

# TMSI

***Tropical Marine Science Institute***





# Our stay in TMSI

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# What is “TMSI”?

## 5 Research Units

- ARL: Acoustic Research Lab
- EMID: Ecological Monitoring, Informatics and Dynamics Lab
- **MBEL: Marine Biology and Ecology Lab (House 14)**
- MMRL: Marine Mammal Research Lab
- PORL: Physical Oceanography Research Lab





# Coral reef restoration by TMSI

## Physical Restoration:

(e.g. Reef Enhancement Units)



## Biological Restoration:

(e.g. Coral nursery & transplantation )



# The Importance of TMSI's research

*Keep a balance*

Urban  
Development

Port  
development

Reclaimed land



Marine  
Environment







# For Little damage

Understand the necessity of development

→ Protect natural environment as possible as they can



# What we did

- The current status of Singapore's coral
- Analysis marine environment from the data

# Experimental method

- Check the 15 Tiles

deployed at  
Lazarus West (LW)

Lazarus East (LE)





Classify deposits  
into 7 categories

Coral

TurfAlgae

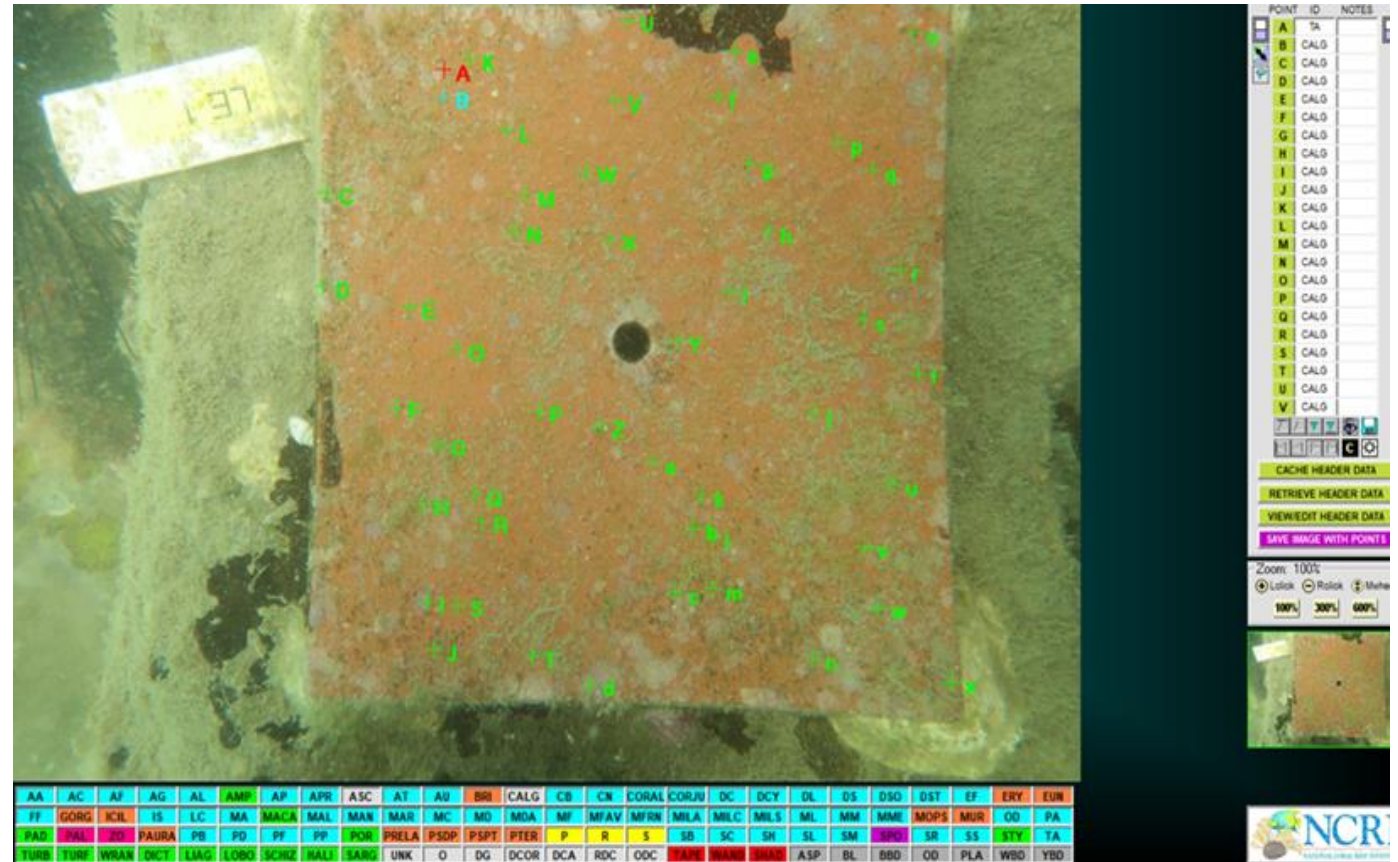
Macroalgae

CorallineAlgae

Sponge

Silt

Tile



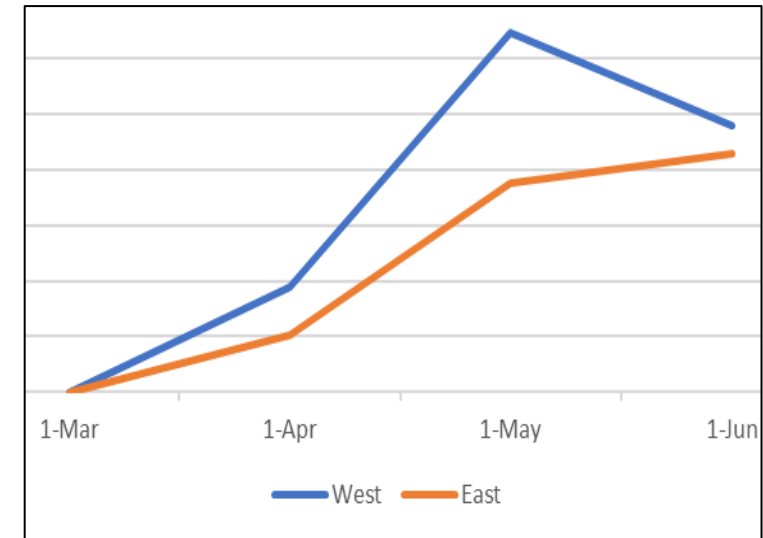
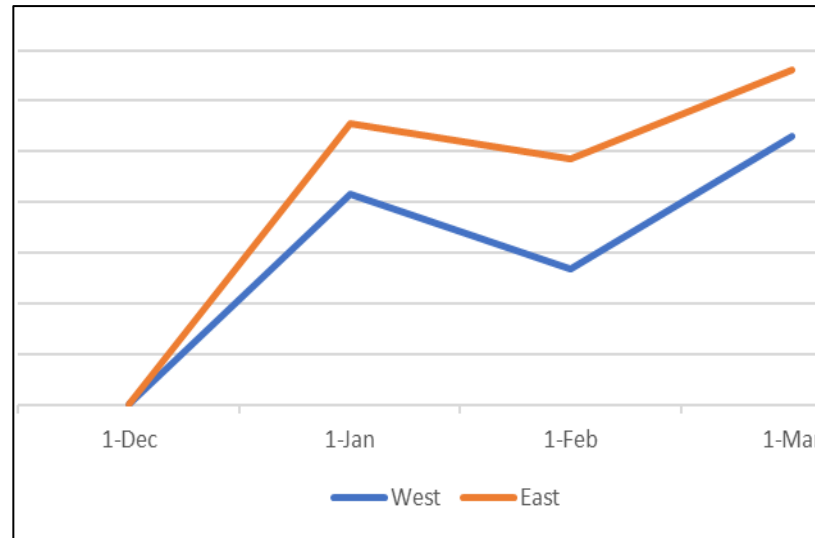
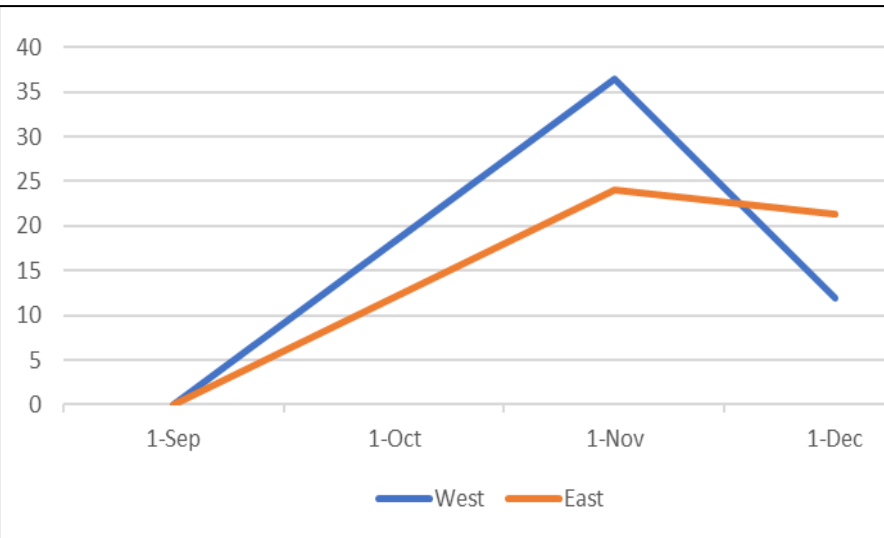
# Change of Biotic substances shift



