Towards a history of sponge harvesting in the Mediterranean: a focus on the Kalymnos fishery between the two wars

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CHAPTER 6

Towards a history of sponge harvesting in the Mediterranean: a focus on the Kalymnos fishery between the two wars

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Abstract: The production of Mediterranean bath sponges collapsed during the past century, as is shown by Tunisian catches, which fell from 108 tons in 1920 to 9 tons in 1988. A further illustration is provided by the well-known sponge-fishing island of Kalymnos, which lost about 90% of its active sponge-fisher population over the century between 1858 and 1967. What are the reasons for this dramatic decline of a once prosperous Mediterranean traditional fishery? What part of the decline can be attributed to the progressive reduction of the bath sponge stock, and what to a decreasing number of fishermen? How might this sponge fishery collapse be related to changes in uses, overfishing, and disease outbreaks triggered by climate events? How did sponge fishermen adapt to Regional Changes in the past? What is the future of such a fishery? What kind of guidelines can we provide for this fishery facing ongoing Regional Change?

To answer these questions, the SACOLEVE programme looks through ecological and historical windows into the past evolution of the sponge fishery, which is chosen here as a model of traditional fishery that has suffered a good number of upheavals over the past three centuries. The overall aim of this programme is to propose a management strategy for traditional fisheries that will open the way to eco-durable practices in the current environmental, socio-economic and geopolitical contexts. Greek sponge fishing fleets came from the surroundings of the Saronic Gulf, the Dodecanese and some islands of the North Sporades. But nowadays sponge fishing is to be found only on the island of Kalymnos. One of the elements that can explain its persistence there is that the maintenance of a variety of methods used has enabled this community to adapt to different fishing areas and to changing socio-political conditions. After presenting a general view of Mediterranean sponge fishing, this paper details the variety of methods used by Kalymnian sponge fishermen in the period between the two world wars.

The Mediterranean sponge fishery was once a prosperous industry, harvesting hundreds of tons of natural sponges that were sold throughout the world. It has gone through many upheavals, and although today, in some places, it remains a strong culturally anchored activity, the fishery has declined dramatically. The reasons for, and mechanisms of, this decline are studied through the SACOLEVE programme [1] that looks through ecological and historical windows into past evolutions. Our aim is to propose a management strategy for traditional fisheries that will open the way to eco-durable practices in the current environmental, socio-economic and political contexts.

Knowledge of sponge species and the use of bath sponges in the Mediterranean existed already in antiquity. [2] Later, during the second century BC, Oppian of Cilicia (*Αλιευτικά, 5.612)* described the activity as a fishing profession, and he detailed the methods and the habits of the sponge divers. But it was not until the mid-19th century that sponge commerce and harvesting expanded extensively in the Mediterranean area. With the industrial development of countries such as France, Great Britain, Germany and the United States of America, the demand for sponges for the cleaning and maintenance of machinery exploded, and this created a market that was difficult to satisfy. Tunisia, Greece and the Ottoman Empire were the main sponge producers at the time, and they needed to maintain and intensify the harvesting rhythm. By the late 1880s, Greece, whose sponge fishing force was at that time limited to fishermen from Trikeri, Hydra, Spetses, Aegina and Hermioni, was exporting between 150 and 222 tons annually.[3] In 1889, Tunisia exported over 53 tons,[4] Greece 160,[5] and Kalymnos, the well-known sponge

fishing island of the South Sporades (then under Ottoman rule), 180 tons.[6] This gives a figure of nearly 400 tons of sponges harvested and exported annually from the Mediterranean.

Greek and insular Ottoman fishermen travelled long distances during their six month campaigns, harvesting sponges from Northern Greece, the Turkish coasts, Syria, Egypt, Libya and Tunisia, and bringing them back to their port of registry to be sold. But at the start of the 20th century quantities rapidly decreased and although there was a recovery of production after World War II, the quantities produced in the latter years were much lower in comparison.

