

1 Supporting Information

2 **S1 File. Collection sites description.** Detailed description of the 12 collection sites of *Favia*
3 *gravida* in the South Atlantic.

- 4 1. Ceará (CE), southwestern Atlantic: coral colonies were collected at Praia do Aterro, a
5 beach in the urban area of Fortaleza (population ca. 2,6 million), at the beginning of the
6 dry season (July);
- 7 2. Rocas Atoll (RA), southwestern Atlantic oceanic island: this oceanic island, the only
8 atoll in the South Atlantic, has an area of approximately 7 km² and is subjected to daily
9 tidal influence, whereby some pools become shallower at low tide with corals exposed
10 to air and high water temperatures ranging from 24–36 °C [1]. The atoll is comprised
11 by two main pool habitats, open pools, which are permanently connected to the open
12 ocean and more exposed to wave action, and closed pools, which remain isolated at low
13 tide [2]. Samples were collected at Piscina de Rocas (closed pool), Cemitério (closed
14 pool), and Salão (open pool);
- 15 3. Fernando de Noronha Island (FN), southwestern Atlantic oceanic island: this island has
16 a variety of habitats. Samples were collected from one tide pool (Baía dos Porcos) and
17 one fringing reef up to 15 m depth (Laje Dois Irmãos). The western side of the island,
18 where these reefs are located, is protected from the prevailing southeasterly winds that
19 blow from April to November, resulting in low wave exposure. However, strong winds
20 and higher swells are common in these reefs from November to March [3];
- 21 4. Rio Grande do Norte (RN), southwestern Atlantic: samples were collected from Rio do
22 Fogo reefs, which are shallow patch reefs parallel to and ~7 km from the coast. This
23 reef system is strongly influenced by terrestrial sediments [4];
- 24 5. Paraíba (PB), southwestern Atlantic: *F. gravida* colonies were collected at Picãozinho
25 reefs, located ~1.5 km off the coast of João Pessoa (population ca. 800,000). Nearly 240

- 26 visitors may come daily by boat during peak tourist season, which can cause some
27 disturbance in the form of trampling and pollution [5];
- 28 6. Pernambuco (PE), southwestern Atlantic: two sampling sites, Tamandaré and Serrambi,
29 both affected by fresh water entering from nearby rivers and high sedimentation rates
30 during the rainy season (January to June) [6];
- 31 7. Alagoas (AL), southwestern Atlantic: coral samples were collected in northern Alagoas
32 (Ponta do Mangue) during the rainy season, which is characterized by higher turbidity.
33 Coral reefs grow near the coastline and *F. gravida* are frequently found in tide pools or
34 directly exposed to air during tide changes [7];
- 35 8. Porto Seguro (PS), southwestern Atlantic: located in southern Bahia, where sediment
36 deposition on reefs, especially during winter storms, is strongly influenced by
37 continental sources consisting of unconsolidated muddy sands and by a nearby river
38 (Buranhém River) [4];
- 39 9. Abrolhos (AB), southwestern Atlantic: This is a coastal line of a group of five small
40 islands with coral reefs that comprise the Abrolhos Bank reef complex off the southern
41 coast of Bahia, it is the largest coral reef system in northeast Brazil. Samples were
42 collected from Parcel das Paredes inner reefs ~10 km from the coast. This region is
43 described as having sedimentation rates up to $10 \text{ mg cm}^{-2} \text{ day}^{-1}$ during winter, the
44 maximum tolerable limit for healthy corals [8];
- 45 10. Trindade Island (TR), southwestern Atlantic oceanic island: located 1,100 km from the
46 Brazilian coast, there are no true reefs and only three coral species occur [9]. Samples
47 were collected from tide pools (Praia dos Andradas, Praia das Tartarugas, and Piscina
48 Crista do Galo) and fringing reefs 6–10 m deep (Noroeste, Lixo, Enseada do
49 Monumento, Praia das Tartarugas, and Enseada dos Portugueses);
- 50 11. Ascension Island (ASC), mid-South Atlantic: located ~1,500 km from the African coast
51 and ~2,300 km from the Brazilian coast, only three zooxanthellate scleractinian species

