

Supplemental Information for “Distribution and Fate of Polyethylene Microplastics Released by a Portable Toilet Manufacturer into a Freshwater Wetland and Lake”

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Table S1. Mass of core sediment samples and microplastic quantities found for sediment samples.

Core #1 – Location 1					
Depth (cm)	Mass Processed (g)	Mass MP (mg)	Number of Roto/100mL	Number of Large Plastic Particles	Total MP Count
0-5	18.8	202.7	~7620	8	7,628
5-10	19.1	170.1	~33	0	33
10-20	30	1.1	~200	1	201
20-30	30	5	250	0	250
Core #2 – Location 2					
Depth (cm)	Mass Processed (g)	Mass MP (mg)	Number of Roto/100mL	Number of Large Plastic Particles	Total MP Count
0-5	9.7	182.2	1840	37	1877
5-10	30.0	11.0	492	0	492
10-15	30.0	17.0	480	0	480
15-20	30.0	0.0	15	0	15
20-25	22.2	0.0	6	0	6
Core #3 – Location 3					
Depth (cm)	Mass Processed (g)	Mass MP (mg)	Number of Roto/100mL	Number of Large Plastic Particles	Total MP Count
0-5	30	97.1	5660	0	5660
5-10	30	0.0	0	0	0
10-20	30	0.0	4	0	4
20-30	30	0.0	3	0	3
Core #4 – Location 4					
Depth (cm)	Mass Processed (g)	Mass MP (mg)	Number of Roto/100mL	Number of Large Plastic Particles	Total MP Count
0-5	3.53	142.9	~2,180	34	~2214
5-10	22.1	0.0	80	0	80
10-20	30	0.0	0	0	0
20-30	30	0.0	0	0	0
Core #5 – Location 5					
Depth (cm)	Mass Processed (g)	Mass MP (mg)	Number of Roto/100mL	Number of Large Plastic Particles	Total MP Count
0-5	17.3	0	48	0	48
5-10	17.2	0	3	0	3
10-15	20.9	0	2	0	2
15-20	21.8	0	4	0	4

Table S2. Masses and numbers of microplastics (MP) isolated from 100 mL water samples collected from the George Lake area in April and October 2022 and May 2023. Locations 1 and 2 are the drainage outfall locations, 3 represents the open lake water and locations 4 and 5 are the marsh waters.

Sample location ID (Figure 1)	Mass, MP (g) (April 2022)	MP particles (April 2022)	Mass, MP (g) (October 2022)	MP particles (October 2022)	Mass, MP (g) (May 2023)	MP particles (May 2023)
1	15.530	123,680	0.0513	1643	0.431	18,594
2	13.459	411,440	NA	NA	0.230	3,331
3	0.745*	885*	NA	NA	0.106	726
4	1.288	29,040	0.0116*	4973*	0.153	25,703
5	0.624	8560	0.341*	11,674*	0.367*	3232*

*average of two or three samples; NA=not available

Table S3. Compounds tentatively identified from marsh sediment samples

Extraction/GC-MS	9-dodecyltetrahydroanthracene
Extraction/GC-MS	2,5-dimethyl-phenanthrene
Extraction/GC-MS	9-dodecyltetrahydrophenanthrene
Extraction/GC-MS	7-isopropyl-1,4a-dimethyldecahydronaphthalene
Extraction/GC-MS	BTEX compounds
SPME/GC-MS	3,5-dimethyl-1-hexene
SPME/GC-MS	2-methylbutane
SPME/GC-MS	3-methyl-3-pentanol
SPME/GC-MS	2-propenyloxybenzene



Figure S1. Core 5 sediment core, 52 cm depth. The organic sediment surface on the left contains visible (blue) microplastics. The sandy sediment at lower depths is on the right.

