

Contribution to the sea turtle findings in Montenegro (southeast Adriatic Aea)

Sladana GVOZDENOVIC^{1*}, Mirko ĐUROVIĆ¹ & Zdravko IKICA¹

¹ Institute of Marine Biology, University of Montenegro, Put I bokeljske brigade 68, 85330 Kotor, Montenegro, *e-mail: sladjanag@ucg.ac.me

ABSTRACT

This paper reports new findings of sea turtles along the Montenegrin coast, collected during 2020, and includes an additional bibliographical report missing from the previous check list. There are 31 new records included in this paper. Most of these (22) were sightings of loggerhead turtle. For nine records there was no information about the species. A total of 13 specimens were found alive, while 18 were found dead, stranded along the coast or floating on the sea surface. The list of recorded sea turtle sightings in Montenegrin waters now counts 108 records in total.

Keywords: the loggerhead turtle, new findings, 2020, Montenegro

INTRODUCTION

From seven sea turtles known that inhabit the World Ocean, three can be found in the Mediterranean, including the Adriatic Sea: the loggerhead turtle *Caretta caretta* (Linnaeus, 1758), the green turtle *Chelonia mydas* (Linnaeus, 1758), and the leatherback turtle *Dermochelys coriacea* (Vandellii, 1761). The loggerhead and green turtles have established populations in the Mediterranean, and belong to their respective Regional Management Units (RMUs), *Caretta caretta* Mediterranean (CC-Med) and *Chelonia mydas* Mediterranean (CM-Med). The leatherback turtle enters the Mediterranean through the Strait of Gibraltar, mainly in search for food (Casale *et al.*, 2020), and is counted in the *Dermochelys coriacea*

Atlantic (DC-ATL) RMU. The Mediterranean is also visited by loggerhead individuals from the North Atlantic and North-east Atlantic RMUs and by green turtle individuals from the East Atlantic RMU (Casale *et al.*, 2018; 2020).

Sea turtles are among the most endangered species in the world, primarily because of human activities (Casale & Margaritoulis, 2010; Poppi & Di Bello, 2015; Casale *et al.*, 2018; 2020; Đurović *et al.*, 2020; Gvozdenović *et al.*, 2021). According to the global IUCN red list (IUCN, 2020) the loggerhead turtle is listed as vulnerable (VU), the green turtle as endangered (EN) and the leatherback turtle as vulnerable (VU), all with decreasing population trends.

The loggerhead and green turtles are listed as protected species on national level in

Montenegro (Službeni list Crne Gore, 76/06). Additionally, Montenegro signed and ratified eight international conventions, agreements and protocols relevant to sea turtles conservation in the Adriatic region (Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean – Barcelona convention; United Nations Convention on the Law of the Sea; Convention on Biological Diversity; Convention on International Trade in Endangered Species of Fauna and Flora – CITES; Convention on the Conservation of European Wildlife and Natural Habitats – Bern Convention; Convention on the Conservation of Migratory Species of Wild Animals; Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean; Protocol on Integrated Coastal Zone Management in the Mediterranean) (Štrbenac, 2015).

The main goal of this paper is to add new findings (findings during 2020) of sea turtles in Montenegrin coastal waters to the previously published list (see Gvozdenović *et al.*, 2021). One record is bibliographical, and was erroneously omitted from the previous list.

MATERIAL AND METHODS

Recorded sightings include observations along the coast, sightings from boat, and sightings reported by local population and/or fishers. The locality, geographic coordinates, finding date and photos of animals were taken whenever possible. The determination of the species was done according to Arnold & Ovenden (2002). The published literature data were collected through keyword searches, notably from the Google Scholar database.

RESULTS AND DISCUSSION

There were 31 new findings of sea turtles during 2020 (January – December 2020). Only, 13 specimens were found alive, of which 10 were in good condition, breathing on the surface; one turtle was caught in a fishing net, rescued and released into the sea; one turtle was found with a hook in its mouth, which was removed and the turtle was released into the sea; one turtle was found on the surface unable to dive (Fig. 1). A total of 18 specimens were found dead, stranded along the coast or floating on sea surface (Fig. 1), while one specimen is now part of the herpetological collection of the Institute for biological research “Siniša Stanković”, University of Belgrade (Džukić *et al.*, 2017).

