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# Evaluating the impact of an awareness campaign using the MARECO teaching toolbox

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# DIDEM program

## Regional thematic school on the Vulnerability of Reef heritage

Evaluating the impact of an awareness campaign  
using the MARECO teaching toolbox

Pascale CHABANET (IRD) & Georgeta STOICA (Mayotte University)

June 10, 2024 – Blue Economy Research University of Seychelles



# Introduction

Coral reefs are facing major threats

Scientific community alert society and decision makers of environmental degradation  
BUT these results are often ignored by decision-makers

- **Empowerment of society including young generation** through education and strengthened awareness of coral reef issues
- A **teaching toolbox** has been developed with a goal to disseminate and communicate results of research conducted on coral reefs.



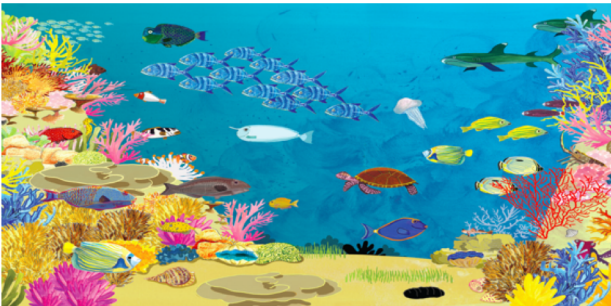
# Teaching toolbox MARECO

## Coral Reefs in our Hands

### Le Récif Corallien entre nos mains

Evaluating the impact of an awareness campaign on the representation of coral reefs for children (7- 8 years, second grade CE2)

**Interdisciplinary collaboration**





French National Research Institute for Sustainable Development

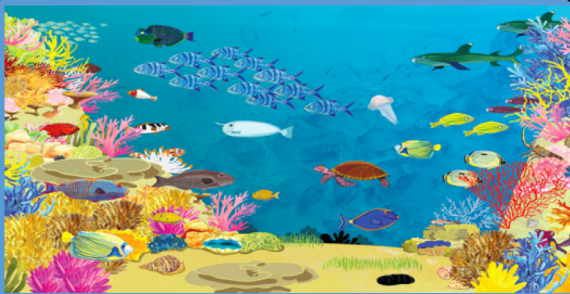


# MARECO

## Le Récif Coralliens entre nos Mains

## The Coral Reef In Our Hands

Scientific directors  
Pascale CHABANET & Jocelyne FERRARIS



Album « Les couleurs du récif »  
Picture book « The Colours of the Reef »



Jeu de cartes « Les 7 Familles du Récif »  
Card game « Coral Reef Happy Families »



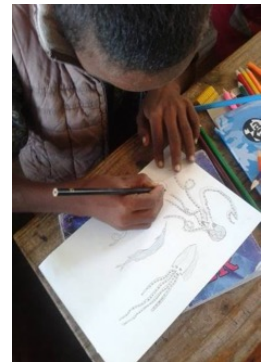
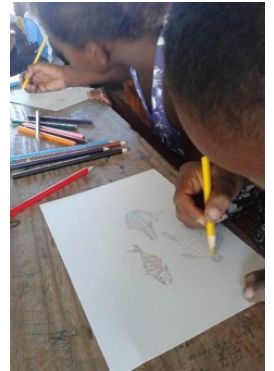
Jeu de plateau « Rendez-vous au récif »  
Board game « See You At the Reef »

# Methodology

Second grade children (7- 8 years)

