Teknik Not / Technical Note

A New Maximum Length Record of the Bluefish (*Pomatomus saltatrix* Linnaeus, 1766) for Turkey Seas

Özgür CENGİZ[*1]

[1] *Faculty of Marine Science and Technology, Çanakkale Onsekiz Mart University, Çanakkale*

Abstract
One specimen of the bluefish (*Pomatomus saltatrix* Linnaeus, 1766) with 76.5 cm in total length and 4800.0 g in total weight was photographed in the Çanakkale Fish Market. The given length is second maximum length record of the bluefish for Turkish waters

Keywords: Bluefish, *Pomatomus saltatrix*, Maximum Length, Turkish seas

Türkiye Denizleri için Lüfer Balığı'nın (*Pomatomus saltatrix* Linnaeus, 1766) Yeni Bir Maksimum Boy Kaydı

Özet
4800.0 gr toplam ağırlığa ve 76.5 cm toplam boya sahip bir adet lüfer balığı **(***Pomatomus saltatrix* Linnaeus, 1766) Çanakkale Balık Halinde fotoğraflandı. Verilen boy, Türkiye suları için lüfer balığı'nın ikinci maksimum boy kaydıdır.

Anahtar kelimeler: Lüfer balığı, *Pomatomus saltatrix*, Maksimum boy, Türkiye denizleri

1. Introduction

Maximum length and weight are important parameters used in life history studies and fishery science. These measurements are applied directly or indirectly in most stock assessment models [1]. Therefore, it is important to regularly update the maximum size of commercially important species [2].

Bluefish (*Pomatomus saltatrix* Linnaeus, 1766) is a migratory marine species with a large geographical distribution which extends throughout most of the world, with the exception of the northern and mid-Pacific Ocean, generally inhabiting temperate and warm continental shelf waters of all oceans [3]. This species is found all along Turkish coasts migrating via the Aegean Sea northwards from the Mediterranean in spring and returning south in early autumn [4]. Its fishing activity is intensive, especially with purse seine, trawling net, hand lines, encircling gill and trammel net. In some years, it is observed that Turkey production increased to one-third of the world's production [5]. In Turkish waters, there are different studies on age, growth, reproduction and mortality [4, 6-10], fishery [11-13], heavy metal contamination [14], otolith length [5, 15] and morphometric and meristic variation [16] of bluefish. This study showed that the given length is second maximum length record of *P. saltatrix* for Turkish waters.

[*]Corresponding author: *ozgurcengiz17@gmail.com*

2. Materials and Methods

On 10 September 2013, the one specimen of the bluefish (*Pomatomus saltatrix* Linnaeus, 1766) with 76.5 cm in total length (TL) and 4800.0 g in total weight (TW) (Figure 1) was photographed in the Çanakkale Fish Market (Figure 2). The scientific name of the species was also checked against FishBase [17].

