



CARIBBEAN CETACEAN SOCIETY

# TI WHALE AN NOU

A woman is shown in profile, wearing a black baseball cap and a white long-sleeved shirt. She is holding a camera with a large lens up to her eye, appearing to be taking a photograph. The background is a clear blue sky. The woman's shirt has several logos on the sleeve, including 'CARAIBES' and a panda logo. On the back of her shirt, there is a graphic of a whale tail with the text 'Ti Whale An Nou' written in a cursive font above it.

2021

REPORT





# TI WHALE AN NOU 2021 PROGRAM

*Ti Whale An Nou* means "our own little whales" in a Creole mix. In 2021, this program made it possible to carry out the largest scientific mission to acquire cetaceans knowledge in the West Indies. This is a local initiative led by West Indians, which ensures its sustainability.

This program is a continuation of the work carried out by Dalhousie University and the DSWP.





# OBJECTIVES

- Improve knowledge on the diversity, distribution and relative density of cetacean species in the Lesser Antilles.
- Collaborate to estimate population sizes, movements and distribution of sperm whale vocal clans.
- Contribute to feeding acoustic databases of different cetacean species for better identification by artificial intelligence systems.
- Study the role of environmental variables in the diversity and distribution of cetaceans in the West Indies.
- Expand research to include all islands of the Lesser Antilles.
- Allow governments to have reference data on which to base themselves to put in place management measures.
- Have a common protocol in all territories for long-term monitoring and inter-island comparisons.
- Strengthen the cooperation of the Caribbean network.
- Enable the skill development of West Indian people.
- Increase the attractiveness of our region.
- Promote the involvement of young people and women in the field.
- Educate schoolchildren and the general public.
- Foster the development of the blue economy.







## METHOD : combining visual and acoustic research

During the day, a visual search effort is carried out continuously by two observers. The movements of the boat, observations, maritime traffic and environmental parameters are geolocated and recorded via the ObsenMer application on a tablet.

A towed hydrophone system with 4 (high and low frequency) hydrophones allows the sounds of all species to be recorded

continuously during day and night sailing trips. Acoustic detections are triangularized to help find individuals. Once near the group, information such as species, group size, presence of young, etc. are logged while a team takes care of the photo-identification. The photos will be analyzed on the open Flukebook platform to increase cooperation and data sharing in the region.







## DIFFICULTIES

Between May and August, 6 expeditions of 15 days each took place between Anguilla and Grenada.

A video of the expeditions is available on our YouTube channel.

During this expedition, a maneuver error led to the loss of the hydrophone system. This accident had a strong impact on the logistics of the expedition and the budget of the association. This event indubitably reveals the complexity involved in implementing this protocol. We cannot thank Marine Ecological Research enough for allowing us to continue the other expeditions by providing us with another system, thank you.

Between August and October, additional missions made it possible to train students and acquire more knowledge.





# RESULTS



**96** days at sea



**8970** km traveled



**98** participants mobilized



**1151** hours of research effort



**191** visual detections



**17** species identified



**10,317** estimated individuals studied



**29** families of sperm whales encountered





- ▶ Many Propeller scars were observed in photographs
- ▶ First acoustic recordings of killer whales (*Orcinus orca*) in the West Indies and first photo-identification of this species in Martinique.
- ▶ First observation of rare species such as pygmy killer whales (*Feresa attenuata*) in the Yarari Sanctuary.
- ▶ For many islands, this was the first census of all cetacean species and their distribution.
- ▶ The same social clans of sperm whales codas present in the Agoa sanctuary and in Dominica were recorded in the Yarari sanctuary around the Saba Bank.
- ▶ *It is important to weigh these results. Only a greater research effort and long-term follow-up will allow conclusions to be drawn. This study is a first step and sheds light on the situation.*





# CCS Dataset Summary



## Statistics

Number of expeditions: **6**

First expedition: **21/05/2021**. Last expedition: **05/10/2021**. Total days spent at sea: **96** with a total of about **1151** hours spent at sea.

Total distance traveled: **8970km** with an average of **92.5km** per day.

Cetaceans were tracked over a total of **1230km** averaging **10.2km** travelled per tracking event.

