Boston University
Superfund Research Program

National Institute of Environmental Health Sciences
Superfund Research Program

Indoor and outdoor air pollutants in the midst of uncertainty

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CRESSH

~~Two~~ Exposure Studies

1. Are PCBs from the New Bedford Harbor *in the air* around the harbor?

2. ~~What is driving indoor air quality (PM2.5 and NO2) in Chelsea, MA?~~

Chemicals in People – What would *you* say about it?

Should people be tested for chemicals in their bodies?
What if we can't say what results mean for health?
How much should people know?

Participate in a forum that gives Boston residents a voice on these questions. Come to 3 weekend meetings to learn about and discuss them.

You will be paid for your time. No experience needed.

For more information: **info@biomonitoring06.org** or **617-414-1075**

Sponsored by the Boston University School of Public Health

www.biomonitoring06.org

> 100 responses

85 Questionnaires returned

~ 20 Interviews

Final 15: Teacher, great great grand-mother, truck driver, detention center staff, singer, actor …

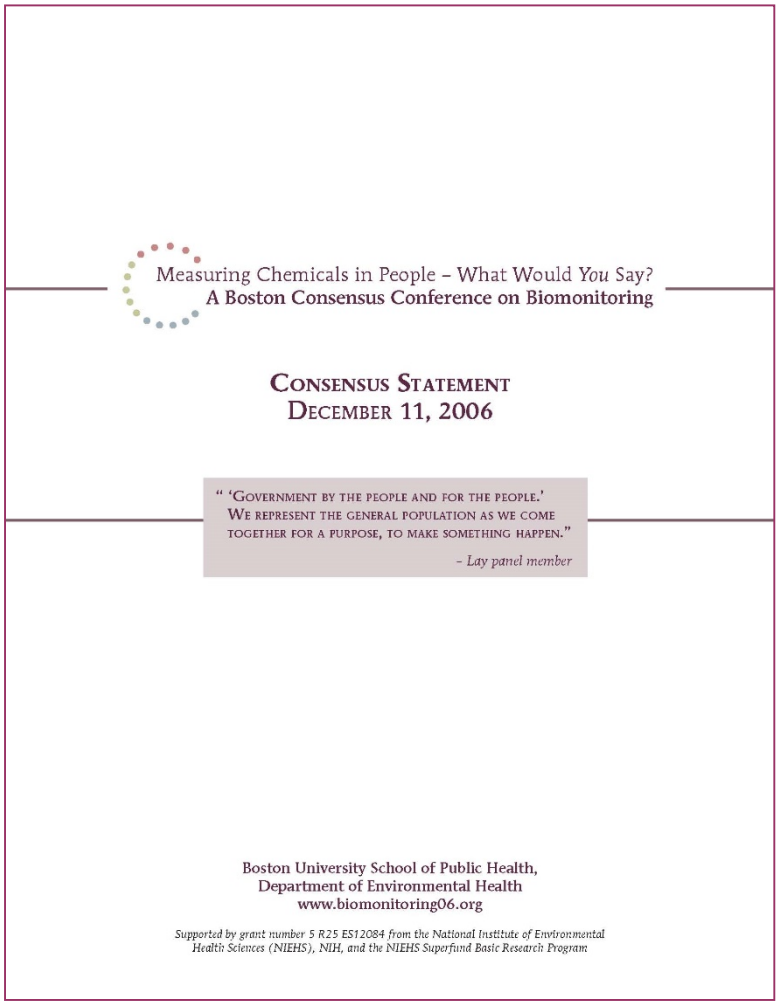
Lay Panel Questions

- Are there examples of corporations that have been held accountable or that have changed their behavior based on the results of biomonitoring?
- How could someone who participated in a biomonitoring surveillance program experience discrimination based on test results?
- How might biomonitoring results get translated into action and policy?
- What did California do around biomonitoring education and awareness?
- What are some perspectives on who should sit on the oversight boards of biomonitoring surveillance programs?

Consensus Conference: Presentation of findings

www.biomonitoring06.org

Consensus Statement



Measuring Chemicals in People – What Would *You* Say?
A Boston Consensus Conference on Biomonitoring

CONSENSUS STATEMENT
DECEMBER 11, 2006

" 'GOVERNMENT BY THE PEOPLE AND FOR THE PEOPLE.' WE REPRESENT THE GENERAL POPULATION AS WE COME TOGETHER FOR A PURPOSE, TO MAKE SOMETHING HAPPEN."
– *Lay panel member*

Boston University School of Public Health,
Department of Environmental Health
www.biomonitoring06.org

Supported by grant number 5 R25 ES12084 from the National Institute of Environmental Health Sciences (NIEHS), NIH, and the NIEHS Superfund Basic Research Program

- Establishing responsible surveillance programs
- Using biomonitoring data to influence corporate and government behavior
- Educating the general public about biomonitoring
- Addressing the issues of ethics, confidentiality and disclosure
- Thoughts on public policy

Addressing Issues of Ethics, Confidentiality, and Disclosure

- Participants should be able to decide whether or not to receive personal results, “Right to know”
- With reporting, important to include action steps for reducing exposure where available
- Biomonitoring data should be statutorily exempted (like genetic testing) from being transmitted or shared with employers, insurers or others as part of the medical history

Are PCBs from the harbor in our air? PCB Monitoring in Ambient Air around New Bedford Harbor, MA.

Madeleine K. Scammell, Komal Basra, Katie Tomsho, Wendy Heiger-Bernays
Department of Environmental Health, Boston University School of Public Health, Boston, MA USA

