Parasitological and health assessment in Blue Whiting stocks of the Catalan coast

Final degree project. Faculty of Veterinary Medicine.

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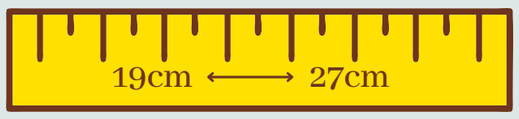
Micromesistius poutassou background

Blue whiting is one of the most common fish species in the Spanish markets due to abundant stocks in the Atlantic ocean and Mediterranean sea. This makes this species vulnerable to fishery impact, natural milieu, and health status.

<<The aim of this paper is to study populations health state of M. poutassou of the Catalan coast within three levels: condition, parasitism, and histopathology. >>

(1) Biological index



Fish total lenght

Fish infromation and condition indices did not differ significantly between localities.

(2) Histopathology

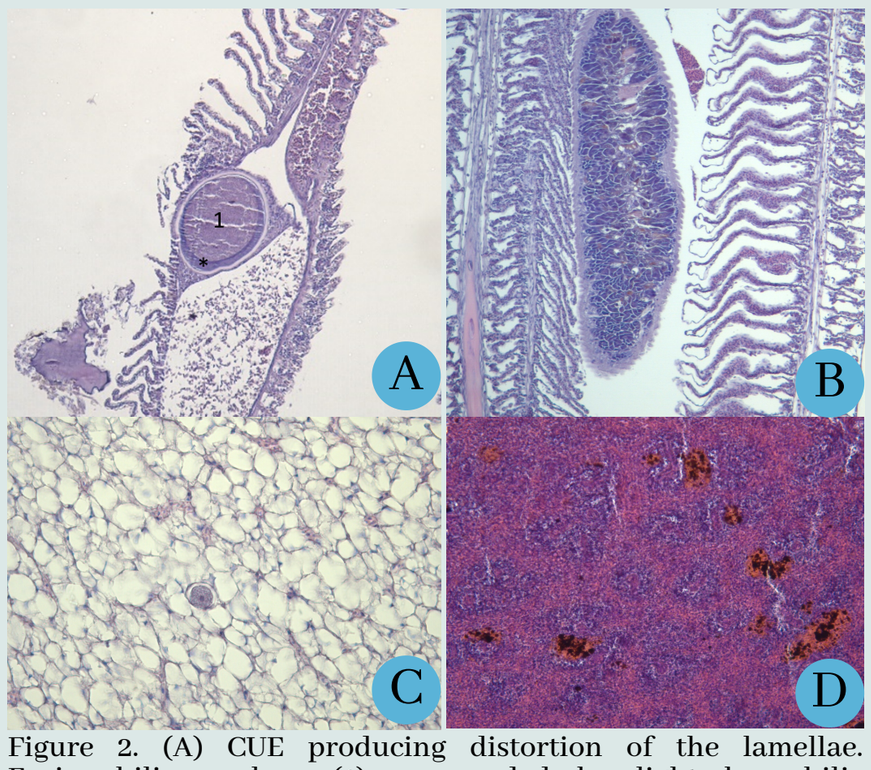
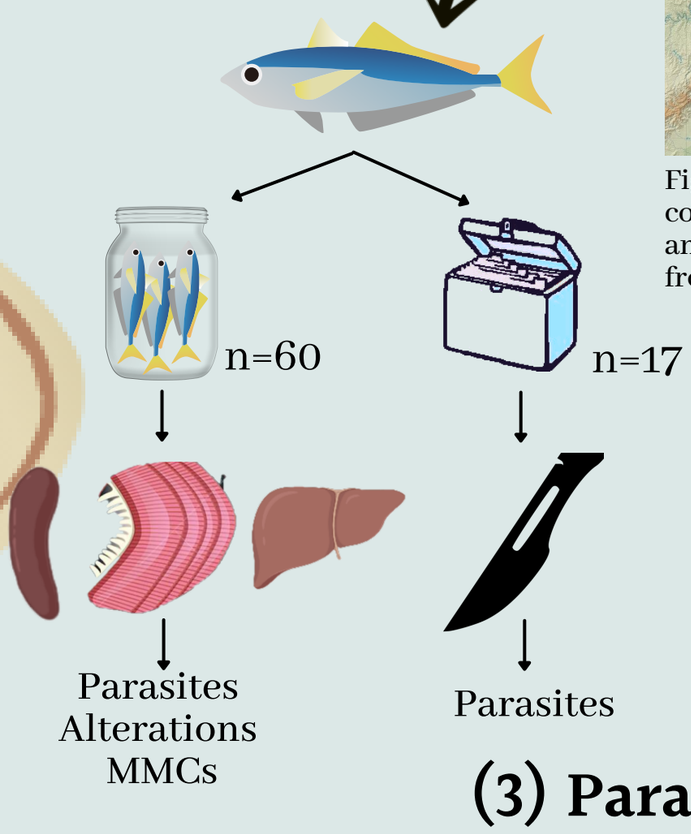


