

A New Large Pelagic Squid Record for the Northern Aegean Sea of Turkey; Neon Flying Squid, *Ommastrephes bartrami* (LeSueur, 1821) (Cephalopoda: Ommastrephidae)

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Abstract

A female individual of *Ommastrephes bartrami*, which belongs to the Ommastrephidae family, was caught from the shallow waters of İzmir Bay (Aegean Sea). It set a new record for both İzmir Bay and northern Aegean Sea of Turkey. Its morphological features were re-examined and its photograph was taken.

Key Words: *Ommastrephes bartrami*, neon flying squid, new record, İzmir Bay, Aegean Sea.

The neon flying squid, *Ommastrephes bartrami* (LeSueur, 1821) is a large pelagic squid whose population is widely distributed in the Pacific, Atlantic and Indian Oceans and it occurs at depths ranging from sea level to approximately 1500 m depth, and this species avoid waters that are colder than 10°C (Roper *et al.*, 1984; Murata and Nakamura, 1998). *O. bartrami* belongs to Ommastrephidae family, which also contains *O. pteropus* (Steenstrup, 1855) and *O. caroli* (Furtado, 1887). *O. bartrami* displays seasonal migratory behaviour. Throughout the summer and fall, dense schools of this species are encountered in association with the movements of the Kuroshio current, feeding in surface waters, then migrating to deeper waters and dispersing during the winter and spring. During feeding season, diurnal vertical migrations have been observed between near-surface waters at night and deeper layers in daytime (Roper *et al.*, 1984). These animals are extremely strong and rapid swimmers and specimens identified as *O. bartrami* have been known to leap out of the water, thus earning the name of “flying squid” (Clarke, 1966). Extraordinarily agile, they can leap to a height of several meters above the water and traverse a considerable horizontal distance in the air in pursuit of prey or to escape from an enemy. Such leaps into the air have often brought this species on board ships (Akimushkin, 1965).

O. bartrami have a life span of about 1 year. The predators of this species include large fish and marine mammals (McCrae, 1994), and their food consists predominantly of fish such as lanternfish, sardines, mackerel larvae, and sauries. Squid species account for up to 30% of the contents of *O. bartrami*, a high proportion of it being from members of the same species (showing cannibalism), while pelagic crustaceans from a highly variable, but usually a minor fraction (particularly in adult squid). Their maximum mantle length (ML) is 50 cm among females, somewhat shorter among males; and their

maximum weight 1.8 kg (Roper *et al.*, 1984). According to Dunning (1998), the largest male caught in the southwest Pacific was 40 cm ML, weighing 2 kg, and the largest female caught in the same region was 61 cm ML, weighing nearly 7 kg. Fecundity estimates of *O. bartrami* are reported to be as high as 360,000 from the egg count of a female (Mangold, 1987). Both sexes of the neon flying squid mature between January and April, males usually earlier than females. The spawning season is long, lasting from January to May off Japanese coasts (McCrae, 1994).

O. bartrami is known in various fishing countries as aka-ika, flying squid, red squid, red ocean squid, Bartram's squid, or neon flying squid. This is a commercially important fishery resource, and it has supported major jig and surface driftnet fisheries (Dunning, 1998). In the North Pacific Ocean, they were first commercially caught via Japanese jig fishery in 1974. Subsequently, neon flying squid became the target of international driftnet fishing fleets from 1978–1992. During this period, they were heavily exploited on the high seas by Japanese, Korean and Taiwanese fishing vessels, with the highest catch (357,000 mt) being recorded in 1989 (Nagasawa *et al.*, 1998).

It should be emphasized here that *O. bartrami*, or neon flying squid, has actually been listed among the teuthofauna distributed in northern Aegean Turkish territorial waters without any attribution and/or without any explanation on the records of Ommastrephidae being given, *e.g.* date, location, etc. Thus, the aim of this brief communication is to declare officially that *O. bartrami*, neon flying squid, has been recorded for the first time both in the shallow waters of İzmir Bay and along the northern coast of the Aegean Sea of Turkey. This species was recorded about ten years ago in deeper international waters (between 800 and 2200 m depths) around Rhodes Island by Katağan *et al.* (1992).

A female specimen (Figure 1 and Figure 2) was

taken from the sea after accidentally being crashed into by the propeller of a navy boat in November, 20th, 2002 in a water depth of 2 meters off Urla-Menteş (İzmir Bay) (Figure 3). Its body measurements, taken according to Okutani (1998), were given in Table 1.



Figure 1. A female specimen of neon flying squid, *O. Bartrami*.

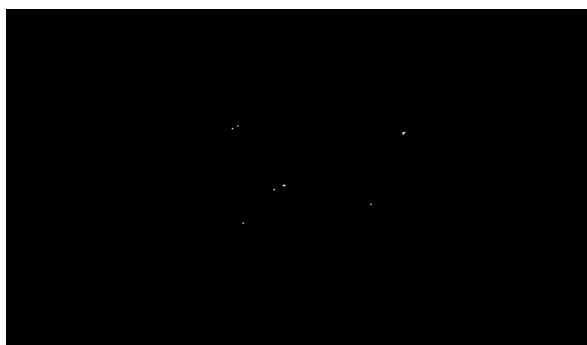


Figure 2. A view of the part of the head of neon flying squid, *O. bartrami*

In conclusion, although *O. bartrami* is a typical large pelagic squid, it has also been observed in shallow waters of İzmir Bay (the Aegean Sea) for the first time. Akyol and Metin (2001) report the occurrence of eight Cephalopod species in İzmir Bay. In addition, *O. bartrami* is the latest to join the teuthofauna of İzmir Bay despite the fact that it is chiefly a marine species of squid.