52 are known from this oceanic island [10]. *Favia gravida* occurs mainly in tide pools and
53 can be found in free-living form or attached to rocks [10,11]. Coral colonies were
54 collected at Shelly Beach tide pools;

55 12. São Tomé Island (ST), Gulf of Guinea, Tropical Eastern Atlantic oceanic island: no true
56 coral reefs occur along the west African coastline, however 11 scleractinian coral
57 species are known from São Tomé [12]. Samples were collected in the main island of
58 São Tomé and at the small islet of Rolas.

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60 **References**

- 61 1. Fonseca AC, Villaça R, Knoppers B. Reef Flat Community Structure of Atol das Rocas,
62 Northeast Brazil and Southwest Atlantic. J Mar Biol. 2012;2012: 1–10.
63 doi:10.1155/2012/179128
- 64 2. Longo GO, Morais RA, Martins CDL, Mendes TC, Aued AW, Cândido D V., et al.
65 Between-habitat variation of benthic cover, reef fish assemblage and feeding pressure on
66 the benthos at the only atoll in South Atlantic: Rocas atoll, NE Brazil. PLoS One.
67 2015;10: 1–29. doi:10.1371/journal.pone.0127176
- 68 3. Krajewski JP, Floeter SR. Reef fish community structure of the Fernando de Noronha
69 Archipelago (Equatorial Western Atlantic): The influence of exposure and benthic
70 composition. Environ Biol Fishes. 2011;92: 25–40. doi:10.1007/s10641-011-9813-3
- 71 4. Leão ZMAN, Kikuchi RKP, Ferreira BP, Neves EG, Hilda H, Maida M, et al. Brazilian
72 coral reefs in a period of global change: A synthesis. 2016;64: 97–116.
- 73 5. Costa RJ, Miranda GEC De. Análise dos estudos de capacidade de carga turística para
74 os recifes de Picãozinho, Seixas (João Pessoa-PB) e Areia Vermelha (Cabedelo-PB).
75 Cad Virtual Tur. 2016;16: 60–73.

- 76 6. Souza-Santos LP, Ribeiro VSS, Santos PJP, Fonseca-Genevois V. Seasonality of
77 intertidal meiofauna on a tropical sandy beach in Tamandare Bay (Northeast Brazil). J
78 Coast Res. 2003; 369–377.
- 79 7. Correia MD. Scleractinian corals (Cnidaria: Anthozoa) from reef ecosystems on the
80 Alagoas coast, Brazil. J Mar Biol Assoc United Kingdom. 2010;91: 659–668.
81 doi:10.1017/S0025315410000858
- 82 8. Segal B, Castro CB. Coral community structure and sedimentation at different distances.
83 Ecologia. 2011;59: 119–129. doi:10.1590/S1679
- 84 9. Gasparini JL, Floeter SR. The shore fishes of Trindade Island, western South Atlantic. J
85 Nat Hist. 2001;35: 1639–1656. doi:10.1080/002229301317092379
- 86 10. Zibrowius H, Wirtz P, Nunes FLD, Hoeksema BW, Benzoni F. Shallow-water
87 scleractinian corals of Ascension Island, Central South Atlantic. J Mar Biol Assoc United
88 Kingdom. 2014;97: 713–725. doi:10.1017/S0025315414001465
- 89 11. Hoeksema BW. Extreme morphological plasticity enables a free mode of life in *Favia*
90 *gravida* at Ascension Island (South Atlantic). Mar Biodivers. 2012;42: 289–295.
91 doi:10.1007/s12526-011-0106-z
- 92 12. Polidoro BA, Ralph GM, Strongin K, Harvey M, Carpenter KE, Arnold R, et al. The
93 status of marine biodiversity in the Eastern Central Atlantic (West and Central Africa).
94 Aquat Conserv Mar Freshw Ecosyst. 2017;27: 1021–1034. doi:10.1002/aqc.2744

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