

Maritime Archaeological Association of Victoria, Inc

Shipwreck Data Form Guide

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A. Identification

A1. MAAV Number

The MAAV Number will be assigned by the Records Officer.

A2. Site Name

Provide the name(s), whether geographical or local, by which the wreck has been known locally. If only the vessel's registered name is commonly used, enter in A3 Vessel Name.

Example: Carrum Unidentified

A3. Vessel Name

State the vessel's **registered** name at time of loss. If vessel name is not known, enter "unidentified."

*Examples: S.S.Blackbird
Unidentified*

B. Location

B1. Hydrographic Chart Number

Supply the identification number of the Australian Hydrographic Service chart(s) covering the wreck site vicinity.

Example: AUS143.

B2. Latitude

Enter the latitude coordinate of the site in degrees, minutes and seconds. The latitude coordinate should be determined by GPS where possible.

B3. Longitude

Enter the longitude coordinate of the site in degrees, minutes and seconds. The longitude coordinate should be determined by GPS where possible.

B4. Major Water Body

Record the name or description of the major water body such as a strait, inlet, channel etc., that contains the wreck site. Give the major drainage if site is on an interior waterway.

Example: Port Phillip Bay, Bass Strait

B5. Minor Water Body

Give the name or description of the minor water body (harbour, cove, bay, etc.) within the major body containing the wreck site. Give the smaller, immediate fresh water drainage or lake if the site is on an interior waterway.

Examples: Hobsons Bay, Yarra River

B6. Location

Provide a detailed description of the site features to aid site relocation via hydrographic chart and topographic map (ie: references to nearest feature of land, point, island, navigational aid, etc.). Describe the location from general to specific, beginning with a general area description. Site location may be pin-pointed by compass triangulation (specify true or magnetic north) and calculation of distances from features indicated on a cited chart or map, such as hilltops, river or creek mouths, points of land, charted markers, buoys etc.

B7. Access

Supply detailed information regarding boat and diver access to the site, including nearby major roads, communities, and boat launches, as well as owner's name and address of land used for diver access. This information makes it possible for another surveyor to readily organize a further expedition to the site. It should complement the locational information by referring to features not necessarily found on a chart or map.

B8. Elevation

Enter the elevation of the wreck site above or below Hydrographic Chart Datum. Note that the Chart Datum reflects large tide lower low water level recorded for that specific location on the Hydrographic Chart. Enter elevation as a single number followed by **BSL (Below Sea Level)** or **ASL (Above Sea Level)**. For multiple readings (ie: **Min/Max**) distinct elevations are separated with a semi-colon. To convert feet to metres multiply the number of feet by **.3048**.

Example: a wreck with its bow section drawing 6 feet and stern resting in 20 feet of water should be described as 20 BSL; 6 ASL, if feet are the unit of measure (see D2).

Note: for fresh water sites, a second set of elevations relating the wreck site to local mean water level should also be provided.

C. Site Description

C1. Flora / Fauna:

Identify the floral and fauna species present at the site and their abundance in and around the wreck and record in order from most to least abundant. Separate species using semi-colons. Record the percent that each species represents. Where possible also supply scientific names enclosed in parentheses.

Some common species found in Victorian coastal waters include:

Example: Flora;
Fauna;

C2. Bottom Type

Describe the natural geological characteristics of the bottom in the wreck vicinity. List matrix components in order of decreasing proportions.

Example: fine clay; silt; rocks; coarse gravel; etc.

C3. Environment

Summarize the maritime environment of the wreck site area, including dynamic conditions that may effect the wreck site. Include information on shorelines, exposure, current, wave action, visibility factors, proximity to shipping lanes, etc.

Example: In an anchorage area, somewhat exposed to Northerlies ; visibility variable;

C4. Description

Provide a general description of the wreck site, documenting the extent and condition of the wreck including attitude (upright, inverted, lying to port or starboard), three-dimensional status (see glossary), scatter extent, etc.

Include a percentage estimate of the original vessel presently intact. Note the overall stability of the wreck's structural remains.

Example: Hull remains sit upright, reduced to 2- dimensional state, approximately 5% of the hull remains in stable condition.

C5. Disturbance Factors

Rate the degree of recent impact in terms of **high, medium** or **low**. Include any evidence of human impact such as: dredging, area shipping, shore construction, vandalism, salvage, etc. Provide a full description of these factors or agents affecting the condition of the site. Enter dates of isolated disturbances, if known. Note location of specific impacted areas on the wreck site. Include any evidence of unnatural deterioration ie: human impact.

Example: High: port bow section damaged probably due to dragged anchor, between 1986 and 1989; stem post remains disarticulated by diver impact, June 1990; surge continues to erode and scatter material near stern; etc.

D. Wreck Description

D1. Hull Magnetic Orientation

Enter compass orientation of the hull towards the bow if it can be distinguished. If the bow cannot be distinguished, also list the reciprocal (opposite) compass bearing in parentheses. Do not correct for True bearing. See **Figure 1**.

**Examples: 123⁰ mag.
90⁰ mag. (270⁰ recip.)**

D2. Measurement Units

Note units of linear measurements used for all dimensionally descriptive fields (**meters/centimeters, feet/inches**). Maintain consistency in measurement units.

Example: metres

D3. Site Size

Provide the size of the wreck site in the two dimensions which best represent maximum width and maximum length of the area which includes isolated secondary features and artifact scatter field. See **Figure 1**.

Example: 110 x 31

D4. Wreck Dimensions

Enter the estimated wreck size in two dimensions of the primary site feature, ie: the dimensions of the most extensive hull section. See **Figure 1**.

Example: 54 x 10

D5. Feature Locations

List the location, by magnetic bearing and distance, of the secondary features such as hull fragments, major machinery, anchors, ballast mounds, etc.

Note: Artifacts or features located more than 5 meters clear of that measured in **D4** (Wreck Dimensions), should be recorded here as secondary features. Take the measurements from the approximate centre of the primary feature. See **Figure 1**.

Example: anchor, 124⁰, 22m; bow section, 160⁰, 15m;

Note: **L1** and **W1** define the maximum length and width of the wreck site. These include secondary features and artifact scatter as required in **D3** (Site Size). **L2** and **W2** represent length and width of the primary feature described in **D4** (Wreck Dimensions).

