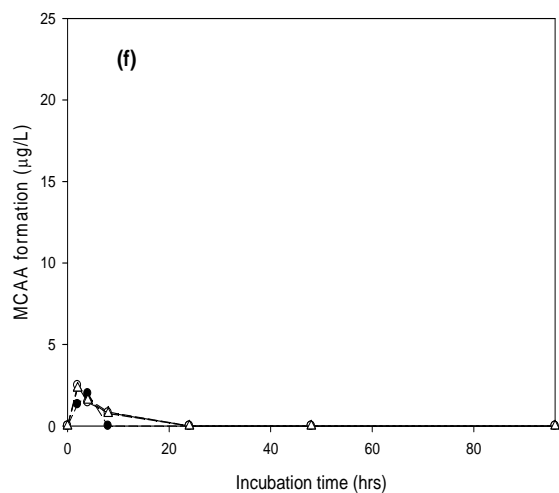
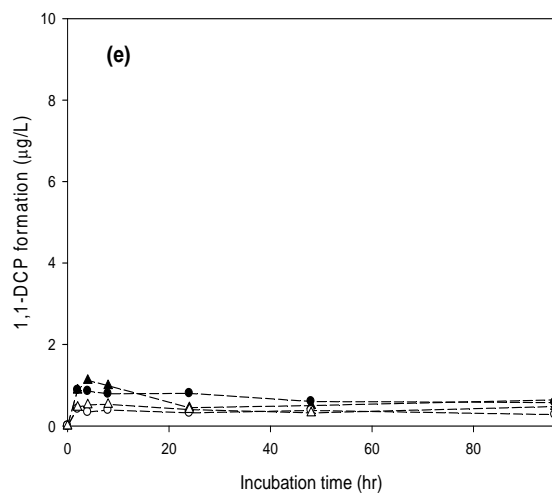
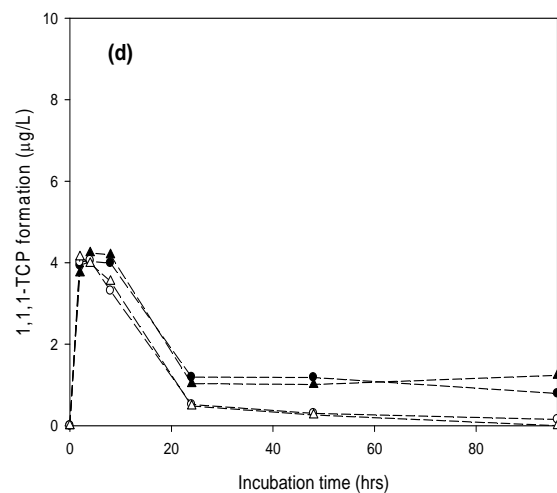
