

The Inland Seas

Towards an Ecohistory of the Mediterranean
and the Black Sea

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Sabine Florence Fabijanec

Fishing and the fish trade on the Dalmatian coast in the late Middle Ages

1. Introduction

The eastern Adriatic coast extends from Istria to Albania (fig. 12.1) and is 2,488 km long. Between the estuary of the Soča and that of the Bojana there is a total of 66 inhabited islands, 659 uninhabited and small islands, 496 rocks and 82 shelves above sea level.¹ From Ižola in Istria to the Gulf of Kotor, the east coast is primarily marked by steep cliffs, interspersed with many gulfs and bays, and by a series of archipelagos from the island of Lošinj to Dubrovnik; the seabed is more irregular than flat.²

This topography and the local climate have contributed to the creation of an abundant and diversified marine fauna which, in turn, has supported the development of fishing and the fish trade. Indeed, fishing was a very well developed activity across Dalmatian territory in the Middle Ages, both in the urban communes of the coast and on the islands, and the first reference to fishing activity by Croats dates to 995.³

At the end of the Middle Ages, Dalmatia was dominated by Venice. Unlike other economic activities, however, fishing was not under direct Venetian control.⁴ This explains why fishing became one of the most important branches of the local economy throughout all the Dalmatian communes.⁵ The fact that many churches of the province were consecrated to Saint Nicholas, protector of fishermen and sailors, is also revealing.

2. Fishing zones

In the Adriatic, the most common fish species are sardine (*Sardina pilchardus*), mackerel (*Scomber scombrus*), bluefin tuna (*Thunnus thynnus*) and other pelagic fish. The most common fish in the shallows are hake (*Merluccius merluccius*) and picarel (*Spicara smaris*). Fishing for such species is a seasonal occupation, and thus the income to be derived from it is fluctuating and unstable. In fact, the distribution of the habitats and the migration patterns of these fish, particularly of sardines, are still unknown.⁶

¹ *Pomorska enciklopedija* 1956: 525.

² *Pomorska enciklopedija* 1956: 558.

³ PERIČIĆ 1999: 29.

⁴ RAUKAR 1982: 65.

⁵ RAUKAR 1977: 213.

⁶ *Pomorska enciklopedija* 1960: 601.

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Up to one nautical mile off-shore the waters are shallow, with a maximum depth of 80 m. This maritime area is rich in nutrients and carbon, and thus highly conducive to fish production.⁷ Thanks to these off-shore resources, small-scale fishing quickly developed around Dalmatian communal waters.

The archipelago of Zadar comprises very productive basins; among them, the basin of the island of Kornati, approximately 320 km long, is the most significant. The most fertile bays are those of Sakarun and Telašćica on Dugi otok and of Molašćica on Molat, which were famous, according to records from the fourteenth and fifteenth centuries, for their small, dark-fleshed fish (for example mackerel, sardine and other oily fish). These bays were systematically exploited from 1440 to 1501. Fishermen of the islands and surrounding settlements (Silba, Olib, Premude, Skard, Ist, Solin, Polja, Božave, Brbinja, Savra, Sestrinja, Zverinca and Iž) would fish together in these two zones around Dugi otok and Molat, but a quarrel prompted by the usurpation of fishing rights broke out in 1501. To catch the dark-fleshed fish, fishermen would travel up to 15–18 nautical miles from the coast on a summer night, and spend nearly twenty days at sea. Sixteen small settlements worked 200 beach seines on the islands; the island of Iž alone had nine.⁸ Taking into account the production in the bay of Novigrad and on the islands of Rab and Pag, it was possible to catch nearly 30,000 Venetian pounds (14,310 kg) of tuna per year.⁹

As for the district of Šibenik, with its 40 islands and islets, a testimony from 1487 states that it was a zone 'rich in fish', especially the strait. It contained oysters, dentex (*Dentex dentex*), striped mullet (*Mugil cephalus*), bogue (*Boops salpa*), red scorpionfish (*Scorpanea scrofa*), red mullet (*Mullus barbatus*), sea bass (*Dicentrarchus labrax*), black goby (*Gobinus jozo*), gilthead bream (*Sparus aurata*), common sea bream (*Pagrus pagrus*), squid (*Loligo vulgaris*), mackerel, picarel and annular bream (*Sargus annularis*), and conditions were ideal in many bays for tuna. The immediate hinterland of Šibenik constituted another fishing zone with freshwater fish and eels found in the Krka river. These fisheries in particular were leased out by the commune or by private owners.¹⁰ In the 1470s, fishing was developed in the area of Šibenik and on nearby islands (Zlarin and Prvić). Catches were sufficient to provide the city with a surplus that was exported to the Marches of Ancona, on the Italian side of the Adriatic, and their hinterland. At the end of the fifteenth century, fishing for dark-fleshed fish was extended into the widest insular zones. This is particularly true for the zone of Žirje (*peschiera di Zuri*) which, from the very beginning of the sixteenth century, became the main centre for the salting and export of dark-fleshed fish. In the second half of the sixteenth century, dark-fleshed fish were the most commonly exported commodity from Šibenik.¹¹

The city of Dubrovnik drew its supply of fish from the islands of Lastovo and Trpanj, which were the centres of fishing in the Gulf of Ston. The catches supplied the local market and also sustained an active export trade in salted fish. At the beginning of the sixteenth century, in particular, Venice made efforts to organise fishing off the small island of Sušac, to recover part of the rich fishery zone of Lastovo for the benefit of the islanders of Hvar, Vis and Korčula.¹²

⁷ DULČIĆ, SOLDI and JARDAS 2005: 23.

⁸ STAREŠINA 1971: 11.

⁹ PIASEVOLI 1964: 40–1.

¹⁰ KOLANOVIĆ 1995: 228–30.

¹¹ KOLANOVIĆ 1995: 229.

¹² STULLI 1989: 70.

