

WOOBTA

Wooden Boatbuilders Training Association

APEE



DG Educación y Cultura

Programa de aprendizaje permanente
GRUNDTVIG



REPORT ON WOODEN BOATBUILDERS TRAINING IN EUROPE: COMPARISON OF THE SITUATION IN SPAIN, FRANCE, UNITED KINGDOM AND SWEDEN



WOOBTA PROJECT 2010-2012



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REPORT ON WOODEN BOATBUILDERS TRAINING IN EUROPE: COMPARISON OF THE SITUATION IN SPAIN, FRANCE, UNITED KINGDOM AND SWEDEN, by [Centro Tecnológico del Mar - Fundación CETMAR Centro Tecnológico del Mar – Fundación CETMAR \(Lucía Fraga Lago, Guadalupe Martín Pardo, Flor Arenaza Gomory\); Aixola, ES \(Enrique Otero Barberana, Santiago Cancelas Costas, Guillermina Martínez Rodríguez, Xulio Troitiño Dapena\), Consellería do Mar, ES \(Lino Lema Bouzas\), AGALCARI, ES \(Xerardo Triñanes\), Falmouth Marine School, UK \(Dave Martin, Dan Scully\), Ateliers de L'enfer, FR \(Paul Robert\), Skeppsholmen, SE \(Cecilia Johansson, Fredrik Leijonhufvud, Samuel Brett\)](#) is licensed under a [Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported License](#).

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Report on Wooden Boatbuilders Training in Europe: Comparison of the Situation in Spain, France, United Kingdom and Sweden

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Presentation.

This report contains the main conclusions of the WOOBTA -WOODen Boatbuilders Training Association- project, which from 2010 to 2012 enabled a Learning Association to be established between four training centres that teach shipyard carpentry courses: Centro de Formación A Aixola, coordinated by the Centro Tecnológico del Mar (Galicia, Spain); les Ateliers de l'Enfer, managed by the Regional Federation for Culture and Maritime Heritage of Brittany (France); Falmouth Marine School of Cornwall College (United Kingdom); and Skeppsholmens Folkhögskola (Sweden).

The WOOBTA project allows five staff exchanges during which technical visits were made to the training centres, the main shipyards that work with wood in their areas of influence, as well as museums and associations involved in the preservation of maritime heritage, and traditional boats in particular.

Over the two years of the project, the training centres exchanged a series of traditional boat plans from their respective regions, and developed with their students a series of models, one for each participating region.

At the same time, each centre participating in the project drew up a progress report of wooden boatbuilders training in their country. The report presents the general situation of wooden boatbuilding by analysing its strong points and weak points; including details of the organisation of the wooden boatbuilders training: legal-administrative framework, access conditions, qualifications and accreditations and Training Centres. It includes examples of good practices, from the environmental perspective, as well as the economic and social perspective. Finally, it concludes with the expected courses of development.

This report sums up the main conclusions of all of these activities, which were presented during the project's final exchange, at a conference held at the Museo do Pobo Galego (Santiago de Compostela, Spain, 10th July 2012).

All the details and results of the project are accessible to the public via the website created for its dissemination¹ and the EST (European Shared Thesaurus)²

The Situation of Wooden Boatbuilding in the Area of Study.

Wooden boatbuilding has been a key trade for the development of the regions of study, as it has historically been the foundation of sectors such as trade, fishing or communications, among others.

Nowadays, this activity maintains its importance in the preservation of historic heritage and has begun to have a prominent role in recreational boats. In addition, it still has a presence as a productive work activity, related to building and coastal boats for fishing and aquiculture and the dissemination of maritime culture.

If we consider the situation of the areas of work of the WOOBTA project, we find three different scenarios:

Stockholm and Baltic Area: Firstly, we can highlight the great investment they make in conserving maritime heritage, and the awareness of its importance much earlier than any of the other regions. As the most significant example, we have the Vasa museum, built in 1961 to conserve the 1628 war ship, recovered from the depths of the archipelago; the museum was built around the refloated boat, and is part of a continuous research project for the conservation of the ship and the objects found in it. The investment is ongoing and also extends to the neighbourhoods of the city of Stockholm, where jetties are placed for traditional boats as opposed to other business models and ways of utilising the

¹ https://sites.google.com/site/woobtaproject/home/intro_es

² <http://www.europeansharedtreasure.eu>

coastline, and it includes activities for the conservation of maritime heritage with tourism.

