

Records of Olive Ridley Marine Turtles (*Lepidochelys olivacea* Eschscholtz 1829) in Venezuelan Waters: A Review of Historical Data Sets and Threats

HÉCTOR BARRIOS-GARRIDO^{1,2,3,*},
ANGELA ARIAS-ORTIZ⁴, CLEMENTE BALLADARES⁵,
NÍNIVE ESPINOZA-RODRÍGUEZ¹,
MARCO GARCÍA-CRUZ^{6,7,8}, MARÍA F. GONZÁLEZ⁵,
GRACIELA PULIDO-PETIT¹,
DANIELA ROJAS-CAÑIZALES¹,
MARÍA RONDON-MEDICCI⁹, PEDRO VERNET⁴, AND
NATALIE E. WILDERMANN^{1,10,11}

¹Grupo de Trabajo en Tortugas Marinas del Golfo de Venezuela,
Maracaibo, 04001 Venezuela [hbarriosg@gmail.com;
espinozaninive@gmail.com; gracielaadcpp@gmail.com;
danielarojas159@gmail.com; nwildermann@gmail.com];

²Laboratorio de Ecología General, Centro de Modelado Científico
(CMC), Facultad Experimental de Ciencias, La Universidad del
Zulia (LUZ), Maracaibo, 04002 Venezuela
[hbarriosg@fec.luz.edu.ve];

³TropWATER, Centre for Tropical Water and Aquatic Ecosystem
Research, James Cook University, College of Marine and
Environmental Sciences, 1 James Cook Drive, Townsville, 04811
Queensland, Australia [hector.barriosgarrido@my.jcu.edu.au];

⁴Grupo de Trabajo en Tortugas Marinas de Nueva Esparta, Isla de
Margarita, Venezuela
[80.angela@gmail.com; pedrovernet@gmail.com];

⁵Dirección General de Diversidad Biológica-Ministerio del
Ambiente Venezolano, Caracas, Venezuela
[cballadares86@gmail.com; mariafgp@gmail.com];

⁶Laboratorio de Ecología y Genética de Poblaciones, Centro de
Ecología, Instituto Venezolano de Investigaciones Científicas,
Caracas, Venezuela [marcogarciacruz@gmail.com];

⁷ProOcean Foundation, Barcelona, Spain
[marcogarcia@pro-ocean.org];

⁸Archie Carr Center for Sea Turtle Research, Department of
Biology, University of Florida, Gainesville, Florida 32611 USA
[marcogarcia@ufl.edu];

⁹Instituto de Oceanografía, Universidade Federal do Rio Grande,
Rio Grande, Brazil [mmedicci@gmail.com];

¹⁰Texas Sea Grant at Texas A&M University, 4115 TAMU, College
Station, Texas 77843-4115 USA [nwildermann@tamu.edu];

¹¹Harte Research Institute for Gulf of Mexico Studies, 6300 Ocean
Drive, Corpus Christi, Texas 78412 USA

*Corresponding author

ABSTRACT. – We assess all the records of olive ridley turtles (*Lepidochelys olivacea*) in an exhaustive review of multiple data sources between 1977 and 2018 in Venezuela. We compiled 35 records of olive ridleys in the country. Our findings confirm the almost year-round presence of this species in Venezuelan waters.

RESUMEN. – Se evaluaron todos los registros de tortuga guaraguá (*Lepidochelys olivacea*) disponibles a través de una revisión exhaustiva de diversas fuentes, la cual comprendió entre los años 1977 y 2018 para Venezuela. Se compilaron un total de 35 registros de tortuga guaraguá para el país. Las evidencias confirman la presencia casi permanente durante todo el año de la especie en aguas territoriales venezolanas.

Lepidochelys olivacea (Eschscholtz 1829) is the most abundant sea turtle in the world (Pritchard 2007). This species is currently categorized as vulnerable according to the International Union for Conservation of Nature (Abreu-Grobois and Plotkin 2008). *Lepidochelys olivacea* has a unique polymorphic nesting behavior (in mass nesting events “arribadas,” or solitary) that occur on only a few nesting locations in the eastern Pacific Ocean and the eastern Indian Ocean (Bernardo and Plotkin 2007). Late colonization of the Atlantic Ocean by this species is evident in its phylogeography and the low number of nesting beaches in the western Atlantic (da Silva et al. 2007; Catry et al. 2009), the Mediterranean Sea (Revuelta et al. 2015), the southwestern Atlantic (González-Paredes et al. 2017), and the Caribbean Sea (Moncada et al. 2000; Moncada and Romero 2015).

