Fishing and the Processing of Seafood in Parion

Vedat Keleş – Michael D. Yilmaz

Abstract

Parion, a colony founded in 709 BC, is located on the Anatolian bank of the Propontis. It was a significant littoral city and accommodated two harbours. The ancient city's location and riches are now the heritage of the modern day Kemer Village of Biga Municipality, Çanakkale Province, which is a fishing village. The city was a *polis* until the period of Roman rule, and many ancient writers mentioned different aspects of the *polis*. One of these aspects is the seafood procured and processed in Parion. At Parion, a range of seafood (from fish and salted fish to crabs and oysters) is attested through ancient writers, archaeological evidence and epigraphic sources.

The intention of this paper will be to approach ancient fishing by examining the archaeological material related to the procuring, processing, and production of the aforementioned marine species. It will evaluate the marine species and fishing techniques described in modern Turkish, Greek, and Latin in order to identify the modern definition of these species. It also will aim to establish ancient production techniques. Evidence related to this topic is drawn from ancient writings, archaeological evidences and epigraphic evidences. Consequently, this paper aims to establish the place, techniques, and diversity of fishing in Parion, contributing to the disciplines of archaeology, economy, sociology and biology.

Parion

Parion is an ancient Greek colony founded in 709 BC,[1] and is known to have had two harbours.[2] The city was founded on the southern shore of the Propontis and is in close proximity to the point where the Hellespont joins the Propontis (fig. 1). Parion can be described as a Hellespont settlement as well as being a Troad settlement. Parion, located in Kemer Village of Çanakkale, Biga in Turkey, is still a fishing settlement today.

Marine Species of Parion

Fish and other marine species known in Parion are attested by different evidence, such as: ethno-archaeology (done in the modern village of Kemer), epigraphic sources, inscriptions and depictions, archaeological material, as well as comparisons with neighbouring ancient cities.

Parion is located on the waterway heading to the Black Sea. This important trade route is also the route taken by migrating fish, which travel from the Mediterranean or

Published in: Martin Bentz – Michael Heinzelmann (Eds.), Sessions 2–3, Single Contributions. Archaeology and Economy in the Ancient World 53 (Heidelberg, Propylaeum 2022) 535–552. DOI: *https://doi.org/10.11588/propylaeum.999.c13384*

Fig. 1: Aerial photo showing the harbours of Parion and Kemer Village.

Aegean to the Black Sea and vice versa through the Hellespont-Propontis.[3] Therefore, the works regarding the ancient fishing of Byzantion is an important asset for understanding ancient fishing in Parion.

Among the species[4] listed (Table 1), the Tuna, Dolphin, Kolias, Crab and "Linusian Snail" are the most interesting species. These species and some others of significance will be mentioned briefly.

Tuna: This is known from a depiction on a published[5] inscription. The tuna (*thynnaion;* θυνναιον) is sacrificed to Poseion in gratitude for a good harvest.[6] The sacrifice is depicted as being made to Priapos instead of Poseidon[7] since Priapos was the patron god of fishermen.

Dolphin: This is another species which was depicted along with the tuna and Priapos on the same inscription.[8] From this, one could conclude that it was one of the species hunted by the fishing guild.

Kolias: Pliny[9] names the colias as "the fish of Parion" since it was caught in great numbers in Parion.

Crab: Arkhestatus[10] states that the crabs of Parion are famous, and calls them "the bears of the sea". This can be interpreted in two ways: the term "bear" may refer to the the anatomical features (i.e. long arms), in which case the species was likely a lobster, or it

is simply a large crab. Arkhestratus mentions the crab called astakos (ἀστακος) (lobster) to be located widely in the Hellespont, but does not mention the crab called karabos (καραβος).[11] According to Athenaeus, the karabos is found in rocky areas and the astakos in sandy areas. Although Parion has both, locals mention a giant crab called *pavurya.* Another detail is that coins of neighbouring Priapos depict lobsters.[12]

Scallop, Cockle and Oyster: The midden discovered in the Roman bath[13] had a great quantity of scallop, cockle, and oyster, which reveals that these species were produced and consumed in Parion (fig. 2). Finds of cattle bones with butchering marks hint that the midden belonged to a nearby butchering shop.

Murex: Many unbroken murex shells were found in the Slope Bath, specifically in a water channel which flowed in to a small reservoir,[14] hinting at cultivation. The shells could be identified as *Bolinus (Murex) brandaris,* which were the main ingredient for producing purple dye.[15]

Linusian Snail: Strabo mentions that the delicious "Linusian Snails" were caught in Linon, a dependency of Parion.[16] The word describing the creature is *linousioi kokhliai* (Λινούσιοι κοχλίαι), which can be translated as "Linusian screw", and identify the

Fig. 2: Roman Bath of Parion, the midden.

