

ENVIRONMENTAL POLICY ASSESSMENT · SALMON RIVER WATERSHED EIA

Potential Impacts on the Salmon River Watershed

Alto High-Speed Rail Project — Northern and Southern Route Options

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KEY FINDING

Both routes pose risks to the Salmon River watershed, but they differ significantly in character. The northern route threatens the watershed's most ecologically intact areas on the Precambrian Shield, areas that currently provide critical ecological services downstream. The southern route threatens already-stressed riparian and wetland habitats in the limestone bedrock portion of the watershed where the greatest restoration needs have been identified.

ALTO's CEO confirms: ecological baseline surveys were just beginning as the consultation closed

On CBC Ottawa Morning on March 25, 2026 — one day before the consultation closed — ALTO's CEO Martin Imbleau stated publicly: "We intend to file the initiation of the [environmental assessment] process later this year. So we need to look at and to have some sampling in dangerous species. Are there any concerns on the wildlife that we're not aware of?" He confirmed environmental field surveys were commencing "this week," and that he was asking for access to landowner properties to begin that work. ALTO's own Corporate Plan (Treasury Board, May 2025) confirms fish surveys, fluvial geomorphology assessments, surface water quality assessments, and terrestrial ecology studies, explicitly including species-at-risk surveys, were Stage 1 Day 1 workstreams initiated at co-development launch.

For the Salmon River watershed, the CEO's admission means that the aquatic ecological baseline, fish species distribution, fluvial geomorphology, and water quality across both the Shield and limestone zones of the watershed, was still being assembled when communities were asked to evaluate the two route options. The comparative impact analysis in this submission is built on the best available published data; ALTO's own surveys of the corridor, required before any lawful Impact Assessment determination, were not complete and not available to the public during the consultation period.

Source: CBC Ottawa Morning, March 25, 2026. cbc.ca/listen/live-radio/1-100-ottawa-morning/clip/16205093

Section 1 — The Salmon River Watershed: Ecological Profile

The Salmon River originates near Cloyne, south of Bon Echo Provincial Park, and flows through Lennox & Addington, Frontenac, and Hastings Counties before emptying into the Bay of Quinte near Shannonville. The watershed spans 921 km² and is part of the larger Bay of Quinte Area of Concern, one of 43 Great Lakes Basin areas identified by the International Joint Commission in 1985 as requiring remedial action.

A critical feature of the watershed is its geological division. The northern 57% sits on the Precambrian Shield; the southern 43% rests on limestone bedrock. These two zones present dramatically different ecological conditions, as documented in the 2005 Habitat Strategy (Green, 2005):

Habitat Indicator	Guideline	Whole Watershed	Shield (North)	Limestone (South)
Wetland area	>10%	11.7%	12.1%	11.1%
Vegetation near wetlands	100%	92.3%	99.7%	⚠ 64.3%
Stream length vegetated	>75%	78.9%	89.1%	⚠ 52.5%
Riparian vegetation (30m)	100%	80.7%	98.4%	⚠ 38.1%
Forest cover	>30%	70.3%	85.6%	49.5%
Interior forest habitat	>5%	27.8%	38.6%	⚠ 13.4%

⚠ Values marked with a warning symbol fall well below Environment Canada guidelines. Source: Green (2005), *The Salmon River Habitat Strategy*.

The data reveals a watershed of two halves. The Precambrian Shield portion is rich with intact forest, wetlands, and riparian vegetation providing high-quality habitat and essential ecological services to downstream communities. The limestone bedrock portion is ecologically stressed, with only 38.1% of lands within 30 metres of streams having forest cover (guideline: 100%). These southern areas were identified as the watershed's highest restoration priorities.

Section 2 — Impact Assessment: Northern Corridor

A route through the northern corridor would cross through or near the Precambrian Shield portion of the Salmon River watershed, the portion currently providing the highest quality habitat in the entire watershed.

2.1 Destruction of Intact Habitat

The Shield portion contains 85.6% forest cover, 38.6% interior forest habitat, and 98.4% riparian vegetation within 30 metres of streams, exceptional ecological indicators far exceeding Environment Canada's minimum guidelines. High-speed rail construction through this terrain would require blasting through granite ridges and filling wetlands, directly destroying habitat that is among the most intact in southeastern Ontario.

2.2 Wetland Loss and Hydrological Disruption

The Shield portion contains 12.1% wetland coverage. The Kennebec Wetland Complex alone is a vast network of hundreds of small wetlands that serves as a critical reservoir for the Salmon River, providing flood attenuation and drought moderation for downstream communities. Cut-and-fill

construction (using blasted rock to fill swamps) would directly eliminate wetlands and alter the hydrological patterns that sustain them. Even small disruptions to this interconnected system could cascade downstream, affecting water quality and flow regimes throughout the watershed.