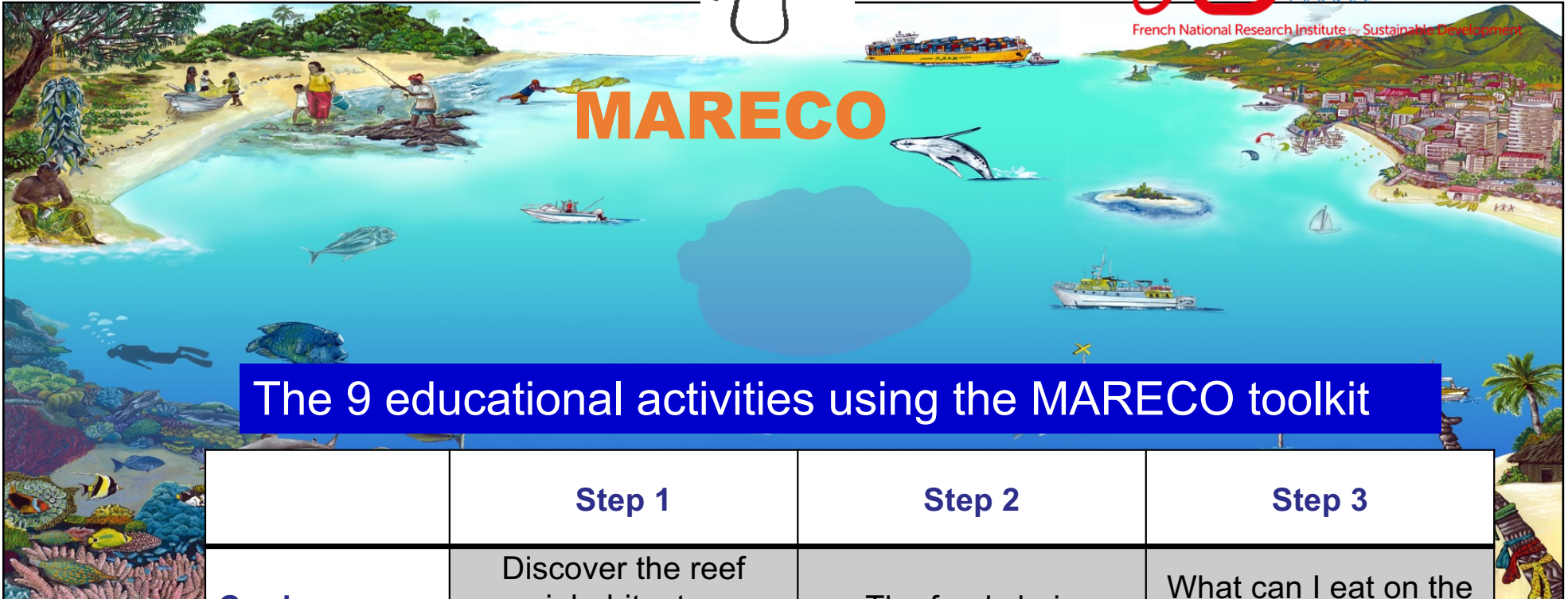
**Drawing tasks:**

- **1<sup>st</sup> Step: 1 drawing before using the toolbox**  
**“Draw the sea” and “Draw the coral reef” (1)**  
Census and interviews
- **2<sup>nd</sup> step : 3 activities around MARECO**  
20 min each, each game used thrice  
The toolbox was left with the teacher for 2 months





French National Research Institute for Sustainable Development



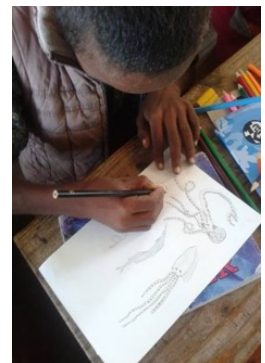
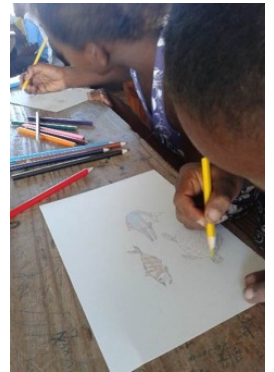
	Step 1	Step 2	Step 3
Card games	Discover the reef inhabitants	The food chain	What can I eat on the reef ?
Picture book	Discover the coral reef ecosystem	The colour of an healthy reef	The pollution of the reef
Board Game	The reef degrades quickly in absence of collaboration	Reef users and their impact on reef	See you at the reef!

# Methodology

Second grade children (7- 8 years)

