

## The evolution of the I.C.A.Z. Fish Remains working group from 1981 to 1995

ARTURO MORALES MUÑIZ

Laboratorio Arqueozoología. Depto. Biología  
Universidad Autónoma de Madrid. 28049 Madrid, España

On the morning of the 28<sup>th</sup> of August, 1981, the founders of what was later to become the I.C.A.Z. Fish Remains Working Group (FRWG) met for the first time at the Zoological Museum of Copenhagen. The meeting, attended by 16 people (Table 1), took place at the request of a small group of scholars, notable among which were Inge Bødker and Knud Rosenlund of the host institution, which had for years felt the need for a more systematic analysis of fish bones retrieved (and often missed!) in archaeological sediments.

In retrospective, we can say that the Copenhagen Meeting was a truly productive one, both in terms of the nature (Appendix 1) and the treatment of issues. Introductory lectures were followed by a lengthy discussion open to all participants; such flexible, seminar-like contributions were regrettably lost in subsequent meetings, partly due to the drastic increase in the number of presentations. To compensate for this, starting with the second meeting, contributions became grouped into sessions of more or less similar content (Appendix 2). This arrangement was enhanced after the Stora Kornö Meeting allowing the organizers to set up priority topics for each conference, but we had to wait until this past conference to watch one of the priority subjects (i.e., overfishing in the archaeological record) develop into a significant portion of the conference.

The main goal of the Copenhagen meeting has, nevertheless, been maintained over the years. This was the participants' determination to create a true (and not just nominal!) working group, which encourages close contact among its members, and which would not only hold biennial meetings, but would also disseminate the information presented to the best of its ability while promoting contact with other groups, organisations and individuals both within and outside I.C.A.Z. The success of the «spirit of Copenhagen», 14 years after its inception, has

been so dramatic that it became a model for other Working Groups (in particular the Middle East and Bird Remains WG) and, perhaps, in the future, may pave the way as a model for a federal re-structuring of I.C.A.Z., which is undergoing a profound process of renewal at this very moment.

Turning to more mundane matters, the development of the FRWG seems to have been a mixture of gradual and punctuated processes (Table 1; Figure 1). After the initial Copenhagen «pulse», a second one exemplified by the Sophia Antipolis and Groningen conferences doubled the number of attendants and tripled the number of presentations (Appendix 2 & 3). The third pulse, starting with the York meeting and still ongoing, exhibited a gradual increase in the number of attendants doubling the number of contributions (Appendixes 4-7). One might argue that both the Leuven and Madrid meetings, by their sheer size, could be considered as a fourth incremental pulse but we would rather consider them from the perspective that the FRWG has not yet stabilized, but is simply gaining momentum, due to its dynamic nature and the decisiveness of its members.

Since one of the aims of the FRWG was to create a forum of debate for the discussion and standardization of techniques, presentations on methods have always made up a substantial portion of the contributions offered at each meeting (Table 2; Figure 2). The Copenhagen conference, as a matter of fact, was basically conceived as a colloquium on methods (Appendix 1) and, except for the Groningen, Schleswig and Leuven meetings, methodological papers always ranked at the top of the list of topics (Figure 2; Table 2; Appendixes 1-7). A pervasive pattern throughout these years has been the somewhat erratic rise in contributions which were neither methodological nor descriptive «bone reports» (i.e., the «others» category in Fi-

MEETINGS	N.º PARTICIPANTS	PRESENTATIONS	PROCEEDINGS
COPENHAGUE	16	7	+
SOPHIA ANTIPOLIS	30	19	+
GRONINGEN	28	19 (5)	+
YORK	38	35 (3)	-
STORA KORNÖ	32	31 (6)	+
SCHLESWIG	33	37 (5)	+
LEUVEN	48	36 (6)	+
MADRID	57	50 (12)	+

TABLE 1

Main features of the eight I.C.A.Z. Fish Remains Working Group meetings. Presentations in brackets refer to posters. A graphic representation of these data appears in Figure 1.

Figure and Table 2). Most contributions in this category are papers: a) dealing with fishing in the past, b) regional surveys; and c) the biology of fishes. By their very nature, a great many of these contributions include data from fields alien to archaeozoology and their progressive importance in successive meetings testifies to the growing interdisciplinarity within archaeoichthyology as well as the willingness of the FRWG to incorporate new ideas, data and scholars.