Most records were of the loggerhead turtle (22 individuals), while for nine specimens no information regarding the species was available (the photo was not taken, or the turtle dived too fast to be determined and/or photographed). These findings were added to the previously published list (Gvozdenović *et al.*, 2021). The list of sea turtles in Montenegrin waters now counts 108 records in total (Table 1). All records are classified either according to the species (loggerhead turtle, green turtle, leatherback turtle) or in the undetermined category (marked by “?” in Table 1). The highest number of records belongs to the loggerhead turtle (81 records or 75%), followed by the green turtle (2 records or 1.85%) and the leatherback turtle (2 records or 1.85%). The undetermined individuals totalled 21.3% (23 records), but were most likely loggerhead turtles.

Unfortunately, at the end of December 2020 (27th, 28th, 29th) bad weather conditions with strong south wind hit the Montenegrin coast, and during those three days, eight dead sea turtles were found washed along the shore (Fig. 2).



Figure 1. A. *Caretta caretta* alive, unable dive, found near Veliki Pijesak (photographed by Vesna Mačić); B. *Caretta caretta* alive, with a fishing hook in its mouth, found near Platamuni (photographed by Stefan Ralević); C. *Caretta caretta* alive, caught in a fishing net near Stoliv (photographed by Olivera Simović); D. *Caretta caretta* dead, stranded on the coast on island St. Marko (photographed by Goran Gotesgreber)



Figure 2. Stranded sea turtle specimens found on 27th, 28th and 29th December 2020. A. *Caretta caretta* on Velika beach in Ulcinj (photographed by Ilija Đakonović); B. *Caretta caretta* on Velika beach in Ulcinj (photographed by Bojan Ivanović); C. *Caretta caretta* on St. Stefan in Budva (photographed by Dada Grloman); D. *Caretta caretta* on Slovenska beach in Budva (photographed by Marko Jovičević)

Due to the prevailing strong south wind, it is possible that these specimens have not been injured and/or died in Montenegrin waters, but further south (e.g. in Albanian waters) and were then carried by waves and sea currents to Montenegrin coast. This possibility is supported by a fact that the direction and intensity of winds, as well as the ocean currents, can influence the drift of the carcasses, resulting in either carrying the animals toward the open ocean or facilitating their arrival on the beaches (Epperly *et al.*, 1996; Melo, 2017 – citation from Brusius *et al.*, 2020).

Most of the sea turtle carcasses found along the Montenegrin coast were in different stages of decomposition, suggesting that specimens were already dead, and that the waves just washed them ashore. Regarding Barbieri (2009a; b), storms can be the reason of occurrence of stranded marine animals on beaches around the world. The number of strandings at a particular beach and the meteorological and oceanographic variables that forced them, may have different relationships depending on the different groups of marine organisms (Brusius *et al.*, 2020). The same authors indicate that in the southern Brazilian coast, high atmospheric pressure, low sea surface temperature, and high wave heights can be associated with a greater number of strandings of migratory species.

ACKNOWLEDGEMENT

Many thanks to the locals and fishermen who understood the importance of sea turtle protection and helped in data collection. Also many thanks to the colleagues from Institute of Marine Biology who provided some of data. Many thanks to anonymous reviewer for his

suggestions which improved the quality of this manuscript.

REFERENCES

- Arnold, N. & D. Oviden (2002): A field guide to the reptiles and amphibians of Britain and Europe. Harper Collins Publisher, London, 288 pp.
- Barbieri, E. (2009a): Concentration of heavy metals in tissues of green turtles (*Chelonia mydas*) sampled in the Cananéia estuary, Brazil. *Braz. J. Oceanogr.*, 57(2): 243–248.
- Barbieri, E. (2009b): Occurrence of plastic particles in Procellariiformes, South of São Paulo state (Brazil). *Braz. Arch. Biol. Technol.*, 52(2): 341–348.
- Brusius, B. K., R. B. de Souza & E. Barbieri (2020): Stranding of marine animals: Effects of environmental variables. *In*: Filho, W. L. *et al.* (Ed.): Life below water, Encyclopedia of the UN sustainable development goals. Springer Nature Switzerland AG. https://doi.org/10.1007/978-3-319-71064-8_102-1.
- Casale, P. & D. Margaritoulis (2010): Sea turtles in the Mediterranean: Distribution, threats and Conservation priorities. IUCN/SSC Marine Turtle Specialist Group, Gland, Switzerland, 294 pp.
- Casale P., A. C. Broderick, J. A. Camiñas, L. Cardona L., C. Carreras, A. Demetropoulos, W. J. Fuller, B. J. Godley, S. Hochscheid, Y. Kask, B. Lazar, D. Margaritoulis, A. Panagopoulou, A. F. Rees, J. Tomás & O. Turkozan (2018): REVIEW: Mediterranean sea turtles: Current knowledge and priorities for conservation and research. *Endanger. Species Res.*, 36: 229–267.

