April 11, 2019

Testimony in Support of LD 1287

Sen. Carson, Rep. Tucker and Distinguished Members of the Joint Standing Committee on Environment and Natural Resources:

I have submitted detailed testimony by email in support of LD 1287, with the amendments proposed by bill sponsor Rep. Jan Dodge of House District 97. I am testifying on behalf of myself as a resident of Penobscot Bay, the Maine Chapter of the Sierra Club (in which I am now a member of their Executive Committee), and the Maine Lobstering Union (who I have the honor of serving as their legal counsel since 2014).

The painful legacy of the HoltraChem mercury contamination dispels the myth that the "solution to pollution is dilution." For the past 50 years, literally tons of inorganic mercury has been dumped into the Penobscot River from the HoltraChem site in Orrington. At least 9.3 tonnes of this mercury eventually entered Penobscot Bay. We continue to suffer the effects of this pollution – which continues today to enter the river from this site.

Thanks to litigation brought by the Maine People's Alliance and the NRDC, the federal court has appointed a team of neutral experts who have determined where this mercury is and how to properly monitor its effects.

Where the mercury is still at the surface of the sediment, it continues to wreak environmental and economic havoc. There is a mobile sediment pool at the mouth of the river and upper estuary of the Bay that still is causing active methyl-mercury contamination of the biota in this area. A 13 square mile area has been closed to all lobstering and crabbing in this area. This is an area where active remediation will need to be done to speed recovery.

Fortunately, nature has a way of shielding us from our own folly and mistakes and much of the mercury in the Bay has been buried – Where the mercury is buried, the harmful effects of the mercury are reduced. The inorganic mercury is not converted by bacteria in the sediment to its more toxic form – methyl mercury – and the lobster fishery safely thrives. Where it is buried we must take action to keep it buried.

Ignoring the buried mercury, pretending it is not there, or concealing the fact that it is there by the use of inaccurate sediment testing protocols or active efforts to conceal the facts will only result in resuspension of this dangerous threat to the health of our environment, our economy and our people.

Unfortunately, we must also admit that there are limits we must place on the use of the river and Bay where there is buried HoltraChem mercury. These limits protect the jobs that sustain us in this region now.

As a person and lawyer who has spent this last six years fighting to protect the Bay and our lobster fishery from those who have tried to hide the facts about this mercury and the consequences of resuspending it I am here to answer your questions about whey this legislation is needed.

Kim Ervin Tucker

Attorney at Law

Admitted to Practice:
State of Maine
State of Florida
District of Columbia

United States Supreme Court
U.S. Circuit Court First Circuit
U.S. District Court Northern District of Florida
U.S. District Court Middle District of Florida
U.S. District Court District of Maine

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Sen. Carson, Rep. Tucker and Distinguished Members of the Joint Standing Committee on Environment and Natural Resources:

I am submitting this testimony in support of LD 1287, with the amendments proposed by bill sponsor Rep. Jan Dodge of House District 97. This testimony is submitted on behalf of myself as a resident of Penobscot Bay, the Maine Chapter of the Sierra Club, and the Maine Lobstering Union. Sierra Club Maine and the Maine Lobstering Union have worked together to protect Penobscot Bay and its iconic lobster fishery since 2013 -- opposing the Searsport dredge project as a dangerous and unnecessary proposal that risked spreading mercury contamination throughout Penobscot Bay and threatened the Pen-Bay lobster fishery.

The Executive Committee of the Maine Chapter of the Sierra Club, of which I am a member, voted unanimously on March 23, 2019 to support LD 1287, with an amendment to address concerns raised by the counsel for NRDC in the *Mallinckrodt* litigation. Similarly, the Executive Board of the Maine Lobstering Union voted unanimously to support an amended LD 1287 at its March meeting. Both groups have worked together to advance the substantive goals of this legislation since 2013, however.

For the past six years we have fought to protect Penobscot Bay and its valuable lobster fishery from the adverse effects of mercury contamination, caused by unnecessary dredging in areas known to have buried HoltraChem mercury. Most of these battles have unfortunately been fought with the very agencies of the State and federal government charged with protecting these precious and irreplaceable resources for the benefit of the people.

