Coral recruitment on artificial substrata at Panjang Island, Central Java

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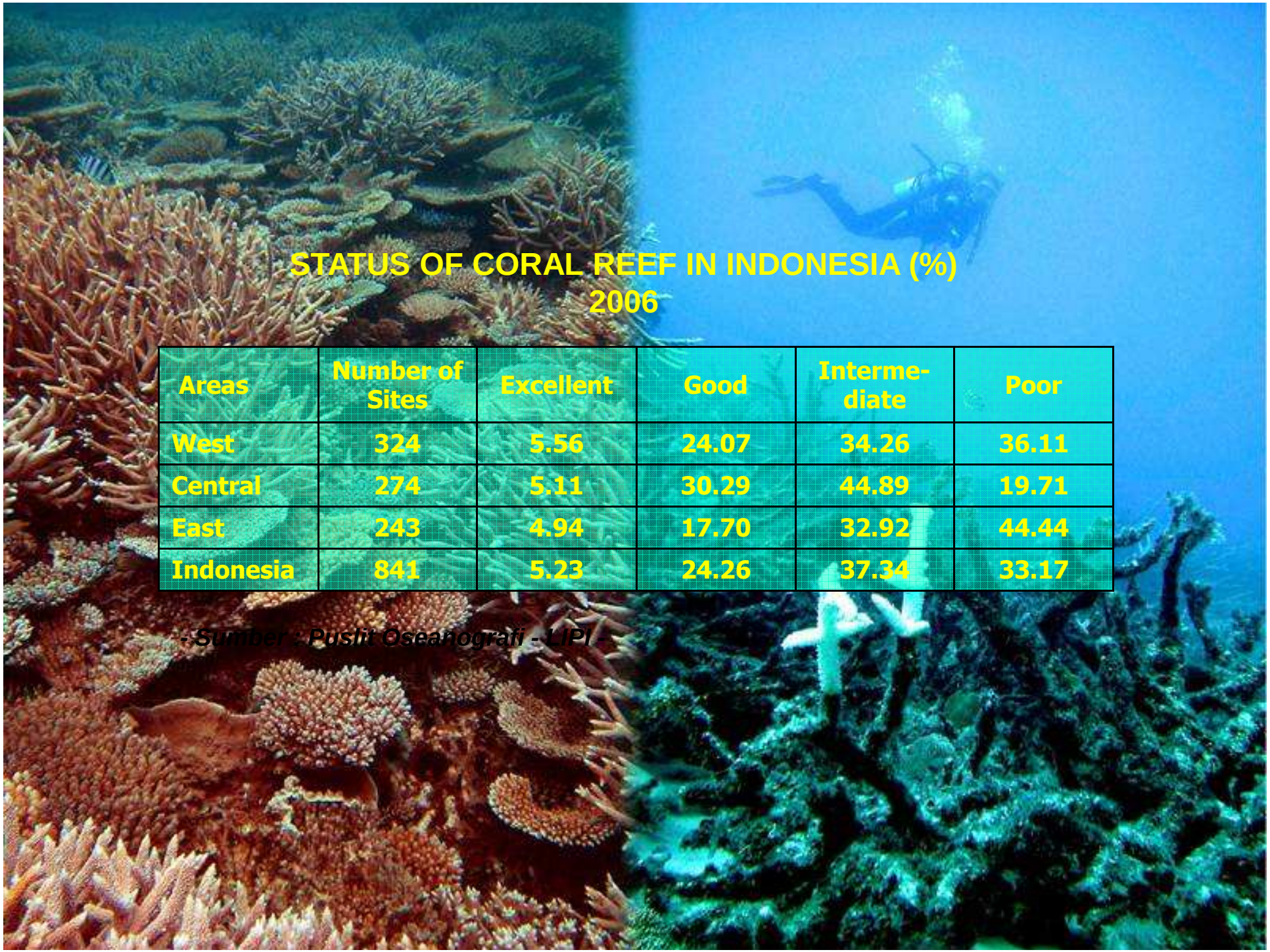
Coral reef of Indonesia are the most diverse in the world...



STATUS OF CORAL REEF IN INDONESIA (%)
2006

Areas	Number of Sites	Excellent	Good	Interme-diate	Poor
West	324	5.56	24.07	34.26	36.11
Central	274	5.11	30.29	44.89	19.71
East	243	4.94	17.70	32.92	44.44
Indonesia	841	5.23	24.26	37.34	33.17

