SUPPORTING INFORMATION

URBAN SOURCES OF SYNTHETIC MUSK COMPOUNDS TO THE ENVIRONMENT

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Text S1 Sampling, analytical approach, and instrumental analysis

(i) Indoor air from homes and offices Indoor polyurethane foam (PUF) disk-type passive samplers (PUF-PASs) were deployed mostly in homes, offices and others (*n* = 20). Samplers were deployed at the edge of the room at an approximate height of 1.5 m, away from any obvious sources of contamination. Samplers were deployed for 30 days between August and September 2006. Approximately 25 m^3 of air were collected for each sample, assuming a sampling rate of 0.7 m^3/day. Further details about each sampling site and method are published in Zhang et al[1].

(ii) Outdoor air along three urban-rural transects PUF-PASs were deployed along three transects (east, west, and north) across the Greater Toronto Area (GTA) with a total of 19 sites. PUF-PASs were deployed over four seasonal periods from 2007 to 2008. The deployment periods were: Autumn - October 2007 to January 2008; Winter - January 2008 to April 2008; Spring - April 2008 to July 2008; Summer - July 2008 to October 2008. Samplers were hung from isolated tree branches at a height of approximately 2 meters, mostly in small areas of park land. Each sample represented ~250 m^3 of air, assuming a sampling rate of 2.69 m^3/day. The sampling rate was determined based on a 125-day calibration study specifically designed for synthetic musk compounds (SMCs) [2]. Details about each passive sampling site are reported in Melymuk et al. [3].

(iii) Outdoor air from an urban site, city of Toronto Active air samples (*n* = 32) were collected on the roof of a 3-storey building located at downtown Toronto. Each sample consisted of one glass fiber filter (GFF) and two PUF plugs. Sampling was carried out every 12 days from October 2007 to October 2008 and each sample represented ~ 450 m^3 of air. Details of the sampling method are given in Melymuk et al. [4].

(iv) Outdoor air from WWTP. Archived air samples (*n* = 32) collected from 8 wastewater treatment plants (WWTPs) in Ontario were analyzed. Air samples were collected during the summer of 2013 and winter of 2014. Sampling was achieved by sorbent impregnated PUF-disk passive samplers (SIP-PASs). The SIP-PASs were deployed "on-site" (i.e. above the aeration tank or adjacent to the lagoon) and "off-site" (i.e. ~100-150 m away from the active area on the premises of the WWTP). Details of the sampling site and method are presented in Shoeib et al.,[5]. On average each sample represented ~ 280 m^3 of air, assuming sampling rate of 4 m^3/day

(v) Outdoor air from a rural site at Lake Ontario Archived air samples (*n* = 33) from Point Petre (PPT), a regionally-representative station located on the shore of Lake Ontario (43° 50' 34" N, 77° 09' 13" W) were analysed. The samples were collected in 2010 using high-volume active samplers that were equipped with one GFF and two polyurethane foams (PUFs). The sampling volume for each sample was approximately 340 m^3. Samples were collected every 12 days over one-year period. Details of the sampling method are reported previously[6].

(vi) Outdoor air from a remote site at Arctic Archived air samples (*n* = 21) from Alert, a Canadian High Arctic station (Nunavut, 82° 30'N, 62° 20' W) were obtained. Samples were collected from 2009 to 2010. Sampling was achieved by high-volume active samplers equipped with one GFF, and PUF/XAD/PUF sandwich. Each represented ~2000 m^3 of air. Description of sample collection is presented in Wong et al[7].

Storage, extraction and cleanup of the air samples

After the air samples were collected, the sorbent was transferred immediately to a glass jar, sealed with Teflon tape, and stored in a cooler for transportation. The samples were stored in a freezer at -10ºC until chemical analysis.

The chemical analysis of air samples from (i) indoor; (ii) urban-rural transects, and (iii) urban site was performed by University of Toronto (UT). Details of the extraction and cleanup methods have been previously reported [2]. In brief, PUF-PAS and PUF plugs were extracted by a Dionex ASE350 (Accelerated Solvent Extraction System) with dichloromethane (DCM). Filters were Soxhlet-extracted for 18 h with DCM. All samples were spiked with 50 ng of d_{10}-fluoranthene (Wellington Laboratories, Guelph, Canada) as internal standard prior to extraction. Samples were reduced in volume to 10 mL and solvent exchanged into hexane via rotary evaporation. The samples were split into two fractions: 70% for PCB/PBDE analysis and 30% for SMC analysis. The SMC fraction was then eluted through a 1-g silica SPE cartridge (Varian, Canada) with 25 ml of 50:50 DCM/Hexane. The sample was further reduced in volume to 100 µl using a Zymark TurboVap followed by nitrogen blow-down. Nonane was used as keeper. The samples were spiked with 100 ng of deuterated *p*-terphenyl as injection standard.

The air samples from the (iv) WWTP, (v) rural and (vi) remote site were analysed by ECCC and they all underwent similar analytical procedures. The WWTP air samples (iv) were extracted by a Dionex ASE350 using petroleum ether/acetone (83/17, v/v). Prior to extraction, known amount of mass-labelled volatile methyl-siloxanes (VMS) and per and poly-perfluoroalkyl substances (PFASs) were added to all the samples. The extracts were concentrated by rotary evaporation followed by gentle nitrogen blow-down to 500 µl using iso-octane as keeper. The extracts did not undergo cleanup procedure. The samples were spiked with 100 ng of mirex as both injection and internal standard [5].

The rural air samples (v) were extracted by Soxhlet apparatus with hexane, dried with anhydrous sodium sulfate, and cleanup using florisil column. Samples were concentrated to 1 mL and isooctane was used as keeper. 100 ng of mirex was added as injection and internal standard [6]. No mass-labelled compounds were added prior to extraction.

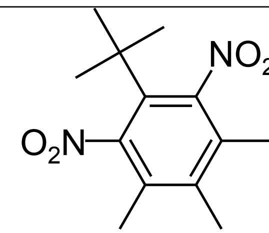
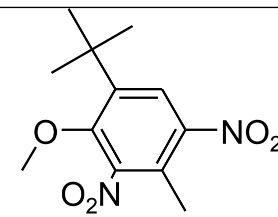
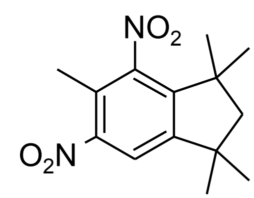
The remote air samples from the Canadian Arctic (vi) were extracted by Dionex ASE350 with hexane. The extracts were concentrated using rotary evaporation followed by gentle nitrogen, and blow-down to 500 µl using isooctane as keeper. The extracts did not undergo cleanup procedure. Prior to injection, 100 ng of mirex was added as injection and internal standard .

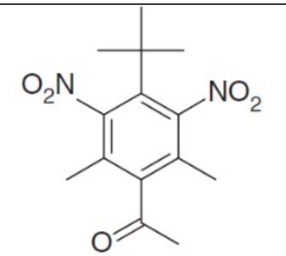
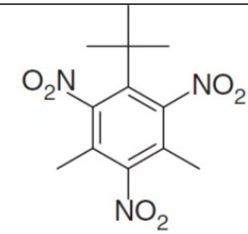
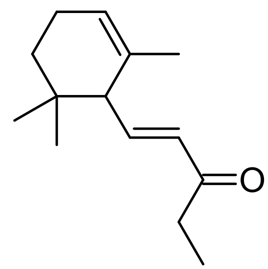
Instrumental analysis for SMCs

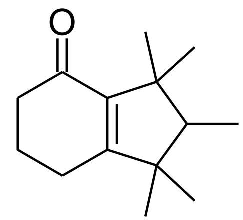
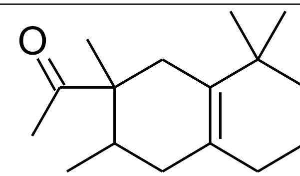
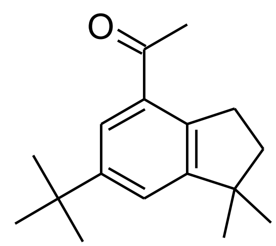
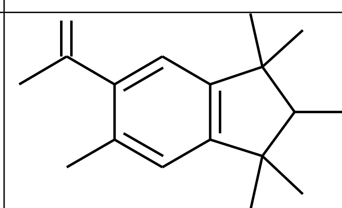
Table S1 presents the chemical name, musk type, CAS no., structure, supplier, % purity of standard used, solubility and half-life in air due to hydroxyl radical (OH) reaction of each target SMC. The indoor air, urban-rural transect air, urban air, surface water and WWTP effluents were analysed by UT. Six SMCs were analyzed in these samples, namely cashmeran (DPMI), galaxolide (HHCB), tonalide (AHTN), phanolide (AHMI), celestolide (ADBI), traseolide (ATII). These are all polycyclic musks (PCMs). Analysis was achieved by gas chromatography-mass spectrometry analysis (GC/MS), using an Agilent 6890N gas chromatograph coupled to an Agilent 5975 Inert Mass Selective Detector (MSD). SMC analysis was performed using a 60 m DB-5 column (0.25 mm I.D. x 0.25μm film thickness) running an oven temperature of 80°C for 1 min, 80°C to 130°C at 30°C/min, 130°C to 240°C at 3°C/min, 240°C to 300°C at 10°C/min and then 300°C for 15 min. The injector temperature was held at 280°C and the interface at 300 °C. The MS was operated in electron impact (EI) ionization single ion monitoring (SIM) mode, with the two most abundant ions for each analyte being monitored. Each SMC was identified on the basis of its retention time and ratio of its two most abundant ions. The monitored ions were: DPMI (191/206), ADBI (229/244), AHMI (229/244), ATII (215/258), HHCB (243/213), AHTN (243/258), d_{10}-fluoranthene (212/208), *p*-terphenyl (244/212). SMCs were quantified against the internal standard (d_{10}-fluoranthene) which was added prior to extraction. The injection standard (i.e. deuterated *p*-terphenyl) was used to quantify the recovery of the internal standard.

