

Glossary of Terms

Activity(ies)

One or a series of related processes, natural or human that occur within a geographical area and may be related to a particular land use.

Agricultural source material

Any of the following treated or untreated materials, other than a commercial fertilizer or compost that meets the guidelines entitled Interim Guidelines for the Production and Use of Aerobic Compost in Ontario prepared by the Ministry of the Environment and dated November 2004, if they are capable of being applied to land as *nutrients*:

- Manure produced by farm animals, including associated bedding materials.
- *Runoff* from farm-animal yards and manure storages.
- Washwaters from agricultural operations that have not been mixed with human waste.
- Organic materials produced by intermediate operations that process materials described in paragraph 1, 2 or 3.
- Anaerobic digestion output, if, i. the anaerobic digestion materials were treated in a mixed anaerobic digestion facility, and ii. at least 50 per cent, by volume, of the total amount of anaerobic digestion materials were on-farm anaerobic digestion materials.

Alvar(s)

Naturally open habitats with either a thin covering of soil or no soil over a base of *limestone* or *dolostone*.

Ambient water quality and quantity

Natural concentration of water quality constituents prior to mixing of either point or non-point source load of *contaminants* (ambient water quality) or natural water levels (ambient water quantity).

Aquifer

From the Latin for "water carrier", a geological formation (typically porous material, such as sand or gravel, or fractured rock) that stores and is capable of transmitting water in sufficient quantities to serve as a sustainable source of water supply.

Aquitard

A bed of low *permeability* adjacent to an *aquifer*; may serve as a storage unit for groundwater, although it does not yield water readily and is incapable of transferring water to the surface.

Assessment report(s)

A technical document that is prepared by a source protection committee under Section 15 of the Ontario Clean Water Act, 2006 to record its knowledge of a source protection area, and to rank

Cataraqui Source Protection Area
Proposed Assessment Report
(July 2010)

risks to drinking water within that area. Each report is approved by the Ontario Ministry of the Environment.

Bedrock

The solid rock underlying soil or water.

Bedrock geology

The study of the solid rock underlying soil. Also refers to description of *bedrock* types.

Benthic

Occurring at the bottom of bodies of water including lakes, *rivers* and *streams*

Bobcaygeon formation

The rock formation is divided into two (2) members: the lower member, which is about 4.5 to 5.5 metres thick; and, the upper member, which is only 1.5 to 3 metres thick. The lower member is reported by Liberty (1967) to be more resistant. It is comprised of an alternation of fine calcarenitic *limestone* and sublithographic *limestone* in 0.06 to 0.1 metres thick beds. The unit is predominately grey to brownish grey and weathers bluish grey. The strata are highly fossiliferous; thin dark *shale* partings are present in the lowest zone. The upper member is equally fossiliferous, however, reportedly less resistant and thinner; only 1.5 to 3 metres (Liberty, 1967). The bedding is much thicker and can be massive. Bluish grey weathered, grey, sublithographic *limestone* dominates, and weathers to an irregular pitted surface. This is based on the stratigraphic sequence as defined by Liberty (1971).

Canadian Shield

Is made up of some of the planet's oldest rock, largely *granite* and *gneiss*. The shield is mostly thin soil lying on top of *bedrock*, with many bare outcrops and thousands of lakes. This was caused during the last ice age, when glaciers covered the area and scraped the rock clean as they moved.

Capture zone(s)

The area surrounding a well that will supply groundwater to that well when pumped at a specified rate for a specified period of time.

Chair(s)

The Chair of the Cataraqui Source Protection Committee as appointed by the Ontario Minister of the Environment.

Chemical(s)

A substance used in conjunction with, or associated with, a land use activity or a particular entity, and with the potential to adversely affect water quality.

Climate

The average weather conditions of a place or region throughout the seasons.

Coagulation

When a solution reacts with elements causing it to thicken into a coherent mass.

Conceptual Water Budget

A written description of the overall flow system dynamics for each *watershed* in the source protection area taking into consideration *surface water* and groundwater features, *land cover* (e.g. proportion of urban vs. rural uses), human-made structures (e.g. dams, channel diversions, water crossings), and water takings.

Condition

Contamination of rock, soil or water that may have resulted from a past *activities*.

Conductivity

The amount of electricity that water can conduct. Measured in parts per million (ppm) or microSiemens per centimeter ($\mu\text{S}/\text{cm}$). In water quality terms, conductivity is the amount of ionic material dissolved in the water (salts for example). There is no water quality standard for conductivity; generally, a higher conductivity indicates that more material is dissolved within the water, which may be more *contaminants*. Road salt application, fertilizer and rain water can influence the conductivity in water.

Connecting channel(s)

Means the St. Lawrence River, St Mary's River, St Clair River, Detroit River, Niagara River and the Welland Canal

Contaminant(s)

A substance which, once in the water, may pose a *threat* to the *ecosystem* and/or human health, as well as uses such as water supply, recreation, and aesthetic conditions.

Contaminant of concern

A chemical or *pathogen* that is or may be discharged from a drinking water *threat*.

Contamination

The mixing of harmful elements, compounds or microorganisms with surface or groundwater. *Contamination* can occur naturally (e.g. an *aquifer* flowing through mineral deposits that contain heavy metals) or through human activity (e.g. sewer water flowing into a *river*). *Nutrients*, such as nitrogen and *phosphorus*, can also cause water *contamination* when they are present in excessive amounts.

