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

Among the species 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 inscription. The tuna (thynnaion; θυνναίων) is sacrificed to Poseion in gratitude for a good harvest. The sacrifice is depicted as being made to Priapos instead of Poseidon 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. From this, one could conclude that it was one of the species hunted by the fishing guild.

**Kolias:** Pliny names the colias as “the fish of Parion” since it was caught in great numbers in Parion.

**Crab:** Arkhestatus 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 anatomical features (i.e. long arms), in which case the species was likely a lobster, or it...
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is simply a large crab. Arkhestratus mentions the crab called astakos (ałaστακος) (lobster) to be located widely in the Hellespont, but does not mention the crab called karabos (καραβος). 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 pavi-rya. Another detail is that coins of neighbouring Priapos depict lobsters.

Scallop, Cockle and Oyster: The midden discovered in the Roman bath 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 into a small reservoir, hinting at cultivation. The shells could be identified as Bolinus (Murex) brandaris, which were the main ingredient for producing purple dye.

Linusian Snail: Strabo mentions that the delicious “Linusian Snails” were caught in Linon, a dependency of Parion. 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.](image-url)
<table>
<thead>
<tr>
<th>Names of Species</th>
<th>Evidences</th>
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<tbody>
<tr>
<td><strong>Ancient Greek</strong></td>
<td><strong>Latin</strong></td>
</tr>
<tr>
<td>Θύννος/Θυννης</td>
<td>Thynnus/Thunnus</td>
</tr>
<tr>
<td>Ὅρκυνος/Ὅρκυς/ὄρκυαλος</td>
<td>Orcynus</td>
</tr>
<tr>
<td>Πηλαμις/Πελαμύς/Αμια</td>
<td>Amia</td>
</tr>
<tr>
<td>Κορδύλη/Σκορδύλη</td>
<td>Cordyla</td>
</tr>
<tr>
<td>Σκομβρος (Τρίχιατος)</td>
<td>Scombros</td>
</tr>
<tr>
<td>Κολίας</td>
<td>Colias</td>
</tr>
</tbody>
</table>
| Χαλκιδες/Σκομβρος | 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).
| Άντακαιος/Ακκατήσιος | Attilus | Mersin | Sturgeon | Acipenser gueldenstaedtii |  |  |
| Ξιφίας | Xiphias | Kılış Balığı | Swordfish | Xiphias gadius | – | + |
| Δελφίς/Δελφίν | Delphin/Delphinus | Yunus | Dolphin | Delphinus delphis | – | + | +* |
| Καρεμβος | Cancer | Yengeç (Pavurya?) | Crab | Cancer pagurus (?) | + |  |
| Άστακος | Locustam Marinam | Istakoz | Lobster | ? | – | – | – |
| Κτείς | Pecten | Deniz Tarağı | Mediterranean Scallop | Pecten jacobaeus | – | + | + |
| Κογχύλιων | Conchylia | Kum Midyesi | Common Cockle | Cerastoderma edule | – | + | + |
| Ὅστρεον | Ostrea | İstiridyе | Oyster | Ostrea edulis | – | + | + |
| Πορφύρα | Murex | Dikenli Salyangoz | Murex | Bolinus (Murex) brandaris | + |  |  |
| Λινούσιο κοχλία (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 Şahmelek Beach. This is supported by the fact that the word linon can mean either linen (flax) or fishing line, 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. The Romans widely produced oysters, mussels, scallops and other shellfish through artificial cultivation and they were vastly consumed.

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.

Looking at the most frequently used techniques, 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.

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), 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. Polyaenus offers evidence regarding catching fish from the river, which flows to the sea by Parion. 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. 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. All the nets mentioned are stated to be made of linen (flax) or linon (λίνον) in Greek.

**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.

<table>
<thead>
<tr>
<th>Duty</th>
<th>Individual(s)</th>
</tr>
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<tbody>
<tr>
<td>Arkhones/Boss – Permit Holder</td>
<td>Publius Avius Lysimachus</td>
</tr>
</tbody>
</table>
| 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 *Neilaiion* 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 technique 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
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.\textsuperscript{43}

**Food**

Although Greeks and Romans consumed fish fresh when possible, they also often dried, smoked, or salted (\textit{salsamentum}) fish.\textsuperscript{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.\textsuperscript{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 similar 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 recipes 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 scombris*) 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
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)

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. 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.

Shipyards: Oil procured from fish is mentioned as used for the maintenance of vessels. Fishing vessels therefore gathered the material for their own needs.
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 1<sup>st</sup>–2<sup>nd</sup> 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 1<sup>st</sup>–2<sup>nd</sup> 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 5<sup>th</sup> century BC, does have a burial gift pyxis fashioned from a scallop shell, with a hole made through each valve.\(^{61}\)
Fishing Guilds
Watchtowers known as skopeia (σκόπια) 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.
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.
15 Lytle 2007, 249.
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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, 212f.
21 Kron 2008, 205f.
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 pelamid by the fishermen of Kemer. Yılmaz 2015, 64, Pic. 42.
26 Polyæen. 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.
34 Bursa 2007, 22; Bekker-Nielsen 2002, 218; Opp. 3.85–86.
40 Galili et al. 2013, 154 fig. 14.
41 Çelikbaş 2016, 135. 326f. Cat. no. E23–25, Pl. XL, Ill. 16; Çelikbaş 2018, 191. 215 Cat. no. 50 fig. 6.
42 Çelikbaş 2016, 226. 471 Cat. no. U1–2, Pl. LVII, Ill. 41.
43 García Vargaz – Florido del Corral 2010, 226.
47 García Vargaz – Florido del Corral 2010, 220; Ath. 27e.
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.
54 Özkan 2018, 34 f. 77 f. Cat. no. 28, 29.
55 Karali 1999, 21 Fig. 13B
56 Keleș et al. 2017, 35.
57 García Vargaz – Florido del Corral 2010, 225.
58 Başaran 2010, 394.
60 Forthcoming anthropological (and ethno-archaeological) report.
61 Keleș et al. 2019, 596, Resim 2. For similar example see Karali 1999, 21 Fig. 13B.
63 Robert – Robert 1950, 89–96; 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.

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