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Report of Survey No:02302.

Name of Vessel: "Gwenili."

**this Survey was carried out 4/3/02 at Woolverstone, Suffolk, , the above named being a prospective purchaser of the vessel.**

**Limitations:**

- I have not inspected woodwork or other parts of the structure which are covered, unexposed or inaccessible and I am, therefore, unable to report that any such part of the structure is free from defect.
- This Report has been prepared for the use of Commissioning Client and no liability is extended to others who may see it.
- In some cases it is not possible to detect latent and hidden defects without destructive testing not possible without Owner's consent.

**Scope of Survey:**

- This is an Pre-Purchase Survey and its purpose is to establish the structural and general condition of the vessel.
- A general inspection of the engine and installation will be made, but this is a visual inspection only without running engine. It should be appreciated that some components may appear serviceable but be found defective when engine is run.

**Recommendations:**

These will not be made concerning cosmetic or other minor defects, although relevant suggestions may be made in the text. Recommendations will be restricted to those defects which should be rectified before vessel is used, (or within a given time span if specified), and items which may affect Insurability.

Recommendations will be printed in red for quick reference. The Recommendations are contained in the body of report in order that they may be read in context, and are also listed as part of the Conclusions at the end of this Report.

**Conditions of Survey:**

Vessel was examined laid up ashore.

**Conventions:**

Wherever numbered items are referred to, for example the frames of a vessel, then these are numbered from forward coming aft.

**Information is reported in the Sections below, followed by Conclusions and a List of Recommendations.**

**Hull, Deck and Structure.**

1. Details of Subject Vessel, (General Description, Dimensions, Registration etc.).
2. Planking below Waterline.
3. Keel, Centreline Structure and Floors.
4. Topside Planking, Rubbing Strake etc.
5. Frames and Timbers.
6. Bulkheads and Stringers.
7. Deck.
8. Coachroof.
9. Cockpit:
10. Fastenings.

**Steering, Stern Gear, and Skin Fittings etc.**

11. Rudder.
12. Stern Gear.
13. Cathodic Protection.
14. Skin Fittings and other through Hull Apertures.

**On Deck.**

15. Main Companionway and other Accesses to Accommodation.
16. Ports Windows etc.
17. Pulpit, Stanchions, Pushpit, Lifelines and Jackstays.
18. Rigging Attachment Points.
19. Ground Tackle and Mooring Arrangements.
20. Other Deck Gear and Fittings.
21. Davits and Boarding Ladders.

**Rig.**

22. Spars.
23. Standing Rigging.
24. Running Rigging.
25. Sails and Covers etc.

**Safety.**

26. Navigation Lights.
27. Bilge Pumping Arrangements.
28. Firefighting Equipment.
29. Lifesaving Equipment.

**Engine.**

30. Engine and Installation.
31. Fuel System.

**Accommodation and on Board Systems.**

32. Accommodation General.
33. Gas Installation.
34. Fresh Water Tanks and Delivery.
35. Heads.
36. Electrical Installation.
37. Electronic and Navigation Equipment.
38. Heating:

**1. Details of “Gwenili”.**

Subject vessel is a gaff yawl built in 1910 by M. Ligorce Fils of Bordeaux France. She is a well constructed yacht with rounded stem and counter stern. She has a fairly shallow draft hull and has quite a refined shape.

Length overall: 38'

Beam: 9'6"

Draft: 5'

Registration: SSR No: 01353, (not known whether this still current).

Above dimensions approximate.

**2. Planking below Waterline:**

The carvel laid 1.25" planking is described as pitch pine but has the appearance of Columbian pine where it was stripped back. Planking generally all lying fair, with no movement detectable. Planking all hammer sounded and random spike tested and found in satisfactory condition. Garboard seam tight and plank lying fair. fastenings well stopped over, and where tested no softening of timber noted in way of fastenings. Some frames had been removed on the stb side ready for replacement and this allowed closer examination of the timber where fastenings had been removed, and all found satisfactory.

