

Memorandum



To: Travis Ritchie, Yukon Energy Corporation
From: EDI Environmental Dynamics Inc.
Date: August 10, 2022
Project No: 22Y0197
Re: Marsh Lake Low Water Investigations — Monitoring Event 10 Fieldwork Summary

Monitoring Event 10

Table 1. Monitoring event information.

Date of monitoring event	August 3, 2022
Field staff	EDI personnel: Ben Schonewille and Mikayla Kelly
Weather	Partly cloudy, windy
Marsh Lake elevation (9 am to 5 pm average)	656.792 m (0.562 m above full supply level)
Areas monitored	North end of Marsh Lake, Lewes Marsh area near Sawmill Road and Alaska Highway, Kettley's Canyon wetland and Yukon River connected wetland 3.7 km downstream of Marsh Lake, (Map 1).
Access	Pickup truck, and walking

Methods

Drone Imagery Collection

Drone imagery was collected at each monitoring location along pre-determined flight paths at a consistent height of 80 m using a drone (DJI Mavic Pro II) by operators with a valid drone operator's certificate. Identical flight paths will be used for subsequent monitoring events to ensure consistent imagery collection. During each flight, field staff monitored the imagery for areas of interest and recorded any wildlife observations. Note that during this monitoring event, the monitoring site on the south side of Lewes Marsh (site LM3) could not be surveyed due to high winds. Following the completion of all monitoring events, the recorded imagery will be reviewed to compare conditions at different water levels throughout the duration of monitoring period.

Collection of Bird and Wildlife Observations

Bird and wildlife observations were recorded by field staff on the ground and in the air (via drone) at each monitoring location. Species and number of individuals were recorded for each observation, as well as any additional observations.



Remote Camera Monitoring

During the spring monitoring events, remote cameras were deployed at three locations in Lewes Marsh to record observations of site conditions and document wildlife presence. These cameras were retrieved during the previous monitoring event on July 19 and will be analyzed with the final monitoring report.

Results

General Site Conditions

Conditions were similar across all monitoring locations. Water levels continue to rise, with the mudflats along the Marsh Lake shoreline and within Lewes Marsh completely underwater. The highwater levels have resulted in some flooding of riparian vegetation (shrubs) around the margin of the wetlands surveyed. Representative photos of each site are shown in Photo 1 to Photo 6 at the end of this summary.

Bird Observations

A total of 18 bird species were detected during the monitoring event (Table 2). This relatively low species diversity is indicative of the seasonal timing of the survey which was passed the peak breeding period but also prior to the onset of southward fall migration.

Wildlife Observations

No wildlife were observed during the August 3 monitoring event.

Remote Camera Monitoring

The remote cameras that were deployed in Lewes Marsh provide a series of photos which document how representative areas change in relation to water levels. The three cameras also documented wildlife occurrences including moose, lynx and coyote; representative wildlife photos are shown in Photo 7 to 9 at the end of this report.



Table 2. Summary of bird species observed during the August 3, 2022, monitoring event.

Species	ML1	ML2	LM1	LM2	LM3	LM5
Mallard						✓
Surf Scoter					✓	
Short-billed Gull			✓			
Herring Gull		✓				
Bald Eagle	✓	✓				
Belted Kingfisher		✓				
Three-toed Woodpecker				✓		
Black-billed Magpie				✓	✓	✓
Common Raven		✓				
Alder Flycatcher				✓		
Boreal Chickadee					✓	
Dark-eyed Junco				✓		
Savannah Sparrow				✓		
Lincoln's Sparrow				✓		
Yellow Warbler		✓				
Myrtle Warbler	✓		✓	✓		
Wilson's Warbler				✓		
White-winged Crossbill					✓	

