

REEF FLAT ECOLOGICAL MONITORING

Nosy Fasy

April 2021


Science Team


OBJECTIVES

- Ecological characterization of Nosy Fasy reef flats
- Establish baseline information about the current health of Nosy Fasy reef flats
- Assess trends in the health of Nosy Fasy reef flats
- Provide ecological information about the health of Nosy Fasy reef flats to inform environmental best practices to local communities and managers

Nosy Fasy

Legend

 Nosy Fasy

 Nosy Fasy

 Untitled Place

Untitled Placemark

Google Earth

Image © 2021 Maxar Technologies

Data SIO, NOAA, U.S. Navy, NGA, GEBCO

© 2021 Google

2 km



Nosy Fasy reef flat survey sites

Legend

-  Nosy Fasy N
-  Nosy Fasy S



2 km

Google Earth

Image © 2021 Maxar Technologies

Data SIO, NOAA, U.S. Navy, NGA, GEBCO

©2021 Google

METHODOLOGY




- BENTHIC (10 Quadrats/transect)
- FISH (Belt transect 20x5 m)
- MOBILE INVERTEBRATES (Belt transect 20x5 m)
- HARD CORAL RECRUITMENT (20 quadrats)
- HARD CORAL BLEACHING (8 quadrats)
- 2 survey sites:
 - Nosy Fasy North: 9 transects
 - Nosy Fasy South: 9 transects


April 2021

Nosy Fasy

Legend

 Nosy Fasy

RESULTS

 Nosy Fasy

 Untitled Place
 Untitled Placemark

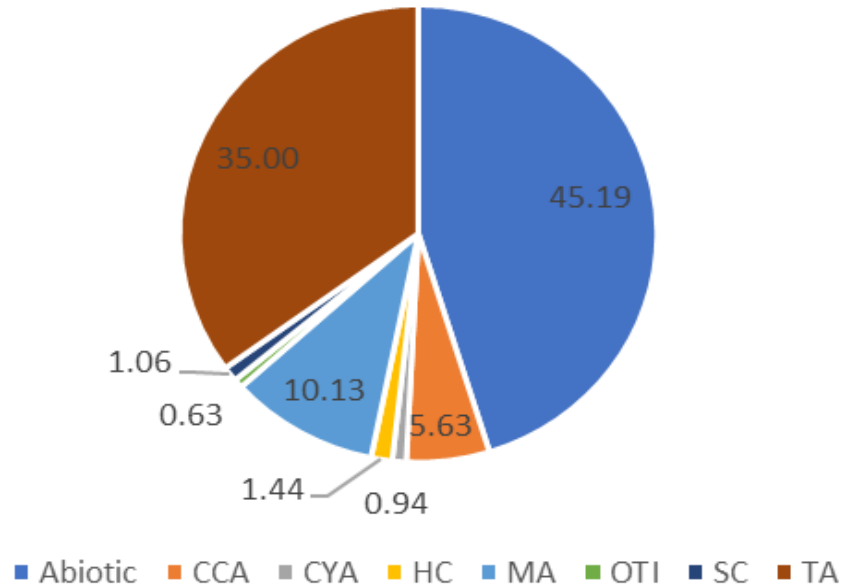
Google Earth

Image © 2021 Maxar Technologies
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
© 2021 Google


 2 km

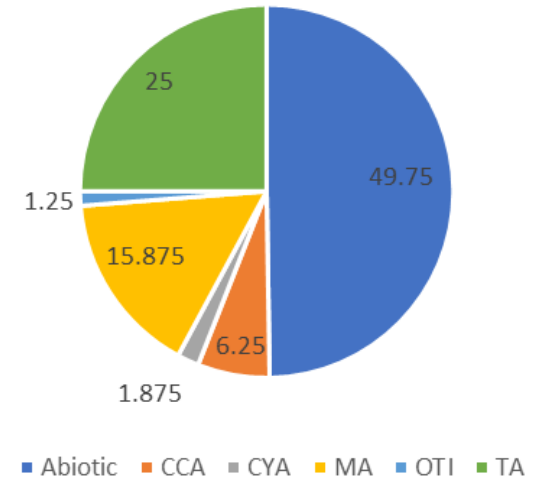
BENTHIC

Global Benthic cover Nosy Fasy

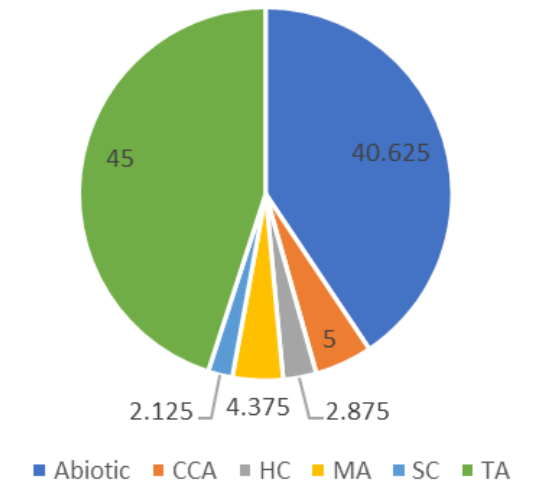


Legend: CCA (Crustose Coralline Algae), CYA (Cyanobacteria), HC (Hard Coral), MA (Macroalgae), OTI (Other type biotic), SC (Soft Coral), TA (Turf Algae)

