UPDATE TO THE MAINE BOARD OF PESTICIDES CONTROL ASSESSMENT RELATIVE TO THE RISKS OF PESTICIDES TO MARINE INVERTEBRATES

January, 2017

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SECTION I: BACKGROUND

In January 2014, LD 1678, which sought to prohibit the use of methoprene and resmethrin, two insecticides commonly used for mosquito control in many states, was introduced to the Maine Legislature. However, methoprene and resmethrin are not currently used for mosquito control in Maine, and resmethrin is being phased out of use for mosquito control across the country. Consequently, the Maine Board of Pesticides Control (BPC) and the Maine Department of Agriculture, Conservation and Forestry both opposed LD 1678 for a variety of reasons, including:

- Banning products without a careful assessment of what is likely to replace them often results in substitution with higher risk products.
- There are other insecticides that are commonly used in Maine which are more likely to be present in the marine environment where juvenile lobsters are present.
- The public interest would be better served by a systematic assessment of whether pesticides may pose a threat to Maine's lobster fishery.

Ultimately, the Maine Legislature chose not to enact LD 1678, in part because the BPC agreed to undertake a broad assessment of the potential impacts of pesticides on the marine environment. In February 2014, the BPC began its assessment by convening an Environmental Risk Advisory Committee (ERAC) to "examine whether current pesticide residues have the potential to affect the lobster industry in Maine directly or via impact on other marine organisms."

Maine's Joint Standing Committee on Agriculture, Conservation and Forestry, in a letter to the BPC, supported the formation and purpose of the ERAC.

SECTION II: EXECUTIVE SUMMARY

The BPC assessment is based on two primary scientific data gathering efforts: 1) a comprehensive review of the scientific literature relevant to pesticide risks to marine invertebrates, and 2) an ongoing pesticide residue monitoring program focused on marine sediments and stormwater entering the marine environment. Due to the enormous scope of this project, both data gathering efforts are still in progress and will continue as funding allows. While analysis of such a large volume of technical, scientific information has strained the BPC's resources, the BPC remains committed to the assessment.

To date, the BPC assessment efforts have not produced any credible scientific evidence indicating that pesticides pose any appreciable risk to lobster fishery. The BPC intends to remain engaged with the principle constituencies (e.g. the Maine Lobstermen's Association, the Department of Marine Resources), and continue the data gathering and analysis efforts until a satisfactory endpoint is achieved sufficient to guide public policy decisions that are protective of the lobster fishery.

SECTION III: LITERATURE REVIEW

The Board's Environmental Risk Advisory Committee agreed that a comprehensive literature review focused on pesticides and marine invertebrates was a logical step in the assessment process. An initial screening process was employed to narrow the scope of pesticide active ingredients to be reviewed and resulted in the decision to focus on insecticides with significant outdoor use, high toxicity to marine invertebrates and an affinity for marine sediments. A class of insecticides—known as the synthetic pyrethroids—that have become popular in recent years because of their low mammalian toxicity, became a particular focal point of the assessment due to their high affinity to bind to sediments.

To date, over 1,000 scientific articles have been reviewed for inclusion in the assessment after being identified for relevance and evaluated for scientific rigor. In addition, the federal Environmental Protection Agency recently published its "Preliminary Comparative Environmental Fate and Ecological Risk Assessment for the Registration Review of Eight Synthetic Pyrethroids and Pyrethrin". This document is germane to the assessment and should be very useful.

SECTION IV: MARINE STORMWATER AND SEDIMENT SAMPLING PROJECT

The BPC staff, in consultation with the Department of Marine Resources, developed and implemented a marine stormwater and sediment sampling plan. The initial sampling plan deliberately targeted circumstances constituting worst case scenarios for residue concentration. Sediments were sampled in 2014 and 2015, while stormwater was sampled in 2015. Based on the 2014 sediment sampling results, characteristics of juvenile lobster behavior and habitat, and resource constraints, during 2015, the BPC targeted sediment sampling in known lobster settling sites in the Casco Bay region (Appendix I, Map 1). One site on the Saco River, below Biddeford, was sampled to follow up on a cypermethrin detection at that location in 2014. Sediment sample sites included previously identified and potential juvenile lobster habitats where fine-grained sediments intersected with cobble at low tide. Two sites with the highest bifenthrin detections in 2014 were sampled for temporal variability from April through October.