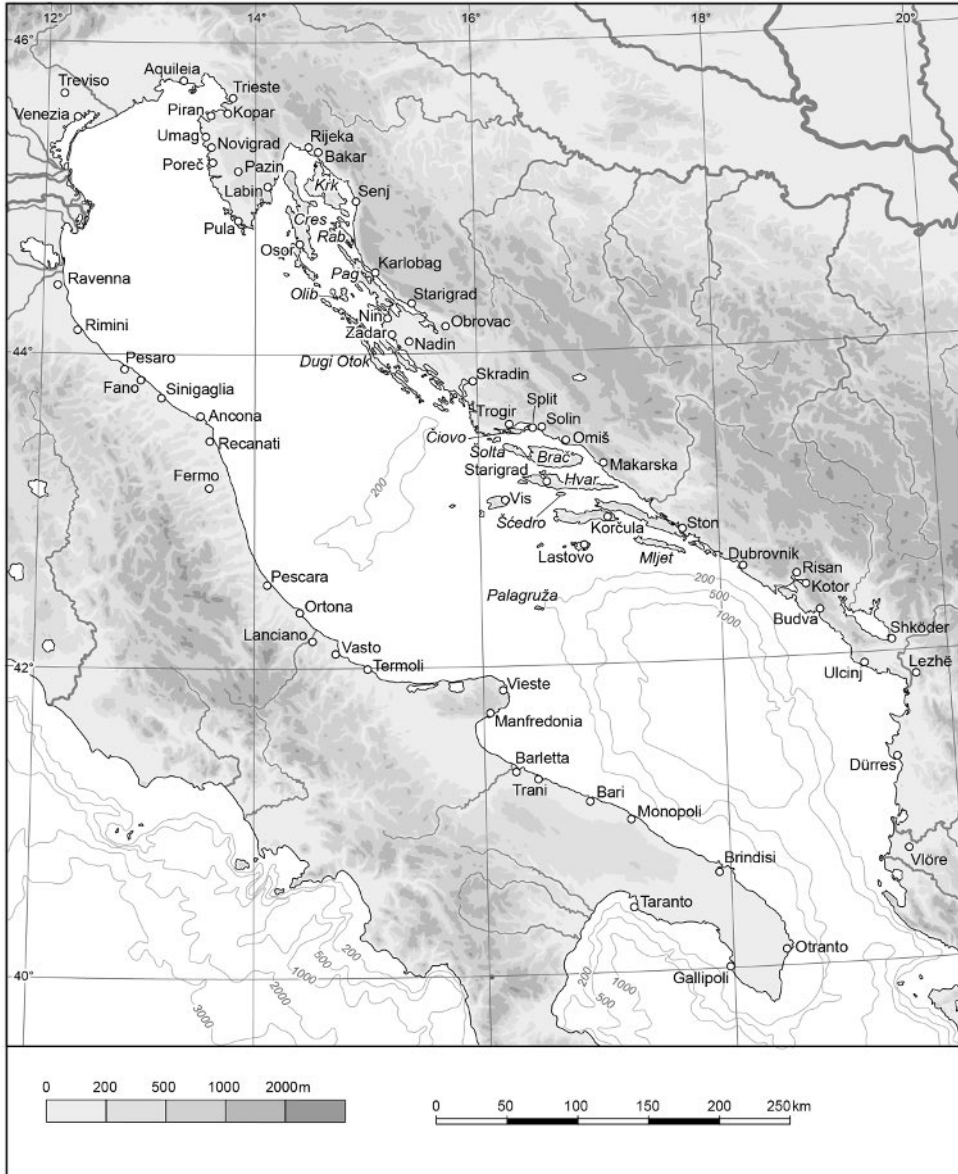


Fig. 12.1: The Adriatic sea, with sites mentioned in text. (Richard Szydlak).

On the island of Rab, which covers an area of 93 km²,¹³ and adjacent islands, fishing locations were much more diverse than elsewhere, depending on the targeted species. Areas of marine grasses, coastal shelves and the hollows generally sheltered common pandora (*Pagellus erythrinus*), black bream (*Spondyliosoma cantharus*) and scorpionfish (*Scorpaenidae*).

¹³ Kos 1987: 251, n. 3.

On the coast, along the headlands, dentex was a well-known speciality of the fisheries of Rab. Populations of conger eel (*Conger vulgaris*), eel (*Anguilla vulgaris*) and common octopus (*Octopus vulgaris*) were hidden deep in the sea. In the sandy and muddy shore waters off Lopar, Supetar and Kapor there were schools of striped mullet, European sea bass and gilthead bream. In the bays of all the islands, in particular in the hollows of the headlands of Luna and Kalifronta, one could fish for all types of picarel. In the muddy and sandy waters there were common hake (*Merluccius merluccius*), whiting (*Merlangius merlangus*) and blue whiting (*Micromesistius poutassou*).¹⁴

The richness of the fishing off the eastern Adriatic coast quickly led to the establishment of special privileges for some categories of persons and institutions. In 995, for instance, since they could not agree amongst themselves who could go fishing, the notables of the commune of Zadar decided to donate the fishing-grounds (*piscationes*) around the islands of Molat and Dugi otok to the Benedictine monastery of Saint Krševan in Zadar.¹⁵ Later, the presence of defined fishing-grounds for tuna in the zone of Rijeka, in Preluka (*Prelucha*), can be noted from 1438 onwards. Any fisherman of the city and its surroundings was entitled to set a net in the basin, provided that nobody else had done so before him. Twenty years later, tuna fishing was authorised even on Sundays and holidays, in order to exploit every opportunity to fish.¹⁶