Benthic cover Nosy Fasy North

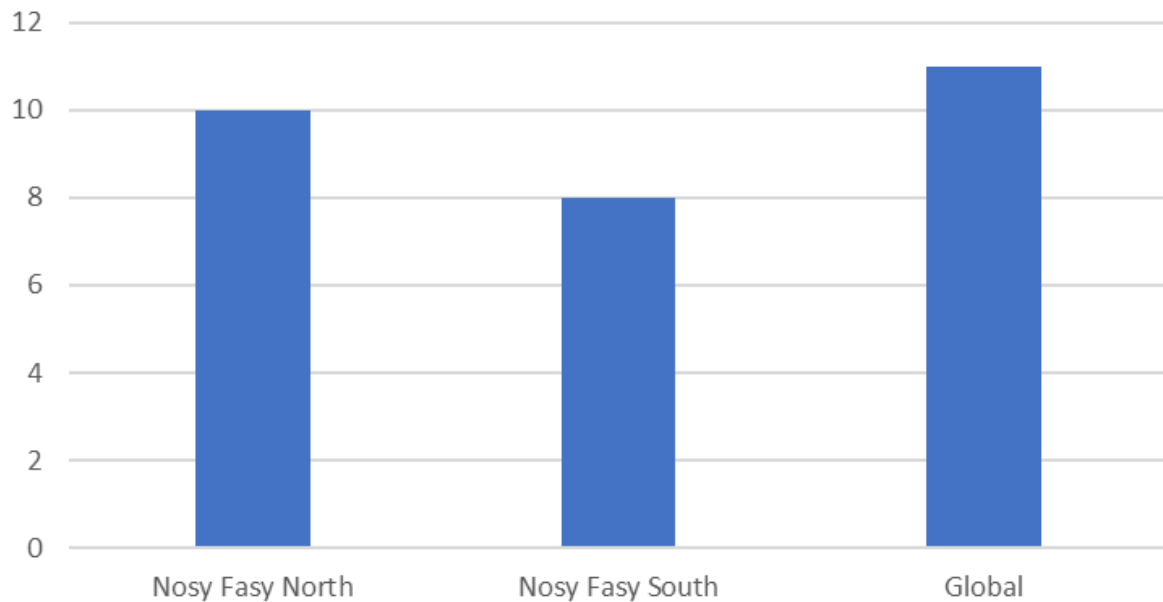


Benthic cover Nosy Fasy South

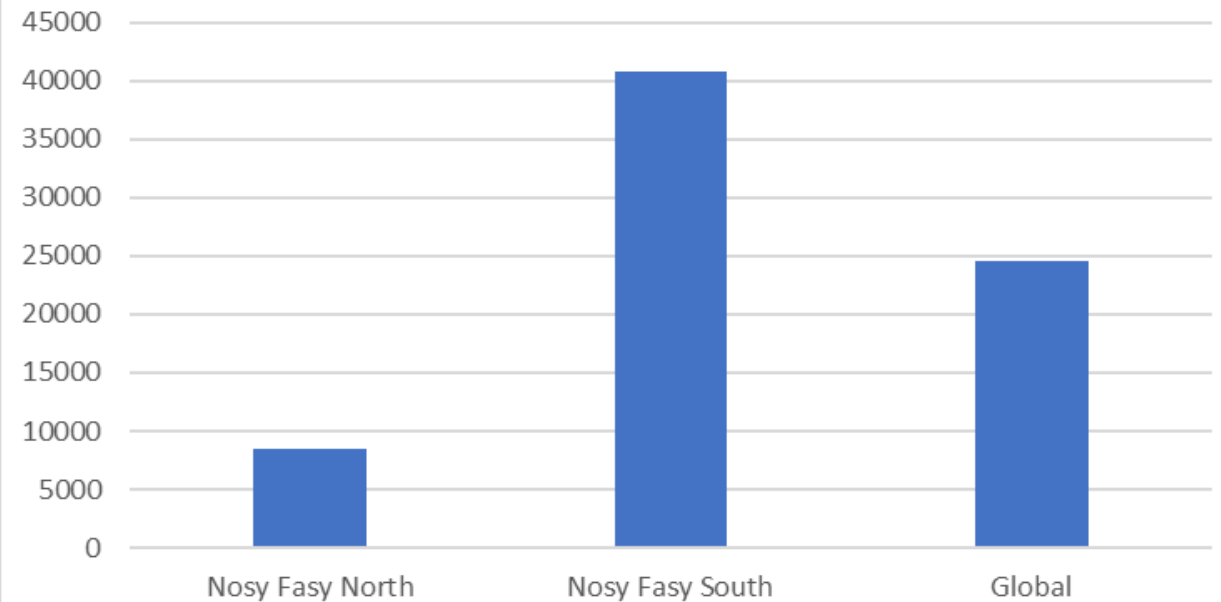


MOBILE INVERTEBRATES

Global Diversity invertebrates (nr spp/groups)

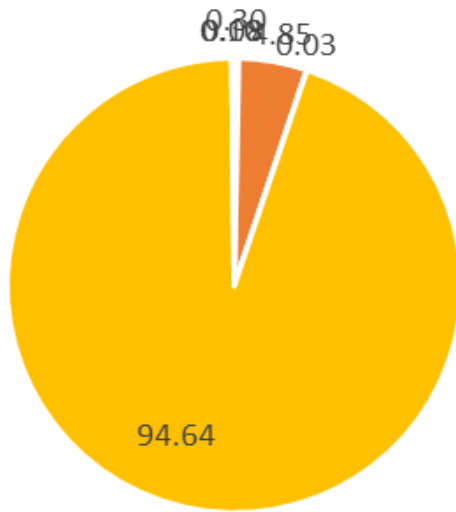


Invertebrates density (Nr/ha)



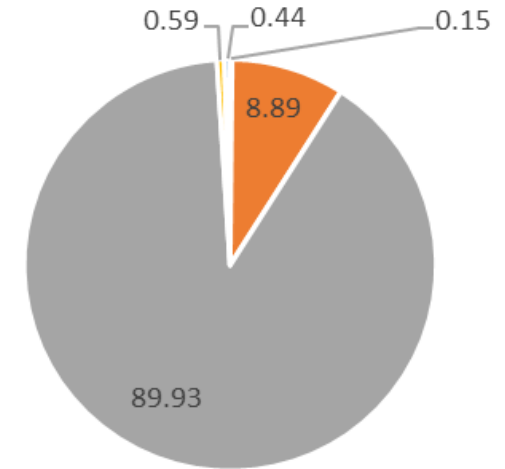
MOBILE INVERTEBRATES

% abundance invertebrates Global Nosy Fasy



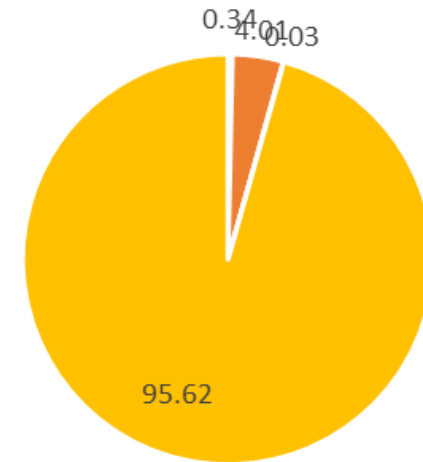
■ Asteroidea ■ Bivalvia ■ Cephalopoda ■ Echinoidea ■ Gastropoda ■ Holothuroidea