In the city of Stockholm as well as on the coast of Sweden we find a high number of wooden recreational boats. However, the number of shipyards that work with wood is much lower than in any of the other regions. This is due to the fact that most of the new builds are carried out in other countries, where labour is cheaper; to be specific, many come from Turkey. These imports are completed with an important self-build and maintenance activity carried out individually by the boat owners.

Area of the English Channel: The regions of Brittany and Cornwall share their culture via the sea and the boats that traditionally acted as a connecting bridge; in the past, many coastal towns were better connected by sea than by land, so that relations with the people of the neighbouring country became more important than those held with the people of their own country. Here, the conservation of the maritime heritage stands out as it is mainly maintained on a partnership basis. Awareness about the importance of the conservation of maritime heritage started to gather strength when in 1979 the *Fédération pour la Culture et le Patrimoine Maritimes en Bretagne*³ was created, which, with the aim of gathering and spreading maritime culture, brings together more than 175 associations and promotes numerous projects in the area of training, publication, museums and popular events. Among these, we can highlight the creation of the training centre *Les Ateliers de l'enfer*⁴, or the support for other sister projects, such as the creation of the *Port Musée de Douarnenez*⁵ and the magazine *Chasse Marée*⁶. On the other side of the channel, in the region of

³ Federation for the culture and maritime heritage of Brittany.

⁴ The literal translation would be The Workshops of Hell, but the term *Enfer* in this case refers to the humble neighbourhoods, by the sea, where the shipyards and fish processing companies were located (as opposed to heaven, the neighbourhoods located in the high parts of towns, where the owners of the industries lived).

⁵ The port museum of Douarnenez, <http://www.port-musee.org/>

⁶ <http://www.chasse-maree.com/>

Cornwall, they began to take on more far-reaching projects from 1992, with the creation of the current *National Maritime Museum of Cornwall*⁷. Despite its name, which suggests it is a government initiative, it is a private initiative classed as a registered charity. In the same way, since 2002 the *Cornwall Marine Network*⁸ associates the companies of the maritime sector and promotes their activity and the region's maritime identity.

As a result of the popularisation of the passion for the sea and its traditions, in these regions we find a high number of recreational boats made of wood, and a large number of shipyards also work with this material. Their main work is related to the building, modification and maintenance of recreational boats, and also to projects for the conservation of historic heritage. In the United Kingdom, the trade has been associated since 1990 in the *Wooden Boatbuilders Trade Association*⁹, which unites wooden boatbuilders to identify objectives and common needs, as well as to defend their interests. In France they have created the *Entreprise du patrimoine vivant*¹⁰ quality seal, which, since 2005, distinguishes the work carried out by companies that conserve the artisanal skills, and these include the shipyards that work to conserve the wooden boatbuilders' trade.

Galicia: This the Spanish region with the largest working wooden fleet, used for fishing and aquiculture. This has enabled a high number of shipyards devoted to wooden boatbuilding to remain, although it is not always their only building activity, and those which provide jobs to a large number of people complement this work with other materials. Since 2007, they are associated in the Asociación GALega de Carpinterías de Ribeira, AGALCARI¹¹. Unlike the

⁷ The current National Maritime Museum of Cornwall was created via the association of the National Maritime Museum of Greenwich and the former National Maritime Museum of Cornwall. <http://www.nmmc.co.uk/>

