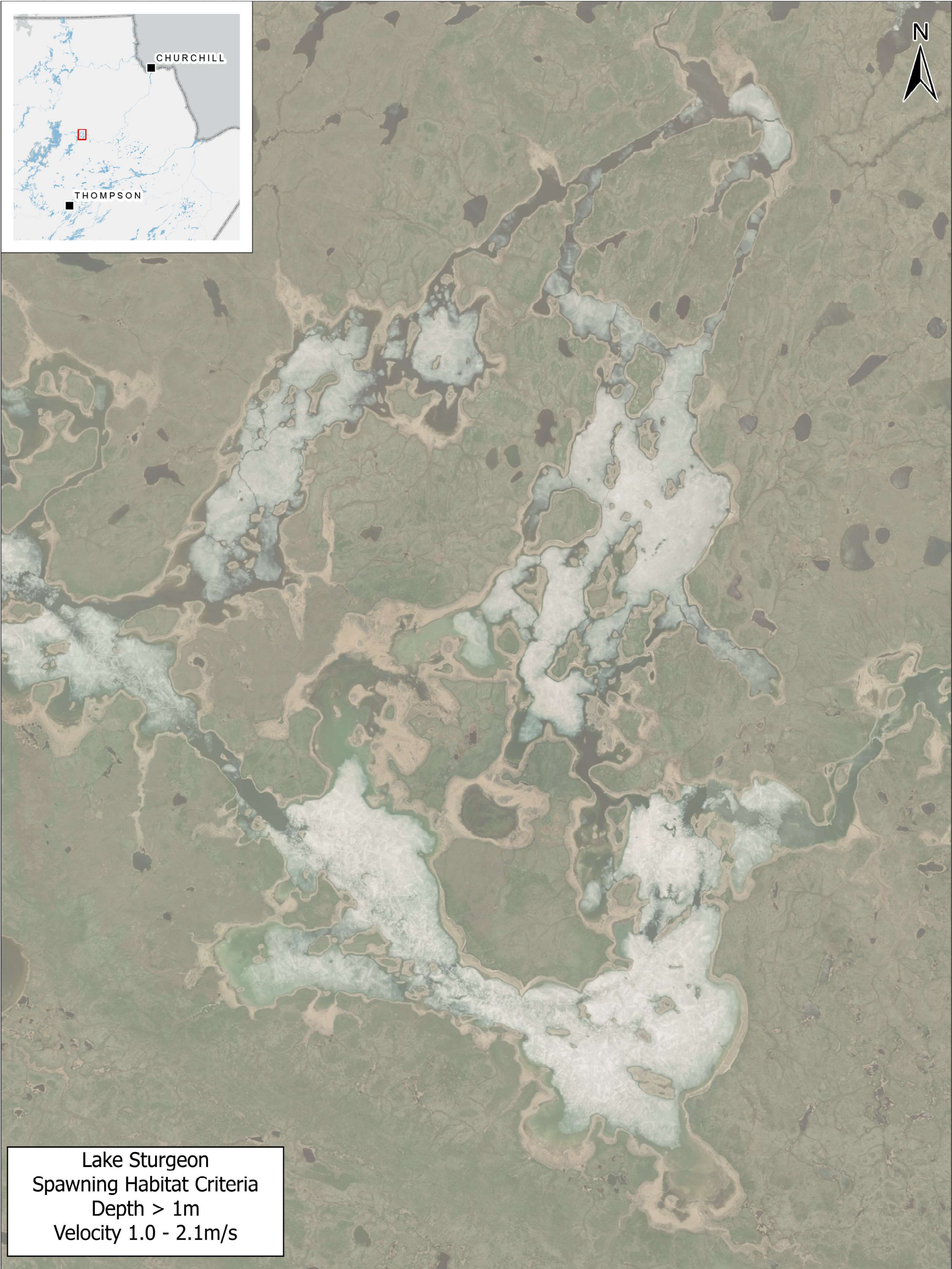




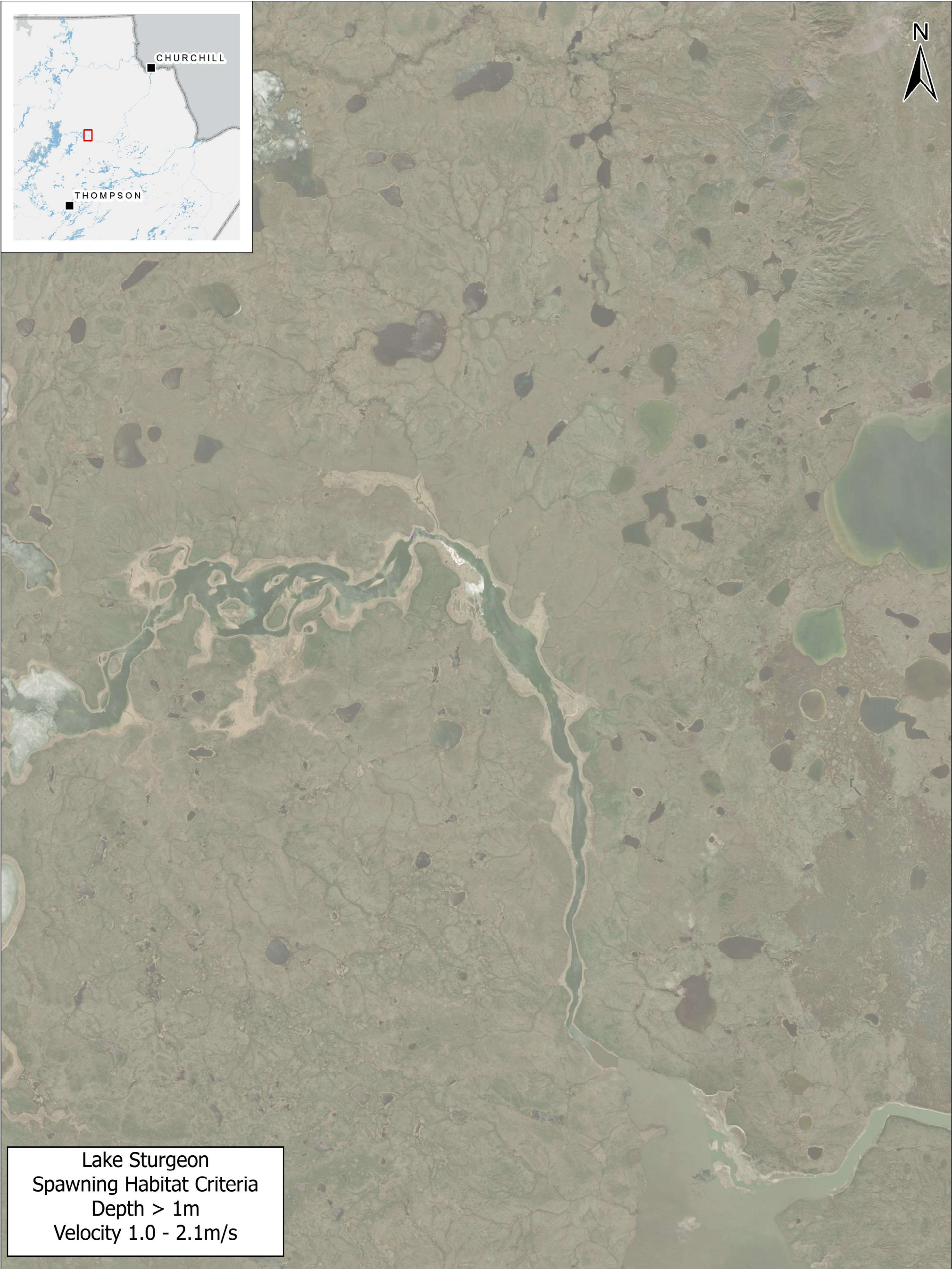
	DATA SOURCE: Modelling Data: Manitoba Hydro - Hydraulic Modelling Basemap: ArcGIS Map Service 2025 06 16		
	CREATED BY: Energy Operations and Water Planning		
	COORDINATE SYSTEM: WGS 1984 UTM Zone 14N	DATE CREATED: 28-May-26	REVISION DATE: 17-JUL-26
	0 0.8 1.6 Kilometers 0 0.8 1.6 Miles	VERSION NO:	QA/QC:

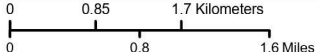
Northern Indian Lake

Lake Sturgeon Spawning Habitat

5th Percentile

54 m³/s



	DATA SOURCE: Modelling Data: Manitoba Hydro - Hydraulic Modelling Basemap: ArcGIS Map Service 2025 06 16		
	CREATED BY: Energy Operations and Water Planning		
	COORDINATE SYSTEM: WGS 1984 UTM Zone 14N	DATE CREATED: 28-May-26	REVISION DATE: 17-JUL-26
		VERSION NO:	QA/QC:

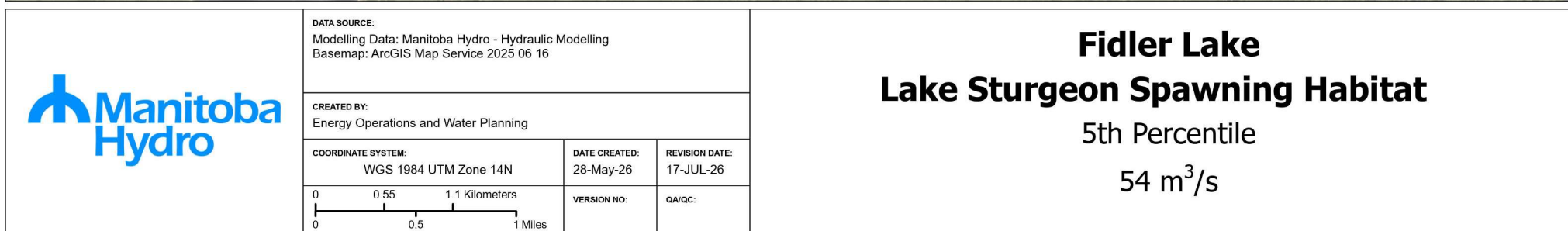
Northern Indian Lake to Fidler Lake

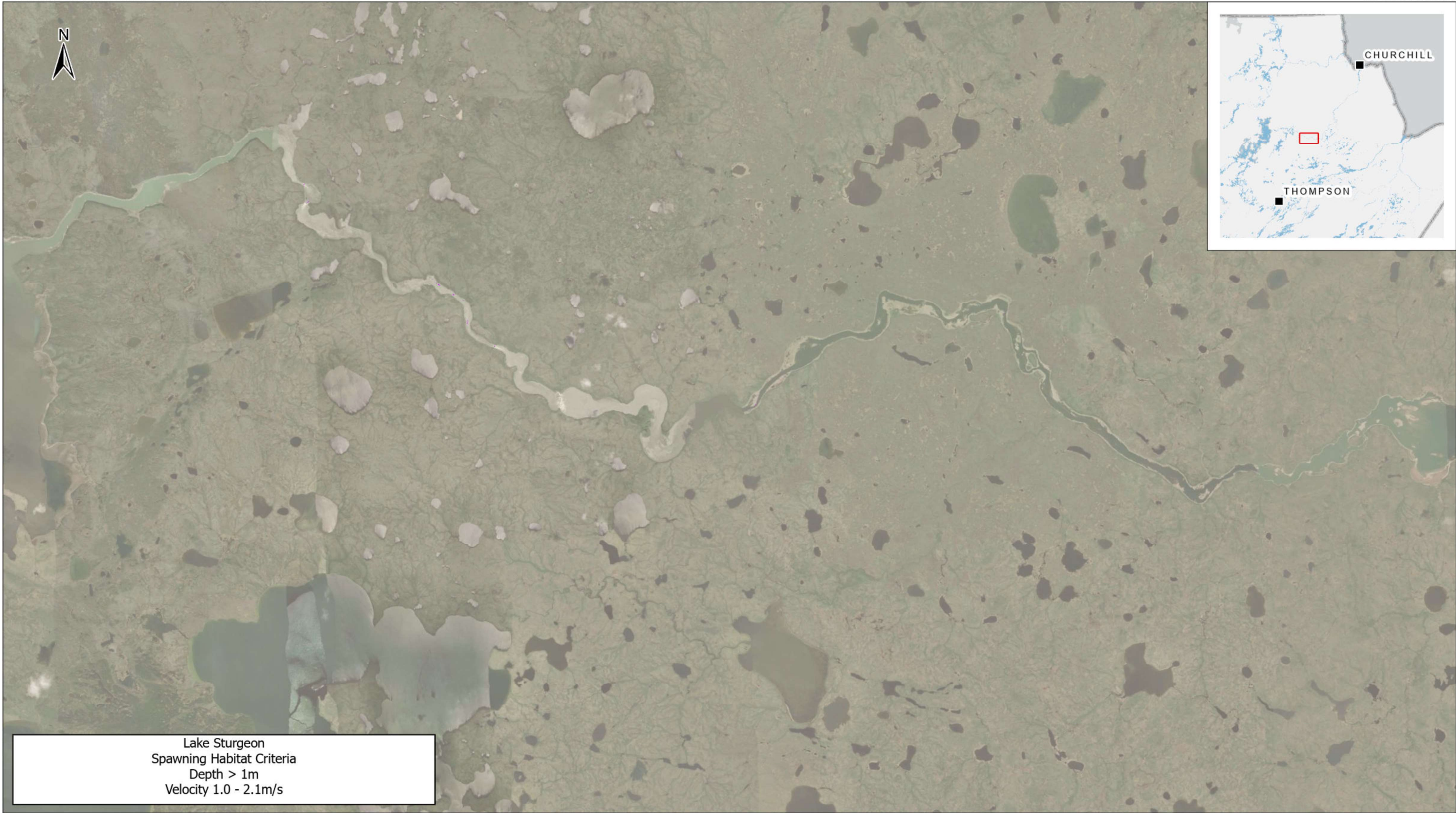
Lake Sturgeon Spawning Habitat

5th Percentile

54 m³/s

M1-LKST-P5-NILFL



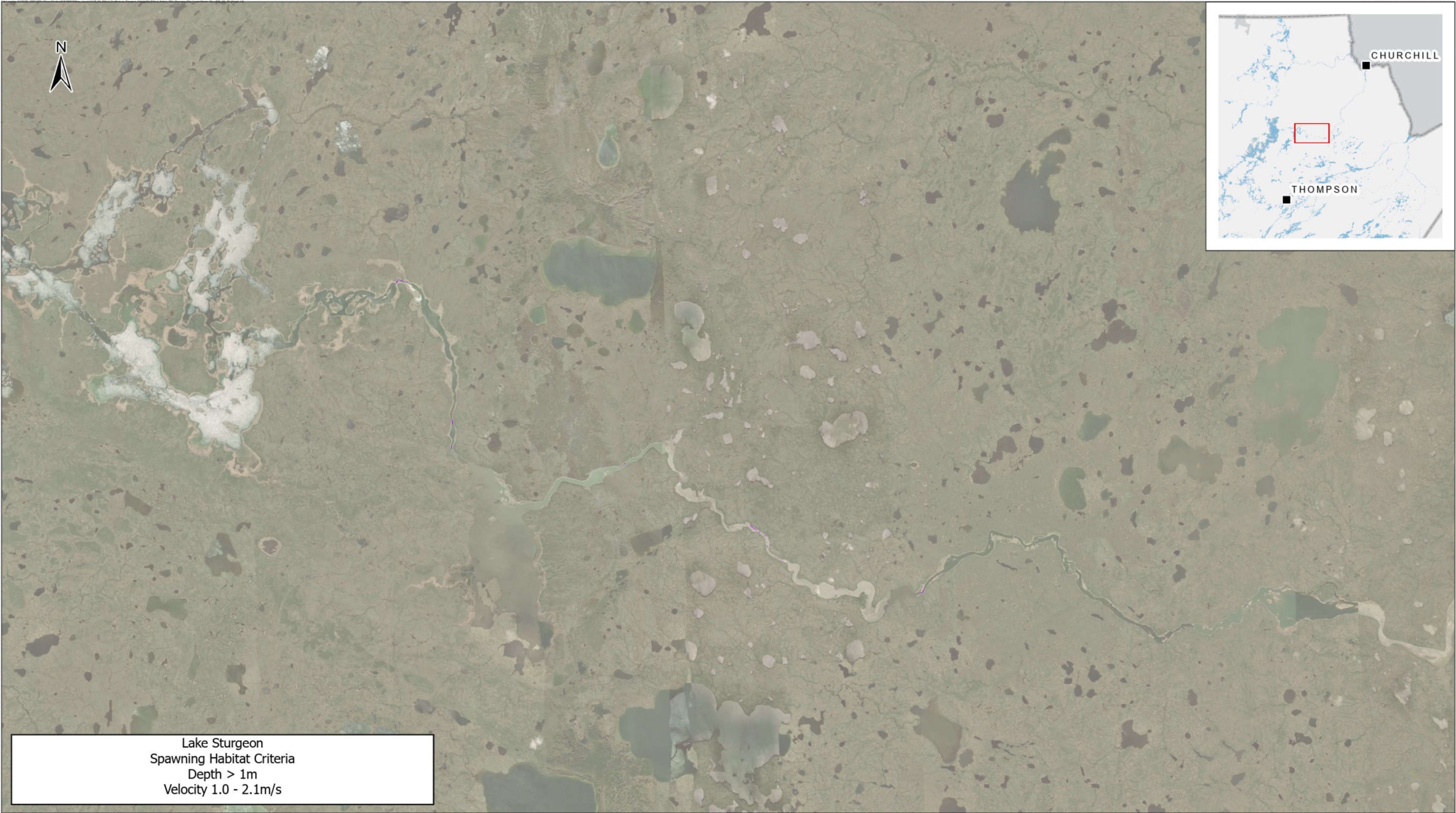


Lake Sturgeon
Spawning Habitat Criteria
Depth > 1m
Velocity 1.0 - 2.1m/s



DATA SOURCE: Modeling Data: Manitoba Hydro - Hydraulic Modeling Base Map: ArcGIS Map Service 2025-06-16			
CREATED BY: Energy Operations and Water Planning			
COORDINATE SYSTEM: WGS 1984 UTM Zone 14N		DATE CREATED: 28-May-25	REVISION DATE: 22-JUL-25
0 2.5 5 Kilometers 0 2 4 Miles		VERSION NO:	DATE:

Fidler to Billard Lake
Lake Sturgeon Spawning Habitat
5th Percentile
54 m³/s





DATA SOURCE:
Modeling Data: Manitoba Hydro - Hydraulic Modeling
Basemap: ArcGIS Map Service 2025 06 16