Mediterranean bath sponge species and harvesting techniques

Sponges live attached to the bottom of all seas and at all depths. Of the numerous species of sponges existing worldwide, only a very small proportion are commercially exploited for their skeleton of spongin and their absorptive qualities. Among the fifteen species exploited worldwide,[7] four can be found in the Mediterranean Sea: *Hippospongia communis*, *Spongia officinalis*, *Spongia lamella*, and *Spongia zimocca*. They thrive in various habitats and at different depths from a few metres to over 100 metres, and vary in commercial value depending on the species but also, for a given species, depending on the area or even the depth where they were harvested.

The techniques used for sponge harvesting have varied greatly over the past 200 years and, by their introduction or their persistence, are indicative of the socio-economic situation of the producer societies and the state of things in the buyer countries. In fisheries, the question of the evolution of the technical means and techniques of fishing is crucial. As in other sectors, sponge fishing was subject to the arrival of new techniques, which at the start were often imposed, and which significantly changed the pressure on the resources.

Harvesting techniques can be divided into two basic groups. In the first category are the traditional methods, some of which have been used for millennia. The most spectacular is the *naked diving* (apnoea diving) that has been used for centuries by the inhabitants of the islands of Symi [8] and Kalymnos in particular.[9] The naked divers descended to the bottom of the sea while holding their breath, and with a net hung round their necks to hold the sponges that lived attached to the seabed. The technique was greatly improved, apparently by Symiots, in c.1840. They added the use of a marble slab known as the *scandalópetra* or *cambanellópetra* to enable the divers to reach the seabed more quickly and more accurately.[10] Attached with a cord passing through a hole in the stone, this meant that the stone and the diver holding it were constantly connected to the boat. This ensured that the diver could be pulled up faster at the end of the dive or in the event of a problem, but it also made it possible to exchange simple information between the diver and the crew by means of tugging on the cord. This very simple introduction of the marble slab already greatly changed this traditional way of fishing. It was then further improved by the use of a small string forming two rings – one around the diver's wrist, and the second forming a loop through which the main cord of the slab passed. With this system, in the event that the diver fainted, by hauling in the cord attached to the slab the crew could pull up the diver even if he was unconscious.

Naked diving was practised by small family groups and required minimal investment. The harvest may have been smaller than that of other techniques, but the sponges were of good quality and well preserved. This technique, which was still in use before World War II, progressively changed into free diving using belt weights, a face mask and a wetsuit. Free diving is still practised nowadays, sometimes in Greece for sponge prospecting, and in Tunisia for harvesting at depths of under 15 metres.

Another ancient technique traditionally used by sponge fishermen of Hermioni, Aegina and the surroundings consists of scanning the bottom of the sea with a *yali*, a sort of

bucket with a glass bottom (also used by the naked divers), and using a long pole ending in a trident (*kamáki*) to detach the sponges, a process carried out from on board the boat. Like the naked sponge diving, the *kamáki* did not need much investment, and was therefore accessible to greater numbers of people, as long as sponges were present at small depths. But good quality sponges were often marked by the trident, and they also became scarce at small depths in Greece. Nowadays this technique is only sporadically observed, in the Gulf of Gabes around Djerba or the Kerkennah islands (Tunisia).[11]

The third traditional technique used was the *gangáva*. Although it appeared later than the first two, by 1865 there were already 300 *gangáva* boats operating in Greece.[12] We have therefore included it as one of the traditional means. This technique gradually came into use among the sponge fishermen of the South Sporades, where it was introduced around 1860. However, it was traditionally used by the Asia Minor sponge fleet, as in Bodrum village where in 1891, for example, the fleet was composed exclusively of 40 *gangáva* boats.[13] The technique was later introduced into Tunisia by the Greeks, in around 1875, and was then rapidly adopted by Italian and Maltese sponge fishermen.[14] The *gangáva* is a kind of dredge, pulled by a boat, consisting of a robust trapezoid net with a mouth held open by a rectangular metallic frame having a metal bar in the lower part that dragged on the bottom scraping up the sponges. Pulled by a traditional sailing boat, or later by a boat with an engine, at depths of up to 100-110 metres, the *gangáva* could be operated only on flat seabeds.[15] Production therefore depended on the nature of the fishing environment, but also on the legislation of the countries that progressively limited or banned this blind and destructive method of fishing sponges.