- Casale, P., S. Hochscheid, Y. Kaska & A. Panagopoulou (2020): Sea turtles in the Mediterranean Region: MTSG Annual Regional Report 2020. Report of the IUCN-SSC Marine Turtle Specialist Group, 2020, 331 pp. (Available at: https://static1.squarespace.com/static/5e4c290978d00820618e0944/t/5f9b0d1972c46e3c7a14dc/1606327071399/MTSG+Regional+Report_Mediterranean_2020.pdf).
- Džukić, G., Lj. Tomović, M. Anđelković, A. Urošević, S. Nikolić & M. Kalezić (2017): The herpetological collection of the Institute for Biological Research “Siniša Stanković”, University of Belgrade. *Bull. Nat. Hist. Mus. Belgrade*, 10: 57–104.
- Đurović, M., S. Gvozdenović & Z. Ikica (2020): Montenegro. *In*: Casale P., S. Hochscheid, Y. Kaska & A. Panagopoulou (Ed.): Sea turtles in the Mediterranean Region: MTSG Annual Regional Report 2020. Report of the IUCN-SSC Marine Turtle Specialist Group, 2020. pp. 240–245.
- Epperly, S. P., J. Braun, A. J. Chester, F. A. Cross, J. V. Merriner, P. A. Tester & J. H. Churchill (1996): Beach strandings as an indicator of at-sea mortality of sea turtles. *Bull. Mar. Sci.*, 59(2): 289–297.
- Gvozdenović, S. & V. Iković (2015): Dead sea turtles on the Montenegrin coast. *Stud. Mar.*, 28(1): 61–66.
- Gvozdenović, S., M. Đurović & V. Iković (2016): Distribution records of sea turtles in the Montenegrin waters. *Stud. Mar.*, 29(1): 33–46.
- Gvozdenović, S., Đurović, M., Ikica, Z. & Mandić, M. (2021). Sea turtles in Montenegrin Adriatic Coastal waters. *In*: Joksimović, A., M. Đurović, I. S. Zonn, A. G. Kostianoy and A. V. Semenov (Ed.): The Montenegrin Adriatic Coast. The Handbook of Environmental Chemistry, vol. 109, Springer Cham, DOI: 10.1007/978-3-030-75217-2.
- IUCN (2020): Red list of threatened species, Version 2020-03. (Available at: <https://www.iucnredlist.org>). Accessed: 30th December 2020.
- Kosić, B. (1896): *Sphargis coriacea* Gray u Jadranskome moru. *Glasnik Hrv. Narav. Društva*, 8(1/6): 117–144.
- Kosić, B. (1899): *Sphargis coriacea* Gray u Jadranskome moru. *Dodatak. Glasnik Hrv. Narav. Društva*, 10(1-6): 15–24.
- Lazar, B., D. Margaritoulis & N. Tvrtković (2004): Tag recoveries of the loggerhead sea turtle *Caretta caretta* in the eastern Adriatic sea: Implication for conservation. *J. Mar. Biol. Ass. U.K.*, 84: 475–480.
- Melo, L. S. D. (2017): Processos oceanográficos e climáticos preditores de encalhes de tartarugas marinhas em praias do Paraná. Monografia (Graduação em Oceanografia). Universidade Federal do Paraná, 67 pp.
- Prirodoslovni muzej Dubrovnik (2012): *Dermochelys coriacea*. Prirodoslovna didaktička izložba u dva dijela. Znanstvena knjižica Dubrovnik, 72 pp. (Available at: https://issuu.com/ivaivas/docs/katalog_dermochelys_coriacea).
- Polović, L. & N. Čadenović (2014): The herpetofauna of the great Ulcinj beach including Ada Island (Montenegro). *Turk. J. Zool.*, 38: 104–107.
- Poppi, L. & A. Di Bello (2015): Sea turtles management manual. NETCET project financed by the IPA Adriatic CBC Programme, 335 pp.
- Radosavljević, M., P. Milić & I. Radosavljević (2019): Ugrizi morskih kornjača u Jadranskom moru – Prikaz četiri bolesnika. *Acta Med. Croat.*, 73(1): 67–70.
- Službeni list Crne Gore, 76/06 (2006): Riješenje o stavljanju pod zaštitu

pojedinih biljnih i životinjskih vrsta.
Republički zavod za zaštitu prirode, Crna
Gora, 27 pp. (In Montenegrin).