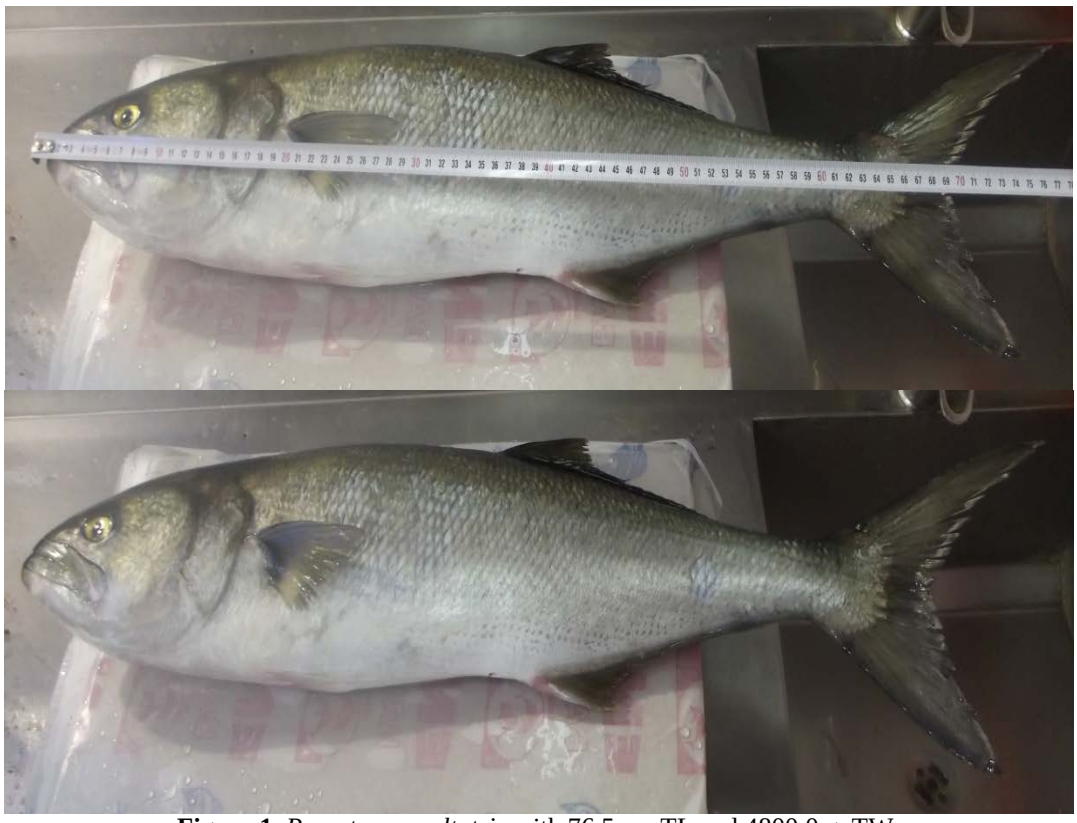

Figure 1. *Pomatomus saltatrix* with 76.5 cm TL and 4800.0 g TW.

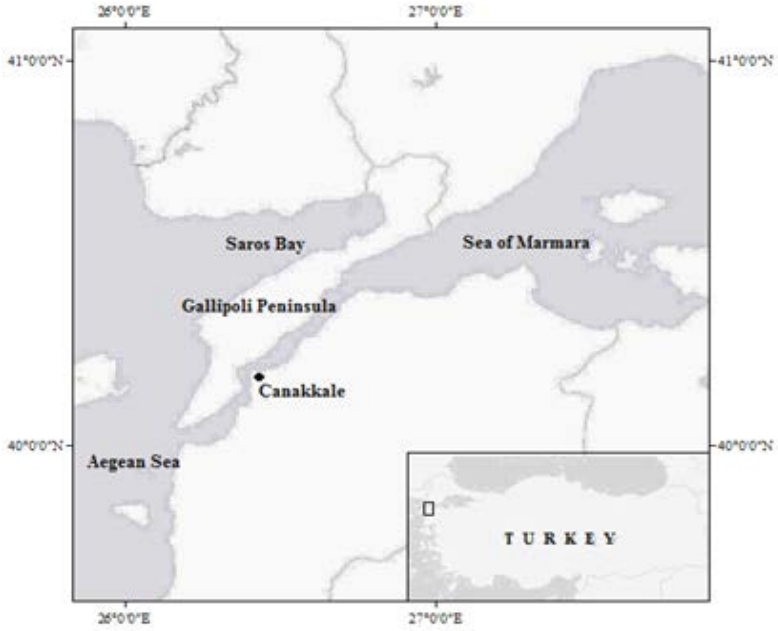

Figure 2. Çanakkale region.

3. Results and Discussion

The comparison of the lengths and weights for bluefish in Turkish waters is given in Table 1.

Table 1. The comparison of the lengths and weights for bluefish in Turkish waters.

References	Locality	n	L_{max} (cm)	W_{max} (g)
Türgan [6][a]	Marmara Sea	2297	86.0[b.c]	-
Alpaz and Kınacıgil [7]	Izmir Bay	400	40.5	470.0
Özdemir et al. [9]	Black Sea	1049	25.0	-
Cengiz et al. [10]	Gallipoli Peninsula and Dardanelles	473	61.2	1980.0
Ceyhan [20]	Northern Aegean and Marmara Regions	2817	34.2[c]	458.4
This study	Çanakkale Region	1	76.5	4800.0

a=from Ceyhan [20], b= mean length with 14 age, c=FL (Fork Length)

Although bluefish is extremely important in Turkish fishery, present stock levels are uncertain. There are indications (smaller average sizes of individuals, lower catch per unit effort according to the years) that their stocks have declined due to fishing pressure or the other factors [13]. In this respect, Akyol and Ceyhan [8], Özdemir et al. [9] and Cengiz et al. [10] reported the fishing mortality rates to be 0.60 $year^{-1}$, 0.83 $year^{-1}$ and 0.69 $year^{-1}$, respectively.

4. Conclusion

As well known, individuals in populations exposed to high levels fisheries mortality/pressure will respond by reproducing at smaller average sizes and ages [18] and so reached maximum lengths may getting and getting smaller. But, the one individual that subjected to no overfishing pressure could be reached that kind of length [19]. Besides, any factor that may to the utmost influence growth has been shown to have an effect, including nutrient availability, temperature, food availability, light regime, pollutants, oxygen, salinity, intra-specific social interactions, current speed, predator density and genetics [18]. These factors might give rise to large varitions in length of a fish. The result of this study could be used as a reference by biologists in surveys regarding fisheries management in the area.

Acknowledgements

The author thanks the fisherman Engin TUNC for the specimen.

References

1. ICES. 2009.Report of the Working Group on Widely Distributed Stocks (WGWIDE), ICES CM 2009/ACOM, 12: 1-563.
2. Navarro M. R., Villamor B., Myklevoll S., Gil J., Abaunza P., Canoura J. 2012. Maximum Size of Atlantic Mackerel (*Scomber scombrus*) and Atlantic Chub Mackerel (*Scomber colias*) in the Northeast Atlantic, Cybium, 36: 406-408.
3. Wilk S. J. 1977. *Biological and Fisheries Data on Bluefish, Pomatomus Saltatrix (Linnaeus)*. US National Marine Fisheries Service, Northeast Fisheries Science Center, Sandy Hook Laboratory Technical Series Report, 11. 56s.
4. Ceyhan T., Akyol O., Ayaz A., Juanes F. 2007. Age, Growth and Reproductive Season of Bluefish (*Pomatomus saltatrix*) in the Marmara Region, Turkey, ICES Journal of Marine Science, 64: 531-536.