In the western Atlantic, *L. olivacea* nesting beaches are located among 3 countries: Suriname, French Guiana, and Brazil (Marcovaldi 1999). In 2010, Wallace et al. (2010) described the presence of olive ridley turtles within the Wider Caribbean Region waters, as previous literature documented (e.g., Cuba and Florida; Moncada et al. 2000; Foley et al. 2003; Moncada and Romero 2015), but these records were considered as extreme and uncommon for the species’ home range and distribution. Therefore, in the West Atlantic Regional Management Unit description, Venezuela, as well as other Caribbean countries, was not included as part of the olive ridley’s distributional range (Wallace et al. 2010).

In Venezuelan databases, olive ridley turtle presence has been documented (Wildermann and Barrios-Garrido 2012; Barrios-Garrido et al. 2015), being the least common marine turtle in the country (Guada and Sole 2000). Although year-round presence has been documented, critical knowledge gaps remain regarding population structure, distribution, trends, and nesting status. Wildermann et al. (2018) mentioned that identifying developmental habitats of *L. olivacea* is critical and necessary to enable studies on the population and trends of this species. Hence, our study aims to describe the year-round presence of *L. olivacea* within the Venezuelan waters to identify developmental habitats in the country.

Methods. — We examined the official Venezuelan national data set from 1977 to 2018 (Fig. 1), including the stranding network data set (organized by C. Balladares), national museum registers, local nongovernmental organization databases, gray literature, unpublished data, and

