Against All Odds: Resilience of Flukeless Dolphins in an Anthropogenic Ocean

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INTRODUCTION

Severe injuries such as limb amputation in free-ranging mammals can be fatal due to blood loss, infection, and reduced fitness associated with impaired foraging, sociosexual behaviors, and predator avoidance. Although cetaceans exhibit remarkable wound-healing capabilities, long-term survival following the loss of critical structures, such as flukes, would require substantial physiological and behavioral adaptation.

5 Cases of free-ranging dolphins (*Tursiops spp.*) that have adapted to life in the wild without flukes

"Orae"

Tursiops aduncus



MARINE ANIMAL RESEARCH AND CONSERVATION

JEJU ISLAND, REPUBLIC OF KOREA

33.25258, 126.19355

June 2019 - present (2026)
Frequent sightings, year-round

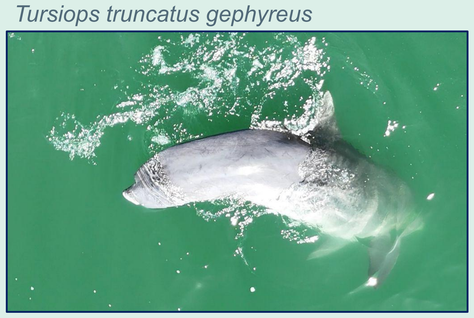
OVERVIEW

Discovered alone as a subadult, this female joined a group about a year later, matching their travel speed. Observations have shown increased body length, active foraging and socio-sexual behaviors, and even aerial leaping. The wound pattern suggests that entanglement likely caused a gradual amputation. Initially, movements were simple and inefficient, side to side while also moving dorsoventrally. With time, increased efficiency using lateral trunk oscillations was observed, allowing her to progress to high-energy behaviors (Kim et al., 2022).

EXPLORE THE CASE

"Ayara"

Tursiops truncatus gephyreus



YAQU PACHA URUGUAY & FAUNA MARINA URUGUAY

AGUAS DULCES, ROCHA, URUGUAY

-34.28305, -53.77832

March 2021 - present (2026)
Frequent sightings, year-round

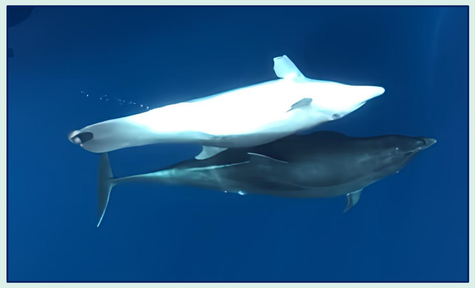
OVERVIEW

This adult male is regularly sighted along a 120 km stretch from the first sighting point. He is typically observed in a group, socializing, feeding, travelling and communicating. He is highly mobile and has been observed catching fish alone. Probable entanglement in small-scale fishery (artisanal or recreational) is suspected as the cause of amputation. At first sighting the wound was relatively recent, showing a pinkish hue. He was first seen swimming on his side laterally. After six months, he began using side to side movements of the peduncle, while also using dorsoventral movements.

EXPLORE THE CASE

"Spirit"

Tursiops truncatus



FRAN MUÑOZ. ESCUELA DE SURF LA MAR DE BIEN
UNIVERSITY OF VALENCIA

VALENCIA, SPAIN

39.30, 0.30

October 2021 - April 2024
Two live sightings prior to stranding event

OVERVIEW

This subadult male was observed twice (2021 and 2023) swimming in a group of 10 to 12 dolphins and then found dead on April 2024. A full necropsy was performed and he was found to be 2.48m in length and approximately 6.5 years old at the time of death. The cause of his fluke amputation was likely due to an interaction with fishing gear, based on necropsy findings. He swam using side to side oscillations of the tail stock (Gozalbes Aparicio et al. 2026).