Sep→Dec

Dec→Mar

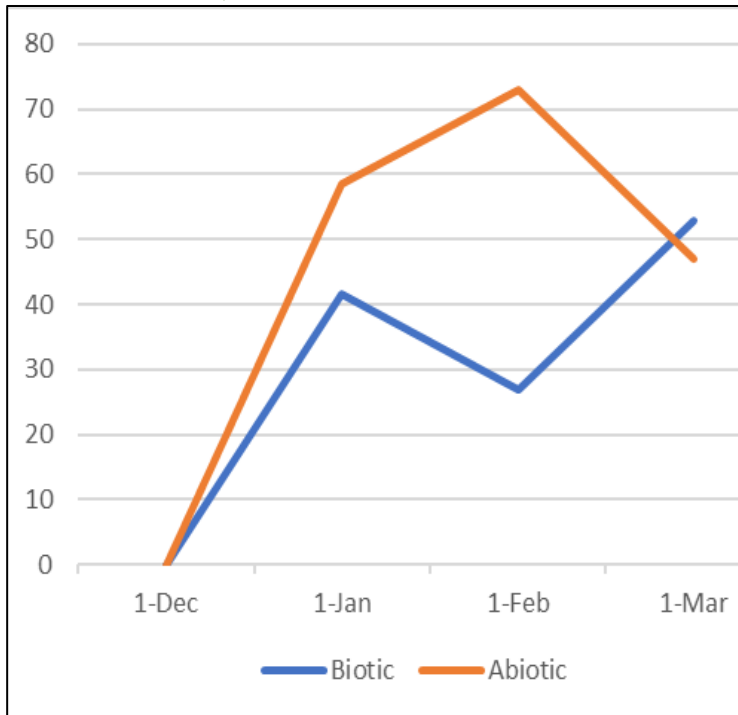
Mar→Jun



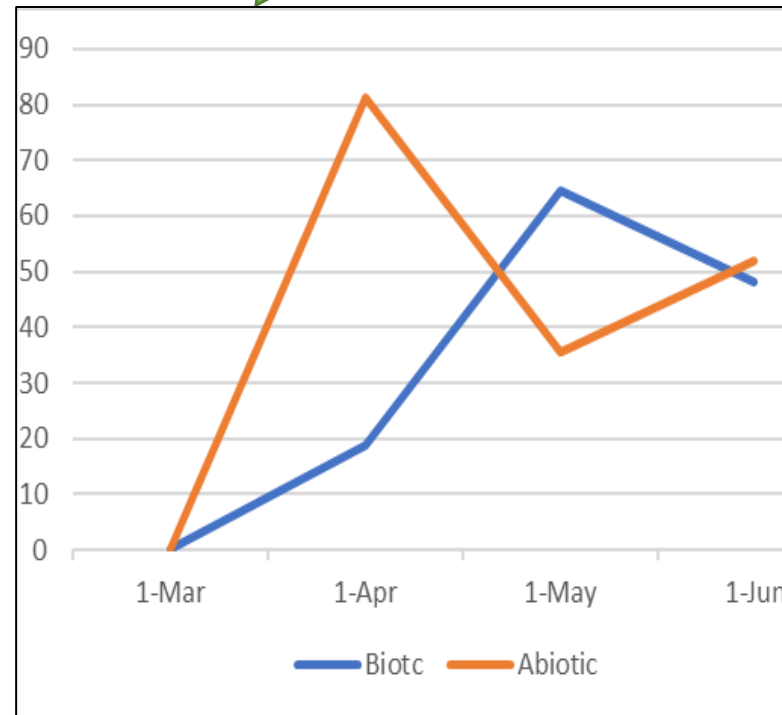
# Change shift of Bio/Abio

— Biological  
— Abiological

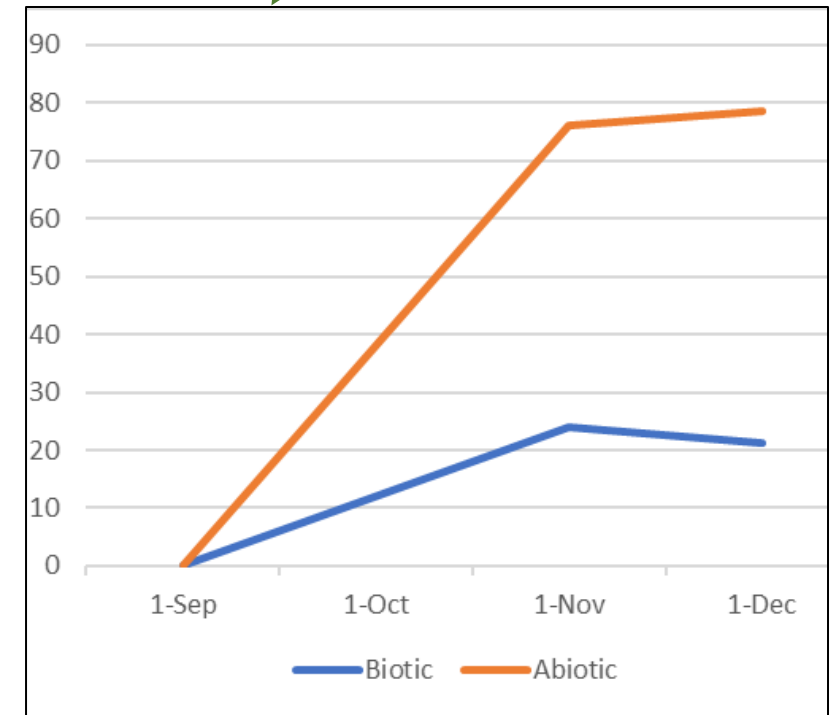