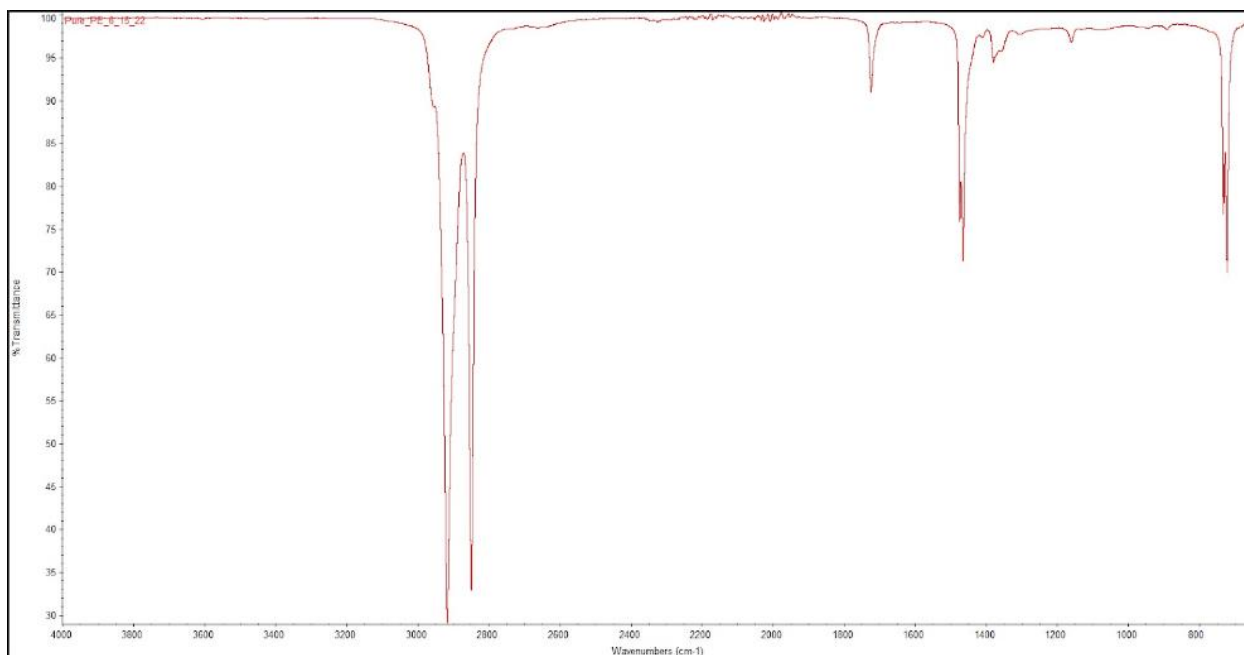


Figure S2. IR spectrum of clean polyethylene recovered from Poly John sample.

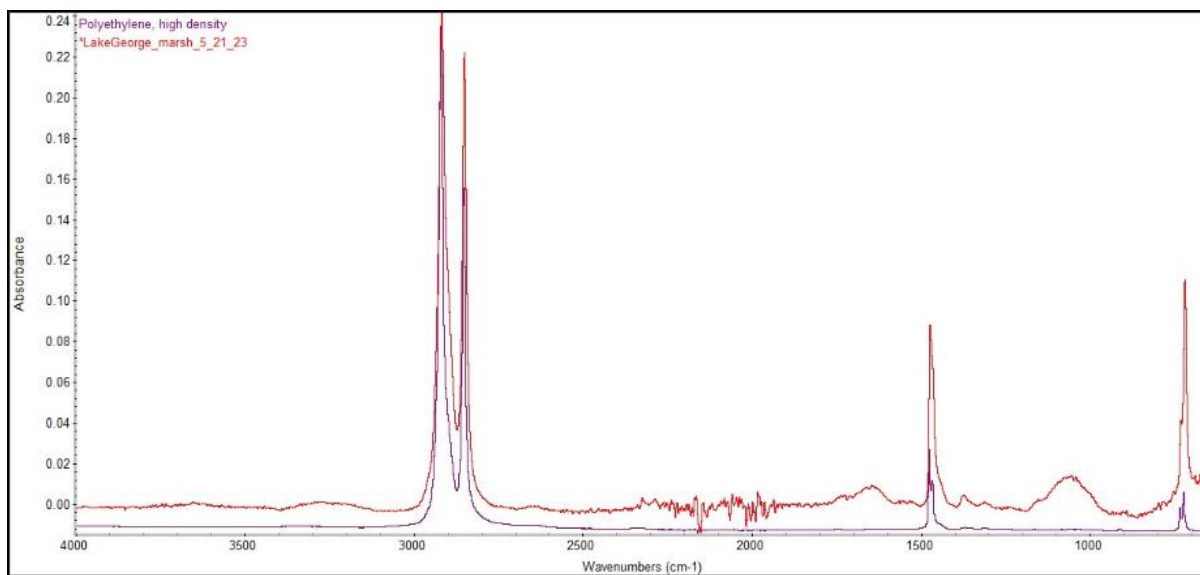


Figure S3. IR spectrum of rotopowder recovered from Poly John sample and library high-density polyethylene spectrum.

