Supplemental information (Tables S1, S2, Fig. S1).

1. Statistical analyses.

The relationships between TEP and environmental and biological parameters were examined using Pearson linear regression analyses investigating the association between two variables (TEP versus time or physical, chemical, or physiological variable) from each of the different phases of the experiment. A confidence of 95% (α- 0.05) was used. Statistical analyses were carried out with XLSTAT, a Microsoft Office Excel based software.

Table S1. Pearson's linear regression analyses between transparent exopolymeric particle (TEP) concentrations [(µg GX L^{-1})] from all sampled depths (1, 6, 12 m) versus day, for each phase. P0= days 0-4, P1 = days 5-14, P2= days 15-23. Significant values ($p < 0.05$) are in bold. The corresponding data is presented in Fig. 1. n= number of data points per day (each data point represents an average of 3 independent filters for that measurement).

Mesocosm number or outside lagoon (O)	**Experimental Phase**	**R^2**	**P**	**n**
M1	P0 (days 2-4)	0.65	**0.01**	9
M2		0.32	0.11	9
M3		0.65	**0.01**	9
Out		0.25	**0.05**	15
M1	P1 (days 5-14)	0.14	0.09	22
M2		0.21	**0.03**	22
M3		0.26	**0.02**	22
Out		0.05	0.41	15
M1	P2 (days 15-23)	0.24	**0.02**	22
M2		0.31	**0.004**	24
M3		0.19	**0.04**	18
Out		0.32	**0.01**	25

Table S2. Pearson's linear regression analyses between the average concentration of transparent exopolymeric particles [TEP (µg GX L^{-1})] and the physical, chemical, and biological parameters from each mesocosm (M1, M2, M3) divided into the two post-fertilization phases of the VAHINE experiment. P1 = days 5-14, P2 = days 15-23. Each TEP value is an average of the measurements from three sampled depths. Correlations in bold are statistically significant with $P < 0.05$. For Het-1 and UCYN-C the growth rate (µ) is the net growth rate, based on changes of *nifH* copies L^{-1} from day to day.

Parameter	Mesocosm	Period	R^2	P	n
Temperature (°C)	M1	P1	0.055	0.577	8
	M2		0.015	0.776	8
	M3		0.191	0.279	8
	M1	P2	0.369	0.148	7
	M2		0.087	0.520	7
	M3		0.357	0.157	7
DIP (µmol L^{-1})	M1	P1	0.011	0.805	8
	M2		0.055	0.544	9
	M3		0.295	0.163	8
	M1	P2	0.031	0.676	8
	M2		0.539	**0.038**	8
	M3		0.249	0.123	8
DOP (µmol L^{-1})	M1	P1	0.000	0.965	8
	M2		0.198	0.229	9
	M3		0.004	0.879	8
	M1	P2	0.128	0.383	8
	M2		0.367	0.112	8
	M3		0.141	0.320	9
POP (µmol L^{-1})	M1	P1	0.020	0.738	8
	M2		0.050	0.563	9
	M3		0.039	0.641	8
	M1	P2	0.103	0.401	9
	M2		0.005	0.851	9
	M3		0.192	0.237	9
T_{DIP} (d)	M1	P1	0.077	0.51	8
	M2		0.012	0.775	9
	M3		0.043	0.620	8
	M1	P2	0.238	0.182	9
	M2		0.523	**0.028**	9
	M3		0.338	0.100	9
APA (nmole L^{-1} h^{-1})	M1	P1	0.155	0.294	9
	M2		0.432	**0.077**	8
	M3		0.048	0.638	7
	M1	P2	0.173	0.265	9
	M2		0.683	**0.011**	8