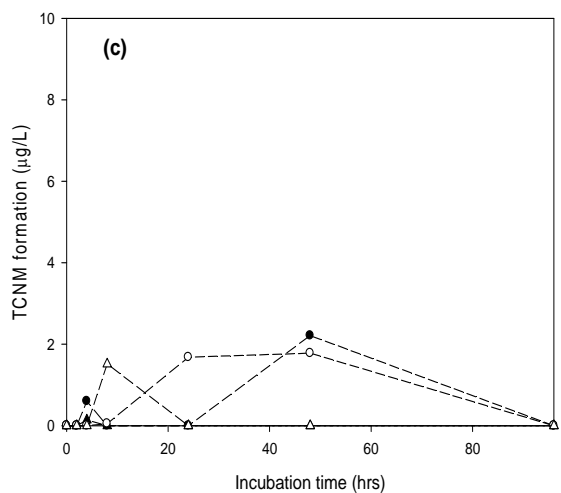
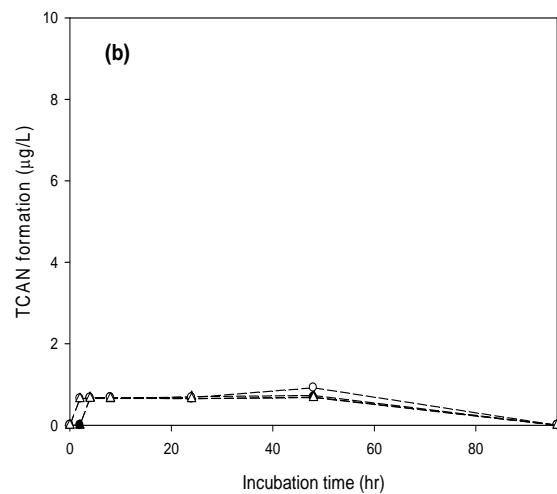
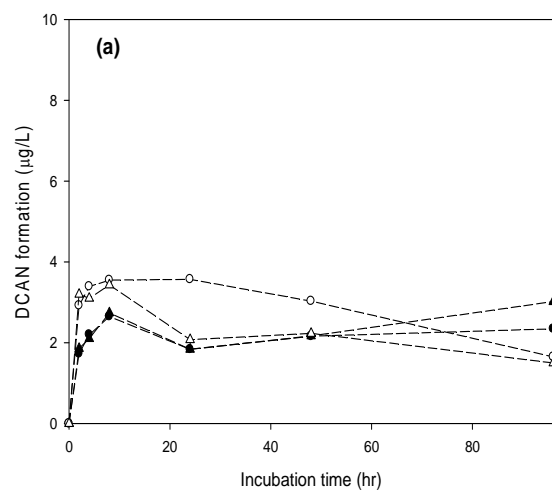