Štrbenac, A. (2015): Strategy on the
conservation of sea turtles in the Adriatic
Sea for the period 2016-2025. NETCET
project financed by the IPA Adriatic CBC
Programme, 44 pp.

Received: 15. 04. 2021.

Accepted: 17. 05. 2021.

Table 1. Updated list of sea turtle findings in Montenegrin waters (N – number of individuals; in red – new data from this paper)

Species	Locality	Coordinates	Date	N	Notes	Source
<i>Dermochelys coriacea</i>	Budva – St. Nikola island	-	Sep 1894	1	Caught by fisherman, male, in the collection of the Natural History Museum Dubrovnik, Croatia	Kosic (1896; 1899); Prirodoslovni muzej Dubrovnik (2012)
<i>Dermochelys coriacea</i>	Ulcinj	-	27.07.2016	1	Caught in a net, alive	Gvozdenović et al. (2016)
<i>Chelonia mydas</i>	Kotor – Orahovac	42° 29' N 18° 44' E	06.09.2014	1	Caught in a gillnet, named Žiki, marked with a satellite tag, released in Dobrota, found dead in July 2015	Gvozdenović et al. (2016)
<i>Chelonia mydas</i>	Kotor – Bigova	42° 21' 30" N 18° 41' 24" E	10.05.2013	1	Caught in a gillnet, alive	Gvozdenović et al. (2016)
<i>Caretta caretta</i>	Bar	-	Aug 2012	1	Hurt, alive	Gvozdenović et al. (2016)
<i>Caretta caretta</i>	Bar	-	Sep 2016	2	11 miles from the shore, alive	Gvozdenović et al. (2016)
<i>Caretta caretta</i>	Bar	-	28.10.2002	1	Caught in a trawl net, alive	Lazar et al. (2004)
<i>Caretta caretta</i>	Bar – Čanj	41° 58' N 18° 47' E	06.06.2013	1	14 km from the shore, alive	Gvozdenović et al. (2016)
<i>Caretta caretta</i>	Bar – Žukotrljica	42° 06' 48" N 19° 04' 58" E	28.06.2014	1	Dead	Gvozdenović & Iković (2015)
<i>Caretta caretta</i>	Budva	42° 02' N 18° 28' E	06.06.2013	2	38 km from the shore, alive	Gvozdenović et al. (2016)
<i>Caretta caretta</i>	Budva – St. Stefan	42° 15' N 18° 53' E	15.10.2014	1	Dead, cut neck	Gvozdenović & Iković (2015)
<i>Caretta caretta</i>	Budva – Slovenska beach	42° 17' 05" N 18° 51' 04" E	17.10.2014	1	Dead, rope around its neck	Gvozdenović & Iković (2015)
<i>Caretta caretta</i>	Budva – Jaz beach	42° 16' N 18° 48' E	25.04.2015	1	Dead	Gvozdenović et al. (2016)
<i>Caretta caretta</i>	Budva – St. Nikola island	42° 16' N 18° 50' E	Oct 2014	1	Alive	Gvozdenović et al. (2016)
<i>Caretta caretta</i>	Budva – St. Nikola island	42° 16' N 18° 50' E	14.05.2016	1	Dead, with a longline in its mouth	Gvozdenović et al. (2016)
<i>Caretta caretta</i>	Budva	41° 49' 14" N 18° 13' 27" E	28.08.2014	1	Open waters, alive	Gvozdenović et al. (2016)
<i>Caretta caretta</i>	Budva – Buljanica	42° 11' N 18° 57' E	Jun 2016	1	Dead	Gvozdenović et al. (2016)

Table 1. (Continued)

