Supplemental Information

Sample #	Sample ID	Depth and Sample Mix Ratio	Amendments
1a and 1b	C1; C2	70:30 mix of 0.2 μm filtered 1 m seawater and unfiltered water from 60 m.	Unamended control
2a and 2b	L1; L2	70:30 mix of 0.2 μm filtered 1 m seawater and unfiltered water from 60 m.	Lignin (10 μmol L^{-1} carbon)
3a and 3b	LNP1; LNP2	70:30 mix of 0.2 μm filtered 1 m seawater and unfiltered water from 60 m.	Lignin (10 μmol L^{-1} carbon) Ammonium chloride (1 μmol L^{-1}) Dipotassium phosphate (0.1 μmol L^{-1})
4a and 4b	GNP1; GNP2	70:30 mix of 0.2 μm filtered 1 m seawater and unfiltered water from 60 m.	Glucose (10 μmol L^{-1} carbon), Ammonium chloride (1 μmol L^{-1}) Dipotassium phosphate (0.1 μmol L^{-1})

Table S1. A description of the samples, their identification, the composition of seawater used and how each incubation was amended.

Table S2. Bacterioplankton abundance (Cells mL^{-1}) averages and standard deviation for all time points (with time also indicated in days). Averages were calculated from replicate counts (n = 10).

Time Point	T0	T1	T2	T3	T4	T5	T6	T7
Days	0.0	0.6	0.9	1.6	1.91	2.63	2.91	3.63
Average								
C1	1.79E+05	1.80E+05	1.71E+05	1.82E+05	2.23E+05	2.36E+05	2.79E+05	3.07E+05
C2	1.96E+05	2.09E+05	1.77E+05	2.23E+05	2.16E+05	2.79E+05	2.74E+05	3.16E+05
L1	1.62E+05	1.65E+05	1.63E+05	2.68E+05	2.68E+05	3.28E+05	3.29E+05	3.84E+05
L2	1.72E+05	1.79E+05	1.69E+05	2.86E+05	3.12E+05	3.58E+05	4.03E+05	4.16E+05
LNP1	1.87E+05	1.78E+05	2.14E+05	2.53E+05	2.87E+05	3.36E+05	3.32E+05	3.59E+05
LNP2	2.10E+05	2.07E+05	2.02E+05	2.85E+05	3.79E+05	4.23E+05	5.23E+05	5.75E+05
GNP1	1.74E+05	1.99E+05	8.03E+05	1.13E+06	1.14E+06	1.17E+06	1.14E+06	1.32E+06
GNP2	1.88E+05	2.07E+05	8.53E+05	1.06E+06	1.03E+06	1.21E+06	1.09E+06	1.09E+06
Std Dev								
C1	1.07E+04	1.43E+04	1.87E+04	2.36E+04	2.09E+04	2.30E+04	4.27E+04	4.62E+04
C2	2.08E+04	1.73E+04	2.08E+04	2.10E+04	1.94E+04	2.71E+04	3.90E+04	4.06E+04
L1	1.49E+04	1.29E+04	1.48E+04	2.30E+04	3.78E+04	2.88E+04	2.71E+04	4.93E+04
L2	1.51E+04	1.53E+04	2.28E+04	4.77E+04	3.87E+04	2.44E+04	4.44E+04	6.36E+04
LNP1	1.81E+04	1.59E+04	2.97E+04	2.17E+04	2.80E+04	2.54E+04	2.86E+04	4.36E+04
LNP2	1.41E+04	2.01E+04	1.62E+04	2.93E+04	4.07E+04	4.98E+04	4.04E+04	5.47E+04
GNP1	1.37E+04	1.83E+04	7.12E+04	1.25E+05	1.39E+05	1.04E+05	1.52E+05	1.81E+05
GNP2	1.43E+04	1.88E+04	1.10E+05	6.68E+04	1.01E+05	1.83E+05	1.73E+05	1.04E+05

