

REEF FLAT ECOLOGICAL MONITORING

NOSY HAO

12.2.21

Science Team

Nosy Hao Reef Flat

Write a description for your map.

Legend

Andava

Google Earth

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



Nosy Hao Reef Flat

Survey sites

Legend

- (Reef Flat)
- Andava

Google Earth

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

▪ NOSY HAO NORTH



NOSY HAO MIDDLE



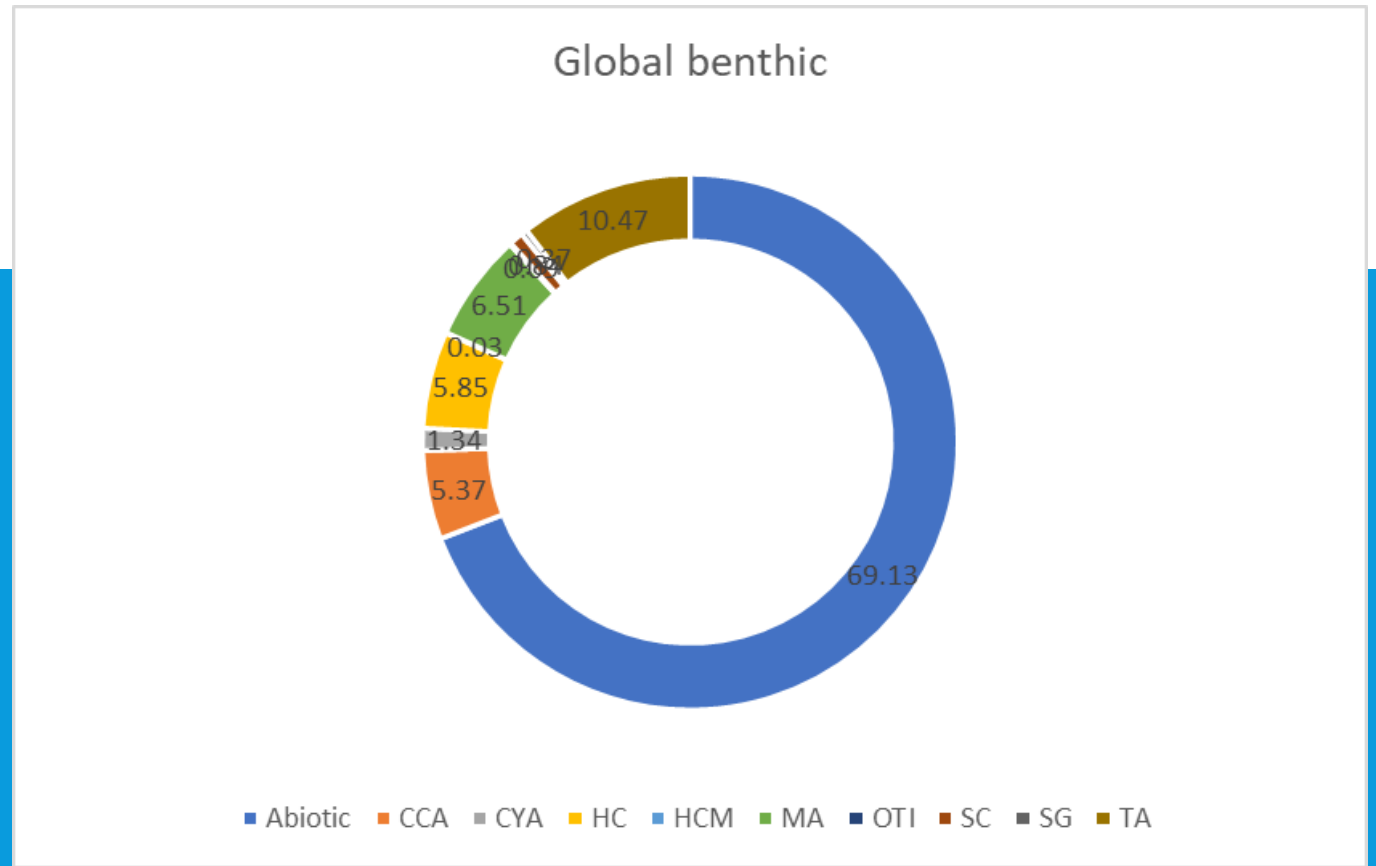
▪ NOSY HAO SOUTH



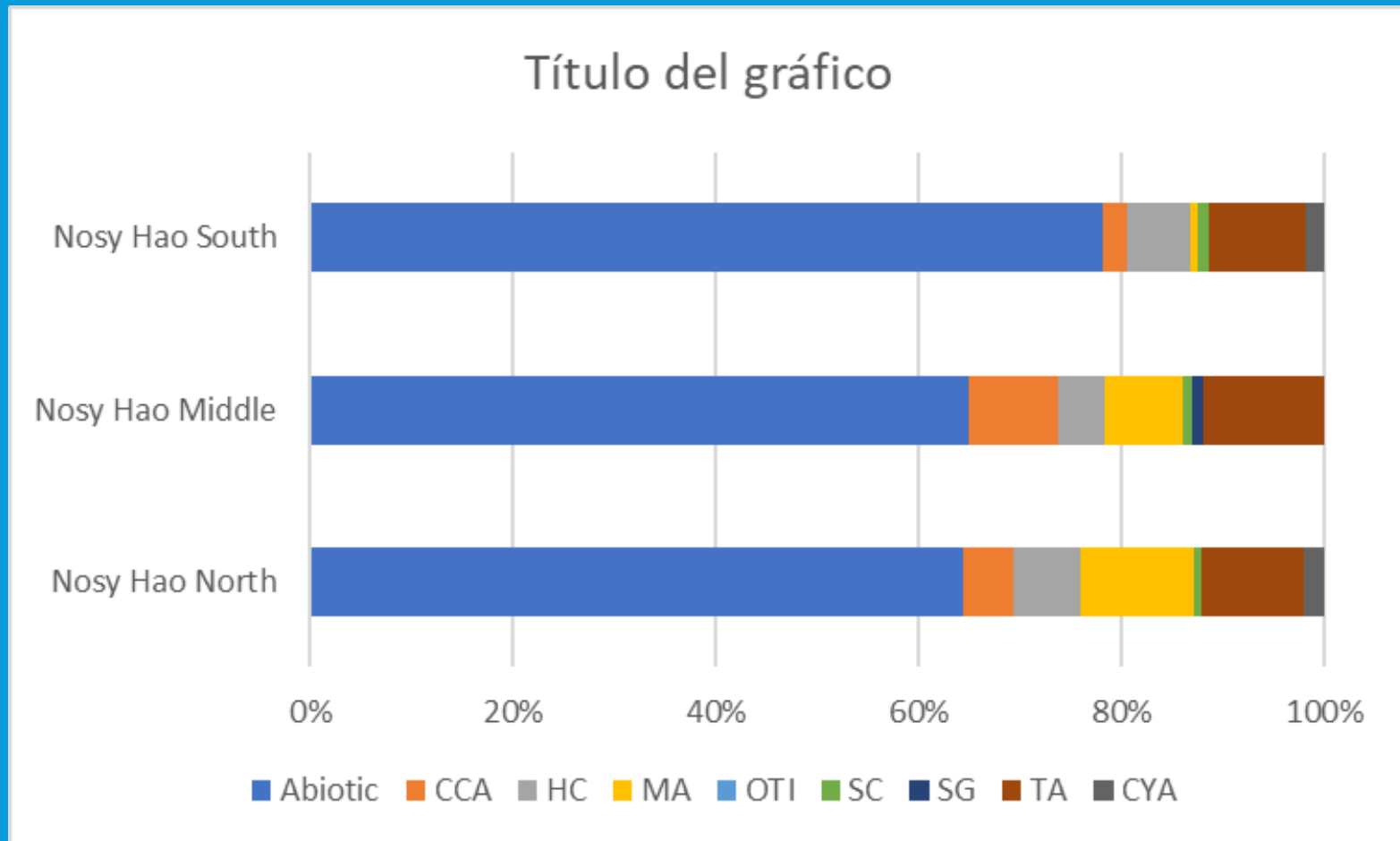
METHODOLOGY

A diver in a black wetsuit and yellow fins is swimming horizontally over a coral reef. The diver is holding a rectangular frame made of white PVC pipes. The water is clear and blue, and the reef is covered in green and yellow coral.

