



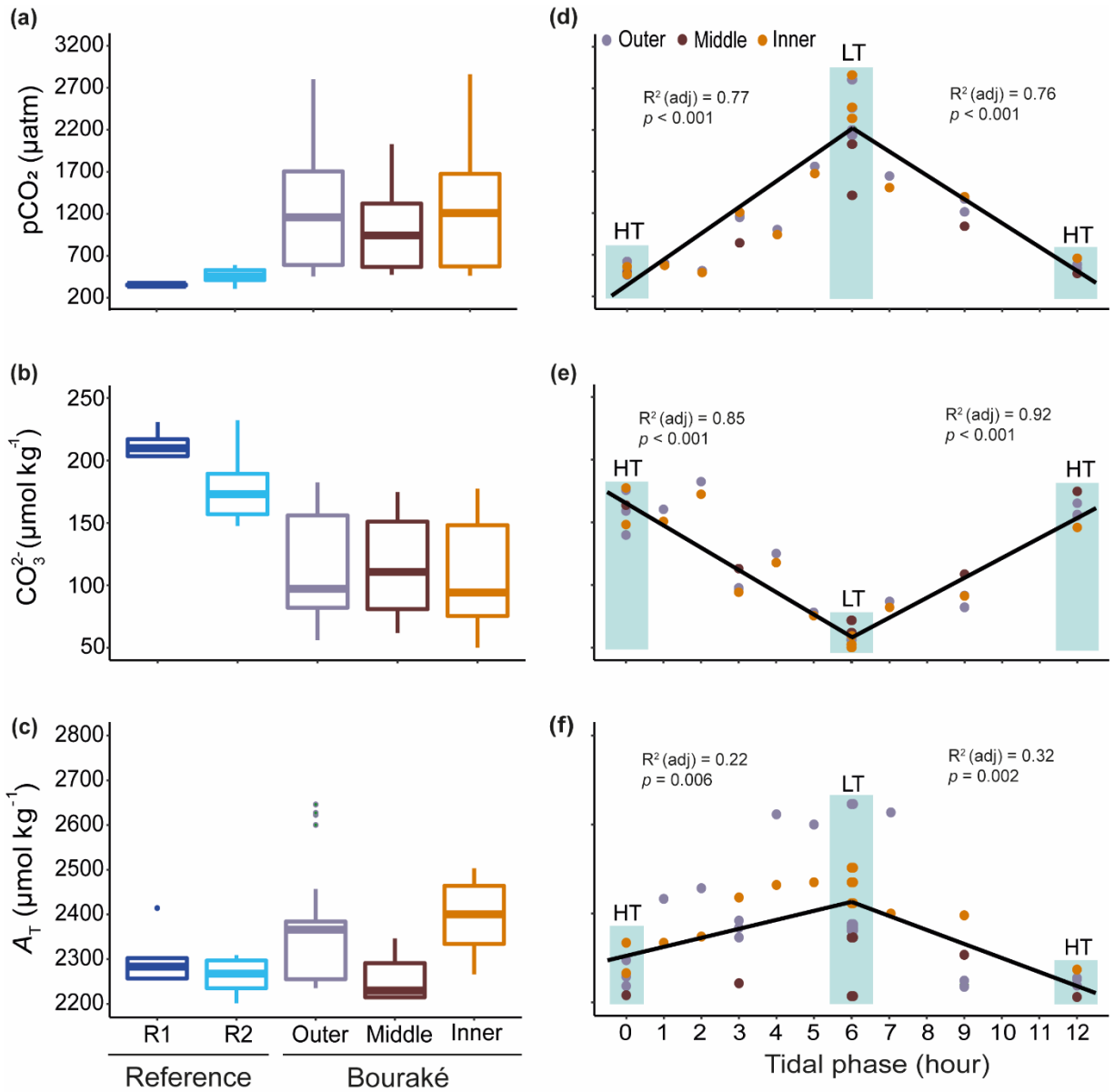
Supplement of

**The Bouraké semi-enclosed lagoon (New Caledonia) –
a natural laboratory to study the lifelong adaptation of a
coral reef ecosystem to extreme environmental conditions**

