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“Closer encounters” between *Orcinus orca* and man-made objects: An emerging issue in the Caribbean Sea

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“Closer encounters” between *Orcinus orca* and man-made objects: An emerging issue in the Caribbean Sea

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Abstract

Since 2020, the subpopulation of killer whales that feed on bluefin tuna in waters around the Iberian Peninsula started to display disruptive behavior that includes physical contact with, and damage to boats. Recently, we collected several reports of interactions between killer whales and boats in the waters of Colombia and Venezuela that resulted in damage to the boats. In this study, we summarized all available records of such interactions in the Caribbean Sea to compare this situation with the one on the Iberian Peninsula. Our review documented six such encounters, including: 1) physical contact between orcas and the boat or engine; 2) orcas feeding around fishing aggregating devices at the same time that fishers were fishing; and 3) orca movements close enough to the boats that frightened the crew. The locations of these interactions include Colombia (n = 1), Venezuela (n = 3), the Dominican Republic (n = 1), and Puerto Rico (n = 1). The boats involved included one sailing boat, one sport fishing boat, and four small, artisanal fishing boats. A seventh case was reported that included damage to the rudder of a catamaran near Bequia, St. Vincent and the Grenadines, but the crew could not positively identify orca as the species involved. As this is an emerging topic, our sample size is small. We were not able to find any similarities with the kinds of interactions currently occurring around the Iberian Peninsula. At this moment, it is advisable to prepare for an educational campaign on safety at sea during encounters in the Caribbean Sea, based on the guidelines developed by the Grupo de Trabajo Orca Atlántica about the situation around the Iberian Peninsula.

42 **Introduction**

43 Around the Iberian Peninsula, interactions between orca and vessels include a disruptive behavior in
44 which the animals “*without apparent motivation approach the vessels, mainly striking and turning the*
45 *rudders, at unprecedented rates and often with agonistic outcomes*” (Esteban et al., 2022). In many
46 cases, the damage to the vessels prevents navigation and, in other cases, the boats sank (Esteban,
47 unpubl. data) The killer whales that participate in this kind of behavior belong to a small, endangered
48 subpopulation (n = 39) that inhabits around the Iberian Peninsula (Esteban et al., 2022). Here, we
49 introduce the emerging issue of interactions between individual orcas and man-made objects in the
50 Caribbean Sea that involved very close approaches, including physical contact. In order to avoid
51 confusion with the term “interaction” as defined by Esteban et al. (2022) we use here the term “close
52 encounter” or “closer encounter”, defined as any interaction that included: 1) physical contact between
53 orcas and the boat or engine, 2) orcas feeding around fishing aggregating devices (FADs) at the same
54 time that fishers were fishing and 3) orca movements close enough to the boats that frightened the
55 crew.

56 **Material and Methods**

57 The general method for the gathering of orca records in the Caribbean Sea is described elsewhere
58 (Bolaños-Jiménez et al., 2014, 2023). For this report, we also received information from interested
59 parties including vessel/boat crew and boat/supplier service providers for boat repairs. Whenever
60 possible, we interviewed the original observers or crew following the questionnaire developed by the
61 Grupo de Trabajo Orca Atlántica (GTOA¹).

62 **Results and discussion**

63 The most recent dataset available for the Caribbean Sea found 385 records, that did not include any
64 close encounter (Bolaños-Jiménez et al., 2023). Since the publication of that work (Bolaños-Jiménez et
65 al., *op.cit.*), we compiled 20 additional records, of which six (6) reported close encounters, as defined
66 here. Six (6) of these reports confirmed the presence of orca and four of them included physical contact
67 of the whales with boats. All of these records were mapped in Fig. 1. For reference purpose, we include
68 and additional report of damage to a catamaran off Bequia, St. Vincent and the Grenadines, for which
69 no positive species identification was possible.