	M3		0.300	0.126	9
DOC ($\mu mol\ L^{-1}$)	M1	P1	0.005	0.879	7
	M2		0.003	0.882	9
	M3		0.051	0.591	8
	M1	P2	0.266	0.295	6
	M2		0.268	0.482	4
	M3		0.285	0.275	6
POC ($\mu mol\ L^{-1}$)	M1	P1	0.213	0.211	9
	M2		0.005	0.853	9
	M3		0.216	0.246	8
	M1	P2	0.006	0.883	6
	M2		0.212	0.358	6
	M3		0.911	**0.046**	4
TOC ($\mu mol\ L^{-1}$)	M1	P1	0.105	0.434	8
	M2		0.003	0.883	9
	M3		0.002	0.926	8
	M1	P2	0.745	0.012	7
	M2		0.728	0.007	8
	M3		0.582	0.046	7
DON ($\mu mol\ L^{-1}$)	M1	P1	0.112	0.417	8
	M2		0.042	0.597	9
	M3		0.041	0.632	8
	M1	P2	0.166	0.316	8
	M2		0.718	**0.008**	8
	M3		0.379	0.104	8
PON ($\mu mol\ L^{-1}$)	M1	P1	0.381	0.103	8
	M2		0.160	0.286	9
	M3		0.334	0.133	8
	M1	P2	0.000	0.990	6
	M2		0.330	0.233	6
	M3		0.036	0.720	6
N_2 fixation ($nmol\ L^{-1}\ d^{-1}$)	M1	P1	0.041	0.629	8
	M2		0.325	0.140	8
	M3		0.007	0.858	7
	M1	P2	0.046	0.579	9
	M2		0.038	0.617	9
	M3		0.405	0.065	9
Chlorophyll a ($\mu g\ L^{-1}$)	M1	P1	0.251	0.169	9
	M2		0.080	0.460	9
	M3		0.054	0.581	8
	M1	P2	0.096	0.418	9
	M2		0.126	0.348	9
	M3		0.292	0.133	9
PP ($\mu mol\ C\ L^{-1}\ d^{-1}$)	M1	P1	0.078	0.504	8
	M2		0.046	0.577	9
	M3		0.209	0.254	8
	M1	P2	0.000	0.991	8
	M2		0.332	0.105	9
	M3		0.124	0.392	8
BB ($ngC\ L^{-1}\ h^{-1}$)	M1	P1	0.083	0.488	8
	M2		0.000	0.973	9
	M3		0.549	**0.035**	8
	M1	P2	0.574	**0.029**	8
	M2		0.424	**0.058**	9
	M3		0.567	**0.031**	8
Het1 (μ)	M1	P1	0.767	0.124	4
	M2		0.999	**0.021**	3
	M3		N.A	N.A	N.A

	M1	P2	0.837	**0.029**	5
	M2		0.754	0.132	4
	M3		0.137	0.540	5
UCYN-C (µ)	M1	P1	N.A	N.A	N.A
	M2		0.005	0.953	3
	M3		N.A	N.A	N.A
	M1	P2	0.421	0.236	5
	M2		0.694	0.167	4
	M3		0.775	**0.049**	5

DIP: dissolved inorganic phosphate; DOP and POP: dissolved and particulate organic phosphate; T_{DIP}: Turnover rates of dissolved inorganic phosphate; APA: Alkaline phosphatase activity; DOC and POC: dissolved and particulate organic carbon; TOC: total organic carbon; DON and PON: dissolved and particulate organic nitrogen; BP and PP- bacterial and primary production.

Supplemental Figure legend.

Figure S1. Temporal changes in transparent exopolymeric particle (TEP) concentrations (µg GX L^{-1}) measured from 3 sampling depths, during the VAHINE experiment in a. Mesocosm 1 (M1) b. Mesocsosm 2 (M2), c. Mesocosm 3 (M3) and d. Lagoon waters (O). TEP concentration was averaged from measurements taken at 3 sampling depths from the mesocosms and from the outside lagoon waters: 1 m- green dots, 6 m- gray dots, and 12 m- blue dots. Red stars in panel (a) represent TEP concentrations measured from the sediment trap of M1 during 3 time points (days 13, 15, 16). To express trap content in L^{-1} units, the amount of TEP collected in the trap was divided by the volume of the mesocosm. Error bars represent ± standard deviation of three independent samples analyzed for each depth.

Figure S1