All seams below waterline appear tight and well stopped, No sign of any movement noted.

Right forward on the stb side a short length of planking spanning the garboard and part of the next strake up has been let in, this secure and lying fair.

On the port side amidships there is a distinct hollow in the strake just below the waterline, this due to general wear or perhaps ice damage. Given the plank's total thickness this is not of any great significance.

The hood ends all found lying fair and no movement detected.

Lead tingles have been applied at the following points:

- At top of garboard strake stb side forward close to mast position.
- Where the heads discharge seacock has been removed.

All tingles tight.

**3. Keel, Centreline Structure and Floors:**

**External:**

The full length iron keel is slightly rockered and has been cast in two pieces. This may be original but given the boat's great age she may have been stripped of her keel during the war years and this replacement modified to fit. The keel was seen lying tight and fair to the hog with no weeps or stains present which could suggest weeping keelbolts.

Centreline structure, stem and deadwood appear to be of oak, all found hard and sound.

A lead tingle has been applied at the junction of the rudder post and hog, this all lying tight. Portside just above the prop aperture a similar tingle is in place. The timber around both tingles was found hard.

**Section 3 continued:**

**Internal:**

Stern post, horn timbers, hog, apron and stem believed of oak all found in good hard condition where tested.

The keel bolts are of mild steel, with steel backing plates. Nuts not unduly rusted, and no evidence of leakage via keelbolts present. Hammer sounded and rang true.

The centreline structure appears to have been modified in past years with substantial sawn hardwood floors possibly replacing iron floors. All the floors found in good condition and well fastened with substantial copper rivets. This work has been carried out with the ballast keel removed allowing the floors to be fastened right through the hog.

Both oak mast steps in satisfactory condition.

**4. Topsides Planking Rubbing Strake etc.:**

Viewed from multiple points with all covers removed hull found fair and sheer sweet. Topside planking hammer sounded and random probe tested and all found in satisfactory condition apart from a short length aft on port side. This is located below the mizzen chainplate just above the waterline and extends over about 18". Here the timber surface appears sound but the plank is rotten inside and requires replacement.

No softening of timber noted in way of the chainplates.

Seams generally tight and cosmetic condition of topsides quite good.

At both quarters the planking is sodden but should harden up to an acceptable degree when properly dried out

The stern terminates in a semi elliptical counter with a small vertically planked transom in the fashion of a Brixham trawler and it is considered that this is original. The planking etc is entirely sodden under the paint and some surface softening is present. However it is considered likely that all will harden up to an acceptable degree when properly dried out.

1. Recommendation: The defective length of topside planking port side aft should be replaced.

✓ Done

As a matter of urgency all the paint in the transom region and extending forward along the topside planking for about 12" should be burnt off and the area allowed to thoroughly dry.

✓ Done

Most of original bulwark stanchions and frameheads passing through the covering board have been removed and the bulwarks rebuilt with steel support knees. The bulwarks, steel knees and rail capping all found in satisfactory condition. The remaining five frameheads right forward all satisfactory and adjacent covering boards ditto.

**5. Frames:**

These are of steam bent type throughout, and believed to be of oak.

Frames no 6,7,8,9,10,11,12 and 13 fore and aft of the mast position have been repaired, doubled and refastened from the lower stringer down to the hog. This would almost certainly have been in response to leaking in this stressed region which will have largely been overcome by this repair.

Frames no: 14,16,18 and 20 stb side have been cut away ready for repair.

The following deterioration was noted elsewhere:

- No 12 port side has been doubled just below the lower stringer but the original frame is sodden and it is suggested this is allowed to dry out as soon as possible. (Located under the base panel of the trotter box in the saloon, this left empty).
- 16 and 17 fractured stb side just below the lower stringer.
- No 22 stb side soft below the lower stringer running down to the hog.
- No's 16,18, 20, 22 and 23 port side all soft to some extent below the lower stringer running down to the hog.
- Under the forward end of the cockpit in line with the prop shaft stuffing box the frame stb side is fractured down in the tuck.
- Right aft in the tuck under the cockpit sole just forward of the bilge pump the two frames port and stb are soft at their heels and also fractured. This is long standing and of little structural significance.