⁸ Cornwall Marine Network <http://www.cornwallmarine.net/>

⁹ Wooden Boatbuilders Trade Association. <http://wbta.org.uk/>

¹⁰ Living heritage company <http://www.patrimoine-vivant.com/>

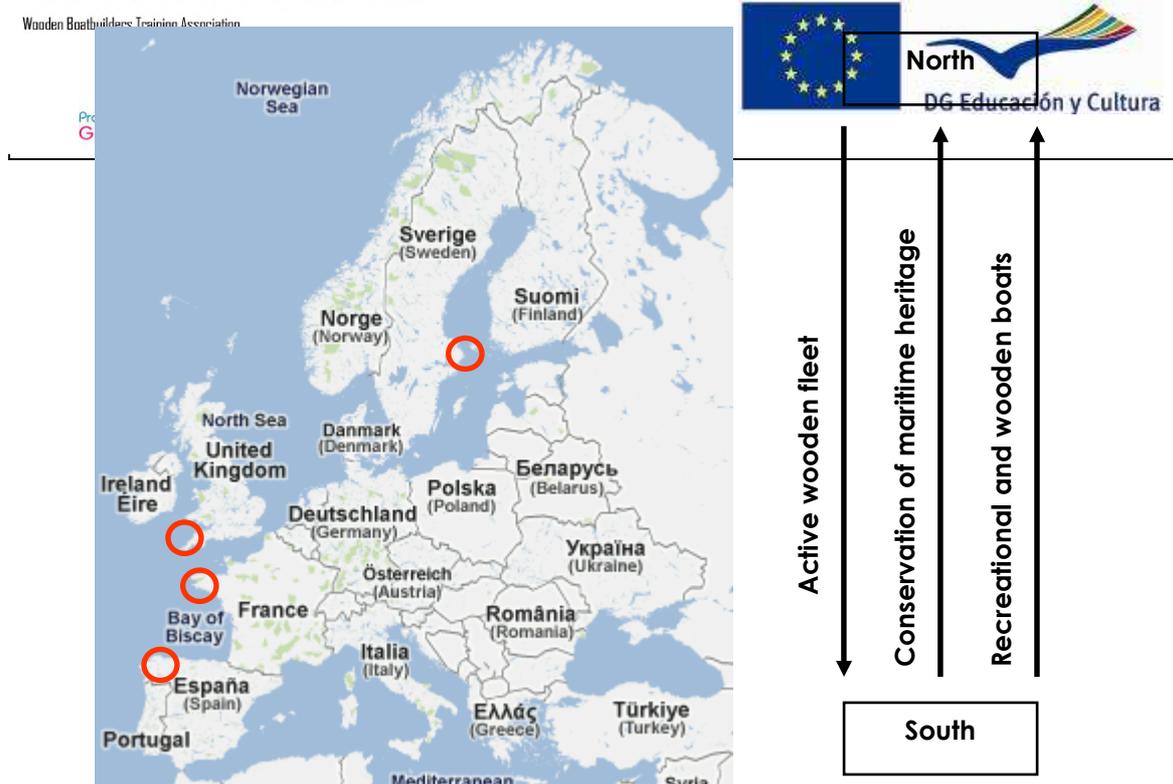
¹¹ <http://www.agalcari.es/>

situation in all the other regions, these shipyards' main work is for the fishing and aquiculture fleet. There are only a few wooden recreational boats, which are mainly limited to the traditional constructions of the associations for the conservation of maritime heritage. In Galicia, the movement for the conservation of maritime culture was organised around the 1990's, and since then it has had a federation of associations, the Federación Galega pola Cultura Marítima e Fluvial¹²; it is currently formed by 45 groups that include sporting, cultural, neighbourhood, ethnographic and even professional associations.

Through the initiatives by AGALCARI and some its associated shipyards, they are trying to introduce new models of wooden recreational boats, and they are making great efforts to inform about the new treatments and working techniques that lead to a reduction in the maintenance of wooden boats. The aim is to adapt them to the market by promoting the innovations that allow the traditional trade and designs to be upheld, at the same time as they build boats according to current needs.

We could connect these three areas via a three-variable gradient from North to South: The active wooden fleet increases as we move towards the southern areas, whilst the intensity of the conservation of the maritime heritage and the number of wooden recreational boats increases as we move northwards.