Species	Locality	Coordinates	Date	N	Notes	Source
<i>Caretta caretta</i>	Budva – Kraljičina beach	42° 15' 37" N 18° 53' 35" E	May 2016	1	Dead	Gvozdenović <i>et al.</i> (2016)
<i>Caretta caretta</i>	Herceg Novi – Mamula island	42° 23' N 18° 33' E	Sep 2013	1	Alive	Gvozdenović <i>et al.</i> (2016)
<i>Caretta caretta</i>	Kotor – Orahovac	42° 29' N 18° 44' E	Oct 2014	1	Alive, caught in a net and released in Budva	Gvozdenović <i>et al.</i> (2016)
<i>Caretta caretta</i>	Kotor – Orahovac	42° 29' 05" N 18° 44' 39" E	Jul 2015; Aug 2015; Jun 2016	3	Fish and shellfish farm Orahovac, alive	Gvozdenović <i>et al.</i> (2016)
<i>Caretta caretta</i>	Kotor – Muo	42° 26' N 18° 45' E	Sep 2013	1	-	Gvozdenović <i>et al.</i> (2016)
<i>Caretta caretta</i>	Kotor – Ljuta	42° 29' N 18° 45' E	May 2015	1	Alive, female	Gvozdenović <i>et al.</i> (2016)
<i>Caretta caretta</i>	Kotor – Perast	42° 29' 12" N 18° 41' 18" E	15.08.2016	1	Alive, injured, probably by boats	Gvozdenović <i>et al.</i> (2016)
<i>Caretta caretta</i>	Kotor – St. Stasije	42° 28' 13" N 18° 45' 51" E	Jun 2015	1	Dead	Gvozdenović <i>et al.</i> (2016)
<i>Caretta caretta</i>	Kotor – Bigova	42° 21' N 18° 42' E	07.12.1993	1	-	Lazar <i>et al.</i> (2004)
<i>Caretta caretta</i>	Tivat – Porto Montenegro	42° 26' 02" N 18° 41' 31" E	11.08.2015; 09.06.2016	2	Alive	Gvozdenović <i>et al.</i> (2016)
<i>Caretta caretta</i>	Tivat – St. Marko island	42° 24' N 18° 41' E	23.06.2016	1	Dead	Gvozdenović <i>et al.</i> (2016)
<i>Caretta caretta</i>	Ulcinj – Velika beach	41° 54' N 19° 14' E	2011; 2012	4	-	Polović & Čadenović (2014)
<i>Caretta caretta</i>	Ulcinj – Velika beach	41° 54' N 19° 15' E	25.02.2014	1	Dead	Gvozdenović <i>et al.</i> (2016)
<i>Caretta caretta</i>	Ulcinj – Velika beach	-	Apr 2014	1	-	Gvozdenović <i>et al.</i> (2016)
<i>Caretta caretta</i>	Ulcinj	-	27.07.2016	1	Alive	Gvozdenović <i>et al.</i> (2016)
<i>Caretta caretta</i>	Kotor – Prčanj	-	11.09.2019	1	Dead	Gvozdenović <i>et al.</i> (2021)
<i>Caretta caretta</i>	Herceg Novi – Kumbor	42° 25' 52.00" N 18° 36' 09.10" E	12.09.2019	1	Dead, injured by a jet ski or a boat	Gvozdenović <i>et al.</i> (2021)

Table 1. (Continued)