3. Fishing techniques

The earliest known documentation concerning the fishing techniques of the Croatian eastern Adriatic is recorded in the Statute of Skradin which dates from the beginning of the fourteenth century. This statute mentions three techniques: trident fishing, fishing with a gill net and fishing by frightening the fish. 'From the old times', according to the statute, fishermen went night fishing and donated the biggest fish of the catch to the communal officials. They took along nets, *pobuks* (hollow-ended sticks) and fire (*cum rectibus in nocte cum pobuc, et igne*). They beat the water with *pobuks* to frighten the fish and direct them to an illuminated area where gill-nets had been placed.¹⁷ In the waters of the Zadar archipelago a similar technique called 'roasting' (*svaržale, sparžiti*) was practised. 'Roasting' took place on nights with calm seas and no moonlight. Burning branches of blackcurrant bushes, in the shape of a torch, were tied to iron axes. Fishermen carried these on their shoulders along the coast, moving from rock to rock. The fish were attracted by the light and subsequently caught. The term 'roasting' was also used to refer to the technique of placing burning blackcurrant branches or dry vines (*lamparo*) on an iron lattice close to the poop of a boat and holding them in place by two iron bars. This technique was used to catch dark-fleshed fish.¹⁸

From the second half of the fifteenth century a new fishing technique emerged. In Šibenik, the inventory of a fisherman dated to 1460 lists '*due tragine da pischar de passa 60*' (two driftnets for fishing 60 paces long). The technique soon spread further afield: in 1464

¹⁴ BASIOLI 1987: 269.

¹⁵ KOSTRENIĆ 1967: doc. 34, 49–50.

¹⁶ BASIOLI 1969: 107.

¹⁷ BIRIN 2002: 83, 197.

¹⁸ STAREŠINA 1971: 12.

the specialised driftnet fisherman (*piscator tratte*) Marin Živković agreed with another man from Šibenik that they would fish for four months off the island of Krk with these nets. By the end of the fifteenth century all the fishermen from the islands around Šibenik (Žirje, Zlarina and Prvić) were familiar with driftnet fishing. Thanks to this new fishing gear, it became easier to catch dark-fleshed fish. Its introduction had a significant impact on the development of fishing and the growth of the fish export trade.¹⁹ For example, when in 1524 a patrician from Zadar, Simon Kresula de Cedolini, introduced a driftnet (mostly referred to as *tracta* in the documents of the sixteenth century) to fish for sardines, it was immediately clear that it was a much more efficient way to fish than traditional methods. As a consequence, he requested that the Venetian government forbid fishermen who did not work for him from using this technique for a period of ten years. The government granted his request and imposed a fine of 50 ducats on anyone who contravened this regulation, plus the threat of the expropriation of catches, nets and other assets.²⁰

In the 1570s these driftnets were often owned by two or more individuals – *parcenev-oli* – who took a proportional share of the catch. Nets were sometimes owned by just one fisherman; in 1573 the fisherman Nicolas Frančić bought eight nets at a cost of 52 pounds.²¹ When used for sardine fishing, each net required the use of three boats manned by four sailors each. Thus, for instance, the majority of the male population of Silba (which in 1500 had a total of 120 inhabitants) was engaged in fishing.²² In addition to the *tracta*, there were two other techniques used: the *rete* (first mentioned in 1540), a gill-net adapted to bonito and sardine fishing on the open sea and used to catch fish which had first been frightened; and the *parangal*, mentioned in a document of 1556. The *parangal* was a line fishing instrument: baited hooks were attached at intervals via branch lines, and a hundred or more baited hooks could hang from a single longline.²³

On the island of Rab, the 'first tuna *tunera* of Saint George' is mentioned in the communal statutes at the end of the sixteenth century. This *tunera* was an enclosure net specialised for tuna fishing set up at a distance of 40 m from the shore and with an opening towards the northwest. It was 70 m long and rose 8 m above the muddy seabed. The schools of tuna would come from the low cape of the island of Dolina or from the channel of Barbat in the northwest. An observation point was positioned high on the top of the small island of Saint George which was located near Rab, with a chapel dedicated to the saint. From his observation point on the island, a fisherman could alert others to the arrival of a school of fish. Fishermen in boats would set out to frighten the fish in order to direct them towards where the nets were set. The most appropriate location to trap fish by this method was the port of Rab, which was closed with the arrival of a school of fish. Fishing took place only during the autumn.²⁴

Descriptions of fishing practices can also be found in other sixteenth-century sources. PETAR HEKTOROVIĆ, a patrician from Hvar, wrote *Fishing and Fishermen's Conversations*,²⁵

¹⁹ KOLANOVIĆ 1997: 323–4.

²⁰ ČOLAK 1957: 11; *Hrvatski biografski leksikon*, 1989: 613–4.

²¹ PEDERIN 1993–4: 174.

²² STAREŠINA 1971:11–2.

²³ PEDERIN 1993–4: 173–4.

²⁴ BASIOLI 1987: 273; PEDERIN 1993–4: 174.

²⁵ HEKTOROVIĆ 1997: 38.

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in which he reported the three days he spent with two fishermen on the waters of Stari grad near the island of Hvar during the summer of 1555. Ten verses from this text, written in the old Chakavian literary language used in Dalmatia at the time, give an account of the standard fishing technique, which displays similarities to those mentioned above:

And they prepared the boat with mast and sail,
Equipping it with anchor, rudder, oars
And fine-mashed nets with weights to sink them down
To the sea's bed, their tops upheld by floats,
And also grasses from hill pastures plucked,
Woven in ropes for frightening the fish,
An oyster-graff, pine torches and a trident,
For spearing fish along the coast at evening.
Paskoy also brought his son to help,
To use the plunger to scare up the fish.

Again, this is a description of a technique involving the frightening of fish. The fish were directed towards a precise predetermined zone, where it was possible to concentrate them in sufficient numbers to catch them easily – even with only the bare hands, depending on the type of fish.