Beginning fifty years ago, the State allowed a foreign corporation to contaminate the Penobscot River and Bay by dumping tons of inorganic mercury into our waters. Contrary to the mantra of the time, the solution to pollution is *not* dilution. Inorganic mercury in the environment is converted by bacteria into methyl-mercury – a more toxic form of mercury. Methyl-mercury is a powerful and destructive neurotoxin that bio-accumulates and bio-magnifies as it goes up the food chain. Methyl-mercury is particularly harmful to the developing brains of children and fetuses.

The devastating environmental and economic impacts of the HoltraChem mercury contamination continue to impact us today – and have spread down the river and into the Bay -- many miles from the original site of this contamination. But ignoring the existence of the HoltraChem mercury – or

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pretending that this mercury contamination does not exist in the Penobscot River and Bay – will only cause more harm to the environment and economy of our State now and in the future.

Fortunately, as discussed in more detail below, the Penobscot River Mercury Study (PRMS), conducted by neutral experts appointed by the federal court in Bangor, determined that most of the HoltraChem legacy mercury in the Bay has been buried, through natural attenuation of sediment, protecting biota in the Bay, including the lobster fishery from current contamination by methyl-mercury. It is imperative that this mercury remained buried – for the health of the Bay and the preservation of the valuable lobster fishery it supports.

Only by acknowledging that this contamination is present and taking all necessary precautions to ensure that it is not resuspended and spread – causing renewed environmental and economic damage – can we protect our environment and economy in the Midcoast region and the State.

This bill codifies the PRMS sediment testing criteria developed by the federal court's experts responsible for the Penobscot River Mercury Study into Maine law; requires that dredging permit applicants use the PRMS sediment testing protocol; and limits dredging in areas of the Penobscot River and Bay where HoltraChem mercury contamination is known to be buried. The amendments clarify that dredging in such areas should be limited to maintaining existing navigation and existing infrastructure and performing mercury remediation by appropriate experts.

By adopting these testing requirements and dredging limitations, the State of Maine can better protect the Penobscot River and Bay, as well as the iconic lobster fishery in the Bay, by reducing the risk of resuspension and mobilization of buried HoltraChem mercury contamination from dredging projects. These protections are critical to preserving the Penobscot Bay lobster fishery – a fishery that forms the foundation of the economy in the Midcoast region and the State of Maine.

Background

In 1969, prior to the adoption of the Clean Water Act, a foreign corporation began dumping ***tons*** inorganic mercury into the Penobscot River from its facility in Orrington. For nearly 50 years, the Penobscot River and Bay have been contaminated by mercury from the now-shuttered HoltraChem chemical plant. Between 1969 and 1972, 6 to 12 tons of inorganic mercury were dumped into the Penobscot River from the HoltraChem site. Dumping in lesser amounts continued until the HoltraChem facility closed in 2000. Mercury continues to enter the River from this site today from runoff and wastewater discharges authorized by permits issued by DEP. This mercury worked its way into the Bay over time through the action of tides and currents.

While the State of Maine and US EPA took legal action in the 1990s to compel Mallinckrodt to clean-up the contamination at the Orrington HoltraChem site, the State and federal agencies did not file suit to clean-up the mercury dumped into the Penobscot River or the mercury that entered the sediment and ecosystem of the Bay as a result.

In 2000, the Maine People's Alliance and the NRDC filed suit in Maine's federal court to determine the extent of the environmental damage caused by the HoltraChem mercury to the River and Bay and to hold Mallinckrodt liable for the costs of clean-up of the mercury contamination in the River and Bay. This lawsuit, *Maine People's Alliance, et al. v. HoltraChem Manufacturing,*

Inc., et al. (D. Me. No. 1:00-cv-69-JAW), was filed under the authority of the "citizen suit" provision in Section 7002 of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Section 6972. Links provided by the NRDC to the description of this litigation and many of the case materials from it are submitted here for your review and information:

https://www.nrdc.org/court-battles/maine-peoples-alliance-and-natural-resources-defense-council-v-holtrachem

https://www.nrdc.org/resources/mallinckrodt-case-documents

How do we know where the mercury contamination is located now?

