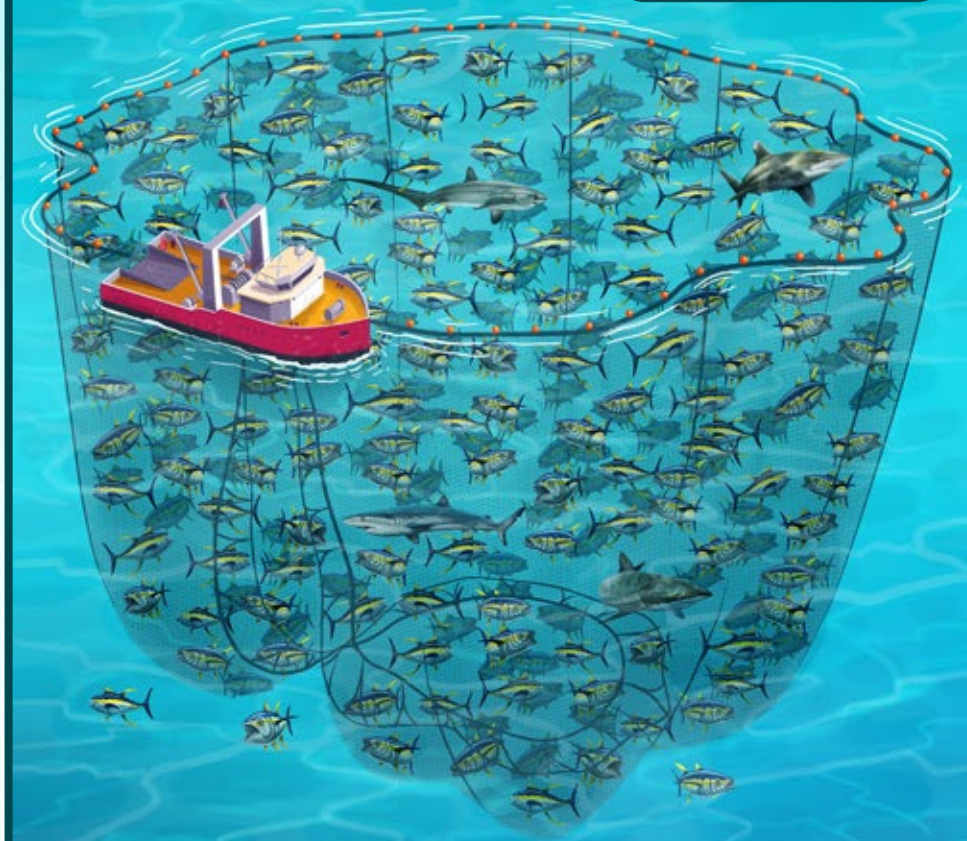
Threats to the Thermal Dome

MarViva GOBI Global Ocean Biodiversity Initiative www.gobi.org

Overfishing



Fishing pressure + **Lack of knowlege of the status of the captured populations** = **Area highly vulnerable to overexploitation**

Species of great commercial interest that are captured in the Thermal Dome area, by purse seine and longline fisheries:

- Yellow fin tuna
- Dolphinfish or mahi-mahi
- Sharks (mainly thresher, blue, silky and hammer)

70% and **80%** of shark populations around the world have been lost due to **overfishing**

Maritime traffic

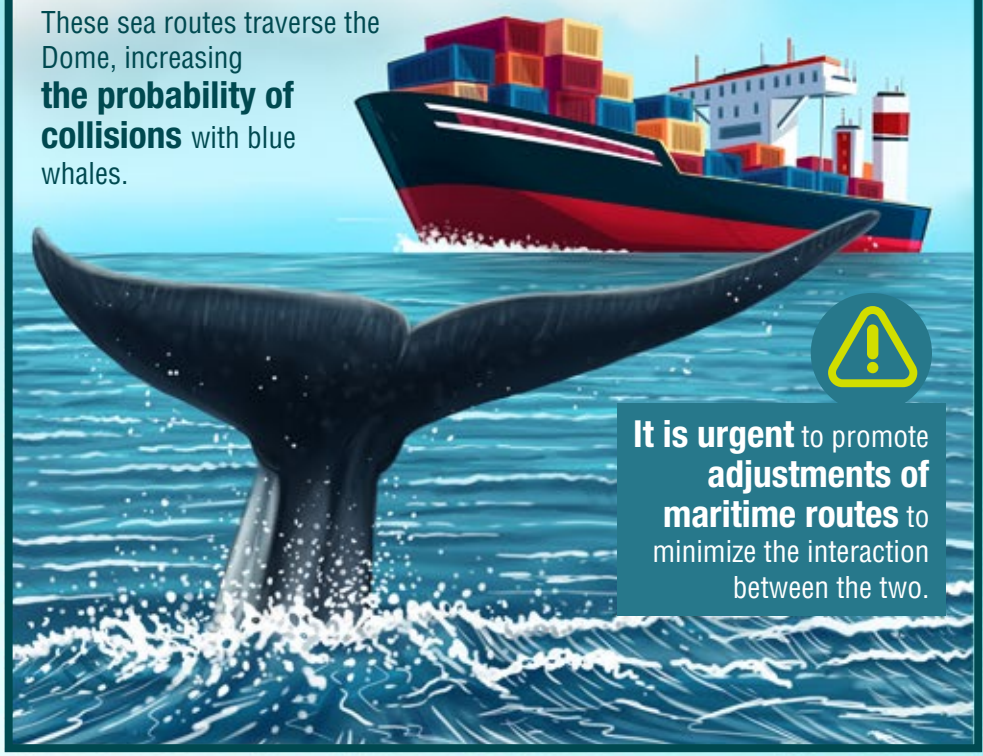
Between 2000 and 2019, the annual growth of the world maritime fleet has been constant, varying between **1%** to **10%**

For 2019, the growth was **2.6%**, reaching a total of **95.402** ships dedicated to maritime transportation services.

Panama Canal:

6%	**13** k	**144**	Connect **160**
of global trade	vessels annualy	maritime routes	countries

These sea routes traverse the Dome, increasing **the probability of collisions** with blue whales.



It is urgent to promote **adjustments of maritime routes** to minimize the interaction between the two.

Underwater Noise

Sources:

- Commercial traffic
- Seismic exploration for oil and gas
- Naval and mapping sonars
- Small vessels

Impacts of noise on marine species:

- Fatal strandings
- Deaths at sea
- Hearing damage
- Long-term avoidance of noisy areas
- Stress
- Reduction in feeding and reproductive capacity
- Migratory changes
- Higher energy costs

Underwater noise has increased **100 times** since the industrial era

Plastic Pollution

Samples of water collected in the Dome for the study of plankton presented **microparticles of plastics** from the continent. The trash ingested, including microplastics, can affect the physiology of whales, dolphins, sea turtles, birds, fish, invertebrates and other filter organisms.

Climate Change and the Dome

Main changes in the ocean due to climate change:

CO_2 **Incresed acidity of the water** due to excess CO_2

Increase in sea **surface temperature**

O_2 **Dicrease in the amount of oxygen** in the water column

Consequences and projections

Decrease of more than **14%** in the **availability of suitable habitat for commercial species** in the Central American region

Species richness in the tropics could decrease by more than **20%** by 2050, compared to the year 2000

Inside the **Dome**, this change in **oceanographic variables (currents and temperature)** could **decrease its productivity** and therefore its **species richness**, **affecting the economic activities** that depend on it.