

ZBORNİK RADOVA *BOOK OF PROCEEDINGS*

XXIII Simpozij 'Teorija i praksa brodogradnje'
*The 23rd Symposium on the Theory
and Practice of Shipbuilding*



SORTA 2018

27 - 29 September 2018, Split, Croatia
[*in memoriam prof. Leopold Sorta*]

Zbornik radova 23. simpozija ‘Teorija i praksa brodogradnje’

[in memoriam prof. Leopold Sorta]

27. – 29. rujna 2018, Split, Hrvatska

Book of proceedings of the 23rd Symposium on the *Theory and Practice of Shipbuilding*

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September 27 – 29th, 2018, Split, Croatia

Publisher / Izdavač

University of Split, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture (FESB), R. Boškovića 32, 21000 Split, Croatia



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The Approach to Boats Restoration. The Importance of Restoring Designer Figure

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Abstract

Nowdays in Italy awareness of the need to consider boats as part of our heritage is increasing. This awareness means that any intervention aimed at restoring the function of a historic vessel must be supported by a project: the nautical restoration project. Formerly, any intervention on boats to repair, maintain, and modify was the work of specialized craftsmen (shipwrights) who passed down their knowledge from one generation to another. Today, such knowledge is almost completely lost and shipwrights are difficult to find. Therefore, how is it possible to intervene accurately on a historic vessel without distorting it and enhancing its characteristics? The designer assumes a very important role. The success of a restoration is the result of careful and articulated design, of which the knowledge and sensitivity of the designer are the main guides. This report would then outline the figure of the nautical restoration designer, highlighting its centrality in all the phases of restoration. This essay is completed in Giulia Zappia's paper titled "*The Approach to Boats Restoration, a Protocol for Nautical Restoration*" which introduce a tool to lead the designer in the difficult task of restoring a vessels. *Keywords: Nautical Heritage; Nautical Restoration; Refitting; Repair and Maintenance; Actions for Nautical Restoration; Nautical heritage.*

1. Introduction

The nautical heritage existing on the Italian and European territory is very heterogeneous in terms of shapes, origins, consistency and state of conservation. We find perfectly navigating boats, traditional units laboriously preserved by enthusiasts, flotsams or abandoned semi-flotsams waiting for placement, portions of units exhibited in museums, entire units no longer navigable recoverable or enabled for expositions whose dimensions, however, represent a clear obstacle to any form of conservation and exposure. This physical and tangible scenario is the architectural backdrop to a further heritage, this time intangible, immaterial and therefore even more fragile; linked to the 'know-how' of the shipwrights and the maritime traditions that gravitated around the existence of the boats themselves and which, due to industrial production, are irretrievably being lost.

Furthermore, talking about the nautical heritage is a recent fact, very close to contemporaneity and still scarcely historicized. The interest for these boats was born in the last twenty years of the twentieth century around a narrow 'circle' of enthusiasts who find in the newborn circuit of vintage sailing regattas a fertile ground where they feed their own interest. 'Circle' that only in the twenty-first century begins to expand by activating a broader debate involving scholars, researchers, museums, institutions, etc. Precisely by the comparison of different subjects emerge the first needs to be filled quickly: on the one hand to know the actual consistency of the assets and on the other to establish rules for the recognition, conservation and recovery of the same.

The social, cultural and state attitude towards the reality, just described, changes from state to state, from region to region, from city to city ...

In Italy, in particular, the effective consistency of this legacy is unknown not only to the community, but also to the sector experts [1] and the policies of valorisation and conservation are far from being widespread or consolidated.

Therefore, at the turn of the late twentieth century and early 2000s, the recovery of historic units is characterised as a practice in the hands of a few professionals whose training in the field of restoration catered to boating is completely self-referenced. Their ability was the result of their cultural

sensitivity, their personal knowledge and the skill of those who still knew how to work wood in the 'old fashion'; there were no study courses dedicated to the subject or industry manuals that could help the designer in this difficult task. It can be argued that at the time there was a figure that is really specialized in the restoration of historic boats missing as it is today.