¹² <http://www.culturamaritima.org/node/294>



Map of the working regions (@google maps 2012), and **diagram of the North-South gradient** proposed for the comparison between Scandinavia, the English Channel and Galicia. The direction of each arrow indicates the increase in the variable it represents: The active wooden fleet increases in the southern areas, whilst the intensity of the conservation of the maritime heritage and the number of wooden recreational boats increases as we move northwards

However, aside from the differences between regions, the meetings also allowed an appreciation of common trends as regards the perception of wood as a boatbuilding element.

A simplified diagram would consist of considering the same initial situation in which wood is perceived as a suitable material for the artisanal fleet, but under no circumstances for the modern and recreational. This is based on a perception of wood as a long-lasting, stable material for sailing, but which requires significant and continuing maintenance.

We could say that this starting scenario gradually began to change, at different rates in each region. Various factors contributed to this change: on the one hand, new values started to take on more importance, such as the conservation of maritime heritage, or the reduction of the carbon footprint. On the other hand, innovations were introduced in the technologies used: some were actually new, like the working techniques and components that allow a considerable reduction in the boats' maintenance; others were recovered from lost traditions, such as sustainable forest management. Lastly, the change in perception of wood is also related to the changes in perception of other materials: the growing need to recover materials after their working life highlighted the huge difficulties in managing plastic waste, such as polyester derivatives; this material had replaced wood as the raw material for building recreational and short boats, and one of the arguments used for its introduction had been environmental sustainability, based on the fact that it is a synthetic material that does not involve cutting down trees or other plant matter to be obtained. Although this argument is true, it does not take into account the environmental cost of the recovery of the polyester after its working life. Recent studies have rated the environmental behaviour of the life cycle of a boat's hull according to the building material -wood or polyester- and from these we can state that the behaviour of wood has a lower environmental impact on eight of the variables analysed -carbon footprint, ozone depletion, toxicity, formation of photochemical oxidants, soil acidification, freshwater eutrophication, occupation of urban land, water footprint, depletion of fossil resources- whilst the impact of polyester is only lower in two of them: formation of particles and the occupation of agricultural land¹³.

¹³ Analysis of the comparative lifecycle of a boat's hull. Calculation of the carbon footprint. 30th September 2011. Report drawn up within the framework of the DORNA project, co-financed by the European Union via the FEDER Regional Development Fund and the Interreg Atlantic Area programme. Drawn up by the Centro de Innovación y Servicios de la Madera CIS-Madera and the Consellería do Mar de la Xunta de Galicia. 49pp. Downloadable at <http://www.proyectedorna.eu/>

