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# The Traditional Boats of Venice

## *Assessing a Maritime Heritage*

An Interdisciplinary Qualifying Project  
Submitted to the faculty of  
**Worcester Polytechnic Institute**  
in partial fulfillment of the requirements for the  
Degree of Bachelor of Science

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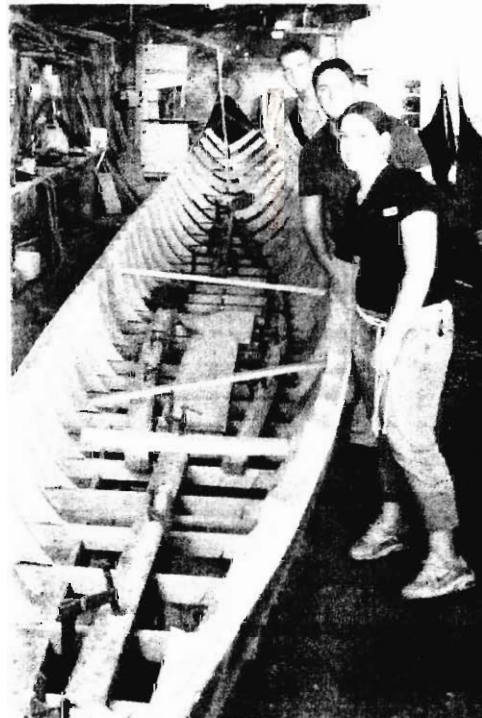
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## **I. ABSTRACT**

This Interdisciplinary Qualifying Project looks at the traditional boats of Venice, Italy. Traditional boats in Venice are becoming endangered and in some cases extinct, because of the inception and growing popularity of the motor boat. Venetians have always had a special relationship with their boats because of Venice's unique environment. Through maps and databases we examine the entire traditional boat community in Venice with an aim of preventing the loss of traditional boats to Venice.

## II. EXECUTIVE SUMMARY

Venice has a special relationship with its environment one that is special to the character and spirit that contributes to making Venice such a richly cultured and artistic city. One cannot look at this cities relationship with its setting and not mention the special connection Venetians have with their boats. Without boats there could be no Venice, boats have brought the city everything it has needed for survival since it was settled in the fifth century. These handcrafted traditional boats are a special piece of heritage, culture, and public art in Venice. Unfortunately with advancements in technology, specifically the additions of mechanical propulsion to boats, types of traditional Venetian boats have started to become endangered and in some cases become extinct. This project evaluates the entire traditional boat community in Venice in order to examine the role of traditional boats in Venice today to help put a stop to their extinction.

Venice, Italy is an island that lies in a lagoon in the northwest of the Adriatic Sea. Settled in the fifth century Venice, unlike other large cities like Bangkok, doesn't have cars on the island so the only possible form of transportation is by boat. The Lagoon around Venice; however, is very unique in that it is extremely shallow in most areas especially during low tides. So, the Venetian boats had to be highly specialized to be effective in its environment. Traditional Venetian boats have been handcrafted at the Venetian boatyards or *squeri* to meet every need for the residents of Venice. There are a few characteristics common to all traditional boats in Venice. These boats have a flat bottom with a shallow draft hull in order to navigate the shallow water of the Lagoon. Another unique feature of traditional Venetian boats is that they are rowed standing facing forward as opposed to the backwards version of the English, this characteristic evolved because boats in Venice must be able to navigate through the canals, shoals, reeds, bridges, and whatever other objects might stand in their way. For this same reason the Venetian oar is used not only for propulsion but for steering as well. Since the oar must take several positions easily in order to provide power and steering for the boat, the Venetians developed an oarlock distinctive to them. The *fórcole* is the Venetian oarlock that is able to handle the many positions that the oar must take. Every traditional boat has evolved and been built in order to fit its specific purpose. The Venetian boat builders or *squerarióli* cared solely for the boat practicality and efficiency in carrying out its function.

This project looked at what a traditional boat is, where they are produced, and how they are used both in the past and presently. We started by creating an electronic catalogue of traditional boats using *Tipologie dei natanti veneziani* a book from 1995 and updating their numbers with the most current boat registry parking map. We also created traditional boat parking maps using the names of the traditional boats in *Tipologie dei natanti veneziani* with GIS. There is a map of all parked traditional boats, traditional boats without motors, and the rarest boats. The rarest boats include the traditional boats with 10 or less examples registered in parking spaces. We were able to find a number of trends when looking at the data from the parking maps. We were able to see that traditional boats still have a presence in the canals, but a few types in particular have been tarnished by the addition of aftermarket motors to them. When attempting to make a catalogue of the rarest traditional boats by visiting the traditional boats with less than 5 examples we found there to be a number of discrepancies in the boat parking registry map. We also mapped the abandoned boats in the upper lagoon by rowing around Torcello and Mazzorbo. We found numerous boats that were left abandoned still floating in restorable condition while others are wooden skeletons of the boats that they once were.

Secondly, we explored how traditional Venetian boats are produced. We started by looking at the *De'Barbari* map and coloring in all of the *squeri*. The *De'Barbari* map was created in the 1500's and gave a bird's eye view of Venice. With this map you can visually see how many *squeri* there were in the past. Next we searched for all of the street names related to Venetian boat terms and mapped them with GIS to assist in showing the relationship between Venice and its boats. Also, we include an electronic version of the *El Fèlze* map, which is a map of every business relating to the *gondola* and its services. Also we include a catalogue of all the *fòrcole* in the *Arzanà* Association. This was a project taken on with the goal of recording maritime artifacts that are handcrafted and one of kind items. Lastly, we catalogued and mapped all of the *squeri* today. We mapped and catalogued them using Microsoft Access and GIS to measure the presence of Venetian boat builders today, and the profitability of their business.

Finally, we found the uses of traditional boats both in the past and the present. The uses of traditional boats can be broken into two categories: those used for work and those used for pleasure. The traditional boats used for work purposes were studied first. We created a map with GIS of the *fitabatèle*, or the rowboat rental



stations, in Venice. These locations are important, because their demise coincides with the time that motor boats began to gain popularity. Next, we mapped all of the *traghetti* locations both past and present. These maps were created to capture an important use of traditional boats both in the past and still today. Also, we examined the *gondolieri*, our project includes a map with GIS of all the areas for the *gondolieri*. The *gondolieri* are important because they are a good chunk of the economy in Venice and critical to the tourism industry. Another map we created was that of the *sandoli* stations located throughout Venice. These locations are important because they represent a commercial use for traditional boats. The *sandoli* work just as the *gondole* do as a type of taxi service, rowing tourists around giving them a tour from the perspective of the canal. Then we determined the pleasure uses of traditional boats. This was started by mapping the 10 *regate* that are promoted by the city, racers' association, and rowing clubs. These races help promote the city's sea culture and aid in spreading enthusiasm for traditional Venetian boats. Finally we created a map of all the *remiere*, Venetian rowing clubs, which keep the use of traditional boats active through its members.

Venice's traditional boats are still very alive today. Our project is a testament that traditional boats are everywhere in Venice. They're practicality can never be replaced in many aspects of Venetian life. The Venetians relationship with their traditional boats can't be substituted with motor boats. Included in this project are recommendations for various ways that traditional boats could be used in different ways, along with methods of how to raise awareness and educate more people about the dying traditional boats of Venice.

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## **IV. AUTHORSHIP**

This group respectfully declines an authorship page. All three members of this group worked together equally in every facet to complete this project.

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# 1. INTRODUCTION

As modern societies continue their advancements in technology, historic aspects of the society can lose their importance and relevance in the present culture. However, the remains from the past hold great importance to the history of a culture, even if these remnants are not used for their original functions. Traditional boats serve as an icon to a city and their loss allows for the disappearance of a significant aspect of a society's past. The preservation of traditional Venetian boats is essential for the public to be able to experience and enjoy this public art form because for Venice they are an invaluable link to the city's rich heritage.

For the city of Venice, which is surrounded by water and filled by a network of canals that run through the city, boats are not only valuable because of their practicality, but also for their importance to Venetian history. For Venetians, who live in a city of more water than land, rowing traditional boats made them one with their environment. Other major cities like Bangkok, Thailand rely heavily on boats, but not in the sense that Venetians have. Bangkok has automobile traffic in addition to boats; Venice has no streets so there are no cars. Venice relies exclusively on boats for survival and they must meet the needs of every type of transportation. Venetians rowed through the Lagoon like a pedestrian moves through the streets. Since the early days of Venice, boats were a necessity of Venetian life, and as a result, boats such as the *gondola* became a symbol of Venice.<sup>1</sup> For business, trade, and simple everyday travel throughout the city, Venetians relied on boats as their form of transportation. Each type of traditional boat design evolved around its specific function. It was traditional boats that helped build the city of Venice; they were a necessity for bringing materials and tools to dig the canals, lay foundations, and erect palaces. Traditional boats brought everything Venetians needed to survive. A statement from "Wooden Boat" states that, "These workboats and craft- the vast majority of which are still built of wood- compose a complex panorama that serves Venetians' daily needs and provides a routine connection to the water."<sup>2</sup> Boats like the *gondola*, serve in day by day function for Venetians, as well as serving as an essential icon of Venetian history and culture. It is impossible to imagine Venice

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<sup>1</sup> Lanapoppi, Paolo. "Six Centuries of Gondolas."

<sup>2</sup> Witty, Anne. "Beyond the Gondola."

without [traditional] boats: they are an essential part of completing the structure of the city and a key piece of its environment.

Currently in Venice, new technologies have replaced the style of traditional boats. As motorboats, fiberglass constructed boats, and public transportation continue to flourish in Venice, traditional boats still hold great value in regards to the history of Venice and its public art.<sup>3</sup> The *vaporetto*, a form of modern public transportation in Venice, has allowed Venetians freedom from relying on human powered boats<sup>4</sup>. For personal transportation throughout the canals and Lagoon, Venetians use motor boats.<sup>5</sup> Motor boats have become the boat of choice because fiberglass and other plastic materials last longer, are easier to maintain, and are inexpensive. Furthermore, motor boats can get from point A to B in a relatively lesser amount of time and require less effort than rowing. As the motor boat's popularity continues to increase, the use of traditional boats continues to decline. Unfortunately, more motor boats means more water pollution from oils and exhaust, a large amount of wake which leads to deterioration of canal walls, and noise pollution for residents who live in close proximity to a canal.

As a result of motorboat popularity, traditional boats are not being maintained or preserved, but they are left in disrepair to become extinct and with that allowing a piece of Venetian culture to vanish. Sadly, you can find many examples of the decline of traditional boats around the Venetian Lagoon. Unwanted or damaged traditional boats are abandoned on the banks of the lagoon because of the high cost to repair them, or simply because they have been replaced by motorboats. "Stone survives wood does not. But is the work of man's hands less ingenious, does it require less skill and persistence?"<sup>6</sup> In other words architecture is always revered and preserved, so why are boats that were given just as much creativity and craftsmanship often underappreciated. Venetians with a specific purpose in mind shaped his raw material with his hands to however he saw fit, in these times the builder was foremost a craftsman. The boat was their work of art. Even the *fórcola*, the oarlock for traditional Venetian boats, is recognized as an *objet d'art* and has examples displayed in some of the most important museums in the world such as the Museum of Modern Art in New York. Traditional boats are not only a link to this culture's past, but they

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<sup>3</sup> Witty, Anne. "Beyond the Gondola."

<sup>4</sup> Lanapoppi, Paolo. "Six Centuries of Gondolas."

<sup>5</sup> *Idem*.

<sup>6</sup> Fullin, Giancarlo. The Boats of Venice. p. 9.

are a public art unique only to Venice. For any art form so directly linked to a heritage to disappear is an indignity that Venetians would regret.

The loss of certain traditional boats may not raise alarm in all Venetians; however, most realize the decline of traditional boats as detrimental to the preservation of their Venetian heritage. The *Arzanà* Association, created in 1992, is an example of Venetians attempting to protect the existing traditional boats of the Lagoon.<sup>7</sup> The data of traditional boats is currently in the form of paper inventories which are in Italian, and the data needs to be updated, digitized, and translated. We are also studying how the traditional boats can be reintroduced into modern Venice through uses such as parades, *regate*, festivals, and movies. An example of how Venice is currently working to integrate traditional boats is through events such as the *Vogalonga*, which consists of a non-competitive boat race. This event allows any type of rowing boat to partake. The intent of this event is to get Venetians away from the use of motorboats and regenerate enthusiasm and interest in the use of traditional row boats.<sup>8</sup>

The aim of this project is to help preserve and restore an essential part of Venetian history by cataloging the remaining historical boats, *squeri*, and by creating a plan to reintroduce traditional boats. The completion of these goals will provide the city with complete information on the traditional boats in hopes of preventing the loss of more boats. Only outdated books on the traditional boats exist, therefore, we intend to create an electronic database to catalog traditional boats. Our project began by creating a catalog of traditional boat types based on Italian data such as books and past inventories. The project includes an inventory of the locations of *squeri* and provides information on the production of boats at each location. Since the *squeri* are the manufactures of traditional boats and maintenance locations, they are crucial to the survival of traditional Venetian boats. To ensure the survival of the Venetian boats, a plan must be conceived for the preservation of the *squeri* as well since their fates are intertwined.

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<sup>7</sup> Penzo, Gilberto. [http://www.venetia.it/boats/penzo\\_eng.htm](http://www.venetia.it/boats/penzo_eng.htm)

<sup>8</sup> "Vogalonga." <http://www.vogalonga.com/inglese/history.htm>

## 2. BACKGROUND

This section includes information that is essential to understanding the project. Specifics include: a brief maritime history, a brief history and description of the *squeri* and the craftsmen that work them, the *fórcola*, the different traditional boats, *regate*, and *Arzaná*, the group set to preserve and restore traditional boats.

### 2.1 A Brief Maritime History

In the city of Venice, boats have always played an important role. Venice was considered a maritime republic since it was settled in the fifth century. For more than a millennium the Republic of Venice was considered a dominant sea power. Three factors gave Venice advantages over other medieval trading city-states: the city's location, governmental policies, and the skills of the residents of Venice. By the twelfth century, Venice had become the prime trading center between the eastern Mediterranean and Europe.<sup>9</sup> The *Signoria*, the senate of the Venetian government, made trade a priority, and with the ships of Venice growing in purpose and carrying capacity during the sixteenth century, the citizens were making a fortune. Boats and ships were an essential part of Venetian life.<sup>10</sup> During the Medieval and Renaissance times, the shipbuilders and mariners of Venice gained fame for their state-of-the-art vessels.

### 2.2 History of *Squeri*

With the art of shipbuilding of such great importance in Venice, *squeri*, the shipyards for the building of boats, were found throughout the city. The *squeri* were of different sizes and dimensions. Some were small, for building or simple repairs of small boats; others were quite large, where they could build boats of much greater carrying capacity or even ships.<sup>11</sup> The most notable *squero*, the huge "State *Squero*" that is known as the *Arsenale*, was where merchant and military vessels were crafted. The *Arsenale di Venezia* was active in Venice beginning in the twelfth century.<sup>12</sup>

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<sup>9</sup> Martin, Lillian Ray, *The Art and Archaeology of Venetian Ships and Boats*. p. 3

<sup>10</sup> *Idem*.

<sup>11</sup> <http://www.gondolavenezia.it/history.asp?Capitolo=4>

<sup>12</sup> *Idem*.

### 2.2.1 *Squeri* Today

Today, there are only a few *squeri* that have survived through the cities decline and outside technological advances.<sup>13</sup> The oldest functioning *squero* is the *Squero di San Trovaso*. The *Squero di San Trovaso* once employed 60 craftsmen in 1612.<sup>14</sup> Today the *Squero di San Trovaso* has been marked as a historical site by the city of Venice and therefore is being renovated by the city. Unfortunately, the city's initial renovations have denied the *squeri* of some of its tradition and historical charm. The loading ramps from the workshop into the canals were traditionally sloped from the workshop into the water. Most importantly this land was made of earth, so the boats could be pushed directly into the water or rowed directly onto to shore without damaging the bottom of the boat.<sup>15</sup> The city's renovations to *San Trovaso* have included the instalment of a concrete ramp, while the ramp is still sloped the craftsmen have to find a new way to get the boats ashore. Now they are usually set on rolling blocks and brought into the workshop.



Figure 1: *Squero di San Trovaso*<sup>16</sup>

### 2.2.2 The *Squerarióli*

Building traditional Venetian boats was an art that allowed a single individual to shape his raw material according to his will into a work of art. The *squerarióli* did

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<sup>13</sup> <http://www.cheapvenice.com/venice-gondolas.htm>

<sup>14</sup> *Idem.*

<sup>15</sup> *Idem.*

<sup>16</sup> <http://www.michaeltaylor.ca/Culture/gon-work.shtml>

not rely on plans or schematics to build their boats; they worked off inherited knowledge of all features of a boat, much like a painter works from his imagination and creativity.<sup>17</sup> It was knowledge passed down from one generation of builders to the next. The *squerarióli* relied on his vision of the finished boat, its expected performance, and on his experience of previously built craft rather than on theoretical knowledge.<sup>18</sup> The process of boat-building used in the *squeri* is the outcome of a very ancient tradition that may go back to the times when the town of Venice did not yet exist.<sup>19</sup> The first documents related to the *squeri*'s dated back to the 15<sup>th</sup> and 16<sup>th</sup> centuries, show that the craftsmen already had developed processes for building. No matter what size the boat, or even of the ship, the basic steps - the laying and assembling of the first methods and the frames – were practically the same.<sup>20</sup> This uniformity of method and its continuation right down to our times is due, no doubt, to the influential prestige that the *Arsenale* of Venice enjoyed.<sup>21</sup>



Figure 2: *Squeri* workers putting final touches on a *gondola*

### 2.3 Fórcole

Traditional Venetian row boats are unique from every other type of boat in the world. Besides the boats unique construction characteristics, there are other attributes that go along with traditional Venetian boats that cannot be seen anywhere else in the world. The Venetian rows his boat facing forward, standing much like a man that is walking through the streets of his city, passing from water to land and back almost as

<sup>17</sup> Fullin, Giancarlo. *The Boats of Venice*. p. 33.

<sup>18</sup> *Idem.*

<sup>19</sup> *Idem.*

<sup>20</sup> *Ibid.*, p. 34.

<sup>21</sup> *Idem.*

if they had never left land.<sup>22</sup> For this reason the oar was made not only for propulsion but for steering as well.<sup>23</sup>

*Fórcole* are the oarlocks unique to the traditional boats in the Venetian Lagoon. The *Fórcola* is designed to satisfy the demanding, practical requirements of Venetian rowing. The propulsion and maneuverability of Venetian boats depend on the accuracy of the *fórcole* construction. Each *fórcola* is crafted from a single piece of wood, usually walnut but sometimes cherry, pear, apple, or maple.<sup>24</sup> *Fórcole* are found in a countless number of forms. These forms depend on their purpose: work, recreation, or *regate*.<sup>25</sup> Even today, *fórcole* continue to be modified for increased efficiency. *Fórcole* can be broken into two basic categories that broadly describe them. *Fórcole* are built for work or for pleasure, the latter are often referred to as “luxury” *fórcole*.<sup>26</sup>

### 2.3.1 ‘Work’ *Fórcole*

The “work” *fórcole* are built with the mindset of producing something efficient, cheap, easy to repair, strong, and dull to the point where it would not be stolen.<sup>27</sup> In other words they are built from the bare essentials with resources that are readily available. These “work” *fórcole* are generally not very attractive to the eye and are usually straight up and down with little bend or angle.<sup>28</sup> The inside of the *fórcola* facing the rower is very flat and the rounded side faces out toward the water. This is so the more refined part is facing the rower and the rounded part is outside so it will not get caught on the banks or passing boats.<sup>29</sup>

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<sup>22</sup> Fullin, Giancarlo. *The Boats of Venice*. p. 24.

<sup>23</sup> Penzo, Gilberto. *Fórcole, Remi e Voga alla Veneta*. p. 96.

<sup>24</sup> *Ibid.*, p. 106.

<sup>25</sup> *Ibid.*, p. 104.

<sup>26</sup> Penzo, Gilberto. *Fórcole, Remi, e Voga alla Veneta*. p. 104.

<sup>27</sup> *Ibid.*, p. 105.

<sup>28</sup> *Idem.*

<sup>29</sup> *Idem.*



Figure 3: Front and side view of a 'work' *fórcole*

### 2.3.2 'Luxury' *Fórcole*

The other category of *fórcole*, often called the “luxury” *fórcole*, can be characterized by the thick block of wood the *remèr*, or *fórcola* maker, uses to carve the *fórcola*.<sup>30</sup> The *remèr* needs a thick block of wood so he can create the large “elbow”, or *sanca*, that curves over the outer edge of the boat.<sup>31</sup> The same basic form as the “work” *fórcola* is used, but with a thickness that allows the flat side to be completely rounded.<sup>32</sup> They are finished with fine sandpaper and often carved and finished with gold leaf.<sup>33</sup> These *fórcole* are most commonly found being used on personal crafts, on *gondole*, or in *regate*.

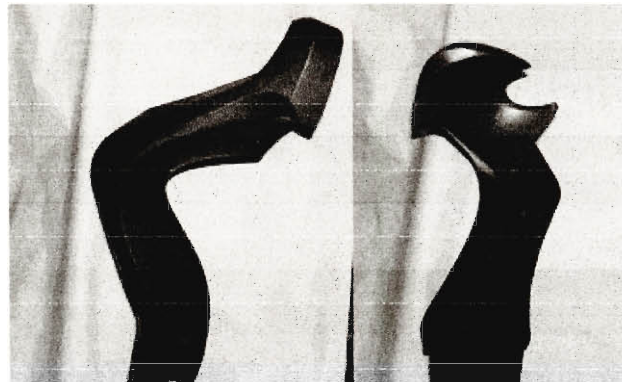


Figure 4: Side and front view of a 'luxury' *fórcole*

<sup>30</sup> Penzo, Gilberto. *Fórcole, Remi, e Voga alla Veneta*. p. 104.

<sup>31</sup> *Idem.*

<sup>32</sup> *Idem.*

<sup>33</sup> *Idem.*



## 2.4 Traditional Venetian Boats

The traditional Venetian boats were a means of transport finely fitted to meet both the natural and man-made needs of the city. Each boat had a distinct design and purpose that made it extremely effective and efficient.

Each traditional boat has its unique characteristics, but there are two characteristics common to all traditional boats. The lagoon water surrounding Venice and the inner-city canals are very shallow and full of banks of mud and sand, especially at low tide. So, the traditional Venetian boats all have a flat bottom and shallow draft hull. This was an obvious choice because the maintenance is simple and boats could be hauled out of the water onto mud or sand without damage.<sup>34</sup> The shallow draft hull is not only friendly to the environment, but it makes for easy access in and out of the boat.<sup>35</sup> As long as there is water, a traditional Venetian boat can stay afloat.

Today in Venice, we see the lasting effects of the great craftsmen of the great sea faring Republic. Still the traditional boats of Venice are all hand built with great attention to detail and purpose. The traditional wooden crafts are designed specifically to meet the needs of the residents of Venice and their local conditions.<sup>36</sup>

The common traditional Venetian boats, most can still be found today, can be broken up into categories based on their traditional purposes. The three most common uses were: transportation of heavy goods, fishing, and carrying passengers or light goods.

### 2.4.1 The *Caorlina*

The boats used for carrying heavy or bulky goods were the *caorlina*, *batelon*, *batèla* and *peàta*. The *caorlina* is symmetrical in shape and is often called one of the more handsome traditional boats.<sup>37</sup> Despite being large, it was designed to pass through the mainland canals, it is light and fast and easy to handle.<sup>38</sup> The *caorlina* can carry a fair load, especially of the goods that are not overly bulky, such as fruits and vegetables. The *caorlina* was also used for fishing in the lagoon with a *seragia*,

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<sup>34</sup> Witty, Anne. "Beyond the Gondola" WoodenBoat, p 50.

<sup>35</sup> *Idem*.

<sup>36</sup> *Idem*.

<sup>37</sup> Fullin, Giancarlo. The Boats of Venice, p. 122.

<sup>38</sup> *Idem*.

which are nets attached to vertical poles and driven into the mud.<sup>39</sup> Today the *caorlina* can still be seen transporting vegetables or fishing in the lagoon, but it is mainly used for racing. Rowed by six oarsmen, the *caorlina* is the boat that the lagoon islands send to historic *regate* and the *Vogalonga*.<sup>40</sup>

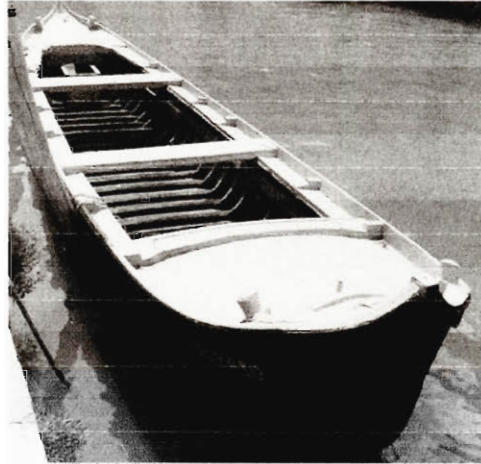


Figure 5: A *Caorlina*

#### 2.4.2 The *Batelon*

The *batelon* is similar looking to the *caorlina* but larger. Unfortunately the *batelon* has nearly disappeared, but you can still see a rare example fitted with a motor.<sup>41</sup>



Figure 6: An abandoned *Batelon*

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<sup>39</sup> Fullin, Giancarlo. *The Boats of Venice*. p. 122.

<sup>40</sup> *Knopf Guide*. p. 71.

<sup>41</sup> Fullin, Giancarlo. *The Boats of Venice*. p. 124.

