



Impact of Microplastics related to COVID in the Caribbean and fishing activity

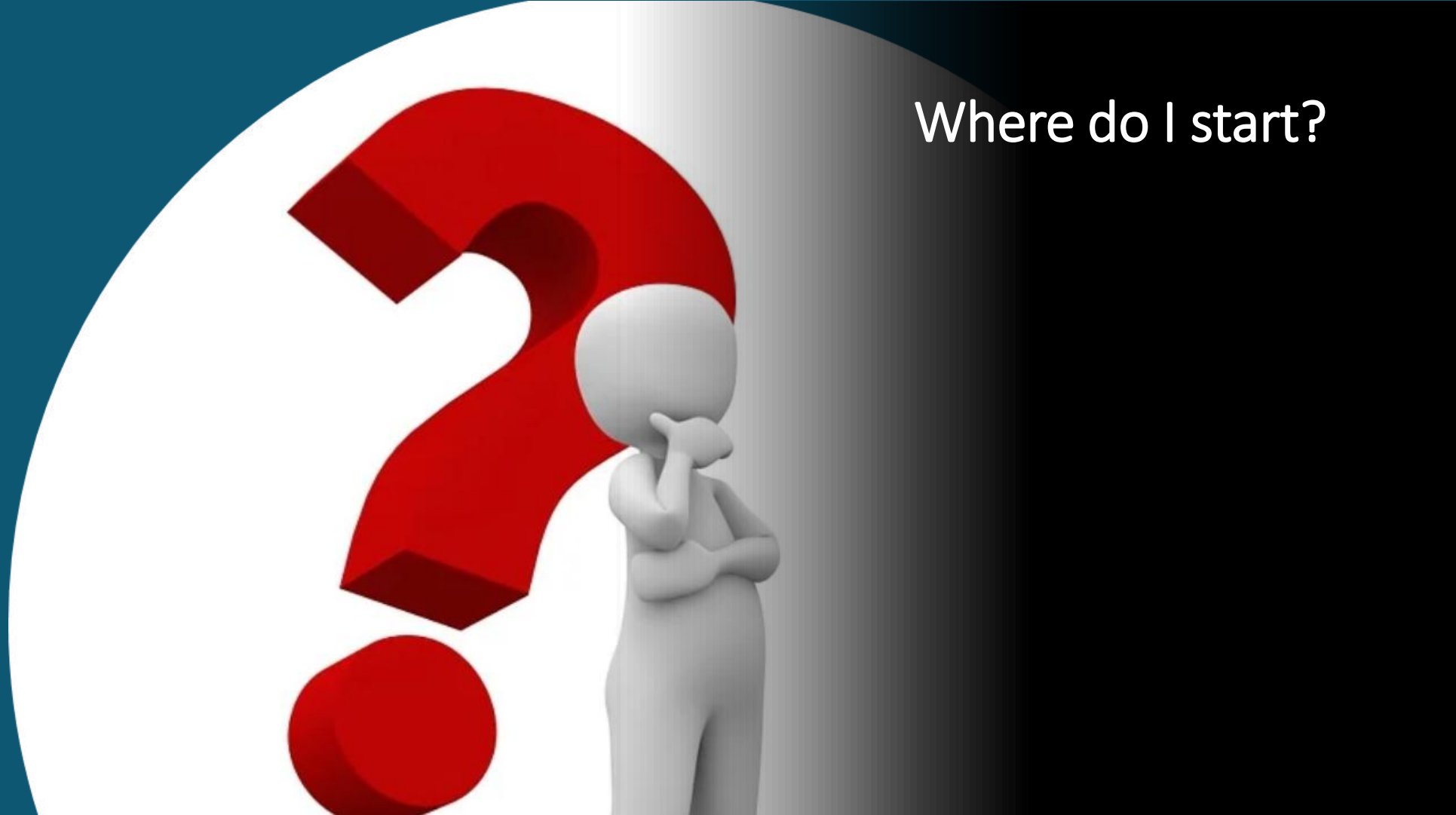
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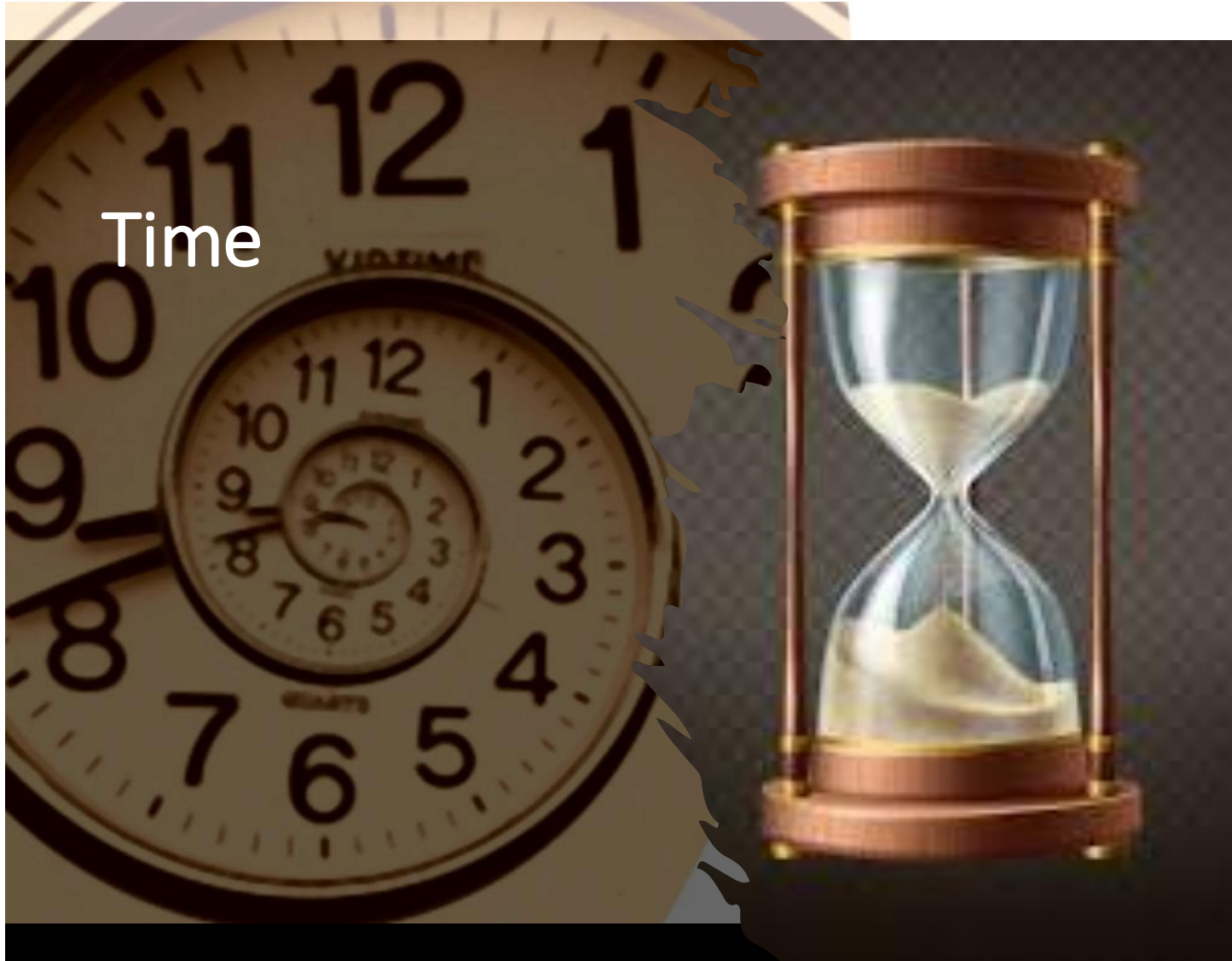


5th, December 2023

Where do I start?

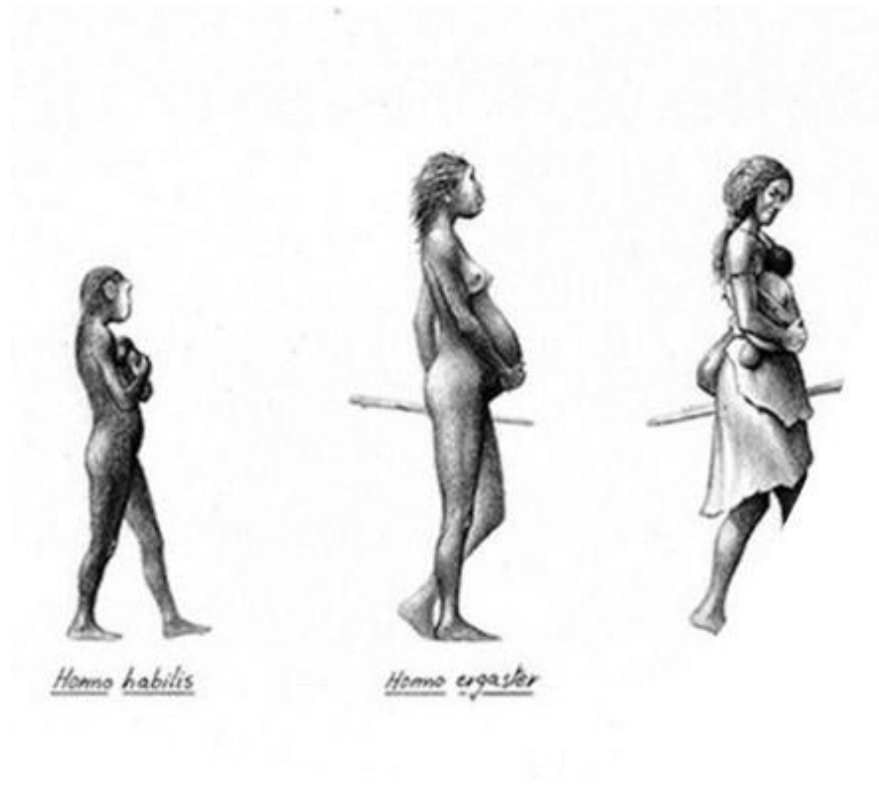


Time



the Earth was
formed 4.5 billion
years ago





.....and then,
300 000 years ago,
the Homo sapiens
appeared

- Thus, we have 23,000 times less "experience" than the Earth



...the last but not least



...Plastics

**almost half of all
plastic manufactured
has been produced
since 2000**

Producción mundial de plástico
en millones de toneladas



In the last 20 years, half of all
plastic has been produced



Annually 9 billion tons of garbage are discharged into the oceans. Plastics make up 80%

50 % is packaging plastics



due to our
consumption model

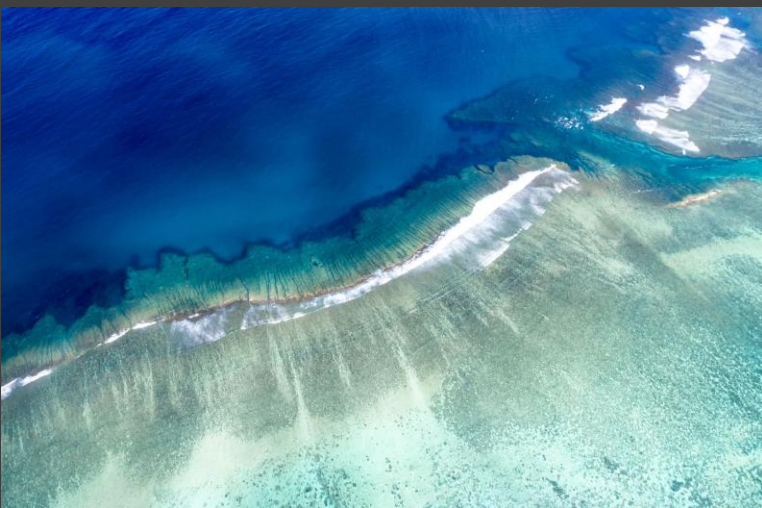


Each minute,
One million
bottles of
water are
sold. Which
represent
25% of the
marine litter





BIODIVERSIDAD



11% of the fishing catch comes from this region and

10% of the world's population lives there



It is the second sea most polluted by plastics in the world (UN)

Caribbean

Plastic pollution

Because one third of all waste ends up in clandestine landfills

85% of wastewater is not treated before reaching the sea

Microplastics

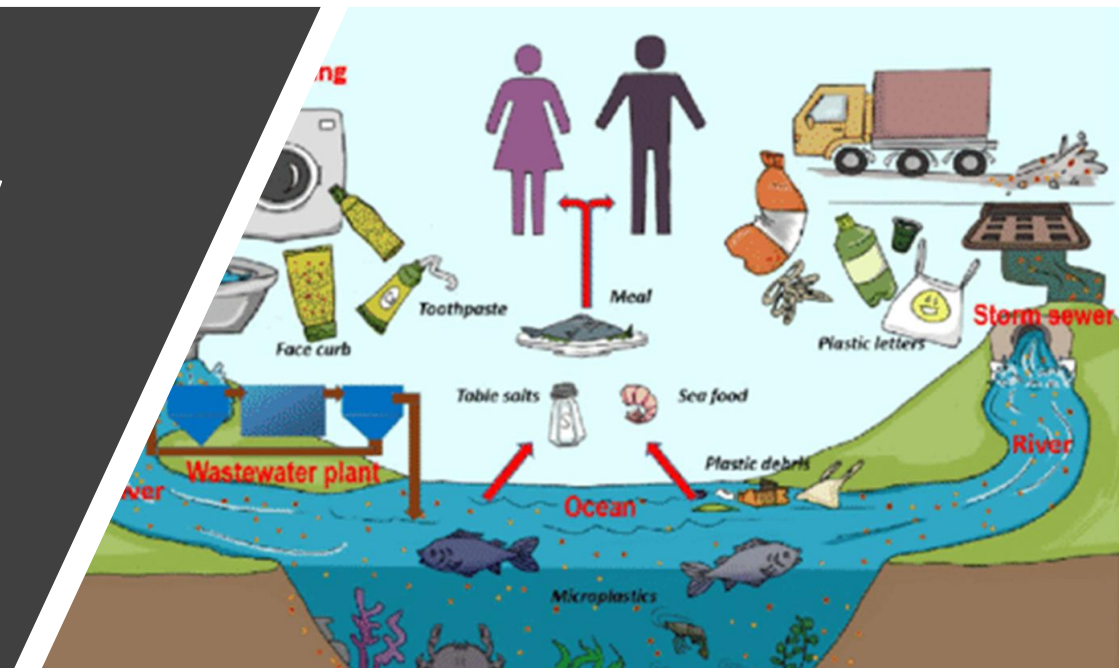


Where do they come from?