Seafood Species of Parion								
Names of Species					Evidences			
Ancient Greek	Latin	Turkish	English	Binomial	Ancient Author	Epigrafic	Archae-ologic	Ethnoarchae-ology
Θύννος/Θυννις	Thynnus/ Thunnus	Ton	Tuna	*Thunnus thynnus*	–	+		+
Ὄρκυνος/ Ὄρκυς/ ὄρκυαλος	Orcynus	Orkinos	Albacore/ Longfin Tuna	*Thunnus alalunga*	+	–		+
Πηλαμις/ Πελαμύς/Αμια	Amia	Palamut	Pelamyd/ Bonito	*Sarda sarda/ Pelamys sarda/Thynnus pelamys*	–			+
Κορδυλη/ Σκορδυλη	Cordyla	Gobene/ Tombik	Bullet Tuna	*Auxis rochei*	–			+
Σκομβρος (Τριχιαι)	Scombros	Uskumru	Atlantic Mackerel	*Scomber scombrus*	+	–	+	+
Κολίας	Colias	Kolyoz	Atlantic Chub Mackerel	*Scomber colias*	+	–	+	+
Χαλκιδες/ Trichiae	Sardina	Sardalya	European Pilchard	*Sardina pilchardus*	–			+

Table 1: Seafood Species of Parion: Evidences for Seafood Species in Parion (Legend: +: Direct evidence, –: Evidence through other cities in the region, *: No longer hunted).

Ἀντακαιος/ Ἀκκιπήσιος	Attilus	Mersin	Sturgeon	*Acipenser gueldenstaedti*	–			
Ξιφιας	Xiphias	Kılıç Balığı	Swordfish	*Xiphias gadius*	–			+
Δελφίς/Δελφίν	Delphin/ Delpinus	Yunus	Dolphin	*Delphinus delphis*	–	+		+*
Καραβος	Cancer	Yengeç (Pavurya?)	Crab	*Cancer pagurus (?)*	+			+
Ἀστακος	Locustam Marinam	Istakoz	Lobster	?	–	–		–
Κτείς	Pecten	Deniz Tarağı	Mediterrenean Scallop	*Pecten jacobaeus*	–		+	+
Κογχύλιον	Conchylia	Kum Midyesi	Common Cockle	*Cerastoderma edule*	–		+	+
Ὄστρεον	Ostrea	İstiridye	Oyster	*Ostrea edulis*	–		+	+
Πορφύρα	Murex	Dikenli Salyangoz	Murex	*Bolinus (Murex) brandaris*			+	
Λινούσιοι κοχλίαι (Linusian Snail)	?	* Deniz Salyangozu	Giant Tun	*Tonna galea (?)*	+			+

Table 1 (continued)

species as a snail. Linon is located at the modern fishing village of Aksaz, or at Şahmelek Beach.[17] This is supported by the fact that the word linon can mean either linen (flax) or fishing line,[18] which hints that the settlement is related to fishing. Therefore, the species can be defined as a sea snail. Local fishermen mention two species of sea snails, one of which is reputedly delicious: the Giant Tun (Tonna galea).

Procuring the Fish

Cultivated Species

Farming fish in lagoons was begun by the Greeks, then the Romans continued producing fish by placing eggs, fingerlings, and adult fish in brackish small lakes or ponds.[19] The Romans widely produced oysters, mussels, scallops and other shellfish through artificial cultivation and they were vastly consumed.[20]

Catching of the Fish

Regarding the basic notion of fishing, it is stated that the Greco-Roman fishermen were catching fish intensively for *garum* and the salted fish industry. Although the opposite is thought, deep sea fish were exploited together with shore fish.[21]

Looking at the most frequently used techniques,[22] Parion has evidence for some of these, and for the others it makes sense to assume that they also were used here.

With Hooks

Long-Line Fishing: Long-line fishing is mentioned by ancient sources as a way to catch multiple fish simultaneously. The long-line is composed of branch lines fitted with multiple fish hooks (up to a hundred) that are attached to a main line, which allows the fisherman to cast thousands of hooks at once. Although the labour of baiting these hooks limited the operation, the standardisation of Roman fish hooks made it easier.[23]

Fish hooks from the midden at the Roman bath (dating to the 4th–6th century AD) preserve evidence of this method. The hooks were found grouped together (fig. 2, 3),[24] and were most likely discarded from the long-line system together with the fish to gain rebaiting time. They were later deposited in the midden along with the other waste material.

Regular Fishing Line (Sea & River): Catching fish with a regular fishing line in a city which had a fishing industry would not need any evidence, although singular fish hooks are present.[25] Polyaenus offers evidence regarding catching fish from the river, which flows to the sea by Parion.[26] He mentions fishermen cooking fish, drinking wine and making offerings to Poseidon, which the envoys of Parion joined while walking to Hermaeum. Hermaeum is mentioned as in the vicinity of the Çınardere or Otlukdere

Villages of Biga.[27] Considering the statement, the fishermen must have been positioned by the Kemer River, which would reveal fishing from the river.