% abundance invertebrates Nosy Fasy N



■ Asteroidea ■ Bivalvia ■ Echinoidea ■ Gastropoda ■ Holothuroidea

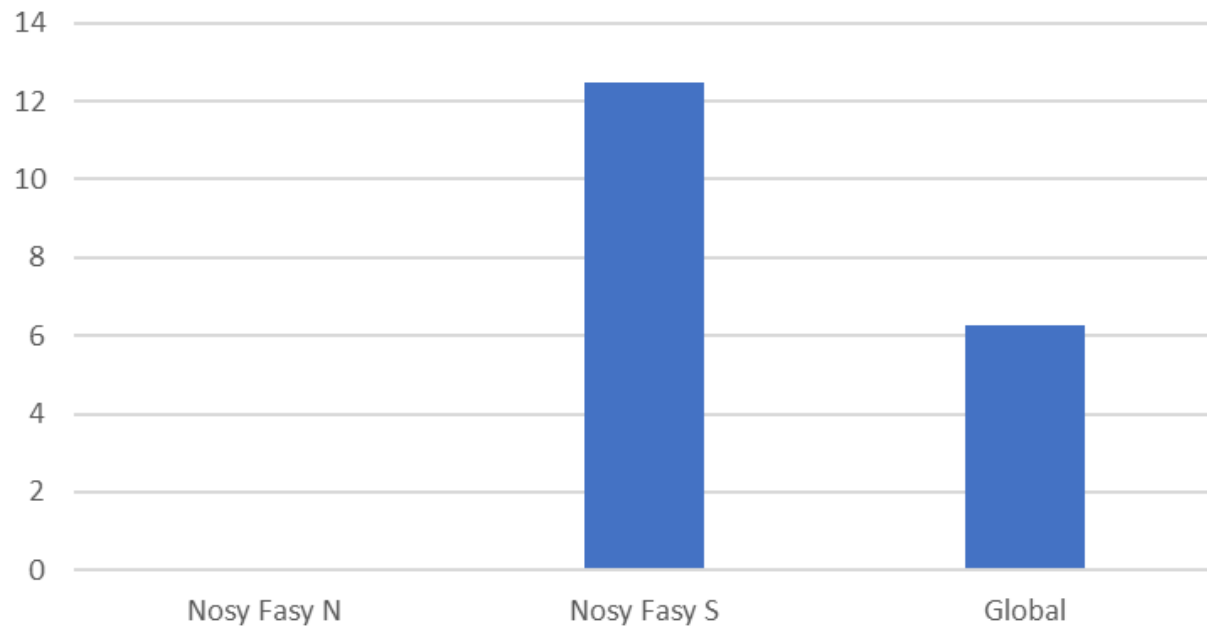
% abundance invertebrates Nosy Fasy S



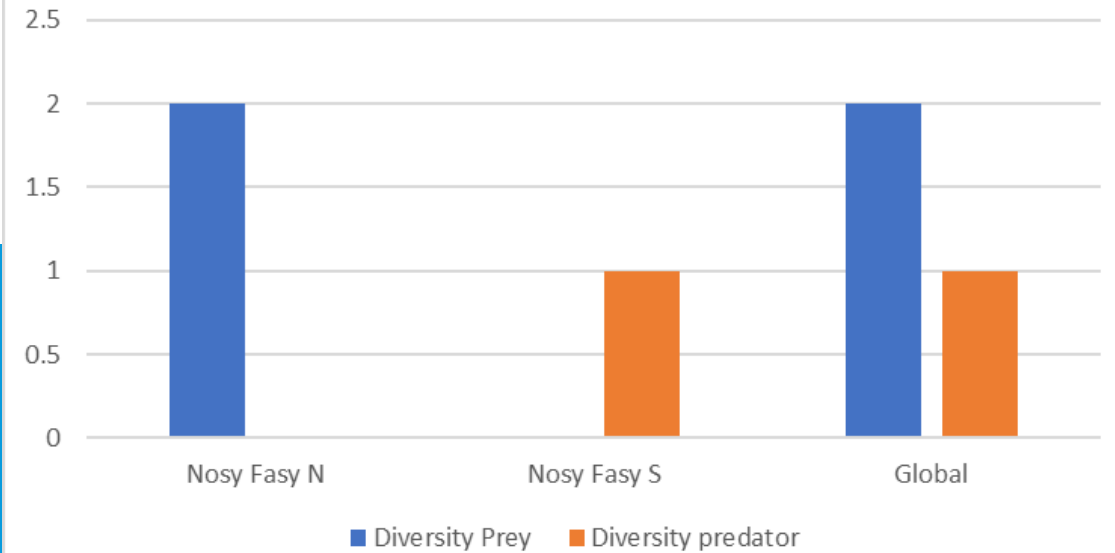
■ Asteroidea ■ Bivalvia ■ Cephalopoda ■ Echinoidea