The Micro plastics come from:



- Plastic fragmentation
- spheres produced by the industry that are incorporated into toothpastes and creams



Plastic "does not disappear",

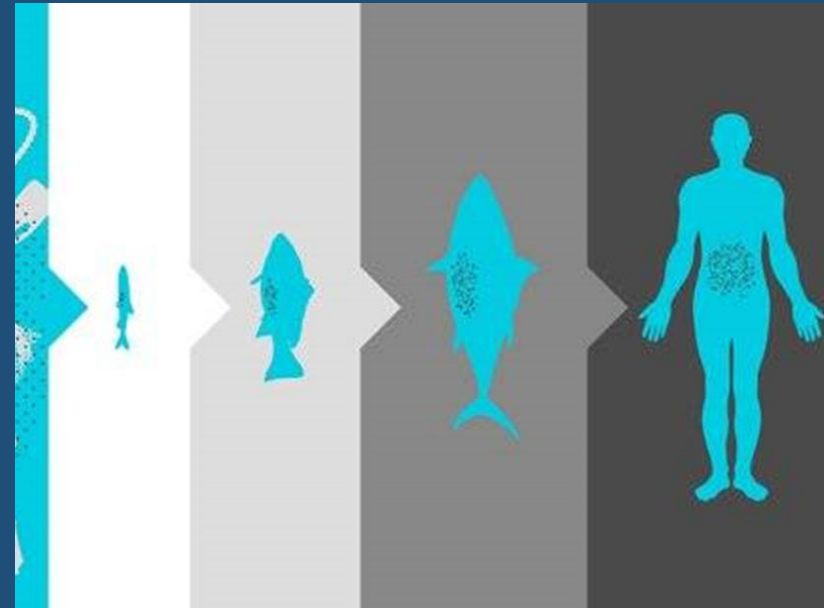
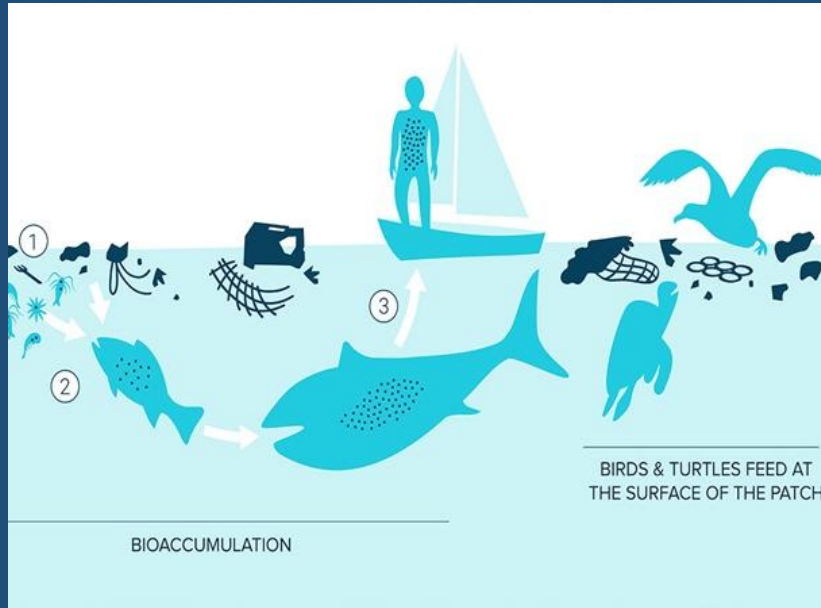


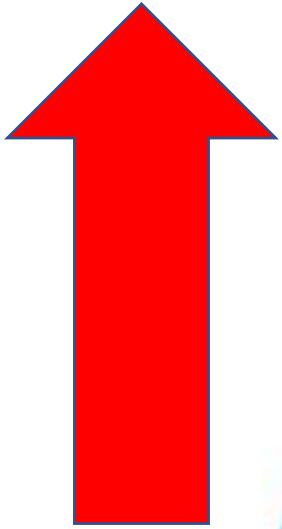
IMPACTO MP



The problem with MP is that they concentrate organochlorines, such as fertilizers

Biocumulation (POPs)

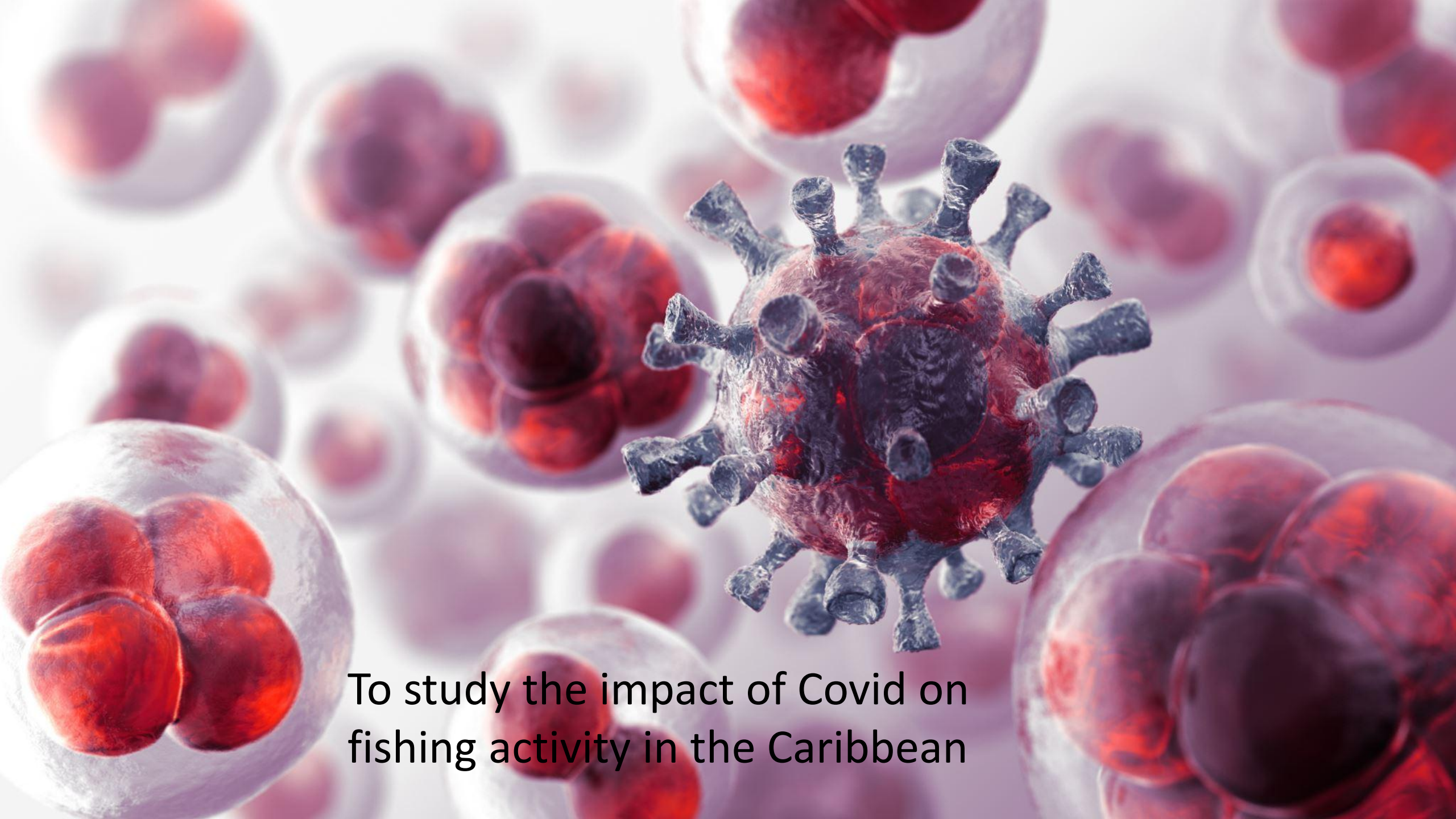




During Covid the use of plastics increased

Face masks,
Gloves,
Online shopping

In 2020, around 129 billion face masks and 65 billion gloves were used monthly around the world



To study the impact of Covid on
fishing activity in the Caribbean

We carried out a survey with closed and open questions



30 closed questions (YES, NO)
and
10 open questions

Google forms



Spanish <https://forms.gle/R5QJ28dpVa9sQ1HK6>

English <https://forms.gle/hbnrrGYciq75SAxZ6>

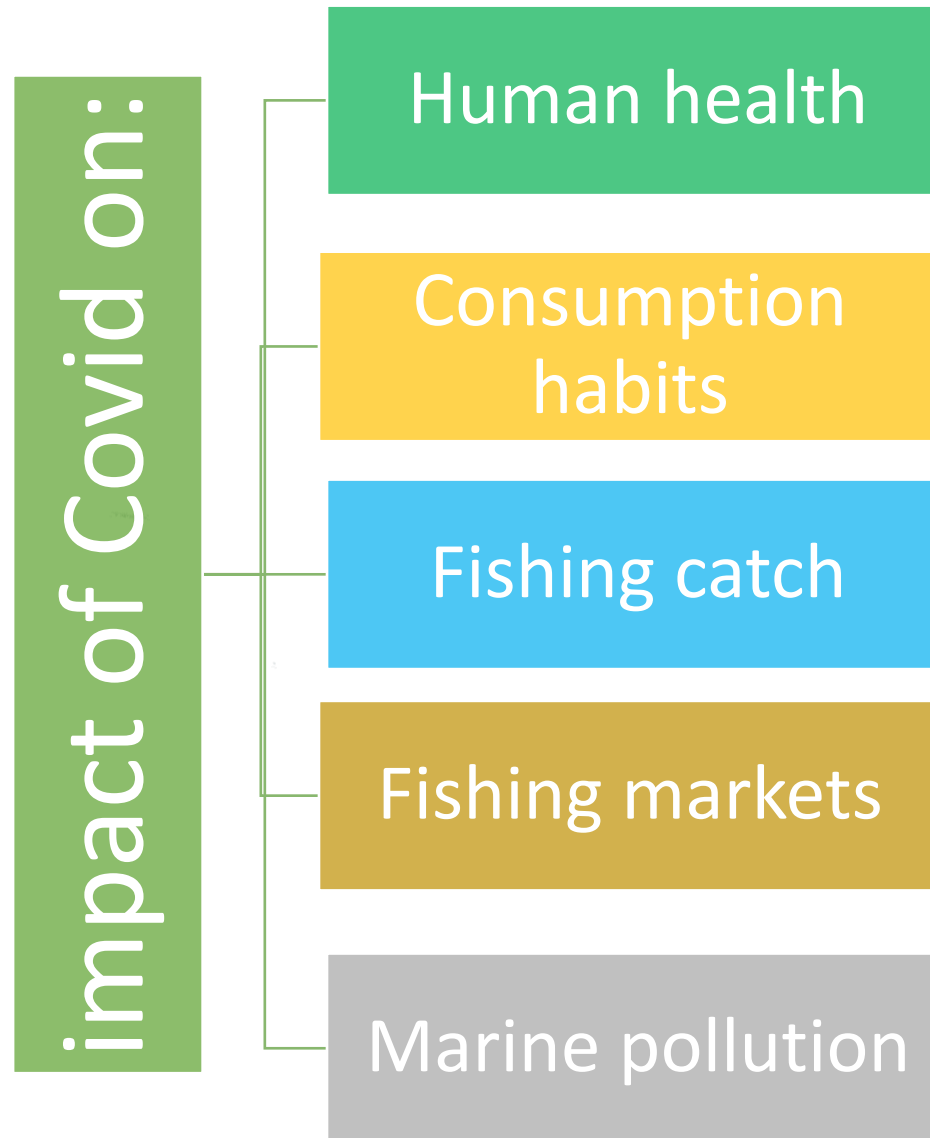
French <https://forms.gle/tkaSEkg4xaVcd2nQ8>



sent to fishermen
via wa



The survey had six topics



We obtained responses from 6 countries where at least 30 fishermen responded to the survey.

