

Memorandum



To: Travis Ritchie, Yukon Energy Corporation
From: EDI Environmental Dynamics Inc.
Date: July 7, 2022
Project No: 22Y0197
Re: Marsh Lake Low Water Investigations — Monitoring Event 8 Fieldwork Summary

Monitoring Event 8

Table 1. Monitoring event information.

Date of monitoring event	July 6, 2022
Field staff	EDI personnel: Joel Macfabe and Matt Kitchen
Weather	Partly cloudy, 22 to 26°C
Marsh Lake elevation (9 am to 5 pm average)	656.418 m (2.622 m above low supply level and 0.184 m below full supply level)
Areas monitored	Lewes Marsh area near Sawmill Road and Alaska Highway, Kettley's Canyon wetland, Yukon River connected wetland 3.7 km downstream of Marsh Lake, Marsh Lake at unnamed creek mouth, north end of Marsh Lake, and the Judas Creek wetland (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. 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 signs of wildlife activity (tracks, muskrat push ups, etc.).



Results

General Site Conditions

Conditions were similar across all monitoring locations. Green-up of the wetland and riparian vegetation has occurred in both the Lewes Marsh and Marsh Lake areas. Water levels continue to rise, with the mudflats along the Marsh Lake shoreline and within Lewes Marsh effectively underwater. Representative photos of each site are shown in Photo 1 to Photo 11 at the end of this summary.

Bird Observations

A total of 31 bird species were detected during the monitoring event (Table 2). Given the seasonal timing of the monitoring event, the species observed are indicative of probable local breeders or non-breeding individuals (i.e., waterfowl).

An active Bald Eagle nest previously documented was observed in the LM3 wetland connection to main channel of the Yukon River.

Wildlife Observations

No wildlife was observed during the July 6 monitoring event.



Table 2. Summary of bird species observed during the July 6, 2022, monitoring event.

Species	LM1	LM2	LM3a	LM3b	LM3c	LM4	LM5	ML1	ML2 POND	ML2	JC
Canada Goose											✓
Canvasback					✓						
Common Goldeneye									✓		
Red-breasted Merganser								✓			
Common Loon											✓
Unidentified diving duck								✓			
Wilson's Snipe											✓
Sora	✓										
Short-billed Gull			✓	✓			✓		✓	✓	
Herring Gull						✓	✓				
Belted Kingfisher				✓							
Northern Flicker											✓
Bald Eagle				✓		✓	✓	✓			
Black-billed Magpie	✓	✓	✓					✓			✓
Common Raven			✓				✓				
Violet-green Swallow						✓					
Tree Swallow											✓
Bank Swallow						✓	✓		✓	✓	✓
Barn Swallow											
Cliff Swallow							✓		✓		
Ruby-crowned Kinglet											✓
American Robin			✓								✓
Swainson's Thrush									✓		✓
White-winged Crossbill											✓
Dark-eyed Junco			✓	✓			✓				
White-crowned Sparrow											✓



Species	LM1	LM2	LM3a	LM3b	LM3c	LM4	LM5	ML1	ML2 POND	ML2	JC
White-throated Sparrow											✓
Chipping Sparrow			✓	✓			✓			✓	✓
Savannah Sparrow											
Lincoln's Sparrow			✓		✓	✓		✓			
Unidentified Sparrow							✓			✓	
Common Yellowthroat				✓				✓	✓		
Yellow-rumped Warbler			✓		✓						✓
Unidentified passerine		✓			✓						