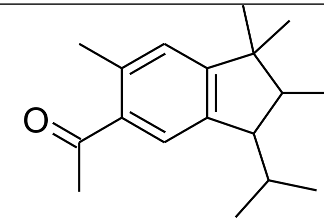
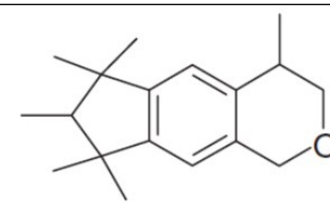
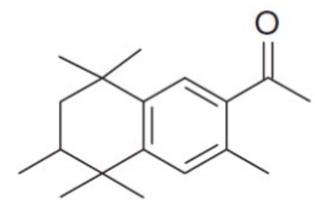
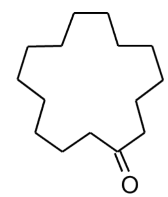
The archived air samples from WWTPs, rural site, and remote Arctic site were analyzed by ECCC. A total of 21 musks, including the 6 musk compounds analyzed by UT were measured (Table 1). Samples were analyzed using an Agilent 7000C triple quadrupole MS connected to a 7890B GC, operated in multiple reaction mode (MRM) under electron ionization (EI) condition. The monitoring transitions for each target chemical are presented in Table S2. GC injection was performed in splitless mode at 270°C. GC separation was accomplished using a 30 m DB5-ms (Agilent Technologies, Mississauga, Ontario) with helium at 1 mL/min constant flow as carrier gas. The oven temperature program was as follows: initial oven temperature was 80°C then raised to 160°C at 5°C/min and held for 8 min, raised to 230°C at 4°C/min, and raised to 300°C at 20°C/min. Each musk compound was identified on the basis of its retention time and ratio of its two most abundant MRM transitions. SMCs were quantified against the internal standard, i.e., mirex, which was added prior to instrumental analysis.

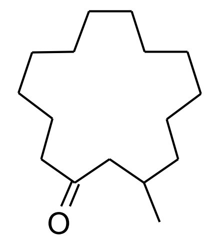
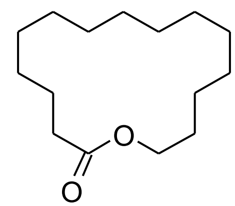
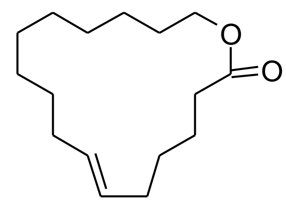
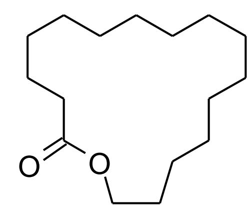
Table S1 Description of synthetic musk compounds. Na = not available; N = nitro-musk; PC = polycyclic musks; MC = macrocyclic musks. S = solubility; $t_{1/2,\ AIR}$ = degradation half-life in air.

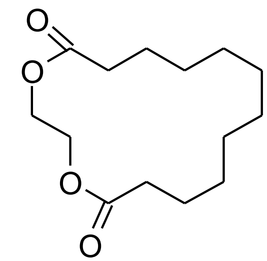
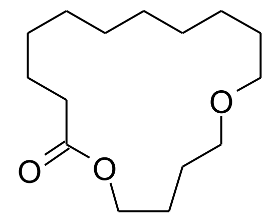
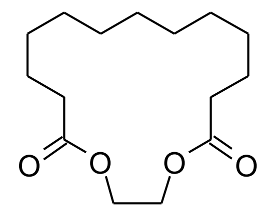
Type	**CAS no.**	**Common name (Abbrev.)**	**IUPAC Name**	**Supplier**	**% Purity**	**Structure**	**S (*mg/L*)**	**$t_{1/2}$, AIR (day)**[b]
N	145-39-1	Musk Tibetene (MT)	1-tert-butyl-3,4,5-trimethyl-2,6-dinitrobenzene	Sigma Aldrich	na		0.020[a] 0.29[b]	7.3
N	83-66-9	Musk Ambrette (MA)	1-tert-butyl-2-methoxy-4-methyl-3,5-dinitrobenzene	Sigma Aldrich	na		0.85[a] 2.1[b]	7.1
N	116-66-5	Musk Moskene (MM)	1,1,3,3,5-pentamethyl-4,6-dinitro-2H-indene	Sigma Aldrich	98		0.012[a] 0.17[b]	6.1

Type	CAS no.	Common name (Abbrev.)	IUPAC Name	Supplier	% Purity	Structure	S (*mg/L*)	$t_{1/2, AIR}$ (day)[b]
N	81-14-1	Musk Ketone (MK)	1-(4-tert-butyl-2,6-dimethyl-3,5-dinitrophenyl)ethanone	Sigma Aldrich	98		1.9[c] 0.56[a] 1.2[b]	8.3
N	81-15-2	Musk Xylene (MX)	1-tert-butyl-3,5-dimethyl-2,4,6-trinitrobenzene	Sigma Aldrich	98		0.49[c] 0.25[a] 0.82[b]	13
PC	7779-30-8	1-Methyl-Alpha-Ionone	1-(2,6,6-trimethyl-2-cyclohexen-1-yl)-1-penten-3-one	Sigma Aldrich	na		3.3 [b]	0.9

Type	CAS no.	Common name (Abbrev.)	IUPAC Name	Supplier	% Purity	Structure	S (*mg/L*)	$t_{1/2, AIR}$ (day)[b]
PC	33704-61-9	Cashmeran (DPMI)	1,1,2,3,3-pentamethyl-2,5,6,7-tetrahydroinden-4-one	TRC	96		0.21[a] 5.9[b]	0.1
PC	54464-57-2	Iso E super (OTNE)	1-(2,3,8,8-tetramethyl-1,3,4,5,6,7-hexahydronaphthalen-2-yl)ethanone	TRC	95		1.07[b]	0.083 0.058[d]
PC	13171-00-1	Celestolide (ADBI)	1-(6-tert-butyl-1,1-dimethyl-2,3-dihydroinden-4-yl)ethanone	TRC	98		0.018[a] 0.22[b]	1.4
PC	15323-35-0	Phantolide (AHMI)	1-(1,1,2,3,3,6-hexamethyl-2H-inden-5-yl)ethanone	TRC	96		0.030[a] 0.25[b]	0.7

Type	CAS no.	Common name (Abbrev.)	IUPAC Name	Supplier	% Purity	Structure	S (*mg/L*)	$t_{1/2,\ AIR}$ (day)[b]
PC	68140-48-7	Traseolide (ATII)	1-(1,1,2,6-tetramethyl-3-propan-2-yl-2,3-dihydroinden-5-yl)ethanone	TRC	97		0.090[a] 0.087[b]	0.6
PC	1222-05-5	Galaxolide (HHCB)	4,6,6,7,8,8-hexamethyl-1,3,4,6,7,8-hexahydrocyclopenta[g]isochromene	TRC	95		0.19[a] 0.19[b]	0.22[d]
PC	21145-77-7	Tonalide (AHTN)	1-(3,5,5,6,8,8-hexamethyl-6,7-dihydronaphthalen-2-yl)ethanone	TRC	98		0.0073[a] 0.29[b]	0.6
MC	502-72-7	Exaltone	Cyclopentadecanone	Sigma Aldrich	98		0.59[b]	0.43

