

Bluefin Tuna, *Thunnus thynnus orientalis*, from the Gulf of Papua

Bruce B. Collette and B. R. Smith

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A large bluefin tuna (649 lbs or 295 kg, 233 cm fork length) was caught by Mr. Roger Hazebrouck on April 4, 1979 off Port Moresby, Papua New Guinea. The Gulf of Papua is north of the range of the southern bluefin, *Thunnus maccoyii* (Castelnau) but south of the usual range of the Indo-Pacific bluefin, *Thunnus thynnus orientalis* (Temminck et Schlegel) so the question of identity is of particular interest.

Photographs, data recorded at the time of capture, and data from the part of the vertebral column which was saved all show the fish to be *T. thynnus orientalis* rather than *T. maccoyii* (Table 1). The 8th and 9th vertebrae were not saved so two of the vertebral characters could not be examined. The dorsal body wall cavity was recorded simply as "lateral expansions present" which seems to agree more closely with the description for *T. t. orientalis*. The pectoral fin is shorter than specimens of either *T. t. orientalis* or *T. maccoyii* in the 60~100 cm FL size range. Specimens of *T. t. orientalis* larger

than 200 cm FL have relatively shorter pectoral fins, between 15 and 20% FL (Gibbs and Collette, 1967: 118, fig. 33), so the pectoral fin is on the low side of the range for *T. t. orientalis*. The Gulf of Papua specimen is also larger than any reliably reported *T. maccoyii* (maximum examined by Gibbs and Collette, 1967: 144 cm FL; maximum reported by Iwai et al., 1965: 190 cm FL).

Discussion

The bluefin tuna complex has a largely anti-tropical distribution, with *T. t. thynnus* in the North Atlantic, *T. t. orientalis* in the North Pacific, and *T. maccoyii* worldwide in the Southern Ocean, largely between 30 and 50°S (Fig. 2). A population of *T. t. thynnus* is known to occur off South Africa in the same area with *T. maccoyii* but not in the same season (Talbot and Penrith, 1968). Bluefin tuna larger than 200 cm FL have been reported from scattered localities below the equator in the Pacific Ocean (Shingu, et al., 1974) and these are probably *T. t. orientalis*. A 600-1b. bluefin was taken off Sydney in November 1965 and a photograph of this fish was published in the March 1966 issue of the Angler's Digest.

There are only three previous substantiated records of *T. t. orientalis* from south of the

Table 1. Comparison of *Thunnus thynnus orientalis* and *T. maccoyii* (from Gibbs and Collette, 1967: 113, table 5) with the specimen of *T. t. orientalis* from the Gulf of Papua. Mean values are given in parentheses.

Character	<i>T. t. orientalis</i>	Gulf of Papua specimen	<i>T. maccoyii</i>
Number of gill rakers	32~40 (35.9)	36	31~40 (33.7)
First ventrally directed parapophysis on vertebra number	8	?	9
9th vertebra: parapophysis height/least distance apart	1.1~12.7 (4.1)	?	0.8~3.2 (1.6)
10th vertebra: canal height/least width of processes	1.0~9.0 (4.1)	3.5	6.0~15.9 (11.3)
10th vertebra: canal height/canal width	1.4~4.8 (2.0)	2.0	0.9~1.7 (1.3)
Depth of anterior haemal canals	first increase, then decrease	?	decrease
Shape of dorsal wall of body cavity in large specimens	narrow bulge with lateral concavity; wide lateral trough	Lateral expansions present	wide bulge with no lateral concavity; deep narrow lateral trough
Pectoral length as percent fork length (600~1,000 mm)	16.8~20.8	15.0	20.2~23.0
Color of caudal keels	dark	dark	yellow

equator (Nakamura and Warashina, 1965): two off Western Australia (28°24'S, 105°56'E; 27°43'S, 102°25'E) and one from the eastern South Pacific (37°11'S, 114°41'W). Our Gulf of Papua record adds a fourth substantiated specimen and indicates that bluefin tunas from the Southern Hemisphere, particularly specimens over 140 cm FL, should be carefully examined to insure their correct identification. It is not yet clear if a substantial population of *T. t. orientalis* exists in the Southern Hemisphere as it does for the Atlantic *T. t. thynnus* off South Africa.

