Water Quality Assessment and Objectives for Shawnigan Lake 2007

A section of that report called **Shawnigan Lake Profile** is interesting. It is reproduced below.

All **waste discharges** are listed: the challenges the lake faces each year. This report does not consider recreational uses as producing any waste discharge.

SHAWNIGAN LAKE PROFILE

Watershed and Hydrology

Shawnigan Lake is a medium-sized lake with a surface area of 537 ha, a volume of over 64 Mm3, a mean depth of 12 m and a maximum depth of 52 m. It is approximately 7.2 km long and 1.4 km across at its widest point. The narrowest point is approximately 150 m wide in the West Arm; this part of the lake is quite distinct in that it is a long, narrow, shallow arm isolated from the main body of the lake. The lake has one main deep basin in the northern half of the lake and several smaller basins to depths of 28 m in the southern half.

Shawnigan Lake has a watershed size of approximately 69 km2 (Figure 1). The Shawnigan Community Watershed is larger at 110 km2 and includes the land draining to Shawnigan Creek below the lake outlet to Mill Bay. The watershed has a maximum elevation of 610 m and a minimum elevation of approximately 116 m (380 ft) at the lake level.

Shawnigan Lake empties from south to north. There are three main inflows to the lake: Shawnigan Creek at the south end of the lake, McGee Creek on the west shore and the West Arm inflow in the northwest corner of the lake. Shawnigan Lake has a relatively short water residence time of approximately one year. Water levels are controlled by a dam on Shawnigan Creek located 450 m downstream from the lake outlet.

Water Uses

There are three major waterbodies licensed for water withdrawal in the Shawnigan Lake watershed: Shawnigan Lake, Shawnigan Creek and McGee Creek. In total, there are 225 active water withdrawal licenses permitted to extract over 7,000 m3/day. In addition, there is approximately 5,500 m3/day of water licensed for storage in Shawnigan Lake. The largest withdrawals for Shawnigan Lake are located near the northeastern portion of the lake, servicing the Village and Shawnigan Lake Estates. These are treated water supplies with chlorine disinfection.

Shawnigan Lake provides a number of recreational opportunities including swimming, water skiing, boating, and fishing. Although the majority of the residences are now occupied year round, there are number of campgrounds and resorts that receive the

heaviest use in the summer months.

Shawnigan Lake provides a good recreational fishery that has been supported by rainbow (Onchorhynchus mykiss) and cutthroat trout (O. clarki) stockings since 1903. In 2004, Shawnigan Lake was stocked with 26,000 rainbows and 15,000 cutthroat. There is also a native population of kokanee salmon (O. nerka) present in Shawnigan Lake and several introduced species including smallmouth bass (Micropteus dolomieui) and yellow perch (Perca flavescens).

Waste Discharges

Forestry is the dominant land use in this watershed with urban development and agriculture using the majority of the remaining land base. Approximately 9.5% of the land base is under the Agricultural Land Reserve (ALR).

The majority of Shawnigan Lake waterfront is developed and zoned as either Suburban Residential or Urban Residential. The only waterfront area that is not zoned this way is approximately one kilometre of the lake's most southern shoreline, which is included in the ALR. Within the Shawnigan Lake watershed there are five waste management discharge permits for point discharges, all of which are to ground and adequately set back from the lake.

There are also numerous smaller residential septic and onsite disposal systems which are regulated by the Ministry of Health. Septic systems are the dominant means of disposing of domestic effluent in the Shawnigan Lake watershed and are effective at treating household sewage if designed properly and maintained regularly. If the system is improperly located, constructed, serviced or maintained, it can fail, discharging untreated wastewater to nearby waterbodies. This can impact the suitability of the water for drinking, recreational activities and aquatic life.

The Cowichan Valley Regional District (CVRD) Stage Three South Sector Liquid Waste Management Plan has outlined an initiative to sewer the densest areas of Shawnigan Lake. Shawnigan Lake Beach Estates, near the Village is the only area serviced by a centralized sewage collection system. Presently, there are approximately 275 sewer connections in this area which receive secondary wastewater treatment and in-ground disposal by the CVRD.