Type	CAS no.	Common name (Abbrev.)	IUPAC Name	Supplier	% Purity	Structure	S (*mg/L*)	$t_{1/2,\ AIR}$ (day)[b]
MC	541-91-3	Muscone	3-methylcyclopentadecan-1-one	TRC	98		0.22[b]	0.36
MC	106-02-5	Exaltolide	Oxacyclohexadecan-2-one	Sigma Aldrich	98		0.15 [b]	0.56
MC	7779-50-2	Ambrettolide	1-oxacycloheptadec-7-en-2-one	Sigma Aldrich	98		0.59[b]	0.15
MC	109-29-5	16-Hexadecanolide	Oxacycloheptadecan-2-one	Sigma Aldrich	97		0.047[b]	0.52

Type	CAS no.	Common name (Abbrev.)	IUPAC Name	Supplier	% Purity	Structure	S (*mg/L*)	$t_{1/2,\ AIR}$ (day)[b]
MC	54982-83-1	Musk MC-4	1,4-dioxacyclohexadecane-5,16-dione,	Sigma Aldrich	na		5.4[b]	0.68
MC	6707-60-4	Cervolide	1,6-dioxacycloheptadecan-7-one	Sigma Aldrich	na		1.4[b]	0.30
MC	105-95-3	Ethylene brassylate, or Musk T	1,4-dioxacycloheptadecane-5,17-dione	Sigma Aldrich	97		1.7[b]	0.63

[a]Paasivirta et al., 2002. [8]

[b]US EPA., 2018. [9] EPI Suite™ version 4.11. Specific methods used: i) solubility - WSKOW v1.42, based on EPI Suite estimated log $K_{OW;}$ ii) HLC - HENRYWIN v3.20 based on bond method; iii) Log K_{OW} - KOWWIN v1.68; iv) Sub-cooled liquid VP - MPBPWIN v1.43, based on mod-grain method; v) Log K_{OA} - KOAWIN v1.10

[c]Tas et al., 1997. [10]

[d]Aschmann et al. (2001)[11]

Table S2 Multiple Reaction Monitoring (MRM) transitions in electron ionization mode (EI) and instrument detection limits (IDLs) for synthetic musk compounds analyzed by GC/MS/MS by Environment and Climate Change Canada (ECCC).

Compound	Quantifying MRM	Qualifying MRM
Musk Tibetene (MT)	266.1 → 251	251.1 → 91
Musk Ambrette (MA)	268.1 → 253	253.1 → 91.1
Musk Moskene (MM)	263.1 → 128	278.1 → 263
Musk Ketone (MK)	279.1 → 91	294.1 → 279.1
Musk Xylene (MX)	282.1 → 91	297.1 → 282.1
1-Methyl-Alpha-Ionone	206.2 → 191.1	191.1 → 161.2
Cashmeran (DPMI)	206.2 → 191.1	191.0 → 91
Iso E super (OTNE)	191.0 → 121	119.0 → 91
Celestolide (ADBI)	229.2 → 173.1	244.2 → 229.2
Phantolide (AHMI)	244.2 → 229.1	229.2 → 171.2
Traseolide (ATII)	215.1 → 173.1	258.2 → 215.1
Galaxolide (HHCB)	243.2 → 213.1	258.2 → 243.2
Tonalide (AHTN)	258.2 → 243.2	243.1 → 159
Exaltone	224.2 → 98.1	166.1 → 81
Muskone	238.2 → 112.1	209.2 → 95.1
Exaltolide	180.2 → 95.1	222.2 → 111.2
Ambrettolide	252.2 → 123.1	234.2 → 93
16-Hexadecanolide	254.2 → 99.1	236.2 → 95
Musk MC-4	213.1 → 149.1	173.1 → 111.1
Cervolide	182.1 → 122	181.0 → 135
Ethylene brassylate	187.1 → 125.1	227.2 → 163.1

Table S3 Recoveries (%) of native synthetic musk compounds (SMCs) extracted by Environment and Climate Change Canada (ECCC) and University of Toronto (UT).

Compound	ECCC PUF/XAD/PUF (*n* = 3)	ECCC Filter (*n* = 3)	UT PUF and Filter (*n* = 3)	UT Water (*n* = 4)
Musk Tibetene (MT)	85±1.7%	70±5.8%		
Musk Ambrette (MA)	85±0.4%	78±5.2%		
Musk Moskene (MM)	82±2.5%	76±8.0%		
Musk Ketone (MK)	117±8.4%	75±15%		
Musk Xylene (MX)	90±6.3%	78±10%		
1-Methyl-Alpha-Ionone	130±18%	79±13%		
Cashmeran (DPMI)	113±6.9%	76±9%		
Iso E super (OTNE)	137±14%	73±18%		
Celestolide (ADBI)	119±6.0%	76±12%	99 ± 1%	109 ± 6%
Phantolide (AHMI)	99±4.2%	66±9%	96 ± 8%	109 ± 6%
Traseolide (ATII)	113±7.2%	70±12%	110 ± 12%	119 ± 9%
Galaxolide (HHCB)	102±1.2%	77±6.6%	102 ± 4%	103 ± 46%
Tonalide (AHTN)	109±3.6%	70±11%	90 ± 12%	113 ± 12%
Exaltone	105±17%	73±8.7%		
Muskone	121±3.8%	77±7.4%		
Exaltolide	137±1.5%	93±21%		
Ambrettolide	110±8.0%	84±8.7%		
16-Hexadecanolide	96±4.2%	71±7.6%		
Musk MC-4	121±4.2%	77±7.4%		
Cervolide	126±0.59%	91±4.1%		
Ethylene brassylate	153±3.7%	86±17%		

Table S4 Instrumental detection limit (ng/m^3) for synthetic musk compounds (SMCs). "-" = not analyzed. Assumed volume for Indoor air = 25 m^3; U-R transect air = 250 m^3; Urban air = 450 m^3; WWTP air = 280 m^3; Rural air = 340 m^3; Arctic air = 2000 m^3, tributary surface water = 18 L; WWTP effluent = 2 L; soils = 25 g dry weight, 10% moisture.

Compound	Indoor air ng/m^3	U-R air transect ng/m^3	Urban air ng/m^3	WWTP air ng/m^3	Rural air ng/m^3	Remote air ng/m^3
Musk Tibetene (MT)	-	-	-	6.4E-04	5.3E-04	9.0E-05
Musk Ambrette (MA)	-	-	-	4.6E-04	3.8E-04	6.5E-05
Musk Moskene (MM)	-	-	-	1.9E-03	1.5E-03	2.6E-04
Musk Ketone (MK)	-	-	-	1.7E-03	1.4E-03	2.4E-04
Musk Xylene (MX)	-	-	-	2.8E-03	2.3E-03	3.9E-04
1-Methyl-Alpha-Ionone	-	-	-	3.6E-03	3.0E-03	5.1E-04
Cashmeran (DPMI)	0.0066	0.66	3.7E-04	1.1E-03	8.8E-04	1.5E-04
Iso E super (OTNE)	-	-	-	1.2E-03	9.7E-04	1.7E-04
Celestolide (ADBI)	0.0033	0.33	1.8E-04	7.1E-05	5.9E-05	1.0E-05
Phantolide (AHMI)	0.0031	0.31	1.7E-04	1.1E-04	8.8E-05	1.5E-05
Traseolide (ATII)	0.0031	0.31	1.7E-04	3.6E-04	2.9E-04	5.0E-05
Galaxolide (HHCB)	0.0044	0.44	2.4E-04	3.9E-04	3.2E-04	5.5E-05
Tonalide (AHTN)	0.0031	0.31	1.7E-04	2.9E-04	2.4E-04	4.0E-05
Exaltone	-	-	-	1.0E-03	8.5E-04	1.5E-04
Muskone	-	-	-	2.3E-03	1.9E-03	3.2E-04
Exaltolide	-	-	-	5.5E-03	4.5E-03	7.7E-04
Ambrettolide	-	-	-	2.9E-03	2.4E-03	4.1E-04
16-Hexadecanolide	-	-	-	9.6E-04	7.9E-04	1.4E-04
Musk MC-4	-	-	-	5.4E-04	4.4E-04	7.5E-05
Cervolide	-	-	-	3.1E-03	2.6E-03	4.4E-04
Ethylene brassylate	-	-	-	2.9E-04	2.4E-04	4.0E-05

Compound	Tributary surface water ng/L	WWTP Effluent ng/L	Soils ng/g
Cashmeran (DPMI)	0.082	0.0087	0.0073
Celestolide (ADBI)	0.041	0.0043	0.0036
Phantolide (AHMI)	0.038	0.0040	0.0034
Traseolide (ATII)	0.039	0.0041	0.0035
Galaxolide (HHCB)	0.055	0.0057	0.0048
Tonalide (AHTN)	0.039	0.0041	0.0035