- BENTHIC
- FISH
- INVERTEBRATES
- RECRUITMENT
- BLEACHING

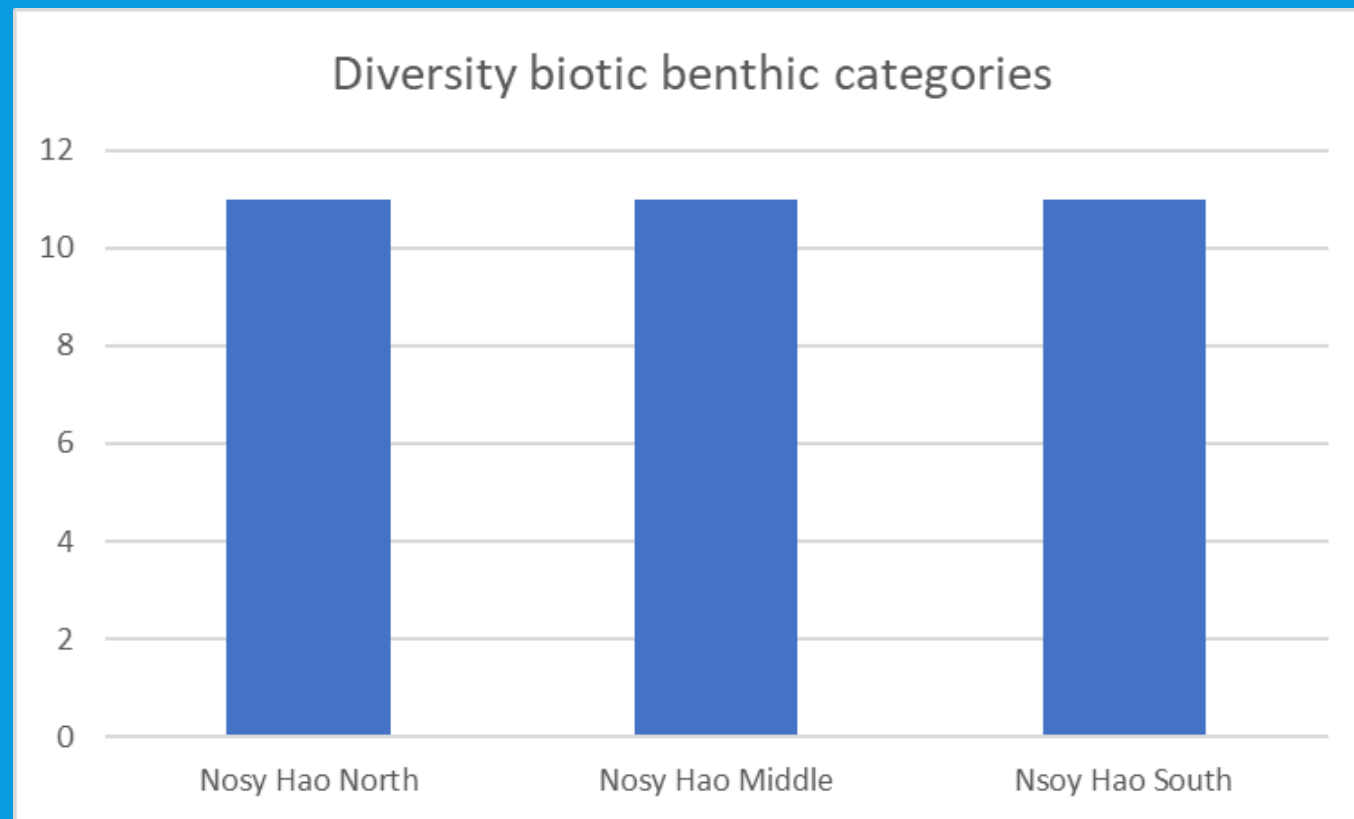


BENTHIC PER SITE





BENTHIC PER SITE



FISH

Global Diversity: 56 sp

Global relative abundance: 8.300 fish/h

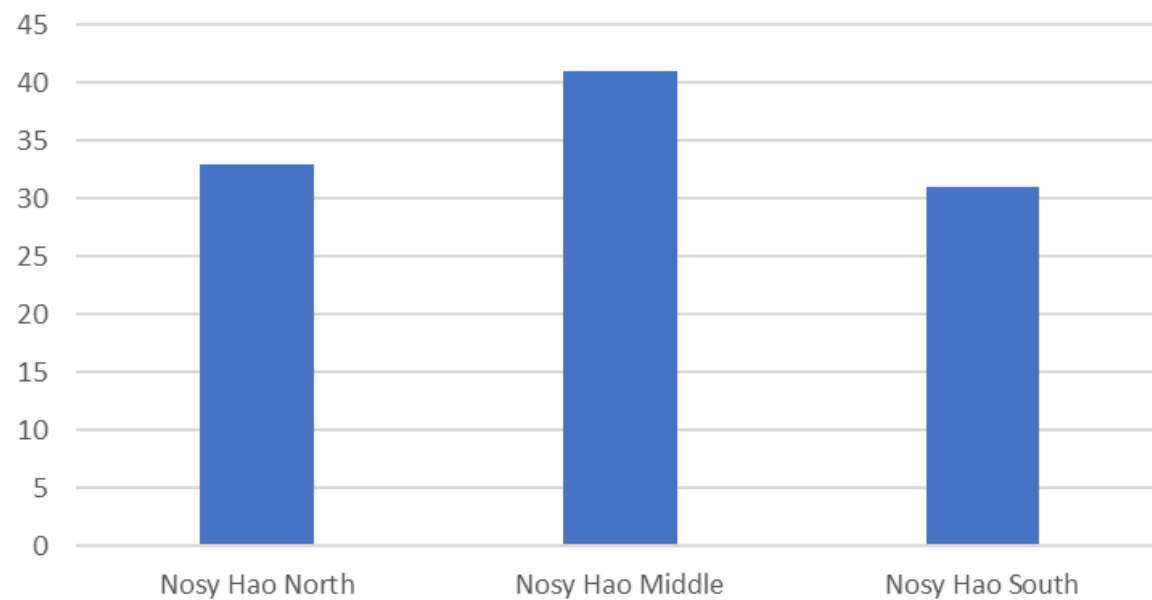
Biomass: 709 kg/ha



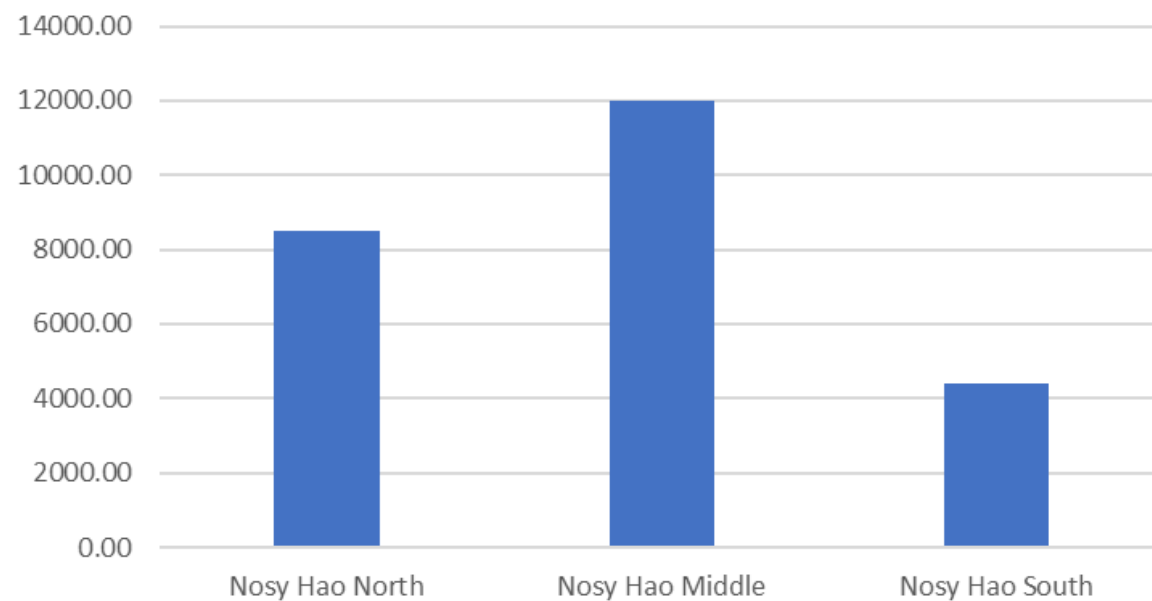
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Fish diversity