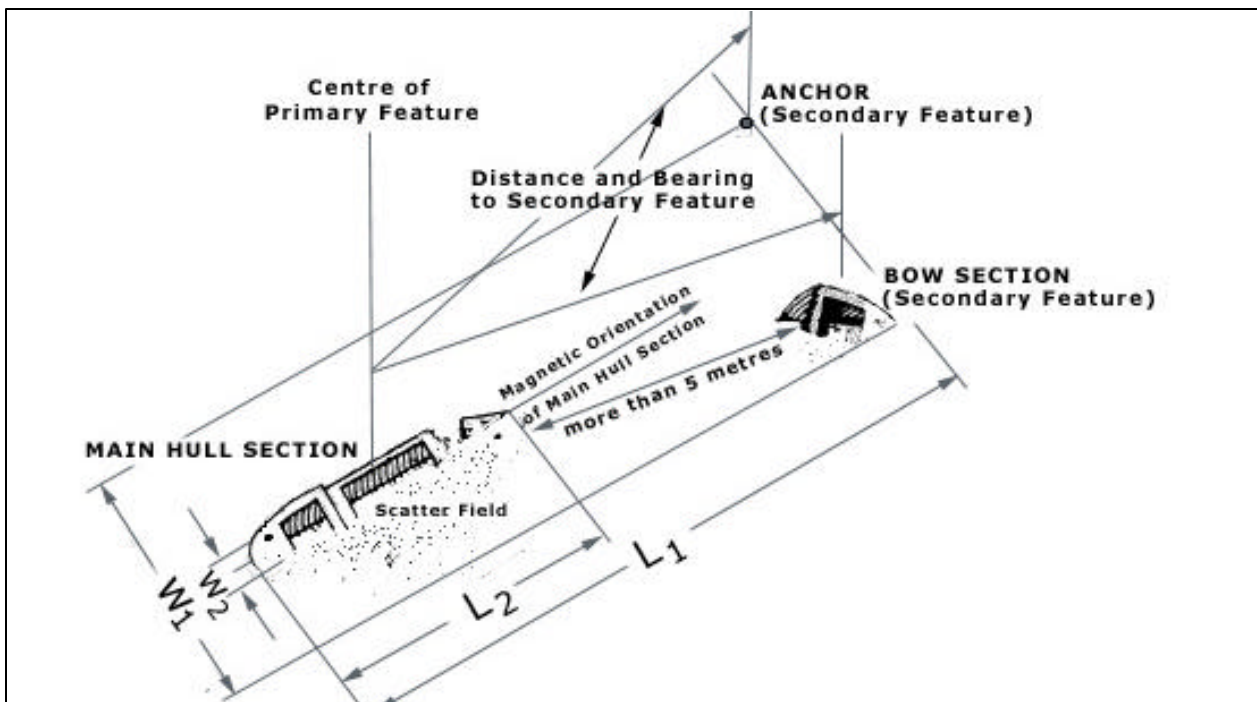


Figure 1. Wreck Description

D6. Vessel Length

List the estimated minimum original length of the vessel hull. Add the section lengths together if the hull is broken up. If the hull is sufficiently intact, measure length from the fore side of the stem post to the aft side of the stern post/transom; and append the entry with "intact length".

Example: 31.5 m. (intact length)

D7. Vessel Breadth

List the estimated minimum breadth at the longitudinal centre of the vessel hull. If the hull is sufficiently intact, obtain a precise overall breadth to outside of the timbers at the widest point and append the entry with "intact breadth".

Example: 8.0 m (intact breadth)

Note: Data for fields **D8** to **D10** can only be obtained from well preserved three dimensional wrecks.

D8. Depth of Hold

Measure the maximum depth of the hold from the underside of the main deck to the top of the floor timbers at the keelson. For multiple holds, note which hold is measured (ie: fore hold, main hold, aft hold etc.)

D9. Number of Decks

List the actual or estimated number of decks present in the complete vessel. Follow an estimated number with "?". Include partial decks, awnings, weather decks, etc. as individual decks.

D10. Number of Hatches

List the actual or estimated number of cargo hatchways which can be observed. Follow an estimated number with "?".

D11 Hull Material

Enter the construction material(s) of the hull. List the materials and note composite construction. Include wood species whenever possible.

Example: fir planking on iron frames

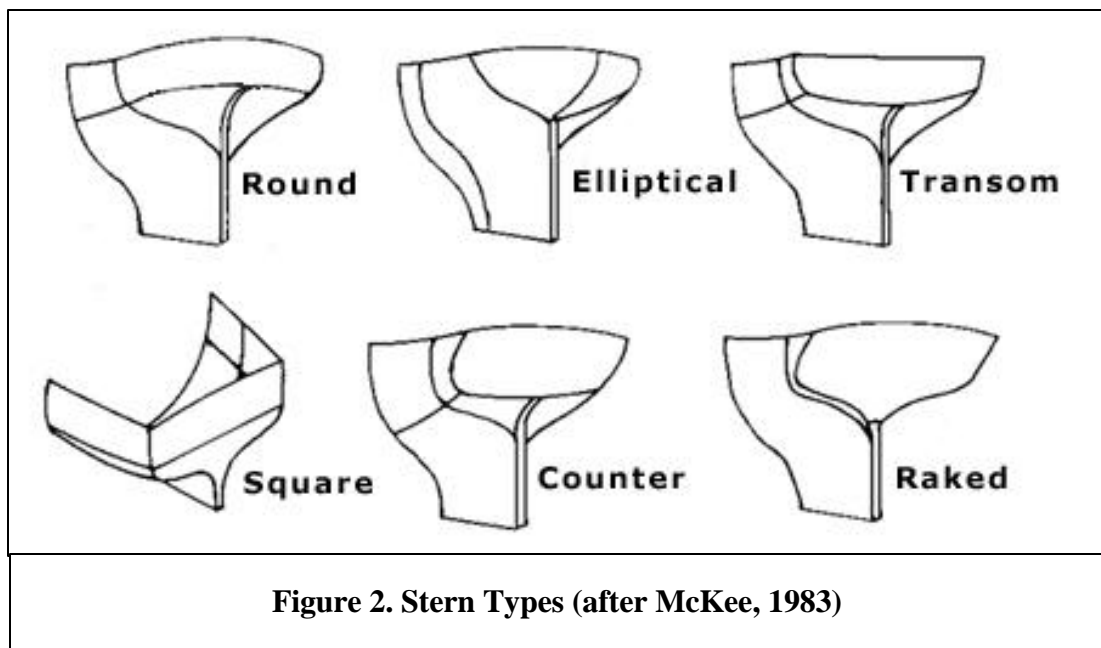
D12. Hull Construction Style

Enter the style in which the vessel is built. Options include:

a. for wooden hulls: clinker, carvel, diagonally or double planked **b.** for iron or steel hulls: flush or lapped plates

