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TRADITIONAL WOODEN BOATBUILDING SKILLS IN THE UK



Summary Report of
Survey and Symposium
September 2023

Colin Henwood, Wooden Boatbuilders'
Trade Association
Mary Lewis, Heritage Crafts

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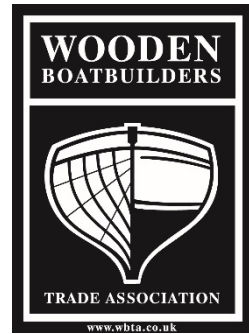
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- Will Reed, Boat Building Academy
- Lyn Tupper, IBTC Lowestoft
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Cover design by Daniel Carpenter

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1 INTRODUCTION

This report has been written in collaboration by the Wooden Boatbuilders' Trade Association (WBTA) and Heritage Crafts. The aim is to give an overview of the rationale and process that led to the Symposium on Traditional Wooden Boat Building Skills and the subsequent skills survey undertaken between December 2022 and January 2023, and to offer conclusions.

A BRIEF INTRODUCTION TO THE HISTORY OF BOAT BUILDING

As an island nation, the UK has, naturally, a great heritage of boat building. The craft of building wooden boats using a wide range of techniques and designs developed around the coasts and inland waterways, reflecting the local conditions and commercial requirements. This tradition evolved into building boats for the emerging leisure market that gathered pace in the mid-19th century and is still part of the boating industry today. The adoption of modern GRP (glass reinforced plastic) construction revolutionised boat building from the 1950s, effectively marginalising wooden boat building to a small niche corner of the market.

The future holds great potential for wooden boat building as the economy moves from petrochemical to sustainable materials, in an ever-growing need to reduce carbon emissions and protect our environment. The skills embedded in the UK's traditional boat builders have been handed down from centuries of experience; these techniques and knowledge are of immeasurable value to the cultural heritage of the country, and demand protection and celebration.

HERITAGE CRAFTS' RED LIST

Heritage Crafts mission to investigate all UK crafts, to assess their viability for survival and develop a comprehensive archive has manifested as the *Red List of Endangered Crafts*. This project provides empirical data on the condition of crafts in the UK for anyone from policy makers, to funding bodies, to the concerned individuals interested in protecting crafts and the makers. In October 2022, Heritage Crafts turned their spotlight onto traditional wooden boat building and teamed up with the WBTA for a one-day symposium held in Bristol to gauge the state of the craft in the UK. One important outcome of the symposium was the need to understand who were working as traditional boat builders in this country, what skills they practiced and what issues they faced.

THE WOODEN BOATBUILDERS' TRADE ASSOCIATION

The Wooden Boatbuilders' Trade Association (WBTA) was established in 1990 around a group of boat builders exhibiting at the long-defunct Greenwich Wooden Boat Show. The idea was to form a trade association that would represent the interests of wooden boat builders, become a marque of quality working practice and promote wood as a boat building material. Today the Association has 65 members and includes allied trades such as designers, timber merchants, and even a magazine. There are membership classes for established boat builders, associated trades and a special class for start-ups that includes a mentoring scheme.

Traditional Wooden Boat Survey

Following the symposium, Heritage Crafts offered to host a survey of as many boat builders working in the UK as possible. The objectives were to, firstly, gauge the future vulnerability of traditional boat building and assess the craft for an entry in the *Red List*. Secondly, to discover the demographic make-up, the skillsets, how skills were obtained, what were the training opportunities available, and the issues facing traditional boat building.

2 SYMPOSIUM ON TRADITIONAL WOODEN BOAT BUILDING SKILLS

The Symposium on Traditional Wooden Boat Building Skills was held on 8 October 2022 in Bristol with generous support from the Pilgrim Trust.

Heritage Crafts and the Wooden Boat Builders Trade Association brought together a group of experts and stakeholders to discuss whether traditional wooden boat building skills are at risk, and to consider the case for traditional wooden boat building being added to the *Red List of Endangered Crafts*.

