> [meetings.ccamlr.org/en/ccamlr-xxxv/18](#)

<sup>5</sup> [meetings.ccamlr.org/en/ccamlr-38/23](#)

<sup>6</sup> [guidelines\\_hsm\\_v2\\_2009\\_e.pdf](#)

<sup>7</sup> [documents.ats.aq/recatt/att643\\_e.pdf](#)

<sup>8</sup> [The United Nations and Antarctica 2005 The end of the 'Question of Antarctica](#)

<sup>9</sup> [underwater-heritage/2001](#)

### 1.7.3 ICOMOS

The International Council on Monuments and Sites (ICOMOS) International Polar Heritage Committee (IPHC), has produced the ICOMOS IPHC Antarctic Archaeology Guidelines<sup>10</sup>, which provides information on international best practice and standards to Antarctic managers and researchers. The ICOMOS International Committee on Underwater Cultural Heritage (ICUCH) has published the Charter on the Protection and Management of Underwater Cultural Heritage,<sup>11</sup> which was ratified by the 11<sup>th</sup> ICOMOS General Assembly in Sofia, in October 1996. These are further supplemented by the ICOMOS IPHC Antarctic Underwater Material Culture Guidelines<sup>12</sup>.

### 1.7.4 HISTORIC ENGLAND

Historic England has published a set of Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment, which are designed to strengthen the consistency of decisions taken and advice given (Historic England 2008). These conservation principles are intended to support the quality of decision making, with the ultimate objective of creating a management regime for all aspects of the historic environment that is clear and transparent in its purpose and sustainable in its application. As such, conservation is taken to be the process of managing change in ways that will best sustain the values of a place in its contexts, and which recognises opportunities to reveal and reinforce those values. Furthermore Historic England has recently published guidance on the production of statements of heritage significance (Advice Note 12, 2019)<sup>13</sup>.



<sup>10</sup> [polar-heritage-resources/icomos-antarctic-archaeology-guidelines](https://polar-heritage-resources/icomos-antarctic-archaeology-guidelines)

<sup>11</sup> [DOCUMENTS/Charters/underwater\\_e.pdf](#)

<sup>12</sup> [antarctic-underwater-material-culture-guidelines](#)

<sup>13</sup> [books/publications/statements-heritage-significance-advice-note-12/](#)

## 2

# Understanding *Endurance*





## 2 Understanding *Endurance*

### 2.1 Historical Development of the site

Documentary research on the history of *Endurance* is extensive, and there is no requirement here to repeat known information other than the following particulars, presented as a summary ship biography which draws together the main attributes of the site and provides a statement of the site's archaeological and historical interest.

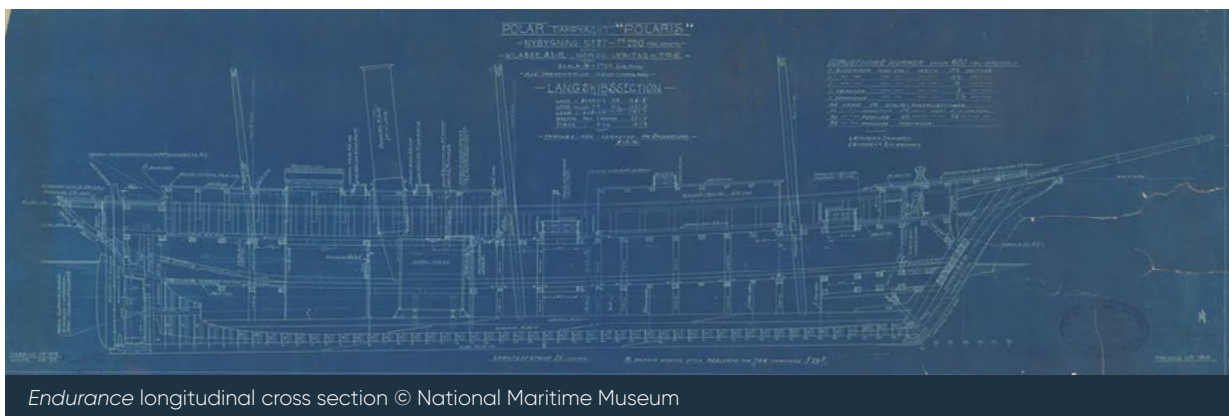
#### 2.1.1 BUILD

Originally named *Polaris*, *Endurance* was built in 1911 at Framnaes Yard, Sandefjord, Norway, by Johan Christian Jakobsen, to a design by Ole Aanderud Larsen. The ship was built for a consortium headed by Lars Christensen, a Norwegian shipowner and Adrien de Gerlache, leader of the Belgian Antarctic expedition of 1897–1899, and several other investors. The ship was originally intended to be chartered for wealthy tourist cruises and hunting trips in the Arctic, as well as for chartering out for polar expeditions. Construction of *Polaris* began in 1911, with the ship being launched on 17 December 1912. The ship was fitted with a 350 horse-power coal-fired triple expansion steam engine, and was rigged as a three-masted barquentine. Maximum speed would have been approximately 10.2 knots.

The ship was of a highly robust build. The frames and external planking were constructed from oak, while the internal planking was constructed from pine. The external planking was sheathed in greenheart. The oak frames measured 38.1cm x 20.3cm (15 x 8 inch), and were spaced approximately 26.7cm (10.5 inches) apart, while the deck beam measured 24.1cm x 24.1cm (9 ½ x 9 ½ inches), and were spaced 0.91m (3 foot) apart. The maximum hull thickness was approximately 0.76m (30 inches). The ship was 43.9m long (144 foot) with a 7.62m (25 foot) beam and a moulded depth of 4.80m (15 foot 9 inches). The gross registered tonnage was 350 (Bryan 2011: 278).

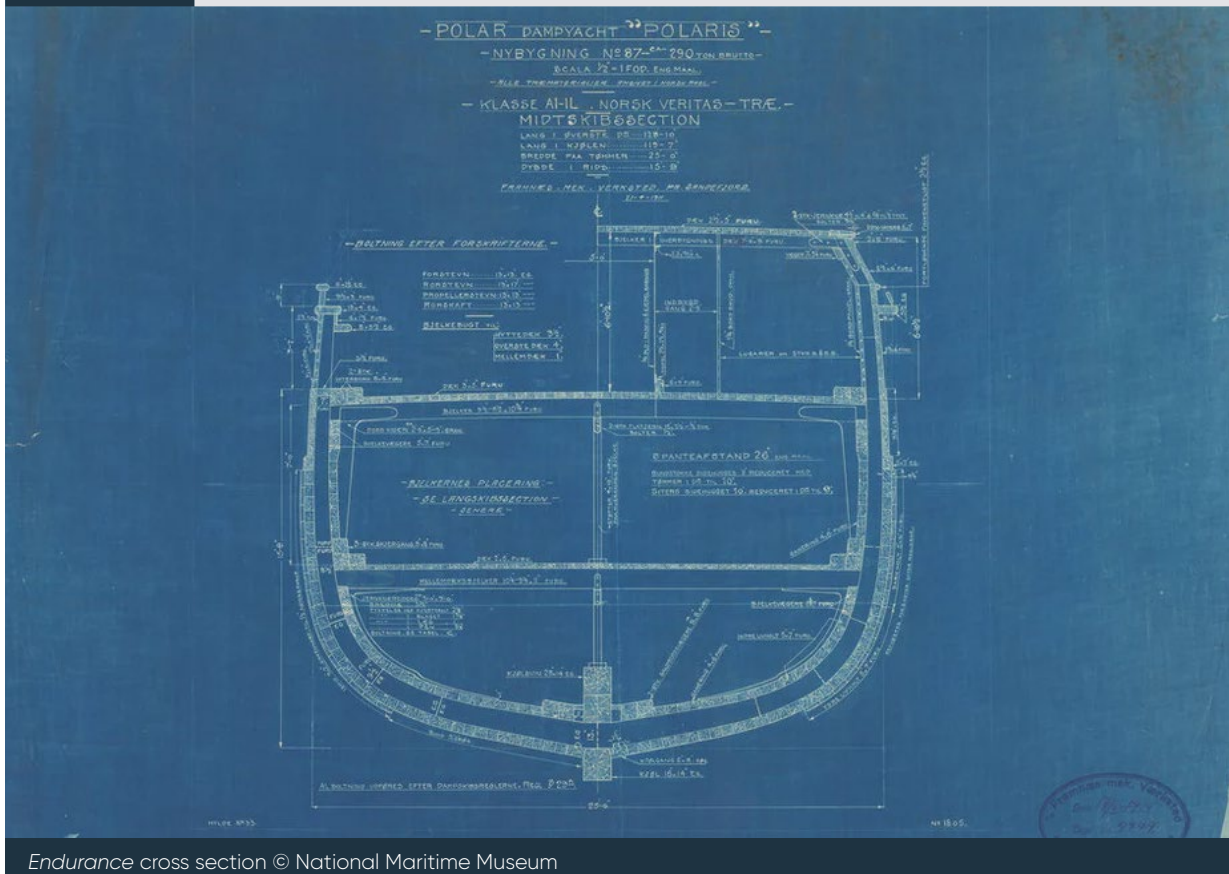
Towards the stern was a large deck house which covered the whole width of the after deck. This contained ten cabins, the captain's cabin and a smoking room. A second separate deck house contained the dining room, galley and pantry. It has been suggested that, with the exception of the *Fram*, the ship was possibly the strongest wooden ship ever built at the time of launching (Lansing 1959: 20).

<b>Length</b>	43.9m (144 feet)	<b>Beam</b>	7.6m (25 feet)	<b>Depth (moulded)</b>	4.8m (15 feet 9 inches)	<b>Tonnage</b>	350 tons
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*Endurance* longitudinal cross section © National Maritime Museum

<b>Build</b>	Originally named <i>Polaris</i> , <i>Endurance</i> was built in 1911 at Framnaes Yard, Sandefjord by Johan Christian Jakobsen, to a design by Ole Aanderud Larsen. The ship was originally built for the De Gerlache-Christensen Consortium, and was intended to be chartered for Arctic voyages for wealthy tourists.
<b>Use</b>	<i>Endurance</i> was purchased by Sir Ernest Shackleton in 1914 for use in his Imperial Trans-Antarctic Expedition. <i>Endurance</i> was to transport the expedition company to the Weddell Sea, so that they could cross Antarctica to the Ross Sea, via the South Pole.
<b>Loss</b>	<i>Endurance</i> became caught in ice, and drifted for 11 months, before eventually sinking to the sea floor on 21 November 1915. The subsequent ordeal of the crew of <i>Endurance</i> and the voyage of the <i>James Caird</i> by Shackleton and others to fetch help form one of the most historically significant events of the Heroic Age of Antarctic Exploration.
<b>Survival</b>	The wreck lies upright on the seabed, and was described as having many of its recognisable features still visible. The ship's name and the pole star emblem were visible in photographs released as part of the public announcement of the discovery of the wreck. Although the masts and elements of the vessel superstructure are in a collapsed state, the wreck is still recognisable as a coherent vessel structure.
<b>Investigation</b>	The wreck of <i>Endurance</i> was discovered in March 2022 by the British-led Endurance22 Expedition, operating from the South African vessel S.A. <i>Agulhas II</i> . The ship was found in a remarkable state of preservation. The expedition utilised SAAB Sabretooth underwater autonomous vehicles to search for the wreck. The expedition undertook a non-intrusive survey of the wreck, and collected high resolution photography and film, as well as laser scans of the wreck structure. At the time of writing this Conservation Management Plan the processing and analysis of the data collected during the expedition is ongoing.



Endurance cross section © National Maritime Museum

## 2.1.2 USE

The vessel remained at Sandefjord until purchased by Sir Ernest Shackleton on 25 March 1914 for the ITAE. Shackleton is reported to have paid £13,000 for the vessel (Verlinden 2017).

