

Short scientific article
Received: 2007-08-28

UDC 559.537:591.524.1(282.249 Bojana)

INLAND OBSERVATIONS OF COMMON BOTTLENOSE DOLPHINS *TURSIOPS TRUNCATUS* (MONTAGU, 1821) IN THE DELTA OF THE BOJANA/BUNA RIVER, ALBANIA AND MONTENEGRO

Peter SACKL

Steiermärkisches Landesmuseum Joanneum, Forschungsstätte Furtnersteich, A-8010 Graz, Raubergasse 10, Austria
E-mail: peter.sackl@museum-joanneum.at

Jakob SMOLE

SI-2000 Maribor, Cafova 4, Slovenia

Darko SAVELJIĆ

Center for the Protection and Research of Birds, CG-81000 Podgorica, Trg Becir bega Osmanagica 16, Montenegro

Borut ŠTUMBERGER

SI-2282 Cirkulane, Cirkulane 41, Slovenia

ABSTRACT

During the waterbird surveys conducted between April 2003 and January 2004, common bottlenose dolphins Tursiops truncatus were sighted c. 10 km upstream in the lower Bojana/Buna River along the east coast of the Adriatic Sea. With a maximum group size of 6 individuals, the dolphins were observed upstream in the Bojana/Buna River only during the summer, which corresponds to the period of low water level of the river. The Bojana/Buna delta, which is largely unobstructed by embankments and urban development, is one of the few areas in the Mediterranean region where the species still occurs within a narrow riverine system. The inshore habits of dolphins in the delta are probably linked to the low level of human disturbances along the borderline between Albania and the former Yugoslavia till the end of the last Balkan War.

Key words: common bottlenose dolphin, *Tursiops truncatus*, Bojana/Buna River, Albania, Montenegro, Adriatic Sea

OSSERVAZIONI INTERNE DI TURSIOPI *TURSIOPS TRUNCATUS* (MONTAGU, 1821) NEL DELTA DEL FIUME BOJANA/BUNA, ALBANIA E MONTENEGRO

SINTESI

Durante una ricerca sugli uccelli d'acqua, tra aprile 2003 e gennaio 2004, gli autori hanno avvistato i tursiopi, Tursiops truncatus, risalendo per 10 km il fiume Bojana/Buna (Adriatico orientale). I tursiopi sono stati avvistati esclusivamente nel periodo estivo, quando la portata e il livello dell'acqua sono minimi, con un massimo di 6 individui nel gruppo. Il delta del fiume Bojana/Buna è prevalentemente non ostruito da argini e sviluppo urbano, ed è pertanto una delle rare aree mediterranee dove i tursiopi vengono avvistati in uno stretto sistema fluviale. Le ragioni di questa presenza vanno probabilmente ricercate nel basso influsso umano nell'area di frontiera tra l'Albania e la ex-Yugoslavia, fino al termine dell'ultima guerra dei Balcani.

Parole chiave: tursiope, *Tursiops truncatus*, fiume Bojana/Buna, Albania, Montenegro, mare Adriatico

INTRODUCTION

Most information on free-ranging cetaceans from the Adriatic Sea derives from stranding reports and opportunistic sightings (*cf.* reviews by Marchessaux, 1980; Bearzi *et al.*, 2004; Reeves & Notarbartolo di Sciara, 2006). While extensive surveys have been conducted in the northern part of the Adriatic Sea since the 1980s (Notarbartolo di Sciara *et al.*, 1993; Bearzi & Notarbartolo di Sciara, 1995), the occurrence of cetaceans – *i.e.* sperm whale *Physeter macrocephalus*, Cuvier's beaked whale *Ziphius cavirostris* and common bottlenose dolphin *Tursiops truncatus* (the later hereafter 'bottlenose dolphin') - in the coastal waters of Albania and Montenegro is known from occasionally stranded specimens only (Beaubrun, 1995; Reeves & Notarbartolo di Sciara, 2006; D. Ulqini, *pers. comm.*). In the northern Adriatic Sea, population numbers of bottlenose dolphins have declined by at least 50% during the 20th century, most probably as a result of historical culling campaigns, habitat destruction, overfishing and human disturbances (Bearzi *et al.*, 2004). In contrast to the northern part of the Adriatic Sea, very few data on the current distribution and status of the species in the southern Adriatic are available (Notarbartolo di Sciara *et al.*, 1993; Hussenot & Robineau, 1994; Bearzi *et al.*, 2004; Reeves & Notarbartolo di Sciara, 2006). Here we document the presence of bottlenose dolphins in the delta of the Bojana/Buna River along the borderline between Albania and the former Yugoslavia based on direct but opportunistic observations and accidental reports by the locals.