Nets & Traps

Fish are known to have been caught by fishing nets, which were used by a range of small sea craft, large ships, and could be cast from the shore.[28] All the nets mentioned are stated to be made of linen (flax) or linon (λίνον) in Greek.[29]

Seine: These nets are used either from the shore or from a boat or two, and are known as *σαγήνη* in Greek and *sagena* in Latin. This large net consists of two large cords, one of which had floats and the other weights, with the net or mesh held between them vertically. The net was laid in an arc that later was closed to a circle and contracted.[30] In

Duties of the Individuals in the *Neilaion* Fishing Guild of Parion	
Duty	Individual(s)
Arkhones/Boss – Permit Holder	Publius Avius Lysimachus
Diktuarkhontes/Partner	Publius Avius Lysimachus Publius Avius Ponticus son of Publius Marcus Apicius Quadratus Epagathus son of Artemidorus Publius Avius Bithus
Skopiazontes/Lookouts	Epagathus son of Artemidorus Publius Avius Bithus
Fellokhalaston/Float Layer	Tongilius Cosmus
Kubernontes/Pilot	Secundus son of Avius Lysimachus Tubellius Laetus
Efemereuon/Accountant – Paymaster	Cassius Damasippus
Antigrafomenos/Auditor	Secundus son of Avius Lysimachus
Lembarkhontes/Lembos Captain	Asclepides son of Asclepides Hermaiscus son of Avius Lysimachus Eutychus son of Avius Bithus Menander son of Leucius Hilarus son of Asclepiades

Table 2: Duties of the Individuals in the *Neilaion* Fishing Guild of Parion.

Parion the use of seine is known by the inscription which mentions five vessels and the duty of a float layer (Table 2).[31]

Casting Net: Known in Greek as amfiblestron (ἀμφιβληστρον), these nets can be employed from the shore in shallow waters.[32] According to the evidence presented by written sources these nets were not deployed from vessels. Although there is no evidence of this technique being used in Parion, the fishermen of modern Kemer Village use this basic technique. Therefore, it is likely that it also was used in Antiquity.

Stationary Net: These nets are called *peza* (πέζα) in Greek.[33] This is a very basic tecnique and would have been used along with other techniques.

Creels & Traps
Oppian mentions another device for catching fish called *kurtoi* (κύρτοι); according to him they "work when their masters sleep".[34] These types of devices are mentioned to be constructed of wicker.[35]

Tools of the Trade

Hooks
A total of 16 fish hooks have been identified in Parion (fig. 3). Amongst these examples one comes from the southern necropolis,[36] fourteen were found in the Roman bath, agora and the theatre,[37] and one final example is from a mixed fill from the agora. Eleven of the fish hooks were found within the midden located in the Roman bath. The midden consisted of mollusca shells and cattle bones with butchering marks dating to the 4th–6th century AD. At this time the Roman bath was no longer in use,[38] suggesting that there were butcher shop(s) nearby.

Netting Tools
Netting tools are known to be very similar to some medical tools.[39] However, the presence of these finds aboard shipwrecks of fishing vessels, one can conclude that these are netting tools.[40]

At Parion, finds of netting tools are represented with three examples (fig. 3); two come from the Odeion and one from the theatre.[41]

Net Weights
The net weights found in Parion comprise 2 lead weights (fig. 3): one comes from the Roman bath and the other from the theatre.[42]