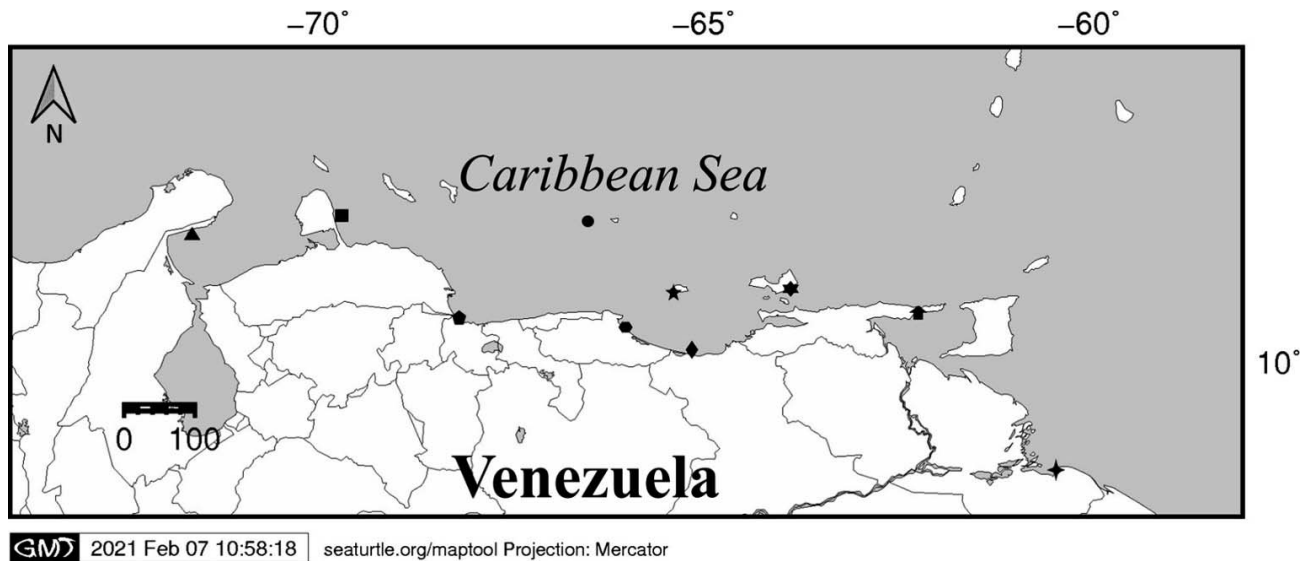


Figure 1. Geographical location of the study area. Marks in the map are showing the localities (states or territories) where *Lepidochelys olivacea* individuals were recorded: (triangle) Zulia state, (square) Falcon state, (pentagon) Carabobo state, (hexagon) Miranda state, (diamond) Anzoátegui state, (up arrow) Sucre state, (four-pointed star) Delta Amacuro state, (six-pointed star) Nueva Esparta state, (circle) Los Testigos Archipelago, and (five-pointed star) La Tortuga Island. Map created using Maptool (2002, SEATURTLE.ORG, Inc, available at <http://www.seaturtle.org/maptool>).

the Opportune Information Network (in Spanish, Red de Aviso Oportuno) databases (Vernet and Gómez 2007; Barrios-Garrido and Montiel-Villalobos 2016). We identified *L. olivacea* records through morphology characteristics (Pritchard and Mortimer 1999) and photos. Additionally, each account was verified by experts with experience in marine turtles.

We include the information regarding each record found, such as date (month/year), state, location (beach name or village), biometric measurements, presence of flipper tags, and cause of death (if known) (Barrios-Garrido and Montiel-Villalobos 2016; Rojas-Cañizales et al. 2021).

Measurements of curved carapace length (CCL) from complete carapaces were extracted from the databases. CCL measurements were taken using a flexible tape (± 0.2 cm) from the nuchal notch to the posteriormost notch (Bolten 1999). We estimated the percent of immature and adult olive ridleys as follows: ≤ 62.4 cm CCL for immature (da Silva et al. 2007) and ≥ 62.5 cm CCL for adults (Tagliolatto et al. 2020).

Results. — We found 35 records of *L. olivacea* within 12 different states or territories within the Venezuelan waters (Fig. 2). Olive ridley turtles were documented almost year-round throughout the Venezuelan coast (Fig. 3). The majority of the olive ridley encounters (34%, $n = 12$) were documented in the Zulia state. Twenty-one of these records found included the whole animal or carapace (5 alive and released and 16 records of dead individuals). CCL measurements were taken on 21 olive ridley turtles, and most of them were adults (85.72%, $n = 18$). Mean CCL was 66.6 cm (SD = 5.96 cm, median = 66.64 cm, range = 53.0–80.0 cm, $n = 21$).

Of the 35 records, 19 olive ridleys were registered as dead-stranded or bycaught in artisanal longlines or gillnets (Fig. 2) and 5 cases as intentional take for human consumption (turtle meat and other body parts were found in local markets or restaurants; $n = 5$). Finally, 10 of the animals registered showed no evident cause of death, in most of the cases due to the advance decomposition state of the bodies when found.

Discussion. — The 35 olive ridley turtles were recorded almost year-round in 12 states of Venezuela; most of the encounters ($n = 26$) were found in 3 states (Zulia, Nueva Esparta, and Sucre), where long-term (minimum 15 yrs) conservation and research programs have been carried out by national universities, local nongovernmental organizations, and government initiatives. Thus, it is likely that this uneven proportion of records is related to the concentrated efforts by environmental groups near these localities (Guada et al. 2002; Vernet and Gómez 2007; Balladares and Cova 2013; Barrios-Garrido and Montiel-Villalobos 2016). It is important to mention that in western Zulia state, olive ridley turtles do not have a local name, and indigenous Wayúu fishers considered the species a “rare green turtle” (Barrios-Garrido et al. 2018). Conversely, in eastern Venezuelan coasts, olive ridley turtles are colloquially named “Maní” or “Guaraguá” in Spanish (Barrios-Garrido et al. 2015).