- Sumber : Puslit Oseanografi - LIPI -

Many factors have been proposed that cause coral reef degradation

destructive fishing practices

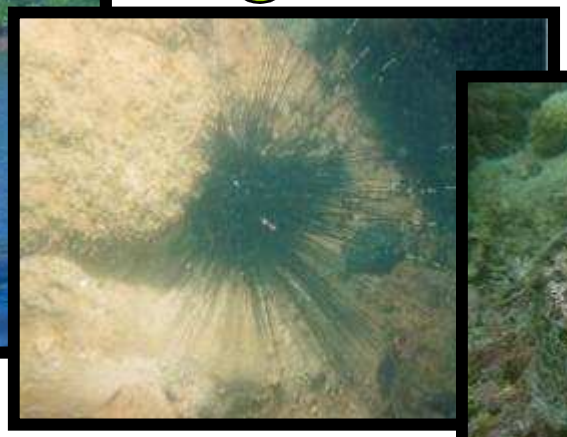
runoff & sedimentation

anthropogenic

Global climate change

1

2



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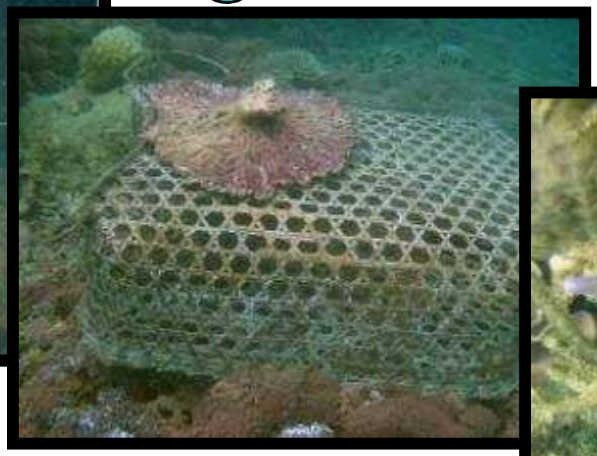

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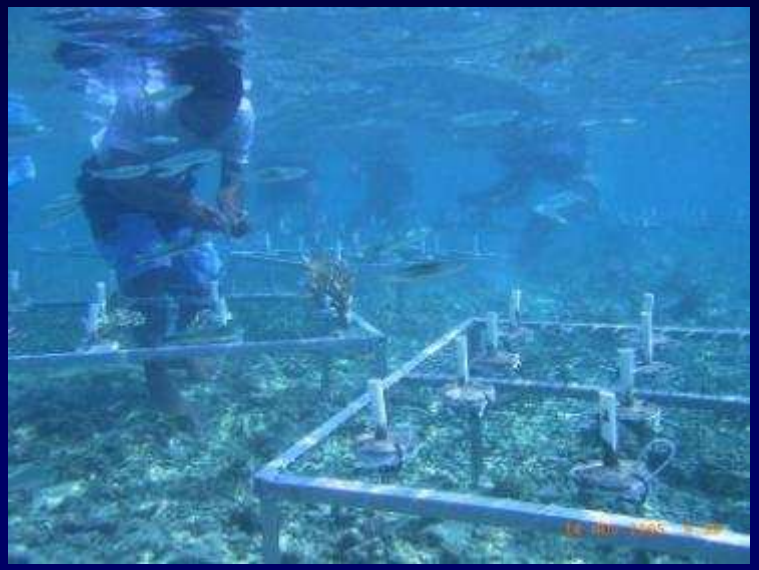
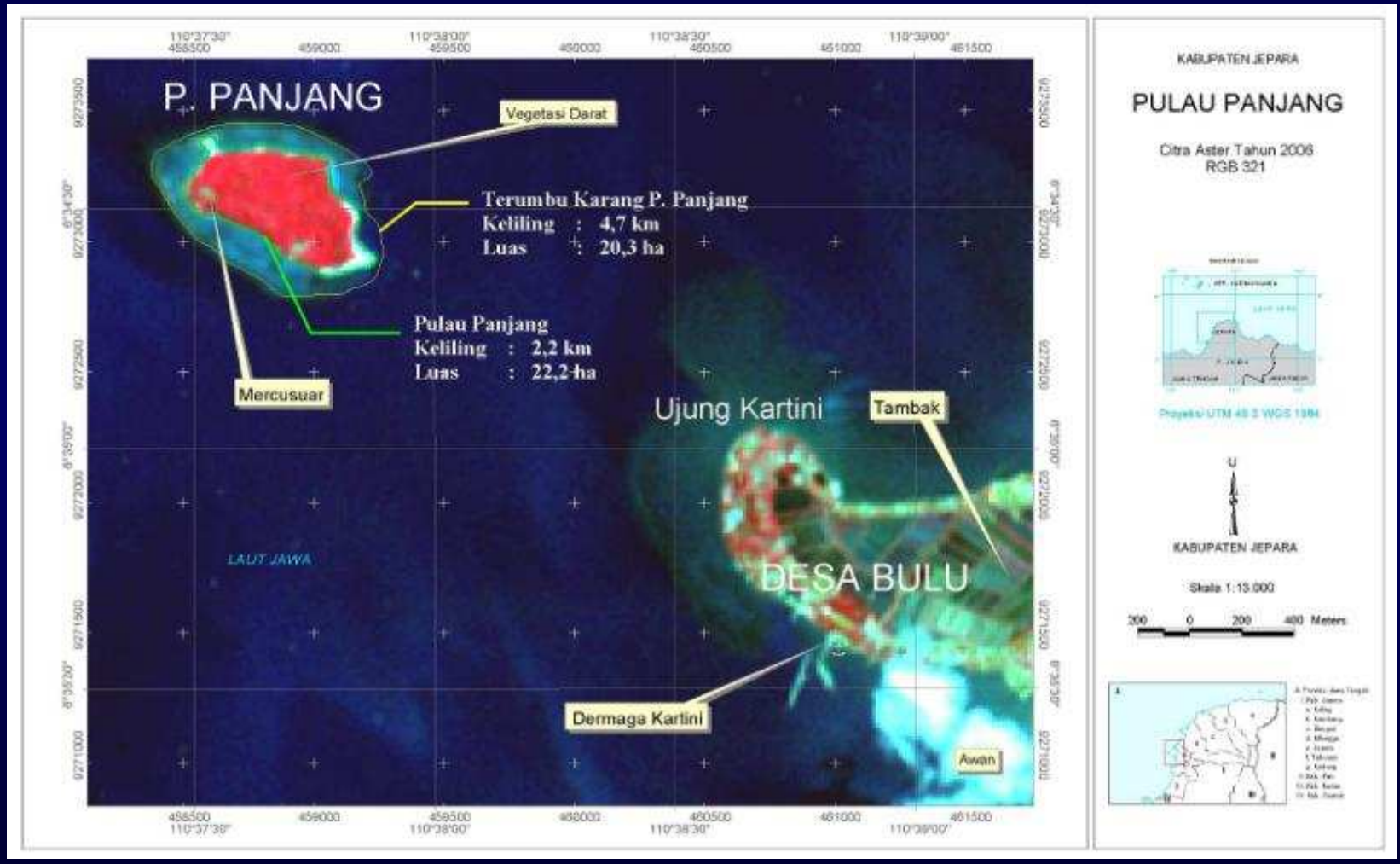
Coral restoration have been applied in many sites of Indonesian waters