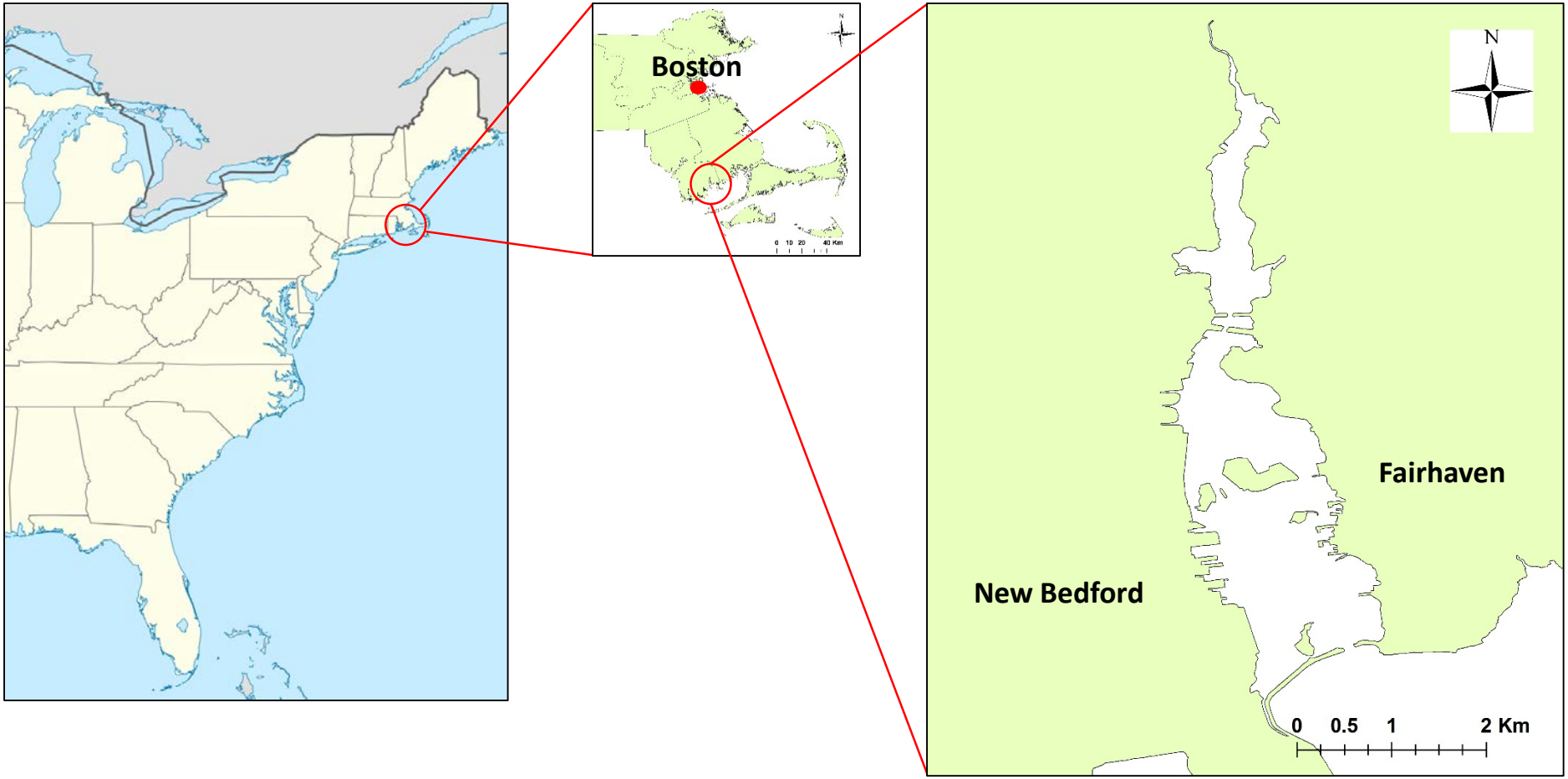
Claire Miller and Sylvia Broude
Toxics Action Center, Boston, MA USA

Richard M. Juang
Alternatives for Community & Environment, Boston, MA USA

Andres Martinez and Keri Hornbuckle
Department of Civil & Environmental Engineering, IIHR-Hydroscience and Engineering, The University of Iowa, Iowa City, IA, USA

