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A REVIEW OF THE PARASITIC FAUNA OF *TRACHURUS TRACHURUS* AND *T. MEDITERRANEUS* IN THE MEDITERRANEAN AND BLACK SEA: COULD THIS INDICATOR USED FOR THEIR STOCK RECOGNITION?

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►Stock identification is an integral component of modern fisheries assessments, fisheries management and the management of endangered species. The techniques for the stock identification, are*: mark-recaptures, catch data, life history characteristics (parasites, otolith microchemistry), morphology (meristics, morphometry), genetics (protein variation, mitochondrial DNA, nuclear DNA).*

►Parasites are used as indicators for fish stock recognition of several aspects of the fish biology and ecology such as growth, recruitment, natural mortality, fishing mortality and migratory behaviour.

►The parasite faunas of different areas were discriminated and different stocks were identified. An-other recent study investigated the physiological impact of a parasite on its host, and detected significant life-history differences among genetically indistinguishable host populations. Most studies carried out to date on parasites as tags for marine invertebrates relate to cephalopods, and particularly squid, as hosts.

►Fish parasite biodiversity and species composition in the aquatic realm depends on species richness of the final hosts and their ecosystem.

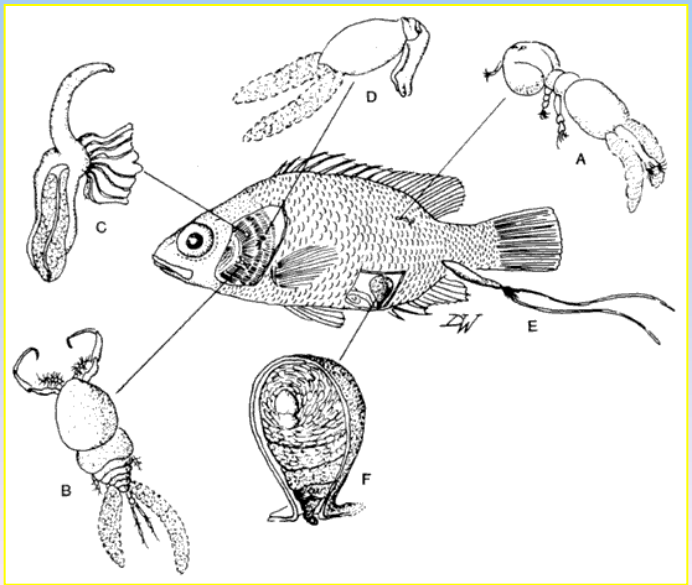
►Have been estimated 100,000 fish parasites in about 30,000 known fish species.

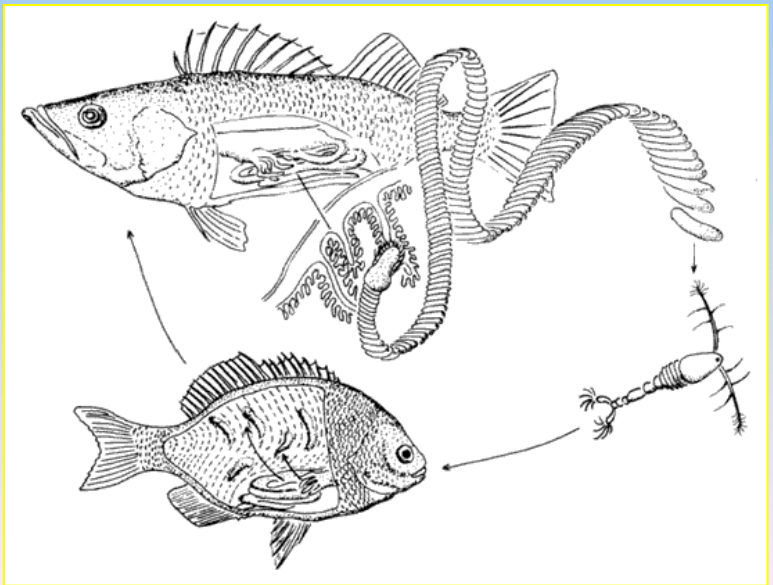
►The identification of specific parasites, with known, complex life cycles, was shown to help unraveling previously unrecognized patterns of latitudinal seasonal migrations

"Stock units: Identification of distinct biological units (stock units) for different fish and shellfish species and among different GFCM-GSA.".