Table 1. The body measurements and some morphometrics of neon flying squid, *O. bartrami* (values are given in mm and g)

Measurements	Acronyms	Values
Total weight	W	6700
Total length	TL	1580
Mantle length	ML	550
Mantle width	MW	195
Eye diameter	ED	30
Iris diameter	ID	20
Interorbital distance	IOD	108
Fin length	FL	205
Fin width	FW	220
Inter-fins distance	IFD	430
Tentacle length	TENL	880
Length of the 3 rd arm	AIII	280
Morphometrics		
TENL		55.7% TL
ML		34.8% TL
MW		35.5% ML
FL		37.3% ML
FW		40.0% ML
AIII		50.9% ML
IFD		78.2% ML
ED		0.30% ML

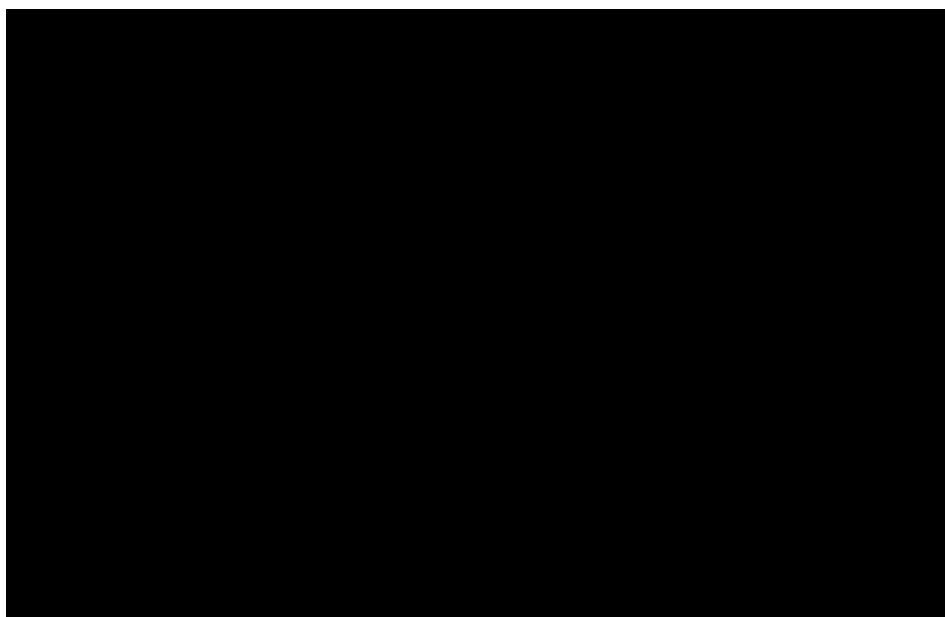


Figure 3. The sampling location.

References

- Akimushkin, I.I. 1965. Cephalopods of the Seas of the U.S.S.R. Academy of Sciences of the U.S.S.R., Inst. of Oceanology, 223 p.
- Akyol, O. and Metin, G. 2001. İzmir Körfezi'nden (Ege Denizi) dip trolüyle avlanan bazı kafadanbacaklı (Cephalopoda) türleri ve ortalama av miktarları üzerine araştırmalar. Anadolu Üniversitesi Bilim ve Teknoloji Dergisi, 2 (2):381-385.
- Clarke, M.R. 1966. A review of the systematics and ecology of oceanic squids. In: Marine Biology. (Ed. Sir F.S. Russell). Adv. Mar. Biol., Vol.4, 327 p.
- Dunning, M.C. 1998. An overview of the fisheries biology and resource potential of *Ommastrephes bartramii* (Cephalopoda:Ommastrephidae) in the southern hemisphere. In: Contributed papers to international symposium on large pelagic squids. (Ed. T. Okutani). July 18-19, 1996 Tokyo, 269 p.
- Katağan, T., Salman, A. and Benli, H.A. 1992. Nouvelles observations sur *Ommastrephes bartramii* (Lesueur,1821) (Cephalopoda, Ommastrephidae) dans le bassin Méditerranéen oriental. Rapp. Comm. Int. Mer Médit., 33, pp. 298.
- Mangold, K. 1987. Reproduction. In: Cephalopod life cycles. (Ed. P.R. Boyle). Vol.2; Comparative Reviews. Academic Press Inc. Ltd., London, 219 p.
- McCrae, J. 1994. Oregon Developmental Species; Other Squid, Neon Flying Squid (*Ommastrephes bartramii*). Oregon Dept. of Fish&Wildlife, <http://hmsc.oregonstate.edu>.
- Murata, M. and Nakamura, Y. 1998. Seasonal migration and diel vertical migration of the neon flying squid, *Ommastrephes bartramii*, in the North Pacific. In: Contributed papers to international symposium on large pelagic squids. (Ed. T. Okutani). July 18-19, 1996 Tokyo, 269 p.
- Nagasawa, K., Mori, J. and Okamura, H. 1998. Parasites as biological tags of stocks of neon flying squid (*Ommastrephes bartramii*) in the North Pacific Ocean. In: Contributed papers to international symposium on large pelagic squids. (Ed. T. Okutani). July 18-19, 1996 Tokyo, 269 p.
- Okutani, T. 1998. Biological significance and fisheries potential of large pelagic squids. In: Contributed papers to international symposium on large pelagic squids. (Ed. T. Okutani). July 18-19, 1996 Tokyo, 269 p.
- Roper, C.F.E., Sweeney, M.J. and Nauen, C.E. 1984. FAO Species Catalogue. Vol.3. Cephalopods of the world. An annotated and illustrated catalogue of species of interest to fisheries. FAO Fish. Synop., (125) Vol. 3, 277 p.