Study site

Panjang Island, Central Java (6° 34’ 30” S; 110° 37’ 45” E)



Benthic composition

- Line intercept transect surveys were conducted to quantify benthic cover at Panjang Island, Central Java.
- Thirteen 50m transects were placed parallel to shore line in both 3m and 10m depths.
- Cover was recorded for 11 benthic categories: corals (hard & soft), algae, substrata (dead coral, sand, rubble, sea grass), and others.
- Hard corals were further divided into 7 categories: coral massive, coral sub-massive, coral encrusting, coral foliose, acropora branching, coral branching and solitary.

Hard corals were recorded in Panjang Island, Central Java

Coral massive

Acropora branching

Coral foliose

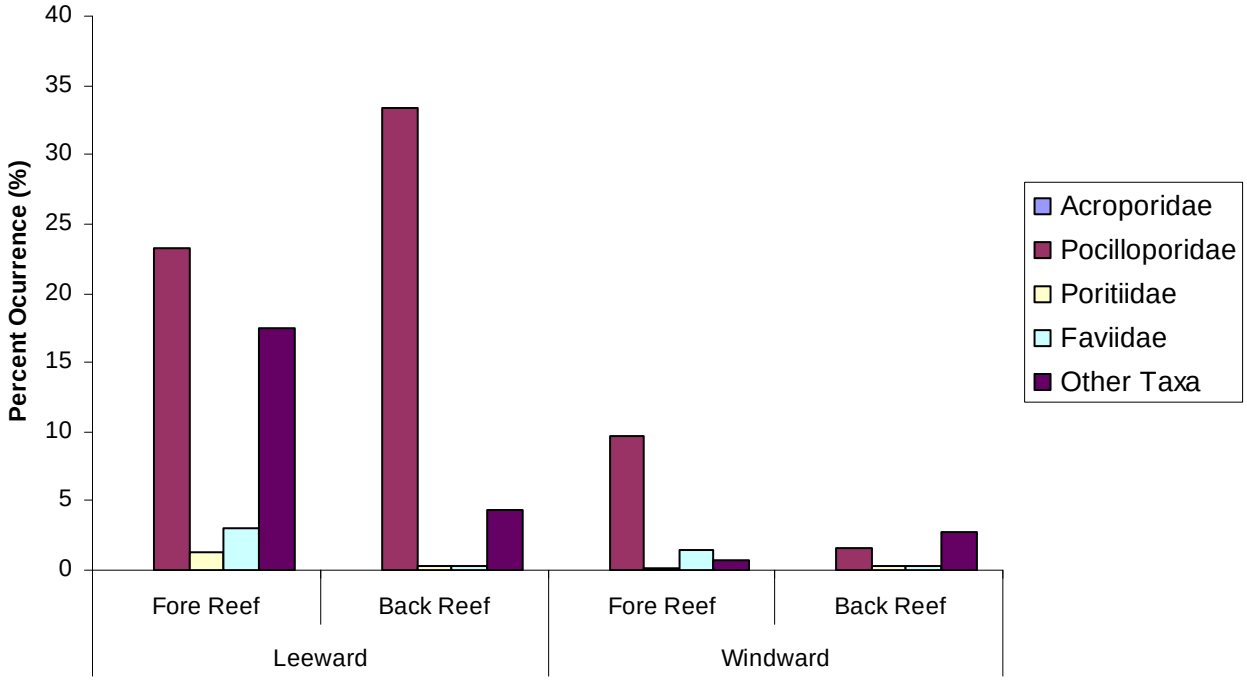
Coral branching

Materials and Methods

- ✓ Coral recruitment was performed in Panjang Island for 6 months (April-October 2006) by using natural stones plates and cement substrata.
- ✓ These plates and cement substrata were placed in back reef and fore reef zones of both leeward and windward the island.
- ✓ All plates and substrata were collected in October 2006 and then bleached in chlorine solution, dried and examined under dissecting microscope.
- ✓ The number of spat was counted and the spat were identified to family level.

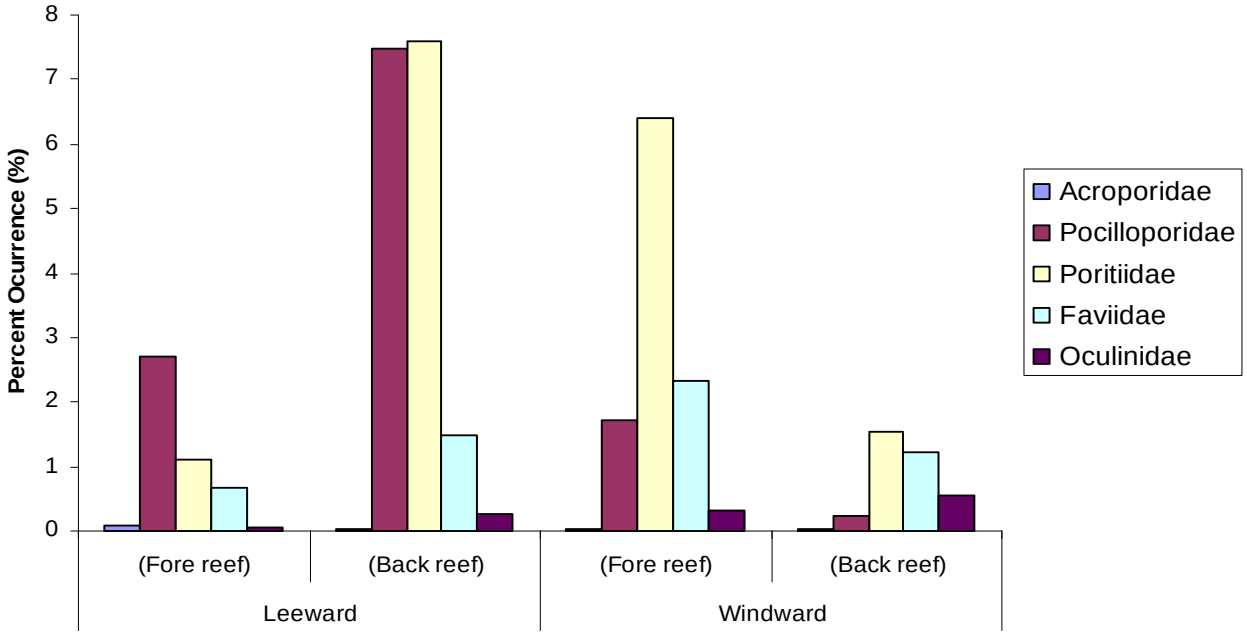
A. Natural stone plates

Pocilloporidae
was dominated on settlement plates.



B. Cement substrata

Acroporidae
was only found on cement substrata.