After a trial in 2002, the federal court in Bangor held Mallinckrodt liable for the mercury contamination caused by dumping tons of mercury in the Penobscot River and ordered a study to be conducted, at Mallinckrodt's expense, performed by neutral experts appointed by the federal court. The purposes of the Penobscot River Mercury Study (PRMS) included determining the extent of contamination in the Penobscot River and Bay and recommending possible active remediation options to hasten recovery of the River and Bay ecosystems and biota.

The Three-Phase Penobscot River Mercury Study (PRMS), undertaken by the court's experts over more than a decade, has mapped the current location of the mercury contamination caused by dumping tons of mercury from the HoltraChem facility into the Penobscot River. The court's experts have determined that **9.3 tons of mercury from Holtrachem is now in Penobscot Bay**.

See, PRMS Phase II Report, Chapter 21, page 21-3
https://www.nrdc.org/sites/default/files/chapter21-penobscot-mercury-study-report-mallin-201304.pdf
I have attached a chart from the Phase II PRMS study that shows the distribution of this mercury throughout the Penobscot River and upper Penobscot Bay north of Islesboro Island.

Fortunately, the PRMS Study determined that most of the HoltraChem legacy mercury in the Bay has been buried, through natural attenuation of sediment. It is imperative that this mercury remain buried – for the health of the Bay and the preservation of the valuable lobster fishery it supports.

The PRMS's Phase II report includes data from 58 sediment cores collected throughout the lower Penobscot River system, from Veazie Dam in the north, to the southern end of Islesboro in the south. Each of these cores were treated individually, no sample compositing in any form was done. Each of these 58 cores was sectioned in the same fashion. Cores were sectioned at 1 cm intervals of the first 20 cm, at 2 cm intervals to 40 cm, and at 5 cm intervals to 90 cm, resulting in a total of 40 samples per core. Each of these samples were then analyzed for a range of variables, including grain size, porosity, bulk density, particulate organic carbon (POC), total Hg, and fallout radionuclides. Of the 58 cores analyzed, 18 were sampled from stations in Penobscot Bay (designated ES-#).

In these 18 Bay cores, the peak concentrations of total mercury ranged in depth from 20 to 70 cm from the surface, with a mean depth of 36.7 cm (14.4"), and the maximum concentrations of total mercury ranged from 346 to 2,710 ng/g, with a mean of 1,055.8 ng/g. It is worthy of note that the

peak total Hg concentrations in all 18 of these cores significantly exceeded the EPA's ERL (effect range low) for mercury (i.e. 150 ng/g).

Thus, the PRMS experts have determined that most of the 9.3 tonnes of legacy mercury in the Bay is buried at a depth of 20-70 cm (8"-27.6") down below the sediment surface, with a mean depth of 36.7 cm (14.4"). At this depth, the mercury is not exposed to methylating bacteria and cannot contaminate the food chain, including the valuable lobster fishery. As long as the HoltraChem mercury remains buried and undisturbed, the lobsters in this area will remain low in mercury.

However, if the buried inorganic mercury deposited in the Bay by HoltraChem is resuspended and mobilized through human activities, like dredging, the buried mercury would again be exposed to the methylating bacteria in the Bay and could contaminate biota, including lobsters, forcing closures to fishing.

Where the mercury dumped from the HoltraChem site has *not* been buried through natural attenuation of sediment, and remains exposed to methylating bacteria in the surface sediment of the River and Bay, there is active and significant methyl-mercury contamination up the food chain. There is such an area at the mouth of the Penobscot River and the upper estuary of the Bay, near Verona Island. Some of the highest levels of methyl-mercury contamination ever recorded in songbirds have been found in songbirds in this area.