MATERIAL AND METHODS

Between April 2003 and January 2004, we performed waterbird surveys throughout the c. 250 km² floodplains of the 42 km long Bojana/Buna River from Shkodra (Albania), downstream to the head of the delta at the Adriatic coast (Stumberger *et al.*, 2005). A total of 147 field days were spent in the area between April-July 2003, October-November 2003, and in January 2004. About 17 km of the river's banks upstream to the village of Sveti Đorđe and all coastal habitats and inshore waters of the delta between Ulcinj/Ulqini in Montenegro and Baks-Rrjollj in Albania (34 km) were investigated during 134 hrs of transect counting along shoreline (Tab. 1).

RESULTS AND DISCUSSION

Bottlenose dolphins were encountered on four occasions, totalling 3 sightings/100 h (Fig. 1). On June 12th, a single dolphin (probably a mature male according to body size) was observed in the eastern branch of the delta between Ada Island and the Albanian river bank, 1.7 km upstream the river mouth (Fig. 2). On July 7th, six bottlenose dolphins were present in the Bojana/Buna

River close to Paratuk, a small island off the Montenegrin river bank 9.5 km upstream the river's mouth. In addition, two (sub)groups of 3 and 5 dolphins, the latter including a calf, were seen on November 3rd simultaneously at sea approximately 0.5-1 km apart and 300-600 m from shoreline close to the mouth of the northern branch of the river off Ada Island. The only other cetaceans we have sighted in the area were two striped dolphins *Stenella coeruleoalba* in the sea off the old town (Kajala) of Ulcinj/Ulqini in April 2003.

Tab. 1: Observation effort (transect counts), the entire number of sightings/month, with the number of sightings reported by local people in parentheses, and maximum group size of common bottlenose dolphins *Tursiops truncatus* in the Bojana/Buna delta, April 2003-January 2004.

Tab. 1: Opazovanja (štetja po transektih), skupno število opazovanj/mesec (s številom opazovanj s strani domačinov v oklepaju) in največja skupina velikih pliskavk *Tursiops truncatus* v delti Bojane/Bune v obdobju med april 2003 in januarjem 2004.

Month	Observation time (hrs)	No. sightings	Maximum group size
April 03	54.8		
May	2.7		
June	8.8	3(2)	2
July	0.8	2(1)	6
August	-		
September	-		
October	-		
November	47.5	3(1)	5
December	-		
January 04	20.3		

Further sightings of single and small groups of dolphins in the Bojana/Buna River were reported by the locals close to the villages of Reci (Albania), Sveti Đorđe (Montenegro) and Derragjati (Albania), 7-35 km inland along the river's course, and a carcass of a newborn dolphin was reported from Franz-Joseph Island in the river mouth in mid-July 2003 (Fig. 1). Considering that all observers were scientifically untrained, in all latter cases a definite identification of the species was not possible. In addition, local commercial fishermen who operate in offshore waters frequently reported dolphin sightings during their operations, while in October 2005 a carcass of *T. truncatus*, which is now preserved in the National Museum in Tirana, was found at Shengjin, c. 20 km south of the delta (D. Ulqini, *pers. comm.*).

While we saw the species c. 10 km upstream in the Bojana/Buna River, bottlenose dolphins may occur regularly further inland according to the anecdotal reports by the locals mentioned above. The river bed, where we sighted the bottlenose dolphins, is 350 and 420 m wide, while maximum water depth is 9 m near

Paratuk according to sonar measurements by G. Resulbegović (*pers. comm.*). The largest schools of 5 and 6 individuals were seen in July and November. Although our survey effort/month along the riverbanks and coastline was much greater in April-May and during winter (123 hrs or 92% of total observation time), we saw dolphins upstream in the lower Bojana/Buna River only in June and July (Tab. 1). This period coincides with the lower water level of the river during the summer (Schneider-Jacoby *et al.*, 2006), when fish may be more abundant or, in view of the lower water depth of the river, better available for dolphins.

Apart of a highly philopatric population in the Amvrakikos Gulf in the Ionian Sea, Greece (Bearzi *et al.*, 2007), very few inland sightings of bottlenose dolphins are known from the Mediterranean and Black Sea regions (Reeves & Notarbartolo di Sciarra, 2006). While many estuarine and riverine populations are reported elsewhere in the world (Odell & Asper, 1990; Ingram, 2000), the Bojana/Buna River appears to be one of the few areas in the Mediterranean where bottlenose dolphins still occur within a narrow riverine system. Local fishermen in Albania have told us that in "former times" dolphins were sometimes seen even in Shkodra at the southeastern end of Lake Skutari.

