

Data to Include in a ‘State of the Lake’ Report

Before stewardship actions and land use recommendations can be developed to protect the long-term health of a lake, decision makers and property owners need to know the current condition of the lake and its watershed.

The intent of a ‘State of the Lake’ Report is to improve the knowledge and understanding of a lake and its watershed by outlining its history, changes, and trends over time, and examining the interactions and relationships of the lake environment relative to the pressures and issues facing the lake.

The type of information needed to develop a thorough ‘State of the Lake’ Report spans time and a range of disciplines and will have to be collected from a variety of sources. A ‘State of the Lake’ Report can include the essential lake health questions that should be answered and the types of information that may answer those questions.

The quantity and quality of information available for each lake will vary and many lakes will have questions left unanswered. The purpose of this exercise is to learn as much as possible about the lake but also to identify gaps in the information and target specific areas for field data collection. Once all of the information about your lake has been gathered, the information can be consolidated to produce a ‘State of the Lake’ Report for your lake.

This report will be developed to inform the reader, as well as solicit feedback and information that may have been overlooked. Your Lake Planning Committee will then be in a position to target resources towards monitoring or data collection programs. Once completed, members of the lake community can use this information to develop actions and recommendations that help ensure the long-term health of the lake and its watershed.

Data to Include in a 'State of the Lake' Report¹

	QUESTIONS TO BE ANSWERED/ INFORMATION NEEDED	SOURCE
LAND USE	<input type="checkbox"/> Official Plans <input type="checkbox"/> Township Zoning By-laws <input type="checkbox"/> Hazards <input type="checkbox"/> Site Plan Control <input type="checkbox"/> Assessment Maps <input type="checkbox"/> Determine historical land uses <input type="checkbox"/> Pending applications for development/zoning amendments/subdivisions <input type="checkbox"/> Identify any present or future development sites (undeveloped lots, potential severances) <input type="checkbox"/> Characterize the location, type and extent of agricultural and industrial activity <input type="checkbox"/> Determine the extent of seasonal dwelling conversions to permanent residences and other development trends <input type="checkbox"/> Identify location of all past, present and future landfills sites <input type="checkbox"/> Identify recreation opportunities (past, present and perceived for the future) <input type="checkbox"/> Identify all existing and proposed municipal services (i.e. septic, stormwater, drains, roads salt application etc.) including policies and management of each <input type="checkbox"/> Identify the jurisdictional responsibilities of the agencies including policies and regulations affecting development and the management of water	<u>Municipal Authorities</u>
	<input type="checkbox"/> Crown Land Policy <input type="checkbox"/> Ontario Living Legacy, District Land Use Guidelines <input type="checkbox"/> Ontario Base Maps <input type="checkbox"/> Infrastructure (dumps, highways, towers, dams, railways, pipelines, seaplane landing, hunt camps, etc) <input type="checkbox"/> Existing and potential recreational sites and trails (public access, boat launch, trails, natural areas, beaches, portages) <input type="checkbox"/> Sites of cultural significance <input type="checkbox"/> Surface Geology Maps <input type="checkbox"/> Known aggregate, mineral and forestry resources in watershed <input type="checkbox"/> Identify any specific (present and past) licensing arrangements e.g. bait fishing licenses, trapping, timber licensing agreements and forest management policies	<u>Ministry of Natural Resources</u>
	<input type="checkbox"/> Sites of cultural significance <input type="checkbox"/> Sites of existing or potential land claims	<u>Ministry of Aboriginal Affairs</u>

¹ Some information will come from a variety of sources and is therefore listed under multiple sources. These are only suggested sources of information and not all organizations will actually have the materials listed.

	QUESTIONS TO BE ANSWERED/ INFORMATION NEEDED	SOURCE
LAND USE Cont'd	<input type="checkbox"/> Mining claim areas with watershed <input type="checkbox"/> Active and abandoned mine sites <input type="checkbox"/> Known mineral resources <input type="checkbox"/> Determine the extent of mining claims on properties in the lake watershed and include a summary of the legislation affecting same	<u>Ministry of Northern Development, Mines and Forestry</u>
	<input type="checkbox"/> Areas subject to natural hazards such as flooding, erosion, and ice damage <input type="checkbox"/> Shoreline surveys	<u>Conservation Authorities</u>
	Areas of natural, cultural or historical interest <input type="checkbox"/> Shoreline Classification Inventory <input type="checkbox"/> Rideau Canal water level operations	<u>Parks Canada</u>

	QUESTIONS TO BE ANSWERED/ INFORMATION NEEDED	SOURCE
ECOLOGY	<input type="checkbox"/> Characterize the aquatic and terrestrial ecosystems of the lake watershed in terms of diversity and ecological health <ul style="list-style-type: none"> • identify features that play significant roles in supporting the flora and fauna of the watershed (i.e. woodlots, wetlands, corridors, linkages etc.) • location of wetlands and assessment of significance • exotic species (purple loosestrife, zebra mussels etc) • role of natural and human-made obstructions on ecosystem health (e.g. dams, beaver dams) • trends in land use/vegetative cover over time <input type="checkbox"/> Identify specific habitats, spawning areas, nesting sites, migratory routes etc. <ul style="list-style-type: none"> • location of known habitat such as: traditional deer winter yards and corridors • maps of breeding birds and nesting sites (loons, great blue heron, goshawks, osprey, red-shouldered hawk, cooper's hawk) • list of Species at Risk • location of significant or critical fish habitat (spawning, feeding, rearing, foraging) 	<u>Ministry of Natural Resources</u> <u>Birds Studies Canada</u> <u>Conservation Authorities</u>
	<input type="checkbox"/> Forest cover <input type="checkbox"/> Timber licenses and farms <input type="checkbox"/> Woodlot Management Information	<u>Eastern Ontario Model Forest</u>
	<input type="checkbox"/> Fisheries information	<u>Fisheries and Oceans Canada</u> <u>Ministry of Natural Resources</u>