Meetings of the FRWG have also been witness to important developments. One such instance was the Sophia Antipolis conference where Jean Desse presented a much needed initiative: the «*Fiches d'identification osteologique pour les besoins de l'archeologie*» Project. Since then, the program has developed well beyond the realm of archaeoichthyology reaching researches in I.C.A.Z. and the natural sciences. At Copenhagen it was decided that the group should have a Newsletter. Through the years, thanks to the generous and anonymous effort of its editors, Knud Rosenlund and Dirk Heinrich, the Newsletter has been instrumental in keeping the FRWG alive and in promoting joint research among its members (note how many papers from later meetings have been presented by research teams from more than one country!).

I strongly believe that the most remarkable aspect of all these achievements, which include the publication of the proceedings from all but one meeting by relevant publishers (CNRS, BAR, Offa, etc.), is the fact that they were achieved in an atmosphere of honest friendship. The FRWG has never had individual leadership, strong hierarchy or the like. It has never felt the temptation of pulling out or taking over anything. It simply does not need to do that to keep on being what it is, namely, a united and cohesive group of friends. That cohesiveness is the secret of its strength. No more, no less (but by no means a modest achievement!).

To conclude, I look to the future and I want to draw attention to the single criticism of the FRWG: its eurocentrism. For historical reasons, the fish group was born in Europe (though one of the «founding fathers», the late Hanan Lernau, was Is-

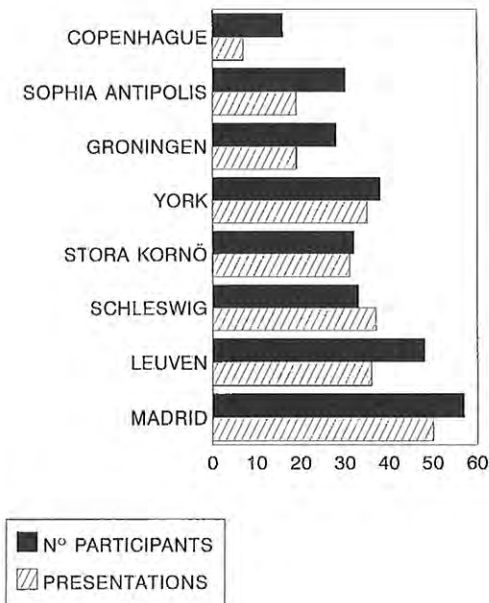


FIGURE 1

MEETINGS	METHODS	REPORTS	OTHERS
COPENHAGUE	6	1	—
SOPHIA ANTIPOLIS	9	5	5
GRONINGEN	4	8	4
YORK	17	10	9
STORA KORNÖ	14	11	6
SCHLESWIG	12	13	12
LEUVEN	12	15	9
MADRID	13	14	23

TABLE 2

The presentations at the various Fish Remains Working Group meetings arranged according to content. A graphic representation of these data appears in Figure 2.

raeli!) and the number of European members has traditionally outnumbered those from other continents (in the latest 4 newsletters we record 87 from Europe, 41 from the Americas, 6 from Asia, 1 from Africa and 4 from Australia and the Pacific). Logistics, in particular shortage of funds, have shaped a profound and, to a certain extent, unfair, asymmetry: all eight meetings have been held in Europe. This has prevented a lot of colleagues within the FRWG from attending even a single meeting. At this meeting Elisabeth Reitz & Elisabeth Wing were prevented from attending at the last minute

but, at least, we can feel proud that many Americans and even Foss Leach and Atholl Anderson, from our Spanish antipodes, could finally make it. On the horizon we have Panama. The 1997 meeting will hopefully constitute a landmark for the FRWG which is dangerously leaning into an strictly EFRWG (i.e., european FRWG) much to my general regret. I therefore want to end these remarks by telling all our non-European friends: come'n boys, it's your turn now! Happy meeting! Thank you!