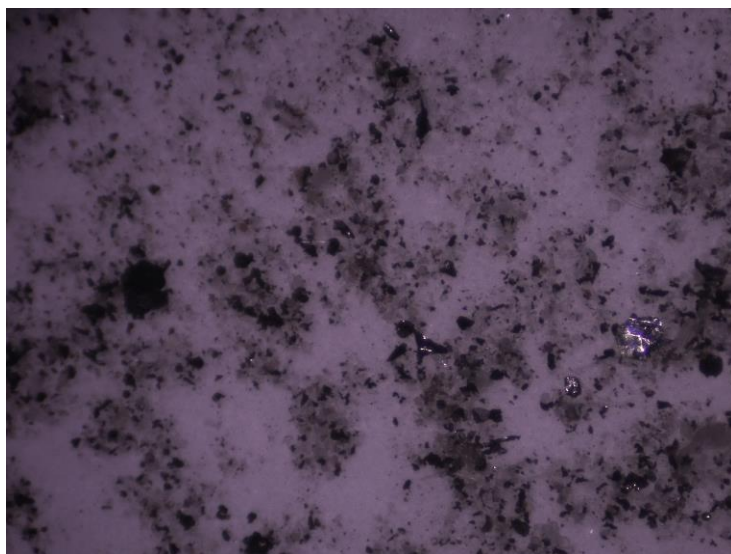


Figure S4. Stereomicroscope image of an oxidized sample from passive atmospheric particle collection near PolyJohn company.

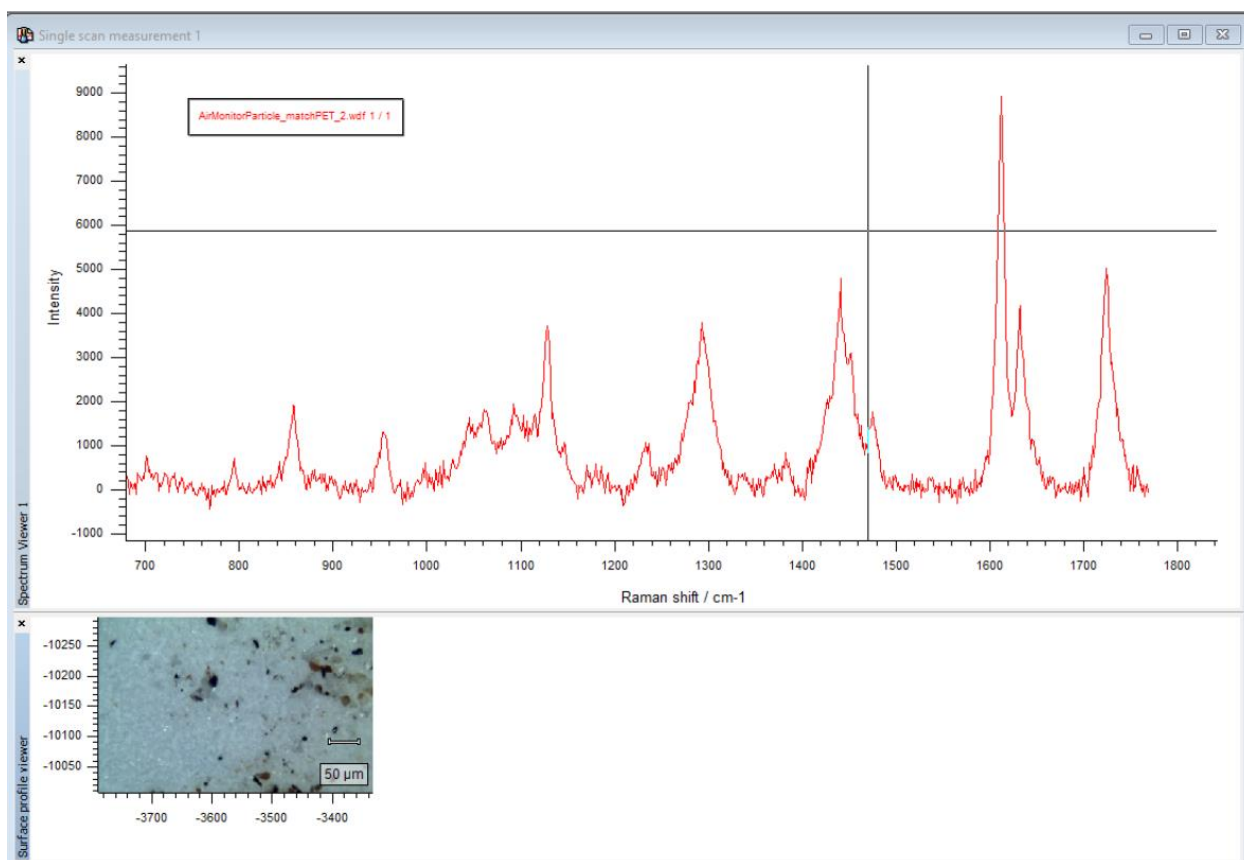


Figure S5. Raman spectrum of air monitor particles on surface of filter. The spectrum matched the library for polyethylene terephthalate, PET.