

GROWTH OF THE BOTTLENOSE DOLPHIN (*TURSIOPS TRUNCATUS*) FROM THE ADRIATIC SEA

Đuras Gomerčić, Martina (1), Gomerčić, Tomislav (2), Galov, Ana (3), Lucić, Hrvoje (4), Škrtić, Darinka (5), Ćurković, Snježana (6), Vuković, Snježana (7) and Gomerčić, Hrvoje (8)

(1,4,5,6,7,8) Department of Anatomy, Histology and Embryology, Faculty of Veterinary Medicine, University of Zagreb, Heinzelova 55, 10000 Zagreb, Croatia; martina.duras@vz.htnet.hr (2) Department of Biology, Faculty of Veterinary Medicine, University of Zagreb, Heinzelova 55, 10000 Zagreb, Croatia (3) Department of Animal Physiology, Faculty of Science, University of Zagreb, Rooseveltov trg 6, 10000 Zagreb, Croatia



Introduction

Growth can be considered as one of the main characteristics of a species. In mammals, behaviour, feeding strategies, population structure, and life history patterns are related to body size (Eisenberg 1990). There have been few studies of the growth of the bottlenose dolphin (Cockcroft and Ross 1990, Read et al. 1993, Stolen et al. 2002). Our study presents the growth of the Adriatic bottlenose dolphin, the only marine mammal resident in that area.

Material and Methods

Growth of the Adriatic bottlenose dolphin was estimated from 75 dead specimen (39 females, 34 males and 2 unknown sex) found in the Croatian part of the Adriatic Sea during 1990-2004. Body mass, body length and age were determined as part of post mortal examination. The relationships of body length and mass to age were fitted to the Gompertz growth curve of the form:

$$y = y_{\max} * (\exp((\log(y_0/y_{\max})) * \exp(-a * x)))$$

y length or mass at age, y_{max} asymptotic length or mass, y₀ length or mass at age 0, a Gompertz growth model factor, x age. In the Gompertz model y_{max}, y₀ and a were estimated by "User-specified regression, least squares; estimation method: Gauss-Newton" module in STATISTICA 7, StatSoft, Inc.