## APPENDIX 1

FIRST MEETING, København (1981)  
(28-29 August)

1. A. K. G. JONES: *Reconstruction of fishing techniques from assemblages of fish bones.*
2. R. LIL JEGREN: *Taphonomy.*
3. J. DESSE: *Presentation of a new method of discrimination by x-ray diagnostics.*
4. D. HEINRICH: *Standardization of measurements and size/weight reconstructions of fish.*
5. N. NØE-NYGAARD: *Use of growth rings to determine age of fish and season of catch.*
6. H. LERNAU: *Fish remains from excavations in the Negev and the Sinai deserts and their connection with the Nile, the Mediterranean and the Red Sea.*
7. H. LERNAU: *Special methods for defining vertebrae of bony and cartilaginous fish.*

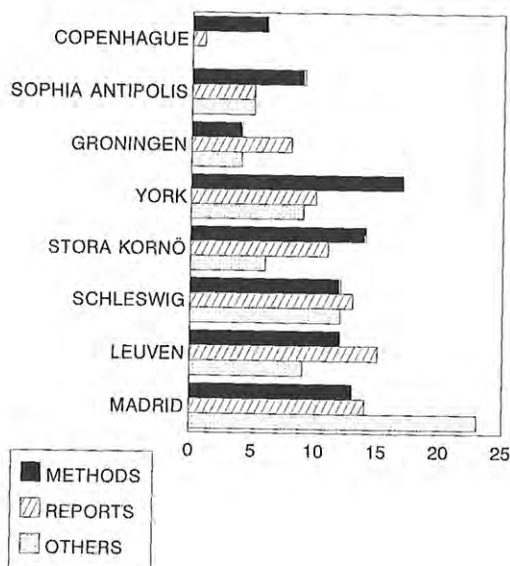


FIGURE 2

## APPENDIX 2

SECOND MEETING, Valbonne (1983)  
(14-16 October)

1. F. J. MEUNIER: *Sur la détermination histologique de vertèbres de poissons trouvées dans les sites archéologiques.*
2. G. DESSE: *Nouvelle contribution à la diagnose des pièces rachidiennes des poissons.*
3. A. MORALES MUÑIZ: *A study on the representativity and taxonomy of the fish faunas from two mousterian sites on northern Spain with special reference to the trout (*Salmo trutta* L., 1758).*
4. A. K. G. JONES: *Some effects of the mammalian digestive system on fish bones.*
5. J. DESSE: *Propositions pour une réalisation collective d'un corpus: fiches d'identification et d'exploitation métrique du squelette des poissons.*
6. O. LE GALL: *L'exploitation de l'ichtyofaune par les Paléolithiques. Quelques exemples.*
7. N. JUAN-MUNS: *Le problème de la signification des restes ichtyofauniques fossiles.*
8. S. M. COLLEY: *Some methodological problems in the interpretation of fish remains from archaeological sites in Orkney.*
9. T. TROLLE-LASSEN: *A preliminary report on the archaeological and zoological evidence of fish exploitation from a submerged site in mesolithic Denmark.*
10. K. ROSEN LUND: *The fish-bone material from a medieval Danish monastery and an 18<sup>th</sup> century mission station in Greenland. An investigation of materials with a known key.*
11. W. VAN NEER: *The use of fish remains in African archaeozoology.*
12. E. S. WING: *Faunal remains from seven sites in the Big Cypress national preserve.*
13. J. RIVALLAIN: *L'importance de la pêche dans les activités littorales du passé des Alladian, Côte d'Ivoire.*
14. A. BOISSIER: *Un habitat et un mode de vie traditionnels à l'étang de Salses (P.O., France). Exemples ethnographiques et implication archéologique.*
15. N. NØE-NYGAARD: *Seasonality determination, a tool in separating fish accumulations of mixed origin on Mesolithic island sites.*

16. J. RICHTER: *Indication of selection of different fish species at various seasons in the Neolithic.*
17. M. S. GORECKI: *Détermination des températures de développement durant le cycle de vie de certains poissons pour la mesure des rapports d'oxygène isotopique dans les otolithes.*
18. P. LAHTIPERÄ: *Measurements of Gadidae; problems and possibilities.*
19. M. LERNAU: *Nouvelles techniques de préparation et de rangement des collections de référence.*