The Board of Trade Register of Ships and Seamen entry for *Endurance* was opened in 1914.<sup>14</sup> As an auxiliary steamer, *Endurance* was double indexed and cross-referenced between the supplements for the sailing<sup>15</sup> and steam<sup>16</sup> registers for 1914–1915, consistent with registration during the publication year, i.e. after 1 July 1914. This is corroborated by the assignation of the Official number 136698 to *Endurance* in the relevant Appropriation Book<sup>17</sup> on 29 July 1914, immediately prior to the ship's departure on 1 August 1914 from the South-West India Dock.

The aim of the ITAE Expedition was to cross the Antarctic continent from the Weddell Sea to the Ross Sea, via the South Pole (Shackleton 1919). *Endurance* carried Shackleton and his party to the Weddell Sea, with the intention of landing them ashore near Vahsel Bay. A second vessel, *Aurora*, transported a second party led by Lieutenant Aeneas Mackintosh, to the Ross Sea, so that they could place supply depots in preparation for the arrival of the crossing party.

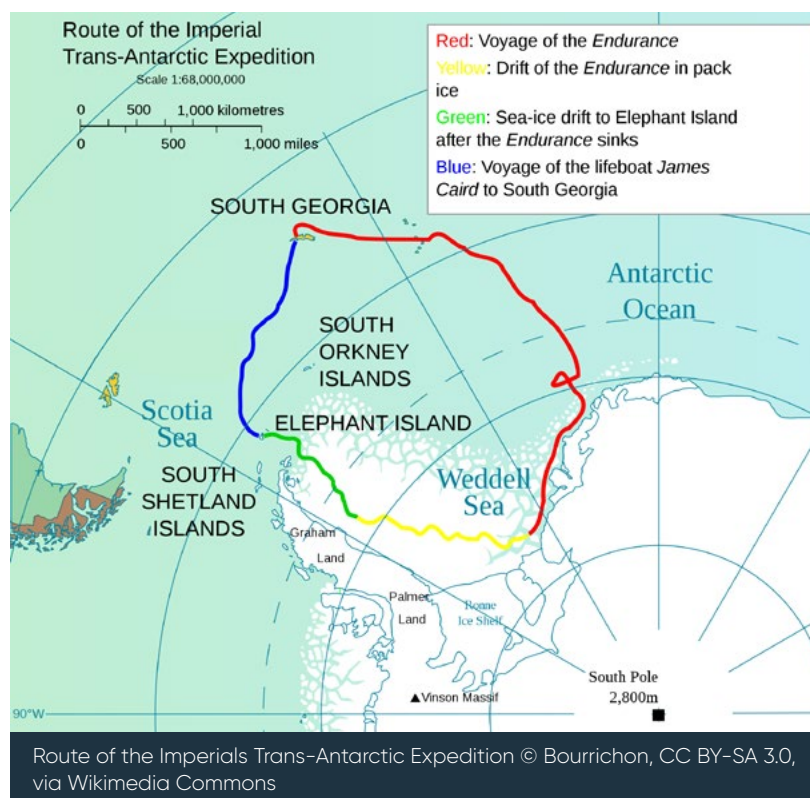
## 2.1.3 LOSS

*Endurance* departed from South Georgia on 5 December 1914, and entered the pack ice on the 7 December 1914. The pack ice was thicker than expected and the ship became trapped in the ice at the southern end of the Weddell Sea on the 18 January 1915. During the following months, between February and October *Endurance* drifted northwards with the pack ice. On 27 October 1915 the ship was finally abandoned as it was being crushed by the pressure of the ice and the crew set up camp on the ice near the wreck. On the 21 November 1915 *Endurance* sank, bow first. The position of sinking was recorded by ships' captain Frank Worsley in his diary and the ship's log book: 68° 39' 30" S and 52° 26' 30" W. This information was key to the future search for the ship.

The subsequent ordeal of Shackleton and the crew, who survived for months drifting on the pack ice, before sailing by small boats to Elephant Island, and the subsequent voyage of Shackleton and five other men in the *James Caird* from Elephant Island to South Georgia is one of the key historical events of the Heroic Age of Antarctic exploration. All 28 members of the Weddell Sea party survived the ordeal. The 22 men who remained on Elephant Island were rescued on 30 August 1916 by the Chilean Navy steam tug *Yelcho*, under the command of Lt Luis Pardo Villalón.

## 2.1.4 SURVIVAL

The wreck was discovered on 5 March 2022 by the Endurance22 Expedition in the Weddell Sea at a depth of 3,008 metres, at 68° 44' 21" S, 52° 19' 47" W, approximately 5 nautical miles from the position recorded by Frank Worsley. Lying upright on the seabed, with a coherent vessel structure, and with many of its recognisable features still visible. The wreck is described by the Endurance22 project team as surviving in excellent condition, with fixtures and fittings such as the ships' wheel surviving *in situ*. The name *Endurance* is visible on the stern, along with the pole star emblem.







Agulhas II, South African expedition vessel used for the Endurance22 Expedition. © nairnbairn, CC BY-SA 2.0, via Wikimedia Commons

### 2.1.5 INVESTIGATION

The Endurance22 Expedition which discovered the wreck in March 2022 was a British permitted but highly international expedition. The expedition ship was the South African polar research vessel *S.A. Agulhas II*, and the wreck was discovered using SAAB Sabertooth autonomous underwater vehicles. The expedition undertook a detailed non-intrusive survey of the wreck between 5-7 March 2022, comprising multibeam side scan sonar, high-resolution digital photography, video filming and 3D laser scanning. The data collected by the Endurance22 Expedition team will be made available via an online Geographic Information System (GIS). The expedition will be the subject of a feature length documentary produced by National Geographic. There is an expectation that full results of the survey will be made available once the documentary film is released.

Education and outreach were core elements of the Endurance22 Expedition, with a focus on bringing the story of Shackleton and *Endurance* to a global audience. Little Dot Studios and History Hit conducted a multi-platform social media campaign, while Reach the World<sup>18</sup> facilitated livestream sessions with schools in the USA and elsewhere, from onboard the *S.A. Agulhas II* in the Weddell Sea. The Royal Geographical Society produced a series of award-winning school and teacher resources working with the Endurance22 Expedition team<sup>19</sup>.

### 2.1.6 GAPS IN EXISTING KNOWLEDGE

To date minimal information and data has been released by the Endurance22 expedition; a comprehensive site plan has not yet been made publicly available. The full site plan, and interpretation of the wreck site will be made available once the Endurance22 Expedition team has completed the analysis of data collected during the 2022 survey.

<sup>14</sup> Board of Trade Register of Ships and Seamen, BT/110/299/24, The National Archives, not digitised

<sup>15</sup> [archive.org/details/HECROS1915SV](https://archive.org/details/HECROS1915SV)

<sup>16</sup> [archive.org/details/HECROS1915ST](https://archive.org/details/HECROS1915ST)

<sup>17</sup> [crewlist.org.uk](https://crewlist.org.uk)

<sup>18</sup> [explore.reachtheworld.org](https://explore.reachtheworld.org)

<sup>19</sup> [schools/projects-and-partnerships/endurance22](https://schools/projects-and-partnerships/endurance22)



Frank Wild looks on at the wreck of *Endurance* © Royal Geographical Society

## 2.2 Description of Surviving Features

At the time of preparing this CMP, little information is available about survival of the ship structure, the associated fixtures and fittings. The following description is from published sources and discussion with the *Endurance22* Expedition team, and will be updated when full details become available as the post-processing of survey data is completed.

The seabed within the designated area of the HSM, and the surrounding area is homogeneous and flat comprised of abyssal soft mud. There is a circular impact crater, formed when the ship hit the seabed. Across the wider area in the vicinity of the wreck site, the seabed has several geological features including pockmarks, small mounds and occasional small drop-stones. None of these features have affected the wreck debris field (*Endurance22* Expedition team, pers. comm).

The wreck was observed to be lying in a semi-intact state, upright, and sitting well proud of the seabed.

It is orientated approximately N-S, with the debris field extending in an E-W direction. There is a high concentration of debris extending for up to 400m to the west, while some debris can also be seen extending up to 600m to the east. The ship's name is clearly visible on the stern, along with the Polaris star, from the original name of the ship.

At the stern, the rudder is detached and can be seen lying on the seabed beneath the counter-stern, still attached to the wreck by chains. The well-deck is well preserved, with the ship's wheel in place and intact. A Kelvin sounding machine was observed on the well deck, starboard of the wheel. Prior to sinking, the wheel-house was dismantled and taken on to the ice. There is therefore no trace of this structure on the well deck. The binnacle was also removed and taken to the ice camp by the crew. The full steering gear remains *in situ*.



Starboard bow © National Geographic

The poop deck was largely demolished by the action of the pack ice prior to sinking, and therefore very little survives *in situ*. The ship's funnel has collapsed, and lies on top of the poop deck, projecting over the starboard side of the wreck. The steam whistle is still visible on the funnel. The aftermost part of the poop deck structure, that nearest to the well deck, is roughly intact. The forward end, particularly on the starboard side is no longer extant. During the survey, it was possible to see from imprints on the deck where the first three cabins would have been.

On the main deck, immediately in front of where the main mast would have stood, an open hatch was observed during the survey. Of particular interest on the main deck is the presence of three large holes cut into the deck between the port side bulwarks and the wardroom end of the deckhouse. These were cut by the expedition party to extract supplies needed for their survival on the ice. With the exception of the forward bulkhead, the entire deckhouse has been removed as a result of the action of the pack ice. However the footings of this structure are still visible on the deck. The AUV survey noted that crockery and other artefacts were visible throughout the area of the wardroom. It is likely that these were displaced as the ship foundered. The wardroom itself does not survive. Throughout the main deck area, clear evidence was observed of the salvage of timber for use in the temporary camp on the ice. Cut away timbers were noted, with saw marks still clearly visible on the timbers which remain *in situ*. The collapsed main mast lies forward of the deckhouse. The hatch into the forward hold is open. A large quantity of artefacts are visible on the wreck site, including plates, mugs, the galley bell, telescope, flare gun, shoes, boots and other objects.

The steps up to the fo'c'sle deck do not appear to have survived. The deck itself has become detached from the main hull of the ship, and displaced towards the aft end of the ship and to the port side, at an angle of approximately 25 degrees to port. Both anchors remain in place on the fo'c'sle deck as does the capstan. The bowsprit lies on the seabed on the port side of the bow (Bound 2022: 324-347). (Endurance22 project team pers. Comm)

The lower section of the foremast, while broken, lies across the deck. The main mast lies on the seabed on the port side of the wreck, at approximately 105 degrees. The mizzen mast lies across the deck at 140 degrees to starboard.

The draft sign of "4" is clearly visible astern the vessel at the mud line, giving a rough indication of the penetration of the vessel into the seabed.