In contemporary times, further systems resulted from the mechanisation of under-water diving. These techniques had in common the provision to the diver of what Greek sponge fishermen termed "foreign air" – compressed air – either from the surface (hard hat diving; Fernez diving; hookah diving supplied from the boat), or from independent tanks carried by the diver.

The hard hat equipment was first introduced in the Aegean in the early 1860s by the agents of the western trading companies.[16] The strong demand for sponges from the sponge buying countries provided an incentive to seek more efficient new equipment that was not originally meant for sponge fishing. It revolutionised the harvesting, allowing divers to stay underwater for hours without having to come up, but it also left a deep scar in the flesh of the Mediterranean sponge societies by virtue of the number of victims that it caused. Ignorance of safety procedures, limits not respected, and the difficulties of using this cumbersome and heavy equipment, led to hundreds of deaths in the first years of its employment. Despite the dramatic consequences of the use of what was named "the machine", this technique diffused rapidly from an original South Sporades core, towards all the fishing communities under Greek and South Sporades influence.[17]

A new system appeared around 1920 in the South Sporades,[18] with equipment which had the advantage of being much lighter: the Fernez, named after its inventor Maurice Fernez. This was a hybrid concept between hard hat and naked diving. Divers were supplied with "foreign" compressed air, but they dived naked, and were ballasted by a *scandalópetra*. The supply of air under pressure arrived via a tube that ended in a rubber reservoir compressed by the pressure of the sea at the depth of the diver. From this reservoir, attached to his belt, extended a corrugated hose with duckbill inspiration and expiration valves on either side of the mouthpiece. The eyes of the diver are protected by rubber goggles, while a nose-clip obstructs the upper section of the airways.[19] The later models in use after the Second World War had a mask with built-in glass eyepieces and the air nozzle of the supplying and evacuation hose, and divers were equipped with neoprene suits. The Fernez "II" was the only Fernez equipment to enjoy success, and it was mainly restricted to the Kalymnian divers.

The so-called hookah system appeared in Greece in the 1960s and was an important improvement of the Fernez. The air supply tube ends with a mouthpiece having an

expiration valve. Air is delivered at the appropriate pressure to the diver. The diver wears a neoprene suit, a mask and flippers when necessary, and is ballasted by a weight belt. This system is the one presently used by Greek and Tunisian sponge divers.

Bath sponges are also harvested in Croatia, where divers use tanks rather than hookah equipment. Previously tanks were also used by Cypriot sponge divers, but sponge diving has disappeared from that country.

Ancestral techniques persist despite the innovations

The coexistence within a given harvesting campaign of crew using different techniques makes it difficult to synthesise the sources of information, and furthermore the sources are dispersed and of varying precision for the study of this fishery. This cohabitation of different systems was nevertheless a recent state dating from the beginning of the twentieth century. Examination of memoirs and documents from the nineteenth century reveal two realities that were little studied. The first concerns the sometimes late conversion of island populations to sponge fishing, spurred by the continuous demand for sponges in western markets, but also by the crisis of the traditional coastal trade that resulted in workforces becoming available.[20] The second fact concerns the simultaneous acceleration of technique exchanges between the fishing communities that were not limited only to the contribution of most modern mechanical equipment. These exchanges mitigated the technical specialisation that prevailed in the fleets up until at least 1850. The example of Hydra illustrates this point. Sponge fishing appeared in Hydra rather late, around the 1830s, brought by the fishermen of the port of Hermoni on the mainland facing the island.[21] These latter first instructed the Hydriots in the use of the *kamáki*. But through their contact with the Kalymnian sponge fishermen, in the middle of the century some Hydriots converted to naked diving, while at the same time exporting the *kamáki* method to other fishing areas. Later, imitating the sponge fishermen from Asia Minor, the Hydriots brought back to their island the *gangáva* method.[22]