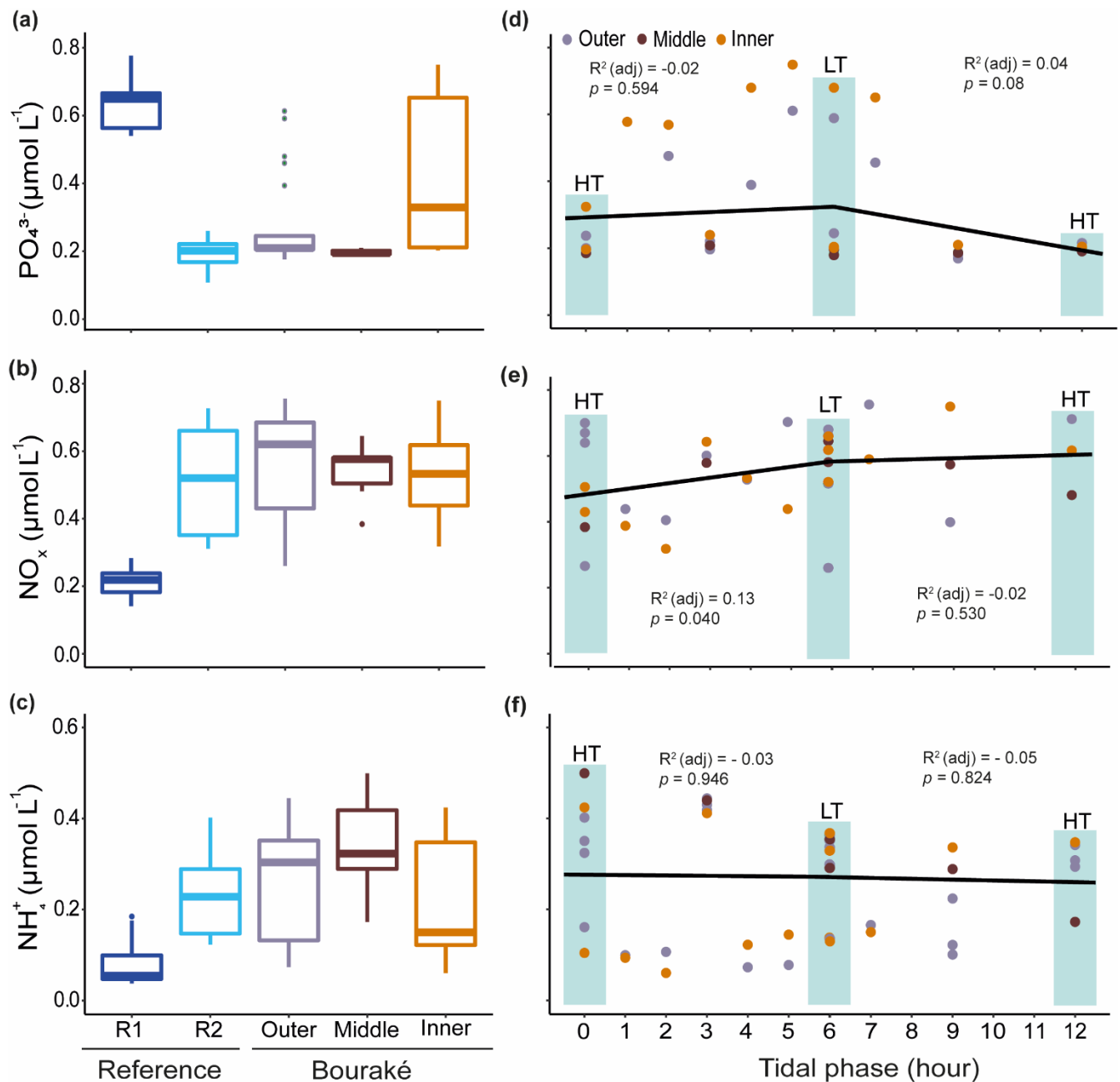
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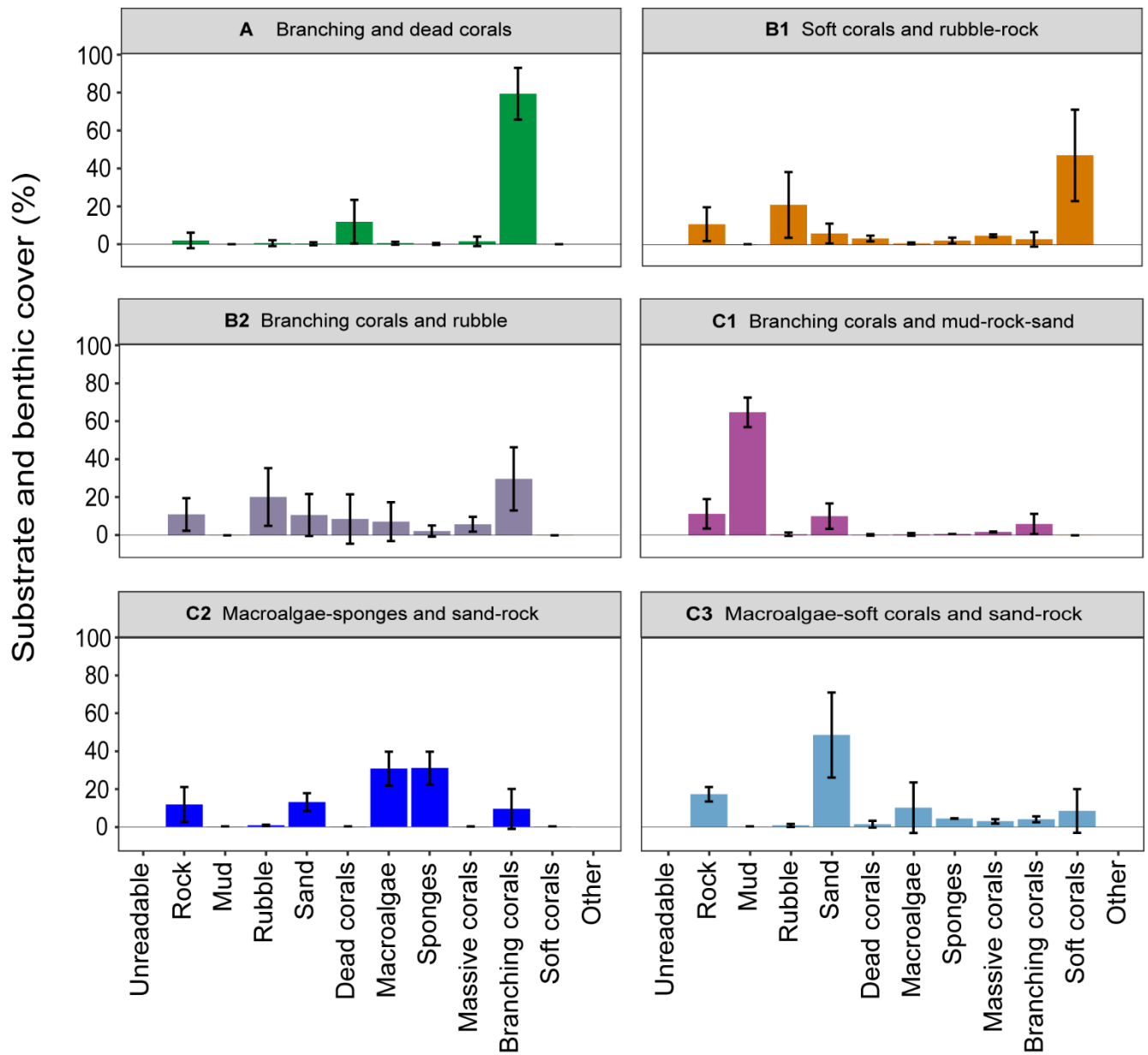
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Supplementary Figure S1. Seawater carbonate chemistry measured (A_T) and calculated ($p\text{CO}_2$ and CO_3^{2-}) during diel cycles in 2017 and 2019 (pooled data, see also Figure 8) at R1, R2 and the Bouraké reefs (outer, middle and inner) (a-c). Changes are illustrated across a 12-h tidal phase in Bouraké (d-f). Boxes ($n = 6-14$) represent the interquartile range (25th and 75th percentile), the horizontal line is the median, and the whiskers represent the data range (i.e., minimum and maximum).