OCTOPUS

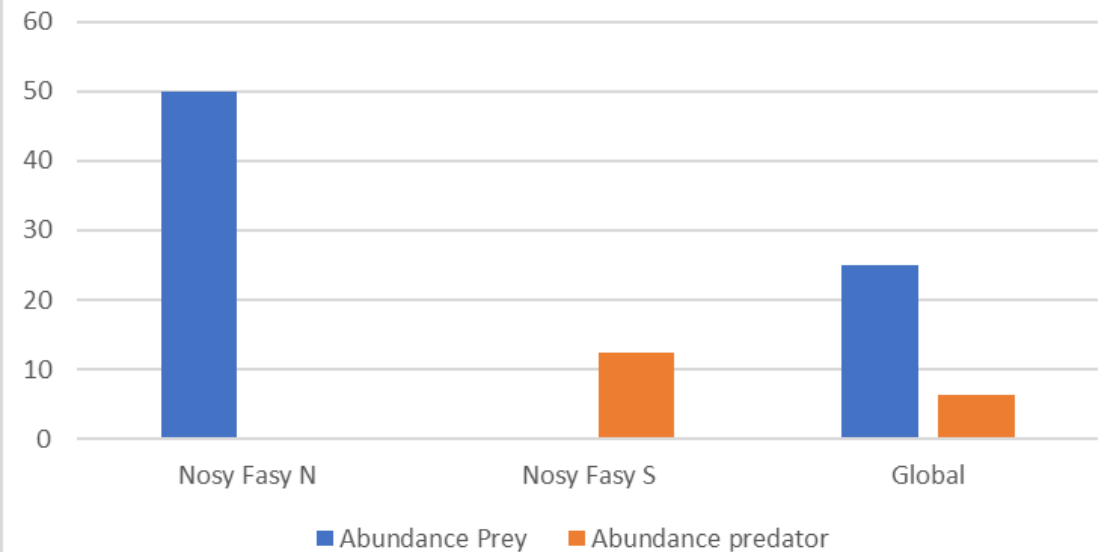
Abundance Octopus (nr/ha)



Diversity prey-predator Octopus (nr spp)

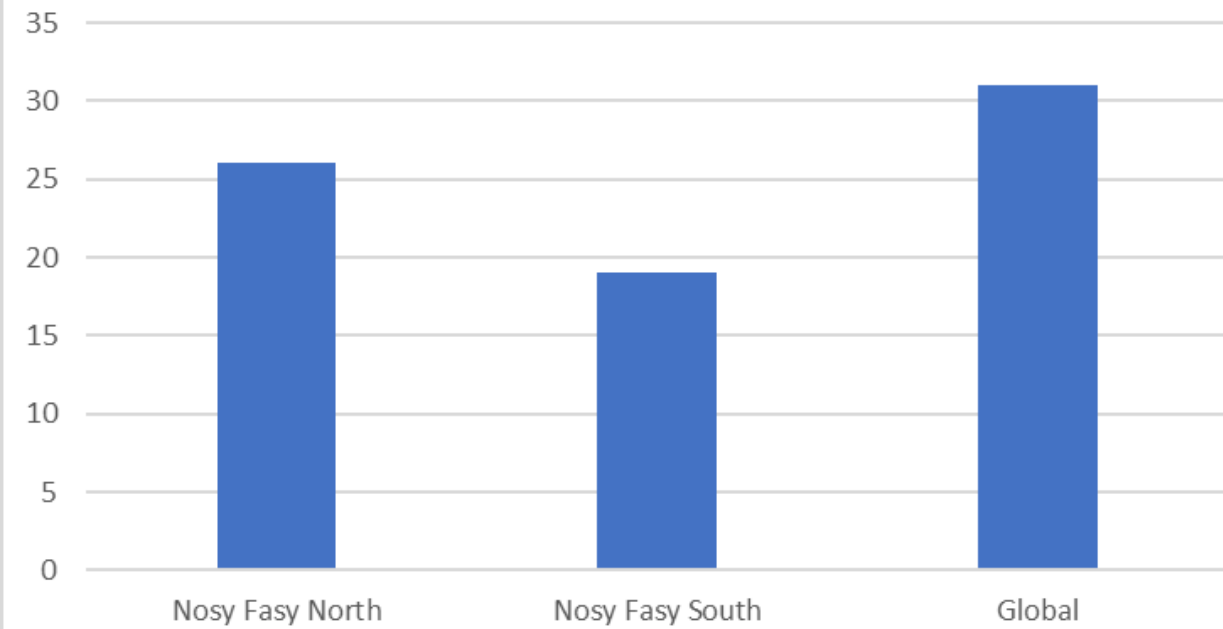


Abundance Prey-Predator Octopus (Nr/ha)