70 A detailed summary of each close encounter is presented below, in chronological order.

- 71 1. 2021. An unidentified sailing boat in Colombian Waters, near Venezuela, navigating from
72 Martinique to Jamaica. The boat reportedly suffered damage by killer whales that was repaired in
73 Aruba. This encounter is still being investigated to identify the boat and crew.
- 74 2. 21-04-2023. “El Poder Negro”, a small, fiberglass artisanal fishing boat with a crew of three, off
75 Chuspa, estado La Guaira, central Venezuela. Hull damaged w/semicircular scratch in the lower
76 right side of the boat (see Annex 1a).
- 77 3. 25-12-2023. An unidentified small, fiberglass artisanal fishing boat off Juan Dolio, Dominican
78 Republic. The animals were apparently feeding around a FAD at the same time that the fishers were
79 catching fish.

¹ <https://www.orcaiberica.org/>

- 80 4. 15-01-2024. “No Mercy”, a sport fishing boat with one outboard engine. The animals chased the
 81 boat for more than a nautical mile. When the boat stopped, one of the animals, apparently in the
 82 search of an object under the boat, made a diving lift tail close enough of the boat to frighten the
 83 crew.
- 84 5. 18-01-2024. “Ñoño”, a small, wooden artisanal fishing boat with outboard engine, fishing for tahali
 85 or large-head hairtail (*Trichiurus lepturus*) off Margarita Island, north-eastern Venezuela. The
 86 animals reacted aggressively to the start of the engine so the fishers turned it off till they left. The
 87 fishers reported repeated physical contact with the hull when they tried to start the engine on.
- 88 6. 18-01-2024. “Mis cinco hijos”, a small, wooden artisanal fishing boat with outboard engine, fishing
 89 for tahali or large-head hairtail (*Trichiurus lepturus*). This interaction occurred with the same orca
 90 group of case number 5. The fishers reported repeated physical contact with the hull when they
 91 tried to start the engine on. The fishers reported that the cooling system was damaged so they
 92 required to be towed to their base port, Boca de Río, Margarita Island.
 93



94
 95 **Figure 1.** Location of closer encounters orca-man-made objects in the Caribbean Sea. SAFB: small,
 96 artisanal fishing boat; OB: outboard engine; DR: Dominican Republic; PR: Puerto Rico.

97 An additional case of damage to a sailing boat by an unknown species was received via the Cruise
98 Association², as detailed below.

99 On 28 November 2023, a catamaran, 13 nm from Bequia. A fin of an animal bigger than a dolphin was
100 seen 100 m from the boat, at the start of a squall. 1-2 min after, there was a bang from under the boat
101 and they lost control of the steering. After inspection, they found that the rudder was bent at 45° and
102 jammed against the hull. The crew noted that the rudder was bent with a side blow, not from the front.

103 We were not able to find any similarities with the kinds of interactions currently occurring around the
104 Iberian Peninsula. At this moment, it is advisable to prepare for an educational campaign on safety at
105 sea during encounters in the Caribbean Sea, based on the model developed by the Grupo de Trabajo
106 Orca Atlántica about the situation around the Iberian Peninsula. In this regard, a popular article was
107 released to provide seafarers with guidelines in case of close encounters with orca in the Caribbean Sea
108 (Bolaños-Jiménez and Esteban, 2024) based on the guidelines developed by the Grupo de Trabajo Orca
109 Atlántica³.

110

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113 Morales-Rincón, Grisel Rodríguez-Ferrer, Daimar Serrano, Danelis Serrano, Omar Shamir Reynoso,
114 Ruth Vásquez and Cruising Association (<https://www.theca.org.uk/>)

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131 **Annex 1a.** Aspect of the damage to the “El Poder Negro” boat (upper, red oval) reportedly inflicted by
132 orca off Chuspa, Estado La Guaira, Venezuela, and general aspect of the boat (lower) Photo credits:
133 Anonymous, courtesy @proyectosotalia