At the end of the sixteenth century, the first enclosed fishponds appeared when areas of the sea were portioned off for the breeding fish. The first reference to a fishpond in the records of Rab dates from 1577. The pond was owned by a certain Zacharie Benedetti, with the consent of the count and captain of the town.²⁶

The values of the specialised fishing boats are also indicative of the evolution of fishing techniques. The common fishing boats, mostly with four oars, were called *barcha peschariza*, *pescarese*, *piscaricia* or *cimba ad piscandum*. From the end of the fourteenth to the end of the sixteenth century, the price of these fishing vessels in Zadar and Split, for example, varied greatly. According to the contracts of purchase, they were worth either fifteen ducats (1367), 55 pounds (1389–1409) or four ducats (1496).²⁷ In the second half of the sixteenth century, in connection with the introduction of new fishing techniques, a larger fishing boat appeared: *barcha maior a pescharessa*. In Šibenik, a boat could fetch a price of 52–62 pounds, while a smaller vessel cost 20–26 pounds.²⁸ On the island of Rab, the term *zaupo* (also *copulo*, *zepula*, *zolla* as well as other names) was used to describe boats of varying sizes made from a single tree trunk; these could carry up to eight people and were used by the local population for inshore fishing.²⁹ On the island of Vis, the typical fishing boat was called a *gajeta falkuša*. This was the only sail-carrying fishing boat in the area that was specialised for navigation on the open sea and originated from Komiža (a small town on Vis).³⁰ The fishermen of Komiža were well-known for being specialised in open-water fishing with driftnets across an area up to the island of Palagruža; for example, on 9 May 1593 a fleet of 74 *gajeta*

²⁶ PEDERIN 1993–4: 174.

²⁷ FABIJANEC 2011, I: 214–7.

²⁸ KOLANOVIĆ 1995: 235.

²⁹ KOS 1987: 253.

³⁰ BOŽANIĆ 1997: 293.

falkuša manned by 370 fishermen, armed with a harquebus for defence against pirates, went fishing escorted by a Venetian galley.³¹

4. Modes of exploitation

The clearest illustrations of the organisation of fishing can be found from the insular areas. Examples relate in particular to the island of Rab and its territorial waters, which had one of the first fraternities of fishermen, *fraternitas piscatoris*, created at the beginning of the fourteenth century, as well as to the islands in the district of Zadar. In the sixteenth century, fishing companies functioned mainly on the same principles as other forms of commercial associations (*societates*). In these archipelagos, bailiffs or the owners – laymen or clerics – of maritime territories (islets, islands, bays and zones off the coast considered as private property) provided the fishermen with boats, fishing tackle and fishing rights within their waters, sometimes also with the salt necessary for the preservation of the catch. In most cases, as in all *compagnie*, the fisherman, as a *socius tractans* (active business partner), was obliged to sell a share of his catch to the *socius stans* (passive business partner) for a price fixed by contract. This share varied from 100 % (i. e., the total catch) down, in most cases 50 %. Moreover, a fisherman was normally expected to cover the operating costs of the boat(s). He generally turned over his catch to the owner on a daily basis.

The landowners may also have interacted with merchants. The latter were also sometimes owners of ships, in which case these would have been used to transport the fish collected for export. Thus, in 1529, Marin, a merchant from Šibenik, joined forces with the patrician Frano Cernota from Rab. Cernota provided Marin with a net and all the other instruments necessary for fishing for shellfish and other marine species. He also provided salt. Marin provided his ship to export the catch to the Marches; eventually he would give Cernota a portion of the profit. At the same time, Cernota joined up with several other fishermen and traded in previously caught and salted mackerel. For his part, Marin also bought salted fish in Istria and sold the cargo in the Marches.

In 1525 the procurator of the chapel of Saint George, Christopher Dominis, leased out all fishing on the island and its dependencies. In 1540, John Dominis, the *primicerius* of Rab, leased the whole of its territory with its fishing zones to three fishermen for one ducat per year and one-tenth of the tuna catch. The fishermen had to provide a beach seine and a tuna net, and, having paid taxes to the city and its count, they had the right to sell the rest of their catch, but only after first offering it to Constantin Dominis, the procurator and nephew of *primicerius* John, to buy.³²

The situation was similar for the territorial waters of Zadar and its islands. The fishermen thus joined up with merchants for the sale of their fish in the market of Zadar, and in the markets of Venice and Italy in general. There, they sold brined fish in barrels. The tradition lasted for at least four to five centuries; from the eleventh century the monks of Saint Krševan (Saint Chrysogonus) took a tribute (*tributum*) from the catch. This privilege was confirmed twice, despite protests from the producers.³³ The following report of a lawsuit

³¹ *Slobodna Dalmacija*, JOŠKO BOŽANIĆ, 'Viška gajeta falkuša – posuda kolektivne memorije', <http://arhiv.slobodnadalmacija.hr/20010904/podlistak.htm> (viewed 30 July 2015).

³² PEDERIN 1993–4: 173.

³³ PIASEVOLI 1964: 40–1.

of 1466 involving the producers, whose situation was definitively regulated only in 1548, is rich in information concerning the fishing techniques employed, the rich fishing zones, the working conditions and the high stakes involved, which entailed a constant struggle between the communal authorities and the fishermen.³⁴

In 1466, representatives of the insular fishermen of Iž, Veli Rat, Dugi otok (from the village of Sali) and Pašman complained to the court that the owner of the territorial waters, the monastery of Saint Krševan, was not fulfilling its obligations towards them. According to the customary law, the monastery had to provide one round loaf of bread and one jug of wine per fisherman at the time they handed over the tribute (one-eighth of the catch). This tribute had been, since the eleventh century, part of the communal revenue. However, the monastery later appropriated it as its own income. The court rejected the claim to compensation and threatened any defrauder of the monastery with a fine of 25 pounds.

The fish-rich waters of the Zaratín insular zone also attracted other Dalmatian fishermen. In 1485, people from Šibenik were accused of not having paid the tribute to the monastery, although they had fished in the communal waters and sold fish in the Zaratín market. According to the communal authority's regulations, they also had to give one-eighth of the catch as a tribute. The defence argued that this obligation concerned only the Zaratín fishermen and fishermen from its district, not foreigners. The communal court of Zadar decided differently, and compelled the fishermen of Šibenik to pay the tribute to the monastery and to the commune. These tensions show how the commune and the monastery endeavoured to preserve their fishing privileges around Zadar and across its archipelago. Rich incomes resulting from fishing were at stake.