Today, even if a cultural will is perceived and a greater awareness of the recovery of heritage vessels (understood as cultural heritage) [2], we continue, likewise, to find evident difficulties in trying to achieve the established objective through consolidated and shared project methodologies.

The MiBACT [3], through the Legislative Decree 42/2004 better known as the *Codice dei Beni Culturali*, has introduced policies for the protection and recovery of old boats unknown in the past. The Superintendents operating along the coasts, therefore more involved by tradition or territorial interests, have been activated in order to respect the national legislation, encountering, however, considerable difficulties in the attempt to apply it. Difficulties related to the peculiarities of the boat itself and to the fact that the legislation introduced, born for other types of cultural heritage, is difficult to apply to the nautical sector.

The similarities that distinguish the boats as 'places to live' and the architecture have pushed in the first instance to analyze the practice of architectural restoration for pleasure, but the attempts made in the recent past have highlighted how the laws currently available in Italy for the valorisation and recovery of historic boats are insufficient or unsuitable for the boats themselves.

Also in Italy, the automotive world, through the ASI [4], could constitute a valid reference for the nautical sector on the methods of valorisation and conservation of means of transport. In fact, boats, even before being 'places to live', were characterized as 'objects to navigate and move', therefore means of transport as well.

Looking beyond our borders, different realities emerge offering considerable ideas for reflection. In France, for example, the establishment of the BIP [5] has allowed to protect the national nautical heritage and the feasts of the navy [6] have made it an integral and shared part of the national culture. In England, however, the constant and ongoing commitment to the maintenance and recovery of historic boats has made sure that the relationship with the past is maintained and that the historical boats continue to live by passing on material and immaterial traditions a sense of continuity.

The outlined scenario shows, then, that even for the Italian case it is time to recover their roots, reopen their historical nautical culture, scientifically identify the shared guidelines for nautical restoration and start to train precise professional figures able to interpret and correctly apply these guidelines in the project.

2. Nautical restoration

The recovery in the name of a historical value, today, applies to architecture, as well as to art, furniture and so on up to the nautical sector.

However, it is the architectural restoration, among all the others, which, precisely because of or thanks to the scientific debate that has nourished it since 1700, remains the first point of reference for any conservative praxis. Only in more recent times every field has sought or is still trying to define its own rules of intervention.

The restoration of antique furniture is now a practice rooted in the culture of man and it seems obvious that certain furniture must be carefully preserved and treated.

The preservation of musical instruments has many facets and the boundary with what in the nautical field we would call refitting or even with reproduction is very thin. On the other hand, copies of musical instruments allowed, for example, "to provide efficient and suitable tools for the execution of the compositions as they were conceived, without the adaptation necessary to execute them on more recent specimens" [7].

Recently there has been a talk about restoration also in design and contemporary art, with the obvious implications and problems that arise in dealing with this matter in relation to modern objects.

The range of possible applications of the restoration, opens up to new scenarios in which the naval-nautical sector also plays a role of undoubted interest. The recovery of boats, the practical activity of

maintaining, repairing, recovering and restoring boats has always existed. However, it is only recently that the desire to legitimately call this activity nautical restoration has developed, especially in the case of historic boats or heritage that can be assimilated in all respects to the most traditional cultural heritage.

The nautical sector, therefore, today faces a complex and exciting challenge: to codify its own discipline of restoration, a discipline that mutates where possible inheriting from other disciplinary fields, but which at the same time welcomes the peculiarities of the boat object as means of transport and as a design product [8].

The protagonists of this 'scenario' come from different environments and sectors often distinguished by needs that are, apparently, not compatible with each other. Scholars, academics, ministries, museums, associations, professionals, shipyards, workers and ship owners have only been active participants in recent years in a dialogue useful for the comparison and the mediation of mutual priorities.

