



Science & Education Report

MS Spitsbergen 2024

MS Spitsbergen

West African Islands to the Canaries
Volcanoes & Wildlife Expedition Cruise

03.01.2024 – 19.01.2024





Science & education program

The Science and Education Team onboard accompanied you in an expedition cruise of Cape Verde archipelago, Senegal, The Gambia, Bissagos islands all the way to the Canaries.

Through lectures, discovery sessions, nature walks, zodiac cruising and community visits ashore, they aimed at making every expedition day a unique learning experience.



Lectures

Lectures aimed at understanding the culture and biodiversity of West Africa covering traditions, music, wildlife (cetaceans, sea turtles, plankton, birds, hippos) and geological features (volcanos)



Workshops

Hands-on, interactive sessions and short talks were held in the science center to introduce you to plankton, volcanos, marine plastic pollution, cetacean acoustics, feathers, and to use of microscopes and citizen science applications like iNaturalist.

History & culture

You explored the people of West Africa (Cape Verde, Senegal, The Gambia) and their rich history and culture.

Food, music and dance were a central part of the experience.

The Bijago people made palm oil, and played their sacred instruments for us. The communities visited live off the grid and in armony with nature, and reminded us about the importance of sharing and caring for each other.



History & culture

The History Corner featured a broad array of issues exploring the history and culture of our destinations:

- Facts about Cabo Verde
- Music of Cabo Verde
- The evolution of Creole languages
- Amilcar Cabral and his legacy for the independence movement
- Dakar and Goree Island
- The Bijagos people and their culture
- The guanches indigineous people of the Canary Islands
- Cesar Manrique and his Canary-inspired creative work



History & culture

In two Discovery Listening Sessions, we took a closer look at musical traditions and instruments of West Africa and the Canary islands.

From griots – oral historians, storytellers and travelling singers skilled on the 21-stringed kora – to singers that address social issues, emigration and injustice in their lyrics, to contemporary artists who have brought their West African musical heritage to international stages and dance clubs, while often times being activists or cultural ambassadors of their countries of origin.



LISTENING SESSION: A Taste of West African Music

Cabo Verde

1. Cesária Évora – Sodade
2. Tito Paris – Dança Ma Mi Criola
3. Mayra Andrade – Afeto

Guinea Bissau

4. José Carlos Schwarz: Mindjeres di Pano Preto
5. Tabanka Djaz: Bo D`Zem
6. Patche Di Rima: Nha Noiva

More suggestions:

Senegal

1. Etoile de Dakar (feat.Youssou N`Dour) – Mane Khouma Khol Thi Yao
2. Pape&Cheikh – Khamal (Yërmënde) (Maria heard this band at the hotel in Dakar the night before coming onboard)
3. Wally Seck – Balma (Koffi's suggestion)

Cabo Verde

4. Ildo Lobo: Alto Cutelo

Gambia

5. Sona Jobarteh: Gambia

Scan me with Spotify





Arts & crafts

Five Arts & Crafts sessions were offered during this voyage.

During these sessions you had the chance to draw and paint getting inspired by nature. Using clay you also created necklaces and sculpted marine animals as memories from your West African voyage.







NASA cloud observer

MS Spitsbergen 2024
3rd January – 19th January 2024

4 Globe Cloud observations were collected on:

January 9th (at-sea day)
January 16th (at-sea day)
January 17th (at-sea day)
January 18th (at-sea day)


Recorded cloud types include:
High level cirrus clouds
Mid level altocumulus
Low level stratocumulus

[View our data](#) on the global map















CLOUD OBSERVATION & SATELLITE COMPARISON

January 9th, 2024

1/11/24, 7:30 AM NASA GLOBE Cloud Data



NASA Cloud Observation and Satellite Match

Satellite (Understanding the Satellite Match)		GEO	Your Observation
Universal Date/Time 2024-01-09		14:10	14:13
Latitude Range		10.63 to 11.27	Latitude 10.947800
Longitude Range		-17.43 to -16.79	Longitude -17.110500
Total Cloud Cover		Isolated 18.85% 	Broken (50-90%) 
H I G H	Cloud Cover	No Clouds 	 Cirrocumulus
	Cloud Altitude		Few (<10%) 
	Cloud Phase		Translucent
	Cloud Opacity		
M I D	Cloud Cover	No Clouds 	Few (<10%) 
	Cloud Altitude		
	Cloud Phase		
	Cloud Opacity		
L O W	Cloud Cover	Isolated 18.85% 	Few (<10%) 
	Cloud Altitude	0.92 (km)	
	Cloud Phase	Water 280.47 (K)	
	Cloud Opacity	Transparent	
Corresponding NASA Satellite Images. Click to view image ---->		METEOSAT-10 Visible	Sky Visibility : no report Sky Color : no report
		 Infrared GEO Tutorial	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">North </div> <div style="text-align: center;">East </div> <div style="text-align: center;">South </div> </div> <div style="text-align: center; margin-top: 10px;">West </div>
Are there any comments you would like to add? Be sure to add the name of the satellite for our record.		Surface Conditions Snow/Ice No Standing Water Yes Muddy No Dry Ground No Leaves on Trees No Raining or Snowing No	

iNaturalist

MS Spitsbergen 2024
3rd January – 19th January 2024

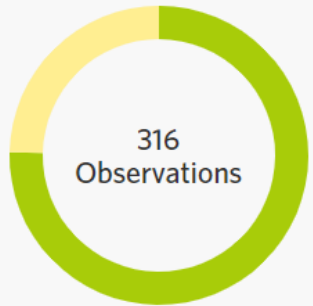
Biodiversity data collected & people involved in it include:

316 Observations
140 Species
74 Identifiers
10 Observers

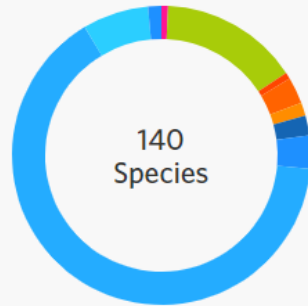
[View our data](#) submitted on our iNaturalist project



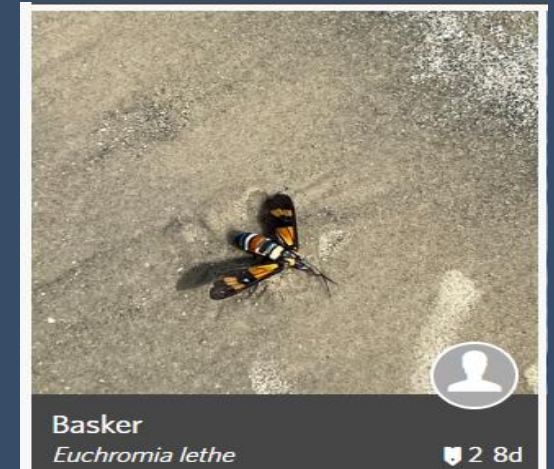
SBAFR2401 / SBREP2402 - MS Spitsbergen 03.01-19.01.2024



- Research Grade
- Needs ID
- Casual

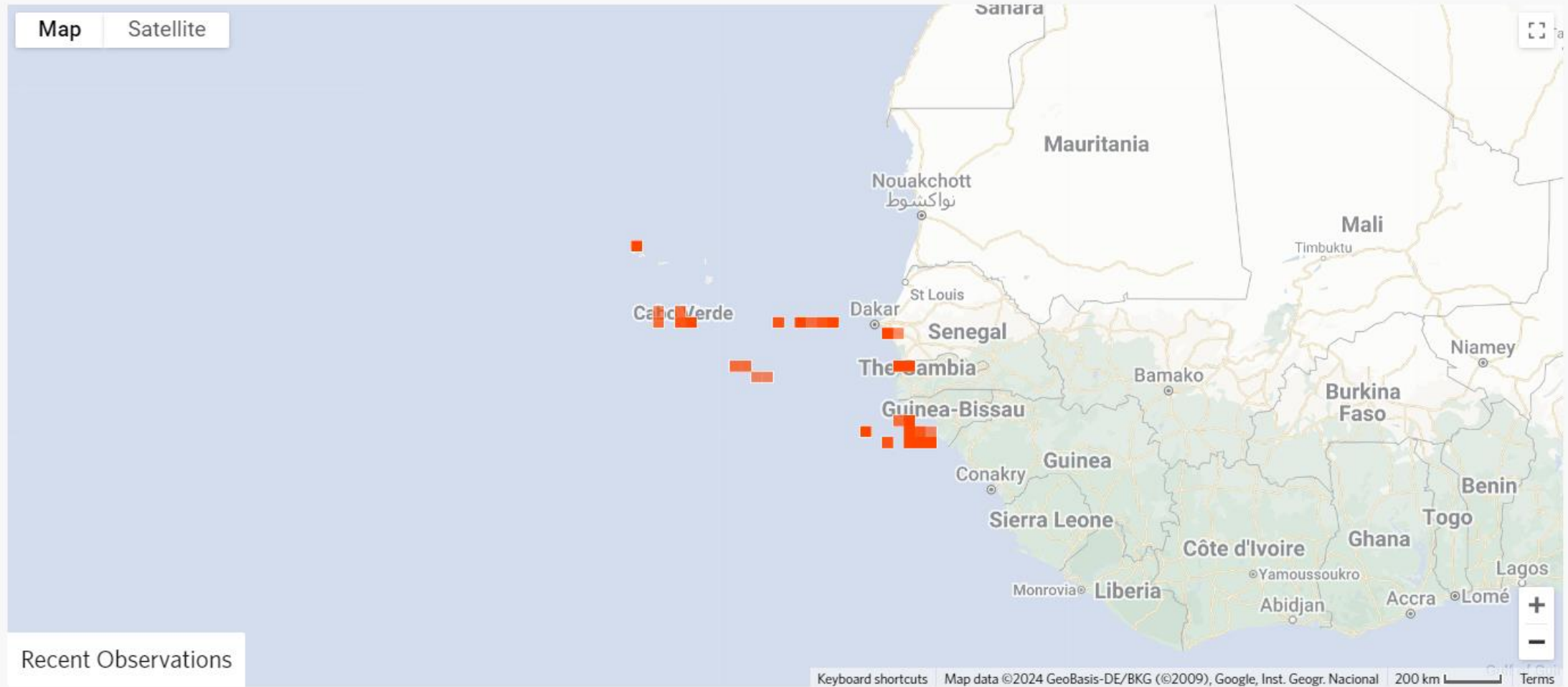


- Unknown
- Protozoans
- Fungi
- Plants
- Chromista
- Mollusks
- Insects
- Arachnids
- Ray-Finned F...
- Amphibians
- Reptiles
- Birds
- Mammals
- Other Animals