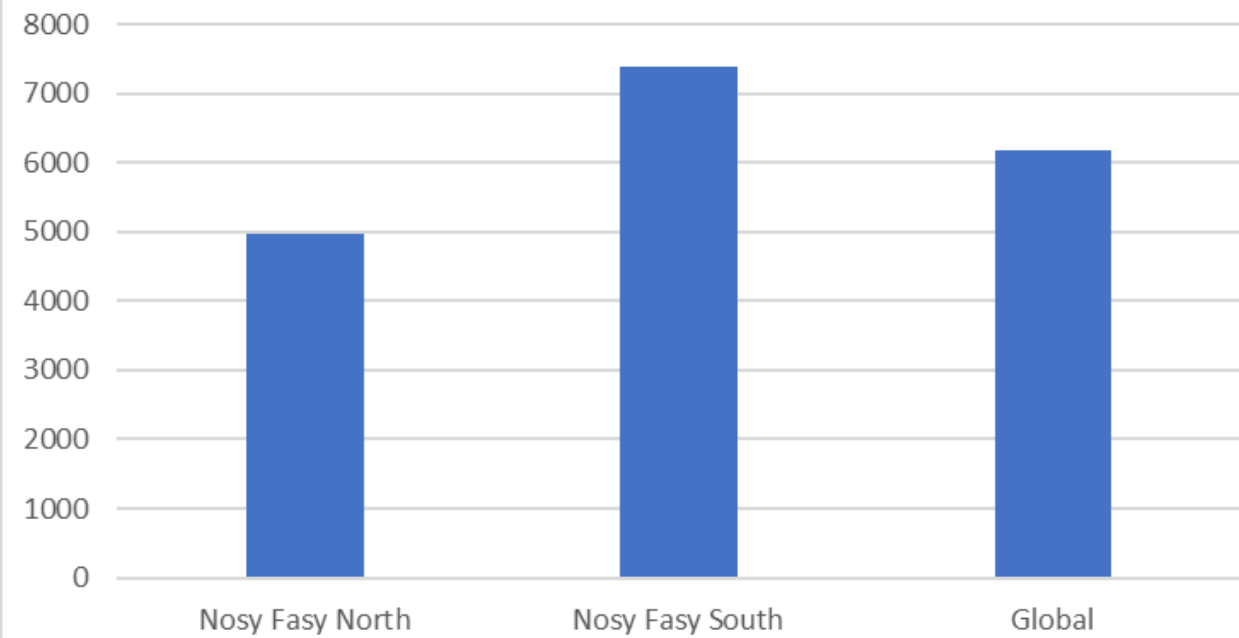


FISH

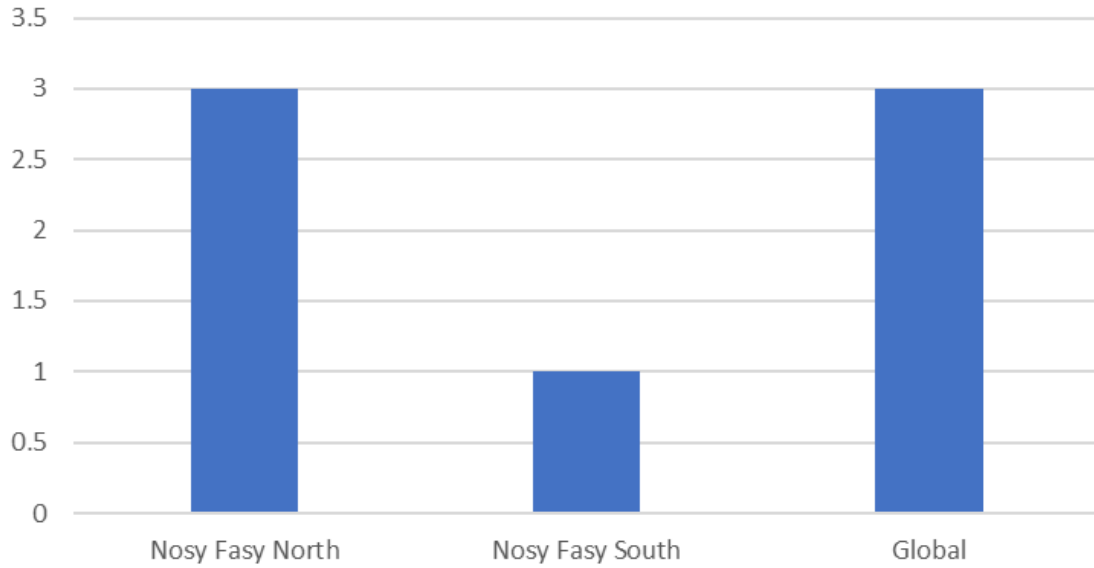
Fish diversity (nr spp)



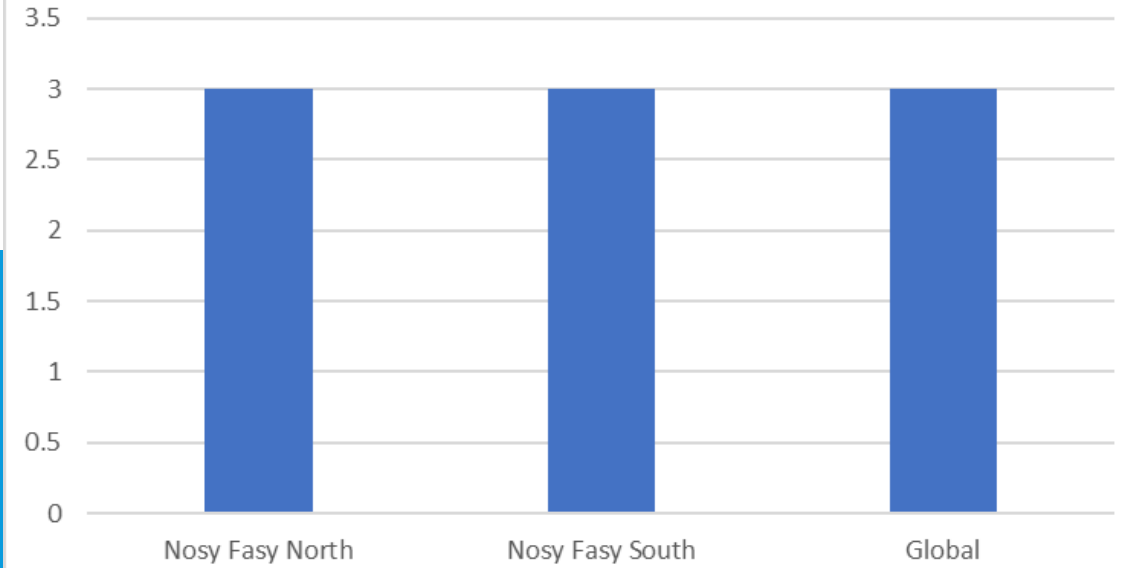
Fish density (nr/ha)