Supplementary Figure S2. Phosphate, nitrogen oxide and ammonium parameters measured during diel cycles in 2017 and 2019 (pooled data, see also Figure 9) at R1, R2 and the Bouraké reefs (outer, middle and inner) (a-d). Change in the carbonate concentrations illustrated across a 12-h tidal phase in Bouraké (d-f). Boxes (n = 6-14) represent the interquartile range (25th and 75th percentile), the horizontal line is the median, and the whiskers represent the data range (i.e., minimum and maximum).



Supplementary Figure S3. Benthic community and bottom substrate characterisation in the Bouraké lagoon. Biotic and abiotic descriptors are averaged by transects within each cluster. Bars represent the standard error of the mean. Clusters as defined in Figure 10a.

SUPPLEMENTARY TABLES

Supplementary Table S1. Summary of all oceanographic sensors deployed from 2016 to 2020 at the reference (St R1 and R2) and Bouraké reefs (St A-U, B1 and B2). Sampling periods were divided between long-, medium- and short-term monitoring.

Long-term monitoring		HOBO - Temperature					
	<i>From</i>	<i>To</i>					
St R1	01/01/2019	27/04/2020					
St R2	19/09/2017	31/10/2017					
	01/11/2018	05/03/2018					
	02/10/2018	27/04/2020					
St B1	02/10/2018	27/04/2020					
St B2	19/09/2017	31/10/2017					
	01/11/2018	05/03/2018					
	02/10/2018	27/04/2020					
Medium-term monitoring		SeaFet - pH		YSI - Dissolved oxygen			
	<i>From</i>	<i>To</i>	<i>From</i>	<i>To</i>			
St R1	19/03/2019	31/03/2019	19/03/2019	04/04/2019			
			15/07/2019	18/07/2019			
St R2	08/02/2016	12/02/2016	08/02/2016	12/02/2016			
	22/03/2016	31/03/2016	22/03/2016	31/03/2016			
	05/04/2017	06/04/2017	13/04/2017	15/04/2017			
	05/04/2018	15/04/2018					
	02/10/2018	04/10/2018	02/10/2018	16/10/2018			
	19/03/2019	04/04/2019	19/03/2019	30/03/2019			
			15/07/2019	18/07/2019			
St B1	19/03/2019	04/04/2019	19/03/2019	03/04/2019			
			15/07/2019	18/07/2019			
St B2	09/02/2016	12/02/2016	09/02/2016	12/02/2016			
	05/03/2018	08/03/2018					
	02/10/2018	17/10/2018					
	19/03/2019	23/03/2019	16/03/2019	23/03/2019			
	10/04/2019	25/04/2019	10/04/2019	25/04/2019			
			15/07/2019	18/07/2019			
Short-term monitoring		SeaFet - pH		YSI - Dissolved oxygen		YSI - Salinity	
	<i>From</i>	<i>To</i>	<i>From</i>	<i>To</i>	<i>From</i>	<i>To</i>	
St R1					15/07/2019	18/07/2019	
					29/11/2020	02/12/2020	
St R2					15/07/2019	18/07/2019	
					29/11/2020	04/12/2020	
St A			06/03/2018	07/03/2018			
	03/04/2018	04/04/2018	03/04/2018	04/04/2018			
St B			06/03/2018	07/03/2018			
	03/04/2018	04/04/2018	03/04/2018	05/04/2018			
St C			06/03/2018	07/03/2018			
	03/04/2018	04/04/2018	03/04/2018	05/04/2018			
St D			06/03/2018	07/03/2018			