Belize

Dominican Republic

Jamaica

Mexico

Panama

San Andrés Islands,

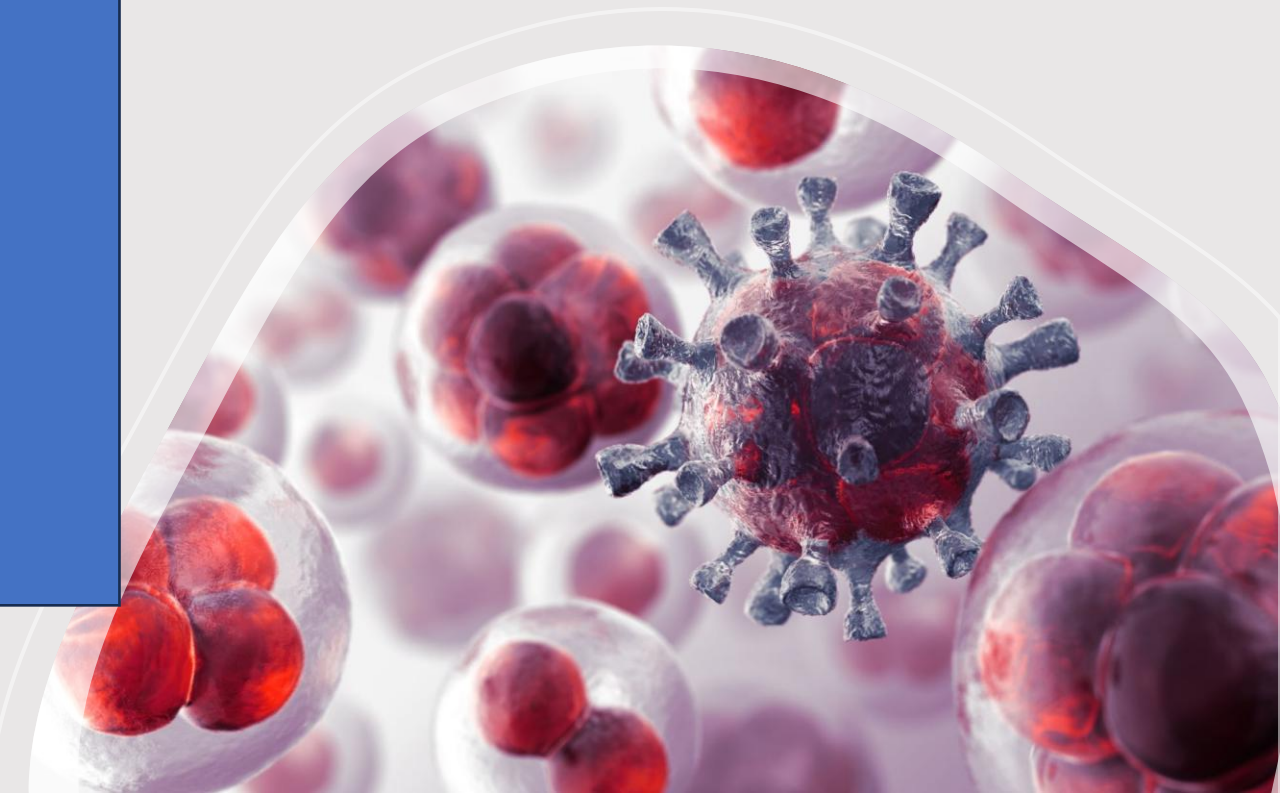
Colombia



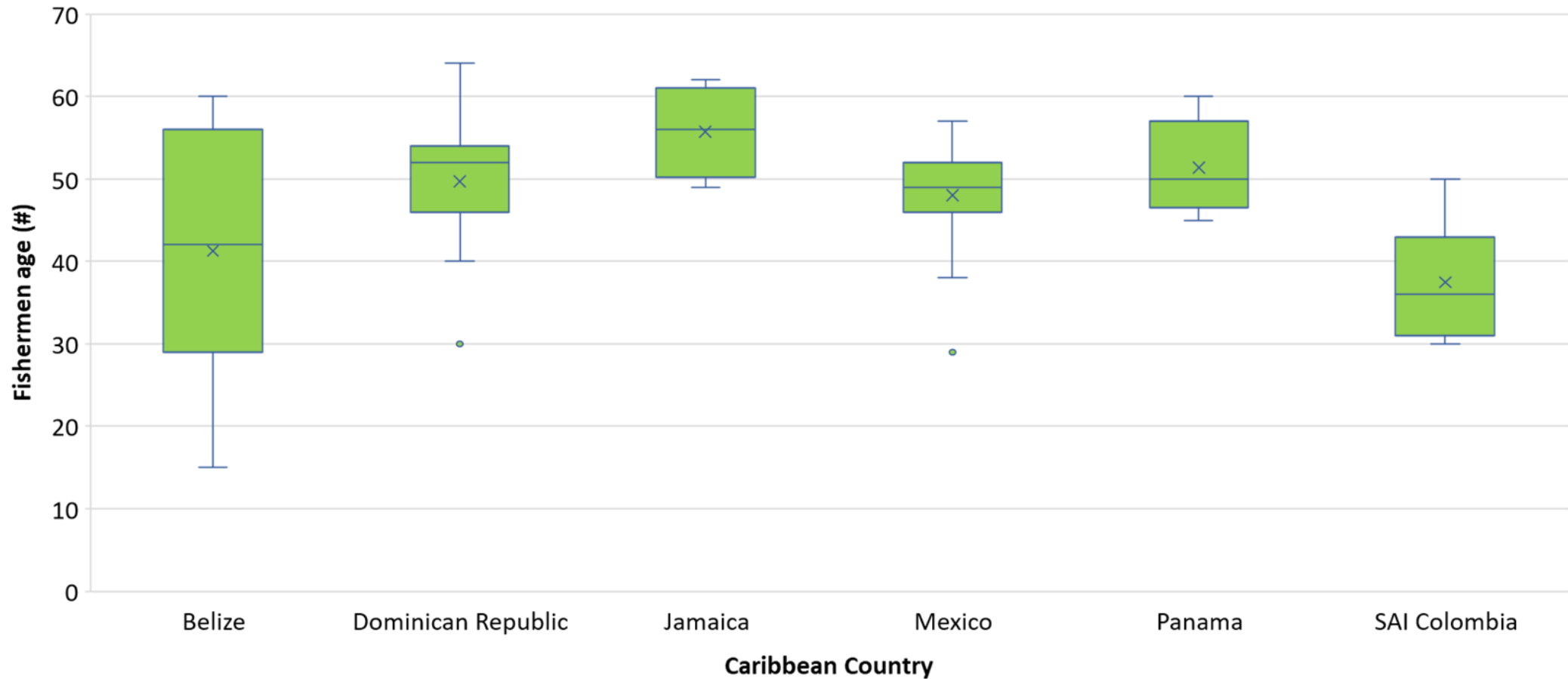
- *Martha Enríquez, Jorge Trejo, Marcia Beltran, Trisha Forbes, Zedna Guerra, Ana María Frías & Hazel Oxenford*

Effect of the COVID on Human Health

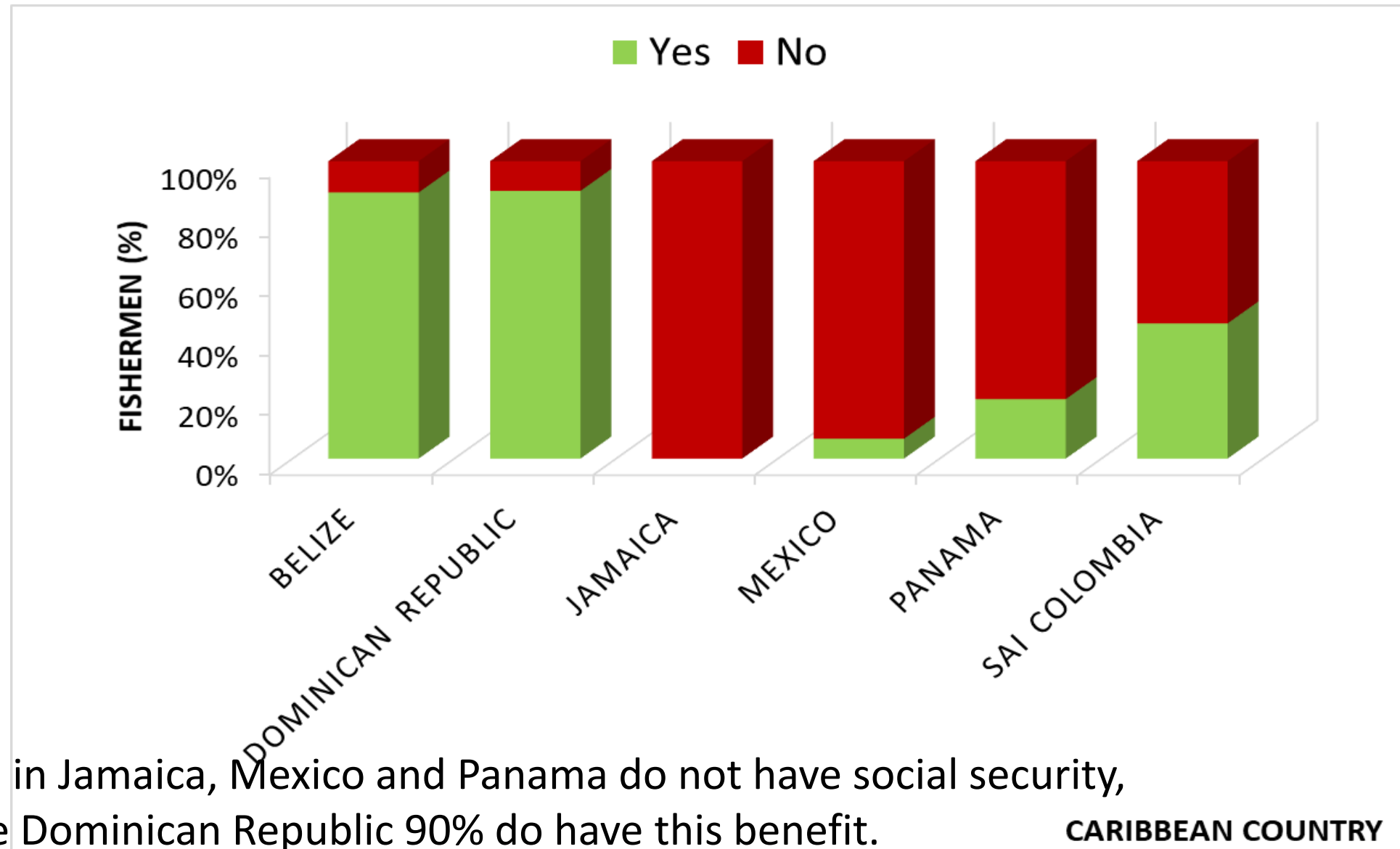
RESULTS



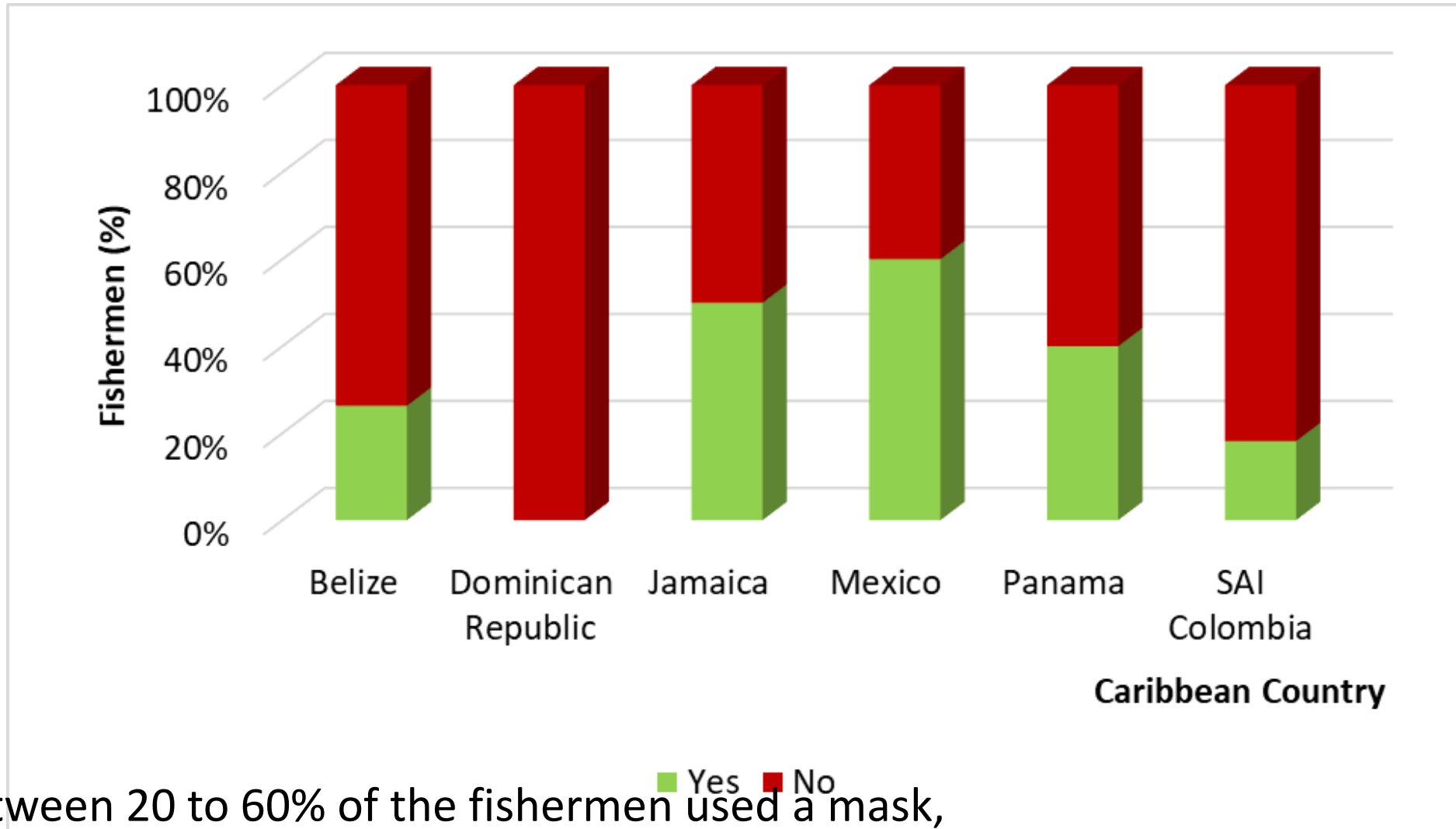
The average of fishermen was 50 and over in Dominican REP, Jamaica, Mexico and Panama. 40 in Belize and the youngest in SA



Have you social security?

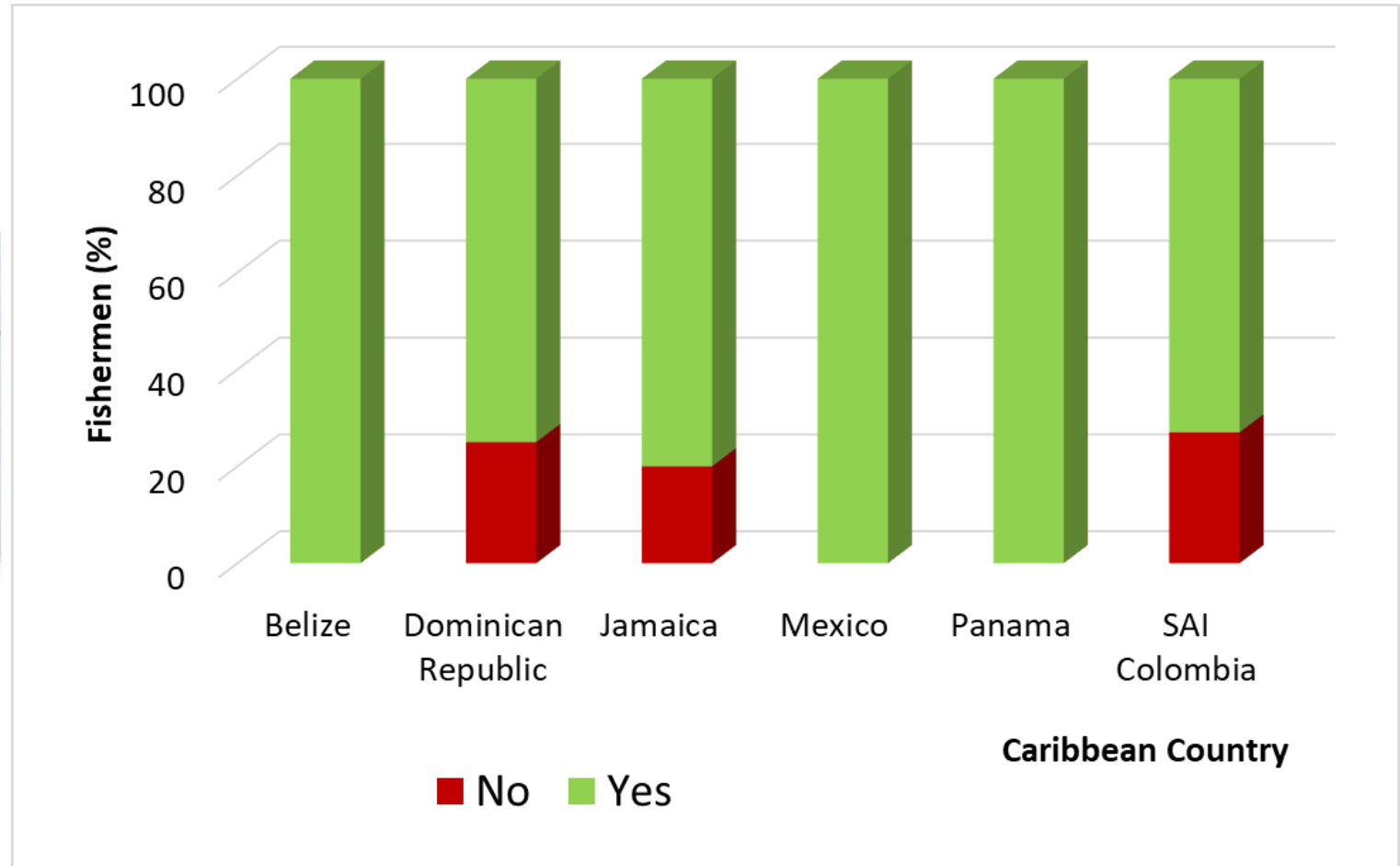


During COVID time you used a face mask



Between 20 to 60% of the fishermen used a mask, only the DR fishermen did not use any protection