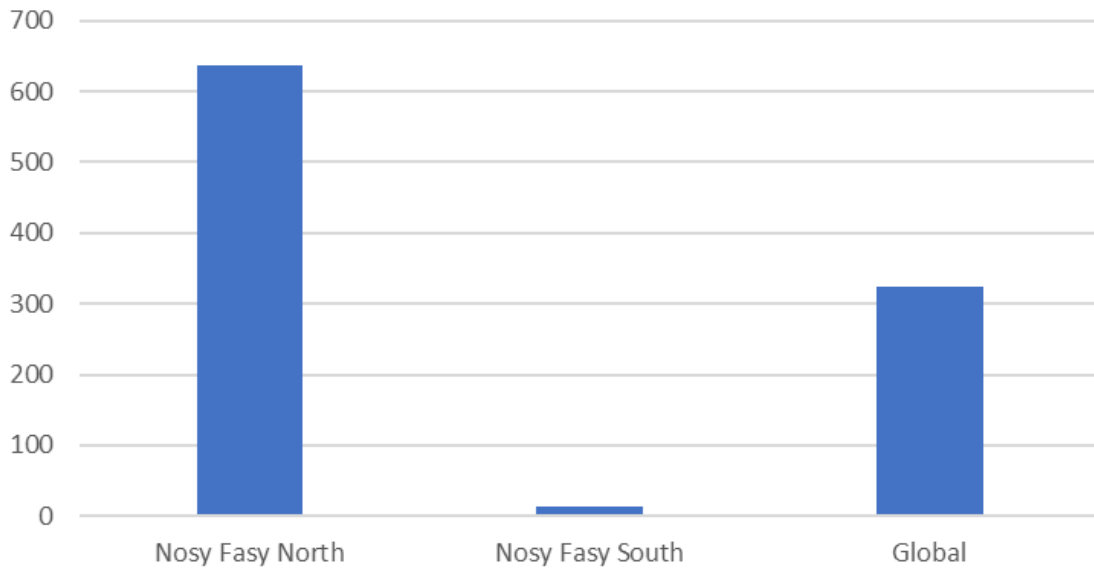
Foodfish diversity (nr spp)



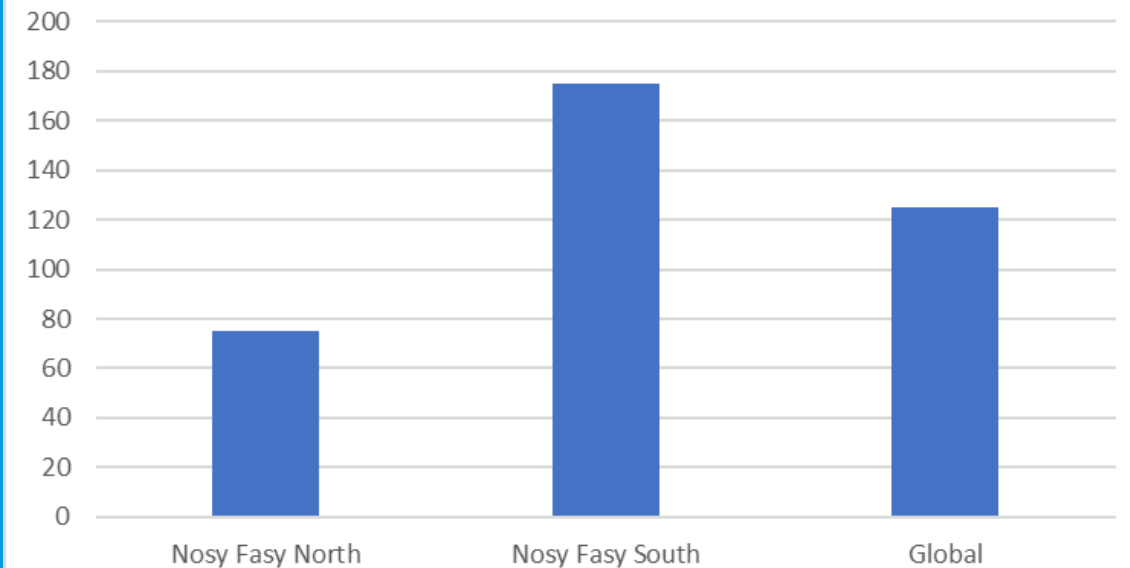
Butterflyfish diversity (nr spp)