**17** different species of cetaceans were identified (**Cuvier's beaked whale, Gervais' beaked whale, Sowerby's beaked whale, sperm whale, dwarf sperm whale, pygmy sperm whale, spinner dolphin, melon-headed whale, Fraser's dolphin, Atlantic spotted dolphin, pantropical spotted dolphin, pilot whale, bottlenose dolphin, orca, pygmy orca, false killer whale, Bryde's whale**). Below is the number of sighting instance and an estimation of total sightings per species.

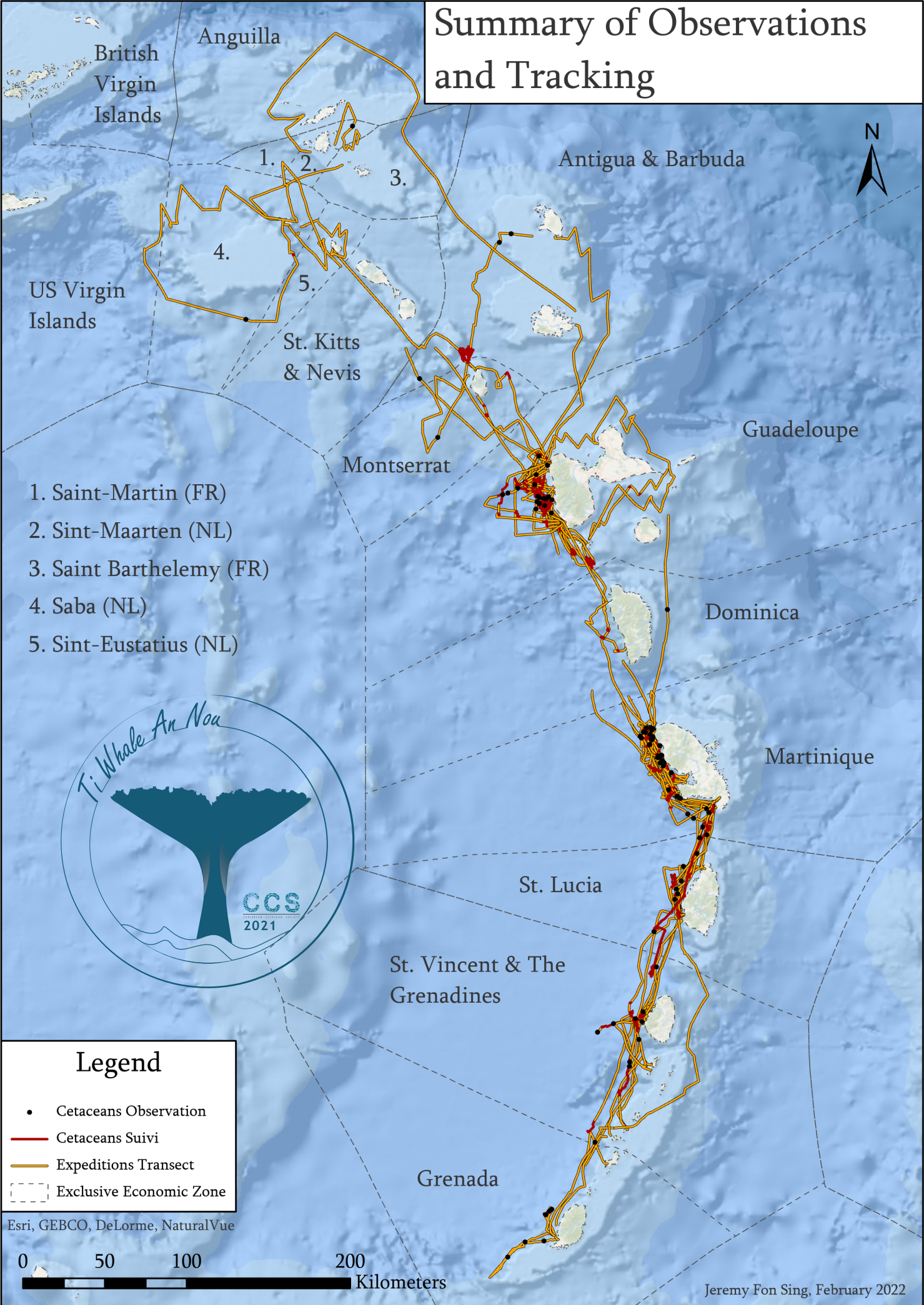
| Species                     | Total sighting instances | Total estimated |
|-----------------------------|--------------------------|-----------------|
| Unidentified dolphin        | 18                       | 341             |
| Other species               | 11                       | 29              |
| Bryde's whale               | 2                        | 2               |
| Cuvier's beaked whale       | 1                        | 3               |
| Gervais' beaked whale       | 1                        | 3               |
| Sowerby's beaked whale      | 1                        | 4               |
| Sperm whale                 | 27                       | 81              |
| Dwarf sperm whale           | 2                        | 8               |
| Pygmy sperm whale           | 2                        | 9               |
| Spinner dolphin             | 7                        | 477             |
| Melon-headed whale          | 3                        | 121             |
| Fraser's dolphin            | 26                       | 2624            |
| Atlantic spotted dolphin    | 2                        | 120             |
| Pantropical spotted dolphin | 75                       | 6147            |
| Pilot whale                 | 7                        | 154             |
| Bottlenose dolphin          | 19                       | 169             |
| Orca                        | 1                        | 10              |
| Pygmy killer whale          | 3                        | 13              |
| False killer whale          | 1                        | 2               |