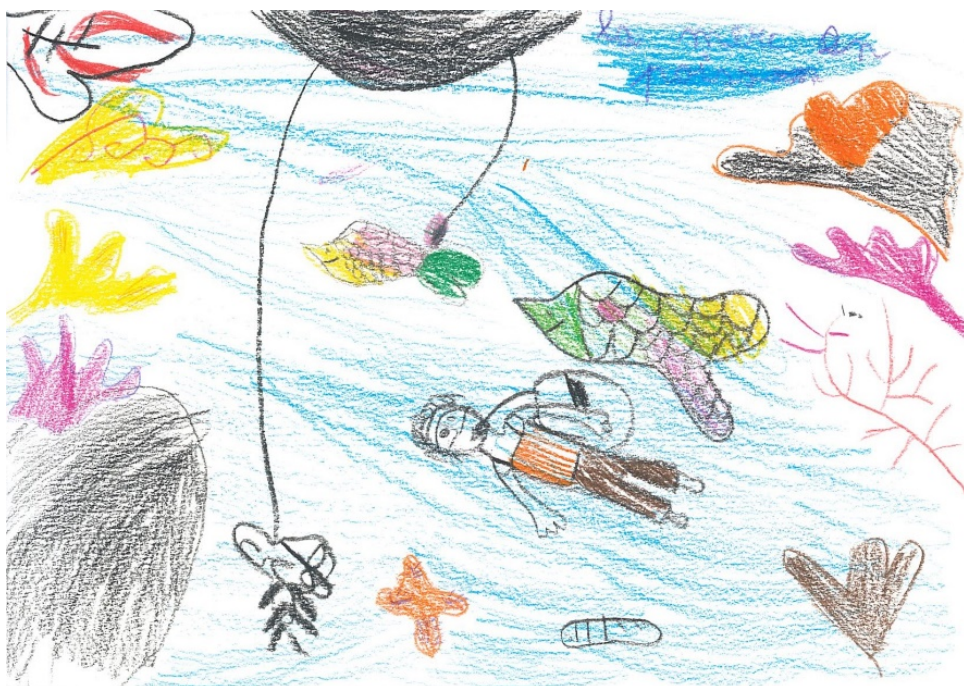
**Drawing tasks:**

- **1<sup>st</sup> Step: 1 drawing before using the toolbox**  
**“Draw the sea” and “Draw the coral reef” (1)**  
Census and interviews
  - **2<sup>nd</sup> step : 3 activities around MARECO**  
20 min each, each game used thrice  
The toolbox was left with the teacher for 2 months
  - **3<sup>rd</sup> step: 1 drawing after using the toolbox**  
**“Draw the coral reef” (2)**  
Census and interviews, questionnaires for teachers
- > **1,300 drawings have been done** => analyse how they perceived coral reefs in relation to their own experience and knowledge





# Reading grid



Reef 2: Mathilde, école Anatole France, Perpignan

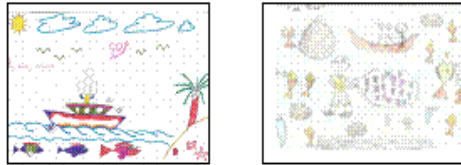
**Title:** "The sea with fish"

**Census:** 1 diver, 1 boat, 1 fishing line, flip flop, coral, soft coral, sea cucumber, stones, seaweed, fish, starfish

<b>Themes:</b>	
Flora	Yes
Terrestrial fauna	No
<u>Marine fauna</u>	Yes
Infrastructure	No
Earth	No
Environment	Yes
<u>Human Activities</u>	Yes
Number of colours	6/8
Biological life cycle	No
<b>Descriptors:</b>	
<u>Marine fauna</u>	
Nb of types	6
Nb of species	10
Nb of individuals	12
<u>Human Activities</u>	
Nb of people	1
Nb of users	1
Nb of type of activities	2
Nb of technological elements	4
Nb type of boats	1

## DATA ANALYSIS

### Nature representation (drawings, interviews)

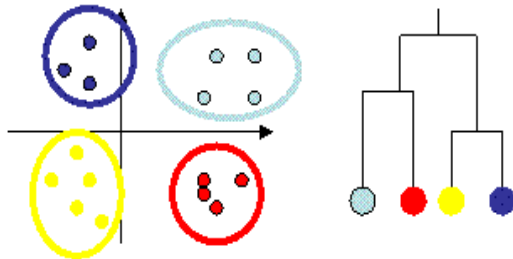


Reading  
Grid

Interdisciplinary analyses : anthropology, biology,  
ethno-ecology, biostatistics

