A POSSIBLE HATCHET MARLIN (*Tetrapturus* sp.) FROM THE GULF OF MEXICO[1]

At least eight species of billfishes (Istiophoridae and Xiphiidae) have been reported from the Atlantic Ocean including the Mediterranean Sea. The following species have been identified in both sport and commercial landings: swordfish, *Xiphias gladius* Linnaeus; sailfish, *Istiophorous playtypterus* (Shaw and Nodder[2]); blue marlin, *Makaira nigricans* Lacepede; white marlin, *Tetrapturus albidus* Poey; and longbill spearfish, *T. pfluegeri* Robins and de Sylva. Three other species have been reported in commercial landings: the Mediterranean spearfish, *T. belone* Rafinesque; the roundscale spearfish, *T. georgei* Lowe; and the black marlin, *M. indica* (Cuvier).

Both commercial and recreational fishermen have reported another billfish, which might be a new species or a variant of an already described species, in the Atlantic Ocean. De Sylva (1974) and Robins (1973, 1974) described a fish that Venezuelan and Cuban commercial fishermen have long referred to as "hatchet marlin" or "axe marlin." In his Field Guide to Saltwater Fishes of North America, McClane (1974) listed the hatchet marlin as a recently recognized species, which has been reported from North Carolina to Venezuela. Nakamura (1978), in his review of the Istiophoridae fishes, stated, "The status of the so-called hatchet marlin, *Tetrapturus* sp., is not yet resolved." All four authors referenced the fish as *Tetrapturus* sp.

This report describes a specimen of *Tetrapturus* that has some characteristics of a hatchet marlin. It was recognized while collecting catch/effort and biological data from the recreational fishery for billfishes in the northern Gulf of Mexico.

DESCRIPTION

The fish was caught on August 21, 1978, approximately 111 km east northeast of Port Mansfield, Texas, and was initially identified as *T. albidus.* It had two of the four prominent characteristics of the hatchet marlin as described by de Sylva (1974), McClane (1974), and Robins (1973, 1974), namely, (1) truncated first dorsal and anal fin lobes, and (2) purple or black blotches apparent only in the lower portion of the first dorsal fin. Dissimilar characteristics were the pointed, pungent, instead of rounded, scales (Robins, 1973), and pectoral fins with rounded, rather than pointed, tips (McClane, 1974).

Measurements and photographs were taken of the fish. Morphometric measurements as described by Rivas (1956) are presented in Table 1. The fish weighed 20.8 kg and was a female. Figure 1 shows the first dorsal and anal fins in an extended position. Comparisons with four other Atlantic species of *Tetrapturus* are shown in Table 2. The position of the anus relative to the anal fin was similar to *T. albidus.* The undamaged truncated spinous dorsal and anal fin lobes had the characteristic shape of those described earlier for the hatchet marlin. In contrast, the heights of both fin lobes were less than those of the hatchet marlin as described by Robins (1973, 1974). The appearance of purple or black blotches only in the lower portion of the first dorsal fin is an intermediate feature between *T. albidus* and the other Atlantic species of *Tetrapturus.* The pointed, pungent scales were characteristic of neither those for *T. georgei* nor those for the

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[2] In this report, one species of sailfish in accordance with Morrow and Harbo (1969), and one species of blue marlin in accordance with Robins and de Sylva (1960) are recognized.

hatchet marlin (Robins 1973, 1974). The orbit diameter was less than that for *T. albidus* but comparable to the three other known species. The number of first dorsal fin elements (43) was similar to three of the four species of *Tetrapturus.* Other meristic counts from the first dorsal, anal, and pectoral fins were: 11 dorsal rays; 16 anal elements; 8 anal rays; and 19-20 pectoral rays.

DISCUSSION

Historically, the taxonomy of the billfishes has been contradictory or uncertain. This confusion generally resulted from: (1) insufficient descriptions of specimens, (2) varying criteria among taxonomists as to what features distinguish one species from another, (3) characteristics changing with the development of the fish, (4) mixing or grouping of species in reported catches, (5) insufficient number of specimens for valid species confirmation, (6) large size of the fish making direct comparisons difficult, or (7) a combination of these reasons. For example, Royce (1957), Briggs (1960), Robins and de Sylva (1960), Morrow (1964), and Rivas (1974) believe that *M. nigricans* is the same blue marlin that inhabits the Atlantic, Pacific, and Indian oceans, whereas other investigators (Nakamura, Iwai, and Matsubara, 1968; and Nakamura, 1974) consider *M. mazara* and *M. nigricans* as two distinct species of blue marlin inhabiting the Indo-Pacific and Atlantic oceans, respectively. Likewise, Morrow and Harbo (1969) consider *I. platypterus* as one worldwide species of sailfish, whereas Nakamura *et al.* (1968) support the existence of two species of sailfishes: *I. platypterus* (Indo-Pacific) and *I. albicans* (Atlantic).

Figure 1. Marlin, *Tetrapturus* sp., from Port Mansfield, Texas. Adult 20.8 kg female, 155.0 cm lower jaw-fork length.