The fishing professionals were gathered together in the brotherhood of Saint Andrew and Saint Nicolas before the sixteenth century. They were divided into two groups: owners of beach seines and those with other nets. The government supported the former; in 1487 it accused the owners of other types of nets of frightening the fish in the fishing zone reserved for beach seines.³⁵

The struggle between the insular fishermen and the authorities – both secular and ecclesiastical – continued into the sixteenth century. In May 1500, a representative of the monastery of Saint Krševan and the authorities of Zadar petitioned the communal court to renew the obligation of the fishermen to pay the one-eighth tribute. The fishermen, with the assistance of their lawyer, a patrician of the famous family of Begna, acknowledged their obligation to pay the tribute, but only when they fished in the immediate vicinity of the city and only levied on the fish sold in the city's market. They considered it unjust to be required to give up part of the fish caught in the open sea or around the islands and wanted to reserve these fish for their own use or for sale elsewhere. The court decided that the insular fishermen should give the monastery and the commune one-eighth of all fish caught and sold when the selling price exceeded ten pounds in total. Any acts in defiance of this decree would be punished by a fine of half a ducat. The communal court thus extended the rights of the communal authorities across the entire archipelago.

When in 1524 the above-mentioned patrician Simon Kresula de Cedolini introduced the more profitable driftnet for fishing sardines, the commune of Zadar attempted to benefit from this situation by enacting new decrees. From then onwards, the fishermen were re-

³⁴ Based on the information collected by NIKOLA ČOLAK 1957: 10–3.

³⁵ ČOLAK 1957: 10. *Pomorska enciklopedija* 1960: 613–4.

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quired to salt their fish in the city. Furthermore, they had to request in writing the authorisation to do so and were obliged to buy their salt from the Venetian authorities. In addition, Simon and his fishermen, who were catching sardines in the fishing zones of Kornat and Sali, were obliged to provide the citizens of Zadar with 200 barrels of salted sardines annually, at a price fixed by the commune. However, confronted with complaints from the fishermen and the possibility that the production of salt-fish would suffer, the Venetian government, by a decree of April 1532, required the commune to cease pressuring the fishermen. According to a new decree, the fishermen had to bring fish only to the island of 'Panitula', and there settle all the taxes and obligations to which they were subject for their fresh fish. A receipt that taxes were paid was issued to each owner of a ship, who then might freely sell the fish on the city market; he had to pay a tax of one-thirtieth (3.3%) on salted fish only. Otherwise, the fishermen remained free to fish as they wished. The fishermen who used the newly-introduced driftnets for sardines had to continue to provide 200 barrels of salted sardines annually. However, the commune did not respect this decree, since it sold these barrels, intended for the local citizens, for a profit of 50 ducats. The Venetian government requested that the sale be cancelled and that the commune keep to the terms of the original decree.³⁶

As time went by and other conflicts arose, the fishermen remained exposed to the arbitrary decisions of the commune. They were forced to accept the consequences of the political climate. Thus they had to serve on Venetian galleys and take part in campaigns against the Uskoks and other similar actions. This pressure caused a reduction in the number of driftnets from 60 to eighteen. However, the commune continued to require drift-netters to provide the 200 barrels of salted sardines; this led the fishermen to a shortfall of 6,000 ducats over the course of several years – according to the handwritten report of their complaint. In 1537 the Venetian government again intervened in favour of the fishermen against the auction sale of the 200 barrels, since fishing was one of the most advantageous economic activities in this area. The communal administration of Zadar then compelled the fishermen to bring the 200 barrels directly to the city under penalty of 25 pounds. Previously, the fishermen would sell their fish on the spot and the commune would come to seek its share. Under this new decree, the fishermen were compelled to come into the city with all their goods, in order to maintain contacts with fish-dealers on the spot, which resulted in additional expenses and demands on their time.

The negative consequences of these permanent pressures were manifold; among others, up to half the catch might be thrown overboard due to a fall in the number of fishmongers. Moreover, the obligation to maintain a storehouse in the city required the fishermen to negotiate guaranteed loans from Jews, and they considered the interest rates on these to be exorbitant. The final consequence of these new rules was that the fishermen now operated at a loss. So, once again, they complained to the Venetian Senate. The court process, involving the fishermen and the monastery of Saint Krševan, unfolded from 1546 to 1548. In 1548, the Senate concluded that fishermen with driftnets in the archipelago of Zadar could fish freely across the territory without any obligation to pay the *tributum*. They were not released from other communal taxes or from the obligation to provide the city with a sufficient quantity of sardines. If they fished in bays and other locations reserved exclusively for the monastery and the commune, they were obliged to give up one-eighth of the catch.³⁷

³⁶ ČOLAK 1957: 11–2; *Pomorska enciklopedija* 1960: 613–4.

³⁷ ČOLAK 1957: 12–3.

Another example of the difficulties encountered by fishermen concerns a 'war of techniques'. In the sixteenth century, the owners of a beach seine from the island of Hvar represented the presence of gill-net owners from the island of Vis. By putting pressure on the authorities, they managed to have the fishing rights of the owners of the gill-nets restricted and even secured complete prohibition of the use of their sailing boat, the *gajeta falkuša*; drastic measures were employed against any who transgressed these restrictions. Their motive was the suppression of competition; because of their higher quality, pilchards caught by the *gajeta falkuša* fetched a considerably higher price than those caught near the shore. In addition, the owners of the beach seines needed a large workforce and tried to complement their crews with fishermen from Vis, who were particularly respected as experts on the sea and on pelagic fishing. Only in years when the catch was poor did the authorities allow the *gajetas falkuša* to be used near the large nets, but, when catches were abundant, they were forbidden to fish even around the distant island of Palagruža, where the underwater rocks and the rocky shore were totally unsuited to the use of gill-nets anyway.³⁸ According to the report of the Venetian officer, Giovanni Battista Giustiniano, in 1553 fishermen from Vis who used the *gajeta falkuša* and sailed as far as Palagruža caught three million sardines in one day. For the commune, this represented 14,000 ducats of income, which equated to 20% of all communal incomes.³⁹