### 2.4.3 The *Batèla*

The *batèla* is a middle sized boat which can almost be seen as a cross between a *sandolo* and *caorlina*. The boat was mainly used for the transporting of goods and people and is a rarely found today.<sup>42</sup>

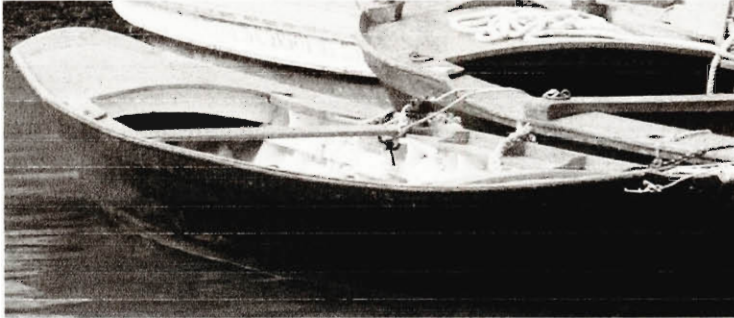


Figure 7: A *Batèla*

### 2.4.4 The *Peàta*

The *peàta* was the true cargo boat of Venice and its lagoon.<sup>43</sup> For centuries it transported goods necessary to build Venice and maintain its life. Its purpose was to ferry goods between large ships and the city. It was the go between for goods unloaded from big ships intended for the city, or for goods from the city to be shipped to other ports.<sup>44</sup> The *peàta* had a hull which allowed maximum space despite staying shallow with its draft, due to its flat bottom.<sup>45</sup> At one time the *peàta* was used to support the machine – the platforms from which the Government officials and their guests watched the *regate* or other spectacles.<sup>46</sup> Nowadays the *peàta* has been replaced by the *moto-topo* and by other mechanically propelled crafts. A very rare traditional *peàta* rowed by 18 men can usually be seen at the *Vogalonga*.<sup>47</sup>

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<sup>42</sup> Fullin, Giancarlo. *The Boats of Venice*. p. 108.

<sup>43</sup> *Ibid.* p. 104.

<sup>44</sup> Fullin, Giancarlo. *The Boats of Venice*. p. 124.

<sup>45</sup> *Idem.*

<sup>46</sup> *Ibid.* p. 126.

<sup>47</sup> *Idem.*

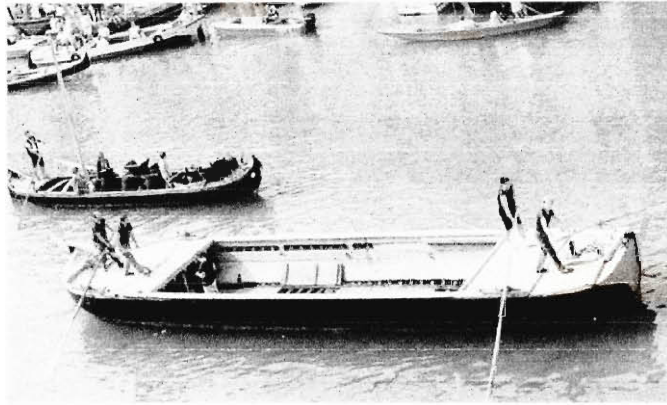


Figure 8: A *Peàta*

#### 2.4.5 The *Topo*

Another group of boats are those boats that could most commonly be found fishing. This group of boats included the *topo* and *sanpierota*. Today, traditional *topi* are very rare, the few survivors have been saved from the scrap heaps by enthusiasts, but the *moto-topi* are extremely common. The *topo* is a sailing boat that was developed in Chioggia, where they were the choice boat for fishing.<sup>48</sup> The traditional *topo* has a middle part left as an open hold so the fish caught can be thrown into it.<sup>49</sup> Motorized *topi* seen today have been modified to enable them to transport goods and cargo.



Figure 9: A *Topo*

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<sup>48</sup> Fullin, Giancarlo. *The Boats of Venice*. p. 124.

<sup>49</sup> *Idem*.

### 2.4.6 The *Sanpierota*

The *sanpierota* was originally built to be a fishing vessel, and it was a very popular choice among the fishing community.<sup>50</sup> The *sanpierota* is a member of the *sandolo* family, and while many boats have disappeared, this boat is unexpectedly flourishing.<sup>51</sup> Reasons for this boat's popularity are its sturdiness, reliability, roominess, and relatively simple maintenance.<sup>52</sup> The name *sanpierota* comes from its place of origin, San Pietro in Volta, which lies between the sea and the lagoon.<sup>53</sup> In San Pietro it is referred to as just a *sandolo*. Its shape and size make it unsuitable for rowing with one oar, but it does well when rowed with two oars.<sup>54</sup> The *sanpierota* is most commonly found with a sail. Today the *sanpierota* are widely used for excursions around the Lagoon.<sup>55</sup>

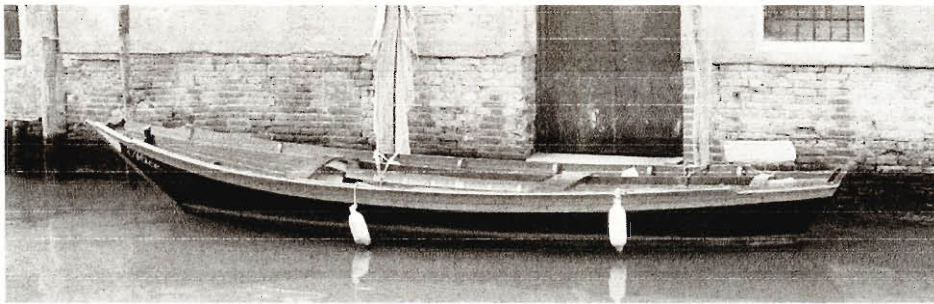


Figure 10: A *Sanpierota*

### 2.4.7 The *Sandolo*

The group of boats commonly used for transporting passengers and light goods includes the *sandolo*, *mascareta*, *puparin*, and *gondola*. The *sandolo* is most common of the lagoon boats, because the *sandolo* and its variations can answer to almost any of the needs of Venice.<sup>56</sup> The *sandolo* family of boats can fish, hunt, carry passengers and light goods, and race.<sup>57</sup> Along with the *gondola*, the *sandolo* is one of the only man-powered boats still used for commercial purposes, as it is used as a water taxi the same way as the *gondola*.

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<sup>50</sup> Knopf Guide, p. 73.

<sup>51</sup> Fullin, Giancarlo. *The Boats of Venice*, p. 102.

<sup>52</sup> *Idem*.

<sup>53</sup> *Idem*.

<sup>54</sup> *Idem*.

<sup>55</sup> Knopf Guide, p. 73.

<sup>56</sup> Fullin, Giancarlo. *The Boats of Venice*, p. 44.

<sup>57</sup> *Idem*.

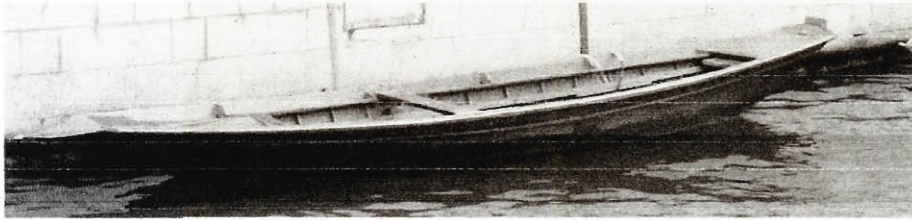


Figure 11: A *Sandolo*

#### 2.4.8 The *Mascareta*

The *mascareta*, another member of the *sandolo* family, is possibly the most popular of these boats because it is light to maneuver and somewhat inexpensive to build and maintain.<sup>58</sup> Due to the lightness of the hull, this boat is used mainly for pleasure, especially by youngsters, and in women's races.<sup>59</sup>



Figure 12: A *Mascareta*

#### 2.4.9 The *Puparin*

The *puparin* is another member of the *sandolo* family. The *puparin* is considered the most elegant of the *sandolo* family, its lightness, size and shape testify to the perfection achieved by the boat-builders and shipwrights of Venice.<sup>60</sup> Other than the *gondola*, the *puparin* is the fastest and most agile of the two-oared lagoon craft. Early in history the *puparin* was used to carry passengers swiftly and was

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<sup>58</sup> Fullin, Giancarlo. *The Boats of Venice*. p. 52.

<sup>59</sup> *Knopf Guide*. p. 54.

<sup>60</sup> Fullin, Giancarlo. *The Boats of Venice*. p. 62.



considered a status symbol.<sup>61</sup> Members of the nobility were often transported around in a *puparin*.<sup>62</sup> Today, this boat being so light and speedy is used mainly for racing.



Figure 13: A *Puparin*

#### 2.4.10 The *S'ciopón*

The fourth member of the *sandolo* family is the *s'ciopón*. The *s'ciopón* is a small boat used to navigate the shallow waters of the lagoon.<sup>63</sup> It gets its name from the gun, *s'ciopón* which means “long gun”, used for shooting migratory birds in the season when they come to the lagoon.<sup>64</sup> The guns are about three meters long, and the forward hull has an almost straight sheer so that the weapon can fire level with the water.<sup>65</sup> The hunter in the *s'ciopón* could sneak up on birds hovering in the water and fire at the pack. Today, the *s'ciopón* is rarely used for hunting, but it is very popular among Venetian kids who row through the canals like kids on the mainland ride their mopeds.<sup>66</sup>

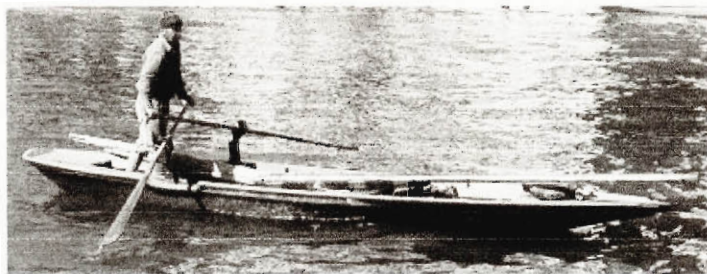


Figure 14: A *S'ciopón*

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<sup>61</sup> Fullin, Giancarlo. *The Boats of Venice*. p. 62.

<sup>62</sup> Knopf Guide. p. 73.

<sup>63</sup> *Idem*.

<sup>64</sup> *Idem*.

<sup>65</sup> Fullin, Giancarlo. *The Boats of Venice*. p. 54

<sup>66</sup> *Idem*.

### 2.4.11 The *Gondola*

The *gondola* is the most famous of the lagoon boats. Besides the *sandolo* it is the only man-powered traditional boat still used for commercial purposes.<sup>67</sup> Before advances in technology introduced motors, there were as many as seven different types of *gondole* each with its own unique purpose.<sup>68</sup> Today only a few of these types have survived but the *gondola* can be seen everywhere in Venice giving rides to tourists or at the *traghetti* crossings where for 40 cents a person can cross the grand canal in a *gondola*.<sup>69</sup> The *gondola* is a beautiful vessel; this boat is the result of centuries of development aimed at creating perfection for a given purpose in a given environment.<sup>70</sup> The *gondola* has gone through centuries and centuries of evolution adapting to the needs of its current time.<sup>71</sup> The *gondola* we see today is an example of how its current uses has caused a change in the construction of the *gondola*. Today's *gondola* meets the need of a vessel used specifically to leisurely take tourists short distances around the canals in only good weather. As late as the 1950's the *gondole* were still used for quick transportation to anywhere including the lagoon, so these *gondole* were more concerned with speed and maneuverability.<sup>72</sup> The *gondola* today has made refinements for concern for the comfort of the tourists and little need for speed and distance.<sup>73</sup> The *gondola* is the only traditional boat that has really withstood the test of time, thanks to the tourist trade. Other boats have been revived but only for pleasure or racing. The *gondola* has become a key symbol for the city of Venice.



Figure 15: A *Gondola*

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<sup>67</sup> Fullin, Giancarlo. *The Boats of Venice*. p. 76.

<sup>68</sup> *Idem*.

<sup>69</sup> Witty, Anne. "Beyond the Gondola" *WoodenBoat*. p 51.

<sup>70</sup> Lanapoppi, Paolo. "Six Centuries of Gondolas" *WoodenBoat*. p 47.

<sup>71</sup> *Idem*.

<sup>72</sup> *Idem*.

<sup>73</sup> *Idem*.



## 2.5 The Vogalonga

Since the motorboat gained popularity in Venice, the interest and need for the traditional boats by Venetians has declined. The decline of traditional boats was slow at first and then faster and faster as Venetians separated further and further from their past. In 1974 a group of Venetians with a passion for rowing came up with an idea of a non-competitive race to be held where any type of rowing boat could participate.<sup>74</sup> This race was a request to the entire city of Venice to act against the decline of the city, against the damages of motor boats and to renew the traditional Venetian festivities. This *regata* would awaken a new enthusiasm and breathe new life into traditional Venetian boats restored and new ones built expressly for the purpose of parade and show now.<sup>75</sup> By 1980 there were as many as 1500 boats and nearly 5000 participants.<sup>76</sup> This race caught on causing a new wave of re-discovered love for the traditions and the call to save the city. More than 50 rowing clubs have sprung up in Venice since the inaugural race.<sup>77</sup> The *Vogalonga* takes place on the last Sunday in May, and in 2004 the *Vogalonga* took place on May 30.<sup>78</sup>



Figure 16: The *Vogalonga*<sup>79</sup>

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<sup>74</sup> “Vogalonga.” <http://www.vogalonga.com/inglese/history.htm>

<sup>75</sup> *Idem.*

<sup>76</sup> “Vogalonga.” <http://www.vogalonga.com/inglese/history.htm>

<sup>77</sup> *Idem.*

<sup>78</sup> *Idem.*

<sup>79</sup> [www.venedig.com/sonstiges/Veranstaltungen.htm](http://www.venedig.com/sonstiges/Veranstaltungen.htm)

### 2.5.1 Regate

The *Vogalonga* is just one of the more famous *regate* that take place in Venice each year. *Regate* in Venice began as military exercises for crossbowmen on the Lido and developed into popular events for all Venetians, for whom the sea and everything to do with it was a way of life.<sup>80</sup> The oarsmen of the galleys assigned to transport soldiers to and from St. Mark's whiled away the time with races; the government seeing a convenient way of training the people for war, introduced the first official *regata* in about 1300, on the *Feast of Marias*.<sup>81</sup> *Regate* flourished and the tradition still continues today, with more than 120 events held from April to September, in Venice itself and across the Lagoon.<sup>82</sup> Many of the *regate* are spontaneous but 11 are promoted by the city of Venice along with the Rowers' Association and the coordination of Rowing Clubs.<sup>83</sup> The *regate* promote not only ethical values often associated with sports, but the *regate* are a way to understand and respect the lagoon environment and to rediscover the city's maritime culture.<sup>84</sup>



Figure 17: One of the many spontaneous *regate*

### 2.6 Arzanà

In 1992 a group of friends with the common goals of conducting research, and gathering and organizing information about traditional boats founded the association *Arzanà*. This group specializes in the study and preservation of historical Venetian boats.<sup>85</sup> The *Arzanà* has collected close to 40 boats and related boat gear, and the *Arzanà* plans to create a museum with a working boatyard.<sup>86</sup> This group works to

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<sup>80</sup> Knopf Guide, p. 54.

<sup>81</sup> *Idem*.

<sup>82</sup> "The Rowing Season" <http://commune.venezia.it/turismo/feste/stagioneremiera>

<sup>83</sup> *Idem*.

<sup>84</sup> *Idem*.

<sup>85</sup> Penzo, Gilberto. [http://www.venetia.it/boats/penzo\\_eng.htm](http://www.venetia.it/boats/penzo_eng.htm)

<sup>86</sup> Witty, Anne. "Beyond the Gondola" *WoodenBoat*, p 52.

restore abandoned traditional boats each year, raising money through such ventures as renting traditional boats for movie appearances.

### 3. METHODOLOGY

This project contributed to the preservation and restoration of Venetian traditional boats by working with our on-site liaison Giovanni Caniato to catalogue the remaining historical boats, create maps of all *squeri* locations, past and present, and to develop ways in which the boats can be reintroduced to modern society.

To accomplish our mission, we identified our objectives for our project:

- 1) Define and identify traditional boats
- 2) Determine where traditional boats are produced
- 3) Identify how traditional boats are used both past and present

#### 3.1 Domain of Inquiry and Definitions

The domain for our project is the traditional boats of Venice, which includes approximately 50 types we included in our inventory.<sup>87</sup> The boats selected for analysis are based on their design and construction. For our project, traditional boats are those boats that are wooden and only those boats powered by oars or human strength. We had to study traditional boats from a wide range of years of fabrication because traditional boats are still built today. The boats that we selected for analysis had to meet certain construction requirements of a traditional boat. These requirements include all of the characteristics of traditional Venetian boats such as the flat bottom, shallow draft hull, wood construction, and the use of sail or oar for propulsion. We restricted our field of study to the canals of Venice and the surrounding lagoon, as shown in Figure 5.

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<sup>87</sup> Rossi, Paolo. Tipologie dei natanti veneziani.

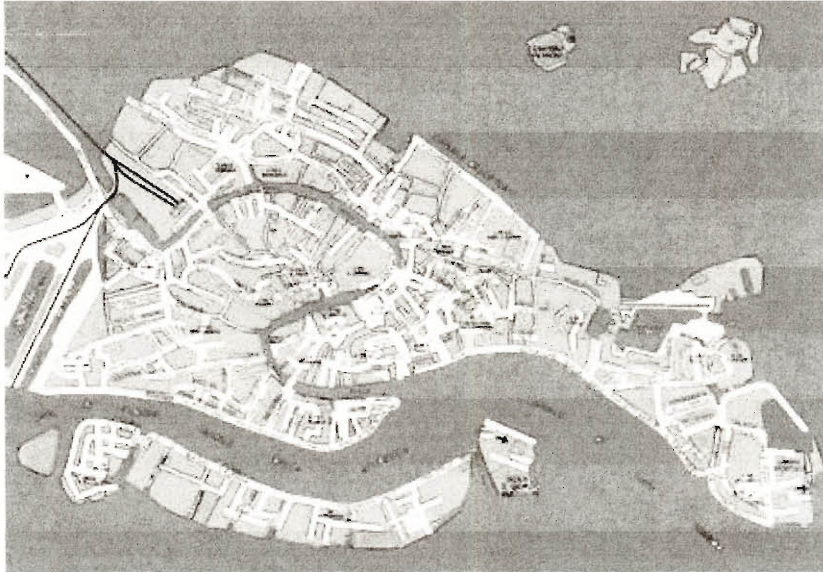


Figure 18: Venice and Surrounding Lagoon

### 3.2 Traditional Venetian Boats

There is a great need to preserve the existing traditional boats of Venice to allow this aspect of the culture to survive. We recognized the importance of ensuring the preservation of the traditional boats and developed a plan for taking an inventory of the current traditional boats in Venice. Prior to commencing our field work, we gathered known data on traditional boats types from *Tipologie dei natanti veneziani*. This source provided data on traditional boat types and the quantities of each type from an inventory done in 1995. In order to compare the number of each type of traditional boat currently in Venice to past data, we developed a method of cataloguing and locating the boats.

#### 3.2.1 Cataloging Traditional Boat

Before we begin our field work to locate the boats, we created a catalogue of the traditional boats to be studied. Using Microsoft Access a data base was created which included measurements and a picture for each boat type. This form was used as a reference when we were determining boat types during our field work. An example of one boat type entry is located in Appendix B.

### **3.2.2 Locating the Traditional Boats**

To complete our inventory of traditional boats, the locations of the boats was required. Using an existing GIS layer of the boat parking spots in Venice, we created a new layer which only included the 50 types of traditional boats we were studying. We used GIS to color code each parking spot that contained a traditional boat with a certain color for each traditional type. The parking spots were color coded based on the type of boat that was parked there. A map layer of the rare traditional boats was then created by placing the boat types which only have ten or less boats currently in Venice. We also visited each of the boats with less than 5 examples parked in the canals in order to have a picture of each of the most endangered traditional boats.

### **3.2.3 Determining Rare Boat Types**

In order to determine which types of traditional boats are in need of preservation, we determined the boat types that have the greatest risk of becoming extinct. After we created our traditional boat catalogue and located boat types, we developed a list of the types which have five or fewer examples present in Venice.

Boat Name	Quantity	Notes	Traditional	Average Length	Average Width
Colombina	0	Extinct	Yes		
Coronet	0	Extinct	Yes		
Dogaletto	0	Extinct	Yes		
Trabaccolo	0	Extinct	Yes		
Sonetto	0	Extinct	Yes		
Burchiello	0	Extinct	Yes		
Guscio	1	Endangered	Yes	2.9	1.4
Patanino	1	Endangered	Yes	3.0	1.5
Peàta	1	Endangered	Yes	15.0	3.5
Passetto	1	Endangered	Yes	5.0	1.3
Bragagna	1	Endangered	Yes	7.0	1.8
Spigolo	1	Endangered	Yes		
Vipera	1	Endangered	Yes	10.0	1.5
Beccaccino	1	Endangered	Yes	4.8	1.5
Passera	2	Endangered	Yes	4.5	1.8
Comacina	2	Endangered	Yes	15.1	3.7
Varigola	2	Endangered	Yes	5.7	1.6
Cofanetto	3	Endangered	Yes	5.2	1.4
Topetto	3	Endangered	Yes	6.0	1.6
Buranella	5	Rare	Yes	8.0	1.6
Bragozzetto	5	Rare	Yes	7.4	1.8
Batèla	6	Rare	Yes	8.7	1.8
Puparin	8	Rare	Yes	8.5	1.1
Sandoletto	10	Rare	Yes	73.1	26.0

Table 1: Endangered Boat List

### 3.2.4 Locations of Abandoned Boats

In order for us to fully understand the problem of the declining number of traditional boats still remaining in Venice and its surrounding lagoon, we traveled to the northern lagoon to observe the state of traditional boats. Our travels through the canals of the lagoon allowed us to observe the conditions of boats in the lagoon. We documented the abandoned boats, took pictures and in cases were feasible; we took measurements of the traditional boats. Documenting these abandoned boats has allowed us to understand why there has been a decline in the numbers of traditional boats. The reasons why boats are left in the lagoon range from high cost of repairs for the boats or that they are replaced by motorboats.



Figure 19: Abandoned Traditional Boat

### 3.3 Locating Traditional Boat Construction

The creation of an updated, electronic *squeri* inventory is crucial to evaluating the current production of traditional boats. In order to fully study the traditional boats of Venice, we not only have to research the current boats, but also to observe the number of new boats that are being produced each year. The preservation of the current boats is important, but the creation of new traditional boats is imperative to the survival of traditional boats for the future. For example, based on interviews with various *squeri* owners, the average life of the *gondola* is about 27 years. They can continue to repair the current *gondola*, but there needs to be production of new traditional boats each year. Also since the *squeri* did not use plans, the only way for the knowledge of this traditional method of building boats to be passed on is through the existence of the *squeri*.

#### 3.3.1 Locating past *Squeri* on the *De'Barbari* Map

The *De'Barbari* map, which was created in the 1500's, was obtained and colored. The *squeri* on the map were located and colored yellow to allow visible results of past quantities of *squeri*, locations and sizes.

#### 3.3.2 Locating the *Squeri*

In the beginning phases of our project, we gathered information on the location of boat building facilities, or *squeri*. The locations of *squeri* were gathered



by compiling known information and locations from the book, *Arte degli squerarióli*, which had an inventory of Venetian *squeri* completed in 1985.<sup>88</sup> In Appendix C, the initial Italian *squeri* inventory is shown. We created a map using GIS to illustrate the *squeri* locations, and also include data on the quantity and type of boats made at each location. We located the remaining *squeri* by visiting known *squeri* and gathered information on locations of other *squeri* from the owners. The map includes all of the twelve *squeri* in Venice and one in Burano, even if the *squero* has closed.

### 3.3.3 Cataloguing the *Squeri*

In order for us to produce an updated *squeri* inventory, we visited the twelve *squeri* in Venice and also two in Burano. At each *squero*, we first determined whether the *squero* is operating or closed. We interviewed the owners of the open *squeri* and collected data such as the type of boat built there and quantity of boats produced for several different years. We gathered the *squeri* data using the form found in Appendix C. Microsoft Access was used to compile our collected data on the *squeri*.

### 3.3.4 Inventory of *Fórcole*

An inventory of the *fórcole* at the *Arzanà* Association was completed using Microsoft Excel and Access. The reasons behind the *fórcole* inventory are that the woodworking that is involved in the creation of *fórcole* is an art form and each *fórcole* is a unique art piece. The *remér* is a dying profession with very few still practicing commercially today. The crafting of a *fórcole* is an unappreciated craft that like the boats can be considered a public art form, because of the intricate details that each *fórcole* entails using just their hands and tools. The inventory included 71 *fórcole* with pictures of each side of every *fórcole*, as well five different measurements to help us identify which boat the *fórcole* belongs. Saverio Pastor, the *remér* at San Gregorio, taught us how to accurately measure the five different dimensions of the *fórcole*. The measurements included the height from the *tapa* to the oarlocks, the thickness of the *fórcola*, how forward or backwards the oarlock is located, how far in or out the oarlock is located, and the size of the *tapa*. The inventory we produced

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<sup>88</sup> Caniato, Giovanni. *Arte degli squerarióli*.

gave each *fôrcole* a number. The data on each *fôrcole* can be viewed and used by the *Arzanà* Association in the future.

### 3.4 Determining Work Uses of Traditional Boats

As shown prior in the background, the traditional boats of Venice were used for various work related tasks. Currently the majority of uses of traditional boats revolve around pleasure; however, there are still some examples of work uses we discovered. We researched an old use of traditional boat such as the *fitabatèle*, as well as the past and current use of the *traghetti*.

#### 3.4.1 Locating the *Fitabatèle*

In order to determine the time period that motorboats popularity flourished in Venice, we researched the decline of the row boat. *Fitabatèle* are row boat rental facilities that once could be found throughout Venice. Currently there are no *fitabatèle* still open. We created the GIS map below of the *fitabatèle* by the year each one closed by using information from *I mestieri nella tradizione popolare veneta*. The legend is separated into six sections of years, each with a number of *fitabatèle* that closed for those years. The years that the largest majority of *fitabatèle* closed were between 1960 to 1975, this correlates to the introduction of motorboats into Venice during the same time. We also created a map of the four motorboat rental facilities that are currently in Venice.