The symposium included five guest speakers representing different aspects of the wooden boat building sector, a participatory exercise and a 'question and answer' session with industry experts. The event was attended by 55 boat builders, industry experts, training providers, heritage professionals and other stakeholders.

GUEST SPEAKERS AND PANELLISTS

Gail McGarva – integrates her work as a traditional boat builder with her work as a performer and facilitator, bringing to life the stories all boats have to tell about their communities and their shores. Her specialist area is the building of replicas, or as she prefers to call them, 'daughterboats', breathing life into a new generation of traditional boats. Gail introduced her work and highlighted the decline in the skills of 'building by eye' and the threat that this could cause to our rich heritage of regional boat types across the UK.

Colin Henwood – is a boat builder with 40 years of experience in building, restoring and caring for wooden boats on the Thames. He is the current Chair of the Wooden Boat Builders Trade Association. He also writes, teaches practical boat building skills and provides consultancy on traditional wooden boats. Colin gave an overview of wooden boat building in the UK as he sees it, and a potted history of boat building over the last 40 years. He explained how traditional boat building has changed, and covered some of the issues influencing how boat builders work in today's world. Lastly, he gave his personal view of how traditional boat building is threatened and why it is so important to support these skills.

Eivind Falk – is Director of Håndverksinstituttet (The Norwegian Crafts Institute). In 2019 he was instrumental in supporting the nomination of Nordic clinker boat traditions for inscription on the UNESCO Representative List of the Intangible Cultural Heritage of Humanity, an international acknowledgement that the building and use of Nordic clinker-built boats should be preserved for the future. Eivind gave an introduction to The Norwegian Crafts Institute aims to document, preserve and promote skills in traditional crafts as knowledge, culture and trade in line with UNESCO's Convention for the Safeguarding of Intangible Cultural Heritage. The Norwegian Crafts Institute was established in 1987, and receives support from the Norwegian Ministry of Culture and Church Affairs and the Ministry of Education. It carries out more than 30 documenting and training projects every year, and thereby contributes to the transmission of traditional crafts, with a special emphasis on living knowledge that is in danger of disappearing. Through craft scholarships, they provide a framework for transmission of knowledge and specialisation of crafts at a high level of expertise. Lasting three years, the scholarships lend a unique opportunity for already skilled craftsmen to expand their knowledge and develop their skills to a higher level, aiming to make their scholars into beacons of light in their respective field. Through a practical approach, the scholars immerse in processes, topics and practices central to their craft. Two former, and one current, scholarship students are wooden boat builders.

Hallvard Heide – is a scholar of The Norwegian Crafts Institute and has specialised in learning the skills to build the traditional Norwegian geitbåt. Hallvard gave an introduction to the geitbåt and his training in the hand skills to build these traditional wooden boats.

Stephen Beresford – is Senior Conservator, Chartered Engineer and Maritime Heritage Consultant at Windermere Jetty Museum. He is also a skilled traditional boat builder with a passion for conserving historic vessels. Stephen gave a talk that highlighted the threat to our maritime heritage of declining skills in traditional boat building, particularly shipwrighting and the restoration and repair of historic vessels in the UK.

Will Reed – is Principal of the Boat Building Academy (BBA) Lyme Regis. Will is a passionate maker and has spent many years working professionally as a furniture designer/maker and boat builder. Teaching has always been an important part of life and, through the BBA, Will helps to pass on the knowledge through first class training.

Dave Cockwell – is the Founder and Managing Director of Cockwell's Modern & Classic Boatbuilding in Cornwall, where he designs and builds beautiful bespoke boats for a discerning clientele, and commercial vessels for the modern world. From 'the kid who could fix boats' at Bristol Docks to the leader of a reputable brand that is globally respected in the boat building industry, Dave's passion for the artisan skills of the shipwright and technological innovation shines through, and this is what sets him and his company apart in the highly competitive marine sector.