In contrast to other estuarine habitats and river deltas

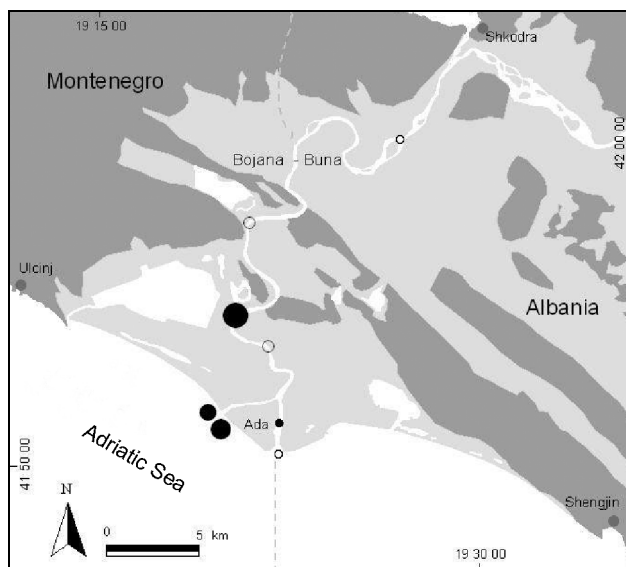


Fig. 1: Sightings of common bottlenose dolphins *Tursiops truncatus* in the Bojana/Buna delta in 2003. Full circles: sightings by authors; open circles: sightings reported by the locals. Size of symbols indicates group size (min: 1, max: 6 individuals).

Sl. 1: Opazovanja velikih pliskavk *Tursiops truncatus* v delti Bojane/Bune v letu 2003. Polni krožci: opazovanja s strani avtorjev; prazni krožci: opazovanja s strani domačinov. Velikost simbolov ponazarja velikost skupine velikih pliskavk (min: 1, max: 6 osebkov).



Fig. 2: Eastern branch of the Bojana/Buna delta on the borderline between Albania and Montenegro; location of dolphin sighting on June 12th, 2003. (Photo: P. Sackl). Sl. 2: Vzhodni rokav delte Bojane/Bune na meji med Albanijo in Črno goro; lokacija opazovanja velike pliskavke dne 12. junija 2003. (Foto: P. Sackl).

of the Mediterranean region, the lower Bojana/Buna river is largely unobstructed by embankments and urban development (Schneider-Jacoby *et al.*, 2006). According to the heavy persecution of cetaceans by fishermen throughout the Adriatic Sea till the 1990s (Bearzi *et al.*, 2004), the presence of the species may be further linked to the low level of human disturbances in the area. Till the end of the last Balkan War in 2001, access to the lower Bojana/Buna River along the borderline between Albania and the former Yugoslavia was largely restricted. Since our survey in 2003/04, disturbances have increased and areas along borderline have recently been used by net and, on the Albanian side, by dynamite fishing, although boating and hunting is still officially prohibited. Besides the formal establishment of the proposed transboundary Bojana/Buna Delta Marine Park (Schneider-Jacoby *et al.*, 2006), a strict control of human activities in the area is needed. Their inshore habits make dolphins in the Bojana/Buna River particularly vulnerable to anthropogenic threats, highlighting the need for enforcing appropriate science-based management measures.

ACKNOWLEDGEMENTS

This note derives from field surveys carried out during the "Rapid Assessment of the Ecological Value of the Bojana/Buna Delta" project, coordinated by Martin Schneider-Jacoby for Euronatur (Radolfzell, Germany) with support from the MAVA Foundation. Barbara Herzig-Straschil, Tina Petras, Gani Resulbegović, Friederike Spitzenberger, Reinhold Turk and Denik Ulqini have provided help with literature and local information. We are particularly grateful to Giovanni Bearzi and Giuseppe Notarbartolo di Sciarra for their comments on a previous version of the paper.