The situation that prevailed at the beginning of the twentieth century was the result of these successive exchanges. However, it does not explain the persistence and the diffusion throughout the Eastern Mediterranean basin of the oldest fishing techniques which in principle should have become marginalised with the impact of the mechanical revolution and the modern equipment. The progressive extension of the sponge harvesting area was one of the main factors that explains the maintenance of these traditional techniques. In the face of a constant demand for sponges, the fishing communities were enlarging their harvesting area as early as the mid-1800s. Around 1840, Greek and Kalymnian sponge fishermen began harvesting in Egypt (Mersa Matruh) and Libya (Derna), [23] then expanding to Benghazi and Sfax for the Kalymnians around 1850-60,[24] and Lampedusa in around 1887 for the Greeks.[25] This large harvesting area was maintained even after the Ottoman Empire for the sponge fishermen of the South Sporades because these islands, then to be named the *Possedimento*, became Italian in 1912 with the Treaty of Ouchy . At that time Italy also had control over the Libyan regions of Cyrenaica and Tripolitania, which were sponge-rich areas. Having such a large harvesting area over a long period probably contributed to the maintenance of the diversity of harvesting techniques in Kalymnos, sustaining even those that appeared as outdated. The abundance of sponges on the Libyan coast allowed the cohabitation of Kalymnian efficient (but costly) hard hat diving fleets alongside naked divers whose technique was less efficient but demanded much less investment to be able to harvest in those distant fishing zones. Also, Greek and Dodecanesian seas less productive in sponges were left for the small *kamáki* fishermen. Some techniques were better adapted to certain types of seabed, and abrupt rocky cliffs could be more or less safely exploited by naked divers, whereas they represented a danger for hard hat or Fernez divers whose air hoses could easily catch on the rocks. This explains how, in Kalymnos, one of the most important sponge fishing islands of the Aegean, a diversity of techniques was maintained right through until the 1960s.

Kalymnos, a sponge fishing island

(a) The island

Situated in the Eastern Aegean, Kalymnos belongs to the cluster of islands currently known as the Dodecanese, an archipelago that had been known as the *Possedimento* between 1912 and 1947, under Italian administration, and prior to that, under the Ottoman Empire, as the South Sporades. Kalymnos is relatively isolated from other large commercial ports, being approximately 335 km south-east of Athens and 145 km north-west of Rhodes, [26] the largest of the Dodecanese islands. Since the population of Kalymnos lacked agricultural land, they turned towards the sea for survival, and especially towards sponges. The industrialisation of European countries in the mid-1800s increased the demand for sponges. This represented a financial manna for the Kalymnian population, which varied a lot in number, exploding between 1850 and 1912 from 7,600 to 23,200 inhabitants.[27] Later, between the two world wars, Kalymnos had an average population of about 15,000.[28]

(b) The fleet and fishing campaigns

A large proportion of Kalymnos' population worked in the sponge industry, either as divers, or as crew, or in the treatment of the sponges and their commerce. In the period between World War I and World War II, the total number of sponge fishermen, using all the existing techniques, was relatively stable,[29] rising from 853 in 1928 to 991 in 1937.[30] A peak occurred in 1935 with 1,259 fishermen, distributed among 79 boats. That same year, 69 years after the arrival of the hard hat equipment and 15 years after the first dives with the Fernez system, one quarter of the fleet was still using naked diving, in other words, 20 boats with 140 fishermen, and an equivalent numbers of boats and fishermen were using the Fernez system (Figure 2). During the first decades of the twentieth century, the diversity of sponge fishing techniques was thus maintained, with each campaign counting at least five different methods.

