

## ***In situ* settlement rates and early survivorship of hard corals: a good year for a Caribbean reef**

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*Marine Ecology Progress Series 539: 139–151 (2015)*

### **Supplement.**

**Table S1:** Dates of pre-conditioning, installation and examination of the tiles in each reef per season and period. Numbers in [ ] denote the number of tiles in each examination which decreased with time by being broken from waves or swell.

| <b>Season</b> | <b>Period</b> | <b>Reef</b> | <b>Pre-conditioning</b> | <b>Installation</b> | <b>E1</b>           | <b>E2</b>           | <b>E3</b>           | <b>E4</b>           |
|---------------|---------------|-------------|-------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| S1            | P1            | GR          | 26 Jun 2007             | 1 Aug 2007          | 26-28 Aug 2007 [7]  | 7-9 Oct 2007 [6]    | 11-12 Nov 2007 [5]  | 19-20 Dec 2007 [5]  |
|               |               | PIR         | 26 Jun 2007             | 1 Aug 2007          | 25-26 Aug 2007 [13] | 5-7 Oct 2007 [13]   | 9-11 Nov 2007 [13]  | 17-19 Dec 2007 [12] |
|               |               | DMS         | 25 Jun 2007             | 1 Aug 2007          | 27-30 Aug 2007 [13] | 1-3 Oct 2007 [12]   | 12-15 Nov 2007 [9]  | 15-16 Dec 2007 [7]  |
|               |               | AGU         | 25 Jun 2007             | 1 Aug 2007          | 27-30 Aug 2007 [15] | 1-3 Oct 2007 [15]   | 14-15 Nov 2007 [10] | 16-17 Dec 2007 [6]  |
|               | P2            | GR          | 1 Aug                   | 30 Aug 2007         | 7-9 Oct 2007 [15]   | 11-12 Nov 2007 [14] | 19-20 Dec 2007 [13] | 29-30 Jan 2008 [7]  |
|               |               | PIR         | 1 Aug                   | 30 Aug 2007         | 5-7 Oct 2007 [15]   | 9-11 Nov 2007 [15]  | 17-19 Dec 2007 [13] | 28-29 Jan 2008 [12] |
|               |               | DMS         | 2 Aug                   | 27 Aug 2007         | 1-3 Oct 2007 [15]   | 12-15 Nov 2007 [12] | 15-16 Dec 2007 [8]  | 30-31 Jan 2008 [8]  |
|               |               | AGU         | 2 Aug                   | 27 Aug 2007         | 1-3 Oct 2007 [15]   | 14-15 Nov 2007 [12] | 16-17 Dec 2007 [10] | 30-31 Jan 2008 [9]  |
| S2            | P3            | GR          | 19 Dec 2007             | 1 Feb 2008          | 3-4 Mar 2008 [14]   | 3-4 Apr 2008 [9]    | 7-8 May 2008 [7]    | 15-16 Jun 2008 [7]  |
|               |               | PIR         | 19 Dec 2007             | 1 Feb 2008          | 5-6 Mar 2008 [14]   | 5-6 Apr 2008 [14]   | 5-6 May 2008 [13]   | 13-14 Jun 2008 [13] |
|               |               | DMS         | 15 Dec 2007             | 2 Feb 2008          | 3-4 Mar 2008 [13]   | 1-2 Apr 2008 [13]   | 10-11 May 2008 [13] | 10-11 Jun 2008 [11] |
|               |               | AGU         | 15 Dec 2007             | 2 Feb 2008          | 2-3 Mar 2008 [14]   | 2-3 Apr 2008 [14]   | 8-10 May 2008 [11]  | 9-11 Jun 2008 [11]  |
|               | P4            | GR          | 1 Feb 2008              | 4 Mar 2008          | 3-4 Apr 2008 [12]   | 7-8 May 2008 [9]    | 15-16 Jun 2008 [9]  | 19-20 Jul 2008 [7]  |
|               |               | PIR         | 1 Feb 2008              | 5 Mar 2008          | 5-6 Apr 2008 [13]   | 5-6 May 2008 [13]   | 13-14 Jun 2008 [12] | 21-22 Jul 2008 [7]  |
|               |               | DMS         | 2 Feb 2008              | 3 Mar 2008          | 1-2 Apr 2008 [13]   | 10-11 May 2008 [13] | 10-11 Jun 2008 [13] | 27-28 Jul 2008 [13] |
|               |               | AGU         | 2 Feb 2008              | 3 Mar 2008          | 2-3 Apr 2008 [15]   | 8-10 May 2008 [15]  | 9-11 Jun 2008 [14]  | 24-26 Jul 2008 [13] |

