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STOMACH CONTENT ANALYSIS OF ONE BOTTLENOSE DOLPHIN (*TURSIOPS TRUNCATUS*, MONTAGUE 1821) FROM THE ADRIATIC SEA

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This paper presents data on the prey of one bottlenose dolphin (*Tursiops truncatus*) in the Adriatic Sea and a comparison with other findings about the feeding of this species in the Mediterranean. The stomach contents of this bottlenose dolphin caught in a fishing net in the area near the town of Šibenik in December 1995 were examined. In the prey we identified 3 species of fish (conger eel, *Conger conger;* hake, *Merluccius merluccius* and pandora, *Pagellus erythrinus*) and one cephalopod species (squid, *Loligo vulgaris*). It was found that these data are consistent with other data relating to dolphin feeding.

Key words: bottlenose dolphin, *Tursiops truncatus*, feeding

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U ovom radu su prikazani podaci o plijenu jednog dobrog dupina (*Tursiops truncatus*) u Jadranskom moru u usporedbi s poznatim podacima o prehrani te vrste u Sredozemnom moru. Analiziran je sadržaj želuca dupina ulovljenog u ribarsku mrežu na području šibenskog akvatorija u prosincu 1995. godine. U plijenu su identificirane 3 vrste riba (ugor, *Conger conger;* oslić, *Merluccius merluccius* i arbun, *Pagellus erythrinus*) i jedna vrsta glavonožaca (lignja, *Loligo vulgaris*) te je utvrđeno da se ovi podaci podudaraju s ostalim saznanjima o prehrani te vrste u Sredozemnome moru.

Ključne riječi: dobri dupin, *Tursiops truncatus*, prehrana

This communication provides the first data on the feeding of the bottlenose dolphin (*Tursiops truncatus*) in the Adriatic Sea. The stomach contents of one bottlenose dolphin (male, 278 cm, 237 kg) caught in a net in December 1995, near the town of Šibenik, situated on the middle part of the Eastern Adriatic coast, were examined. The cause of death was probably drowning. Stomach contents were collected and stored according to standard procedures (COCKROFT & ROSS, 1990). Prey remains were identified to the lowest taxonomic level, using published guides (JARDAS, 1996; SCHMIDT, 1968) and our reference collection. The maximum number of left or right, upper or lower fish mandibles and upper or lower cephalopod beaks was used as an indication of the total number of prey. Lengths of jaws and otoliths were measured. Lengths of prey were determined using the appropriate regression calculated from the reference collection. Then using length to weight parameters (FLAMINGI & GIOVANARDI, 1984; FLAMINGI, 1983; ZUPANOVIĆ & RIJAVEC, 1980; CAU and MANCONI, 1983) we estimated biomass. An index of relative importance was calculated according to the formula (HOLIŠOVA & OBRATEL, 1982):

IRI = (% number + %mass) / 2

Table 1. Fish and cephalopod prey identified from the food remains found in the stomach of a bottlenose dolphin from the Adriatic.

Prey species	number	% number	total mass/g	% mass	size range/cm	weight range/g	IRI
FISH							
Congridae							
C. conger	6	46.2	1740	49.6	37–83	71–770	47.9
Merluciidae							
M. merluccius	4	30.8	630	17.9	22–30	82–205	24.4
Sparidae							
Pagellus erythrinus	2	15.4	1030	29.3	32–36	430–600	22.4
CEPHALOPODS							
Loliginidae							
Loligo vulgaris	1	7.8	110	3.1	16	110	5.5
TOTALS:	13	/	3510	/	16–83	71–770	/

If we compare the present findings with those of other authors (VOLIANI & VOLPI, 1990; ORSI RELINI *et al*., 1994; SALOMON *et al*., 1997), it seems that in the Mediterranean, hake and species from the families Congridae, Sparidae and Gadidae represent the most important part of the diet of bottlenose dolphins (Tab. 2). All these are benthic reef and sandy bottom species and are also important for commercial fisheries. We find that, compared to fish, cephalopods are a minor part of the prey, and the same has been indicated by other authors. Because the diet is dominated by a small number of prey species, we agree with COCKROFT & ROSS (1990) that it seems inappropriate to consider this species of dolphins an opportunistic predator.

Table 2. Prey of bottlenose dolphins from different parts of the Mediterranean, as represented by findings of four authors: 1 – VOLIANI & VOLPI, 1990, Ligurian sea; 2 – ORSI RELINI *et al.*, 1994, Ligurian sea; 3 – SALOMON *et al.*, 1997, Mediterranean coast of Spain; 4 – MIOKOVIĆ *et al.*, this paper, Adriatic sea.

authors:	1	2	3	4
number of individual dolphins examined	1	5	17	1
number of prey items counted	145	223	?	13
number of identified prey species	9	31	13	4
species and families identified as prey of bottlenose dolphins				
PISCES				
Clupeidae	+		+	
Argentinidae; *Argentina sphyraena*	+			
Congridae			+	
Conger conger	+	+		+
Merluciidae			+	
Merluccius merluccius	+	+		+
Gadidae			+	
Micromesistius poutassou		+		
Trisopterus minutus	+			
Cepolidae			+	
Carangidae			+	
Scienidae		+		
Sparidae		+	+	
Dentex dentex		+		
Pagellus erythrinus				+
Centracanthidae		+		
Spicara smaris	+			
Trichuridae; *Lepidopus caudatus*		+		
Scombridae	+			
Ophiidae			+	
Moronidae; *Dicentrarchus* sp.		+		
Mugilidae; *Liza* sp.		+		
CEPHALOPODA				
Sepiidae			+	
Sepiolidae			+	
Loliginidae		+	+	
Loligo vulgaris		+		+
Ommastrephidae			+	
Illex coindetii	+			
OCTOPODA				
Octopodaceae			+	
Octopus vulgaris		+		
Eledone cirrhosa	+			
CRUSTACEA; DECAPODA		+		
Grapsidae			+	
Caeridae			+	

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SAŽETAK

Analiza sadržaja želuca jednog dobrog dupina (*Tursiops truncatus*, Montague 1821) iz Jadranskog mora

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Vrlo je mali broj znanstvenih radova koji se bave proučavanjem sadržaja želuca i prehranom dobrih dupina (*Tursiops truncatus*) u Sredozemnome moru, a za Jadransko more takvi podaci nisu nam poznati. U ovom radu prikazan je sadržaj želuca

jednog dobrog dupina (mužjak, 278 cm, 237 kg) ulovljenog u ribarsku mrežu na području šibenskog akvatorija u prosincu 1995. godine. Sadržaj želuca je sakupljen i obrađen standardnim metodama (COCKROFT & ROSS, 1990). Ostatke plijena smo odredili do najnižeg mogućeg taksonomskog stupnja, a najveći broj lijevih ili desnih, gornjih ili donjih čeljusti riba i gornjih ili donjih kljunova glavonožaca je smatran ukupnim brojem individua svake vrste. Izračunate su dužine i težine plijena pomoću referentne zbirke i parametara koji određuju odnos dužine i težine plijena. Nađene su 3 vrste riba (ugor, *Conger conger*; oslić, *Merluccius merluccius* i arbun, *Pagellus erythrinus*) i jedna vrsta glavonožaca (lignja, *Loligo vulgaris*), a ukupna procijenjena masa plijena iznosila je 3510 grama. Vrsta s najvećim indeksom relativne značajnosti je ugor. Utvrđeno je da se ovi podaci podudaraju s ostalim saznanjima o prehrani tog sisavca u Sredozemnome moru.