Dec→Mar



Mar→Jun



Sep→Dec

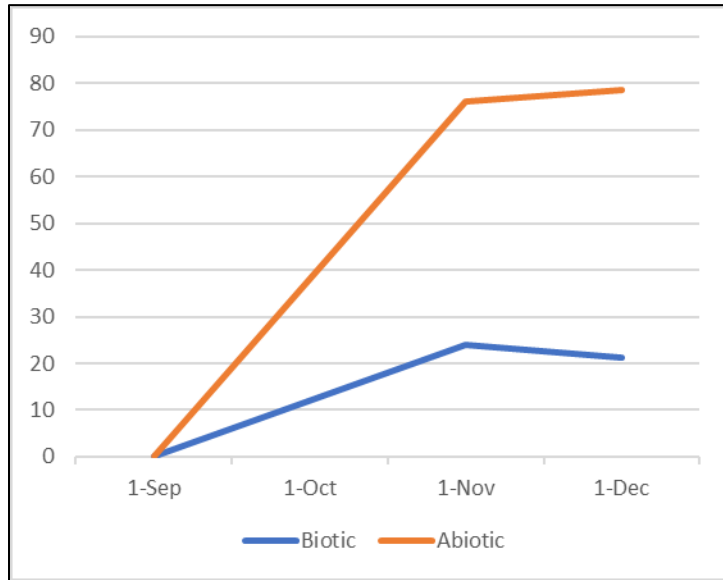




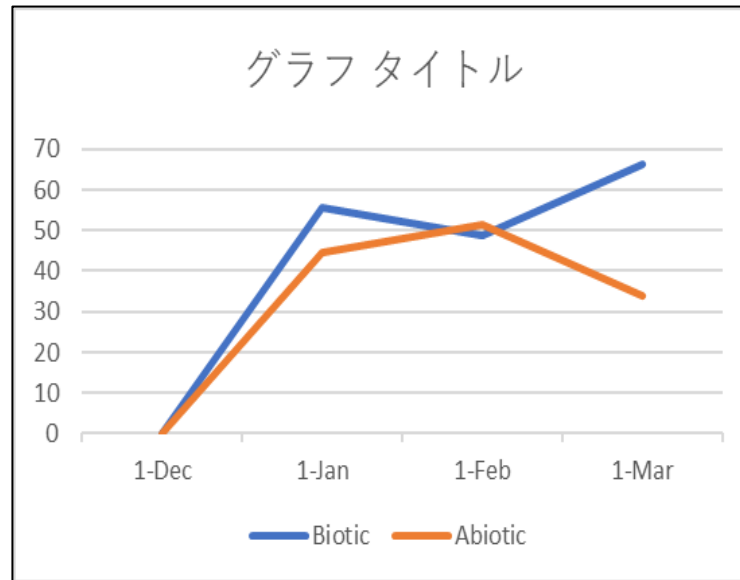
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— Biological  