#### 3.4.2 Locating *Traghetti*

As early as the sixteen hundreds *traghetti* were used to transport people throughout Venice, and to the mainland.<sup>89</sup> These *traghetti* of the past were the only form of taxi services during this time period. The people would be transported by *gondola* to anywhere in the lagoon and as far on the mainland as Treviso, Verona, and Mantova. In 1697, there were as many as 69 different *traghetti* routes that transported people.<sup>90</sup> A map of the 1697 *traghetti* routes was created based on the map we found in *Traghetti veneziani*. We created a map with GIS of the current *traghetti* routes of Venice with the help of Maurizio Siega. Today the *traghetti* are still used, but in a much lesser capacity. In 2004 there are only 8 *traghetti* stops, and they are a *gondola*

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<sup>89</sup> Zanelli, Guglielmo. *Traghetti veneziani*. P. 83

<sup>90</sup> *Idem*.

service that taxis people back and forth across the Grand Canal. For 40 cents it is a cheaper and quicker alternative to crossing from one side of the canal to the other than the *vaporetto*. We mapped the current *traghetti* locations with GIS using the current map found in [\*Traghetti Veneziani\*](#).

### **3.4.3 Examining *Gondolieri***

The *gondolieri* are the men that give rowing tours through the canals of Venice in their *gondole*. We investigated the different districts of *gondolieri* and the current prices charged per *gondola* ride. Since *gondolieri* are restricted to specific areas, forbidden to leave their designated regions, Venice is divided into sixteen regions. Through our research at the *Istituzione per la Conservazione della gondola e la tutela del gondoliere* and with the help of Maurizio Siega, we created a GIS map of the different *gondolieri* districts. For each region the number of *gondolieri* was put into a table in Access.

### **3.4.4 Locating *Sandoli* Stations**

*Gondole* are not the only boat of choice for giving rowed tours, there are 9 *sandoli* currently used. Since there are so few *sandoli* still used today, we mapped their locations with the help of Maurizio Siega.

## **3.5 Determining Pleasure Uses of Traditional Boats**

In the past, traditional Venetian boats served many for work purposes such as transporting people and cargo, fishing, and hunting. As the popularity of motorboats increases each year, traditional boats are not used for their original purpose, but for recreational purposes. Venetians now see rowing a traditional boat as an exercise or stress relief than an environmentally safe and clean way to go about their commercial everyday life.

### **3.5.1 Locating the *Regate***

Prior to this project, there were no electronic maps of all the *regate* in Venice. We determined the routes of ten annual *regate* that take place in Venice and around the lagoon with the help of Maurizio Crosera at the *Ufficio tutela della tradizione* or the Office for the Protection of Tradition. These 10 *regate* are promoted by the City

of Venice together with the Racers' Associations and coordinated by the Venetian Rowing Associations.

### **3.5.2 Locating the *Remiere***

This project created a GIS map of the *remiere* or Venetian Rowing clubs. This map was created by obtaining the addresses of each *remiere* and placing them on an electronic map. The locations of the *remiere* were determined by the help of Maurizio Crosera.

## 4. RESULTS & ANALYSIS

The results chapter contains the data we collected through our on-site field work as well as previously collected data. Using GIS, Microsoft Access, Microsoft Excel, and other resources our collected information is shown visually through various maps, charts, comprehensive databases and tables.

### 4.1 Traditional Venetian Boats

The results of this section are based on our study of the remaining traditional boats. The data includes boat types, pictures, measurements, quantities, and locations of the traditional boats in Venice. This data is presented through maps and a database.

#### 4.1.1 Catalogue of Traditional Boats

The catalogue we created using Microsoft Access provided an up to date, electronic database of the traditional boats of Venice. The catalogue includes all traditional Venetian boats, even the types which no longer have any examples left in Venice. This catalogue is to be used as a reference to be updated with the quantities of each boat type in future years. An example of one boat type from the catalogue is displayed in Appendix B. This catalogue gives the viewer a very visual idea about the status of traditional boats in Venice today. The catalogue gives the number of each boat parked in Venice today along with a picture of the boat. The entire visualization gives people a greater feel for how the traditional boats of Venice are in jeopardy. A great example is the *peàta* which was considered the first choice for transporting large cargo in Venice, no longer has a single example parked anywhere in Venice. The boat which was said to have had an integral hand in building the city, carrying every type of building supply to the various sites, does not have a floating remainder.

#### 4.1.2 Traditional Parking Spots

A map using GIS was created to show the traditional boat parking spots. This was created to illustrate the current number of traditional boats that are parked in the canals of Venice. Each type of traditional boat was colored a different color to further illustrate the quantity of each boat type. Appendix D shows our GIS maps of the parking spots colored to illustrate what type of boat is parked there. Each spot has

information of not only the type but also measurements. The first map in the Appendix shows the parking spots which have traditional boats parked there. Figure 20 is a sample of the parking spots which were colored depending on the type of traditional boat parked in the spot. The next map is only the traditional boats that do not have a motor attached. The last map is only the rare types of traditional boats which are the types that have ten or fewer examples left.

The traditional boats parking map gives an overall visualization for the traditional boats used on a consistent basis that are parked in the canals. It also gives an overall look at which boat types are more popular to Venetians today. It helps see trends for which types have the most examples parked, and which types have become most popular to today's needs. Studying which boats have become most popular in today's environment can give ideas to what people want in a traditional boat today. In figure 21 there is a bar graph that shows the number of boats parked in Venice per type. This graph shows that the *gondola* has the most examples parked in Venice. This is obviously because the *gondola* services which bring tourists around the canals are such a profitable business that they employ 425 licensed *gondolieri* that account for nearly all of the parked *gondole*.



Figure 20: Several Parking Spots

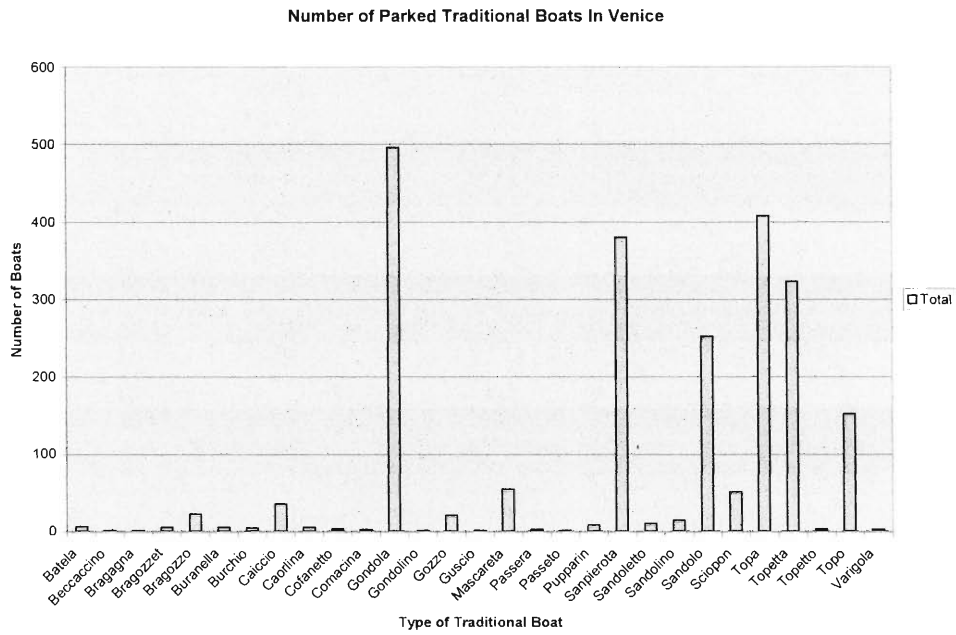


Figure 21: Bar graph of the total number of parked boats in Venice

The popularity of the next two most popular two types of boats, the *topa* and *sanpiero*, can be attributed to the simplicity of attaching a motor to the rear of each. Both boats are very sturdy, reliable, roomy, relatively inexpensive to maintain, and both have almost vertical sterns. Along with their appealing looks they make perfect boats to attach motors to. In figure 22 it is clear how the advent of the motor has taken over these two types of traditional boats. Of the 380 total *sanpiero* parked in Venice 143 of those are fitted with a motor. The *topa* is even worse, of the 408 parked in Venice 207 have been fitted with motors.

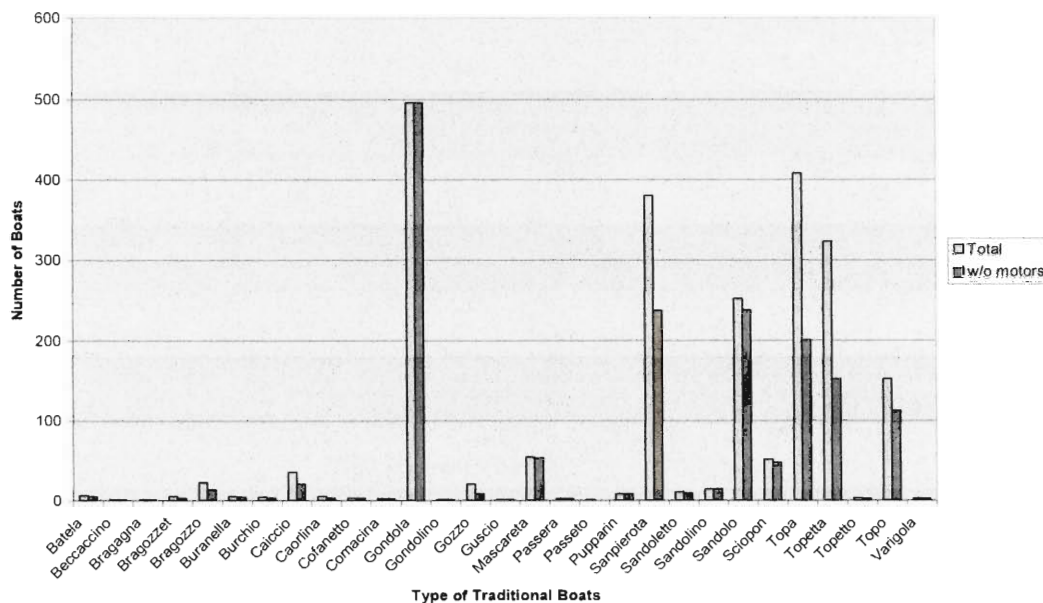


Figure 22: Bar graph of total # of parked traditional boats vs. those parked w/o motors

This should raise alarm for a number of reasons. There are large numbers of motor boats throughout Venice; there is no need for any additional boats converted to use motors. Motor boats contribute heavily to water and air pollution because of the oil and gas that fuel their propulsion, as well as the noise pollution they produce. Also their wake in the canals causes deterioration in the canal walls that leads to damaged buildings. Finally, they take away from the heritage that comes with the traditional Venetian boats. As more and more boat owners add motors to their traditional boats the traditional boats will continue to become more and more endangered until there are few or no left. At this rate examples of types like the *sanpieroia* and *topa* will be impossible to find without a motor. The *topo* has become the *moto-topo* and is a popular choice for transporting cargo. In figure 23 it is clear that motor boats are the majority of the boating community. Only 39% of the registered boats in Venice are traditional, and 14% of those traditional boats have motors added to them, leaving only 25% of all registered Venetian boats to be traditional wood Venetian row boats. This shows a strong presence of traditional



boats still parked in the water around the lagoon.

### Registered Parking Spaces in Venice and Surrounding Islands

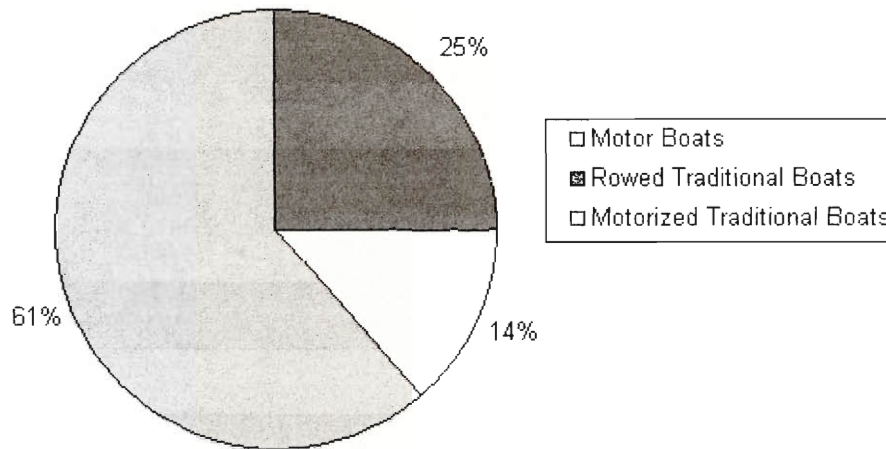


Figure 23: Pie Chart of the Types of Boats in Venice

There were however many discrepancies that we ran into when visiting the most endangered types of traditional boats at their parking spaces. Starting from the boats with the least number of samples and working up to the boats with less than 5 examples still parked in the lagoon today, we noticed that many of the boats parked in these spots that were reserved for these endangered boats were not at all traditional boats and were generally fitted with a motor. Of the 28 parking spots we visited 11 of them were not the traditional boat that were parked there, in fact they were not traditional boats at all. Figure 24 is an example of 2 parking spaces that were supposed to be occupied by *topette* propelled only by oar. Instead we found 2 boats that were clearly not *topette*, were not traditional, and have motors.

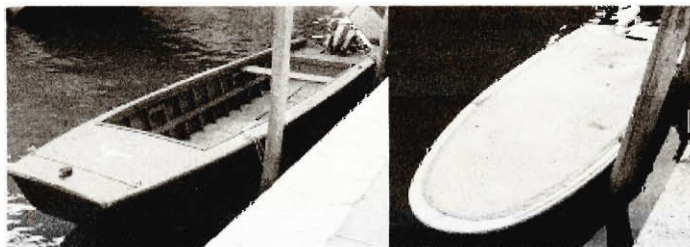


Figure 24: Examples of parking spot errors

There could be a number of reasons for the glitch in the accuracy of the boat parking registry. One possibility is that these owners owned a *topetta* at one time that

were parked in that space, but now they own a different boat that they park in the same space and the fact might be that we don't own a completely up to date parking space map. However this theory of why nearly 40% of traditional boats are registered incorrectly is unlikely despite our small sample size. There is cause for concern when you look at other factors of registering a boat parking space in Venice. Traditional boats that are registered for a parking space do not have to pay the fee that the other boats do. Therefore it is a possibility that the owner of a motor boat could claim to be parking a traditional boat when in reality they are parking a motor boat in order to avoid the monetary fee. This theory would not be an easy task to achieve since when registering the owner of the boat must submit the boats information along with a photo of the boat for the records.

The error in the boat parking registry map could lead to a couple of conclusions. The rarest types of boats no longer being parked in those particular spaces could mean that these boats are actually extinct and no longer in existence or it could simply mean that the owners have them parked somewhere out of water to keep them preserved. This error could also lead us to believe that there are less than the 1,853 traditional boats without motors that the parking space map indicates. This could mean that less than 25% of the boats parked in the lagoon are traditional, so traditional boats have less of a presence in the Venetian canals than originally thought.

#### **4.1.3 Locations of Abandoned Boats**

Using GIS a map of the abandoned traditional boats in the northern lagoon were plotted. This map illustrates the problem with the disregard to the maintenance of traditional boats. The conditions of the boats varied from as poor a condition that only the skeleton of the boat was left to boats in repairable condition. There are 20 abandoned boats plotted on this map, and out of those boats five were salvageable. One of the more interesting salvageable boats is a *batelon* located in a canal around the remote islands north of Mazzorbo and southwest of Torcello. This *batelon*, picture in figure 6, is of particular interest for salvaging because it is one of the few examples still floating. This rare boat that in the past was used most often for transporting large and heavy goods is still in fair condition. It is still able to float and there are no glaring holes or damages. Boats such as this *batelon*, a boat abandoned without an owner, can be taken by anyone for restoration and repair. However, the

boats often remained abandoned because costs to repair traditional boats with traditional techniques are expensive. By the time the boat is towed to shore and rebuilt it would be cheaper to build a new traditional boat from scratch. Of the remaining fifteen boats, four of them are coated with fiberglass making them not worth saving. The rest of the abandoned boats mapped were in poor conditions with no hopes of recovering, and in some cases the boat was nothing more than an almost unrecognizable skeleton of a once attractive boat.

These traditional boats are left abandoned in the upper lagoon because their owners most likely found motorboats to be more efficient and of better use to them. Since motorboats are propelled mechanically they can move around with greater ease and without exerting energy to the driver. Also, motorboats and boats that are coated in fiberglass last longer and allow for easier maintenance. When the owner is ready to part from the traditional boat it is easier to just leave it abandoned in the upper lagoon. The owner usually finds it hard to find a new owner for an older traditional boat in poor condition, especially boats like the *batelon* that are too big to serve an average boat owner practically in the Venetian canals.

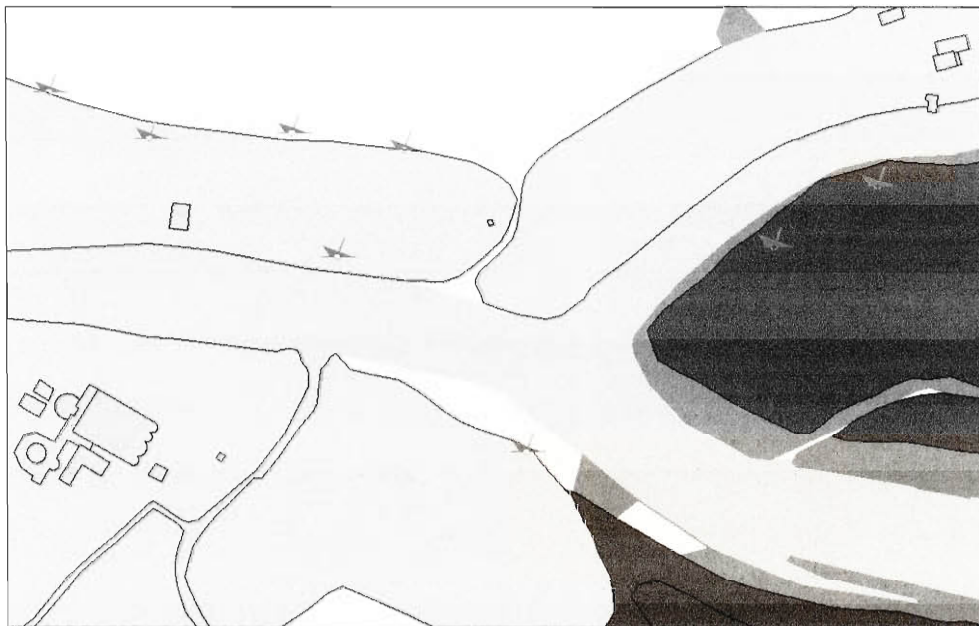


Figure 25: Abandoned Boats in Torcello

## **4.2 Location of Traditional Boat Construction**

The results of this section were obtained through our prior study of *squeri*, through the help of our liaison, as well as interviews with the *squeri* owners. The inventory of *squeri* is crucial to the survival of traditional boats in Venice because of the importance behind their work of maintaining as well as producing traditional boats.

### **4.2.1 De'Barbari Map**

The *De'Barbari* map is a map that was created by *De'Barbari* in the 1500's to show Venice from bird eyes and is considered one of the first accurate maps. The map was used to show where past *squeri* were located by coloring all the *squeri* on the map yellow. This map allows us to visually see the prominent craft that building traditional boats was at this time. Over a dozen *squeri* are colored in, including the great squero of *Arsenale*. The *Arsenale* was one of the great shipbuilding facilities of its time. It was said that they could produce a number of boats per day. *Arsenale* was where all of the larger ships of the Republic were built starting in the twelfth century. It is easy to see how prominent the *Arsenale* was just looking at its size. The greater number of *squeri* and their greater size demonstrates how traditional boats were a much bigger part of Venetian society during this period of time. It was at these *squeri* that every single boat that allowed transportation for the entire city was crafted. These *squeri* were essential for Venice's survival. The *De'Barbari* map is illustrated in Appendix E.

### **4.2.2 Locations of Streets Related to Boats**

We created a GIS map which illustrates with the use of multiple colors the streets in Venice which are related to boats or different boat terms. We used the *Tassini*, a table which had the street names of Venice with a description about each street to determine which streets we would include in our map. Then the streets were colored based on which term related to the name. We found this map illustrates the large number of boat related areas of Venice and emphasizes the traditional boats role in building the city. This map strengthens the argument that when you're in Venice traditional boats are all around you, sometimes without even knowing it. These street names a demonstration of the relationship that Venetians have with their boats, a

relationship that is strong enough to see in the streets everyday in the form of the name of their streets. Figure 26 shows a sample of the Grand Canal with the streets colored depending on the termed they are named after. This sample illustrates the large number of streets colored along the Grand Canal, which is not surprising since it is the main waterway through the city of Venice. The terms and colors included in the map are shown in table 2. The terms are translated in our Glossary of Terms located in Appendix X.



Figure 26: View of Streets Related to Boat Terms

<b>Color</b>	<b>Boat Term</b>
	<i>Squeri</i>
<i>Green</i>	<i>Barche</i>
<i>Teal</i>	<i>Fèlzi</i>
<i>Orange</i>	<i>Remer</i>
<b>Purple</b>	<i>Traghetto</i>

Table 2: Legend for Boat Related Street Names

#### **4.2.3 El Fèlze**

*El Fèlze* is the association of arts and crafts that helps contribute to the construction of the *gondola*. This association is set out to preserve the art that is

everything related to the *gondola*, which includes the people who build *gondole*, craft *fórcole*, make *gondolieri* shoes, hats, and clothes, carve the decorations, do the iron work, apply gold leaf, create the brass ornaments, and upholster the cushions for *gondole*. These artisans and craftsmen are aided by this association in order to help preserve this important public art form. We created a map in GIS of every location of these *gondolieri* services and artisans. Table 3 contains the name of the business that can be found on the map and how many of each type of business are in Venice. Each of these businesses plays a crucial role in keeping the tradition of the *gondola* alive, and since there are only a few left of each facility it is important to know their location and services. Not only are these craftsmen and artisans a part of a dying breed of each of their trades rich in Venetian heritage, but these people play an important role to the economy of Venice. The *gondola* has become a modern symbol for the city of Venice and is a major draw for the city's income. The *gondola* each and every year draws tourists to the island to take a ride through the city's canals. Each and every one of these trades plays a role, as small as it may be, in keeping the *gondola* existing in Venice.

Not only are these businesses important pieces of Venetian heritage, but they are important to the Venetian economy as well. The average yearly salary for *gondolieri* are hard to come by since the law does not require any written record of daily rides. In February of 2000 *Woodenboat* magazine guessed that they earn between \$50,000 and \$80,000 a year. With over 400 *gondolieri* licenses, this makes *gondola* tours roughly over a \$20 million business. This amount can be considered a considerable chunk of the city's economy, important enough that every business involved are important to maintaining Venice's economic structure and continued successfulness.

<b>Business</b>	<b>Quantity</b>
<i>Squerariòli</i>	7
<i>Remèri</i>	3
<i>Ottanài/ Fonditori</i>	3
<i>Fravi</i>	4
<i>Intagiadòri</i>	3
<i>Indoradòri</i>	2
<i>Tapessièri</i>	2
<i>Baretèri</i>	1
<i>Caleghèri</i>	2
<i>Sartòri</i>	1

Table 3: *El Fèlze*

#### 4.2.4 Catalogue of *Squeri*

We created a catalogue of the Venetian *squeri* using Microsoft Access to present our results in a database. Information on the locations of the *squeri* was gathered from *Arte degli squerarioli*. Through our interviews with each owner, the management name and the services they produce were collected. These results allow us to analyze the current production of traditional boats. Currently there are seven out of the fourteen *squeri* which are active. Although there have been *squeri* that have closed since the last inventory done in 1985, two new *squeri*, the *squero* run by Thom Price and *Squero Crea*, have recently been opened. Of the *squeri* that are open, most do repairs on multiple types of traditional boats, but only build new *gondole*. Tourism has made the *gondola* tours a thriving business in Venice, which has resulted in its strong presence in the canals still today. As a result, *squeri* produce new *gondole* each year, as well as spending a majority of the services dedicated to the repairs and maintenance of *gondole*. The *squero Crea* and the *Cantiere Vidal* devotes some of their services to the creation of various types of traditional boats because of the concern of other types becoming extinct. Regardless of the types of traditional boats produced at the *squeri*, the fabrication of these boats is vital to their future existence.

# Squeri of Venice- 2004

<b>Title</b>	<b>District</b>	<b>Open/Closed</b>	<b>Management</b>	<b>Primary Service</b>	<b>Production</b>
Cantiere Vidal	Burano	Open	Vidal Family	New boat construction	4 New boats,
Cantiere Amadi	Burano	Open	Vittorio Amadi	New boat construction	0-1 New boat
Squero Crea	Dorsoduro	Open	Franco Vienello	New boat construction	5-6 New boats,
Squero Canaletto	Cannaregio	Open	Thom Price	New gondola	1 New gondola
Squero of Giudecca (near	Dorsoduro	Open	Roberto Dei	New gondola	5 New gondole,
Squero at Ognissanti	Dorsoduro	Open	Nedis	New gondola	2-3 New
Squero of San Trovaso	Dorsoduro	Open	Lorenzo	New gondola	1 New gondola,
Squero of Giudecca (street	Dorsoduro	Closed	Unknown		N/A
Squero on San Pietro of	Castello	Closed	Unknown		N/A
Squero on Mendicanti river	Cannaregio	Closed	Circolo Nautico	Rowing club boat	N/A
Squero on Mendicanti river	Cannaregio	Closed	Unknown	Storage facility	N/A
Squero at 'Anconeta	Cannaregio	Closed	Unknown	Storage facility	N/A
Squero at Servi	Cannaregio	Closed	Arzana	Boat preservation	N/A
Squero in Corte of Muti	Cannaregio	Closed	Unknown	Under construction	N/A

Table 4: *Squeri* Inventory

## 4.2.5 Locations of *Squeri*

A map of the fourteen *squeri* of Venice and the two from Burano was created using GIS. Each *squero* was colored either yellow if the *squero* had closed or green if the *squero* was still active. Figure 27 shows a section of the *squeri* map we created, and illustrates an example of an open and closed *squero*.