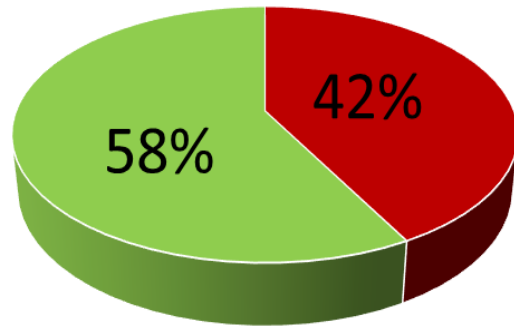
Have you Covid vaccination?



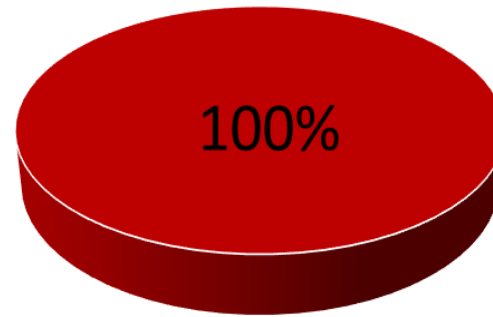
Almost all Caribbean fishermen received the covid vaccine, DR, Jamaica and San Andres only 80%

Fishermen infected by Covid-19

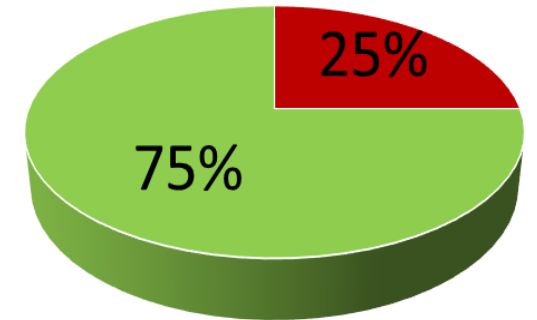
Belize



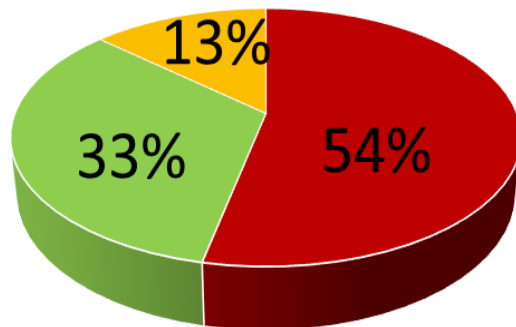
Dominican Republic



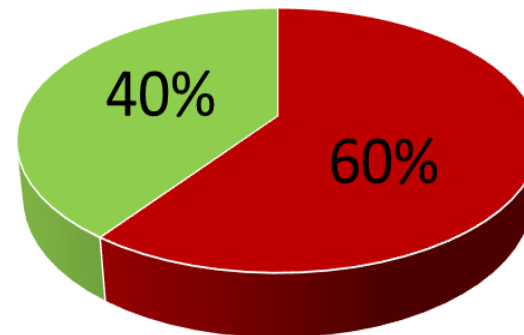
Jamaica



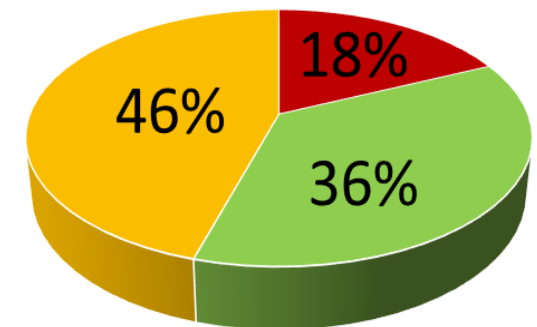
Mexico



Panama



SAI Colombia



The percentage of infected varied between 18% in San Andres until 100% for the Dominican Republic.



Got sick

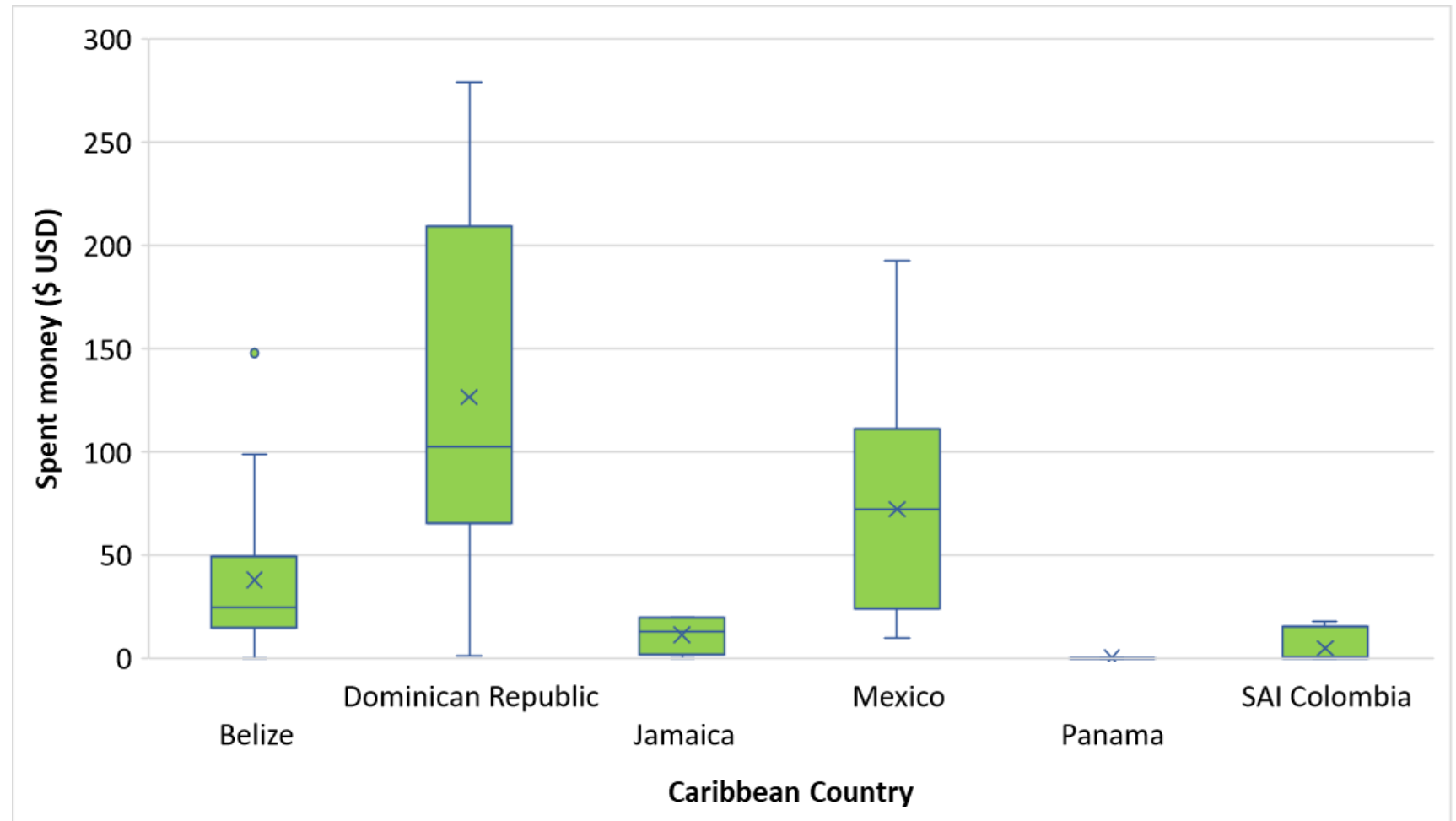


Maybe got sick



Didn't get sick

How much did you spend per week on anti-covid medications?



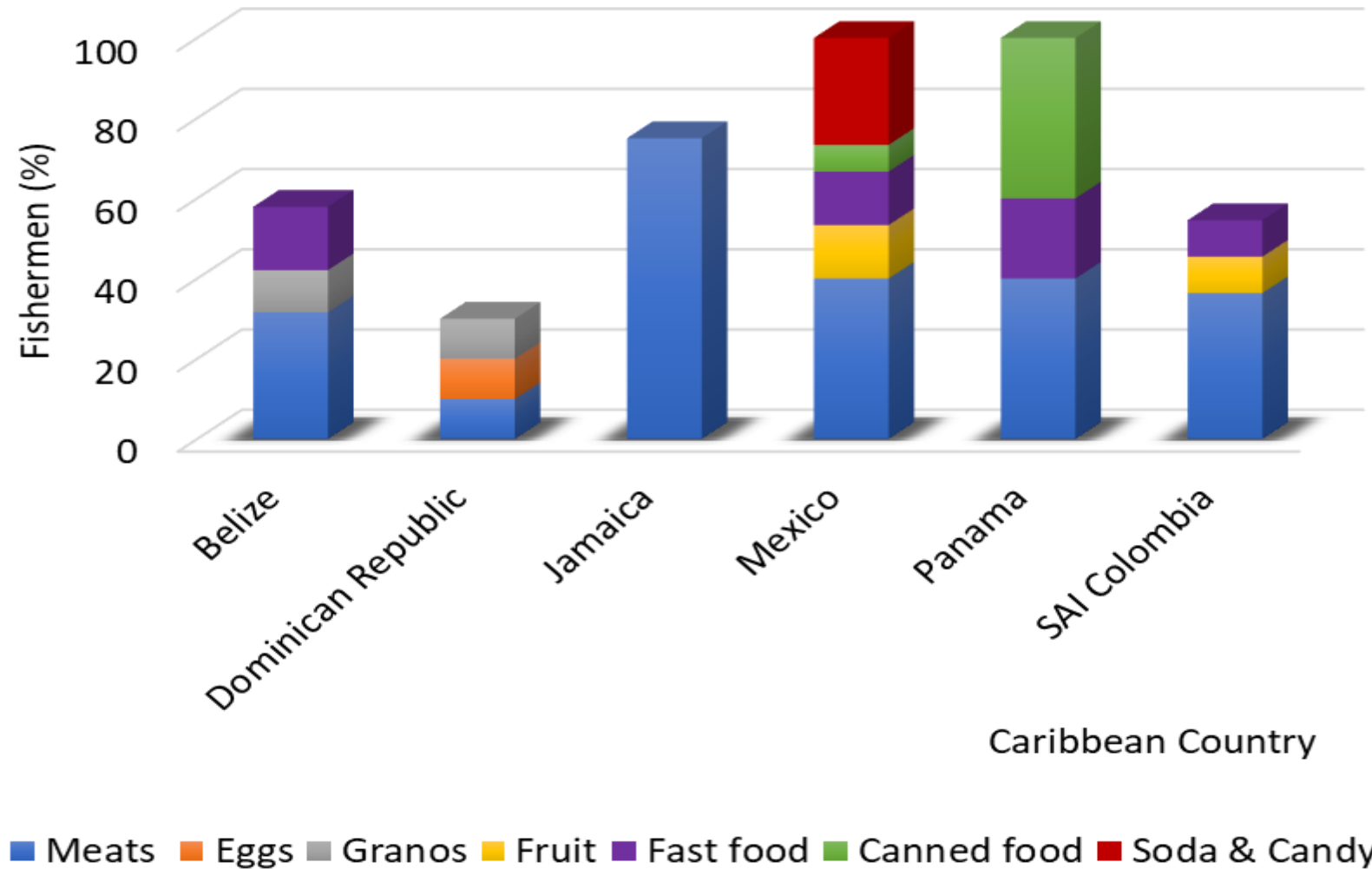
Fishermen in the Dominican Republic were the ones who spent the most, an average of 140 dollars per week

