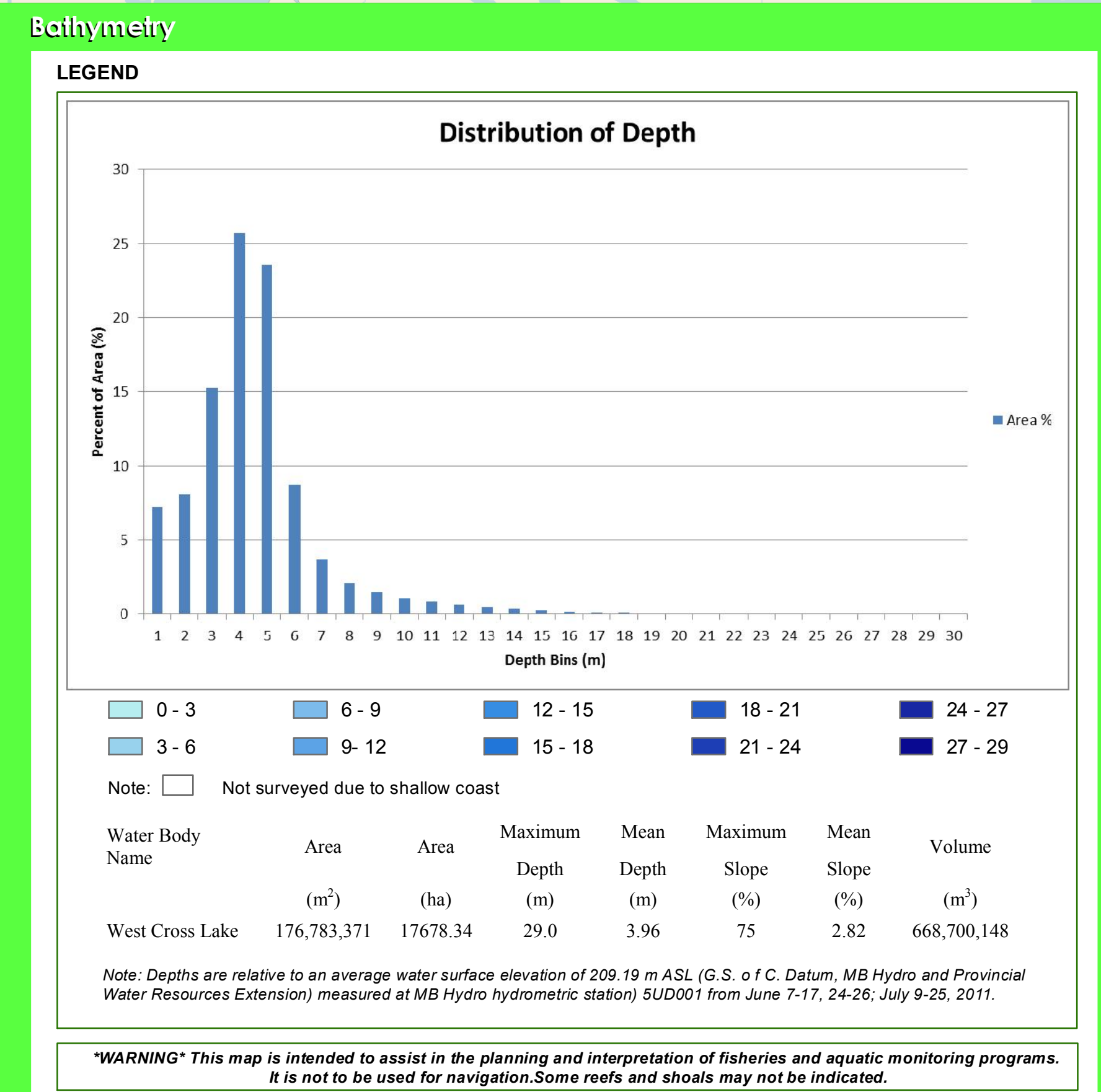


### Substrate

#### LEGEND

- 1 - Bedrock - Shorelines on West Cross Lake and its islands are typically controlled by bedrock. Bedrock sills and reefs are found throughout the lake.
- 2 - Gravel/Cobble - Gravel and cobble sized substrates are common in the channelized portions of the lake as well as below Jenpeg GS.
- 3 - Sand - Sand is commonly found in the channelized areas of West Cross Lake.
- 4 - Silt/Clay - Mixed silt and clay substrates and depositional silt are found in depositional bays throughout West Cross Lake.
- 5 - Clay - Clay substrates are predominant throughout much of West Cross Lake.
- 6 - Gravel/Sand - Mixed gravel and sand sized substrates are associated with the channels in the central portion of West Cross Lake.
- 7 - Silty Sand - Mixed silty sand is associated with the channelized areas of West Cross Lake.



### CROSS LAKE

#### Coordinated Aquatic Monitoring Program Overview

The Coordinated Aquatic Monitoring Program (CAMP), established in 2008, is a long-term aquatic monitoring program to study and monitor the health of water bodies (rivers and lakes) affected by Manitoba Hydro's generating system.

A Memorandum of Understanding (MOU) between the Province of Manitoba (MB) and Manitoba Hydro (MH), signed in 2006, summarizes and defines the need for coordinating aquatic monitoring to address:

- growing expectation from environmental regulators, local communities, and the general public;
- monitoring and assessment of Manitoba Hydro's hydroelectric generation system.

Design of the CAMP integrates components of existing MB and MH long-term monitoring programs and developed new components and sites to fill necessary gaps. The geographic scale of CAMP makes it the largest holistic, ecosystem-based aquatic monitoring program in Manitoba.

#### Habitat Summary

In 2011 an aquatic habitat inventory study was conducted on West Cross Lake. Surveys were conducted via boat-based hydroacoustics. Acoustic surveys were validated with observations of substrates and shoreline habitat features. The resulting data was processed and analyzed to produce bathymetric and substrate maps.