Time Point	T8	T9	T10	T11	T12	T13	T14	T15
Days	3.87	4.59	5.54	6.59	7.59	9.59	11.56	34.56
Average								
C1	3.18E+05	3.27E+05	3.54E+05	3.55E+05	3.38E+05	3.48E+05	4.35E+05	4.51E+05
C2	3.52E+05	3.33E+05	3.58E+05	3.48E+05	3.71E+05	3.30E+05	4.49E+05	4.31E+05
L1	4.50E+05	4.99E+05	4.82E+05	4.86E+05	5.41E+05	5.24E+05	6.48E+05	5.43E+05
L2	4.26E+05	4.91E+05	4.99E+05	4.88E+05	5.00E+05	5.35E+05	6.70E+05	5.81E+05
LNP1	4.14E+05	5.26E+05	5.84E+05	5.85E+05	5.66E+05	5.22E+05	5.78E+05	4.07E+05
LNP2	5.91E+05	7.13E+05	6.72E+05	5.65E+05	5.20E+05	5.96E+05	7.55E+05	4.53E+05
GNP1	1.30E+06	1.17E+06	1.44E+06	1.15E+06	8.57E+05	8.85E+05	9.46E+05	1.02E+06
GNP2	1.21E+06	1.21E+06	1.37E+06	1.01E+06	9.48E+05	8.79E+05	9.08E+05	9.18E+05
Std Dev								
C1	3.53E+04	2.89E+04	3.72E+04	4.87E+04	1.63E+04	5.62E+04	4.74E+04	4.81E+04
C2	4.61E+04	2.18E+04	3.06E+04	4.03E+04	3.79E+04	2.86E+04	5.28E+04	3.54E+04
L1	4.29E+04	6.67E+04	4.89E+04	9.66E+04	6.28E+04	4.42E+04	8.18E+04	3.47E+04
L2	3.83E+04	3.72E+04	9.10E+04	5.25E+04	6.78E+04	6.40E+04	5.86E+04	3.17E+04
LNP1	5.77E+04	4.98E+04	5.35E+04	6.43E+04	9.15E+04	5.66E+04	8.04E+04	4.53E+04
LNP2	4.09E+04	6.69E+04	1.03E+05	1.05E+05	9.71E+04	8.23E+04	1.10E+05	6.57E+04
GNP1	1.12E+05	1.35E+05	1.83E+05	1.29E+05	1.02E+05	1.77E+05	7.95E+04	1.25E+05
GNP2	1.02E+05	1.18E+05	2.23E+05	1.04E+05	1.29E+05	1.17E+05	9.39E+04	7.97E+04

Hybridization Solutions:
Set 001*: 0.9 M NaCl, 20 mM Tris/HCl pH 7.4, 35% formamide 0.01%, and SDS in 3.58 mL of Millipore de-ionized water.*

Set 002*: 0.9 M NaCl, 20 mM Tris/HCl pH 7.4, 15% formamide and 0.01% SDS in 7.58 mL of Millipore de-ionized water.*

Hybridization washes:
Set 001*: 70 mM NaCl, 20 mM Tris/HCl pH 7.4, 15% formamide and 0.01% SDS in 934 mL of Millipore de-ionized water.*
Set 002*: 150 mM NaCl, 20 mM Tris/HCl pH 7.4, 5 mM EDTA and 0.01% SDS in 894 mL of Millipore de-ionized water.*

Table S3. Table showing probes used for FISH (normal) and **CARD-FISH (bold)** in this project including their sequences, target species including class level and what % of hits are the target species according to the SILVA and RDP databases. Additional information on the % formamide used in the hybridization solution, the hybridization temperature (°C), the NaCl concentration (M) in the wash solution and the wash temperature (°C) are also included.