2015 sample results are presented in Maps 1 and 2 and Tables 1 through 5 (Appendix I). Overall, the results show a high percentage of non-detects. There were some very low level detections of certain insecticides in the fine-grained marine sediments. Pesticides adsorbed to fine sediments are unlikely to be biologically available unless the sediment is part of an organism's diet. The monitoring results also show low levels of certain pesticides in runoff following significant precipitation events. Of those detections, seven sites exceeded an EPA acute Aquatic Life Benchmark (ALB) for bifenthrin and one site exceeded two ALBs for permethrin. Given that these samples were collected at locations where runoff enters the marine environment, it's likely that dilution with marine waters would quickly reduce any residue concentrations below detectable levels.

In whole, the BPC monitoring efforts do not indicate a likely appreciable impact on the Maine's lobster fishery. The BPC plans to continue and refine its monitoring effort—as resources allow—in an effort to develop a more robust dataset more suitable for public policy determinations.

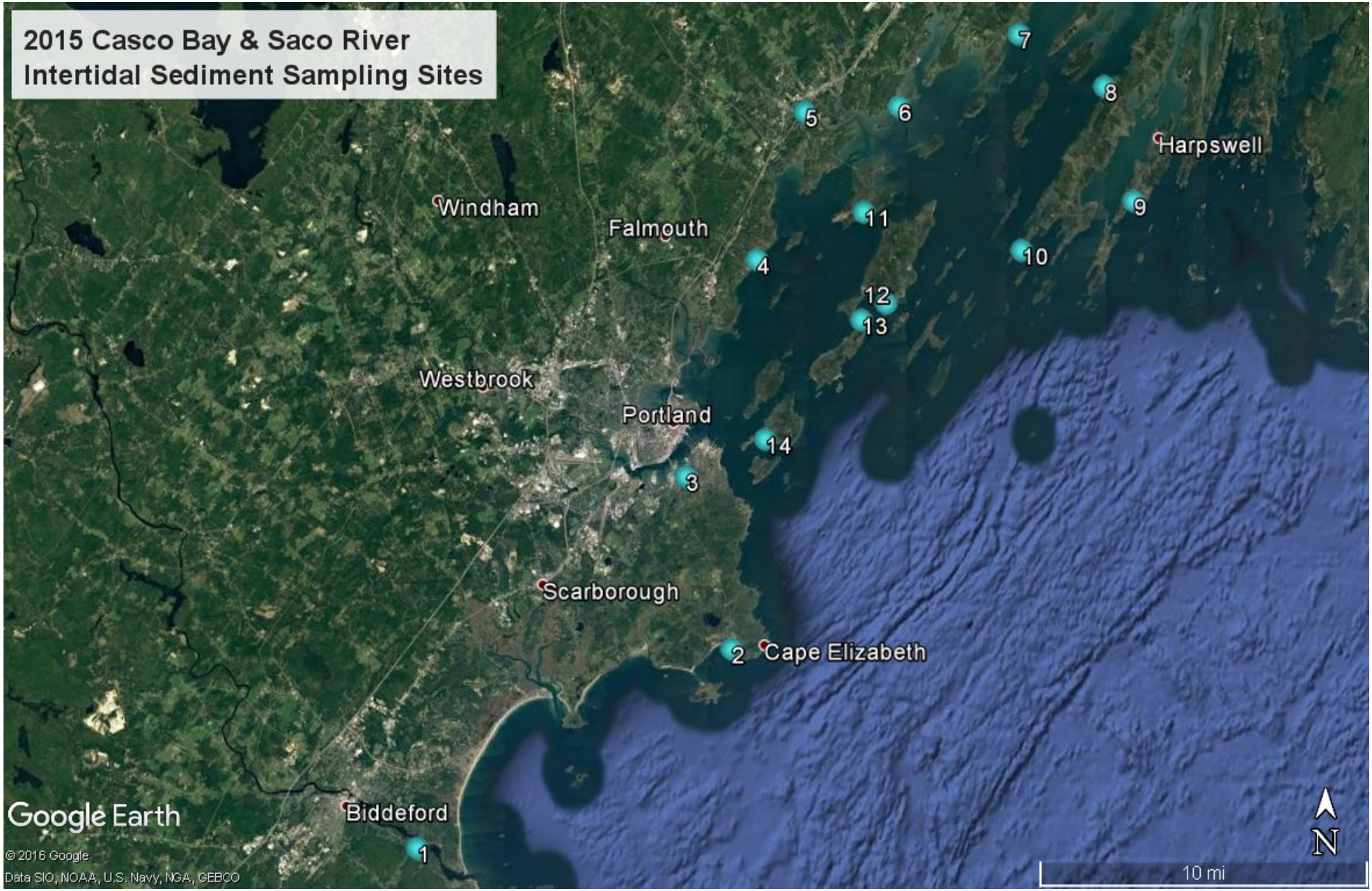
SECTION V: NEXT STEPS

During 2017 the BPC plans to continue—to the extent that resources allow—its assessment of the potential impacts of pesticides on the lobster resource as follows:

- Sediment sampling will likely be continued and will incorporate possible sample sites in the Penobscot Bay region and sampling improvements/adjustments based on lessons learned from the 2015 sampling and any recommendations made by the ERAC.
- Additional stormwater samples may be collected and analyzed at the Montana Analytical Laboratory using their Universal Water Screen which tests for at least 101 commonly applied pesticides.
- The scientific literature review will continue, with priority given to the completion of the review of the aquatic toxicity of bifenthrin, cypermethrin and methoprene-s.
- EPA's recently released, preliminary environmental risk assessment for nine pyrethroids will be carefully reviewed and incorporated into the final findings.
- Additional sampling may occur based on available funds and recommendations made by the ERAC.

APPENDIX I:

2015 STORMWATER AND MARINE SEDIMENT SAMPLING RESULTS


2015 Casco Bay & Saco River
Intertidal Sediment Sampling Sites
7
8
5
6
Harpswell
Windham
Falmouth
11
9
4
10
12
13
Westbrook
Portland
14
3
Scarborough
2
Cape Elizabeth
Biddeford
1
Google Earth
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Data SIO, NOAA, U.S. Navy, NGA, GEBCO
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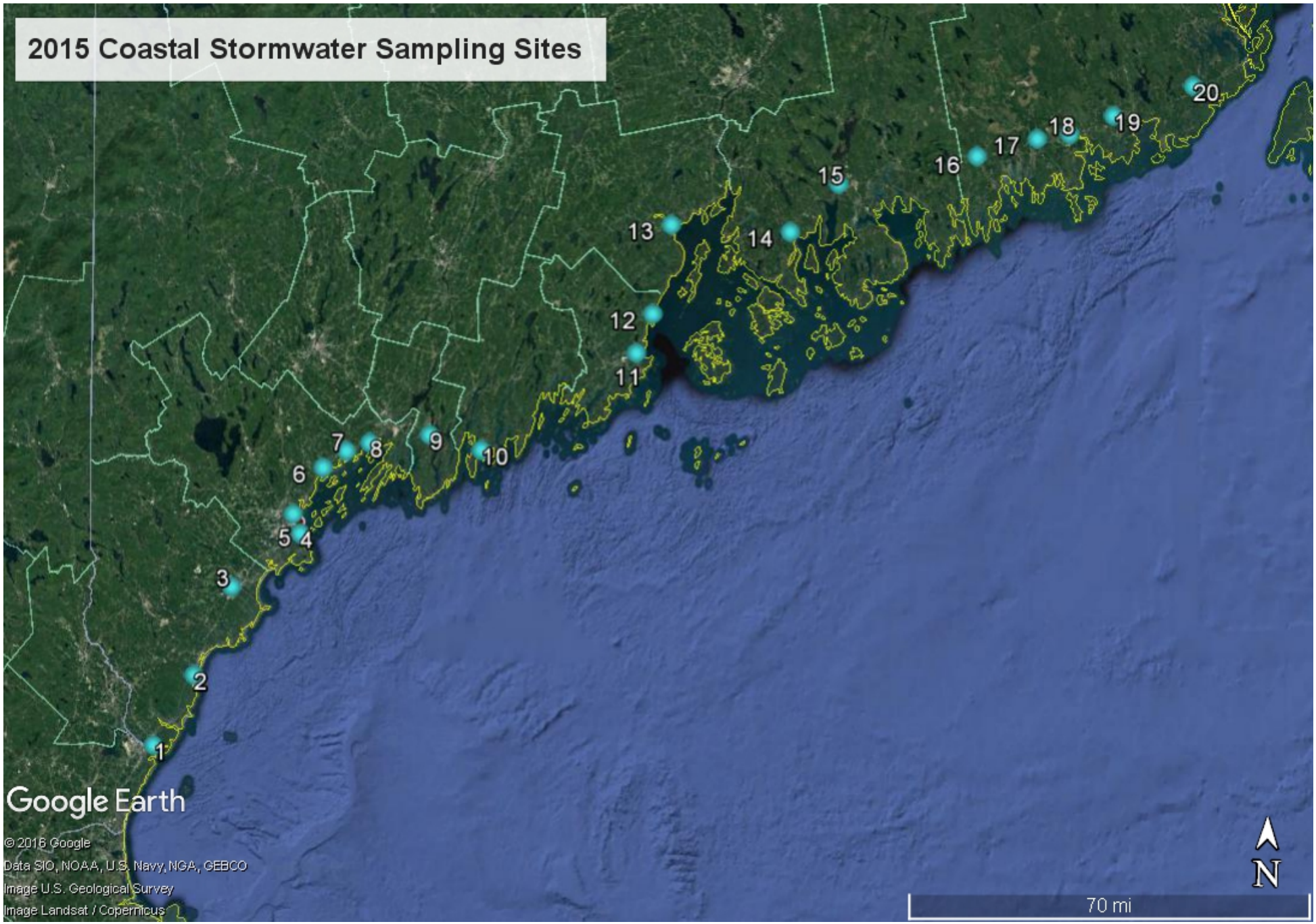
2015 Coastal Stormwater Sampling Sites
1
2
3
4
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6
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Google Earth
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Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image U.S. Geological Survey
Image Landsat / Copernicus
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70 mi