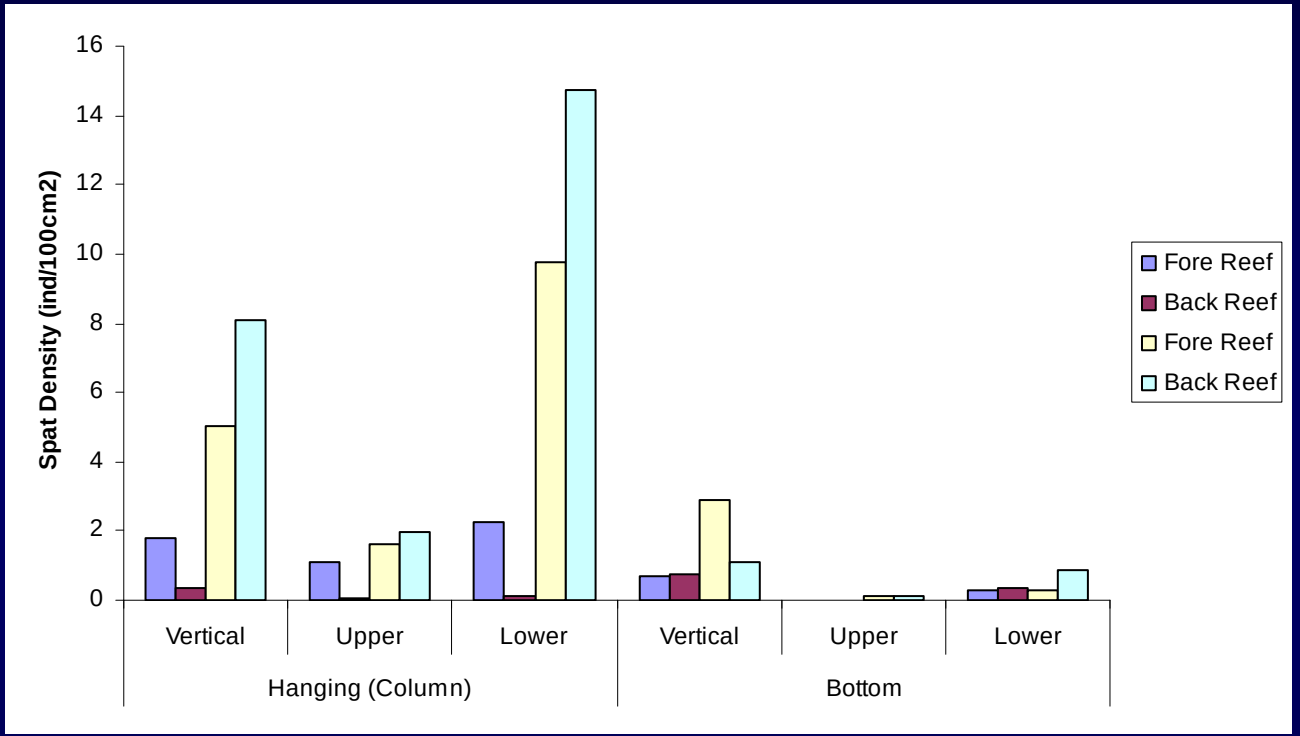


Faviidae

Poritiidae

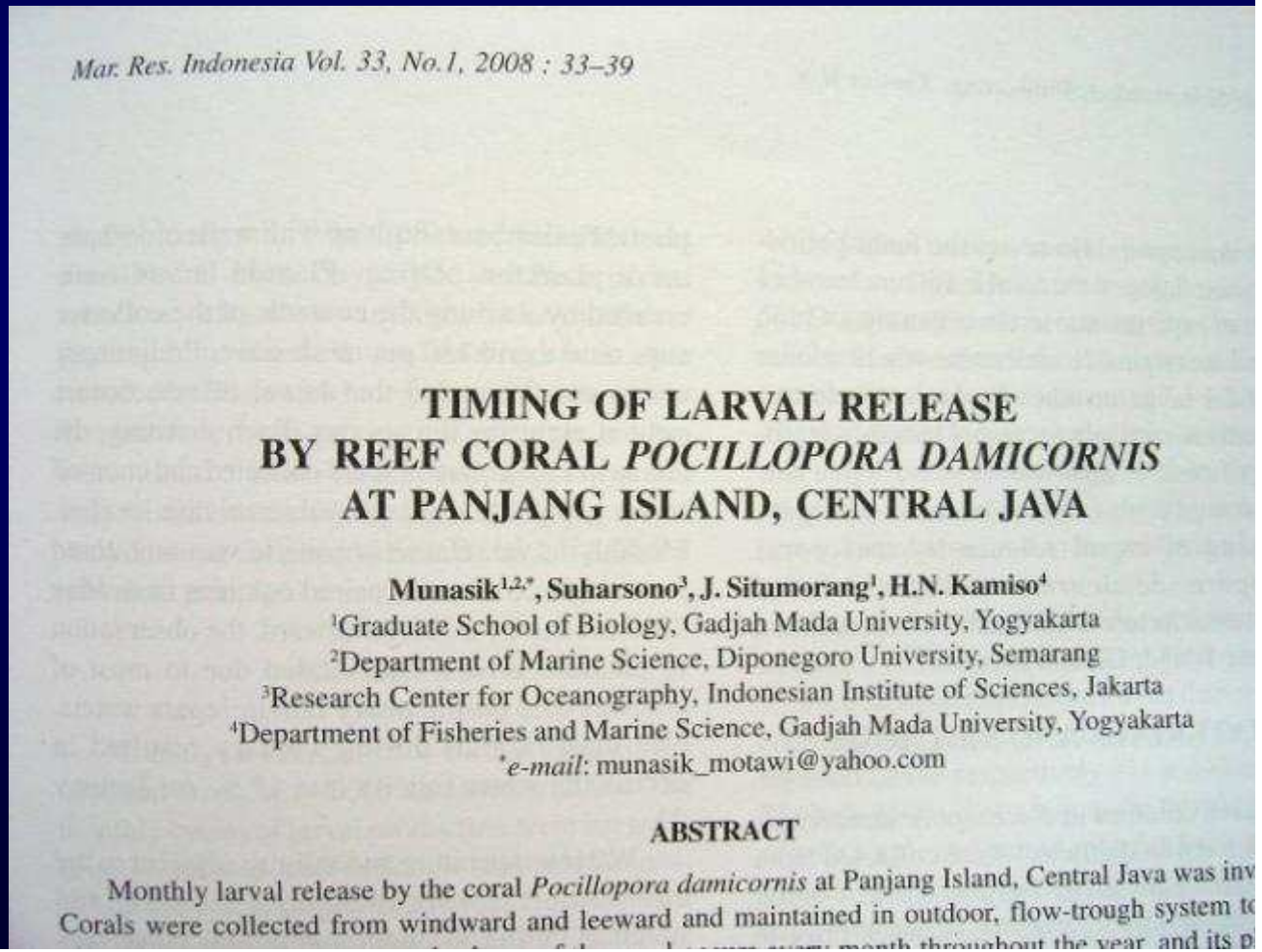
Pocilloporidae

Faviidae



Spat density of Pocilloporidae was higher on natural stone plates (14.7spat/100 cm^2) than that on cement substrata (7,3 spat/100 cm^2).

The higher spat densities of Pocilloporidae are compatible with intensity and timing reproduction of *Pocillopora damicornis* at Panjang Island.



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TIMING OF LARVAL RELEASE BY REEF CORAL *POCILLOPORA DAMICORNIS* AT PANJANG ISLAND, CENTRAL JAVA