(continue Table S1)

Short-term monitoring	SeaFet - pH		YSI - Dissolved oxygen		YSI - Salinity	
St E			06/03/2018	07/03/2018		
St F			22/03/2016	31/03/2016		
			06/03/2018	07/03/2018		
			10/04/2019	24/04/2019		
St G			06/03/2018	07/03/2018		
St H			05/03/2018	06/03/2018		
St I			05/03/2018	06/03/2018		
St L			05/03/2018	06/03/2018		
St M			05/03/2018	06/03/2018		
St N			05/03/2018	06/03/2018		
St O			07/03/2018	08/03/2018		
St P			07/03/2018	08/03/2018		
St Q			07/03/2018	08/03/2018		
St R	24/04/2018	25/04/2018				
			06/03/2018	07/03/2018		
			24/04/2018	25/04/2018		
St S	25/04/2018	26/04/2018				
St T	06/04/2017	12/04/2017			29/11/2020	04/12/2020
St U	07/04/2017	11/04/2017				
St B1	19/03/2019	04/04/2019			15/07/2019	18/07/2019
St B2	19/03/2019	23/03/2019			15/07/2019	18/07/2019
					29/11/2020	04/12/2020

Supplementary Table S2. Summary of all seawater sampling made during the tidal cycles in June 2017 and July 2019. Sampling time refers to New Caledonia time zone (+11 GMT).

Tidal cycle in June 2017

Station	Zone	Data	Sampling time
R2	Reference	31/05/2017	14:30; 17:20
		01/06/2017	07:30; 11:30; 15:20
		02/06/2017	09:30
B01	Outer	31/05/2017	14:30; 17:20
		01/06/2017	07:30; 11:30; 15:20
		02/06/2017	09:30
B02	Outer	31/05/2017	14:30; 17:20
		01/06/2017	07:30; 11:30; 15:20
		02/06/2017	09:30
B03	Outer	31/05/2017	14:30; 17:20
		01/06/2017	07:30; 11:30; 15:20
		02/06/2017	09:30
B04	Middle	31/05/2017	14:30; 17:20
		01/06/2017	07:30; 11:30; 15:20
		02/06/2017	09:30
B05	Inner	31/05/2017	14:30; 17:20
		01/06/2017	07:30; 11:30; 15:20
		02/06/2017	09:30

Tidal cycle in July 2019

Station	Zone	Data	Sampling time
R1	Reference	17/07/2019	08:00; 09:00; 10:00; 11:00; 12:00; 13:00; 14:00; 15:00
R2	Reference	18/07/2019	08:00; 09:00; 10:00; 11:00; 12:00; 13:00; 14:00; 15:00
B1	Outer	16/07/2019	08:10; 09:00; 10:00; 11:45; 13:00; 14:30; 15:40
B2	Inner	16/07/2019	08:40; 09:20; 10:00; 12:00; 13:20; 14:50; 15:30

Supplementary Table S3. Summary of multiple linear regressions analyses applied to the seawater carbonate chemistry and the chemical parameters during falling tide (0-6) and rising tide (6-12). Data was collected in the semi-enclosed lagoon of Bouraké during diel cycles in 2017 and 2019.