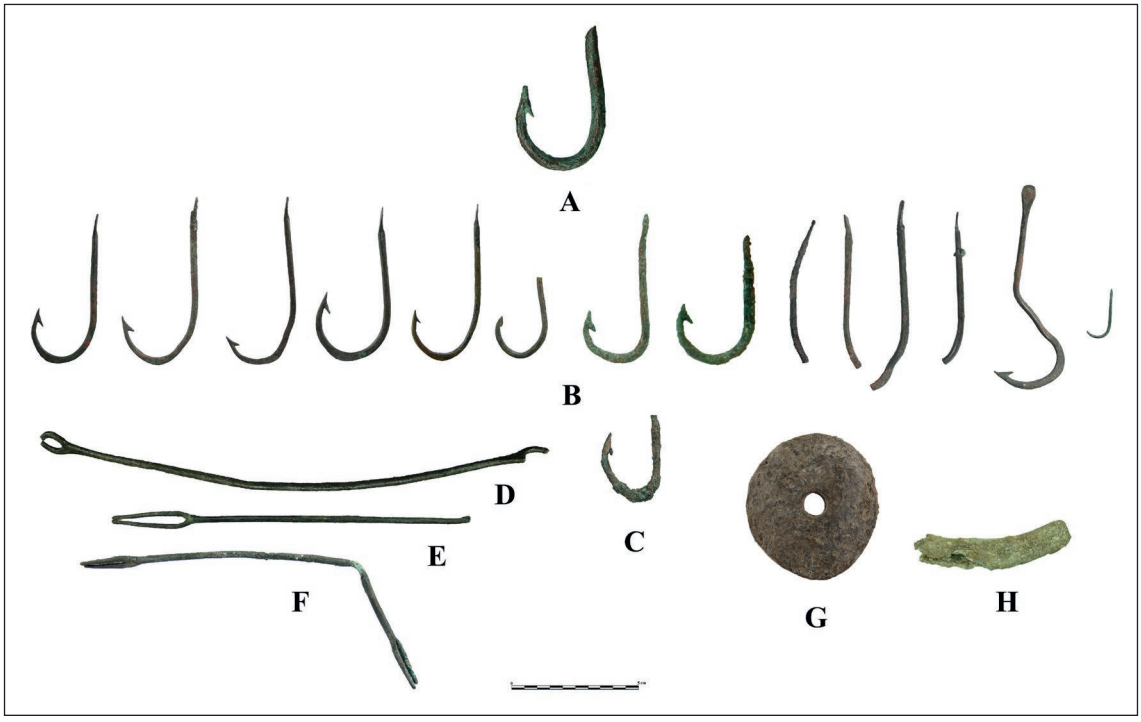

Fig. 3: Bronze fishing hooks (**A.** 1st–2nd century AD; **B.** 4th–6th century AD; **C.** 4th century BC–3rd century AD); Bronze netting tools (**D.** 3rd–5th century AD; **E.** 3rd–5th century AD; **F.** 2nd–3rd century AD); Lead net weights (**G.** 4th–6th century AD; **H.** 2nd–3rd century AD).

Products of Fish

Fresh, dried, and salted fish are not the only products of fishing industries. Along with the fish itself, the bones, oil, and internal organs were used as byproducts.[43]

Food

Althought Greeks and Romans consumed fish fresh when possible, they also often dried, smoked, or salted (*salsamentum*) fish.[44]

Fresh Fish: Fresh fish is the direct product of fishing, which would be consumed locally in a short period of time and would not be an exported commodity.

Dried Fish: Most meat was preserved with salt or used in the production of other food items, which lasted longer than their fresh ingredients.[45] Fish could be stored for extended periods of time by being dried or salted. Fish was dried in the sun with the aid of salt.

Salted Fish: Salted fish, *salsamentum* or *tarikhos* (ταριχος) is another way in which fish could be stored for extended periods of time. It would naturally be an exported commodity similiar to the dried fish. Salted fish was produced by placing layers of fish meat and salt in containers, which were pressed down with weights and the dry fish was preserved.[46]

Ancient sources mention that all salted fish from the Hellespont and the Pontus were delicious.[47] It is stated that *salsamentum* was produced from small scombridae and tuna, which were in high demand beginning from the 5th century BC and increased drastically in the 1st century BC.[48]

Garum Sauce: Another fish product are the sauces produced from the fish: the main commodity is known as *garum/garos* (γάρος) or *liquamen.* The garum sauce became a delicacy for the Roman kitchen during the Republican period. It also is known to have been used instead of salt, as a sauce, as well as for occasional medical practices.[49]

There are a wide variety of recipies for the production of *garum,* though the most basic way to prepare *garum* is to let the meat, eggs, internal organs and blood of fish ferment with salt inside a container for several months. The top layer of liquid resulting from this process would be the *garum.*[50]

Although a wide range of fish were used for *garum* production the finest and most expensive (*garum sociorum* and *gari scombri*) is mentioned to come from small scombridae.[51] Given that *Scomber scomber* and *Scomber colias* are known to Kemer Village today, together with the ancient fishing hooks found in Parion, these *garum* commodities were likely produced in Parion and exported elsewhere.

Muria: *Muria* or *halme* is the basic and low-quality variety of *garum* and would have been used to preserve wine, meat, vegetables and cheese. Produced from fish fermented with salt and water, it should rather be called "fish juice" rather than a sauce.[52]

Allec: *Allec* is the bottom layer from the *garum* production of undissolved fish matter. This was consumed mostly by the poor and slaves.[53]

Gaming Pieces

Examples in Parion show that the *vertebrae* of fish were slightly worked to become gaming pieces for board games (fig. 4).[54]

Fig. 4: Gaming pieces made from fish *vertebrae* from the Slope Bath of Parion (3rd–4th century AD).

Ornaments

Grave M210, dated to the late 5th century BC, contained a scallop shell with a hole made through each valve. The object is identified as a pyxis through similar examples. (fig. 5)[55]

Architecture

Lime Production: During excavations in the Roman bath and Sdj 8, mollusca shells were recorded in very close proximity to or adjacent to several lime pits.[56] Especially the lime pit in Sdj 8 had mollusca shells embedded into the pit itself. This illustrates that lime production was fuelled by mollusca shells as well as limestone and marble.

Rubble Filling: Excavations conducted in the aqueduct bridge and Sdj 10 have revealed mortar (*opus caementicium*) fragments adhering to mollusca shells. This indicates that the shells were used as rubble filling.

Shipyard: Oil procured from fish is mentioned as used for the maintenance of vessels.[57] Fishing vessels therefore gathered the material for their own needs.