## APPENDIX 3

## THIRD MEETING, Groningen (1985)

1. A. T. CLASON: *Fish and Archaeology.*
2. N. BENECKE: *Some remarks on sturgeon fishing in the Southern Baltic region in Medieval times.*
3. D. C. BRINKHUIZEN: *Features observed on the skeletons of some recent European Acipenseridae: their importance for the study of excavated remains of sturgeon.*
4. S. M. COLLEY: *Site formation and archaeological fish remains. An ethnohistorical example from the Northern Isles, Scotland.*
5. D. HEINRICH: *Fishing and consumption of Cod (*Gadus morhua* Linnaeus, 1758) in the Middle Ages.*
6. A. K. G. JONES: *Fish bone survival in the digestive systems of the pig, dog and man: some experiments.*
7. L. JONSSON: *Fish bones in Late Mesolithic human graves at Skateholm, Scania, South Sweden.*
8. A. LENTACKER: *Archaeozoology of Late Prehistoric Portuguese sites with marine and riverine resources.*
9. H. LERNAU: *Fish bones excavated in two Late Roman-Byzantine Castella in the southern desert of Israel.*
10. W. VAN NEER: *Some notes on the fish remains from Wadi Kubbaniya (Upper Egypt; Late Palaeolithic).*
11. W. PRUMMEL: *The presence of bones of eel, *Anguilla anguilla*, in relation to taphonomic processes, cultural factors and the abundance of eel.*

12. K. ROSENBLUND: *The sting ray, Dasyatis pastinaca (L.) in Denmark.*
13. M. SEEMAN: *Fish remains from Smeerenburg, a 17<sup>th</sup> century Dutch whaling station on the Westcoast of Spitsbergen.*
14. J. DESSE: *Les poissons du Grand Louvre.*
15. I. BØDKER-ENGHOFF: *New results from the classical shell midden in Ertebølle, Denmark.*
16. D. HEINRICH: *Some remarks on fish remains from late- and postglacial sites near Hamburg.*
17. I. BØDKER-ENGHOFF: *Fishing at Mesolithic Bjørnsholm, Denmark, compared with the neighbouring settlement: the Ertebølle locus classicus. Principally eel-fishing sites?.*
18. I. BØDKER-ENGHOFF: *Rare species of fish in the Mesolithic Bjørnsholm Shell-midden, Denmark - indicators of a warmer climate.*
19. L. JONSSON: *Middle Mesolithic Fishing strategies and the marine environment on the Swedish west coast.*
20. L. BARTOSIEWICZ: *Size reconstruction of pike, Esox lucius, L. .*
21. I. TAKÁCS: *Size reconstruction of catfish, Silurus glanis.*
22. M. COLBURN: *Cranial osteology of Redcar sunfish.*
23. M. DUTTING & B. BEERENHOUT: *Distribution analysis of the fish remains of a Roman Castellum at Velsen, the Netherlands.*
24. R. C. HOFFMANN: *Pike (Esox lucius) in late Medieval Culture: from illiterate empiricism to literate traditions.*
25. J. COY: *Saxon evidence from the river Thames.*
26. D. SERJEANTSON: *Fish Remains from a Monastic Site: St. Albans Abbey, Hertfordshire, England.*
27. N. PAAP & M. SEEMAN.: *Focussing on Fish eyes.*
28. D. BRINKHUIZEN: *Some remarks on seasonal dating of fish remains by means of growth ring analysis.*
29. A. ROJO: *X-rays to differentiate vertebrae from the Gadidae family.*
30. D. WARD: *A machine for processing clay to extract fish remains.*
31. J. COY: *Medieval documentation and the fish trade.*
32. R. NICHOLSON: *Fish remains from excavations near the river front at Newcastle, England.*
33. L. JONSSON: *Osteological evidence of medieval fish trade in Scandinavia.*
34. R. KEMP: *Fishing at Bylands Abbey, Yorkshire.*
35. J. DESSE & N. DESSE-BERSET: *Use and exchange of osteometric data for ichthyofauna.*
36. E. S. WING: *Comparative fish skeleton collections.*

## APPENDIX 4

FOURTH MEETING, York (1987)  
(9-12 September)

1. P. V. ADDYMAN: *Fish out of water: An Archaeologist's view of Archaeoichthyology.*
2. K. M. STEWART: *Fish remains at Olduvai Gorge.*
3. W. VAN NEER: *Fish remains from a Holocene site in Wadi Howar, Sudan.*
4. V. L. BUTLER: *Natural versus cultural salmon bones: a preliminary assessment of the Dalles «Roadcut» remains.*
5. B. GHALEB: *Fish and Women on a Western Torres Strait Island, Northern Australia.*
6. I. TAKÁCS: *Fish exploitation in Hungary.*
7. M. ROSE: *Prehistoric Fishing in the Aegean.*
8. E. ROSELLÓ & A. MORALES: *Cultural typification of Spanish pre-and protohistorical sites through the study of fish assemblages: proposal of a new methodology of study.*
9. A. LENTACKER: *The mesolithic Muge shell - middens of Portugal.*
10. A. MORALES & E.ROSELLÓ: *Casual or intentional? Comments on fish taxa skeletal representation from Spanish archaeological settlements.*
11. E. S. WING: *A Modern midden experiment.*
12. A. E. BULLOCK: *Dispersal of Fish waste: a modern experiment.*
13. S. COLLEY: *Cooking fish on a fire: an experiment in differential burning.*
14. A. K. G. JONES: *Walking the cod.*
15. A. MORALES; E. ROSELLÓ; K. ROSENBLUND & J. L. LÓPEZ GORDO: *Spanish and Danish ichthyofaunal assemblages: patterns of diversity and abundance commented from a paleocultural perspective.*