More significantly to our economy, as a consequence of the methyl-mercury contamination near this mobile sediment pool, a 7-square mile area was closed by DMR in 2014 to all lobstering and crabbing. In 2016, DMR closed an additional 5.5-square mile area, adjacent to the original closure area, because of elevated levels of mercury (ranging around a mean level of 292.7 ng/g to 302 ng/g of mercury) in the tail meat of 40 legal size lobster collected by DMR in this area near the mobile settlement pool. This 13+ mile closure area remains closed to all lobster and crab fishing today.

What is the threat posed by dredging in areas where buried HoltraChem mercury is located?

Dredging (hydraulic or mechanical) always involves the resuspension, or remobilization of sediment. There is no way to avoid this with existing dredging technology.

All dredging – even of perfectly clean sediment -- causes harm to lobsters and damages the lobster catch for years after a dredge. Habitat is damaged or lost, and all lobsters (young or fully-grown) in the area of a dredge are killed -- buried or suffocated by sediment disturbed during the dredge.

However, the remobilization of sediment known to be contaminated with considerable quantities of mercury -- like the area in the Penobscot River south of the former HoltraChem Manufacturing Company site in the Town of Orrington and Penobscot Bay north of the southern tip of Islesboro Island -- may result in the spread of methyl-mercury contamination, as a result of increased conversion of disturbed inorganic mercury into its most toxic form, methyl-mercury, and introduction of formally unavailable (i.e. buried) mercury to the aquatic food chain. If this occurs, the lobster fishery in additional areas of Penobscot Bay could be lost for decades or permanently due to the lobsters' exposure to, and contamination from, methyl-mercury.

For this reason, in recommending options for remediation of the HoltraChem mercury the court's experts concluded that no dredging should be done is areas where HoltraChem mercury is present but buried. Phase II PRMS Report, Chapter 23, page 23-6. ("...Extensive dredging also runs the risk of exposing previously buried high-Hg sediments, which could aggravate [the] present situation.")
https://www.nrdc.org/sites/default/files/chapter23-penobscot-mercury-study-report-mallin-201304.pdf

For these same reasons, this bill requires that dredging in the area of the Penobscot River and Bay where the court's experts have determined that HoltraChem mercury is present, should be limited to dredging that is necessary to maintain existing navigation and existing infrastructure, or to conduct active mercury remediation by appropriate experts. LD 1287, as amended, would accomplish this.

Why should applicants for a dredging permit in the area of concern be required by statute to use the PRMS core sampling methodology?

Prior to conducting even limited and necessary dredging in the areas where the PRMS study has determined that HoltraChem legacy mercury is buried, sediment core sampling should be done only using the PRMS standard, because this core sampling methodology is designed to accurately show the amount and location of legacy mercury. By identifying the depth of the buried mercury prior to dredging, proper precautions can be undertaken during dredging to minimize resuspension and mobilization of buried mercury and post-dredging monitoring can be done to ensure that biota have not been contaminated.

A statutory requirement to use this standard is the only way to ensure that federal and state agencies do not allow applicants to use a less accurate sediment core sampling methodology that understates the amount of mercury and/or fails to reveal the location and depth of buried mercury prior to dredging.

Imposing this requirement by Maine law is needed to ensure that the US Army Corps of Engineers (USACE), EPA and Maine DEP will require applicants to use the more accurate PRMS protocol for all future dredging projects in the area of concern.

In the past six years since the PRMS study findings have been made public – despite these federal and state agencies knowing that Penobscot Bay north of the southern tip of Islesboro has buried HoltraChem mercury and knowing the harm that would be caused to the Bay, existing fisheries, the environment and the economy that would result if this mercury was resuspended through dredging – these agencies have failed to use, or require the use of, the PRMS standard for multiple proposed dredge projects. I am attaching three reports, prepared by Dr. Kevin Yeager – the same expert in sediment who has served on the federal court's PRMS team. See, PRMS Phase II Report, Chapter 5. https://www.nrdc.org/sites/default/files/chapter5-penobscot-mercury-study-report-mallin-201304.pdf

Dr. Yeager's reports that are attached summarize the deficiencies in testing protocols that existed in sediment testing and sampling plans submitted with dredging applications in this area since 2013 – core sampling plans and methods which were either approved by the USACE and ME DEP for

third party dredge permit applicants or submitted by the USACE and ME DOT in support of their own dredge permit application.