**Table S2:** Pairwise test for differences in settlement rates between reefs at examination 1 using an analysis of variance based on permutations with the normalized Euclidean distance resemblance matrix.

| <b>Groups</b> | <b>t</b> | <b>p-value</b> | <b>Unique perms</b> |
|---------------|----------|----------------|---------------------|
| GR, PIR       | 4.655    | <b>0.001</b>   | 9836                |
| GR, DMS       | 7.366    | <b>0.001</b>   | 9849                |
| GR, AGU       | 4.195    | <b>0.001</b>   | 9852                |
| PIR, DMS      | 4.281    | <b>0.001</b>   | 9838                |
| PIR, AGU      | 1.437    | 0.151          | 9845                |
| DMS, AGU      | 2.220    | <b>0.029</b>   | 9852                |

Groups: groups of reefs compared. t: t value. p-value: p values based on permutation methods. Unique perms: number of permutations performed. Significant p-values in bold.

**Table S3:** Pairwise test for differences in settlement rates between seasons in each reef at examination 1 using an analysis of variance based on permutations with the normalized Euclidean distance resemblance matrix. p-values were obtained using 9,999 Monte Carlo samples from the asymptotic permutation distribution.

| <b>Groups</b> | <b>t</b> | <b>p-value</b>   | <b>Unique perms</b> |
|---------------|----------|------------------|---------------------|
| GR S1:S2      | 12.06    | <b>&lt;0.001</b> | 6                   |
| PIR S1:S2     | 2.00     | 0.179            | 6                   |
| AGU S1:S2     | 1.53     | 0.263            | 6                   |
| DMS S1:S2     | 1.82     | 0.209            | 6                   |

**Table S4:** Kaplan-Meier model with the factors Reef and Season. Significant p-values in bold.

| <b>Factor</b> | <b>Df</b> | <b>Deviance</b> | <b>p-value</b> |
|---------------|-----------|-----------------|----------------|
| Reef          | 3         | 64.02           | <b>0.000</b>   |
| Season        | 1         | 0.01            | 0.926          |
| Reef:Season   | 3         | 12.92           | <b>0.005</b>   |