## APPENDIX 5

FIFTH MEETING, Stora Kornö (1989)  
(5-9 September)

1. L. JONSSON: *An introduction to Stora Kornö and its village and the roots of an archaeoichthyologist.*
2. W. VAN NEER: *Fish remains from the Middle Palaeolithic site Bir Tarfawi (Eastern Desert, Egypt).*
3. N. BENECKE: *Seasonal dating of fish remains from the Hoabinian site Can-Cave (Vietnam).*
4. E. WING: *Prehistoric Fishing in the West Indies.*
5. R. LARJE: *Favourite fish dish of the Romans in Carthage.*
6. E. AURA TORTOSA: *A preliminary report about marine exploitation on the Andalusian coast: the Fish gorges from the Cave of Nerja (Málaga, Spain).*
7. B. WILKENS: *The importance of fishery in the economy of the Fucino Basin (Italy) from Upper Palaeolithic to Neolithic Times.*
8. D. HEINRICH: *Fish remains from Flem, a Stone Age settlement at Skuløy, Norway.*
9. M. STERNBERG: *La pêche et la consommation du poisson sur le site de Lattara (France, Héralt) du III<sup>e</sup> au I<sup>er</sup> s. AV. J.C. .*
10. E. GEHASSE: *Fish as salinity and tidal indicators at P14, a late Neolithic- early Bronze age site in the Netherlands.*
11. L. BARTOSIEWICZ: *Pre-depositional modifications on fish bone from Hungarian Excavations.*
12. W. PRUMMEL: *Fishing methods in Oldenburg (Holstein).*
13. P. LAHTIPERÄ: *Big Ling from Lofoten area from Stone age and Iron age.*
14. S. HAMILTON-DYER: *Fish in the Tudor Naval diet.*
15. R. HOFFMANN: *«Carpes pour le duc ...» The operation of fish ponds at La Perriere –sur-saune, Burgundy, 1338-1352.*
16. L. JONSSON: *Violet is nice. Comparative bone collections and the illustration of fish bones.*
17. I. TAKÁCS: *Osteomorphological studies on great sturgeon (Huso huso) from Hungary.*
18. L. JONSSON: *The Holocene History of western Sweden, geology, fishes, history of research.*
19. R. NICHOLSON: *Burnt fish bones: what value to archaeology?*
20. A. K. G. JONES: *How many fish bones do we need from a site?*
21. D. HEINRICH: *Some remarks on the term «Thanatocoenosis», especially «anthropogenic thanatocoenosis».*
22. A. ROJO: *x-Ray as a tool to identify the fish specimens of subfossil vertebrate from archaeological sites.*
23. A. LEAK: *An assessment of the value of the scales of the grayling Thymallus thymallus (L.) to the archaeologist for deriving information about the fish found in archaeological deposits.*
24. A. LENTACKER: *A Growthline study on the otoliths of Argyrosomus regius.*
25. B. BERENHOUT: *Velsen I: Indications of water pollution in Roman times.*
26. E. ROSELLÓ & A. MORALES: *Castillo de Doña Blanca: fish remains from the oldest phoenician site on the Iberian Peninsula.*
27. M. ROSE: *Polished otoliths from archaeological contexts.*
28. R. M<sup>a</sup> ARNAY: *Osteometrical analysis of Sparisoma cretense.*
29. E. ROSELLÓ & A. MORALES: *Comparative osteomorphology of the sardine (Sardina pilchardus) and round sardinella (Sardinella aurita).*
30. S. STEN: *Medieval and post-reformative fish finds from urban contexts as indicators of fish trade.*
31. K. ROSENLUND: *Computerized estimates of fish size based on osteometric data: presentation of a program.*

