

**Council Meeting Number 13-2021
Addendum Number 2
Tuesday, May 18, 2021**

Communications

The consent of Council is requested for the **addition** of Communication Number 13-543.

13-543 Correspondence received from Dr. Tamsin Laing, Biologist, Aquatic Sites, Dr. Iris Koch, Risk Assessor, Dr. Kela Weber, Professor and Director ESG/RMC and Dr. Ken Reimer, Professor Emeritus and Founding Director ESG/RMC with respect to Kingston Inner Harbour, dated May 14, 2021.

(Distributed to all members of Council on May 18, 2021)

(Attached to the Addendum Number 2 as schedule pages 1-5)

May 14, 2021

Letter to City of Kingston Council regarding the Kingston Inner Harbour Council Motion and April 6 meeting

City of Kingston Council Members,

We are writing with regards to the Council Motion on the Kingston Inner Harbour (KIH) and the resulting discussion on this topic at the April 6 council meeting.

Our purpose in writing this letter is to provide context on the studies carried out on the KIH prior to 2014, and to respond to points raised in the April 6 council meeting based on our professional expertise and knowledge of the Kingston Inner Harbour sediment contamination.

Background

Our group, the Environmental Sciences Group (ESG) at the Royal Military College, has completed extensive study of contaminated sediments in the Kingston Inner Harbour. In concert with the Cataraqui River Stakeholder Group, ESG compiled existing data and carried out environmental site assessments between 2006 and 2011 to identify the extent of sediment contamination in the harbour and evaluate ecological risks.

The 2014 Study

The study involved over a thousand sediment sample analyses, several hundred biological samples from 15 different species, and dozens of toxicity tests amongst other analyses. A detailed human health and ecological risk assessment was completed, and the results were used to identify areas of the KIH where management actions were recommended to address adverse environmental risks. The scientific approach used to assess contamination in the KIH and evaluate associated human health and ecological risks followed established frameworks and guidance for aquatic contaminated sites. The results underwent extensive peer review by technical experts within the federal government as well as a third-party consultant. The work culminated in the preparation of a large report in 2014 titled "Application of the Canada-Ontario Decision-Making Framework for Contaminated Sediments in the Kingston Inner Harbour". **The 2014 ESG/RMC report has just been released publicly and is available at request from the City of Kingston or from ESG (see contacts at the end of this letter).**

Subsequent to the study

Following completion of the 2014 report, federal property owners of the KIH water lots undertook several years of follow-up environmental assessments and studies. The results were used to develop a proposed sediment management approach for the harbour, summarized in the backgrounder to the KIH council motion for the April 6 meeting. ESG/RMC does not represent the federal property owners and cannot speak to the details of the proposed sediment management plan as we were not involved in this phase of the project. We understand that the federal owners plan to carry out public consultation in Summer 2021 and more information on the proposed sediment management plan should be provided at that time.

Our expertise

We have two decades of experience in sediments and aquatic contaminated sites, human health and ecological risk assessment, natural and constructed wetlands, and environmental monitoring. Two of the signatories to this letter are lead authors on the 2014 Kingston Inner Harbour report and led the sediment and environmental risk investigations along with now retired Dr. Ken Reimer. Dr. Reimer was Director of ESG at the time of the 2014 KIH study and chaired two Peer Review Panels on behalf of the US Environmental Protection Agency regarding the Hudson River Dredging Project (the largest environmental dredging project completed in North America). Dr. Tamsin Laing leads the aquatic contaminated sites work at ESG and has developed guidance for addressing aquatic contaminated sites in harbours. We have all been long-term residents of Kingston.

Main discussion

We would like to address several misconceptions raised at the April 6 meeting about the 2014 ESG/RMC report and proposed sediment management for the KIH. We have summarized these main points below.