SBAFR2401 / SBREP2402 - MS Spitsbergen 03.01-19.01.2024

Map of Observations





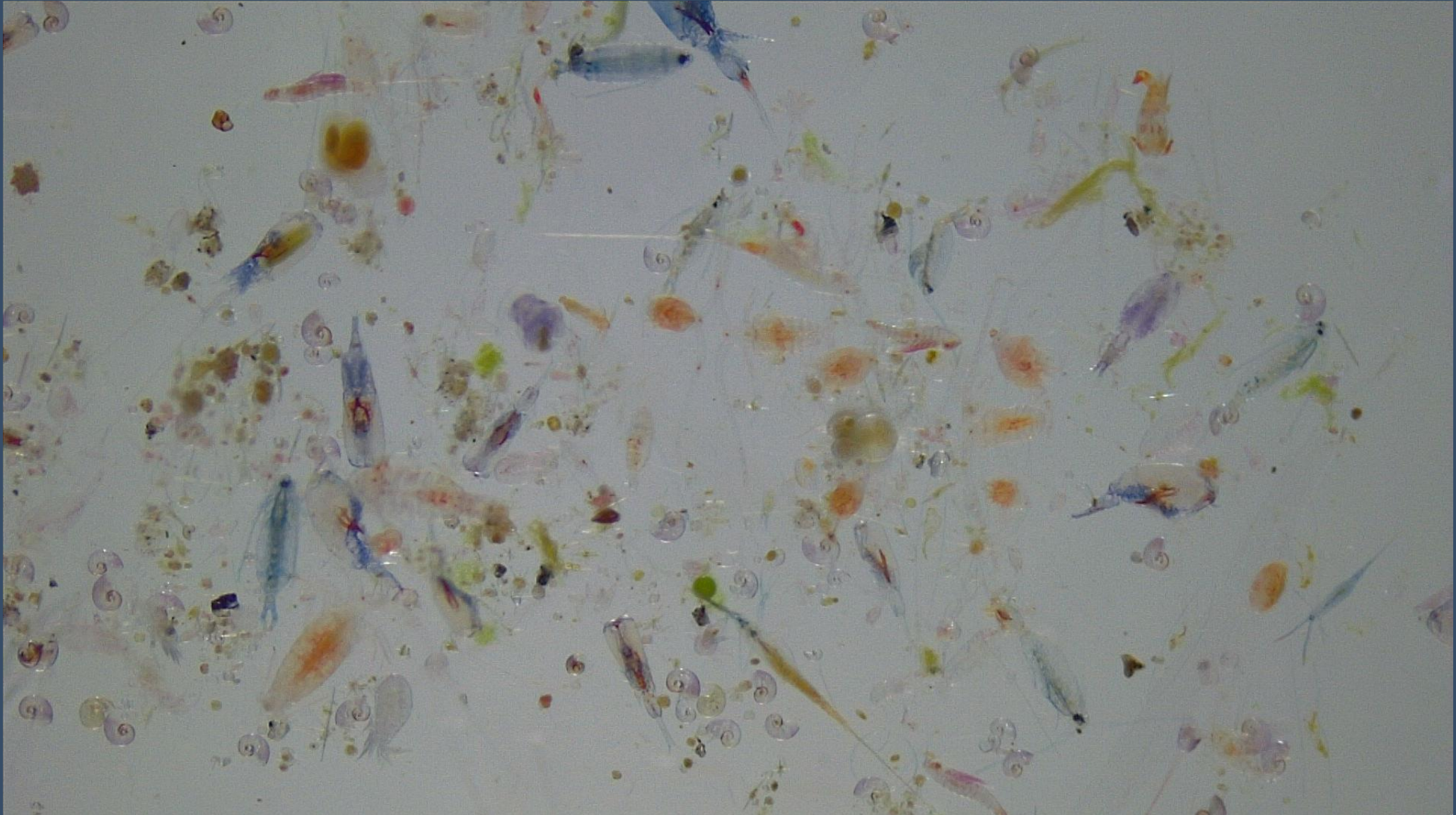
Plankton samples

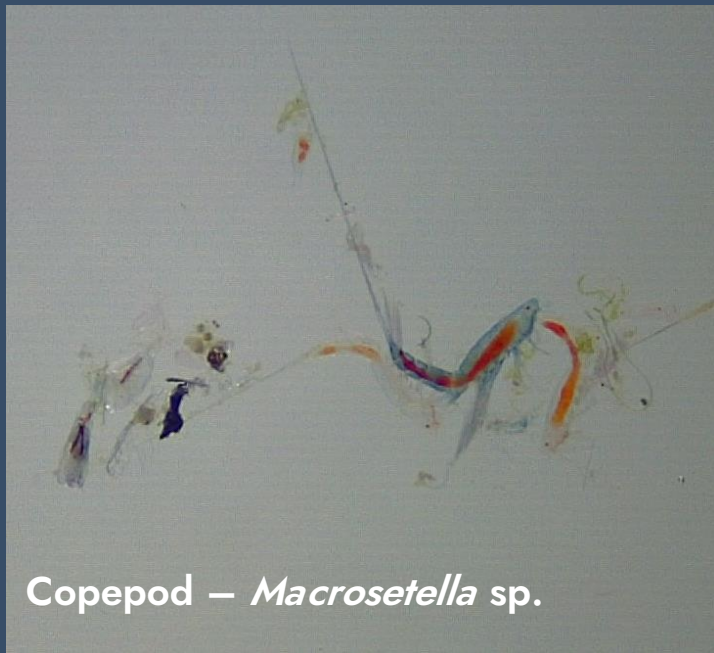
Plankton are ancient drifters transported by currents and tides but unable to swim against them.