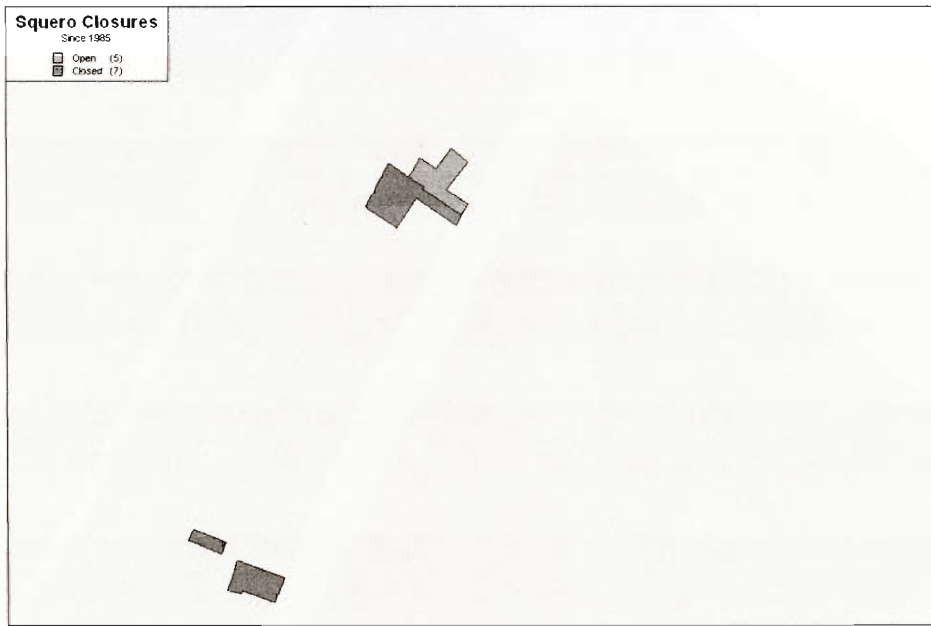


Figure 27: Squeri Map

#### 4.2.6 Inventory of *Fórcole*

The art of *fórcole* crafting, like the traditional boats of Venice, needs to be preserved. The inventory of *fórcole* was completed as a preservation project. *Fórcole* need to be given proper attention for what they are, and that is an object of art. There are only three *remeri* left today and only with their survival does the *fórcole* survive. The *Arzanà* Association has 71 *fórcole* which are older relics that needed to be catalogued just as pieces of art would be recorded. The *Arzanà* Association will have the inventory as a reference for the types of *fórcole* in their collection. A sample of a form completed for one *fórcola* can be found in Appendix S.

#### 4.3 Work Uses of Traditional Boats

We determined three work uses of traditional boats, two of which is still a current use. By researching the uses of traditional boats, the changes in the purpose and functions over the years are analyzed. It was found that traditional boats are mostly used for pleasure purposes while the principle work purposes are the *traghetti* and *gonolieri*.

### 4.3.1 *Fitabatèle*

The map we created using GIS and *I mestieri nella tradizione popolare veneta* includes all the sites of the locations of *fitabatèle*. The range of years that the *fitabatèle* closed is from 1915 till today. The years are separated into six different ranges to illustrate when the majority of *fitabatèle* closed. From this map it is apparent that most of the *fitabatèle* closed between the years of 1960 to 1975, at this time 17 closed which coincided with the popularity of the motorboats increasing. The data gathered on the *fitabatèle* provides an inverse relationship of the rise of the motorboats with the decline of row boat facilities in Venice. The rowboat rental facilities closed for a number of reasons, but the most obvious was the failure of rowboats as a necessity for commercial uses. Nearly every traditional boat that once was an essential cargo boat has now been replaced by an equivalent with a motor. So the need to rent traditional row boats for commercial needs is no more, therefore the only reason left to rent traditional Venetian boats is for pleasure. However, renting boats for pleasure is no longer a necessity because of rowing clubs. Rowing club memberships continue to increase because they offer the use of their boats at anytime in addition to the social activities. Since belonging to a rowing club allows the use of a traditional boat at their convenience the need for renting a boat for pleasure is no longer a profitable business.

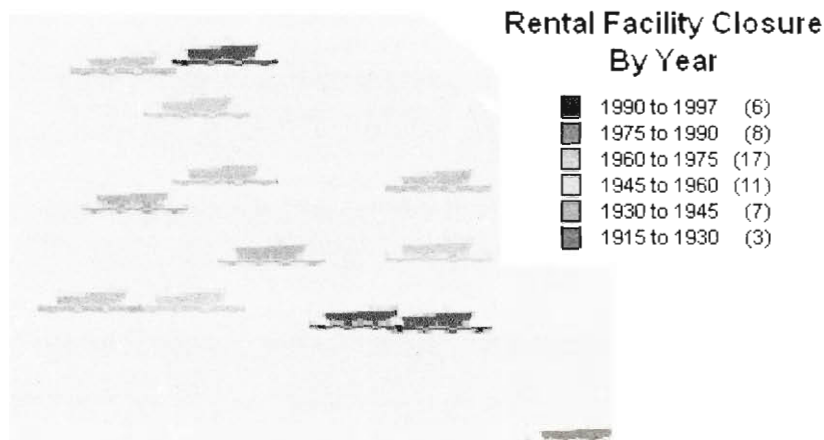


Figure 28: *Fitabatèle*

### 4.3.2 Current Motor Boat Rental Facilities

There are currently five motor boat rental facilities open in Venice. These motorboat rentals developed over the past ten years which was the time the last *fitabatèle* were closing. A few of these motor boat facilities were converted from row boat rentals when the motor boat became the primary commercial transport boat. In order to maintain profitability many of the *fitabatèle* converted to motor boat rentals while others shut down. These motor boat rental facilities rent out their boats to companies and individuals with a need to use the boats for work purposes, such as carrying heavy materials or goods for construction jobs.

### 4.3.3 *Traghetti*

The *traghetti* no longer carry passengers the long distances as they did in the past. Currently in Venice there are eight *traghetti* that offer services across the Grand Canal, this number has decreased over the years. In 1697 there were as many as 42 different *traghetti* stations that took people virtually anywhere in the lagoon, and another 27 *traghetti* that could row passengers farther distances along the eastern Italian coast. Of the 42 *traghetti* that served as a taxi for people needing transport throughout the lagoon, 23 of the *gondole* had specific routes that they traveled. These routes included crossing back and forth across the Grand Canal and to and from the Lido among others. The other 19 stops were the *traghetti* similar to the taxi drivers you see on land today. These *traghetti* could take people anywhere within the neighborhood that they were positioned that the person needed transport to.

No longer can passengers take the *traghetti* long distances such as Burano and Verona. The *traghetti* service is another example of how the increased popularity of personal motorboats and motorized public taxi services has led to a decline in the commercial uses for traditional boats. However, the reason that the *traghetti* still exist in Venice is because the *traghetti* still hold great value in their practicality. People can take the *vaporetto* to different locations across the Grand Canal, but the *traghetti* offers an easier more efficient way to pass straight across the Grand Canal. The practicality of the *traghetti* is irreplaceable to Venice. A *gondola* is the only boat that can perform this task, a boat with a motor would be inefficient and silly for transporting people less than a quarter of a mile across a canal just to turn around and go back.

#### 4.3.4 Gondolieri

The GIS map of the *gondolieri* districts includes sixteen different regions that divide up Venice and is presented in Appendix N. We found the section numbers five, seven, and fourteen have recently closed due to the minimal work that was in those regions. There are 425 licensed *gondolieri* and 80 substitute *gondolieri* who are in training. The *gondolieri* are distributed throughout the now thirteen different regions based on agreements. The breakdown of the number of *gondolieri* for each region is in Appendix O.

#### 4.3.5 Sandoli Locations

A GIS map of the locations of the *sandoli* stations is in Appendix M, but there is a close up of one *sandoli* station in Figure 29.

There are currently nine *sandoli* working similarly as the *gondole* do as a sort of rowing tour through the canals of Venice. These locations are important because they give an example of how a type of traditional boat besides the *gondola* is still used today for commercial reasons. It is important to keep all types of traditional boats alive. The *gondola* leaves no cause for worry, because they have and will no doubt survive the test of time.



Figure 29: Sandoli Locations

This due mostly impart to the huge tourist attraction that the *gondola* brings to Venice, the fact it's an icon to the city, and it is irreplaceable for everyday transportation with the *traghetti*. Commercial ways to use other types of boats such as the *sandolo* make sure that this particular type of traditional boat survives the same test of time that the *gondola* most certainly will.

#### 4.4 Pleasure Uses for Traditional Boats

As motorboats replace traditional boats for personal and cargo transportation in Venice and the surrounding areas, different uses of traditional boats develop. The motorboat, which requires less maintenance and human power than traditional row boats, has become more popular for transportation of heavy goods, cargo, and

personal transportation. Traditional boats are now most commonly used for *regate*, festivals, rowing clubs, and other leisure purposes.

#### **4.4.1 Locations of Venetian Regate**

We created a GIS map of the courses of the *regate* which take place in Venice. The map includes the ten annual *regate* that are held throughout Venice and the Lagoon, plotting their race course as well as their name. A database was created to include the date of each *regate* and the type of boats raced in each. The map of the *regate* is located in Appendix T. The *regate* are important to the traditional boat community because their key focus is not just the sport and the ethical values that come with the competition. The organizers have a wider scope in mind; they use it as a vehicle to understand and respect the lagoon and help rediscover Venice's great maritime culture. These annual races usually held in conjunction with city celebrated festivals lets anybody interested see a marvel of maritime history. For no charge residents, visitors, or tourists can watch the gracefulness and ease at which the Venetian boats are rowed. The attendees get treated to the near perfect relationship that has evolved from centuries of Venetian boat builders.

#### **4.4.2 Locations of Remiere**

The GIS map layer that we created includes twenty-six rowing clubs in Venice and surrounding islands. The locations of every rowing club are important because each club has their own collection of traditional boats and some may own rare or unique types of boats. For example, Figure 30 shows a very rare boat, the *batèla a coa de gambero*, which is owned by *Remiera Serenissima*. The rowing clubs today have helped to single handedly keep enthusiasm alive for traditional Venetian boats. These rowing clubs bring excitement and use for these boats that have lost the allure in the wake of motor boats. Their spontaneous *regate* and rare boats attract thousands of Italians to these clubs. All in all there are about 28,000 Italians that belong to rowing clubs in the areas of Venice, surrounding island, and northern Italy, which practice the Venetian style of rowing. With this type of participation there is no doubt that traditional Venetian boats can not go extinct.

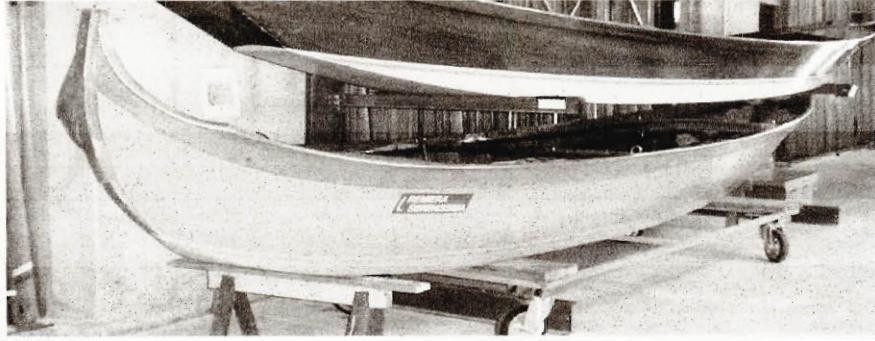


Figure 30: A Batèla a Coa de Gambero

## 5. CONCLUSIONS AND RECOMMENDATIONS

In order for the preservation of traditional boats of Venice to persist for future years, projects like this as well as other preservation efforts need to be continued. We developed recommendations to allow the continuation of this project and efforts like it to ensure the survival of the icon of Venice. In future years, our inventories will need updating in order for Venice to have accurate information on the quantities of traditional boat types and *squeri*.

### 5.1 Restoration Plan

A plan for restoring the extinct types of traditional boats was created to enable the preservation of a valuable part of Venetian history. One possibility for preventing more boats from going extinct is to have each of the Venetian rowing clubs adopt a particular type of endangered boat. The club would then be responsible for the boat's preservation. With our abandoned boats GIS map, rowing clubs can also locate and salvage a traditional boat from the Lagoon and complete its restoration.

### 5.2 Further Research

The time constraint of two months of project work in Venice left us developing ideas that there was not enough time to complete. Through our research on the traditional boats of Venice, we have discovered areas that should be examined further, perhaps in future IQP's. The *remiere* have been mapped in GIS, but an inventory of the boat types that each *remiere* own would produce a complete database of the traditional boats of Venice. An inventory of the members of the *remiere* in Venice would be useful to determine the quantity for each club. We also created a map of the *El Fèlze* Association, but there was not enough time for us to visit each business. Another suggestion is to complete interviews at each of these businesses to determine their importance to the *gondola* and to Venice as well.

### 5.3 Reintroduction of Traditional Venetian Boats

Traditional boats will be reintroduced into Venetian culture by studying the ways they are currently in use, and then by expanding these ideas to further the use of traditional boats. We have gathered data on uses such as in *regate*, festivals, the *Vogalonga*, and in movies. We are developing new uses for the traditional boats in attempts to integrate them into modern society. Some of the boats may need to be

altered to find their niche. However, the classic design of the boat and the spirit of its heritage should be maintained.

### **5.3.1 Festivals**

One way to promote awareness for traditional boats is to take a successful idea like the Boston Antique and Classic Boat Festival and bring a similar festival to Venice.<sup>91</sup> The festival could have all the owners of traditional boats bring their boats and display them for the public. The public can meet the owners and rowers dressed in the common marine attire of the time, watch races, enjoy entertainment, and vote for their favorite boat. The festival would be a great cause for many reasons. It would encourage boat owners to keep up their boats. The festival would be educational, it would increase public appreciation of the traditional Venetian boats along with the skills to build and maintain them. It promotes the boats; people who come to the festival can be swayed to invest in a boat of their own. Also, the festival provides a platform for non-profit organizations such as the *Arzanà* Association and the rowing clubs to exhibit and publicize their causes and increase membership. Finally, it would help to promote the island's *squeri* that could showcase their boats, and help increase business.

### **5.3.2 Row Boat Rental**

One proposed use of traditional boats for Venice today would be for boat rental. The process would involve renting out traditional boats and to give a lesson on traditional rowing as well. Tourist would be able to get a first hand experience of the art of traditional Venetian rowing as well as a tour of the city. One rowing club currently charges five euro per hour for lessons on one of their traditional boats.

### **5.3.3 Vigili**

Another modern use for the traditional boats is the use by the *vigili* or Venetian police. The traditional boats would not replace the use of motors boat by the *vigili*, but with the use of several traditional boats, the *vigili* can accomplish tasks otherwise impossible with motorboats. In figure 31, a motor boat is illegally traveling through a blue canal or a row boat only canal. With a large force on row boats the

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<sup>91</sup> [www.by-the-sea.com/bacbfestival/](http://www.by-the-sea.com/bacbfestival/)



*vigili* can accomplish many of the same tasks while gaining more access to the cities tighter areas, and not contributing to the harms of the motor boat. The need for running down motor boats partaking in illegal activity is not a necessity because of the use of the LV registry numbers displayed on every motor boat exceeding 10 hp. Therefore, there is no need to run down the illegal boat, because the police have adequate information on every boat. Not to mention that the law enforcement would be setting a good example to the rest of the city by rowing the traditional boats.



Figure 31: Illegal Boat Activity

#### 5.3.4. Traveling Venetian Boats

The *Settemari* Rowing Club is already working to bring several unique Venetian boats to the United States. They will be presented at several locations around the Northeastern United States. We hope that other organizations will continue with this idea. This will raise interest in these boats and their not only in Venice, but around the world. One Venetian Rowing club that currently travels with their collection of boats is *Circolo Nautico Generali*. This club has traveled to places such as New York, Washington, the Thames River, and various places over the past twenty years. The first map in Appendix V shows the popular *regate* located in the northeast of the United States and points out possible sites for rowing clubs to bring their traditional Venetian boats. The recommendation we make to the Venetian Clubs

is to travel to the northeast United States in the early fall. During this time is when all of the American rowing clubs are partaking in the biggest regattas that the United States and in some instances the world has to offer. From late September to late October three particular regattas take place that are considered the most prominent of the rowing season. The Head of the Potomac, Head of the Shuylkill, and Head of the Charles are the three regattas that nearly every American rowing club and the who's who in rowing is there. Not only that, but these regattas take place in three very large and culturally rich cities in the United States so they attract many spectators. These regattas would be fortunate if Venetians came and gave a rowing demonstration and maybe an exhibition regatta during the breaks in racing. It would only be fitting for Venetians to bring something so deep and rich in history and heritage to the three cities where the United States was born: Philadelphia, Washington, D.C, and Boston.

### **5.3.5 Taxi Services**

The *vaporetto* becomes crowded with tourists during the summer, the motor boat taxis are an expensive form of transportation, and *gondole* have restricted areas of travel which makes it difficult to use as a form of taxi. A service of traditional boat taxis in Venice would be a good alternative to the costly and crowded forms currently existing. This taxi service would be most useful for transporting people to places that are deep within the island, and to places that are a further walk from the larger canals to get on the *vaporetto*. The ideal boat for this service is a *batèla*, which is a traditional Venetian boat shown in figure 7. The *batèla* is perfect for this type of service because it is large and sturdiness to be a comfortable ride for passengers, while it's quickness and maneuverability make it a practical boat for moving through the tight sharp turned canals that make these inner canals almost inaccessible to motor boats. Also, the *batèla* can be rowed with 2 oars which would make it a very efficient boat as far as transporting people from one point to the next.

We have created GIS maps to give examples of how this taxi service would offer practical and efficient routes for its passengers. Appendix U contains four maps: the first is a map of the proposed taxi routes, the second is one taxi route, the third is a walking route compared to the taxi route, and the last is a map of the route that the *vaporetto* offers to that location. These maps illustrate the efficiency of traditional taxi services that go further of the Grand Canal and how they would provide quicker transport then by walking or using the *vaporetto*. For example if a resident were

looking to go from Ferrovia to Campo San Moise, rowing would be the most efficient way. By *vaporetto* this distance is 3.2 kilometers, by foot this distance is 2.3 kilometers, and by row boat this trip is only 1.6 kilometers. Not only does this idea present the city with a needed service for transporting residents conveniently to places inaccessible by public transportation, but it will give a use to a traditional Venetian boat that has nearly disappeared. The *batèla* is a boat that is on the endangered boat list has only 6 examples still left today.

### 5.3.6 Appeal on the Web

We live in a cyber age where there is virtually at least one computer to every household, and nearly everyone is on the world-wide web. Virtual shopping, online payments, and most important to our case, online donations are more common than ever. If traditional boats had a powerful voice on the world-wide web stating the case of their importance to a culture and history then it could enthrall people to make donations to the cause of restoring and renovating traditional Venetian boats. The website would have to include a powerful history and background of traditional boats; explaining that traditional boats played an invaluable hand in building the very city that can be considered one of the most popular tourist destinations in the world. Venice is a city that is engulfed in beautiful art, architecture, and culture; the boats that have built the city and helped generations of Venetians thrive are no different. The boats can be considered art and pieces of history but they are also a symbol of a once prominent naval and maritime republic and the symbol of the uniqueness and individuality that make Venice such a special place and a popular tourist destination.

This is why we created a website including all of our results that we compiled during this project. The website is an overview of the entire traditional boat community in Venice, giving the visitors information about everything to do with traditional boats in Venice. Using our databases, maps, and catalogs there is a website that appeals to anyone with the interest in Venetian maritime activity present and past. The website more specifically includes a parking spaces map of all registered boats in Venice, catalogue of the boats, family tree of boats, rare boat lists, *regate* maps, *traghetti* past and current maps, *fórcole* inventory, and the *squeri* maps and catalogue.

Our website needs to be taken over by professionals in order to refine it visually, but the content is very rich and factual. This website could be taken over by

a number of organizations. The two most practical organizations to take it over are the *Servizio Tutela Tradizioni – Cultura e Turismo* or the *Arzanà* Association. The office of *Servizio Tutela Tradizioni – Cultura e Turismo* deals with everything to do with tradition in Venice. This office heads the organization of each *regate* and other festivals around Venice. Our traditional Venetian boat website would be a great way to educate tourists or other visitors about the great traditional boats of Venice and their great history, culture, services and activities that they offer the city. Although they already have a website, they could include our design in a link on their website that could go far to raise awareness and educate visitors to the site about traditional Venetian boats. The *Arzanà* Association is another strong possibility for taking over the website. If *Arzanà* were to take over our website they could not only educate visitors about all that traditional boats have to offer but they could also use it as a tool for generating donations. They could include the boat that they are currently renovating at the current time, and the site could ask for donations. Actually seeing the boat along with a short history of it could do well to appeal for donations. The site could also include a list and picture of all of the boats and maritime collectibles in the *Arzanà* collection along with a brief history. This idea could go far to help give *Arzanà* improved visibility throughout the world, which could help to lead movie makers interested in renting a traditional Venetian boat for a movie. In turn this money would lead to a boat restoration like it has in the past for *Arzanà*, most recently renting a boat to the filming of *The Merchant of Venice*. Whether the site does well to spark donations for preservation of boats or not, the site will help raise awareness and enthusiasm for traditional boats in Venice.

#### **5.4 Final Thoughts**

Ultimately this project shows the broad landscape of traditional boats in Venice to give visual proof and data to the strength and respect they hold in Venice even in today's age of technological advancements. Someone who has never been to Venice or even the average tourist would never notice a line of *vaporetti* waiting patiently behind a couple of *sandoli* or *mascarete* on a Friday night rowing down the Grand Canal. They might not notice a motor boat have to go out of their way to give a traditional boats rower enough room for his or her oar. Surely they'll never be able to see the excitement in the eyes of a new member to one of the many rowing clubs of Venice, thrilled to relive and take part in something so deep in their city's heritage.

They get to participate in something that the likes of George Eliot commented on by saying, “Of all the dreamy delights, that of floating in a *gondola* among the canals is surely the greatest.”<sup>92</sup>

Traditional boats still have plenty to offer the city of Venice. Their practicality has been proven over the centuries that they have met the needs of every generation of Venetian. Traditional boats in Venice are unique from most other places in the world because they form a nearly flawless relationship with their environment. The boats are a perfect match for the Venetian lagoon which is the same lagoon that these boats were built centuries ago for. The flat bottom and shallow draft hull allows the boat to glide effortlessly across the extremely shallow lagoon water while not disturbing any of the environment through which it rows. Also, the Venetians have perfected a rowing technique that is so natural a movement that they can row long distances with little fatigue. Venice is unlike any other city located on the water. It is a city of no cars, one that uses only boats for their every transportation need, and still has plenty of use for traditional boats today. Still in Venice you can find a *topo* aiding a fisherman in the upper lagoon, a *traghetto* carrying passengers across the Grand Canal, a *gondola* showing a family of tourists the beauty of its city, or a *regata* celebrating the city’s sea culture. The traditional Venetian boats have not survived this long for the sake of keeping alive a piece of public art. They are still alive because Venetians still depend on them. They may not depend on them for the same reasons they did in the past, a *peàta* is no longer rowed to Venice carrying all of the cargo brought to Italy from larger ships, or no longer does a *gondola* taxi people to Mestre, but many uses are irreplaceable. No motor boat could move swiftly through water less than a few feet deep quietly hunting birds like the *s’ciopón* can. No motor boat could be feasible to replace the cost effectiveness and efficiency of the *traghetti*. No motor boat is agile enough to give guided tours through the canals, and if there was how peaceful and tranquil could this experience be. Traditional boats and Venice are a perfect relationship that if ever severed to the point of extinction would cause a wound in the very spirit that is Venice.

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<sup>92</sup> Knopf Guide. p. 116.

## Appendix A- ANNOTATED BIBLIOGRAPHY

### Venetian Boats

<<http://www.gondolavenezia.it/history.asp?scelto=1>> April 20, 2004.

This site explains the *gondola*, its shape, size and features. It is a good background for information about boat types.

Source: Google search, "Venetian History"

<[http://www.comune.venezia.it/turismo/feste/regatastorica/en\\_barche.asp](http://www.comune.venezia.it/turismo/feste/regatastorica/en_barche.asp)>

This is a website containing regulations for the *gondola*, *gondolino*, *Caorlina*, *Mascareta*, and *Pupparin*. It describes the uses for these few types of boats.

Source: Google Search, "Venetian boat construction"

**Fullin, Giancarlo. The Boats of Venice. Il Libreria Editrice, Padova: 1999.**

This book brought us endless information about the various types of traditional Venetian boats for the background. This book has the most in depth information of each type of boat.

**I mestieri nella tradizione popolare veneta. Quaderni del Lombardo. Padova: 1978.**

This book contains the locations of the *fitabatèle* that were once located throughout Venice. It also provided us the years each site closed, which allowed us to analyze the rise of motorboats.

Source: Giovanni Caniato

**Lanapoppi, Paolo. "Six Centuries of Gondolas." WoodenBoat. No. 152, Jan/Feb 2000: p 42-49.**

This article found in *WoodenBoat* provides with a great background on the *Gondola* and how its change in purpose over the years. The article also included information on the *squeri* and *squeri* owners we documented.