Fishermen of Jamaica, Panama and San Andres spent the least



Impact of consumption
habits

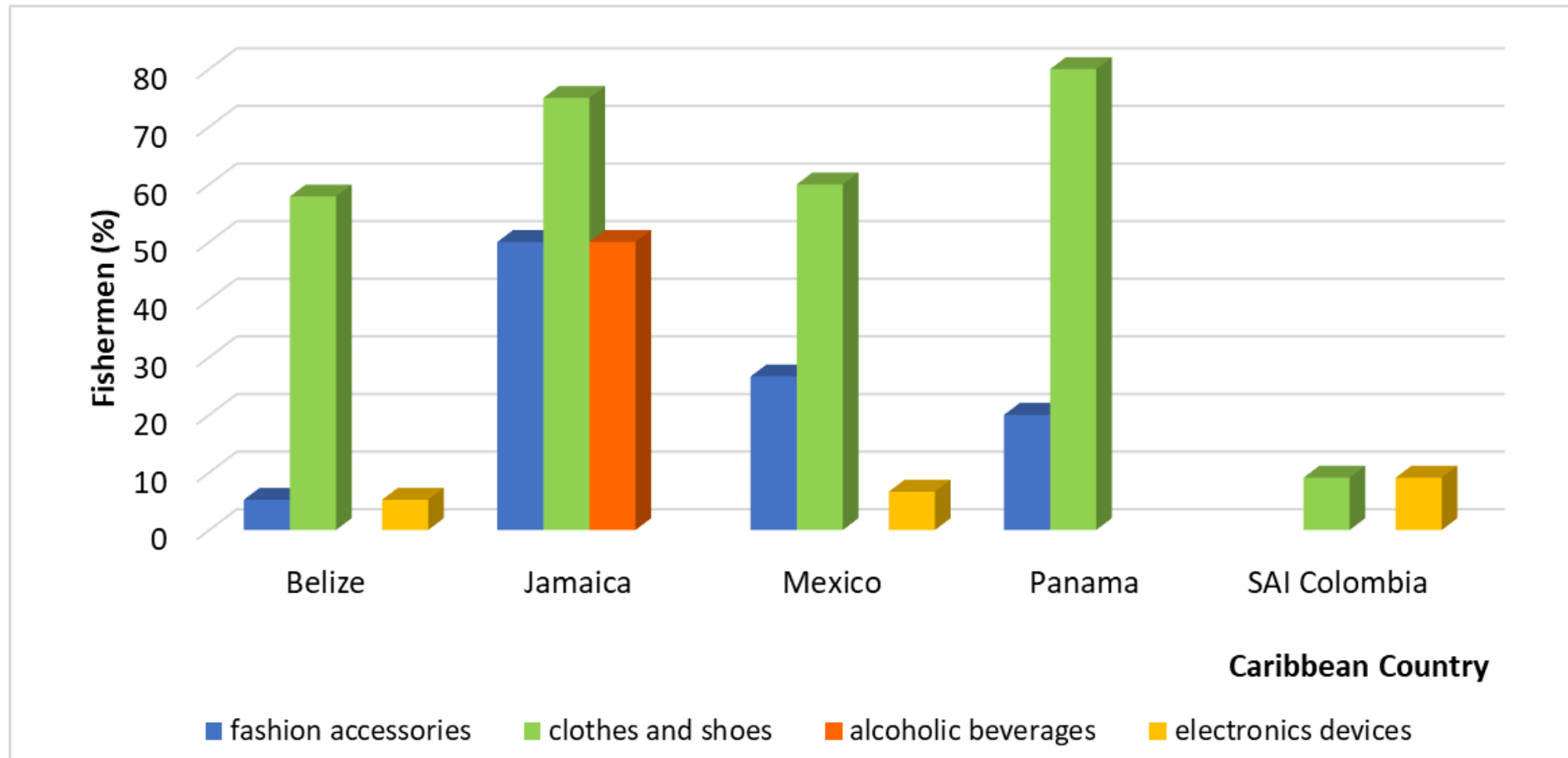
What foods did you stop buying?



The product that fishermen generally stopped consuming was meat

What personal supplies did you stop buying?

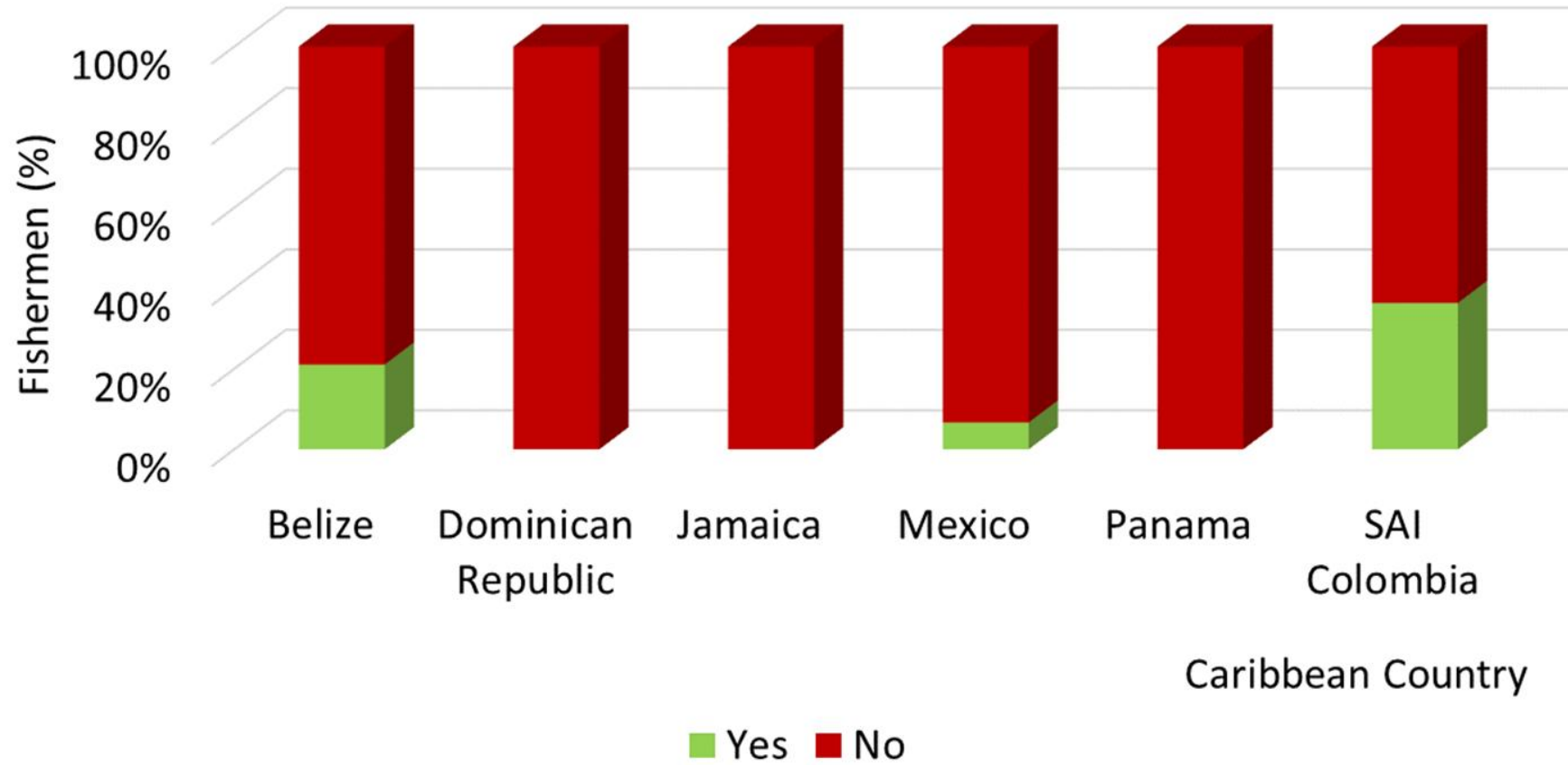
fishermen stopped buying clothes and shoes



- Effect on-fishing catch

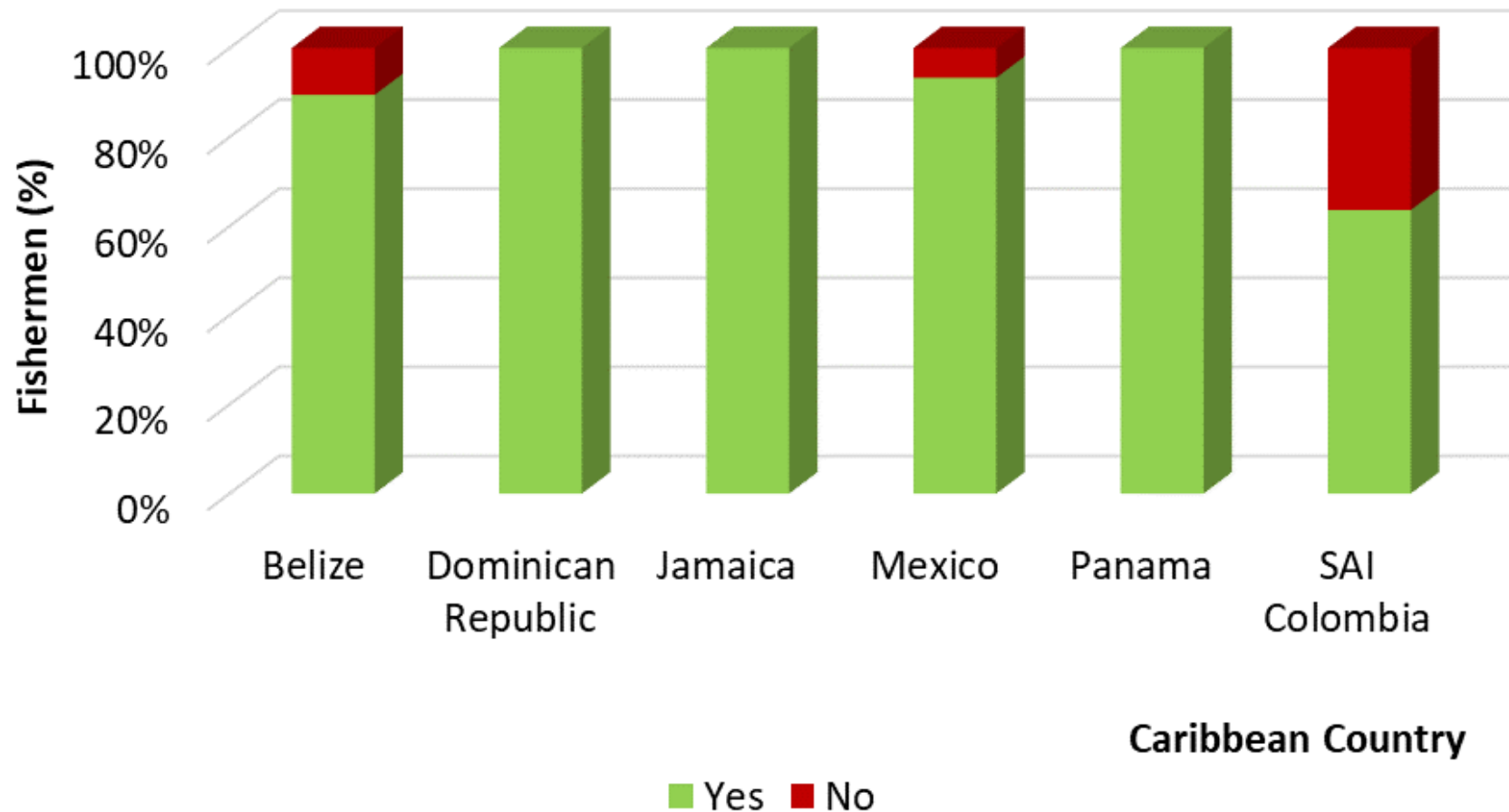


Catch decreased during COVID



Most fishermen said the catch did not decrease during COVID

You had mobility restrictions during COVID



times/days that the fishermen went fishing

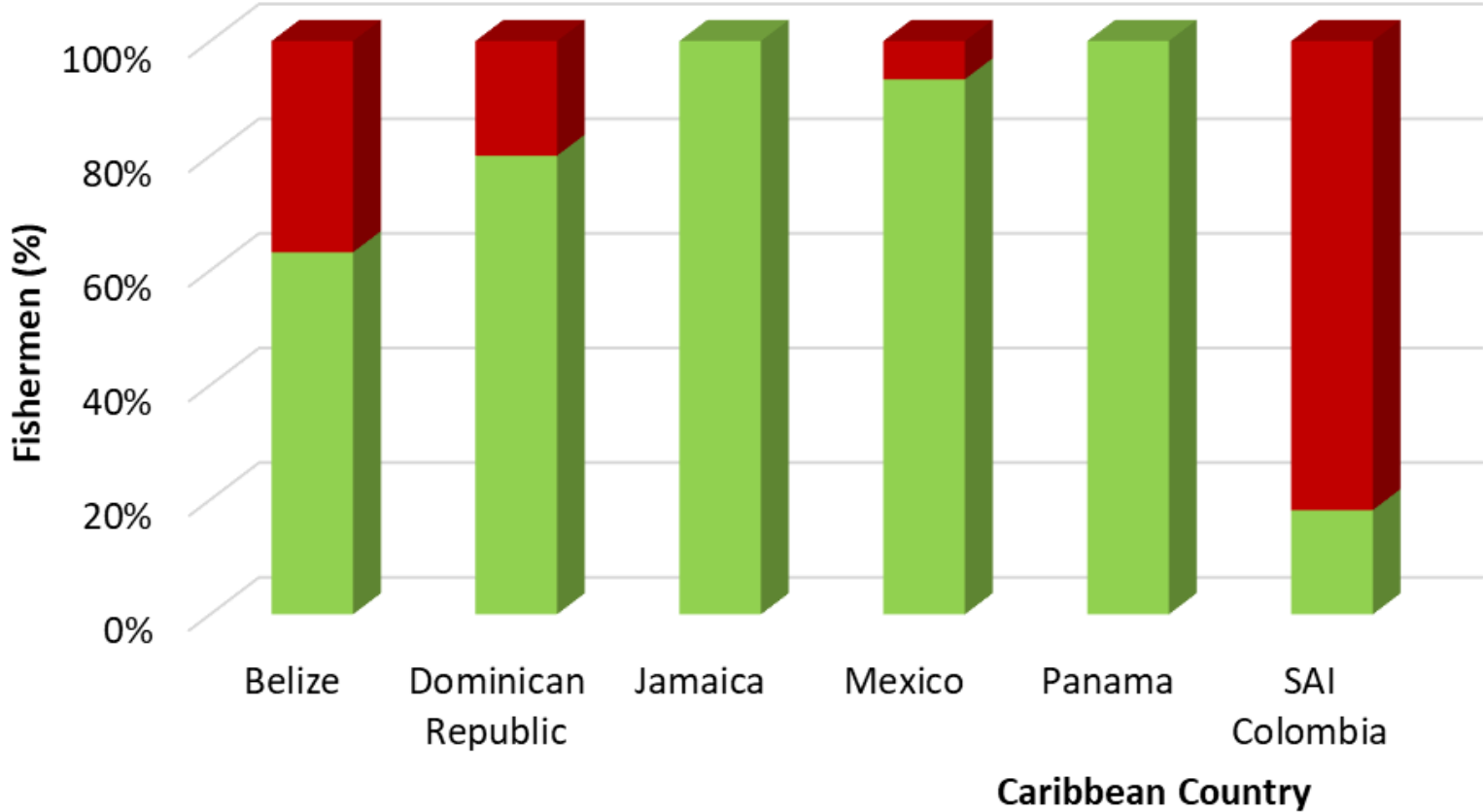
Country	Time (days)
Belize	2
Dominican Republic	3
Jamaica	2
Mexico	2
Panama	2
SAI Colombia	4