## Endurance timeline

<b>1911</b>	Construction of <i>Polaris</i> began at Framnaes Shipyard, Sandefjord, by Johan Christian Jakobsen, to a design by Ole Aanderud Larsen
<b>17th December 1912</b>	<i>Polaris</i> launched from Framnaes Shipyard
<b>25th March 1914</b>	<i>Polaris</i> purchased by Ernest Shackleton for the ITAE, and renamed <i>Endurance</i>
<b>10th June 1914</b>	<i>Endurance</i> brought from Sandefjord to Millwall Dock, London, and refitted in preparation for the expedition
<b>1st August 1914</b>	<i>Endurance</i> departed from the South-West India Dock
<b>8th August 1914</b>	<i>Endurance</i> departed from Plymouth and leaves England
<b>9th October 1914</b>	<i>Endurance</i> reached Buenos Aires, Argentina
<b>26th October 1914</b>	<i>Endurance</i> departed Buenos Aires for the South Atlantic
<b>5th November 1914</b>	<i>Endurance</i> arrived at Grytviken, South Georgia
<b>5th December 1914</b>	<i>Endurance</i> departed from South Georgia
<b>7th December 1914</b>	<i>Endurance</i> entered the pack ice in the Weddell Sea
<b>18th January 1915</b>	<i>Endurance</i> became trapped in the ice at the southern end of the Weddell Sea
<b>27th October 1915</b>	<i>Endurance</i> abandoned. Shackleton relocated the crew to a temporary camp on the surface of the ice near the ship
<b>21st November 1915</b>	<i>Endurance</i> lost beneath the ice. Position of sinking was recorded by ship's captain Frank Worsley in his diary and the ship's log book: 68° 39' 30" S and 52° 26' 30" W.
<b>9th April 1916</b>	Shackleton and the crew of <i>Endurance</i> attempted to reach Elephant Island in three lifeboats
<b>15th April 1916</b>	Crew of <i>Endurance</i> reached Elephant Island
<b>24th April 1916</b>	Shackleton and five others departed Elephant Island aboard the <i>James Caird</i> to seek help by sailing 800 miles to South Georgia
<b>10th May 1916</b>	The <i>James Caird</i> landed at King Haakon Bay, South Georgia. Shackleton, Worsley and Crean then began to cross the mountains of South Georgia after a week for rest and recovery
<b>20th May 1916</b>	Shackleton, Worsley and Crean reached Stromness whaling station
<b>29th August 1916</b>	The crew of <i>Endurance</i> rescued from Elephant Island by Shackleton aboard the Chilean Navy steam tug <i>Yelcho</i> under the command of Lt Luis Pardo Villalón.
<b>1959-1961</b>	Antarctic Treaty negotiated. The Treaty came into force on 23rd June 1961
<b>1st -22nd February 2019</b>	Weddell Sea Expedition – First attempt to locate the wreck of <i>Endurance</i>
<b>9th October 2019</b>	<i>Endurance</i> designated as an Antarctic Historic Site & Monument by the Antarctic Treaty Consultative Parties
<b>5th February 2022</b>	Endurance22 Expedition began (embarkation at Cape Town)
<b>5th March 2022</b>	<i>Endurance</i> wreck located by Endurance22 expedition
<b>5th – 7th March 2022</b>	Full AUV inspection and survey (multibeam, side-scan sonar, high-res digital photography and video, laser scanning)
<b>20th March 2022</b>	End of Endurance22 Expedition (disembarked Cape Town)
<b>31st October 2022</b>	HSM Designation amended to include the co-ordinates of the wreck, and extend the protected area to 500m



© Hurley, F. Public domain, via Wikimedia Commons

## 2.3 Ownership, Management and Current Use

### 2.3.1 PURCHASE AND INSURANCE

*Endurance* was purchased by Sir Ernest Shackleton in March 1914 for the ITAE.

According to contemporary press accounts, *Endurance* was insured at Lloyd's marine insurance market for £15,000<sup>20</sup>. However according to Shackleton's biographers Margery and James Fisher, the actual sum was £10,000, with £9,000 of that placed at Lloyd's and the other £1,000 with the Indemnity Marine Assurance Company. The premium was £665 (Fisher & Fisher 1957: 321). *Endurance* was the first ship to be insured for use in Antarctic regions. Before this, the insurance only covered the ship up to the time of leaving the final port of call<sup>21</sup>.

### 2.3.2 LOSS AND SETTLEMENT

*Endurance* was declared a loss by Lloyd's of London on 2 June 1916, when Shackleton cabled news of what happened to the expedition on 31 May 1916. The Lloyd's Loss Book for 2 June 1916 stating "Endurance (British) – crushed by ice in Weddell Sea afterwards foundered November 20, 1915." Note: the actual date that *Endurance* sank was 21 November 1915.

Following the loss, the payout for *Endurance* was settled by the insurers on 24 June 1916 as per the Register of Total Loss and Return Cancelled Policies of the Indemnity Marine Insurance Company, now held in the London Metropolitan Archives, which records the vessel as a total loss (TL) in favour of Wintle & Co., insurance brokers<sup>22</sup>.

The key legislation that applied at the time of loss was the Marine Insurance Act 1906. Section 79 of the Act concerns the right of subrogation, in that in payment of a total loss the insurer is entitled to take over the interests of the assured in whatever may remain of the subject matter so paid for<sup>23</sup>.

<sup>20</sup> See for example The Times, Tuesday 28 July 1914, No. 40,578, p22

<sup>21</sup> See Manchester Courier, Thursday 30 July 1914, No. 18,013, p2

<sup>22</sup> [search.lma.gov.uk/scripts](https://search.lma.gov.uk/scripts)

Resolute Management Ltd, which handles claims for the historic liabilities of Lloyd's underwriters for the years of account 1992 and prior, have indicated that it is unlikely that records will survive dating back over 100 years for this vessel. However they also stated that in usual maritime insurance practice the underwriters would not claim ownership of the wreck, despite paying out a constructive or total loss, as it could render them liable for any costs relating to the removal of the wreck. Thus, it is highly likely the same position would have occurred here and therefore the ownership and rights in the vessel will remain with the original owners or their successors<sup>24</sup>.

The Archive of Aviva, as the successors to the Indemnity Marine Assurance Company, confirmed that they hold no information relating to the wreck of *Endurance*. The Archive noted that they also doubted that the underwriters would have laid claim to the wreck after payment, and that this could be why they were never passed any documentation<sup>25</sup>.

Given the lack of records to indicate that the underwriters assumed ownership of the wreck, ownership therefore most likely remains with the descendants of Sir Ernest Shackleton.

### 2.3.3 OWNERSHIP AND PROTECTION

The descendants of Sir Ernest Shackleton, Alexandra Shackleton and Nicholas Shackleton, have asserted their claim to ownership of the wreck, and have been consulted as its presumed owners during the preparation of this Conservation Management Plan.

Additionally, while title to the wreck (hull and ship's apparel) may be vested in the Shackleton family and/or the vessel's insurers, ownership of items belonging to the officers and crew will be vested in their descendants. It will not be possible to determine the original ownership of the items in many instances. However, given the communal nature of living in a confined space aboard a vessel, more significant personal possessions were often marked with the original owner's identity and where original ownership can be ascertained, title will now be vested in the relevant descendants.

As an HSM there is a presumption against the recovery of artefacts and the site should remain intact. Any visit to the site by a UK organised expedition would require a permit under Section 3 of the Antarctic Act 1994, and be required to comply with specified conditions. The permitting is administered by the Foreign, Commonwealth and Development Office. Expeditions from other countries which are parties to the Treaty, require equivalent permits, under their national regulations.

		15,000	"	"	"
		15,001	"	"	"
Livingston	A Bilbrough & Co	16,143	"	"	8-11-15
Appleton	Lambert Bros Ltd	3,895	"	"	24-11-15
Empress Queen	Leslie & Goswin, Sh.	6178	"	T.L.	24-3-16
Evelyn	Barber & D'Ambrosio	8135	1916	T.L.	18-4-16
Englishman	Willis, Faber & Co Ltd	10,591	"	"	8-8-16
Ertria	Gunniss Withy & Co	12,053	"	"	26-5-16
Ekonom s.v.	Goddard Tennard & Co	4,367	"	"	1-6-16
Ernest Peyer s.v.	Gillespie Bros & Co	13,287	"	N.B.	12-6-16
Eric Petäsen	R. Gardner Mountain & Co	22,705	1913	"	8-6-16
Endurance (Aux Ste)	Windle & Co	14,551	1914	J.L.	24-6-16
Ellaline	E. Bapel Bures & Co	14,888	1916	N.B.	24-6-16
Ernest Peyer s.v.	Price Forbes & Co	6,204	"	J.L.	26-7-16
Etornian	Hamilton Smith	19,704	"	N.B.	11-8-16
Edward V. Breitung	B. V. Bowring & Co	18,666	"	"	25-8-16
Emma s.v.	Price Forbes & Co	12,598	"	T.L.	12-10-16
Elle s.v.	Chancy & Hinson	25,314	"	"	17-11-16

Endurance entry in the Register of Total Loss and Return Cancelled Policies © Historic England

<sup>23</sup> [legislation.gov.uk](https://www.legislation.gov.uk)

<sup>24</sup> Email correspondence with Resolute Management Ltd, 20 March 2024

<sup>25</sup> Email correspondence with Group Archive, Aviva, 7 March 2024

### 3

## Assessment of Significance





## 3 Assessment of Significance

Significance means the sum of the cultural and natural heritage values of a place (Historic England 2008). The Australia ICOMOS Charter for Places of Cultural Significance defines Cultural Significance as the aesthetic, historic, scientific, social or spiritual value for past, present or future generations. Cultural Significance is embodied in the place itself, its fabric, setting, use associations, meanings, records, related places and related objects (Australia ICOMOS Burra Charter 2013: 2). Cultural heritage value has many aspects, including the potential of a place to yield primary information about past human activity (evidential value, which includes archaeological value), the ways in which it can provide direct links to past people, events and aspects of life (historic value), the ways in which people respond to a place through sensual and intellectual experience of it (aesthetic value, which includes architectural value) and the meanings of a place for the people who identify with it, and communities for whom it is part of their collective memory (communal value).

In addition, the historic environment is a cultural and natural heritage resource shared by communities characterised not just by geographical location but also by common interests and values. As such, emphasis may be placed upon important consequential (technically 'instrumental') benefits or potential, for example as an educational, recreational, or economic resource, which the historic environment provides. The seamless cultural and natural strands of the historic environment are a vital part of everyone's heritage, held in stewardship for future generations.

The basis for assessing significance therefore enables consideration of the varying degrees of significance of different elements of the site. By identifying those elements which are vital to its significance and so must not be lost or compromised, we can identify elements which are of lesser value, and elements which have little value or detract from the significance of the site.

### 3.1 Statement of Significance

With a heritage asset like *Endurance* it is important to consider the site as a whole, encompassing all its cultural and natural heritage values. Its cultural significance cannot be overstated, but the unique nature and location provide an unprecedented view of the Antarctic hitherto invisible, which adds a rich complexity and context, only amplifies the significance of the site. The heritage significance of *Endurance* can be described using the Australian ICOMOS Burra Charter and the categories there are adopted here to articulate the rich heritage significance of *Endurance*.

#### 3.1.1 EVIDENTIAL – RELATING TO THE POTENTIAL OF *ENDURANCE* TO YIELD PRIMARY INFORMATION ABOUT PAST HUMAN ACTIVITY.

The wreck of *Endurance* is a unique example of an intact shipwreck of an exploration vessel of the Heroic Age of Antarctic exploration. The evidential value of *Endurance* is high, as the wreck has lain undisturbed since 1915. Preliminary survey of the site shows that the fixtures and fittings of the vessel remain *in situ* to a large extent, and that artefacts relating to the crew and to ITAE remain in place. Analysis of the surviving ship structure has the potential to reveal the effects on the wooden hull of the ship following the extended period during which it was trapped within the ice. Plans for *Endurance* are in archival collections in Norway and the UK. The physical remains on the seabed will allow detailed examination of how, or if, the construction of the ship differed from the original plans, and will also allow for a detailed reconstruction of modifications and repairs undertaken by the ship's carpenter, Harry "Chippy" McNish, during the expedition and while the ship was. Furthermore, examination of the wreck will allow for research addressing the processes of decay and disintegration of shipwrecks in deep water polar environments.





The *Endurance* keeling over © Royal Geographical Society

### **3.1.2 SCIENTIFIC – RELATING TO THE BIOLOGICAL AND ECOLOGICAL FEATURES WHICH CAN PROVIDE GREATER UNDERSTANDING OF THE ANTARCTIC ENVIRONMENT AND ECOSYSTEMS.**

The few images and video footage of the wreck already released have already provided a wealth of information for Antarctic marine biologists, emphasising the scientific significance of the site to the study of Antarctic marine life. The wreck of *Endurance* is in effect an artificial reef, providing a niche for a wide variety of sessile, filter-feeding animals. In addition, as the date of loss is precisely known, the study of the site has the potential to yield information on the rate of colonisation of the structure by marine organisms. A preliminary analysis undertaken by Dr Huw Griffiths and Professor Michelle Taylor reports the wreck has been colonised by many filter-feeding animals, including large sea anemones, stalked crinoids (sea lily), ascidians (sea squirts), probable hydroids, glass sponges, and a six-armed starfish (Order Brisingida). In addition to these abundant filter-feeding animals, Griffiths and Taylor also report several decapod crustaceans, most likely squat lobsters from the genus *Munidopsis*. This is the first record of any crab-like decapod crustacean in the Weddell Sea. Many of these species are classified as vulnerable marine ecosystem (VME) taxa by (CCAMLR (Griffiths & Taylor 2022).