No records of olive ridleys were documented in 4 states that have marine coastal areas (Monagas, Vargas, Aragua, and Yaracuy); however, we do not discard the presence of this species on these locations, as they present specific environmental conditions, such as sandy grounds that are used by *L. olivacea* to forage over multiple prey benthonic species (Plotkin 2003; Wildermann and Barrios-

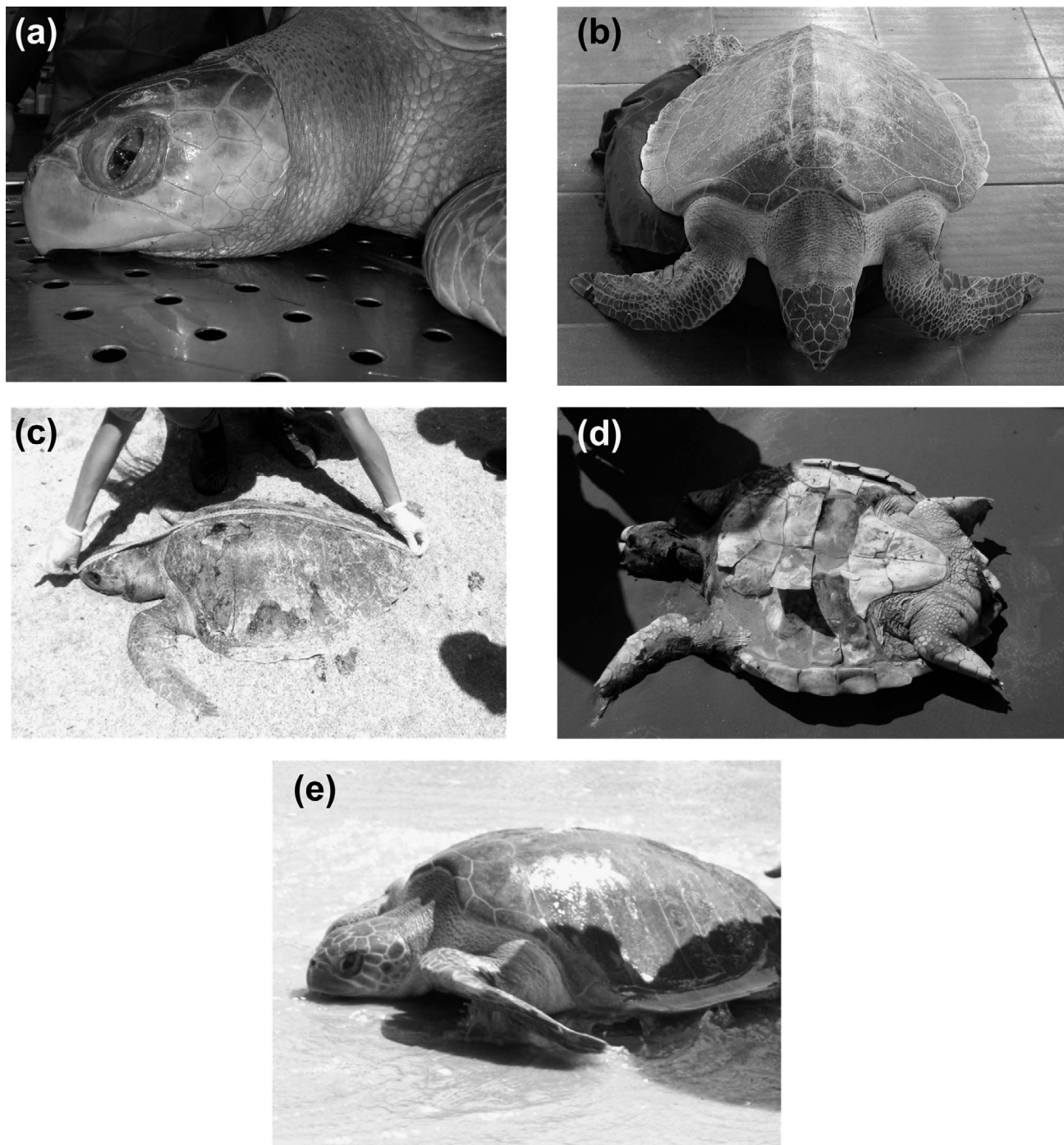


Figure 2. Stranding records evidences of olive ridley turtles in Venezuela. (a) Dead (fresh carcass); (b) individual during its rehabilitation process; (c) stranded animal with marks of fishery interaction; (d) stranded animal in advanced state of decomposition; (e) turtle during reinsertion to the sea. Photos by GTTM-GV personnel (a, b, d, and e) and MPPEA personnel (c).