Lyn Tupper – is the co-owner of International Boatbuilding Training College (IBTC) Lowestoft, offering a wide range of traditional boat building and joinery courses together with shorter courses exploring additional woodworking skills and maritime crafts.

PARTICIPATORY EXERCISE AND PANEL DISCUSSION

Attendees were asked a series of questions to which they could respond yes or no. They were also given an opportunity to expand on these answers with comments on post-it notes. Results and analysis of this can be found in Appendix 2.

The panel discussion focused primarily on the challenges facing traditional wooden boat building in the UK. A lack of training opportunities and a lack of young people entering the trade were seen as the key challenges, and also the decline in demand and commercial viability of the finished product. The issues raised in the panel discussion were used to inform the subsequent survey questions and analysis.

The primary findings from the symposium were that the audience welcomed the discussion on traditional boat building skills. The majority of attendees agreed that traditional boat building skills are at risk and that it is important to preserve these skills. It was also felt that traditional wooden boat building should be recognised as a distinct from boat building as a whole, and that this distinct skill set should be considered for addition to the *Red List of Endangered Crafts*, subject to further data collection.

It was agreed that the symposium would be followed up with a wider survey of traditional boat builders to create a clearer evidence base of the skills that are potentially at risk.

3 SURVEY

The Traditional Wooden Boat Building Skills online survey was carried out between December 2022 and January 2023. The survey was distributed through various networks including the WBTA, Heritage Crafts, Women in Boat Building (WIBB), the Boat Building Academy, IBTC Lowestoft and the Ship Shape Network. 90 people responded to the survey.

The results of the very first, straightforward questions of age and gender are perhaps the most telling. Of the 90 respondents, 89 per cent are aged over 40 and the dominant age category by far is the 50+ group at 58 per cent. Only nine per cent of the respondents were female. People working as traditional boat builders plus those who are also using modern techniques alongside their traditional work summed to 61 of the 90 who took part. The remaining 39 respondents were sailmakers, surveyors, trainees, serious amateurs, retirees, and so on.

The respondents employing boat builders completed the survey form as either the individual boatyard owner or, in one case, as the company; therefore, the results are only counted as one. The overwhelming picture is one of an aging workforce and a massive gender imbalance.

DEFINITION OF TRADITIONAL BOAT BUILDING

The survey had to give a definition of traditional boat building: *'The building of boats made of wood using planked construction, mechanical fixings and traditional finishes'* was put to the respondents as a question. 84 per cent agreed with this definition and, of those that did not think it correct, most felt that it missed the use of more modern materials to build traditional wooden boats, the text was too purist or it did not include restoration or repair. Perhaps the most insightful comment was that it did not allow for skin-on-frame construction, which is one of the oldest forms of boat construction.

SKILLS

To work as a wooden boat builder the range of skills is extensive. The variety of construction types and regional variations are many. The broad picture from the results was that UK boat builders are carrying out work on a large range of boat styles and sizes as well as allied skills. This describes the transformation from wooden boat building 'pre-GRP', when boatyards employed staff with distinct skills, to today, when anyone building a wooden boat might well also make the spars, install the engine, complete all the painting and varnishing, as well as running the business.

The most common techniques practiced are clinker and carvel with more than 50 per cent of the respondents involved in this type of work. Many respondents included modern wood construction amongst their list of skills. However, fewer boat builders are actively working with multi-skinned construction such as double diagonal or triple planking (20 per cent), skin on frame coracle or curragh building (12 per cent) or building by eye (38 per cent) as their skill set. 60 per cent actively used lofting techniques to set out for hull construction and a further 20 per cent occasionally lofted hull lines. The allied skill list ranged from spar and oar making to ships carving and design work. Understandably, most boat builders included internal carpentry and fit-out work as work they were actively and occasionally undertaking (70 per cent).