## APPENDIX 6

SIXTH MEETING, Schleswig (1991)  
(3-7 September)

1. V. VOGEL: *Excavations in the ancient centre of Schleswig, the archaeological background to the conference-town.*
2. A. BULLOCK: *Evidence for the exploitation of fishes from Tudor deposits and the Little Pricke excavations in 1989, Surrey, England.*
3. I. BØDKER-ENGHOFF: *Fishing from medieval Holbaek.*

4. A. ERVYNCK & W. VAN NEER: *Fish remains in medieval castles and towns (Flanders, Belgium): a preliminary survey.*
5. E. ROSELLÓ & A. MORALES: *Cartuja: Fish remains from a late medieval monastery in Seville (Spain).*
6. P. MOREL: *Medieval fish remains from a site near Basel.*
7. N. IVANOVA: *Fish remains from archaeological sites of the northern part of the Black Sea Region.*
8. D. C. BRINKHUIZEN & E. ROSELLÓ: *Laminak II: Marine fishes within a paleolithic limnetic ichthyocenosis from the Spanish Basque country.*
9. A. LENTACKER: *Fish remains from Saltés (Huelva, Spain).*
10. L. JONSSON: *Fish bone measurements, Gadi-formes. Review and proposals.*
11. W. VAN NEER: *Fish size reconstructions: How accurate should they be?*
12. D. HEINRICH: *Fish remains from Durankulak and from some other sites –are they biased by the excavator?*
13. J. STUDER: *Fish and water: influence of a lake on the distribution of ichthyological remains.*
14. M. MÉZES & L. BARTOSIEWICZ: *Fish bone preservation and fat content.*
15. R. G. COOKE & J. BORT: *A comparison between prehistoric and modern artisanal fishing in a small estuarine embayment on the Pacific coast of Panama.*
16. A. SÁNCHEZ MOSQUERA: *Fishing patterns in the continental coast of Ecuador.*
17. N. JUAN-MUNS: *Fishing strategy in the Beagle channel: an ethnoarchaeological approach.*
18. R. C. HOFFMANN: *The craft of fishing Alpine lakes, ca A.D. 1500.*
19. C. G. RODRÍGUEZ SANTANA: *The role of fishing in a prehistoric settlement on the island of La Palma (Canary Islands, Spain).*
20. B. BEERENHOUT: *What conclusions can be drawn from mature haddock bones in a neolithic coastal site in the Netherlands?.*
21. W. R. BELCHER: *Fish utilization in the Harappan civilization: a view from the type site of Harappa.*
22. D. SERJEANTSON; J. EVANS & S. WALES: *Fish in latter prehistoric Britain.*
23. L. JONSSON: *Fish processing before salting and drying - historical evidence from Scandinavia.*
24. M<sup>a</sup> J. RODRIGO GARCÍA: *The paleoecological implications of the presence of *Melanogrammus aeglefinus* (L., 1758) in the transition Upper Pleistocene-Holocene levels in Nerja Cave (Málaga, Spain).*
25. I. SZEKELYHIDY; I. TAKÁCS & L. BARTOSIEWICZ: *Size variability by geographic regions of some fish species in Hungary.*
26. A. BULLOCK: *Cost tradeoffs of mesh size and sieving rate in environmental processing.*
27. R. LARJE: *Are dermestid beetles safe for fish bones?.*
28. D. C. BRINKHUIZEN: *Pathologies and anomalies in recent and subfossil fish bones.*
29. A. MORALES & W. VAN NEER: *Abundance indexes as potential discriminators of natural and anthropogenic paleoichthyocenosis.*
30. D. C. BRINKHUIZEN: *The diet of recent otter (*Lutra lutra*) from two regions in the northern Netherlands.*
31. W. PRUMMEL: *Bird and sea mammal catching during fishing.*
32. B. IRVING: *Possible evidence for Roman fish farming at Nicopolis ad Istrum, Bulgaria.*
33. S. HAMILTON-DYER: *Fish remains from Mons Claudianus –a Graeco-roman site in the Eastern desert of Egypt.*
34. R. C. HOFFMANN: *European subfossil carp (interim report).*
35. D. PATÓN & E. ROSELLÓ: *A computerized procedure for the classification of Mugilid remains from archaeological sites.*
36. Ch. RADTKE: *Medieval fishing with «herring-fences» in the Schlei.*
37. A. SÁNCHEZ MOSQUERA: *The evolution of Ecuatorian Archaeozoology.*