**Penzo, Gilberto. <[http://www.venetia.it/boats/penzo\\_eng.htm](http://www.venetia.it/boats/penzo_eng.htm)> April 2, 2004.**

**Penzo, Gilberto. Fòrcole, Remi, e Voga alla Veneta. Il Leggio Libreria Editrice, Padova: 1986.**

This source provided us a background on the *fòrcole*. It also included English and Italian terms which were using for our bi-lingual glossary. The book also showed us how to measure the *fòrcole* and was the basis for the measurements we took ourselves.

**Roberto, Tramontin "Costruzione Gondole."**

<<http://www.tramontingondole.it/1en.htm>>.

**Rossi, Paolo. Tipologie dei Natanti Veneziani. Comune di Venezia, 2001.**

This is a book which includes the different types of traditional Venetian boats; however, it is all in Italian. It still needs to be translated.

Source: Fabio Carrera

**“The Historical Regata.”**

**<[www.comune.venezia.it/turismo/feste.regatastorica/en\\_barche.asp](http://www.comune.venezia.it/turismo/feste.regatastorica/en_barche.asp)>.**

**April 12, 2004.**

**“Transportation.” <<http://www.veniceonline.it/Transportation.asp>>. April 11, 2004.**

*Tipologie dei natanti veneziani*

**Witty, Anne. “Beyond the Gondola” Wooden Boat. NO.153, April 2000: p 50-59.**

This is an article about the decline of traditional boats in Venice and their uses today. It includes details on several types of specific boats, as well as great background information about the city of Venice and the groups trying to restore the traditional boats.

**“Vogalonga.” <<http://www.vogalonga.com/inglese/history.htm>>. April 12, 2004.**

**Zanelli, Guglielmo. Traghetti veneziani. Il Cardo Editor, Venezia: 1997.**

This book was an excellent source for information on *traghetti*. The book provided past information of the courses of *traghetti* starting from around the sixteen hundreds until currently.

Museums

This is a website for the Maine Maritime Museum which has a library that contains photographs, books and magazine of historical, Maine related boat information. The information, although about Maine, could contain general background boat information. Located at 243 Washington Street, Bath, ME 04530, (207) 443-1316.

Source: Internet, Search for “Antique Boat Museums, Maine”

Wooden Boats

**The Building of a Wooden Ship, Dana A. Story, VM 144 S76**

This book is one man’s story of wooden ship building. The book has many pictures of the steps in ship building. Good for basic background information on wooden boat construction. However, it is mostly just the steps of construction.

Source: Found when looking for another book

**The Theory and Technique of Ship Design, George C. Manning  
VM 156 M27**

This is a very technical book which focuses a lot on equations and more technical aspects. However, it does include certain characteristics of ship design.

**Daniel M. Mack- Forlist & Arthur Newman, The Conversion of Shipbuilding from Military to Civilian Markets. VM 23 M23 1970**

Has a good demonstration of tables recording data such as length and characteristics. The data is about topics such as fishing vessels but the methods of recording data could be useful. Also talks about shipyards.

**“Art and Technology of Venetian Ships and Boats.” Technology and Culture. 43, No 2 (April 2002): 411-412.**

A book review about a book about ancient Venetian Boats and Ships, the author mostly takes images of all the ships she can find a way of defining them and grouping them.

**Culver, Henry B. The Book of Old Ships. New York: Garden City, 1935.**

A book of the first traditional ships. Talks mostly about the very early English ships, but includes ships from the Mediterranean such as the *Barque Provencale*, mostly from Roman Empire period. Also, uses boat vocabulary and terminology.

**“Beyond the Gondola: A Panorama of Venetian Boats.” Wooden Boat. April 2000, 50- 59.**

This article from “Wooden Boat” describes our project well. It is about the decline of traditional boats and the increase in interest to revive the lost types of boats. The information is very relevant to our project  
Source: Fabio

*Squeri*

**Caniato, Giovanni. Arte degli squerarioli. Associazione Settemari, Venezia: 1985.**

This book which was written by our liaison provides us with *squeri* data from 1985, which we based our research on. The book includes information on the *squeri* such as there locations, ownership, and productions.  
Source: Giovanni Caniato

**Price, Thom “Squero Caneletto” <<http://www.squero.com/>>.**

This website provided us with information on how to get in contacted with Thom Price, one of the *squero* owners.

Venetian Background

**Lane, Frederic C. Venice, A Maritime Republic. John Hopkins U. Baltimore: 1973. DG 676 L28.**



**Lane, Frederic C., Venice and Its History. John Hopkins U. Baltimore: 1966**

This source includes information about the Venetian economy during the time of the Republic. The economy was fueled by Venice's dominance in maritime trade so there was a lot of helpful information about why they were so successful in the water.

Source: Searched WorldCat, checked it out through interlibrary loan from Boston College.

**Martin, Lillian Ray. The Art and Archaeology of Venetian Ships and Boats. Texas A&M P. College Station: 2001**



Mostly includes the uses of ships and boats in Venetian art, however the introduction to the book gives a good history of Venetian dominance in maritime trade.

Source: Searched WorldCat, checked it out through interlibrary loan from Wheaton College.

**Thubron, Colin. The Venetians. Time- Life Books. Chicago: 1980.  
DG 677.5 T48**

Mostly describes ancient war ships and military defense. However, it talks about production at the Arsenal and the materials used to some extent.

## Appendix B- BOAT TYPE CATALOGUE

 <b>WPI</b>	<b>Traditional Boats of Venice</b> Assessing a Maritime Heritage Sean Candlish, Craig Shevlin, Sarah Stout
<b>Boat Type</b>	<i>Batèla</i>
Quantity	
6	
Average Length	
8.7	
Average Width	
1.8	
Traditional:	
Yes	
Rarity	
Rare	
Notes	
Similar to Buranella	

Access Data Form



## Traditional Boats of Venice

### Assessing a Maritime Heritage

Sean Candlish, Craig Shevlin, Sarah Stout

<b>Squero Name</b>		<i>Squero di San Trovaso</i>	
District	Address	Squero Code	ID
Dorsoduro	1097	TROV	1
Current Status	Age	Management	
Open	400	Lorenzo Della Torffola	
<b>Primary_Service</b>			
New gondola construction and restoration			
<b>Secondary_Service</b>			
Misc. repairs			
<b>Annual Production</b>			
1 New gondola, 1 major restoration			
<b>Note</b>			
Currently under city mandated renovation			



Squero Access Form

# Squeri of Venice

ID	Title	Sestiere	Anagrafico	Gestione	Attività Svolta	Stato di Conservazione
1	Squero di San Trovaso	Dorsoduro	1097	Cooperativa gondolieri <Daniele Marin>	costruzione e riparazione gondole	buono
2	Squero agli Ognib>anti	Dorsoduro	1542	(a)Nedis Tramontin (b)Daniele Duraddo	(a)costruzione e riparazione gondole (b)rimessaaggio e riparazione barche	discreto
3	Squero in corte dei Muti	Cannaregio	3454	Tullio Dal Mistro	riparazione barche	discreto
4	Squero ai Servi	Cannaregio	1936	Officina Scarpa	già officina meccanica	degradato
5	Squero all'Anconeta	Cannaregio	1965	Alcide e Aristide Battistin	riparazione barche	discreto
6	Squero sul rio dei Mendicanti	Cannaregio	6356	cantiere e motonautico <2000>	riparazione scafi in legno e motori	discreto
7	Squero sul rio dei Mendicanti	Cannaregio	6390	Assicurazioni Generali	circolo nautico	buono
8	Squero sul canale di San Pietro di Castello	Castello	368	cantiere <Serenissima>	riparazione scafi in legno e motori	degradato
9	Squero alla Giudecca (presso il rio di S. Eufemia)	Dorsoduro	866	Fratelli Cucco	costruzione gondole, riparazione scafi in legno, officina meccanica	degradato
10	Squero alla Giudecca (calle dello squero)	Dorsoduro	935	Mauro Tramontin	rimessaaggio e riparazione gondole	degradato

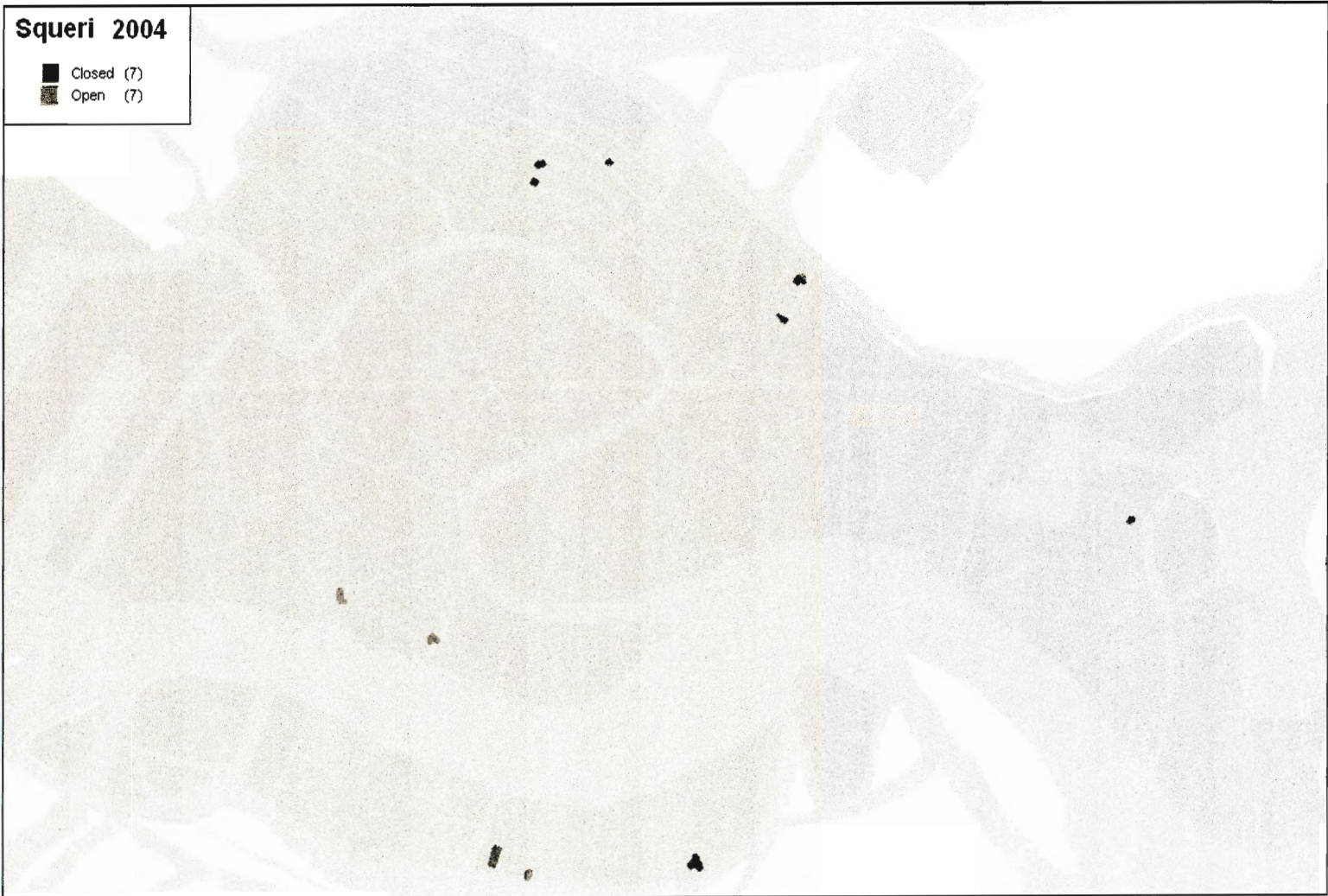
Italian *Squeri* Report



**Squeri 2004**

■ Closed (7)

■ Open (7)







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# Squeri of Venice (2004)

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**Title** Cantieri Amadi

District	Address	Squero Code	ID
Burano	0	AMADI	13
Current Status	Management	Age	
Open	Vittorio Amadi	130	
Primary Service			
New boat construction and restoration			
Secondary	Annual Production		
Misc. repairs	0-1 New boat		
Note			
Not a traditional building. Untraditional methods			



**Title** Squero agli Ognissanti

District	Address	Squero Code	ID
Dorsoduro	1542	TRAM	2
Current Status	Management	Age	
Open	Nedis Tramontin	500	
Primary Service			
New gondola construction and restoration			
Secondary	Annual Production		
Misc. repairs	2-3 New gondola, 1 major restorat		
Note			
Only eathen bank left. Family there for 120 years.			



**Title** Squero ai Servi

District	Address	Squero Code	ID
Carnasegio	1936	ARZANA	4
Current Status	Management	Age	
Closed	Azzana Association	500	
Primary Service			
Boat preservation society			
Secondary	Annual Production		
Storage	N/A		
Note			
Azzana founded in 1997			



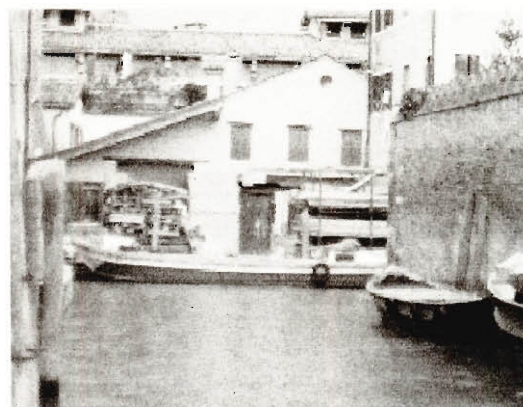
**Title** Squero alla Giudecca (presso il rio S. Eufemia)

District	Address	Squero Code	ID
Dorsoduro	866	ROSSI	9
Current Status	Management	Age	
Open	Roberto Dei Rossi	100	
Primary Service			
New gondola construction and restoration			
Secondary	Annual Production		
Misc. repairs (go 5 New gondola, 20 major restorati			
Note			
Same ownership for 15 years			



**Title** Squero all'Anconeta

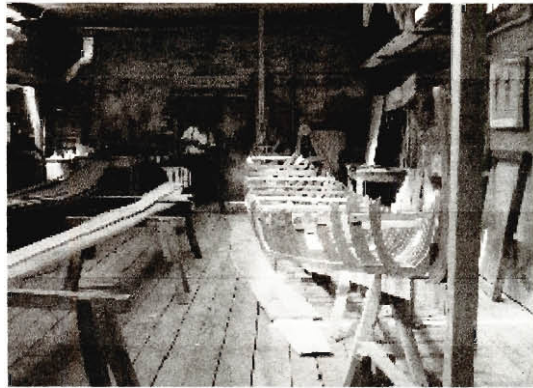
District	Address	Squero Code	ID
Carnasegio	1965	ANCO	5
Current Status	Management	Age	
Closed	Unknown	0	
Primary Service			
Buck Layer Firm			
Secondary	Annual Production		
N/A	N/A		
Note			
Embankment is gone			





**Title** Squero Canaletto

District	Address	Squero Code	ID
Canalegio	6300	PRICE	11
Current Status	Management	Age	
Open	Tom Price	1.5	
Primary Service			
New gondola construction			
Secondary	Annual Production		
None	1 New gondola		
Note			
Not a traditional building. Untraditional methods			



**Title** Squero Crea

District	Address	Squero Code	ID
Dorsoduro	866	CREA	12
Current Status	Management	Age	
Open	Gianfranco Viarelli "	10	
Primary Service			
New boat construction and restoration			
Secondary	Annual Production		
Misc. repairs	5-6 New boats, many restorations		
Note			
Only squero that does all boat types. Not a traditional building			



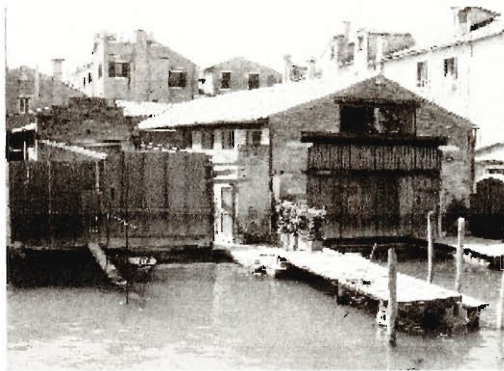
**Title** Squero di San Trovaso

District	Address	Squero Code	ID
Dorsoduro	1097	TROV	1
Current Status	Management	Age	
Open	Lorenzo Della Toffol	400	
Primary Service			
New gondola construction and restoration			
Secondary	Annual Production		
Misc. repairs	1 New gondola, 1 major restoratio		
Note			
Currently under city mandated renovation			



**Title** Squero sul canale di San Pietro di Castello

District	Address	Squero Code	ID
Castello	368	PIETRO	8
Current Status	Management	Age	
Closed	Unknown	150	
Primary Service			
Motor Boat Storage / Repair			
Secondary	Annual Production		
N/A	N/A		
Note			



**Title** Squero sul rio dei Mendicanti

District	Address	Squero Code	ID
Cannaregio	6356	MEND	6
Current Status	Management	Age	
Closed	Unknown	0	
Primary Service			
Storage facility			
Secondary	Annual Production		
N/A	N/A		
Note			
Embankment is gone			



**Title** Squero sul rio dei Mendicanti (General)

District	Address	Squero Code	ID
Cannaregio	6390	GENE	7
Current Status	Management	Age	
Closed	Circolo Nautico Gene	350	
Primary Service			
Rowing club boat house			
Secondary	Annual Production		
Private repairs	N/A		
Note			



**Title** Squero of Vidal

District	Address	Squero Code	ID
Burano	0	VIDAL	14
Current Status	Management	Age	
Open	Vidal Family	50	
Primary Service			
New boat construction and restoration			
Secondary	Annual Production		
Misc. repairs	4 New boats, 15-20 major restorat		
Note			
Builds new sampierota and topetto			



**Title** Squero in Corte dei Muti

District	Address	Squero Code	ID
Cannaregio	3454	SENSA	3
Current Status	Management	Age	
Closed	Unknown	150	
Primary Service			
Under construction			
Secondary	Annual Production		
N/A	N/A		
Note			
Possibly under renovation.			



**Title** Squero of Giudecca (calle dello squero)

District	Address	Squero Code	ID
Dorsoduro	935	GUID	10
Current Status	Management	Age	
Closed	Unknown	0	
Primary Service			
Secondary	Annual Production		
N/A	N/A		
Note			





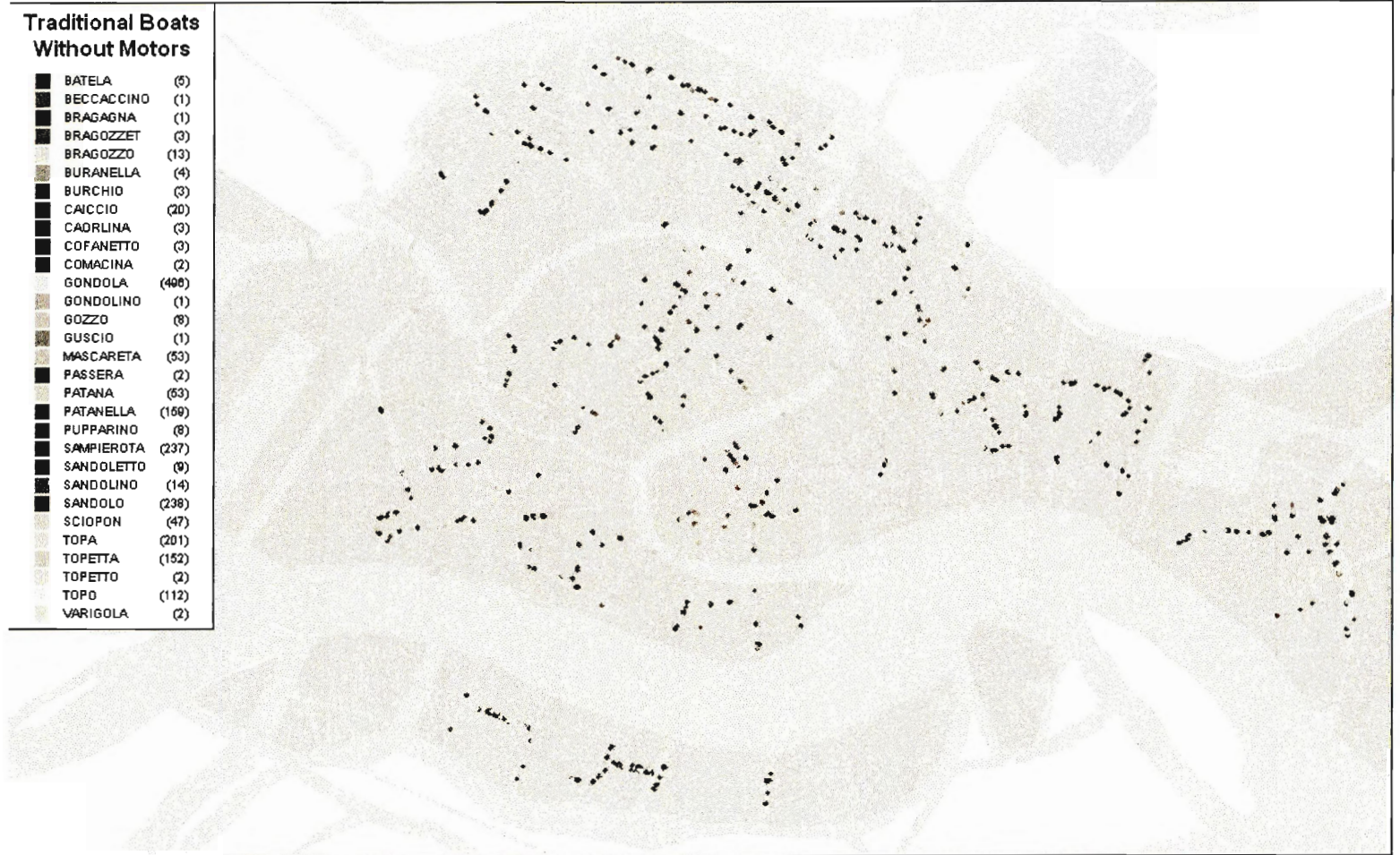
**Appendix D- TRADITIONAL BOAT PARKING SPOTS**



All Traditional Boats

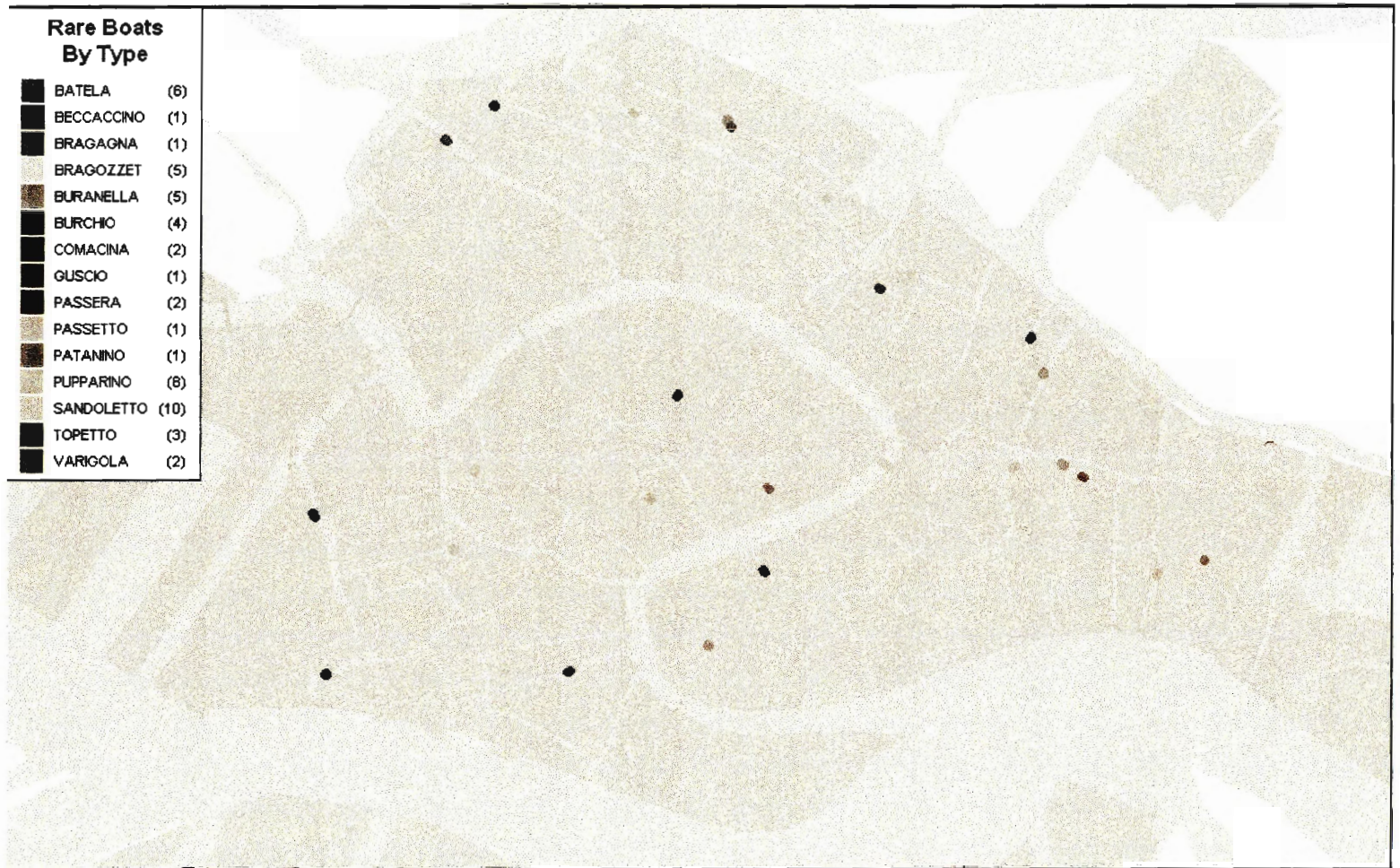
**Traditional Boats  
Without Motors**

■	BATELA	(6)
■	BECCACCINO	(1)
■	BRAGAGNA	(1)
■	BRAGOZZET	(3)
■	BRAGOZZO	(13)
■	BURANELLA	(4)
■	BURCHIO	(3)
■	CAICCIO	(20)
■	CADRLINA	(3)
■	COFANETTO	(3)
■	COMACINA	(2)
■	GONDOLA	(408)
■	GONDOLINO	(1)
■	GOZZO	(8)
■	GUSCIO	(1)
■	MASCARETA	(53)
■	PASSERA	(2)
■	PATANA	(53)
■	PATANELLA	(159)
■	PUPPARINO	(8)
■	SAMPIEROTA	(237)
■	SANDOLETTO	(9)
■	SANDOLINO	(14)
■	SANDOLO	(238)
■	SCIOPON	(47)
■	TOPA	(201)
■	TOPETTA	(152)
■	TOPETTO	(2)
■	TOPO	(112)
■	VARIGOLA	(2)