✓ Done

} ✓ Done

The substantial timber floors that have been fitted in recent years have provided a good deal of extra strength and it is considered that the vessel can live with the above deterioration. Much of the deterioration seen may well be where the iron floors now removed were originally landed on timber frames.

**6. Bulkheads and Stringers:**

The bulkheads are T&G and are light in construction. They are thus contributing little structurally but this is not a problem.

Two full length stringers of pine are fitted, these of square section and contributing a good deal of strength. All in good condition where accessible.

**7. Deck:**

**External:**

The deck is of laid pine about 5/8" thick. It is very heavily painted externally and this is keeping it stable and watertight.

The kingplanks are of teak and the covering board is of oak.

All beadings, quadrants etc in satisfactory condition.

The deck planking was hammer sounded and random spike tested and found in satisfactory condition throughout. However the thick paint hindered examination and it should be clearly understood that the early stages of rot within deck planking is sometimes impossible to detect without destructive testing. However it is my opinion, based on the evidence available, that the deck is sound at this time. Every effort should be made to avoid ingress of water through the deck areas, and any deck leaks that develop should be attended to promptly.

Teak kingplanks in good condition.

The last 4" of the oak covering board port side right aft is rotten, but after thoroughly drying out can probably be made good with thickened epoxy.

**Section 7 continued:**

**Internal:**

The supporting structure is of conventional construction with beams and halfbeams of oak, shelf of pine and carlines of oak all found in satisfactory condition. The deck halfbeam right at forward end of doghouse stb side is somewhat splintered and decayed but this appears to be stable. Iron hanging knees are fitted at the aft end of cockpit, these very rusty and fastenings defective. However this is not of serious structural significance. There are two further pairs of iron knees within the accommodation but insufficient access was possible to reliably ascertain condition but even if they have failed completely the structure is considered of adequate strength. The extreme end of the port beamshelf is rotten, (this located directly under the rotten covering board described above and visible through the hatch in aft deck). It is suggested this area be sprayed with preservative.

Most of the deckhead and beams have been burnt off internally to allow drying out and this has been most beneficial.

The sailing beams consist of two beams in tandem fitted immediately aft of the mast aperture and one immediately forward fitted with hanging knees. There is currently no sign of straining or stress in this area.

**8. Coachroof:**

**External:**

The original coamings are of teak. A raised doghouse of mahogany and plywood has been added aft. All joints have been sheathed with GRP tape and this was found intact.

The original teak coamings found in good condition throughout.

On the port side aft end of the doghouse at its junction with the cockpit coaming some rot is present running back to a cleat and also extending forward about 4".

Stb side just forward of the window in the doghouse the doghouse side is soft at its base over about 4" x 4". Both these areas are quite minor and may be repaired as convenient.

Both the coachroof and doghouse tops are of plywood, this GRP sheathed. Sheathing intact throughout. Areas hammer sounded and all found satisfactory.

**Internal:**

The beams are of plywood with spruce and iroko shelves. All has been replaced in recent years and found in good condition. Seen from aboard the plywood roofs have clearly absorbed some moisture over the years and in places the lower visible lamination is splitting. Moisture readings were also high throughout but still considered in serviceable condition.

**9. Cockpit:**

The cockpit coamings are of mahogany and in satisfactory condition.

The cockpit lockers and sole are mainly of plywood, crudely constructed but basically sound apart from the vertical bridgedeck panel which is extensively rotten. The sole bearers are of softwood and that right forward attached to the above panel is also rotten. This is not about to collapse but should be replaced as soon as possible to prevent the risk of rot spreading.