D13. Stern Type

List the stern type exhibited by the vessel. Basic stern types include: round, elliptical, counter, square, transom and raked transom. These types are illustrated in **Figure 2**



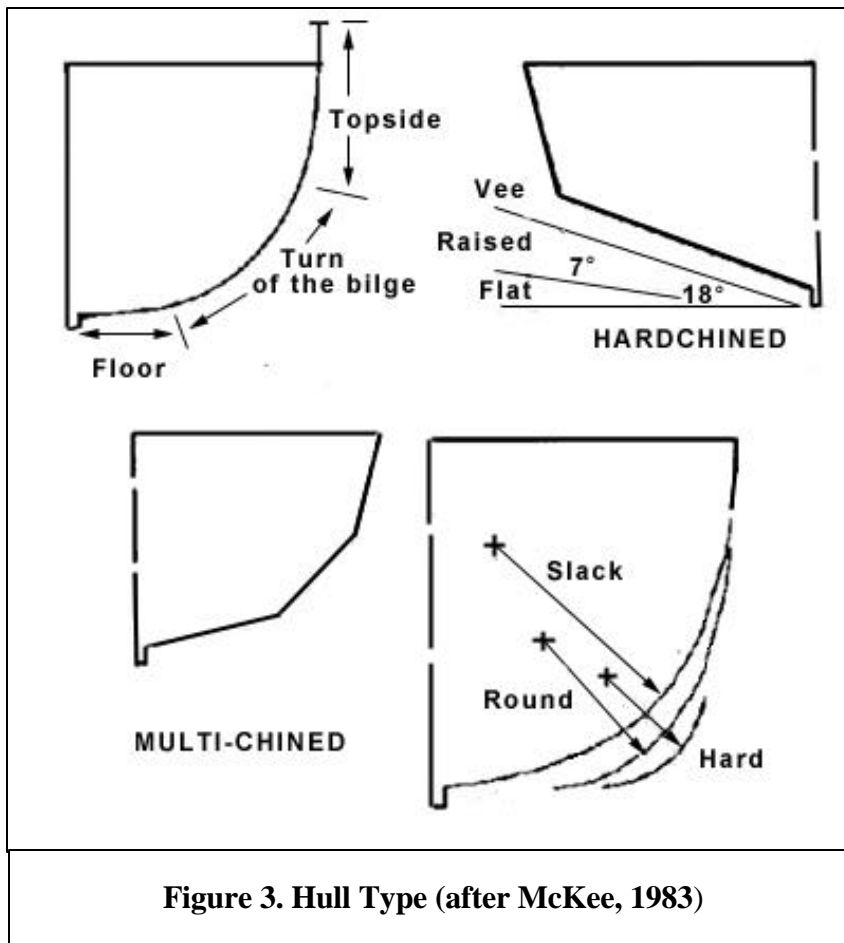
D14. Hull Construction Type

Describe hull style and not construction/building or rigging style. Examples of appropriate terminology include: flat-bottomed, slack-bilged, hard-chined, etc. Use the descriptive terms illustrated in **Figure 3**. Note the presence of a centreboard.

Note: the hull of a vessel may be described in terms of its shape. The midship section (see **Figure 4**) is taken where the hull breadth is the greatest and has three vertical components:

1. the topside may be plumb (vertical), flare, flam (rounded with overhang) or tumblehome (rounded with inclination);
2. the bilge may be hard or multi-chined, or round, refined with the terms hard if the radius of curvature is less than 1/10 of the beam, or slack if radius is more than 1/3 of the beam;
3. floor is vee if the deadrise is greater than 1 in three, flat if less than 1 in 8, and raised if in between.

The stem and stern may have either plumb or raked profiles, and may be further described as straight, curved, hollow, or reflex depending on the relative positions of the ends (after McKee, 1983).



D15. Hull Sheathing

Note the presence or absence of hull sheathing and material type.

Examples: copper, yellow metal, wood, anti-fouling paint.

D16. Rudder

Note the presence of the rudder and its basic measurements. If possible, note how the rudder was hung and whether it was balanced (see **glossary**).

D17. Cause of Casualty

Give site evidence for cause of loss. Site indicators include burnt timbers, evidence of explosion or scuttling, proximity of natural hazard, etc.

D18. Rigging Components

Although these are unlikely to survive, indicate the presence of any rigging material. Note the number and material of masts, bow-sprits, spars, etc. Note number, type, material and dimensions of any shrouds, dead eyes, blocks, belaying pins, chain plates, etc.