## APPENDIX 7

SEVENTH MEETING, Leuven (1993)  
(6-10 September)

1. J. H. BARRETT: *Bone weight and the intra-class comparison of fish taxa.*
2. O. LERNAU & M. BEN-HORIN: *Taphonomic curve and index: a preliminary exploration of a new concept.*
3. F. FALABELLA; M. LORETO VARGAS & R. MELÉNDEZ: *Differential preservation and recovery of fish remains in Central Chile.*

4. A. VON DEN DRIESCH: *Hyperostosis in fish*.
5. F. J. MEUNIER & J. DESSE: *Histological structure of hyperostotic cranial remains of Pomadasys hasta (Osteichthyes, Perciformes, Haemulidae) from archaeological sites of the Arabian Gulf and the Indian Ocean*.
6. L. BARTOSIEWICZ; I. TAKÁCS & I. SZÉKELY-HIDY: *Problems of size determination in common carp (Cyprinus carpio)*.
7. M. STERNBERG: *Reconstitution de la taille de Dicentrarchus labrax provenant de Lattes (II<sup>ème</sup> Age du Fer-début de la romanisation)*.
8. J. DESSE & N. DESSE-BERSET: *Osteometry and fishing strategies at Cape Andreas Kastros (Cyprus, 8<sup>th</sup> millennium BP)*.
9. N. DESSE-BERSET: *Sturgeons of the Rhône during Protohistory in Arles (6<sup>th</sup>-2<sup>nd</sup> century BC)*.
10. O. LE GALL: *Quelques remarques sur l'adaptation à court et à long termes chez les poissons d'eau douce du sud de la France*.
11. R. COOKE & G. TAPIA RODRÍGUEZ: *Marine and freshwater fish amphidromy in a small tropical river on the Pacific coast of Panama: a preliminary evaluation based on gill-net and hook-and-line captures*.
12. L. BARTOSIEWICZ; E. HERTELENDI & A. FIGLER: *Seasonal dating of hand-collected fish remains from a prehistoric settlement in Hungary*.
13. W. R. BELCHER: *A regional approach to fish remains and seasonality in East Penobscot Bay, Maine*.
14. O. J. POLACO & A. F. GUZMÁN: *Fishes in some Spanish sixteenth century chronicles*.
15. T. DE JONG: *Fish consumption at Eindhoven Castle: archaeological remains versus historical sources*.
16. R. C. HOFFMANN: *Remains and verbal evidence of carp (Cyprinus carpio) in medieval Europe*.
17. L. VAN BUYTEN: *Données historiques sur le commerce de poissons à Louvain (Brabant, Belgique) au 18<sup>ème</sup> siècle et leur apport à l'archéozoologie*.
18. S. CROCKFORD: *New archaeological and ethnographic evidence of an extinct fishery for giant bluefin tuna (Thunnus thynnus orientalis) on the Pacific Northwest Coast of North America*.
19. W. R. BELCHER: *Butchery practices and the ethnoarchaeology of South Asian fisherfolk*.
20. A. M. CHOYKE & L. BARTOSIEWICZ: *Angling with bones*.
21. W. Z. WENDRICH & W. VAN NEER: *Preliminary notes on fishing gear and fish at the late Roman fort at 'Abu Sha'ar (Egyptian Red Sea coast)*.
22. J. STUDER: *Roman fish sauce in Petra, Jordan*.
23. D. C. BRINKHUIZEN: *Some notes on fish remains from the late 16<sup>th</sup> century merchant vessel Scheurak SO1*.
24. R. CERÓN-CARRASCO: *The investigation of fish remains from an Orkney farm mound*.
25. D. HEINRICH: *Fish remains of two medieval castles and of an urban context- a comparison*.
26. W. VAN NEER & A. ERVYNCK: *New data on fish remains from Belgian archaeological sites*.
27. I. ZOHAR; T. DAYAN; E. SPANIER; E. GALILI & O. LERNAU: *Exploitation of grey triggerfish (Ballistes carolinensis) by the prehistoric inhabitants of Atlit-Yam, Israel: a preliminary report*.
28. C. CARTWRIGHT: *Preliminary results of the study of fish remains from a 3<sup>rd</sup> millennium BC site, HD1, at Ra's al-Hadd, Oman*.
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