- We need to **put the 2014 ESG/RMC report into context**. The 2014 report was an important study of harbour contamination and ecological effects, but more study has occurred in recent years. The proposed sediment management plan is supported by the more recent studies. Although the 2014 ESG/RMC report contains some preliminary analysis of management options, the analysis is superseded by the follow-up work done by others. Results of the recent studies have not yet been made public but presumably will be communicated to Kingston residents at public consultation this summer. **There is a need for more information about the proposed KIH sediment management plan and it would be good to reserve judgement until this information is known.**
- **Studies have shown that the contaminated sediments in some areas of the Inner Harbour pose moderate risks to human and ecological health.** There is still lingering contamination from the industrial chemicals used historically in the KIH that is continuing to affect the ecosystem and create some health risks to humans and animals. The work done up to the point of the 2014 study showed that the water quality is good but that there are a number of contaminants in the sediments, with the highest concentrations located along the western shoreline between Anglin Bay and Belle Park. Contaminated sediments in some areas along the western shoreline pose moderate risk to humans through skin contact under repeated, chronic exposure. Numerous studies have shown that the contaminants in the sediments are bioavailable, and are taken up into plants, invertebrates, and fish living in the more contaminated areas of the harbour. As a result, there are fish consumption advisories with regards to the number of meals that are safe to consume per month for different sizes and types of fish in the Kingston Inner Harbour (Guide to Eating Ontario Fish, Cataraqui River, Belle Island area). An ESG study of Brown Bullhead found increased rates of external deformities, lesions, and tumours for fish living in the KIH south of Belle Park compared with fish sampled in the north part of the KIH near the 401. Toxicity tests have indicated that contaminants have increased toxicity to sediment-dwelling invertebrates (an important prey item for fish) in some areas of the harbour.

- **The proposed sediment management plan is intended to address areas with the higher human health and ecological risks.** These risks don't occur across the harbour - remediation work would only be carried out at those locations where moderate risks exist. The Federal Contaminated Sites Action Plan (FCSAP) is the funding source that would be used by the federal government to undertake the proposed work. Sites are only eligible to receive FCSAP funding for clean-up if they have demonstrated human health and ecological risks from legacy contamination and are considered a high priority for clean-up. The Kingston Inner Harbour meets these criteria. **Addressing the risks posed by contaminated sediments in some areas of the harbour will lead to a healthier river ecosystem and support public use of the waterfront area.**
- Although we cannot speak to the specific details of the proposed KIH sediment management plan as ESG/RMC was not involved in its development, we can speak to the general approach for designing an aquatic sediment management strategy. **Typically, sediment management approaches take into account the contaminant concentrations, associated human health and ecological risks, and the effectiveness of the various management options to address those risks.** Monitored natural recovery can be very important in addressing aquatic contaminated sites and we looked at that as part of the 2014 study. Based on the figure provided in the April 6th council motion, monitored natural recovery is being proposed to address most of the southwestern Kingston Inner Harbour. However, **there are some areas in the KIH where natural recovery would not be effective for addressing the risk, such as along the western shoreline where contaminant concentrations are high.** It has been many decades since the historical industries were discharging wastes to the harbour, yet contaminants in surface sediments are still present in high concentrations and are being taken up into plants, invertebrates, and fish living in the harbour. Studies undertaken as part of the 2014 ESG/RMC report indicated that natural recovery is limited in the shallow areas of the harbour, where contaminated sediments may be resuspended by wave action, and burial with clean sediments occurs very slowly. Rain events can also lead to resuspension of contaminated sediments from the Orchard Street Marsh and transport of these contaminants into the harbour. Typically, more active intervention methods, such as dredging or capping, would be used to remediate contaminated sediments in harbour areas where natural recovery would not be effective in addressing human health and ecological risks.
- Under the aquatic contaminated sites process, potential environmental impacts from the proposed clean-up activities and impacts to stakeholders must be evaluated before the detailed clean-up design can be developed. This involves completion of a detailed impact assessment and consultation with stakeholders, Indigenous peoples, and the public. **All of the concerns raised at the April 6 council meeting are typically addressed when a sediment management plan is being developed.** These include minimizing negative social and economic impacts, planning activities to avoid impacts to species at risk and ensuring that remediation work itself does not cause environmental harm. **It is important and appropriate that all concerns be brought forward for discussion during public consultation.** There is a need for more information, and this should be provided during public consultation.

