

Figure S1 Structure of the four THMs

Table S1 Basic information of 4 THMs

Compound	Abbr	CASN	Formula	Molecular Weight
Trichloromethane	TCM	67-66-3	CHCl_3	119.38
Bromodichloromethane	BDCM	75-27-4	CHBrCl_2	163.829
Chlorodibromomethane	DBCM	124-48-1	CHBr_2Cl	208.28
Tribromomethane	TBM	75-25-2	CHBr_3	252.731

Table S2 The mass spectrum parameters of 4 THMs

THMs	Quantitative	Qualitative
	Ions (m/z)	Ions (m/z)
TCM	83	85, 47
BDCM	83	85, 129
DBCM	129	127
TBM	173	171, 91

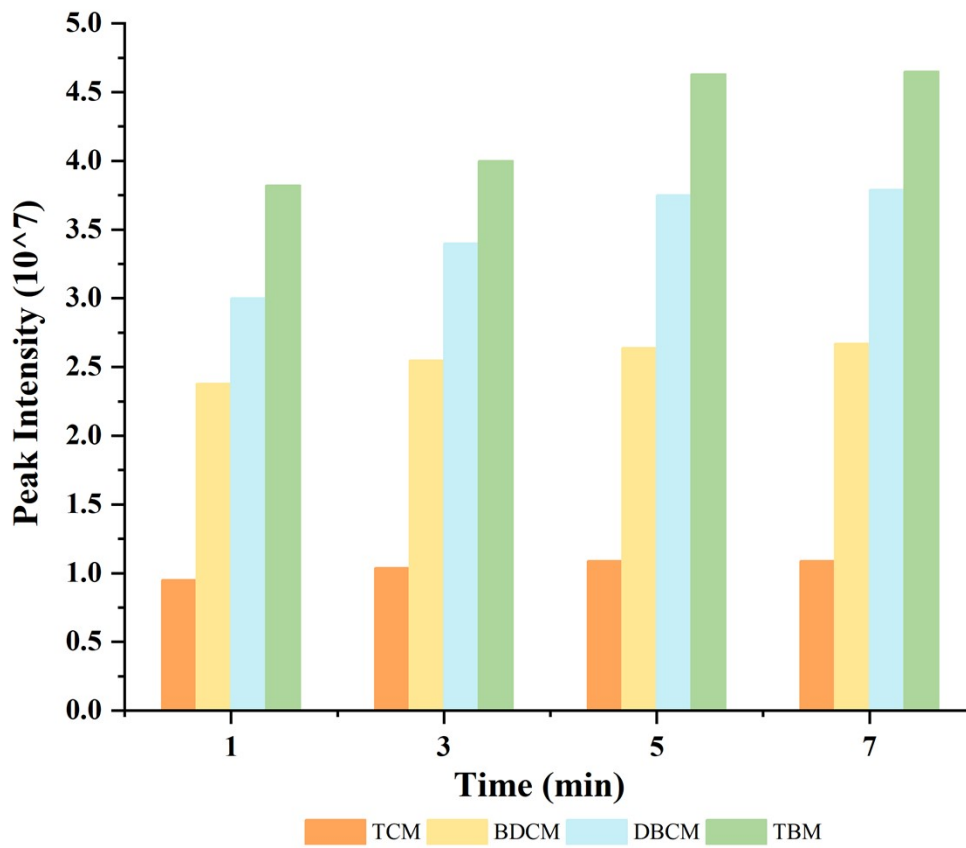


Figure S2 Comparison of peak area at different desorption times

Table S3 The concentration of THMs in the air of the swimming pool (ng L⁻¹)

	TCM	BDCM	DBCM	TBM
shallow water-low	158.08	12.51	4.84	2.08
deep water-low	218.87	20.49	8.45	2.41
Shallow water-high	75.44	8.54	4.17	2.06
deep water-high	154.75	17.32	6.67	2.10

Table S4 Basic information for children swimmers (n=11)

Variable	Mean±SD or n(%)
Age, year	10.55±2.46
Sex	
Male	6(54.5)
Female	5(45.5)
BMI, kg/m ²	16.59±2.09
Swimming duration, year	4.23±1.69
Monthly swim times	15.32±9.19

Table S5 Detection of THMs concentration in children swimmers' exhaled breath (ng L⁻¹)

	Minimum	P ₂₅	Median	P ₇₅	Maximum
Pre-swimming					
TCM	9.40	9.44	13.89	18.57	21.38
BDCM	2.47	2.48	2.80	3.30	3.51
DBCM	1.37	1.46	1.60	1.89	2.08
TBM	1.60	1.62	1.63	1.73	1.94
TTHMs	14.86	14.99	21.21	25.66	28.64
Post-swimming					
TCM	73.20	83.21	105.48	130.86	138.36
BDCM	7.95	9.51	10.76	12.54	14.88
DBCM	3.48	3.81	4.47	5.11	5.49
TBM	1.94	2.05	2.16	2.31	2.48
TTHMs	87.86	104.14	121.01	150.52	158.13

Table S6 Children swimmers' questionnaire information and THMs concentration in exhaled breath (n=11).

Coding	Sex	Age	High	Weight	Swimming year	Swimming time	TCM	Pre-swimming			Post-swimming			
								BDCM	DBCM	TBM	TCM	BDCM	DBCM	TBM
1	2	12	163	40	3.5	15-20	10.13	2.59	1.60	1.63	95.33	10.41	4.47	2.19
2	2	14	167	46	5	25	18.57	3.25	1.87	1.71	73.20	8.64	3.96	2.06
3	2	15	168	51	8	30	21.38	3.51	2.02	1.73	88.35	9.51	4.12	2.16
4	1	11	145	38	2	3	15.75	2.80	1.57	1.61	105.48	9.81	3.76	1.97
5	1	9	126	24	4	24	19.62	3.23	1.73	1.68	83.21	7.95	3.48	1.94
6	1	7	118	29	4	24	9.40	2.48	1.48	1.63	138.36	12.54	5.02	2.21
7	1	8	130	24	3	8	9.44	2.47	1.45	1.62	130.86	12.11	5.25	2.31
8	2	10	130	27	5	12	9.42	2.47	1.37	1.60	123.60	10.76	3.81	2.05
9	1	10	145	30	5	10	18.54	3.49	1.89	1.74	133.38	13.68	5.49	2.33
10	1	12	160	40	2	10	10.31	2.57	1.46	1.62	82.77	14.88	4.50	2.07
11	2	12	155	45	5	5	13.89	3.30	2.08	1.94	125.43	11.18	5.11	2.48
12	2	7	122	22	3	1	0.76	1.80	1.18	1.56	103.84	10.91	4.25	2.04
13	1	7	110	28	2	15	8.29	2.34	1.35	1.57	50.83	6.42	2.29	1.70
14	1	13	158	54	5	3	5.12	2.08	1.26	1.57	24.44	3.67	1.58	1.58
15	1	13	149	40	3	3-4	4.53	2.18	1.29	1.58	13.89	5.48	4.68	2.66
16	1	9	130	26	1.5	2	4.89	2.15	1.27	1.54	8.47	4.70	4.59	2.44