Garrido 2012; Di Benedetto et al. 2015). Due to the limited data set and the temporal scale of this assessment, it is unclear how the monthly variation of *L. olivacea* observations may vary during the year. Hence, we encourage carrying out extensive field patrols with trained personnel to identify this species and its temporality in future assessments.

Based on CCL measurements taken, most of the encounters were adult ($n = 18$), suggesting the use of

Venezuelan waters by mature olive ridley turtles. However, the lack of further evaluations (such as complete necropsies) of fresh dead animals hindered any additional analysis regarding sexual maturation, sex ratio, and postreproductive migrations of mature *L. olivacea* toward Venezuelan feeding grounds. One record of a postbreeding olive ridley turtle was documented based on a flipper tag recapture identified from a nesting turtle tagged at Eilanti beach (Suriname) while laying eggs and later recaptured in

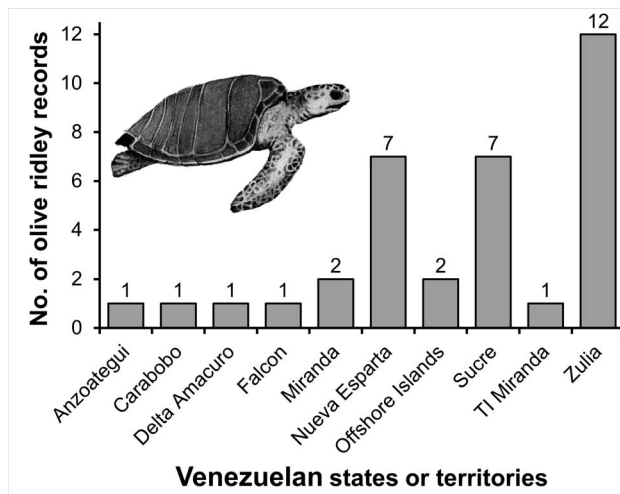


Figure 3. Spatial distribution per states or territories of olive ridley turtles registered in Venezuela ($n = 35$).

the Guajira Peninsula (Zulia state) with no further information but the tag code (Barrios-Garrido et al. 2020a). Hence, adult female olive ridleys in Venezuelan waters are likely using French Guyana and Suriname beaches as nesting habitats (Chambault et al. 2016; Barrios-Garrido et al. 2020a). Further research is needed to verify the connection between Venezuela and neighboring countries with the presence of *L. olivacea* and to elucidate if individuals from Brazilian nesting beaches are also reaching Venezuela's shelf during their postreproductive periods. Such information will be helpful to understand how these animals are using Venezuelan foraging grounds (Santos et al. 2019).

Over half (54%) of the recorded animals showed evidence of interactions with artisanal fisheries (e.g., longline and gillnets). However, Alió et al. (2010) conducted observations of industrial shrimp trawlers in northeastern Venezuela, and no records of *L. olivacea* were identified. In addition, considering that 29% of the animals registered showed no evident cause of death, we recommend that necropsies of fresh bodies be carried out whenever possible to verify the causes of death (Vélez-Rubio et al. 2013; Rojas-Cañizales et al. 2021). Intentional take for human consumption (e.g., for family intake or for sale) was identified as cause of death in 5 cases (14%). Similarly, previous research described intentional take as the main source of mortality for green turtles in the country, especially in the Guajira Peninsula (Barrios-Garrido et al. 2020b; Rojas-Cañizales et al. 2020). However, no evaluations have been carried out to assess *L. olivacea* intentional take.

Acknowledgments. — We would like to thank all the volunteers and technical personnel who helped to document the records compiled on this research and also the fisher communities, which report to environmental entities. This research did not receive any private or

national funds. The authors want to thank anonymous reviewers for their comments, edits, and suggestions.

COPYRIGHT LICENSE

This is an open access article published under the Creative Commons CC-BY-NC-SA license (<https://creativecommons.org/licenses/by-nc-sa/4.0/>), which means the article may be reused with proper attribution for non-commercial use. Any remix or transformed version of the content must be distributed under the same license as the original.