Acoustic detection will be analyzed end of 2022.

All maps bellow must be interpreted with care. Density are derived from the boat tracks and visual detection. More work is needed before taking any conclusion.



# Summary of Observations and Tracking



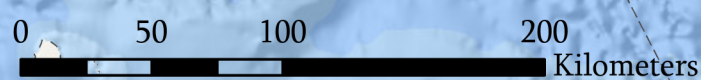
- 1. Saint-Martin (FR)
- 2. Sint-Maarten (NL)
- 3. Saint Barthelemy (FR)
- 4. Saba (NL)
- 5. Sint-Eustatius (NL)



**Legend**

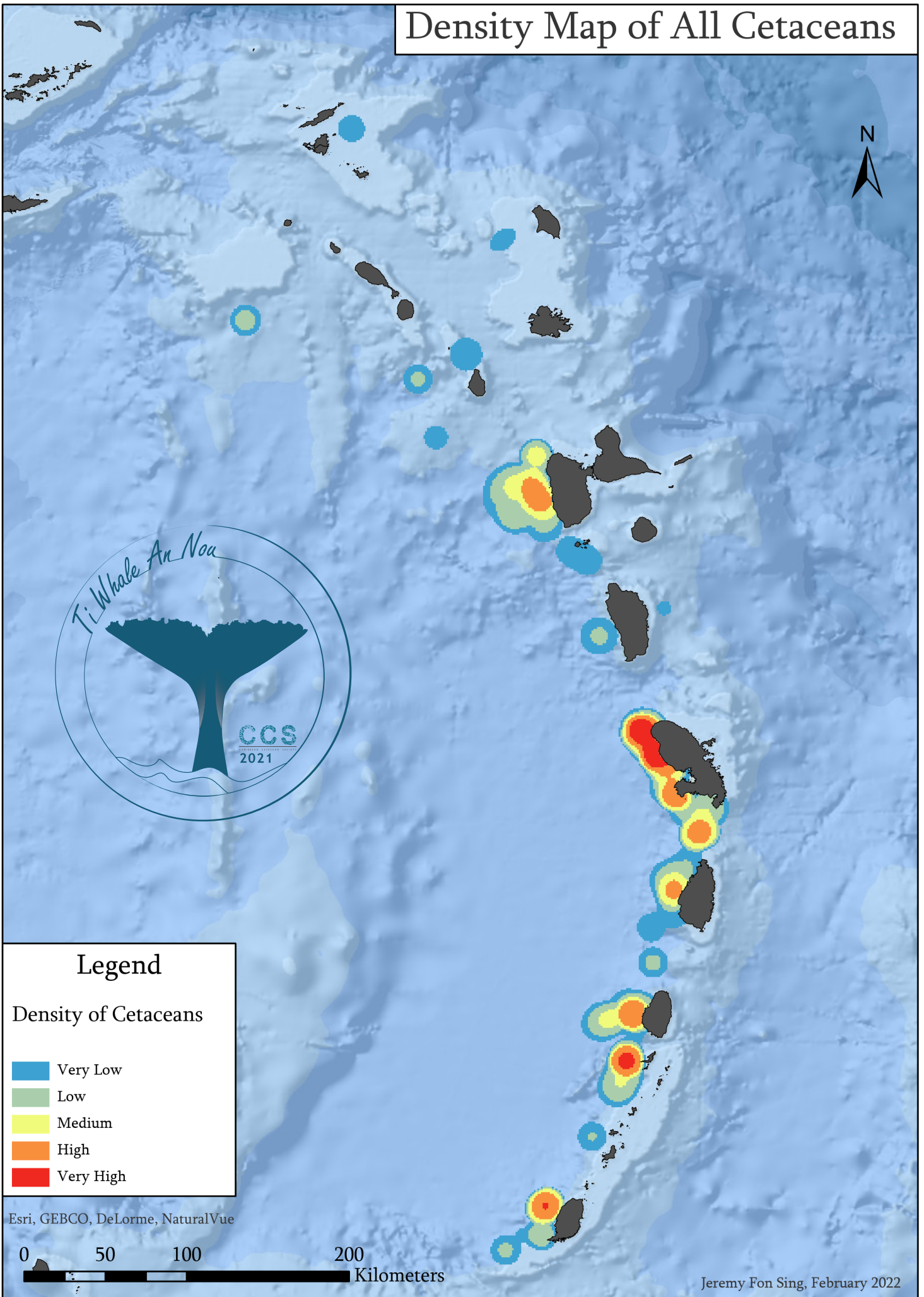
- Cetaceans Observation
- Cetaceans Suivi
- Expeditions Transect
- - - Exclusive Economic Zone