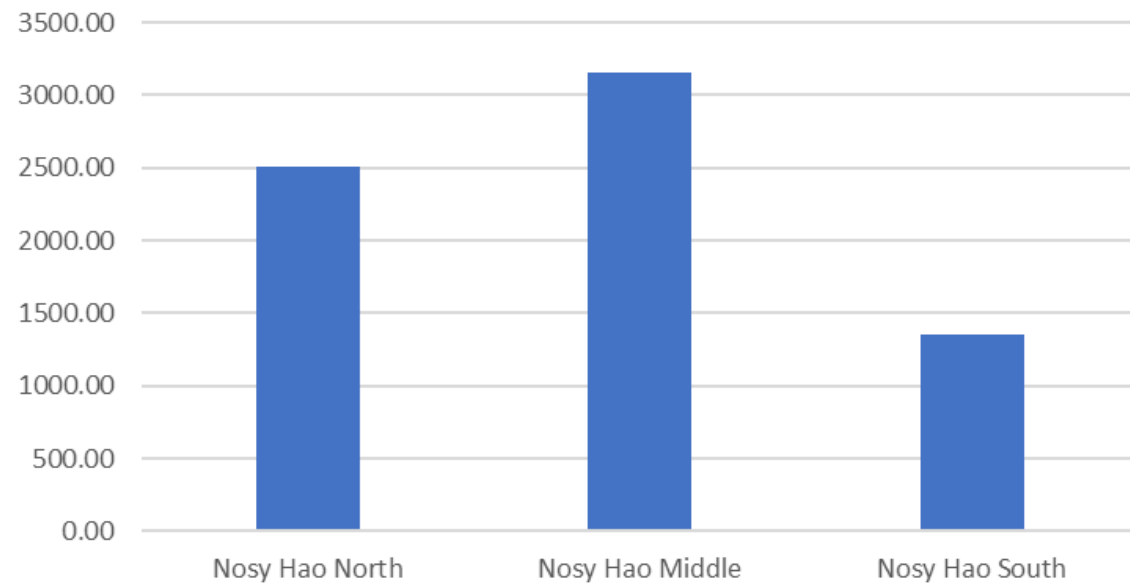
Nr Fish/ha



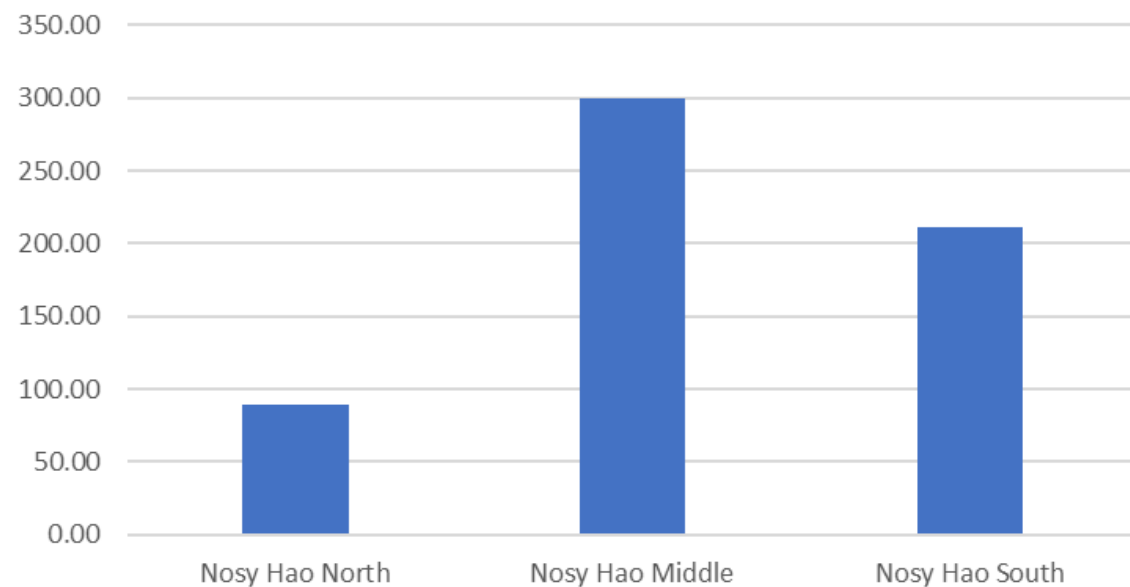
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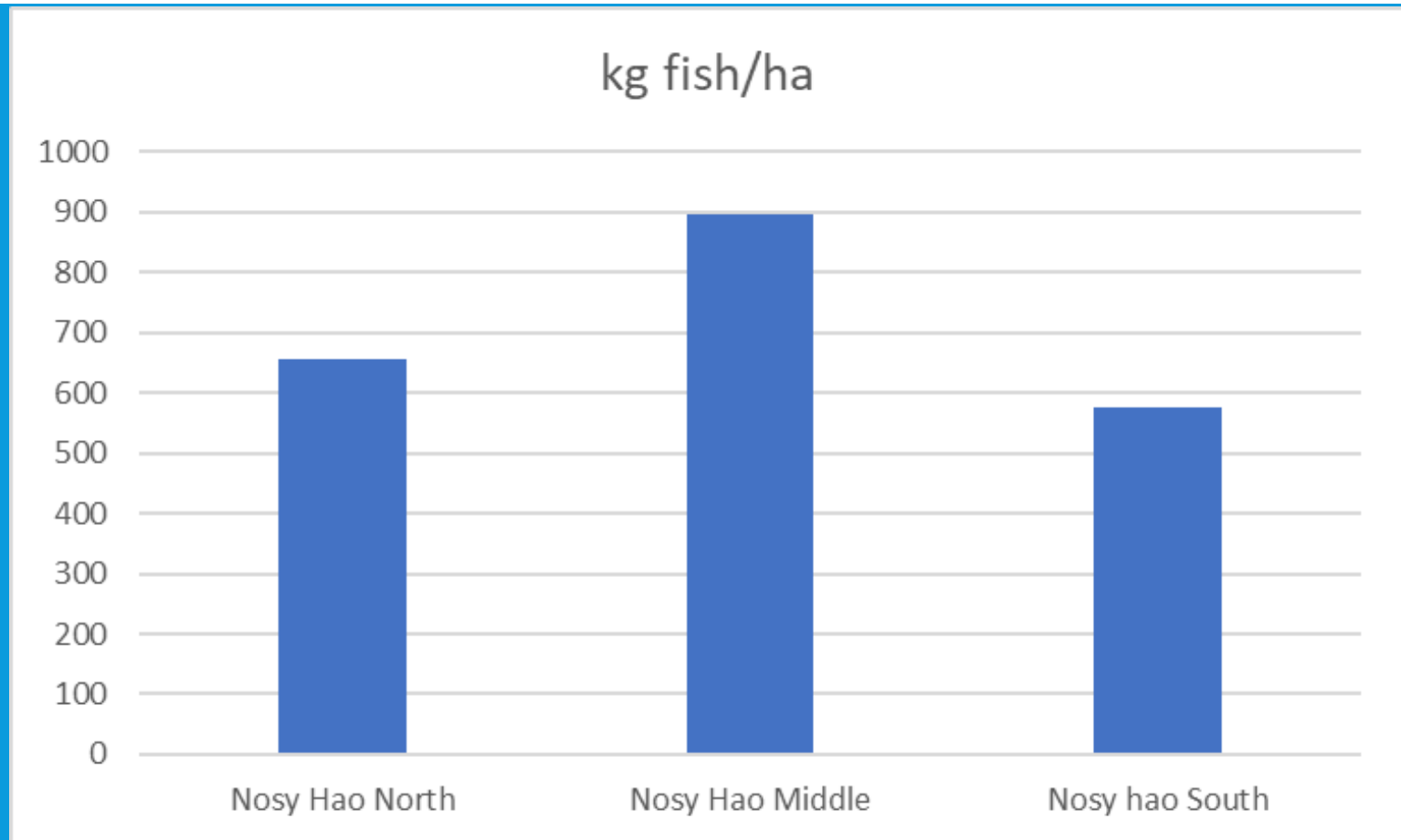


