

# The Oilsands and Biodiversity

BY PHILLIP MEINTZER

Two new publications from Alberta's Oil Sands Monitoring (OSM) Program show that oil sands mining hurts wetland biodiversity and that peatlands are important for maintaining healthy landscapes.

The first paper, published in March 2024, titled: *Wetlands as integral parts of surface water-groundwater interactions in the Athabasca Oil Sands Area: Review and Synthesis*, summarizes our current understanding of the role of wetlands in the boreal region, specifically on the interaction between groundwater and surface water.

A key finding of this study is that peatlands reduce water loss, which helps maintain the water table and facilitate the lateral movement of water. This means that peatlands serve as an important water conservation mechanism that supports the surrounding region including adjacent uplands, downstream watersheds, and maintains overall landscape integrity.

The second paper, titled: *Wetland Water Quality in the Athabasca Oil Sands Region and its Relationship to Aquatic Invertebrate Communities: Pilot Phase Monitoring Results*, was published on Aug. 1, 2024, in the scientific journal *Wetlands and*

*Ecology Management*, and was co-authored by Stephanie J. Connor, Justin R. Hanisch, and Danielle Cobbaert

For this study, the researchers compared differences in both water quality and the composition of benthic invertebrates (i.e., small aquatic animals that live near the bottom of a water column) between nineteen wetland sites that were nearer and further afield from surface mining operations over five years.

The authors found that “nearfield” wetland sites located closer to the industrial centre of the oilsands had a lower beta diversity (a measure of biodiversity) than wetlands further away. The authors attribute the difference to higher specific conductance (a measure of dissolved ions), which was observed at sites that were closer to land disturbances or mining operations.

Benthic invertebrates play an important role in freshwater ecosystems. These species perform numerous functions, such as (but not limited to) decomposing detritus (i.e., dead organic matter), releasing previously bound nutrients into the water column for use by other organisms, controlling populations for prey species and providing food for





species higher up the food chain. This means that any changes to invertebrate communities may have unintended consequences for the entire ecosystem.

When considered together, these findings raise significant new concerns with the planned expansion of Suncor's Fort Hills oil sands mine into the McClelland Lake Wetland Complex (MLWC). As part of its approval conditions, Suncor was permitted to mine half of the wetland complex so long as "the ecological diversity and functionality of the unmined portion is maintained."

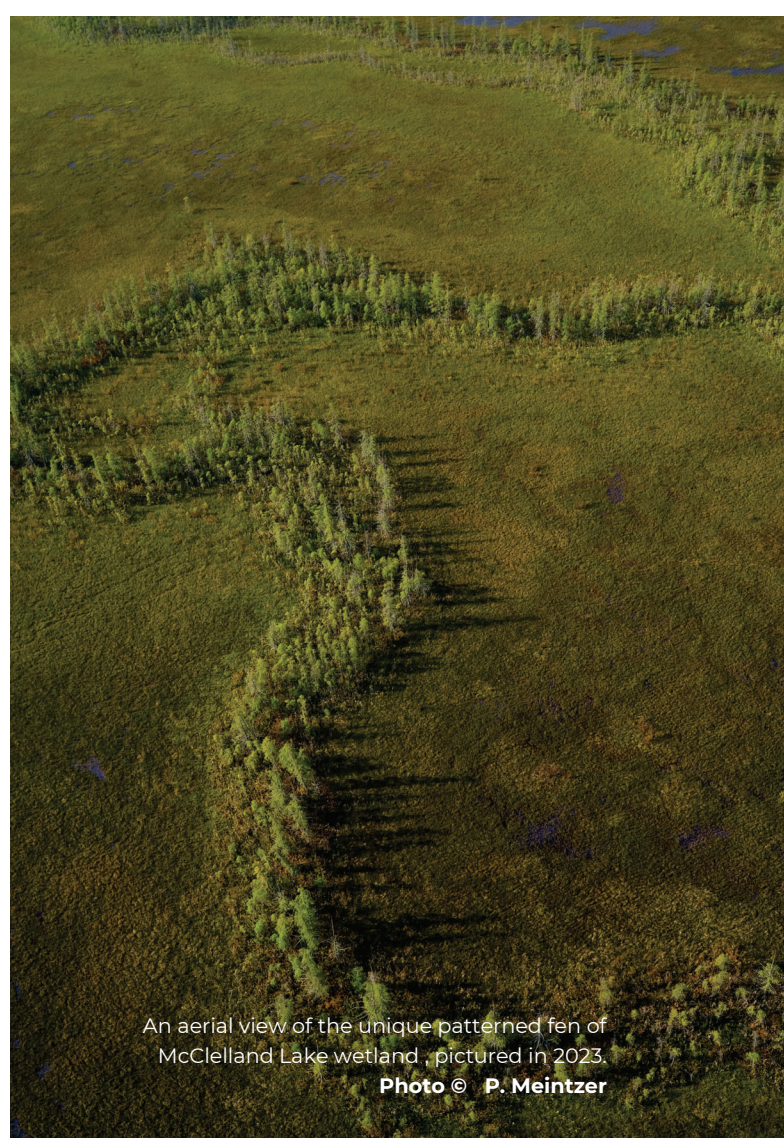
## The authors found that wetland sites closer to the industrial centre of the oilsands had a lower diversity.

However, this new research demonstrates that as surface mining encroaches on wetlands, it hurts the diversity of invertebrate communities, which means that mining in half of the MLWC risks putting the entire ecosystem (including the unmined half) at risk.

At the same time, destroying peatlands within the wetland complex from the expansion of Suncor's mine also risks compromising landscape integrity and the health of the downstream watershed. This not only impacts the unmined half of the wetland complex, but downstream ecosystems like those within Wood Buffalo National Park and Indigenous communities like Fort Chipewyan that rely on the Athabasca River.

As mentioned previously, both studies are a product of the oil sands monitoring program, which was established to assess the cumulative environmental effects caused by oil sands development. For those unfamiliar with the monitoring program, its purpose is to determine whether changes are occurring in the natural environment and whether those changes are specifically due to oil sands development.

Unfortunately, the program isn't living up to its commitments. At the time of writing, it has been more than five years since the program last published an annual report in September 2019. That's more than half a decade since the program



An aerial view of the unique patterned fen of McClelland Lake wetland, pictured in 2023.  
Photo © P. Meintzer

last provided an update on the findings of monitoring to both decision-makers and the public.

The dissemination of these reports is crucial for understanding the cumulative impacts of oil sands development, and delays mean that monitoring results cannot be acted on promptly. Without annual reports, it's up to organizations like AWA and other environmental NGOs to search for these publications and communicate the findings to the public.

It seems ridiculous that the government of Alberta and the Alberta Energy Regulator can justify approving new or expanded oil sands mines while the public is kept in the dark about the impacts of existing development. What's the point of monitoring if the results are withheld, and industry gets to continue operating as if no harm is being done? But as both these studies show, wetlands — and specifically peatlands like those at McClelland — should be off limits to oil sands mining, for the protection of biodiversity and the maintenance of healthy landscapes. 🌿