Esri, GEBCO, DeLorme, NaturalVue





# Density Map of All Cetaceans



## Legend

### Density of Cetaceans

- Very Low
- Low
- Medium
- High
- Very High

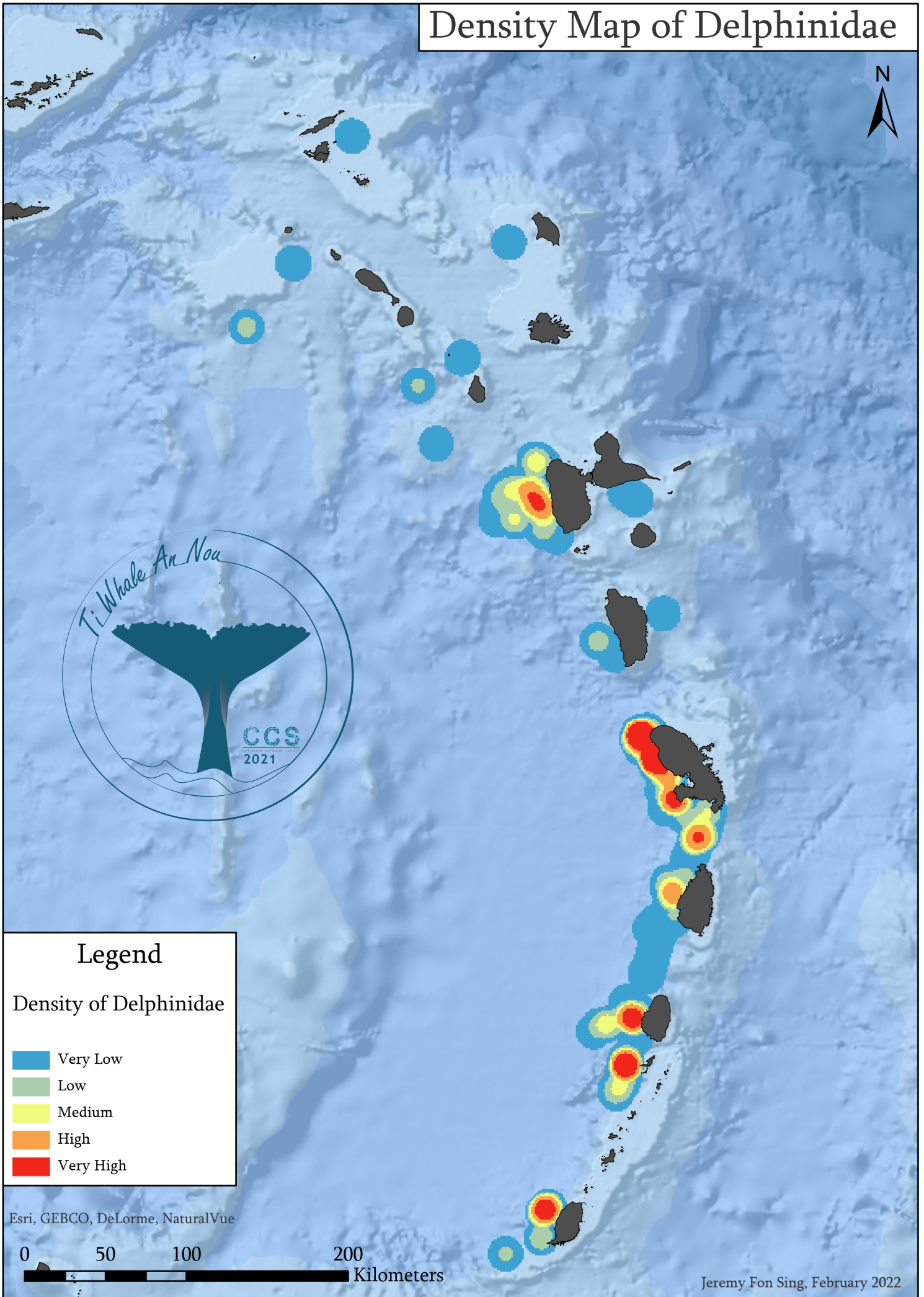
Esri, GEBCO, DeLorme, NaturalVue