Qualitative and quantitative analysis of drawings

### Comparative analysis



Multivariate  
analysis

### MARECO impact

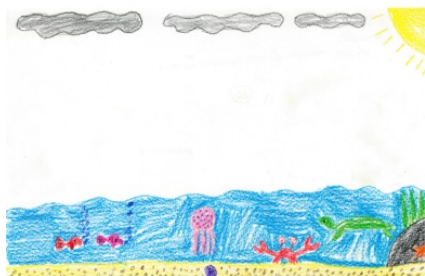


Statistical tests

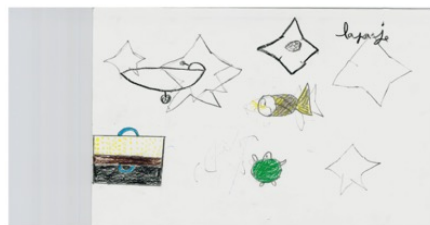
Identification of the representation of children according to different  
factors  
Changes in knowledge, behaviour, uses, ...

# RESULTS

Mer



Récif 1



Récif 2



Hermitage La Réunion



St Pierre La Réunion

Kaweni, Mayotte

# Principal Component Analysis

249 drawings (NC) – 9 quantitative variables / coordinates of individuals

## Themes:

Flora

Terrestrial fauna

Marine fauna

Infrastructure

Earth

Environment

Human Activities

Number of colours

Biological life cycle

## Descriptors:

Marine fauna

Nb of types

Nb of species

Nb of individuals

Nb of colors

Human Activities

Nb of people

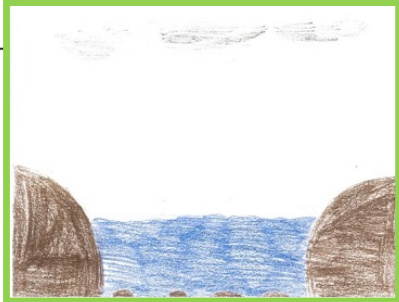
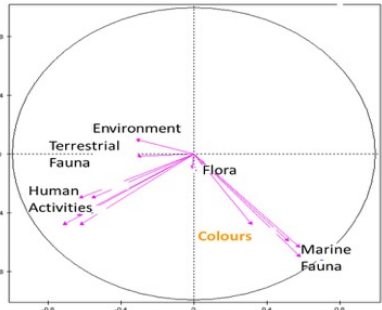
Nb of users