Supporting materials:

S1: Detailed speciation of HAN, HK and HAA at different contact time (water age).



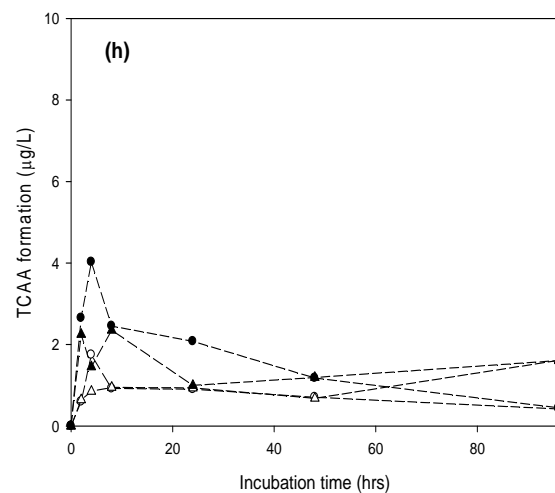
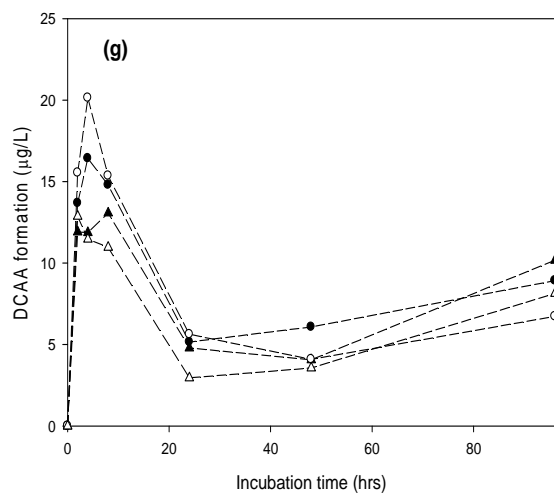
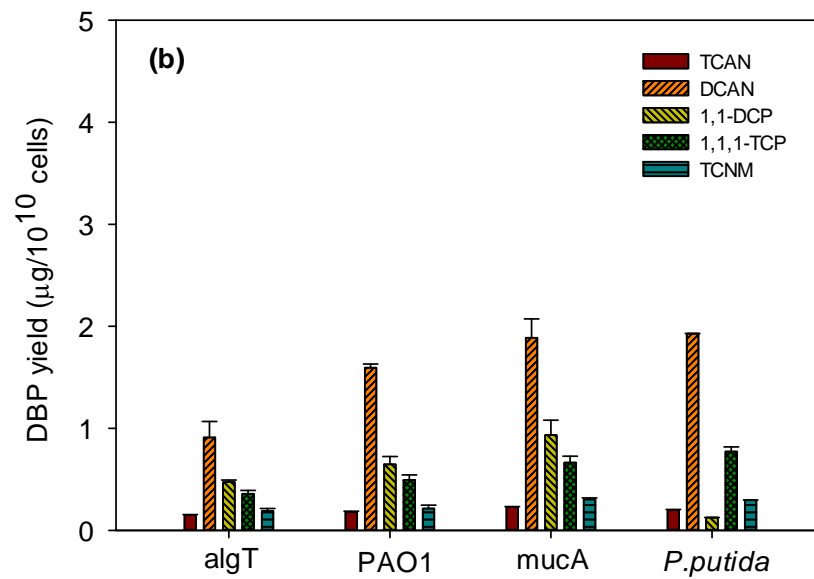
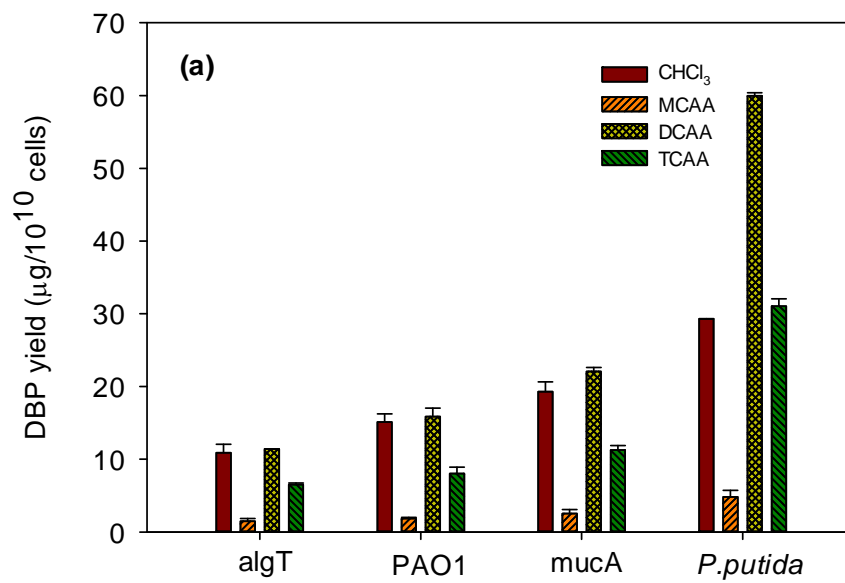


Figure S1. Detailed speciation of HAN, HK and HAA at different water age with incubation of 5 mg/L Cl₂. ●—PAO1 at pH=5.5; ▲—*P. putida* at pH=5.5; ○—PAO1 at pH=7.5; △—*P. putida* at pH=7.5.