**10. Fastenings:**

- a) The original plank to frame fastenings are copper rivets. A good deal of extra fastenings consisting of bronze or brass screws have also been put in place. In the midship area stb side where work is in progress replacing frames a total of five copper rivets and nine screw fastenings were examined removed. All the copper was found in satisfactory condition and seven out of the nine screws were also satisfactory. However it was noted that the copper nails are of quite light gauge and it is considered likely that some movement has occurred in the past resulting in the screw fastenings being added. As described in section 5 above this problem has been addressed in the area of most stress forward and aft of the main mast step where all the frames below the lower stringer level have been repaired, doubled up and re-fastened with much heavier gauge copper rivets. Based on this limited sampling and other observations it is considered that the plank to frame fastenings are currently satisfactory but that an ongoing programme of replacement will be necessary in those areas which have not yet received attention. It is also suggested that copper rivets be used throughout. It is not possible to be specific as to the extent of re-fastening required without first burning off all the paint to establish where additional screws have been driven but there is no evidence of excessive movement present at this time.
- b) Hood ends: These are bronze and copper nailed with some additional yellow metal screws. All paint was removed at the transom hood end stb side one strake above the garboard and no less than nine fastenings were found in place. Three were seen to be nails and these were punch tested, all found holding well. At the bow port side fastenings were also exposed and the same pattern was noted. It is clear that a good deal of doubling up of fastenings has been carried out over the years and all hood ends were seen lying tight and fair.
- c) Plank to Floor: These are copper rivets of heavy gauge and not original, the floor having been replaced in recent years.
- d) Garboard to keel are believed to be copper or bronze nails. None were drawn but both garboards lying tight and fair.
- e) The centreline bolts including are of bronze and iron No softening of oak in way of bolts noted. Bolts hammer tested where accessible and appear sound.
- f) The deck plank fastenings are believed to be galvanised nails. Those in deck supporting structure are copper rivets and some mild steel bolts.
- g) Shelves and stringers are all copper rivetted.

Throughout the vessel no undue movement which would suggest serious failure of fastenings was noted and there has clearly been some additional fastening over the years. On a vessel of this great age fastenings are a major issue and a thorough inspection should be undertaken annually for any movement particularly if the boat is sailed hard.

## **11. Rudder and Steering:**

### **External:**

- a) The rudder is built up from oak with a steel stock. The blade locates in three pairs of straps welded to the stock and the straps extend right to the trailing edge of the blade, a very strong arrangement.
- b) The base of the stock locates in a steel shoe bolted through end of keel, this all secure.
- c) A false steel rudder post has been fitted from the keel up to the hull spanning the propeller aperture and this has added a good deal of strength.

All the above steelwork is rusty but not to a significant extent. Rudder assembly all found strong and in satisfactory condition where accessible.

### **Internal:**

The rudder trunking is of hardwood and rectangular in section. Access was very restricted but where seen in good external condition. I was not able to establish whether there is a steel rudder tube within the trunking, although a steel flange can be seen externally.

## **12. Stern Gear:**

### **External:**

- a) LH 3 bladed bronze prop on stainless steel shaft. The manganese bronze prop is part dezincified but still serviceable. Prop nut has split pin in position to secure. Shaft rotated by hand, appears true with no binding of bearings evident.
- b) Shaft emerges from a bronze outboard bearing housing, secure and in satisfactory condition.
- c) No undue play noted in outboard cutless bearing.

### **Internal:**

Stern gland and seal: This consists of an inboard stuffing box with remote greaser fitted, all appears in serviceable condition.

## **13. Cathodic Protection:**

Vessel fitted with bar anode and a multimeter was used to confirm that the stern gear was in good electrical contact with anode. Mounting studs for anode secure and the planking around the studs seen from aboard not seriously affected by electro chemical decay. System considered adequate

## **14. Skin Fittings and other through Hull Apertures:**

### **Below waterline:**

- a) Engine Intake consisting of bronze bolted in through hull fitting with gatevalve and strainer internally.
- b) Heads sink discharge consisting of a bronze spigot fitting with gatevalve.