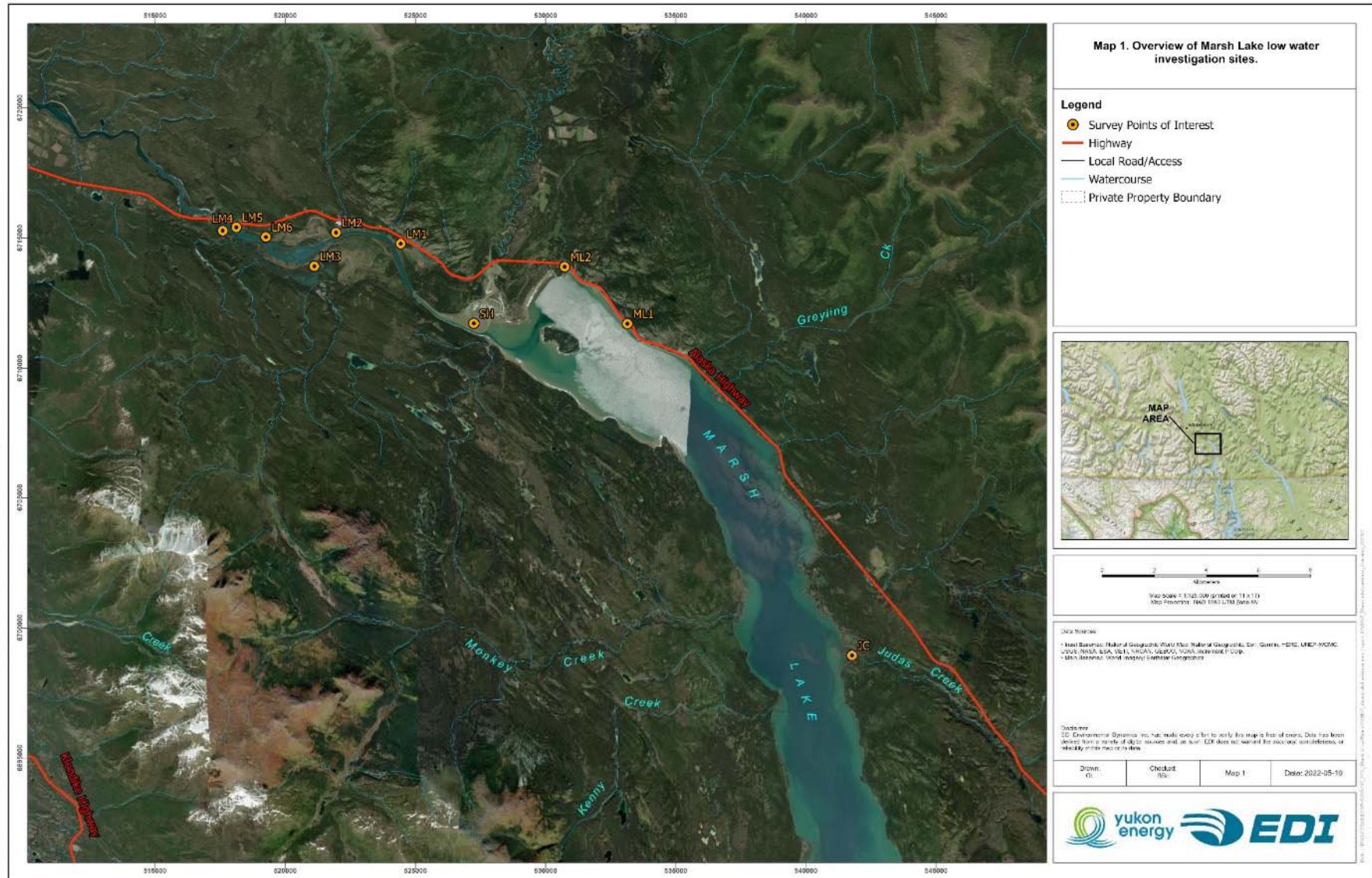




Photo 1. Conditions at monitoring site ML1 at an unnamed creek mouth on Marsh Lake on August 3, 2022.



Photo 2. Conditions at monitoring site ML2 at the north end of Marsh Lake on August 3, 2022.



Photo 3. Conditions at monitoring site LM1 (Yukon River wetland 3.7 km downstream of Marsh Lake) on August 3, 2022.



Photo 4. Conditions at monitoring site LM2 (Kettley's Canyon wetland) on August 3, 2022.



Photo 5. Conditions at monitoring site LM4 (Lewes Marsh adjacent to Sawmill Road) on August 3, 2022.



Photo 6. Conditions at monitoring site LM5 (Lewes Marsh) on July 18, 2022.



Photo 7. Remote camera observation of a lynx at the Yukon River confluence of a wetland 3.7 km downstream of Marsh Lake (May 9, 2022).



Photo 8. Remote camera observation of a bull moose at the Yukon River confluence of a wetland 3.7 km downstream of Marsh Lake (June 18, 2022).



Photo 2. Remote camera observation of a coyote at the Yukon River confluence of the Kettley Creek wetland (May 19, 2022).