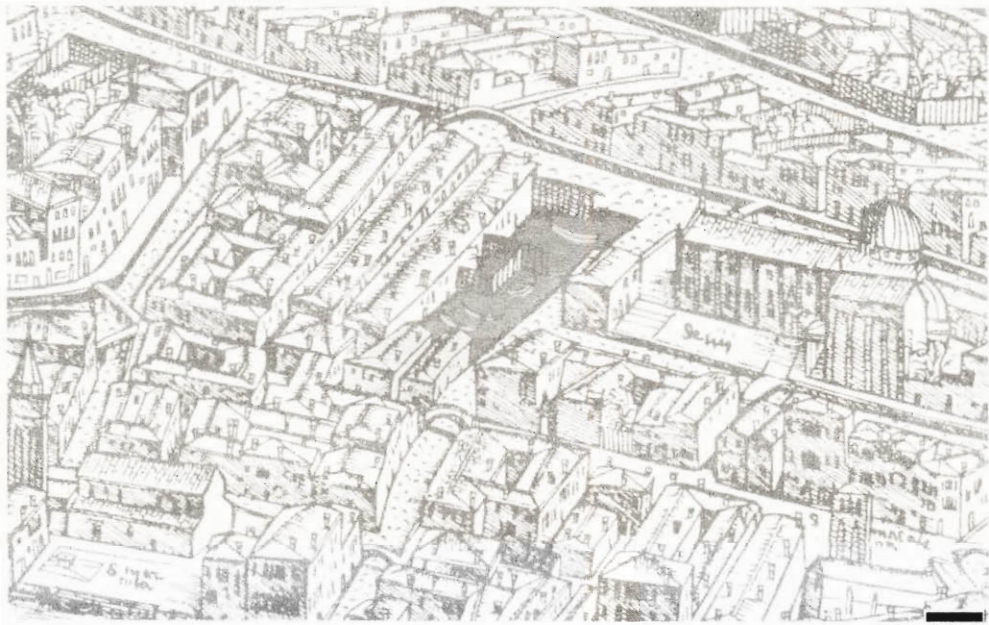
Traditional Boats without Motors





Rare Traditional Boats

**Appendix E- De'BARBARI MAP**

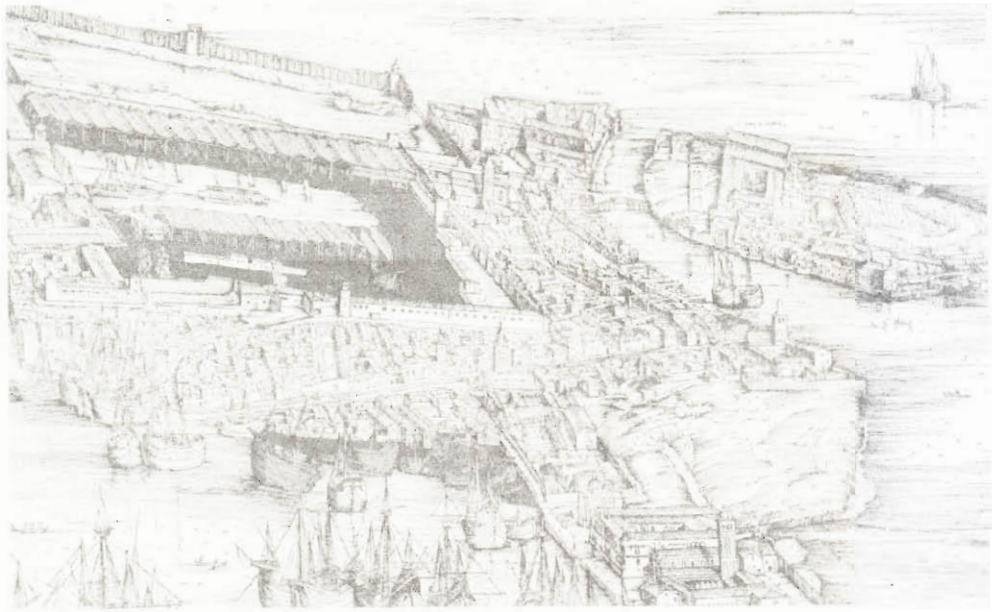


Top Left Section



Bottom Left Section





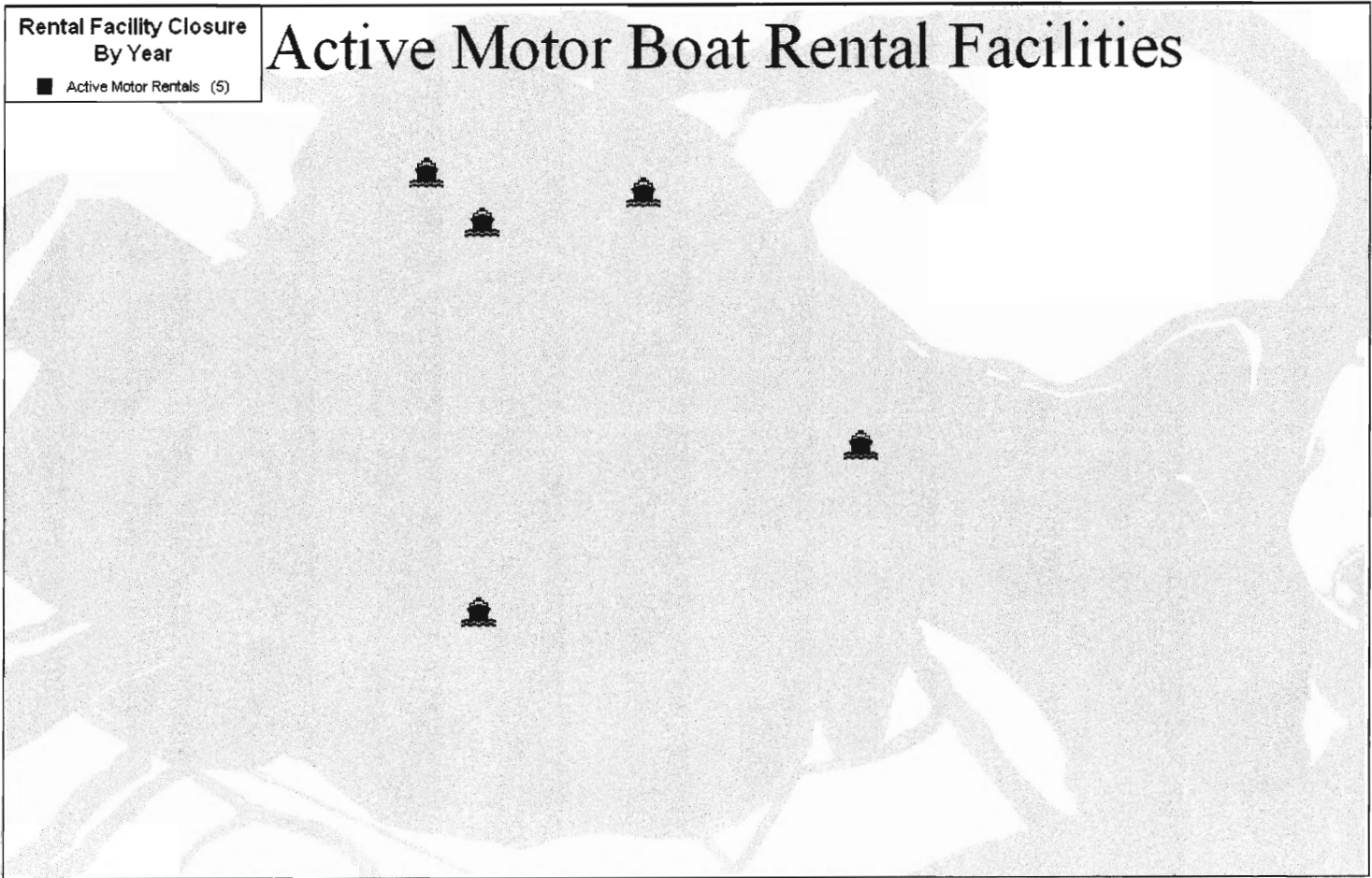
Bottom Right Section



Appendix F - FITABATELE

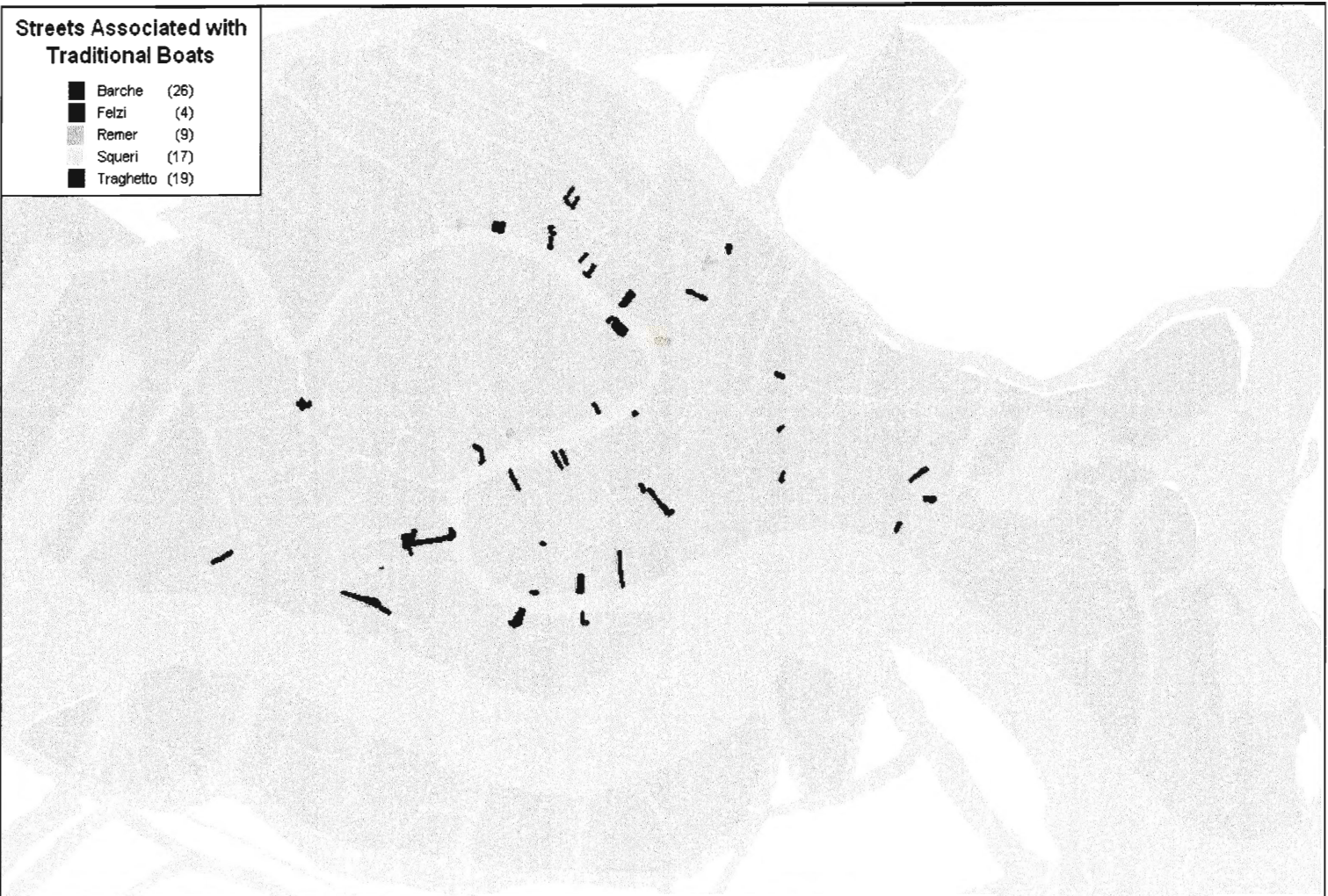


**Appendix G- MOTORBOAT RENTAL FACILITIES**





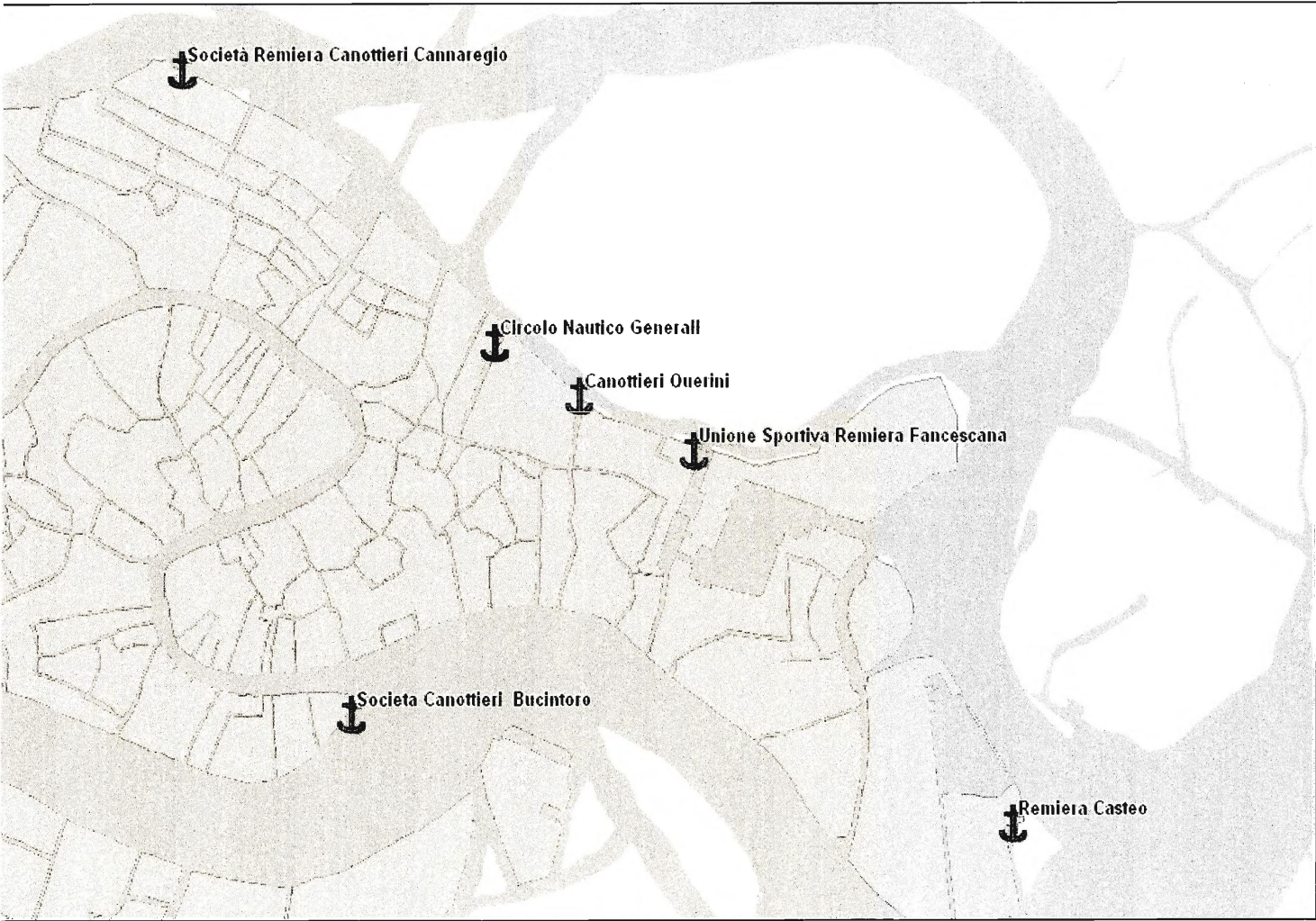
**Appendix H - STREETS RELATED TO BOATS**



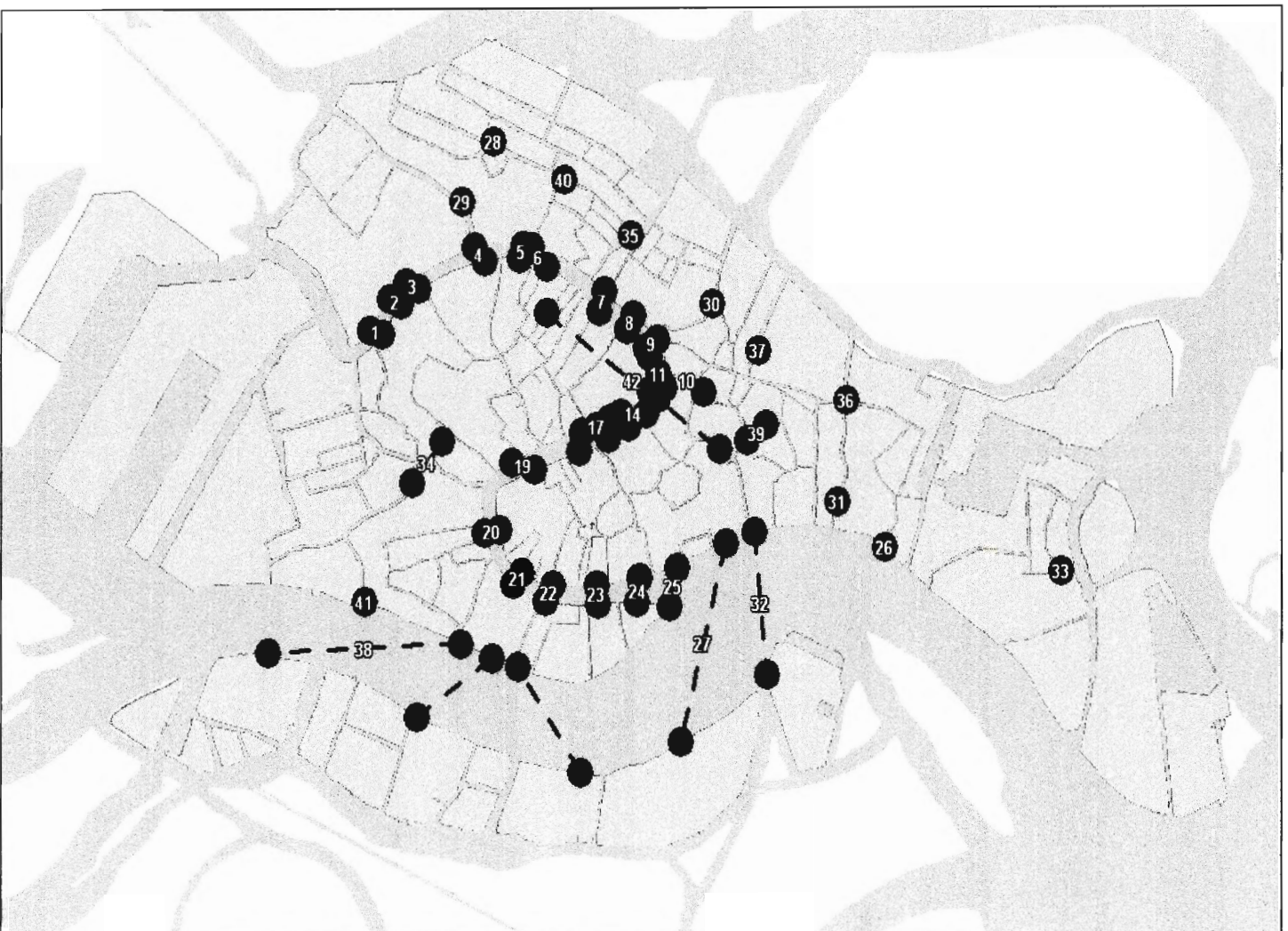




**Appendix J - MAP OF REMIERE IN VENICE**



Appendix K – TRAGHETTI MAP 1697





**Appendix L - TRAGHETTI MAP 2004**



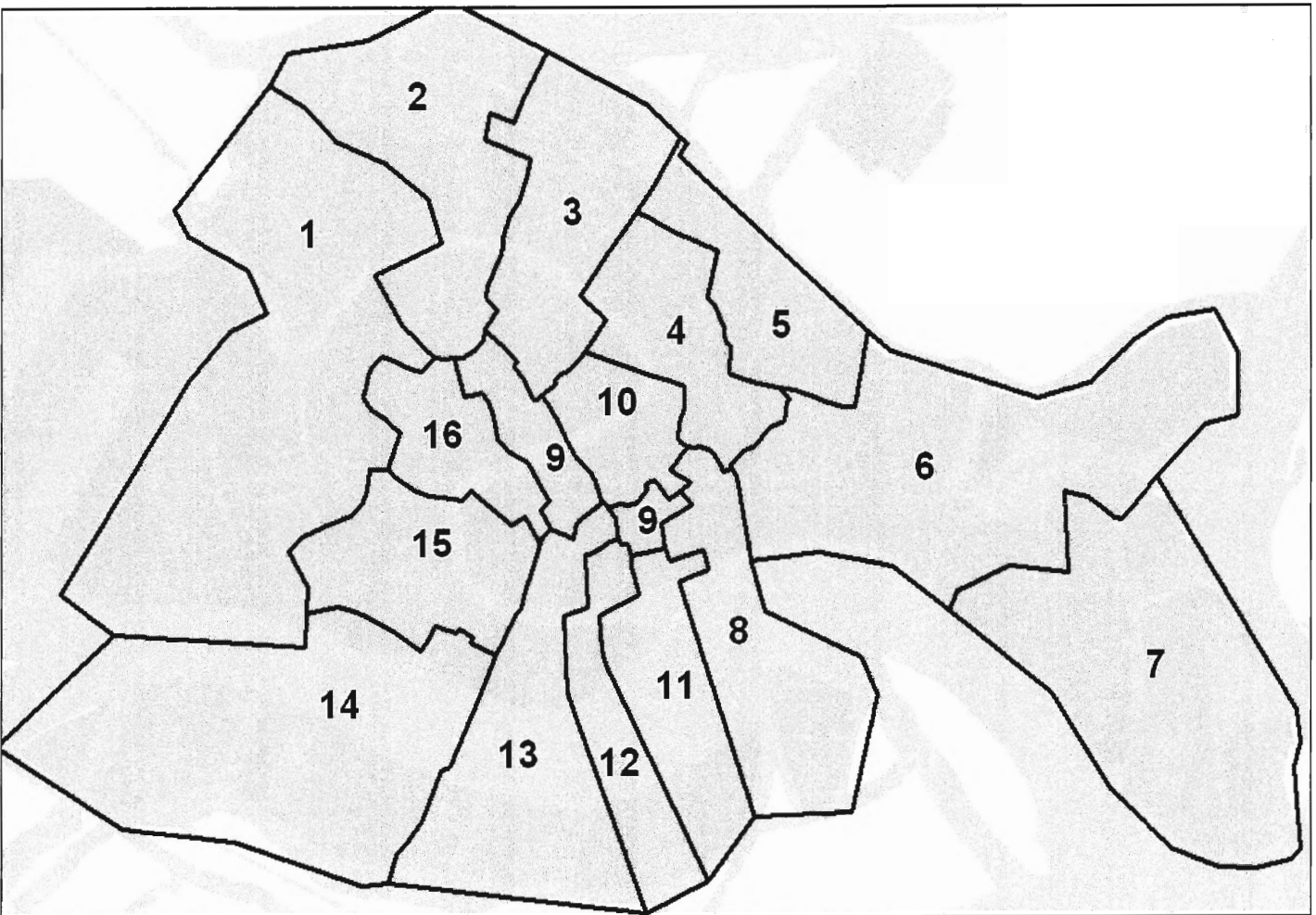


**Appendix M – SANDOLI STATIONS MAP**





**Appendix N - GONDOLIERE DISTRICTS**



## Appendix O - GONDOLIERE PER DISTRICT

Gondoliers			
District	District Name	Gondoliers	Note
1	Ferrovia	15	
2	San Marcuola	0	Gondoliers included under 4
3	San Felice	0	Gondoliers included under 4
4	Santa Sofia	34	
5	F.te Nuove	0	Closed
6	Danieli	62	
7	Lido	0	Closed
8	Molo	69	
9	San Beneto	44	
10	Carbon	48	
11	Dogana	43	
12	Trinità	51	
13	S.M. Del Giglio	24	
14	Zattere	0	Closed
15	San Barnaba	0	Gondoliers included under 16
16	San Tomà	24	