Parameter	(df)	F	p	R²	R² (adj)
<i>Falling tide (from high to low tide - phase 0-6)</i>					
pH _T	(1, 30)	204.2	< 0.001	0.87	0.87
pCO ₂	(1, 30)	106.9	< 0.001	0.78	0.77
CO ₃ ²⁻	(1, 30)	175.2	< 0.001	0.85	0.85
Ω _{ara}	(1, 30)	177.2	< 0.001	0.85	0.85
DIC	(1, 30)	23.46	< 0.001	0.44	0.42
A _T	(1, 30)	8.86	0.006	0.23	0.22
SiOH ₄	(1, 30)	31.71	< 0.001	0.51	0.50
NO _x	(1, 30)	4.60	0.040	0.13	0.10
NH ₄ ⁺	(1, 29)	0.005	0.946	0.00	-0.03
PO ₄ ³⁻	(1, 29)	0.29	0.594	0.00	-0.02
DOC	(1, 18)	16.33	< 0.001	0.48	0.45
POC	(1, 30)	1.16	0.289	0.04	0.01
PON	(1, 30)	0.09	0.762	0.03	-0.03
<i>Rising tide (from low to high tide - phase 6-12)</i>					
pH _T	(1, 22)	177.5	< 0.001	0.89	0.88
pCO ₂	(1, 22)	72.23	< 0.001	0.77	0.76
CO ₃ ²⁻	(1, 22)	257.6	< 0.001	0.92	0.92
Ω _{aragonite}	(1, 22)	265.1	< 0.001	0.92	0.91
DIC	(1, 22)	22.63	< 0.001	0.51	0.48
A _T	(1, 22)	12.04	0.002	0.35	0.32
SiOH ₄	(1, 22)	29.63	< 0.001	0.57	0.55
NO _x	(1, 20)	0.41	0.530	0.02	-0.02
NH ₄ ⁺	(1, 21)	0.05	0.824	0.02	-0.05
PO ₄ ³⁻	(1, 22)	1.84	0.189	0.08	0.04
DOC	(1, 18)	8.47	0.009	0.32	0.28
POC	(1, 22)	2.85	0.105	0.11	0.07
PON	(1, 22)	2.31	0.142	0.09	0.05

Supplementary Table S4. Percent cover of biotic descriptors by transect in the Bouraké mangrove lagoon.

Transect	Macroalgae	Sponges	Massive corals	Branching corals	Soft corals
T1	0.00	1.97	3.97	0.67	61.81
T2	19.79	4.36	3.63	2.75	16.71
T3	1.23	0.99	1.69	21.37	0.00
T4	0.99	3.59	5.36	0.10	19.41
T5	0.31	0.43	4.32	7.14	62.50
T6	41.72	22.78	0.00	21.19	0.00
T7	24.75	31.20	0.00	7.20	0.00
T8	27.19	40.48	0.07	0.00	0.00
T9	0.00	0.75	1.63	2.27	0.00
T10	0.99	0.72	2.00	10.00	0.00
T11	0.48	4.19	1.93	4.95	0.00
T12	0.09	0.17	12.71	29.61	0.00
T13	0.11	0.00	2.23	85.73	0.00
T14	0.00	0.00	0.22	88.59	0.00
T15	0.00	0.00	0.88	89.78	0.00
T16	1.13	0.00	7.14	63.10	0.00
T17	8.85	2.96	7.74	10.47	0.00
T18	1.15	2.35	5.25	30.92	0.00
T19	2.21	0.00	0.38	59.73	0.00
T20	2.27	8.78	7.75	48.66	0.00
T21	29.70	0.00	6.00	15.48	0.00
T22	0.12	0.00	0.00	85.74	0.00
T23	0.44	1.30	0.00	95.57	0.00
T24	8.63	0.92	0.95	57.07	0.00

Supplementary Table S5. List of macroalgal and sponges species identified in the Bouraké lagoon, and corals identified from both Bouraké (B) and reference (R2).

MACROALGAE

Family	Genus	Species	Site
Caulerpaceae	<i>Caulerpa</i>	<i>chemnitzia</i> (J.V. Lamouroux, 1809)	B
Caulerpaceae	<i>Caulerpa</i>	<i>racemose</i> (J. Agardh, 1873)	B
Caulerpaceae	<i>Caulerpa</i>	<i>serrulata</i> (J. Agardh, 1837)	B
Caulerpaceae	<i>Caulerpa</i>	<i>verticillata</i> (J. Agardh, 1847)	B
Halimedaceae	<i>Halimeda</i>	<i>distorta</i> (Hillis-Colinvaux, 1968)	B
Halimedaceae	<i>Halimeda</i>	<i>cylindracea</i> (Decaisne, 1842)	B
Halimedaceae	<i>Halimeda</i>	<i>discoidea</i> (Decaisne, 1842)	B
Siphonocladaceae	<i>Dictyosphaeria</i>	<i>versluysii</i> (Weber-van Bosse, 1905)	B
Siphonocladaceae	<i>Dictyosphaeria</i>	<i>cavernosa</i> ((Forsskål) Børgesen, 1932)	B
Lithophyllaceae	<i>Lithophyllum</i>	sp.	B
Lithothamniaceae	<i>Lithothamnion</i>	sp.	B
Hydrolithaceae	<i>Hydrolithon</i>	<i>reinboldii</i> (Foslie, 1909)	B
Dictyotaceae	<i>Dictyota</i>	sp.	B
Dictyotaceae	<i>Dictyota</i>	<i>friabilis</i> (Setchell, 1926)	B
Dictyotaceae	<i>Dictyota</i>	<i>bartayresiana</i> (J.V. Lamouroux, 1809)	B
Dictyotaceae	<i>Dictyota</i>	<i>ceylanica</i> (Kützing, 1859)	B
Dictyotaceae	<i>Styopodium</i>	sp.	B
Dictyotaceae	<i>Lobophora</i>	<i>rosacea</i> (Vieira, Payri & De Clerck, 2014)	B
Dictyotaceae	<i>Padina</i>	<i>australis</i> (Hauck, 1887)	B
Dictyotaceae	<i>Padina</i>	<i>okinawaensis</i> (Ni-Ni-Win, Arai & Kawai, 2010)	B
Sargassaceae	<i>Hormophysa</i>	<i>cuneiformis</i> ((J.F.Gmelin) P.C.Silva, 1987)	B
Sargassaceae	<i>Sargassum</i>	sp.	B
Sargassaceae	<i>Sargassum</i>	<i>spinuligerum var crispatum</i> (Sonder, 1845)	B
Sargassaceae	<i>Sargassum</i>	cf <i>flabelliforme</i>	B
Sargassaceae	<i>Sargassum</i>	cf. <i>ilicifolium</i> (C.Agardh 1820)	B
Sargassaceae	<i>Turbinaria</i>	<i>conoides</i> (J. Agardh) Kützing, 1860)	B
Cystocloniscaeae	<i>Hypnea</i>	sp.	B
Galaxauraceae	<i>Dichotomaria</i>	sp.	B