Species	Locality	Coordinates	Date	N	Notes	Source
<i>Caretta caretta</i>	Kotor – Orahovac	42° 29' 22.60" N 18° 45' 19.20" E	25.09.2019	1	Dead, injured by a jet ski or a boat, first seen on 21.09.2019 floating in Prčanj	Gvozdenović et al. (2021)
<i>Caretta caretta</i>	Kotor – Dobrota	42° 26' 08.15" N 18° 45' 52.01" E	20.09.2019	1	Alive	Gvozdenović et al. (2021)
<i>Caretta caretta</i>	Ulcinj – Velika beach	41° 54' 35" N 19° 14' 20" E	10.11.2016	1	Dead	Gvozdenović et al. (2021)
<i>Caretta caretta</i>	Ulcinj – Velika beach	-	Dec 2018	1	Dead	Gvozdenović et al. (2021)
<i>Caretta caretta</i>	Ulcinj – Velika beach	-	May 2017	1	Dead	Gvozdenović et al. (2021)
<i>Caretta caretta</i>	Tivat – Kaliman	42° 25' 35.10" N 18° 41' 27.10" E	26.09.2019	1	Alive	Gvozdenović et al. (2021)
<i>Caretta caretta</i>	Kotor – Prčanj	-	Nov 2017	1	Dead	Gvozdenović et al. (2021)
<i>Caretta caretta</i>	Bar	42° 01' 34.00" N 18° 51' 48.50" E	14.10.2016	1	Alive, disoriented, injured probably by a jet ski or a boat, missing its right hind fin	Gvozdenović et al. (2021)
<i>Caretta caretta</i>	Kotor – Stoliv	-	Aug 2017	1	Killed with a speargun by a local man	Gvozdenović et al. (2021)
<i>Caretta caretta</i>	Kotor – Risan	-	Aug 2017	1	Alive, caught by local fisherman and released	Gvozdenović et al. (2021)
<i>Caretta caretta</i>	Ulcinj – Valdanos	-	Aug 2018	1	Alive	Gvozdenović et al. (2021)
<i>Caretta caretta</i>	Herceg Novi – Topla beach	42° 27' 30.25" N 18° 31' 02.30" E	08.08.2017	1	Alive, injured by a jet ski or a boat. Help was given by a veterinarian and it was released into the sea	Gvozdenović et al. (2021)
<i>Caretta caretta</i>	Budva – Buljarica	-	Aug 2017	1	Dead	Gvozdenović et al. (2021)
<i>Caretta caretta</i>	Bar	42° 06' 42.90" N 19° 05' 03.20" E	04.02.2017	1	Dead, initially alive and stranded on the coast with an injured head. Help was given by a veterinarian and the turtle was returned to the sea but was subsequently found dead a week later	Gvozdenović et al. (2021)
<i>Caretta caretta</i>	Kotor – Prčanj	42° 26' 35.18" N 18° 45' 15.28" E	14.12.2017	1	Dead, a young individual	Gvozdenović et al. (2021)

Table 1. (Continued)

Species	Locality	Coordinates	Date	N	Notes	Source
<i>Caretta caretta</i>	Tivat – Porto Montenegro	42° 26' N 18° 41' E	29.05.2018	1	Alive	Gvozdenović et al. (2021)
<i>Caretta caretta</i>	Herceg Novi – Kamenari	-	Oct 2017	1	Dead	Gvozdenović et al. (2021)
<i>Caretta caretta</i>	Bar – Volujica	-	23.10.2017	1	Dead	Gvozdenović et al. (2021)
<i>Caretta caretta</i>	Bar – Šušanj	-	2016	1	Dead	Gvozdenović et al. (2021)
<i>Caretta caretta</i>	Ulcinj – Velika beach	41° 54' 31.43" N 19° 14' 23.29" E	10.10.2017	1	Dead	Gvozdenović et al. (2021)
<i>Caretta caretta</i>	Bar	-	03.04.2018	1	Alive	Gvozdenović et al. (2021)
<i>Caretta caretta</i>	Kotor – Luštica Bay	-	24.10.2020	1	Dead, stranded on the coast	This paper
<i>Caretta caretta</i>	Kotor – Stoliv	42° 28' 19" N 18° 43' 12" E	Aug 2020	1	Alive, caught in a fishing net and released in Stoliv	This paper
<i>Caretta caretta</i>	Ulcinj – Velika beach	-	Sep 2020	1	Dead, stranded on the coast	This paper
<i>Caretta caretta</i>	Ulcinj – Velika beach	41° 54' 01.66" N 19° 16' 20.86" E	16.10.2020	1	Dead, stranded on the coast	This paper
<i>Caretta caretta</i>	Ulcinj – Velika beach	41° 52' 49.36" N 19° 19' 10.03" E	Sep 2020	1	Dead, stranded on the coast	This paper
<i>Caretta caretta</i>	Herceg Novi – Rose/Zelenika	42° 26' 33.48" N 18° 34' 06.65" E	17.06.2020	1	Dead, floating on the surface	This paper
<i>Caretta caretta</i>	Kotor – Dražin vrt	42° 28' 27.06" N 18° 44' 25.32" E	10.07.2020	1	Alive, breathing on the surface	This paper
<i>Caretta caretta</i>	Kotor – Risan	42° 29' 37.20" N 18° 40' 51.06" E	10.07.2020	1	Alive, breathing on the surface	This paper
<i>Caretta caretta</i>	Herceg Novi – Kumbor	42° 25' 55.02" N 18° 35' 35.70" E	10.07.2020	1	Alive, breathing on the surface	This paper
<i>Caretta caretta</i>	Budva/Kotor – Platamuni	42° 16' 59.02" N 18° 41' 54.83" E	13.08.2020	1	Alive, with a fishing hook in its mouth, rescued by staff from Institute of Marine Biology and released into the sea	This paper
<i>Caretta caretta</i>	Ulcinj – Veliki pijesak	42° 02' 10.30" N 19° 07' 55.00" E	31.08.2020	1	Alive, on surface, unable dive	This paper

