

An abnormal hermaphroditic skipjack, *Katsuwonus pelamis* (Linnaeus, 1758) from Agatti coast, Lakshadweep, India

N. G. K. PILLAI, B. JABBAR, J. V. MALLIA AND A. I. MUHSIN

Central Marine Fisheries Research Institute, Ernakulam North P.O.
Post Box No. 1603, Kochi – 682 018, Kerala, India

ABSTRACT

A hermaphroditic specimen of skipjack tuna, *Katsuwonus pelamis* of forklength (FL) – 56 cm and total weight (TW) – 3.20 kg was caught by pole and line on 21st November 2005 from the Agatti coast, Lakshadweep. Histological studies revealed that both the ovarian and testicular portions had developed a complete series of gametogenic cell lines.

A hermaphrodite is defined as any individual organism that possesses both male and female reproductive organs during their life span. Atz (1964) defined 'normal hermaphroditism' as hermaphroditism that exists in a uniform way, at some time during the ontogeny of all or many members of a species. All other hermaphroditism would be, abnormal by definition. A single hermaphroditic specimen of the skipjack tuna *Katsuwonus pelamis* was found in a sample caught by pole and line on 21st November 2005 from the Agatti coast (Longitude: 72° 12' 0" E; Latitude: 10° 50' 0" N). Both in external appearance and other features of the internal anatomy, no abnormalities were noticed in the specimen. The fish measured 56 cm in fork length, 3.2 kg in total body weight and 60 g in gonadal weight. The upper and lower parts of the left lobe of the gonad consisted of ovarian tissue and in the middle part was a long tube of

white testicular region. The right gonad consisted of a lower long testicular region with a convex distal end (Fig.1). Comparison with other fish of both sexes and of same fork length examined in November 2005 is given in Table 1. The gonad of this fish was removed, weighed and tissues were fixed in 10% neutral buffered formalin for histological studies. Standard histological techniques were followed as per Bullock (1989). Fecundity of the hermaphrodite fish was 1,64,780 eggs compared to 5,54,207 eggs in normal female of same fork length.

Hermaphroditism in tunas has been reported for *Thunnus orientalis* (Sawada *et al.*, 2002) and has been known to occur also in *K. pelamis* (Nakamura, 1938; Raju, 1960; Uchida, 1961). The specimen appears to be a typical example of hermaphrodite with both the ovarian and testicular portions. The ovarian parenchyma consisted of oocytes at different

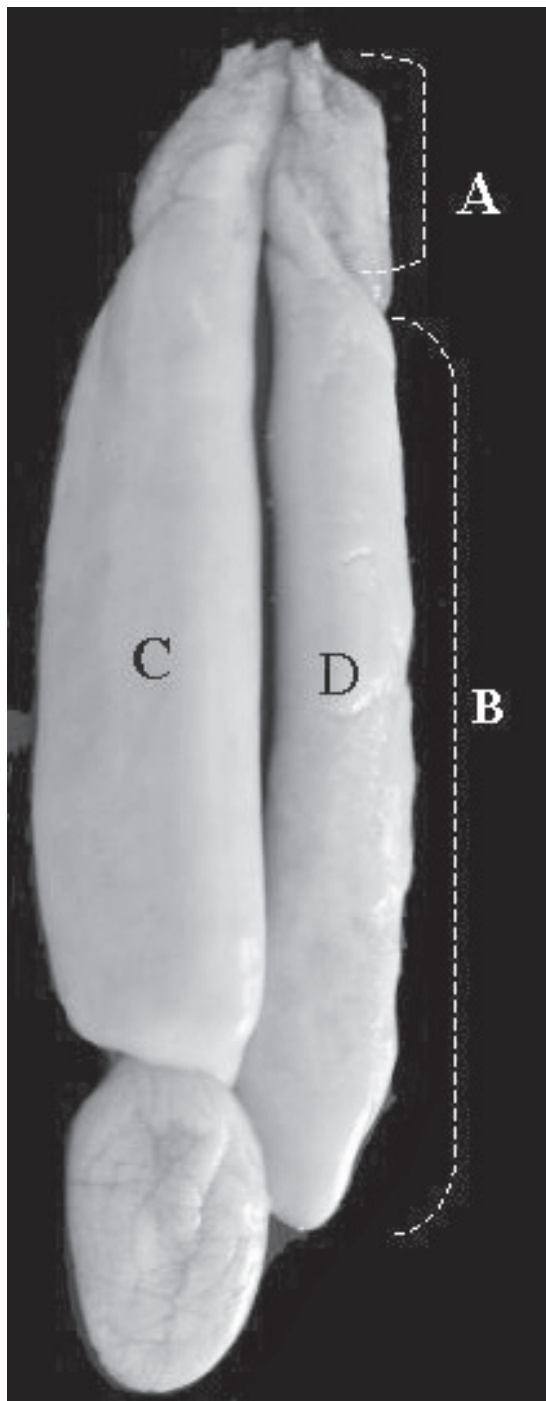


Fig. 1. Gonad of a hermaphrodite skipjack
 A = Ovarian region B = Testicular region
 C = Right lobe D = Left lobe

TABLE 1: Comparison of hermaphrodite gonad with those of the normal specimens of the same size range

Description of the specimen	Fork Length (cm)	Weight (kg)	Testis						Ovaries					
			Length (cm)		Breadth (cm)		GW (g)	G:SI	Breadth (cm)		GW (g)	G:SI		
			RL	LL	RL	LL			RL	LL				
Hermaphrodite	56.0	3.20	12.0	13.0	22.0	26.0	40.0	1.26	31.0	69.0	24.0	14.0	90.0	0.95
Normal male	56.0	3.20	20.0	17.5	16.0	18.0	80.0	2.56	-	-	-	-	-	-
Normal female	56.0	3.35	-	-	-	-	-	-	15.0	16.0	18.0	21.0	70.0	1.90

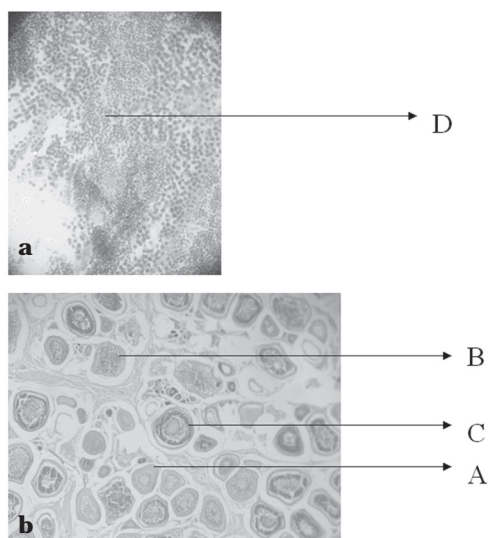


Fig. 2. Section of the gonadal tissues
a) testis (H&E, X 400); b) ovary (H&E,
X 50)

- A = Lipid droplet stage
B and C = Secondary yolk globule stage
D = Spermatids

stages of development (Fig. 2a) and in the testicular region, masses of spermatozoa are seen (Fig. 2b). The gonad had developed a complete series of gametogenic cell stages, which were appropriate for normal *K. pelamis* at this time of the year. Simultaneous development of the testicular and ovarian portions in the specimen suggests that intersexual condition may arise as a consequence of abnormal embryological development.

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