

## New Record of Dolphin fish species (Pompano Dolphin: *Coryphaena equiselis*-Linnaeus, 1758) Family Coryphaenidae in Sidi Kerir area, west off Alexandria, Egyptian Mediterranean Sea

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### SUMMARY

Twenty five morphometric characters of *Coryphaena equiselis* (family: coryphaenidae) were taken for the identification of this species. The body elongated and laterally compressed with a deeply forked caudal fin. The fins have no spines but contain the number of rays; dorsal-fin rays (57), pectoral fin rays (22), each ventral fin rays (5), anal fin rays (25) and vertebrae count (33). The body depth is less than 25% of its standard length (SL). This low value is attributed to the vent fullness. The head is blunt, the dorsal fin extends above the eye to the caudal fin forming about 86.9% of SL. Anal fin started slightly in front of the midpoint of the body (40.0% SL). Pectoral fins and ventral fin bases are situated on the same vertical line between them. Each pectoral fin length about 12.04% of its standard length (SL), that considered as one of the main distinguish characters of this species where each pectoral fin length about 1/2 head length. The tooth patch on the tongue is a rough spot of tooth-like structures present on the tongue, large and square in shape; dorsal and pectoral fins black while ventral, anal and caudal fins are white. The presence of black small dots scattered on head and the trunk of the body.

### INTRODUCTION

*Coryphaena* is the only genus in the family Coryphaenidae and is composed of two species: *C. hippurus* (*Coryphaena hippurus*- Linnaeus, 1758) known as common dolphin fish and *C. equiselis* (*Coryphaena equiselis*- Linnaeus, 1758) recognized as pompano dolphin (Gardieff 2015). Both of these species are identified in Egypt as Lampuka.

The pompano dolphin fish is identified as a pelagic, being mostly oceanic but it may also be found entering into coastal waters from time to time (Collette *et al.* 2011). Worldwide, this species inhabits in tropical and subtropical seas, *i.e.* in the Indian, Atlantic and Pacific Oceans, as well as the Mediterranean, Black and Caribbean Seas (FAO, 2002 and Noel, 2015). There are four records of *C. equiselis* from the Mediterranean (Fig. 1): one record from the Algerian coast (Djabali *et al.* 1993), one from the Ligurian Sea north of Corsica, one from the Tyrrhenian Sea north of Sicily, and one from the southern Aegean Sea, east of Peloponnese (Fischer *et al.* 1987 and Collette *et al.* 2011). Lanfranco (1996), found this fish around Malta (central Mediterranean), and papacontantino (2014) in Hellenic Seas (Greece).

Generally, the pompano dolphin fish is rarely found in waters less than 24C° (Gardieff, 2015).

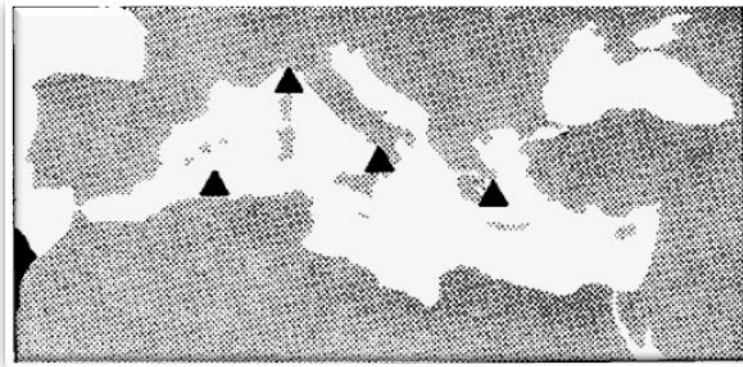


Fig. 1: Map showing the four records of the pompano dolphin (*C. equiselis*) from the Mediterranean Sea.

The present study aimed to throw light on the morphometric characters of *C. equiselis* in the Egyptian Mediterranean sea coast (West off Alexandria).

## MATERIALS AND METHODS

On 10 Sep. 2018, two specimens of *C. equiselis* were collected from the catch of the Purse seine net operating in West off Alexandria. According to the fishermen, the net is about 365m in length and 19.17m in width; they put it under shading, leaving it in the coastal water of the Egyptian Mediterranean Sea, West off Alexandria in Sidi Kerir area (Fig. 2) and collect the catch after about three days.