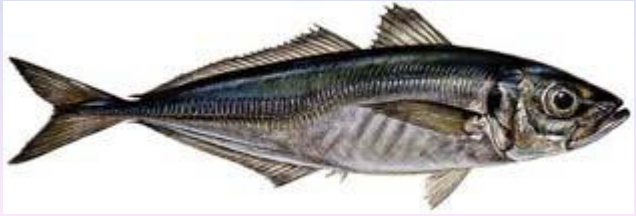
Implementing the Framework Service Contract for Scientific Advice and other services for the implementation of the Common Fisheries Policy in the Mediterranean (Contract number MARE/2009/05-Lot 1)

The aim of the present study is a review synopsis of the parasitic studies obtained in both carangids in all the GFCM-GSAs which could offer a valuable tool for their stock identification, among the other techniques, in the Mediterranean and Black Seas





The genus *Trachurus* (Carangidae) is represented from three species in the European waters: *T. trachurus*, *T. mediterraneus* and *T. picturatus*. The commercial species horse mackerel (*T. trachurus*) is commonly found in W. Africa, North Sea, and Mediterranean Sea. The Mediterranean horse mackerel (*T. mediterraneus*) can be found in the E. Atlantic and the Mediterranean Sea. Both small pelagic fishes play an important role in terms of energy flow from planktonic organisms to higher predators in the food webs which they inhabit and, thus, their parasites could be used as biological tags in informing multidisciplinary studies on their stock identity.