0 50 100 200 Kilometers

Jeremy Fon Sing, February 2022



# Density Map of Delphinidae



## Legend

### Density of Delphinidae

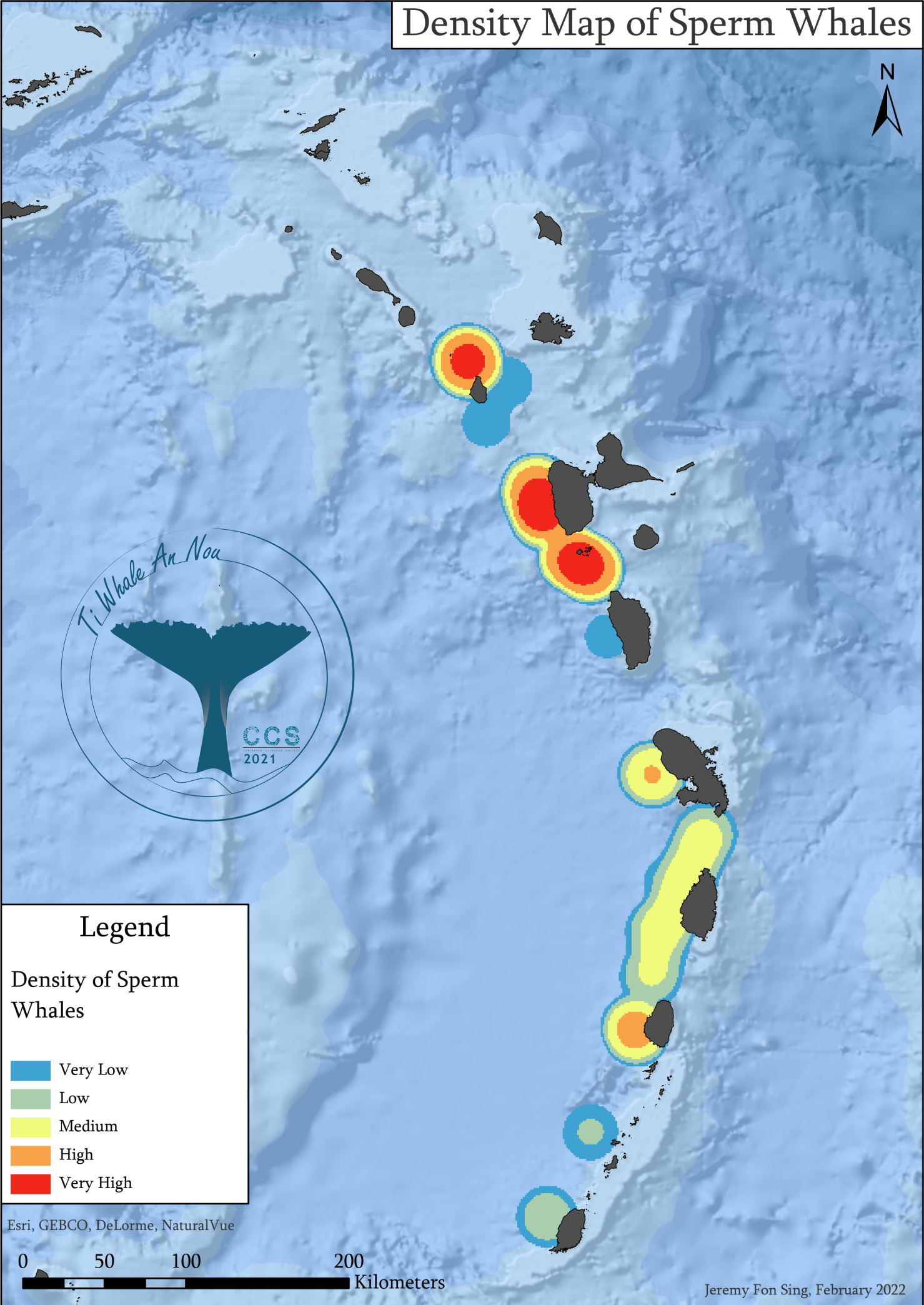
- Very Low
- Low
- Medium
- High
- Very High

