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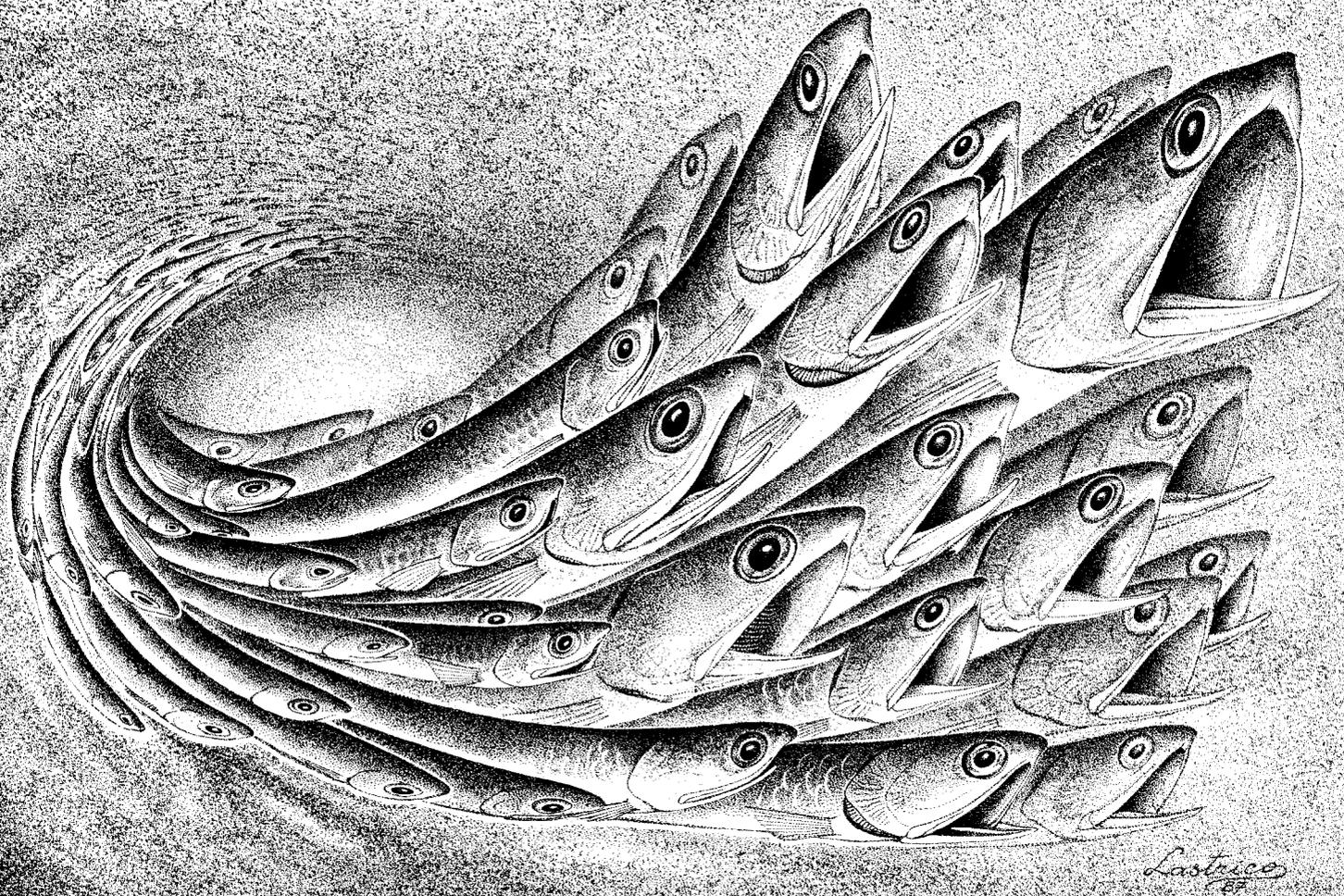
FAO SPECIES CATALOGUE

VOL. 7. CLUPEOID FISHES OF THE WORLD

(suborder CLUPEOIDEI)

AN ANNOTATED AND ILLUSTRATED CATALOGUE
OF THE HERRINGS, SARDINES, PILCHARDS, SPRATS, SHADS
ANCHOVIES AND WOLF-HERRINGS

Part 2 - Engraulididae



UNITED NATIONS DEVELOPMENT PROGRAMME
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS



F A O S P E C I E S C A T A L O G U E

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An Annotated and Illustrated Catalogue of the
Herrings, Sardines, Pilchards, Sprats, Shads, Anchovies and Wolf-herrings

Part 2 - Engraulididae

prepared by

Peter J.P. Whitehead
British Museum (Natural History)
Cromwell Road, London SW7 5BD, UK

and

American Museum of Natural History
Central Park West at 79th Street
New York 10024, USA

Gareth J. Nelson
American Museum of Natural History

and

Thosaporn Wongratana
Faculty of Science
Chulalongkorn University
Bangkok 5, Thailand

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PREPARATION OF THIS DOCUMENT

The present publication was prepared under the FAO Regular Programme, with the support of the United Nations Development Programme, as part of the UNDP/FAO Global Project on Survey and Identification of the World's Marine Fishery Resources (GLO/82/001). It is the seventh worldwide species catalogue in the FAO Fisheries Synopses series.

The authors are the foremost specialists in clupeoid taxonomy; they have also had considerable experience in the field, especially with regard to clupeoid fisheries. Dr Whitehead has been the author of the clupeoid sections in most of the regional FAO identification sheets so far published.

All illustrations signed TW were kindly provided by Dr Thosaporn Wongratana (Chulalongkorn University, Bangkok); the remainder were redrawn (and modified) at FAO from the literature or from the author's sketches, under the supervision of Dr Whitehead and the editor.

The index of scientific and vernacular names was prepared in collaboration with FAO's Fishery Information, Data and Statistics Service.

In producing these catalogues and other taxonomic works within the Global Project, FAO is very much aware that the participation of specialists depends not only on their willing cooperation, but also on the moral and other support that they themselves receive for such work from their own institutions. In the present case the support of the British Museum (Natural History) and of the American Museum of Natural History is gratefully acknowledged.

Technical Editor: Dr Walter Fischer, Fishery Resources and Environment Division, FAO

Illustrators: O. Lidonnici and P. Lastrico, FAO, Rome. All drawings initialled "TW" were drawn from specimens by Dr Thosaporn Wongratana, Chulalongkorn University, Bangkok, Thailand. Ms M. Kautenberger-Longo: distribution maps, page composition and collation.

ABSTRACT

This is the seventh in the FAO series of worldwide illustrated catalogues (synopses) of major groups of organisms that enter marine fisheries. The present catalogue includes all clupeoid fishes (suborder CLUPEOIDEI - herrings, sardines, pilchards, sprats, shads, anchovies and wolf-herrings), comprising 4 families, 82 genera and some 355 species, contributing to more than a quarter of the world fish catch. Keys are given to the families, subfamilies and genera, with a glossary of technical terms and measurements, and a review of major literature sources within each FAO fishing area. Genera and species are diagnosed, with drawings, scientific and vernacular names, information on habitat, biology, fisheries, and distribution (with map); reference is also made to subspecies and to any taxonomic or other problems. The occurrence of the species within the FAO fishing areas is tabulated. All scientific names applied to clupeoid species are given in the synonymies, and these as well as the vernacular names are indexed; there is also a complete bibliography of all literature cited.

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ADDENDUM TO PART I

Since publication of Part 1 of the Catalogue in late 1985, an important clupeoid paper by Wongratana (1987a) clarifies the status of three hitherto unnamed species of Herklotsichthys:

Herklotsichthys Species A (see page 83) = H. lippa Whitley, 1951. The latter was wrongly considered a junior synonym of H. quadrimaculatus see page 81).

Herklotsichthys Species B (see page 84) = H. collettei Wongratana, 1987.

Herklotsichthys Species C (see page 85) = H. castelnaui (Ogilby, 1897). The latter is already included (page 75).

Two recent papers provide new names for a West African peltonuline and an Australian pristigasterid:

Microthrissa Species A (see page 153) = Microthrissa normanae Whitehead, 1986.