Table S5 Synthetic musk compounds (SMCs) in mean blanks ± standard deviations for air (ng/m^3) and water (ng/L). *n* = number of blanks. nd = non-detect; "-" = not analyzed. Assumed volume for Indoor air = 25 m^3; U-R transect air = 250 m^3; Urban air = 450 m^3; WWTP air = 280 m^3; Rural air = 340 m^3; Arctic air = 2000 m^3, tributary surface water = 18 L; WWTP effluent = 2 L; soils = 25 g dry weight, 10% moisture

Compound	Indoor air (*n* = 13) ng/m^3	U-R air transect (*n* = 13) ng/m^3	Urban air (*n* = 3) ng/m^3	WWTP air (*n* = 15) ng/m^3	Rural air (*n* = 8) ng/m^3	Remote air (*n* = 8) ng/m^3
Musk Tibetene (MT)	-	-	-	nd	nd	nd
Musk Ambrette (MA)	-	-	-	nd	nd	nd
Musk Moskene (MM)	-	-	-	nd	nd	nd
Musk Ketone (MK)	-	-	-	nd	nd	nd
Musk Xylene (MX)	-	-	-	nd	nd	nd
1-Methyl-Alpha-Ionone	-	-	-	nd	nd	nd
Cashmeran (DPMI)	nd	nd	nd	nd	nd	nd
Iso E super (OTNE)	-	-	-	nd	nd	nd
Celestolide (ADBI)	0.076 ± 0.094	0.0076 ± 0.0094	0.0017 ± 7.7e-04	0.050 ± 0.014	nd	nd
Phantolide (AHMI)	1.9E-03 ± 4.8E-03	1.9E-04 ± 4.8E-04	5.0E-04 ± 5.8E-04	0.044 ± 0.0003	nd	nd
Traseolide (ATII)	0.020 ± 0.018	0.0020 ± 0.0018	0.0013 ± 0.00085	nd	nd	nd
Galaxolide (HHCB)	1.8 ± 1.1	0.18 ± 0.11	0.15 ± 0.041	0.15 ± 0.10	0.033 ± 0.0059	0.0049 ± 0.0053
Tonalide (AHTN)	0.35 ± 0.17	0.035 ± 0.017	0.026 ± 0.0079	0.089 ± 0.028	0.032 ± 0.0003	nd
Exaltone	-	-	-	nd	nd	nd
Muskone	-	-	-	nd	nd	nd
Exaltolide	-	-	-	nd	nd	nd
Ambrettolide	-	-	-	nd	nd	nd
16-Hexadecanolide	-	-	-	0.067 ± 0.016	nd	nd
Musk MC-4	-	-	-	0.045 ± 0.0009	nd	nd
Cervolide	-	-	-	nd	nd	nd
Ethylene brassylate	-	-	-	0.083 ± 0.021	nd	0.0013 ± 0.0016

Compound	Tributary surface water (*n* = 3) ng/L	WWTP Effluent (*n* = 3) ng/L	Soils (*n* = 5) ng/g
Cashmeran (DPMI)	1.4 ±0.25	nd	nd
Celestolide (ADBI)	0.054 ±0.25	0.47±0.10	0.0067±0.0073
Phantolide (AHMI)	0.0095 ±0.11	0.900±1.3	nd
Traseolide (ATII)	0.021 ±0.011	nd	nd
Galaxolide (HHCB)	1.1 ±0.57	11±2.6	0.61±0.15
Tonalide (AHTN)	0.53 ±0.14	6.8±6.5	0.094±0.047

Table S6. Concentrations (ng/m^3) of synthetic musk compounds (SMCs) in indoor air from (a) homes, (b) offices and "other". nd = non-detect.

a) Homes

PCM	Abbrev	can01	can02	can04	can05	can08	can09	can13	can14	can15	can20
Cashmeran	DPMI	160	150	0.028	0.16	0.055	0.15	0.093	0.040	0.081	0.37
Celestolide	ADBI	0.15	0.94	0.28	0.12	0.24	0.14	0.079	0.88	0.46	0.24
Phantolide	AHMI	nd	0.14	0.023	nd	0.27	0.034	0.012	0.025	0.038	0.021
Traseolide	ATII	0.053	13	0.35	0.20	0.29	0.037	0.043	0.074	0.25	0.092
Galaxolide	HHCB	2.6	15	7.4	4.3	18	4.7	4.2	3.4	8.0	8.2
Tonalide	AHTN	0.91	17	5.9	3.2	14	3.5	1.3	1.8	4.4	2.1

b) Offices and "other"

PCM	Abbrev	can03	can06	can07	can10	can11	can12	can16	can17	can18	can19
Cashmeran	DPMI	0.030	0.058	0.030	79	0.0090	0.053	0.20	0.14	0.094	0.025
Celestolide	ADBI	0.025	0.17	0.047	0.17	0.011	0.13	0.29	0.030	0.083	0.044
Phantolide	AHMI	nd	0.072	0.0413	0.040	nd	0.056	0.48	0.010	0.015	0.035
Traseolide	ATII	0.026	0.12	0.049	0.15	0.0060	0.18	0.29	0.025	0.036	0.066
Galaxolide	HHCB	0.45	12	1.6	4.9	0.30	5.7	12	1.0	1.1	3.6
Tonalide	AHTN	0.18	3.1	0.69	2.0	0.090	2.5	4.90	0.73	0.56	1.4

Table S7 Concentrations (ng/m^3) of synthetic musk compound (SMCs) in outdoor air along the (a) East (b) West and (c) North transect. D indicates the distance extended from the urban center. Nd = non-detect.

Season	Transect	Sample ID	D (km)*	DPMI	ADBI	AHMI	ATII	HHCB	AHTN
Autumn	East	Center	1.5	nd	0.025	0.019	0.037	2.3	0.63
		E1	1.7	nd	0.031	0.021	0.042	2.7	0.71
		E5	3	nd	0.017	0.013	0.022	1.4	0.37
		E10	6.6	nd	0.018	0.014	0.026	1.5	0.40
		E20	15	nd	0.019	0.010	0.022	1.3	0.37
		E40	34	nd	0.011	0.010	0.014	1.1	0.25
	West	W1	2.7	nd	0.020	0.016	0.032	2.0	0.59
		W5	4.6	nd	0.026	0.018	0.035	2.5	0.71
		W10	8.9	nd	0.0082	0.0091	0.017	1.1	0.23
		W20	16	nd	0.0066	0.0093	0.014	0.91	0.21
		W40	33	nd	nd	0.0052	0.0067	0.45	0.082
		W60	48	nd	nd	0.0041	0.0047	0.24	0.067
	North	S5	4.4	nd	0.0033	0.0048	0.0087	0.77	0.12
		N1	3.2	nd	0.060	0.010	0.045	0.87	0.40
		N5	7	nd	0.015	0.011	0.016	1.0	0.26
		N10	11	nd	0.009	0.011	0.013	1.0	0.24
		N20	20	nd	0.0066	0.0086	0.011	0.71	0.19
		N40	41	nd	nd	0.0044	0.0031	0.28	0.071
		N80	72	nd	nd	nd	nd	nd	nd
Winter	East	Center	1.5	nd	0.018	0.011	0.028	2.1	0.41
		E1	1.7	nd	nd	nd	0.023	2.0	0.39
		E5	3	nd	nd	nd	0.010	1.0	0.17
		E10	6.6	nd	0.0044	0.0060	0.013	1.1	0.22
		E20	15	nd	nd	nd	0.011	1.0	0.20
		E40	34	nd	nd	nd	0.0024	0.26	0.047
	West	W1	2.7	nd	0.016	0.020	0.024	1.7	0.35
		W5	4.6	nd	0.017	0.015	0.024	1.9	0.50
		W10	8.9	nd	nd	nd	0.032	1.8	0.28
		W20	16	nd	nd	0.0041	0.0074	0.67	0.11
		W40	33	nd	nd	nd	0.0033	0.35	0.046
		W60	48	nd	nd	0.0069	0.0034	0.24	0.040
	North	S5	4.4	nd	0.0013	0.0056	0.006	0.57	0.060
		N1	3.2	nd	0.0053	0.0068	0.016	1.0	0.19
		N5	7	nd	0.027	0.0058	0.012	1.4	0.21
		N10	11	nd	0.0042	0.0082	0.011	1.2	0.20
		N20	20	nd	nd	nd	0.0072	0.74	0.13
		N40	41	nd	nd	nd	0.016	0.87	0.09
		N80	72	nd	nd	nd	nd	nd	nd
Spring	East	Center	1.5	nd	0.011	0.014	0.044	2.6	0.76
		E1	1.7	nd	0.019	0.019	0.043	3.5	0.98
		E5	3	nd	0.009	0.008	0.023	1.5	0.38
		E10	6.6	nd	0.014	0.012	0.032	1.9	0.48
		E20	15	nd	0.0091	0.0087	0.026	1.5	0.44