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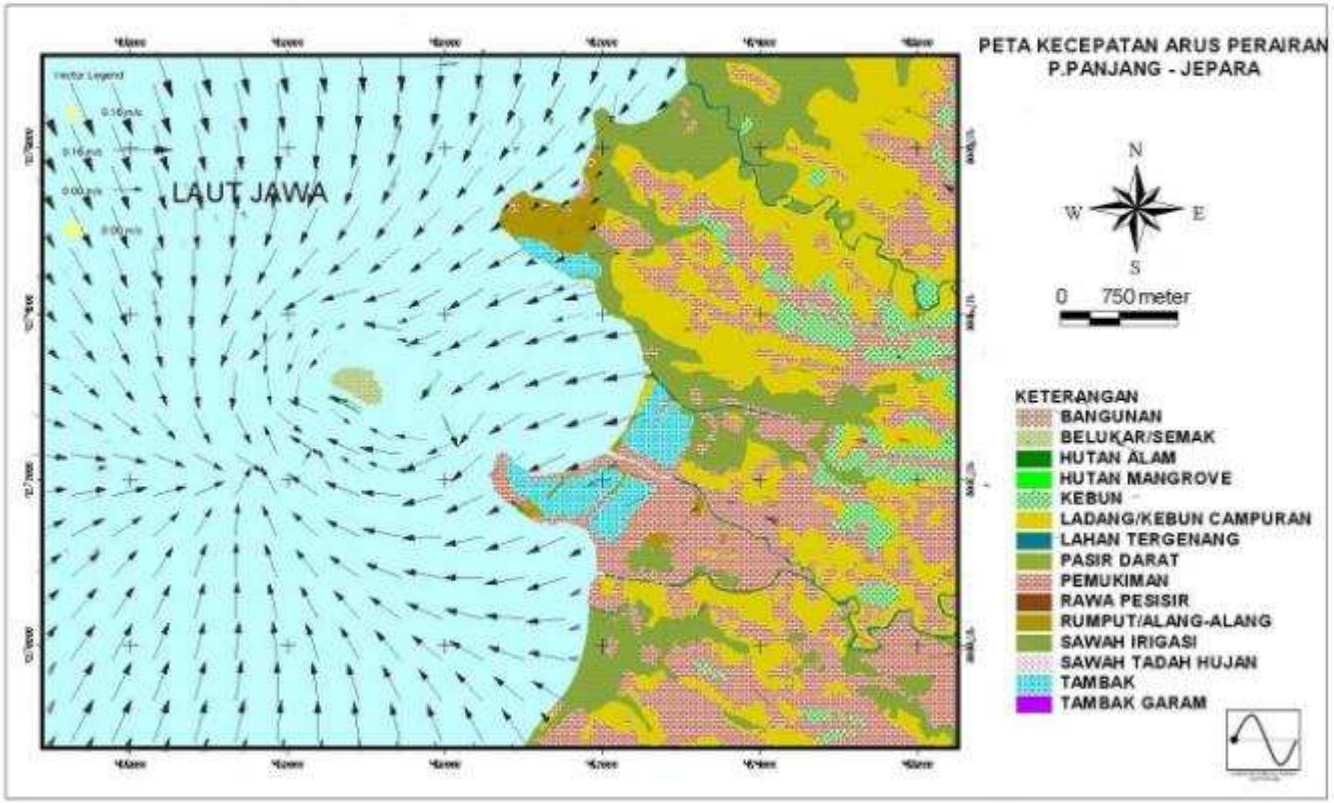
ABSTRACT

Monthly larval release by the coral *Pocillopora damicornis* at Panjang Island, Central Java was inv
Corals were collected from windward and leeward and maintained in outdoor, flow-trough system t

High larval production in leeward and which trapped by the turbulent eddies current caused high recruitment in the side.