A total area of 16,886 ha of West Cross Lake was mapped for depth in 2011 (CAMP), and additionally in 2014 through Lake Sturgeon Stewardship and Enhancement Program (LSSEP) studies (Henderson et al. 2015). West Cross Lake is generally shallow with approximately 30% of the lake above 3 m in depth and 80% of the lake area above 5 m, its mean depth is 3.96 m, and its average bed slope is 2.82%. The deepest recorded depth in West Cross Lake at the time of surveys was 36.6 m in a small hole in the central channelized area of the waterbody.

West Cross Lake is dominated by clay and silt/clay substrates, which account for approximately 87% of the total area mapped. Off current lacustrine areas primarily consist of soft silt/clay materials. Sand (3.65%) substrates were mapped primarily in the deeper channel sections of the large shallow flat basins and in the central channelized areas of the waterbody and were often associated with small clam shells and gravels. Rock including bedrock and cobble and gravel sized materials were found along the shoreline throughout most of the lake. A number of extensive bedrock and cobble and boulder shoals occur intermittently throughout the waterbody.

#### References and Data Sources

References and Data Source:

- Contains information licensed under the Open Government Licence - Canada. (CanVec digital topographic information from Geogratis)
- Information pertaining to the collection and analysis of aquatic habitat data will be found in: North/South Consultants Inc. TBD. Coordinated Aquatic Monitoring Program (CAMP)/Manitoba/Manitoba Hydro Coordinated Aquatic Monitoring Program (CAMP): Six Year Summary Report (2008-2013) In Prep.
- HENDERSON, L.M., T.J. SUTTON, and C.A. McDUGALL. 2015. Lake Sturgeon Spawning Investigations below the Jenpeg Generating Station, Spring 2014. A report prepared for Manitoba Hydro by North/South Consultants Inc., Winnipeg, Manitoba. 51 pp. #5931.14-03

Prepared by North/South Consultants Inc.