TRAINING AND APPRENTICESHIPS

The survey asked people to describe how they became a boat builder, how they acquired the skills and experience needed to survive building wooden boats. Only 6 people (out of 90) had completed a

formal apprenticeship, 64 per cent had learnt on the job and 53 per cent had attended a boat building course (long course) or at university (Southampton).

The results of the questions on employees and training showed that most respondents do not employ anyone (65 per cent). Of the 19 respondents with employees, 14 offered on the job training, four offered apprenticeships, seven used 'on the job' and apprenticeship training, and four did not offer any training. The results showed 129 people employed by the 19 boat building businesses, 75 of this number were from two respondents, a museum and a yacht builder. The majority of the respondents were employing one to four people. 19 respondents are teaching boat building skills in the form of short and long courses, mentoring and internees, and five explained they were always happy to share skills and advice.

4 HOW ENDANGERED IS TRADITIONAL WOODEN BOAT BUILDING?

Almost half of the survey respondents (48.8 per cent) describe boat building as ‘endangered’ with some risk that skills won’t be passed on; almost a quarter (24.4 per cent) feel that it is ‘critically endangered’. Of the remaining respondents, 20 per cent describe the craft as viable, with the rest suggesting it is viable depending on location and which skills are being considered.

BIGGEST RISK FACTORS AND SKILLS UNDER THREAT

The respondents’ opinions on which particular traditional boat building skills were in decline gave a very varied picture. There were 58 entries in this category. 27.5 per cent thought all traditional boat building skills were in decline. 10.3 per cent gave clinker construction and 3.4 per cent gave carvel construction as skills in decline. Shipwrighting work and work on commercial vessels and barges was considered by 10.3 per cent to be at risk. Other skills that cropped up more than once were lofting (6.8 per cent), caulking (five per cent), building by eye (6.8 per cent), spar making (3.4 per cent), boat ironwork and heritage engineering (3.4 per cent), and signwriting and gilding (3.4 per cent). Five respondents (8.6 per cent) did not think any skills were at risk.

Four significant issues came up in many answers to the question about the issues affecting the viability or sustainability of traditional boat building in the UK:

- sourcing of materials
- training and recruitment
- rising business overheads and lack of suitable premises
- a declining market for wooden boats

Problems with materials, timber in particular, came up in many responses. The availability and quality of boat building timbers as well as the high cost were considered a real threat to the viability of wooden boat building. Timber yards are no longer catering for wooden boat building due to lack of demand. The availability of other materials such as hardware and specialist fastenings were also cited as an issue.

Training and recruitment was a common problem raised in many responses including limited access to government funded vocational training and apprenticeships. The quality of training provided by boat building colleges – who are either charitably or privately funded – was praised and given some constructive criticism. It is worth pointing out here that some responses revealed polarised attitudes towards the training establishments, which the report deals with in the conclusions below.

Time and again the cost of the college-based courses was given as a real barrier to recruitment and the lack of financial support for anyone without the means to afford the fees preventing many potential future boat builders from following their dream. Again, some responses in this section were based on preconceptions that possibly don’t accurately reflect the current training and funding available. Two responses suggested that the absence of an element of work experience in the courses was unfortunate, as this would give students exposure to the real world of working with wooden boats. It was also raised that secondary education now undervalues practical skills in favour of academic study and that this ongoing problem limits the supply of new recruits to boat building. The loss of the ‘old’ apprenticeship scheme was lamented by two respondents.

Rising business overheads and the lack of suitable premises for boat building were common issues in the survey. Clearly, for any labour-intensive craft-based business, the need to keep overheads to a minimum is essential for viability. Boats, even small dinghies, take up a great deal of space. For

larger boats easy access to suitable water for launching and recovery is critical and it is often difficult for boat building businesses to compete for waterside premises against pressure from other interests.

Lastly, the state of the market for wooden boats was given as an ongoing problem. Marketing the idea of owning a wooden boat against the backdrop of mass-produced GRP boats is often beyond the capability of wooden boat builders, they cannot afford expensive marketing campaigns or lack the skills to promote the work they produce.