Karen A. Vilandry
Hands Across the River Coalition, Inc., Fairhaven, MA USA

New Bedford Harbor (NBH), Massachusetts, USA

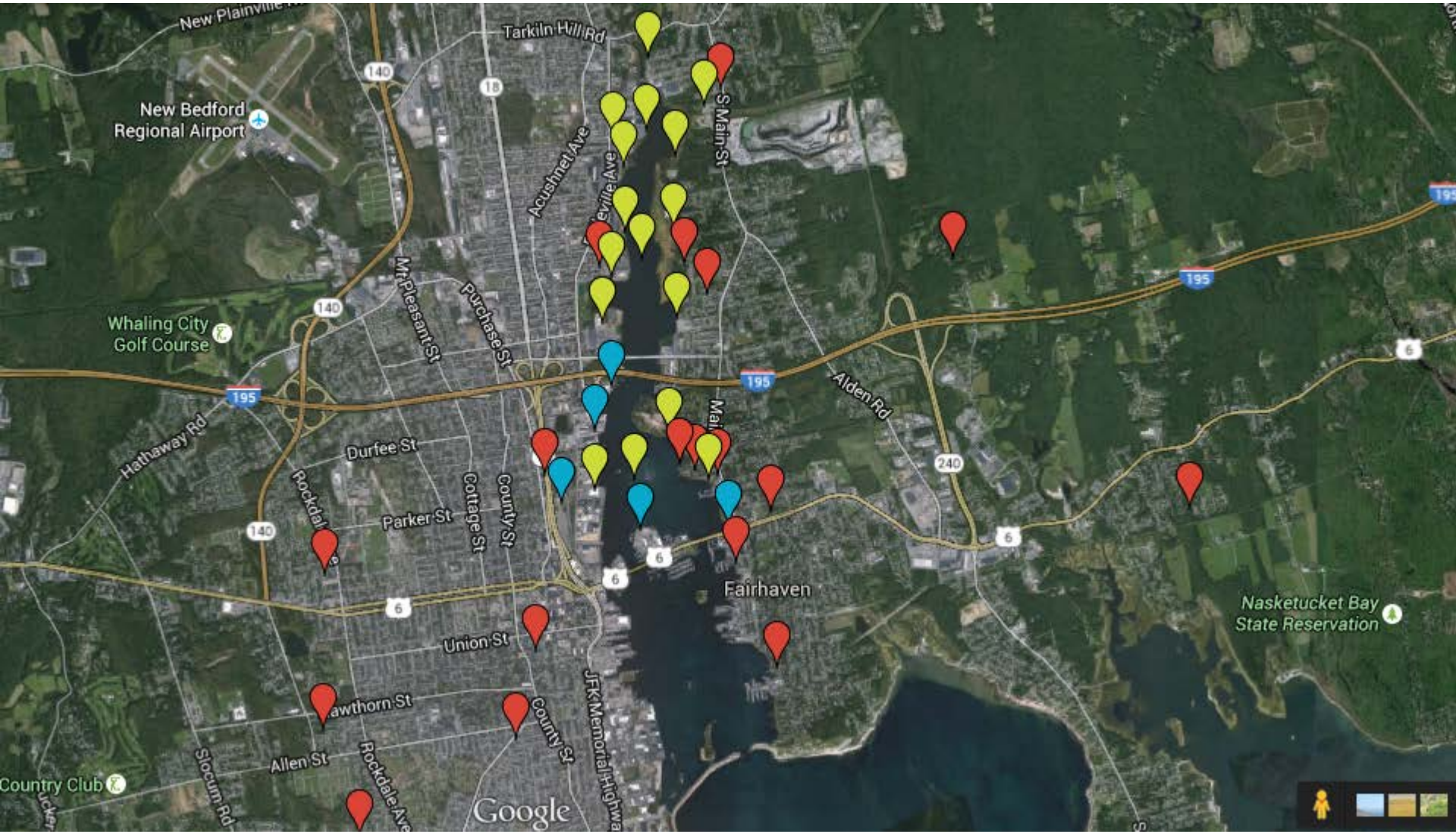


Map of SRP and EPA Air Monitoring Locations

SRP Monitors

Existing EPA Monitors

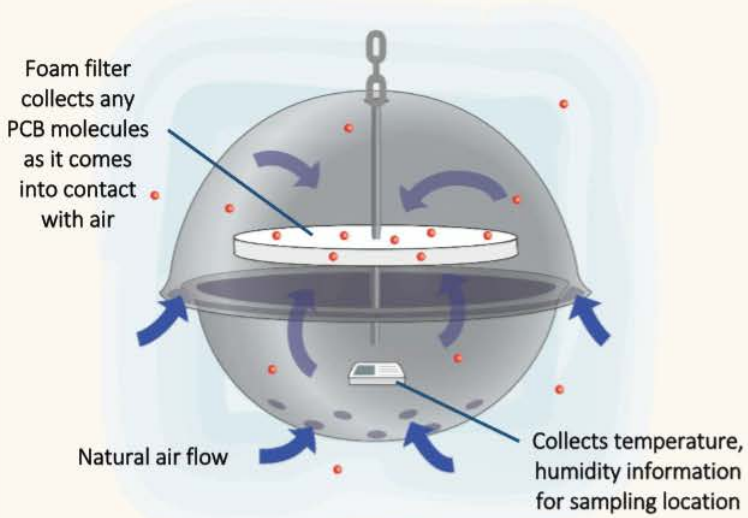
New EPA Monitors



SRP Monitors & EPA Monitor Comparison

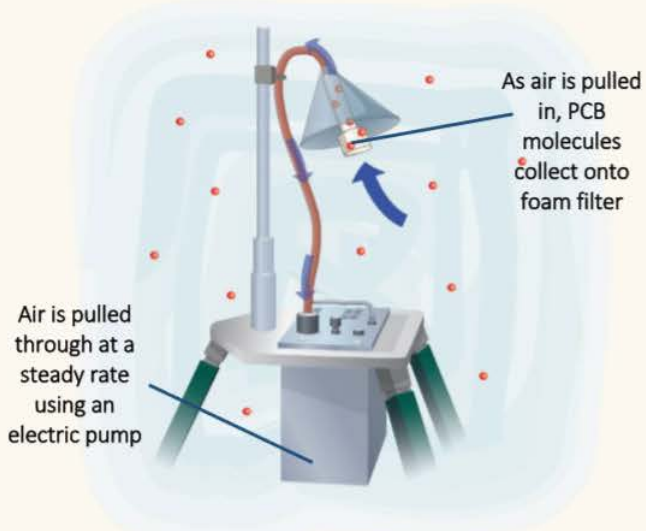
Comparing New Bedford Harbor PCB Air Monitoring Methods from EPA and SRP

SRP sampling method

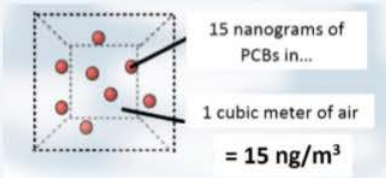


- **Passive sampling**: Air enters through openings in the chamber and circulates within, depending on the **natural air flow** in the surrounding environment. PCBs in that air are collected on the foam.
- Samplers hung at 4-6 ft height (typical breathing height)
- To find the **concentrations of PCBs**, the amount of collected PCBs (nanograms) are divided by the *estimated* amount of air that passed through the samplers (cubic meter), over the course of the 6 week sampling period (42 days).

EPA sampling method



- **Active sampling:** Using an electric pump, air is pulled through the sampler at a **constant and measured** rate. PCBs stick to the same foam filter material as in the passive sampling method.
- Samplers mounted at 4-6 ft height (typical breathing height)
- To find the **concentrations of PCBs**, the amount of collected PCBs (nanograms) are divided by the *known* volume of air (cubic meter) that was pulled through the sampler, over the course of the 24-hour sampling period (1 day).



In both cases, the PCBs collected onto the foam get sent to a lab, where the amounts and types of PCB molecules, called congeners, are measured using techniques including gas chromatography and mass spectrometry.

Note: 1 nanogram is a very small unit of measure. 1 nanogram = 1 billionth of a gram.