Nr foodfish/ha



Nr Butterflyfish/ha





INVERTEBRATES

Global Diversity: 16 sp

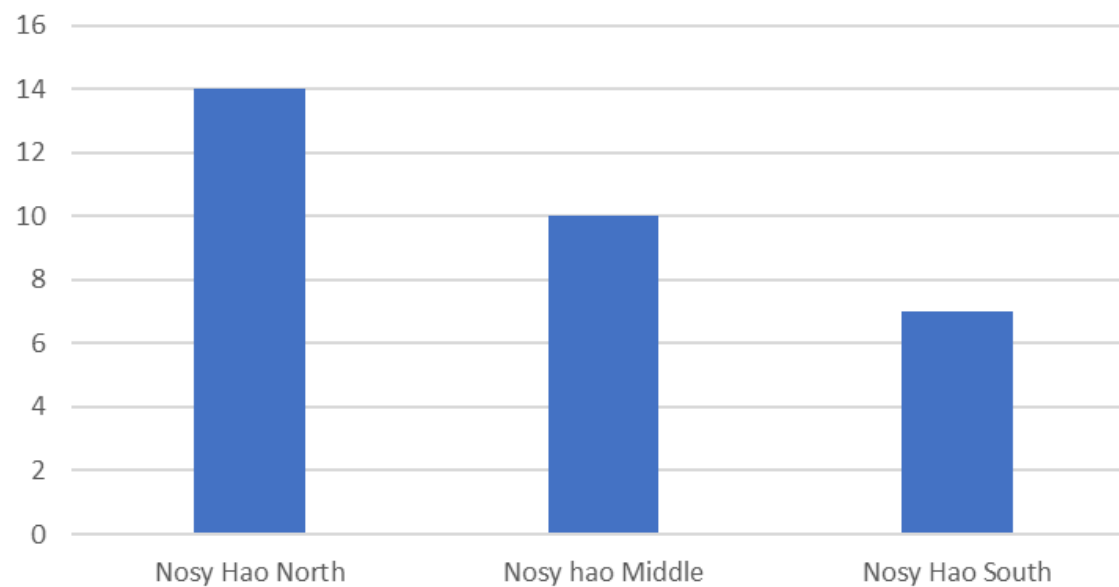
Global relative abundance: 22.055 invert/ha



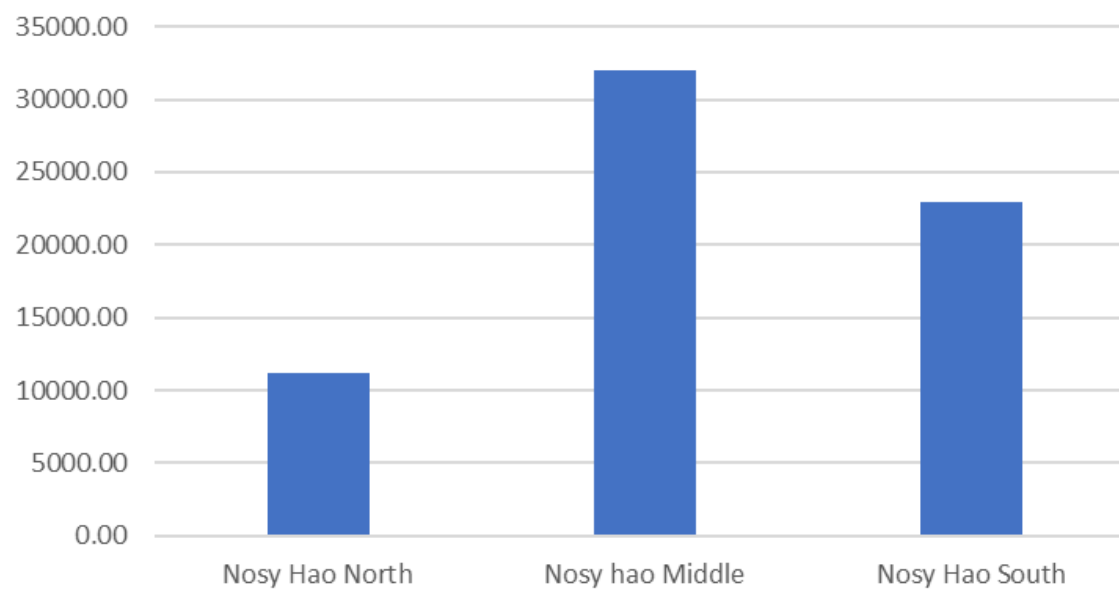
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Total Inverts Diversity