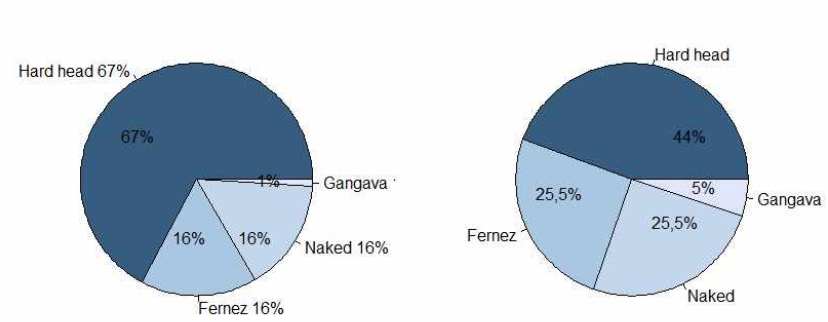

Figure 2: Distribution of sponge fishing methods in the Kalymnian sponge fleet in 1935. On the left, the percentage of sponge fishermen; on the right, the percentage of boats

The composition and organisation of the summer campaigns, from May to October, varied a lot. The boats with hard hat and Fernez divers needed larger crews, composed of around 15 to 20 fishermen, and thus usually larger ships than those used by naked divers or *kamáki* users, or even of a *gangáva*. In the case of the naked divers, the crew generally consisted of 4 people, whereas a *gangáva* could be operated by only 2 or 3 people. With the progressive motorisation of the fleet from 1929 onwards, the numbers of crew per boat decreased compared to the number of divers that they assisted, in particular on the boats of hard hat divers. Boats became easier to operate, but above all, the air pumps for the divers that previously needed at least two crew members, became motorised, via coupling to the engine of the boat.

During a sponge campaign of 6 to 7 months, the ships worked as a team, depending on their destination, their funder, or the type of harvesting practised. The naked divers and the *kamáki* fishers harvested mainly in the *Possedimento* sea, and in Greece (especially Crete), Cyprus, Cyrenaica and Egypt. The naked and the hard hat divers started the season in the *Possedimento* or in Greek waters, to continue southwards with deeper and longer dives in Cyrenaica. For trips to Cyrenaica and Egypt for example, they used boats of 1 to 5 tonnes, and for security reasons they travelled together with larger ships.[31] A larger ship (reaching 48 tonnes, rarely more), known as a *deposito*, accompanied several smaller dependent boats and was used for sleeping, eating, and storing the harvested sponges. Sometimes, the *depositos* were also used to transport a dozen small boats to the distant fishing areas for the naked diving or the *kamáki* fishers.[32]

(c) Funding the sponge fishing campaigns

Before the introduction of the hard hat equipment, the naked divers and *kamáki* fishermen financed their campaign by associating or collaborating with a captain who was himself often a diver. Once the sponge harvest was sold, all were paid equally, with one extra share for the maintenance of the boat.[33] However, the profits taken into account were those announced by the captain, which sometimes gave place to abuses.[34] Indeed the shares were calculated after deduction of the trip expenses declared by the captain. But the composition of the crew relied on small groups with a strong cohesion, often a family grouping.

The arrival of the hard hat diving technique shook the organisation of the fishery, as well as the remuneration, of the naked divers.[35] Family and social solidarity was weakened and gave way to a more conflictual enterpreneurial spirit, with the increasing use of loans for the preparation of the fleet and costly campaigns, and the payment of the crew and divers.[36] Indeed, under the hard hat diving system, the divers got one share whereas the crew was paid half a share. Moreover, the divers, well before their departure for the sponge harvesting campaign, negotiated the prepayment of at least half and often of the entire future hypothetical revenue that they would get at the end of the campaign (*platika*). They argued that the dangerousness of diving and the high risk of death in hard hat diving made their return uncertain.[37] Indeed, the prepayment was to insure the subsistence of their family.