Dogs leaving the ship for training, Hurley, F. © Scott Polar Research Institute, University of Cambridge

### **3.1.3 HISTORICAL – RELATING TO WAYS IN WHICH *ENDURANCE* CAN PROVIDE DIRECT LINKS TO PAST PEOPLE AND EVENTS.**

The wreck is directly associated with a key event from the Heroic Age of Antarctic exploration. There is a wealth of surviving documentary evidence relating to the ITAE, including the personal diaries of several members of the expedition, which provide an unparalleled account of the ordeal of the expeditions crew, as well as the processes wrought on the ship while trapped in the ice, and the final loss of the ship beneath the ice. In addition the ship's plans survive in the Norwegian archives, while further line drawings are available at the National Maritime Museum in Greenwich, and at the Scott Polar Research Institute. The comparison of the documentary record with the material remains on the seabed will allow for a detailed understanding of the activities undertaken aboard *Endurance* throughout the period in which it was trapped within the pack ice. The achievements of Shackleton and the crew of *Endurance* have been the subject of numerous books and biographies over the years.

### **3.1.4 AESTHETIC – RELATING TO WAYS IN WHICH PEOPLE RESPOND TO *ENDURANCE* THROUGH SENSORY AND INTELLECTUAL EXPERIENCE OF IT.**

The vessel's strength lies in it being a rare example of a ship purpose-built for polar exploration and other activity. The historical photographs by Frank Hurley showing *Endurance* beset in the ice are some of the most remarkable images from the Heroic Age of Antarctic exploration. These are now complemented by the imagery of the shipwreck lying on the seabed, collected by the *Endurance22* Expedition. Intact shipwrecks visible on the seabed can have a profound and powerful aesthetic impact, providing a nexus for inspiration, creativity and further research.

### **3.1.5 COMMUNAL – RELATING TO THE MEANING OF *ENDURANCE* FOR THE PEOPLE WHO IDENTIFY WITH IT, AND WHOSE COLLECTIVE MEMORY IT HOLDS.**

Designation of the wreck of *Endurance* as an HSM is in itself an expression of communal value. The wreck is of significance to the descendants of Sir Ernest Shackleton and to those of the other members of the ITAE, to the members of the Weddell Sea Expedition of 2019, and to the *Endurance22* team who discovered the location of the wreck. The wreck is also of communal significance to all involved in Antarctic activity, as the ship is iconic of the Heroic Age of Antarctic exploration. The loss of *Endurance* and Shackleton's leadership that resulted in survival of the crew is one of the best-known episodes in polar history. The wreck holds communal significance for anyone with an interest in human exploration – this is one of the key stories of Antarctic history.

Furthermore the communal significance of the expedition is expressed through the continued retelling of the story in a range of media. Shackleton's methods have been the subject of intensive study and have been highly influential in the teaching of leadership skills over the last century.

### **3.1.6 INSTRUMENTAL – ECONOMIC, EDUCATIONAL, RECREATIONAL AND OTHER BENEFITS WHICH EXISTS AS A CONSEQUENCE OF THE CULTURAL OR NATURAL HERITAGE VALUES OF *ENDURANCE*.**

Economic, educational, recreational and other benefits which exists as a consequence of the cultural or natural heritage values of *Endurance* can be identified in its value as a site of historic interest. Material relating to the ITAE is held in the archives of the Royal Geographical Society, the Scott Polar Research Institute, and several other places. While the wreck site is inaccessible to the vast majority of people, access to related material is available through public archives, as well as significant objects held elsewhere, including *James Caird*, which is on display at Dulwich College and is recorded on the UK's National Small Boat Register maintained by the National Maritime Museum Cornwall, and the spar from *Endurance* in the library of the Scott Polar Research Institute.

It should also be noted that other vessels involved in Antarctic exploration, and now preserved in museum collections, can also benefit from the discovery of *Endurance*. For example, the *RSS Discovery*, with which Shackleton is directly connected due to his participation in the British National Antarctic Expedition 1901-1904 under the command of Captain Scott. *RRS Discovery* is listed on the National Historic Fleet<sup>26</sup> and is preserved as a static museum ship in Dundee. The potential integration of these stories with the learning and interpretation arising from the *Endurance* wreck site offers an opportunity for stakeholder interaction which should not be missed.

### 3.2 Gaps in Understanding Significance

The data collected by the Endurance22 project are being processed and analysed at the time of writing this CMP. There are thus gaps in current understanding of the significance of the site. These will need to be the subject of future research so that the full significance of the shipwreck site can be fully understood, to determine its future conservation management.

However, despite the need for a formal programme of staged assessment and research, the assessment of significance has not been hindered by any gaps in knowledge identified above.



James and Hussey in "The Rookery". Hurley, F. © Scott Polar Research Institute, University of Cambridge

# 4

## Risks and Opportunities





## 4 Risks and Opportunities

### 4.1 Introduction

This section summarises the main conservation management issues which specifically affect, or may affect, the significance of the wreck site and its component.

Vulnerability (and therefore risk) may be assessed against environmental factors (such as natural processes) and human effects on the site, including the setting (Historic England 2017b). Assessment may indicate that such sites are at low, medium or high risk, unless they are completely buried below bed level during successive tidal cycles.

It is accepted that all wreck sites are vulnerable simply because of the nature of their environment, though sites will be considered to be at risk when there is a threat of damage, decay or loss of the monument. However, damage, deterioration or loss of the monument through natural or other impacts will not necessarily be considered to put the monument at risk if there is a programme of positive management in place. Practical measures that affect site stability, preservation *in situ*, and options for future access will be addressed here. The necessity to address the publication and dissemination of the results of the 2022 survey is recognised.

Issues relating specifically to the values identified in Section 3 above are presented here thematically rather than in order of severity or priority for remedial action. Relevant issues include, but are not limited to –

- Risk – Lack of information or understanding about aspects of the site
- Risk – Development of new subsea technologies
- Risk – Unauthorised recovery activity
- Risk – Damage to the site through tourist visits
- Risk – Damage to the site through commercial fishing activity
- Risk – Climate and environmental change
- Opportunity – Potential areas for further research
- Opportunity – Potential for broadening access

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### 4.2 Risk - Lack of information or understanding about aspects of the site

Only one survey of Endurance wreck site has been undertaken to date, the results of which are not yet in the public domain. The significance of the site cannot be fully established without a full understanding of the site's current condition. This can be achieved through the analysis and publication of the results of the 2022 survey. There are two tasks which will improve understanding of the Endurance wreck site:

- The production of a comprehensive site plan, including the extent of the associated debris field;
- The synthesis and publication of the results of the 2022 expedition.

The Endurance22 Expedition released a Cruise Scientific Report on 30 April 2022 (Rabenstein 2022) which was the first scientific output of the expedition. The wreck survey data have yet to be released by the Endurance22 Expedition team. These data are an irreplaceable resource. Without formal deposition of the survey data in a trusted digital repository, there is a risk that this resource may be lost.

**Mitigation measures** – The Endurance22 Expedition team are collaborating with National Geographic on the production of a feature length documentary, about the search for and discovery of the wreck site. The documentary is scheduled for release in 2024. The Endurance22 project team have produced an account of the discovery and investigation of the wreck, which is due for publication in November 2024 (Shears & Vincent, forthcoming). The Endurance22 Expedition Director of Exploration has already published his account of the expedition (Bound, 2022).

The Endurance22 team has prepared a web-based GIS system to facilitate initial access to all the Endurance22 Expedition data, including the wreck survey data, which is hosted via ArcGIS Online. Prior to the launch of the National Geographic documentary, access to the project data will be restricted. Access to the data for research purposes will be facilitated by license, issued to researchers on a project by project basis. It is envisaged that the portal will also host research outputs and publications derived from analysis of the data collected by the Endurance22 Expedition. Following the launch of the documentary, all the data will become openly accessible. The survey data should be deposited with a trusted digital repository as a matter of urgency, to ensure that future access to the data is not controlled via commercial entities.

It should be a condition of any future permit granted in relation to the site that any recorded data is made publicly available within a specified timeframe. In addition, the preparation of a Data Management Plan should be a requirement of any future permitted project directed at the wreck of *Endurance*.

### 4.3 Risk – Development of new subsea technologies

The wreck lies 3008m on the seabed in an area of the Weddell Sea which is covered by sea ice for much of the year.

The technology of deep water ROVs, AUVs, and submersibles is currently at a relatively mature stage. However, experience of their deployment and use beneath extensive ice cover is limited. At present such technology for investigation by researchers or visits by tourists to the wreck site is prohibitively expensive. However as technological advances result in such equipment becoming more affordable, then there is a significant increase in the likelihood of such an expedition. As the site is so remote and inaccessible then any equipment deployed is likely to be new technology, and therefore largely untested in such extreme conditions. Such expeditions are likely to be a test bed for the use of such technologies, and therefore the risk of unexpected incidents and unplanned accidents should be considered as high. The loss of an AUV during the search for *Endurance* by the Weddell Sea Expedition in 2019 highlights the risks associated with undertaking permitted research and survey activities at the site.

The undertaking of projects at depth and underneath pack ice is difficult, which will require experienced and technically skilled staff. There is a significant risk of accidental damage to the archaeological remains of the wreck, if future projects are undertaken by teams without the requisite skills and experience.

**Mitigation measures** – While it is accepted that the development of new technologies, and also existing technologies in the hands of the inexperienced, are a potential risk, new technologies also provide the opportunity to gain new insights and enhance knowledge.

Any future projects targeted at the site should require the preparation of an Environmental Impact Assessment (EIA) and Heritage Impact Assessment (HIA)s<sup>27</sup>, as well as a full project design and method statement, in line with internationally accepted best practice standards. The requirement of an EIA and HIA would ensure that the details of a proposal were fully elaborated, the potential impacts on heritage values identified, and alternatives to potentially damaging actions discussed and adopted. The project design will be expected to outline the skills and experience of key team members, which will allow the permitting authority to undertake an assessment of the suitability of the team to undertake the proposed project.

Additionally, designation of the wreck site as an ASPA would provide further protection from accidental damage as a result of intrusive activity, as entry to the ASPA area would specify the conditions under which a permit would be issued under Article 7 of Annex V to the Protocol.

Furthermore, any proposals to visit the wreck site should be guided by advice from international experts, representing a range of disciplines, including but not limited to – heritage management, maritime archaeology, polar exploration, deep sea engineering and marine biology. It is recommended that the permitting authority consult with sector specialists to ensure that internationally recognised best practice is followed in all future projects directed at the site, and that opportunities for knowledge gain are maximised. Given the complexity of this type of operation, engineering experts should be able to demonstrate a successful track-record of deepwater operations in polar areas to the permitting authority. Details of operations conducted under ice, and procedures to mitigate the risk of loss of subsea vehicles in under ice operations, should be provided.

<sup>27</sup> [whc.unesco.org/en/guidance-toolkit-impact-assessments](http://whc.unesco.org/en/guidance-toolkit-impact-assessments)

#### 4.4 Risk – Unauthorised recovery activity

As a designated Historic Site & Monument, the key management principle will be that the site is not disturbed and that the wreck with its fixtures and fittings will be preserved *in situ*. There should be a presumption in favour of non-destructive techniques and survey methods in preference to the recovery of objects, unless vital for the purpose of scientific studies or for the ultimate protection of the wreck. To date no artefacts have been removed from the wreck site. No objects were recovered during the Endurance22 expedition, and the Endurance22 team have no plans to recover objects in future. The Shackleton family have expressed their desire that the wreck be left *in situ*, with nothing removed from the site.