CORALS (Scleractinians)

Family	Genus	Species	Site
Acroporidae	<i>Acropora</i>	<i>aculeus</i> (Dana, 1846)	B
Acroporidae	<i>Acropora</i>	cf. <i>acuminata</i> (Verrill, 1864)	R2
Acroporidae	<i>Acropora</i>	<i>aspera</i> (Dana, 1846)	B-R2
Acroporidae	<i>Acropora</i>	<i>austera</i> (Dana, 1846)	R2
Acroporidae	<i>Acropora</i>	<i>carduus</i> (Dana, 1846)	B
Acroporidae	<i>Acropora</i>	<i>cerealis</i> (Dana, 1846)	B
Acroporidae	<i>Acropora</i>	<i>divaricata</i> (Dana, 1846)	B
Acroporidae	<i>Acropora</i>	<i>echinata</i> (Dana, 1846)	B
Acroporidae	<i>Acropora</i>	<i>florida</i> (Dana, 1846)	R2
Acroporidae	<i>Acropora</i>	<i>gemmifera</i> (Brook, 1892)	R2

(continue Table S5)

CORALS (Scleractinians)

Family	Genus	Species	Site
Acroporidae	<i>Acropora</i>	<i>grandis</i> (Brook, 1892)	R2
Acroporidae	<i>Acropora</i>	<i>horrida</i> (Dana, 1846)	B-R2
Acroporidae	<i>Acropora</i>	<i>humilis</i> (Dana, 1846)	B-R2
Acroporidae	<i>Acropora</i>	<i>kirstyae</i> (Veron & Wallace, 1984)	B-R2
Acroporidae	<i>Acropora</i>	<i>latistella</i> (Brook, 1892)	R2
Acroporidae	<i>Acropora</i>	cf. <i>longycathus</i> (Milne Edwards, 1860)	R2
Acroporidae	<i>Acropora</i>	<i>microphthalma</i> (Verrill, 1869)	B-R2
Acroporidae	<i>Acropora</i>	<i>millepora</i> (Ehrenberg, 1834)	R2
Acroporidae	<i>Acropora</i>	<i>muricata</i> (Linnaeus, 1758)	B-R2
Acroporidae	<i>Acropora</i>	<i>nana</i> (Studer, 1879)	B
Acroporidae	<i>Acropora</i>	<i>polystoma</i> (Brook, 1891)	R2
Acroporidae	<i>Acropora</i>	<i>pulchra</i> (Brook, 1891)	B-R2
Acroporidae	<i>Acropora</i>	<i>robusta</i> (Dana, 1846)	R2
Acroporidae	<i>Acropora</i>	<i>retusa</i> (Dana, 1846)	R2
Acroporidae	<i>Acropora</i>	<i>samoensis</i> (Brook, 1891)	B-R2
Acroporidae	<i>Acropora</i>	cf. <i>secale</i> (Studer, 1878)	R2
Acroporidae	<i>Acropora</i>	<i>tenuis</i> (Dana, 1846)	B-R2
Acroporidae	<i>Acropora</i>	<i>valida</i> (Dana, 1846)	B-R2
Acroporidae	<i>Acropora</i>	<i>vaughani</i> (Wells, 1954)	B-R2
Acroporidae	<i>Anacropora</i>	<i>forbesi</i> (Ridley, 1884)	B
Acroporidae	<i>Anacropora</i>	<i>matthai</i> (Pillai, 1973)	B-R2
Acroporidae	<i>Anacropora</i>	<i>puertogalerae</i> Nemenzo, 1964	R2
Acroporidae	<i>Isopora</i>	<i>palifera</i> (Lamarck, 1816)	R2
Acroporidae	<i>Montipora</i>	<i>aequituberculata</i> Bernard, 1897	R2
Acroporidae	<i>Montipora</i>	<i>cactus</i> (Bernard, 1897)	B
Acroporidae	<i>Montipora</i>	<i>digitata</i> (Dana, 1846)	B-R2
Acroporidae	<i>Montipora</i>	<i>efflorescens</i> Bernard, 1897	R2
Acroporidae	<i>Montipora</i>	<i>hispidata</i> (Dana, 1846)	B-R2
Acroporidae	<i>Montipora</i>	<i>mollis</i> Bernard, 1897	R2
Acroporidae	<i>Montipora</i>	cf. <i>nodosa</i> (Dana, 1846)	R2
Acroporidae	<i>Montipora</i>	<i>stellata</i> (Bernard, 1897)	B-R2
Agariciidae	<i>Pavona</i>	<i>cactus</i> (Forskål, 1775)	B-R2
Agariciidae	<i>Pavona</i>	<i>clavus</i> Dana, 1846	R2
Agariciidae	<i>Pavona</i>	<i>decussata</i> (Dana, 1846)	B-R2
Caryophylliidae	<i>Polycyathus</i>	<i>fulvus</i> (Wijsman-Best, 1970)	B
Dendrophylliidae	<i>Turbinaria</i>	<i>mesenterina</i> (Lamarck, 1816)	B
Dendrophylliidae	<i>Turbinaria</i>	<i>stellulata</i> (Lamarck, 1816)	R2
Dendrophylliidae	<i>Tubastraea</i>	<i>coccinea</i> (Lesson, 1830)	B
Dendrophylliidae	<i>Tubastraea</i>	<i>micranthus</i> (Ehrenberg, 1834)	B
Euphylliidae	<i>Galaxea</i>	<i>fascicularis</i> (Linnaeus, 1767)	B-R2
Fungiidae	<i>Leptastrea</i>	<i>purpurea</i> (Dana, 1846)	B
Fungiidae	<i>Heliofungia</i>	<i>actiniformis</i> (Quoy & Gaimard, 1833)	B