Ilisha species (see page 269), = Ilisha lunula Kailola, 1986, Beagle, 3(1):52, figs 1,2 (northern Australia and Papua New Guinea),

Although every effort was made to locate all synonyms of clupeoid fishes, undoubtedly a few have eluded the search. Seven additional names that may have nomenclatural importance are:

Clupea pallasii probatowi Makushok, 1935:23 (Yugorskii Shar Strait, Kara Inlet) = Clupea pallasii see page 117).

Sardinella (Amblyaster) jonesi Lazarus, 1983:78, fig.1 (Vizhinjam, India) = ? Amblygaster sirm (see page 88 but), no spots, also lower gillrakers 37-48 (cf.33-43).

Corica biharensis Kamal & Ahsan, 1978:28 (Ganges River at Bihar) = ? Corica soborna Hamilton-Buchanan, 1822 (see page 180). However, it is said to differ from that species in several respects.

Alosa fallax lariana Pirola (Lake Como) = Alosa fallax lariana Pirola. Accepted as a distinct subspecies by Svetovidov (1952:308 and 1963:346), but without diagnosis or reference to Pirola's paper.

Alosa caspia vistonica Economidis & Sinis, 1987 (Lake Vistonis, Macedonia) = Alosa caspia subsp.A(see page 198).

Ilisha paulistana Miranda-Ribeiro, 1961 = ? Pellona harroweri (Fowler, 1917) (see page 283).

Engraulis desmaresti Risso, 1827:455, pl.9, fig.22 (or Clupea desmaresti on page 479) (Mediterranean)=Sardinella maderensis (Lowe, 1839) (see page 106). Risso's name should be considered a nomen oblitum (see Whitehead & Bauchot, 1986:47).

Thirteen apparent subspecies of Clupea harengus were recognized by Schnakenbeck (1931:529), who proposed the names, atlanticus, borealis, britannicus, caledonicus, cimbricus, frisius, islandicus, ivernicus, norvegicus, scandicus, scoticus and septentrionalis. However, in the title to this work and throughout the text it is clear that Schnakenbeck regarded these taxa as races.

For the most complete assessment of the Peruvian upwelling ecosystem and its relation to the biology and fishery of the Peruvian anchoveta Engraulis ringens (page 322) see:

Pauly, D. and I. Tsukayama, 1987. The Peruvian anchoveta and its upwelling ecosystem: three decades of change. ICLARM Studies & Reviews, 15(391), xii + 351 pp.

Finally, a new species of the otherwise New World genus Odontognathus has been discovered from Borneo and will be described by Yoichi Sato.

The diagram of relationships of clupeoid-like fishes (Fig.2 on page 3 of Part 1) should be modified. Grande (1985:287) has now shown that the Upper Cretaceous fossil genus Ornategulum is not a clupeomorph; thus the superorder CLUPEOMORPHA should be moved one step up the line.

The irritation caused by typographical errors is generally compounded rather than assuaged by long lists of corrigenda - most readers prefer to find the errors themselves. However, the percentage of clupeoids in the world fish catch should be 27.9% (not 17.9%) and the central drawing of canine teeth on page 181 (Clupeichthys) should be struck out. Where spellings differ between text and index, the latter is definitive, while errors in dates have been similarly adjusted in the Bibliography.

Acknowledgements

To the very sincere thanks expressed in Part 1 of this Catalogue must be added my deep gratitude to my two collaborators, Dr Gareth Nelson and Dr Thosaporn Wongratana, for so graciously allowing me to use their meristic and other data, the first on New World species, the second on Indo-Pacific species. Without this generous help the task of compiling the Catalogue would have been considerably more arduous and the data less inclusive. It must be stressed, however, that the final taxonomic decisions are my own, including the erection of the new genus Jurengraulis, since we were not always in full agreement.

As in Part 1, the illustrations of Indo-Pacific species are those drawn by Dr Wongratana; they are the most accurate and elegant of any yet produced and it is a great privilege to be able to use them here. The remaining drawings were occasionally taken direct from the literature, but were mostly carefully redrawn by Mr Oliviero Lidonnici (FAO, Rome), who also redrew some of my small sketches; Mr Paolo Lastrico is also thanked for his valuable assistance in other aspects of the artwork, including the cover drawings for both parts of the Catalogue.

The text was typed from my hand-written work and most skillfully set on the page by Mrs Michèle Kautenberger-Longo with speed, accuracy and characteristic tolerance for my errors, additions and deletions.