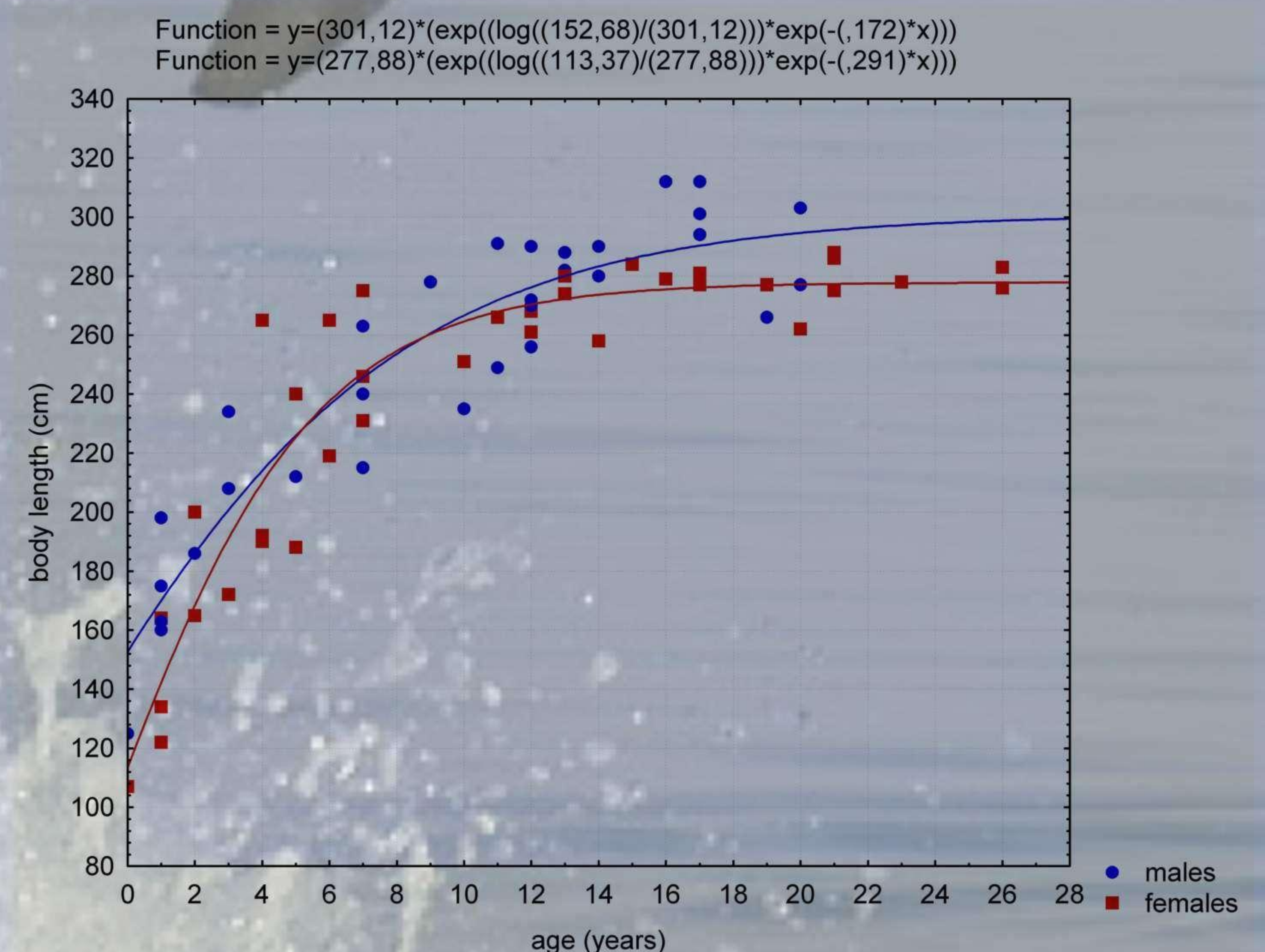
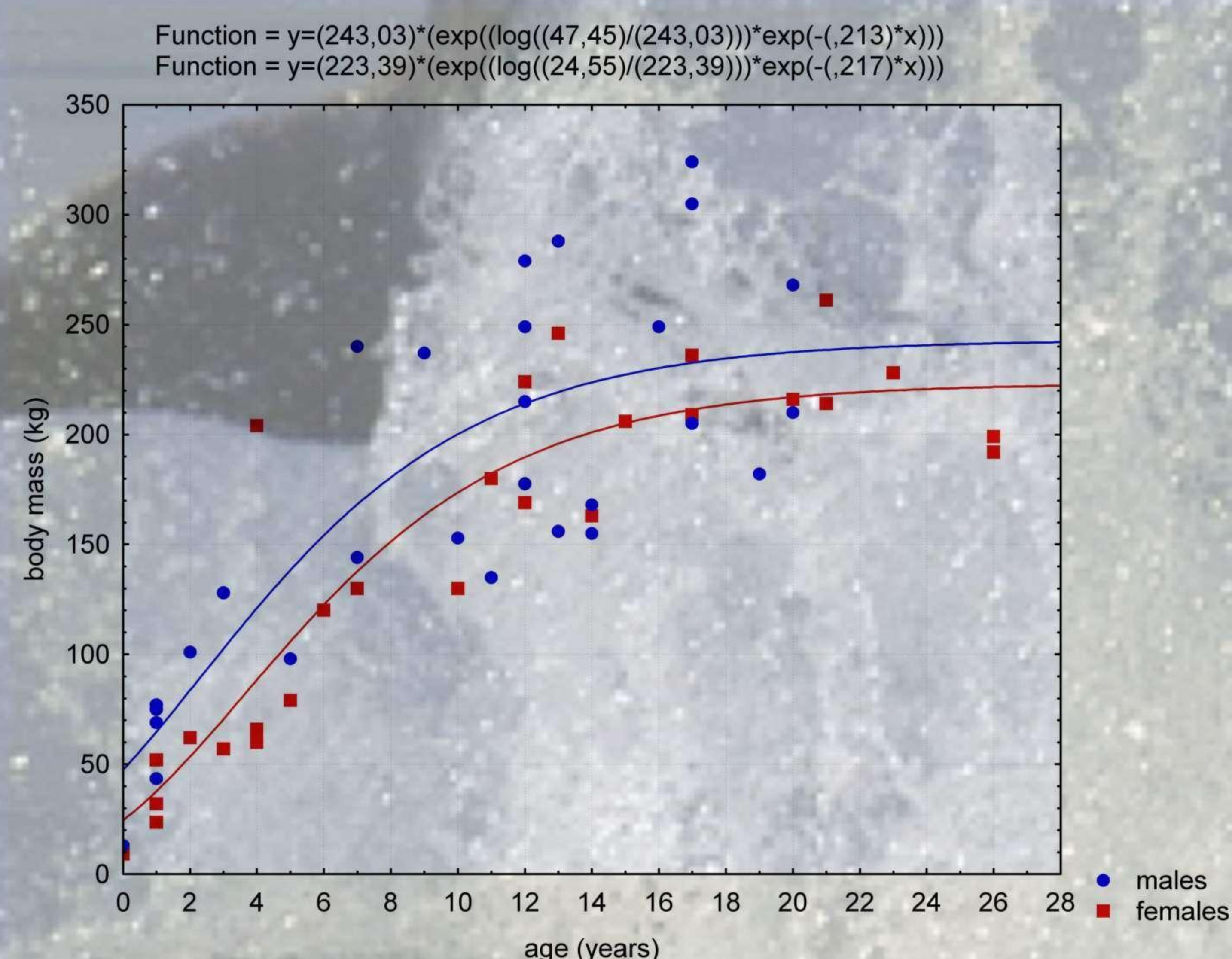
Results

The greatest measured length in females was 288 cm and body mass 261 kg, while in males they were 312 cm and 324 kg. In both males and females, most growth occurs during the first nine years. In females, length reaches a plateau during the 10th and 12th year of life, while in males the length increases continuously during this age. In females, the body mass increases continuously, whereas in males mass increases rapidly during the 10th and 17th year of life. The asymptotic length and mass are in females 277.88 cm and 223.39 kg, and in males 301.12 cm and 243.03 kg.

Discussion

As already observed by Read et. al (1993) female bottlenose dolphins grow in length for their first decade of life before reaching asymptotic size. Males continue to grow for several years after female growth ceases. Male growth in body mass is characterized by a growth spurt defined by Cockcroft and Ross (1990) at the onset of puberty. It is presumed that the male size may be an important factor in the mating system of bottlenose dolphins (Read et. al 1993). Concerning the greatest and asymptotic length and mass of Adriatic bottlenose dolphins they are intermediate in size within world's bottlenose dolphin populations.

		y _{max}	y ₀	a
Body mass (kg)	male	243.03	47.45	0.213
	female	223.39	24.55	0.217
Body length (cm)	male	301.12	152.68	0.172
	female	277.88	113.37	0.291



Acknowledgments

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