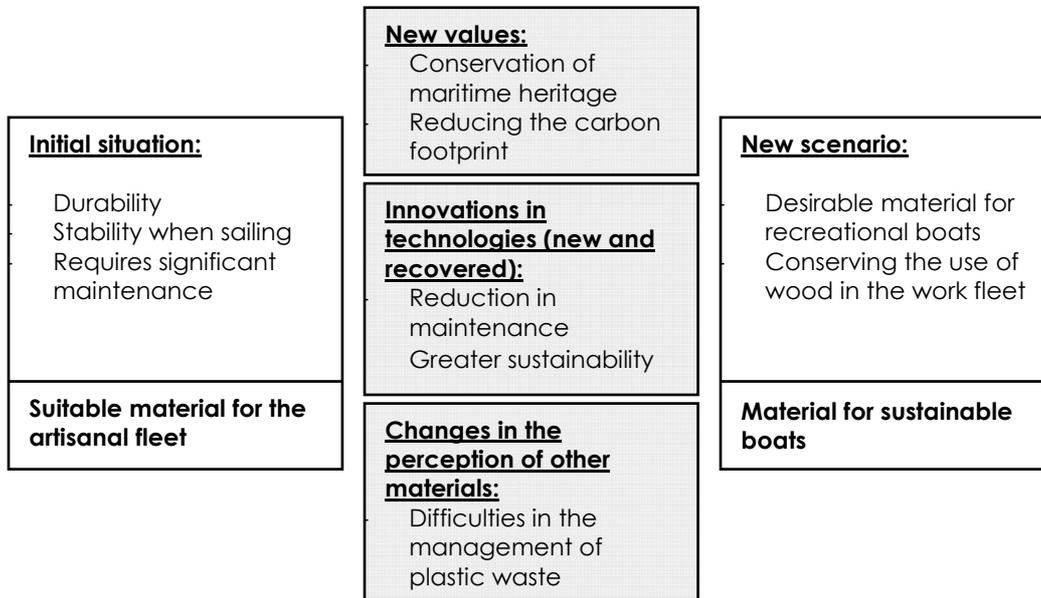


Diagram of evolution in the perception of wood as a boatbuilding material. We consider it to be common trend in the three regions of study, although the start of the change and its rate are different in each of them.

Therefore, the new perception that is gradually being associated with wood is that of a suitable material for building sustainable boats, not only from the environmental perspective, but also from that of the time spent on their maintenance. For that reason, it is becoming more desirable for use in recreational boats, and with this it is possible that it will also be conserved as a material for the working fleet.

Trends in Training

As an artisanal craft, historically, wooden boatbuilders training was based on the system of apprentices who were trained at the actual shipyards, tutored by a master carpenter. In Spain this was the only system in force until 1985.

At present, various channels are available to learn the trade in each region studied. Although in each case differences exist due to each country's educational system, we can consider three main training groups:

- **Non-academic training**, it can have different degrees of regulation but it is not integrated in the academic training itineraries, and therefore, it does not require a certain level of qualifications, and neither does it confer one. A certificate is usually issued but this is not required in order to practice a profession.
- **Academic training** regulated by the Education Authorities, at secondary level as well as university-level.
- **Professional qualifications** regulated by the Labour Authorities or Professional Associations, requiring certificates in order to practice a trade.

In general, in all of these, the training is taught in the country's own language. In the Nordic countries, it is possible to study if you have a sufficient level of Swedish, Danish or Norwegian; in Galicia, the training is taught in Galician and Spanish.

Non-academic training

This training group is mainly derived from the traditional apprentice system. We can find two types of Centres that teach this type of training with different objectives:

- Centres where the objective is learning wooden boatbuilding:
 - o *Folkhögskola* in Sweden¹⁴. It is a very common model in Nordic countries (Denmark, Finland, Norway and Sweden), based on the Lifelong Learning for All concept proposed by the Danish philosopher Nikolaj Frederik Severin Grundtvig. They teach 1 to 2-

¹⁴ Popular universities and Trades and Skills Colleges.

year courses with applied contents and workshop training. With sufficient freedom to establish their training programmes, they are mainly aimed at the conservation of the intangible heritage of the skills for artisanal building and the conservation of traditional boats.

- o Centro de Formación A Aixola in Spain: Established in 1997 by the Administración Regional del Mar¹⁵ in Galicia, it represents and uncommon model in Spain. It offers courses between four and six months, which are eminently practical, for all types of students over the age of 16. It maintains a permanent offer, however, certain variability is present in the specialised subjects offered, which range from basic training in shipyard carpentry to new technologies applied to wooden boatbuilding, or the different systems of installing decks. In its courses, it combines the conservation of traditional methods and techniques with new technologies and innovation in wooden boatbuilding.
 - o Associations with one-off training courses: they generally offer shorter courses than the above, often aimed at self-builds. This offer can be found in all areas of study, but it does not usually have an established frequency.
- Centres aimed at integrating people at social risk: This type of centres are being established or planned in some areas. Their approach is to utilise the life attitudes associated with boatbuilding work -patience, perseverance, capacity for teamwork and strengthening of self-identity, among others- in order to support the reinsertion processes of groups at social risk.
- o Skol ar Mor (Loire-Atlantique, France): Established with the aim of re-integration into society and the workplace, it is based on

¹⁵ Currently Consellería do Medio Rural e do Mar of the Xunta de Galicia

training apprentices to prepare exams to achieve academic qualifications.

- o Centro de Cultura Marítima of the Asociación Albaola: Project for the creation of a wooden boatbuilders training centre, with important focus on enhancing attitudes associated with the boatbuilding trade. (Euskadi, Spain).

