Supplementary data

A Microplastic Pollution Hotspot: Elevated Levels in Sediments from the San Francisco Bay Area

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1. Sampling of microplastics

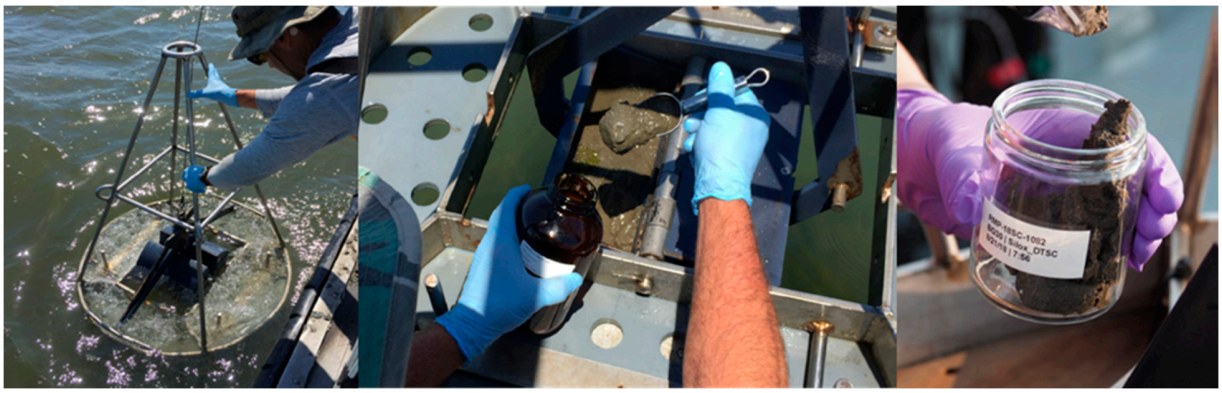


Figure S1 Sediment sampling

Table S1 MPs sampling points

N	SAMPLE ID	TARGET LATITUDE	TARGET LONGITUDE	DEPTH [M]	LOCATION
1	LSB01	37.46823888	-122.0639734	3.7+	Lower South Bay
2	LSB02	37.49183613	-122.0985143	3.7+	Lower South Bay
3	SB01	37.55903527	-122.210577	3.7+	South Bay
4	SB02	37.61019366	-122.1673764	0.3 to 0.9	South Bay
5	CB01	37.82232768	-122.3492815	3.7+	Central Bay
6	CB02	37.87631112	-122.3615019	1.8 to 3.7	Central Bay
7	NB01	38.05895268	-121.8143678	3.7+	North Bay
8	NB02	38.02282086	-121.8083671	3.7+	North Bay
C1	Core 1	37.507007	-122.245120		South Bay
C2	Core 2	37.504393	-122.215279		Lower South Bay

2. Surface sediment characteristics

Sample characteristics are presented in Table S2.

Table S2. Total mass analyzed per sample

Sample ID	Mass of the sample-wet weight [$g_{w.w.}$]	Humidity %	Mass of the sample-dry weight [$g_{d.w.}$]
1024 BA41	100.50	61.14	39.05
1036 BC11	100.60	54.60	45.67
1011 BA10	100.00	44.11	55.89
1201 SB002S	100.30	63.01	37.10
1161 LSB001S	100.80	50.92	49.47
1107 CB001S	102.10	50.42	50.63
1070 BG20	100.70	20.61	79.95
1082 BG30	100.10	23.31	76.77

Table S3. Cross-contamination

BLANK SAMPLE	CROSS-CONTAMINATION OF MPS DETECTED [TOTAL NUMBER]		
	fibers	*Films*	*fragments*
1. LABORATORY 1	34	1	-
2. TRANSPORTATION	1	-	-
3. LABORATORY 2	15	-	
4. FIELD BLANK 1137	2	3	1

- Laboratory 1: 1.13 fibers/day/cm^3
- Laboratory 2: 0.5 fibers/day/cm^3

3. Size distribution of surface sediment samples

The analysis of MPs size distribution in the studied areas revealed distinct patterns. In Lower South Bay and North Bay, the dominant size range for MPs was found to be between 5 mm and 500 µm, with a lower abundance in the size fraction of 500-25 µm. On the contrary, South Bay exhibited a higher abundance of MPs in the size fraction 500-25 µm. In Central Bay, one sample showed a dominant presence of higher fraction, while the other sample had a higher abundance in the lower 500-25 µm fraction. These findings emphasize the variability in MPs size distribution among the different Bay areas.