Lower spat density of Acroporidae may correspond with mode and timing of reproduction *Acropora aspera at* Panjang Island.

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Reproduksi Karang *Acropora aspera* di Pulau Panjang, Jawa Tengah : I. Gametogenesis

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Abstrak

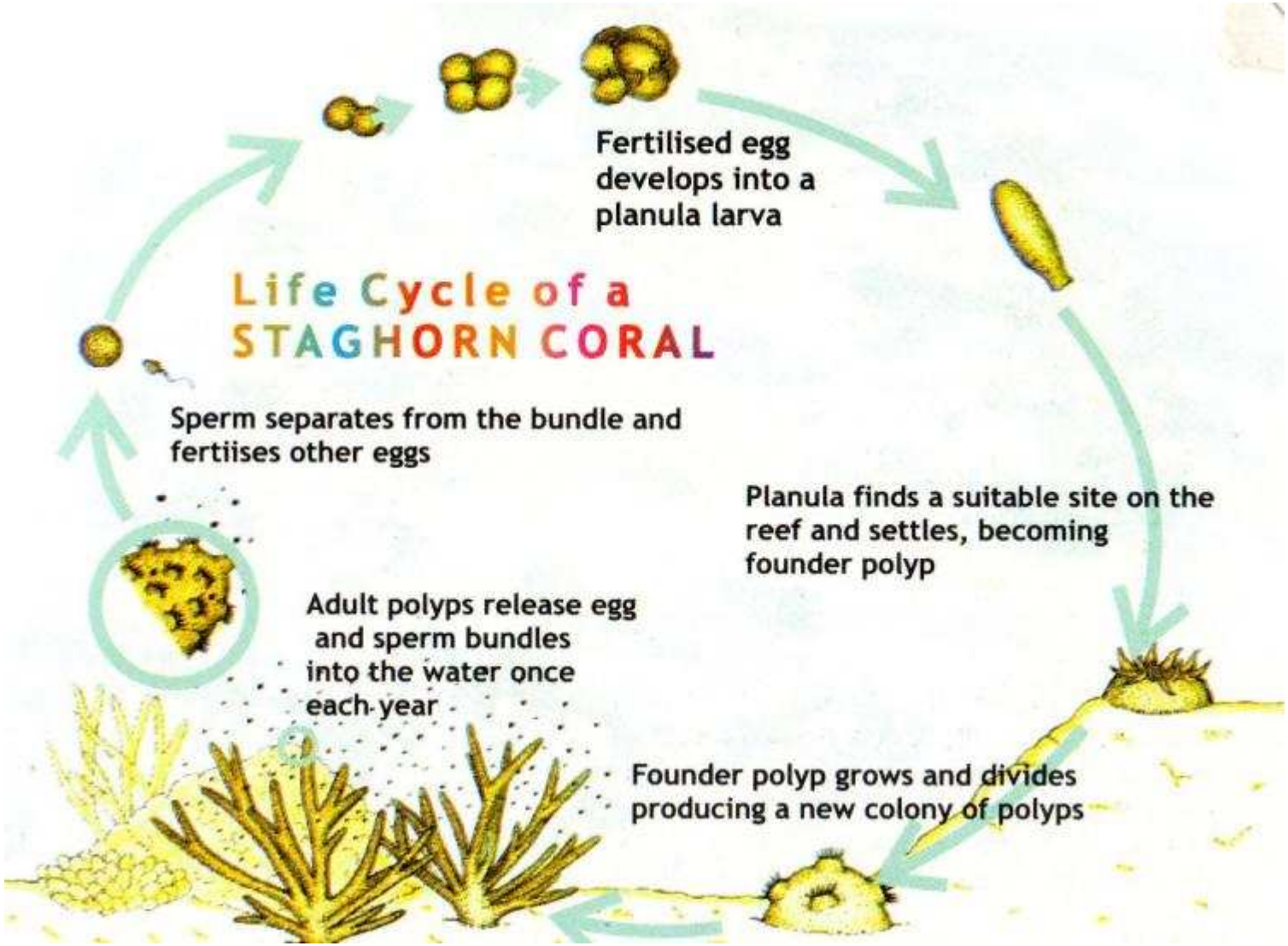
Studi gametogenesis karang Acropora aspera di dataran Pulau Panjang Jepara, Jawa Tengah (6° 34' 30" LS 110° 37' 45" BT) telah dilakukan pada 3 Oktober 2001 hingga 28 April 2002 melalui pengamatan preparat jaringan karang. Karang A. aspera termasuk kelompok hermaphrodhite, memiliki ovarium dan testis dalam satu polip. Oogenesis berlangsung lebih dari satu siklus dalam setahun. Oosit dengan kematangan bervariasi ditemukan pada bulan Oktober 2001, serta dari Januari 2002 hingga April 2002. Sebaliknya pada Nopember-Desember 2001 dan Mei 2002 tidak ditemukan oosit dalam polip karang. Spermatogenesis berlangsung Januari-April 2002 dan lebih lama dibanding oogenesis, spermatozoa yang siap untuk dilepaskan ditemukan pada April 2002. Diperkirakan pemijahan (spawning) terjadi dua kali dalam setahun yaitu di bulan April dan Oktober.