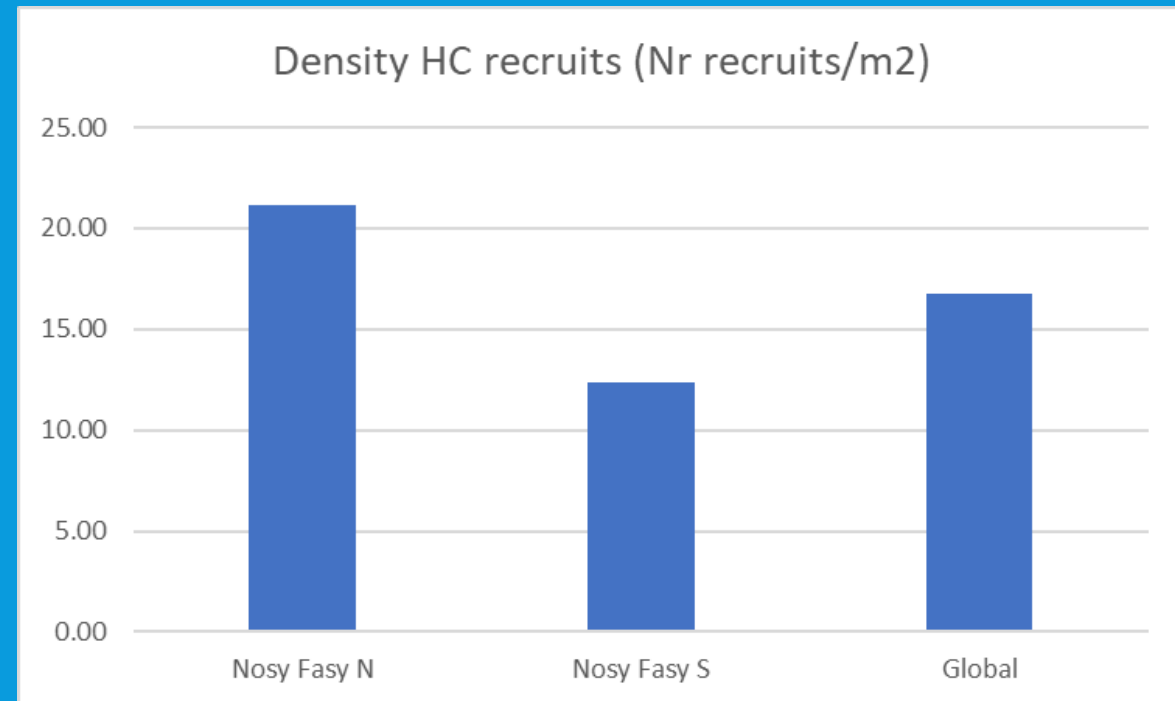
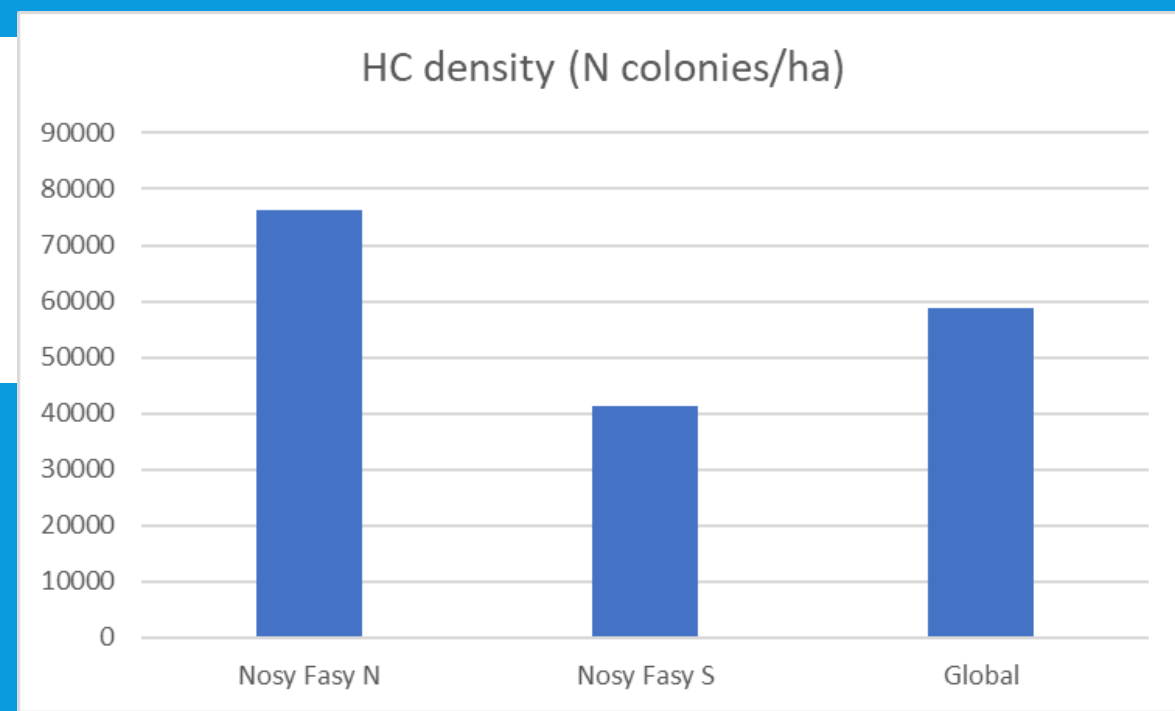
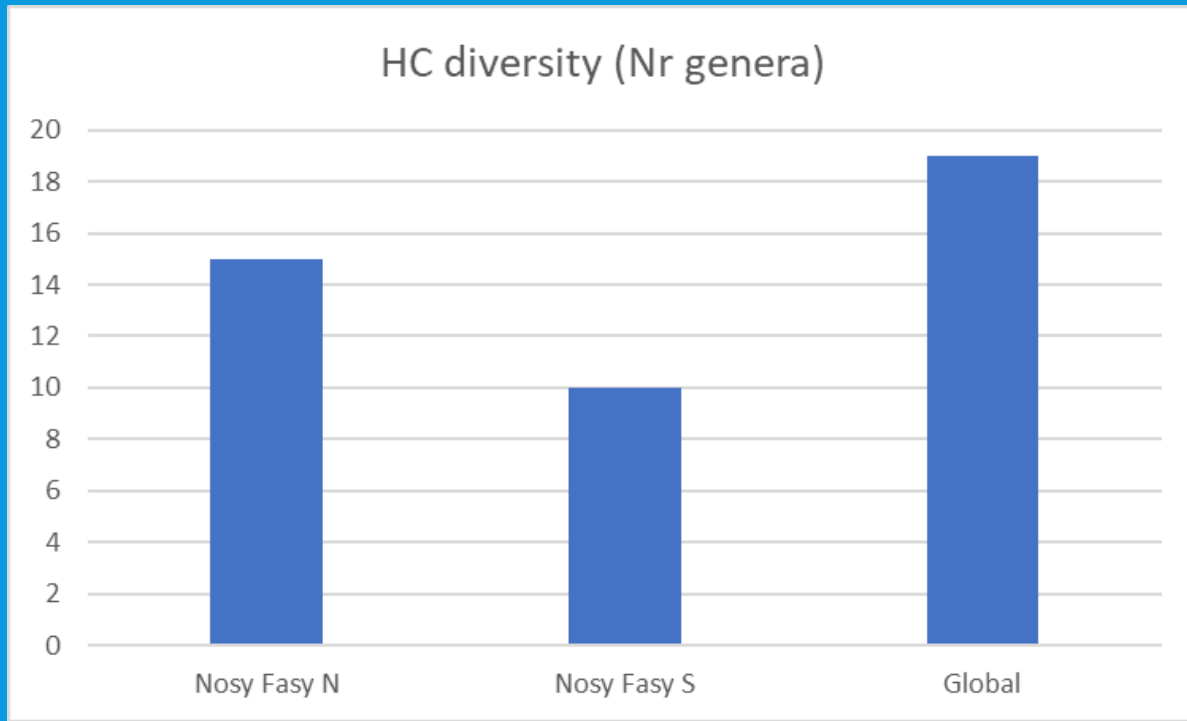
Density foodfish (nr/ha)



Butterflyfish density (nr/ha)