Esri, GEBCO, DeLorme, NaturalVue

0 50 100 200 Kilometers

Jeremy Fon Sing, February 2022

# Density Map of Sperm Whales



## Legend

### Density of Sperm Whales

- Very Low
- Low
- Medium
- High
- Very High

Esri, GEBCO, DeLorme, NaturalVue

0 50 100 200 Kilometers

Jeremy Fon Sing, February 2022



# Sighting Map of Beaked Whales



## Legend

- Cuvier's beaked whale
- Sowerby's beaked whale
- Cuvier's beaked whale

Esri, GEBCO, DeLorme, NaturalVue

0 50 100 200 Kilometers

Jeremy Fon Sing, February 2022

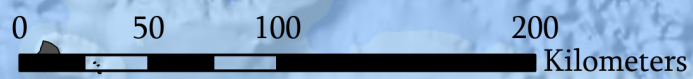
# Sighting Map of Bryde's Whales



**Legend**

- Rorqual de Bryde
- Rorqual de Bryde

Esri, GEBCO, DeLorme, NaturalVue





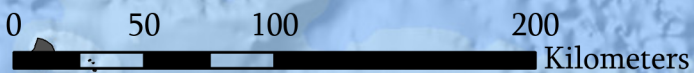
# Sighting Map of Dwarf and Pygmy Sperm Whales



**Legend**

- Cachalot Nain
- Cachalot pygmee
- Cachalot Nain
- Cachalot pygmee

Esri, GEBCO, DeLorme, NaturalVue



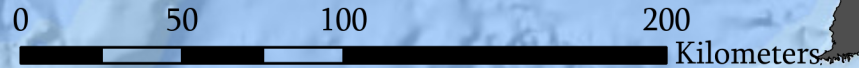
# Sighting Map of Orcas



**Legend**

- Orque pygmee
- Orque
- Orque pygmee

Esri, GEBCO, DeLorme, NaturalVue










# Density Map of Pilot Whales

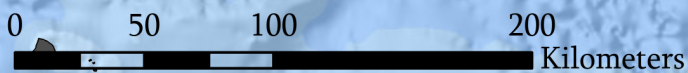


**Legend**

Density of Pilot Whales

|  |           |
|--|-----------|
|  | Very Low  |
|  | Low       |
|  | Medium    |
|  | High      |
|  | Very High |