Figure 2. (A) CUE producing distortion of the lamellae. Eosinophilic nucleus (1) surrounded by light basophilic cytoplasm (*), enclosed in a fibrous capsule. x100. (B) Monogenean body between primary lamellae causing compression of the lamellar structure. x100. (C) Coccidian macrogamont in the liver parenchyma of M.poutassou. x400 (D) MMCs of variable size and shape in the spleen of M. poutassou.x200.

Study area & methodology

77 individuals were collected from three different localities of the NW Mediterranean Sea: Blanes, Barcelona, and Delta.

Figure 1. Sample sites situated off the Catalan coast. Pointers on: Blanes (i), Barcelona (ii) and Delta (iii). Original relief map obtained from ICGC and modified.



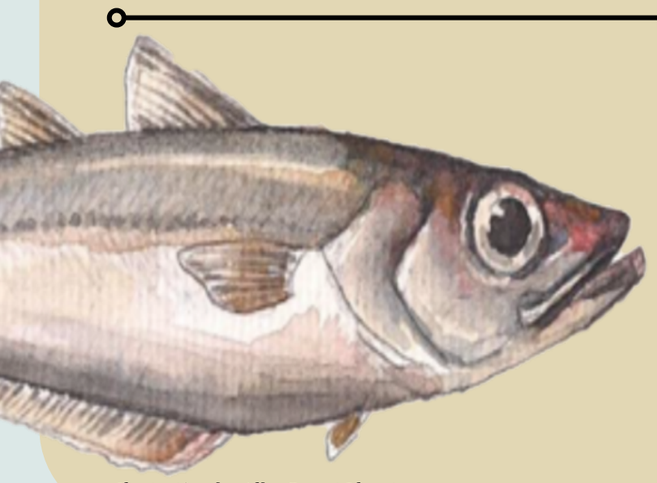
(3) Parasitological analysis

Parasites were preserved in 70% ethanol and identified through morphological studies and molecular methods. A total of 8 different parasites were found.

Table 1 Parasite fauna found in M.poutassou. Location within host. Keys for developmental stages: A, adult; L, larvae; Sp, spore; Oo, oocyst; Mg, macrogamont. Abbreviations for locations names: AC = abdominal cavity, G = gills, I = intestine, SW = stomach wall, L = liver. P%: prevalence; MA ± SD: mean abundance and standard deviation. Different superscript letter shows significant differences in mean values. Dashes indicate absence of the parasite. X: no available data. *: from formol fish; †: mean abundance per square millimetre (mm2).

	Stage	Location	Blanes		Barcelona		Delta	
			P%	MA ± SD	P%	MA ± SD	P%	MA ± SD
Nematoda								
Anisakis sp.	L3	SW, AC	-	-	-	-	80	1 ± 0,71
Crassicauda sp.	L2, L3	SW	60	5,20 ± 4,97	43	0,43 ± 0.53	80	6,4 ± 5,68
Hysterothylacium aduncum	L3,L4	SW	-	-	14	0,29 ± 0,76	40	0,4 ± 0,55
Hysterothylacium fabri	L3	SW,I	-	-	29	0,29 ± 0,49	-	-
Isopod								
Ceratothoa sp.	A	G	-	-	14	0,29 ± 0,76	-	-
Protist								
Ichthyophonus	Sp	L	60	X	-	-	-	-
Coccidia*,†	Oo, Mg	L	100	2,66 ± 6,02	85	0,94 ± 1,58	75	1,20 ± 2,67
Monogenea*	A	G	0	X	25	X	5	X

Conclusions



Ilustration by Alba Serrat Lloret

- Blue whiting from Catalan cost has a good health condition with hardly pathologies or parasites.
- Health condition is similar independently from the location.
- Parasitism is not interfering with normal organ functioning.
- M. poutassou act as Crassicauda sp. intermediate host.
- Parasitism does not seem to be the cause of blue whiting populations of the NW Mediterranean diminish.