

# 1.0 Watershed Characteristics, Communities and Uses



## 1.1 LOCATION AND PHYSICAL CHARACTERISTICS

The Shoal Lake watershed (Figure 1.1) straddles the Manitoba–Ontario border at an approximate latitude of 49.5°N. It is part of the larger Rainy River–Lake of the Woods–Winnipeg River drainage basin. The total area of the watershed (including its lakes and streams) is approximately 960 km<sup>2</sup>. Fifty-four percent (54%) of the watershed area is located in Ontario and 46% in Manitoba<sup>1\*</sup>.

The three lakes of greatest significance in the watershed are Shoal Lake, Falcon Lake and High Lake. Shoal Lake is the largest of the watershed’s three lakes with a surface area of about 260 km<sup>2</sup>. Over 95% of the lake’s surface

area is situated in Ontario, while less than 5% is contained within the province of Manitoba<sup>2</sup>. The lake has an estimated average depth of 9 m, but incorporates many shallower embayments such as Indian Bay, Snowshoe Bay and Clytie Bay in its northern portions.

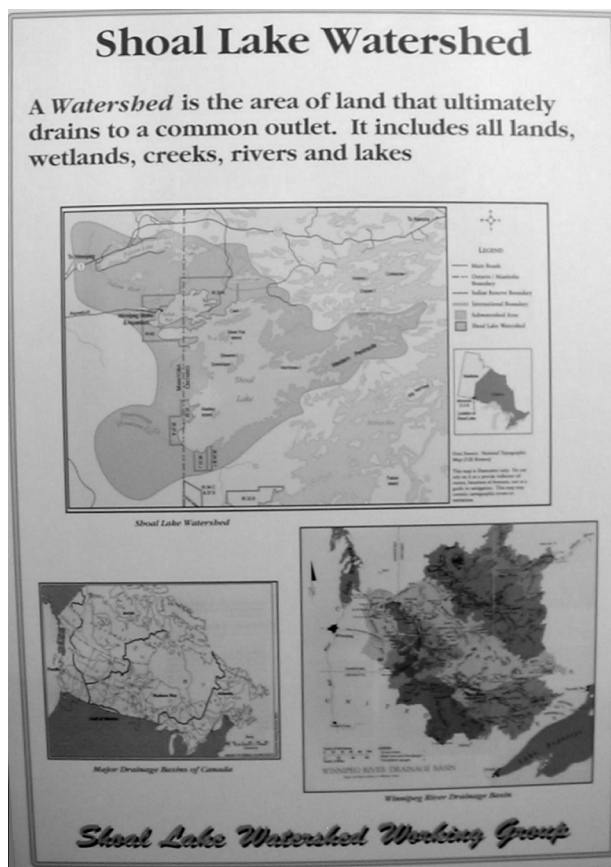
Shoal Lake is connected to Lake of the Woods at a location known as Ash Rapids. Construction of a control dam at the Winnipeg River outlet of Lake of the Woods in the 1880s raised the level of the lake by about a metre above its natural condition. In turn, this brought water levels in Shoal Lake into an approximate balance with levels in the much larger Lake of the Woods, at least over an extended portion of the year.

The channel at Ash Rapids was deepened and widened from its natural state, through blasting, around the turn of the century. This was reportedly done to provide a water-based transportation route to serve both timber and mining operations in the Shoal Lake area. While opening up the lake to unrestricted small boat access to and from Lake of the Woods, the channel modifications also allowed for two-way water exchange between the lakes. At its narrowest point, the navigable channel at Ash Rapids is about 10 m wide and the mid-channel water depth is about 1.5 m at low water datum.

Falcon Lake lies northwest of Shoal Lake and is located entirely within Manitoba. It is approximately 12 km long by 1.3 km wide with a surface area of about 15 km<sup>2</sup>. It has an average depth of 14 m, a maximum depth of 26 m, and a watershed area of about 197 km<sup>2</sup> (including the lake)<sup>3</sup>. Water levels in Falcon Lake are regulated by a culvert and stop-log dam located in the southwest corner of the lake where it outlets to the Falcon River.

The smaller and more isolated High Lake straddles the inter-provincial border. It is about 5.5 km long by 3 km wide with an area of approximately 10 km<sup>2</sup>. It is the coldest of the three lakes, with an average depth of 12 m and a maximum depth of 21 metres.

Outflows from both Falcon Lake and High Lake drain, via the Falcon River, into Shoal Lake at Snowshoe Bay. The Falcon River originally discharged directly into Indian Bay, which is located immediately to the north of Snowshoe Bay. The lower end of the Falcon River was altered to its present course around 1916 during construction of the Winnipeg water intake and aqueduct. This was done in order to divert the highly coloured river discharge away from the shore-based intake.



The Shoal Lake watershed is part of the larger Winnipeg River drainage basin.

\*Superscripted, italicized numbers refer to references and explanatory notes that are found in “Sources and Notes” at the end of this report.