Some respondents considered that nationally the UK has undervalued its extraordinary maritime heritage and that one way to support traditional boat building skills is to encourage heritage conservation projects. It was commented that the government is failing to recognise the benefits of maritime projects that embed skills and interest in regional and nationally important boats and ships. These projects inspire communities, involve a diverse demographic, engage young people in making with their hands, and regenerate skills and businesses.

The survey asked the respondents what projects or initiatives that promote traditional boat building they were aware of. This question provided a long list of good examples of projects involving traditional boat building. Scotland is home to a number of organisations running boat building projects, with Gal Gael in Glasgow given in a number of responses, as well as the Plockton High School Am Bata boat building project. The Pioneer Sailing Trust is clearly a well-known example of good practice and was given in five responses.

The revival of the coastal rowing with organisations for Cornish Pilot Gigs, St Ayles Skiffs and the Pioneer Sailing Trust gigs were cited as examples of initiatives where people come into contact with wooden boats. Six respondents gave the 'Tally Ho' rebuild on YouTube as an inspirational example of how social media spreads the message. Two organisations, Rising Tide Boatworks and Women in Boat Building, were given as new ideas to support boat builders and encourage gender diversity.

ENSURING THAT SKILLS AND KNOWLEDGE ARE PASSED ON TO THE NEXT GENERATION

The question of how to ensure that boat building skills and knowledge are preserved for future generations provided some consistency in the responses. The most frequent suggestion was to improve financial help for training and, in particular, apprenticeships, from the government and funding bodies. The next most common suggestion was to change attitudes to learning manual skills within secondary education and 'level up' the perceived value of making with your hands to that of academic achievement. Promoting wooden boats to the boat buying market was given in nine responses. Better cooperation between boat builders, trade organisations, museums and other charities involved with boat building came up in five responses.

Recognition from local authorities and government that boat building premises need special consideration over more lucrative land use, was mentioned, including one suggestion to ensure protection for boat building sites. Two suggestions were to emulate the Norwegian model as described by Eivind Falk, in which the Government has recognised the importance of maritime heritage and skills and supports it through apprenticeships, museums link with practical traditional boat building projects and traditional boat building skills are widely celebrated.

5 CONCLUSIONS

The respondents to the survey gave well-considered and detailed answers to many of the questions. However, it is worth returning to the definition this survey gave for traditional boat building: *'The building of boats made from wood using planked construction, mechanical fastenings and traditional finishes'*. Modern wooden boat building, involving hull construction techniques enabled by epoxy adhesives and plywood, is not being considered even though many of the boat builders working today are using some very traditional skills alongside modern techniques.

Broadly, the results revealed that the age range working in traditional boat building is predominately older than 50 years and male, and this lack of diversity remains an issue for the sustainable future of boat building. The survey highlighted age and gender as particular issues, but social class is also a potential barrier, with those from low income backgrounds mentioned as being less likely to access training as traditional boat builders.

There are more boat builders working without employees or trainees than work with a team that includes younger people learning on the job. This, when viewed in the context of an ageing workforce, means that there is a significant risk that knowledge of traditional boats and specialist hand skills could be lost.

The general consensus is that, although the boat building colleges do a good job, the high cost of their courses and the lack of available grants is a considerable barrier to bringing in new blood. There was also constructive criticism of the lack of a work experience element to the college-based training. However, there was evidence of some misconceptions present in the boat building community regarding college training, as well as the wage environment in the UK that has skewed the data from the survey.

It is not always the case that there is no funding for places at the colleges, although this funding is, by its nature, limited. The Boat Building Academy, for example, is a charity, and the International Boatbuilding Training College Lowestoft is becoming a charity in order to access bursaries and other funding for anyone without the means to pay the fees. The rationale for this is to enable wider participation and increase the diversity of those able to attend courses, but has also been necessitated by a funding structure in which funded apprenticeships and Further Education courses are limited in both numbers and regional availability.