The specimens were identified according to FAO, 2002 identification sheets; the meristic characteristics were counted and morphometric characteristics were measured with a digital caliper, as well as most diagnostic features were recorded.

The first fish has 52.30 cm and 819.00gm, while the other one has 51.00 cm and 798.00gm, in total length and total weight, respectively. Twenty five morphometric measurements were taken for each specimen to the nearest centimeter as given in (Fig. 3 and Tab. 1).

The morphometric index of each character was calculated as percentage to standard length or head length, where;

Morphometric index = (morphometric measurement / standard length or head length) × 100.



Fig. 2: Map showing the coastal water of the Egyptian Mediterranean Sea in Sidi Kerir area (West off Alexandria).

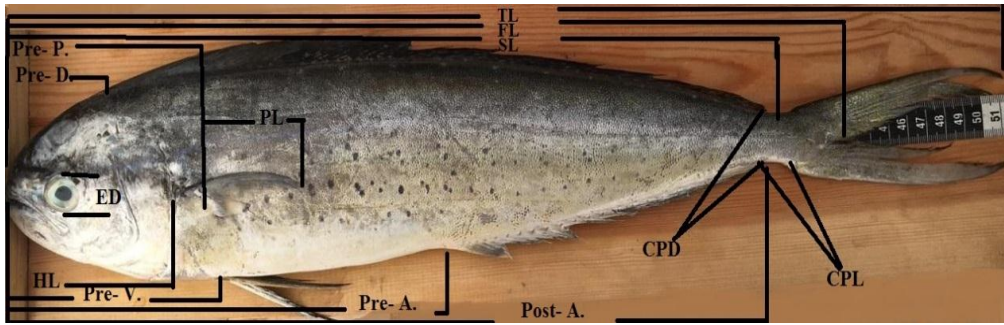


Fig. 3: Showing the most important morphological parameters of pompano Dolphin (*C. equiselis*) collected from the Egyptian Mediterranean water (west off Alexandria).

## RESULTS

### Description:

*C. equiselis* has elongate, fusiform body (Fig. 4). The body depth is less than 4.0 times its standard length; a single dorsal fin extends along the length of the body above the eye to caudal peduncle region, 86-88% of standard length. It has dorsal fin rays (57). The maximum height of the dorsal fin (18% SL) then decreases gradually to reach lowest height (4.0% SL) at caudal peduncle (Fig. 5). Each pectoral fin is about half head length, each pectoral fin rays (22). The anal fin rays (25). It is convex, very long, begins approximately in the middle of the body (40.0% SL) behind the anus and ends at the same point as the dorsal fin (Fig. 6). Each ventral fin rays (5), it is situated on the same vertical line with the pectoral fins and can be compressed into a shallow groove on the body; lateral line with a sharp curve over pectorals. The caudal fin is strongly forked. The pompano dolphin body depth is less than 25% of its standard length. The caudal peduncle length is (4.25% SL), while caudal peduncle depth (5.5% SL). The number of vertebrae is 33 (Fig. 7). Cycloid small scales cover the whole body.



Fig. 4: Showing the elongate, fusiform shape of pompano dolphin (*C. equiselis*) collected from the Egyptian Mediterranean water (west off Alexandria).



Fig. 5: Showing the dorsal fin shape of pompano dolphin (*C. equiselis*) collected from the Egyptian Mediterranean water (west off Alexandria).



Fig. 6: Showing the convex anal fin of pompano dolphin (*C. equiselis*) collected from the Egyptian Mediterranean water (west off Alexandria).



Fig. 7: Showing the number of vertebrae (33) of pompano dolphin (*C. equiselis*) collected from the Egyptian Mediterranean water (west off Alexandria).

### Color:

Pompano dolphins have bright dark blue dorsal surface, the sides light grey, and have white and yellow ventral surface. Dorsal and pectoral fins dark grey, while the ventral, anal, and caudal white. Many small black blue spots scattered over the head and concentrated on the lower part of the body (Fig. 8).