There is a risk of unauthorised parties attempting to access the site to undertake illicit recoveries. At present there are few mechanisms to ensure that expeditions are not launched from nations which are not party to the Antarctic Treaty.

**Mitigation measures** – The wreck is designated as a HSM. It is an offence under UK law for any British expedition to damage, destroy or remove artefacts or elements of the vessel structure from within the boundary of the designated HSM without the necessary permit, granted by the FCDO. Expeditions launched from the territory of other states which are party to the Antarctic Treaty will require equivalent permitting according to their own domestic legislation.

The risk of unauthorised activity on the wreck is mitigated by its remote location, the coverage of ice, and the extreme depth at which the wreck lies. Currently these conditions provide a considerable measure of security from human interference. The risk of unauthorised access to the wreck site could be mitigated to a certain extent through the monitoring of vessel Automatic Identification System (AIS) and satellite-based electro-optical (EO) and synthetic aperture radar (SAR) imagery, as well as through the vigilance of other vessels operating in the area.

The International Congress of Maritime Museums (ICMM) has confirmed that in line with its recently adopted agreement on underwater cultural heritage, the Åland Accord<sup>28</sup>, its member museums will not accept for curation or exhibit any material from *Endurance* wreck unless it has been recovered in accordance with this management CMP and in consultation with the relevant permitting authorities.



Spar from *Endurance* on display in the library of the Scott Polar Research Institute © Historic England

<sup>28</sup> [icmm-maritime.org/resources/maritime-archaeology-policies](http://icmm-maritime.org/resources/maritime-archaeology-policies)



## 4.5 Risks – Damage to the site through tourist visits

The high-profile publicity surrounding the discovery of the wreck, and availability of co-ordinates, has increased the potential risk of unauthorised access. As technology in deep sea exploration improves, there is greater potential for further expeditions attempting to visit the wreck site. Any transit in the vicinity of the wreck has the potential to cause damage, through the slight but present risk of equipment or other material falling, or being deliberately jettisoned, from ships.

At the time of writing there is no evidence that any further attempts to access the wreck site have been made, following its discovery by the Endurance22 Expedition. Analysis of Automatic Identification System (AIS) data for the Weddell Sea by the Endurance22 Expedition team covering the 2021-2022 and 2022-2023 austral summer seasons showed no ships within 50 nautical miles of the wreck site, following its discovery (Endurance22 project team, pers. comm). The remote site location, logistical constraints, expense, and the specialist equipment needed, mean that visits to the site are not practical for the majority of private expeditions or Antarctic tour companies. However, it remains feasible and an attractive challenge to organisations with the appropriate resources.

**Mitigation measures** – The UK Hydrographic Office (UKHO) should be formally notified of the coordinates of the wreck site and the extent of the designated area, so that the position can be identified on charts, and Electronic Chart Display Information Systems (ECDIS). At present the risk to the site from other visitors is considered minimal. Any project would require an ice strengthened ship (Polar Class 5 minimum) to safely approach the location of the wreck site. The risk of unauthorised access will increase with any significant reduction in ice cover (e.g., as a result of changing climate conditions).

Access to the site is currently not practicable without considerable financial resource and complex equipment. In the future it may be possible to facilitate safe and responsible visitor access through the permitting of activities under Section 3 of the Antarctic Act 1994, for projects launched from the UK, or through equivalent domestic legislation for projects launched from other countries. Projects launched from other nations which are parties to the Treaty will require permitting under their own domestic legislation. It should be recognised that any visit to the site holds the potential to cause a degree of damage.

It should be noted that the International Association of Antarctica Tour Operators (IAATO) have requested its Members do not plan any activities above or below the surface of the sea in the vicinity of the wreck of *Endurance*, and that IAATO has confirmed its support for the development of the Conservation Management Plan.

## 4.6 Risk – Damage to the site through fishing activity

There is potential for accidental damage to the wreck site through fishing activity. This could be caused as a direct result of fishing in the vicinity, of the wreck site or through the snagging of abandoned, discarded, or lost fishing gear on the wreck site.

**Mitigation measures** – Currently the risk to the site is mitigated by the depth of the wreck, lack of current fishing activity, extensive ice cover and remote location. This risk may increase if ice cover diminishes or fishing activities change in future years. The potential for a voluntary code of conduct should be pursued with CCAMLR to encourage fishing vessels to avoid the area. The wreck of *Endurance* is located within the General Protection Zone of the proposed WSMPA Phase 1. Further protections may be possible through consultation with CCAMLR on the WSMPA.

Additionally designation of the wreck site as an ASPA would provide further protection from accidental damage as a result of fishing activity.

## 4.7 Risk – Climate and environmental change

The consequences of climate change on the long-term survival of the wreck site need to be taken into account in planning future management. Specific risks in relation to the wreck of *Endurance* could involve increased water temperature and ocean acidification, resulting in accelerated biological and chemical decay of the shipwreck (Dunkley 2015). At present there is no indication that organisms that erode ship timbers are present on the wreck site. However this could change as ocean temperature rises.

In addition, an overall reduction in the ice cover, with an extended season where the pack ice is thin enough to allow access for vessels, will increase the potential for unauthorised access to the site. Recent reports indicate a record low for floating sea ice around Antarctica during 2022-2023. The long-term implications of this have yet to be determined.

**Mitigation measures** – There is limited scope for mitigating the effects of climate change on the wreck of *Endurance*. However, it is important to monitor general trends in changes in seabed pH level, water temperature and sea ice cover, so that appropriate mitigation measures can be planned in the longer term if conditions begin to change noticeably.

Any future projects directed at the site should publish their data and observations, so that the trajectory of any changes to site conditions can be established and quantified.

**Associated opportunities** – There is considerable interest from marine biologists in the marine life present on the wreck which forms an artificial reef in an otherwise largely featureless flat seabed of abyssal soft mud. As the exact date of loss is known, the wreck provides the opportunity to examine the rate of growth and colonisation of the wreck by marine species. Analysis of the few images released to date has identified several species which are classed as vulnerable marine ecosystem (VME) taxa by CCAMLR, as well as what would appear to be the first record of a crab-like decapod crustacean from in the Weddell Sea (Griffiths & Taylor 2022). The analysis of changes to the biota of the wreck site will provide an important baseline for assessing the impact of climate change on the deep-sea environment in the Weddell Sea and the wider Antarctic region.

A morning in "The Ritz", midwinter, 1915. Hurley, F. © Scott Polar Research Institute, University of Cambridge





Clark in the biological laboratory. Hurley, F. © Scott Polar Research Institute, University of Cambridge

#### **4.8 Opportunity – Potential areas for further research**

The survey of the shipwreck by the Endurance22 Expedition has confirmed the high evidential value of the site. During the expedition, the project team undertook side scan sonar and multibeam echosounder survey, as well as laser scanning, photogrammetry, and video of the entire wreck site. The results will be made available in due course. Detailed analysis of the data has the potential to provide information on the construction of the ship, on the modifications and repairs undertaken by the carpenter and ship's crew, and the damage inflicted on the vessel while it was trapped in the ice. In addition there is potential to obtain information about the physical, chemical and biological process which have occurred while the vessel has been on the seabed.

The images of the site released to date have shown that the wreck hosts a wide variety of marine life. The analysis of this rare and important marine ecosystem is at an early stage, and will progress further as the data are released into the public domain. In future there may be an interest in undertaking projects to collect biological samples for further analysis. Any such operations will require the development of a project design and method statement which will ensure that there are no adverse effects on the wreck site.

As the site is a designated HSM, there is a protection against damaging, removing or destroying the site under Article 8(4) of Annex V to the Protocol and a presumption that any excavation, intrusive investigation, or recovery of artefacts or elements of the ship's structure would not be approved by any Antarctic Treaty Party. Any future projects to record and investigate the site should take a strong precautionary approach, and be based on a suitable project design and research plan. The wreck and the surrounding seabed should not be disturbed, and no artefacts removed from the wreck, unless vital for the purpose of scientific studies or for the ultimate protection of the wreck.

## 4.9 Opportunity – Potential for broadening access

There is some interpretative material available regarding the wreck on the Endurance22 Expedition website<sup>29</sup>, including a series of still images, and a short edited segment of the survey film. A National Geographic feature length documentary on the discovery and survey of the wreck site is forthcoming in 2024. The expedition and discovery of the wreck were also documented live on social media by History Hit.

The history of the ITAE is well documented and presented in books, online, and in museum exhibitions. The discovery of the wreck site, and the analysis of the archaeological remains on the seabed, has the potential to enhance these pre-existing forms of presentation.

Artefacts relating to the ITAE are held by several museums. For example, a spar from *Endurance* is on permanent display in the library of the Scott Polar Research Institute in Cambridge, UK. The expedition has been the subject of several temporary exhibitions internationally and the discovery of the wreck provides new rich content for public engagement.

Given the impractical nature of visiting the wreck site, it is desirable that digital information about the site should be enhanced. This will initially be the forthcoming documentary, and through access to the wreck survey data via the online GIS. This could be further enhanced via the publication of a virtual dive trail or other suitable forms of online dissemination. Plans for virtual access of this nature are currently in development by the Endurance22 team.

The Endurance22 Expedition team has developed a series of five short educational documentary videos for children, in collaboration with the Royal Geographical Society (RGS) and Reach the World. The videos are aimed at school children. The first of which focus on the wildlife of Antarctica, is publicly accessible on the Endurance22 Expedition website. The remaining four videos are available to schools and educators via the RGS.

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## 4.10 Other opportunities

As this CMP is a live document, additional opportunities should be documented as they come to light.

<sup>29</sup> [endurance22.org](https://endurance22.org)

# 5

## Conservation Management Policies





## 5 Conservation Management Policies

### 5.1 Introduction

This section of the Conservation Management Plan builds on the Assessment of Significance and the issues identified in the Risks and Opportunities section. The conservation policies here will help retain or reveal the sites significance, provide a framework for decision making in the future management and development of the site, and also:

- Meet all policy requirements
- Comply with internationally accepted standards, guidance and best practice

It is intended that the policies will create a framework for managing change on *Endurance* that is clear in purpose, and sustainable in its application. Our aim is to implement this through the principles of shared ownership and partnership working to balance protection with economic and social needs.

The Committee for Environmental Protection (CEP) has adopted the **Guidelines for the Assessment and Management of Heritage in Antarctica**<sup>30</sup>, which aids parties in recognising, managing, conserving and promoting Antarctic heritage for the benefit of current and future generations. Appendix A, outlines the suggested contents for a conservation management plan, as informed by international standards and best practice. The guidelines state *“It is important to set out the policies that will guide actions and activities to manage the heritage. These policies may be as brief or comprehensive as needed, and will likely be guided by the level of intervention required to manage the heritage. As a minimum, it is important to set out the overarching aims for the future of the heritage (for example, to maintain and preserve the historic site, to provide a visitor experience, or to protect the whole site and its character). Clear aims and guiding policies will inform all future activity related to the heritage”* (ATCM 2022).

Policies in this Conservation Management Plan are compatible with the Guidelines for the Assessment and Management of Heritage in Antarctica, the Rules contained in the Annex to the UNESCO Convention on the Protection of Underwater Cultural Heritage 2001 (see Annex 1 for details), the ICOMOS IPHC Antarctic Underwater Material Culture Guidelines<sup>31</sup>, and reflect Historic England’s Conservation Principles for the Sustainable Management of the Historic Environment (Historic England 2008) and it’s published policies and guidelines, as well as the wider statutory framework.