Table 1. - Morphometric data for a specimen of *Tetrapturus* sp. Measurements expressed in millimeters and in percentage of body length as defined by Rivas (1956). Numbers in parentheses refer to the numbered definitions of Rivas with abbreviations according to Robins and de Sylva (1960).

Measurement	MM	%	Measurement	MM	%
Body length (1)	1,550		Preopercular length (27)	322	21
Body girth (2)	458	30	Maxillary length (28)	254	16
First predorsal length (3)	344	22	Orbit diameter (29)	45	2.9
Second predorsal length (4)	1,262	81	Iris diameter (30)	19	1.2
Prepectoral length (5)	401	26	Interobital width (31)	88	5.7
Prepelvic length (6)	418	27	Tip mandible to tip bill (32)	281	18
First preanal length (7)	939	61	Depth of bill (33)	16	1.0
Second preanal length (8)	1,255	81	Width of bill (34)	25	1.6
Origin D_1 to P_1 (9)	189	12	Origin D_1 to fin edge (35)	240	16
Origin D_1 to P_2 (10)	285	15	Length D_2 base (36)	51	3.3
Origin D_2 to origin A_2 (11)	133	8.6	Length A_1 base (37)	242	16
Origin P_2 to vent (12)	440	28	Length A_2 base (38)	53	3.4
Origin P_2 to nape (13)	256	16	Height D_1 (39)	287	18
Greatest body depth (14)	229	15	Length middle D_1 spine (40)	108	7.0
Depth at origin D_1 (15)	245	16	Height D_2 (41)	68	4.4
Depth at origin A_1 (16)	198	13	Height A_1 (42)	200	13
Least depth cp (17)	53	3.4	Height A_2 (43)	60	3.9
Width at Base P_1 (18)	119	7.7	Length P_1 (44)	395	26
Width at origin A_1 (19)	119	7.7	Length P_2 (45)	326	21
Width at origin A_2 (20)	85	5.5	Length D_2 (46)	133	8.6
Width cp at keel (21)	60	3.9	Length A_2 (47)	127	8.2
Length upper keel (22)	50	3.2	Length upper cau. lobe (48)	—	—
Length lower keel (23)	46	3.0	Length lower cau. lobe (49)	—	—
Head length (24)	395	26	Caudal spread (50)	—	—
Snout length (25)	195	13	Anus to A_1	65	4.2
Bill length (26)	474	31			

Whether the hatchet marlin is, or will be, a valid species is still speculative. De Sylva (1974), in his review of billfishes caught by anglers, mentioned two unidentified billfish specimens. The first, a juvenile about 40 mm TL, had dorsal fin markings reminiscent of a white marlin. However, while discussing this fish, de Sylva made reference to both *T. belone* and *T. georgei,* neither one having extensive dorsal fin markings, and suggested this specimen might be a rare, unidentified species. De Sylva described the second billfish, caught at South Pass, Louisiana, as ". . .superficially resembling a white marlin, . . ." but stated it had atypical dorsal and anal fins and lacked a distinct spot pattern in the dorsal fin. In his description of this second specimen, Robins (1974) stated that although the spinous dorsal and anal fins appeared to be much higher than those of *T. georgei,* the shape of the dorsal fin and the rounded scales suggests ". . .that the hatchet marlin and roundscale spearfish are closely related, if not identical. . ." Commercial fishermen from Venezuela and Cuba have long been familiar with a marlin that has a truncated dorsal lobe and, because of the squared-off or axe shaped fin, the fishermen referred to this fish as hatchet marlin or axe marlin. Sport fishermen in Cuba have reported catching hatchet marlin, although they did not give a description of fin markings or scales (John Rybovich, pers. comm.). A hatchet marlin was reported to a port sampler of the National Marine Fisheries Service (NMFS) in Destin, Florida, in 1978. The fish was a 20.2 kg female, 155 cm long from tip of lower jaw to fork of tail. Photographs (Figs. 2 and 3) revealed: first dorsal lobe tended to be truncated and lacking dark blotches; first anal fin truncated; moderately long pec-

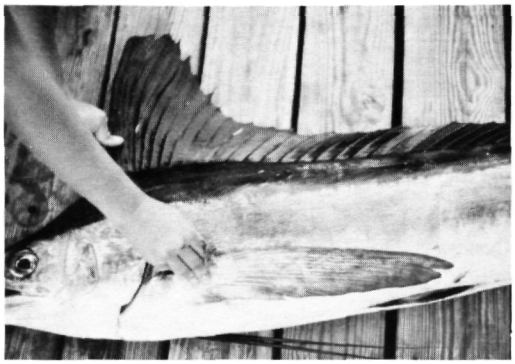

Figure 2. Marlin, *Tetrapturus* sp., from Destin, Florida. Adult 20.2 kg female, 155.0 cm lower jaw-fork length.

toral fins; and pointed, pungent scales. The fish, recorded as *T. albidus,* was taken for mounting before additional measurements were made.