	QUESTIONS TO BE ANSWERED/ INFORMATION NEEDED	SOURCE
SURFACE WATER QUANTITY	<input type="checkbox"/> Determine the lake characteristics (size, shape, depth, bathymetry, etc) - topographic and bathymetric maps <input type="checkbox"/> Identify and map all dams – natural and man made <input type="checkbox"/> Dam locations and operating regime (operating rule curve) <input type="checkbox"/> Lake surveys <input type="checkbox"/> Water Levels	<u>Ministry of Natural Resources</u> <u>Parks Canada</u> Lake Group/ Residents
	<input type="checkbox"/> Characterize the stream flow and water levels of the lake/watershed/historical human influence on water levels <input type="checkbox"/> Watershed and subwatershed boundaries (drainage basins and related tributaries) <input type="checkbox"/> Stream flow characteristics	<u>Conservation Authorities</u>
	<input type="checkbox"/> Permits to take water	<u>Ministry of the Environment</u>
SURFACE WATER QUALITY	<input type="checkbox"/> Historical water quality reports, records and trends (include water chemistry and benthic data) <input type="checkbox"/> Threats to water quality <input type="checkbox"/> Relate the status of water quality to human health risks and human activity <input type="checkbox"/> Relate overall water quality to constraints on the health and diversity of the aquatic ecosystem, plants and animals <input type="checkbox"/> Developmental carrying capacity of the lake/watercourse	<u>Conservation Authorities</u> <u>Ministry of the Environment</u> Lake Group/ Residents
	<input type="checkbox"/> Stormwater Management <input type="checkbox"/> Developmental carrying capacity of the lake/watercourse <input type="checkbox"/> Septic re-inspection	<u>Municipal Authorities</u>
	<input type="checkbox"/> Septic re-inspection <input type="checkbox"/> Bacterial monitoring at public beaches	Public Health Unit
	<input type="checkbox"/> Lake Partner Program <input type="checkbox"/> Environmental compliance reports	<u>Ministry of the Environment</u>

	QUESTIONS TO BE ANSWERED/ INFORMATION NEEDED	SOURCE
GROUND-WATER	<input type="checkbox"/> Groundwater monitoring <input type="checkbox"/> Groundwater characterization studies of the watershed (through Source Water Protection partnership efforts) <ul style="list-style-type: none"> • identify aquifer characteristics of surficial and bedrock aquifers • the relative abundance and quality of groundwater throughout the watershed • geological and soil maps of the watershed • well record information • identify groundwater users in the area along with data on pumpage, number of wells etc. • significant groundwater discharge and recharge areas • water budgets <input type="checkbox"/> Hydrogeological reports	<u>Conservation Authorities</u>
	<input type="checkbox"/> Groundwater monitoring <input type="checkbox"/> Groundwater characterization studies of the watershed (through Source Water Protection partnership efforts) <ul style="list-style-type: none"> • identify aquifer characteristics of surficial and bedrock aquifers • the relative abundance and quality of groundwater throughout the watershed • geological and soil maps of the watershed • well record information • identify groundwater users in the area along with data on pumpage, number of wells etc. • significant groundwater discharge and recharge areas • water budgets 	<u>Ministry of the Environment</u>
	<input type="checkbox"/> Hydrogeological reports	<u>Municipal Authorities</u>
	<input type="checkbox"/> Historical ground water testing results	<u>Lake Group/ Residents</u>
	<input type="checkbox"/> Lake base geology maps <input type="checkbox"/> Surficial and bedrock geology maps	<u>Ministry of Natural Resources</u>

	QUESTIONS TO BE ANSWERED/ INFORMATION NEEDED	SOURCE
Recreation Tourism and Economy	<input type="checkbox"/> Accident reports <input type="checkbox"/> Inventory of navigational constraints and current warning systems <input type="checkbox"/> Noise complaints	<u>Ontario Provincial Police</u>
	<input type="checkbox"/> Boating capacity assessment	<u>Parks Canada</u>
	<input type="checkbox"/> Existing and potential recreational sites and trails (public access, boat launch, trails, natural areas, beaches, portages)	<u>Ministry of Natural Resources</u>
	<input type="checkbox"/> Potential recreational linkages	Local Interest Groups
	<input type="checkbox"/> Information on economy <input type="checkbox"/> List of local businesses <input type="checkbox"/> Identify past, current and anticipated economic trends (inventories, forecasts, etc) <input type="checkbox"/> Identify the role tourism and recreation plays in the local economy. <input type="checkbox"/> Level (intensity) and type (diversity) of recreational use of the lake and watershed <input type="checkbox"/> Maps of existing and potential recreational sites and trails (public access, boat launch, trails, natural areas, beaches, portages, private and commercial camps, outfitters, etc.)	Local Chamber of Commerce