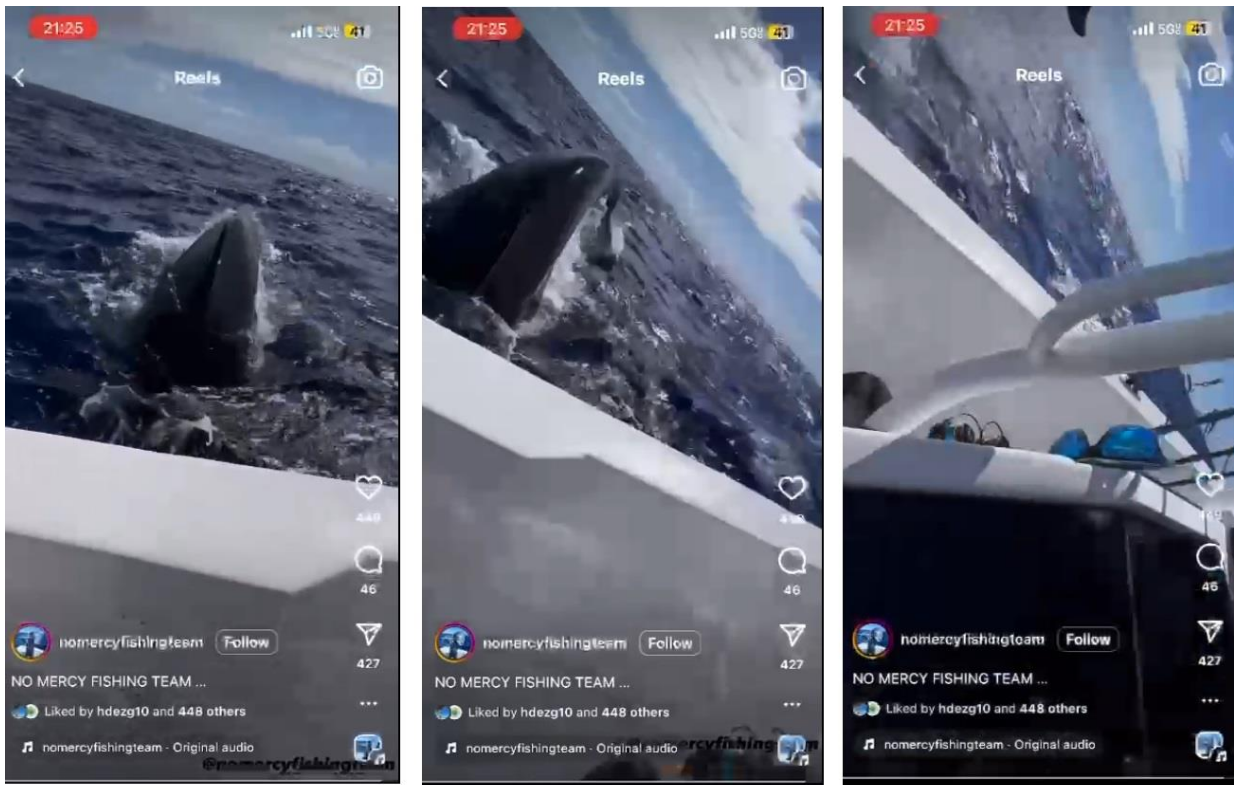
135 **Annex 1b.** Aspects of the close encounter of orca and a fishing aggregating device (FAD) and a small,
136 artisanal fishing boat off Juan Dolio, Dominican Republic. Photo credits: Anonymous fisher, courtesy
137 Omar Shamir Reynoso, taken from video.



139 **Annex 1c.** Aspect of the diving tail lift during a close encounter between orca and a sport fishing boat
140 off Aguadilla, Puerto Rico. Photo credits: Christian Álvarez and Josué Álvarez, No Mercy fishing team,
141 Puerto Rico, courtesy Grisel Rodríguez-Ferrer. Video available at:
142 <https://www.instagram.com/nomercyfishingteam/reel/C2I1NRDL2m4/>

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