Academic Training

In all regions of the area of study we find a training offer with academic qualifications for secondary-level education:

- Secondary schools like the *gymnasium* in Sweden: with a three-year programme that includes subjects like mathematics, English, Swedish and sciences. Aimed at students from 16 to 20 years old.
- Vocational training in Spain: Vocational training course “Técnico en mantenimiento de embarcaciones de recreo y servicios portuarios”. It has a programme of 2,000 hours of classes taught over two academic years. Just 110 hours are devoted to practical training in wooden boatbuilding.
- Apprentices and advanced apprentices in the United Kingdom: At level 1 of the national vocational qualifications in the United Kingdom we find the Performing Engineering Operations qualification (PEO)¹⁶, which lasts one academic year and provides very basic capacities for working with wood, it requires no previous experience. At level 2, we have Introduction to Yacht fit-out and Composites¹⁷, which requires having passed level-1 training and provides the capacity of basic handling of

¹⁶ Performing Engineering Operations qualification.

¹⁷ Introduction to Yacht fit-out and Composites.

wood and boat assembly, as well as basic capacities for handling composites and laminates by hand.

- In France, the Ministry of Education offers two qualifications: the CAP, *Certificat d'aptitude professionnelle Charpentier-ière de marine*¹⁸ and the BP *Brevet Professionnel Charpentier-ière*¹⁹. They are taught at Vocational Training Centres and Professional Institutes, and various financing mechanisms are available according to the student's age and working status: seeking employment or employed. The programmes last 1 or 2 years for the initial CAP training, and 2 years for BP. Both cases included theory and practical training periods, as well as periods of work experience in companies.

In Sweden there is also university-level training:

- Stiftelsen Hantverk & Utbildning. Leksand, Sweden, offers an Apprentices Programme that lasts 100 weeks.

Professional Certificates

These qualifications regulated by the Labour Authorities and Professional Associations exist in all countries of the area of study except in Sweden, where professional skills are learned in the actual market, via the customers' level of satisfaction; in that context, newly qualified carpenters usually spend their first few years of work in a kind of on-the-job training, like apprentices in other workshops, considering it as a future investment.

In all other areas of study we find the following vocational training offers:

- In the United Kingdom the *City & Guilds of London Institute*²⁰ teaches the *Certificate in Boatbuilding, Maintenance and Support*²¹. Level 2 and level 3 certificates also exist, which are usually taught together with the

¹⁸ Certificate of Professional Aptitude for Marine Boatbuilding

¹⁹ Vocational diploma for marine boatbuilding.

²⁰ City & Guilds of London Institute.

²¹ Certificate in Boatbuilding, Maintenance and Support

apprentice academic training. The programme includes working with wood and composites.

- In France the Ministry of Labour, Employment and Vocational Training offers the CQP *Menuisier-ière en construction nautique*²² and the CQP *Constructeur-trice aménageur en marine de plaisance*²³.
- Professional certificates will begin in Spain in 2012. They have been developed by the *Centro de la Mar* (Menorca, 2010), named the Centre of National Reference for developing and teaching contents of professional certificates in the nautical area. At this time, level 1 has been published and validated to all intents and purposes at national level, under the title: "Operaciones auxiliares de mantenimiento de elementos estructurales y de recubrimiento de superficies de embarcaciones deportivas y de recreo". It lasts 300 hours and includes 40 hours of work experience in companies. Level 2 is validated and in the process of publication. Under the title "Operaciones de mantenimiento de elementos de madera en embarcaciones deportivas y de recreo". It lasts 450 hours and includes 80 hours of work experience in companies. The level-3 certificate is currently being drawn up. The programmes include contents related to working with wood and other materials such as composites, sails, etc.

Conclusions

Boatbuilders training has evolved since the traditional system of apprentices tutored by master carpenters, towards systems organised in courses of different lengths and various levels of integration in the educational system: From secondary to university education, to professional certificates and non-academic training.

²² Vocational Qualification Certificate for Boatbuilding

²³ Vocational Qualification Certificate for Recreational boat building and developing.