CREATED BY:
Energy Operations and Water Planning

COORDINATE SYSTEM:
WGS 1984 UTM Zone 14N

0 5 10 Kilometers
0 4 8 Miles

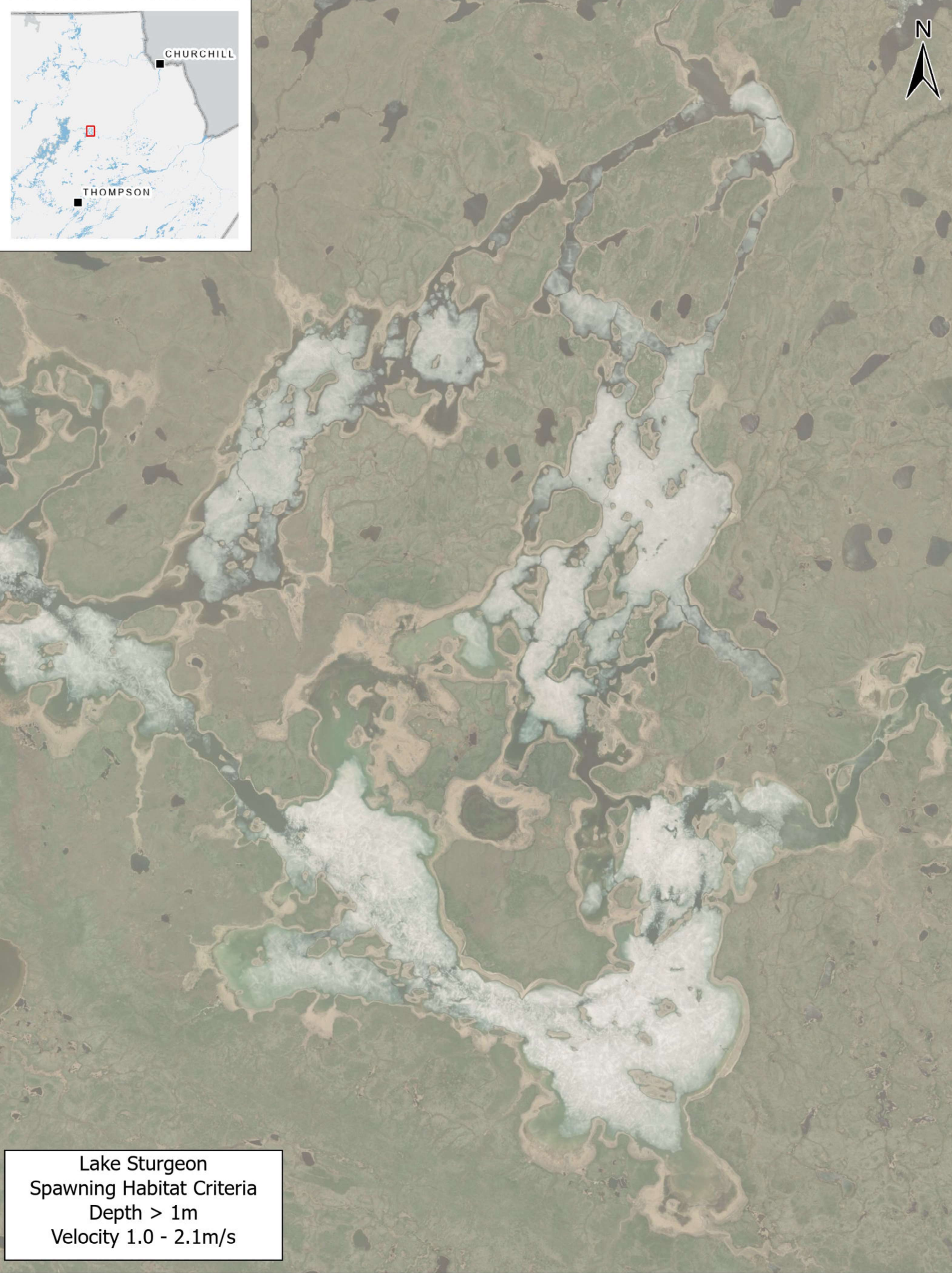
DATE CREATED:
28-May-25

REVISION DATE:
22-JUL-25

VERSION NO:
1.0

QA/QC:
100%

Northern Indian Lake to Billard Lake
Lake Sturgeon Spawning Habitat
25th Percentile
100 m³/s





DATA SOURCE:
Modelling Data: Manitoba Hydro - Hydraulic Modelling
Basemap: ArcGIS Map Service 2025 06 16

CREATED BY:
Energy Operations and Water Planning

COORDINATE SYSTEM: WGS 1984 UTM Zone 14N	DATE CREATED: 28-May-26	REVISION DATE: 22-JUL-26
0 0.8 1.6 Kilometers		VERSION NO:
0 0.8 1.6 Miles		QA/QC:

Northern Indian Lake
Lake Sturgeon Spawning Habitat
25th Percentile
100 m³/s

M1-LKST-P25-NIL



Lake Sturgeon
Spawning Habitat Criteria
Depth > 1m
Velocity 1.0 - 2.1m/s



DATA SOURCE:
Modelling Data: Manitoba Hydro - Hydraulic Modelling
Basemap: ArcGIS Map Service 2025 06 16

CREATED BY:
Energy Operations and Water Planning

COORDINATE SYSTEM:
WGS 1984 UTM Zone 14N

DATE CREATED:
28-May-26

REVISION DATE:
22-JUL-26

0 0.85 1.7 Kilometers

0 0.8 1.6 Miles

VERSION NO:
QA/QC:

Northern Indian Lake to Fidler Lake
Lake Sturgeon Spawning Habitat

25th Percentile
100 m³/s

M1-LKST-P25-NILFL





DATA SOURCE:
Modelling Data: Manitoba Hydro - Hydraulic Modelling
Basemap: ArcGIS Map Service 2025 06 16

CREATED BY:
Energy Operations and Water Planning

COORDINATE SYSTEM:
WGS 1984 UTM Zone 14N

0 0.55 1.1 Kilometers
0 0.5 1 Miles

DATE CREATED:
28-May-26

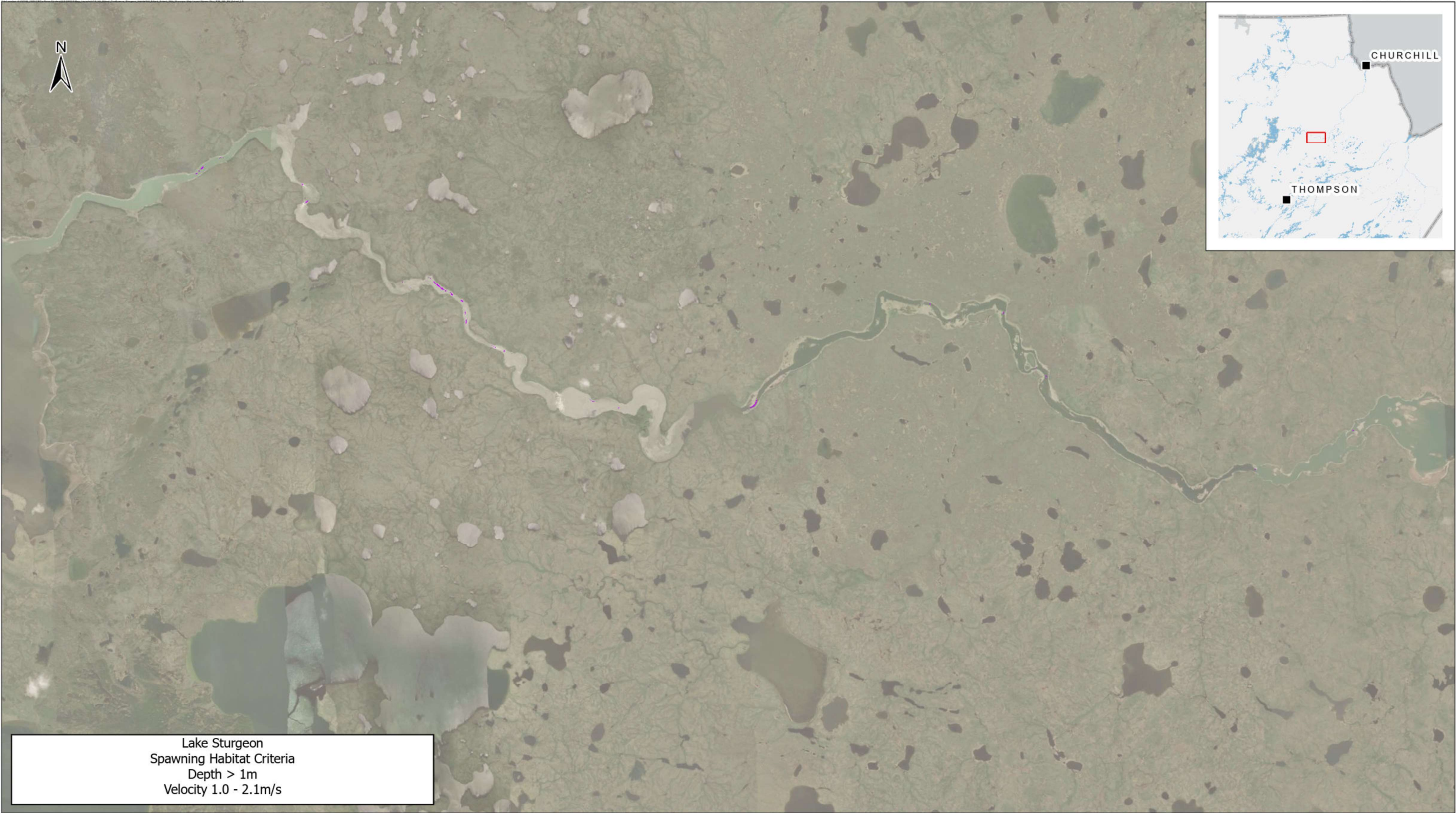
REVISION DATE:
22-JUL-26

VERSION NO:

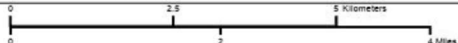
QA/QC:

Fidler Lake
Lake Sturgeon Spawning Habitat
25th Percentile
100 m³/s

M1-LKST-P25-FL



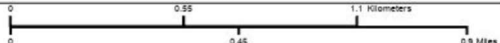


DATA SOURCE: Modeling Data: Manitoba Hydro - Hydraulic Modeling Basemap: ArcGIS Map Service 2025 06 16			
CREATED BY: Energy Operations and Water Planning			
COORDINATE SYSTEM: WGS 1984 UTM Zone 14N		DATE CREATED: 28-May-26	REVISION DATE: 22-JUL-26
		VERSION NO:	QA/QC:

Fidler to Billard Lake
Lake Sturgeon Spawning Habitat
25th Percentile
100 m³/s





DATA SOURCE: Modeling Data: Manitoba Hydro - Hydraulic Modeling Basemap: ArcGIS Map Service 2025 06 16			
CREATED BY: Energy Operations and Water Planning			
COORDINATE SYSTEM: WGS 1984 UTM Zone 14N		DATE CREATED: 28-May-26	REVISION DATE: 22-JUL-26
		VERSION NO:	QA/QC:

Billard Lake
Lake Sturgeon Spawning Habitat
25th Percentile
100 m³/s

File Name: K:\GIS\2025\Projects\Lake Sturgeon\Lake Sturgeon Spawning Habitat Criteria\Lake Sturgeon Spawning Habitat Criteria Map.mxd
Project: Lake Sturgeon Spawning Habitat Criteria
Map Scale: 1:50,000
Map Date: 2025-06-16

Map Scale: 1:50,000
Map Date: 2025-06-16



Lake Sturgeon
Spawning Habitat Criteria
Depth > 1m
Velocity 1.0 - 2.1m/s



DATA SOURCE:
Modeling Data: Manitoba Hydro - Hydraulic Modeling
Base Map: ArcGIS Map Service 2025-06-16

CREATED BY:
Energy Operations and Water Planning

COORDINATE SYSTEM:
WGS 1984 UTM Zone 14N

0 5 10 Kilometers
0 4 8 Miles

DATE CREATED:
28-May-25

VERSION NO:

REVISION DATE:
22-JUL-25

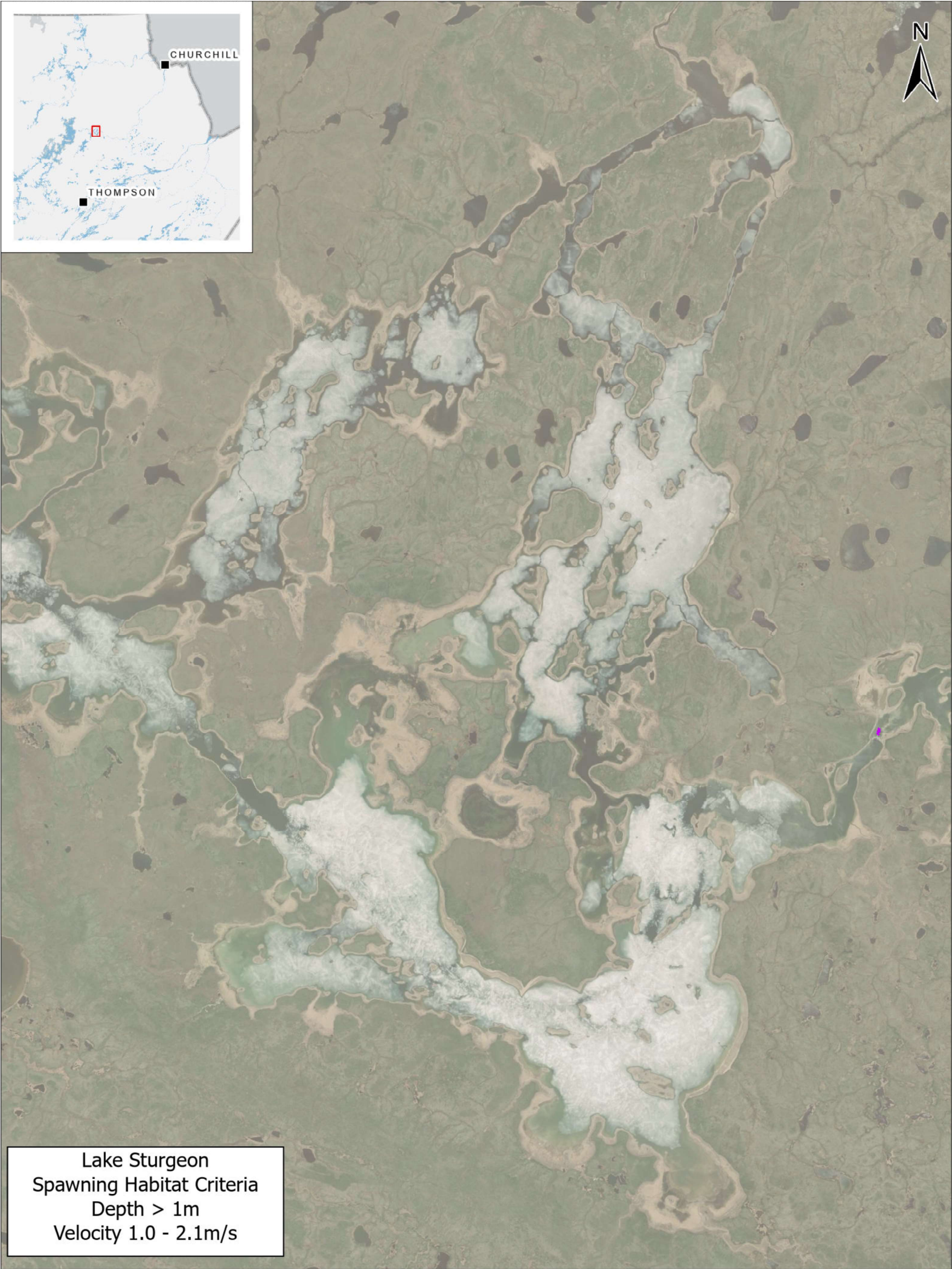
QA/QC:

**Northern Indian Lake to Billard Lake
Lake Sturgeon Spawning Habitat**

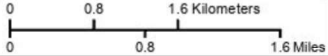
50th Percentile

164 m³/s

M1-LKST-P50-ALL



Lake Sturgeon
Spawning Habitat Criteria
Depth > 1m
Velocity 1.0 - 2.1m/s

	DATA SOURCE: Modelling Data: Manitoba Hydro - Hydraulic Modelling Basemap: ArcGIS Map Service 2025 06 16		
	CREATED BY: Energy Operations and Water Planning		
	COORDINATE SYSTEM: WGS 1984 UTM Zone 14N	DATE CREATED: 28-May-26	REVISION DATE: 22-JUL-26
		VERSION NO:	QA/QC:

Northern Indian Lake
Lake Sturgeon Spawning Habitat
50th Percentile
164 m³/s





DATA SOURCE:
Modelling Data: Manitoba Hydro - Hydraulic Modelling
Basemap: ArcGIS Map Service 2025 06 16

CREATED BY:
Energy Operations and Water Planning

COORDINATE SYSTEM:
WGS 1984 UTM Zone 14N

DATE CREATED:
28-May-26

REVISION DATE:
22-JUL-26

0 0.85 1.7 Kilometers

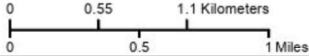
0 0.8 1.6 Miles

VERSION NO:

QA/QC:

Northern Indian Lake to Fidler Lake
Lake Sturgeon Spawning Habitat
50th Percentile
164 m³/s



	DATA SOURCE: Modelling Data: Manitoba Hydro - Hydraulic Modelling Basemap: ArcGIS Map Service 2025 06 16		
	CREATED BY: Energy Operations and Water Planning		
	COORDINATE SYSTEM: WGS 1984 UTM Zone 14N	DATE CREATED: 28-May-26	REVISION DATE: 22-JUL-26
		VERSION NO:	QA/QC:

Fidler Lake

Lake Sturgeon Spawning Habitat

50th Percentile

164 m³/s



DATA SOURCE:
Modelling Data: Manitoba Hydro - Hydraulic Modelling
Basemap: ArcGIS Map Service 2025 06 16