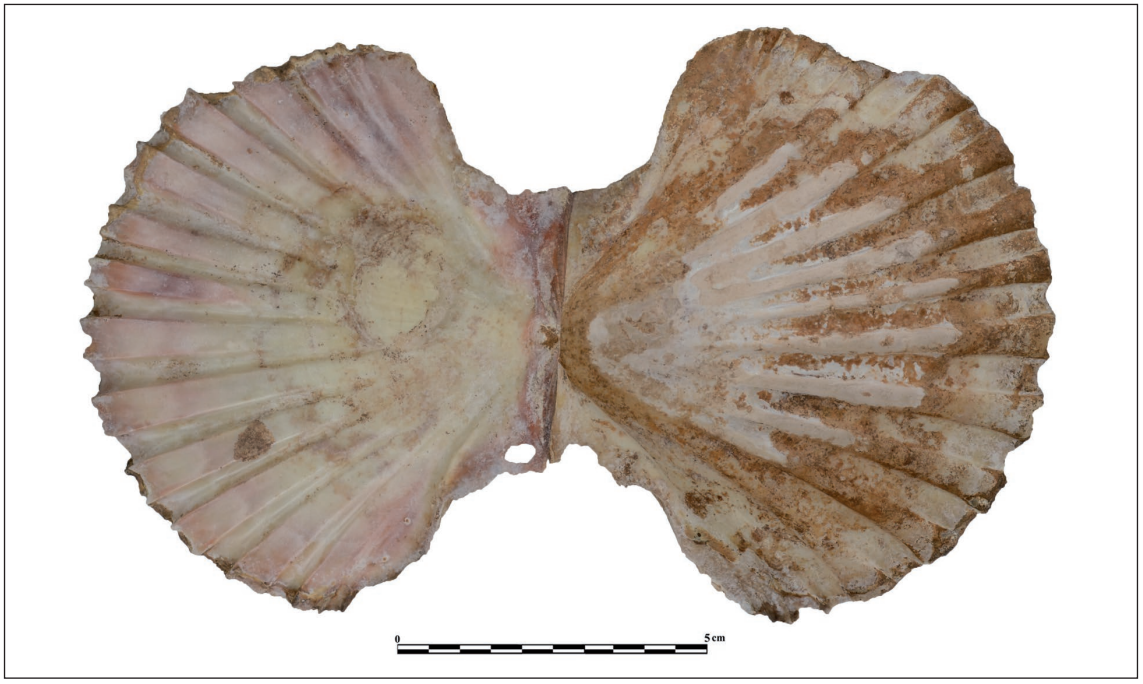

Fig. 5: Accessory made from a scallop shell from Parion.

Individuals Regarding Fishing in Parion

Archaeological and epigraphic evidence exists regarding individuals from Parion involved in fishing.

Graves

M106: The grave goods of the grave M106 (fig. 6) dated to the 1st–2nd century AD. Among these, a few scallop and other mollusca shells were left as grave goods.[58]

M172: A fishing hook was deposited in the grave M172 (fig. 6), which dated to the 1st–2nd century AD.[59]

M182: The individual in the giftless and therefore undated grave M182 (fig. 6) has a particular deformation on its incisor teeth. The deformation of the individual is similar to that of net menders and makers in the modern Kemer Village.[60]

M210: Grave M210 (fig. 6), dated to the late 5th century BC, does have a burial gift pyxis fashioned from a scallop shell, with a hole made through each valve.[61]

Fig. 6: Southern (Tavşandere) necropolis of Parion, with graves of individuals related to fishing finds.

Fishing Guilds

Watchtowers known as *skopeia* (σκοπιά) *and thynnoskopeia* for tuna were used for coastal fishing. The *thynnoskopeia* would be used along with determined hunting grounds for traps or nets, which were called *epokhai.* Ancient sources and legal inscriptions mention that these lookout positions along with fishing shoals were leased to private operations.[62]

One of the hills in Parion that overlooks the Propontis is called Semer Tepe (Saddle Hill) and is used as a modern *skopeia.*

Two inscriptions from Parion, dating to the 1st–2nd century AD, give the names of the shoals or their localities.

***Neilaion* Fishing Guild:** The inscription regarding the fishing guild operating in the *Neilaion* area is one of the most remarkable fishing guild inscriptions. It lists the names of the individuals together with their duties (Table 2), and has a depiction of Priapos and an altar with a tuna fish as a sacrifice, and a dolphin.[63]

***Phrou*-Fishing Guild:** Given the nature of the inscription, all that can be said regarding the second fishing guild of Parion is that it was operating in the shoals of *Phrou-*.[64]

Conclusion

Although fishing is thought of as a way to feed oneself, archaeological evidence points to fishing as being more complex and an important part of life for coastal cities such as Parion. This is demonstrated by seafood, which was caught and consumed in various ways and forms, its leftovers used as burial gifts, vessels, gaming pieces, and furthermore in its related architecture and even in shipyards. The commodities which were exported were also a great source of income for cities that were the proud producers of delicacies such as the prized *garum,* renowned salted fish, or even shellfish.