In 1905, Flégel estimated that the "machine" had caused the deaths of 5,100 sponge divers during the 39 first years of its use throughout the world (1866-1905).[38] Many years later, the mortality surveys of the Italian administration in the *Possedimento* indicated 113 deaths of sponge fishermen between 1920 and 1937. Only 7 involved naked divers (of which 4 were deaths from a shipwreck), whereas at least 10 Fernez divers from the island are counted among the dead. Out of the 74 hard hat divers who died during this period, at least 24 came from Kalymnos.[39] These mortality rates are substantial, but only partially accounted, since they were put together from non-systematic and scattered death declarations in the archives consulted. In this tragic context, and with so much uncertainty, we can better understand how the biggest part of the prepayment that the divers were able to negotiate, the *platika*, could be spent in festive meals and nights of celebration before the departure of the sponge fishermen.

Hard hat divers accumulated debts in this way from year to year. During the years 1920-1922 the chronic indebtedness of the sponge divers was such that many left the job and even left the island. The municipality of Kalymnos then incited the captains, the financers and the traders to cancel, at least partly, the debts of the divers,[40] a measure that made it possible to maintain a pool of divers available for recruitment.

Subsequently, by law, in 1937, a written contract system was put in place, which aimed at better protecting the crew's rights and which attempted to frame the divers' practices.[41] The crew was assured of a fixed salary for the campaign that did not depend on the quality of the harvest and therefore on the divers. Nevertheless, the divers negotiated the

value of their contract depending on their experience and their reputation. The result of the negotiation and the value of their contract depended mainly on the individual diver's ability to defend his interests and to emphasise his past achievements. The law provided that the crew, as also the divers, could have an advance payment for the coming campaign, but it was to be limited to a maximum of half the value of the contract. The other half would be paid at the end of the season, and if the season was fruitful an additional sum of money was paid after the sale of the sponges.[42] All this organisation and functioning was, however, only theoretical. In fact, even if the law of 1937 stipulated a possible payment of an advance of maximum half the contract, the Kalymnian divers required that the captain paid the total sum of the contract before leaving for the campaign. The differences between contracts obliged the divers of a same boat to keep an eye on their identified harvest, and conflicts tended to emerge, due to the fact that on the same boat divers might have contracts of different values.[43]

The production process of sponges

Between the two world wars, Kalymnian sponge production was largely influenced by the unstable geopolitical context of the Mediterranean region. In the wake of the First World War, the new fishing regulations imposed by various countries made access to the resources difficult. In certain areas, harvesting was simply forbidden. Other countries were abandoned by the sponge fishermen because of the regulations and the taxation on the sponge harvest. Moreover, an important outflow of inhabitants from the main sponge fishing islands, starting from before World War I, weakened the context of the postwar period. Between 1912 and 1917, Kalymnos and Symi lost respectively 35% and 70% of their populations.[44] As a result, the fishing activity was reduced during the 1920s, and Kalymnian annual production did not exceed 5 to 6 tons. The paralysis of the market during the war led to an accumulation of stocks in the traders' warehouses. During the first decade after the war, the sale of the accumulated sponge stocks, combined with the new accessibility of fishing areas that had been closed during the war, gave a second breath to the Kalymnian fleet from 1925 onwards. In 1930, the island's production reached 48 tons, nearly ten times that of the previous decade.[45] The sponge production of Kalymnos during the 1930s was between 25 and 40 tons a year, testifying to the capacity of the sponge industry for adapting to the fresh constraints imposed by new regulations from the countries possessing the resource.

In 1936, the Kalymnian sponge fishermen harvested 33 tons of sponges during the summer campaign. Of these, 11 tons came from Greece and the Aegean islands; nearly 1 ton from Cyprus; 8 tons from Egypt; nearly 10 tons from Cyrenaica; and 3 tons from Tripolitania.[46] Four harvesting techniques were used, three of which gave the fishermen the possibility of harvesting sponges down to a depth of 60 metres.