2.3 Threat to Provincial Natural Heritage Sites

The Shield portion contains multiple Areas of Natural and Scientific Interest that could be affected:

- Hungry Lake Barrens (4,953 ha) — Possibly the largest undisturbed granite bedrock barrens area in southern Ontario, home to the provincially rare *Polygonum careyi*
- Puzzle Lake ANSI (2,138 ha) — Contains the highest known number of provincially rare species in any ANSI in eastern or southern Ontario, including nationally rare Bear Oak and the endangered Toothcup
- Westplain Mud Lake ANSI (941 ha) — The largest extent of open and treed fen in the district
- Harlowe Bog (478 ha) — A very large peat bog with the uncommon Eastern Chain-fern

2.4 Species at Risk on the Northern Corridor

- Toothcup (*Rotala ramosior*) — Endangered: Exists at only two lakes in Lennox & Addington County
- Butternut (*Juglans cinerea*) — Endangered: Already threatened by canker disease; construction disturbance would compound existing threats
- Juniper Sedge (*Carex juniperorum*) — Endangered: Globally rare; the world's largest known population is at the Salmon River Alvar (southern watershed)
- Blanding's Turtle — Threatened: Regularly moves between wetlands, overwintering sites, nesting sites, and thermoregulation sites, migrating several kilometres within its home range annually

Section 3 — Impact Assessment: Southern Corridor

A route through the southern corridor would pass through or near the limestone bedrock portion of the Salmon River watershed, the area already identified as the watershed's greatest restoration priority.

3.1 Compounding Existing Ecological Stress

The limestone bedrock portion already fails to meet several Environment Canada habitat guidelines. Only 38.1% of adjacent lands within 30 metres of streams have forest cover (guideline: 100%), and only 64.3% of uplands within 100 metres of wetlands are vegetated. The 2005 Habitat Strategy identified stream bank reforestation in this area as the watershed's most important restoration priority. Construction of a high-speed rail corridor through this zone would directly destroy riparian vegetation and wetland buffers. Two decades of stewardship work by the Friends of the Salmon River and partner organisations could be undermined.

3.2 Agricultural Land and Riparian Buffer Loss

The southern route passes through agricultural landscapes with predominantly loam, clay loam, and clay soils, among the most productive in the region. The 60-metre maintained corridor would permanently remove farmland from production and cut through riparian zones adjacent to streams and wetlands, further reducing the already-deficient vegetated buffers that filter agricultural runoff before it enters waterways.

3.3 Impacts on Provincially Significant Wetlands

Several Provincially Significant Wetlands in the southern watershed could be directly affected:

- Mud Creek Wetland (329 ha) — Home to four provincially significant species including Least Bittern and Northern Harrier
- Pennell's Creek Wetland (220 ha) — Notable for Brook Trout spawning and rearing; experiencing disturbance from cattle grazing
- Otter Creek Wetland (146 ha) — Habitat for the endangered Loggerhead Shrike and five provincially significant species
- Big Marsh Wetland (125 ha) — A Bay of Quinte coastal wetland with traditional significance for the Mohawks of the Bay of Quinte; traditional habitat for endangered Bald and Golden Eagles

3.4 Species at Risk on the Southern Corridor

The total maintained infrastructure corridor (including track, fencing, access roads, cleared safety margins, and maintenance strips) is approximately 60 metres wide. The fenced track right-of-way itself is approximately 30 metres. High-speed rail requires curve radii of 7 km or more, which severely limits alignment flexibility.

- Loggerhead Shrike — Endangered (SARA Schedule 1, COSEWIC Endangered): The total wild Canadian population is estimated at approximately 40 individuals (Wildlife Preservation Canada, 2023), with only 22 breeding pairs confirmed in Ontario in 2022 — below the federal Recovery Strategy's short-term target of 35 pairs. Particularly sensitive to habitat fragmentation, fencing, and linear barriers.
- Henslow's Sparrow — Endangered (COSEWIC): Occupies open grassland fields. The Canadian breeding population is critically small, estimated at 2–3 pairs (ECCC Recovery Strategy, 2014). Any disturbance to undisturbed grassland areas could be catastrophic.
- King Rail — Endangered: Requires large freshwater marshes. Fewer than 30 calling birds were recorded in the most recent extensive survey. Main threat is habitat loss through pollution and water level changes.
- Juniper Sedge — Endangered: The Salmon River Alvar hosts potentially the world's largest population; threatened by quarrying, grazing, and habitat fragmentation.
- Blanding's Turtle — Threatened: Most significant threats include road and rail mortality and habitat loss and fragmentation.