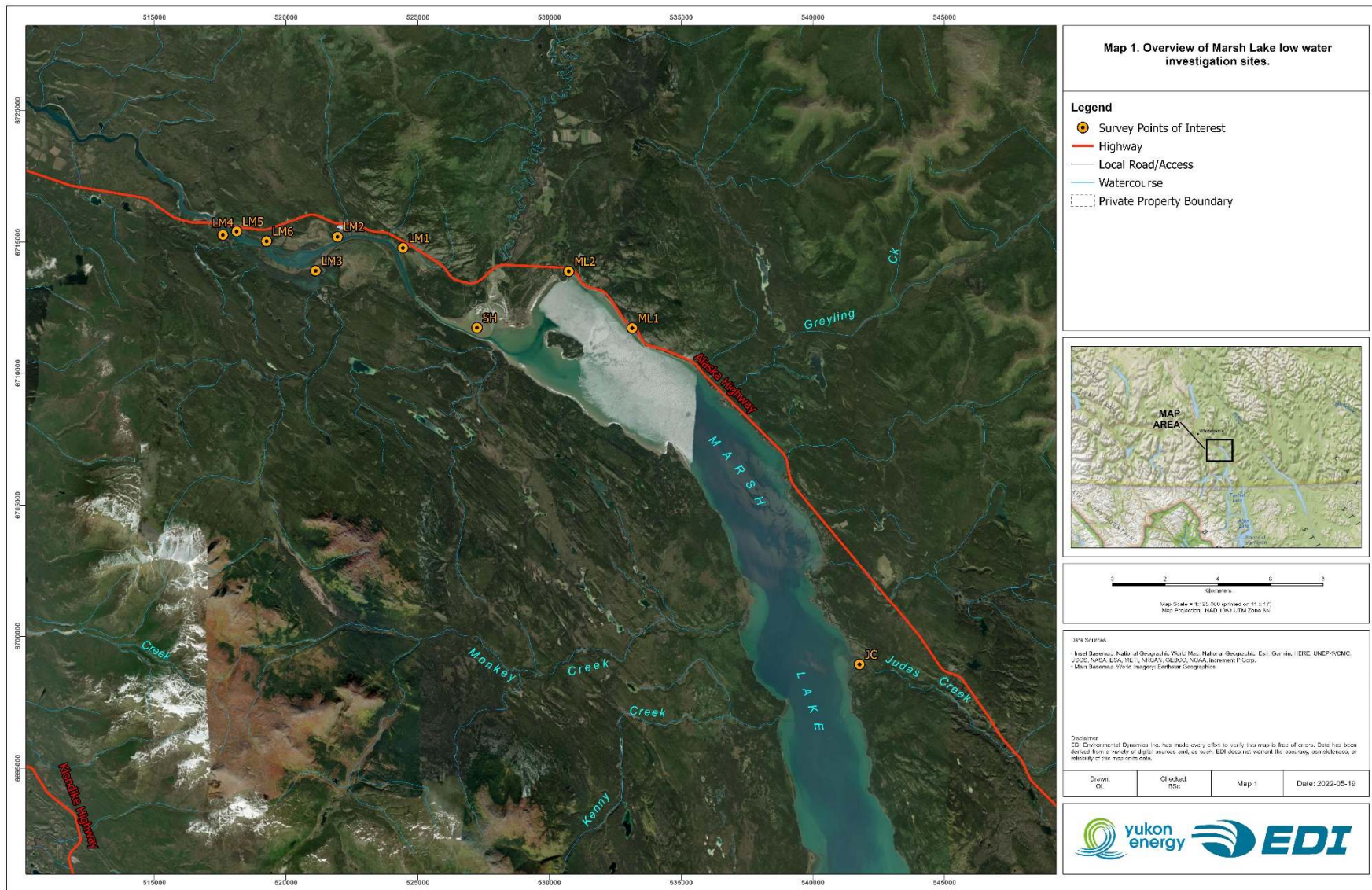




Photo 1. Conditions at monitoring site LM1 (Yukon River wetland 3.7 km downstream of Marsh Lake) on July 6, 2022.



Photo 2. Conditions at monitoring site LM2 (Kettley's Canyon wetland) on July 6, 2022.



Photo 3. Conditions at monitoring site LM3-A (Lewes Marsh adjacent to Sawmill Road) on July 6, 2022.



Photo 4. Conditions at monitoring site LM3-B (Lewes Marsh adjacent to Sawmill Road) on July 6, 2022.



Photo 5. Conditions at monitoring site LM3-C (Lewes Marsh adjacent to Sawmill Road) on July 6, 2022.