Esri, GEBCO, DeLorme, NaturalVue



Jeremy Fon Sing, February 2022

# Density Map of Spinner Dolphins

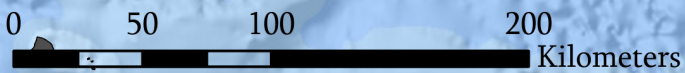


**Legend**

Density of Spinner Dolphins

- Very Low
- Low
- Medium
- High
- Very High

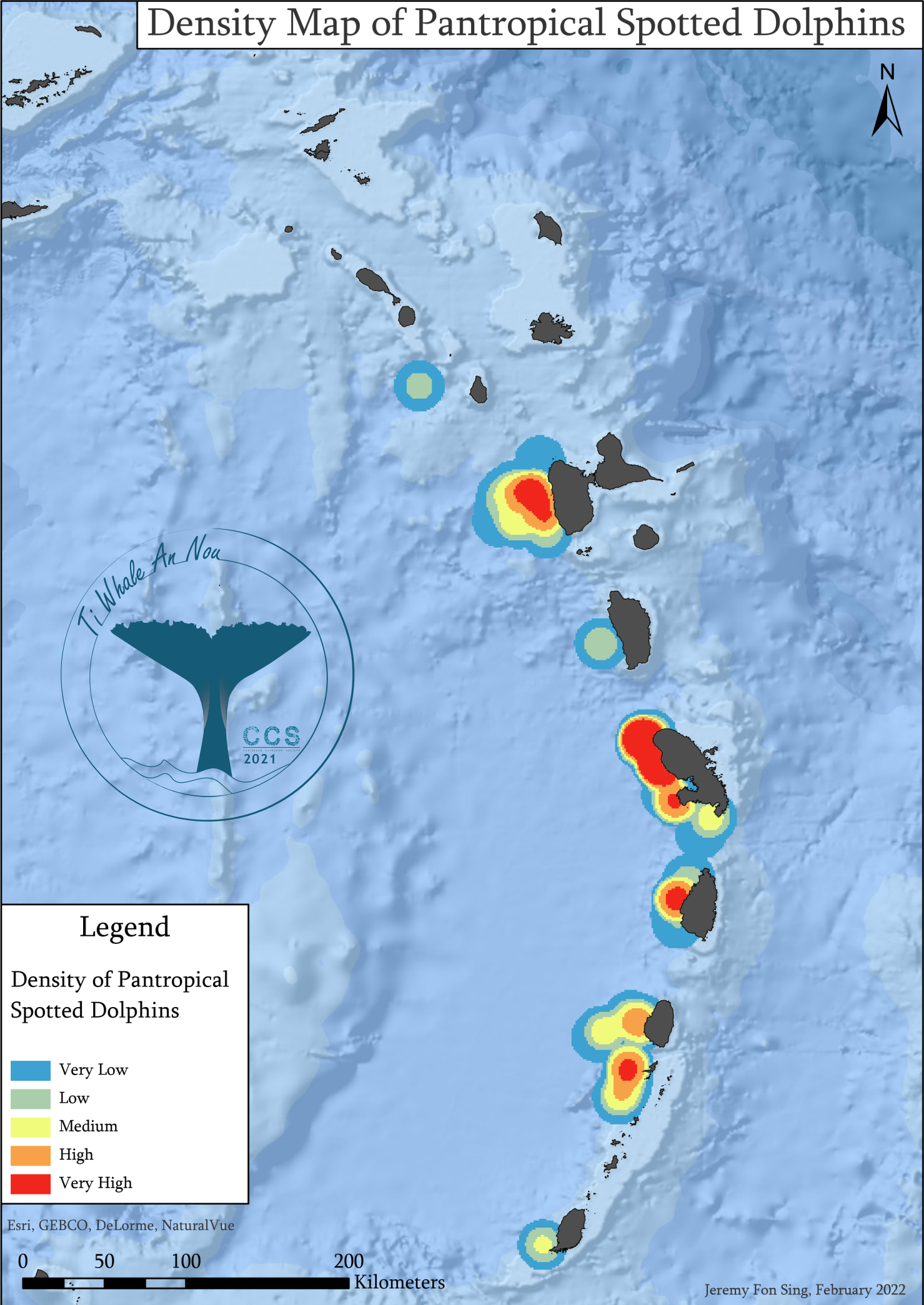
Esri, GEBCO, DeLorme, NaturalVue



Jeremy Fon Sing, February 2022



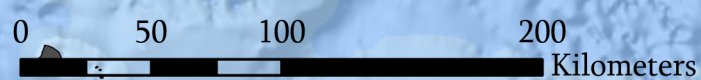
# Density Map of Pantropical Spotted Dolphins



## Legend

- Density of Pantropical Spotted Dolphins
- Very Low
  - Low
  - Medium
  - High
  - Very High

