**Supplementary Materials**

**“Coral recruitment on artificial patch reefs deployed in the marginal reefs: effect of multilevel substrate on density of coral recruit” by Munasik et al.**

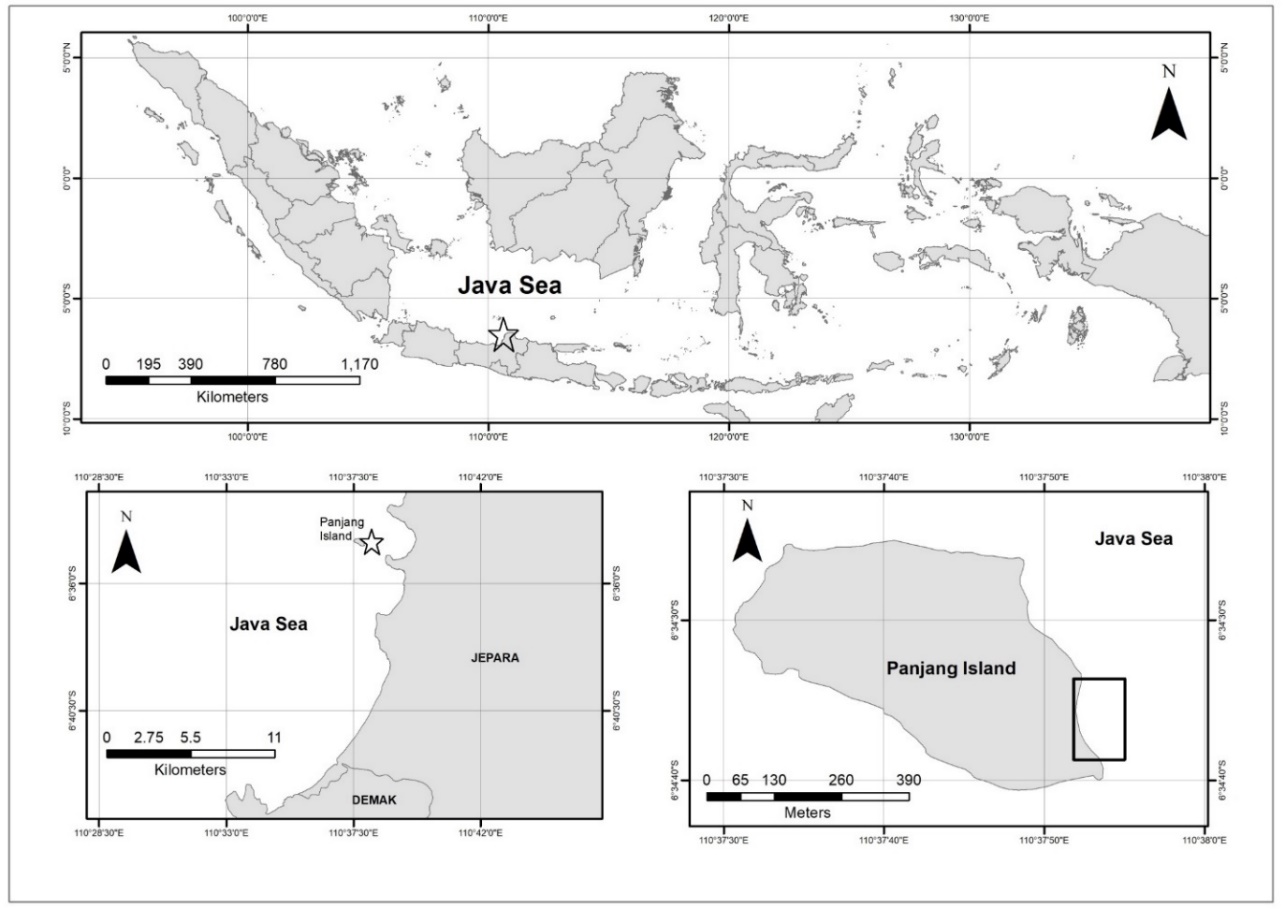
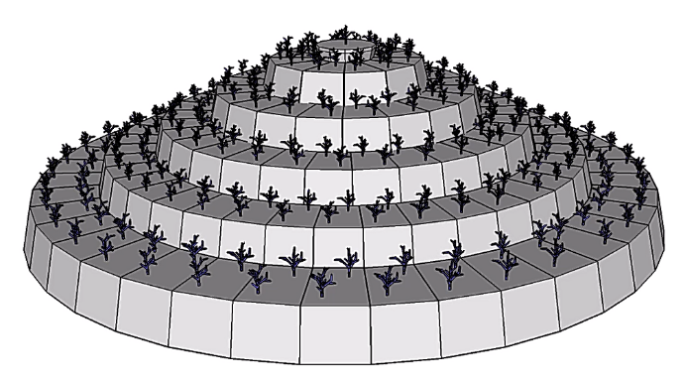
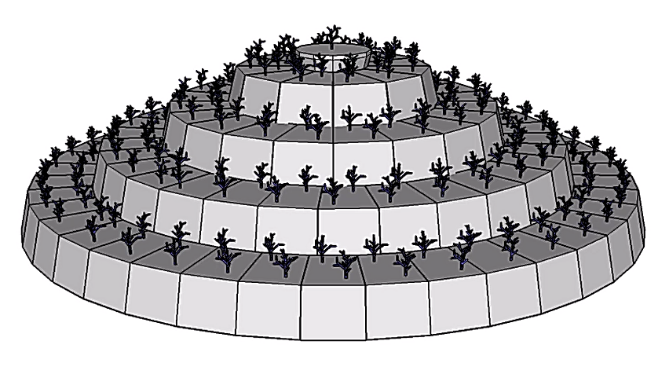