Season	Transect	Sample ID	D (km)*	DPMI	ADBI	AHMI	ATII	HHCB	AHTN
		E40	34	nd	0.0051	0.0074	0.015	1.1	0.28
	West	W1	2.7	nd	0.020	0.016	0.033	2.2	0.67
		W5	4.6	nd	0.018	0.016	0.048	2.8	0.88
		W10	8.9	nd	0.0044	0.0031	0.017	0.88	0.19
		W20	16	nd	0.010	0.0051	0.010	0.65	0.16
		W40	33	nd	0.0056	0.0032	0.0056	0.31	0.079
		W60	48	nd	0.0046	0.0006	nd	nd	0.0083
	North	S5	4.4	nd	0.0010	0.0026	0.0073	1.0	0.063
		N1	3.2	nd	0.0060	nd	0.020	1.0	0.22
		N5	7	nd	0.029	0.0094	0.023	1.8	0.39
		N10	11	nd	0.0069	0.0085	0.016	1.0	0.30
		N20	20	nd	nd	0.0034	0.0076	0.38	0.12
		N40	41	nd	0.012	0.0037	0.0048	0.33	0.094
		N80	72	nd	0.0083	nd	nd	nd	0.0005
Summer	East	Center	1.5	nd	0.035	0.019	0.034	2.1	0.57
		E1	1.7	nd	0.074	0.020	0.035	2.6	0.74
		E5	3	nd	0.095	0.011	0.018	1.1	0.24
		E10	6.6	nd	0.038	0.012	0.018	1.2	0.28
		E20	15	nd	0.35	0.024	0.029	1.2	0.36
		E40	34	nd	0.0083	0.0051	0.0057	0.44	0.10
	West	W1	2.7	nd	0.046	0.017	0.030	1.7	0.50
		W5	4.6	nd	0.035	0.023	0.038	2.1	0.66
		W10	8.9	nd	0.095	0.011	0.016	0.78	0.18
		W20	16	nd	0.017	0.0074	0.012	0.64	0.15
		W40	33	nd	0.0075	0.0056	0.0055	0.38	0.081
		W60	48	nd	0.11	0.0065	0.0024	0.060	0.022
	North	S5	4.4	nd	0.010	0.006	0.010	0.84	0.11
		N1	3.2	nd	0.032	0.010	0.017	0.93	0.22
		N5	7	nd	0.087	0.012	0.016	1.1	0.23
		N10	11	nd	0.020	0.0079	0.012	0.71	0.19
		N20	20	nd	0.054	0.0090	0.0094	0.45	0.12
		N40	41	nd	0.0064	0.0041	0.0026	0.14	0.049
		N80	72	nd	nd	0.0010	nd	nd	nd

Table S8 Total air concentration (ng/m^3, gas and particle phase) of synthetic musk compounds (SMCs) in the urban site, downtown Toronto. Samples were taken using high-volume active sampling method. nd = non-detect

Sample ID	Temp (°C)	DPMI	ADBI	AHMI	ATII	HHCB	AHTN
15-10-07-PCM	10	nd	0.044	0.021	0.033	2.0	0.39
27-10-07-PCM	7.8	nd	0.022	0.005	0.016	0.77	0.17
8-11-07-PCM	3.9	nd	0.019	0.006	0.014	0.97	0.16
20-11-07-PCM	5.6	nd	0.14	0.011	0.025	2.5	0.32
2-12-07-PCM	-1.2	nd	0.020	0.007	0.019	0.95	0.20
14-12-07-PCM	-6.6	nd	0.029	0.004	0.014	1.0	0.15
26-12-07-PCM	-0.6	nd	0.015	0.005	0.013	0.76	0.17
7-1-08-PCM	12	nd	0.045	0.015	0.038	2.0	0.41
19-1-08-PCM	-9.3	nd	0.010	0.001	0.012	0.59	0.08
31-1-08-PCM	-5.2	nd	0.024	0.007	0.016	1.5	0.22
12-2-08-PCM	-7.8	nd	0.021	0.005	0.014	1.1	0.16
24-2-08-PCM	-4.0	nd	0.025	0.007	0.016	1.2	0.23
7-3-08-PCM	-5.4	nd	0.011	0.003	0.008	0.55	0.11
19-3-08-PCM	1.3	nd	0.025	0.009	0.019	1.3	0.26
31-3-08-PCM	6.1	nd	0.029	0.016	0.021	1.7	0.38
12-4-08-PCM	5.1	nd	0.11	0.011	0.020	1.4	0.29
24-4-08-PCM	13	nd	0.020	0.008	0.016	1.2	0.28
6-5-08-PCM	12	nd	0.14	0.020	0.049	3.5	0.63
18-5-08-PCM	7.5	nd	0.011	0.003	0.009	0.56	0.13
30-5-08-PCM	16	nd	0.041	0.017	0.034	3.4	0.58
11-6-08-PCM	19	nd	0.012	0.004	0.015	1.1	0.26
23-6-08-PCM	19	nd	0.035	0.014	0.026	2.1	0.46
5-7-08-PCM	19	nd	0.026	0.012	0.023	1.9	0.42
17-7-08-PCM	26	nd	0.009	0.007	0.015	1.4	0.34
29-7-08-PCM	22	nd	0.005	0.004	0.009	0.62	0.15
10-8-08-PCM	16	nd	0.003	0.002	0.001	0.41	0.42
22-8-08-PCM	22	nd	0.020	0.012	0.034	1.8	0.51
3-9-08-PCM	22	nd	0.010	0.007	0.014	1.3	0.21
15-9-08-PCM	13	nd	0.033	0.005	0.020	1.6	0.28
27-9-08-PCM	17	nd	0.016	0.010	0.021	1.5	0.33
9-10-08-PCM	13	nd	0.009	0.0004	0.003	0.015	0.006
21-10-08-PCM	3.9	nd	0.006	0.002	0.005	0.41	0.061

Table S9 Concentrations of synthetic musk compounds (SMCs) in air from wastewater treatment plants (WWTPs) (ng/m^3). ON = on-site air; OFF = Off-site air; MK = musk ketone; MX = musk xylene; 16-HxD = 16- Hexadecanolide; EtBrss = Ethylene Brassylate; nd = non-detect

WWTP	Site	Season	MK	MX	DPMI	ADBI	AHMI	HHCB	AHTN	16-HxD	Musk MC-4	Cervolide	EtBrass
UR-AS-1	ON	Winter	0.17	0.14	nd	1.4	0.44	109	34	nd	0.027	11	0.029
UR-AS-1	ON	Summer	0.29	0.27	7.3	3.1	1.0	122	55	0.29	0.026	21	0.034
UR-AS-1	OFF	Winter	nd	nd	nd	0.011	0.04	0.55	0.35	nd	0.020	nd	0.015
UR-AS-1	OFF	Summer	0.083	nd	nd	0.027	0.05	2.3	0.78	0.29	0.013	0.30	0.064
UR-AS-2	ON	Winter	0.14	0.11	3.6	1.4	0.23	72	27	nd	0.023	5.5	0.058
UR-AS-2	ON	Summer	0.22	0.12	5.7	2.8	0.63	113	50	nd	0.016	15	nd
UR-AS-2	OFF	Winter	0.092	0.084	0.95	0.28	0.07	12	7.3	nd	0.034	1.5	0.062
UR-AS-2	OFF	Summer	0.12	0.11	1.1	0.49	0.16	32	15	0.19	0.018	1.9	nd
UR-AS-3	ON	Winter	0.15	0.16	3.3	1.4	0.42	42	20	0.11	0.033	18	0.044
UR-AS-3	ON	Summer	0.20	0.14	4.4	2.9	0.9	100	39	0.29	0.030	21	0.084
UR-AS-3	OFF	Winter	nd	nd	nd	0.0090	nd	0.79	0.19	nd	0.027	nd	0.039
UR-AS-3	OFF	Summer	0.094	0.10	nd	0.054	0.060	2.7	1.0	0.32	0.030	0.53	0.064
TW-EA-1	ON	Winter	0.090	nd	0.94	0.15	0.10	10	2.6	nd	0.0049	0.77	0.0017
TW-EA-1	ON	Summer	0.020	0.10	1.4	0.35	0.17	21	6.0	0.16	0.0089	1.7	0.048
TW-EA-1	OFF	Winter	nd	nd	nd	5.2E-04	nd	0.056	0.0080	nd	0.0033	nd	nd
TW-EA-1	OFF	Summer	nd	nd	nd	0.0014	0.049	0.27	0.12	0.15	0.0011	nd	0.029
TW-EA-2	ON	Winter	0.091	nd	0.30	0.11	0.09	4.9	3.3	0.13	nd	nd	0.015
TW-EA-2	ON	Summer	0.10	nd	0.68	0.66	0.23	31	16	0.11	0.0045	1.7	nd
TW-EA-2	OFF	Winter	nd	nd	nd	2.8E-04	nd	nd	0.012	0.12	nd	nd	0.0010
TW-EA-2	OFF	Summer	nd	nd	nd	0.006	0.048	0.18	0.13	0.10	0.0015	0.09	nd
TW-EA-3	ON	Winter	0.078	nd	0.27	0.033	0.054	3.6	1.0	0.0062	0.0020	0.16	nd
TW-EA-3	ON	Summer	0.092	0.087	1.4	0.16	0.091	12	3.3	0.17	0.0058	0.82	0.047
TW-EA-3	OFF	Winter	nd	nd	nd	7.7E-04	nd	0.059	0.049	0.024	nd	nd	0.018
TW-EA-3	OFF	Summer	nd	nd	nd	0.0073	0.049	0.51	0.16	0.13	0.0040	0.14	2.9E-04
RU-LG-1	ON	Winter	nd	nd	nd	nd	nd	0.050	0.031	nd	0.0046	nd	0.026
RU-LG-1	ON	Summer	nd	nd	nd	0.0031	0.047	0.40	0.18	0.072	9.0E-04	nd	nd
RU-LG-1	OFF	Winter	nd	nd	nd	nd	nd	0.048	0.020	0.077	0.0026	nd	0.0045
RU-LG-1	OFF	Summer	nd	nd	nd	0.0029	nd	0.44	0.079	0.022	nd	nd	nd
RU-LG-2	ON	Winter	nd	nd	nd	nd	nd	0.13	0.019	0.16	nd	nd	nd
RU-LG-2	ON	Summer	nd	nd	nd	0.017	0.050	1.8	0.62	0.052	nd	nd	nd
RU-LG-2	OFF	Winter	nd	nd	nd	nd	nd	0.034	0.016	0.18	nd	nd	nd
RU-LG-2	OFF	Summer	nd	nd	nd	0.0072	0.048	0.24	0.33	nd	nd	nd	0.032