-- Wreck Description Miscellaneous Comments

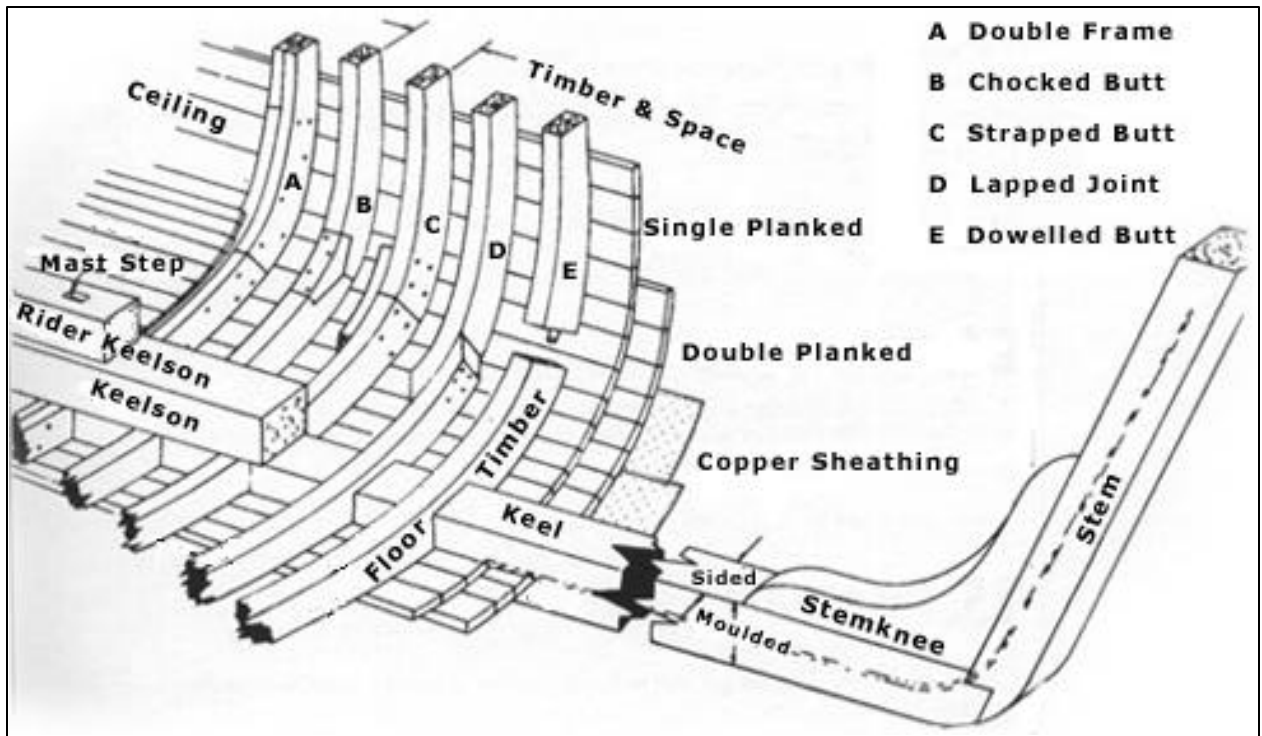
For this section include any observations pertaining to general wreck description that are not specifically requested in the foregoing Wreck Description Fields. Include responses which require more space than are provided in the fields.

E. Scantling/Fastenings

Note: Scantling is a nautical term which refers to all dimensions given for a ship's timbers, planks etc. Timber dimensions are always distinguished by the terms '**sided**' and '**moulded**' rather than in non-nautical terms such as: width, thickness, or depth. Non-nautical terms can be ambiguous when used in a nautical context.

Figure 5 explains the major components of a wooden vessel (the same terms apply to metal construction) and illustrates how to take the dimensions required in this section.

In this section's Miscellaneous Comments the recorder should include observations pertaining to scantling dimensions that are not recorded in **E1-E12**, or for responses which require more space than has been provided there.



E1. Keel Dimensions

Note the sided/moulded/length dimensions of the keel and the number of component timbers. State whether the keel is a bar, continuous vertical, or intercoastal keel type, if it is iron (**see glossary: keel**); otherwise, note the wood species if possible.

Example: S 0.33 M 0.44 L 12.5; one-piece oak

E2. Keelson Dimensions

Provide the sided/moulded/length dimensions of the keelson. If the keelson is built up with several timbers, note and give overall sided and moulded dimensions. Note whether the keelson section is a simple "I", flat plate, or box section type if it is iron (**see glossary:**

Figure 4. Scantlings / Fastenings

Example: S 1.15 M 0.89 L 14.0; three-piece elm.

Example: 0.050 x 0.030, keelson mortise with iron step collar 0.40 x 0.40 inside dim

E3. Mast Step Dimensions

List the dimensions and description of the mast step(s) (typically a mortise in the keelson with an iron insert). For multiple mast steps, the data should begin with the most forward mast step and work aft.

E4. Stem

List the sided/moulded/length of the stem and note number of timbers in stem assembly, if possible.

E5. Stern Post

List the sided/moulded/length and note the number of timbers in the stern post assembly, if possible.

Figure 4. Scantlings/Fastenings (after McKee, 1983)

E6. Floor Timbers

Give the sided/moulded dimensions of a typical floor timber.

E7. Timber and Space

List the average timber (sided dimension of the framing timber) and space (distance between two adjacent framing timbers) combined as one dimension. Take this measurement as close to amidships as possible so as to avoid cant frame areas.

E8. Engine Mounts

The engine mount dimensions in terms of the length and width spanning main engine mounting points.

E9. Ceiling

Give the thickness of the ceiling planks (see **glossary**).

E10. Hull Planking

Give the typical thickness of the planking or plating, measured at the lowest possible point on the hull.

E11. Hull Fastenings

Note the presence (number, if applicable) and material of various forms of fastenings (ie: nails, treenails, bolts, welds, rivets, etc.) and sample of dimensions if possible. Note the general location of the fastenings on the wreck site.

Example: 5 iron rivets (0.025 x 1.20+) show in stern deadwood; several treenails visible in portside frames; copper sheathing tacks (0.025 long) common; etc.

E12. Knees

Provide a sample list of knees visible on site (see **glossary: knees**). Include material and arm lengths. Note location of the finds on the wreck. List the type of knees, if known.

Example: 8 oak hanging knees remain along port side, 1.2 x 1.26 av; 1 isolated iron knee (possibly lodging) amidships, 0.38 x 0.3+;

--Miscellaneous Comments

Use this part of the form to carry over or add information pertaining to the Scantlings/Fastenings fields. If a field is carried over enter information preceded by the field number, **eg. E8:.....etc.**

F. Machinery/Equipment

F1. Propulsion

Describe the primary mode of propulsion with one or two entries from the following list: human, motor, sail, sail/motor, sail/steam; steam and screw; steam and side paddle; steam and stern paddle; or unpowered. Separate each entry with a semicolon.

Example: sail/motor; screw;

F2. Number of Engines

List the number of individual engines used to propel the vessel. The Engines may or may not have separate drive trains.

F3. Number of Engine Cylinders

List the number of cylinders on each engine listed in F2, or note if the engine is a turbine.

F4. Cylinder Diameter

Note the diameter(s) of the engine cylinders for each engine. List varying diameters in ascending order separated by semi-colons if appropriate.

Example: 0.33; 0.51; 0.78.

F5. Engine Manufacturer's Marks

List in full any serial numbers, patent or maker's marks etc., discernable on the engine(s).

F6. Number of Boilers

List the number of boilers as well as shell diameter and length. If possible, note the presence of condensers, heat exchangers, etc.

F7. Boiler Manufacturer's Marks

List any serial numbers, patent or maker's marks, etc., discernable on the boiler(s).