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### 5.2 Six key management policies

- 1 All activity relating to the site should be undertaken with the aim to preserve and/or enhance the significance of the site. There will be a presumption in favour of non-destructive survey in preference to any recovery of the wreck structure or artefacts.
  - 2 The biodiversity, habitats and ecology of the wreck of *Endurance* will be studied, recorded, and conserved.
  - 3 Long term challenges to the significance of the wreck of *Endurance* will be identified, and mitigation methods explored with stakeholders and partner organisations.
  - 4 Access to the wreck site will be managed to ensure that activities are not detrimental to the significance of the site.
  - 5 The significance of the site will be enhanced by maximising opportunities for knowledge enhancement and its public dissemination.
  - 6 The ongoing management of the wreck will be transparent and collaborative, and based on clear policies outlined in this Conservation Management Plan.
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<sup>30</sup> [documents.ats.aq/recatt/att643\\_e.pdf](https://documents.ats.aq/recatt/att643_e.pdf)

<sup>31</sup> [iphc-icomos.org/polar-heritage-resources/iphc-antarctic-underwater-material-culture-guidelines](https://iphc-icomos.org/polar-heritage-resources/iphc-antarctic-underwater-material-culture-guidelines)

### 5.3 Management Policy 1 - All activity relating to the site should be undertaken with the aim to preserve and/or enhance the significance of the site. There will be a presumption in favour of non-destructive survey in preference to any recovery of the wreck structure or artefacts

*Endurance* forms a unique record of past human activity which reflects the aspirations, ingenuity and investment of resources of previous generations. The wreck comprises the material remains of one of the most famous expeditions in Antarctic history, of international interest and appeal. It could be considered an economic asset, as a generator of investment and opportunities for future scientific study in Antarctica. In addition, it provides a resource for education and enjoyment. The ability of future generations to do the same should not be compromised. The discovery of the wreck has opened a new chapter in the history of the exploration of Antarctica.

Intervention that causes limited harm to the values of a place may be justified if it increases understanding of the past, reveals or reinforces particular heritage values, or is necessary to sustain those values for future generations. However, any harm must be decisively outweighed by the benefits.

Although the wreck site is designated as a HSM, the site remains vulnerable to unauthorised activity. The United Kingdom, with co-sponsors, will develop a proposal for designation of the wreck site as an Antarctic Specially Protected Area (ASPA) to provide an additional level of protection. The ASPA designation would include controls on the nature and extent of activities allowed to be undertaken in the area, to provide maximum protection of values. This proposal will explore the potential for designating an area of the water column as a part of the ASPA designation to provide a measure of protection for the site from accidental damage as a result of impact by ROVs, AUVs and submersibles. Defining the upper boundary of the designated area at 20m, a depth which exceeds the maximum draft of all vessels which currently operate in Antarctic waters, would provide protection for the shipwreck site, but would not inhibit freedom of transit above.

The 2022 survey indicated that debris extends beyond the current area of the HSM designation. The boundary of the HSM should be extended to a 1500m radius to contain the full debris field within the protected area.

To ensure that the wreck site is not inadvertently damaged, any visits to the site should be non-intrusive, unless vital for the purpose of scientific studies or for the ultimate protection of the wreck. All methodologies should be agreed in advance.

Methodologies will ensure that no material will be deposited on the wreck or within the designated area. Specifically this should preclude the use of "drop-weights" as a means of creating buoyancy to allow ROVs, AUVs and submersibles to surface. Methodologies should also ensure that appropriate protocols are in place to avoid entanglement of the wreck site as a result of inadequate tether management during the deployment of ROVs.

As the wreck of *Endurance* is located in such a remote and inaccessible location, visits to the wreck will be difficult. To provide advice on future visits to the wreck site, it is desirable that permitting authorities seek advice from international experts, to ensure that any activities do not put the wreck site at risk (see 4.2).

**RECOMMENDATION 1** All projects directed at the site should operate on the principle of preserving the site as found. Nothing will be taken from the designated area and nothing will be deposited within the designated area. The non-invasive approach of *in situ* preservation should be followed as the preferred alternative for ensuring site integrity. Exceptions may be considered if the outcomes are deemed vital for scientific study or for the ultimate protection of the wreck.

**RECOMMENDATION 2** When assessing future project proposals, permitting authorities should seek advice from international experts, representing a range of disciplines, including but not limited to – heritage management, maritime archaeology, polar exploration, deep sea engineering and marine biology.

**RECOMMENDATION 3** Extend the protected area of HSM 93 to a 1500m radius.

**RECOMMENDATION 4** To strengthen the framework providing protection to the site, the UK should nominate the site for Antarctic Specially Protected Area (ASPA) designation.

## 5.4 Management Policy 2 - The biodiversity, habitats and ecology of the wreck of *Endurance* will be studied, recorded, and conserved

The significance of *Endurance* embraces all the cultural and natural heritage values that are associated with it. To identify and appreciate those values, it is first essential to understand the structure and ecology of the wreck site.

As discussed in Section 3.1.2 above, the initial analysis of the flora and fauna visible during the survey indicated the presence of several species classified as vulnerable marine ecosystem (VME) taxa by CCAMLR. Further analyses of the biological and ecological context of the wreck site will identify the full range of species present, enhance knowledge, and provide a baseline with which to compare any future changes to the marine environment in the vicinity of the wreck site.

Only those studies which are specific to the wreck site, and cannot be undertaken in other locations should be permitted. This should also apply to further research into the biodiversity, habitats and ecology of the wreck of *Endurance*. Many of the species present may also colonise natural hard-bottom substrates such as boulders or drop-stones in the wider vicinity, allowing for reasonable studies of connectivity to be undertaken at a safe distance.

**RECOMMENDATION 5** Conduct a full assessment of the marine life observed during the survey, to gain a fuller understanding of the biological and ecological context and environment in which the wreck sits.

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## 5.5 Management Policy 3 -

Long term challenges to the significance of the wreck of *Endurance* should be identified, and mitigation methods explored with stakeholders and partner organisations

Conservation is the process of managing change in ways that will best sustain the values of a place in its contexts, and which recognises opportunities to reveal or reinforce those values.

Changes to *Endurance* caused by natural processes are inevitable, and it is acknowledged that all wreck sites are vulnerable simply because of the nature of their environment.

Action undertaken to understand natural changes will be proportionate to the identified risks and sustainable in the long term.

Data collected during the initial survey will allow for the development of a baseline understanding of conditions at the wreck site and the level of preservation. The *Endurance22 Expedition Cruise Scientific Report* gives a summary of the scientific data collected. Any future projects in the vicinity of the wreck will be encouraged to collect additional data on currents, water temperature, salinity, pH levels, dissolved oxygen content, and the surface ice cover and thickness. This information will, provide better understanding of the processes of deterioration and so that any changes in condition, and the trajectory of that change, can be quantified.

**RECOMMENDATION 6** Any future visits and projects undertaken in the vicinity of the wreck site should include measurement and recording of surface, water column, and seabed conditions, to better understand the site and establish the long-term trajectory of any change.

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## 5.6 Management Policy 4 -

Access to the wreck site should be managed to ensure that activities directed at the wreck are not detrimental to the significance of the site

Access to the site is currently limited due to financial and logistical constraints. In future the desire for access and the restrictions imposed by conservation needs and legislative limitations will need to be reconciled through appropriate visitor management.

There is a considerable risk to the integrity of the wreck site from accidental damage as a result of poorly planned and executed projects. It is vital that any future projects directed at the site be undertaken by competent and experienced teams.



Judgements about values are necessarily specific to the time they are made. As understanding develops, and as people's perceptions evolve and places change, so assessments of significance will alter, and tend to grow more complex. The work currently being undertaken by the Unpath'd Waters project on values in relation to data and public engagement may be useful in this context<sup>32</sup>.

As the wreck is largely inaccessible to the majority of people, but has clear international interest, it is important that stakeholders explore alternative means of access and visitation, such as through web-based means, and advancements in immersive and virtual reality technologies. Access and engagement will be facilitated by the National Geographic documentary film currently in production, and stakeholders will continue to explore alternative means of dissemination as opportunities arise.

**RECOMMENDATION 7** Any projects directed at the wreck of *Endurance* should be consistent with the Rules to the Annex of the 2001 UNESCO Convention on the Protection of Underwater Cultural Heritage. This Annex (reproduced in Appendix 1) comprises a series of ethical rules concerning activities directed at underwater cultural heritage, which provide objective standards by which to assess the appropriateness of actions in respect to archaeology underwater.

**RECOMMENDATION 8** Unless a clear and agreed research framework has been devised, any access to the wreck and surrounding seabed should be avoided to minimise the risk of damage to the vessel, any distributed material in the wider debris field, and to buried archaeological remains.

**RECOMMENDATION 9** The management policies and recommendations outlined in this plan should be incorporated into permit conditions.

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## 5.7 Management Policy 5 -

### The significance of the site will be enhanced by maximising opportunities for knowledge enhancement and its public dissemination

The data collected by the Endurance22 Expedition is an important resource for future scientific study, for both the archaeological examination of the wreck, and the analysis of the marine life visible on the wreck. The Endurance22 Expedition team has prepared an online GIS system to enable access to the wreck survey data.

Article 3 of the Antarctic Treaty states that observations and data collected should be exchanged and made freely available. It is therefore necessary to see the wreck survey data archived with a trusted digital repository to ensure its long-term survival.

In accordance with ATCM XXII Resolution 4 (1998), any data collected during projects directed at *Endurance* should be deposited with the appropriate National Antarctic Data Centre, and metadata supplied to the Antarctic Metadata Directory which is managed by the Joint Committee on Antarctic Data Management of SCAR and COMNAP.

Public availability of data and information relating to the wreck site to the international community ensures it can be used by technical practitioners, citizen scientists, and the humanities fields to enhance more broadly the human understanding of the site. Access to heritage should be widened to include the arts and creative outputs.

The data collected during the 2022 survey covers the wreck itself in great detail, but much of the debris field was not surveyed, so this is less well understood. Any future visits and projects directed at the site should consider prioritising the collection of data for any areas of the wreck not covered by the 2022 survey, including the debris field.

It is essential to develop, maintain and pass on the specialist knowledge and skills necessary to sustain the historic environment. Agreements should be developed between the project stakeholders to formulate a future strategy for continued research. Future research projects directed at the wreck site provide an opportunity for capacity development within deep ocean and polar archaeological research, and projects should seek to facilitate knowledge transfer and training as core elements of projects.

Practitioners should use their knowledge, skills and experience to encourage others to understand, value and care for their heritage. They play a crucial role in communicating and sustaining the established values of the wreck, and in helping people to articulate the values they attach to it.

<sup>32</sup> [unpathdwaters.org.uk/about/#values](https://unpathdwaters.org.uk/about/#values)

A formal programme of staged assessment and research is required, to contribute towards a fuller understanding of the site in its entirety. Such work should conform to the Management of Research Projects in the Historic Environment (Historic England 2015), and is likely to comprise the following stages:

- Collation of the site archive
- Assessment to determine academic potential of the archive
- Determination of further post-fieldwork tasks required to fulfil this academic potential
- Preparation of a research archive
- Publication

**RECOMMENDATION 10** Stakeholders should seek to develop appropriate methods of information dissemination, including public exhibitions and web-based initiatives, to increase public understanding and enjoyment of *Endurance*.

**RECOMMENDATION 11** Stakeholders should seek to work with the *Endurance22* project team, and all bona fide research groups, – to gain, and publish, a fuller understanding of the site.

**RECOMMENDATION 12** Stakeholders should seek to undertake a staged programme of assessment and research to contribute towards a fuller understanding of the site in its entirety.

**RECOMMENDATION 13** Key gaps in understanding the significance of the wreck's component parts should be identified and prioritised. These should be addressed so that these significances can contribute to the future conservation management of the site.

**RECOMMENDATION 14** Stakeholders should seek to promote the analysis and dissemination of the information collected by the *Endurance22* project. The *Endurance22* expedition will deposit the archive of material in an appropriate trusted digital repository.

**RECOMMENDATION 15** In accordance with the terms of the Treaty (Resolution 4, 1998), it should be a condition of any permit granted in relation to the site that any recorded data is deposited with a trusted digital repository and made publicly available within two years of the completion of an expedition.

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## 5.8 Management Policy 6 -

The ongoing management of the wreck should be transparent and collaborative, and based on clear policies outlined in this Conservation Management Plan.

Stakeholders have the opportunity to contribute to understanding and sustaining the wreck of *Endurance*. The wreck is part of the common heritage of mankind, and therefore any work undertaken on the site in future should have international collaboration at the core of the project. Judgements and decisions about the future of the wreck site will be made in ways that are accessible, inclusive and transparent.