Table S10 Concentrations of HHCB and AHTN in rural air from the Great Lakes Basin. nd = non-detect

Sample ID	Temp (°C)	HHCB	ATHN
PPF100108	-11	nd	nd
PPF100120	-2.1	0.0072	0.0081
PPF100201	-3.2	0.0083	0.0082
PPF100213	-3.8	0.0070	0.0084
PPF100225	0.16	0.0082	0.0087
PPF100309	1.9	0.0068	0.0083
PPF100321	2.5	0.0070	0.0082
PPF100402	13	0.010	0.0094
PPF100414	8.7	0.010	0.0087
PPF100426	9.4	0.0079	nd
PPF100508	6.8	0.0090	0.0084
PPF100520	14	0.012	0.011
PPF100601	18	0.024	0.013
PPF100613	18	0.017	0.011
PPF100625	18	0.017	0.011
PPF100707	24	0.013	0.010
PPF100719	21	0.017	0.011
PPF100731	20	0.013	0.010
PPF100812	22	0.0093	0.0095
PPF100824	21	0.0093	0.0098
PPF100905	22	0.019	0.010
PPF100917	14	0.0092	0.0091
PPF100929	18	0.016	0.012
PPF101011	10	0.013	0.010
PPF101023	9.2	0.012	0.0097
PPF101104	6.5	0.014	0.0099
PPF101116	11	0.016	0.011
PPF101128	4.8	0.010	0.0087
PPF101210	3.2	0.011	0.0085
PPF101222	-3.2	0.0078	0.0083

Table S11 Literature data of synthetic musk compounds (SMCs) in air. Data are in units of ng/m^3.

[a] BDL = below detection limit; [b] NA = not analyzed; [c] calculated from individual data

Literature	Country	Description	Date of sampling	ADBI	HHCB	AHMI	AHTN	MK	MX	ATII	Comment
Fromme et al.[12]	Germany	Indoor/apartment & kindergarden	2000-2001	BDL[a]	120	22	47	BDL	BDL	BDL	Mean
Sofuoglu et al.[13]	Turkey	Indoor/Classroom	2009	1.5	270	0.18	58	0.12	9.9	59	Mean
Sofuoglu et al.[13]	Turkey	Indoor/Sports centre	2009	1.01	145	0.08	41	BDL	3.2	31	Mean
Peck et al.[14]	US	Urban/Cedar Rapids	2001 Oct – 2002 May	0.01	0.80	BDL	0.33	BDL	BDL	BDL	Median
Peck et al.[15]	US	Urban/ Milwaukee	2001 Jun	0.19	4.1	0.24	2.5	0.093	0.032	0.17	Mean
Ramirez et al.[16]	Spain	Urban	Na	BDL	10.5	BDL	2.4	1.5	4.0	BDL	Mean
McDonough et al.[17]	Canada	Urban/Toronto waterfront nearshore buoys	2012 Summer	0.0006	1.5	0.024	0.30	na	na	0.49	Mean
Peck et al.[14]	US	Rural/ Lake Erie	2003 Aug	BDL	0.12	BDL	0.15	BDL	BDL	BDL	Median
Peck et al.[14]	US	Rural /Lake Ontario	2003 Aug	BDL	0.37	BDL	0.16	BDL	BDL	BDL	Median
Peck et al.[14]	US	Rural/Hills	2003 Aug	BDL	0.036	BDL	0.032	BDL	BDL	BDL	Median
Peck et al.[15]	US	Rural/Shoreline, Offshore	2001 Jun; Jun 1999- May 2000	0.042	1.1	0.039	0.49	0.13	0.014	0.04	Mean
Xie et al.[18]	Germany	Rural, North Germany	2004 Aug	na[b]	0.060	na	0.015	na	na	na	Mean
McDonough et al.[17]	Canada	Rural/Offshore, nearshore buoys of Lake Erie/Lake Ontario	2012 Summer	0.0021	BDL	0.0022	0.0054	na	na	0.047	Mean
McDonough et al.[17]	Canada	Rural/Shoreline of Lake Erie/Lake Ontario	2012 Summer	0.0028	0.36	0.011	0.15	na	na	0.1	Mean
McDonough et al.[17]	Canada	Rural/Shoreline of Lake Erie/Lake Ontario	2011 Winter	0.0002	0.029	0.0008	0.017	na	na	0.022	Mean
Kallenborn et al.[19]	Norway	Remote, Kjeller,	1998 Winter	na	0.15	na	0.052	0.010	0.023	BDL	Mean[c]
Xie et al.[18]	North Sea	Remote	2004 Aug	na	0.028	na	0.018	na	na	na	Median
Xie et al.[18]	Arctic	Remote	2004 Aug	na	0.004	na	0.017	na	na	na	Median

Table S12 Median and range concentration of SMCs in tributary surface waters (ng/L) in urban and rural sites. nd = non-detect.

		Humber R. Upstream (rural)	Humber R. Midstream (rural)	East Humber R. (rural)	Little Rouge Cr. (rural)	Rouge R. (rural)	Highland Cr. (urban)	Don River (urban)	Humber R. Downstream (urban)	Mimico Cr. (urban)	Etobicoke Cr. (urban)
Casherman (DPMI)	Median	nd	nd	nd	nd	nd	nd	0.233	nd	nd	nd
	Min	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
	Max	nd	0.19	nd	nd	0.038	0.51	2.8	0.29	0.44	0.71
Celestolide (ADBI)	Median	nd	nd	nd	nd	nd	0.33	0.89	0.053	0.39	0.086
	Min	nd	nd	nd	nd	nd	0.0054	0.30	nd	0.034	0.014
	Max	nd	0.060	0.11	nd	0.042	1.8	2.04	0.85	1.002	1.2
Phantolide (AHMI)	Median	0.005	0.028	0.023	0.013	0.005	nd	0.97	0.026	nd	0.007
	Min	nd	nd	nd	nd	nd	nd	0.60	nd	nd	nd
	Max	0.018	0.054	0.11	0.051	0.059	0.20	5.5	0.11	0.22	0.16
Traseolide (ATII)	Median	nd	nd	0.014	nd	nd	0.14	1.4	0.0011	nd	nd
	Min	nd	nd	nd	nd	nd	nd	0.44	nd	nd	nd
	Max	nd	0.073	0.086	nd	0.069	3.07	4.0	0.35	nd	0.10
Galaxolide (HHCB)	Median	0.014	2.3	0.95	0.49	1.2	15	83	8	3.8	2.9
	Min	nd	1.01	0.17	nd	0.37	6.3	33	4.5	2.3	1.4
	Max	0.29	5.2	4.2	0.66	2.1	108	243	42	8.8	104
Tonalide (AHTN)	Median	nd	0.22	0.40	0.18	0.36	7.0	15	2.1	1.4	1.0
	Min	nd	0.019	nd	nd	0.058	1.2	6.5	0.73	0.35	0.64
	Max	0.25	0.73	0.92	0.22	0.67	24	41	6.9	4.0	36

