Fish Remains

by

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The fish remains from Tell Jerablus were collected either manually or by wet sieving with a mesh size of 0.5 and 0.25 mm, depending on the context and year of excavation. The bones were identified using the reference collections at the Royal Belgian Institute of Natural Sciences (Brussels), consisting of disarticulated skeletons of fish obtained from local markets in eastern Türkiye and northern Syria (Hassake) in the late 1990s. The skeletal element of each identifiable bone was noted, and when the specimen was sufficiently preserved, the corresponding body size was estimated by direct comparison with modern fish of known length. The reconstructed lengths were expressed in centimeters of standard length (SL) *i.e.* the distance between the tip of the snout and the base of the tail. In a few cases, between two and five articulating vertebrae were found that were quantified as a single specimen.

A summary of the finds analysed is given in Table 1 and includes only remains from contexts that were undisturbed, *in situ*, or safely stratified but not *in situ*. The number of specimens is low in contexts belonging to the Late Chalcolithic (Period IA), the pre-fort phase of the Early Bronze Age (Period IIA), and the Islamic period (Period V). The majority of the remains are from the Middle-Late Uruk period (Period IB) and the fort phase of the Early Bronze Age (Period IIB). No fish bones at all were found from Hellenistic-Byzantine times (Period IV).

Of the 374 fish remains, 165 specimens or 44 % were identifiable. The highest proportion of unidentified bones occurs in the sieved fractions, where the smaller bone remains contain more heavily fragmented, unidentifiable specimens. All but 11 bones belong to the family of the carps (Cyprinidae). The carp family counts numerous genera and species in the Euphrates (Geldiay and Balık 1996; Coad 2010) whose similar osteomorphology complicates the identification of isolated bones. Only seven cyprinid bones could be identified beyond family level, and all belong to the genus *Barbus* (see Endnote below). These include three pharyngeal plates, three basipterygium and one hyomandibular. Table 2 summarizes the size reconstructions in length classes of 10 cm, carried out on the cyprinid bones. It shows that in addition to numerous medium-sized fish, very young animals less than 10 cm long and extremely large fish over a meter long were caught. The predominance of cyprinids is typical of inland sites along the Euphrates and Tigris rivers (Van Neer *et al.* 2005) and reflects the current composition of the region's ichthyofauna. On all those sites, the number of cyprinid remains identified beyond family level is low. *Barbus esocinus* of 120-130 cm total length were reported from third millennium BC Tell Halawa (Boessneck and von den Driesch 1989), and at Tell Munbaqa *Barbus grypus* was identified from a mid-second millennium BC context (Boessneck and Peters 1998). From the same site a *Barbus* sp. specimen was also reported belonging to the Early Bronze Age (Phase IV, 2200-1900 BC). The most abundant ichthyofaunal assemblage from the region is from Tell Brak, where in addition to 100 hand-collected bones 784 remains were identified from the 3.5 and 1 mm mesh sieved fractions (Dobney *et al.* 2003). The larger sample size explains why the species spectrum is broader. It contains species not observed anywhere else in contemporaneous contexts so far, such as the bagrid catfish *Mystus pelusius* and the spiny eel *Mastacembelus mastacembelus*, and among the cyprinids no fewer than four species could be identified. These include *Acanthobrama marmid*, *Aspius vorax*, *Barbus esocinus* and *Barbus luteus*.

Nine remains of the catfish *Silurus triostegus* were found at Tell Jerablus. These include four cleithra, three pectoral spines, an articular and a caudal vertebra. All six bones found in Period IIB contexts belong to fish that measured between 60 and 70 cm SL. The only specimen in Period IB measured 50-60 cm SL whereas the two catfish from Period IA measured 10-20 cm SL and 20-30 cm SL. This catfish was reported before in Syria from an Early Bronze Age (2200-1900 BC) context at Tell Munbaqa (Boessneck and Peters 1998), a third millennium context at Tell Halawa (Boessneck and von den Driesch 1989) and most phases of Tell Brak (Dobney *et al.* 2003). At Tell Brak, the reconstructed lengths ranged between 10-20 cm and 80-90 cm SL, similar to those from Jerablus.

A final taxon found in the fish bone assemblage is *Planiliza abu*, a mullet species represented by a dorsal spine and a precaudal vertebra. The first bone belonged to a fish measuring 20-30 cm SL, which is the maximum length reported for this species, and the vertebra was of a smaller animal of around 10 cm SL. Within the mullet family, this species is the only one that reproduces in freshwater and can therefore form stable populations far inland. The only other archaeological site where this species has been reported so far is Tell Brak, where it was particularly abundant in Phase IV of the later third millennium (Dobney *et al.* 2003).