Nb of type of activities

Nb of technological elements

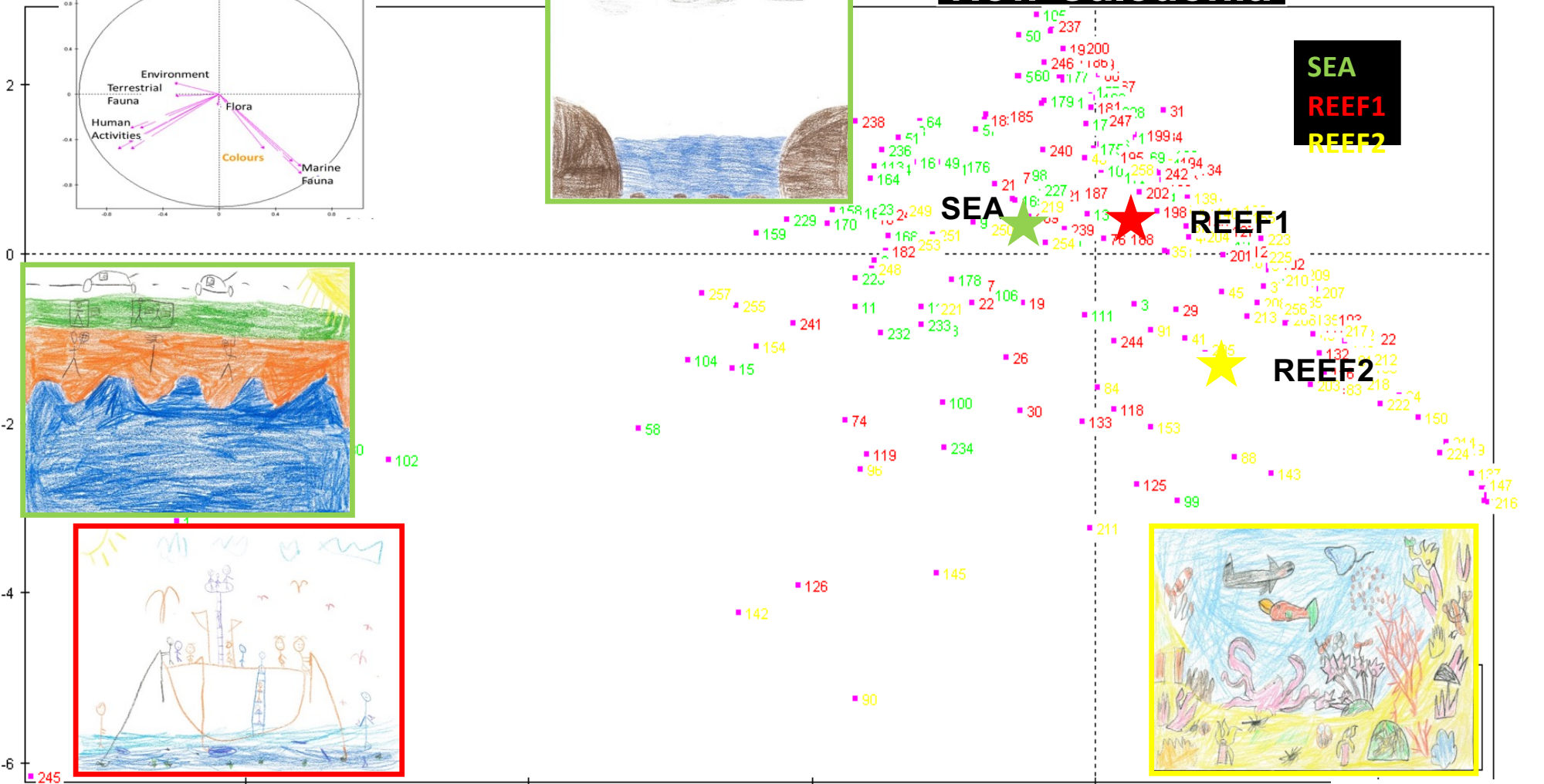
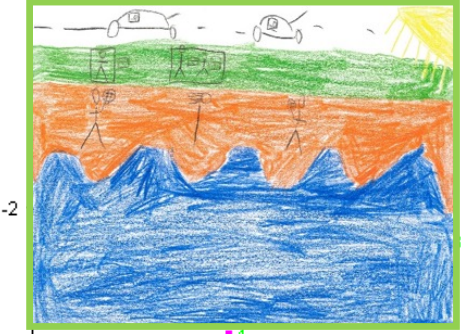
Nb type of boats

Factor 2 = 17.9



# New Caledonia

SEA  
REEF1  
REEF2

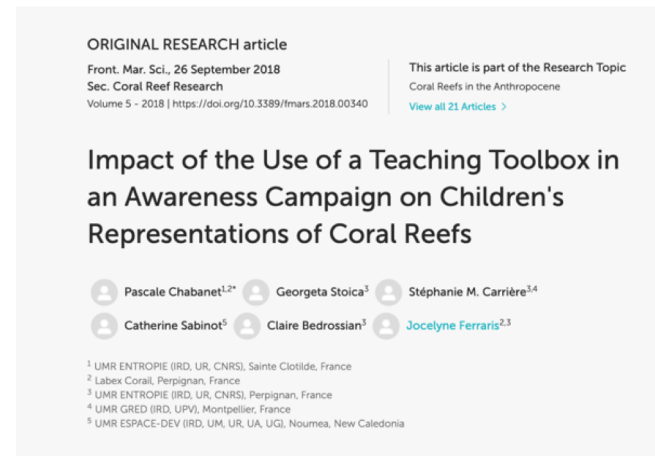


Factor 1 = 25.2%  
Facteur 1

# Results

- **New Caledonia:** heterogeneity between schools, good knowledge of reefs in "privileged" urban areas *versus* in rural areas with more focus on land
- **Madagascar :** informal education knowledge, children know very well the coral reefs, rich representation of the reef biodiversity in the drawings
- **Mayotte :** an empty sea except some cases (« You told to draw the sea! The sea is blue! »)

To go deeper ....



# Conclusion

**Mareco's impact is very clear on children's' representations:**

- increased marine biodiversity and number of colours in drawings,
- main effects came from picture book and card game,
- impact of the board game should probably go through role-playing

**Next step: Let's go to the sea with the scientists !**





Vanuatu, 2007



Mayotte, 2014



Reunion Island, 2024

**Thank you for your attention!**