Table S13 Median and range concentrations (ng/L) of synthetic musk compounds (SMCs) in wastewater treatment plant (WWTP) effluents

WWTP	Median	Sd	Min	Max
Plant 1 (*n* = 4)				
Cashmeran (DPMI)	860	190	700	1100
Celestolide (ADBI)	6.0	0.56	5.7	6.8
Phantolide (AHMI)	3.7	0.90	2.5	4.7
Traseolide (ATII)	8.3	1.6	7.2	11
Galaxolide (HHCB)	1000	380	700	1500
Tonalide (AHTN)	140	22	120	170
Sum	*2100*	*430*	*1700*	*2600*
Plant 2 (*n* = 6)				
Cashmeran (DPMI)	940	3500	730	9600
Celestolide (ADBI)	11	8.7	6.4	30
Phantolide (AHMI)	6.7	4.4	3.9	16
Traseolide (ATII)	13	29	8.3	82
Galaxolide (HHCB)	1800	1400	700	4700
Tonalide (AHTN)	210	160	120	560
Sum	*3300*	*3900*	*1600*	*11500*
Plant 3 (*n* = 7)				
Cashmeran (DPMI)	580	2100	76	6100
Celestolide (ADBI)	7.1	2.9	2.9	12
Phantolide (AHMI)	3.9	0.9	2.2	4.6
Traseolide (ATII)	13	5.9	5.3	24
Galaxolide (HHCB)	1300	630	360	2200
Tonalide (AHTN)	160	52	68	230
Sum	*1800*	*2500*	*860*	*8200*

Figure S1 Source-Receptor Framework [20]

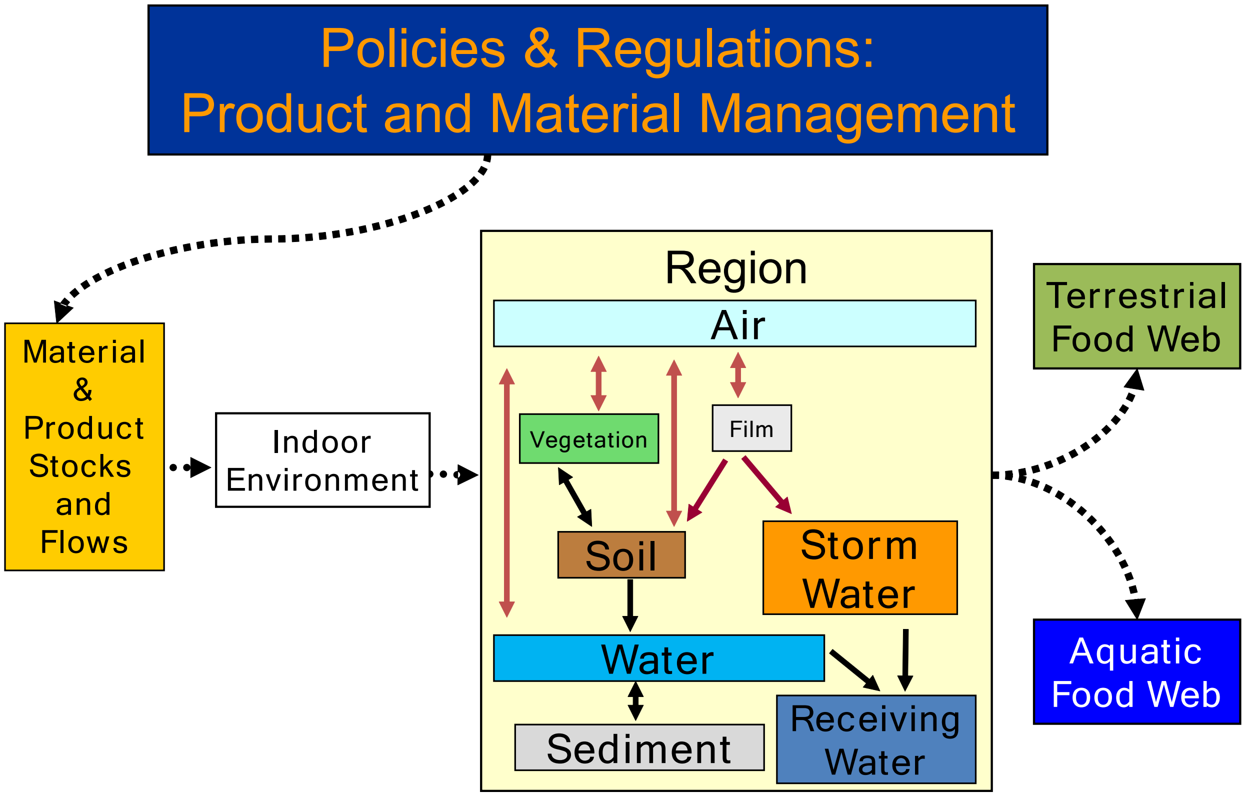
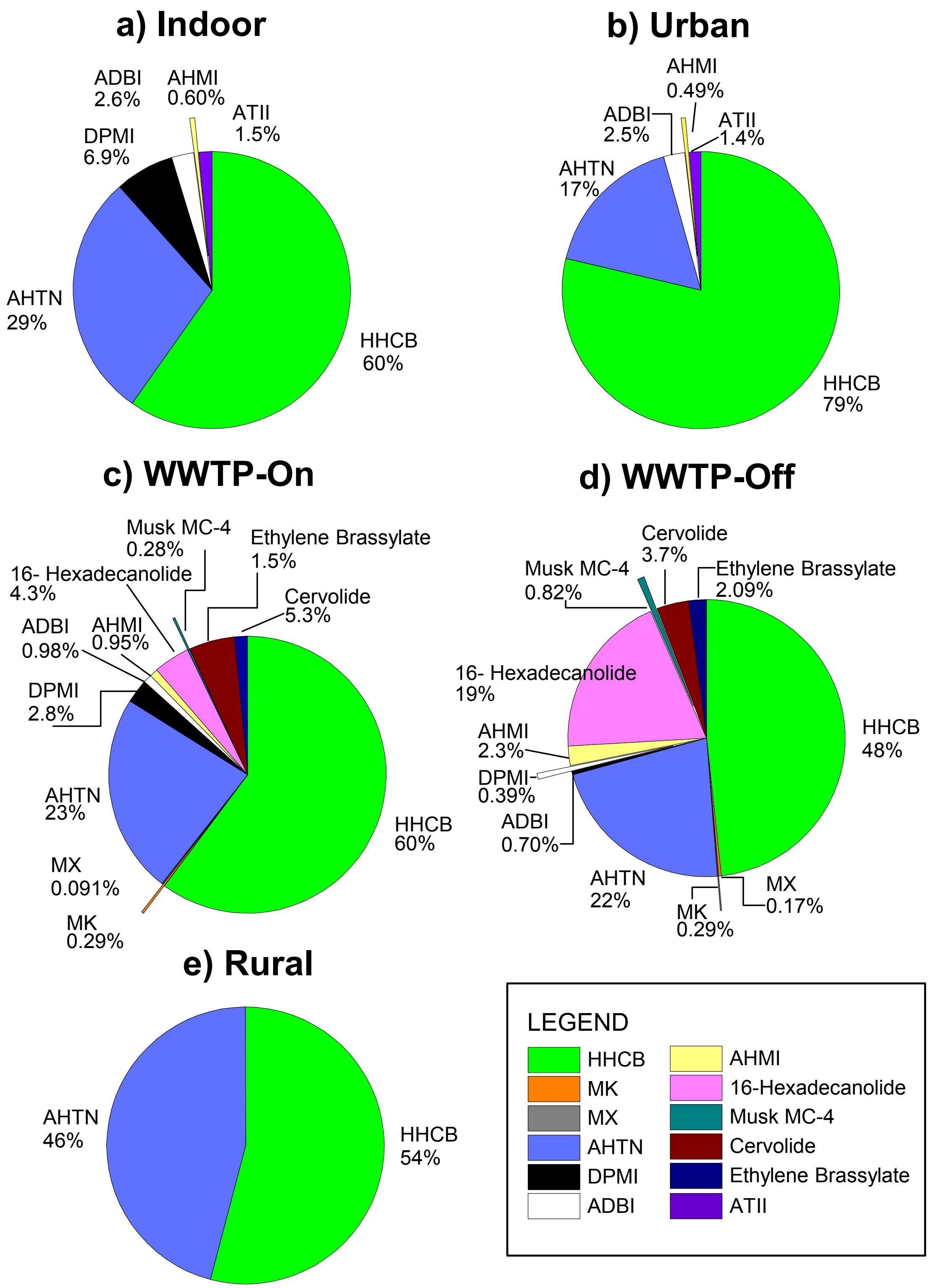


Figure S2 Composition of synthetic musk compounds (SMCs) in air (data expressed as percent of total concentration). Wastewater treatment plant (WWTP)-On and WWTP-Off represented air taken from the summer. Indoor air did not include the 3 samples with high DPMI concentrations. Urban and rural air represented samples taken over one year period.