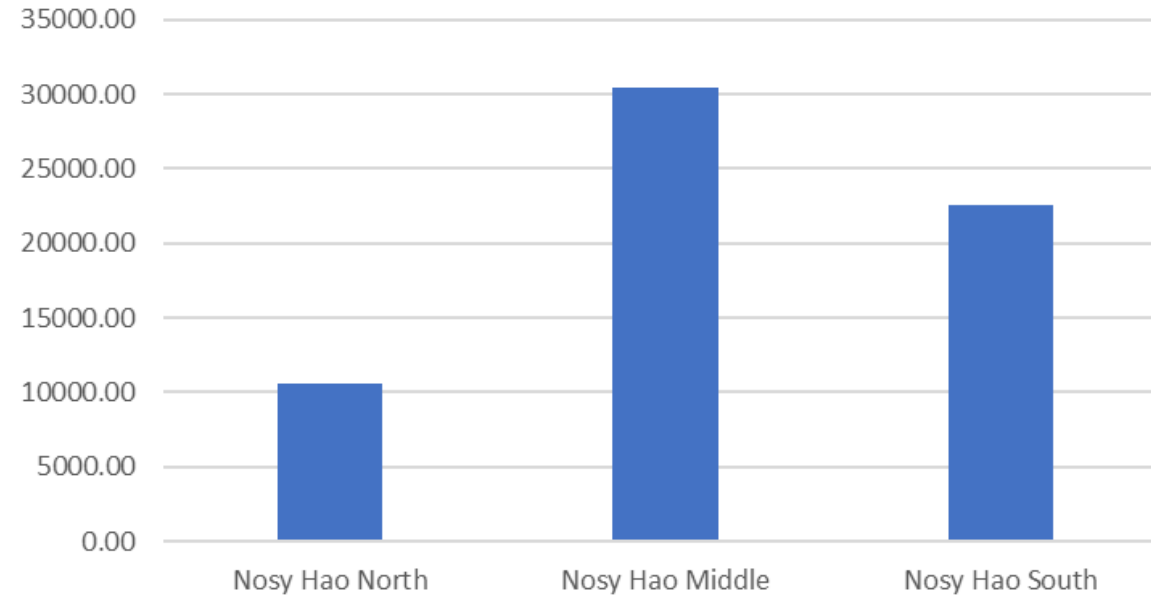
Nr Inverts/ha



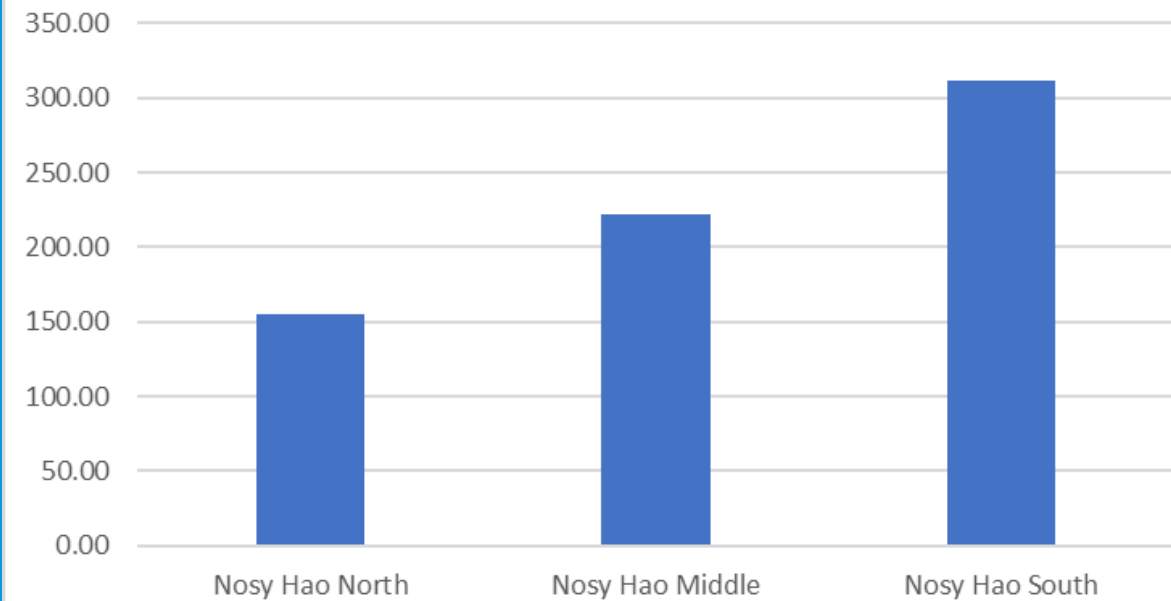
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Nr sea urchins/ha