The existence of at least two established guilds in the 1st–2nd century AD reveals that fishing was an important part of the city's socio-economic structure. Depictions of Priapos as the patron god of fishermen hint at the significance of fishing and show that fishing was connected to religious beliefs and the social structure of society.

Fishing hooks were found in various places of the city, and most of them are from the Roman bath. Although they are from slightly different dates, they do hint at the aforementioned standardisation of fishhooks, which were crucial for long-line fishing.

The earliest archaeological evidence regarding fishing in Parion comes from the late 5th century BC and can be traced continuously until today by the fishermen of Kemer Village. This reveals a fishing tradition and heritage of at least 26 centuries.

The locals of the village are the main source for ethno-archaeological evidence in establishing the functions of finds regarding fishing and through the use of similar techniques such as the *skopeia.*

Notes

[1] Eus.Hist. 183.

[2] X. HG, 1.1.13–16.

[3] Tekin 2009, 22; Bursa 2010, 7–9.

[4] For evidence of species from neighbouring cities see: Bursa 2007, 82–97. 265–267; Tekin 2009, 20–45.

[5] Robert – Robert 1950, 80–94 pl. 5; Frisch 1983, 10–14 no. 5; Lytle 2006, 68 f. fn. 75. 76 fig. 19.

[6] Bursa 2007, 27; Tekin 2009, 42; Ath. 297e, 301f, 303b.

[7] Robert – Robert 1950, 80–94 pl. 5

[8] Robert – Robert 1950, 80–94 pl. 5; Frisch 1983, 10–14 no. 5; Lytle 2006, 68 f. fn. 75. 76 fig. 19.

[9] Robert – Robert 1950, 92; Ath. 116b–c; Plin. 32.53.

[10] Ath. 92d.

[11] Ath. 104f.

[12] Wroth 1892, 176 no. 1–5 pl. XXXV.4–6.

[13] Yılmaz 2015, 66, Pic. 45; Yılmaz 2018, 215.

[14] Keleş et al. 2018, 191, Resim 11.

[15] Lytle 2007, 249.

[16] Str. 13.1.15.
[17] Körpe 2008, 388.
[18] Bekker-Nielsen 2002, 218; Opp. 3.73–75.
[19] Kron 2008, 206, 211; V. Max. 9.1.1.
[20] Kron 2008, 212 f.
[21] Kron 2008, 205 f.
[22] Bekker-Nielsen 2010, tab. 1.
[23] Kron 2008, 205; Bekker-Nielsen 2010, 191; Ael. NA, 15.10; Arist. HA, 621a15; Opp. 3.75,3.78,468–481.
[24] These fish hooks are said to be suitable for the catching of mackerel or pelamyd by the fishermen of Kemer. Yılmaz 2015, 64, Pic. 42.
[25] Başaran et al. 2014, 399; Çelikbaş 2016, 187–189. 404 f. Cat. no. K50, Pl. XLIII, Ill. 28.
[26] Polyaen. 6.24.
[27] Leaf 1923, 100; Frisch 1978, 105 fn. 5; Hammond 1980, fn. 23; Talbert 2000, 789 (Hermaion), Map 52.
[28] Kron 2008, 205.
[29] Bursa 2007, 22; Bekker-Nielsen 2002, 218; Opp. 3.73–75.
[30] Bursa 2007, 21; Bekker-Nielsen 2002, 217–222; Kron 2008, tab. 8.5; Bekker-Nielsen 2010, 191 f.; Ael. NA, 15.5; Opp. 3.79–84,124, 4.68,490–503.
[31] Frisch 1983, 11. 13 no. 5; Lytle 2006, 69 f. fn. 77,78; Bekker-Nielsen 2010, 194.
[32] Bursa 2007, 20; Kron 2008, table. 8.5; Bekker-Nielsen 2002, 216; Bekker-Nielsen 2010, 191; Hes. Sc. 213–215; Hdt. I.141.2; Opp. 3.80.
[33] Bursa 2007, 22; Bekker-Nielsen 2002, 218; Bekker-Nielsen 2010, 192 f.
[34] Bursa 2007, 22; Bekker-Nielsen 2002, 218; Opp. 3.85–86.
[35] Bursa 2007, 22; Bekker-Nielsen 2002, 218.
[36] Çelikbaş 2016, 187–189. 404 f. Cat. no. K50, Pl. XLIII, Ill. 28.
[37] Yılmaz 2015, 64, Pic. 42; Çelikbaş 2016, 187–189. 405 f. Cat. no. K51–52, Pl. XLIII, Ill. 28.
[38] Yılmaz 2015, 65; Yılmaz 2018, 215.
[39] Çelikbaş 2016, 135, fn. 859.
[40] Galili et al. 2013, 154 fig. 14.
[41] Çelikbaş 2016, 135. 326 f. Cat. no. E23–25, Pl. XLI, Ill. 16; Çelikbaş 2018, 191. 215 Cat. no. 50 fig. 6.
[42] Çelikbaş 2016, 226. 471 Cat. no. U1–2, Pl. LVI, Ill. 41.
[43] García Vargaz – Florido del Corral 2010, 226.
[44] Curtis 2008, 385.
[45] Curtis 2008, 385.
[46] Curtis 2001, 317. 397. 403. 407. 413. 416; Bursa 2007, 36 f.; Curtis 2008, 385 f.
[47] García Vargaz – Florido del Corral 2010, 220; Ath. 27e.
[48] García Vargaz – Florido del Corral 2010, 219 f.; Plb. 4.38.4–5.
[49] Curtis 2001, 317. 403–405. 414. 416; Bursa 2007, 36. 39–41; Lenger 2008, 69 fn. 1,2,3; García Vargaz – Florido del Corral 2010, 220.
[50] Curtis 2001, 414; Bursa 2007, 39–42; Curtis 2008, 385 f.; Lenger 2008, 69. 70, fn. 5,7; Plin. 31.43.
[51] Purcell 1995, 144; Curtis 2001, 415–446; Bursa 2007, 39; Lenger 2008, 70. 73 fn 8,37; Tekin 2009, 57; Hor. S. 2.8.46.; Mart. 13.102; Plin. 9.66,31.43; Sen. E. 95.25.