Illustration by May Woo

Communication with Monitor Hosts

May 2015: What Do We Know? Workshop

Sampling Rounds 1 -3: July – November

February 4, 2016: First Look at Data Workshop
Rounds 1 & 2

February 18, 2016: Second Look at Data Workshop
Rounds 1 & 2

July 6, 2016: Results Mailing
Rounds 1, 2 & 3

Sampling Round 4: August 2016

December 15, 2016: Third Look at Data Workshop

https://sfa.terc.edu/

Statistics for Action

Using SfA | All Materials | Data Resources | About SfA

Soil Quality: Digging into the Dirt

Hazardous Waste: Containing the Danger

Water Quality: Read Before You Drink

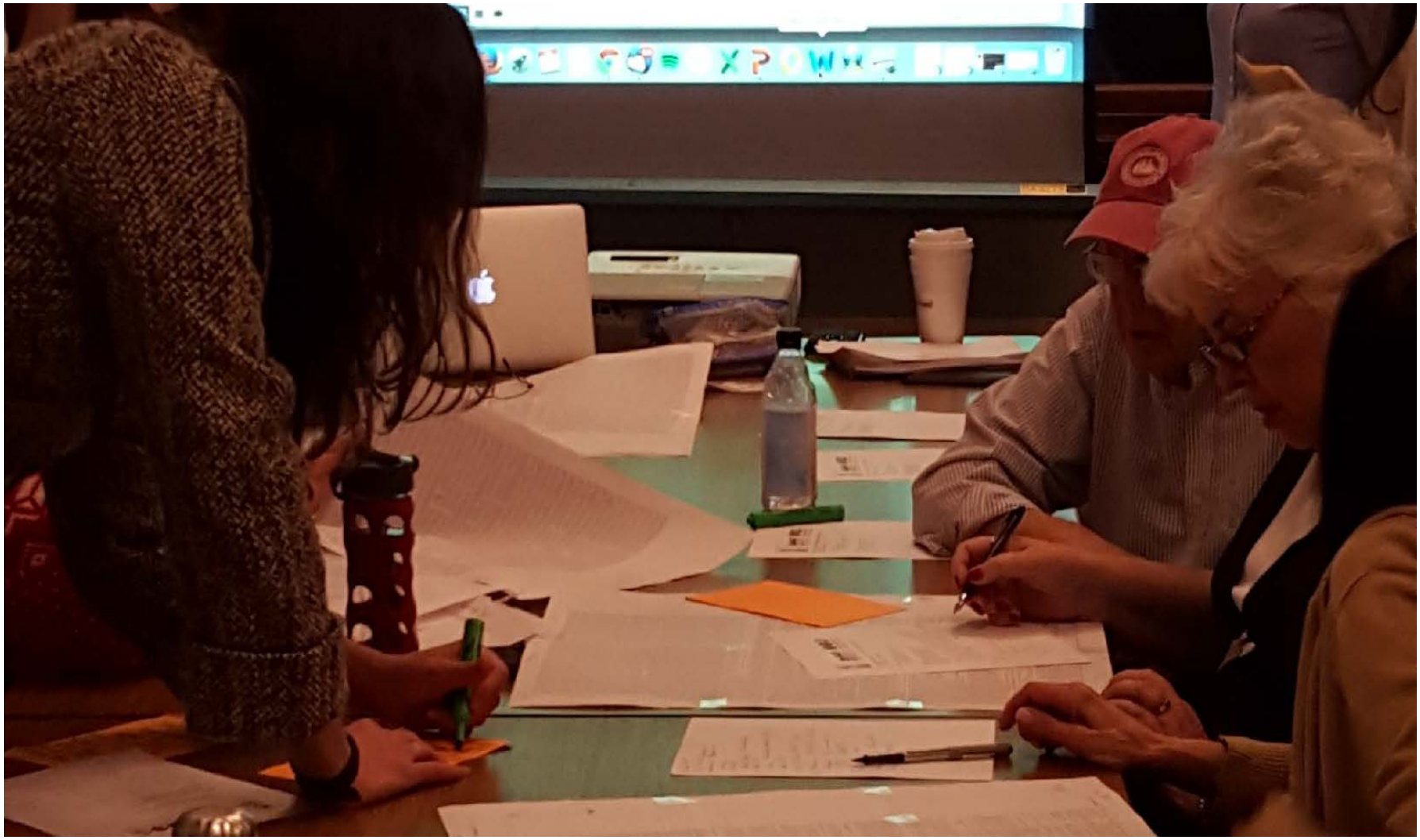
Air Quality: Know What You're Breathing

Guide to State Cancer Profiles

Click on the blue arrows to preview more *Statistics for Action* materials.