The USACE was aware of the PRMS study conclusions regarding the location of buried HoltraChem mercury in the upper Penobscot Bay long prior to these facts being revealed to the public. The Corps had knowledge of the PRMS study and its conclusions about the presence of mercury at least as early as 2009. In fact, in 2009, the USACE participated in a mercury remediation workshop with the PRMS Study Panel appointed by the federal court. See Phase II Study, chapter 21, page 21-8.
https://www.nrdc.org/sites/default/files/chapter21-penobscot-mercury-study-report-mallin-201304.pdf

However, in 2013, the Corps of Engineers and Maine DOT failed to reference or acknowledge the risks posed by dredging in Searsport where the PRMS study confirmed that there is buried HoltraChem mercury when they proposed doing a million cubic yard dredge to expand the Searsport Federal Navigation Project by a third and to dump the dredge spoils in the fragile and fertile lobstering grounds on the western side of Islesboro (where there is also buried HoltraChem mercury according to the PRMS). The Corps' 196-page Draft Feasibility Study and Environmental Assessment ("FSEA") never even mentioned the existence of the buried HoltraChem mercury, or the potential catastrophic impacts of this dredge on the environment and economy of the Midcoast region if buried HoltraChem mercury was disturbed. USACE Draft Feasibility Report and Environmental Assessment Searsport Harbor Navigation Improvement Project.
https://www.nae.usace.army.mil/Portals/74/docs/Topics/Searsport/DRAFT_FSEA.pdf

Further, rather than conducting new, accurate sediment tests in 2014, using the PRMS standard, the Corps attempted to use sediment testing done six years earlier (in 2008) that composited 10 core samples of differing depths into four samples. As noted by Dr. Yeager's first Report, this 2008 sampling method grossly understated the level of mercury and other industrial contaminants in the material proposed to be dredged and dumped, and failed to reveal the depth of any buried HoltraChem mercury in the areas proposed for dredging. Use of sediment tests that are more than three years old was a violation of the requirements for disposal of dredge material in an aquatic environment in the waters of New England, contained in the *Final Regional Implementation Manual for the Evaluation of Dredged Material Proposed for Disposal in New England Waters*, issued jointly by the US EPA and the USACE (EPA/USACE, 2004; hereafter referred to as "RIM, 2004"). Yet USACE attempted to support its dredge application with such out-dated core samples.

In 2013, DEP allowed dredging at the Mack Point docks and upland disposal of the dredge spoils as "beneficial use fill material." The core sampling plan and method for that dredge was approved by the USACE and again failed to use the PRMS standard. Dr. Yeager's second attached report discusses the deficiencies in that sediment testing.

Despite repeated pleas to DEP to require applicants for dredge permits, including the USACE and DOT, to use the PRMS standard in doing sediment testing for a dredge permit in this area, DEP has failed to do so. In fact, in 2014, when lobstermen and other adversely impacted citizens objected to the out-of-date, composited sediment testing submitted by the Corps of Engineers and Maine DOT to do the proposed million cubic yard dredge to expand the Federal Navigation Project in Searsport, DEP directed new testing be done that would analyze 5 cm segments to a depth of 40 cm

– rather than using the PRMS standard. As noted in Dr. Yeager's third supplemental report, the sediment testing submitted failed to adequately assess the amount and location of the mercury in the material proposed for dredging and dumping.

The Searport dredge did not occur because leadership in the Corps placed a hold on the project. However, doing this dredge continues to be included in the list of future dredging projects in Maine. Further, transportation bonds approved in Maine allegedly include funding for this dredging project. Thus, the threat to the Penobscot Bay lobster fishery remains. See, September 2018 Corps of Engineers Maine Dredging Update: https://www.nae.usace.army.mil/Portals/74/docs/Media/State%20Updates/ME_Sep_2018.pdf?ver=2018-10-26-144130-467

Why are amendments to (NRPA) 12 MRSA § 480-D, sub-§9 and a new sub-§9-A needed?

