

# Marine Ecosystem for Carbon Dioxide Reduction

By

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# Background

- Global warming is the world's problem. Every country and most people have felt bad effects of it.
- The earth's average surface temperature has increased  $0.74 \pm 0.18^{\circ}\text{C}$  along last hundred years (Wikipedia).



Human Activities



Gas Emission (  $\text{CO}_2$ ,  $\text{CH}_4$ ,  $\text{N}_2\text{O}$ ,  $\text{CF}_4$ ,  $\text{C}_2\text{F}_6$  )



Holding Earth Radiation



Greenhouse



Temperature Increase



Global Warming





**Picture 1. Global Carbon Emissions**

Source : World Bank Data, 2012

Some Actions that could reduce  
the problems:

1. Seminars/education

2. Plant Seeds

3. Preserve marine ecosystems

# 1. Conduct Seminars

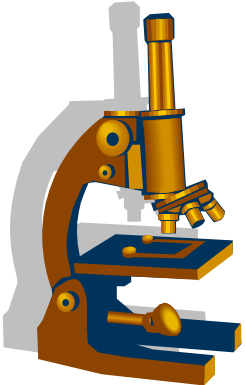
- To give Information to Young People on the importance of the Marine Ecosystem to be able to solve Global Warming Problems.
- To raise their spirits to protect the Environment

## 2. Plant Mangrove Seeds

- This is a true / faithful action after people know all the functions of the marine ecosystem.
- This allows young people to prove that they love their environment.

# Literature Review

Scientific data shows us the  
potential of ecosystems as carbon  
sinks





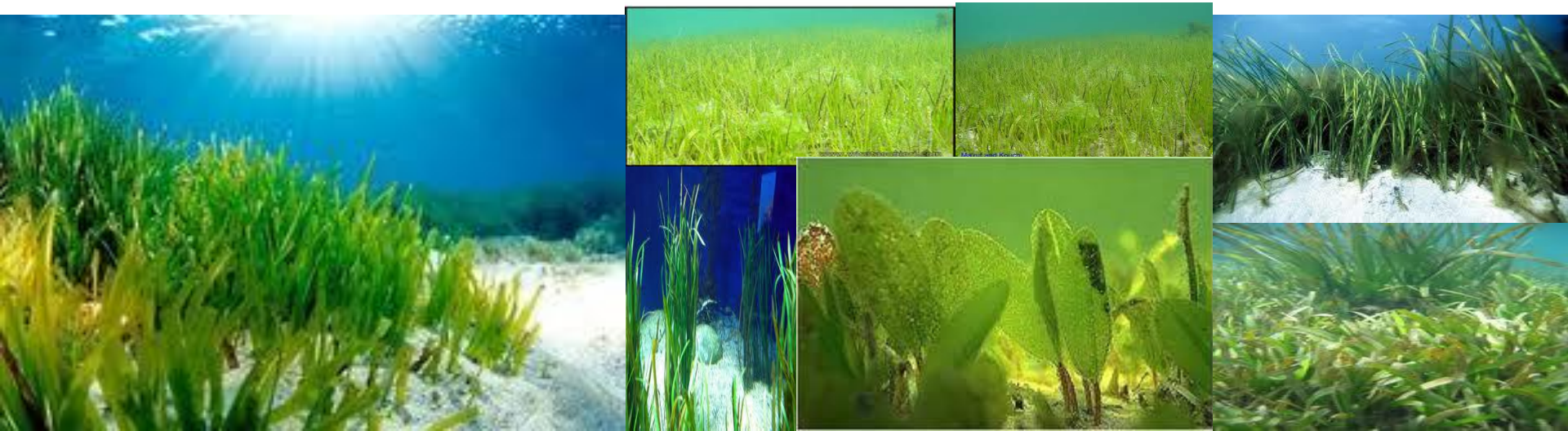
# Mangrove Ecosystem

An area of 0.17 million km<sup>2</sup> is able to absorb or conceal organic carbon about 1.39 tonnes C/ ha/ Year (UNEP, 2009 in Kwaroe, 2009).



# Seagrass Ecosystem

Spread over an area of 0.33 million km<sup>2</sup> are able to absorb or conceal organic carbon at about 0.83 tonnes C/ha/ Year (UNEP, 2009 in Kawaroe, 2009).



# Coral Ecosystem

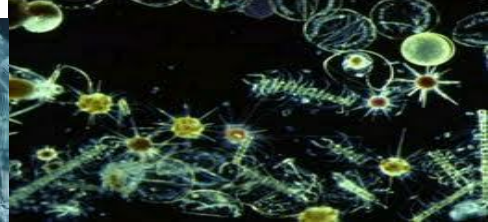
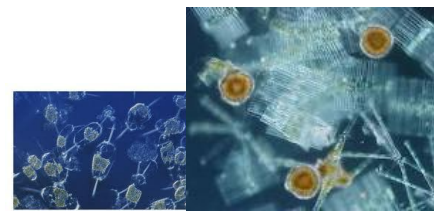
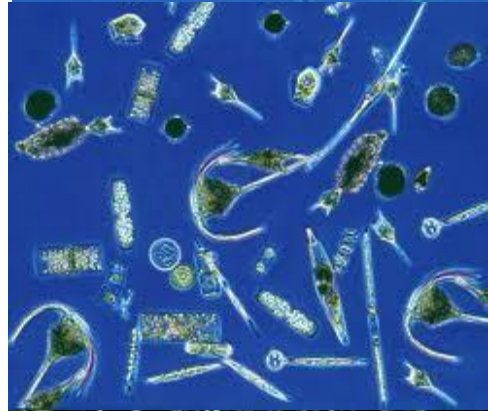
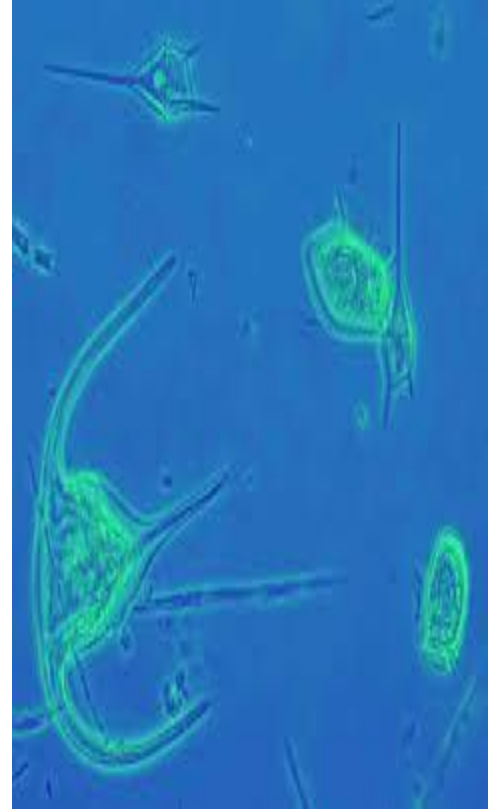
According Supriharyono (2007) in Latuconsina (2010), Calcification Process (to produce  $\text{CaCO}_3$ ) will increase depend on photosynthesis proces of *zooxanthellae*. In 61,000  $\text{km}^2$  coral ecosystem be able to absorb or conceal orgaic carbon about 73.5 million tonnes of  $\text{CO}_2$  per year.



# Phytoplanton

Phytoplanton are able to absorb 40-50 billion tonnes of Carbon per year.

It has important ability to save the balancing of geothermal and to controlling the expand and thickness of cloud when trough the ocean. Therefore it is known as controler Global Climate (Nontji, 2008 in Latuconsina, 2010).



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