(continue Table S5)

CORALS (Scleractinians)

Family	Genus	Species	Site
Fungiidae	<i>Halomitra</i>	<i>pileus</i> (Linnaeus, 1758)	B
Fungiidae	<i>Fungia</i>	<i>fungites</i> (Linnaeus, 1758)	B
Fungiidae	<i>Ctenactis</i>	<i>echinata</i> (Pallas, 1766)	B
Fungiidae	<i>Cantharellus</i>	<i>noumeae</i> (Hoeksema & Best, 1984)	B
Fungiidae	<i>Sandalolitha</i>	<i>dentata</i> (Quelch, 1884)	B
Incertae sedis	<i>Pachyseris</i>	<i>rugosa</i> (Lamarck, 1801)	B-R2
Incertae sedis	<i>Pachyseris</i>	<i>speciosa</i> (Dana, 1846)	B-R2
Lobophylliidae	<i>Echinophyllia</i>	<i>aspera</i> (Ellis & Solander, 1786)	B
Lobophylliidae	<i>Lobophyllia</i>	cf. <i>hemprichi</i> (Ehrenberg, 1834)	B
Lobophylliidae	<i>Lobophyllia</i>	<i>corymbosa</i> (Forskål, 1775)	R2
Merulinidae	<i>Coelastrea</i>	<i>aspera</i> (Verrill, 1866)	B-R2
Merulinidae	<i>Cyphastrea</i>	<i>serailia</i> (Forskål, 1775)	R2
Merulinidae	<i>Cyphastrea</i>	sp.	B
Merulinidae	<i>Dipsastrea</i>	<i>pallida</i> (Dana, 1846)	B
Merulinidae	<i>Dipsastrea</i>	cf. <i>lizardensis</i> (Veron, Pichon, & Wijsman-Best, 1977)	B
Merulinidae	<i>Echinopora</i>	<i>lamellosa</i> (Esper, 1795)	B-R2
Merulinidae	<i>Echinopora</i>	<i>horrida</i> Dana, 1846	R2
Merulinidae	<i>Favites</i>	<i>abdita</i> (Ellis & Solander, 1786)	B
Merulinidae	<i>Favites</i>	<i>melicerum</i> (Ehrenberg, 1834)	B
Merulinidae	<i>Goniastrea</i>	<i>favulus</i> (Dana, 1846)	B-R2
Merulinidae	<i>Goniastrea</i>	<i>pectinata</i> (Ehrenberg, 1834)	R2
Merulinidae	<i>Merulina</i>	<i>scabricula</i> (Dana, 1846)	B
Merulinidae	<i>Merulina</i>	<i>ampliata</i> (Ellis & Solander, 1786)	B
Merulinidae	<i>Pectinia</i>	<i>lactuca</i> (Pallas, 1766)	R2
Merulinidae	<i>Pectinia</i>	<i>paeonia</i> (Dana, 1846)	B-R2
Merulinidae	<i>Platygyra</i>	<i>sinensis</i> (Milne Edwards & Haime, 1849)	B
Merulinidae	<i>Platygyra</i>	<i>daedalea</i> (Ellis & Solander, 1786)	B
Merulinidae	<i>Trachyphyllia</i>	<i>geoffroyi</i> (Audouin, 1826)	B
Merulinidae	<i>Hydnophora</i>	<i>rigida</i> (Dana, 1846)	B
Pocilloporidae	<i>Pocillopora</i>	<i>damicornis</i> (Linnaeus, 1758)	B-R2
Pocilloporidae	<i>Pocillopora</i>	<i>verrucosa</i> (Ellis & Solander, 1786)	R2
Pocilloporidae	<i>Stylophora</i>	<i>pistillata</i> Esper, 1797	R2
Psammocoridae	<i>Psammocora</i>	<i>contigua</i> (Esper, 1794)	B-R2
Poritidae	<i>Goniopora</i>	cf. <i>minor</i> (Crossland, 1952)	B
Poritidae	<i>Porites</i>	sp.	B
Poritidae	<i>Porites</i>	cf. <i>annae</i> (Crossland, 1952)	B
Poritidae	<i>Porites</i>	<i>lutea</i> (Edwards & Haime, 1851)	B-R2
Poritidae	<i>Porites</i>	<i>lobata</i> (Dana, 1846)	B-R2
Poritidae	<i>Porites</i>	<i>cylindrica</i> (Dana, 1846)	B-R2
Poritidae	<i>Porites</i>	<i>rus</i> (Forskål, 1775)	R2
Siderastreidae	<i>Pseudosiderastrea</i>	<i>tayamai</i> (Yabe & Sugiyama, 1935)	B