## Appendix P - GONDOLIERE PRICES



ISTITUZIONE  
PER LA CONSERVAZIONE DELLA GONDOLA  
E LA TUTELA DEL GONDOLIERE

### TARIFFE - RATES - TARIFS - PREISE - TARIFAS

SERVIZIO DI "NOLO" e "CORSA" DIURNO <i>(50 minuti - massimo 6 persone per gondola)</i> DAYTIME PERSONALISED AND STANDARD TOUR <i>(50 minutes, maximum 6 people per gondola)</i> TOURS PERSONNALISÉS OU STANDARD DE JOUR <i>(50 minutes - maximum 6 personnes par gondole)</i> RUNDFAHRT NACH SONDERVEREINBARUNG UND VORBESTIMMTE GONDEL TOUR, TAGS <i>(50 Minuten - maximal 6 Personen pro Gondel)</i> ITINERARIO DIURNO PERSONALIZADO O ESTÁNDAR <i>(50 minutos - máximo 6 personas por gondola)</i>	€ 73,00
per ogni 25 minuti eccedenti - for each additional 25 minutes par tranche de 25 minutes supplémentaires - je 25 Minuten über die Zeit por cada 25 minutos extras	€ 37,00
SERVIZIO DI "NOLO" e "CORSA" NOTTURNO <i>(dalle ore 20.00 alle ore 8.00 - 50 minuti - massimo 6 persone per gondola)</i> NIGHT-TIME PERSONALISED AND STANDARD TOUR <i>(from 20.00 to 8.00, 50 minutes, maximum 6 people per gondola)</i> TOURS PERSONNALISÉS OU STANDARD DE NUIT <i>(de 20h00 à 8h00 - 50 minutes - maximum 6 personnes par gondole)</i> RUNDFAHRT NACH SONDERVEREINBARUNG UND VORBESTIMMTE GONDELTOUR, NACHTS <i>(von 20.00 Uhr bis 8.00 Uhr - 50 Minuten - maximal 6 Personen pro Gondel)</i> ITINERARIO NOCTURNO PERSONALIZADO O ESTÁNDAR <i>(desde las 20:00 hs. hasta las 8:00 hs. - 50 minutos - máximo 6 personas por gondola)</i>	€ 91,00
per ogni 25 minuti eccedenti - for each additional 25 minutes par tranche de 25 minutes supplémentaires - je 25 Minuten über die Zeit por cada 25 minutos extras	€ 47,00

### PER INFORMAZIONI - FOR INFORMATION - POUR TOUT RENSEIGNEMENT FÜR INFORMATIONEN - INFORMACIÓN

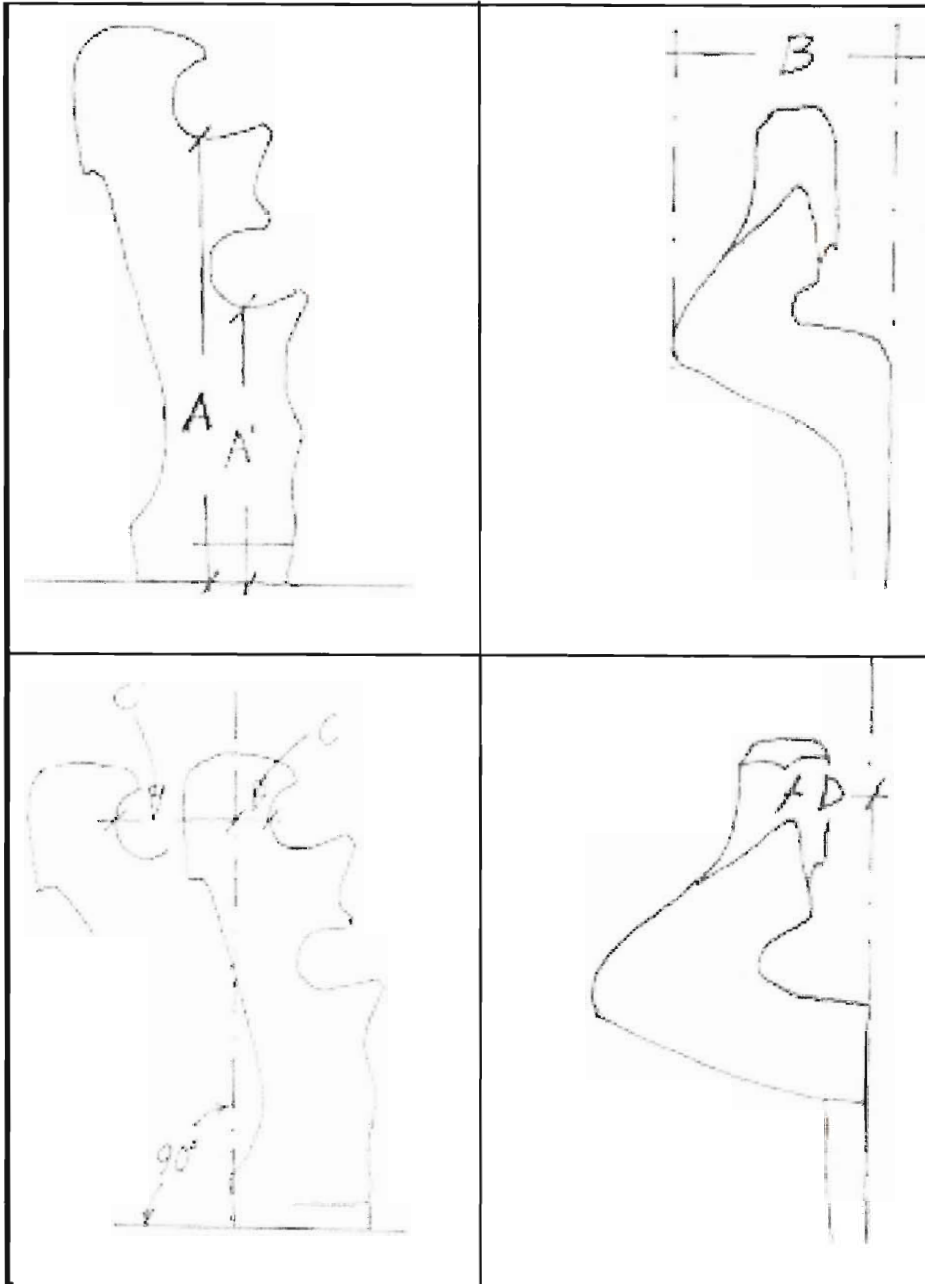
ISTITUZIONE PER LA CONSERVAZIONE DELLA GONDOLA E LA TUTELA DEL GONDOLIERE - Venezia - Soto Vescovo, 3613  
Tel. 041.5286075 Fax 041.5211534 [www.gondolavenezia.it](http://www.gondolavenezia.it) [gondola@gondolavenezia.it](mailto:gondola@gondolavenezia.it)

**Appendix Q - ABANDONED BOATS MAP**



Abandoned Boats in Torcello

## Appendix R - FÓRCOLA MEASUREMENTS





## Appendix S- SAMPLE OF *FÓRCOLE* INVENTORY



**WPI**

### Traditional Boats of Venice Assessing a Maritime Heritage

Sean Candlish, Craig Shevlin, Sarah Stout

Forcola for a: *Sandolo*

ID	A1	A2	B	C1	C2	D	E	Front, Back or Middle	Right or Left
1 31			5.5	-4.5		1	2	Front	Left



**B**



**S**

**A**



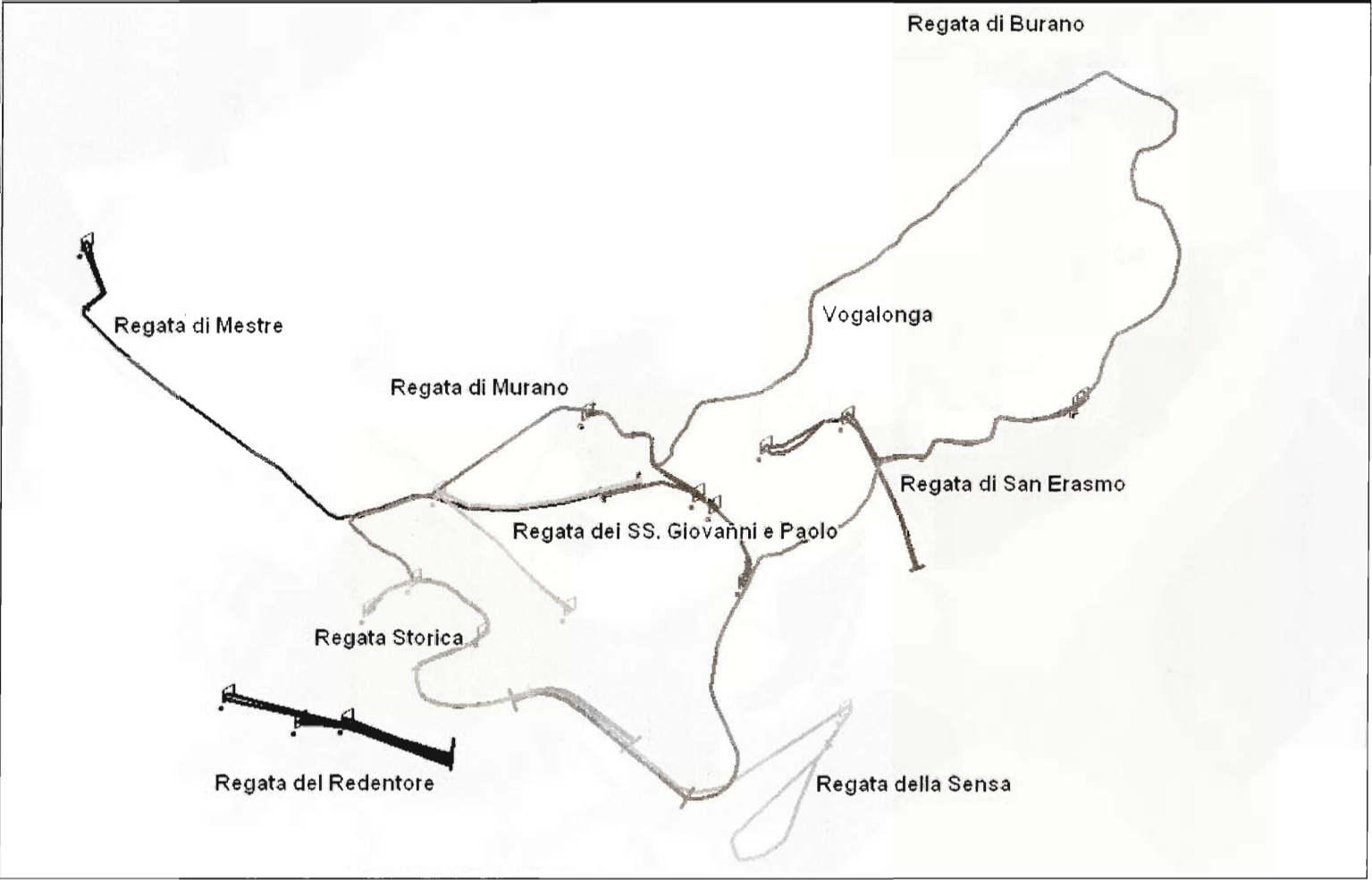
**D**



**C**



**Appendix T - MAP OF VENETIAN REGATE**





## Traditional Boats of Venice

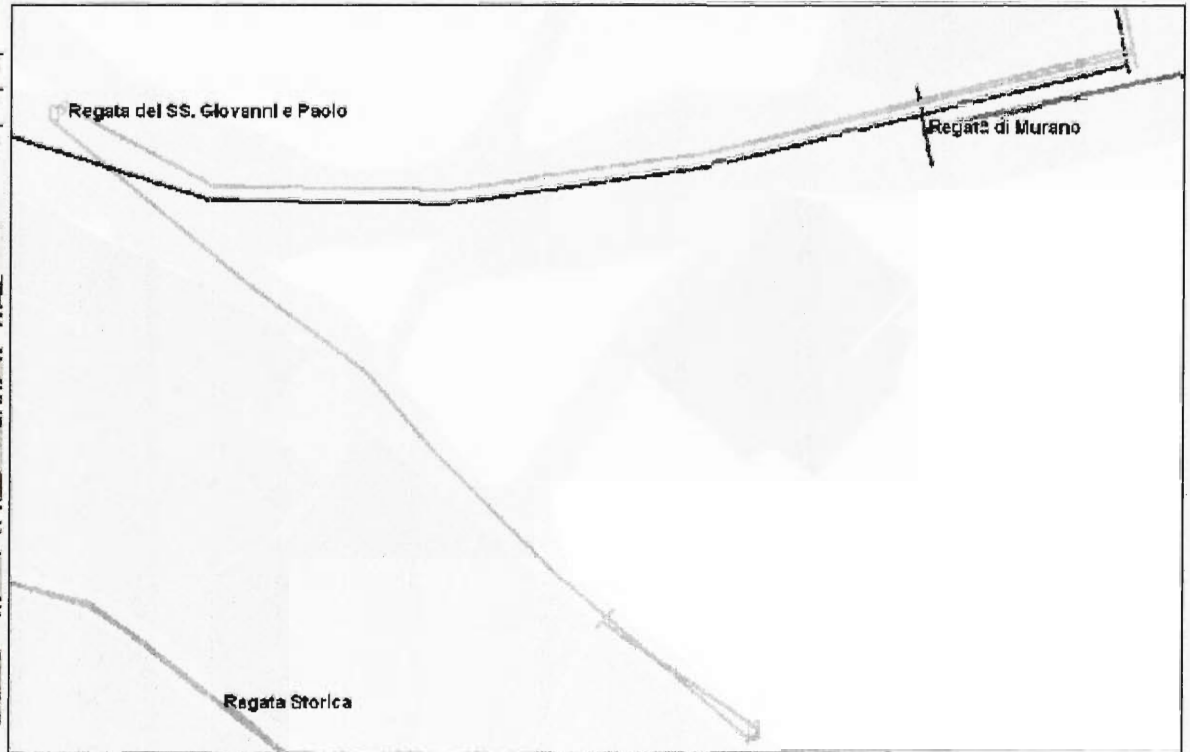
Assessing a Maritime Heritage

Sean Candlish, Craig Shevlin, Sarah Stout

### Regata

### *Regata dei SS. Giovanni e Paolo*

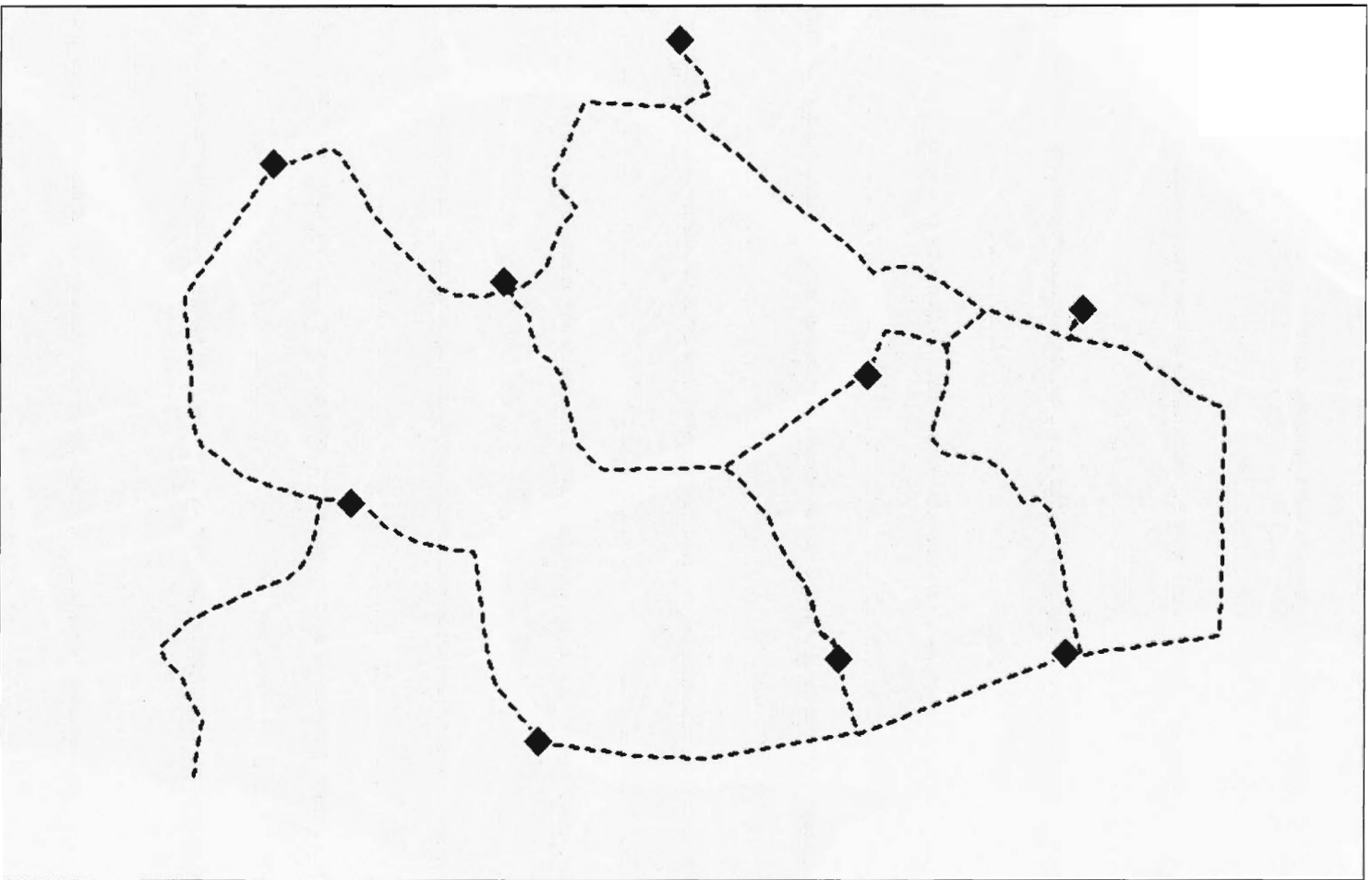
Description	Giovani su gondole a un remo		
Date and Time	6/20/2004	17.45	
Length	4.24	Kilometers	
Winning Time 2004	38	Min	8   Sec





ID	Code	Nome_Regata	Fastest_tir	Faste	Descrizione	Ore	Date	Length
14	GIO	Regata dei SS. Giovanni e Paolo	38	8	Giovani su gondole a un remo	17.45	6/20/2004	4.24
15	GIO	Regata dei SS. Giovanni e Paolo	29	29	Su pupparini a due remi	17.00	6/20/2004	4.24
31	RED	Regata del Redentore	23	42	Giovanissimi su pupparini a due rem	16.00	6/18/2004	2.34
33	RED	Regata del Redentore	34	2	Uomini su gondole a due remi	17.30	6/18/2004	4.75
32	RED	Regata del Redentore	24	31	Su pupparini a due remi	16.45	6/18/2004	3.19
4	SENSA	Regata della Sensa	40	39	Su gondole a quattro remi	10.30	5/23/2004	7.34
48	BURAN	Regata di Burano	45	13	Uomini su gondole a due remi	17.00	9/19/2004	6.34
47	BURAN	Regata di Burano	25	58	Donne su mascarete a due remi	16.15	9/19/2004	3.5
46	BURAN	Regata di Burano	23	24	Giovanissimi su pupparini a due rem	15.30	9/19/2004	3.22
22	MALA	Regata di Malamocco	26	39	Su caorline a sei remi	18.00	7/11/2004	4.5
24	MALA	Regata di Malamocco	22	45	Donne su macarete a due remi	17.15	7/11/2004	2.97
1	MESTR	Regata di Mestre	40	39	Su caorline a sei remi	16.30	9/5/2004	8.02
61	MURAN	Regata di Murano	39	10	Uomini su gondole a un remo	18.00	7/4/2004	4.81
18	MURAN	Regata di Murano	20	55	Giovanissimi su pupparini a un remo	16.30	7/4/2004	2.1
19	MURAN	Regata di Murano	22	16	Donne su pupparini a un remo	17.15	7/4/2004	2.51
27	PELL	Regata di Pellestrina	32	10	Uomini su pupparini a due rem	18.00	8/1/2004	5.12
29	PELL	Regata di Pellestrina	29	2	Donne su mascarete a due remi	17.15	8/1/2004	4.24
28	PELL	Regata di Pellestrina	22	30	Giovanissimi su pupparini a due rem	16.30	8/1/2004	3.32
13	ERAS	Regata di San Erasmo	37	1	Su pupparini a due remi	18.00	6/2/2004	6.68
12	ERAS	Regata di San Erasmo	34	52	Donne su mascarete a due remi	17.15	6/2/2004	4.81
11	ERAS	Regata di San Erasmo	16	5	Giovanissimi su pupparini a due re	16.30	6/2/2004	3.31
35	STOR	Regata Storica	20	23	Giovanissimi su pupparini a due remi		9/5/2004	4.21
37	STOR	Regata Storica	35	14	Donne su mascareta a due remi		9/5/2004	6.22
38	STOR	Regata Storica	36	20	Uomini su gondolini		9/5/2004	7.33
39	STOR	Regata Storica	35	23	Su caorline a sei remi		9/5/2004	0

Appendix U- TRADITIONAL BOATS TAXI MAP



MAP 1- Proposed Traditional Taxi Routes



MAP 2- One Traditional Taxi Route







## Appendix V - MAP OF UNITED STATES BOATING EVENTS

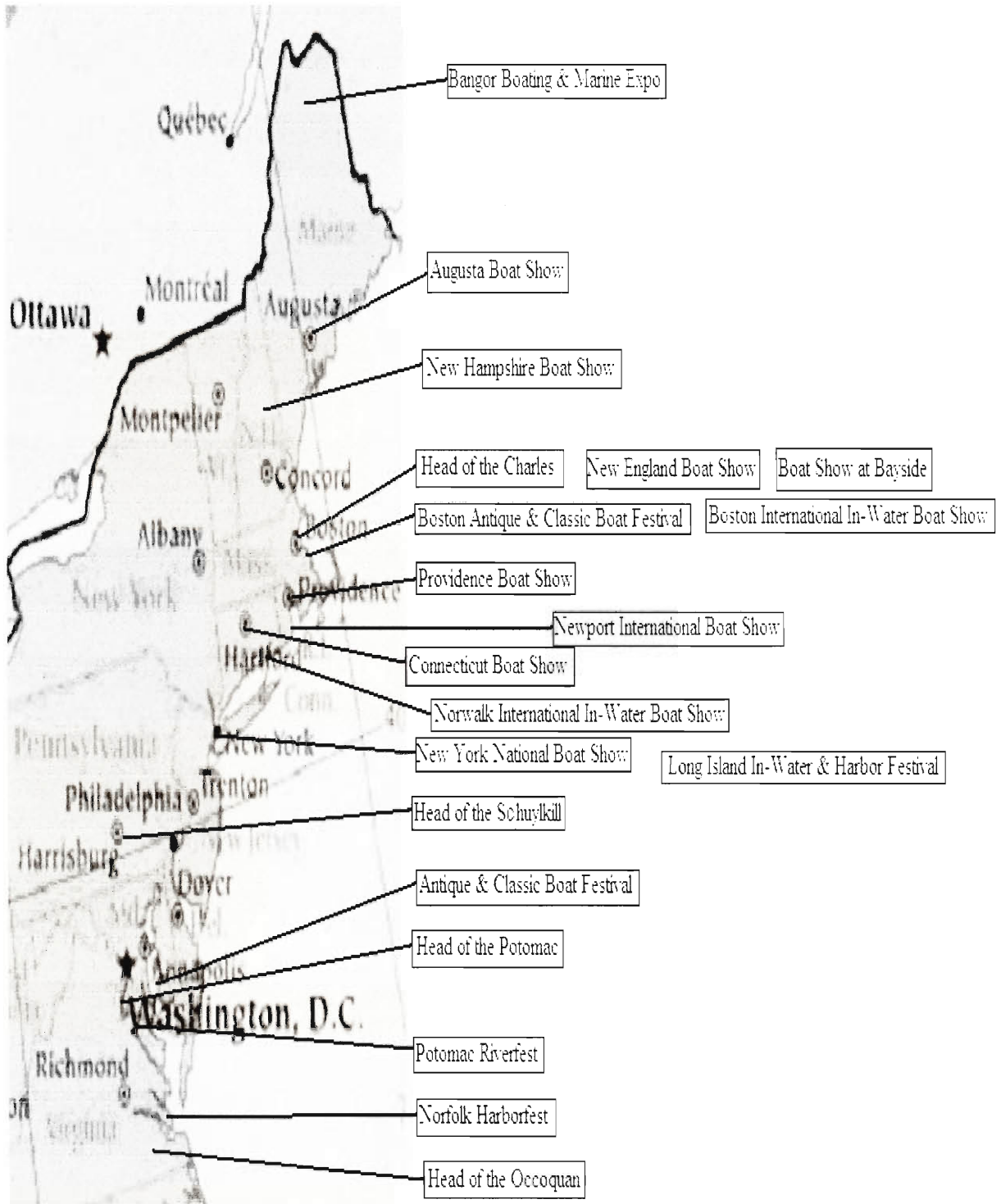


**Head of the Charles**  
 Charles River  
 Boston, MA  
 The world's largest two-day rowing event. Annually run by the Cambridge Boat Club in mid-October

**Head of the Schuylkill**  
 Schuylkill River in Fairmount Park  
 Philadelphia, PA  
 Prominent rowing event held annually toward the end of October by the University Barge Club of Philadelphia.

**Head of the Potomac**  
 Potomac River  
 Washington, D.C.  
 Prestigious rowing event held annually at the end of September by the Potomac Boat Club in the nation's capital

**Head of the Occoquan**  
 Sandy Run Regional Park  
 Fairfax, VA  
 Considered the largest season ending regatta, usually held on the first week of November by the Occoquan Boat Club



## US ROWING EVENTS

Name of Event	City,State	Date	Description
Head of the Charles	Boston, MA	October	Largest 2 day regatta event in the world, held each year on the Charles River.
Head of the Potomac	Washington, D.C	October	Regatta held each year by Potomac boat club. Starts in Virginia and races to an end in Washington, D.C
Head of the Occoquan	Fairfax, VA	November	Largest end of the season regatta in the U.S. Held each year at Sandy Run Regional Park
Head of the Schuylkill	Philadelphia, PA	October	Prominent regatta held each year at Fairmount Park in Philadelphia.
Boston Antique & Classic Boat Festival	Salem, MA	August	Annual festival aimed at preserving New England's maritime heritage
New England Boat Show	Boston, MA	February	Annual weekend boat show held at the Bayside Expo Center.
Boat Show at Bayside	Boston, MA	October	Weekend long boat show held annually at the Bayside Expo Center.
Boston International In-Water Boat Show	Boston, MA	September	Large boat show held annually at the World Trade Center.
Connecticut Boat Show	Hartford, CT	January	Weekend boat show held at the Connecticut Expo Center.
Norwalk International In-Water Boat Show	Norwalk, CT	September	Annual weekend boat show held at Norwalk Cove Marina.
Providence Boat Show	Providence, RI	January	Annual weekend boat show held at the Rhode Island Convention Center.
Newport International Boat Show	Newport, RI	September	Large weekend boat show held at the Newport Yachting Center Marina, Bannister's Warf, and Oldport Marina.
New Hampshire Boat Show	Manchester, NH	April	Weekend boat show held at the Manchester State Armory.
Augusta Boat Show	Augusta, ME	March	Weekend boat show held at the Augusta Civic Center.
Bangor Boating & Marine Expo	Bangor, ME	N/A	Weekend boat show held at the Bangor Auditorium & Civic Center.
New York National Boat Show	New York, NY	January	Large week long boat show held annually in New York City at the Jacob Javits Convention Center.
Long Island In-Water Boat & Harbor Festival	Bayshore, NY	April	Annual weekend boat show held at the Bayshore Marina on Long Island.
Antiques & Classic Boat Festival	St. Michaels, MD	June	Annual event celebrates the areas maritime heritage. The event held at the Chesapeake Bay Maritime Museum includes restored boats, maritime arts and crafts, wooden boatbuilding demonstrations and live entertainment.