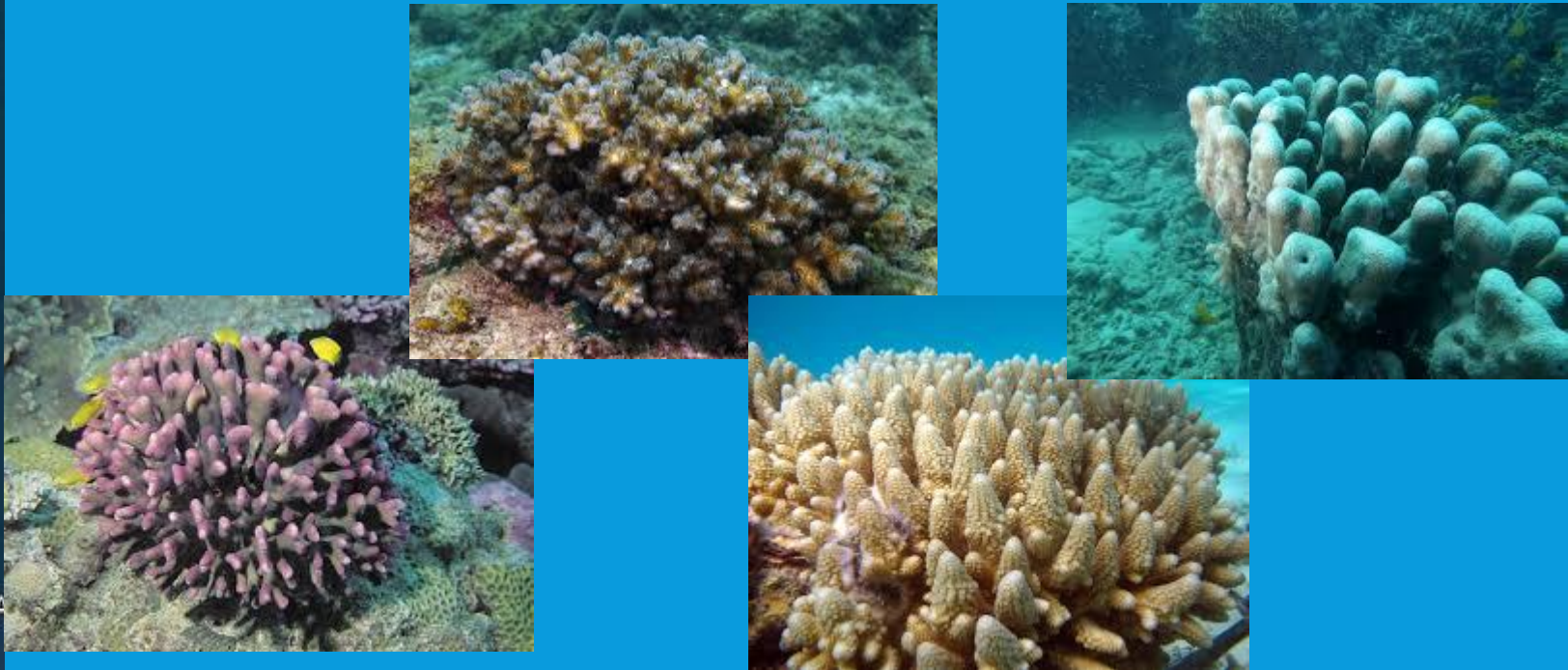
Nr Giant Clams/ha



HARD CORALS

15 genera

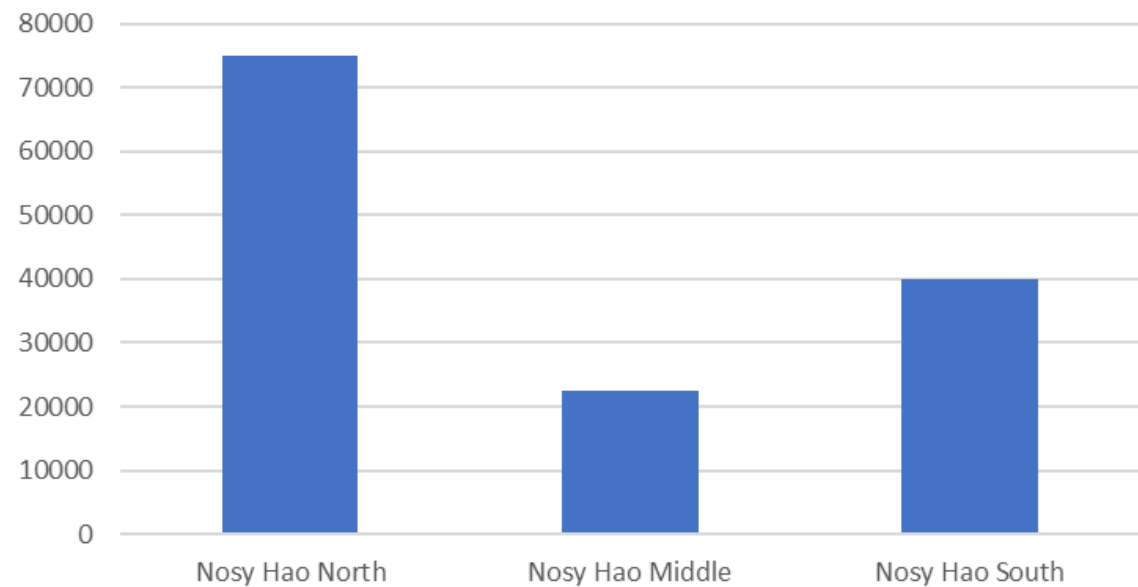
45.833 Hard coral colonies/ha



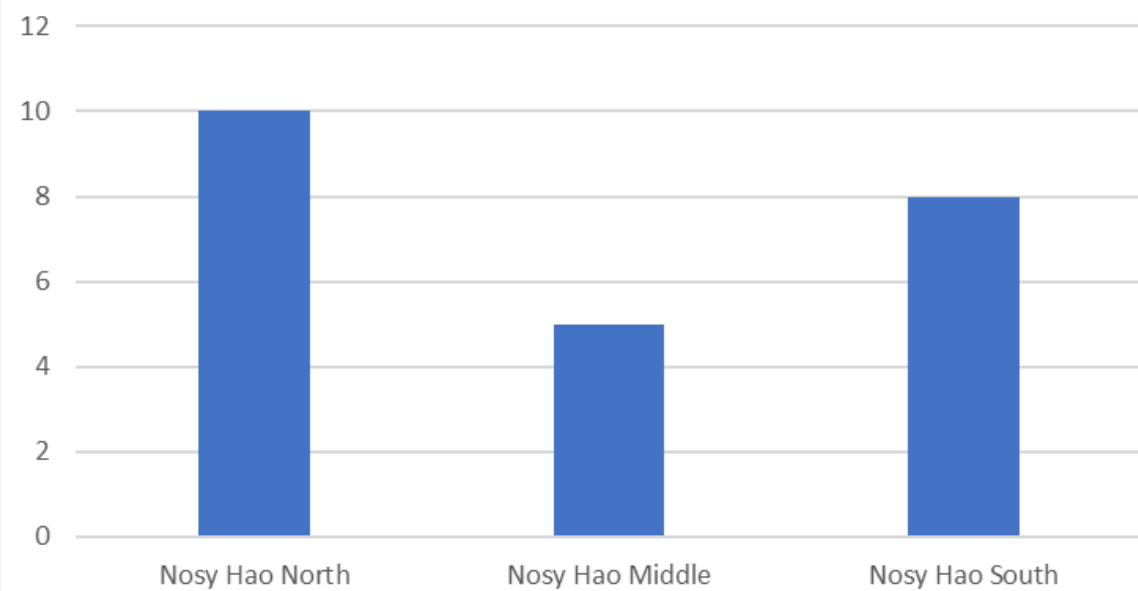
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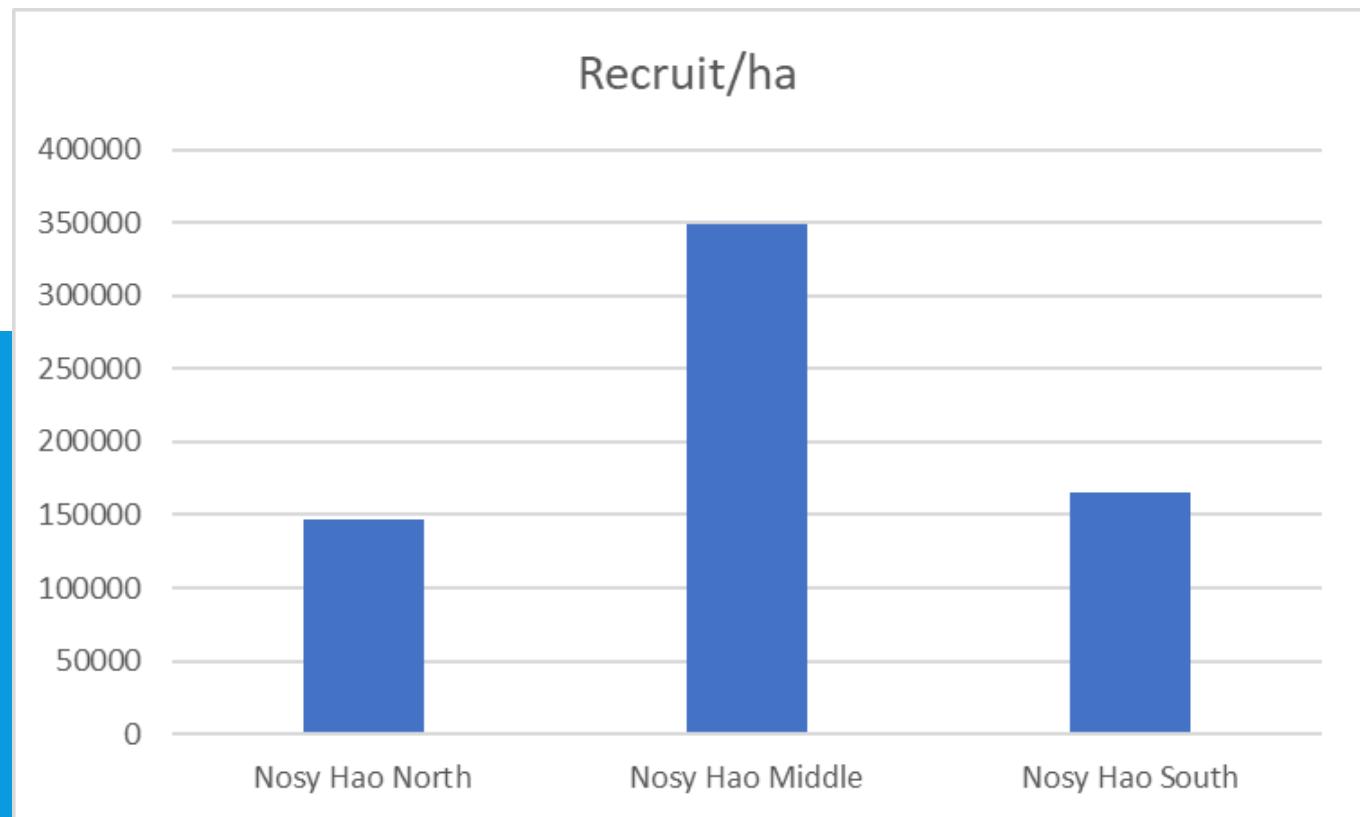
HC Colonies/ha



