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TO: Mohsen Kourehdar
Toxics Cleanup Program, SWRO

FROM: Dale Norton D. N.
Toxics, Compliance and Ground Water Investigations Section, EILS

SUBJECT: PCB Results of Sediment Trap Samples near General Metals

Since July 1990 the Toxics Investigations Section, of the Environmental Investigations and Laboratory Services Program (EILS) has been conducting a sediment monitoring study in Hylebos Waterway with the use of moored sediment traps. The locations of the traps are shown in Figure 1. The primary objective of this study is to determine the concentrations of problem chemicals associated with settling particulate matter (SPM) currently entering Hylebos Waterway. The data collected are being used to evaluate the effectiveness of source control programs in reducing inputs of problem chemicals to the waterway.

Polychlorinated biphenyls (PCBs) were identified as problem chemicals in Hylebos Waterway during the Commencement Bay Nearshore/Tideflats Remedial Investigation. Consequently, PCBs are one of the target analytes in the sediment trap study. The results of PCB analysis of SPM samples from the sediment trap study are summarized in Table 1. Of particular concern is the high concentration measured for PCB 1242 (73,000 ug/kg, dry) from the most recent sample collected near General Metals. This concentration is well in excess of the Commencement Bay Cleanup Objective of 1000 ug/kg, dry. In addition, on an organic carbon (OC)-normalized basis (1600 mg/kg OC) it also exceeds Ecology's Sediment Management Standard of 12 mg/kg OC for total PCBs. I have examined the quality assurance data associated with these data and it is of acceptable quality.

Aside from the high concentration, the unusual aspect of this result is that PCB 1242 has been rarely detected in Hylebos Waterway. One noteworthy exception was during a PCB screening study of Hylebos Waterway (see Stinson *et al.*, 1987 attached) PCB 1242 was detected in several catch basin sediments from General Metals. These results are summarized in the attached memorandum dated October 23, 1986, from myself to Tom Eaton.

Given the drainage system modifications that are currently underway at General Metals, the source of PCB 1242 remains a mystery. However, the magnitude of this concentration probably warrants further investigation. Please give me a call if you need additional information.