5. Market regulations

The terms of the communal statute laws clearly organised the nature of the fish trade. On Korčula, the fisherman brought his fish to the fish market and had to sell it to every purchaser who came. If the fresh or salted fish that he wished to sell on the island had been caught outside Korčulan waters, the fisherman had to pay the bailiff one-tenth of the goods or the equivalent value in money as a tax.⁴⁰ On Hvar, the inhabitants were forbidden from meeting the incoming boats in order to acquire fish before it was unloaded;⁴¹ had the catch been sold before unloading, the payment of tax might have been avoided. In Skradin, as soon as the fishermen returned from a fishing expedition they had to leave their equipment in the hands of the city, while in Split they were expected to sell the fish immediately upon their return and only in fish shops; moreover, they had to be present while the fish was being sold – probably in order to ensure that the sale was quick and thus the fish still fresh.

In almost all the communal regulations it is stipulated that fish could not be sold before the entire catch had been unloaded from the boat. This measure was taken to avoid smuggling, since salesmen had to pay the tax for the whole catch to get the right to hold a street stall. In Šibenik, the sale of fish was organised on benches around the communal palace or around the butchery zone; in Trogir, the fish was sold in the port or in the market; in Skradin, the fish market had to be far away from the coast for the better control of the supply of fish and to avoid black-market sales as the fishing boats arrived. Only the statute law of Hvar prohibited the wearing of bonnets or caps – presumably for some hygienic reason. The statute law of Split insisted that the fish should be fresh, i. e. caught the same day, except for

³⁸ BOŽANIĆ 2007.

³⁹ LJUBIĆ 1880: 220–2.

⁴⁰ CVITANIĆ (ed.) 1987: 64 chapter 101, 152 chapter 184.

⁴¹ RISMONDO (ed.) 1991: 176 chapter 31.

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the last day of Lent, when the fishermen were exceptionally authorised to sell it the following morning.⁴²

Judging from the detailed tariffs of fish prices (table 1), the range of products was vast: eel, octopus, squid, cuttlefish, tuna, moray, ray, sea snake and black bream. On Korčula, merchants were forbidden to compete by offering the merchandise at a lower price, especially in the fish shops. The incrimination of an unfair competitor was done on the basis of a statement from the injured party and the presence of a witness.⁴³ The most expensive fish in Rijeka were tuna and ray, and in Split the most expensive was cuttlefish. In Rijeka, the price of fish with scales was lower during Lent (from Carnival until Easter). On the contrary, in Pula, fish was more expensive during Lent.⁴⁴

Table 1: Prices of fish according to the statutes (price per pound)

	Split (1312)	Skradin (1304–1312)	Trogir (1322)	Pula (1431)	Krk (1470)	Rijeka (1530)
Red mullet	–	5 denars	5 denars	18 denars	–	–
Eel	–	5 denars	5 denars	12 denars	–	–
Dentex	–	5 denars		12 denars	–	–
Conger bream	–	5 denars	–	12 denars	–	–
Mackerel	2 denars	–	4 denars	12 denars	–	–
Red scorpionfish	–	–	–	12 denars	–	–
Tuna	3 denars	–	4 denars	12 denars	–	12 denars
Leerfish	–	5 denars			–	–
Scad	2 denars	–			–	–
Fish with scales	–	4 denars	4 denars	–	–	2 denars
Small fish	2 denars	–	3 denars	10 denars	12 denars	–
Sharks (cat, angel, bluntnose six gill)	–	2 denars	2 denars	6 denars	–	–
Ray	–	–	1.5 denars	6 denars	4 denars	8 denars
Blue skate	–	–		6 denars	–	6 denars
Moray	–	–	5 denars	–	–	–
Oyster	–	–	–	–	6 denars	–
Octopus	–	3 denars	3 denars	by rule of thumb	6 denars	–
Cuttlefish	8 denars	3 denars		by rule of thumb	6 denars	–
Squid	–	4 denars	3 denars	by rule of thumb	8 bagatins	–

⁴² FABIJANEC 2003: 44–6, 48–51.

⁴³ CVITANIĆ (ed.) 1987: 107 chapter 64.

⁴⁴ HERKOV (ed.) 1948: 312; BASIOLI 1966: 185.

According to all the communal statute laws – and testifying to the continuity of the tradition – the fishermen were expected to give the best portions of catches to representatives of the communal authority. Some of them came personally to choose their fish on the arrival of the fishermen in port. In Dubrovnik, fishermen had to give six fish out of every hundred to the count; in Skradin, after returning from a night of fishing, the fishermen gave one fish to the commune, one to the count and one to the judge; the people of Hvar gave the largest fish of the catch to the judge. In the fish shops, the fishmongers presented their wares before the vicar, who, in order to check the quality, chose a fish according to his taste.⁴⁵

6. The volume of the fish trade

Customs declarations, so-called *contralittere*, are the principal sources for the study of the fish export market. *Contralittere* from Split are preserved from throughout the sixteenth century,⁴⁶ as are some from Šibenik and Trogir.

6.1 Split

In Split, the majority of fish for trade had already been salted (*pesci saladi*), thus facilitating their preservation and transport. Such fish were appreciated across the whole Adriatic region. In the sixteenth century, the principal measurement used was barrels, but there were also *cavi* (small casks), *sacheti* (small bags) and *miara* (100 pounds). Bulk sales (*a refuso*) represented a good part of the trade. So, for the year 1503, fish was exported in bulk to Molise, Abruzzi and the Marches; in 1511, fish was transported to Venice; and, in 1515, ships containing bulk loads sailed towards the Marches, especially to Fermo. The registers generally specify that these shipments were of dried fish (*secchi*) of several kinds. Unfortunately, there is no complete and reliable record that can be used for comparison across the years. However, it is known that in both 1581 and 1582 (the two years are recorded completely), nearly 10,000 salted fish were exported.