Table 1. (Continued)

Species	Locality	Coordinates	Date	N	Notes	Source
<i>Caretta caretta</i>	Budva – Jaz beach	-	10.02.2000	1	In the herpetological collection of the Institute for biological research “Simiša Stanković”, University of Belgrade, Serbia	Džukić <i>et al.</i> (2017)
<i>Caretta caretta</i>	Tivat – St. Marko island	42° 24' N 18° 41' E	21.12.2020	1	Dead, stranded on the coast	This paper
<i>Caretta caretta</i>	Ulcinj – Velika beach	42° 53' 21" N 19° 18' 05" E	27.12.2020 28.12.2020	4	Dead, stranded on the coast	This paper
<i>Caretta caretta</i>	Budva – Bečići	42° 16' 52" N 18° 52' 27" E	29.12.2020	2	Dead, stranded on the coast	This paper
<i>Caretta caretta</i>	Budva – St. Stefan	42° 15' 21.60" N 18° 53' 39.35" E	29.12.2020	1	Dead, stranded on the coast	This paper
<i>Caretta caretta</i>	Budva – Slovenska beach	42° 17' 04.25" N 18° 50' 36.43" E	29.12.2020	1	Dead, stranded on the coast	This paper
<i>Caretta caretta</i>	Ulcinj	-	12.06.2020	1	Dead, stranded on the coast	This paper
?	Budva – Lučice beach	42° 12' 02.07" N 18° 57' 02.68" E	Sep 2020	1	Dead, stranded on the coast	This paper
?	Kotor – open pool	42° 25' 43.41" N 18° 46' 06.98" E	16.06.2020	2	Alive	This paper
?	Kotor – Dobrota	42° 26' 12" N 18° 45' 45" E	01.07.2020; 15.08.2020; 16.09.2020	3	Alive, breathing on the surface	This paper
?	Budva/Kotor – Platamuni	-	July 2020	1	Dead, injured probably by a jet ski or a boat, missing one fin, broken carapace	This paper
?	Tivat – Krašići	-	May 2020	1	Alive	This paper
?	Tivat – Krašići	-	Jul 2020	1	Alive	This paper
?	Kotor	42° 25' N 18° 46' E	25.08.2016	1	Alive	Gvozdenović <i>et al.</i> (2016)
?	Kotor – Bigova	42° 21' N 18° 42' E	18.09.2015	1	Dead	Gvozdenović <i>et al.</i> (2016)
?	Herceg Novi – Bijela	42° 26' N 18° 39' E	Jul 2015	1	Shipyard, dead	Gvozdenović <i>et al.</i> (2016)

Table 1. (Continued)