Table 1. Table of fishing methods in Kalymnos for the 1936 season[47]

Method	Hard hat diving	Fernez	Naked diving	*Gangava*
Fishing areas	Possedimento, Greece, Egypt, Cyrenaica	Possedimento, Greece, Egypt, Tripolitania	Possedimento, Cyprus, Cyrenaica	Possedimento, Greece
Average number of dives per day	2 to 4	3 to 4	20 to 30	No dives
Maximum depth	60 m	50 m	50-60 m	100-150 m

Number of fishing boats (Total tonnage)	17 (84.35)	7 (18.99)	20 (30.33)	6 (25.27)
Number of *depositos*	13 (295.67)	4 (102.27)	2 (104.66)	No *deposito*
Number of divers – crew	136 – 359	51 – 149	71 – 134	0 – 12
Total fishermen	495	200	205	12
Cumulative number of effective working days of the boats	2 700	645	1 460	600
Kilograms of dry sponges harvested	23 349	6 960	2 431	236
Estimation of production in kg / day / diver	1.08	1.48	0.47	

In 1936, the largest quantity of sponges was collected by hard hat divers. They were the most numerous, and had harvested over a longer period (159 days on average per boat, as against 92 for the Fernez boats), and in seas known to be rich in sponges, such as Egypt and Cyrenaica. The production capacity of a diver was strongly dependent on the fishing area being more or less rich in commercial sponges. Despite the variability of the harvesting areas, it is interesting to compare the mean daily production by kind of diver in 1936. This production was in fact higher for the Fernez than for the hard hat divers (Table 1). Given that the fishing areas of these two methods were similar, the difference was mainly due to the agility of the divers using the light gear of the Fernez system. Indeed, the hard hat divers had much more difficulty moving with their thick suits, hard helmets and weighty ballast, and therefore harvested smaller areas. The production of the naked divers could not compete on deep flat bottoms, easily accessed by hard hat divers; their production representing only a third of that of the Fernez divers (Table 1). However, the steep and craggy sea bottoms of Crete and the *Possedimento* were dangerous for the hard hat and the Fernez divers because their supply hoses could easily get caught on the rocks and overhangs, creating a danger of death. Such environments made of irregular rocks were often colonised by sponges of high commercial value which were more accessible to the naked divers. Consequently, they produced smaller quantities than the divers supplied with air, but the better quality of their sponges allowed them to sell at a higher price.

Conclusion

The maintenance of a diversity of harvesting methods gave the Kalymnian sponge fishermen a better capacity for adapting to the great variety of sea bottom topographies existing in their fishing area. Also, they were better able to adjust to the different regulations that regularly limited and/or banned one method or another between the two world wars. On the other hand, the islands which were using a single harvesting technique saw their number of boats decreasing during this period. For instance the hard hat sponge fishing fleet of the island of Chalki had 35 boats in 1928, 20 in 1938 and then died out after World War II. We can consider that the upkeep of the traditional methods operated here as an element of resilience of the Kalymnian sponge fishing population facing political, technological and environmental changes. In 1969, six sponge fishing methods were still being used including naked diving, the Fernez and hard hat diving, and the new hookah method.

Today, the disappearance of the naked diving using a stone, the hard hat diving, the *gangáva* and the Fernez has nevertheless not led to a generalisation of one single technique at the Mediterranean scale. It is true that hookah diving is used from the Gabes Gulf to the Aegean Sea, but Croatian sponge fishermen use tanks, and free-diving, which is a remarkable element of constancy throughout the centuries, is still used in the shallow waters around the Tunisian Kerkennah islands. Moreover, free-diving is still used for prospecting in Croatia and the Aegean Sea. The *kamáki* method persists in the Kerkennah islands and around Djerba, where some fishermen seem also to maintain the harvesting of a shallow species by feeling the sponges with their feet and picking them up to the surface of the sea.[48]

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