[52] Curtis 2001, 317. 403 f. 413 f.; Bursa 2007, 42; Lenger 2008, 73 fn.38; García Vargaz – Florido del Corral 2010, 220.
[53] Curtis 2001, 403. 414; Bursa 2007, 42; Lenger 2008, 73 f. fn.39,40,42; García Vargaz – Florido del Corral 2010, 220; Plin. 31.44.
[54] Özkan 2018, 34 f. 77 f. Cat. no. 28. 29.
[55] Karali 1999, 21 Fig.13B
[56] Keleş et al. 2017, 35.
[57] García Vargaz – Florido del Corral 2010, 225.
[58] Başaran 2010, 394.
[59] Başaran et al. 2014, 399; Çelikbaş 2016, 187–189. 404 f. Cat. no. K50, Pl. XLIII, Ill. 28.
[60] Forthcoming anthropological (and ethno-archaeological) report.
[61] Keleş et al. 2019, 596, Resim 2. For similar example see Karali 1999, 21 Fig. 13B.
[62] Bursa 2007, 25; Tekin 2009, 49 f.; Bekker-Nielsen 2010, 189; García Vargaz – Florido del Corral 2010, 213–215; Ael. NA, 15.5; Arist. Oec. 2.1346b; Pl. Lg. 7.824a.
[63] Robert – Robert 1950, 80–97 pl. 5; Frisch 1983, 10–14 no. 5; Purcell 1995, 146 f. fig. 10.1; Lytle 2006, 68–70 fn. 75–78 fig. 19; Bekker-Nielsen 2010, 194; Bursa 2010, 36 f.
[64] Robert – Robert 1950, 89–96; Frisch 1983, 14 f. no. 6; Bursa 2010, 37.

Image Credits

All images by the Parion archive. – Table 1: by the authors. – Table 2: by the authors after Robert – Robert 1950; Frisch 1983; Purcell 1995; Lytle 2006.

References

Başaran 2010
C. Başaran, Parion 2008 Kazıları, KST 31(1), 2010, 393–410.

Başaran et al. 2014
C. Başaran – V. Keleş – Ş. D. Ful – H. Kasapoğlu – H. E. Ergürer, Parion 2012 Yılı Kazı ve Restorasyon Çalışmaları, KST 35(3), 2014, 398–414.

Bursa 2007
P. Bursa, Antikçağ'da Anadolu'da Balık ve Balıkçılık (Ph.D. diss. İstanbul University 2007).

Bursa 2010
P. Bursa, Antikçağ'da Anadolu'da Balık ve Balıkçılık (İstanbul 2010).

Çelikbaş 2016
E. Çelikbaş, 2005–2014 Parion Kazısı Metal (Bronz-Demir-Kurşun) Buluntuları (Ph.D. diss. Atatürk University, Erzurum 2016).

Çelikbaş 2018
E. Çelikbaş, Metal Objects from the Theater, in: C. Başaran – H. E. Erhürer, Roman Theater of Parion: Excavations, Architecture and Finds from 2006–2015 Campaigns, Parion Studies I (Çanakkale 2018) 185–216.

Bekker-Nielsen 2002
T. Bekker-Nielsen, Nets, Boats and Fishing in the Roman World, in: O. Thomsen (ed.), Classica et Mediaevalia: Revue Danoise de Philologie et d'Historie 53 (Copenhagen 2002) 215–233.

Bekker-Nielsen 2010
T. Bekker-Nielsen, Fishing in the Roman World, in: T. Bekker-Nielsen – D. Bernal Casasola (eds.), Ancient Nets and Fishing Gear: Proceedings of the International Workshop on "Nets and Fishing Gear in Classical Antqiuity: A First Approach" (Cádiz 2010) 187–203.