It looked like this…

2		1NBH-01	1NBH-02	1NBH-03	1NBH-04	1NBH-05	1NBH-06	1NBH-07	1NBH-08	1NBH-09	1NBH-10	1NBH-11	1NBH-12	1NBH-13	1NBH-15	1NBH-16	1NBH-17	1NBH-18	2NBH01	2NBH02	2NBH03	2NBH04	2NBH05	2NBH06	2NBH07	2NBH08	2NBH09	2NBH10	2NBH11	2NBH12	2NBH13	2NBH-15	2NBH-16	2NBH-17	2NBH-18	2NBH-19
3	1	0.008	0.0104	0.0073	0.0035	0.0531	0.0124	0.0059	0.0029	0.0206	0.0034	0.0065	0.0072	0.0109	0.0199	0.0036	0.0115	0.0086	0.0038	0.0087	0.0075	0.0051	0.0644	0.016	0.0031	0.0036	0.0144	0.0037	0.0075	0.0036	0.0138	0.0328	0.0021	0.0179	0.0124	0.0111
4	2	0.0027	0.003	0.002	0.0012	0.0089	0.0035	0.0023	0.001	0.0048	0.0016	0.0019	0.0018	0.0027	0.0069	0.0017	0.0018	0.003	0.0011	0.0023	0.0021	0.0012	0.0101	0.003	0.0011	0.0012	0.0029	0.0009	0.0016	0.001	0.0031	0.0074	0.0012	0.0026	0.0077	0.0023
5	3	0.0042	0.0076	0.0042	0.0028	0.0195	0.0081	0.0034	0	0.0105	0.0027	0.0044	0.0036	0.0074	0.017	0.0028	0.0049	0.0067	0	0.0048	0.0042	0.0023	0.0217	0.0067	0	0	0.0061	0	0.0031	0	0.0069	0.0159	0	0.0057	0.0098	0.0044
6	4	0.0481	0.2325	0.139	0.0166	0.6773	0.247	0.0297	0.0103	0.2983	0.0135	0.0301	0.0159	0.2138	0.7621	0.0259	0.0806	0.2008	0.0635	0.2494	0.204	0.0573	1.1161	0.3645	0.0344	0.0347	0.3422	0.0283	0.0881	0.0219	0.3028	1.1112	0.0228	0.2135	0.318	0.1766
7	5	0.0007	0.0014	0.0009	0.0005	0.0015	0.0008	0.0005	0.0003	0.0015	0.0003	0.0005	0.0004	0.001	0.0032	0.0004	0.0007	0.0013	0.0005	0.0014	0.0014	0.0004	0.0042	0.0015	0.0004	0.0004	0.0016	0.0004	0.0006	0.0004	0.0016	0.004	0.0003	0.0011	0.0016	0.0008
8	6	0.0421	0.2495	0.1222	0.0135	0.679	0.2308	0.0218	0.0083	0.3319	0.0071	0.0209	0.0064	0.2355	0.8404	0.0156	0.06	0.1854	0.0623	0.29	0.2212	0.057	1.2429	0.3743	0.0331	0.035	0.4068	0.0257	0.0889	0.0186	0.367	1.2445	0.0191	0.2299	0.3311	0.2017
9	7	0.0022	0.0082	0.0047	0.001	0.0212	0.0079	0.0013	0.0006	0.0105	0.0007	0.0014	0.0009	0.0075	0.0253	0.0012	0.0027	0.0063	0.0019	0.0075	0.0062	0.0018	0.0349	0.0101	0.0012	0.0012	0.0102	0.0011	0.0027	0.0009	0.0094	0.0328	0.0009	0.0061	0.0098	0.0056
10	8	0.0515	0.2285	0.1356	0.0213	0.5838	0.2084	0.0272	0.0114	0.2862	0.0155	0.0297	0.0156	0.2056	0.7217	0.0251	0.069	0.1838	0.0606	0.2509	0.2019	0.0544	1.0616	0.3226	0.0356	0.035	0.3476	0.0294	0.0838	0.0221	0.3293	1.0742	0.0231	0.2007	0.3059	0.1815
11	9	0.0038	0.0156	0.0093	0.0016	0.0424	0.0151	0.0022	0.0009	0.0199	0.0011	0.0023	0.0014	0.014	0.0499	0.0019	0.0044	0.012	0.0037	0.0159	0.0128	0.0034	0.0743	0.0217	0.0024	0.0022	0.0216	0.0018	0.0052	0.0015	0.018	0.0669	0.0015	0.0123	0.0208	0.0112
12	10	0.0022	0.008	0.0054	0.0009	0.0222	0.0091	0.0014	0.0006	0.0106	0.0007	0.0014	0.0009	0.0075	0.0261	0.0012	0.0029	0.0076	0.0022	0.0078	0.0069	0.002	0.0345	0.0119	0.0014	0.0013	0.0109	0.0012	0.003	0.001	0.0107	0.0341	0.001	0.007	0.0105	0.0062
13	11	0.0231	0.0488	0.0404	0.0281	0.076	0.0369	0.0105	0.0145	0.0452	0.0209	0.0176	0.0151	0.0367	0.109	0.0168	0.0233	0.0439	0.0153	0.0352	0.028	0.0195	0.0927	0.0328	0.0087	0.0121	0.0318	0.0177	0.0172	0.0109	0.036	0.0946	0.0099	0.0256	0.0535	0.0231
14	12/13	0.0113	0.0786	0.0379	0.004	0.1761	0.0607	0.005	0.0023	0.084	0.0019	0.0051	0.0014	0.0608	0.2766	0.0035	0.0151	0.0558	0.0102	0.06	0.0424	0.0094	0.2758	0.0676	0.0054	0.0061	0.0841	0.0045	0.0147	0.0029	0.0677	0.2546	0.003	0.0391	0.0751	0.0396
15	15	0.0147	0.0775	0.0454	0.0055	0.1538	0.0567	0.0055	0.0028	0.0735	0.0031	0.0061	0.0023	0.0528	0.2512	0.0057	0.0154	0.0575	0.0104	0.0525	0.0392	0.0089	0.215	0.0561	0.0053	0.0057	0.0663	0.0048	0.0128	0.0032	0.0545	0.2131	0.0039	0.0318	0.0631	0.0327
16	16	0.0122	0.0414	0.0341	0.0053	0.0669	0.0317	0.0047	0.0027	0.0295	0.004	0.0061	0.0031	0.0254	0.1284	0.0068	0.0114	0.0374	0.011	0.0415	0.0373	0.0078	0.1144	0.0397	0.0052	0.005	0.0353	0.0049	0.0103	0.0032	0.0334	0.1528	0.0051	0.0208	0.0468	0.0159
17	17	0.0337	0.1744	0.1091	0.0114	0.3929	0.151	0.0156	0.0066	0.2001	0.0065	0.0155	0.005	0.1502	0.6432	0.0155	0.0403	0.1483	0.0363	0.1741	0.142	0.0306	0.6882	0.2053	0.0196	0.0184	0.2243	0.0158	0.0479	0.0105	0.2029	0.8048	0.0144	0.1149	0.2119	0.1122
18	18/30	0.0669	0.3546	0.2174	0.0218	0.7285	0.296	0.0295	0.0124	0.3739	0.0128	0.0297	0.0102	0.2857	1.2852	0.0308	0.0752	0.3003	0.0796	0.3733	0.3022	0.0636	1.3796	0.4286	0.0404	0.0363	0.4551	0.0308	0.0955	0.0209	0.3978	1.6329	0.0281	0.2268	0.4395	0.2216
19	19	0.0091	0.0425	0.027	0.0032	0.1025	0.039	0.0047	0.002	0.0515	0.002	0.0043	0.0017	0.0384	0.1503	0.0046	0.012	0.0367	0.0107	0.0449	0.0361	0.009	0.1887	0.0553	0.0058	0.0056	0.0607	0.0048	0.0132	0.0034	0.0557	0.1951	0.0041	0.0327	0.0524	0.0326
20	20/28	0.0713	0.3937	0.2446	0.0232	0.6878	0.285	0.0279	0.0128	0.3409	0.0121	0.0274	0.0079	0.2615	1.3596	0.0313	0.0689	0.3493	0.0676	0.3571	0.2734	0.0484	1.0897	0.3493	0.0311	0.0288	0.3649	0.0239	0.0691	0.0157	0.3334	1.5125	0.0256	0.1665	0.3994	0.1717
21	21/33	0.0111	0.0286	0.0256	0.0055	0.0362	0.0176	0.0036	0.0025	0.0144	0.0038	0.0052	0.0027	0.0159	0.0752	0.0062	0.0095	0.0274	0.0084	0.0254	0.0237	0.0057	0.06	0.0218	0.0035	0.0035	0.0155	0.0042	0.0079	0.0029	0.021	0.0813	0.0042	0.0125	0.0291	0.0088
22	22	0.013	0.0622	0.041	0.005	0.0935	0.0399	0.0044	0.0024	0.041	0.0028	0.0048	0.0018	0.0335	0.1966	0.0057	0.0109	0.0484	0.0111	0.0534	0.0427	0.0075	0.1434	0.049	0.0045	0.0046	0.0445	0.0041	0.0102	0.0026	0.0407	0.2225	0.0045	0.023	0.0598	0.0179
23	23	0.0002	0.0002	0.0002	0.0001	0.0003	0.0002	0.0001	7E-05	0.0001	0.0001	0	0	0	0.0005	0	0	0	6E-05	0.0001	0.0001	0	0.0004	0.0001	0	0	0.0001	5E-05	0	0	0	0.0005	0	0	0	0
24	24	0.0006	0.0021	0.0013	0.0003	0.0032	0.0015	0.0003	0.0002	0.0018	0.0002	0.0003	0.0001	0.0013	0.0059	0.0003	0.0006	0.0017	0.0006	0.0023	0.002	0.0004	0.0071	0.0025	0.0003	0.0003	0.0026	0.0002	0.0005	0.0002	0.0017	0.0091	0.0002	0.0015	0.0027	0.0012
25	25	0.0311	0.1991	0.1086	0.0093	0.3862	0.1505	0.0132	0.0055	0.1994	0.004	0.012	0.0025	0.1457	0.7093	0.0119	0.0341	0.1598	0.032	0.1749	0.1339	0.0256	0.6362	0.1953	0.0163	0.0157	0.216	0.0114	0.0363	0.0075	0.1903	0.7898	0.0109	0.0976	0.1916	0.1019
26	26/29	0.0639	0.4089	0.2254	0.0184	0.7429	0.3026	0.0264	0.0108	0.3831	0.0078	0.0234	0.0051	0.2828	1.4048	0.0248	0.067	0.3209	0.0675	0.369	0.2815	0.0511	1.2571	0.3956	0.033	0.0312	0.4297	0.0231	0.0726	0.0145	0.3774	1.6065	0.0223	0.192	0.4077	0.2029
27	27	0.0129	0.0732	0.043	0.004	0.1572	0.0612	0.0059	0.0026	0.0823	0.0021	0.0057	0.0015	0.063	0.2745	0.0056	0.0156	0.0635	0.0147	0.0754	0.0631	0.0124	0.28	0.0866	0.0078	0.0076	0.096	0.0057	0.0175	0.0039	0.0828	0.3276	0.0053	0.0448	0.0849	0.0487