Example: 2 boilers ea. 3.2x6.1, condenser near engine.

F8. Coal Presence

Note the presence and general location coal on the wreck site. Note whether amount is extensive, moderate, or minimal.

**Examples: Extensive quantities of coal found all over wreck site.
Minimal amount of coal slightly abaft of midships.**

F9. Drive Train Type:

Give the type of power transfer utilized in the propulsion system. Options include: reciprocating cylinder with connecting rod, overhead beam, balance beam, "grasshopper" and side lever, for paddle-driven (see glossary: paddle drive trains); or shaft, for screw-driven vessels. List shaft length and diameter if possible.

Example: propeller shaft, 12m long. x 1.5 cm.

F10. Propeller/Propeller aperture

Provide the diameter(s) of the propeller(s) and size of the aperture. Include the number and size of the blades as well as the material. If there is no propeller, provide the size of the aperture. Include the source of each dimension. See **Figure 5**.

Examples: 1.82 (aperture); 1.25 (prop); 3 blades; bronze; L: .50

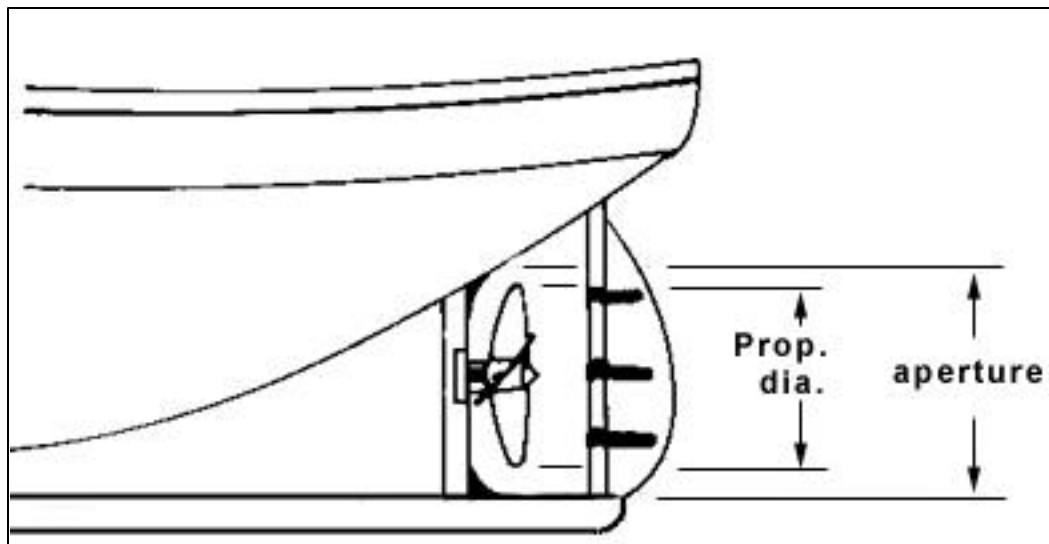


Figure 5. Propeller and Propeller Aperture

F11. Steering Gear Type

List the type or components of the steering gear. Options include: tiller, quadrant, wheel, chain, wire, rope, hydraulic, or mechanical.

Example: wheel steering with wire tackle to quadrant.

F12. Capstan/Windlass

List dimensions, power source, maker's marks, material and type of the capstan and/or windlass(s).

F13. Donkey Engine

List boiler/engine dimensions, maker's marks, etc.

F14. Pump Description

List the number, maker's marks, and type(s) of pumps.

Example: 1 chain pump, no marks.

F15. Anchor Description

List number, dimensions (arm width, shank length), and type. See **Figure 6**. If possible, estimate weight of anchors. The original weight in pounds of admiralty pattern anchors (bound wood, fixed, or removable stock) may be calculated by converting the stock length (as a general rule the same dimension as shank length) to inches, and dividing the cube of this figure by 1160. Use a semicolon to separate dimensions from type.

Example: W 1.54 L 2.05; 1 admiralty w. removable stock (453 lbs).

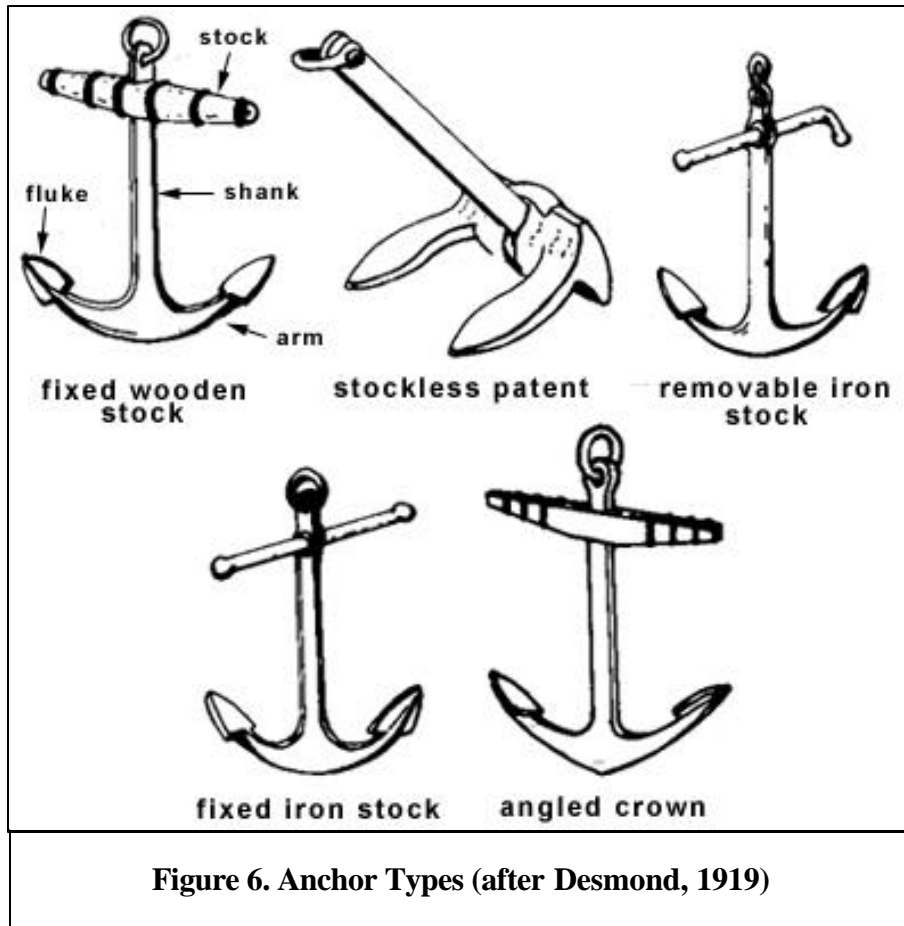


Figure 6. Anchor Types (after Desmond, 1919)

F16. Anchor Chain

Provide diameter of anchor chain. If possible note whether chain has been forged or cast, and note type of chain according to examples shown in **Figure 7**.