- We would particularly like to address some misconceptions raised at the meeting with regards to dredging. **Dredging is a standard aquatic remediation technique and has been used for clean up at hundreds of aquatic contaminated sites throughout North America, including sites located in rivers, without the adverse impacts discussed at the April 6 council meeting.** Examples of recently completed successful clean-ups of aquatic contaminated sites using dredging include Rock Bay in Victoria Harbour, BC (<https://www.canada.ca/en/environment-climate-change/services/federal-contaminated-sites/success-stories.html#rock>), and the Hudson River in New York State (the largest environmental dredging project completed in North America; <https://www.hudsondredging.com>). **A key component of remedial planning would include a detailed impact assessment of potential effects from dredging activities, which also identifies mitigation measures to ensure environmental impacts are minimal.** For example, dredging work areas for contaminated sediments are typically isolated from the rest of the water body through engineered controls, such as silt curtains, cofferdams, or other containment designs. Some types of dredging equipment, such as suction dredges, collect the sediment through a pipe with little release to the water column. The overlying water in the work area may also be collected and treated before releasing back into the water body. Water quality in the harbour is also typically monitored throughout the project to ensure that dredging activities are not causing environmental effects. Environmental approvals for the Kingston Inner Harbour clean up would not be granted if dredging were to have the types of impacts on drinking water, swimming, and harmful effects to wildlife that were brought up in the April 6 council meeting. Other dredging projects for aquatic contaminated sites, including sites in rivers, have not been associated with these serious effects.
- The detailed impact assessment would also identify measures to ensure that remedial activities will not harm species at risk such as turtles.** Some of the measures that have been used on other clean-up projects include planning the work to avoid sensitive nesting periods, relocating all aquatic animals in the work area to suitable habitat nearby before the start of remedial activities, and monitoring the health of nearby populations during work operations. For example, in Rock Bay (Victoria Harbour), over 3000 fish and other aquatic wildlife were relocated from the work area to the surrounding harbour prior to the start of dredging. Shoreline habitat restoration can also be incorporated into a sediment management plan or as a follow-up community initiative. **Again, studies have shown that the contaminated sediments pose moderate risks to human and ecological health in some areas of the Kingston Inner Harbour, particularly along the western shoreline. The long-term benefits of cleaning up sediment contamination that is the source of these risks should be considered along with potential short-term disturbance from work activities.** It is appropriate to bring forward these concerns for discussion at public consultation. More information is needed about the sediment management plan and proposed approach to minimize impacts to aquatic wildlife.
- When walking along the waterfront pathway adjacent to the western shoreline of the KIH, we have regularly seen people fishing, kayaking, paddleboarding and picnicking at the water's edge, kids playing along the shoreline, and dogs swimming in the water. This kind of occasional contact with the contaminants in the sediment is a low risk activity; repeated and prolonged exposure could result in an increased risk to human health. If we are to encourage public access

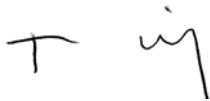
and use of this area, then it is also important to address potential human health risks associated with nearshore sediment contamination. The decision on whether to support clean up of the Kingston Inner Harbour is a very important one for Kingston residents, and we would encourage all those with an interest to participate in the public consultation process.

- It has been 50 years since the first studies on sediment contamination in the KIH were completed, and there has been little possibility of clean up during this time because of limited funding opportunities. **The fact that we are now at a point where the federal property owners have a proposed remediation plan for the contaminated sediments in the Kingston Inner Harbour and outlined steps for moving forward is really exciting.** Addressing the risks posed by contaminated sediments in some areas of the harbour will lead to a healthier river ecosystem and support continued public use of the waterfront area.

We appreciate and welcome the great interest and commitment of the people who care deeply about the health of the Inner Harbour. As researchers with a longstanding interest in the KIH, we sincerely hope we can make a valuable contribution to ongoing discussions about how to best serve the environmental and human health of our city.

We would be happy to discuss any of the information in this letter further with City of Kingston Council members and/or provide a briefing on the results of the 2014 ESG/RMC report. Thank you for your time and consideration in reviewing this letter.

Sincerely,



Dr. Tamsin Laing
Biologist, Aquatic Sites
Main point of contact



Dr. Iris Koch
Risk assessor



Dr. Kela Weber
Professor and Director ESG/RMC



Dr. Ken Reimer
Professor Emeritus and Founding Director ESG/RMC

CITY COUNCIL MEETING OF:

May 18, 2021

COMMUNICATION

No: 13-543