Likewise, passable safeguard boats belong to extremely different families by type, function, age, etc. These differences generate needs that are not always assumable. The recovery of a traditional boat linked to the construction practice of local shipwrights -a leudo, a comacina, a trabaccolo, a ligurian or sorrento gozzo, etc.- presents problems that are hardly comparable to the restoration of a racing purebred -a JClass as a 12M SI- protagonist in the history of yachting. The research and the request of these boats are addressed to ship-owners who are very different in character or necessity; their recovery is subject to customs that, from place to place or shipyard to shipyard, can find similarities as well as abysmal oppositions.

The restoration project of the navigating units with historical-cultural value must also take into consideration all the problems of an ergonomic, functional and technological type, confronting on the one hand the needs of conservation and on the other with the need to adapt the pleasure craft to those essential parameters for a comfortable, correct and safe exercise at sea. The insurmountable limit of the 'updates' that can be implemented on a historic boat in the name of ergonomics, technology and functionality is therefore not easily defined.

The critical issues outlined above were addressed in three research projects implemented at the University of Genoa: PRA 2012 *'The restoration for the nautical product, methodological and disciplinary reflections'* (Scientific Coordinator Maria C. Morozzo della Rocca, period of January 2013-June 2014), PRA 2013 *'Strategies for the enhancement, protection and recovery of historic boats'*, (Scientific Coordinator Maria C. Morozzo della Rocca, period of January 2014-September 2015) and PRA 2016 *'Nautical Heritage, digital tools for the knowledge and enhancement of nautical heritage'* (Scientific Coordinator Maria C. Morozzo della Rocca, period of January 2017-ongoing) [9]. For the first time, instead of individual self-referenced voices, a choral debate was launched on the subject. The multiple skills and the relative points of view that emerged from the individual contributions have allowed to bring together knowledge, operating methods and different approaches, but not necessarily antithetical. The analysis and synthesis work carried out in the context of the three PRA projects has allowed the system to underline what emerged, to outline the needs of the sector and then proceed towards a shared line of work.

The attitude, the ideas and the proposals of the superintendence, associations, museums, university academics, researchers, professionals and experts have given life to a fertile and productive comparison with the common purpose of outlining a solid common theoretical base on which to grow the discipline.

3. The PRA projects and the most recent developments

The elaboration of the data collected during the PRA projects has pushed the research unit to work in two different directions: the first oriented to a scientific definition for the nautical restoration and the consequent identification of those assets that could fully fall into the boats of heritage understood as

cultural assets to be preserved, the second addressed to the definition of a scientifically correct method of intervention.

The first aspect was tackled by detracting definitions already established and historicized by the debate on architectural restoration, mediating them with the work done in Italy by the associations dedicated to vintage boats, by ASI for vintage cars, by those recovery interventions already implemented and recognized as good practice and, finally, by wider documents and manifestos such as the *Barcelona Charter* [10].

More than three years after the work was carried out, the critical reflection of those who participated in the research reveals that perhaps it is not necessary, or even counterproductive, to label the nautical restoration with unnecessary references to an architectural debate now historicized that identified different approaches to projects such as the philological, stylistic, creative, conservative, etc., but that it is rather more useful to define what is actually the nautical restoration itself, what are its disciplinary boundaries, when it is applied and on which floating units.

It has been very useful instead, to try defining unambiguously the parameters of recognition of heritage vessels according to three different macro categories: age parameter, merit parameter and parameter of originality or conformity. To which for convenience of identification is also a typological parameter that does not define a particular value, but helps to immediately recognize the type of boat we face.

This second activity allowed defining what characteristics a boat must have in order to be univocally belonging to the sphere of cultural heritage.