5. Ceyhan T., Akyol O. 2006. Age Distribution and Relationship Between Fork Length and Otolith Length of Bluefish (*Pomatomus saltatrix* L., 1766) in the Sea of Marmara, E.U. Journal of Fisheries & Aquatic Sciences, 23: 369-372 (In Turkish).

6. Türgan G. 1959. *Pomatomus saltatrix* L. (Lüfer Balıkları)'in Biyolojisi Hakkında, Hidrobiologi Mecmuası, İ.Ü. Fen Fak Hidrobiologi Araş. Enst., 5: 144-180 (In Turkish).

7. Alpbaz A., Kınacıgil T. 1988. İzmir Körfezi'nde Lüfer (*Pomatomus saltator* Lin, 1758) Balığı Populasyonu Üzerine Araştırmalar, Ege Üniversitesi, Su Ürünleri Yük. Ok. Su Ürünleri Dergisi, 5: 36-54 (In Turkish).

8. Akyol O., Ceyhan T. 2007. Exploitation and Mortalities of Bluefish (*Pomatomus saltatrix* L.) in the Sea of Marmara, Turkey, Journal of Applied Biological Sciences, 1: 25-27.

9. Özdemir S., Erdem E., Özdemir Z. B., Şahin D. 2009. Estimation of Population Parameters from Lenght Composition of Pelagic Species Caught in the Black Sea: Horse Mackerel (*Trachurus trachurus*), Bluefish (*Pomatomus saltatrix*) and Allis shad (*Alosa alosa*), Fırat University Journal of Science, 21: 1-8 (In Turkish).

10. Cengiz Ö., Özekinci U., Öztekin A., Kumova C. 2013. Growth Parameters and Mortality of Bluefish (*Pomatomus saltatrix* Linnaeus, 1766) from Gallipoli Peninsula and Dardanelles (northeastern Mediterranean, Turkey), Marine Science and Technology Bulletin, 2: 29-35.

11. Ceyhan T., Akyol O. 2005. The Hand Lines Used in Bluefish (*Pomatomus saltatrix* L., 1766) Fishery in Marmara Region, E.U. Journal of Fisheries & Aquatic Sciences, 22: 351-355 (In Turkish).

12. Sümer Ç., Özdemir S., Erdem Y. 2010. Determination of Selectivity Monoflament and Multifilament Gillnets with Different Mesh Size for Bluefish (*Pomatomus saltatrix* L., 1766), E.U. Journal of Fisheries & Aquatic Sciences, 27: 121-124 (In Turkish).

13. Acarlı D., Ayaz A., Özekinci U., Öztekin A. 2013. Gillnet Selectivity for Bluefish (*Pomatamus saltatrix*, L. 1766) in Çanakkale Strait, Turkey, Turkish Journal of Fisheries and Aquatic Sciences, 13: 349-353.

14. Türkmen A., Tepe Y., Türkmen M., Mutlu E. 2009. Heavy Metal Contaminants in Tissues of the Garfish, *Belone belone* L., 1761, and the Bluefish, *Pomatomus saltatrix* L., 1766, from Turkey Waters, Bulletin of Environmental Contamination and Toxicology, 82: 70-74.

15. Cengiz Ö., Özekinci U., Öztekin A. 2012. The Relationships Between Total Lenght-Otolith Length of Bluefish, *Pomatomus saltatrix*, (Linnaeus, 1766) from Gallipoli Peninsula and Dardanelles (North-eastern Mediterranean, Turkey), Iğdır University Journal of the Institute of Science and Technology, 2: 31-34 (In Turkish).

16. Turan C., Oral M., Öztürk B., Düzgüneş E. 2006. Morphometric and Meristic Variation Between Stocks of Bluefish (*Pomatomus saltatrix*) in the Black, Marmara, Aegean and Northeastern Mediterranean Seas, Fisheries Research, 79: 139-147.

17. Froese R., Pauly D. 2013. FishBase. World Wide Web electronic publication. www.fishbase.org, version 12/2013.

18. Helfman G. S., Collatte B. B., Facey D. E., Bowen B.W. 2009. The Diversity of Fishes: Biology, Evolution and Ecology, 2nd edn, Wiley-Blackwell, 720s, UK.

19. Filiz H. 2011. A New Maximum Length for the Red Mullet, *Mullus barbatus* Linnaeus, 1758, Biyoloji Bilimleri Araştırma Dergisi, 4: 131-135.

20. Ceyhan T. 2005. Investigations on Bluefish Fishery and Some Population Characteristics of Bluefish (*Pomatomus saltatrix*) in the Northern Aegean and the Marmara Regions, Ph. D. thesis, Ege University, Izmir (In Turkish).