196 Figure S3 Air concentrations of sum of 11 synthetic musk compounds (SMCs) at wastewater treatment
197 plants (WWTPs), a) on-site and b) off-site during summer and winter period.

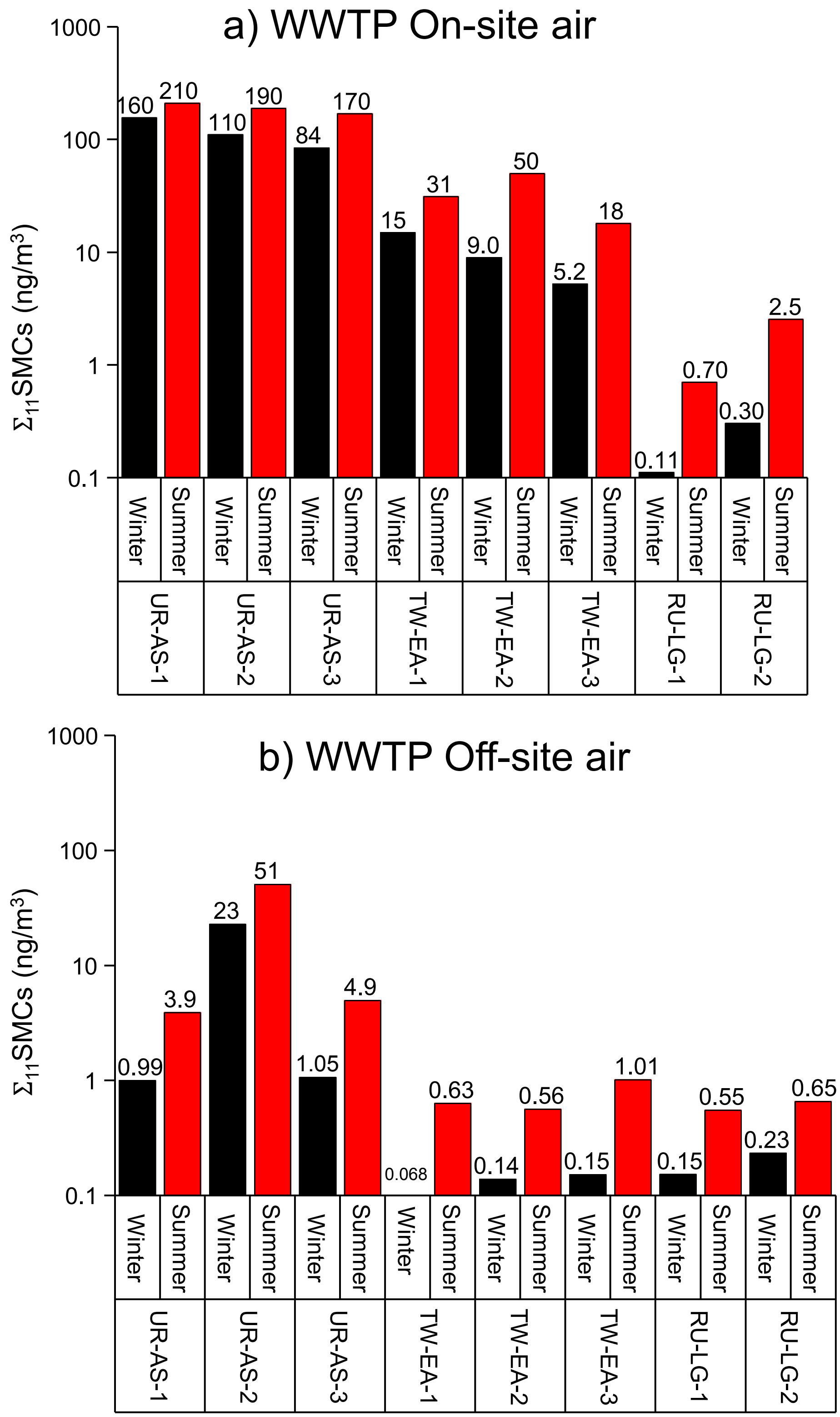


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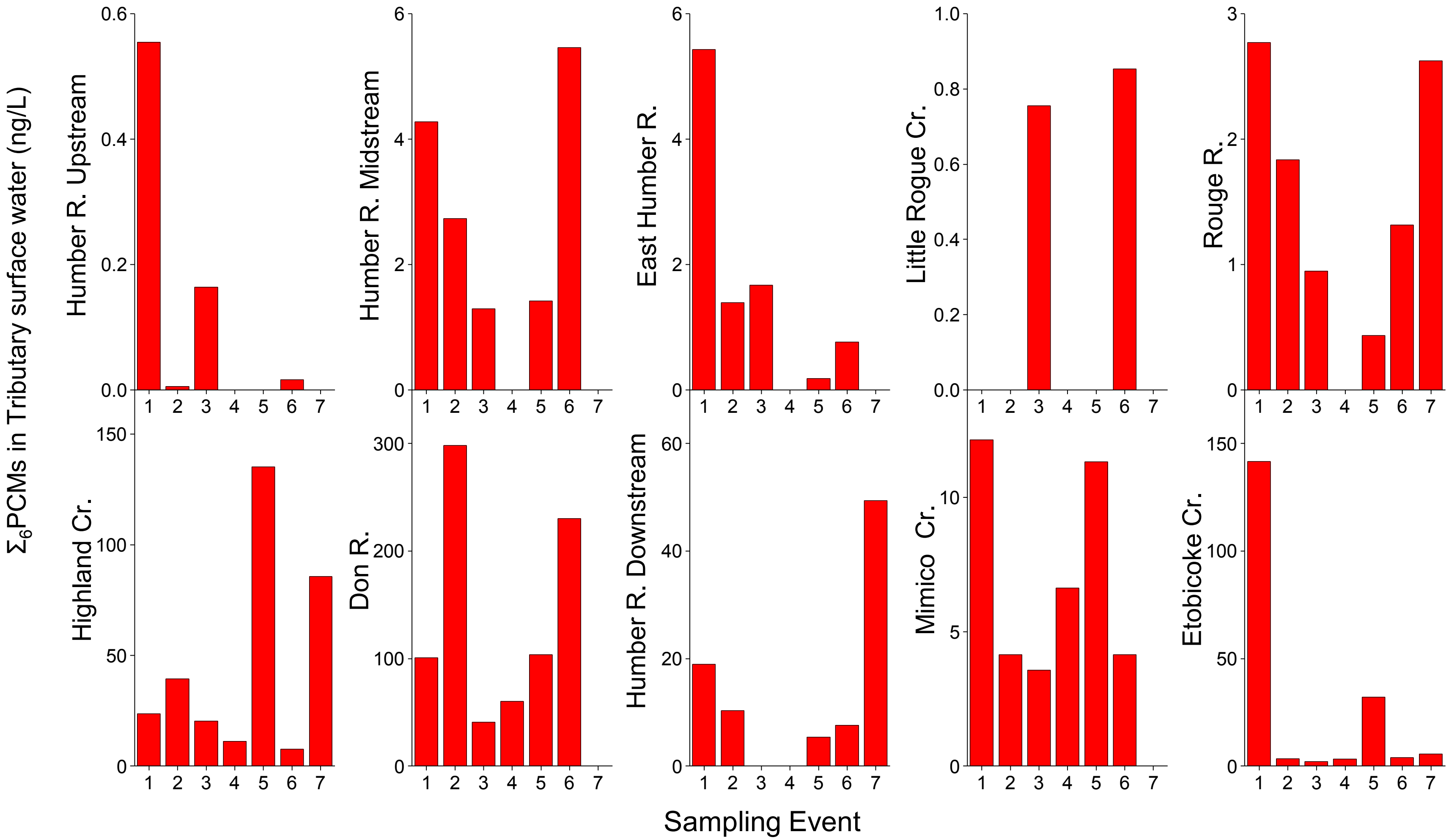
Figure S4 Seasonal variation of synthetic musk compounds (SMCs) in surface water of tributaries. Data represented sum of six polycyclic musk compounds (PCMs), i.e. DPMI, ADBI, AHMI, ATII, HHCB, AHTN.

Sampling Event #1 Winter Melt Event, January 2008; #2 Winter Base Flow (Grab Samples) (27 Feb 2008); #3 Spring Melt Event (2 April 2008); #4 End of Spring Melt (4 April 2008); #5 Wet Weather Rain Event (22 April 2008); #6 Base Flow May'08; #7 July 2008 Wet Event



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