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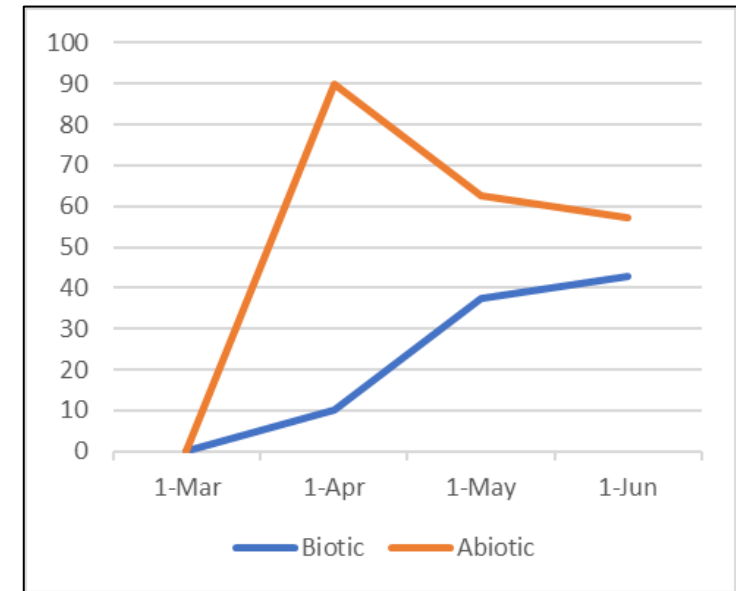
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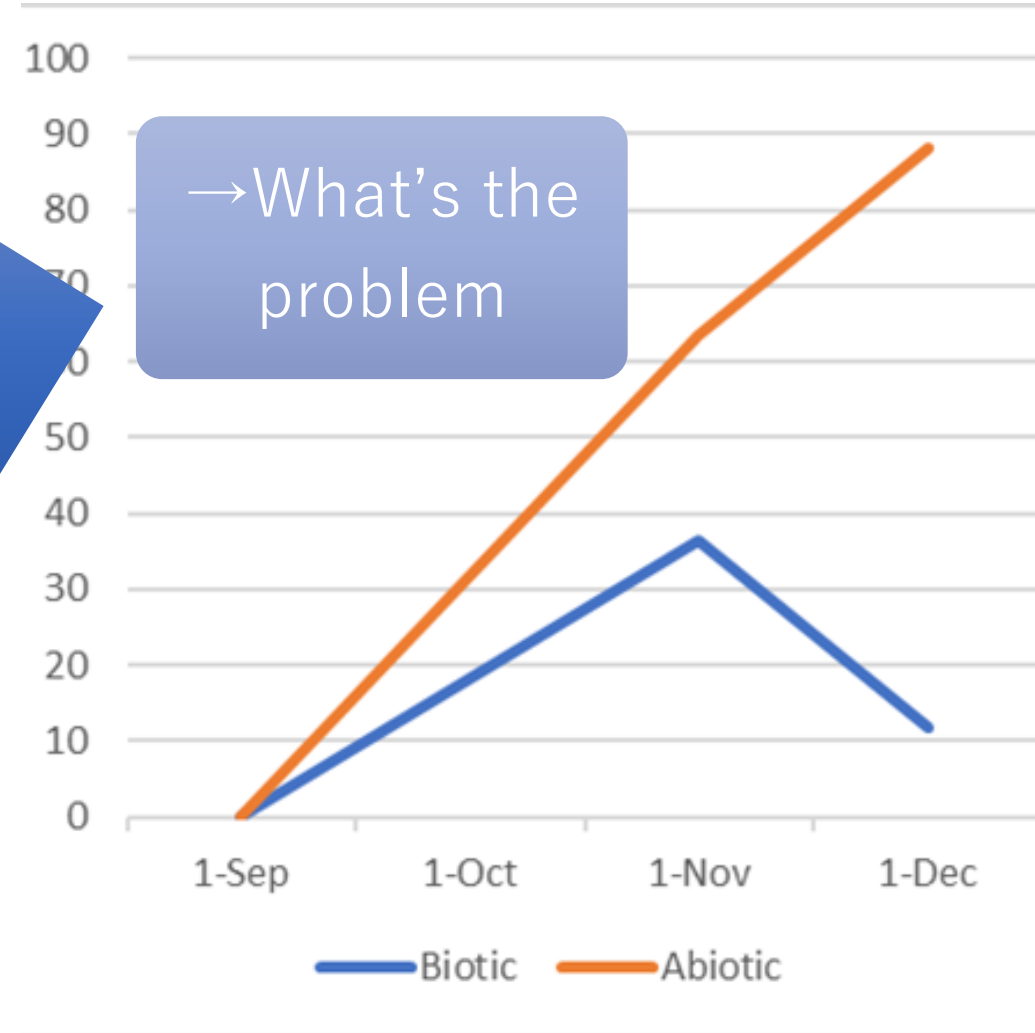
# From the experimental results