28	31	0.0781	0.4316	0.2599	0.0254	0.7537	0.3172	0.0306	0.0136	0.3862	0.0125	0.03	0.0086	0.2927	1.461	0.0315	0.0766	0.3631	0.0743	0.386	0.3001	0.0554	1.1797	0.3836	0.0348	0.032	0.4021	0.0265	0.0788	0.0175	0.3748	1.6566	0.0266	0.1909	0.4352	0.1906
29	32	0.0224	0.1165	0.0725	0.0081	0.2642	0.0947	0.0103	0	0.1364	0	0.0101	0	0.0982	0.4192	0.01	0.0258	0.0932	0.0234	0.1075	0.0904	0.0194	0.436	0.1302	0.0122	0.012	0.1485	0.0102	0.0271	0.0066	0.1316	0.5136	0.0087	0.072	0.131	0.079
30	34	0.0008	0.0039	0.0024	0.0003	0.0086	0.003	0.0004	0.0002	0.0039	0.0002	0.0003	0.0001	0.003	0.0143	0.0003	0.0007	0.003	0.0008	0.0038	0.0032	0.0006	0.0151	0.0044	0.0004	0.0004	0.0049	0.0003	0.0009	0.0002	0.0038	0.018	0.0003	0.0021	0.0044	0.0022
31	35	0.0008	0.0024	0.0017	0.0006	0.0029	0.0014	0.0004	0.0003	0.0014	0.0004	0.0003	0.0003	0.001	0.0061	0.0003	0.0005	0.0017	0.0005	0.0017	0.0014	0.0004	0.0033	0.0014	0.0002	0.0002	0.0011	0.0003	0.0004	0.0002	0.0011	0.0053	0.0003	0.0007	0.005	0.0004
32	36	0.0003	0.0008	0.0006	0.0003	0.001	0.0006	0.0002	0.0002	0.0005	0.0001	6E-05	8E-05	0.0004	0.0023	0.0002	0.0002	0.0005	0.0002	0.0005	0.0004	0.0002	0.0014	0.0004	7E-05	1E-04	0.0005	0.0003	0	1E-04	0.0005	0.0017	1E-04	0.0003	0.0011	0.0002
33	37	0.0047	0.0185	0.0148	0.0019	0.024	0.01	0.0012	0.0008	0.0093	0.0011	0.0015	0.0007	0.0077	0.0491	0.0019	0.0033	0.0153	0.0031	0.0134	0.0115	0.0021	0.0284	0.0106	0.0011	0.0012	0.0091	0.0012	0.0025	0.0008	0.0084	0.0463	0.0013	0.005	0.0183	0.0038
34	38	0.0002	0.0005	0.0004	0.0001	0.0006	0.0003	0.0002	0.0001	0.0004	0	0	0	0.0004	0.0013	0	7E-05	0.0003	1E-04	0.0004	0.0003	7E-05	0.0012	0.0003	0	0	0.0004	6E-05	0	0	0.0003	0.0017	0	0.0002	0.0004	0.0002
35	39	0.0003	0.0012	0.0007	0.0002	0.0017	0.0007	0.0002	0.0001	0.0009	0	0	0	0.0006	0.0036	0.0001	0.0002	0.0011	0.0002	0.0009	0.0006	0.0001	0.0028	0.0008	8E-05	6E-05	0.0009	7E-05	0.0002	0	0.0007	0.0035	0	0.0003	0.0012	0.0003
36	40/71	0.0129	0.0775	0.0528	0.0055	0.1414	0.049	0.0053	0.0029	0.0656	0.0028	0.0052	0.0019	0.0522	0.2948	0.0059	0.0134	0.0566	0.0115	0.0622	0.0505	0.0082	0.2016	0.0568	0.0051	0.0048	0.0642	0.0045	0.0113	0.003	0.057	0.2897	0.0044	0.0286	0.073	0.0335
37	41	0.0016	0.0034	0.0033	0.0008	0.0037	0.0022	0.0006	0.0004	0.0014	0.0004	0.0006	0.0003	0.0014	0.0056	0.0007	0.001	0.0026	0.0009	0.0022	0.0024	0.0008	0.0038	0.0014	0.0003	0.0004	0.0012	0.0005	0.0008	0.0003	0.0013	0.0063	0.0005	0.001	0.0033	0.0009
38	42	0.0086	0.0512	0.0354	0.0034	0.0861	0.0327	0.0034	0.0018	0.0369	0.0017	0.0032	0.0011	0.0298	0.1871	0.004	0.0081	0.038	0.0077	0.0427	0.0331	0.0052	0.112	0.0365	0.0032	0.003	0.0355	0.0026	0.0068	0.0018	0.0311	0.1907	0.0031	0.0168	0.0497	0.0162
39	43	0.0011	0.0043	0.0031	0.0005	0.0065	0.003	0.0005	0.0003	0.0025	0.0003	0.0004	0.0002	0.0028	0.0137	0.0005	0.001	0.0042	0.001	0.0038	0.0033	0.0005	0.0088	0.0034	0.0004	0.0003	0.0029	0.0002	0.0008	0.0002	0.0034	0.0167	0.0004	0.0018	0.0052	0.0016
40	44/47/65	0.0367	0.2105	0.1431	0.0145	0.3519	0.1391	0.0146	0.0077	0.1621	0.0082	0.0146	0.0056	0.1542	0.7788	0.0173	0.035	0.1665	0.0332	0.1773	0.1471	0.0222	0.5052	0.1608	0.0144	0.0129	0.1577	0.0121	0.0295	0.0078	0.1429	0.786	0.013	0.0748	0.2129	0.0766
41	45	0.0042	0.0169	0.0135	0.0017	0.0294	0.0106	0.0017	0.0007	0.011	0.001	0.0018	0.0008	0.0111	0.0576	0.0023	0.0038	0.0131	0.0033	0.0185	0.0141	0.0032	0.0527	0.0157	0.0016	0.0016	0.0138	0.0018	0.004	0.0012	0.0159	0.0688	0.0017	0.0089	0.0194	0.0055
42	46	0.0026	0.0129	0.0087	0.001	0.0271	0.0092	0.0012	0.0006	0.0128	0.0006	0.0011	0.0004	0.0104	0.0502	0.0012	0.0028	0.0094	0.0023	0.0118	0.0087	0.0019	0.0414	0.0117	0.0011	0.001	0.0142	0.001	0.0025	0.0007	0.0128	0.0516	0.001	0.0064	0.0136	0.0079
43	48	0.0036	0.0131	0.0117	0.0017	0.0209	0.0089	0.0013	0.0009	0.0088	0.001	0.0015	0.0008	0.0088	0.0438	0.0019	0.003	0.0114	0.0029	0.0112	0.01	0.0018	0.0249	0.0096	0.0012	0.0011	0.0082	0.0012	0.0024	0.0009	0.0086	0.0428	0.0014	0.0046	0.0139	0.0039
44	49/69	0.0467	0.3013	0.1934	0.0166	0.5611	0.2088	0.0192	0.009	0.2693	0.0081	0.0173	0.0052	0.2129	1.1417	0.0207	0.0474	0.233	0.0447	0.2552	0.2025	0.0311	0.7803	0.2442	0.0207	0.0181	0.2695	0.0155	0.0409	0.0099	0.2331	1.1995	0.0166	0.1147	0.3126	0.1282
45	50/53	0.0102	0.0543	0.0353	0.0043	0.1121	0.0422	0.0053	0.0024	0.0597	0.0023	0.0047	0.0016	0.0523	0.2198	0.005	0.0121	0.046	0.0105	0.0511	0.0397	0.0081	0.1796	0.0544	0.0055	0.005	0.064	0.0045	0.0118	0.003	0.0576	0.2309	0.0042	0.0283	0.0602	0.0366
46	51	0.0028	0.0158	0.0095	0.0012	0.0411	0.0135	0.0015	0.0007	0.0223	0.0007	0.0014	0.0005	0.0171	0.0721	0.0012	0.0039	0.0143	0.0034	0.0146	0.012	0.0023	0.0698	0.0169	0.0017	0.0016	0.0233	0.0013	0.0037	0.0009	0.0187	0.0764	0.0011	0.0097	0.019	0.0148
47	52	0.069	0.4138	0.2769	0.0273	0.7445	0.2834	0.0287	0.0152	0.363	0.0149	0.0275	0.0099	0.3884	1.5395	0.0312	0.0698	0.319	0.0627	0.3376	0.2672	0.0426	0.9988	0.3255	0.0279	0.0262	0.3416	0.0247	0.0629	0.0161	0.3256	1.6751	0.0263	0.1658	0.4437	0.1907
48	54	0.0004	0.0015	0.0009	0.0002	0.0035	0.0013	0.0002	0.0001	0.0018	9E-05	0.0002	8E-05	0.0013	0.006	0.0002	0.0004	0.0012	0.0003	0.0013	0.001	0.0002	0.0055	0.0015	0.0002	0.0002	0.0018	0.0001	0.0003	0.0001	0.0016	0.0057	0.0001	0.0008	0.0015	0.0011
49	55	0.0007	0.0028	0.0021	0.0003	0.0035	0.0018	0.0004	0.0002	0.0011	0.0002	0.0002	1E-04	0.0013	0.0103	0.0002	0.0004	0.0026	0.0005	0.0021	0.0019	0.0003	0.0037	0.0018	0.0002	0.0001	0.0013	0	0.0003	0.0001	0.001	0.0104	0.0003	0.0005	0.0025	0.0003
50	56	0.0042	0.02	0.0179	0.0022	0.0225	0.0112	0.0015	0.001	0.0096	0.0012	0.0017	0.0008	0.0091	0.0693	0.0018	0.0036	0.0156	0.0033	0.0149	0.0133	0.0019	0.0249	0.0106	0.001	0.001	0.0081	0.0012	0.0024	0.0008	0.0085	0.0594	0.0013	0.005	0.0194	0.0035
51	57	0.0007	0.0035	0.0022	0.0002	0.0058	0.0021	0.0003	0.0002	0.0023	1E-04	0.0002	7E-05	0.0018	0.0131	0.0002	0.0004	0.0024	0.0004	0.0027	0.0019	0.0003	0.0071	0.0022	0.0002	0.0002	0.0022	0.0002	0.0003	9E-05	0.0021	0.0114	0.0002	0.0009	0.0029	0.0008
52	58	0.0004	0.0014	0.001	0.0002	0.0018	0.0008	0.0002	0.0001	0.0006	6E-05	6E-05	0	0.0004	0.004	7E-05	0.0001	0.0009	0.0001	0.0009	0.0007	6E-05	0.002	0.0008	8E-05	0	0.0006	8E-05	0	0	0.0007	0.0034	7E-05	0.0002	0.0012	0.0002
53	59/62/75	0.0047	0.028	0.018	0.0017	0.047	0.0178	0.0022	0.001	0.0204	0.0009	0.0017	0.0005	0.0152	0.1048	0.002	0.0041	0.0207	0.0043	0.0237	0.0178	0.0028	0.0695	0.021	0.0019	0.0016	0.0216	0.0015	0.0037	0.001	0.0184	0.1058	0.0017	0.0094	0.026	0.009