Both the above secure and in satisfactory condition. The hose to skin fitting connections are only secured with one hose clip. Best practice is to fit two clips made entirely of stainless steel, provided the tails on the skin fittings are long enough to accommodate two clips.

**15. Main Companionway and other Access to Accommodation:**

- a) Conventional sliding hatch with doors and washboards of plywood and mahogany all in satisfactory condition.
- b) Double coaming forehatch of plywood and mahogany is somewhat crude but sound.
- c) Small hatch to lazarette ditto.
- d) A crude mahogany skylight is fitted over the saloon, this in satisfactory condition.

**16. Ports, Windows etc.:**

- a) The traditional bronze framed ports all found strong and secure.
- b) Perspex windows to doghouse set in rebates and in satisfactory condition.

**17. Pulpit, Stanchions, Pushpit, and Lifelines:**

None in place at time of Survey. Bases for stanchions securely through bolted.

**18. Rigging Attachment Points:**

- a) The main chainplates all consist of traditional mild steel external plates carried well down the topsides and through bolted. Apart from some minor softening around the fixing bolts all satisfactory.
- b) The forestay attaches to a substantial stemhead fitting of traditional pattern.
- c) The topmast forestay is carried on a bowsprit with traditional crans iron, and well supported by bobstay. Bobstay eyebolt through stem secure, and no softening of timber around bolt noted.

All attachment points found robust and secure, with no serious deterioration noted.

**19. Ground Tackle and Mooring Arrangements:**

- a) Main bower anchor: This is of Plough type of about 45lb. with long length of 7/16" chain all in satisfactory condition. (Chain not laid out and examined link by link).
- b) Traditional anchor windlass securely through bolted and in working order.
- c) Kedge anchor: This is of Fisherman type about 80lb.
- d) Samson post forward secure,.
- e) Mooring posts at aft end of cockpit ditto.
- f) Ground tackle adequate for general use.

**20. Other Deck Gear and Fittings:**

All found of adequate size and well through bolted. All the deck fittings are of traditional type and all in serviceable condition.

**21. Davits and Boarding Ladders:**

None fitted.

**22. Spars:**

All examined lying on deck.

**Main Mast:** This is a solid pine spar. Various splits and shakes have been filled over the years to prevent moisture ingress this all satisfactory. Various pieces have been let in close to deck level and one of these is loose. The failing glue line has been left wedged open to enable full drying and may be repaired with epoxy glue. Mast in serviceable condition. The oak crosstrees are a little soft close to the mast in their top surface. It is suggested the paint be burnt off to allow full drying out and further inspection.

**Main Boom and Gaff:** These also of solid pine construction and in serviceable condition. Various shakes and splits present but still of adequate strength.

**Mizzen Gaff:** As above.

**Others:** Bowsprit of pine and in good condition.

**Booming out spar:** In good condition.

Mizzen mast and boom not available at time of Survey.

**23. Standing Rigging:**

All of the standing rigging is of 7x7 stainless steel wire with hand splices, these well parcelled and served. All considered satisfactory.

**24. Running Rigging:**

That seen in serviceable condition. All blocks etc stored below ditto.

**25. Sails, Covers etc:**

Not aboard at time of Survey.

**26. Navigation Lights:**

Not in place at time of Survey.

**27. Bilge Pumping Arrangements:**

A diaphragm type pump of 10 gallons per minute capacity fitted. Tested and found working. All pipework secure.

There is a good deal to be said for fitting a powerful electric pump to wooden boats of this great age which may develop significant and unexpected leaks when sailing hard and it is suggested such be fitted.

**28. Firefighting Equipment:**

a) 1x 2kg dry powder type extinguisher with condition gauge indicating working pressure.

2.Recommendation: A further extinguisher to BS5423 fire rating 5A 34B (or equivalent), and a fire blanket to BS 6575 should be carried.

**29. Lifesaving Equipment:**

Not examined.

The RNLI operate an excellent free inspection and advice service concerning levels of safety equipment (SEA Check) and can be contacted on 08003280600 or via the RNLI website, [www.rnli.org.uk](http://www.rnli.org.uk).