The destinations varied. The Italian ports on the eastern Adriatic coast were the principal export markets throughout the century, with a slight prevalence of the Marches at the beginning of the century, then of Venice between 1511 and 1530, and of *sottovento* – literally ‘downwind’, i. e. southeastern Italy – in the 1580s. The markets of the Croatian coast are recorded as taking imports only during the second decade of the century, while Istria (the city of Piran) imported fish twice in the 1580s. Throughout the sixteenth century only 25 voyages with a cargo of fish (salted or dried) were accomplished. The Venetian share of the market was 20% of the total export, whilst the Marches and *sottovento* each accounted for 16%.

In addition to salted fish, we can also observe small cargoes of needlefish (called *agui*, *belone acus* in the registers) – sent even to Syracuse in 1530 – of horse mackerel (*suri*) and mackerel (*scombri*, *scussi*), among others, sent in the direction of Abruzzi and Apulia, and of

⁴⁵ FABIJANEC 2003: 45.

⁴⁶ Državni Arhiv u Zadru (State Archives in Zadar), Splitski Arhiv (Archives of Split), box 36, vol. 48, fasc. I (1503–4); box 41, vol. 52, fasc. 4 (1511); box 49, vol. 60, fasc. 6/II (1515–7); box 59, vol. 66, fasc. 7/IV (1523–6); box 67, vol. 74, fasc. 7/IV (1528–30); box 96, vol. 103, fasc. 17 (1557–60); box 116, vol. 122, fasc. 6 (1580–3).

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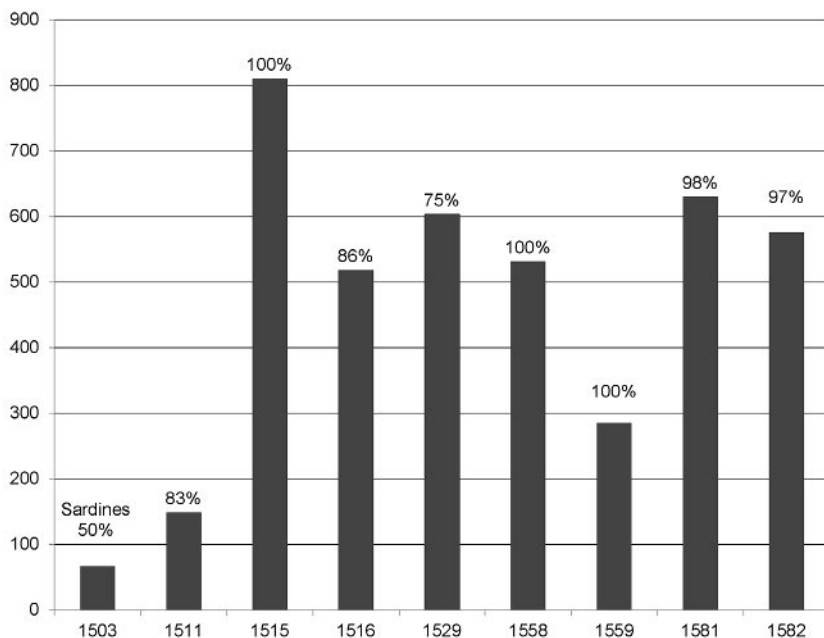


Fig. 12.2: Fish exports from Split in selected years during the sixteenth century (by full calendar year). Figures on the left axis indicate quantity in barrels; percentages indicate the proportion of sardines.

picarel (*girize, zgirol*), mostly as food for the crew. The export of tuna (*tonina*) appears in the 1530s to Apulia (especially Trani and Otranto).⁴⁷

Finally, sardines (*sardelle*) comprised the greatest volume of traffic: on average, they represent nearly 88% of the fish exports from Split (fig. 12.2). The majority of them were salted. Not all the sardines were caught in Split, however. The harbours of Omiš (a few barrels in 1503, then six barrels sent to Ravenna in 1583) and Makarska (50 barrels in 1558, transported to Apulia, *sottovento* and Venice) also supplied the Adriatic market, with their catches being exported through Split. Discounting the years 1503 and 1511, the annual average reached 450 barrels.

Exports were sent from Split to various markets. In 1503, the main destinations for exported sardines were the Abruzzi and Apulia (81%). By 1515, the destinations were rather different and the largest markets were in Apulia (Termoli) and Romagna (Ravenna) with 26%, the Marches (in particular the town of Lanciano) at 18%, the Levant, including Cyprus (Nicosia), at 28.5% and the Venetian colonies in southern Greece (Monemvasia in the Peloponnese and Zakynthos). In 1516, exports were directed towards Venice (40%) and central and southern Italy (37%); in Dalmatia, Hvar was the main importer and a few bar-

⁴⁷ FABIJANEC 2011: vol. II: 470–1.

rels were also exported to Candia (Crete). During 1528 the three main markets were again the Marches (40.5 %), Apulia (28 %) and the Levant (11 %, including Corfu and Zakynthos). Other fish (tuna and picarel) were exclusively exported to Apulia. In 1558, Apulia and *sottovento* took 85 % of the fish exported from Split. In 1559, 7 % of the sardines went to Ravenna and 93 % to Apulia. In the 1580s, the main export markets were *sottovento* and the Istrian city of Piran, with an annual average of 450 barrels.⁴⁸

The soaring rise of the sardine export trade may have been related to technical progress, especially the fact that sardines were easier to salt and store than other fish. Also, the use of gill-nets can be more widely identified in the south of the Adriatic; a declaration from 1558 mentions that out of 384 barrels exported from Split, 50 were originally imported from Makarska,⁴⁹ and in 1583 six barrels destined for Ravenna came from Omiš.⁵⁰ During the 1580s, the weights of barrels were equated in terms of *miara* (100 Venetian pounds), and it seems that an average sardine barrel weighed 124 kg.⁵¹