In June of 2015, the Maine Lobstering Union requested a hearing by DMR on the adverse impacts of the proposed Searsport FNP dredge and dump, pursuant to 12 MRSA § 480-D, sub-§9. We were advised by DMR that the department had a very restrictive interpretation of their responsibilities under this provision of NRPA. Specifically, the Deputy Commissioner stated that:

> The scope of what we can receive comment on at the hearing relates only to the language in 38 M.R.S.A § 480-D, §§ 9. I do believe the first sentence of the section that deals with the DMR Commissioner's authority is ambiguous, though it is provided some greater clarity by the sentences that follow, and that clarity is underscored by the legislative history on the two amendments.
>
> Our interpretation of that section is, and the A.G.'s office concurs, that the "area to be dredged" is limited to the footprint of the area that will be dredged, not the entire area impacted by the dredging. "Impacts of the project on fishing" may be broadly construed to include impact to marine resources as well as fishing activity.
>
> Beyond the area *to be dredged*, we will also consider "impacts to the fishing industry of a proposed route to transport dredge spoils to an ocean disposal site." This language pertains only to the impact of the proposed route, and is intended to ensure that the haul route will not unreasonably interfere with fishing activity. In the attachments you will find the testimony of Deputy Commissioner Penn Estabrook on the 1997 and 2001 amendments to NRPA which clearly address the intent to clarify the role of DMR in addressing the haul route due to gear loss that had occurred on a dredge project in the Royal River.
>
> As this language is part of the section that authorizes us to hold a public hearing to solicit input, these are the two issues on which we will be taking public comment at the hearing…

June 18, 2015 email from DMR Deputy Commissioner Mendelson to Kim Ervin Tucker.

The Maine Lobstering Union objected to this narrow interpretation and the denial by DMR of our right to present testimony about the adverse impacts to commercial fishing outside the footprint of the actual dredge area within the Federal Navigation Project that would result from resuspending buried HoltraChem mercury and on disposing of dredge spoils in the active methane vents in the

western Penobscot Bay off Islesboro – an area that had been rejected by the Head Geologist for the State of Maine for dredge spoils disposal in 1999 because the complex currents in this area would scour and remobilize any spoils dumped in the pock marks resuspending them throughout the Bay (a fact omitted by the Corps in its 2013 FSEA). (See, Dr. Joseph Kelley's Report attached to this testimony). A lawsuit was filed by the Maine Lobstering Union to resolve this dispute regarding the proper interpretation of 12 M.R.S.A. § 480-D, sub-§9 -- but, after the Corps withdrew its application to dredge in the Searsport FNP in September 2015, the State successfully moved to dismiss the lawsuit as "moot" (even though this interpretation impacts the scope of DMR's evaluation of *all* dredging projects in the State).

Clarifying that the DMR is required to do a complete and comprehensive evaluation of all impacts of a proposed dredging project on commercial fishing and fisheries would help protect the lobster fishery in all areas of the State, since even dredging clean dredge material can and usually does adversely impact lobster fishing for years after a dredge or dredge spoils disposal.

The foregoing reasons are why LD 1287 is needed (with the amendment described by Rep. Dodge).