**Table S5:** Average cover per coral specie and of the different categories on each reef (mean  $\pm$  SD).

| Specie                           | GR                | PIR              | AGU               | DMS               |
|----------------------------------|-------------------|------------------|-------------------|-------------------|
| <b>Brooders</b>                  |                   |                  |                   |                   |
| <i>Agaricia agaricites</i>       | 0.23 $\pm$ 0.46   | 0.95 $\pm$ 2.15  | 0.03 $\pm$ 0.10   |                   |
| <i>Agaricia fragilis</i>         |                   | 0.04 $\pm$ 0.20  | 0.03 $\pm$ 0.09   | 0.02 $\pm$ 0.08   |
| <i>Agaricia humilis</i>          |                   | 0.02 $\pm$ 0.10  | 0.38 $\pm$ 0.44   | 0.95 $\pm$ 1.51   |
| <i>Agaricia lamarki</i>          |                   |                  |                   | 0.02 $\pm$ 0.01   |
| <i>Eusmilia fastigiata</i>       |                   |                  | 0.14 $\pm$ 0.67   |                   |
| <i>Favia fragum</i>              |                   |                  | 0.02 $\pm$ 0.10   |                   |
| <i>Isophyllastrea rigida</i>     |                   |                  | 0.01 $\pm$ 0.05   |                   |
| <i>Madracis mirabilis</i>        | 0.01 $\pm$ 0.05   |                  | 2.21 $\pm$ 3.95   | 1.54 $\pm$ 4.70   |
| <i>Meandrina meandrites</i>      |                   |                  | 0.03 $\pm$ 0.10   |                   |
| <i>Mycetophyllia aliciae</i>     |                   |                  | 0.05 $\pm$ 0.25   |                   |
| <i>Porites astreoides</i>        | 0.13 $\pm$ 0.50   | 0.21 $\pm$ 0.41  | 0.43 $\pm$ 0.66   | 0.50 $\pm$ 0.98   |
| <i>Porites branneri</i>          | 0.09 $\pm$ 0.30   | 0.05 $\pm$ 0.20  | 0.02 $\pm$ 0.08   |                   |
| <i>Porites porites</i>           | 0.08 $\pm$ 0.28   | 0.12 $\pm$ 0.60  | 0.63 $\pm$ 1.52   | 0.20 $\pm$ 0.48   |
| <b>Broadcast spawners</b>        |                   |                  |                   |                   |
| <i>Acropora palmata</i>          | 0.44 $\pm$ 1.53   |                  | 3.92 $\pm$ 18.27  |                   |
| <i>Colpophyllia natans</i>       |                   | 1.05 $\pm$ 3.78  | 8.94 $\pm$ 13.92  | 1.81 $\pm$ 3.31   |
| <i>Diploria labyrinthiformis</i> | 0.24 $\pm$ 1.20   | 0.32 $\pm$ 1.41  | 0.13 $\pm$ 0.32   |                   |
| <i>Pseudodiploria clivosa</i>    | 0.07 $\pm$ 0.24   | 0.92 $\pm$ 3.01  |                   |                   |
| <i>Pseudodiploria strigosa</i>   | 2.88 $\pm$ 5.37   | 3.66 $\pm$ 6.93  |                   | 0.08 $\pm$ 0.40   |
| <i>Montastraea cavernosa</i>     |                   |                  | 0.12 $\pm$ 0.60   |                   |
| <i>Orbicella annularis</i>       | 4.4 $\pm$ 10.62   | 6.08 $\pm$ 7.93  | 34.89 $\pm$ 29.11 | 44.43 $\pm$ 31.37 |
| <i>Orbicella faveolata</i>       |                   |                  | 4.01 $\pm$ 14.40  | 10.49 $\pm$ 27.26 |
| <i>Orbicella franksi</i>         |                   |                  | 0.06 $\pm$ 0.25   |                   |
| <i>Siderastrea siderea</i>       | 0.04 $\pm$ 0.20   | 0.36 $\pm$ 0.96  | 0.31 $\pm$ 0.85   |                   |
| Hard coral cover                 | 8.61 $\pm$ 11.88  | 13.78 $\pm$ 9.07 | 56.37 $\pm$ 27.02 | 60.04 $\pm$ 26.87 |
| Number of hard coral species     | 11                | 12               | 20                | 10                |
| Soft coral cover                 | 30.89 $\pm$ 28.52 | 0.18 $\pm$ 0.52  | 0.36 $\pm$ 0.84   | 0.34 $\pm$ 0.82   |
| Algae cover                      | 0.36 $\pm$ 1.34   | 1.2 $\pm$ 5.41   | 28.08 $\pm$ 28.06 | 23.57 $\pm$ 25.95 |

**Table S6:** Tukey multiple comparison test of coral cover between reefs.

| Reefs   | Std. Error | z value | p-value      |
|---------|------------|---------|--------------|
| DMS-AGU | 0.264      | 0.573   | 0.939        |
| GR-AGU  | 0.377      | -6.948  | <b>0.001</b> |
| PIR-AGU | 0.325      | -6.429  | <b>0.001</b> |
| GR-DMS  | 0.378      | -7.328  | <b>0.001</b> |
| PIR-DMS | 0.326      | -6.867  | <b>0.001</b> |
| PIR-GR  | 0.423      | 1.249   | 0.590        |