2015 MARINE INTERTIDAL SEDIMENT SAMPLING RESULTS

MONTANA ANALYTICAL LABORATORY RESULTS (sediment)

Table 1. Montana Analytical Laboratory analysis of pyrethroids in sediment using using solid phase extraction and GC/MS/NCI and/or GC/MS/MS EI. Intertidal marine sediment collected at 13 sites in Casco Bay and one Saco River site, April through October 2015. Results reported as wet weight. (RL = reporting limit, ND = non-detect).

Map Key	Site	Analyte															
		Allethrin (RL=0.40 ng/g)	Bifenthrin (RL=0.045 ng/g)	cis-Permethrin (RL=0.20 ng/g)	Cyfluthrin (RL=0.20 ng/g)	Cyhalothrin - TOTAL (RL=0.27 ng/g)	Cypermethrine (RL=0.20 ng/g)	Deltamethrin (RL=ng/g)	Fenpropathrin (RL=0.20 ng/g)	Fenvalerate/Esfenvalerate (RL=0.13 ng/g)	Phenothrin/Sumithrin (RL=2.0 ng/g)	Piperonyl butoxide (RL=2.0 ng/g)	Prallethrin (RL=0.20 ng/g)	Resmethrin (RL=2.0 ng/g)	Tetramethrin (RL=0.14 ng/g)	trans-Permethrin (RL=0.20 ng/g)
1	Biddeford (Saco R)	ND	0.11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2	Kettle Cove	ND	0.064	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3	S. Portland (4/15)	ND	0.31	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3	S. Portland (6/12)	ND	0.35	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3	S. Portland (8/7)	ND (RL=0.55 ng/g)*	0.36	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3	S. Portland (10/7)	ND	0.35	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4	Falmouth-Foreside	ND	0.19	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4	Falmouth-Foreside (duplicate)	ND	0.17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5	Yarmouth (4/15)	ND	0.19	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5	Yarmouth (6/12)	ND (RL=0.55 ng/g)*	0.26	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5	Yarmouth (8/7)	ND	0.21	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5	Yarmouth (10/7)	ND	0.17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
6	Winslow Park	ND (RL=0.55 ng/g*)	0.063	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7	Little Flying Point	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7	Little Flying Point (replicate)	ND	0.058	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
8	Lookout Point	ND	ND	ND	ND	ND	ND	ND	ND	0.21	ND	ND	ND	ND	ND	ND
9	Lowell's Cove	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
10	Basin Point	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
11	Cousins Island	ND (RL=0.55 ng/g)*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12	Cheabeague Island	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
13	Long Island	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
14	Peaks Island	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*Higher reporting limits are due to interference caused by chemical composition of sediment samples.

SOUTHWEST RESEARCH INSTITUTE RESULTS (sediment)

Table 2. Southwest Research Institute analysis of pyrethroids in sediments by GC/MS/MS. Intertidal marine sediment collected at 13 sites in Casco Bay and one Saco River site, April through October 2015. Results reported as dry weight. Reporting limits vary by sample. (ND = non-detect, NA = not analyzed).