Animals (zooplankton) and plants (phytoplankton), millimetres to centimetres sized-creatures, with a central role in supporting the marine food web and the health of our oceans.

Sample collected in:
Fogo, Cape Verde (January 7th, 2024)

A mixture of phyto- and zoo-plankton species including gastropods, copepods, dinoflagellates and green algae

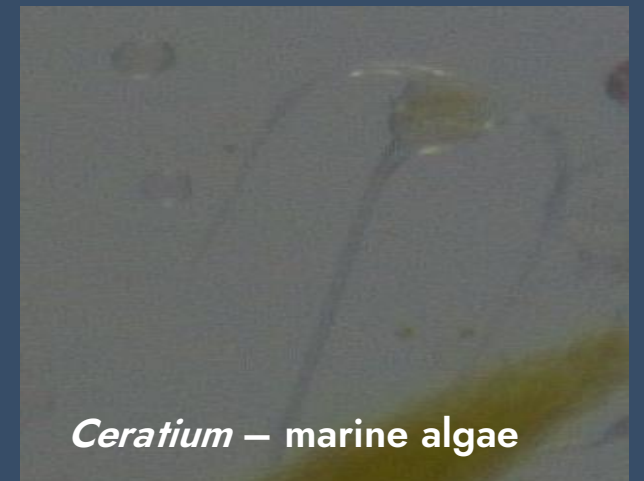




Copepod – *Macrosetella* sp.



Copepod of the Family Pontellidae



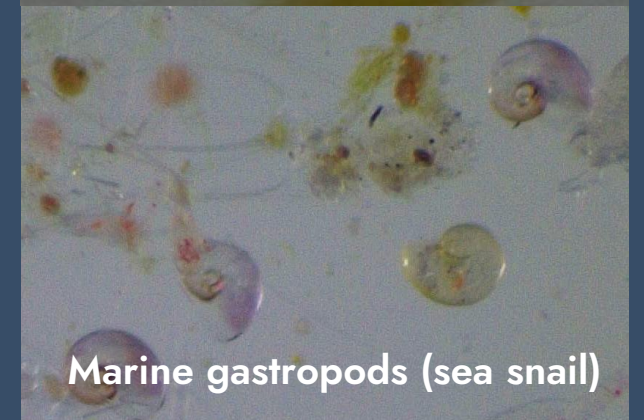
Ceratium – marine algae



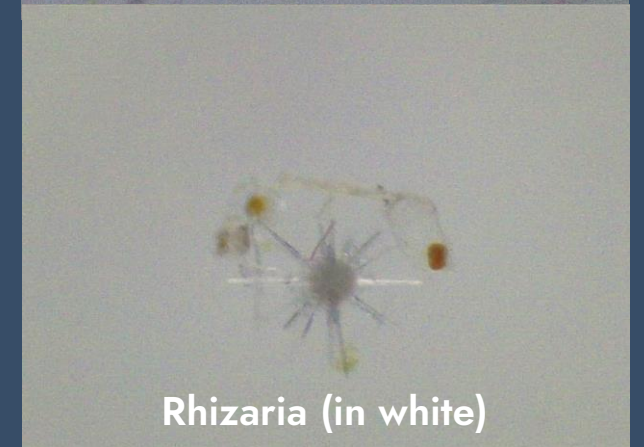
Phylum Chaetognatha (arrow worm)



Copepod - *Scolocentrix* sp.



Marine gastropods (sea snail)



Rhizaria (in white)

Wildlife List —

Birds



Wildlife List – Seabirds

SCIENTIFIC NAME	ENGLISH	DEUTSCH	FRANÇAIS	NORSK
<i>Calonectris diomedea</i>	Cory's shearwater	Corysturmtaucher	Puffin cendré	Gulnebblire
<i>Puffinus boydi</i>	Boyd's Shearwater	Boydsturmtaucher	Puffin de Boyd	Alvelire
	Storm-petrel sp.	Wellenläufer	Pétrels-tempête	Stormsvaler
<i>Phaethon aethereus</i>	Red-billed tropicbird	Rotschnabel-Tropikvogel	Phaéton à bec rouge	Rødnebbtropikkfugl
<i>Sula sula</i>	Red-footed booby	Rotfußtölpel	Fou à pieds rouges	Rødfotsule
<i>Phalacrocorax carbo</i>	Great cormorant	Kormoran	Grand Cormoran	Storskarv
<i>Microcarbo africanus</i>	Long-tailed Cormorant	Riedscharbe	Cormoran africain	Langhaleskarv
<i>Hydroprogne caspia</i>	Caspian tern	Raubseeschwalbe	Sterne caspienne	Hvitvingesvarterne
<i>Sterna hirundo</i>	Common tern	Flusseeschwalbe	Sterne pierregarin	Svarterne
<i>Thalasseus sandvicensis</i>	Sandwich tern	Brandseeschwalbe	Sterne caugek	Gråhodemåke
<i>Thalasseus albididorsalis</i>	West African crested tern	Westafrikanische Königsseeschwalbe	Sterne d'Afrique	Smalnebbmåke
<i>Gelochelidon nilotica</i>	Gull-billed Tern	Lachseeschwalbe	Sterne hansel	Sandterne
<i>Chroicocephalus cirrocephalus</i>	Grey-headed Gull	Graukopfmöwe	Mouette à tête grise	Gråhodemåke
<i>Stercorarius</i>	Skua sp.	Raubmöwen	Labbe	Joer