Esri, GEBCO, DeLorme, NaturalVue



# Density Map of Fraser Dolphins



## Legend

### Density of Fraser Dolphins

- Very Low
- Low
- Medium
- High
- Very High

Esri, GEBCO, DeLorme, NaturalVue

0 50 100 200 Kilometers

Jeremy Fon Sing, February 2022



# Density Map of Bottlenose Dolphins

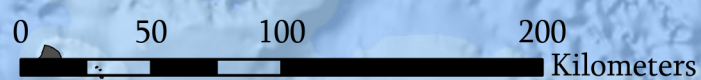


**Legend**

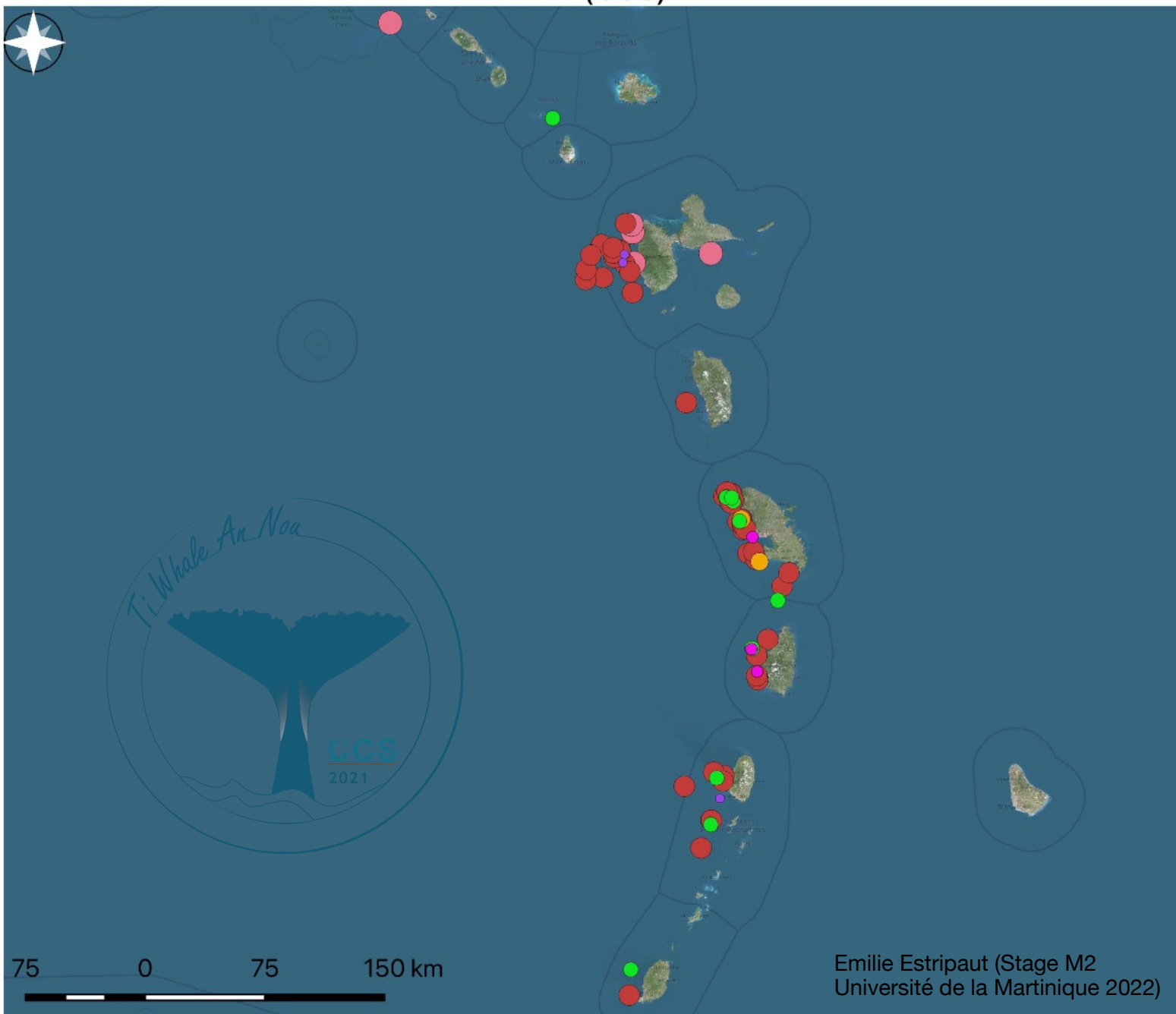
Density of Bottlenose Dolphins

- Very Low
- Low
- Medium
- High
- Very High

Esri, GEBCO, DeLorme, NaturalVue



# Carte de répartition des nouveau-nés observés chez les delphinidés en 2021 (CCS)



## Légende

- Nouveau nés Dauphins indéterminés
- Nouveau nés Dauphin long Bec
- Nouveau nés dauphin de Fraser
- Nouveau nés dauphin tacheté de l'Atlantique
- Nouveau nés dauphin tacheté pantropical
- Nouveau nés Grand Dauphin



# FINANCIAL PARTNERS



Mèsi an pîl !

(Thank you)



## ACKNOWLEDGMENTS

The Caribbean Cetacean Society warmly thanks all our partners, volunteers, members, donors as well as all those who have been able to help us protect the cetaceans of the Antilles.



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