LITERATURE CITED

- ABREU-GROBOIS, F. AND PLOTKIN, P.T. 2008. *Lepidochelys olivacea*. The IUCN Red List of Threatened Species 2008: e.T11534A3292503. <http://dx.doi.org/10.2305/IUCN.UK.2008.RLTS.T11534A3292503.en>.
- ALIÓ, J., MARCANO, L., AND ALTUVE, D. 2010. Incidental capture and mortality of sea turtles in the industrial shrimp trawling fishery of northeastern Venezuela. *Ciencias Marinas* 36:161–178.
- BALLADARES, C. AND COVA, C. 2013. Macuro: tierra de tortugas marinas. *Río Verde* 12:57–66.
- BARRIOS-GARRIDO, H.A., BECKER, P., BJORNDA, K.A., BOLTEN, A.B., DIEZ, C., ESPINOZA-RODRÍGUEZ, N., FASTIGI, M., GRAY, J., HARRISON, E., HART, K.A., MEYLAN, A., MEYLAN, P., MONTIEL-VILLALOBOS, M.G., MORALES, F., NAVA, M., PALMAR, J., PETIT-RODRÍGUEZ, M.J., RICHARDSON, P., RODRÍGUEZ-CLARK, K.M., ROJAS-CANIZALES, D., SANDOVAL, M.G., VALVERDE, R.A., VAN DAM, R., WALKER, J.T., WILDERMANN, N., AND HAMANN, M. 2020a. Sources and movements of marine turtles in the Gulf of Venezuela: regional and local assessments. *Regional Studies in Marine Science* 36:101318.
- BARRIOS-GARRIDO, H.A. AND MONTIEL-VILLALOBOS, M.G. 2016. Strandings of Leatherback turtles (*Dermochelys coriacea*) along the western and southern coast of the Gulf of Venezuela. *Herpetological Conservation and Biology* 11:244–252.
- BARRIOS-GARRIDO, H.A., MONTIEL-VILLALOBOS, M.G., PALMAR, J., AND RODRÍGUEZ-CLARK, K.M. 2020b. Wayú capture of green turtles, *Chelonia mydas*, in the Gulf of Venezuela: a major Caribbean artisanal turtle fishery. *Ocean and Coastal Management* 188:105123.
- BARRIOS-GARRIDO, H.A., PALMAR, J., WILDERMANN, N., ROJAS-CANIZALES, D., DIEDRICH, A., AND HAMANN, M. 2018. Marine turtle presence in the traditional pharmacopoeia, cosmovision, and beliefs of Wayú Indigenous people. *Chelonian Conservation and Biology* 17:177–186.
- BARRIOS-GARRIDO, H., WILDERMANN, N., GUADA, H., BUITRAGO, J., AND BALLADARES, C. 2015. Guaraguá, *Lepidochelys olivacea*. In: Rodríguez, J.P., García-Rawlings, A., and Rojas-Suárez, F. (Eds.). *Libro Rojo de la Fauna Venezolana*. Caracas: Provita, Fundación Empresas Polar, pp. 1–3.
- BERNARDO, J. AND PLOTKIN, P.T. 2007. An evolutionary perspective on the arribada phenomenon and reproductive behavioral polymorphism of olive ridley sea turtles (*Lepidochelys olivacea*). In: Plotkin, P.T. (Ed.). *Biology and Conservation of Ridley Sea Turtles*. Baltimore: Johns Hopkins University Press, pp. 59–87.
- BOLTEN, A.B. 1999. Techniques for measuring sea turtles. In: Eckert, K.L., Bjorndal, K.A., Abreu-Grobois, F.A., and Donnelly, M. (Eds.). *Research and Management Techniques*