There are a small number of colleges on the South Coast of England that offer government-funded apprenticeships and diplomas in boat building. Led by British Marine, there is also a recently developed Modern Apprenticeship available in Scotland (SCQF Level 6),¹ which has been created in response to the lack of boat building apprentices in Scotland. However, there remain significant gaps in provision for most of the UK and support for businesses to take on apprentices is very limited. The Shipwright's Company Apprentice Scheme supported 125 apprentices into 94 small marine businesses between 2014 and 2022, but this fund is now closed to applications.

Whilst the boat building apprenticeship in England receives the highest tariff of £27,000, it relies on employers being able to access training from an approved apprenticeship training provider for their apprentices, and have the capability to pay and support an apprentice through the four years of

¹ A Modern Apprenticeship In Boat Building and Repair at SCQF Level 6, Framework Document For Scotland, Semta January 2019: <https://www.skillsdevelopmentscotland.co.uk/media/45237/ma-framework-boatbuilding-and-repair-at-scqf-level-6.pdf>

training. This makes it both financially and geographically challenging for not only the heritage sector but all boat building companies and organisations wishing to support apprentices.

It is the case that there is often no commercial work experience element to college courses. However, the courses at all the boat building colleges are run along the lines of a working boatyard with schedules and deadlines, which dispels the notion that there is no 'real world' discipline to the course structure.

Some respondents cited low wages as a barrier to entry. Across the whole sector, boat builders are generally earning living wages, with the average annual salaries ranging from £24,375 to £37,276 for the most experienced workers.² Employers want to retain them and know that skilled boat builders are hard to find. What is less clear, however, is whether traditional wooden boat builders are earning less than those making other boats. Anecdotally, this would appear to be the case with comments from survey respondents suggesting that it is more difficult to make a living from traditional boat building than from modern boat building.

An education system that has devalued, even discouraged, practical making skills for decades is seen as a major disadvantage to recruitment and in finding customers who have some understanding of the challenges involved with commissioning and owning wooden boats. The fact that boat building is unjustifiably perceived as exclusively male is also a significant barrier for newcomers to the craft.

The common hull construction techniques of clinker and carvel are considered to be in decline and the big boat work of the shipwrights is becoming a rarity. The availability and high cost of appropriate materials for traditional boat construction is seen as a significant problem. As the market has declined the suppliers have moved their product range to suit other customers, leaving those who still need a grown oak crook for a stem, or a particular size of copper fastening, struggling.

The survey did not ask specifically about re-build or repair work as the aim was to discover data on traditional boat building, but clearly most respondents are involved with repairing, re-building and restoring old wooden boats. This work is particularly important in the growing need to counter a 'throw-away' culture. Traditional skills and experience are essential in re-build and repair work where the task is often considerably more difficult than building the boat in the first place. Maritime heritage projects are often working to save important historic boats and vessels. This work inspires and encourages a new generation to become involved with traditional boat building and enables the pool of experienced boat builders to hand on their knowledge. This sector has a great potential to secure the traditional boat building skills that are endangered in the UK. Government recognition that these projects need support will be transformative for future traditional boat building.

While there are a number of organisations involved with traditional boat building, ranging from National Historic Ships' Shipshape Network to the Wooden Boatbuilders' Trade Association, there is little coordination between these groups. A number of respondents flagged this up in the survey. There is clearly a need for an organisation that communicates with boat builders, engages with funding and training providers, supports start-up boat building businesses and represents the industry. These are the aims of the WBTA but it lacks the capacity to carry them out. On a more positive note, the recently set up Women in Boat Building is an example of a well communicated initiative to resolve the gender imbalance in boat building.