Species	Locality	Coordinates	Date	N	Notes	Source
<i>Caretta caretta</i>	Budva – Jaz beach	-	10.02.2000	1	In the herpetological collection of the Institute for biological research “Simiša Stanković”, University of Belgrade, Serbia	Džukić <i>et al.</i> (2017)
<i>Caretta caretta</i>	Tivat – St. Marko island	42° 24' N 18° 41' E	21.12.2020	1	Dead, stranded on the coast	This paper
<i>Caretta caretta</i>	Ulcinj – Velika beach	42° 53' 21" N 19° 18' 05" E	27.12.2020 28.12.2020	4	Dead, stranded on the coast	This paper
<i>Caretta caretta</i>	Budva – Bečići	42° 16' 52" N 18° 52' 27" E	29.12.2020	2	Dead, stranded on the coast	This paper
<i>Caretta caretta</i>	Budva – St. Stefan	42° 15' 21.60" N 18° 53' 39.35" E	29.12.2020	1	Dead, stranded on the coast	This paper
<i>Caretta caretta</i>	Budva – Slovenska beach	42° 17' 04.25" N 18° 50' 36.43" E	29.12.2020	1	Dead, stranded on the coast	This paper
<i>Caretta caretta</i>	Ulcinj	-	12.06.2020	1	Dead, stranded on the coast	This paper
?	Budva – Lučice beach	42° 12' 02.07" N 18° 57' 02.68" E	Sep 2020	1	Dead, stranded on the coast	This paper
?	Kotor – open pool	42° 25' 43.41" N 18° 46' 06.98" E	16.06.2020	2	Alive	This paper
?	Kotor – Dobrota	42° 26' 12" N 18° 45' 45" E	01.07.2020; 15.08.2020; 16.09.2020	3	Alive, breathing on the surface	This paper
?	Budva/Kotor – Platamuni	-	July 2020	1	Dead, injured probably by a jet ski or a boat, missing one fin, broken carapace	This paper
?	Tivat – Krašići	-	May 2020	1	Alive	This paper
?	Tivat – Krašići	-	Jul 2020	1	Alive	This paper
?	Kotor	42° 25' N 18° 46' E	25.08.2016	1	Alive	Gvozdenović <i>et al.</i> (2016)
?	Kotor – Bigova	42° 21' N 18° 42' E	18.09.2015	1	Dead	Gvozdenović <i>et al.</i> (2016)
?	Herceg Novi – Bijela	42° 26' N 18° 39' E	Jul 2015	1	Shipyard, dead	Gvozdenović <i>et al.</i> (2016)

Table 1. (Continued)

Species	Locality	Coordinates	Date	N	Notes	Source
?	Herceg Novi – Denovići	42° 26' N 18° 36' E	Aug 2015	1	Alive	Gvozdenović <i>et al.</i> (2016)
?	Herceg Novi – Verige	42° 28' N 18° 41' E	Jul 2015	1	Dead	Gvozdenović <i>et al.</i> (2016)
?	Herceg Novi – Zelenika	42° 26' N 18° 34' E	Jul 2015	1	Dead	Gvozdenović <i>et al.</i> (2016)
?	Budva/Kotor – Platamuni	42° 16' N 18° 47' E	Jul 2015	1	Alive	Gvozdenović <i>et al.</i> (2016)
?	Budva	41° 44' 96" N 18° 11' 57" E	29.09.2014	1	Open waters, alive	Gvozdenović <i>et al.</i> (2016)
?	Budva – Slovenska beach	42° 16' 53" N 18° 50' 17" E	07.11.2013	1	Dead	Gvozdenović & Iković (2015)
?	Kotor – Prčanj (Markov rt)	-	21.09.2019	1	Alive	Gvozdenović <i>et al.</i> (2021)
?	Kotor – Risan	-	13.09.2019	1	Alive	Gvozdenović <i>et al.</i> (2021)
?	Kotor – Prčanj	-	29.08.2016	1	Alive, a woman was bitten by this turtle	Radosavljević <i>et al.</i> (2019)
?	Kotor – Prčanj	-	24.07.2017 29.07.2017	1	Alive, a woman and a man were bitten by this turtle	Radosavljević <i>et al.</i> (2019)
?	Kotor – Orahovac	-	15.09.2016	1	Alive, a woman was bitten by this turtle	Radosavljević <i>et al.</i> (2019)

Doprinos nalazima morskih kornjača u Crnoj Gori (jugoistočno Jadransko more)

Sladana GVOZDENOVIĆ, Mirko ĐUROVIĆ & Zdravko IKICA

SAŽETAK

U ovom radu su predstavljene novi nalazi morskih kornjača duž crnogorske obale, sakupljeni tokom 2020 godine, uključujući i jedan literaturni podatak koje je prethodno propušten. U ovom radu je predstavljen 31 novi nalaz. Većina jedinki (22) su pripadale vrsti glavate morske kornjače. Za devet jedinki nije bilo podataka o vrsti. Ukupno 13 jedinki je bilo živo, dok je 18 uginulih jedinki bilo nasukano na obalu ili su plutale na površini mora. Lista registrovanih morskih kornjača u crnogorskim vodama sada broji ukupno 108 nalaza.

Ključne riječi: glavata kornjača, novi nalazi, 2020 godina, Crna Gora