To define the aforementioned parameters and to reach a line shared by all the actors, the statutes of the associations dealing with vintage boats [11], the regatta and tonnage regulations for vintage boats [12] and national laws such as the *Codice dei Beni Culturali* were arranged systematically.

By re-elaborating the data and conforming it to the lexicon adopted by the MiBACT, referent in Italy for all cultural heritage, the following reflections were born.

The age parameter, linked to the seniority of the hull, arises from the mediation of two main points of view: the majority of associations that saw 1975 as the limit date for vintage boats and the 50 years of seniority provided by the *Codice dei Beni Culturali* as a watershed for the declaration of interest by the government on a historical asset.

The introduction of these two data made it possible to propose the following definitions: vessels of historical interest (over 50 years old from the launch) and boats of historical value (between 25 and 50 years from the launch); where the word interest, also by virtue of the laws in force and the *Codice dei Beni Culturali* acquires a higher importance rather than value. The Legislative Decree n° 42 of 2004, in fact, for the cultural heritage object of protection foresees the instrument of the *Declaration of Interest* and not of the *Declaration of Value*!

Alongside the age parameter, *conditio sine qua non* but not sufficient to identify a historical unit worthy of protection, the typological parameter and the merit parameter must be taken into consideration. The typological parameter is useful for contextualizing or classifying the object while the parameter or merit is essential in defining the 'uniqueness' or 'importance' of the boat itself.

The typological parameter can help to identify and recognize the boat according to its main characteristics, characteristics that will then be reflected in the recovery of the nautical unit. In the first instance, without making the classification too heavy and complex, one can think of dividing the historic boats into five large families (traditional, sailing or motorized pleasure, sailing or motor racing, working and, finally, military) with further sub-categories.

The merit parameter, unrepeatable and not duplicable as a kind of DNA, instead should help to establish the uniqueness and the value of the boat according to its intrinsic characteristics, of its activity, of the results obtained during the exercise, etc. The specific merit requirements, in Italy, have been well expressed in the law n° 172 of 14 July 2003 [13], which, although repealed, has inspired over the years the debate related to the recognition of historical boats worthy of preservation and protection. The principles of the aforementioned law are still taken up, albeit less punctually, in the current *Codice dei Beni Culturali*.

Such a classification, if widely shared, could contribute to creating a common and objective 'jargon' among the various operators present in the sector, avoiding misunderstandings and simplifying the recognition of historical boats.

Once the object of the discipline is defined, all that remains is to face the method. The search for a method is neither trivial nor obvious. A research project or two are not enough to get to its definition, but a broad comparison with the scientific community, experimentation and aging over time serves for this purpose and, finally, a wide sharing in its application. Precisely for this reason, during and after the PRA projects, a line of research has been launched on the subject. The professors involved in the nautical disciplines of the Department of Architecture and Design (dAD) promote and nurture this direction with all the typical tools of academic activity: basic research, applied research, projects and action protocols, doctoral scholarships, etc. Therefore, the work started with the PRAs, today constitutes a real line of research and experimentation characterizing the Department of Architecture and Design of the Genoese University, is integrated into the doctorate course in ARCHITECTURE and DESIGN of the same department and is a topic of debate at the academic level also through the use of conferences and seminars [14]. At the same time, what emerges from the institutional debate has repercussions and is applied in the educational workshop projects to help grow new generations of nautical designers who are aware and culturally ready to face this new discipline.

Regarding the training of professional figures, nautical designers for the fact, that, in the near future, have the necessary skills to support and guide the nautical restoration project, it is worth mentioning the extract from an interview of the undersigned (MCM) to Stefano Faggioni (SF) [15] included in the acts of the SID (Italian Design Society) recently published [16]:

MCM: *«Making a small incision, given you take care of the nautical sector in 360°, do you think that the restoration project is in all respects the competence of the nautical designer or that it should be entrusted to other professional figures? Or to young people with different university degrees?»*