² Boat builder average salary in the UK, 2023, based on 295 salaries, <https://uk.talent.com/salary?job=boat+builder>

Marketing wood as a sustainable and reliable material with which to build a boat is undoubtedly a considerable challenge to overcome the dominance of GRP boats. However, understanding the difference in carbon dioxide (CO₂) emissions between building a wooden boat and an identical plastic one is staggering (a wooden Folkboat expends 69Kg of CO₂; a GRP Folkboat expends 3,980Kg of CO₂³ and speaks for itself.

The cost of building a traditional wooden boat is far greater today than it was when the only material available was wood. Labour, materials and overhead costs have soared making even a modest dinghy expensive. Some respondents to the survey bemoaned the fact that the market for wooden boats is restricted to the wealthy few. Perhaps, the realistic answer is to wean the wealthy off the mass-market GRP onto the far more sustainable and beautiful wooden alternative.

The acceptance of traditional boat building as endangered and its inclusion in the *Red List for Endangered Crafts*⁴ by Heritage Crafts was deemed important. 61 per cent of the respondents agreed that the craft was endangered, and the conclusion of the survey data confirms that there are serious concerns about the ongoing viability of traditional boat building due to the ageing demographic, the decline in skills needed to continue the practice, issues with materials and business factors. Inclusion in the *Red List* gives credibility to any approach made to funding bodies, national or local government for recognition and support.

Finally, and perhaps most importantly, traditional boat building should be treated as a professional, skilled occupation that is crucial to maintaining the maritime culture and heritage of the UK. Volunteer and hobby boat builders are seen as both welcome and valuable in maintaining the knowledge, culture and regional communities of boat building but this must be as supplementary to a vibrant and highly skilled workforce of boat builders who are enabled, with the appropriate support in place, to pass on their skills to the next generation.

³ Reported in Chasse-Maree Magazine based on figures from L'Agence de las Transition Ecologique

⁴ <https://heritagecrafts.org.uk/traditional-wooden-boat-building/>

APPENDIX 1 – GLOSSARY OF TERMS

Clinker planking – Overlapping planks fastened with copper rivets along the overlap or ‘land’. A very old technique of planking a hull, typically used in small working boats, dinghies and small launches. Thames skiffs and gigs are clinker planked in a very refined form of the technique.

Carvel planking – Sometimes referred to as ‘plank-on-edge’ where each plank fits against the edges of the neighbouring planks with a vee section seam between each plank that is caulked.

Multi-skinned planking – There are two common versions: double diagonal planking where the inner layer runs diagonally up from the centreline (keel and stem) and is overlain with second outer layer running at approximately 90 degrees to the inner layer. Triple skin planking may have two diagonal layers with a third outer layer running fore and aft or horizontally. In both versions, the planking is through fastened with copper rivets and oiled calico laid between the layers.

Cold and hot moulding – This is similar to multi-skinned planking. Thin layers of timber are bent around a former or mould with each layer running at approximately 90 degrees to the previous layer. The layers are bonded together with adhesive instead of mechanical fastenings creating a plywood construction. The cold version is when the adhesive cures at room temperature and this is the more common technique. Hot moulding was developed in the 1930s by aircraft manufacturing and used in boat building post war by Fairey Marine to produce a range of dinghies and yachts using an adhesive that required heat to cure.

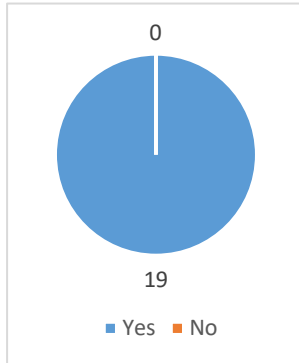
Skin-on-frame construction – A construction using a simple wooden hull frame covered by fabric. Originally, animal hides were used to cover the frame, later on canvas was used. The construction is very ancient and still seen today in the Irish currachs and coracles.

Building by eye – This phrase describes the practice of building a wooden boat hull without technical plans or information.

Lofting – The practice of setting out the essential components of the hull (e.g. stem, transom, framing etc) full size on a flat floor so patterns for each component can be made and transferred to the timber stock.