Clarification of the taxonomic status of the hatchet marlin will require more evidence than is currently available. Robins considered the possibility of *T. georgei* being a hybrid of *T. albidus* × *T. belone* or *T. albidus* × *T. pfluegeri* and rejected the possibility that *georgei* was a hybrid. He concluded there was no clear division of the genus *Tetrapturus,* and that the discovery of *georgei* made a more complete transition — based on size and form — between the marlins *(albidus* and *audax)* and the spearfishes *(belone, pfluegeri,* and *angustirostris).*

The intermediate features of the Port Mansfield specimen strongly suggests the fish may be other than *T. albidus.* In his validation of *T. georgei* as a distinct species, Robins (1974) stated that from the very few specimens of *georgei* he examined, the spawning season for these fish appeared to be over by early summer: the same period as for its Atlantic congeners. Considering this and the fact that the ranges of *T. albidus, T. pfluegeri,* and *T. georgei* overlap, the possibility of cross-fertilization cannot be discounted.

SUMMARY

I suggest the specimen discussed in this

Table 2. - Comparison of Atlantic species of *Tetrapturus* based on several diagnostic characters (modified from Robins, 1974).

Character	*T. pfluegeri* Longbill spearfish	*T. belone* Mediterranean spearfish	*T. georgei* Roundscale spearfish	*T. albidus* White marlin	*Tetrapturus* sp.
Position of anus	Far anterior to anal-fin origin, the distance between them 8.4-11 percent body length and usually greater than height of first anal fin.	Far anterior to anal-fin origin, the distance between them 7.8-11 percent body length and equal to or exceeding height of first anal fin.	Moderately far anterior to anal-fin origin, the distance between them 4.8-7.6 percent body length and about half height of first anal fin.	Close to anal-fin origin, the distance between them 3.3-5.2 percent body length and about one quarter the height of first anal fin.	Close to anal-fin origin, distance between them 4.2 percent of body length: about one third height of first anal fin.
Lobes of first dorsal and anal fins	Pointed (the dorsal slightly rounded in large adults)	Pointed	Rounded	Rounded	Truncated
Height	D_1=14-20% A_1=8-14%	D_1=13-15% A_1=7-9%	D_1=18-24% A_1=12-15%	D_1=14-23% A_1=12-16%	D_1=18% A_1=13%
Pattern of first dorsal fin	Unspotted	Unspotted	Unspotted	With numerous bluish black spots	Purple-black spots along base of fin only
Scales along mid-side in adults	Pointed, pungent	Pointed, pungent	Rounded, with few large posterior points, soft	Pointed, pungent	Pointed, pungent
Pectoral-fin length in adults	Long, subequal to pelvic fins, reaching beyond curve of lateral line	Short, even in adults, barely reaching curve of lateral line	Long, subequal to pelvic fins, reaching beyond curve of lateral line	Long, subequal to pelvic fins reaching beyond curve of lateral line	Long, greater than pelvic fins, extending beyond curve of lateral line
Orbit diameter (in percent of body length)	2.4-2.9	2.4-3.0	2.9	3.1-3.4	2.9
First dorsal fin elements	45-53 (usually 48-51)	39-46 (usually 42-45)	43-48	38-45 (usually 40-43)	43

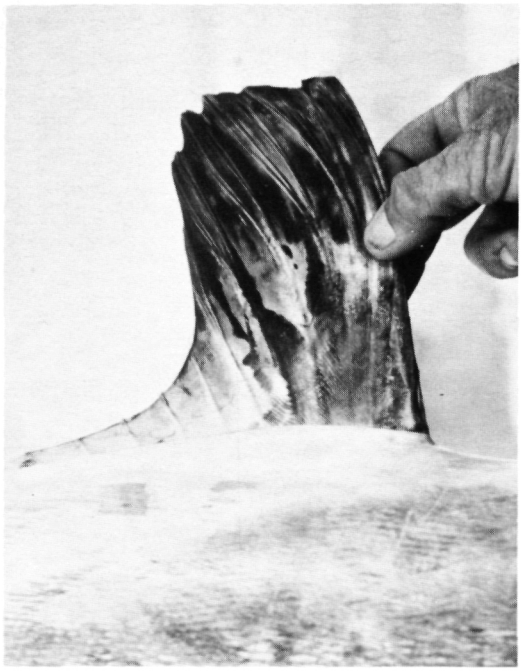

Figure 3. Anal fin of marlin, *Tetrapturus* sp., from Destin, Florida.

report is a representative of the fish termed the hatchet marlin. The taxonomic status of this fish has not been determined with certainty. The specimen that I examined had features that distinguished it from all white marlins I have seen. Future efforts will be made to gather additional evidence needed to resolve this matter. Anyone obtaining a fish having characteristics as described for the hatchet marlin is urged to save the fish and contact Dr. D. P. de Sylva or Dr. C. R. Robins at the University of Miami's Rosenstiel School of Marine and Atmospheric Sciences, or myself.

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