Fig. 8: Showing the small black blue spots scattered over the head and concentrated on the lower part of the body of pompano dolphin (*C. equiselis*) collected from the Egyptian Mediterranean water (west off Alexandria).

### Dentition:

The head is blunt and the mouth contains many small teeth. The *C. equiselis* has a square tooth patch on the tongue (Fig. 9). The maxilla is slightly shorter than the mandible.



Fig. 9: Showing the large and square tooth patch on the tongue of pompano dolphin (*C. equiselis*) collected from the Egyptian Mediterranean water (west off Alexandria).

Table1: Shows the different morphometric indices of pompano dolphin (*C. equiselis*) collected from the Egyptian Mediterranean water in Sidi Kerir (west off Alexandria).

Species	<i>C. equiselis</i>			
	Fish No. 1		Fish No. 2	
Morphometric Parameters	Wt. =819.00 gm.		Wt. =798.00 gm.	
	TL = 52.30 cm.		TL = 51.00 cm.	
	cm.	%	cm.	%
Forked length (F. L)	44.100		42.300	
Standard length (St. L.)	40.500		39.400	
Pre-dorsal length (Pre D.)	5.718	14.12	5.557	14.10
Post -dorsal length (post D.)	40.100	99.01	39.100	99.24
Length of dorsal fin Base ( LB)	34.900	86.17	34.700	88.07
Pre- Pectoral (Pre- P)	10.217	25.23	9.981	25.33
Pectoral Fin Length (PL)	4.876	12.04	4.858	12.33
Pre- ventral fin (Pre- V)	10.420	25.73	10.148	25.76
Pre- anal fin (Pre-A)	24.200	59.75	22.100	56.09
Post anal fin (Post- A)	40.300	99.51	37.800	95.94
Length of Anal fin Base (AFB)	16.200	40.00	15.200	38.58
Maximum dorsal fin height (max. DH)	7.500	18.52	7.116	18.06
Minimum dorsal fin height (min. DH)	1.650	4.07	1.550	3.93
Anal fin height (AFH)	2.960	7.31	2.905	7.37
Body Depth (B D)	9.207	22.73	8.924	22.65
Caudal peduncle length (CPL)	1.721	4.25	1.793	4.55
Caudal peduncle depth (CPD)	2.240	5.53	2.088	5.30
Head length (H L)	8.836	21.82	8.654	21.96
Eye diameter (ED)	1.820	20.60	1.737	20.07
Pre-orbit length (Pre- O)	3.173	35.91	3.125	36.11
post -orbit length (post- O)	4.753	53.79	4.634	53.55
Inter orbit width (I O)	3.122	35.33	3.533	40.83
Maxilla (Max.)	4.122	46.65	4.177	48.27
Mandible (Man.)	4.276	48.39	4.260	49.23

## DISCUSSION

The above results insure the identification of pompano dolphin (*C. equiselis*). According to, Gibbs & Collette (1959) the body depth up to 10cm in both *C. equiselis* and *C. hippurus* are similar in this character. By about 20cm the body depth is less than 25% in *C. hippurus* which is equal or greater than in *C. equiselis*. The authors declared that the 25% rule can be applied with certainty is not evident but care should be taken with specimens under 20cm. In the present study the body depth (22.73%) of its standard length (SL). This low value may be related to the fullness of the vent. In

the current work the dorsal fin rays (57) which is situated within the range (52- 59) rays given by (Fisher *et al.*, 1987). Each pectoral fin length about half of head length; presence of large square dental patch on tongue; in addition to, presence of convex anal fin and scattered small black dots on head which concentrated on lower part of the body are in accordance with the description given by (Palko *et al.* 1982, Fischer *et al.* 1987, FAO 2002, Collette *et al.* 2011, Gardieff 2015, Bray 2018) for the same species in Australia.

By comparing the present study with that carried out in different localities by (Collette *et al.*, 1969) the vertebrae count of *C. equiselis* was (33), (Fig. 10 (a, b) and Tab. 2).