Wildlife List – Water birds

SCIENTIFIC NAME	ENGLISH	DEUTSCH	FRANÇAIS	NORSK
<i>Anhinga rufa</i>	African darter	Afrika-Schlangehalsvogel	Anhinga d'Afrique	Afrikaslangehals
<i>Pelecanus rufescens</i>	Pink-backed pelican	Rötelpelikan	Pélican gris	Rosenpelikan
<i>Alopochen aegyptiaca</i>	Egyptian goose	Nilgans	Ouette d'Égypte	Niland
<i>Dendrocygna viduata</i>	White-faced whistling Duck	Witwenpfeifgans	Dendrocygne veuf	Maskeplystread

Wildlife List – Waders

SCIENTIFIC NAME	ENGLISH	DEUTSCH	FRANÇAIS	NORSK
<i>Burhinus senegalensis</i>	Senegal thick-knee	Senegaltriel	Oedicnème du Sénégal	Flodtriel
<i>Pluvialis squatarola</i>	Grey plover	Kiebitzregenpfeifer	Pluvier argenté	Tundralo
<i>Vanellus spinosus</i>	Spur-winged lapwing	Spornkiebitz	Vanneau à éperons	Sporevipe
<i>Calidris alba</i>	Sanderling	Sanderling	Bécasseau sanderling	Sandløper
<i>Arenaria interpres</i>	Ruddy turnstone	Steinwälzer	Tournepierre à collier	Steinvender
<i>Actitis hypoleucos</i>	Common sandpiper	Flussuferläufer	Chevalier guignette	Strandsnipe
<i>Tringa totanus</i>	Common redshank	Rotschenkel	Chevalier gambette	Rødstilk
<i>Numenius phaeopus</i>	Whimbrel	Regenbrachvogel	Courlis corlieu	Småspove
<i>Actophilornis africanus</i>	African jacana	Blaustirn-Blatthühnchen	Jacana à poitrine dorée	Hvitkinnsvarterne

Wildlife List – Land birds

SCIENTIFIC NAME	ENGLISH	DEUTSCH	FRANÇAIS	NORSK
<i>Ardea goliath</i>	Goliath Heron	Goliathreiher	Héron goliath	Goliathegre
<i>Ciconia episcopus</i>	Woolly-necked Stork	Asien-Wollhalsstorch	Cigogne épiscopale	Ullhalsstork
<i>Bostrychia hagedash</i>	Hadada ibis	Hagedasch	Ibis hagedash	Hadadaibis
<i>Haliaeetus vocifer</i>	African fish eagle	Schreiseeadler	Pygargue vocifer	Flodørn
<i>Treron calvus</i>	African green pigeon	Rotnasen-Grüntaube	Colombar à front nu	Afrikagrønndue
<i>Apus alexandri</i>	Cape Verde swift	Alexandersegler	Martinet du Cap-Vert	Kappverdeseiler
<i>Coracias abyssinicus</i>	Abyssinian roller	Senegalracke	Rollier d'Abyssinie	Sahelråke
<i>Merops albicollis</i>	White-throated bee-eater	Weißkehlspint	Guêpier à gorge blanche	Sebrabieter
<i>Halcyon leucocephala</i>	Grey-headed Kingfisher	Graukopfliest	Martin-chasseur à tête grise	Gråhodeisfugl
<i>Lophoceros semifasciatus</i>	West African Pied Hornbill	Elstertoko	Calao longibande	Palmetoko
<i>Crinifer piscator</i>	Western plantain-eater	Schwarzschwanz-Lärmvogel	Touraco gris	Flekkurako
<i>Terpsiphone viridis</i>	African Paradise Flycatcher	Graubrust-Paradiesschnäpper	Tchitrec d'Afrique	Strimmelparadismonark
<i>Cinnyris pulchellus</i>	Beautiful Sunbird	Elfennektarvogel	Souimanga à longue queue	Fagersolfugl
<i>Lamprotornis caudatus</i>	Long-tailed glossy starling	Langschwanz-Glanzstar	Choucador à longue queue	Langhaleglansstær
<i>Passer iagoensis</i>	Cape Verde sparrow	Kapverdensperling	Moineau du Cap-Vert	Kappverdespurv