Example Questions:

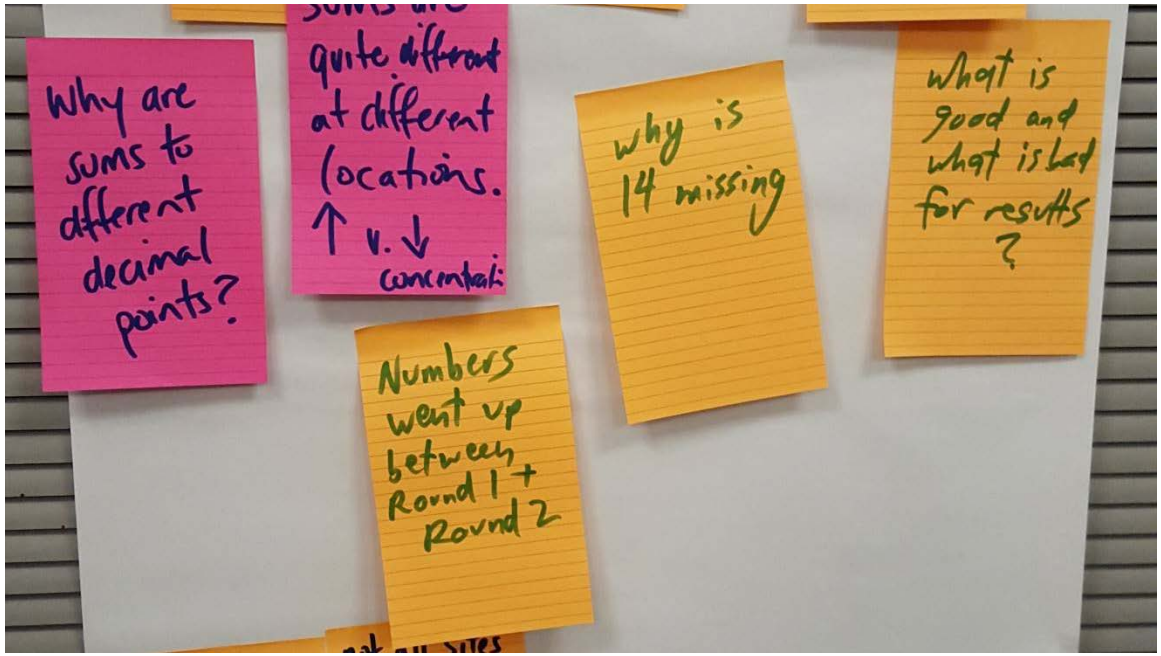
How are these numbers derived? (e.g., air flow assumptions)

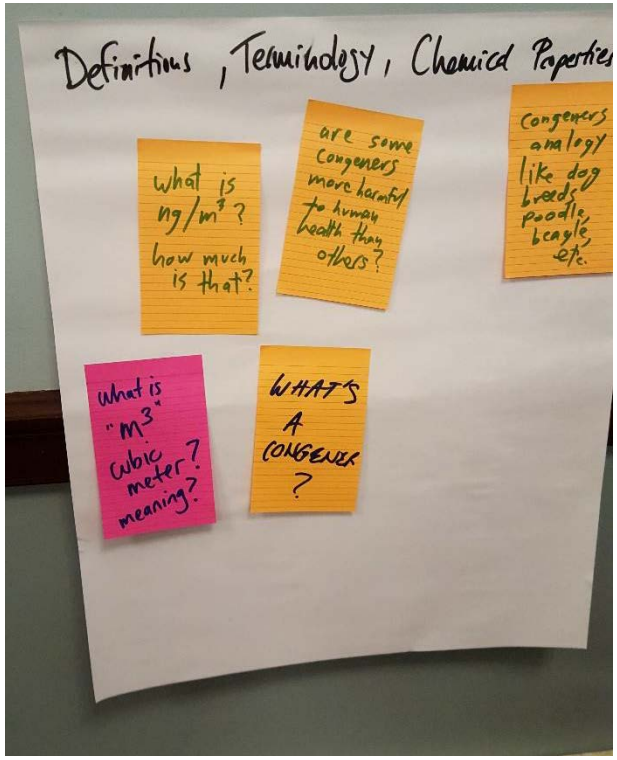
Why are some PCBs low and some high?

What are the human health risks?

How do these numbers compare with standards?

How do these numbers compare with guidelines?