CREATED BY:
Energy Operations and Water Planning

COORDINATE SYSTEM:
WGS 1984 UTM Zone 14N

DATE CREATED:
28-May-26

REVISION DATE:
22-JUL-26

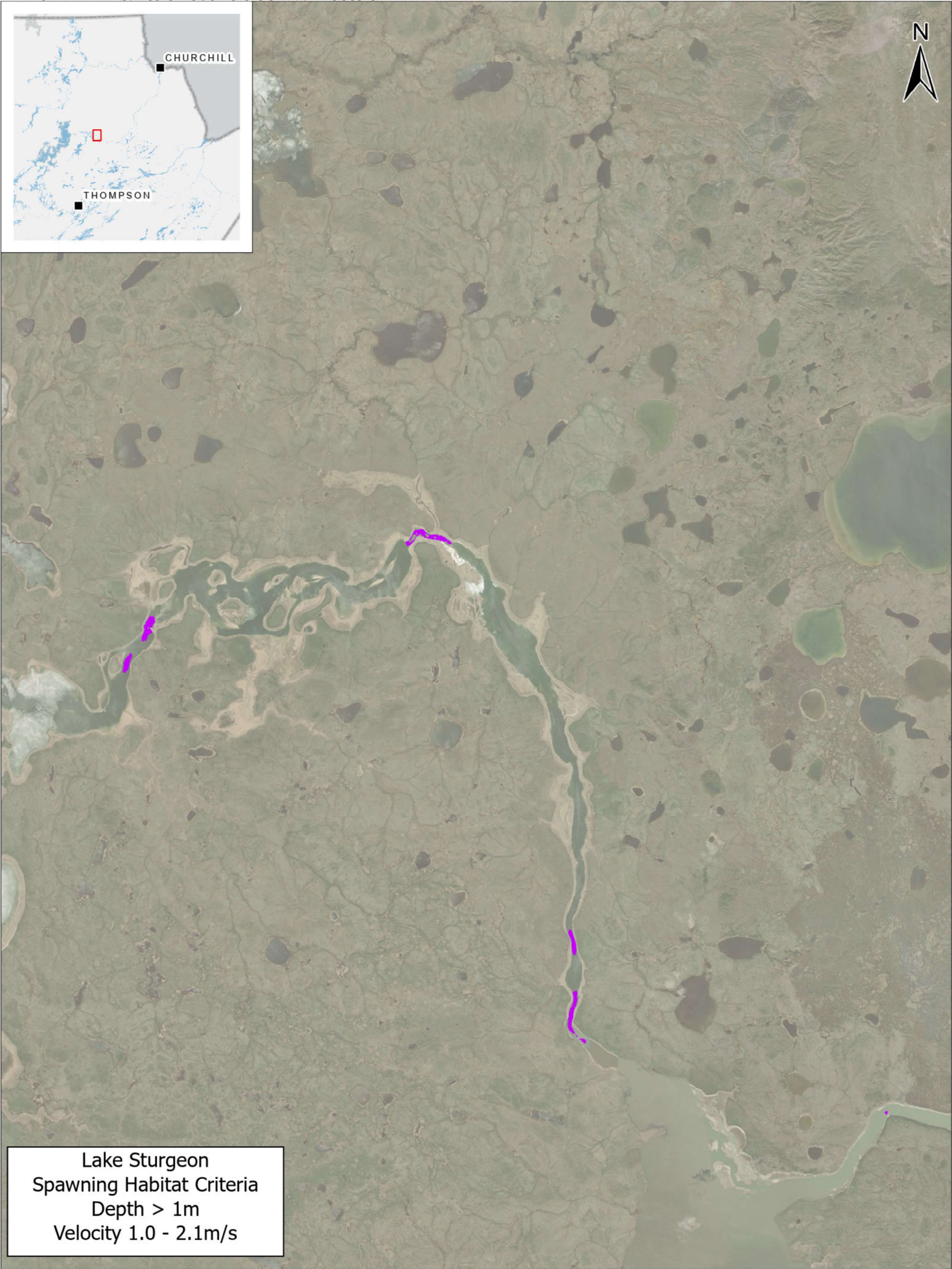
0 0.8 1.6 Kilometers

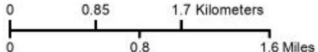
0 0.8 1.6 Miles

VERSION NO:

QA/QC:

Northern Indian Lake
Lake Sturgeon Spawning Habitat
75th Percentile
519 m³/s



	DATA SOURCE: Modelling Data: Manitoba Hydro - Hydraulic Modelling Basemap: ArcGIS Map Service 2025 06 16		
	CREATED BY: Energy Operations and Water Planning		
	COORDINATE SYSTEM: WGS 1984 UTM Zone 14N	DATE CREATED: 28-May-26	REVISION DATE: 22-JUL-26
		VERSION NO:	QA/QC:

Northern Indian Lake to Fidler Lake
Lake Sturgeon Spawning Habitat
75th Percentile
519 m³/s





DATA SOURCE:
Modelling Data: Manitoba Hydro - Hydraulic Modelling
Basemap: ArcGIS Map Service 2025 06 16

CREATED BY:
Energy Operations and Water Planning

COORDINATE SYSTEM:
WGS 1984 UTM Zone 14N

DATE CREATED:
28-May-26

REVISION DATE:
22-JUL-26

00.551.1 Kilometers

00.51 Miles

Fidler Lake

Lake Sturgeon Spawning Habitat

75th Percentile

519 m³/s

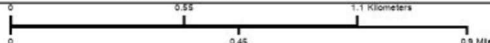
M1-LKST-P75-FL

File Location: K:\GIS\Map\Hydro\Billard Lake\Billard Lake Sturgeon Spawning Habitat\Billard Lake Sturgeon Spawning Habitat Map\Billard Lake Sturgeon Spawning Habitat Map.mxd
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Created By: Environment Canada
Map Editor: 2016
Project: Billard Lake Sturgeon Spawning Habitat
Scale: 1:50,000



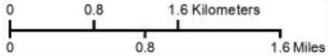


DATA SOURCE: Modeling Data: Manitoba Hydro - Hydraulic Modeling Base Map: ArcGIS Map Service 2025 06 16			
CREATED BY: Energy Operations and Water Planning			
COORDINATE SYSTEM: WGS 1984 UTM Zone 14N		DATE CREATED: 28-May-26	REVISION DATE: 22-JUL-26
		VERSION NO: 1.0	QA/QC: 1.0

Billard Lake
Lake Sturgeon Spawning Habitat
75th Percentile
519 m³/s



Lake Sturgeon
Spawning Habitat Criteria
Depth > 1m
Velocity 1.0 - 2.1m/s

	DATA SOURCE: Modelling Data: Manitoba Hydro - Hydraulic Modelling Basemap: ArcGIS Map Service 2025 06 16		
	CREATED BY: Energy Operations and Water Planning		
	COORDINATE SYSTEM: WGS 1984 UTM Zone 14N	DATE CREATED: 28-May-26	REVISION DATE: 22-JUL-26
		VERSION NO:	QA/QC:

Northern Indian Lake
Lake Sturgeon Spawning Habitat
95th Percentile
1792 m³/s



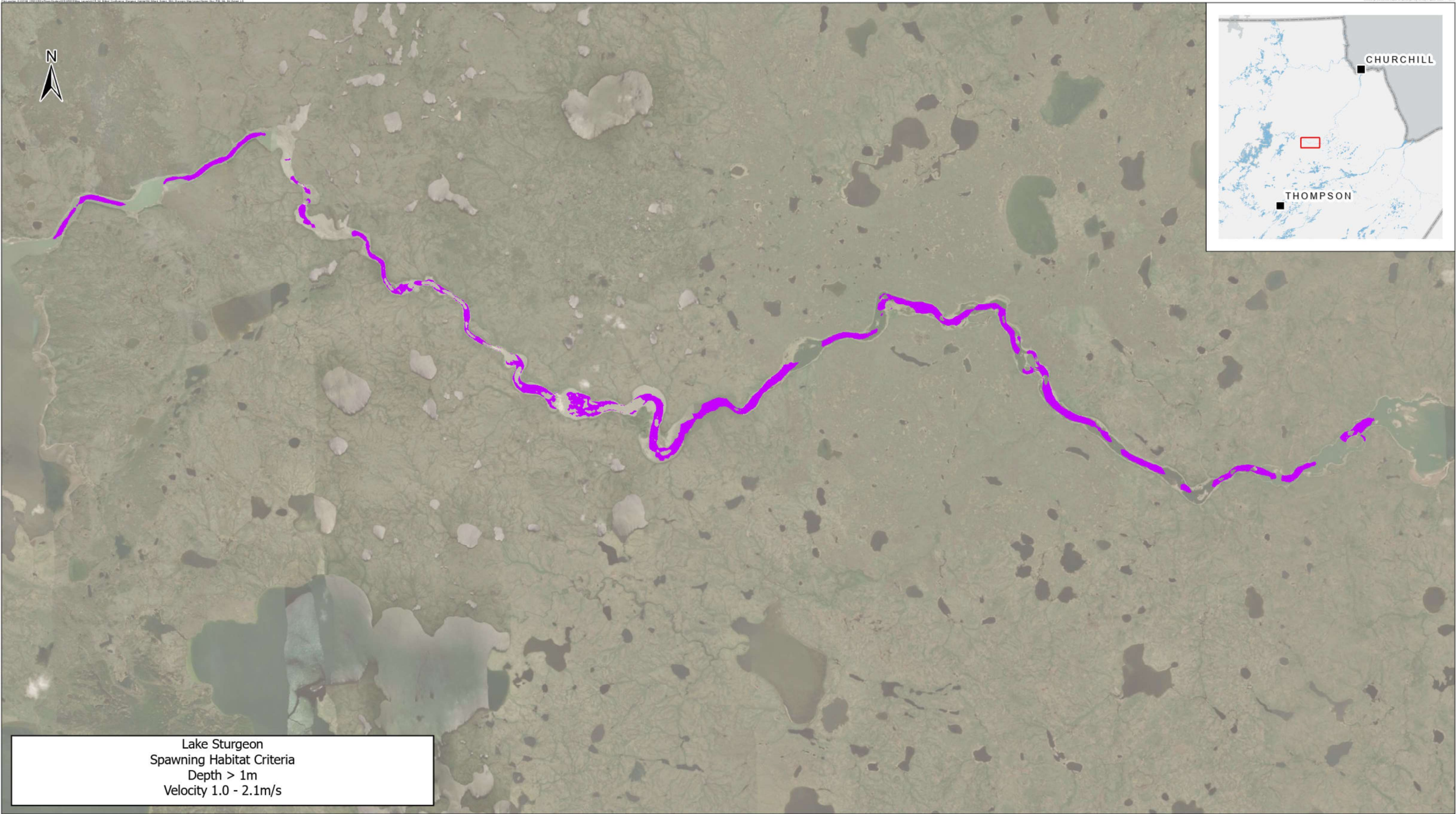
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	COORDINATE SYSTEM: WGS 1984 UTM Zone 14N	DATE CREATED: 28-May-26	REVISION DATE: 22-JUL-26
		VERSION NO:	QA/QC:

Northern Indian Lake to Fidler Lake
Lake Sturgeon Spawning Habitat
95th Percentile
1792 m³/s



	DATA SOURCE: Modelling Data: Manitoba Hydro - Hydraulic Modelling Basemap: ArcGIS Map Service 2025 06 16		
	CREATED BY: Energy Operations and Water Planning		
	COORDINATE SYSTEM: WGS 1984 UTM Zone 14N	DATE CREATED: 28-May-26	REVISION DATE: 22-JUL-26
		VERSION NO:	QA/QC:

Fidler Lake
Lake Sturgeon Spawning Habitat
95th Percentile
1792 m³/s



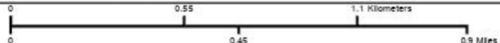
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CREATED BY: Energy Operations and Water Planning			
COORDINATE SYSTEM: WGS 1984 UTM Zone 14N		DATE CREATED: 28-May-26	REVISION DATE: 22-JUL-26
		VERSION NO:	DWG:

**Fidler to Billard Lake
Lake Sturgeon Spawning Habitat**

95th Percentile
1792 m³/s





DATA SOURCE: Modeling Data: Manitoba Hydro - Hydraulic Modeling Basemap: ArcGIS Map Service 2025 06 16			
CREATED BY: Energy Operations and Water Planning			
COORDINATE SYSTEM: WGS 1984 UTM Zone 14N		DATE CREATED: 28-May-26	REVISION DATE: 22-JUL-26
		VERSION NO:	QA/QC:

Billard Lake
Lake Sturgeon Spawning Habitat
95th Percentile
1792 m³/s

THE LAKES AND RIVERS OF MANITOBA: A GUIDE TO THE LAKES AND RIVERS OF MANITOBA. THE LAKES AND RIVERS OF MANITOBA: A GUIDE TO THE LAKES AND RIVERS OF MANITOBA. THE LAKES AND RIVERS OF MANITOBA: A GUIDE TO THE LAKES AND RIVERS OF MANITOBA.

Map of Manitoba, Canada. The map shows the province of Manitoba, with the Red River and the Assiniboine River flowing into Lake Winnipeg. The map is titled "Map of Manitoba, Canada" and includes a scale bar and a north arrow.



Sturgeon
Spawning Habitat Criteria
Depth 2 - 9m
Velocity 0.3 - 1m/s



DATA SOURCE:
Modeling Data: Manitoba Hydro - Hydraulic Modeling
Basemap: ArcGIS Map Service 2025 06 16

CREATED BY:
Energy Operations and Water Planning

COORDINATE SYSTEM: WGS 1984 UTM Zone 14N

DATE CREATED: 28-May-26

REVISION DATE: 24-JUL-26



VERSION NO:

GAO:

Little Churchill River Confluence Area
Lake Sturgeon Spawning Habitat
5th Percentile
95m³/s





DATA SOURCE:
Modelling Data: Manitoba Hydro - Hydraulic Modelling
Basemap: ArcGIS Map Service 2025 06 16

CREATED BY:
Energy Operations and Water Planning

COORDINATE SYSTEM:
WGS 1984 UTM Zone 14N

DATE CREATED:
28-May-26

REVISION DATE:
27-JUL-26

00.61.2 Kilometers

00.551.1 Miles

VERSION NO:
QA/QC:

The Fours to Little Churchill River Confluence
Lake Sturgeon Spawning Habitat

5th Percentile
95 m³/s

M2-LKST-P5-FOURS



	DATA SOURCE: Modeling Data: Manitoba Hydro - Hydraulic Modeling Base Map: ArcGIS Map Service 2025 06 16		
	CREATED BY: Energy Operations and Water Planning		
	COORDINATE SYSTEM: WGS 1984 UTM Zone 14N	DATE CREATED: 28-May-26	REVISION DATE: 24-JUL-26
		VERSION NO:	GAO:

Little Churchill River Confluence
Lake Sturgeon Spawning Habitat
5th Percentile
95 m³/s



	DATA SOURCE: Modelling Data: Manitoba Hydro - Hydraulic Modelling Basemap: ArcGIS Map Service 2025 06 16			Little Churchill River Confluence to Swallow Rapids Lake Sturgeon Spawning Habitat 5th Percentile 95m ³ /s
	CREATED BY: Energy Operations and Water Planning			
	COORDINATE SYSTEM: WGS 1984 UTM Zone 14N	DATE CREATED: 28-May-26	REVISION DATE: 27-JUL-26	
	0 0.4 0.8 Kilometers 0 0.4 0.8 Miles	VERSION NO:	QA/QC:	





Sturgeon
Spawning Habitat Criteria
Depth 2 - 9m
Velocity 0.3 - 1m/s



DATA SOURCE:
Modelling Data: Manitoba Hydro - Hydraulic Modelling
Basemap: ArcGIS Map Service 2025 06 16

CREATED BY:
Energy Operations and Water Planning

COORDINATE SYSTEM:
WGS 1984 UTM Zone 14N

DATE CREATED:
28-May-26

REVISION DATE:
29-JUL-26

00.40.8 Kilometers

00.40.8 Miles

VERSION NO:
QA/QC:

Little Churchill River Confluence to Swallow Rapids

Lake Sturgeon Spawning Habitat

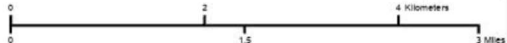
25th Percentile

173 m³/s

M2-LKST-P25-SR



Sturgeon
Spawning Habitat Criteria
Depth 2 - 9m
Velocity 0.3 - 1m/s

	DATA SOURCE: Modeling Data: Manitoba Hydro - Hydraulic Modeling Basemap: ArcGIS Map Service 2025 06 16			
	CREATED BY: Energy Operations and Water Planning			
	COORDINATE SYSTEM: WGS 1984 UTM Zone 14N		DATE CREATED: 25-May-25	REVISION DATE: 23-JUL-25
			VERSION NO:	QA/QC:

Little Churchill River Confluence Area
Lake Sturgeon Spawning Habitat
50th Percentile
302 m³/s



Sturgeon
Spawning Habitat Criteria
Depth 2 - 9m
Velocity 0.3 - 1m/s



DATA SOURCE:
Modelling Data: Manitoba Hydro - Hydraulic Modelling
Basemap: ArcGIS Map Service 2025 06 16

CREATED BY:
Energy Operations and Water Planning

COORDINATE SYSTEM: WGS 1984 UTM Zone 14N	DATE CREATED: 28-May-26	REVISION DATE: 24-JUL-26
	VERSION NO:	QA/QC:

The Fours to Little Churchill River Confluence Lake Sturgeon Spawning Habitat

50th Percentile

302 m³/s



Sturgeon
Spawning Habitat Criteria
Depth 2 - 9m
Velocity 0.3 - 1m/s



DATA SOURCE: Modeling Data: Manitoba Hydro - Hydraulic Modeling Basemap: ArcGIS Map Service 2025 06 16			
CREATED BY: Energy Operations and Water Planning			
COORDINATE SYSTEM: WGS 1984 UTM Zone 14N		DATE CREATED: 25-May-26	REVISION DATE: 23-JUL-26
		VERSION NO: 	QA/QC:

**Little Churchill River Confluence
Lake Sturgeon Spawning Habitat**
50th Percentile
302 m³/s





DATA SOURCE:
Modelling Data: Manitoba Hydro - Hydraulic Modelling
Basemap: ArcGIS Map Service 2025 06 16

CREATED BY:
Energy Operations and Water Planning

COORDINATE SYSTEM:
WGS 1984 UTM Zone 14N

0 0.4 0.8 Kilometers
0 0.4 0.8 Miles

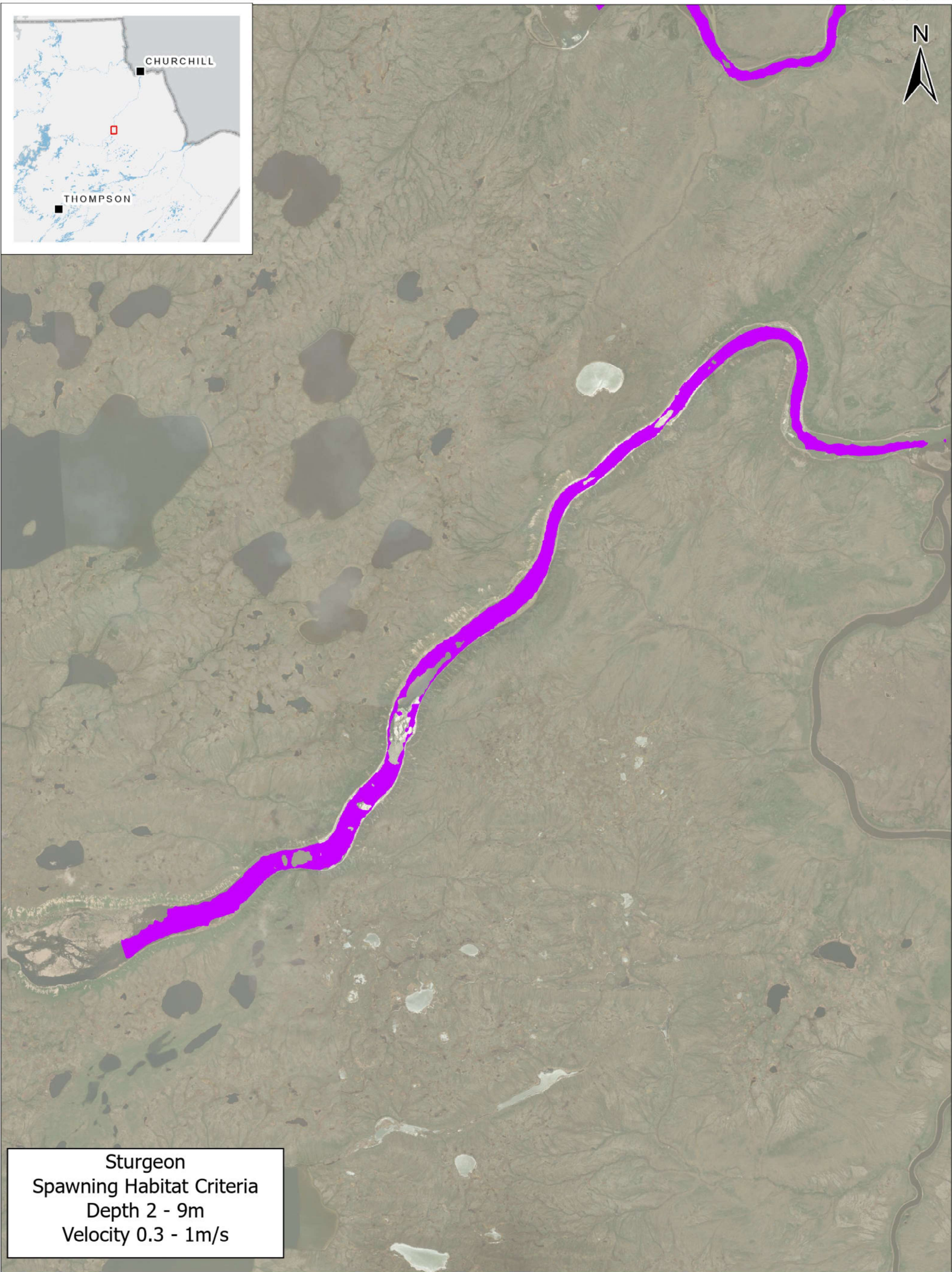
DATE CREATED:
28-May-26

REVISION DATE:
24-JUL-26

VERSION NO:

QA/QC:

Little Churchill River Confluence to Swallow Rapids
Lake Sturgeon Spawning Habitat
50th Percentile
302 m³/s



Sturgeon
Spawning Habitat Criteria
Depth 2 - 9m
Velocity 0.3 - 1m/s



DATA SOURCE:
Modelling Data: Manitoba Hydro - Hydraulic Modelling
Basemap: ArcGIS Map Service 2025 06 16

CREATED BY:
Energy Operations and Water Planning

COORDINATE SYSTEM:
WGS 1984 UTM Zone 14N

DATE CREATED:
28-May-26

REVISION DATE:
27-JUL-26

0

0.6

1.2 Kilometers

0

0.55

1.1 Miles

VERSION NO:
QA/QC:

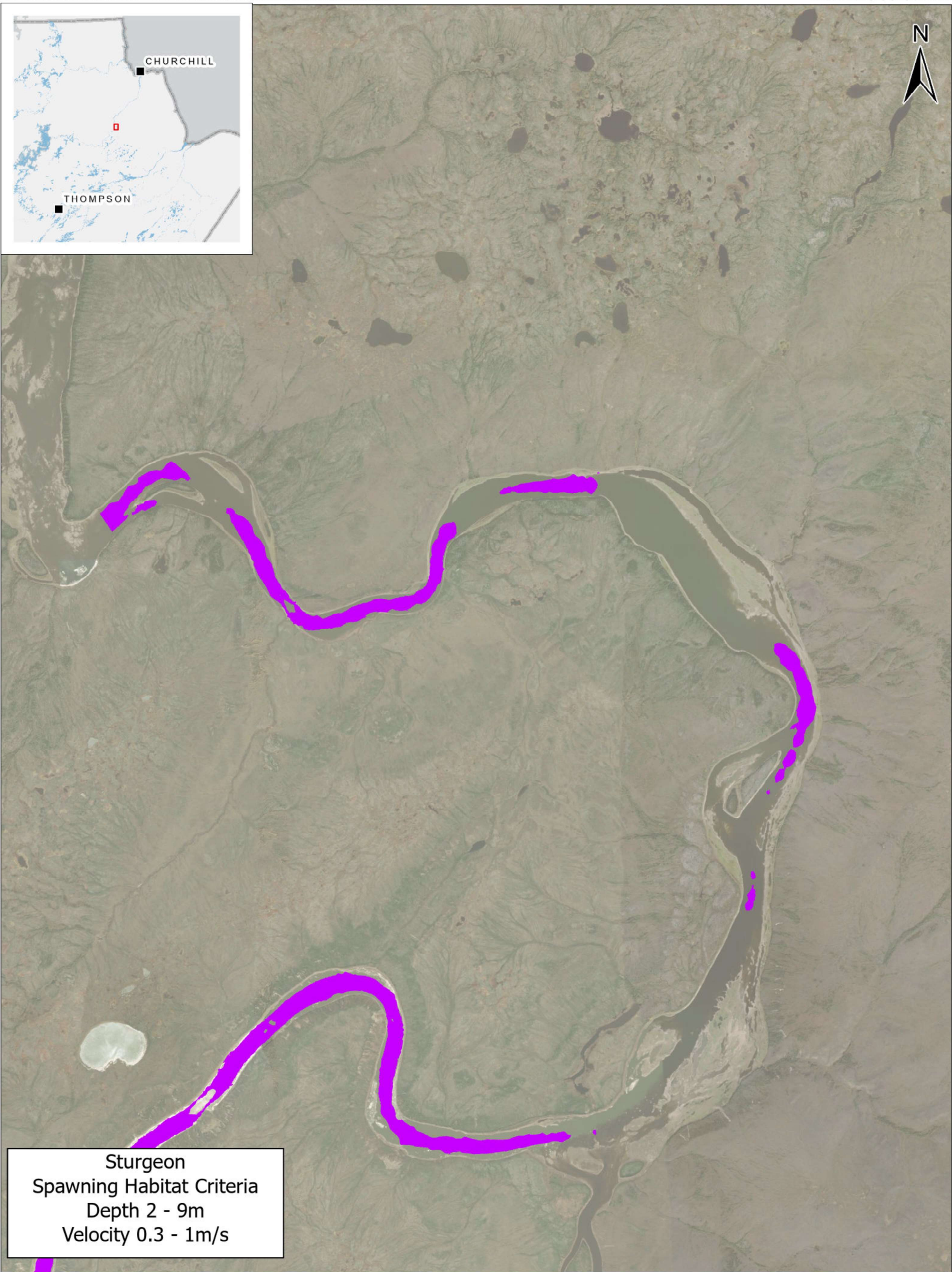
The Fours to Little Churchill River Confluence