(continue Table S5)

CORALS (non-scleractinians)

Family	Genus	Species	Site
Alcyoniidae	<i>Sinularia</i>	sp.	B

SPONGES

Family	Genus	Species	Site
Ancorinidae	<i>Rhabdastrella</i>	<i>globostellata</i> (Carter, 1883)	B
Callyspongiidae	<i>Callyspongia</i> (<i>Cladochalina</i>)	<i>diffusa</i> (Ridley, 1884)	B
Chalinidae	<i>Haliclona</i> (<i>Gellius</i>)	<i>cymaeformis</i> (Esper, 1806)	B
Clionidae	<i>Sphaciospongia</i>	<i>vagabunda</i> (Ridley, 1884)	B
Clionidae	<i>Cliona</i>	<i>orientalis</i> (Thiele, 1900)	B
Clionidae	<i>Cliona</i>	sp.	B
Halichondriidae	<i>Amorphinopsis</i>	<i>fenestrata</i> (Ridley, 1884)	B
Halichondriidae	<i>Topsentia</i>	sp.	B
Niphatidae	<i>Gelloides</i>	<i>carcosa</i> Dendy, 1889	B
Spongiidae	<i>Hippospongia</i>	sp.	B
Tedaniidae	<i>Tedania</i> (<i>Tedania</i>)	cf. <i>klausi</i> (Wulff, 2006)	B

Supplementary Table S6. Sponge spicules (range, length and width in μm) and fibres dimensions for the 11 species collected and identified from the Bouraké lagoon.

<i>Rhabdastrella globostellata</i>	Spicules					
	Oxeas	Orthotriaenes	Microscleres (Oxyspheraster, Oxyaster) length			
	400-870 x 10-30	410-750 x 10-20 (rhabdome) 70-200 x 10-30 (clads)	15-40			
<i>Callyspongia (Cladochalina) diffusa</i>	Spicules	Ectosomal skeleton		Choanosomal skeleton		
	Oxeas	Primary fibres diameter	Secondary fibres diameter	Primary fibres diameter	Secondary fibres diameter	Tertiary fibres diameter
	95-115 x 5-10	30-80	30-80	100-200	about 40	10-20
<i>Haliclona (Gellius) cymaeformis</i>	Spicules					
	Oxaeas	Sigmas				
	110-150 x 2.5	17-20				
<i>Sphaciospongia vagabunda</i>	Spicules					
	Tylostyles	Spirasters				
	410-730 x 10-20	7.5-25				
<i>Cliona orientalis</i>	Spicules					
	Tylostyles	Spirasters				
	315-435 x 15-20	22.9 \pm 2.7 (rare)				
<i>Cliona sp.</i>	Spicules					
	Tylostyles	Spirasters	Amphiasters			
	395.4 \pm 25.6	19.5 \pm 3.2	11.5 \pm 1.3			
<i>Amorphinopsis fenestrata</i>	Spicules					
	Styles					
	310-780 x 5-20					
<i>Topsentia sp.</i>	Spicules					
	Oxeas					
	480-770 x 5-21					
<i>Gelliodes carnosa</i>	Spicules					
	Oxeas	Sigmas				
	135-150 x 5-10	22-25				
<i>Hippospongia sp.</i>	Fibres					
	Primary fibres diameter	Secondary fibres diameter				
	83.5 \pm 14.6	26 \pm 7.8				
<i>Tedania (Tedania) sp.</i>	Spicules					
	Choanosomal Styles	Ectosomal Tylostyles	Large Onychaetes	Small Onychaetes		
	250-280 x 7.5	170-232 x 5	160-200	50-125		