- for the Conservation of Sea Turtles. Washington, DC: IUCN/SSC Marine Turtle Specialist Group, pp. 1–5.
- CATRY, P., BARBOSA, C., PARIS, B., INDJAI, B., ALMEIDA, A., LIMOGES, B., SILVA, C., AND PEREIRA, H. 2009. Status, ecology, and conservation of sea turtles in Guinea-Bissau. *Chelonian Conservation and Biology* 8:150–160.
- CHAMBAULT, P., DE THOISY, B., HEERAH, K., CONCHON, A., BARRIOZ, S., DOS REIS, V., BERZINS, R., KELLE, L., PICARD, B., AND ROQUET, F. 2016. The influence of oceanographic features on the foraging behavior of the olive ridley sea turtle *Lepidochelys olivacea* along the Guiana coast. *Progress in Oceanography* 142:58–71.
- DA SILVA, A.C.C.D., DE CASTILHOS, J.C., LOPEZ, G.G., AND BARATA, P.C.R. 2007. Nesting biology and conservation of the olive ridley sea turtle (*Lepidochelys olivacea*) in Brazil, 1991/1992 to 2002/2003. *Journal of the Marine Biological Association of the UK* 87:1047.
- DI BENEDETTO, A.P.M., FULGENCIO DE MOURA, J., AND SICILIANO, S. 2015. Feeding habits of the sea turtles *Caretta caretta* and *Lepidochelys olivacea* in south-eastern Brazil. *Marine Biodiversity Records* 8:e122.
- FOLEY, A.M., DUTTON, P.H., SINGEL, K.E., REDLOW, A.E., AND TEAS, W.G. 2003. The first records of olive ridleys in Florida, USA. *Marine Turtle Newsletter* 101:23–25.
- GONZÁLEZ-PAREDES, D., VÉLEZ-RUBIO, G., TORRES HAHN, A., CARACCIO, M.N., AND ESTRADES, A. 2017. New records of *Lepidochelys olivacea* (Eschscholtz, 1829) (Testudines, Cheloniidae) provide evidence that Uruguayan waters are the southernmost limit of distribution for the species in the western Atlantic Ocean. *Check List* 13:863–869.
- GUADA, H., FALLABRINO, A., MARTINEZ, A.C., MUÑOZ, D.A., RONDÓN, M.D.L.A., GÓMEZ, S., MORISSON, M., FLOREZ, L., SANTANA, A.M., IDROBO, G., DI PAOLA, J.L., CARABELLI, E., VEIGA, L., NAVEDA, A., URBANO, D., AND URBANO, C. 2002. Sea Turtle Research and Conservation Project in Cipara, Paria Peninsula, Sucre State, Venezuela: Preliminary results of the 2000 nesting season. *Marine Turtle Newsletter* 95:17–18.
- GUADA, H. AND SOLE, G. 2000. WIDECASST Plan de Acción para la Recuperación de las Tortugas Marinas de Venezuela. In: Suarez, A. (Ed.). Informe Técnico del PAC. Kingston, Jamaica: UNEP Caribbean Environment Programme, 112 + xiv pp.
- MARCOVALDI, M. 1999. Status and distribution of the olive ridley turtle, *Lepidochelys olivacea*, in the Western Atlantic Ocean. In: Proceedings of the Regional Meeting, Marine Turtle Conservation in the Wider Caribbean Region: A Dialogue for Effective Regional Management, Santo Domingo, pp. 16–18.
- MONCADA, F., RODRÍGUEZ, A.M., MÁRQUEZ, R., AND CARRILLO, E. 2000. Report of the olive ridley turtle (*Lepidochelys olivacea*) in Cuban waters. *Marine Turtle Newsletter* 90:13–15.
- MONCADA, F.G. AND ROMERO, S. 2015. Nota sobre los registros del género *Lepidochelys* (Cryptodira: Cheloniidae) en Cuba. *Revista Solenodon* 12:161–163.
- PLOTKIN, P.T. 2003. Adult migrations and habitat use. In: Lutz, P., Musick, J., and Wyneken, J. (Eds.). *The Biology of Sea Turtles*. Volume 2. Boca Raton, FL: CRC Press, pp. 225–241.
- PRITCHARD, P.C.H. 2007. Arribadas I have known. In: Plotkin, P.T. (Ed.). *Biology and Conservation of Ridley Sea Turtles*. Baltimore: Johns Hopkins University Press, pp. 7–21.