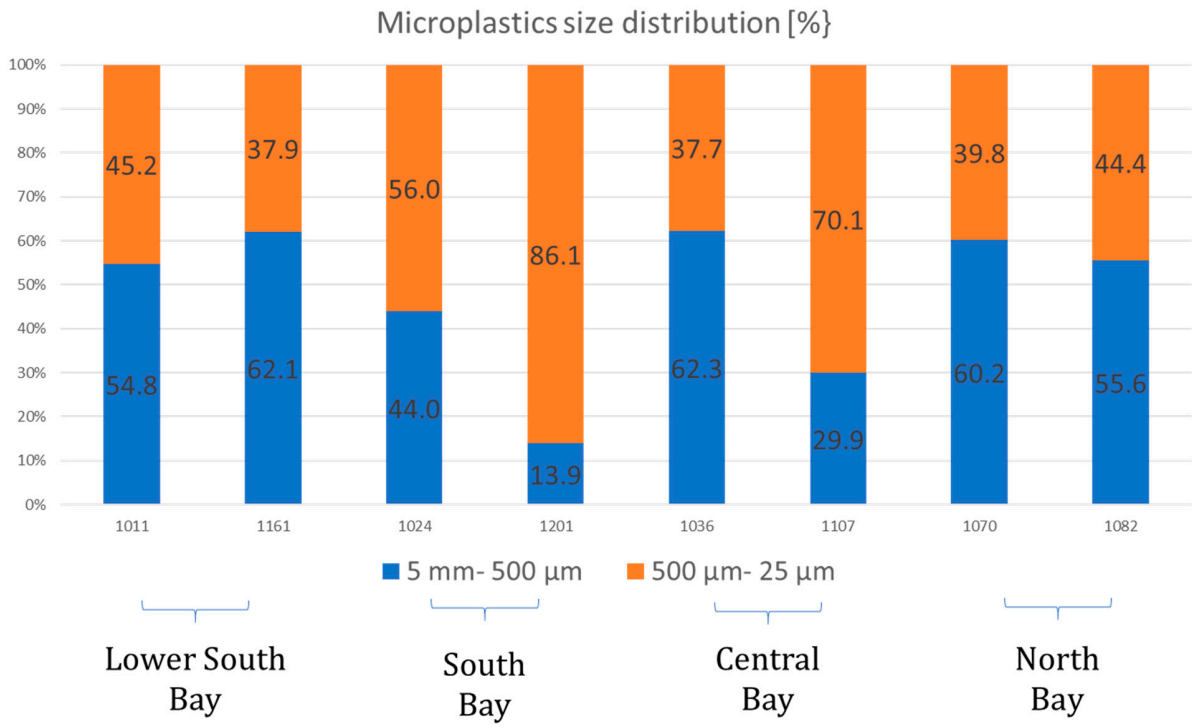


Figure S2 Microplastics size distribution in surface sediments

4. Elaboration of the maps on calcium fluoride slides

In order to identify chemical composition of microplastic particles, FTIR maps were prepared on calcium fluoride slides.