Traces of human modification were observed on only three bones. Two vertebrae found in contexts belonging to Period IB were burnt. As vertebrae are well surrounded by flesh, these traces cannot be the result of the preparation of the fish. This shows that the fish was discarded after consumption and possibly thrown into a fire, whether deliberately or not. A clear cut mark was observed on an unidentifiable fish bone in Period IIB context. Neither the species nor the skeletal element could be recognized, but the fish must have been more than a meter and therefore may have belonged to a large *Barbus* or *Silurus triostegus*. It is worth noting that within the Tell Jerablus fish bone assemblage all skeletal elements were observed, and there is no predominance of head or body elements indicating particular processing methods or differential discarding of body parts.

Ichthyofaunal remains were found in just over 100 contexts, showing that fish were a regular part of the diet although their overall contribution to the protein supply may have been limited. No chronological trends were observed in species composition (Table 1), with cyprinids consistently being the most important group. This is still the case today, as evidenced by annual catches from freshwater fisheries surveys conducted in Iraq between 1965 and 1974 (Coad 2010: 36-37). Cyprinids, including several *Barbus* species, were the most common landed fish, followed by catfish. The size distributions of the cyprinids in Period IB and IIB suggest that the fish were smaller on average in Period IB, but this is a consequence of the fact that the bones from that phase were mainly collected by sieving, while the material from Period IIB consists mainly of hand-collected and thus larger specimens.

No fishing gear, such as hooks or net weights, were found at the site that might indicate the use of particular fishing methods. The fact that a wide range of fish sizes was observed shows that different fishing grounds were exploited and different fishing methods were used.

Because of the tell's location within the floodplain of the Euphrates braided river system, there must have been continuous access to aquatic resources throughout its occupation. Although the aquatic environment may have undergone changes through time as a result of fluctuations in the level of the river, the ichthyofauna from the various periods shows that there was always an exploitation of both shallow waters and more open, deeper waters. The small fish may have been captured in marginal waters of the river or in shallow waters of the floodplain. Fine meshed fishing gear such as nets or scoop baskets may have been effective in such environments. The medium-sized and large fish must have been taken from

more open waters and here various types of nets as well as hook and line may have been useful fishing gear (Sahrhage 2008).

Endnote

We label these specimens as *Barbus* sp. because this is a convenient way to designate several barbel species in the Euphrates basin that were previously classified in this genus and described as such in faunal reports. According to the latest taxonomic revisions, other genus names should be used for the barbels mentioned in this section.

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Period	IA		IB		IIA		IIB		V		Total
	HC	WS	HC	WS	HC	WS	HC	WS	HC	WS	
Barbus sp.	-	-	-	1	-	-	6	-	-	-	7
Cyprinidae indet.	-	2	4	76	7	2	36	20	-	-	147
Silurus triostegus	-	2	-	1	-	-	5	1	-	-	9
Planiliza abu	-	1	-	1	-	-	-	-	-	-	2
Total identified	-	5	4	79	7	2	47	21	-	-	165
Unidentified	-	5	1	122	2	1	20	56	2	-	209
Grand total	-	10	5	201	9	3	67	77	2	-	374

Table 1: Fish remains (NISP) from Tell Jerablus by period. The hand-collected (HC) and wet-sieved (WS) material is given separately. Period IA = Late Chalcolithic; Period IB = Middle-Late Uruk; Period IIA = Early Bronze Age (pre-fort phase); Period IIB = Early Bronze Age (fort phase); Period V = Islamic.

Period	IB		IIA		IIB	
	HC	WS	HC	WS	HC	WS
<10 cm SL	-	5	-	1	-	1
10-20 cm SL	-	13	-	1	1	2
20-30 cm SL	-	3	-	-	-	1
30-40 cm SL	-	5	-	-	-	-
40-50 cm SL	-	1	2	-	5	2
50-60 cm SL	2	2	1	-	8	-
60-70 cm SL	1	1	1	-	7	-
70-80 cm SL	-	-	-	-	4	-
80-90 cm SL	-	-	-	-	1	-
90-100 cm SL	-	-	-	-	-	-
>100 cm SL	-	-	-	-	3	-

Table 2: Reconstructed body lengths in cm SL (standard length) of the Cyprinidae from Tell Jerablus for the hand-collected (HC) and wet-sieved (WS) fractions of Periods IB, IIA and IIB.