Figure 1. Study site of coral recruitment on multilevel Artificial Patch Reef at Panjang Island, Central Java (Java Sea)



b

a

Figure 2. Multilevel substrate of Artificial Patch Reef (APR) deployed in Panjang Island, Central Java made by concrete block which combined in coral transplantation for coral recruitment study (a. APR#1 and #2; b. APR#4, APR#5, APR#7 and APR#12; Munasik et al., 2020)

Table 1. Density of coral recruits (recruits/m2) during the biweekly observation of short-term recruitment on the multilevel substrate of APR#4 and APR#12, January-April 2019

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Genera** | **18 Jan** | **01 Feb** | **21 Feb** | **08 Mar** | **24 Mar** | **11 Apr** |
| **Oulastrea** | 18.3 ± 2.7 | 19.5 ± 2.1 | 19.5 ± 2.1 | 20.6 ± 1.9 | 21.3 ± 2.5 | 22.1 ± 3.0 |
| **Porites** | 5.1 ± 0.6 | 5.2 ± 1.0 | 5.3 ± 0.8 | 5.8 ± 1.1 | 6.4 ± 0.7 | 7.3 ± 0.5 |
| **Goniastrea** | 1.2 ± 0.6 | 1.4 ± 0.7 | 1.4 ± 0.7 | 1.8 ± 0.5 | 2.1 ± 0.7 | 2.2 ± 0.7 |
| **Pocillopora** | 1.2 ± 0.3 | 1.3 ± 0.1 | 1.4 ± 0.2 | 1.7 ± 0.1 | 1.8 ± 0.1 | 2.0 ± 0.2 |

Note: All results are expressed as mean ± SD.

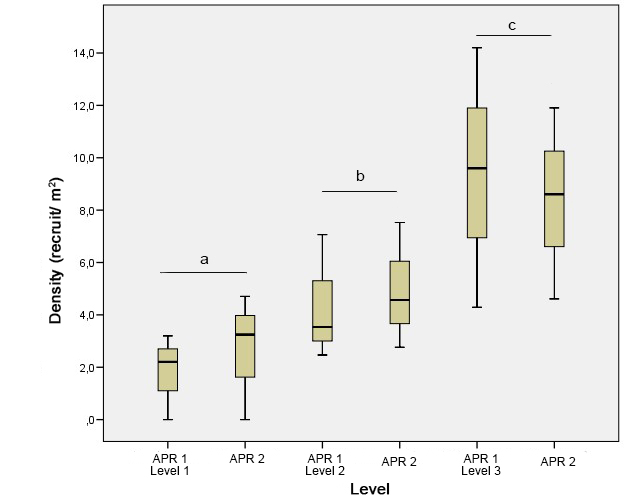


Figure 3. Comparison of coral recruit density in different level of APR for observation period 2017-2019, APR#1 deployed on June 2015and APR#2 deployed on September 2015 (only level 1, 2 and 3 were analyzed cause of coral juveniles on level 4 and 5 of APR#2 were absent)

Figure 4. Average Density (±SD) of coral juveniles in different level of APR for observation period 2017-2019

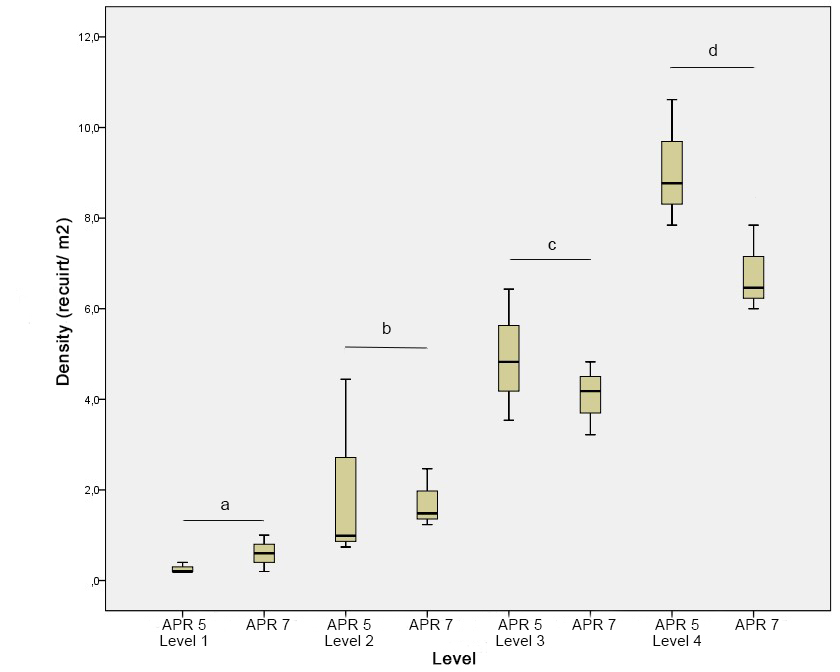


Figure 5. Comparison of coral recruit density in different level of APR for observation period 2018-2019 (APR#5 and APR#7 deployed on December 2016)

Figure 6. Density of coral juveniles (recruits/m2) in different of generic composition on multilevel substrate of APR#1 deployed on June 2015

Figure 7. Density of coral juveniles (recruits/m2) in different of generic composition on multilevel of APR#2 deployed on September 2015

|  |  |  |
| --- | --- | --- |
|  |  |  |

Figure 8. Coral recruits were observed on the surface of multilevel substrate of APR (a. Dominant coral recruits of *Oulastrea crispata*, b. The second dominant coral *Porites cylindrica*, and c. Pocillopora competes for space with sponges)

Figure 9. Size frequency distribution of *Oulastrea* *crispata* on different level of APR#1 observed in 2019