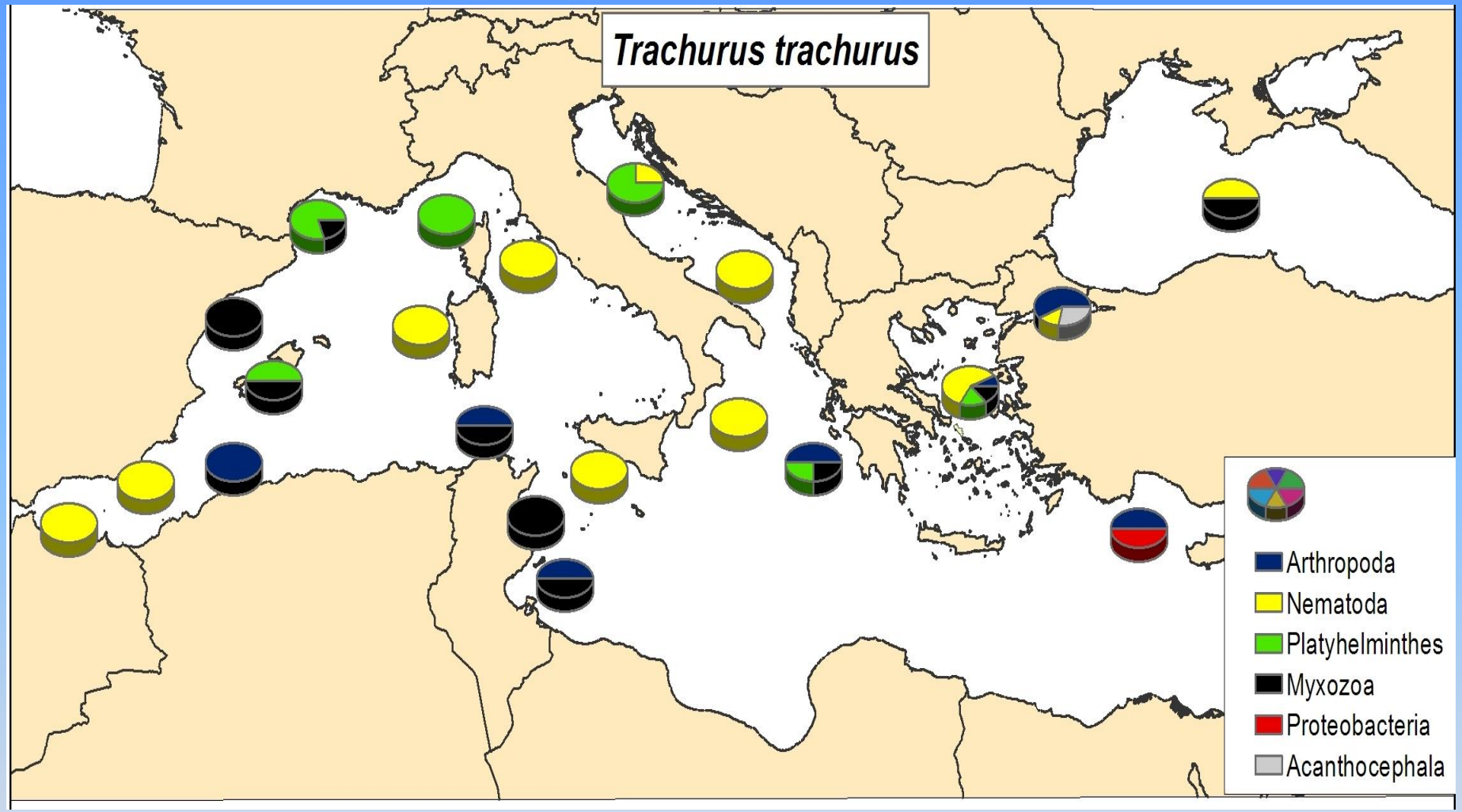


Trachurus trachurus

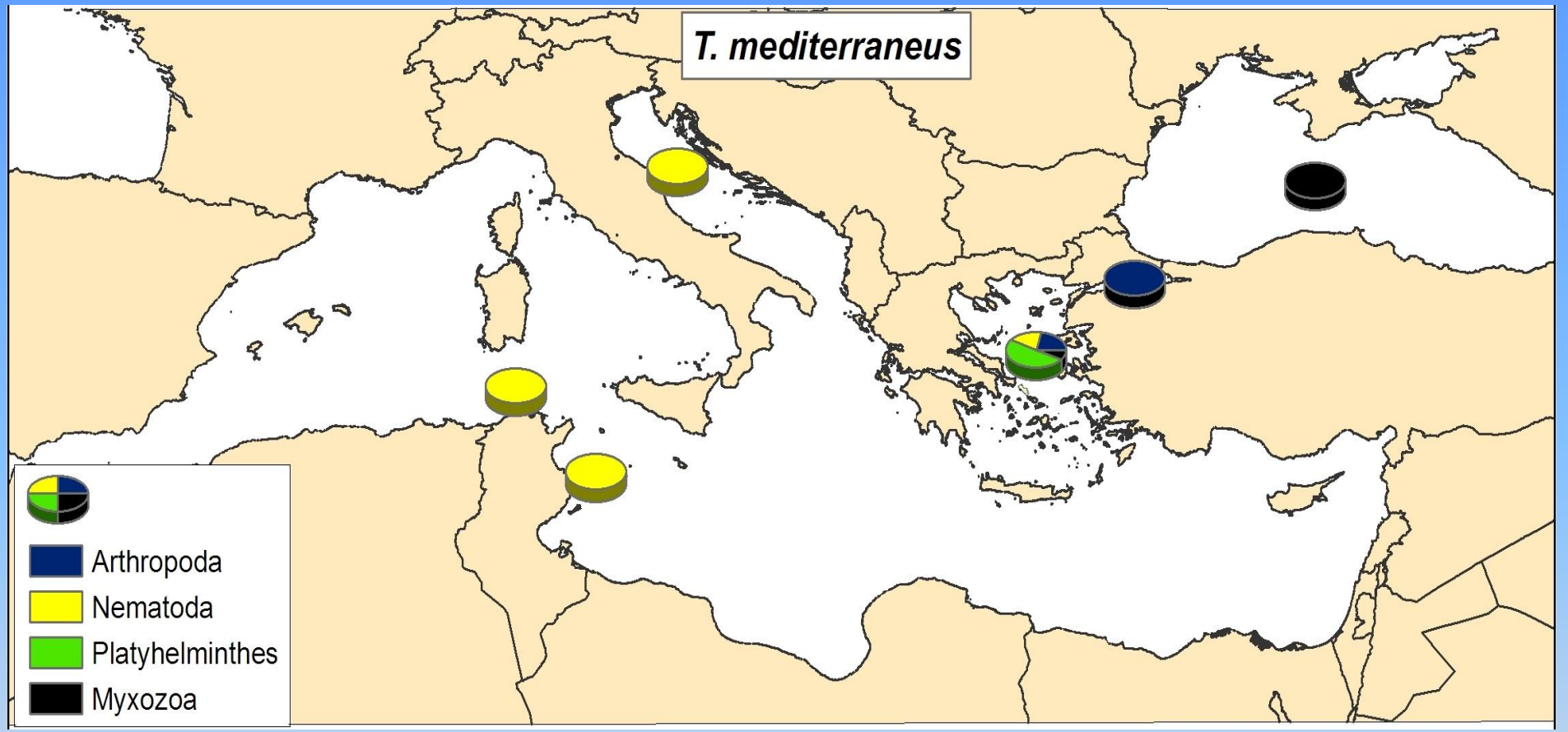
Phyllum	Family	GSA
Nematoda (49,38%) Arthropoda (17,28%) Platyelminthes (16,04%) Myxozoa (13,58%) Acanthocephala (2,46%) Proteobacteria (1,23%)	**Nematoda**: Anisakidae **Myxozoa**: Kudoidae Alatasporidae Myxobolidae Eimeriidae Kudoidae	1, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 16, 17, 18, 19, 20, 22, 24, 28, 29
	Acanthocephala: Pomphorhynchidae **Arthropoda:** Cymothoidae Argulidae Caligidae Cymothoidae Lernaeidae Lernaeopodidae **Platyelminthes :** Hemiuridae Ancyrocephalidae Fellodistomidae Lepocreadiidae Monorchiidae Opecoelidae **Proteobacteria:** Vibrionaceae Vibrionaceae	