SF: *«I feel very close to the nautical restoration and I think that my passion has been ignited by a series of factors including the professional past with my father and my studies at the Faculty of Architecture. I will not elaborate on the first because it is not pertinent to the question, but for what concerns the second, I think that the studies of Architecture, especially addressing history, are the most suitable to educate the student to the harmony of proportions and respect history and who knows, to turn on the student's curiosity in the nautical field. In this case, the degree program in Naval and Nautical Design would be ideal to definitively introduce the student to the nautical world. If then the latter also provided for a wide historical-humanistic education (art, architecture, design, etc.), it would certainly be the ideal place to form sensitive nautical designers and able to face even the difficult world of restoration.*

Restoration is a subject that requires great sensitivity, aesthetics and history, which involves many aspects of architecture and the so-called minor arts. It is undoubtedly a humanistic subject that demands great responsibility and cannot be dealt with without adequate preparation which must, in any case, be completed with direct experience in the field. I doubt that exquisitely technical degree courses can prepare to face restoration projects that embrace at 360° all aspects of design that are called upon to apply the infinite needs of our time to the era of the boat to be restored. The love for the history of art and architecture, must never abandon those who face the restoration; only in this way it will be reflected in every object designed, only so each object and each environment will speak a common language of a unique style designed with a monolithic global vision that addresses the project from the distribution of space to the smallest of details.»

These figures are beginning to take shape within the Master's Degree program in Naval and Nautical Design [17], the only course of monographic university studies dedicated to the design of pleasure craft in Italy. But only the progress of the discipline and the definition of a scientific methodology for the nautical restoration project will contribute significantly to the birth of new generations really prepared on the subject.

In fact, at the Marconi University Campus of La Spezia (IT), an educational program is offered foreseeing double course studies of a three-year degree and a master's degree, respectively dedicated to the training of the professional figures of the Nautical Engineer and the Nautical Designer. Among them, the master's degree program in Naval and Nautical Design offers students the opportunity to get closer to the historical boats from different points of view. In particular, in the context of the teaching of *Industrial Design I* where students address the problems related to the enhancement and recovery of the nautical heritage by participating in lectures, cultural seminars, educational field-trips and concept design experiments on existing vessels.

4. A protocol for nautical restoration

The research, experimentation and applied teaching activities carried out up to today including the tools of the 'guidelines' and the 'intervention protocol' are the best means to help define the nautical restoration project. The university research, interpreting this need emerged from the sector, has therefore oriented its activity in trying to outline these tools, aiming to define in a clear and precise manner the typical and necessary actions for the restoration project. At the same time, an attempt was made to conceive an instrument that could agree and model itself on the specific characteristics of the individual boats and on the sensitivity of the individual professionals that this instrument must apply. A clear and unequivocal protocol, but at the same time adaptable on a case-by-case basis. The work was dealt with in a systematic way in the doctoral thesis of Giulia Zappia. The protocol that originates from the doctoral research is being tested in educational laboratories and has been shared with the major professionals already active in this field.

The paper "*The Approach to Boats Restoration, a Protocol for Nautical Restoration*" written by Ph.D student Zappia, therefore, complements and completes the present paper giving a practical answer to the problems and the critical issues highlighted in the previous paragraphs [18].