Map Key	Site	Analyte													
		Allethrin, Total (µg/Kg)	Bifenthrin (µg/Kg)	cis-Permethrin (µg/Kg)	Cyfluthrin, Total (µg/Kg)	lambda-Cyhalothrin (µg/Kg)	Cypermethrin, Total (µg/Kg)	Deltamethrin, Total (µg/Kg)	Fenpropathrin (µg/Kg)	Fenvalerate/Esfenvalerate (µg/Kg)	Phenothrin/Sumithrin - TOTAL (µg/Kg)	Piperonyl butoxide (µg/Kg)	Resmethrin - TOTAL (µg/Kg)	Tetramethrin (µg/Kg)	trans-Permethrin (µg/Kg)
1	Biddeford (Saco R)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2	Kettle Cove	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3	S. Portland (4/15)	ND	1.19	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3	S. Portland (6/12)	ND	2.15	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3	S. Portland (8/7)	ND	2.19	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3	S. Portland (10/7)	ND	2.06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4	Falmouth-Foreside	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4	Falmouth-Foreside (duplicate)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5	Yarmouth (4/15)	ND	3.23	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5	Yarmouth (6/12)	ND	2.80	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5	Yarmouth (8/7)	ND	2.81	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5	Yarmouth (10/7)	ND	2.39	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
6	Winslow Park	ND	0.272	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7	Little Flying Point	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7	Little Flying Point (replicate)	ND	0.423	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
8	Lookout Point	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9	Lowell's Cove	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
10	Basin Point	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
11	Cousins Island	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12	Cheabeague Island	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
13	Long Island	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
14	Peaks Island	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table 3. Southwest Research Institute analysis of pyrethroids in sediments by GC/MS/MS. Intertidal marine sediment collected at 13 sites in Casco Bay and one Saco River site, April through October 2015. Results reported as dry weight. Reporting limits vary by sample. (ND = non-detect, NA = not analyzed).

Map Key	Site	Analyte						
		Etofenprox (µg/Kg)	tau-Fluvalinate - TOTAL (µg/Kg)	Tefluthrin (µg/Kg)	Prallethrin - TOTAL (µg/Kg) (µg/Kg)	Pyrethrum (µg/Kg)	Imiprothrin (µg/Kg)	Methoprene (µg/Kg)
1	Biddeford (Saco R)	ND	ND	ND	ND	ND	ND	ND
2	Kettle Cove	ND	ND	ND	ND	ND	ND	ND
3	S. Portland (4/15)	ND	ND	ND	ND	ND	ND	ND
3	S. Portland (6/12)	ND	ND	ND	ND	ND	ND	ND
3	S. Portland (8/7)	ND	ND	ND	ND	ND	ND	ND
3	S. Portland (10/7)	ND	ND	ND	ND	ND	ND	ND
4	Falmouth-Foreside	ND	ND	ND	ND	ND	ND	ND
4	Falmouth-Foreside (duplicate)	ND	ND	ND	ND	ND	ND	ND
5	Yarmouth (4/15)	ND	ND	ND	ND	ND	ND	ND
5	Yarmouth (6/12)	ND	ND	ND	ND	ND	ND	ND
5	Yarmouth (8/7)	ND	ND	ND	ND	ND	ND	ND
5	Yarmouth (10/7)	ND	ND	ND	ND	ND	ND	ND
6	Winslow Park	ND	ND	ND	ND	ND	ND	ND
7	Little Flying Point	ND	ND	ND	ND	ND	ND	ND
7	Little Flying Point (replicate)	ND	ND	ND	ND	ND	ND	ND
8	Lookout Point	ND	ND	ND	ND	ND	ND	ND
9	Lowell's Cove	ND	ND	ND	ND	ND	ND	ND
10	Basin Point	ND	ND	ND	ND	ND	ND	ND
11	Cousins Island	ND	ND	ND	ND	ND	ND	ND
12	Cheabeague Island	ND	ND	ND	ND	ND	ND	ND
13	Long Island	ND	ND	ND	ND	ND	ND	ND
14	Peaks Island	ND	ND	ND	ND	ND	ND	ND

MONTANA ANALYTICAL LABORATORY RESULTS

Table 4. **Montana Analytical Laboratory** results for pesticides detected in stormwater collected August to September 2015 from 20 sites, Kittery to Whiting, ME. Analysis using the" Universal Method for the Determination of Polar Pesticides in Water Using Solid Phase Extraction and Liquid Chromatography/Mass Spectrometry/Mass Spectrometry". (RL = reporting limit, ND = non-detect, Q = present at less than reporting limit).