Example: Forged stud link, 0.052;

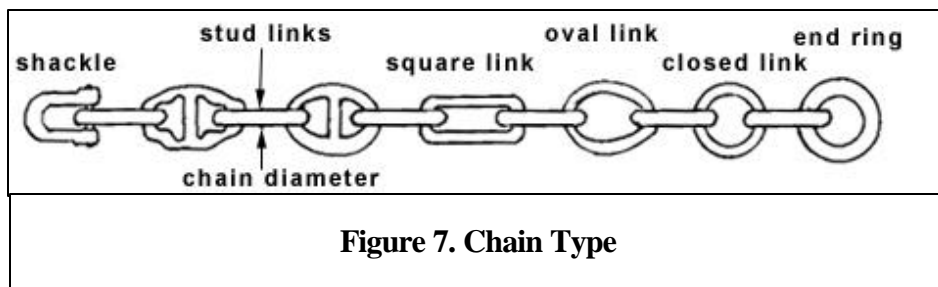


Figure 7. Chain Type

G. Artifacts

G1. Cargo Artifacts

List, in order of apparent abundance, artifacts which make up the vessel's cargo. Record shipboard stores or equipment in **G2 Shipboard Artifacts**. Include bulk materials not always considered "artifacts" such as coal, etc.

Examples: slate; stone architectural elements; rough cut timber;

G2. Shipboard Artifacts

List artifacts found on the wreck site which belong to the ships **regular stores/equipment** including navigational instruments, tools, galley implements, personal effects. Indicate the general area on wreck where found.

Example: ship's bell (near bow); telescope (port stern quarter); 2 deck lights and a caulking iron (amidships to port); etc.

G3. Artifacts Removed

List artifacts known to have been removed from the site prior or during the survey. Provide date of removal, rough site provenance, and current location where possible.

Example: 3 ceramic cups removed by salvagers in 1984, believed to have come from the stern section of the ship.

H. Diving Activities

H1. Diving Access:

Describe shipwreck site accessibility to diving operations

H2. Diving Hazards:

Describe any precautions to be taken when diving the shipwreck site.

I. Recording Information

I2. Reporter

List the name and address of the person (or persons) recording the site information. Record previous surveyors as well. Separate each group of visitors (or individuals) with a semicolon. Record from most recent to oldest.

I3. Report Date

List the date (year/month/day) the wreck survey was carried out. Record in the same order as those in **H2 (Reporter)**.

Example: 89/07/01

I4. Informant

List the name and address of any person(s) who revealed the site to the surveying body, and any person who may have significant knowledge about the wreck site.

I6. Collections

List the general description of any known artifacts collected by individuals, including provenance and dates of acquisition where possible. Members of the MAAV should refrain from removal of any artifacts unless directed by government archaeologists. In which case all artifacts removed should have their positions pinpointed on site maps, while triangulation data should be recorded in notes and on artifact inventory forms. Artifacts in private collections should be noted in **G3 Artifacts Removed**.

I7. Data Location

Provide the name of the permanent repository housing collected archival material, survey notes, dive logs, maps, sonar printouts and photographic records acquired during the survey project.

**Example: Polly Woodside Museum (MAAV Files) : Correspondence
MAAV Member John Smith: Original site plan**

I8. Photos

List the identification numbers of all photographs taken of the wreck site and artifacts. Record in the following format:

Surname, Initial(s); year/month/day (or range of days, eg. 89/08/12-89/08/16); Storage Location; Roll # ; Exp. #(s);

I9. Film/Video

List the identification numbers of film reels or video cassettes taken of the wreck site. Include the storage location, name of the recorder and the date(s) of filming.

I10. Remote Sensing

List identification and type of any remote sensing data (sonar printouts, etc.) compiled on the wreck site. Include the storage location, name of the recorder and the date(s).

I11. Historical Significance

Describe the International, National or Regional historical significance of the wreck site and suggest whether this site warrants further research, given its significance.

**Example: Regionally significant: Local limetrader;
Nationally significant: Last wooden steamship built in Australia.**

I12. Archaeological Significance

Describe the archaeological significance of the site and reasons **why** this site warrants further research. Examples of archaeologically significant wrecks would include those which contribute to, the study of the evolution of ship construction, the establishment of artifact typologies, the evolution and application of technology and materials, etc. Some sites also offer potential for studies of sport diver impact, natural site deterioration rates, artificial reefs, etc.

I13. Priority

Summarize the overall importance of the site reflecting **H12 Historical Significance** and **H13 Archaeological Significance**, in terms of **'high,' 'medium,'** or **'low'** priority.

Appendix 1.

Glossary

Aft: Behind, in, near, or toward the *after* or stern part of the vessel.

Amidships: Or *midships*; the middle portion of the vessel.

Midship Beam: the longest beam of the vessel at the point of greatest breadth.

Aperture: An opening cut into a solid structure, as with the propeller aperture cut into the stern deadwood, rudder blade, or sternpost, to accept a centerline-mounted propeller.

Athwartship: Across the vessel, orientated perpendicularly to the longitudinal axis of the vessel.

Balanced rudder: A rudder whose stock is not on the leading edge, but some distance to the rear of it.

Beam: The breadth of the vessel at its widest point; a timber mounted athwartships to support decks and provide lateral strength, etc.

Bilge: The lowest part of the hull's interior on either side of the keel. The *turn of the bilge* is the transition of the hull shape from essentially horizontal to vertical in section, described as *hard* if the transition is relatively abrupt, or *slack* if the transition is gradual.

Block: Generally described on land as a 'pulley'. The grooved wheel utilized in the block is termed a *sheave* and it fits into the *sheave-hole* or *swallow* in the block. Blocks may be single, double, triple, fourfold-sheaved, etc., according to the number of sheaves carried. Not all blocks however, are furnished with sheaves and may be termed *deadeyes* or *blind pulleys*. When two or more blocks are used to move a single weight, they constitute a *tackle*.