APPENDIX 2 – RESULTS OF PARTICIPATORY ACTIVITY

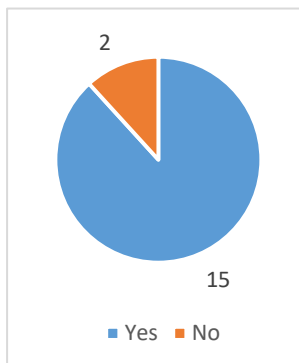
Q1. Is it important to preserve traditional boat building skills?



Reponses: 19

The importance of preserving traditional boat building skills was agreed unanimously. The reasons given included the ongoing relevance of wooden boats as environmentally sustainable, beautiful and culturally important. The retention of hand skills was also considered to be vital in the continuing future of wooden boat building.

Q2. Should traditional wooden boat building be recognised as distinct from boat building as a whole?



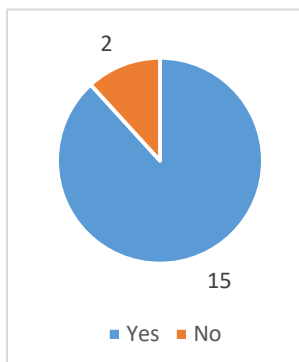
Reponses: 17

The majority of attendees agreed that traditional wooden boat building is a distinct craft and with its own unique skills and materials. It was felt that wooden boat building represents a 'lifetime of learning' using 'old skills' such as hand skills and building by eye that sets it apart from modern construction techniques. Some felt that it was important to distinguish between wood as a relevant, sustainable material and plastic/epoxy construction methods as potentially environmentally

damaging.

The attendees that responded 'no' to the above question commented that 'a boat is a boat' and there should be no distinction.

Q3. Are our wooden boat building skills at risk?



Reponses: 17

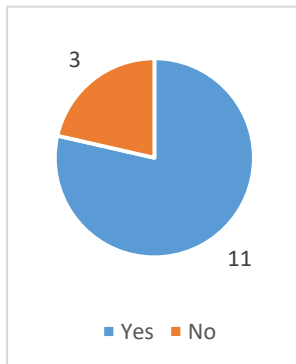
The majority of attendees agreed that traditional wooden boat building skills are at risk. In particular, clinker and carvel boat building and the associated regional craft identities and knowledge of these boats was considered at risk.

Some reasons given for this include the perception that skills are no longer deemed necessary or relevant, a lack of new boat builders

entering the trade, problems sourcing timber and raw materials, and a lack of opportunities to pass on knowledge and skills. It was also mentioned that, whilst skills may be thriving amongst amateur and hobby builders, they were at risk in a commercial sense.

The respondents that disagreed with the statement commented that there are many wooden boats to fix and that the numbers of students in colleges demonstrates that skills are being passed on.

Q4. Should wooden boat building be added to the Red List of Endangered Crafts?

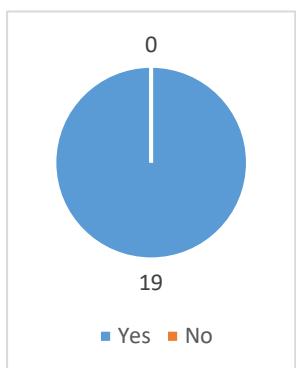


Reponses: 14

The majority of respondents agreed that wooden boat building should be added to the *Red List of Endangered Crafts*. It was felt that inclusion on the list would be helpful in raising awareness and lobbying for support for boat building skills and training.

Those that disagreed with the statement commented 'not yet' and also that it may be that some specific skills that could be considered endangered, but not wooden boat building as a whole.

Q5. Are there challenges facing the future of wooden boat building? What are they?



Reponses: 19

It was unanimously agreed that there are challenges facing wooden boat building. A lack of training opportunities and a lack of young people entering the trade were seen as the key challenges, and also the decline in demand and commercial viability of the finished product. The issues raised were further explored in the panel discussion and were used to inform the survey questions and analysis.