Potomac River fest	Colonial Beach, VA	June	Festival includes food, live entertainment, boat parade, and fireworks on the Potomac River.
Norfolk Harborfest	Norfolk, VA	June	Annual festival celebrates the regions maritime heritage. Includes a parade of boats, fireworks, live entertainment and boatbuilding demonstrations.

Pages missing or incorrectly  
numbered in original

**IQP/MQP SCANNING PROJECT**



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**WORCESTER POLYTECHNIC INSTITUTE**

## Appendix X- GLOSSARY OF TERMS

Term	English
baonàr	is said in the larger boats when one of the pilots, at the stern, drops the oar in the water in a direction nearly parallel to the longitudinal axis of the boat and rows backwards to deviate the boat from the straight course. "Cio baona"
Baretèri	They are the hat makers who make summer hats and winter caps for gondoliers.
Batèla	The batela buranèla is a working boat with the stem similar to that of the topo and the stern like that of a sandoli. It is probably a simplified version of the batela a coa de gambero, an elegant boat which has completely disappeared which had rounded, upward-curving stern.
Buranèla	
Caleghèri	They are the shoemakers who make special shoes for gondoliers
Caorlina	The caorlina was a boat used for transport and for fishing, with symmetrical, crescent-shaped bow and stern, with a length of about 10 meters. Modern versions are used only for show or for regattas with six oarsmen. This and other cargo boats used a special type of forcola with three morsi aligned vertically which allowed oarsmen to maintain a comfortable position when the boat was empty or fully loaded.
cómio	literally 'elbow', the external curve of the stern <i>fórcola</i> for <i>gondole</i> ; the corresponding internal curve is called the <i>sanca</i> .
cortèlo	literally 'knife': strip of beech added to one or both edges of the blade of the oar to increase the surface of the blade, and to increase its rigidity and durability.
dolaóra	type of broadaxe with an off-set handle, used until recently by <i>remeri</i> for the rough cuts of oars.
el fèlze	
	It is a dynamic system in which the boat, the water and the gondolier participate: the movement in the water gives symmetry to the asymmetry of the boat, balance to imbalance of the boat, man and oar.
fèlse, fèlze	removable canopy in walnut, covered with black cloth with a bow facing door and small, rectangular lateral windows. Now no longer used, it was - until a few decades ago - an indispensable part of the gondola, offering shelter for passengers in the winter or during bad weather.
fero a do maneghi, a do man	type of knife with a wide, curved blade used by <i>remeri</i> , <i>coopers</i> and others. Also known as a <i>raspa</i> .
Ferro	The decorative metal piece at the bow of the gondola
Forcole	A Venetian oarlock
forcolin	oarlock with a single curvature for the oar ( <i>morso</i> ); also called a <i>forcola</i> a un <i>morso</i> .
Fravi	They are the blacksmiths who make the <i>ferro</i> and other items in metal
gàmba	removable canopy in walnut, covered with black cloth with a bow facing door and small, rectangular lateral windows. Now no longer used, it was - until a few decades ago - an indispensable part of the gondola, offering shelter for passengers in the winter
girón	the shaft of the oar which terminates at the point where the blade begins (called the <i>entrar</i> ).
Gondolin	The <i>gondolin</i> is similar to the <i>gondola</i> , though smaller and lighter, used only for regattas with two oarsmen.

Indoradòri	They apply gold leaf to the ornamental parts of the gondola. They work in the finishing and decorating phase together with the <i>Intagiadòri</i> .
Intagiadòri	They are the engravers of the parts of the gondola that can be carved.
lài	the side of the boat. Merarse al lai or essare al lai, means to mover or to be drawn alongside another boat.
lài (avere la barca al)	to have the boats correctly leaning to the right.
lài de mezo	left side of the gondola
lài de pope	right side of the gondola
lài roverso (stare al)	a boat that, due to an error in construction or for the incorrect position of the load or oarsmen, inclines to the left instead of the right.
Mascaréta	The mascareta is a lighter version of the sandolo without nerve or trasti at the ed of the forward deck. It is between seven and eight meters long, for a crew of two, used for fun or for women's regattas.
morso	upward-curving part of the forcola in which the giron (shaft) of the oar is placed.
naselo	one of the two points of the morso of the forcola
oe!	call that gondoliers shout when approaching an intersection of canals. In reply, the other gondoliers reply indicating which part of the canal they are moving to with 'a premando' if they intend to move to the left, 'a stagando' if they move to the right and 'de longo' if they move straight forwards.
Ottonài/ Fonditori	They are the craftsmen who make the brass horses and other ornaments in metal.
parada (fare una)	to cross the Grand Canal in a gondola with two oarsmen.
parar	to move the boat with the oar pushing on the canal bottom.
Peàta	The peata was the largest transport boat used in the city canals, up to 15 meters long with a capacity of 37,000 kg. Now completely obsolete, it was rowed by two peateri either using forcole or simpler oarlocks called vogarissi fixed directly to the boat. the oars were in fir-wood, six and a half meters long and made of two pieces.
penola	the wedges which are forced between the gamba of the forcola and the slot in the boat in which the gamba is inserted. These keep the forcola rigid and enable the oarsmen to adjust the inclination of the forcola.
pontapie	wedge-shaped platform used by oarsmen to support the push given by the back foot. Also called a taparin or tapo.
popier, pupier	the stern oarsman with the oar on the right side who - as well as rowing - steers the boat.
poppa	stern, back
premando	to the left'. Gondoliers use the word 'premando' in this sense. For example, "tegnive a premando" (turn left)
premer	the 'push' stroke of the oar. The opposite of stalir (return stroke)
provier, provin	bow oarsman who rows with the oar on the left side of the boat.
Prua	upward-curving part of the forcola in which the giron (shaft) of the oar is placed.
Puparin	The puparin is the most elegant of the sandoli, designed for transport for richer families, it is now used for recreation and regattas. It has a very slender stern (from which it takes its name) on which the popiere rows. It is asymmetrical like the gondola.
raspa	see fero a do maneghi
recia	lially 'ear': protrusion of the top part of the forcola

remèri, remero	craftsman who makes oars and forcole
remiera (societa)	associations of Venetian rowing enthusiasts. They have various types of boats made available to the members, with which they organize excursions, regattas, parades for special occasions. They are identified by the colours of their uniforms and boats.
sanca de la forcola	the inner part of the curve of a forcola (usually the stern forcola of a gondola). It is used in narrow canals when the oar has to be aligned parallel with the length of the boat, and for 'reverse' manoeuvres (a pope indrio) or (andar in sanca)
Sàndolo	The sandolo is the most commonly used boat of the lagoon, characterized by a flat bottom, and the bow stem which is straight and identical to the stern. A large number of local variants exist, the sandolo ciosoto, buranelo, S. Pietro or sanpiero, as well as those modified for various uses including the puparin, the sciopon, and the mascareta
Sanpiero	The sanpiero is a boat for recreation. It is derived from the sandolo used by fisherman of San Pietro in Volta, and has been gradually widened to support a larger sail.
Sartòri	They are the tailors who make special clothes for gondoliers
sata S'ciopón	literally, 'paw'. See gamba
	The s'cioon is the smallest sandolo of the lagoon. It was designed for hunting with a spingarda (a large gun) and for fishing with a pronged spear. It is usually rowed by a single oarsman.
sia stali, sia premi	commands used by gondoliers: sia stali move backwards or stop veering to the right; sia premi move backwards or stop turning to the left.
siar, siare soraosso	stopping the boat by levering the oar against the front of the forcola piece of wood glued to the part of the oar worn down by being in constant rubbing against the forcola
Squerariòli	They are the carpenters that specialized in the construction of wooden boats, including the gondola.
stagando! stalir	to the right'. See also premando
	return stroke in single-oar rowing; the blade remains in the water and is angled so as to correct the direction of the boat. The opposite of premer
tapa	1) horizontal block in the middle of the forcola which separates the gamba from the upper, visible part of the forcola. 2) transverse cuts in the blade of the oar in which lateral bands of beechwood (cortei) are fixed.
Tapessièri tirar (al remo) tirar acqua	They are the upholsterers who make the cushions used in the gondola thinning the oar along the shaft; carried out after having used the oar for some time to allow the wood fibres to stabilize method used to turn the boat by holding the oar vertically with both hands and moving the oar rapidly from side to side.
Tòpo	The topo, also called the batelo a pisso, is the most widely used fishing/transport boat of the lagoon. It is between six and twelve meters long, has the bow stem curved forwards and a rounded stern with a vertical stem.
trastolini	fir-wood thwarts of the gondola; the pair of trastolini at the bow make up the barcarisso, while the pair at the stern are near the trasto bagagli.
velada	type of bow forcola characterized by the part on the opposite side of the morso being partially detached from the body of the forcola; this part is shaped like the tails of a tailcoat.

vogar a la valesana	rowing technique used by the lagoon fishermen in which two crossed oars are used by a single oarsman.
<b>Term</b>	<b>Italian</b>
baonàr	dicesi quando nelle grosse barche, uno dei guidatori, stando a poppa, tuffa nell'acqua il remo in direzione quasi parallela all'asse longitudinale della barca e voga alla rovescia, per far deviare il natante dalla linea retta che percorre.
Baretèri	Sono i cappellai esecutori dei cappelli estivi e dei berretti invernali dei gondolieri
Batèla	La <i>batèla buranèla</i> è un' imbarcazione da lavoro con l'asta di prua simile al topo e la poppa con lo specchio come i <i>sàndolo</i> . Con tutta probabilità è la versione semplifi della <i>batela a cóa de gambaro</i> , un' elegante barca, completamente scomparsa, dalla poppa tonda e ricurva verso l'alto.
Buranèla	
Caleghèri	Sono i calzolai creatori di scarpe speciali per gondolieri
Caorlina	La <i>caorlina</i> era una barca da trasporto e da pesca, dalle estremità simmetriche a mezzaluna, lunga attorno ai dieci metri. Versione moderne sono utilizzate solo per diporto e regarta a sei vogatori. Questo e altre barche da carico utilizzavano anche una particolare fórcola a tre morsi sovrapposti utilizzati in relazione ai differenti assetti di carico.
cómio	lett. gomito, curvatura esterna della forcola poppiera della gondola, il corrispondente incavo interno è detto <i>sánca v</i> .
cortèlo	lett. Coltello, striscia di legno di faggio aggiunta, singolarmente o in coppia, ai lati della pala del remo per aumentarne la superficie, irrigidirla e renderla pui resistente agli urti.
dolaóra	antica ascia di forma rettangolare, con il manico disassato, usata fino a non molto tempo fa dai <i>rèmeri</i> per la sbazzatura remi
el fèlze	<i>El fèlze</i> Era una cabina mobile posta al centro della gondola, riparo dei passeggeri d'inverno, di notte o in caso di pioggia e vento; veniva imbarcata solo se necessario; aveva un'apertura davanti e una 'portella', finestrelle laterali, la volta a botte. La struttura era complessa, oltre che riccamente decorata (legno e metallo). Ne erano artefici i felzèri, con il concorso di altri artigiani. Presente un tempo in ogni gondola, modesta o ricca che fosse, da alcuni decenni è in disuso, perché poco funzionale all'utilizzo odierno dell'imbarcazione.
fèlse, fèlze	cabina mobile della gondola in noce, rivestita di panno nero e dotata di una portèla anteriore di finestrelle rettangolari sugli altri latti. Attualmente in disuso, fino a qualche decennio fa il f. era corredo indispensabile della gondola, offrendo riparo ai passeggeri durante la stagione invernale o in caso di maltempo
fero a do maneghi, a do man	sorta di coltello a lama larga falcata, che usano i bottai, i remai e altri simili artefici.
Ferro	Ornamento in metallo per la prua o la poppa delle gondole o delle barche in genere.
Forcole forcolin	forcella del remo
Fravi	forcella del remo ad sola incavatura <i>mòrso</i> ; dicesi anche <i>fórcola a un mòrso</i> . Sono i fabbri e forgiatori dei ferri da prua e altri acciai. Intervengono nella 'terza fase' del complesso lavoro di costruzione della gondola, dopo che lo scafo è stato costruito, calafato, impeciato.
gàmba	
girón	genericamente la parte bassa di un oggetto, come la fórcola ecc. la parte cilindrica del remo compresa fra l'estremità superiore ed il punto, detto

	<i>entràr</i> , dove nasce la pala.
Gondolin	il <i>gondolin</i> è una imbarcazione simile alla gondola ma più piccola e leggera utilizzata solo per le regate a due vogatori.
Indoradòri	Sono i doratori degli ornamenti
Intagiadòri	Sono gli intagliatori delle sovrastrutture scolpibili
làì	lato di una imbarcazione. <i>Métarse al l.</i> o <i>essare al l.</i> , significa mettersi o essere affiancati ad un'altra barca.
làì (avere la barca al)	avere la barca correttamente inclinata sulla destra
làì de mezo	lato sinistro della gondola
làì de pope	lato destro della gondola
làì roverso (stare al)	barca che per un errore di costruzione o per la disposizione del carico o dei rematori è inclinata sulla sinistra, invece che correttamente a destra, v. làì.
Mascaréta	La <i>mascaréta</i> è una versione più leggera del <i>sàndolo</i> , che non ha <i>nèrve</i> né <i>tràsti</i> al termine delle coperte. Lunga attorno ai sette otto metri e utilizzata, con due persone d' equipaggio, per diporto e per le regate femminili.
morso	incavo della forcola nel quale viene posto il <i>giron</i> del remo.
naselo	una delle due punte del <i>mòrso</i> delle <i>fórcole</i> .V. anche naso
oe!	richiamo che i gondolieri usano come avvertimento all'approssimarsi di un incrocio di canali o di una curva. All' <i>òe!</i> Di riposta di un altro gondoliere dichiarano da che parte intendono dirigersi, con <i>a premàndo</i> se vogliono andare a sinistra, a <i>stagàndo</i> se vanno a destra e <i>de lóngo</i> se proseguono dritti.
Ottonài/ Fonditori	Sono i creatori dei cavalli e degli altri ornamenti metallici
parada (fare una)	traversata, traghetto, ( con gondole).
parar	spingere l'imbarcazione puntando il remo sul fondo del canale.
Peàta	La <i>peàta</i> era la più grossa barca da trasporto per i canali interni, arrivando a misurare 15 metri di lunghezza e oltre 370 quintali di portata. Completamente in disuso era vogata da due <i>peatèri</i> , o su <i>fórcole</i> o su scalmi più semplici detti <i>vogarissi</i> fissati all'imbarcazione.
penola	ognuno dei cunei di legno forzati tra la <i>gmaba</i> della forcola e l'apertura sulla barca allo scopo di tenerla ben ferma e di trovare l'inclinazione più redditizia alla voga.
pontapie	pedana a forma di cuneo, usata dai vogatori per sostenere la spinta del piede posteriore. Detta anche <i>taparin</i> o <i>tàpo</i> .
popier, pupier	il vogatore di poppa, con il remo a destra nella posizione più arretrata, che oltre a spingere la barca ha anche la funzione di dirigerla
poppa	La parte posteriore della barcha
premando	a sinistra. Di pratici si usa sempre in questo senso la parola <i>premando</i> . "per andare in piazza da che parte devo andar?":
premer	la spinta che si imprime sul remo nel movimento di andata. Il contrario di <i>stalar</i> .
provier, provin	anche <i>provièr</i> , vogatore di prua che ha il remo sul lato sinistro della barca.
Prua	La parte anteriore della gondola
Puparin	il <i>puparin</i> è il <i>sàndolo</i> più elegante, nato per il trasporto di persone delle famiglie denestanti, è ora utilizzato per diporto e per regata. Ha la poppa molto slanciata, (da cui il nome) sopra la quale voga il <i>popièr</i> e, particolare rimarchevole, è asimmetrico come le gondola



raspa	sin. di <i>fèro a dó maneghi v.</i>
recia	lett. orecchia, sporgenza posteriore della testa delle fórcole.
remèri, remero	artigiano che fabbrica remi e fórcole.
remiera (societa)	associazione che riunisce nella laguna di Venezia appassionati di voga alla veneta. Dispongono di imbarcazioni di vario tipo, messe a disposizione dei soci, con le soci, con le quali organizzano uscite, regate o sfilate in occasione di particolari ricorrenze. si distinguono tra di loro dal colore delle divise e delle imbarcazioni.
sanca de la forcola	la parte interna della curva di una fórcola, in genere quella di poppa della gondola. Viene utilizzata nei canali stretti quando bisogna tenere il remo parallelo all'imbarcazione, e quando si voga all'intietro ( a pópe indrio) o (andàr in sància)
Sàndolo	il <i>sàndolo</i> è la barca più diffusa in laguna, caratterizzata- oltre dal consueto fondo piatto- dal fianco e asta di prua diritti e specchio di poppa. Ha prondotto una grandissima famiglia di varianti sia locali vedi sàndolo ciosòto, buranèlo, di S. Piero o sanpieròta, che modificate per i diversi impieghi fra cui il puparin, lo s'ciopón, la mascarèta ecc.
Sanpieròta	La <i>sanpieròta</i> è un'imbarcazione da diporto, derivata dal <i>sàndolo</i> usato dai pescatori di S. Pietro in Volta, progressivamente allargata per sostenere una velatura maggiore.
Sartòri	i calzolai creatori di scarpe speciali per gondolieri
sata	lett. zampa. Sin. di gamba
S'ciopón	Lo <i>s'ciopón</i> è il sàndolo lagunare più piccolo, nata per la caccia con la spingarda (s'ciòpo, da il nome) e per la pesca con la fiocina. Si voga generalmente da soli alla valesàna, le sue fórcole, da sempre le più semeplici ed economiche, ritagliate da una tavoletta di modesto spessore, sono state sottoposte anch'esse ad una cura anabolizzante come si vede dall'illustrazione
sia stali, sia premi	modi di comando usati dai barcaioli come sopra, e che valgono il primo: da indietro o fermati, ma volgendosi a destra; ed il secondo: da indietro o fermati, ma volgendosi a sinistra
siar, siare soraosso	frenare l' imbarcazione in movimento, antepoendo il remo alla fórcola. pezzo di legno incollato sul <i>girón</i> del remo nel punto dove si e logorato per il continuo sfregamento sulla fórcola.
Squerariòli	Sono i carpentieri specializzati nella costruzione di imbarcazioni in legno, e quindi anche di gondole
stagando! stalir	.a destra, nel linguaggio correbte deu gondolieri e barcaioli. movimento di ritorno del remo nella voga singola, utilizzato tenendo l'estremita della pala dentro l'acqua, per imprimere alla barca una correzione della rotta verso destra
tapa	1) fascia orizzontale al cento della fórcola, che separa la sàta rimane a contatto con l'imbarcazione. 2) incastro trasversale nella pala del remo dove si inserisce il cortèlo.
Tapessièri	Sono i tappezziere esecutori delle cuscinerie
tirar (al remo)	affinare il remo, alleggerirlo dal <i>girón</i> alla pala. Operazione che si esegue in genere dopo averlo vogato per un po' di tempo per fare assestare le fibre.
tirar acqua	metodo per far accostare la barca di lato, immergendo il remo verticalmente e tirandolo a sé con le due mani facendolo oscillare lateralmente.
Tòpo	il <i>tòpo</i> , detto anche <i>batèlo</i> a pisso, è una delle barche da pesca e trasporto piu diffuse in laguna. Lungo dai sei ai dodici metri, ha l'asta di prua curva distesa in avanti e la poppa tonda con l'asta verticale.
trastolini	dim.di tràsti; tavole mobili di abete, appoggiate di traverso sulla gondola, sono l due de prova che costituiscono il barcarisso, e i due de pope vicino al trasto bagagli.

velada

tipo di forcola di prua, con la parte opposta al *mòrso*, staccata dal corpo della stessa come una di un frac.

vogar a la  
valesana

condurre un' imbarcazione all'uso dei pescatori lagunari, con due remi incrociati manovrati da un solo vogatore.

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# Traditional Boats 2004

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Boat Type Batèla

Quantity	Rarity	Average Length	Average Width
6	Rare	8.7	1.8



Boat Type Beccaccino

Quantity	Rarity	Average Length	Average Width
1	Endangered	4.8	1.5



Boat Type Bragagna

Quantity	Rarity	Average Length	Average Width
1	Endangered	7.0	1.8



Boat Type Bragozzetto

Quantity	Rarity	Average Length	Average Width
5	Rare	7.4	1.8



Boat Type Bragozzo

Quantity	Rarity	Average Length	Average Width
22		50.2	13.8



Boat Type Buranella

Quantity	Rarity	Average Length	Average Width
5	Rare	8.0	1.6



Boat Type Burchiello

Quantity	Rarity	Average Length	Average Width
0	Extinct		



**Boat Type** Caiccio

Quantity	Rarity	Average Length	Average Width
35		4.2	1.5



**Boat Type** Caorlina

Quantity	Rarity	Average Length	Average Width
5		10.1	1.9



**Boat Type** Cofanetto

Quantity	Rarity	Average Length	Average Width
3	Endangered	5.2	1.4



**Boat Type** Colombina

Quantity	Rarity	Average Length	Average Width
0	Extinct		



**Boat Type** Comacina

Quantity	Rarity	Average Length	Average Width
2	Endangered	15.1	3.7



**Boat Type** Coronet

Quantity	Rarity	Average Length	Average Width
0	Extinct		



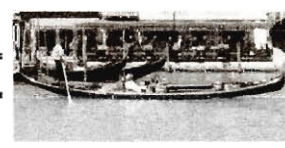
**Boat Type** Dogaletto

Quantity	Rarity	Average Length	Average Width
0	Extinct		



**Boat Type** Gondola

Quantity	Rarity	Average Length	Average Width
496		1.2	0.7



**Boat Type** Gondola da Fresco

Quantity	Rarity	Average Length	Average Width
1	Endangered		



**Boat Type** Gondolino

Quantity	Rarity	Average Length	Average Width
1		10.0	1.1



**Boat Type** Gozzo

Quantity	Rarity	Average Length	Average Width
20		26.4	9.9



**Boat Type** Guscio

Quantity	Rarity	Average Length	Average Width
1	Endangered	2.9	1.4



**Boat Type** Mascareta

Quantity	Rarity	Average Length	Average Width
54		6.5	1.2



**Boat Type** Passera

Quantity	Rarity	Average Length	Average Width
2	Endangered	4.5	1.8



**Boat Type** Passetto

Quantity	Rarity	Average Length	Average Width
1	Endangered	5.0	1.3



**Boat Type** Patana

Quantity	Rarity	Average Length	Average Width
143		7.6	3.4



**Boat Type** Patanella

Quantity	Rarity	Average Length	Average Width
466		10.7	3.5

**Boat Type** Patanino

Quantity	Rarity	Average Length	Average Width
1	Endangered	3.0	1.5

**Boat Type** Peàta

Quantity	Rarity	Average Length	Average Width
1	Endangered	15.0	3.5



**Boat Type** Puparin

Quantity	Rarity	Average Length	Average Width
8	Rare	8.5	1.1



**Boat Type** Sandoletto

Quantity	Rarity	Average Length	Average Width
10	Rare	73.1	26.0



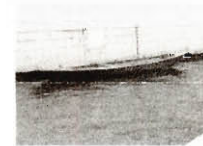
**Boat Type** Sandolino

Quantity	Rarity	Average Length	Average Width
14		5.9	1.2



**Boat Type** Sandolo

Quantity	Rarity	Average Length	Average Width
252		6.4	2.4



**Boat Type** Sanpierota

Quantity	Rarity	Average Length	Average Width
380		6.3	2.0



**Boat Type** S'ciopòn

Quantity	Rarity	Average Length	Average Width
51		6.0	1.2



**Boat Type** Sonetto

Quantity	Rarity	Average Length	Average Width
0	Extinct		



**Boat Type** Spigolo

Quantity	Rarity	Average Length	Average Width
1	Endangered		



**Boat Type** Topa

Quantity	Rarity	Average Length	Average Width
408		9.7	1.9



**Boat Type** Topetta

Quantity	Rarity	Average Length	Average Width
323		8.1	2.1



**Boat Type** Topetto

Quantity	Rarity	Average Length	Average Width
3	Endangered	6.0	1.6



**Boat Type** Topo

Quantity	Rarity	Average Length	Average Width
152		24.7	5.8



**Boat Type** Trabaccolo

Quantity	Rarity	Average Length	Average Width
0	Extinct		





**Boat Type** Varigola

<b>Quantity</b>	<b>Rarity</b>	<b>Average Length</b>	<b>Average Width</b>
2	Endangered	5.7	1.6



**Boat Type** Vipera

<b>Quantity</b>	<b>Rarity</b>	<b>Average Length</b>	<b>Average Width</b>
1	Endangered	10.0	1.5