Birds sighted: selection of photos





E-bird

22 checklists completed
10 species recorded plus 9 other taxa

[View our data](#) on our e-Bird trip report

E-bird List

3 Sandwich Tern

IND.	DATE	LOCATION
3	13 Jan 2024 14:54	Canal do Meio GW-Bolama (11.6354,-16.3487)

6 West African Crested Tern

IND.	DATE	LOCATION
3	13 Jan 2024 14:54	Canal do Meio GW-Bolama (11.6354,-16.3487)
3	13 Jan 2024 15:54	Auto selected 11.71807, -16.68354

5 Red-billed Tropicbird

IND.	DATE	LOCATION
4	8 Jan 2024 08:55	Auto selected 13.49075, -21.95769
1	8 Jan 2024 13:12	Auto selected 13.09452, -21.19780

4 White-faced Storm-Petrel

IND.	DATE	LOCATION
4	18 Jan 2024 07:49	Auto selected 25.73914, -16.47973

1 Cory's Shearwater

IND.	DATE	LOCATION
1	9 Jan 2024 12:08	Auto selected 11.10619, -17.41105

1 Cape Verde Shearwater

IND.	DATE	LOCATION
1	9 Jan 2024 12:08	Auto selected 11.10619, -17.41105

1 Barolo Shearwater

IND.	DATE	LOCATION
1	18 Jan 2024 07:49	Auto selected 25.73914, -16.47973

1 Boyd's Shearwater

IND.	DATE	LOCATION
1	8 Jan 2024 08:55	Auto selected 13.49075, -21.95769

2 Red-footed Booby

IND.	DATE	LOCATION
1	4 Jan 2024 16:46	Auto selected 14.72568, -20.35419
1	8 Jan 2024 15:45	Auto selected 12.77665, -20.58870

1 Palm-nut Vulture

IND.	DATE	LOCATION
1	13 Jan 2024 14:54	Canal do Meio GW-Bolama (11.6354,-16.3487)

Wildlife List – Marine Mammals



Wildlife List – marine mammals



SCIENTIFIC NAME	ENGLISH	DEUTSCH	FRANÇAIS	NORSK
<i>Balaenoptera musculus</i>	Blue whale	Blauwal	Rorqual bleu, baleine bleue	Blåhval
<i>Delphinus delphis</i>	Common dolphin	Gemeiner Delfin	Dauphin commun à bec court	Gulflankedelfin
<i>Orcinus orca</i>	Orca	Schwertwal	Orque	Spekkhogger
<i>Stenella attenuata</i>	Pantropical spotted dolphin	Schlankdelfin	Dauphin tacheté pantropical	Hvitflekkdelfin
<i>Stenella frontalis</i>	Atlantic spotted dolphin	Zügeldelfin	Dauphin tacheté de l'Atlantique	Flekkdelfin
<i>Tursiops truncatus</i>	Common bottlenose dolphin	Großer Tümmler	Grand dauphin	Tumler
<i>Stenella coeruleoalba</i>	Striped dolphin	Blau-weißer Delfin	Dauphin rayé	Stripedelfin
<i>Balaenoptera borealis (possible)</i>	Sei whale	Seiwal	Rorqual de Rudolphi	Seihval

Marine mammals sighted: selection of photos



Happywhale

2 encounters were entered into
Happywhale on:

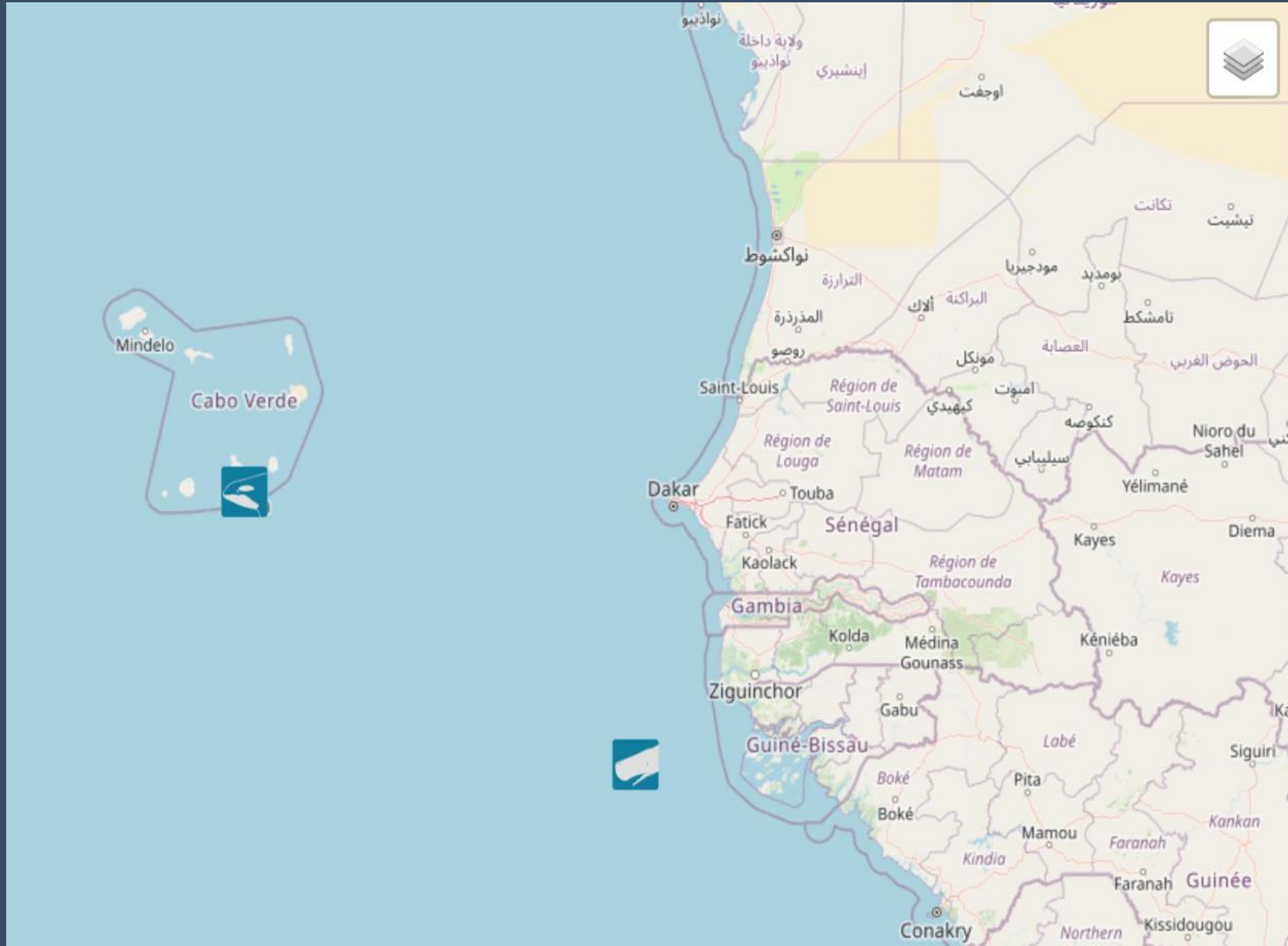
January 5th, 2024 (orca)