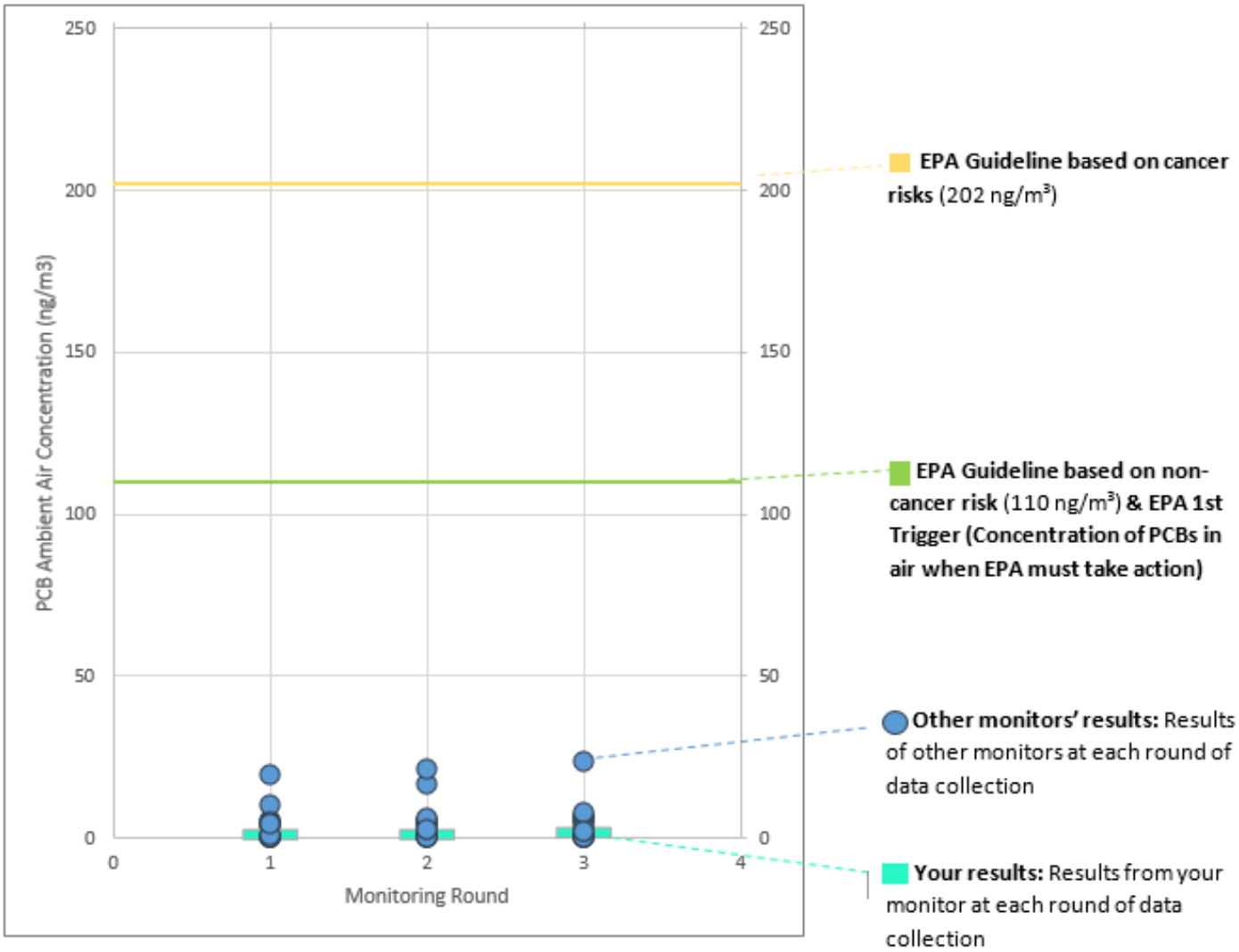


Subsequent workshops..

Mailing

Location #1

"What were the results at my location?"



Monitoring Round 1 July 9 – Aug. 20, 2015	Monitoring Round 2 Aug. 20 – Oct. 1, 2015	Monitoring Round 3 Oct. 1 – Nov. 12, 2015
1.11 ng/m³	1.06 ng/m³	1.54 ng/m³

"How do my results compare with EPA guidelines?"

The EPA guidelines listed here are also shown in the graph on the front of this page in the same colors.

		Guideline for Non-Cancer Risks	Guideline for Cancer Risks	1st Trigger (EPA must take action)	2nd Trigger (EPA must take more intensive action)
		110 ng/m^3	202 ng/m^3	110 ng/m^3	330 ng/m^3
Results from your monitor	Round 1 (July 9 – Aug. 20, 2015)	1.11 ng/m^3			
	Round 2 (Aug. 20 – Oct. 1, 2015)	1.06 ng/m^3			
	Round 3 (Oct. 1 – Nov. 12, 2015)	1.54 ng/m^3			

EPA guidelines are based on data showing effects of PCBs on health, mostly in laboratory animals. These data are used to estimate the exposures that might result in similar health effects in humans. The EPA arrived at the guidelines by identifying an acceptable risk of health effects, and determined the concentration of PCBs, at set conditions, that would not exceed the acceptable health risk. EPA defined acceptable cancer risk as one additional case of cancer in 100,000 people due to the PCB exposure in the air.

Environmental Science & Technology LETTERS
Letter
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Release of Airborne Polychlorinated Biphenyls from New Bedford Harbor Results in Elevated Concentrations in the Surrounding Air

Environ Sci Pollut Res
DOI 10.1007/s11356-017-0286-6
CrossMark

PCBS RISK EVALUATION AND ENVIRONMENTAL PROTECTION

Community reporting of am concentrations near a Super

Kathryn S. Tomsho[1] · Komal Basra[1] · Staci M. I
Richard Juang[2] · Sylvia Broude[3] · Andres Martine
Wendy Heiger-Bernays[1] · Madeleine K. Scammell[1]

predicted gas-phase fluxes of PCBs from 160 to 1200 μg m^{-2} day^{-1}. Fluxes were used as emissions for AERMOD, a widely applied U.S. EPA atmospheric dispersion model, to predict airborne PCB concentrations. The AERMOD predictior emission from NBH (110 kg $year^{-1}$, average 2015) is the largest r America, and the source of high ambient air PCB concentrations important source of airborne PCBs since it was contaminated w

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Ambient Air Exposure to PCBs: Regulation and Monitoring at Five Contaminated Sites in EPA Regions 1, 2, 4, and 5

Komal Basra[1],
Madeleine K. Scammell[1],
Eugene B. Benson[1] and
Wendy Heiger-Bernays[1]

current practices may not adequately protect those living or working near these sites from airborne PCB exposure

Two posters

- Report back of NO_2 and $PM_{2.5}$ concentrations from a community based in-home exposure monitoring study
  - Claire Schollaert

- Report back of household-level NO_2 and $PM_{2.5}$ concentrations to community participants: A proposed framework for evaluation
  - Kathryn Tomsho

Thank you!

- PEPH Peeps!
- Kelly Pennell
- Anna Hoover
- Wendy Heiger-Bernays
- Mike McClean
- Jennifer Ames
- Sylvia Broude
- Claire Miller
- Karen Vilandry
- Richard Juang
- Gary Adamkewicz
- Keri Hornbuckle
- Andres Martinez