HC genera



at

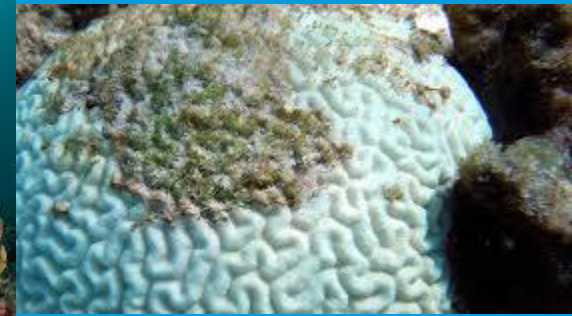


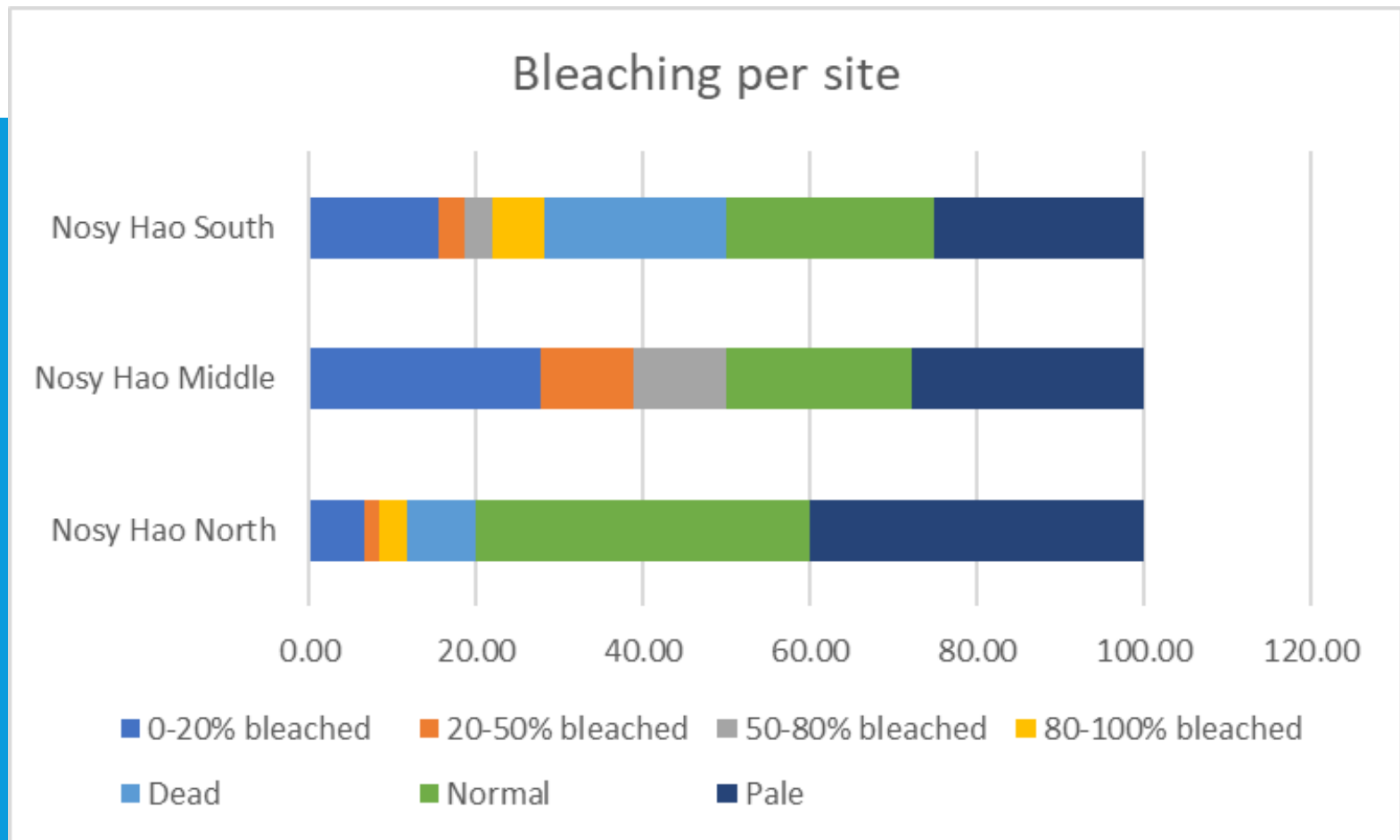
IMPACTS

Global Bleaching

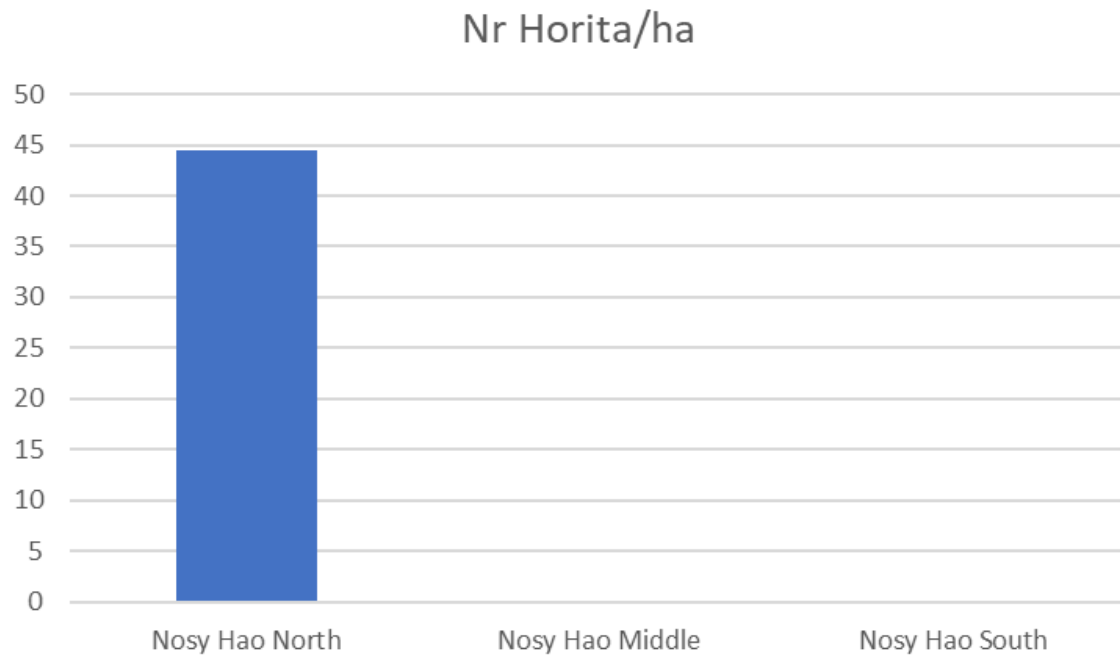


■ 0-20% bleached ■ 20-50% bleached ■ 50-80% bleached ■ 80-100% bleached
■ Dead ■ Normal ■ Pale