Probe Name	DNA Sequence 5' to 3'	Target (Class Level)	SILVA (RDP) Probe Hit %Target/Total	% Formamide	Hybridization Temperature °C	NaCl Concentration M	Wash Temperature °C
338F[1]	TGAGGATGCCCTCCGTCG	Non Specific	0.0 (0.0)	15-35	37	0.07-0.15	50-55
536R-Cy3[2]	CAACGCTAACCCCCTCCG	*Rhodobacteraceae* (Family)	99.7 (99.1)	35	37	0.07	52
AC137-Cy3[3]	TGTTATCCCCCTCGCAAA	*Alteromonas* (Genus)	91.4 (95.6)	35	37	0.07	52
CFB563-Cy3[4]	GGACCCTTTAAACCCAAT	*Flavobacteriales* (Order)	97.7 (97.5)	20	46	0.225	48
152R-Cy3[1]	ATTAGCACAAGTTTCCYCGTGT	SAR11	98.7 (99.1)	15	37	0.15	55
441R-Cy3[1]	TACAGTCATTTTCTTCCCCGAC	(Family)	99.8 (99.6)				
542R-Cy3[1]	TCCGAACTACGCTAGGTC	Peligibacter	99.9 (99.7)				
732R-Cy3[1]	GTCAGTAATGATCCAGAAAGYTG	(Genus)	99.9 (99.8)				
103R-Cy3[5]	GTTACTCAGCCGTCTGCC	SAR202		35	37	0.07	57.5
311R-Cy3[5]	TGTCTCAGTCCCCCTCTG	Chloroflexi (Phylum)	72.7 (96.0) 60.9 (87.7) 72.7 (84.7)				
Cren-537[6]	**TGACCACTTGAGGTGCTG**	***Thaumarcaheota* (Phylum)**	**99.9 (99.9)**	**20**	**35**	**0.145**	**37**
Eury-806[6]	**CACAGCGTTTACACCTAG**	***Euryarchaeota* (Phylum)**	**99.4 (99.3)**	**20**	**35**	**0.145**	**37**

[1] Morris et al. 2002 [2] Parsons et al. 2011 [3] Parsons et al. 2015 [4]Weller et al. 2000 [5]Morris et al. 2005 [6]Teira et al. 2004; Herndl et al. 2005

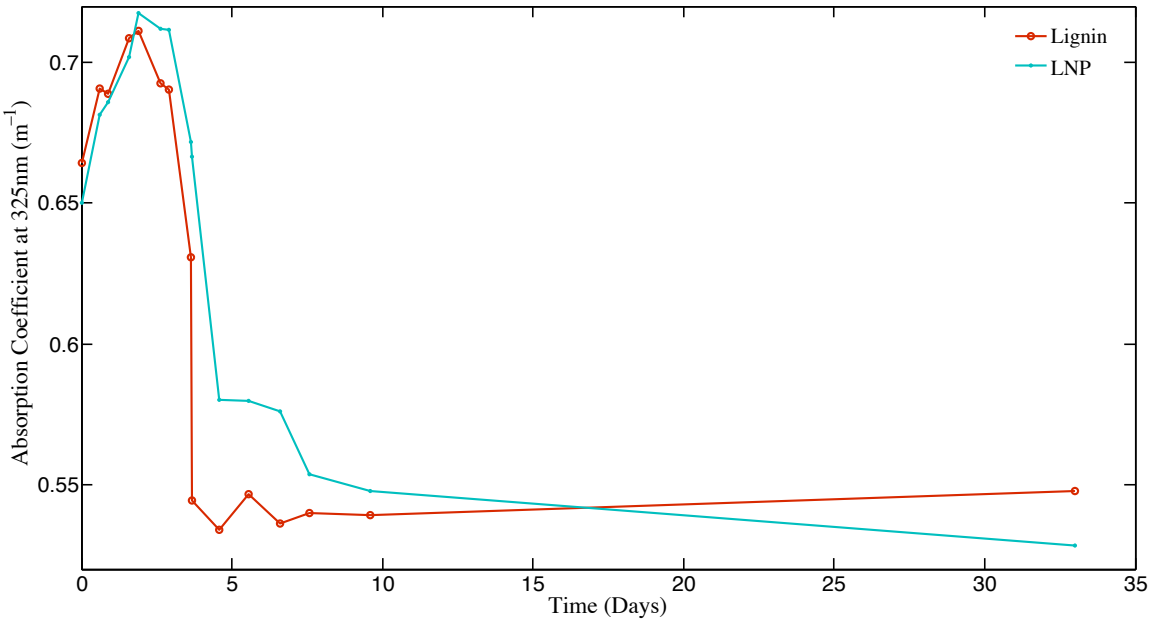

Figure S1. Changes in the CDOM absorption coefficient (m^{-1}) at 325 nm for LNP (blue line with dots) and Lignin treatments (orange line with circles) over time, for the full 35 day incubation.