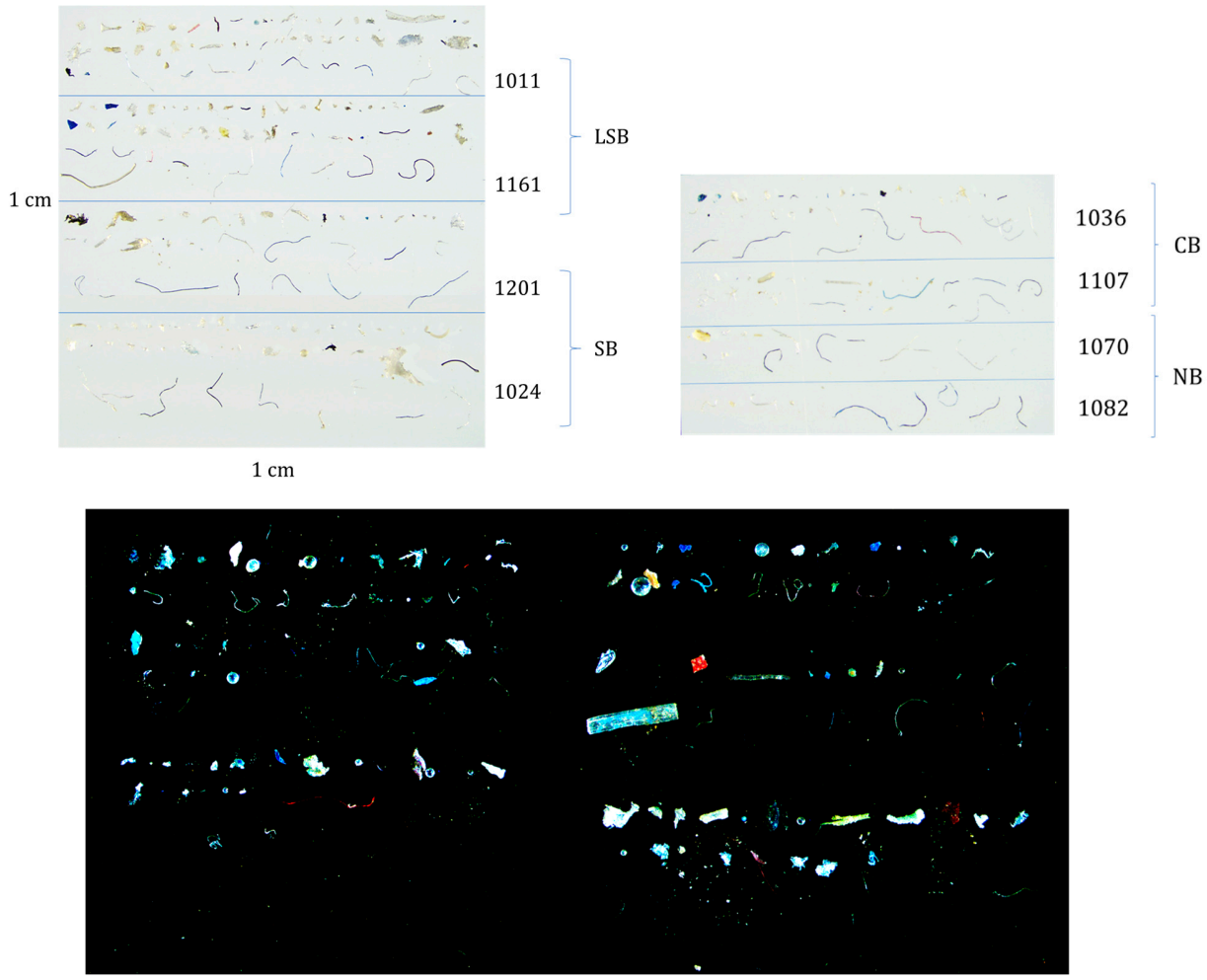
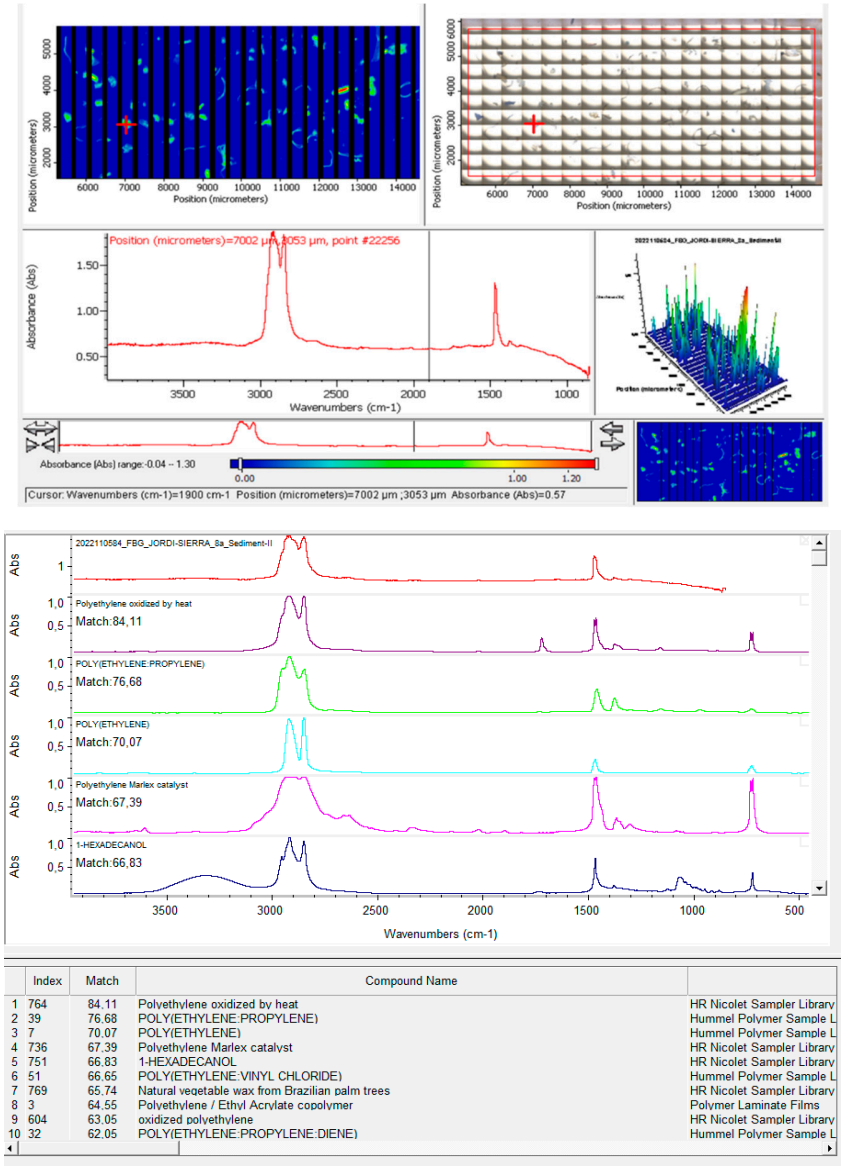