In general, the more integrated they are in the educational systems -academic training and professional certificates- the higher the tendency to create more rigid training programmes, which focus on versatility: they usually cover different materials and techniques -working with composites, wood, resins...- and in many cases they include general and specific skills: with this, practical training in the workshop tends to be reduced. Among the strong points of this type of training we have the increase in job opportunities, as it allows the students to be incorporated into different jobs and trades; another very interesting point is the increase in certification opportunities for all, which is achieved via the vocational qualifications system, which allows the learning to be validated on the job for those who practice a trade and wish to certify their knowledge. In contrast, these very standardised and theory-based courses increase the on-the-job training time, as with the reduced number of hours of practical training sufficient experience is not acquired. For the same reason, the transfer of traditional working techniques also diminishes, as well as the adaptations to the local characteristics.

At the same time, in Spain and Sweden we continue to find training offers with no academic qualification, with greater freedom to establish training programmes, which allow an organised transfer of traditional shipyard know-how to be upheld. In Sweden this training mainly focuses on conserving the maritime heritage, but in Spain we can find initiatives with the main objective being integration in the workplace, as well as others that seek the conservation of the heritage and focus more on self-builds. Due to the importance of practical learning, many of these centres achieve extensive recognition in carpentry training among companies and associations of their areas of influence. Their methodology is the closest to the traditional apprentice system.

Expected Course of Development

The expected course of development for wooden boatbuilding is a continuation of the trend presented for the perception of wood as a boatbuilding material: increasing importance will be given to the sustainability of wood and its industry. The low environmental impact of the productive process -from the raw material to the end of the boat's working life-, the low contamination and energy consumption and a biodegradable end product are some of the strong points that gradually take on more importance. This is joined by the increasing desire to conserve maritime heritage as well as its use in tourism and leisure activities.

The limited presence of wooden boatbuilders training at university-level is surprising, and this is likely to change in the coming years.

In Sweden, the only country in the area of study that has university qualifications in the area of wooden boatbuilding, this training is raising more and more interest, in many cases to the detriment of *Folkhögskola*. It is expected that the university qualification will gain popularity in the near future, if the syllabuses and regulations, which date back to 1973, are adapted.

In France, they are considering the possible creation of two university diplomas, like the *BTS construction navale*²⁴ and the *Diplôme d'architecte naval DPEA*²⁵.

In Spain, it would be desirable to integrate the training in the use of wood and its derivatives for boatbuilding in the Marine Engineering syllabus. For the moment, although this theory-based training does not exist, some training centres do favour practical in-company training, via agreements that allow future engineers to carry out work experience in shipyards that work with wood²⁶.

Lastly, we also expect a progressive movement towards the union of organisations related to wooden boatbuilding and the conservation of

²⁴ Higher Technical Baccalaureate in Boatbuilding, 2 years of university training.

²⁵ Diploma in Marine Architecture, 5 years of university training, Master's level

²⁶ Pasajes Nautical College and Ondartxo Shipyard.

maritime heritage. Projects such as DORNA²⁷ have led to the creation of a virtual community of wooden boatbuilding organisations in the maritime forum of the European Commission's Directorate-General for Maritime Affairs. We expect the virtual contact to strengthen and provide feedback to the on-site meetings held during the European traditional boat encounters, which are currently the most successful group forums.

Among the initiatives of common interest that can continue to be developed in the future through networked projects and initiatives, during this project's meetings, we have highlighted the following:

- Promotion of Academia - Industry - Society relations.
- Carrying out comparative studies of the existing programmes of study in Europe.
- Improving communication between training centres and specialised museums, through the training programmes.
- Recognition of European Wooden boatbuilders training via a hallmark.
- Promoting wooden boatbuilding in society, as a traditional trade and regarding the current technological innovations.

²⁷ DORNA –Organised and Sustainable Development of Resources in the Northwest Atlantic. Co-financed by the European Union via the FEDER Regional Development Fund and the Interreg Atlantic Area programme. <http://www.proyectodorna.eu/>