References

- [1] All this despite the fact that Italy has already launched several recognition and census projects, among which those activated by the Maritime Museum of Cesenatico and ASDEC (Associazione Scafi D'Epoca E Classici) and can boast more than 20 protection associations and at least 6 thematic museums active on the territory. These latter realities, which, in turn, make an international network with established institutions such as the EMH (European Maritime Heritage), the AMMM (Association of Mediterranean Maritime Museum), the ICMM (International Congress Maritime Museum) and the ICOM (International Council of Museum). The impossibility of defining the entity of the national nautical heritage therefore does not seem to be attributable to the absence of cataloguing and recognition attempts, but to the scarce cohesion and sharing of such attempts that, in fact, remain isolated and therefore not very significant cases to national level.
- [2] The heritage boats are in fact included in the *Codice dei Beni Culturali* (Legislative Decree n°42 of 22 January 2004, Title I, Chapter I, Article 10 Cultural Heritage, paragraph 4, letter i - Article 11 Things subject to specific provisions of protection, paragraph 1, letter g.) currently in force, but the peculiarities of the boat object added to the narrow meshes of legislation not expressly created for this type of asset to date has not yielded the desired results. For more details see: MOROZZO DELLA ROCCA M.C. (edited by): "Yachts Restoration. Stato dell'arte, problematiche e prospettive", Torino, Umberto Allemandi & c., 2014.
- [3] MiBACT Ministero dei beni e delle attività culturali e del turismo, www.beniculturali.it.
- [4] ASI Automotoclub storico italiano, www.asifed.it.
- [5] BIP Bateaux d'Intérêt Patrimonial. Register that sharpens the protected boats such as Monuments Historiques. (www.patrimoine-maritime-fluvial.org).



- [6] Maritime heritage in France periodically becomes the object of monumental festivals that contribute to its cultural diffusion. Among others it is worth mentioning the Fêtes Maritimes Internationales de Brest (www.brest2016.fr) and the Escale a Sète (www.escaleasete.com).
- [7] ROGNONI ROSSI G. (edited by): "Restauro e conservazione degli strumenti musicali antichi. La spinetta ovale di Bartolomeo Cristofori", Speciale Ananke n.66, Nardini, Firenze, 2007.
- [8] MOROZZO DELLA ROCCA M.C. (edited by): "Yachts Restoration. Stato dell'arte, problematiche e prospettive", Torino, Umberto Allemandi & c., 2014.
- BORTOLAMI L.: "Imbarcazioni in legno. Il restauro consapevole. Progettare e realizzare un intervento efficace", Verona, Edizione il Frangente, 2018.
- [9] PRA Projects are short research projects launched by the Genoese University and realized with university funds. As part of these projects, new lines of research can be investigated and launched. The PRAs 2012, 2013 and 2016 mentioned in the text gave impetus to two parallel and closely integrated strands of research-action: the census, the enhancement and diffusion of the nautical heritage on the one hand and the definition of the nautical restoration principles from the other hand.
- [10] The EMH (European Maritime Heritage), an association dedicated to the preservation of the European floating nautical heritage, at the Congress of Barcelona in 2001 highlights the affinities between the maritime heritage and that of monuments and land sites declaring the will to adapt the principles of the 1964 *Carta di Venezia* to the European Maritime Heritage. To this end, the *Barcelona Charter (European Charter for the Conservation and Restoration of Traditional Ships in Operation)* is drafted and subsequently published in 2003. The definitions read: "ARTICLE 1. The concept of maritime heritage afloat embraces the single traditional ship in which is the evidence of a particular civilization or significant development as well as traditional sailing, seamanship and maritime workmanship. This applies both to larger ships and to more modest craft of the past. ARTICLE 2. The preservation, restoration and operation of traditional ships must have all the sciences, techniques and facilities, which can contribute to the study and safeguarding of the maritime heritage afloat". Following these definitions, are introduced the purpose of preservation of traditional shipping and some indications on how to deal with a nautical restoration; a short but significant text that opens up a completely new and unexplored scenario for pleasure craft.
- [11] Italy is characterized by about twenty non-profit associations that deal in various ways with historical, traditional, vintage, etc. Among which the existence of some of the largest entities in terms of number of members, vessels or cultural activities that annually organize. For the purposes of defining the age parameter, after comparing the available data of almost all the associations present on the national territory, the regulations of AIVE (Associazione Italiana Vele d'Epoca) were compared, ASDEC (Associazione Scafi D'Epoca E Classici), AVEV (Associazione Vele d'Epoca Verbano), VSV (ASD Vele Storiche Viareggio) and Riva - Historical Registry RHS as they are considered the most exhaustive and representative. For more details see MOROZZO DELLA ROCCA M.C. (edited by): "Yachts Restoration. Stato dell'arte, problematiche e prospettive", Torino, Umberto Allemandi & c., 2014.
- [12] CIM Regulation (International Committee of the Mediterranean) for the tonnage of vintage boats. The CIM association was founded in 1926 by the Yacht Club de France, the Italian Yacht Club and the Real Club Nàutico de Barcelona. Today CIM brings together the associations: AIVE (Italy), AFYT (France), RANC (Spain) and AMBC (Monaco) and the various national sailing federations that together constitute the