although in most countries there were mobility restrictions

- Impact on fishing market



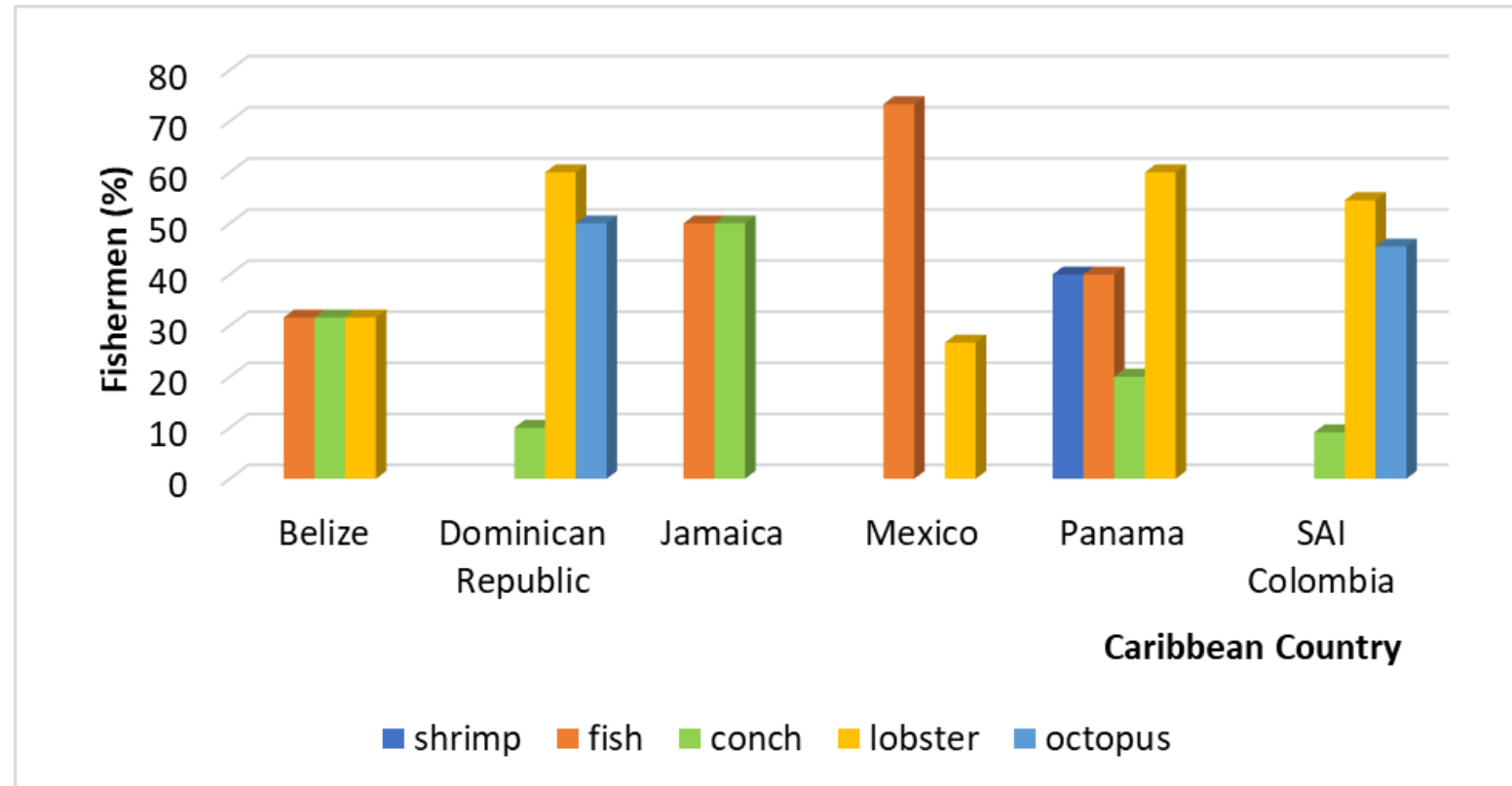
Demand for fish fell during Covid



In all countries, fishermen observed a decrease in demand for fish and seafood. Except in San Andres

■ Yes ■ No

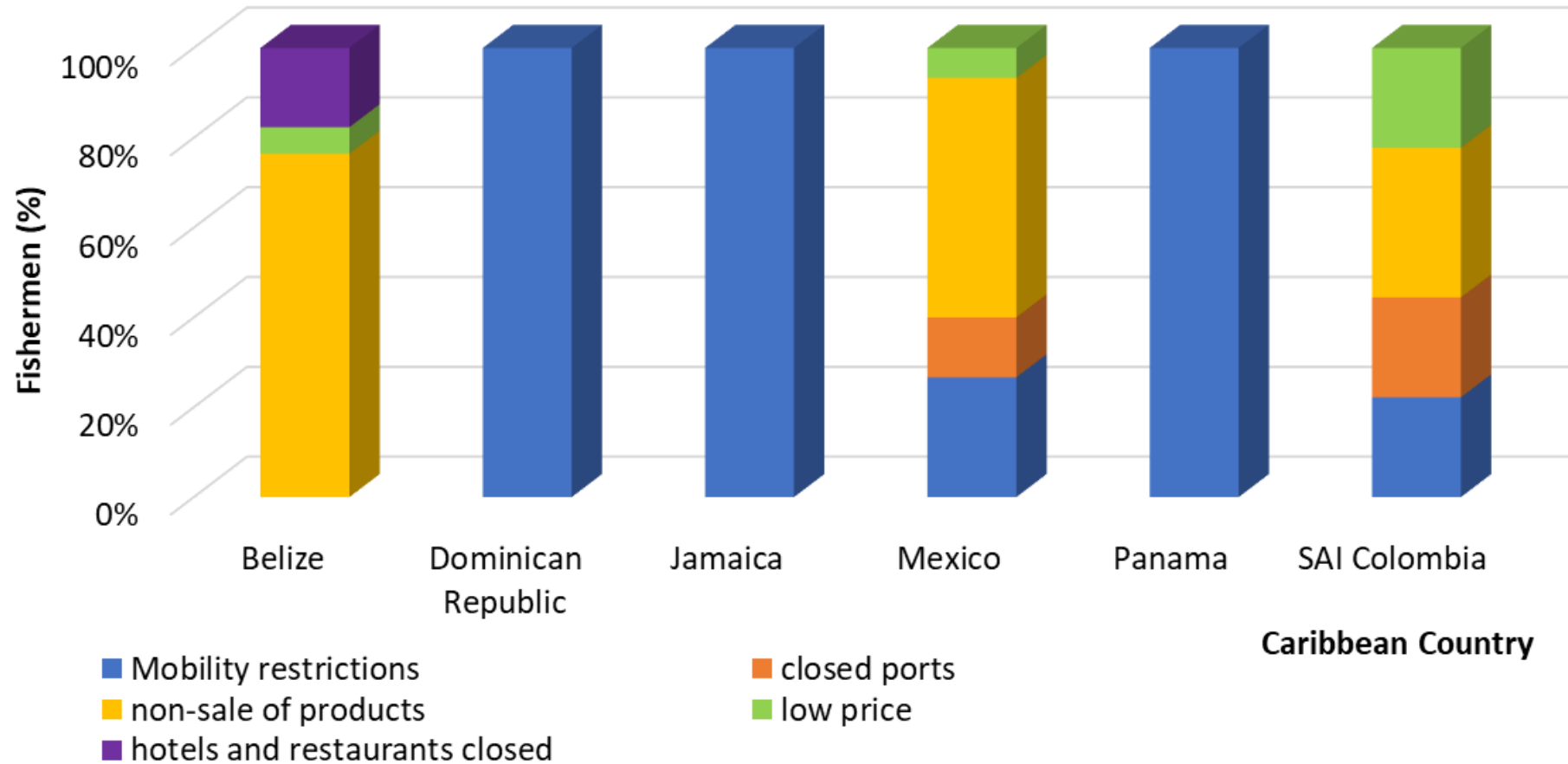
Products that presented low demand?



The fishermen observed that conch and lobster were the ones that presented low demand

Why the seafood market was affected

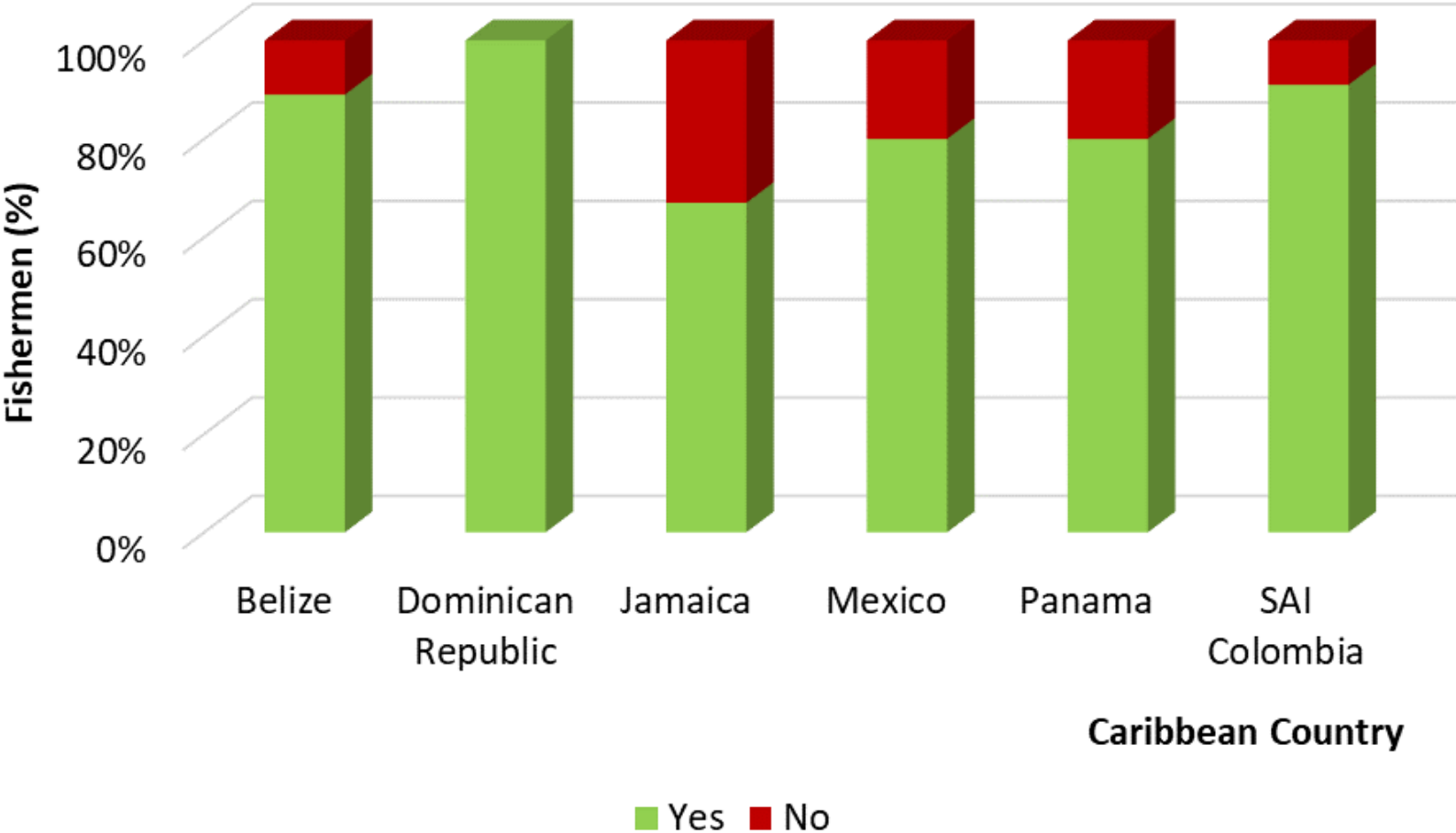
The fishermen said these reasons





Marine pollution by Covid

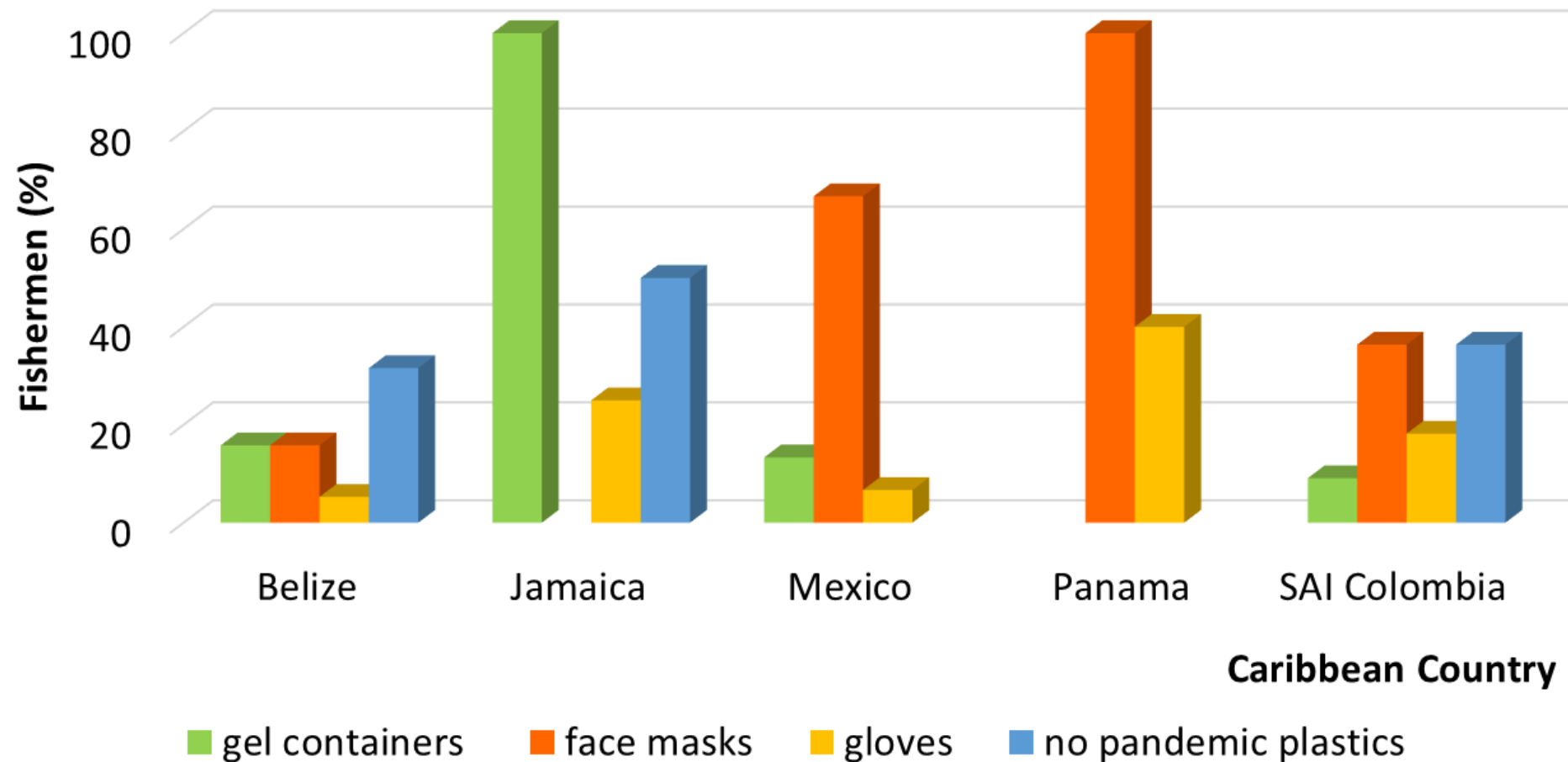
Did you notice plastic waste on your catch?