EXPLORE THE CASE

"Dino"

Tursiops truncatus



GALVESTON BAY DOLPHIN RESEARCH PROGRAM
NOAA MMPA PERMIT# 23203

GALVESTON BAY, TEXAS, USA

29.46143, -94.84354

September 2022
Single sighting

OVERVIEW

Dino is a presumed adult or subadult, likely from the coastal Gulf population that visits estuarine waters. A visual assessment by 10 experts identified entanglement as the most probable explanation for the observed flukeless condition. The deformity appeared well healed and there were no signs of distress. Dino swims on its side with lateral propulsion while initiating a dive, and uses upright dorsoventral swimming at the surface to breathe. It was observed foraging in association with a commercial shrimp trawler (Fazioli et al. 2026).

EXPLORE THE CASE

"Koa"

Tursiops erebennus



LOWCOUNTRY MARINE MAMMAL NETWORK
NOAA MMPA PERMIT #28781

CHARLESTON, SOUTH CAROLINA, USA

32.82795, -79.7388

March 2025 - present (2026)
111 documented sightings

OVERVIEW

Koa is a dependent calf, presumed to be 3-5 years old and is part of a resident estuary stock. All sightings have been within a 6 mile radius. In recent sightings, Koa has been seen in a feeding group, socializing, and drifting further away from its mother. Based on its scarring pattern on the ventral peduncle, entanglement is determined to be the most probable cause for the missing fluke. Koa initially swam with only dorsoventral propulsion, but at last sighting was observed switching between dorsoventral and lateral propulsion.

EXPLORE THE CASE

CASE COMMONALITIES

Entanglement

The exact causes are unclear; however, human interactions, particularly entanglement, are considered the most probable in all cases based on wound patterns, comparison to stranded cases of known cause, and one necropsy.

Modified Locomotion

All cases display lateral peduncle oscillations for propulsion while maintaining some dorso-ventral movements and orientation. Progressive development of this locomotive adaptation was observed in three cases.

Fisheries Associated Foraging

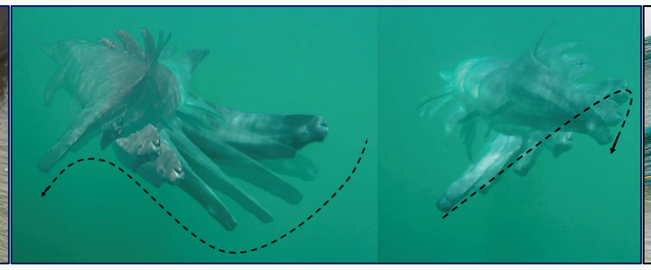
In three cases, flukeless individuals were observed feeding in association with fisheries activities. Fisheries provide access to energetically efficient foraging opportunities while also increasing risk of future harmful interactions.

Conspecific Interactions

Observed supportive interactions include hydrodynamic drafting and group foraging, emphasizing the importance of social bonds. The calf or subadult status of three individuals suggests that maternal support may improve survival.



LMMN, NOAA Permit #28786; Caudal end of wound (Koa)



Kim et al. 2022; Sequence of peduncle movements (Orae)



GDRP, NOAA Permit #23203; Trawler associated foraging



LMMN, NOAA Permit #28786 ; Surfacing with mother (Koa)

DYNAMIC AMBASSADORS

By following these individuals over time and learning more about their hardships, adaptations, and resiliency, researchers are **sharing their stories to promote conservation, encourage perseverance in the face of adversity, and celebrate social inclusion**.



See their stories!

A flukeless dolphin is a conservation **flagship individual**: charismatic, visible, exposed to human activity, and physically distinctive (Jarić et al., 2024).

RECOMMENDATIONS

These cases highlight the importance of monitoring individuals with loss of critical structures for the development of efficient locomotion, foraging techniques, and social bonds that support long-term survival. Focal follows are recommended to understand the development of these adaptations in the wild and to watch for complications such as scoliosis (de Reuver et al., 2021). Importantly, the resilience of these individuals demonstrates that survival in the wild is possible with successful adaptation to fluke amputation and should be considered when debating human intervention in future cases.

REFERENCES

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