6.2 Zadar

Although fish abound in the maritime territory of Zadar, documentary records regarding trade, even information on the sizes of catches, are very limited. The fish mentioned in the documents are chub mackerel, mackerel and sardine. The type of ship used for fishing was exclusively the grip (*gripa*), a small sailing boat confined to coastal navigation in the eastern Adriatic.⁵² Fish gelatine was particularly highly prized. One of the production centres was the ancient village of Gazenice (Gasenizze), where fisheries and salt-works were located along the coast.⁵³

The sixteenth-century notary acts record, for example, the export of 40 barrels of sardines from the island of Šolta, plus twelve barrels of some fish called '*mera*' and eight barrels of eels (*angusigose*) and salpe, together with one barrel of oil; the whole cargo was bound for the *sottovento*. At the same time, trade in fish also took place with other Dalmatian cities, independently of the production of the city. Thus, in November 1516, an Italian, Lazar, from Bologna imported eleven barrels of mackerel and sardine from Split to Zadar, in a boat owned by a resident of Zadar.⁵⁴

A later source, the inventory of Lazar Pontremolo dated to 1556, testifies indirectly to the interest of this merchant in sea products. It contains, among other details, a record of 1,300 barrels intended for salted fish on the island of Dugi otok. Pontremolo owned eleven nets and four ships with capacities ranging from 500 to 800 *stari* (a unit of measurement for grain, also used for measuring boat capacity).⁵⁵

⁴⁸ FABIJANEC 2011: vol. II: 472–3.

⁴⁹ Fifty barrels of *sardele da Makarska* were exported to Apulia on 10 November: State Archives in Zadar, Archives of Split, box 96, vol. 103, fasc. 17, f. 893.

⁵⁰ Six barrels (21,900 pieces) of *sardele condute d'Almissia per boleta* were exported to Ravenna on 4 February 1583: State Archives in Zadar, Archives of Split, box 116, vol. 122, fasc. 6, f. 479.

⁵¹ State Archives in Zadar, Archives of Split, box 116, vol. 122, fasc. 6, f. 458, 460, 460', 462', 473', 475, 476.

⁵² ČOLAK 1957: 13.

⁵³ PIASEVOLI 1964: 40–1.

⁵⁴ State Archives in Zadar, Archives of Split, box 49, vol. 60, fasc. 6/II, f. 480.

⁵⁵ RAUKAR et al. 1987: 259.

6.3 Šibenik and Trogir

From Šibenik in the years 1441–2, fish were exported fresh, dried (*secchi*), salted (*saluni*, *salati*) and as gelatine. The quantities were not large and they are not in relation to the production. Mackerel and scad were mainly exported from April until September, less so during the winter. The main destinations of export were the Marches and Abruzzi. The greatest quantities of salted fish were transported towards the Croatian coast (Senj, Rijeka) and Montenegro (Kotor).

In the sixteenth century, Trogir exported even more fish than Split. In 1567, 742 barrels (85 % sardines and 12 % dried fish) were directed to Venice (57 %), Apulia (29 %), Zadar and Vasto. The following year, Trogir exported 1,151 barrels: 78 % sardines, 9 % mackerel and 8 % horse mackerel. Sardines were sent to the Levant (Corfu, Candia, Cyprus and Zakynthos).⁵⁶

For the period of one thirteen-month period (1576–1577) it is possible to establish the volume of the export trade for both Šibenik and Trogir (Table 2).

Table 2. Exports from Šibenik and Trogir from 16 June 1576 to July 1577.⁵⁷

No. of barrels	Šibenik	Trogir
Sardine	3,633	2,651
Sand smelt	4	–
Bonito	17	–
Mackerel	356	202
Scad (horse mackerd)	85	84
Tuna	30	1
Picarel	–	128
Brined fish	–	200

Both communes had a very prosperous fish trade. Trogir exported a total of 3,266 barrels (81 % sardine) and Šibenik 4,125 barrels (88 % sardine and almost 10 % mackerel). From Trogir, 30 % of the exports went into Venetian territory – to Chioggia, Friuli and Portu-grauro – and the island of Corfu, while 70 % went to the Marches.⁵⁸

The growth in fish exports did not fail to attract the attention of the Venetian authorities. As a consequence, a new tax on the sale of fish was introduced in the sixteenth century: for each *miliario* (1,000 *libri* or Venetian pounds) of sardines, the tax was 1 pound 6 pennies (1 *miliario* of sardines cost 9 pounds 10 pennies), for mackerel the tax was 2 pounds 6 pennies (1 *miliario* cost 10–16 pounds), for anchovy and scad the tax was 1 pound 14 pennies, for tuna 1 pound and for each barrel of sand smelt the tax was 12 *soldi*. These new taxes provided a significant income to the communal treasury.

Some merchants particularly distinguished themselves in the fish export trade. Between 23 April 1575 and 21 July 1577, Zuan Antonio Paladin from Trogir exported 1,278 barrels of

⁵⁶ KOLANOVIĆ 1997: 325.

⁵⁷ Translated and adapted from KOLANOVIĆ 1997: 325.

⁵⁸ FABIJANEC 2011: 473.

sardines, fresh and salted fish, destined for the *sottovento*, Venice and the Levant (Corfu and Zakynthos).⁵⁹ The financial value of this trade amounted to around 7,000 ducats.

7. Conclusion

The historiography and the records from the state archives are very rich in information regarding the Croatian maritime world and fishing industry, even for the (late) medieval periods. Thanks to this documentation, it is possible to reconstruct many aspects of medieval fishing: the fishing zones, techniques, guild associations, everyday life at the fish markets and, finally, trade. The statistical records from the sixteenth century largely reflect the growing importance of the fishing industry. By this time, new fishing techniques had been introduced, and, as the result of Ottoman territorial pressure, the communes preferred to source food for their populations from the sea rather than the land, since acquiring food from inland areas was more hazardous. So, the communal authorities facilitated access for fishermen and eased restrictions on the fishing zones. This opening of the fishing industry even generated a surplus. The surplus fish could be dried, salted or preserved in brine and distributed to multiple centres across the Adriatic and the Aegean, thus providing significant income to the communal coffers.

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⁵⁹ KOLANOVIĆ 1997: 326.

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