Respectfully submitted,

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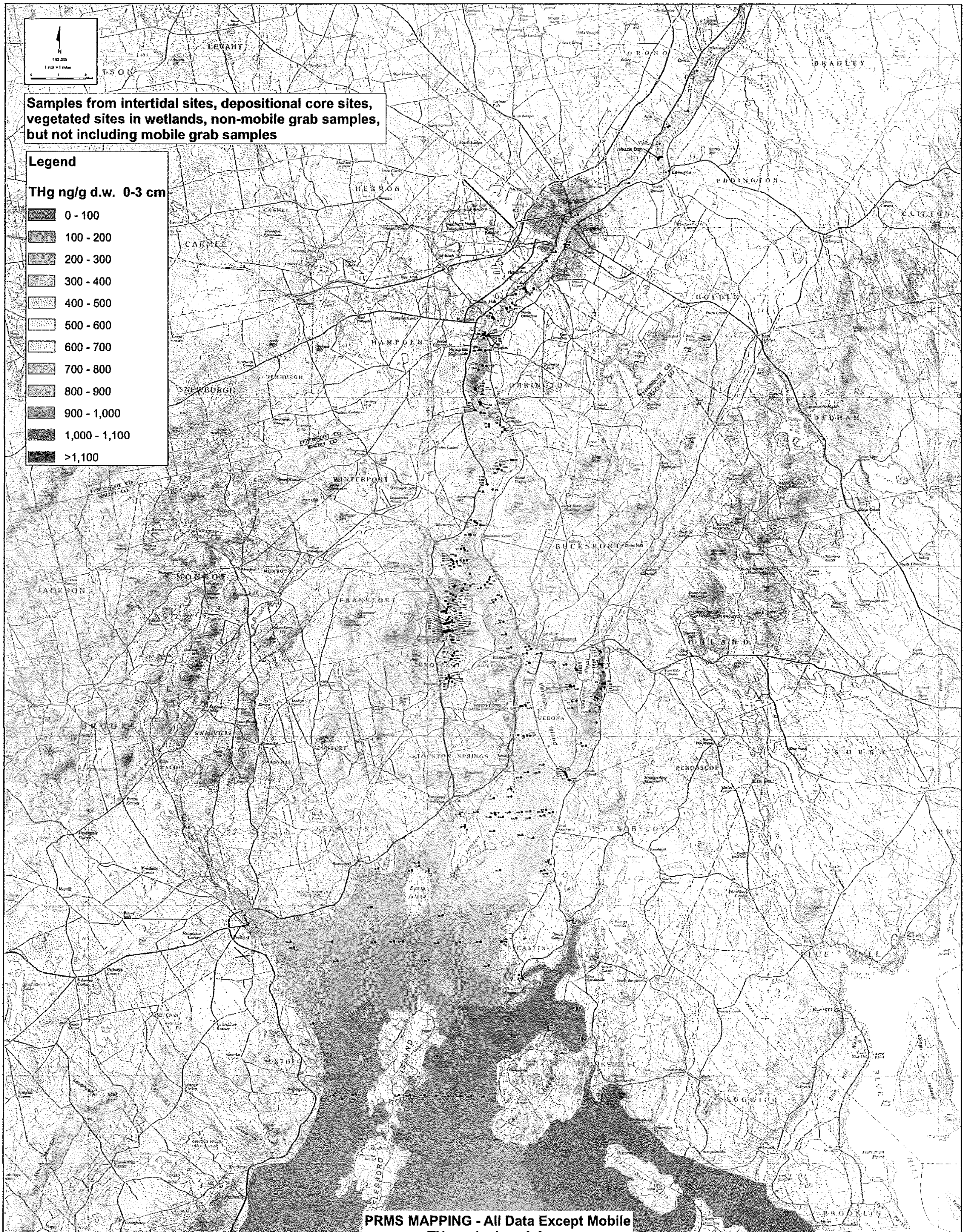
Samples from intertidal sites, depositional core sites, vegetated sites in wetlands, non-mobile grab samples, but not including mobile grab samples
Legend
THg ng/g d.w. 0-3 cm
0 - 100
100 - 200
200 - 300
300 - 400
400 - 500
500 - 600
600 - 700
700 - 800
800 - 900
900 - 1,000
1,000 - 1,100
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LEVANT
ORONO
BRADLEY
HERMON
CARMEL
HAMPDEN
DEDHAM
WINTERPORT
BUCKSPORT
JACKSON
FRANKFORT
ORLAND
VERONA
STOCKTON SPRINGS
PENOBSCOT
PRMS MAPPING - All Data Except Mobile
THg ng/g d.w. 0-3 cm
ENVIRON