

Appendix D – Environmental Reference Materials

Appendix D-1: Acoustic Survey for Endangered Bats – Meaford, Ontario (2023)

Document included:

Survey for Endangered Bats: Meaford, Ontario – An acoustic survey of the local bat community, prepared by Susan L. Holroyd, M.Sc., for Save Georgian Bay Association, October 2023.

Contextual summary:

This acoustic bat survey was conducted in August 2023 in the Niagara Escarpment and Georgian Bay shoreline area northwest of Meaford, within a few kilometres of the proposed Ontario Pumped Storage Project site. Using stationary acoustic monitoring and a driving transect in accordance with North American Bat Monitoring Program (NABat) protocols, the study documented relatively high bat diversity and activity levels across the survey area.

Endangered bat species detected include **Little Brown Myotis (*Myotis lucifugus*)** and **Tricolored Bat (*Perimyotis subflavus*)**, both listed as Endangered under provincial and federal legislation. Migratory bat species — **Hoary Bat, Eastern Red Bat, and Silver-haired Bat** — were also detected at relatively high levels; these migratory species were assessed by COSEWIC as Endangered in May 2023 and are under consideration for protection under the federal *Species at Risk Act*.

The study identifies the Meaford area as providing high-quality summer roosting and foraging habitat, in close proximity to known and potential hibernation sites associated with the Niagara Escarpment. The report notes that this combination of habitat features may represent a **local bat biodiversity hotspot** and identifies potential sensitivity to large-scale land disturbance, artificial lighting at night, habitat loss, and alteration of escarpment features.

This material is provided **for contextual and background purposes only**. It is not submitted as expert evidence or as a site-specific impact assessment for the proposed project. Its inclusion highlights the existence of documented Species at Risk presence and underscores the importance of comprehensive baseline studies and effects assessment in the Project Description.

Appendix D-2: Sediment Disturbance and Legacy Contaminant Mobilization (Contextual Background)

Document referenced (contextual only):

Chattopadhyay, S. & Chattopadhyay, D. (2015). *Remediation of DDT and Its Metabolites in Contaminated Sediment. Current Pollution Reports*, 1:248–264.

Purpose and Scope

This appendix provides **general scientific context** regarding the behaviour of persistent, legacy contaminants in sediment–water systems when sediments are disturbed. It is included to illustrate well-established contamination pathways and risk mechanisms that are relevant to large-scale excavation, dredging, blasting, or sediment disturbance activities.

This material is **not submitted as expert evidence**, does **not assert the presence of specific contaminants at the project site**, and is **not relied upon for factual conclusions** in the main submission.

Summary of Relevant Context

Peer-reviewed literature documents that many historic contaminants — including chlorinated organics such as DDT and its degradation products — strongly sorb to sediments and organic matter and can persist for decades. Once sediments are disturbed, these contaminants may be remobilized through resuspension, changes in redox conditions, erosion, or altered hydrodynamic regimes. Disturbance can increase bioavailability, facilitate transport through aquatic systems, and elevate ecological risk even where contaminants were previously sequestered.

The literature further describes that sediment remediation and disturbance activities (including dredging, excavation, and construction near or within water bodies) have repeatedly been associated with short- and medium-term increases in contaminant exposure to aquatic organisms, including benthic invertebrates and higher-trophic-level species. This has been observed across a wide range of freshwater, estuarine, and near-shore environments.

Relevance to Information Sufficiency at the IPD Stage

This contextual material is provided solely to underscore why federal project descriptions are ordinarily expected to address:

- baseline sediment quality and contamination screening,
- mechanisms by which sediment disturbance could mobilize legacy contaminants,
- interactions between sediment disturbance and aquatic ecosystems, and
- cumulative effects pathways affecting fish, wildlife, and Species at Risk.

The absence of such baseline characterization or pathway analysis in an Initial Project Description limits the ability of the Agency, Indigenous communities, and the public to understand potential risks or determine whether proposed mitigation measures are conceptually adequate.

Species At Risk (4CDTC Meaford)

Species	COSSARO Status	COSEWIC Status	SARA Schedule 1	In TCE IPD Report	NHIC Records
Butternut	Endangered	Endangered	Endangered	Yes	Yes
Red-headed Woodpecker	Endangered	Endangered	Endangered	No	Yes
American Ginseng	Threatened	Endangered	Endangered	No	Yes
Canada Warbler	Special Concern	Special Concern	Threatened	Yes	Yes
Eastern Wood-pewee	Special Concern	Special Concern	Special Concern	Yes	Yes
Silver Lamprey* (Great Lakes - Upper St. Lawrence population *	Special Concern	Special Concern	Special Concern	Yes	Yes
Grasshopper Sparrow	Special Concern	Special Concern	Special Concern	Yes	Yes
Barn Swallow	Special Concern	Special Concern	Threatened	Yes	Yes
Bobolink	Threatened	Special Concern	Threatened	Yes	Yes
Eastern Meadowlark	Threatened	Special Concern	Threatened	Yes	Yes
Eastern Milk Snake	NAR	Special Concern	Special Concern	Yes	Yes
Snapping Turtle	Special Concern	Special Concern	Special Concern	No	Yes
American Hart's-tongue Fern	Special Concern	Special Concern	Special Concern	No	Yes
Lake Sturgeon (Great Lakes - Upper St. Lawrence River	Endangered	Threatened	Not Listed	Yes	Yes
Wood Thrush	Special Concern	Threatened	Threatened	Yes	Yes
Golden-winged Warbler	Threatened	Threatened	Threatened	Yes	Yes
Eastern Whip-poor-will	Special Concern	Threatened	Threatened	Yes	Yes
Bank Swallow	Threatened	Threatened	Threatened	Yes	Yes
Chimney Swift	Threatened	Threatened	Threatened	No	Yes
St. Lawrence population)	Threatened	Threatened	Threatened	No	Yes
Eastern Small Footed Bat	Endangered	Candidate	Not Listed	Yes	No
Little Brown Myotis	Endangered	Endangered	Endangered	Yes	No
Tri-colour Bat	Endangered	Endangered	Endangered	Yes	No
Northern Myotis	Endangered	Endangered	Endangered	Yes	No
Hoary Bat	Endangered	Endangered	Under Review	Yes	No
Eastern Red Bat	Endangered	Endangered	Under Review	Yes	No
Silver Haired Bat	Endangered	Endangered	Under Review	Yes	No
Monarch	Special Concern	Endangered	Endangered	Yes	No
Yellow-banded Bumblebee	Special Concern	Special Concern	Special Concern	Yes	No
Northern Brook Lamprey	Special Concern	Special Concern	Special Concern	Yes	No
Deepwater Sculpin	NAR	Special Concern	Special Concern	Yes	No
Black Ash	Endangered	Threatened	Under Review	Yes	No
Western Chorus Frog	NAR	Threatened	Threatened	Yes	No

* 1987 Record in NHIC dataset