S 2: Detailed speciation of regulated and emerging DBPs in Fig. 4



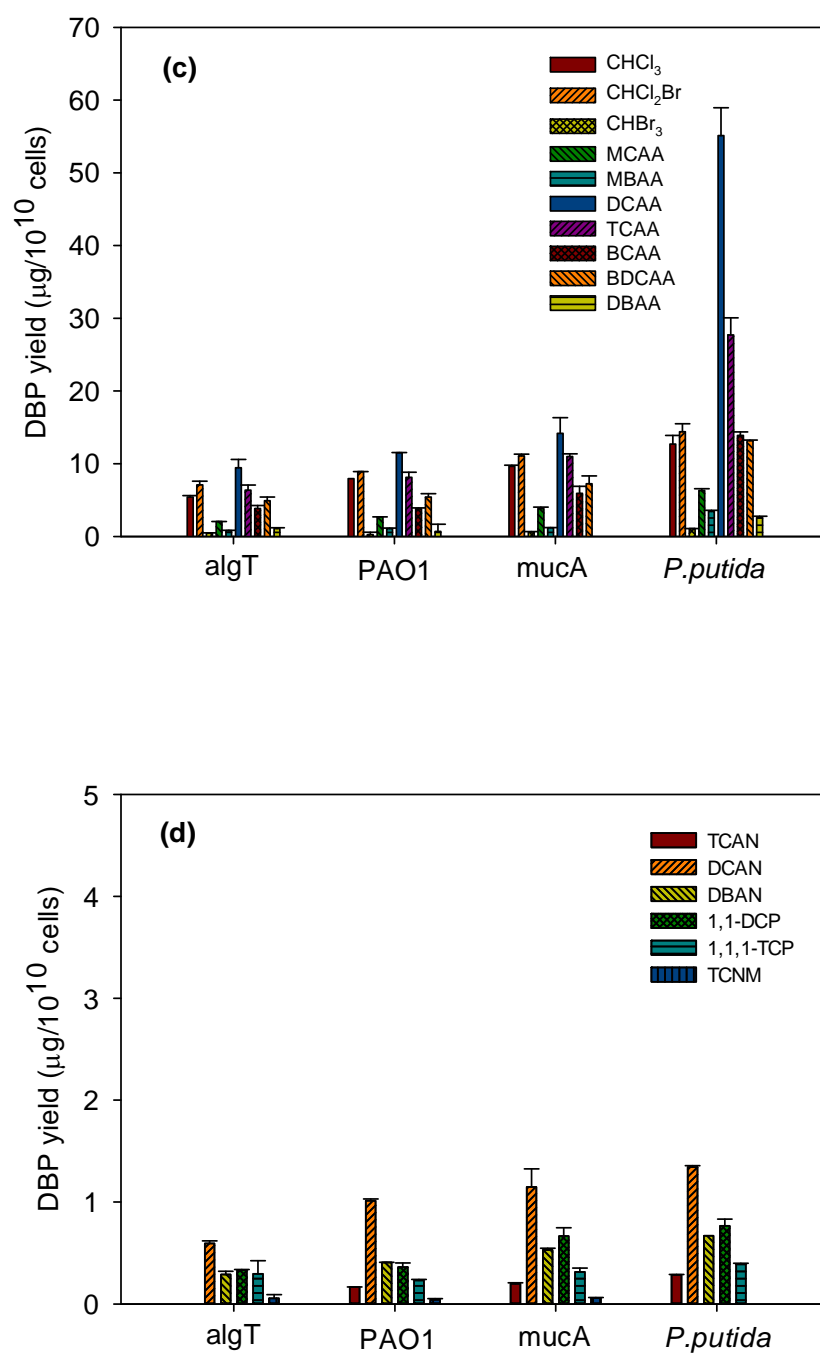


Figure S2: DBP yield upon chlorination of bacterial cells (detailed species) (a) regulated DBPs (THMs and HAAs) without bromide; (b) emerging DBPs (HANs, HKs and TCNM) without bromide; (c) regulated DBPs with bromide; (d) emerging DBPs with bromide

S3: Statistical analysis of DBP yields data.

Table S3-1: Results of one way ANOVA test for DBP yield among different bacterial cultures without bromide.

Bacterial cultures	algT		PAO1		mucA		<i>P.putida</i>		P³
	Ave¹	SD²	Ave	SD	Ave	SD	Ave	SD	
DBP yield (µg/10 ¹⁰ cells)									
THM	10.9 ^{ab}	1.2	15.1 ^a	1.1	19.3 ^a	1.3	29.3 ^c	0.0	<0.001
HAA	19.4 ^a	0.6	25.7 ^b	2.2	35.9 ^c	0.6	95.8 ^d	0.5	<0.001
HAN	1.1 ^b	0.2	1.8 ^a	0.0	2.1 ^{ab}	0.2	2.1 ^c	0.0	0.006
HK	0.8 ^a	0.0	1.1 ^b	0.1	1.6 ^{ab}	0.2	0.9 ^a	0.0	0.011
TCNM	0.2 ^a	0.0	0.2 ^{a/b}	0.0	0.3 ^a	0.0	0.3 ^{a/c}	0.0	0.014

1: Average category of DBP yield from duplicate sample

2: Standard Deviation

3: P-value of one way-ANOVA test. P<0.05 indicates there is significant statistical difference in certain DBP yield among four tested strains.