3.5 Water Quality Implications for the Bay of Quinte

The Salmon River drains into the Bay of Quinte, a Great Lakes Area of Concern already impaired by eutrophication, degraded fish and wildlife populations, and loss of habitat. Construction in the southern watershed through areas with inadequate riparian buffers would increase sediment and nutrient loading into the river system, running directly counter to the Bay of Quinte Remedial Action Plan's objectives of restoring beneficial uses.

Section 4 – Comparative Impact Summary

Impact Category	Northern Corridor	Southern Corridor
Primary habitat at risk	Intact Shield forests, wetlands, and rock barrens	Already-degraded riparian zones and agricultural buffers
Forest cover impact	Loss of 85.6% forested area; fragmentation of contiguous Shield forest	Further reduction of 49.5% forest cover in area needing reforestation
Wetland risk	Direct filling of Shield wetlands; disruption of Kennebec Complex hydrology	Loss of buffers around PSWs already at 64.3% vegetation
Riparian impact	Loss of near-pristine (98.4%) Shield riparian habitat	Further degradation of critically low (38.1%) limestone riparian cover
Endangered species	Toothcup, Butternut, Juniper Sedge	Loggerhead Shrike (~40 individuals nationally), Henslow's Sparrow, King Rail, Juniper Sedge
Downstream consequences	Loss of flood attenuation and drought buffering	Increased sediment/nutrient loading into Bay of Quinte
Restoration impact	Damages the ecological 'bank' supporting the whole watershed	Directly undermines priority restoration areas identified in 2005

Section 5 – Regulatory and Policy Concerns

Several regulatory dimensions intensify the environmental concerns for either route option through the Salmon River watershed:

- SARA ss. 32, 33, and 58 prohibitions and s. 79 impact assessment obligations are standalone federal offences operating independently of any exemptions under Bill C-15 or Bill C-5.
- The Bay of Quinte Remedial Action Plan, a commitment under the Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem, requires active restoration of the Salmon River watershed — not further degradation.
- The Frontenac Arch Biosphere Reserve's UNESCO designation obligates Canada to conserve biodiversity and demonstrate sustainable development within the region.
- The Salmon River Alvar's status as a Provincially Significant ANSI affords protection under Ontario's Provincial Policy Statement, which directs that development not be permitted in significant natural heritage features.
- Multiple Provincially Significant Wetlands carry protections under Ontario's Wetlands Policy, requiring no net loss of wetland function.

Section 6 — Recommendations

1	<p>Conduct a comprehensive, independent environmental impact assessment</p> <p>For both route options specifically addressing the Salmon River watershed's documented ecological conditions, using the 2005 Habitat Strategy as a baseline. This must be completed and published before any corridor selection decision.</p>
2	<p>Engage watershed stewardship partners directly</p> <p>Including the Friends of the Salmon River, Quinte Conservation, the Frontenac Arch Biosphere Network, the Nature Conservancy of Canada, and the Stewardship Councils of Lennox & Addington, Frontenac, and Hastings Counties.</p>
3	<p>Ensure environmental exemptions are not used to bypass watershed assessment</p> <p>Federal environmental exemption provisions in Bills C-5 and C-15 must not be used to bypass assessment of impacts on the Salmon River watershed's designated natural heritage features.</p>
4	<p>Require net-positive habitat outcomes if either route proceeds</p> <p>Binding commitments to avoid, minimise, and offset impacts on Provincially Significant Wetlands, endangered species habitat, and the Frontenac Arch wildlife corridor, with net-positive habitat outcomes as a condition of approval.</p>
5	<p>Update the 2005 Salmon River Habitat Strategy as a contemporary baseline</p> <p>Using current spatial data and remote sensing to establish pre-construction conditions before any construction approvals are granted.</p>

Conclusion

The Salmon River watershed sits squarely in the path of both proposed Alto HSR route options through eastern Ontario. Neither route can be considered benign from an environmental perspective. The northern route threatens to damage the ecological engine of the watershed — the intact Shield forests and wetlands that regulate water flow, support biodiversity, and provide resilience against climate change. The southern route threatens to compound existing ecological stress in the very areas where restoration has been identified as most urgently needed.

"Appreciation, conservation and restoration of the Salmon River watershed's natural wealth will ensure that it remains a healthy watershed home for a rich diversity of living things, including people." — The Salmon River Habitat Strategy, Green (2005). Twenty years after those words were written, this counsel is more relevant than ever.

Sources

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