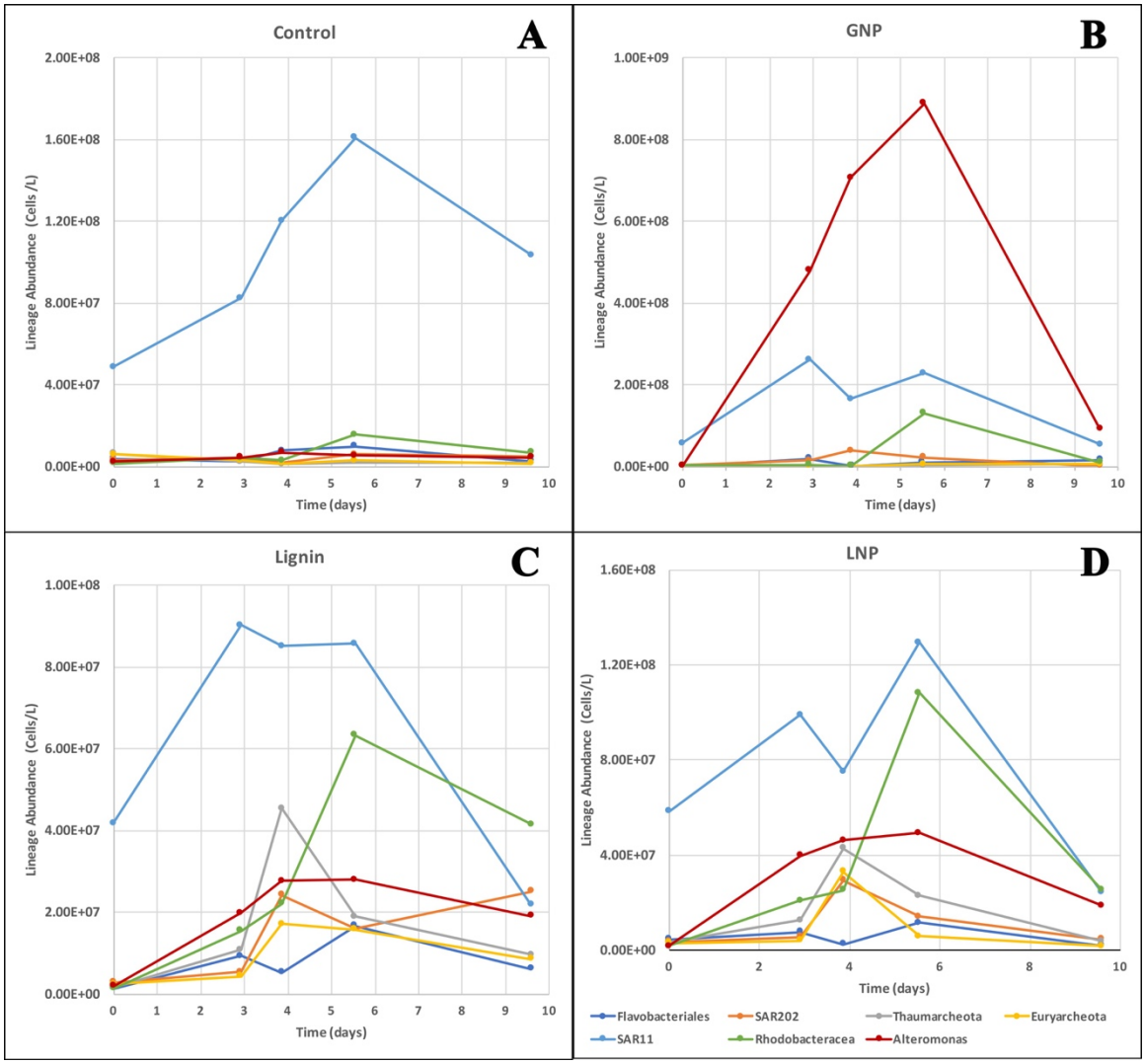

Figure S2. Changes in the absolute cell abundance (cells L^{-1}) of targeted groups using FISH and CARD-FISH (Flavobacteriales, SAR202, Thaumarchaeota, Euryarchaeota, SAR11, Rhodobacteracea and *Alteromonas*) in each of the four treatments A) Control B) GNP C) Lignin and D) LNP, between days 0 and 10. Please note the change in the scale of the Y axis between treatments. See Figure 1 for total prokaryotic cell counts.