Bulkhead: A structurally integral 'wall' inside the hull, usually transverse but occasionally aligned fore-and-aft.

Bulwark: A parapet, or extension of the hull planking above the weather deck, and carried round the vessel providing protection from weather.

Cant Frame: A frame *canted*, or mounted obliquely to the keel so that its cross section remains more nearly rectangular along the in-curving ends of the vessel.

Capstan: A machine for hauling heavy cable, such as *hawsers* or *warps*, with its *barrel* set in a vertical position.

Carvel: The method of covering a vessel's frame with planking or *strakes* laid edge to edge and secured to the frame with nails or *treenails* so as to form a smooth outer skin. **See clinker.**

Ceiling: Planking covering the frames on the inner side of the hull. Larger timbers in the same position intended for strengthening are termed *walings* or *thickstuff*.

Centreboard: (Or *centreplate*, or *drop keel*). A movable plate of iron, wood, or lead that may be let down below the keel, about midships, in order to reduce lee-way when under sail. The centreboard is housed within a watertight compartment termed the *trunk*, or *keel box*.

Chainplate: Often referred to as a *channel plate*, these are iron or steel plates attached to the outside of a vessel's hull to which are connected the *deadeyes* by which the shrouds are secured. In larger vessels the plates may be replaced with chains.

Channel: Ledges built out from the sides of the hull to keep shrouds clear of the bulwark.

Clinker: Or *clencher*; Hull planking running fore-and-aft with the lower edge of each strake overlapping outboard the upper edge of the plank below it. Clinker strakes are usually secured to each other by nails with *roved* heads (i.e. the nail ends have a flat washer placed over them and are then mushroomed over with a hammer). See *carvel*.

Composite construction: A vessel built of both iron and wood, as typical in the late 19th century, is said to be of composite construction. Generally the knees, frames, and occasionally keel, keelson, and bulkheads may be of iron while the planking, decks and spars are of wood.

Deadeye: Wooden, usually large, disks through which holes allow the passage of thin ropes or lanyards. The number of holes is generally three, but may be less, particularly in the case of the *heart* which has a single eye, serrated at the bottom to gripe the lanyard. The deadeye is used as a block connected to the shrouds or chainplates and is called 'dead' due to the lack of a *sheave*.

Deadrise: The amount a floor (or floor timber) rises away from the keel, often expressed as an angle or slope, and generally measured *amidships*.

Deadwood: Composite of heavy timbers and functioning as fill between keel and keelson at either end of the hull. Referred to as the *fore deadwood* and *after deadwood* respectively.

Diagonal planking: Multiple layers of thin planks laid up diagonally.

Donkey engine: A small engine aboard the ship utilized to power a capstan, windlass, etc.

Double planked: (Or *double bottomed*). Where the hull skin is composed of two layers of watertight planking. Generally, the inner layer is thinner than the outer.

Feature: The primary feature of the wreck site is the largest surviving hull section. This may be the entire hull, or only one section of several. In the event of multiple surviving sections, once a section has been designated the primary feature, all other features are designated as secondary features if they are located at least 5 meters clear of other hull sections. Isolated pieces of machinery, anchors, armaments, etc., if clear by the same distance, may also be considered secondary features.

Floor timber: The lowest *frame* element timber which crosses the keel, and is usually heavily fastened to the keelson or keel. The timbers rising above the floor timbers are referred to as *futtocks*. The top futtock may be given a number, as in 'third futtock', or designated as the *top timber*, or *head timber*.

Flush plate: In reference to hull skins of metal plate, where the plate edges do not overlap but are placed edge to edge, analogous to wooden carvel construction. Generally found on welded steel vessels.

Frame: An assemblage of timbers set athwartship from keel to sheer providing the principal structural strength to the hull planking. Frames are often incorrectly called *ribs*. Each frame may consist of one *floor timber*, a number of *futtocks*, and a *top timber*, or top futtock, on each side of the keel.

Garboard: (Or *garboard strake*). The lower most strake on the hull, and that which is *rabbeted* into the keel.

Hatch/Hatchway: An opening in the deck of a vessel through which cargo is placed in the hold. It is covered by a movable frame or roof called a *hatch*. A small hatchway used primarily for the movement of persons is usually referred to as a *companionway* or *scuttle*.

Hardchine: A term applied to a vessel when the sides meet the bottom, or *bilge*, at a sharp angle rather than being rounded.

Keel: The principle longitudinal timber in most vessels. The keel is terminated at either end of the vessel in the stem and stern posts, which together form the backbone of the hull assemblage. In composite, or iron or steel construction, when the keel is set below the frames (as in wooden construction) it is called a *bar keel*. When the iron keel is set between the frames it is termed an

intercostal keel. When no keelson is apparent, the frames being let directly into the keel with no extension above or below the frames themselves, the assembly is termed a *continuous vertical keel*.

Keel box: (Or *trunk*). A watertight housing into which fits a *centreboard*, or *drop-keel* when retracted.

Keelson: Or *kelson*, a longitudinal strengthening timber(s) which rests upon the floors and is generally bolted through the floor timbers to the keel in wooden ships. In many vessels the keelson also takes the *maststep*. When additional timbers are laid alongside the keelson, these are termed *sister keelsons*; those laid atop the main keelson are termed *rider keelsons*. In composite, iron or steel ships, the keelson may be either a simple I beam, or flat *plate keelson*; or a *box* configuration.

Knee: Generally heavy members of wood or iron, used to strengthen angular junctions. The interior curvature between the two arms of a wooden knee usually follows the line of a naturally grown crook. These were among the first members to be replaced with iron in composite ship construction. Knees may be defined by location and alignment as follows: the *breasthook* (also *stemlock* or *forehook*) is set horizontally inside and near the head of the stem; a *dagger knee* is set obliquely; a *hanging knee* is one set upright with the horizontal arm to the top; a *lodge*, or *lodging knee* is set horizontally, usually in the plane of deck beams; a *standing knee* is set upright with the horizontal arm on the bottom.

Multi-chined: A term applied to a vessel when the transition from the bottom, or *bilge*, to side is accomplished by several relatively sharp angles, rather than being rounded.