The RYA also publish a booklet, no: C8/98, "The Safety of Cruising Yachts - Sail and Power". This specifies levels of Safety Equipment for different categories of use and it is suggested this vessel be equipped to the level appropriate to proposed use.

Booklet is obtainable from nautical bookshops or direct from the RYA, telephone 01703-627400.

**30. Engine:**

- a) Beds: Of hardwood landed on transverse floors. No serious deterioration noted. Original frames in this area have been repaired, doubled and refastened.
- b) Mountings: Of flexible type, appear in serviceable condition.
- c) Engine: The BMC 1500 diesel is a 4 cylinder unit driving through a Newage PRM 100 hydraulically operated gearbox. The engine is somewhat rusty but no obvious leaks were noted. Cooling is via indirect closed circuit heat exchanger system. Virtually all the hose clips on the engine are rusting and in need of replacement. The saltwater pump has been leaking and this has caused some rusting to the engine mounting bracket and the mount itself beneath the pump. The pump has glands which should be re-packed to prevent further leaks. The pulley on the saltwater pump is very rusty and is quite thin. This will require replacement soon. Mechanical condition of engine not known.
- d) Controls: Of single lever cable operated type, not tested.
- e) Exhaust: of steel at the engine then flexible rubber type, all appears serviceable. The first part where it leaves the manifold is not lagged and will get very hot indeed and it is essential nothing comes into contact with it. A gooseneck is fitted to prevent following seas entering system.

**31. Fuel System:**

The mild steel tank is securely mounted under aft deck. Access restricted but examined as far as possible via an extending mirror. Some rust is present at the base but as far as can be seen this is not serious. A shut off cock is fitted at tank. The fuel delivery tubing is of rigid plastic type. This is still in quite common use but by today's standards it represents an avoidable fire risk. It is thus suggested that the delivery tubing be replaced with copper and the latest fire resistant type conforming to BS EN ISO 7840 or equivalent next time system is refurbished

**32. Accommodation General:**

In need of refurbishment.

**33. Gas Installation:**

No gas system aboard.

**34. Water tanks and Supply:**

Steel tank mounted right forward and in good condition. Very little else in situ at time of Survey.

**35. Heads:**

Of portable chemical type.

**36. Electrical Installation:**

Twin battery stowage is located to stb of engine. under. Batteries are securely held in place.

The wiring is very old and requires upgrading.

**37. Electronic and Navigation Equipment:**

None aboard at time of Survey.

## **RECOMMENDATIONS AND CONCLUSIONS :**

### **List of Recommendations:**

The Recommendations made in the Report are listed below with their respective page numbers. All Recommendations should be carried out before use of vessel.

1.Recommendation: The defective length of topside planking port side aft should be replaced.

✓ DONE

As a matter of urgency all the paint in the transom region and extending forward along the topside planking for about 12" should be burnt off and the area allowed to thoroughly dry.

✓ DONE

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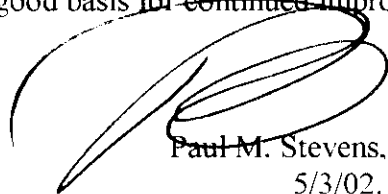
2.Recommendation: A further extinguisher to BS5423 fire rating 5A 34B (or equivalent), and a fire blanket to BS 6575 should be carried.

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### **Conclusions:**

Clearly after 92 years some deterioration has taken place to the structure and fabric of this vessel but it is considered at this time that sufficient structural strength remains. She was well built in the first place and this coupled with the ongoing structural repairs have preserved her strength. The substantial full length keel and improved centreline structure, plus the twin full length stringers also make for a strong vessel without excessive weight.

At this great age the maintenance burden is obviously growing and a planned methodical approach will be necessary to maintain condition and value. She does however offer a good basis for continued improvement.



Paul M. Stevens, AMYD&SA.  
5/3/02.