80 – 100 % of fishermen observed plastic pandemic.
Except in Jamaica

Do you observe pandemic plastics?

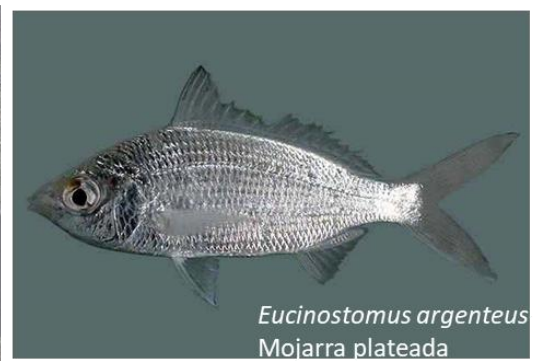
Most of the fishermen observed face masks and gel containers. Except Republic Dominican



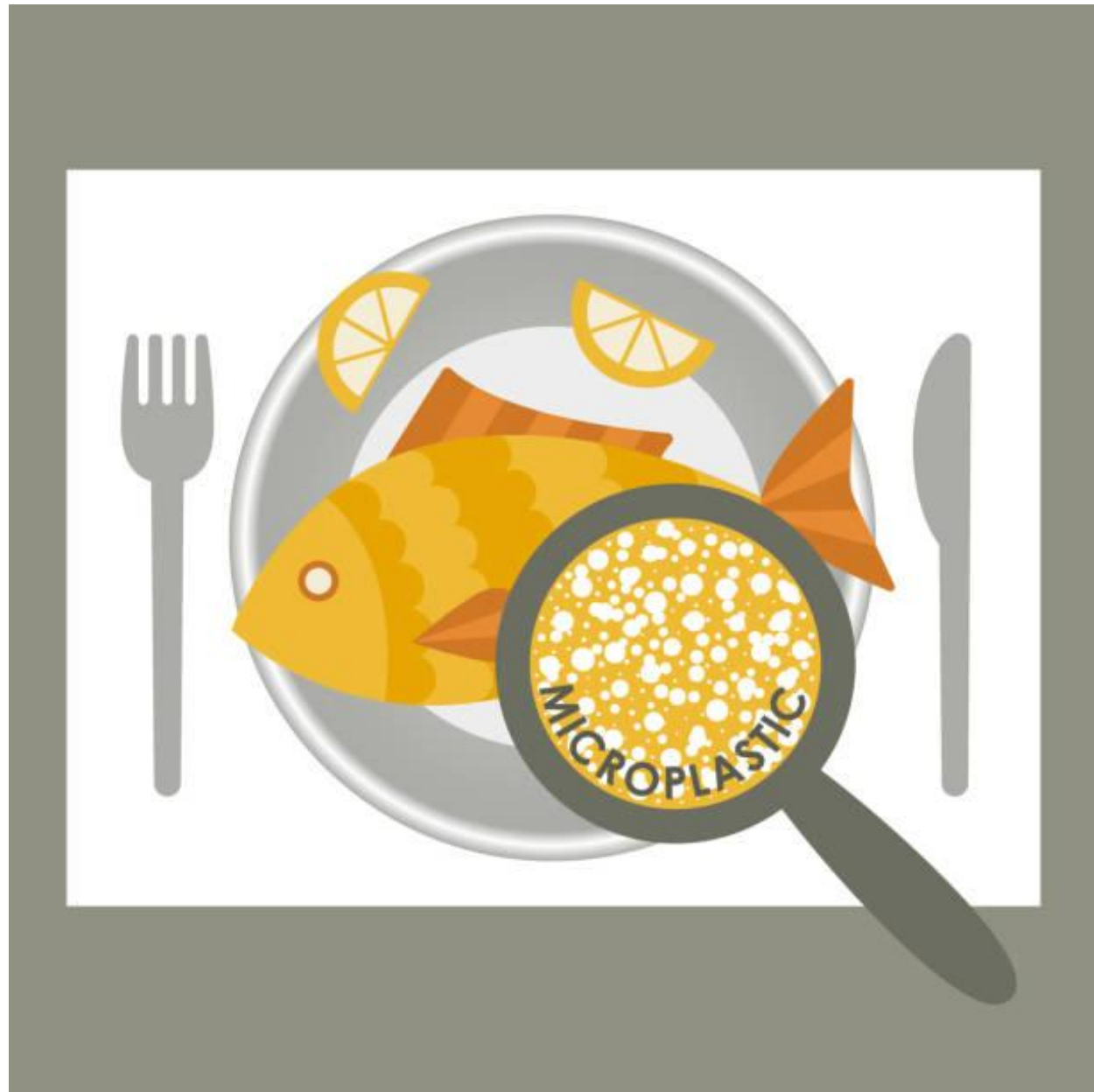


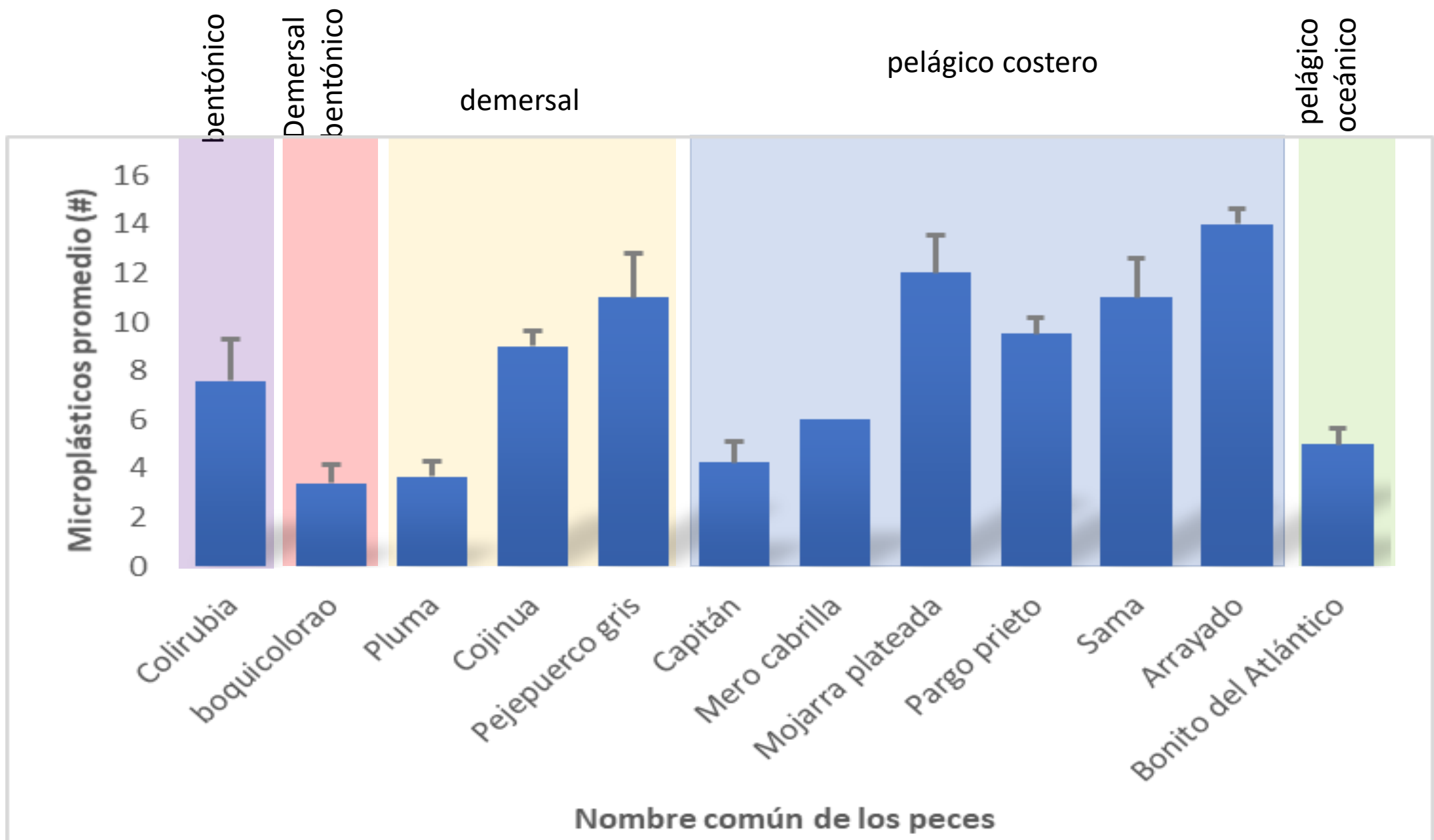
Today's microplastics are not yet the MP derived from the plastics used during Covid, However,...