In each row, numbers not followed by a common letter are significantly different based on pairwise Tukey test (P<0.05).

Table S3-2: Results of one-way ANOVA test of DBP yield among different bacterial cultures with bromide.

Bacterial culture	algT		PAO1		mucA		<i>P.putida</i>		P³
	Ave¹	SD²	Ave	SD	Ave	SD	Ave	SD	
DBP yield (µg/10 ¹⁰ cells)									
THM	12.9 ^a	0.7	17.1 ^{a/b}	0.3	21.4 ^a	0.1	28.2 ^a	2.3	<0.001
HAA	28.5 ^a	2.9	33.4 ^a	0.2	43.4 ^{a/b}	4.4	121.2 ^a	6.6	<0.001
HAN	0.9 ^a	0.1	1.6 ^a	0.0	1.8 ^{a/b}	0.3	2.3 ^a	0.0	0.005
HK	0.6 ^a	0.1	0.6 ^{a/b}	0.1	1.0 ^{a/b}	0.1	1.2 ^a	0.1	0.011
TCNM	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.086

1: Average of category of DBP yield from duplicate sample

2: Standard Deviation

3: P-value of one way-ANOVA test. P<0.05 indicates there is significant statistical difference in certain DBP yield among four tested strains.

In each row, numbers not followed by a common letter are significantly different based on pairwise Tukey test (P<0.05).

Table S3-3: t-test results of DBP yield between polysaccharide based EPS and protein based EPS without bromide.

Extracted EPS	P. aeruginosa EPS		P. putida EPS		P ¹
	Ave.	SD	Ave.	SD	
DBP yield (µg/mgC)					
THM	46.9	0.5	70.7	4.8	0.010
HAA	52.7	8.7	75.0	4.7	0.043
HAN	1.0	0.0	1.8	0.5	0.076
HK	1.1	0.0	1.8	0.4	0.049
TCNM	0.5	0.1	1.0	0.3	0.102

1: One-tailed P-value of t-test. P<0.05 indicates that there is significant statistical difference between two extracted EPS

Table S3-4: t-test results of DBP yield between polysaccharide based EPS and protein based EPS with bromide.

Extracted EPS	P. aeruginosa EPS		P. putida EPS		P ¹
	Ave.	SD	Ave.	SD	
DBP yield (µg/mgC)					
THM	51.2	3.3	62.6	3.4	0.038
HAA	82.5	11.2	102.8	7.6	0.083
HAN	1.0	0.1	1.7	0.5	0.101
HK	0.7	0.1	1.2	0.1	0.023
TCNM	0.0	0.0	0.2	0.0	0.028

1: One-tailed P-value of t-test. P<0.05 indicates that there is significant statistical difference between two extracted EPS

Table S3-5: t-test results of DBP yield (C-DBP and N-DBP) between polysaccharide based EPS and protein based EPS without bromide.

Extracted EPS	P. aeruginosa EPS		P. putida EPS		
	Ave.	SD	Ave.	SD	P ¹
DBP yield (µg/mgC)					
C-DBP	99.6	8.1	145.7	9.5	0.017
N-DBP	2.6	0.2	4.6	1.2	0.073

1: One-tailed P-value of t-test. P<0.05 indicates that there is significant statistical difference between two extracted EPS

Table S3-6: t-test results of DBP yield (C-DBP and N-DBP) between polysaccharide based EPS and protein based EPS with bromide.

Extracted EPS	P. aeruginosa EPS		P. putida EPS		P ¹
	Ave.	SD	Ave.	SD	
DBP yield (µg/mgC)					
C-DBP	133.7	7.9	165.5	11.0	0.040
N-DBP	1.8	0.2	3.1	0.6	0.051

1: One-tailed P-value of t-test. P<0.05 indicates that there is significant statistical difference between two extracted EPS