January 18th, 2024 (blue whale)

[View our submissions](#) to Happywhale



Map of observations submitted to Happywhale



Wildlife List — Other Animals



Wildlife List – Other Animals



SCIENTIFIC NAME	ENGLISH	DEUTSCH	FRANÇAIS	NORSK
<i>Epomophorus gambianus</i>	Gambian Epauletted Fruit Bat	Gambia-Epaulettenflughund	Roussette de Gambie	Flygehund
<i>Crocodylus suchus</i>	West African Nile Crocodile	Westafrikanisches Krokodil	Crocodile d'Afrique de l'ouest	Voksne ørkenkrokodiller
<i>Caretta caretta</i>	Loggerhead Turtle	Unechte Karettschildcröte	Tortue caouanne	Glattkarett
<i>Cheloniidae sp.</i>	Sea Turtle sp.	Meeresschildcröte	Tortue de mer	Sjøskilpadde
<i>Fontitrygon margaritella</i>	Pearl Stingray	Peitschenschwanzrochen	Dasyatidés	Piggrokkefamilien
<i>Exocoetidae spp.</i>	Flyingfish spp.	Fliegende Fisch	Poisson volant	Flygefisk
<i>Selachimorpha sp.</i>	Shark sp.	Hai	Requin	Hai
<i>Mobula sp.</i>	Manta Ray sp.	Mantarochen	Manta	Djevelskate
<i>Afruca tangeri</i>	West African Fiddler Crab	Winkerkrabben	Crabe violonistes	Vinkekrabbe



ORCA

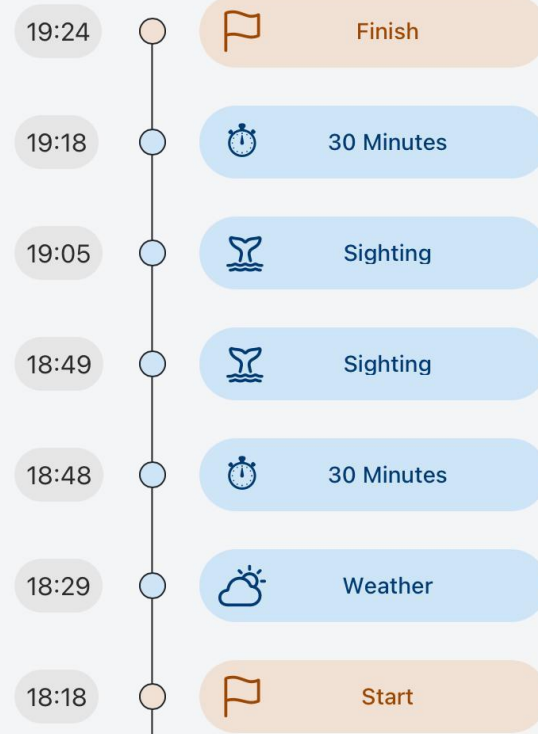
Douglas Wainwright, ORCA Ocean
Conservationist and HX Marine Scientist

Even during the dry season we have recorded
a few encounters with whales and dolphins,
some species were rare and poorly known!

ORCA surveys

Home ORCA Survey

This survey is uploaded!