- PRITCHARD, P.C.H. AND MORTIMER, J.A. 1999. Taxonomy, external morphology, and species identification. In: Eckert, K.L., Bjorndal, K.A., Abreu-Grobois, F.A., and Donnelly, M. (Eds.). *Research and Management Techniques for the Conservation of Sea Turtles*. Washington, DC: IUCN/SSC Marine Turtle Specialist Group, pp. 23–41.
- REVUELTA, O., CARRERAS, C., DOMENECH, F., GOZALBES, P., AND TOMAS, J. 2015. First report of an olive ridley (*Lepidochelys olivacea*) inside the Mediterranean Sea. *Mediterranean Marine Science* 16:346–351.
- ROJAS-CANIZALES, D., ESPINOZA-RODRÍGUEZ, N., PETIT-RODRÍGUEZ, M.J., PALMAR, J., MEJÍAS-BALSALOBRE, C., WILDERMANN, N., BARROS, T., AND BARRIOS-GARRIDO, H. 2020. Marine turtle mortality in a southern Caribbean artisanal fishery: a threat for immature green turtles. *Regional Studies in Marine Science* 38:101380.
- ROJAS-CANIZALES, D., ESPINOZA-RODRÍGUEZ, N., RODRÍGUEZ, M.A., PALMAR, J., WILDERMANN, N., AND BARRIOS-GARRIDO, H. 2021. Leatherback turtles (*Dermochelys coriacea*) in the Gulf of Venezuela: an update stranding assessment 2001–2014. *Marine and Fishery Sciences* 34:113–119.
- SANTOS, E.A.P., SILVA, A., SFORZA, R., OLIVEIRA, F.L.C., WEBER, M.I., CASTILHOS, J.C., LÓPEZ-MENDILAHARSU, M., MARCOVALDI, M., RAMOS, R.M.A., AND DiMATTEO, A. 2019. Olive ridley inter-nesting and post-nesting movements along the Brazilian coast and Atlantic Ocean. *Endangered Species Research* 40: 149–162.
- TAGLIOLATTO, A.B., GOLDBERG, D.W., GODFREY, M.H., AND MONTEIRO-NETO, C. 2020. Spatio-temporal distribution of sea turtle strandings and factors contributing to their mortality in south-eastern Brazil. *Aquatic Conservation: Marine and Freshwater Ecosystems* 30:331–350.
- VÉLEZ-RUBIO, G.M., ESTRADES, A., FALLABRINO, A., AND TOMÁS, J. 2013. Marine turtle threats in Uruguayan waters: insights from 12 years of stranding data. *Marine Biology* 160:2797–2811.
- VERNET, P.D. AND GÓMEZ, Á.J. 2007. Red de aviso oportuno: estrategia para la conservación de las tortugas marinas en la Isla de Margarita, Venezuela. *Memoria de la Fundación La Salle de Ciencias Naturales* 167:101–110.
- WALLACE, B.P., DiMATTEO, A.D., HURLEY, B.J., FINKBEINER, E.M., BOLTON, A.B., CHALOUKPA, M.Y., HUTCHINSON, B.J., ABREU-GROBOIS, F.A., AMOROCHO, D., BJORNDAL, K.A., ET AL. 2010. Regional management units for marine turtles: a novel framework for prioritizing conservation and research across multiple scales. *PLoS One* 5:1–11.
- WILDERMANN, N.E. AND BARRIOS-GARRIDO, H. 2012. First report of *Callinectes sapidus* (Decapoda: Portunidae) in the diet of *Lepidochelys olivacea*. *Chelonian Conservation and Biology* 11:265–268.
- WILDERMANN, N.E., GREDZENS, C., AVENS, L., BARRIOS-GARRIDO, H.A., BELL, I., BLUMENTHAL, J., BOLTON, A.B., McNEILL, J.B., CASALE, P., DI DOMENICO, M., DOMIT, C., EPPERLY, S.P., GODFREY, M.H., GODLEY, B.J., GONZÁLEZ-CARMAN, V., HAMANN, M., HART, K.M., ISHIHARA, T., MANSFIELD, K.L., METZ, T.L., MILLER, J.D., PILCHER, N.J., READ, M.A., SASSO, C., SEMINOFF, J.A., SENEY, E.E., WILLIARD, A.S., TOMÁS, J., VÉLEZ-RUBIO, G.M., WARE, M., WILLIAMS, J.L., WYNEKEN, J., AND FUENTES, M.M.P.B. 2018. Informing research priorities for immature sea turtles through expert elicitation. *Endangered Species Research* 37:55–76.

Received: 21 July 2021

Revised and Accepted: 17 February 2022

Published Online: 13 June 2022

Handling Editor: Jeffrey A. Seminoff