Curtis 2001
R. I. Curtis, Ancient Food Technology (Leiden 2001).

Curtis 2008
R. I. Curtis, Food Processing and Preparation, in: J. P. Oleson (ed.), The Oxford Handbook of Engineering and Technology in the Classical World (Oxford 2008) 369–417.

Frisch 1978
P. Frisch, Die Inschriften von Lampsakos (Bonn 1978).

Frisch 1983
P. Frisch, Die Inschriften von Parion (Bonn 1983).

Galili et al. 2013
E. Galili – A. Zemer – B. Rosen, Ancient Fishing Gear and Associated Artifacts from Underwater Explorations in Israel. A Comparative Study, Archaeofauna 22, 2013, 145–166.

García Vargaz – Florido del Corral 2010
E. García Vargaz – D. Florido del Corral, The Origin and Development of Tuna Fishing Nets (Almadrabas), in: T. Bekker-Nielsen – D. Bernal Casasola (eds.), Ancient Nets and Fishing Gear: Proceedings of the International Workshop on "Nets and Fishing Gear in Classical Antqiuity: A First Approach" (Cádiz 2010) 205–227.

Hammond 1980
N. G. L. Hammond, The Battle of the Granicus River, JHS 100, 1980, 73–88.

Karali 1999
L. Karali, Shells in Aegean Prehistory (Oxford 1999).

Keleş et al. 2017
V. Keleş – H. E. Ergürer – H. Kasapoğlu – E. Çelikbaş – A. Yılmaz – B. E. Kasapoğlu – K. Oyarçin – M. D. Yılmaz – İ. Akkaş, Parion 2015 Yılı Kazı ve Restorasyon Çalışmaları, KST 38(1), 2017, 23–46.

Keleş et al. 2018
V. Keleş – H. E. Ergürer – H. Kasapoğlu – E. Çelikbaş – A. Yılmaz – K. Oyarçin – B. E. Kasapoğlu – M. D. Yılmaz – İ. Akkaş, Parion 2016 Sezonu Kazı ve Restorasyon Çalışmaları, KST 39(1), 2018, 183–210.

Keleş et al. 2019
V. Keleş – H. E. Ergürer – H. Kasapoğlu – E. Çelikbaş – K. Oyarçin – H. Kaba – A. Yılmaz – B. E. Kasapoğlu – M. D. Yılmaz – İ. Akkaş, Parion 2017 Yılı Kazı ve Restorasyon Çalışmaları, KST 40(3), 2019, 595–616.

Körpe 2008
R. Körpe, Troas Bölgesi Antik Kentleri, in: M. Demir (ed.), Çanakkale Savaşları Tarihi: Cilt I (İstanbul 2008) 349–411.

Kron 2008
G. Kron, Animal Husbandry, Hunting, Fishing and Fish Production, in: J. P. Oleson (ed.), The Oxford Handbook of Engineering and Technology in the Classical World (Oxford 2008) 175–222.

Lenger 2006
D. S. Lenger, Antik Çağ'da Garum, Arkeoloji ve Sanat Dergisi 129, 2008, 69–76.

Lytle 2006
E. Lytle, Marine Fisheries and the Ancient Greek Economy (Ph.D. diss. Duke University, Durham 2006).

Lytle 2007
E. Lytle, The Delian Purple and the Lex Portus Asiae, Phoenix 61, 2007, 247–269.

Özkan 2018
H. Özkan, Parion Yamaç Hamamı (2008–2017) Kazılarında Ele Geçen Kemik Eserler (MA sem. Ondokuz Mayıs University, Samsun 2018).

Purcell 1995
N. Purcell, Eating Fish: the Paradoxes of Seafood, in: J. Wilkins – D. Harvey – M. Dobson (eds.), Food in Antiquity (Exeter 1995) 132–149.

Robert – Robert 1950
J. Robert – L. Robert, Hellenica: Recueil d'Épigraphie de Numismatique et d'Antiqueités Grecques: Vol. 9 Inscriptions et Reliefs d'Asie Mineure (Paris 1950).

Talbert 2000
R. J. A. Talbert (ed.), Barrington Atlasof the Greek and Roman World: Map-by-map Directory 2 (New Jersey 2000).

Tekin 2009
O. Tekin, Eskiçağ'da İstanbul'da Balık ve Balıkçılık (İstanbul 2009).

Yılmaz 2015
A. Yılmaz, Roman Bath, in: C. Başaran (ed.), The Flourishing City of Ancient Troad: Parion (trans. V. Keleş – M. D. Yılmaz) (İstanbul 2015) 57–66.

Yılmaz 2018
A. Yılmaz, The Roman Bath of Parion, in: D. Katsonopoulou (ed.), Paros IV: Paros and its Colonies – Proceedings of the Fourth International Conference on the Archaeology of Paros and the Cyclades: Paroikia, Paros, 11–14 June 2015 (Athens 2018) 209–219.

Wroth 1892
W. Wroth (ed.), Catalogue of the Greek Coins of Mysia (London 1892).