Map Key	Town	2,4-D (RL=0.09µg/L)	Bentazon (RL=0.022µg/L)	Carbaryl (RL=0.14µg/L)	Diuron (RL=0.053µg/L)	Hexazinone (RL=0.015µg/L)	Hydroxy-atrazine (HA) (RL=0.04µg/L)	Imazapyr (RL=0.035µg/L	Imidacloprid (RL=0.018µg/L)	MCPA (RL=0.046µg/L)	MCPP (RL=0.044µg/L)	Metolachlor ESA (RL=0.05µg/L)	Prometon (RL=0.01µg/L)	Propiconazole (RL=0.1µg/L)	Terbacil (RL=0.048µg/L)	Triclopyr (RL=0.22µg/L)
1	Kittery	ND	ND	ND	ND	ND	ND	ND	Q	ND	ND	ND	0.047	ND	ND	ND
2	Ogunquit	ND	ND	ND	ND	ND	ND	ND	Q	ND	ND	ND	ND	ND	ND	ND
3	Biddeford	0.15	ND	ND	ND	ND	ND	ND	0.14	ND	Q	ND	ND	ND	ND	ND
4	S. Portland	0.27	ND	ND	ND	ND	ND	ND	0.73	ND	0.059	Q	ND	ND	ND	ND
5	Portland (TS)*	1.5	ND	ND	ND	ND	Q	0.052	0.14	ND	0.16	ND	Q	ND	ND	Q
5	Portland (TS)*	4.6	ND	ND	ND	ND	ND	Q	0.12	ND	1.1	ND	ND	ND	ND	Q
5	Portland (TS)*	0.8	ND	ND	ND	ND	ND	ND	0.089	ND	0.15	ND	ND	ND	ND	ND
5	Portland (TS)*	0.19	ND	ND	ND	ND	ND	ND	0.13	ND	Q	ND	ND	ND	ND	ND
6	Yarmouth	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.15	ND	ND	ND	ND
7	Freeport	ND	ND	ND	ND	ND	ND	ND	Q	ND	ND	ND	ND	ND	ND	ND
8	Brunswick	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9	Bath	ND	ND	ND	ND	ND	ND	ND	0.029	ND	ND	ND	ND	ND	ND	ND
10	Boothbay Harbor	ND	ND	ND	ND	ND	ND	ND	Q	ND	ND	ND	ND	Q	ND	ND
11	Rockland	ND	ND	Q	ND	ND	ND	Q	0.030	Q	ND	ND	ND	ND	ND	ND
12	Camden	Q	ND	ND	ND	ND	ND	ND	Q	ND	ND	ND	ND	ND	ND	ND
13	Belfast	0.26	ND	ND	ND	ND	ND	ND	Q	0.072	0.051	ND	ND	ND	ND	ND
14	Blue Hill	ND	0.037	ND	ND	Q	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
15	Ellsworth	ND	ND	ND	Q	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
16	Cherryfield	ND	ND	ND	ND	0.037	ND	ND	ND	ND	ND	ND	ND	ND	Q	ND
16	Cherryfield (duplicate)	ND	ND	ND	ND	0.043	ND	ND	ND	ND	ND	ND	ND	ND	Q	ND
17	Columbia Falls	ND	ND	ND	ND	0.22	ND	ND	ND	ND	ND	ND	ND	ND	0.052	ND
18	Jonesboro	ND	ND	ND	ND	0.038	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
19	Machias	ND	ND	ND	ND	0.025	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
20	Whiting	ND	ND	ND	ND	Q	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND *

TS = time-series location

SOUTHWEST RESEARCH INSTITUTE RESULTS (stormwater)

Table 5. **Southwest Research Institute** results for pesticides detected in stormwater collected August 2015 from 20 sites, Kittery to Whiting, ME. Analysis using liquid chromatography/mass spectrometry/mass spectrometry for fipronil and fipronil metabolites and tandem mass spectrometry (GC/MS/MS) for pyrethroids and methoprene. (RL = reporting limit, ND = non-detect, J = estimated value). **Note: pyrethroids reported in µg/L (ppb) compared to ng/L (ppt) for fipronil and fipronil metabolites.**