We can find out

There are a lot of  
**abiological substances**

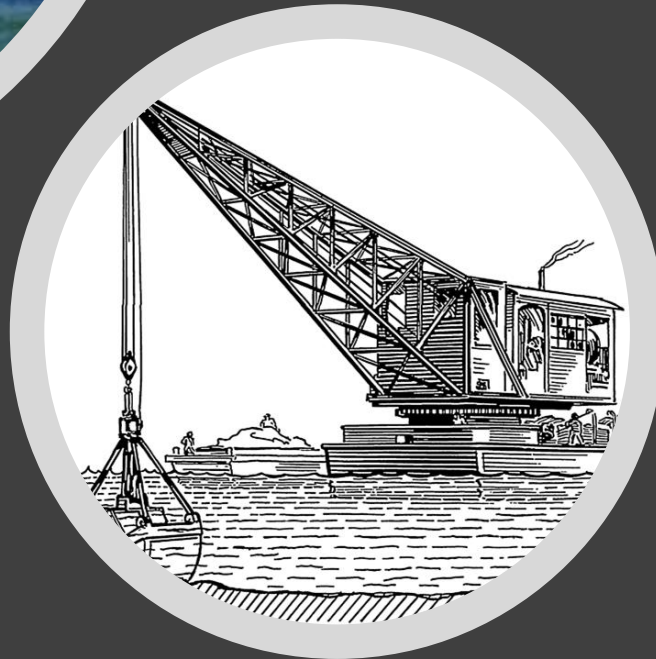


→What's the  
problem



**Abiological substances**

# **Lead to rapid loss of coral reefs**

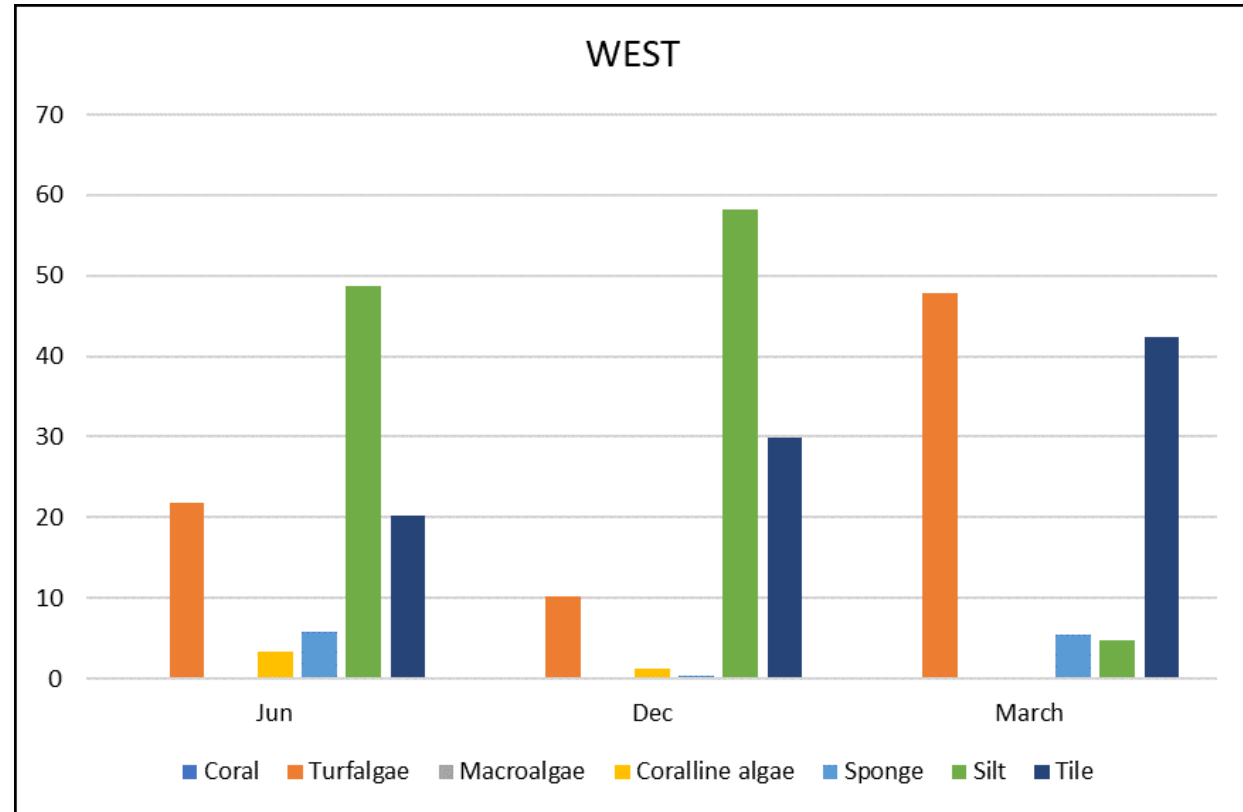
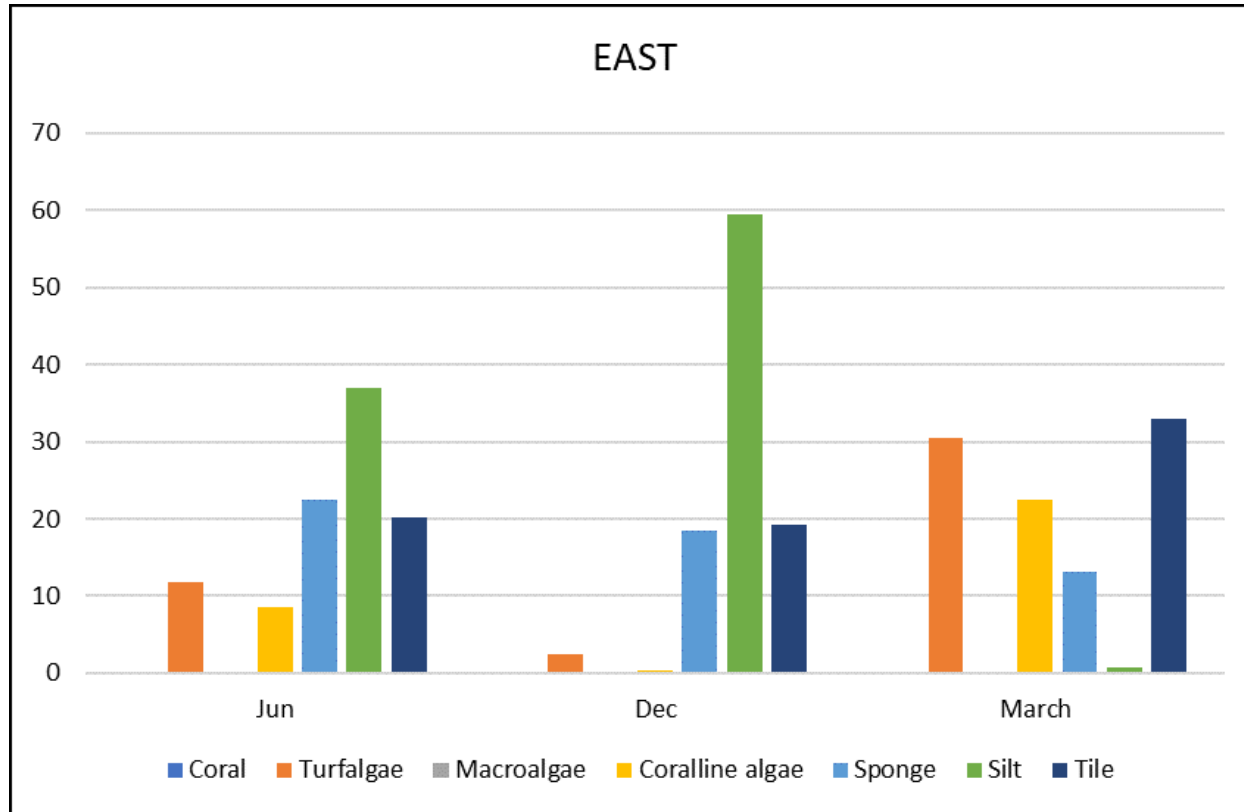


- **Due to land reclamation, dredging and sedimentation**
- **Over 60% of coral reefs lost since 1960's (Tun, 2012)**





# Categorize graph



A lot of silt and no coral → not suitable area

The point is

To stop decreasing

*Result*

- Area classification

*Efficiency*

- Know the effective area

*Restoration*

- To grow coral reef

# Connect to Future prospect

- Continue transplantation especially in seawall sites





In the back  
of the  
development

**TMSI contributes to the  
nature of Singapore**

**→ We want to get involved  
with contribution like TMSI's  
research in the future**

# Thank you NUS!