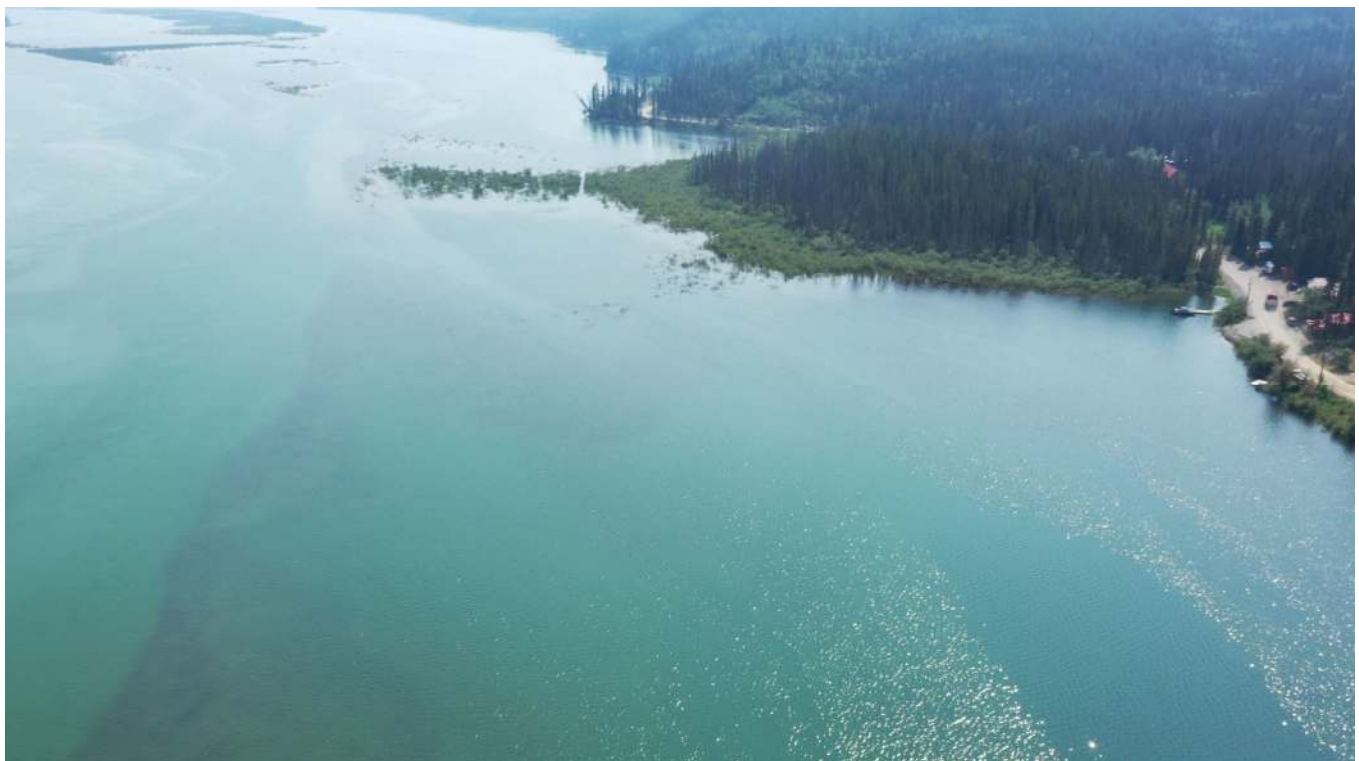


Photo 6. Conditions at monitoring site LM4 (Lewes Marsh adjacent to Sawmill Road) on July 6, 2022.



Photo 7. Conditions at monitoring site LM5 (Lewes Marsh) on July 6, 2022.



Photo 8. Conditions at monitoring site LM6 (Lewes Marsh) on July 6, 2022.



Photo 9. Conditions at monitoring site ML1 (unnamed creek mouth on Marsh Lake) on July 6, 2022.



Photo 10. Conditions at monitoring site ML2 (north end of Marsh Lake) on July 6, 2022.



Photo 11. Conditions at monitoring site JC (Judas Creek) on July 6, 2022.