**RECOMMENDATION 16** This management plan should be reviewed and updated every five years, or sooner if new evidence comes to light, so that it continues to reflect the conditions and the state of knowledge pertaining to the site.



	Policy	Recommendations	Actions
1	All activity relating to the site should be undertaken with the aim to preserve and/or enhance the significance of the site. There will be a presumption in favour of non-destructive survey in preference to any recovery of the wreck structure or artefacts.	<p><b>Recommendation 1</b> - All projects directed at the site should operate on the principle of preserving the site as found. Nothing will be taken from the designated area and nothing will be deposited within the designated area. The non-invasive approach of in situ preservation should be followed as the preferred alternative for ensuring site integrity. Exceptions may be considered if the outcomes are deemed vital for scientific study or for the ultimate protection of the wreck.</p> <p><b>Recommendation 2</b> - When assessing future project proposals, permitting authorities should seek advice from international experts, representing a range of disciplines, including but not limited to – heritage management, maritime archaeology, polar exploration, deep sea engineering and marine biology.</p> <p><b>Recommendation 3</b> - Extend the protected area of HSM 93 to a 1500m radius.</p> <p><b>Recommendation 4</b> - To strengthen the framework providing protection to the site, the UK should nominate the site for Antarctic Specially Protected Area (ASPA) designation.</p>	<p><b>1.1</b> The UK will nominate the wreck for Antarctic Specially Protected Area (ASPA) designation.</p> <p><b>1.2</b> The HSM designated area should be extended to 1500m radius from the wreck site ensure that the full debris field is protected.</p> <p><b>1.3</b> Permitting authorities should ensure submission of suitable Project Design, Environmental Impact Assessment and Heritage Impact Assessment in advance of all projects undertaken on the site.</p> <p><b>1.4</b> Permitting authorities should seek advice from stakeholders and competent experts when assessing proposals to undertake projects directed at the wreck of <i>Endurance</i>.</p>
2	The biodiversity, habitats and ecology of the wreck of <i>Endurance</i> will be studied, recorded, and conserved.	<p><b>Recommendation 5</b> - Stakeholders should seek to facilitate a full assessment of the marine life observed during the survey, to gain a fuller understanding of the biological and ecological context and environment in which the wreck sits.</p>	<p><b>2.1</b> Undertake an assessment of the marine life on the wreck, using the data collected by the <i>Endurance22</i> Expedition.</p> <p><b>2.2</b> Any future visits or projects directed at the site should collate additional data to enable trends in the marine life visible on the wreck to be established.</p>
3	Long term challenges to the significance of the wreck of <i>Endurance</i> will be identified, and mitigation methods explored with stakeholders and partner organisations.	<p><b>Recommendation 6</b> - Any future projects undertaken in the vicinity of the wreck should include measurement and recording of seabed conditions to better understand the site and establish the long-term trajectory of any change.</p>	<p><b>3.1</b> Any visits or projects directed at the site should seek to measure abiotic parameters including seabed salinity, temperature and pH levels.</p> <p><b>3.2</b> Stakeholders should seek to monitor seasonal fluctuations off the ice covering the wreck site.</p> <p><b>3.3</b> Stakeholders should seek to monitor the presence of marine organisms that represent a hazard to the preservation and significance of the wreck site.</p>

	Policy	Recommendations	Actions
4	<p>Access to the wreck site will be managed to ensure that activities directed at the wreck are not detrimental to the significance of the site.</p>	<p><b>Recommendation 7</b> - Any projects directed at the wreck of <i>Endurance</i> should be consistent with the Rules to the Annex of the 2001 UNESCO Convention on the protection of underwater cultural heritage. This Annex (reproduced in Appendix 1) comprises a series of ethical rules concerning activities directed at underwater cultural heritage, which provide objective standards by which to assess the appropriateness of actions in respect to archaeology underwater.</p> <p><b>Recommendation 8</b> - Unless a clear and agreed research framework has been devised, disturbance of the shipwreck and the surrounding seabed within the designated area should be avoided to minimise the risk of damage to the vessel, any distributed material in the wider debris field, and to buried archaeological remains.</p> <p><b>Recommendation 9</b> - The management policies and recommendations outlined in this plan should be incorporated into permit conditions.</p>	<p><b>4.1</b> Permitting authorities should ensure that projects directed at the wreck are compliant with the rules of the 2001 Convention.</p> <p><b>4.2</b> As with the voluntary code of conduct already in place with IAATO, all tour Operators should avoid the location of the wreck of <i>Endurance</i>.</p> <p><b>4.3</b> Stakeholders should explore the potential for an equivalent code of conduct with CCAMLR, to ensure that fishing vessels do not inadvertently interact with the wreck site.</p> <p><b>4.4</b> The UK Hydrographic Office (UKHO) should be formally notified of the coordinates of the wreck site and the extent of the designated area, so that the position can be identified on charts.</p>



Bi-weekly ablutions of "The Ritz". Hurley, F. © Scott Polar Research Institute, University of Cambridge

	Policy	Recommendations	Actions
5	The significance of the site will be enhanced by maximising opportunities for knowledge enhancement and its public dissemination.	<p><b>Recommendation 10</b> – Stakeholders should seek to develop appropriate methods of dissemination, including public exhibitions &amp; web-based initiatives, to increase public understanding and enjoyment of <i>Endurance</i>.</p> <p><b>Recommendation 11</b> – Stakeholders should seek to work with the <i>Endurance22</i> Expedition team, and all bona-fide research groups, to gain, and publish, a fuller understanding of the site.</p> <p><b>Recommendation 12</b> – Stakeholders should seek to undertake a staged programme of assessment and research to contribute towards a fuller understanding of the site in its entirety.</p> <p><b>Recommendation 13</b> – Key gaps in understanding the significance of the wreck’s component parts should be identified and prioritised. These should be addressed so that these significances can contribute to the future conservation management of the site.</p> <p><b>Recommendation 14</b> – Stakeholders should seek to promote the analysis and dissemination of the information collected by the <i>Endurance22</i> project. The <i>Endurance22</i> expedition will deposit the archive of material in an appropriate trusted digital repository Recommendation.</p> <p><b>Recommendation 15</b> – In accordance with the terms of the Treaty (Resolution 4, 1998), it should be a condition of any permit granted in relation to the site that any recorded data is deposited with a trusted digital repository and made publicly available within two years of the completion of the expedition</p>	<p><b>5.1</b> All stakeholders should pursue opportunities for knowledge enhancement.</p> <p><b>5.2</b> Establish initial access to the data collected by the <i>Endurance22</i> Expedition team via a dedicated web portal.</p> <p><b>5.3</b> The CMP key stakeholders will seek to work with the <i>Endurance22</i> Expedition team to gain, and publish, a fuller understanding of the site.</p> <p><b>5.4</b> Data collected during projects directed at <i>Endurance</i> should be deposited in a publicly accessible archive, and made freely available to enable future research, in line with Article 3 of the Antarctic Treaty.</p> <p><b>5.5</b> Permitting authorities should ensure the timely reporting on all activities undertaken on the wreck. The publication and reporting of project activities will be a condition of permit.</p> <p><b>5.6</b> Data collected should be shared in order to increase knowledge and understanding of the significance of the site.</p> <p><b>5.7</b> Stakeholders should seek to develop appropriate methods of online, web-based dissemination, to increase public understanding and enjoyment of <i>Endurance</i>.</p> <p><b>5.8</b> Stakeholders should work with museums and galleries across the world to find ways to share the <i>Endurance</i> story.</p> <p><b>5.9</b> Stakeholders should stay abreast of web-based technology and seek new and innovative ways to enable virtual online access to the wider public.</p>
6	The ongoing management of the wreck will be transparent and collaborative, and based on clear policies outlined in this CMP.	<p><b>Recommendation 16</b> – This management plan will be reviewed and updated every five years, or sooner if new evidence comes to light, so that it continues to reflect the conditions and the state of knowledge pertaining to the site.</p>	<p><b>6.1</b> The CMP will be/has been subjected to international peer review by key expert stakeholders and interested parties.</p> <p><b>6.2</b> This CMP will be/has been subjected to a public consultation exercise to allow everyone to contribute their views towards the future conservation management of <i>Endurance</i>.</p> <p><b>6.3</b> This management plan will be reviewed and updated on a regular basis so that it continues to reflect the conditions and the state of knowledge pertaining to the site.</p>

# 6

## Implementation



The deck of the 'Endurance' on the outward journey © Royal Geographic Society



## 6 Implementation

### 6.1 Consultation

Following internal review, the draft CMP was circulated for stakeholder consultation to refine how the values and features of *Endurance* can be conserved, maintained and enhanced. The external consultation took place during December 2023 and January 2024. Responses to the consultation were considered and the plan has been revised as appropriate, to produce the final version.

### 6.2 Adoption of policies

Following consultation, the plan was adopted in April 2024.

Responsibilities for implementation rests with the UK Government FCDO, although consultation with stakeholders will be maintained throughout. In addition, provision will be made for periodic review and updating of the Conservation Management Plan.

The plan will be updated once the full details of the 2022 survey are made available.

#### 6.2.1 NEXT STEPS

Upon adoption of this CMP, it is recommended that an Implementation Plan is prepared which will set out how the recommendations and actions will be carried out and progress monitored.

The UK has submitted a recommendation that the extent of the HSM designation be extended to a radius of 1,500m in order to ensure that the full extent of the debris field is contained within the protected area.

The UK has prepared a prior assessment template for the proposed ASPA designation, for submission at the 2024 ATCM.



A glimpse in the focstle. Hurley, F. © Scott Polar Research Institute, University of Cambridge



## 7. References

- APAG. 2022. Briefing Report. Finding the wreck of *Endurance*.
- Alexander, C. 2017. *The Endurance: Shackleton's Legendary Antarctic Expedition*.
- ATCM 2022. [ats.aq/devAS/Meetings/Measure/774](https://ats.aq/devAS/Meetings/Measure/774)
- Basberg, B. 2008. Antarctic tourism and the Maritime Heritage. Norwegian School of Economics and business Administration Discussion Paper 20.
- Bound, M. 2022. *The Ship Beneath the Ice: The Discovery of Shackleton's Endurance*.
- Bryan, R. 2011. *Ordeal by Ice: Ships of the Antarctic*.
- Dowdeswell, J., Batchelor, C., Dorschel, B., Benham, T., Christie, F., Dowdeswell, E., Montelli, A., Arndt, J., Gebhardt, C. 2020. Sea-floor and sea-ice conditions in the western Weddell Sea, Antarctica, around the wreck of Sir Ernest Shackleton's *Endurance*. *Antarctic Science*, 32(4), 301-313.
- Dunkley, M. 2015. 'Climate is what we expect, weather is what we get' Managing the potential effects of oceanic climate change on underwater cultural heritage. Willems, W.J.H. & H.P.J. van Schaik (eds) 2015: *Water & Heritage. Material, conceptual and spiritual connections*. Leiden: Sidestone Press.
- Endurance22. 2022. Post Visit Report for British Expedition.
- Fiennes, R. 2021. *Shackleton*. Penguin. London.
- Fisher, M & Fisher, J (1957) *Shackleton*. James Barrie Books. London.
- Gilbert, N. 2021. Endurance22. Initial Environmental Evaluation.
- Griffiths, H & Taylor, M. 2022. *Endurance: Claimed by Antarctic Ice and Commandeered by the Benthos*, in *The Marine Biologist*, July 2022, pages 12-14.
- Historic England (2008) *Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment*. Historic England, Swindon.
- Historic England (2015) *Management of Research Projects in the Historic Environment*. Historic England, Swindon.
- Historic England (2017a) *Draft Conservation Principles for the Sustainable Management of the Historic Environment*. Historic England, Swindon.
- Historic England (2017b) *Historic Wreck Sites at Risk: A Risk Management Toolkit*. Historic England, Swindon.
- Historic England (2019) *Statement of Heritage Significance: Analysing Significance in Heritage Assets*. Historic England Advice Note 12. Historic England, Swindon .
- Huntford, R. 1985. *Shackleton*.
- ICOMOS (2013) *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance*.
- ICOMOS (2022) *Antarctic Archaeology Guidelines*.
- ICOMOS ICUCH (1996) *Charter on the Protection and Management of Underwater Cultural Heritage*.
- ICOMOS International Polar Heritage Committee (2021) *Antarctic Underwater Material Culture Guidelines*. [iphc-icomos.org/polar-heritage-resources/iphc-antarctic-underwater-material-culture-guidelines](https://iphc-icomos.org/polar-heritage-resources/iphc-antarctic-underwater-material-culture-guidelines)
- Lansing, A. 1959. *Endurance*. The true story of Shackleton's incredible voyage to the Antarctic.
- Larson, E. 2011. *An Empire of Ice*.
- Rabenstein, L. 2022. *Endurance22*. Cruise Scientific Report.
- Resolution 2. 2018. 'Guidelines for the assessment and management of Heritage in Antarctica'.
- Shackleton, E. 1919. *South: The Endurance Expedition*.
- Shears, J & Vincent, N (Forthcoming). *Endurance: The Discovery of Shackleton's Legendary Ship*. National Geographic Society.
- Verlinden, J. 2017. Ernest Shackleton and Adrien de Gerlache: A Belgian Connection. *Nimrod VII*, October 2017, pp 17-52.