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Fig. 1. Indo-Pacific bluefin tuna, *Thunnus thynnus orientalis* from Port Moresby, Papua New Guinea. The angler (Roger Hazebrouck) is on the right, the skipper of the launch (Dave Bryan) is on the left.

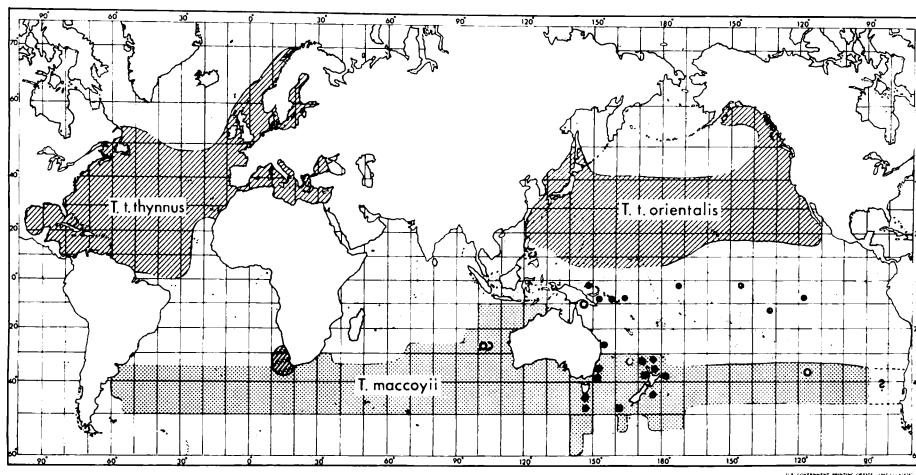


Fig. 2. Distribution of species of the bluefin tuna complex. *Thunnus t. thynnus* in the North Atlantic, *T. t. orientalis* in the North Pacific, *T. maccoyii* in the Southern Ocean. Map based on Gibbs and Collette (1967) and included references and records of Japanese tuna longline fishery 1967-1977 (Anonymous, 1969-1979). Crosshatched area off South Africa indicates co-occurrence of *T. t. thynnus* and *T. maccoyii*. Dots indicate possible localities for *T. t. orientalis* in the Southern Hemisphere (Shingu et al., 1974); stars indicate substantiated records (Nakamura and Warashina, 1965 and this paper).

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(BBC: National Marine Fisheries Service Systematics Laboratory, National Museum of Natural History, Washington, D. C. 20560, USA; BRS: Kanudi Research Station, Department of Primary Industry, Konedobu, Papua New Guinea, presently South Pacific Commission, Noumea, New Caledonia)

パプア湾からのクロマグロ *Thunnus thynnus orientalis*
Bruce B. Collette • B. R. Smith

1979年4月4日にパプア湾で体重295kgの大きなクロマグロ1尾が漁獲された。これをクロマグロと同定した根拠は写真と漁獲時に得られたデータおよび採集された脊椎骨の一部によっている。

クロマグロ類は全て反熱帯的の分布を示し、このクロマグロの漁獲位置は通常のクロマグロ、*Thunnus thynnus orientalis*の分布域とミナミマグロ、*T. maccoyii*の分布域の中間に位置している。なお従来のクロマグロの南半球への分布の実証的記録は西オーストラリア沖の2例と東部太平洋の1例があるのみで(Nakamura and Warashina, 1964)、本報はその第4例に当る。新宮ほか(1974)は延縄漁業のデータに基づいてクロマグロの南太平洋海域への散発的の分布について述べている。