Lapped plate: In reference to metal-plate hull skins, where the plates are lapped over one another at their edges, analogous to wooden clinker construction. Lapped plates are generally of iron and fastened with heavy bolts or rivets.

Mast-step: The point where the *heel*, or *foot*, of the mast is received. Large timbers fixed across the keelson may serve to anchor the mast heel, or a mortise may be cut directly into the keelson to receive a mast tenon, or inset cast iron *step*.

Mortise: A cavity, usually square, cut into the surface of a timber into which fits the *tenon* of another in order to form a joint.

Moulded dimension: The measure across a timber face to which a *mould*, or curvature guide, would be laid. In general, moulded faces of single timbers are parallel to each other. Eg. for a floor timber in place, the vertical dimension is the moulded dimension.

Nail: A small headed and pointed piece of metal driven through a piece of wood to fasten it to another. Longer and heavier examples are usually referred to as *spikes*, or *double nails*. Nails may be distinguished by material and mode of preparation, ie. nails may be *wrought* or *forged*, *cut*, or *cast*. They may be further defined by the shape of the head (point), such as *rose*, *diamond*, and *sharp*, or *chisel*.

Paddle drive: The mechanism employed to transfer energy from the engine to the paddle propeller(s). Examples of types are: direct drive facilitated by mounting a single cylinder engine *diagonally*, with its piston head down; or an *oscillating* mount where the cylinder itself is mounted on a pivot. The *overhead beam* type has a vertical connecting rod swinging an overhead horizontal beam pivoted at its middle, which in turn transfers the power to the paddle shaft. A *side lever* engine utilizes a beam pivoted at its centre, but the beam is offset beside the cylinder. The '*grasshopper*' engine also uses a side-mounted beam, but one pivoted at one end, with the paddle shaft drive connecting rod attached roughly halfway along the beam's length.

Pinion: a small cog-wheel engaging with a larger one or a cogged spindle engaging with a wheel.

Planking: A series of planks, or *strakes*, used to form the outer skin of the vessel. In shipbuilding terms, a plank is any wooden element from one and a half to four inches in thickness.

Pumps: Bilge pumps may utilise one of three types of action: Piston-suction: a piston rod with a flapper valve operated by lever or flywheel with single or double action.

Diaphragm: the action comes from a rubber lined metal disk working at deck level.

Chain Pump: consists of a series of flanges mounted on a circular chain in a u-shaped pipe.

Quadrant: A metal plate, often triangular, fitted horizontally to the head of the *rudder stock* to receive the steering chains or cables. The quadrant may be toothed to receive the pinion of a steering engine. **See Pinion**

Rabbet: Or *rebate*; a groove incised along a timber to receive the edge of a plank or *strake*. The most common rabbets are the *keel rabbet* which receives the *garboard*, and the rabbet of the stem and stern post which receives the strake ends.

Rivet: A metal pin, or fastening, with both ends clenched, or peened over, often over washers and done while hot.

Rudder stock: The primary piece of the rudder, set in a vertical, or near vertical, position about which the rudder pivots. A rudder is said to be balanced if the stock is not on the leading edge, but aft of it.

Scatter field: The area of artifacts, features, and debris associated with a single wreck.

Scarph: The joint where two pieces of timber are let into one another so as to appear to be one solid timber. Scarphs are called *vertical* if the surfaces (of the joint) are parallel to the sides of the timber, or *horizontal* when the surfaces are opposite. They are often set with a hook or projection, and keyed. Scarphs are common in long timbers such as the *keel* or *keelson*.

Sheathing: A thin layer of yellow pine, lead, or copper covering the hull of a vessel below the waterline in order to protect against wood borers and fouling. Generally, the sheathing is laid over a mixture of tar and hair or paper.

Sheer: The curve of the deck or gunwale as viewed from the side.

Shroud: Rope or wire standing rigging used to support masts athwartship.

Sided dimension: The measure of a timber face which takes a curve. ie. for a floor in place, the fore and aft dimension of the face upon which the keelson rests is the floor timber's sided dimension.

Spike: See nail.

Stem: The principal timber at the forepart of a vessel which stands upright and often is composed of several pieces. When the stem is of composite nature, the forward most added element is termed the *false stem*, and the inner most the *apron*. The stem is always firmly secured to the keel and strengthened by the *fore deadwood*. The stem also receives the ends of the hull planking, thus joining the two sides of the vessel.

Stern post: The principal timber at the stern upon which the rudder is hung, and to which the transom or planking ends are secured. Like the stem, the sternpost is firmly attached to the keel and is usually strengthened by the *aft deadwood*.

Strake: One line of hull planking extending the full length of the vessel. Several planks, placed end to end, may form a strake. Strakes may be defined according to position as follows: the *garboard* strake is the lowest and rabbets into the keel; the *sheer strake*, directly below the upper edge of the hull side, is a heavy strake which forms the curve of the top-side, and acts as

a chief strengthening agent there. A *wale* is the heaviest strengthening stake, located midway between the waterline and the *sheer*.

Tenon: (Or *tenant*). The end of a piece of wood fashioned into a shape, usually rectangular, which is received by a cavity of like dimensions, termed the *mortise*, in another piece.

Three-dimensional site: A wreck site with substantial structural elements surviving, and standing clear of the seabed.

Tiller: An arm of wood or metal fitted to the head of the *rudder stock* through which steering leverage is transmitted either from the steering linkage, or directly by the helmsman on smaller vessels.

Timber: A general term applied to heavy wooden members used in ship construction, or specifically to those which form the vessel's frames.

Timber and space: Or *room and space*. Frame spacing expressed as the distance from the fore side (moulded face) of one frame to the fore side of the next forward or aft frame.

Treenail: or *trunnel*; a wooden drift or dowel driven into the frame by which the hull *strakes* or *planking* may be secured to the ship's timbers. Treenails are also commonly used to secure wooden *knees*, and in *scarphs* etc.

Two-dimensional site: A wreck site with generally no less than one meter of the structure, excluding machinery, boilers, etc., standing clear of the seabed.

Windlass: A machine for working cables, and often used in weighing anchors, and generally mounted in the bows of the ship. The windlass is distinguished from a *capstan* by having the *barrel*, or cable spool in a horizontal position.

The MAAV Shipwreck Data Form Guide is based on the British Columbia Shipwreck Recording Guide (Ministry of Small Business, Tourism and Culture: Archaeology Branch).