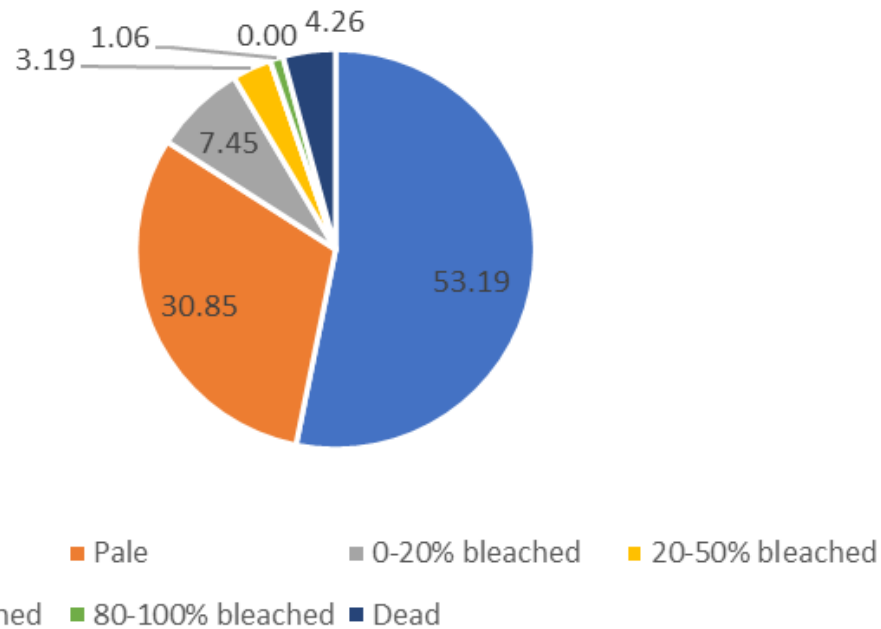


HARD CORAL

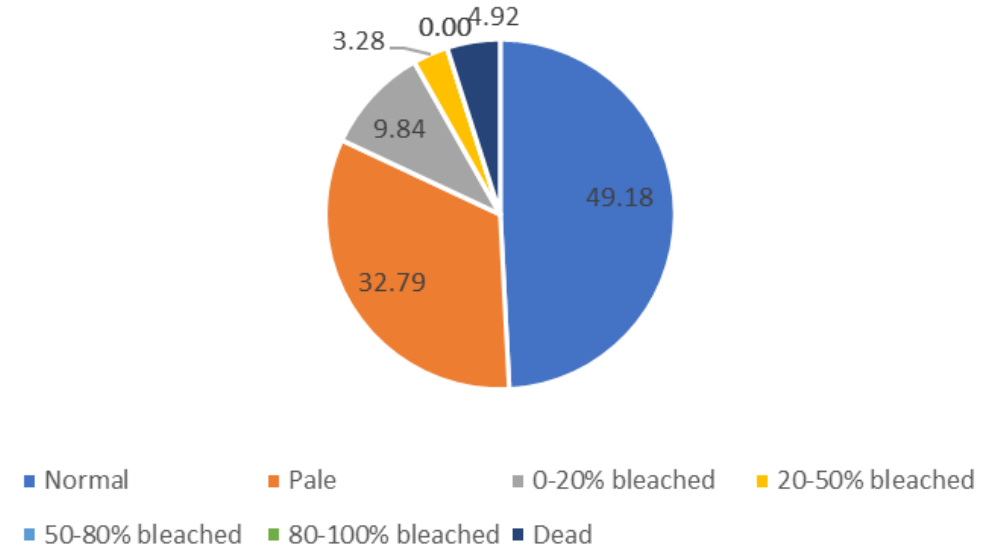


HARD CORAL BLEACHING

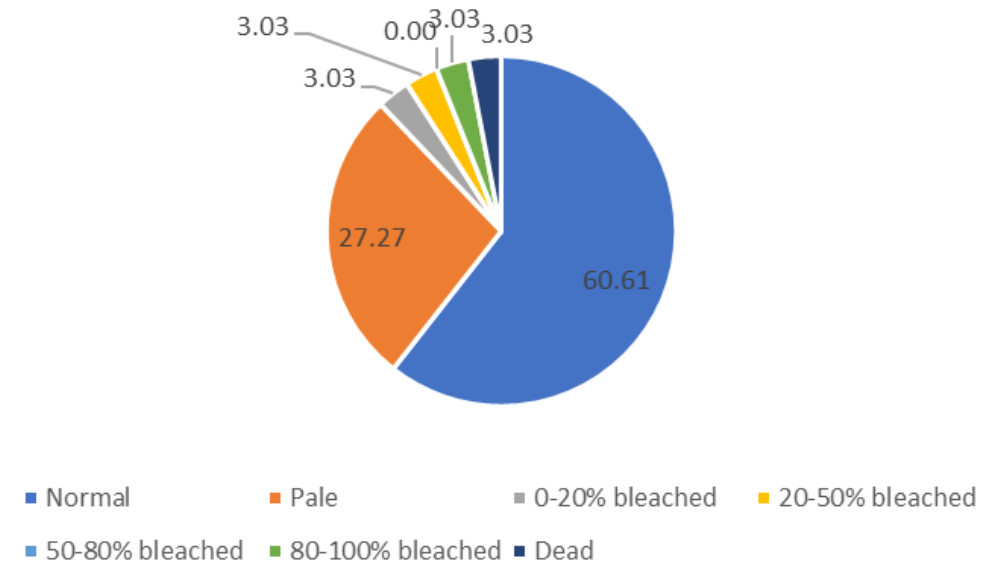
Global Bleaching Nosy Fasy



Bleaching Nosy Fasy N



Bleaching Nosy Fasy S



CONCLUSIONS

- Low hard coral cover (<1.5%), high abiotic categories cover (>45%), high turf algae cover (35%) both globally and locally
- High abundance of sea urchins both globally and locally
- Very high proportion of sea urchins (>94%), both globally and locally.
- Low fish diversity (~30 spp) and abundance (~6000 ind/ha)
- Low butterflyfish diversity (3 spp) and abundance (~120 ind/ha)
- Low foodfish diversity (3 spp) and abundance (~300 ind/ha)
- Low abundance of octopus (12.5 ind/ha)
- These low environmental quality values indicates sources of stress on the Nosy Fasy reef flats