Kata kunci: *reproduksi karang, gametogenesis, Acropora aspera, P. Panjang, Jawa Tengah*

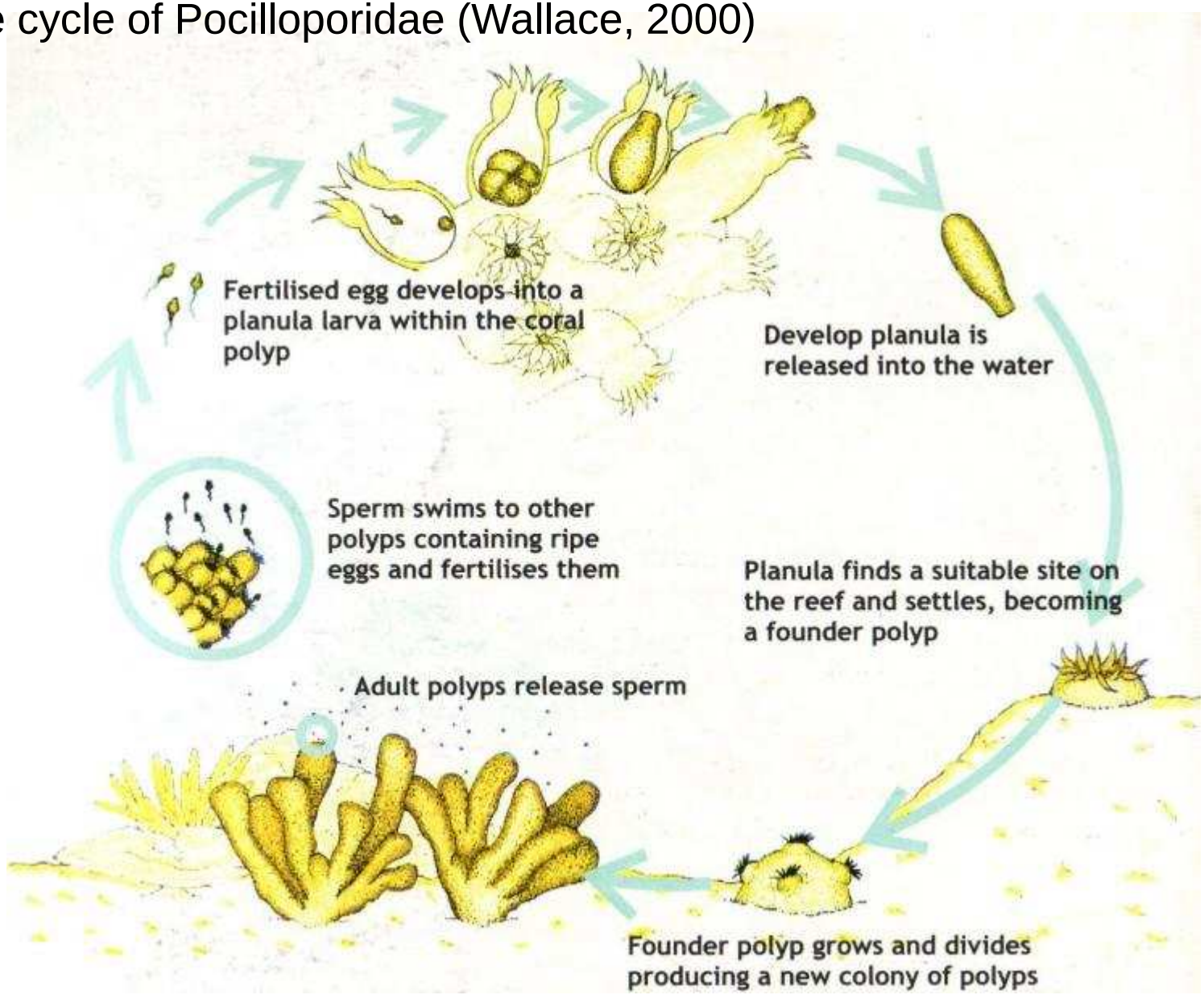
Abstract

Gametogenesis of scleractinian coral Acropora aspera at reef flat of Panjang Island, Central Java –Java Sea (6° 34' 30" S 110° 37' 45" E) was studied by histological observations. Coral A. aspera is a hermaphrodite, with ovaries and testes developing on separate pairs mesenteries. Their oocytes were visible in October 2001 and January-April 2002 through histological sections, while spermatogenesis occurred from January to April 2002. During this observation period, spermatozoa first appeared in March 2002 and then

Life cycle of Acroporidae (Wallace, 2000)



Life cycle of Pocilloporidae (Wallace, 2000)



Conclusion

- Taxonomic composition of recruits depend on type of substrata and position of plates/substrata while spat density spatially varied between reef zone and reef exposure.
- Recruitment pattern of coral in Panjang Island are compatible with mode and timing of coral reproduction.


Thank You....