OPAZOVANJA VELIKE PLISKAVKE *TURSIOPS TRUNCATUS* (MONTAGU, 1821) V DELTI BOJANE/BUNE, ALBANIJA IN ČRNA GORA

Peter SACKL

Steiermärkisches Landesmuseum Joanneum, Forschungsstätte Furtnerteich, A-8010 Graz, Raubergasse 10, Austria
E-mail: peter.sackl@museum-joanneum.at

Jakob SMOLE

SI-2000 Maribor, Cafova 4, Slovenija

Darko SAVELJIĆ

Center for the Protection and Research of Birds, CG-81000 Podgorica, Trg Becir bega Osmanagica 16, Montenegro

Borut ŠTUMBERGER

SI-2282 Cirkulane, Cirkulane 41, Slovenija

POVZETEK

Med aprilom 2003 in januarjem 2004 smo ob popisih vodnih ptic opazovali velike pliskavke *Tursiops truncatus* kakih 10 kilometrov po reki Bojani/Buni navzgor (vzhodni Jadran). Z največ 6 pliskavkami v skupini smo te videvali izključno poleti, ko sta bila pretok in gladina reke majhna. Rečna delta Bojane/Bune je pretežno neuravnana – v veliki meri jo je obšla tudi urbanizacija – in je eno redkih območij v Sredozemlju, kjer se pliskavka pojavlja v reki. Verjetni vzrok pojavljanja v rečni delti je majhen človekov vpliv vzdolž meje med Albanijo in nekdanjo Jugoslavijo vse do konca zadnje balkanske vojne.

Ključne besede: velika pliskavka, *Tursiops truncatus*, reka Bojana/Buna, Albanija, Črna gora, Jadransko morje

REFERENCES

- Bearzi, G. & G. Notarbartolo di Sciarra (1995):** A comparison of the present occurrence of Bottlenosed Dolphins, *Tursiops truncatus*, and Common Dolphins, *Delphinus delphis*, in the Kvarnerić (northern Adriatic Sea). *Annales, Ser. Hist. Nat.*, 7, 61–67.
- Bearzi, G., D. Holcer & G. Notarbartolo di Sciarra (2004):** The role of historical dolphin takes and habitat degradation in shaping the present status of northern Adriatic cetaceans. *Aquat. Conserv.: Mar. Fresh. Ecosyst.*, 14, 363–379.
- Bearzi, G., S. Agazzi, S. Bonizzoni, M. Costa & A. Azzellino (2007):** Dolphins in a bottle: abundance, residency patterns and conservation of bottlenose dolphins *Tursiops truncatus* in the semi-closed eutrophic Amvrakikos Gulf, Greece. *Aquat. Conserv.: Mar. Fresh. Ecosyst.*, 17. (In press)
- Beaubrun, P. C. (1995):** Atlas préliminaire de distribution des cétacés de Méditerranée. CIESM & Muse Océanographique, Monaco, 87 p.
- Hussenot, E. & D. Robineau (1994):** *Tursiops truncatus* (Montagu, 1821)-Grosser Tümmler. In: Robineau, D., R. Duguy & M. Klima (eds.): *Handbuch der Säugetiere Europas*, Bd. 6/Teil I: Wale und Delphine (Cetacea). Aula-Verlag, Wiesbaden, pp. 362–394.
- Ingram, S. N. (2000):** The ecology and conservation of bottlenose dolphins in the Shannon Estuary, Ireland. Ph. D. Thesis. University of Cork, Ireland.
- Marchessaux, D. (1980):** A review of the current knowledge of the cetaceans in the Eastern Mediterranean Sea. *Vie Marine*, 2, 59–66.
- Notarbartolo di Sciarra, G., M. C. Venturino, M. Zanardelli, G. Bearzi, F. J. Borsani & B. Cavalloni (1993):** Cetaceans in the Central Mediterranean Sea: distribution and sighting frequencies. *Boll. Zool.*, 60, 131–138.
- Odell, D. K. & E. D. Asper (1990):** Distribution and movements of freeze-branded bottlenose dolphins in the Indian and Banana rivers, Florida. In: Leatherwood, S. & R. R. Reeves (eds.): *The Bottlenose Dolphin*. Academic Press, San Diego, pp. 515–540.
- Reeves, R. R. & G. Notarbartolo di Sciarra (2006):** The Status and Distribution of Cetaceans in the Black Sea and Mediterranean Sea. IUCN Center for Mediterranean Cooperation, Malaga, Spain, 137 p.
- Schneider-Jacoby, M., D. Dhora, P. Sackl, D. Saveljić, U. Schwarz & B. Stumberger (2006):** Rapid Assessment of the Ecological Value of the Bojana/Buna Delta (Albania/Montenegro). Unpubl. Report. Euronatur, Radolfzell, Germany.
- Stumberger, B., M. Schneider-Jacoby, U. Schwarz, P. Sackl, D. Dhora & D. Saveljić (2005):** The ornithological value of the Bojana/Buna delta. *Bul. Shk., Ser. Shk. Nat.*, 55, 136–158.