Lake Sturgeon Spawning Habitat

75th Percentile

610 m³/s

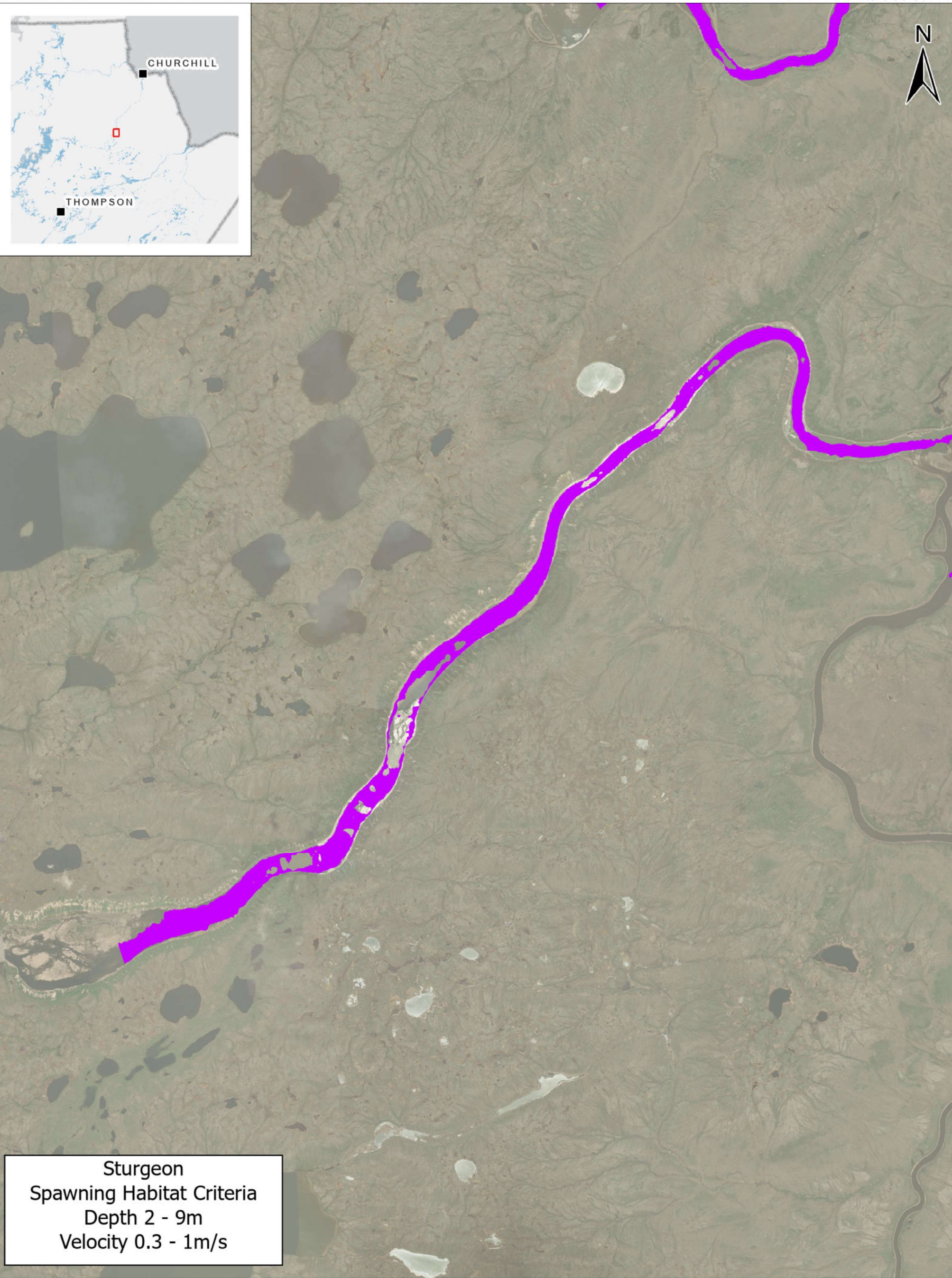
M2-LKST-P75-FOURS



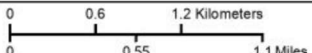


DATA SOURCE: Modelling Data: Manitoba Hydro - Hydraulic Modelling Basemap: ArcGIS Map Service 2025 06 16		
CREATED BY: Energy Operations and Water Planning		
COORDINATE SYSTEM: WGS 1984 UTM Zone 14N	DATE CREATED: 28-May-26	REVISION DATE: 27-JUL-26
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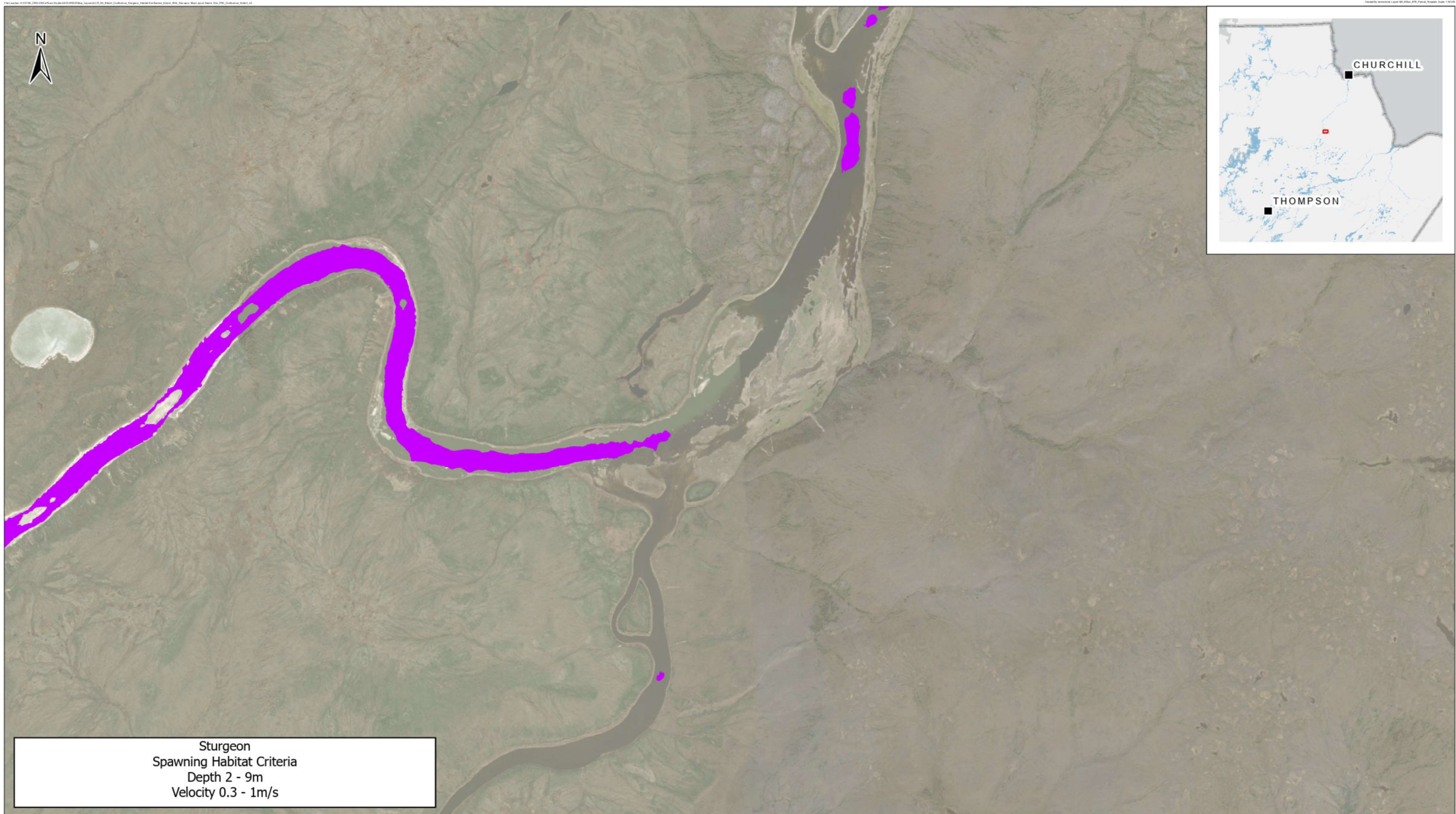
Little Churchill River Confluence to Swallow Rapids
Lake Sturgeon Spawning Habitat
75th Percentile
610 m³/s

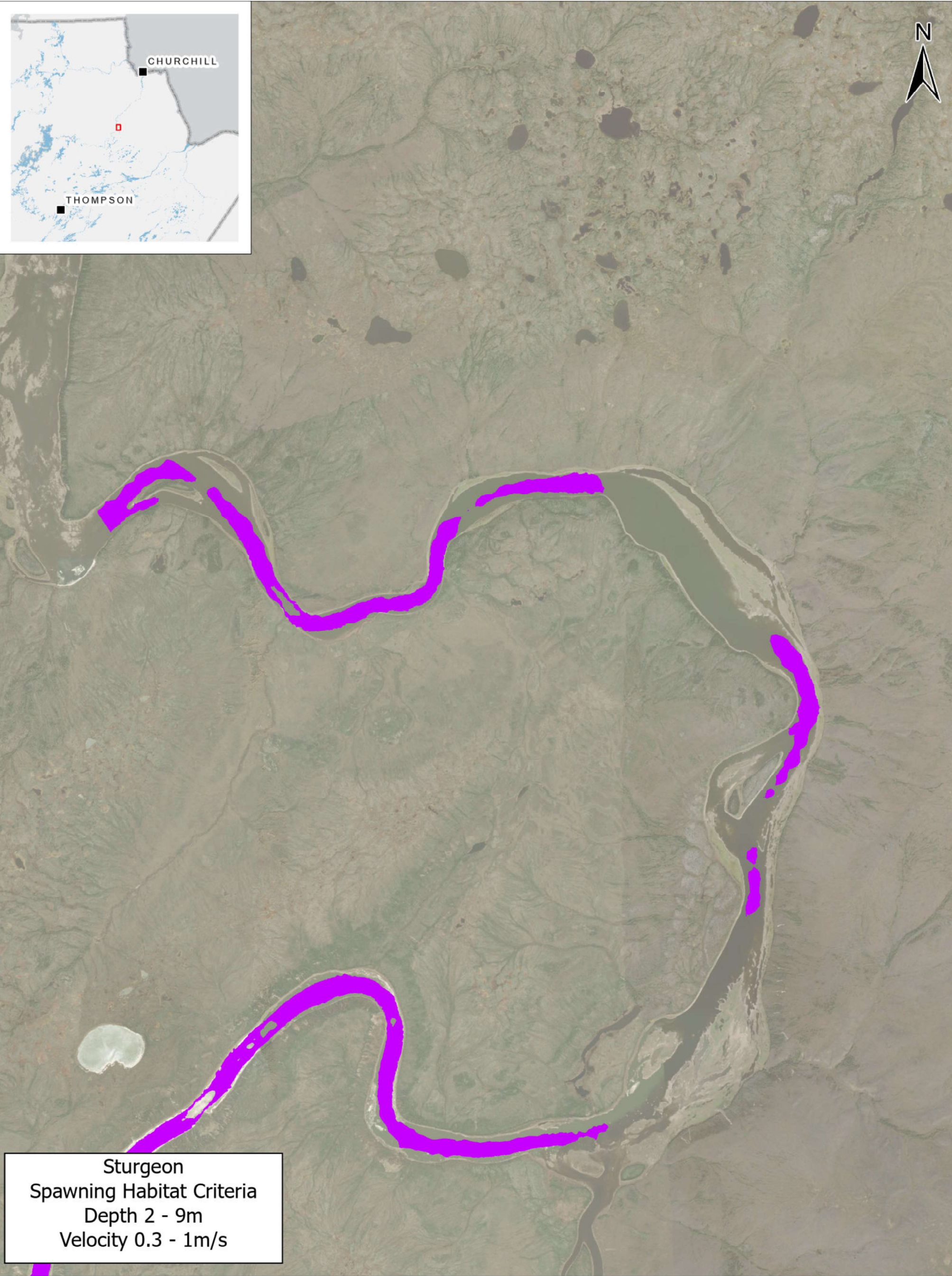




DATA SOURCE: Modelling Data: Manitoba Hydro - Hydraulic Modelling Basemap: ArcGIS Map Service 2025 06 16		
CREATED BY: Energy Operations and Water Planning		
COORDINATE SYSTEM: WGS 1984 UTM Zone 14N	DATE CREATED: 28-May-26	REVISION DATE: 27-JUL-26
	VERSION NO:	QA/QC:

The Fours to Little Churchill River Confluence
Lake Sturgeon Spawning Habitat
95th Percentile
1950 m³/s







DATA SOURCE: Modelling Data: Manitoba Hydro - Hydraulic Modelling Basemap: ArcGIS Map Service 2025 06 16		
CREATED BY: Energy Operations and Water Planning		
COORDINATE SYSTEM: WGS 1984 UTM Zone 14N	DATE CREATED: 28-May-26	REVISION DATE: 27-JUL-26
0 0.4 0.8 Kilometers 0 0.4 0.8 Miles	VERSION NO:	QA/QC:

Little Churchill River Confluence to Swallow Rapids

Lake Sturgeon Spawning Habitat

95th Percentile

1950 m³/s