

S. Klimpel, A. Seehagen, H.-W. Palm, H. Rosenthal: Deep-water Metazoan Fish Parasites of the World. Logos Verlag, Berlin, 2001. ISBN 3-89722-681-2, paperback, 1316 pp. Price EUR 31.00.

Parasites of deep-water marine fish represent one of the least known groups of parasitic animals. German researchers from the Institut für Meereskunde in Kiel compiled existing information about the parasitic metazoans of deep-water marine fish and present it as a checklist. As deep-water fish are considered those hosts that were found in water deeper than 200 m but in some cases records from fish which may have been caught in more shallow water (up to 50 m) are also included.

Records of a total of 621 parasite species, including myxosporeans, trematodes, monogeneans, cestodes, nematodes, acanthocephalans, leeches and crustaceans, have been included. These records originate from 125 localities throughout the world but individual regions differ considerably in the number of sampling sites, with the highest number of collection sites being located in the Atlantic Ocean but very few in the Indian Ocean.

The book consists of five main chapters, not considering introductory parts (Acknowledgements, Contents, Summary): Introduction, Studied Localities, Fish-Parasite List (the most extensive part including 218 pages), Parasite-Fish List, and Literature. Although it is unusual to present records with detailed data in the Host-Parasite List (Parasite-Host List is usually preferred), the reader can easily find necessary information as Index of both parasites and fish hosts is presented.

Myxosporeans are represented by 49 species, especially from the genera *Myxidium*, *Ceratomyxa* and *Zschokkella*. Trematodes represent the species-richest parasite group, with 277 taxa listed, and the genera *Lepidapedon*, *Steringophorus*, *Gonocerca* and *Lecithochirium* contain the highest number of species. Some trematodes such as hemiurids *Derogenes varicus* and *Gonocerca phycidis* have been recorded from as many as 32 and 30 fish species.

A total of 69 species of monogeneans (Monogenea) have been found in deep-water fish, with the genus *Macrourido-*

phora including 11 species. In general, most monogeneans have a relatively strict host specificity.

Cestodes (90 species) are represented mainly by members of the orders Trypanorhyncha (Tentaculariidae), Tetraphyllidea (Phyllobothriidae) and Pseudophyllidea (Triaenophoridae) and the trypanorhynch tapeworm *Hepatoxylon trichiuri* which infects as many as 21 fish species.

Anisakids belonging to the genera *Hysterothylacium*, *Anisakis* and *Pseudoterranova* are the most abundant nematode parasites of deep-water fish and *H. aduncum* has been found in 40 fish species. In total, 35 nematode species are listed to occur in deep-water fish.

The number of acanthocephalan species is almost identical to that of nematodes (33) but most taxa exhibit a relatively low host specificity. *Echinorhynchus gadi* infects the highest number of fish hosts (22).

Parasitic crustaceans, especially copepods, represent the second richest groups as to the species richness and as many as 115 taxa have been reported, most of them belonging to the Lernaeopodidae (39 species) and the Chondracanthidae (26). Most crustaceans are relatively host specific, although some taxa such as *Neobrachiella robusta* have been found in more host species (up to 12 fish hosts).

The checklist is based on published data but unpublished records from technical reports and theses from German universities have also been compiled. It is obvious that other data must have been presented in similar sources of information in other countries, especially in western Europe and North America. However, this does not devalue the importance of the presented checklist which undoubtedly will serve as a useful source of information. It will be helpful for fish parasitologists, helminthologists and ecologists but also for veterinarians and students of biology.

Tomáš Scholz