DN:krc
Attachments

cc: Dave Smith
Bill Yake

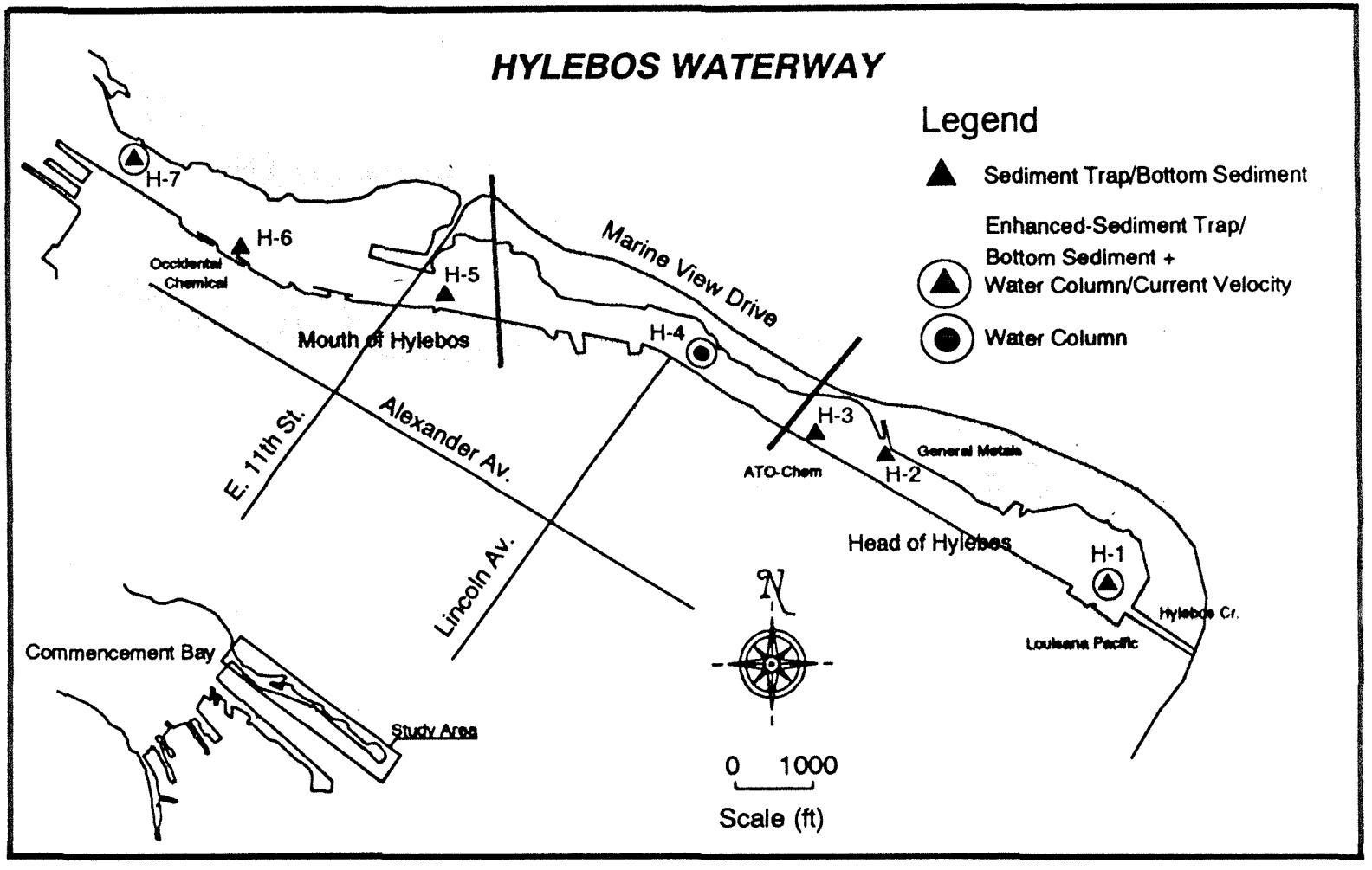

Figure 1: Station locations for Hylebos Waterway sediment trap monitoring project.

Table 1: Summary of polychlorinated biphenyls (PCBs) detected in settling particulate matter (SPM) from Hylebos Waterway July, 1990 – May, 1992 (ug/kg, dry)

Location	Upper Turning Basin				General Metals				ATO-CHEM			
Station No.	H-1				H-2				H-3			
Sample No.	–	8342	8551	8436	–	8345	8539	8452	8288	8361	8533	8363/64*
Collection Period	7/90–1/91	5–6/91	6–11/91	12/91–2/92	7/90–1/91	5–6/91	9–11/91	2–5/92	7/90–1/91	1–4/91	6–9/91	12/91–5/92
TOC (%)	–	2.4	5.8	6.0	–	2.1	4.6	4.6	4.7	2.2	4.5	3.9
1016	–	240 u	120 u	46 u	–	140 u	170 u	2100 u	120 u	110 u	520 u	180 u
1221	–	240 u	120 u	46 u	–	140 u	170 u	2100 u	120 u	110 u	520 u	180 u
1232	–	240 u	310 u	120 u	–	140 u	430 u	5200 u	120 u	110 u	1300 u	460 u
1242	–	240 u	100 j	46 u	–	140 u	170 u	73000	120 u	110 u	520 u	180 u
1248	–	240 u	120 u	46 u	–	140 u	170 u	2100 u	120 u	110 u	520 u	180 u
1254	–	200 j	570	160 u	–	560	1000	4200 u	1100	750	1500	2000
1260	–	160 j	160	250	–	400	380	1300 u	400	500	420	870
Total PCBs	–	360 j	830 j	250	–	960	1400	73000	1500	1300	1900	2900

*=Reported as mean of two samples

–=No sample (Sediment trap was not recovered)

u=Not detected at detection limit shown

j=Estimated concentration

=Exceeds Sediment Quality Values

Table 1 (cont.): Summary of polychlorinated biphenyls (PCBs) detected in settling particulate matter (SPM) from Hylebos Waterway July, 1990 – May, 1992 (ug/kg, dry)

Location	Lincoln Drain				Near 11th Street				Occidental Chemical			
Station No.	H-4				H-5				H-6			
Sample No.	8289	8351	–	–	8290		8543	8444	8291	8364	8546	8465
Collection Period	7/90–1/91	1–6/91	6–11/91	12/91–5/92	7/90–1/91	1–4/91	9–11/91	12/91–2/92	7/90–1/91	1–6/91	9–11/91	12/91–5/92
TOC (%)	4.3	2.2	–	–	2.8	–	7.3	3.4	3.5	1.9	3.2	2.5
1016	360 u	110 u	–	–	100 u	–	240 u	160 u	100 u	280 u	750 u	110 u
1221	360 u	110 u	–	–	100 u	–	240 u	160 u	100 u	280 u	750 u	110 u
1232	360 u	110 u	–	–	100 u	–	590 u	400 u	100 u	280 u	1900 u	280 u
1242	360 u	110 u	–	–	100 u	–	240 u	160 u	100 u	280 u	750 u	110 u
1248	360 u	110 u	–	–	100 u	–	240 u	160 u	100 u	280 u	750 u	110 u
1254	810	440	–	–	100 u	–	540	650	810	280 u	400	350
1260	360 u	550	–	–	780	–	670	940	540	380	750 u	380
Total PCBs	810	990	–	–	780	–	1200	1600	1400	380	400	730

*=Reported as mean of two samples

–=No sample (Sediment trap was not recovered)

u=Not detected at detection limit shown

j=Estimated concentration

=Exceeds Sediment Quality Values

Table 1 (cont.): Summary of polychlorinated biphenyls (PCBs) detected in settling particulate matter (SPM) from Hylebos Waterway July, 1990 – May, 1992 (ug/kg, dry)

Location	Mouth			
Station No.	H-7			
Sample No.	–	8365	8550	8467
Collection Period	7/90–1/91	1–6/91	9–11/91	12/91–5/92
TOC (%)	–	1.8	2.3	2.2
1016	–	120 u	87 u	100 u
1221	–	120 u	87 u	100 u
1232	–	120 u	220 u	260 u
1242	–	120 u	87 u	100 u
1248	–	120 u	87 u	100 u
1254	–	120 u	200 j	330
1260	–	130	110	100 u
Total PCBs	–	130	310 j	330

*=Reported as mean of two samples

–=No sample (Sediment trap was not recovered)

u=Not detected at detection limit shown

j=Estimated concentration

=Exceeds Sediment Quality Values