De Vos, M., Kountouris, P., Rabenstein, L., Shears, J., Suhrhoff, M., and Katlein, C.: Understanding the drift of Shackleton's *Endurance* during its last days before it sank in November 1915, using meteorological reanalysis data, *Hist. Geo Space. Sci.*, 14, 1–13, <https://doi.org/10.5194/hgss-14-1-2023>, 2023.

Zarankin, A, Pearson, M & Salerno M.A. 2023. *Archaeology in Antarctica*. Routledge, London.

**Online sources:** Endurance22 project website – [endurance22.org](https://endurance22.org)

Protocol on Environmental Protection to the Antarctic Treaty – [ats.aq/e/protocol](https://ats.aq/e/protocol)

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## 8. Appendix 1

Annex to the UNESCO 2001 Convention on the Protection of Underwater Cultural Heritage.

### Rules concerning activities directed at underwater cultural heritage

#### I. General principles

**Rule 1.** The protection of underwater cultural heritage through *in situ* preservation shall be considered as the first option. Accordingly, activities directed at underwater cultural heritage shall be authorized in a manner consistent with the protection of that heritage, and subject to that requirement may be authorized for the purpose of making a significant contribution to protection or knowledge or enhancement of underwater cultural heritage.

**Rule 2.** The commercial exploitation of underwater cultural heritage for trade or speculation or its irretrievable dispersal is fundamentally incompatible with the protection and proper management of underwater cultural heritage. Underwater cultural heritage shall not be traded, sold, bought or bartered as commercial goods.

This Rule cannot be interpreted as preventing:

- (a) the provision of professional archaeological services or necessary services incidental thereto whose nature and purpose are in full conformity with this Convention and are subject to the authorization of the competent authorities;
- (b) the deposition of underwater cultural heritage, recovered in the course of a research project in conformity with this Convention, provided such deposition does not prejudice the scientific or cultural interest or integrity of the recovered material or result in its irretrievable dispersal; is in accordance with the provisions of Rules 33 and 34; and is subject to the authorization of the competent authorities.

**Rule 3.** Activities directed at underwater cultural heritage shall not adversely affect the underwater cultural heritage more than is necessary for the objectives of the project.

**Rule 4.** Activities directed at underwater cultural heritage must use non-destructive techniques and survey methods in preference to recovery of objects. If excavation or recovery is necessary for the purpose of scientific studies or for the ultimate protection of the underwater cultural heritage, the methods and techniques used must be as non-destructive as possible and contribute to the preservation of the remains.

**Rule 5.** Activities directed at underwater cultural heritage shall avoid the unnecessary disturbance of human remains or venerated sites.

**Rule 6.** Activities directed at underwater cultural heritage shall be strictly regulated to ensure proper recording of cultural, historical and archaeological information.

**Rule 7.** Public access to *in situ* underwater cultural heritage shall be promoted, except where such access is incompatible with protection and management.

**Rule 8.** International cooperation in the conduct of activities directed at underwater cultural heritage shall be encouraged in order to further the effective exchange or use of archaeologists and other relevant professionals.

#### II. Project design

**Rule 9.** Prior to any activity directed at underwater cultural heritage, a project design for the activity shall be developed and submitted to the competent authorities for authorization and appropriate peer review.

**Rule 10.** The project design shall include:

- (a) an evaluation of previous or preliminary studies;
- (b) the project statement and objectives;
- (c) the methodology to be used and the techniques to be employed;

- (d) the anticipated funding;
- (e) an expected timetable for completion of the project;
- (f) the composition of the team and the qualifications, responsibilities and experience of each team member;
- (g) plans for post-fieldwork analysis and other activities;
- (h) a conservation programme for artefacts and the site in close cooperation with the competent authorities;
- (i) a site management and maintenance policy for the whole duration of the project;
- (j) a documentation programme;
- (k) a safety policy;
- (l) an environmental policy;
- (m) arrangements for collaboration with museums and other institutions, in particular scientific institutions;
- (n) report preparation;
- (o) deposition of archives, including underwater cultural heritage removed; and
- (p) a programme for publication.

**Rule 11.** Activities directed at underwater cultural heritage shall be carried out in accordance with the project design approved by the competent authorities.

**Rule 12.** Where unexpected discoveries are made or circumstances change, the project design shall be reviewed and amended with the approval of the competent authorities.

**Rule 13.** In cases of urgency or chance discoveries, activities directed at the underwater cultural heritage, including conservation measures or activities for a period of short duration, in particular site stabilization, may be authorized in the absence of a project design in order to protect the underwater cultural heritage.

### III. Preliminary work

**Rule 14.** The preliminary work referred to in Rule 10 (a) shall include an assessment that evaluates the significance and vulnerability of the underwater cultural heritage and the surrounding natural environment to damage by the proposed project, and the potential to obtain data that would meet the project objectives.

**Rule 15.** The assessment shall also include background studies of available historical and archaeological evidence, the archaeological and environmental characteristics of the site, and the consequences of any potential intrusion for the long-term stability of the underwater cultural heritage affected by the activities.

### IV. Project objective, methodology and techniques

**Rule 16.** The methodology shall comply with the project objectives, and the techniques employed shall be as non-intrusive as possible.

### V. Funding

**Rule 17.** Except in cases of emergency to protect underwater cultural heritage, an adequate funding base shall be assured in advance of any activity, sufficient to complete all stages of the project design, including conservation, documentation and curation of recovered artefacts, and report preparation and dissemination.

**Rule 18.** The project design shall demonstrate an ability, such as by securing a bond, to fund the project through to completion.

**Rule 19.** The project design shall include a contingency plan that will ensure conservation of underwater cultural heritage and supporting documentation in the event of any interruption of anticipated funding.

### VI. Project duration – timetable

**Rule 20.** An adequate timetable shall be developed to assure in advance of any activity directed at underwater cultural heritage the completion of all stages of the project design, including conservation, documentation and curation of recovered underwater cultural heritage, as well as report preparation and dissemination.

**Rule 21.** The project design shall include a contingency plan that will ensure conservation of underwater cultural heritage and supporting documentation in the event of any interruption or termination of the project.

### VII. Competence and qualifications

**Rule 22.** Activities directed at underwater cultural heritage shall only be undertaken under the direction and control of, and in the regular presence of, a qualified underwater archaeologist with scientific competence appropriate to the project.

**Rule 23.** All persons on the project team shall be qualified and have demonstrated competence appropriate to their roles in the project.

#### **VIII. Conservation and site management**

**Rule 24.** The conservation programme shall provide for the treatment of the archaeological remains during the activities directed at underwater cultural heritage, during transit and in the long term. Conservation shall be carried out in accordance with current professional standards.

**Rule 25.** The site management programme shall provide for the protection and management *in situ* of underwater cultural heritage, in the course of and upon termination of fieldwork. The programme shall include public information, reasonable provision for site stabilization, monitoring, and protection against interference.

#### **IX. Documentation**

**Rule 26.** The documentation programme shall set out thorough documentation including a progress report of activities directed at underwater cultural heritage, in accordance with current professional standards of archaeological documentation.

**Rule 27.** Documentation shall include, at a minimum, a comprehensive record of the site, including the provenance of underwater cultural heritage moved or removed in the course of the activities directed at underwater cultural heritage, field notes, plans, drawings, sections, and photographs or recording in other media.

#### **X. Safety**

**Rule 28.** A safety policy shall be prepared that is adequate to ensure the safety and health of the project team and third parties and that is in conformity with any applicable statutory and professional requirements.

#### **XI. Environment**

**Rule 29.** An environmental policy shall be prepared that is adequate to ensure that the seabed and marine life are not unduly disturbed.

#### **XII. Reporting**

**Rule 30.** Interim and final reports shall be made available according to the timetable set out in the project design, and deposited in relevant public records.

**Rule 31.** Reports shall include:

- (a) an account of the objectives;
- (b) an account of the methods and techniques employed;
- (c) an account of the results achieved;
- (d) basic graphic and photographic documentation on all phases of the activity;
- (e) recommendations concerning conservation and curation of the site and of any underwater cultural heritage removed; and
- (f) recommendations for future activities.

#### **XIII. Curation of project archives**

**Rule 32.** Arrangements for curation of the project archives shall be agreed to before any activity commences, and shall be set out in the project design.

**Rule 33.** The project archives, including any underwater cultural heritage removed and a copy of all supporting documentation shall, as far as possible, be kept together and intact as a collection in a manner that is available for professional and public access as well as for the curation of the archives. This should be done as rapidly as possible and in any case not later than ten years from the completion of the project, in so far as may be compatible with conservation of the underwater cultural heritage.

**Rule 34.** The project archives shall be managed according to international professional standards, and subject to the authorization of the competent authorities.

#### **XIV. Dissemination**

**Rule 35.** Projects shall provide for public education and popular presentation of the project results where appropriate.

**Rule 36.** A final synthesis of a project shall be:

- (a) made public as soon as possible, having regard to the complexity of the project and the confidential or sensitive nature of the information; and
- (b) deposited in relevant public records.

## 9. Appendix 2

The following individuals and organisations provided comment on the draft Conservation Management Plan:

Alfred Wegener Institute  
All-Party Parliamentary Group for the Polar Regions  
Antarctic Heritage Trust, New Zealand  
Antarctic Legacy of South Africa  
British Antarctic Survey  
Chartered Institute for Archaeologists  
CMAS World Underwater Federation  
Deep Ocean Search  
Department of Agriculture, Environment and Rural Affairs of Northern Ireland  
Endurance22 Expedition  
Environment Polar Programs, National Science Foundation, USA  
Joint Nautical Archaeology Policy Committee  
Historic Environment Scotland  
ICOMOS International Committee on Aerospace Heritage  
ICOMOS International Committee on Underwater Heritage  
ICOMOS International Polar Heritage Committee  
International Association of Antarctic Tour Operators  
International Congress of Maritime Museums  
Maritime Archaeology Sea Trust  
Mary Rose Trust  
National Historic Ships UK  
National Park Service, USA  
Navy Secretariat Heritage and Third Sector Team (Heritage focal point)  
Norwegian Polar Institute  
Polar Regions Department, Foreign, Commonwealth and Development Office  
Reach the World  
Receiver of Wreck, HM Coastguard  
Royal Commission on Ancient and Historic Monuments of Wales  
School of Society and Culture, University of Plymouth  
Scientific Committee on Antarctic Research  
Scott Polar Research Institute  
Shears Polar Ltd  
South Georgia Heritage Trust  
Wessex Archaeology  
UK Hydrographic Office  
UK Parliament Environmental Audit Sub-Committee on Polar Research