Figure S3 FTIR maps for microplastic identification

5. Software for advanced identification of microplasic particles

In order to analyze the spectra Omnic Picta software for advance microplastics identification was used. The acquired spectra were analyzed using the OMNIC Specta MCS Software. To identify the particles, an

unknown spectrum matching approach was employed by comparing them with available databases such as HR Nicolet Sampler Library, Hummel Polymer Sample Library, Polymer Laminate Films, Wizard Library, Willey's Know It All as well as an own library that was generated with more than 80 spectra. The standard criteria of ≥ 70% between the sample and reference spectra were followed.



	Index	Match	Compound Name	
1	764	84,11	Polyethylene oxidized by heat	HR Nicolet Sampler Library
2	39	76,68	POLY(ETHYLENE:PROPYLENE)	Hummel Polymer Sample L
3	7	70,07	POLY(ETHYLENE)	Hummel Polymer Sample L
4	736	67,39	Polyethylene Marlex catalyst	HR Nicolet Sampler Library
5	751	66,83	1-HEXADECANOL	HR Nicolet Sampler Library
6	51	66,65	POLY(ETHYLENE:VINYL CHLORIDE)	Hummel Polymer Sample L
7	769	65,74	Natural vegetable wax from Brazilian palm trees	HR Nicolet Sampler Library
8	3	64,55	Polyethylene / Ethyl Acrylate copolymer	Polymer Laminate Films
9	604	63,05	oxidized polyethylene	HR Nicolet Sampler Library
10	32	62,05	POLY(ETHYLENE:PROPYLENE:DIENE)	Hummel Polymer Sample L

Figure S4 OMNIC Specta MCS Software for microplastics identification