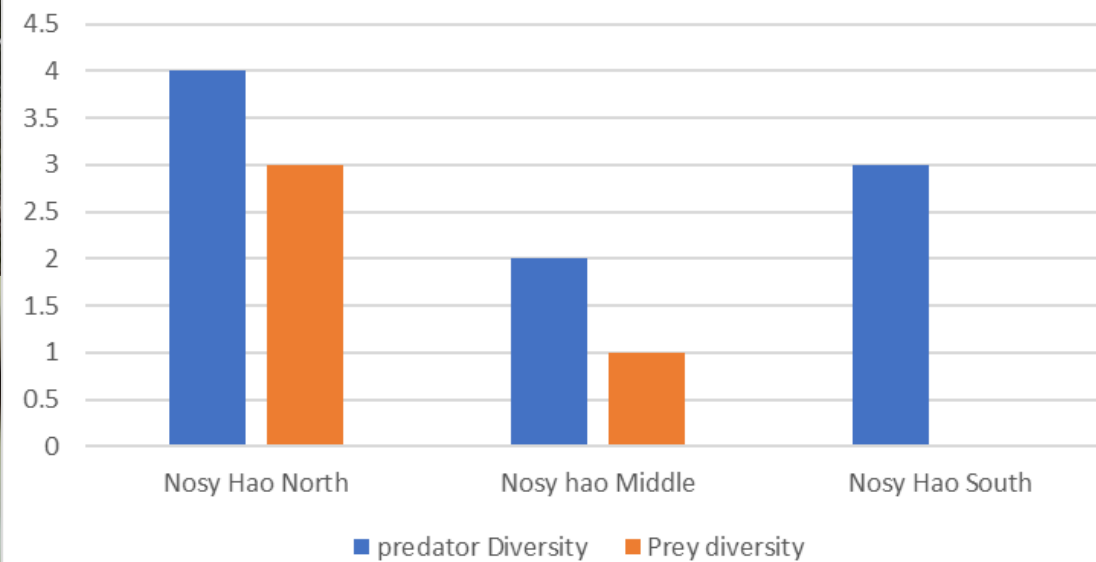




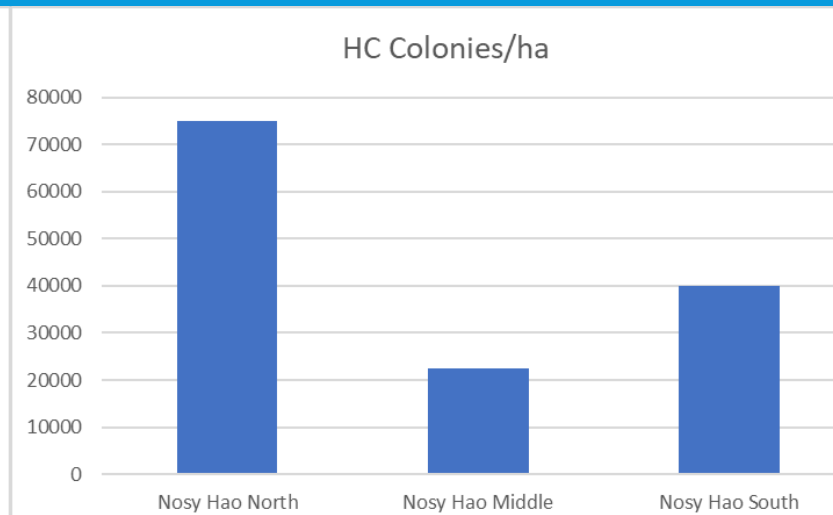
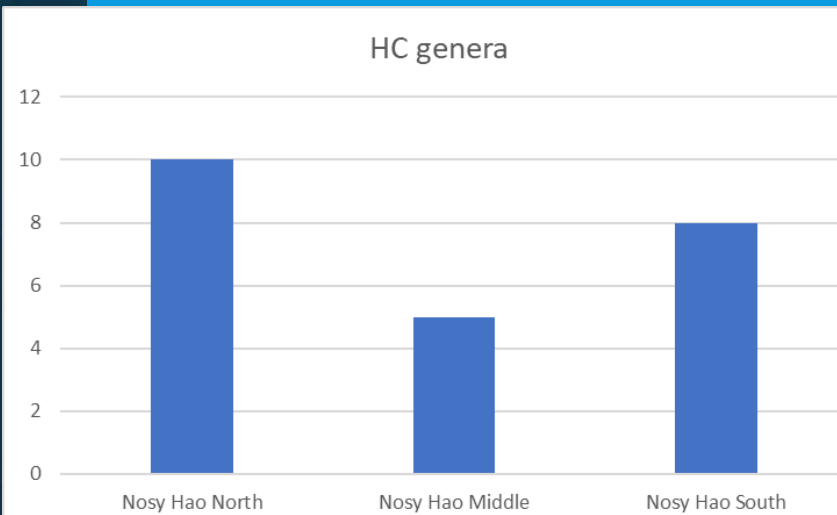
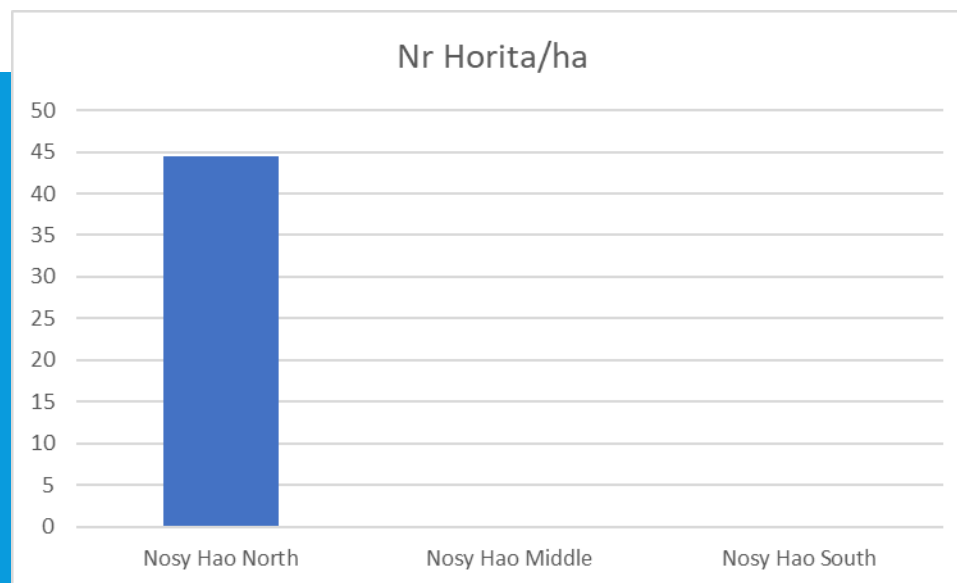
HORITA



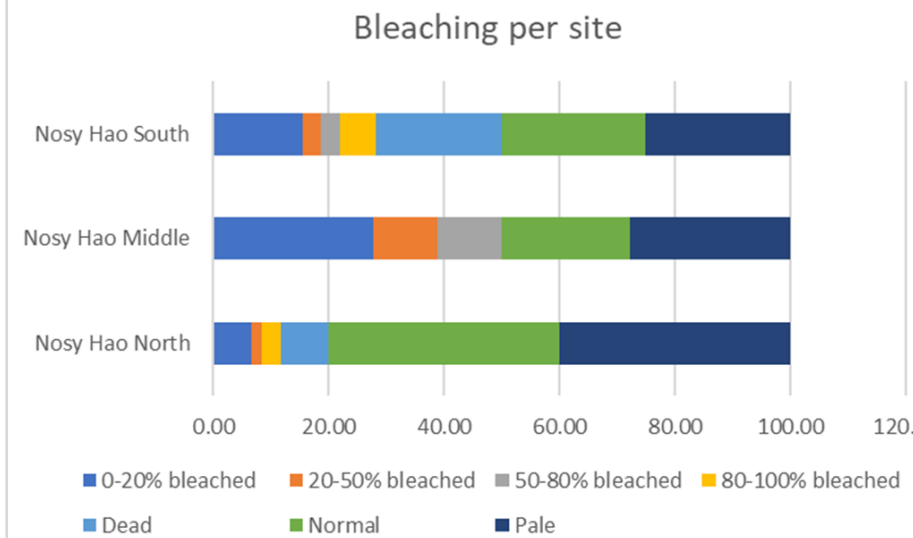
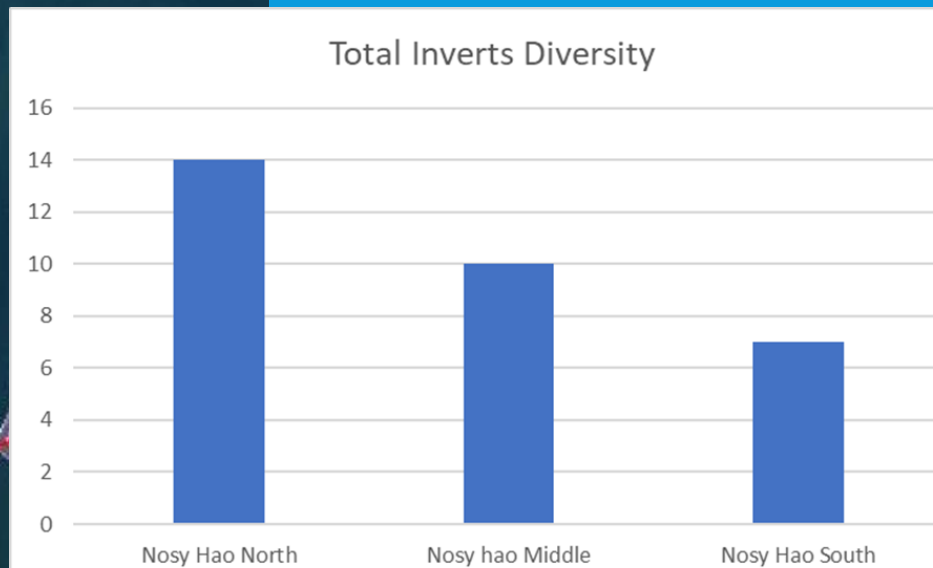
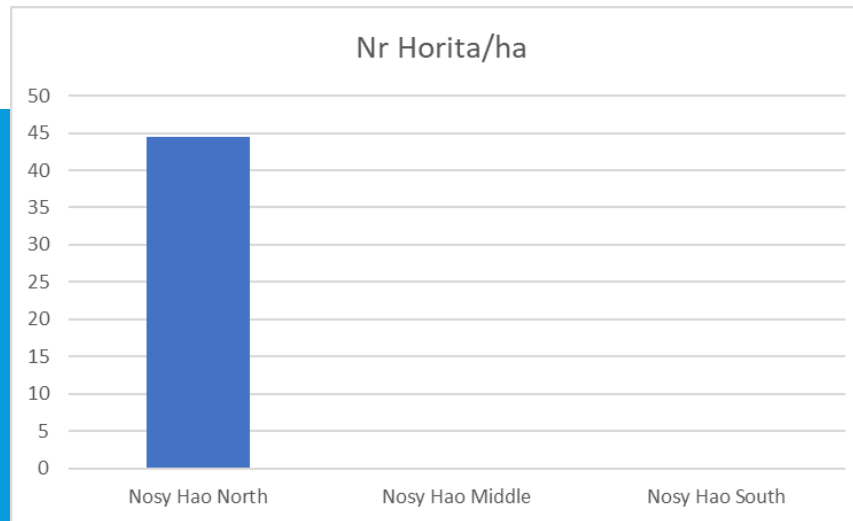
Diversity Predator-Prey Octopus



HORITA



HORITA



CONCLUSIONS

- High environmental and human impacts on Nosy Hao Reef Flats (big swell, strong currents, fisheries pressure,....)
- Nosy Hao North has the highest environmental quality score.
- Nosy Hao South has the lowest environmental quality score
- The highest abundance of octopus has been found in Nosy Hao North
- Positive correlation between abundance of octopus and predator-prey diversity
- Positive correlation between abundance of octopus and environmental quality
- High density of hard coral recruitment showing signs of recovery

RECOMMENDATIONS

- Creation of a permanent NTZ in the reef flat for octopus protection
- Environmental and Fisheries good practices for horita gleaners
- Limitations in the by-catch related to octopus fisheries
- Limitations in Giant Clam harvesting
- Assessment of the evolution of the ecosystem: conduct ecological surveys at least once a year
- Linking ecological information with octopus fisheries information