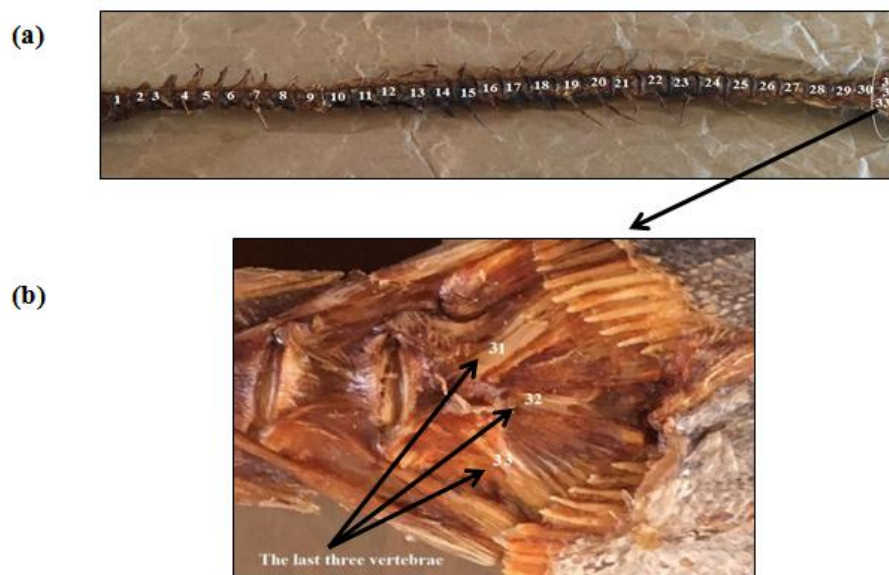


Fig. 10 (a, b): Shows the vertebrae number (present study) including the last three ones in the caudal part of *C. equiselis* skeletal system.

Table 2: Shows the vertebrae number of *C. equiselis* in different localities given by Collette *et al.*, (1969) as compared with the present study (Egyptian Mediterranean water).

Area and species		Vertebrae number				
		30	31	32	33	34
W. Atlantic	<i>C. hippurus</i>	1	58			
	<i>C. equiselis</i>				63	1
E. Atlantic	<i>C. hippurus</i>		21			
	<i>C. equiselis</i>				15	
Indian Ocean	<i>C. hippurus</i>		2			
	<i>C. equiselis</i>				5	
W. cent. Pacific	<i>C. hippurus</i>		14			
	<i>C. equiselis</i>				8	1
E. Pacific	<i>C. hippurus</i>	1	34			
	<i>C. equiselis</i>				16	
Total	<i>C. hippurus</i>	2	109			
	<i>C. equiselis</i>			1	107	2
Present study	<i>C. equiselis</i>				2	
(Egyptian Mediterranean water)						

There have been fewer reports on the pompano dolphin compared to the common dolphin fish (*C. hippurus*). This is may be related to the fact that the pompano dolphin is the more oceanic of the two species. Morales-Nin *et al.* (1995)

and Noel *et al.* (2015) stated that the two species are often mistaken especially for females or immature individuals. Because of, the similarity in appearance fishermen can't differentiate between the catches of both and combined them as dolphin fish. Palko (1995) and FAO (2002), illustrated the morphometric characters that helps to distinguish the pompano dolphin (*C. equiselis*) from the common dolphin (*C. hippurus*), where, *C. hippurus* has a concave anal fin, each pectoral fin length more than half of head length and a small oval tooth patch on the tongue, on the other hand, *C. equiselis* has a convex anal fin, each pectoral fin length about half of head length, the head is blunt and the mouth contains a large square tooth patch on the tongue.

Morals- Nin *et al.* (1995) showed a temporal isolation between the two species in Canary Islands as they were not found together since *C. hippurus* found late May-early June, where *C. equiselis* from late June- mid September. According to our local fishermen *C. equiselis* appears only in the Egyptian Mediterranean waters during two months/ year (September and October). Pujolar (2002) illustrate that the genetic analysis can be used as another tool to identify and differentiate between specimens of the two species.

Finally, more researches must be carried out to cover the year round samples for better understand the biology of pompano dolphin *C. equiselis* and whether it migrates in schools for feeding or reproduction.

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