Phyllum	Family	GSA
Arthropoda (18,18%) Platyelminthes (36,36%) Nematoda (27,27%) Myxozoa (13,63%)	**Arthropoda:** Lernaeopodidae Lernaeidae Cymothoidae **Myxozoa**: Kudoidae Eimeriidae Alatasporidae **Platyelminthes :** Gastrocotylidae Fellodistomidae Hemiuridae Lepocreadiidae Tetraphyllidea incertae sedis **Nematoda**: Anisakidae	12, 13, 17, 22, 28, 29

Trachurus mediterraneus



All the parasites found in the whole Mediterranean and Black Sea, but Nematoda (*Anisakis* sp.) and Platyhelminthes were more frequent in the western and central part. *Anisakis* is common in commercially important marine fishes and its presence is of great concern for both human health and economic reasons.



Anisakis sp was more frequent in the western part of the Mediterranean, while Platyhelminthes were mainly found in the eastern part

Project HOMSIR: **A multidisciplinary approach using genetic markers and biological tags in horse mackerel (*Trachurus trachurus*) stock structure analysis (QLRT-PL1999-01438)**

IV) MAIN RESULTS

Anisakid species composition (parasites as biological tags)

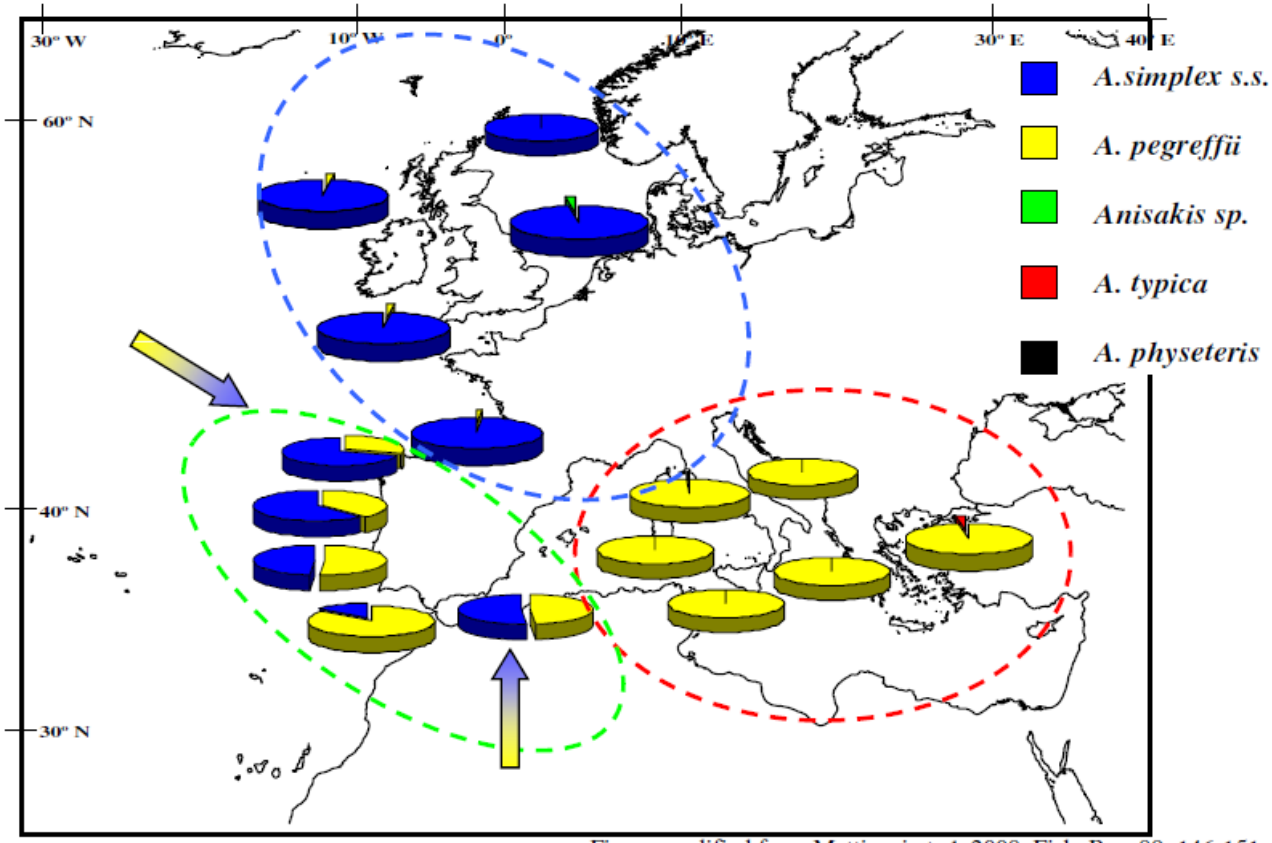


Figure modified from Mattiucci et al. 2008. Fish. Res. 89: 146-151

The findings suggest that *Anisakis* species could be useful indicators of the biology of a fish species, in relation to its migration route and feeding habits.

The interpretation of parasite infection data in terms of fish population biology becomes increasingly more efficient and reliable (MacKenzie et al., 2008).

In general, a detailed combination of data from otoliths' reading, body shape morphometry, a range of genetic markers could confirming both the usefulness of investigating parasites as biological tags and the currently applied stock management system.

There is a subpopulation of *T. trachurus* in European waters: the eastern and central Mediterranean populations seem to be largely separated from the Atlantic ones. The Alboran Sea (W. Mediterranean Sea) population is more similar to that in the southern part of the Atlantic area, more than to the other Mediterranean populations, or consists of a mixture between them (Mattiucci et al., 2008).

Additional studies on *T. mediterraneus* are necessary throughout the Mediterranean in order to help to its stock identification

Thank you for your attention…