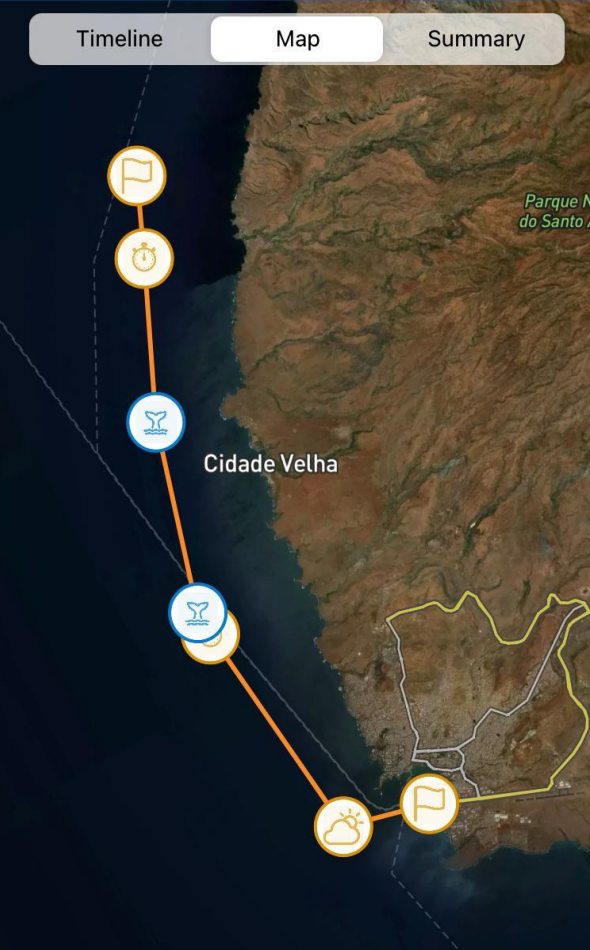


A vertical timeline showing the sequence of events during the survey. The events are: Start (18:18), Weather (18:29), 30 Minutes (18:48), Sighting (18:49), 30 Minutes (19:05), Sighting (19:18), and Finish (19:24). Each event is represented by a circular icon and a corresponding text label in a colored pill-shaped box.

Time	Event
19:24	Finish
19:18	30 Minutes
19:05	Sighting
18:49	Sighting
18:48	30 Minutes
18:29	Weather
18:18	Start

Home ORCA Survey

Timeline | Map | Summary



A satellite map view showing the survey route. The route is marked with an orange line connecting several circular icons: a flag for 'Start', a weather icon, a clock for '30 Minutes', a dolphin for 'Sighting', another clock for '30 Minutes', another dolphin for 'Sighting', another clock for '30 Minutes', and a flag for 'Finish'. The map shows the coastline of a bay with labels for 'Cidade Velha' and 'Parque N do Santo A'.

Home ORCA Survey

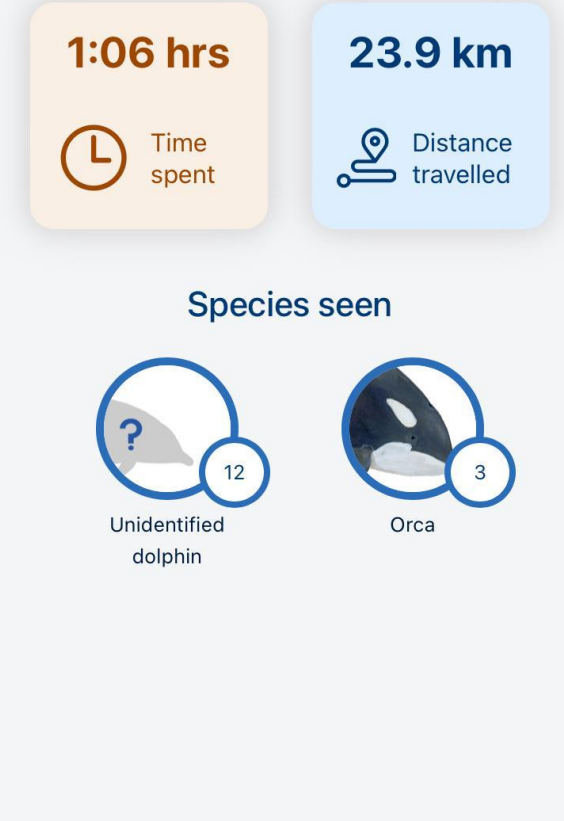
Timeline | Map | Summary

1:06 hrs Time spent

23.9 km Distance travelled

Species seen

- Unidentified dolphin: 12
- Orca: 3



A summary screen displaying key statistics and species sightings. It features two large colored boxes: an orange one for 'Time spent' (1:06 hrs) and a blue one for 'Distance travelled' (23.9 km). Below these, under the heading 'Species seen', are two circular icons: one for 'Unidentified dolphin' with a question mark and the number 12, and one for 'Orca' with a black and white image and the number 3.



Scientific collaborations

HX provided sightings and photographs of cetaceans and birds to complement the conservation work of local West African research groups. These were the first records of cetacean and bird diversity collected using citizen science in the coastal and offshore waters off West Africa onboard the HX vessels which increased knowledge and data gaps in areas where the threat to biodiversity is high.

Seabird data collected in Cape Verde were shared with BIO Cape Verde.

Cetacean sightings were shared with ECOCV, the Consortium for the Conservation of the Atlantic Humpback Dolphin, and the African Aquatic Conservation Fund.



HW

Connect with your inner scientist