We study the MP in these fishes



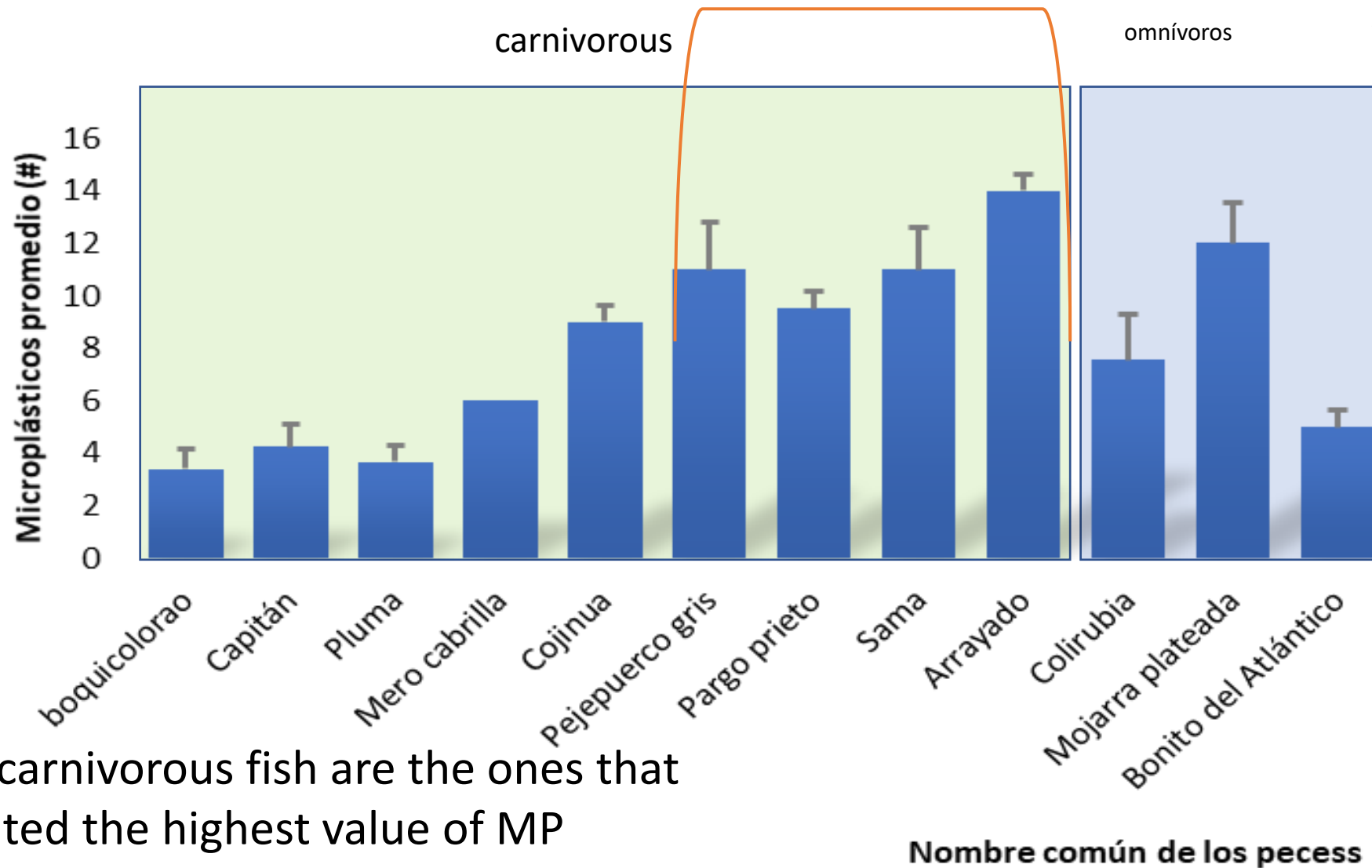
Results





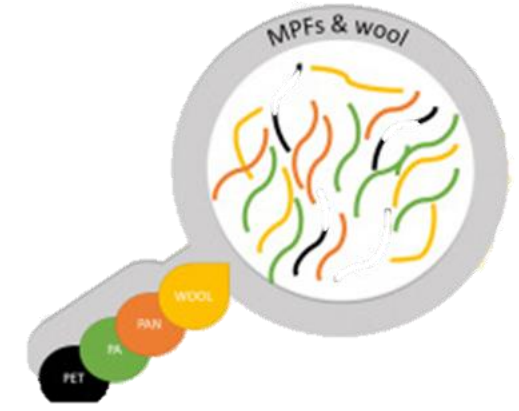
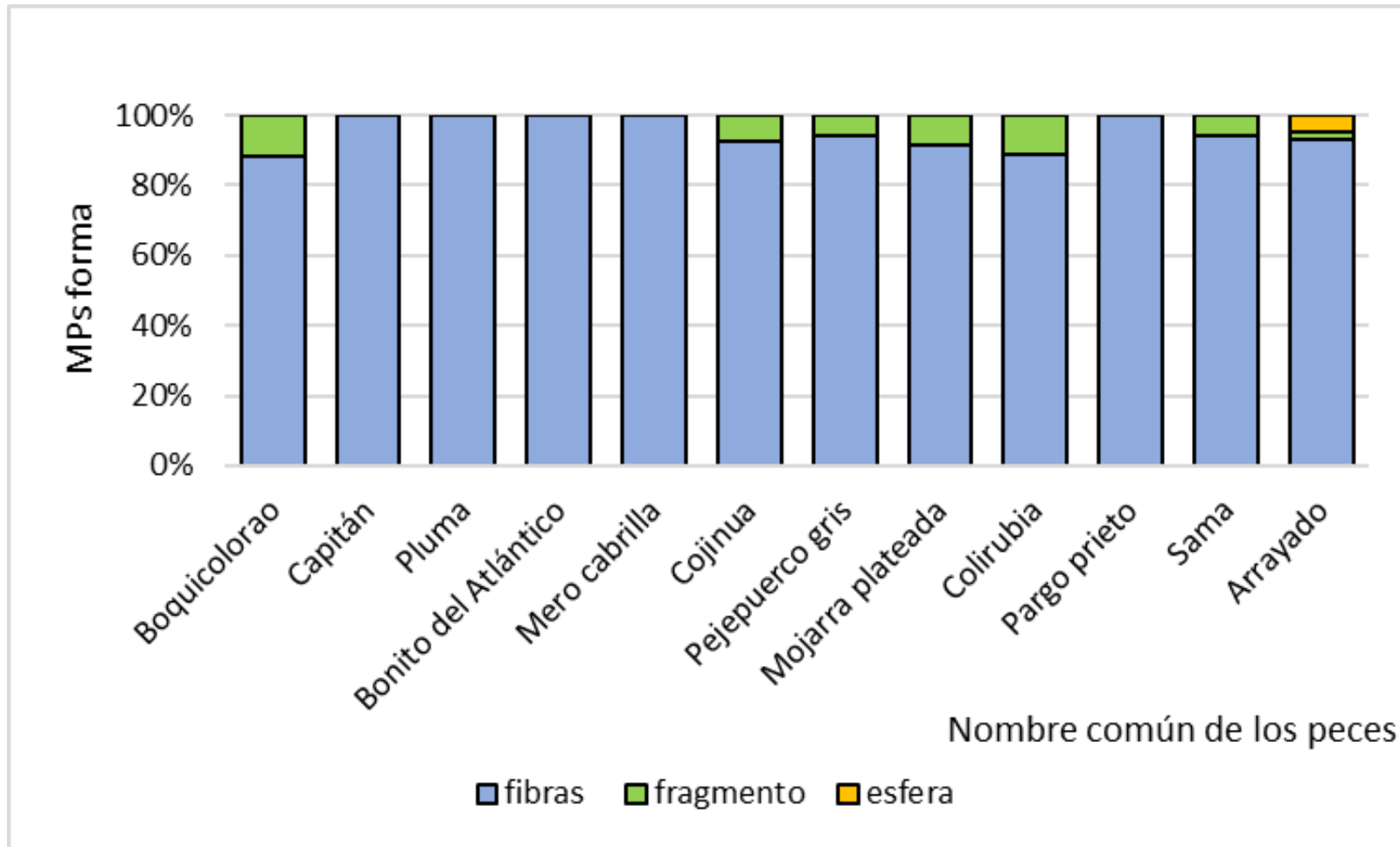
All fish had microplastics and their abundance was highest in fish from coastal and reef waters

MP per fish



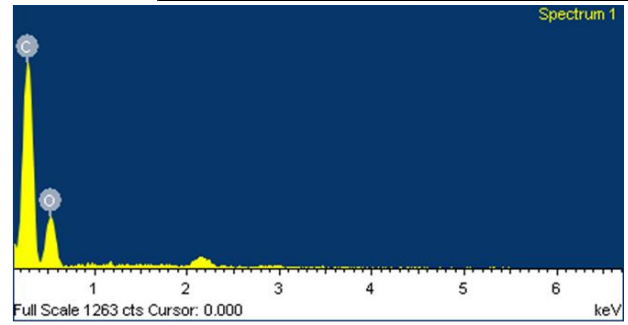
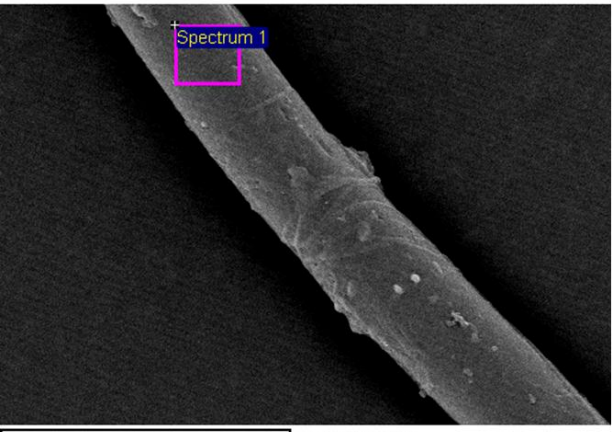
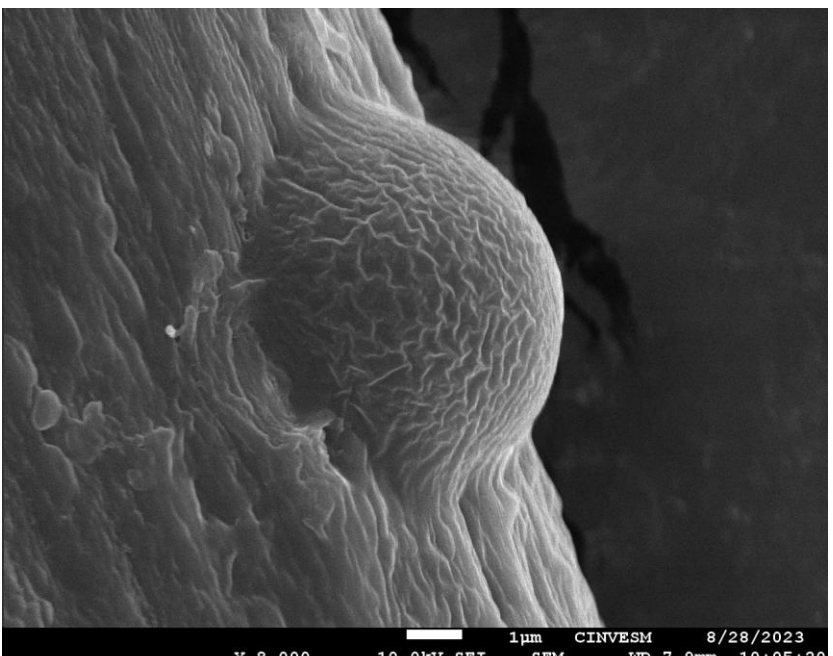
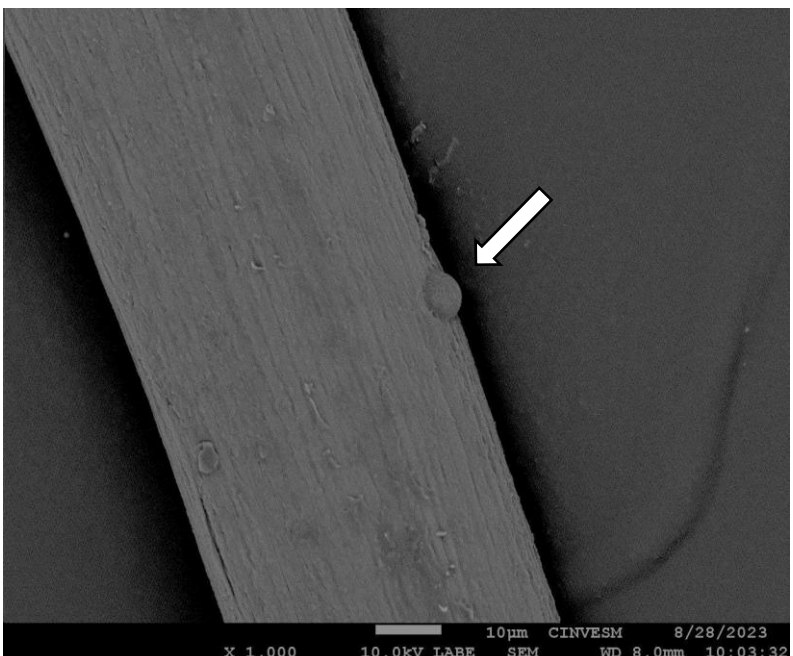
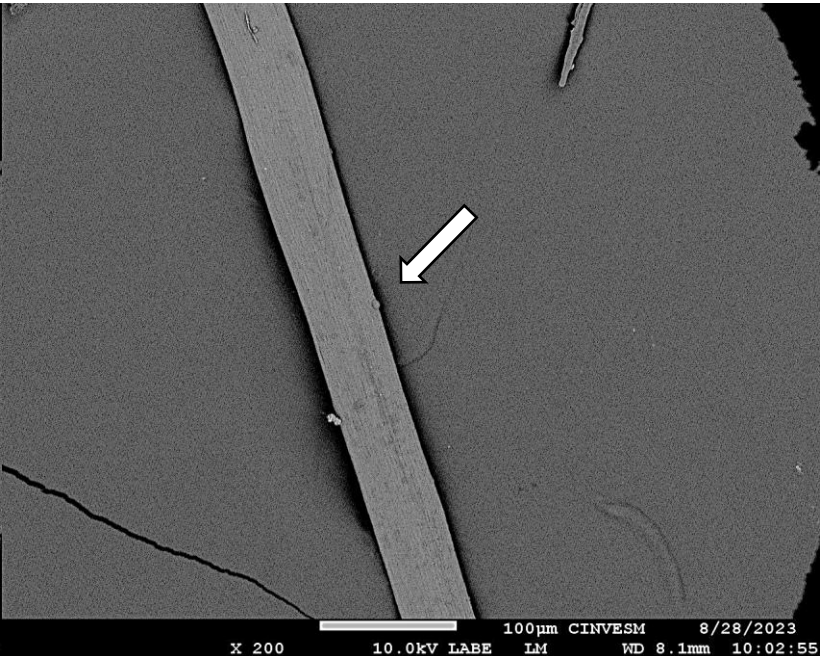
These carnivorous fish are the ones that presented the highest value of MP contamination

Types of MP



the dominant form of MP was fibers (90%)

MPs are frequently vectors for the transport of microorganisms.



Effect of COVID on fishermen in the Caribbean

- Fifty percent of the fishing population was infected by Covid-19
- Fishermen spent a lot of money in face masks and medications
- The diet was modified, stopping the consumption of animal protein, shoes, clothes, and fashion accessories.
- The fish and seafood market was affected by mobility restrictions, closed ports, low prices, and the closure of hotels and restaurants.



- All the fish analyzed presented MP, these being more abundant in coastal and reef fishes.
- Fibers are dominants
- Micro plastics frequently showed micro organisms as bacteria



Markets certification of MP

- Markets are already requesting certification of MP contamination and fish and seafood will not be the exception



Recommendations



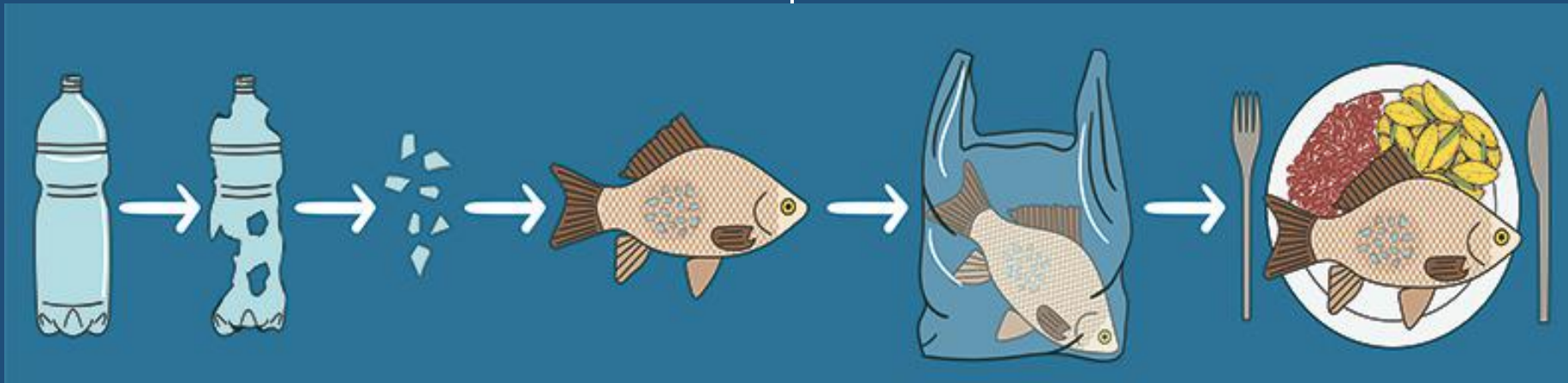
It is important to show the relationship between MP pollution and human activities

At this meeting, I would suggest preparing an exhibition with this topic

Outreach recommendations



Exhibition on this "invisible pollution" associated with our production model





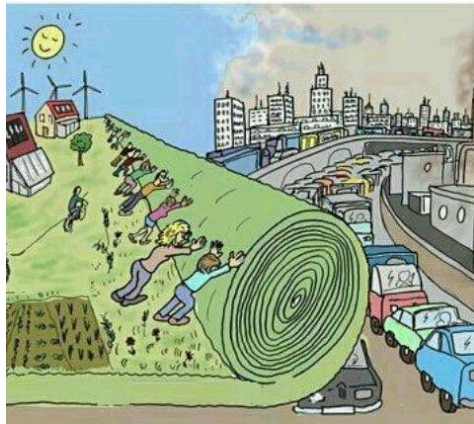
To live like this



And not like this







Education
+
sustainable
actions





Humanitos

... Ya no sabemos si somos obras maestras de Dios o chistes malos del Diablo.

Eduardo Galeano

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Dalila Aldana Aranda