Map Key	Town	Bifenthrin (µg/L)	cis-Permethrin (µg/L)	trans-Permethrin (µg/L)	Fipronil (ng/L)	Fipronil desulfinyl (ng/L)	Fipronil sulfide (ng/L)	Fipronil sulfone (ng/L)
1	Kittery	0.0020J	ND (DL=0.011)	ND (DL=0.016)	5.43	1.00	0.31 J	1.82
2	Ogunquit	0.0017 J	ND (DL=0.010)	ND (DL=0.016)	0.74	ND (DL=0.49)	0.26 J	0.56
3	Biddeford	0.0022	ND (DL=0.010)	ND (DL=0.016)	1.03	0.51	0.26 J	0.79
4	S. Portland	0.0028	ND (DL=0.011)	ND (DL=0.017)	0.72	0.31 J	0.28 J	0.55
5	Portland (TS)*	0.0012 J	0.020	0.023	0.91	0.49 J	0.29 J	0.44 J
5	Portland (TS)*	0.016	0.014	0.017	1.11	0.71	0.37 J	0.68
5	Portland (TS)*	0.0064	ND (DL=0.012)	ND (DL=0.018)	2.14	1.39	0.34 J	1.44
5	Portland (TS)*	0.0049	ND (DL=0.012)	ND (DL=0.019)	1.72	1.03	ND (DL=0.59)	1.40
6	Yarmouth	ND (DL=0.0024)	ND (DL=0.010)	ND (DL=0.015)	0.74	0.24 J	ND (DL=0.21)	0.40 J
7	Freeport	ND (DL=0.0026)	ND (DL=0.011)	ND (DL=0.016)	0.65	0.47 J	0.43 J	0.44 J
8	Brunswick	ND (DL=0.0025)	ND (DL=0.010)	ND (DL=0.016)	ND (DL=0.50)	ND (DL=0.50)	ND (DL=0.50)	ND (DL=0.50)
9	Bath	0.0027	ND (DL=0.010)	ND (DL=0.016)	0.61	0.28 J	ND (DL=0.50)	0.48 J
10	Boothbay Harbor	ND (DL=0.0026)	ND (DL=0.011)	ND (DL=0.017)	0.76	0.48 J	0.46 J	0.73
11	Rockland	0.0054	ND (DL=0.011)	ND (DL=0.016)	2.40	1.01 J	0.30 J	2.21
12	Camden	ND (DL=0.0024)	ND (DL=0.010)	ND (DL=0.016)	1.66	0.98	ND (DL=0.48)	0.99
13	Belfast	ND (DL=0.0025)	ND (DL=0.011)	ND (DL=0.016)	2.08	0.71	ND (DL=0.50)	1.04
14	Blue Hill	ND (DL=0.0024)	ND (DL=0.010)	ND (DL=0.016)	ND (DL=0.48)	ND (DL=0.48)	ND (DL=0.48)	ND (DL=0.48)
15	Ellsworth	not analyzed	not analyzed	not analyzed	not analyzed	not analyzed	not analyzed	not analyzed
16	Cherryfield	ND (DL=0.0030)	ND (DL=0.013)	ND (DL=0.020)	ND (DL=0.61)	ND (DL=0.61)	ND (DL=0.61)	ND (DL=0.61)
16	Cherryfield (duplicate)	ND (DL=0.0031)	ND (DL=0.013)	ND (DL=0.020)	ND (DL=0.62)	ND (DL=0.62)	ND (DL=0.62)	ND (DL=0.62)
17	Columbia Falls	ND (DL=0.0031)	ND (DL=0.013)	ND (DL=0.020)	ND (DL=0.62)	ND (DL=0.62)	ND (DL=0.62)	ND (DL=0.62)
18	Jonesboro	ND (DL=0.0025)	ND (DL=0.011)	ND (DL=0.016)	ND (DL=0.50)	ND (DL=0.50)	ND (DL=0.50)	ND (DL=0.50)
19	Machias	ND (DL=0.0027)	ND (DL=0.011)	ND (DL=0.018)	ND (DL=0.54)	ND (DL=0.54)	ND (DL=0.54)	ND (DL=0.54)
20	Whiting	ND (DL=0.0025)	ND (DL=0.011)	ND (DL=0.016)	ND (DL=0.50)	ND (DL=0.50)	ND (DL=0.50)	ND (DL=0.50)

* TS = time-series location