Executive and Technical Committee. Since 1926 the CIM organizes, measures, regulates and harmonizes the regattas of vintage and classic sails. ([Http://www.cim-classicyachts.org](http://www.cim-classicyachts.org)).

- [13] In Italy, the law n ° 172 of 2003, shortly after the *Barcelona Charter*, seems to collect the same requests because it includes among the cultural heritage those vessels that meet precise identification criteria that are readable in article 7.

The latter, under the heading Historical naval units, reads:

“1. They are considered cultural assets, pursuant to and for the purposes of the consolidated law on the subject of cultural and environmental heritage, as set out in the legislative decree of 29 October 1999, n. 490, the ships and floats referred to in Article 136 of the Navigation Code and the recreational craft referred to in Article 1 of the Law of 11 February 1971, n. 50, as last amended by this law, including naval assets that are equipment or accessory, which are more than 25 years of age from the time of construction and have at least one of the following requirements:

represent a particular case for the design, technical, architectural or engineering peculiarity of the construction or for the choice of the materials used;

have achieved sports or technical goals that have made them known or have been the protagonists of particular events;

have a historical or ethnological interest or deriving from the personalities who owned them;

have actively contributed to the social and economic development of the country;

are faithful reproductions of historical boats, provided they are used as subsidiary, illustrative and didactic tools. ”

- [14] An example is the national biennial conference on *Cultura Navale e Marittima* organized by National ATENA (National Association of Naval Technique) under the scientific patronage of Atena CuMaNa (cultural section of Athena), MiBACT, University of Genoa and the Architecture and Design Department of the Genoese University.
- [15] Stefano Faggioni, owner of Studio Faggioni Yacht Design, which deals with naval design and restoration, with an experience that has its roots in the great tradition of shipbuilders and Masters of the Gulf of La Spezia. Stefano inherited the trade from his father Ugo Faggioni, a well-known designer who created numerous nautical restorations, and how his father has always dedicated himself to yacht design, ranging from the restoration of historic boats to the refitting and the design of the new.
- [16] MOROZZO DELLA ROCCA M.C. - ZAPPÀ G.: “Design “su misura” per il nautical heritage. Dialoghi e considerazioni critiche con Stefano Faggioni” in: Chimenz Luisa, Fagnoni Raffaella, Spadolini Maria Benedetta (edited by), “Design su Misura. Atti dell'Assemblea annuale della Società Italiana di Design”, Venezia: Società Italiana di Design, 2018, pp. 97-113, ISBN 978-88-943380-8-9.
- [17] The Master Degree Course in Naval and Nautical Design is a course of inter-university studies of the University of Genoa and of the Milan Polytechnic based at the Polo Marconi of La Spezia. The course is biennial and may be preceded by a three-year nautical degree course. As part of the two-year master program, in addition to the classical curriculum, it is also possible to access various international exchanges with FIU (Florida International University, Miami -USA) and ISD-RUBIKA (International School of Design, Valenciennes-FR).
- [18] The present publication has been published thanks to the University of Genoa research project PRA 2016 ‘*Nautical Heritage, digital instruments for the acknowledgement and valorisation of nautical heritage*’ (Scientific Coordinator Maria C. Morozzo della Rocca).