Contributing area

(a) in respect of a *surface water* intake or group of intakes, the *drainage area* that contributes *surface water* to the intakes and the area that would contribute *groundwater discharge* to that *drainage area*; and (b) in respect of a well or group of wells, the area that contributes groundwater to the wells when the wells are pumped at a rate equivalent to the allocated quantity of water for the well or group of wells under state conditions.

Cataraqui Source Protection Area
Proposed Assessment Report
(July 2010)

Data concern

Topics where the quality or accuracy of the data is substandard or unrepresentative.

Data gaps

A situation in which there is no existing data about a topic or where data may exist but are not currently accessible to the Cataraqui Source Protection Committee and Cataraqui Region Conservation Authority, such that one or more of the Technical Rules: Assessment Report (MOE, 2009) cannot be met in the *Assessment Report*

Discharge

The volume of water that passes a given location within a given period of time.

Discharge area

An area where water leaves the saturated zone across the *water table* surface.

DNAPLs

Dense Non-Aqueous Phase Liquids that are chemicals or a mixture of chemicals that are denser than water and do not mix with water. Once spilled, they can sink and contaminate groundwater aquifers and surface water bodies. DNAPLs are very difficult to impossible to remove once they have entered a water source. Many of these liquids are suspected or proven to be carcinogenic (cancer-causing). Examples of DNAPLs include, but not limited to, furniture stripper, nail polish, dry cleaning fluid, aerosols, coolants, polychlorinated biphenyls (PCBs), creosote and degreasers. Depending on its chemical structure, a DNAPL can also be classified as an organic solvent.

Dolostone

Term used for the *sedimentary rock* dolomite, in order to avoid confusion with the mineral of the same name.

Drainage

The natural or artificial removal of surface and subsurface water from an area of land to a stream, *river* or lake. The area from which water is being *drained* may be referred to as a *drainage area*, *drainage basin*, catchment area, *watershed*, or *river basin*.

Drained

A condition in which the level or volume of groundwater or *surface water* has been reduced or eliminated from an area by artificial means.

Drinking water

(a) water intended for human consumption or (b) water that is required by an Act, regulation, order, municipal by-law or other document issued under the authority of an Act, (i) to be potable, or (ii) to meet or exceed the requirements of the prescribed drinking water quality standards.

Drinking water issue

An *issue* is a problem with the quality of the *source water* for a water treatment plant that could affect the normal operation and effectiveness of that system and/or harm the health of people who consume the treated water.

Drinking water system

A system of works that is established for the purpose of providing users of the system with drinking water. It includes, (a) anything used for the collection, production, treatment, storage, supply or distribution of water, (b) anything related to the management of residue from the treatment process or the management of the discharge of a substance into the natural environment from the treatment system, and (c) a well or intake that serves as the source or entry point of *raw water* supply for the system.

Drinking water threat

An activity or condition that adversely affects or has the potential to adversely affect the quality or quantity of any water that is or may be used as a source of drinking water, and includes an activity or condition that is prescribed by the regulations as drinking water *threat*.

A significant drinking water *threat* is a drinking water *threat* that, according to the *risk assessment*, poses or has potential to pose a significant risk.

A moderate drinking water *threat* that, according to a *risk assessment*, poses or has the potential to pose a moderate risk.

A low drinking water *threat* that, according to a *risk assessment*, poses or has the potential to pose a low risk.

Drumlin

Glacial till material that has been formed into oval hills with smooth convex contours. In any area the *drumlins* all point in the same direction which is considered to be the direction of movement of the glacier which formed them

Ecological

Relating to the totality or pattern relations between organisms and their environment.

Ecosystem

A natural community of plants and animals within a particular physical environment, which is linked by a flow of materials throughout the non-living (abiotic) as well as the living (biotic) section of the system.

Endangered

A wildlife or plant species facing imminent extinction.

Eskers

A knobby, crooked ridge of coarse gravel and sand deposited by meltwater in crevasses and tunnels near the front of a glacier.

Erosion

The wearing away of the land by the action of water, wind or *glacial* ice.

Escherichia coli (E. coli)

Bacteria found in human and animal waste. Their presence in water indicates fecal *contamination*.

Eutrophic

Characterized by the abundant accumulation of *nutrients* that support a dense growth of algae and other organisms, the decay of which depletes oxygen in shallow water in summer. Determined within the Interim Provincial Water Quality Objectives as total *phosphorus* concentrations being greater than or equal to 0.02 milligrams per litre. In accordance to the Canadian Water Quality Guidelines, *eutrophic* water bodies contain 0.035 to less than 0.1 milligrams per litre total *phosphorus*.

Evapotranspiration

A combination of the evaporation from *surface water* bodies/soil and the transpiration of water moisture from plants.

Exposure

The extent to which a *contaminant* or *pathogen* reaches a water resource. *Exposure*, like a drinking water *threat*, can be quantified based on the intensity, frequency, duration and scale. The degree of *exposure* will differ from that of a drinking water *threat* dependent on the nature of the pathway or barrier between the source (*threat*) and the target (receptor) and is largely dependent on the vulnerability of the resource.

Extreme Event

A period of heavy *precipitation* or whinds up to a 100 year storm even; a *freshet*; or a *surface water* body exceeding its high water mark. This may result from the one in 100 year storm, or more precisely, a one per cent probability wind condition.

Flocculation

Is a process where a solute comes out of solution in the form of floc or flakes. The action differs from *precipitation* in that the solute coming out of solution does so at a concentration generally below its solubility limit in the liquid.

Freshet

A sudden overflow of a stream resulting from a heavy rain or a spring thaw; a *freshet* can sometimes last several weeks on large *river* systems

Frontenac Axis

A large wedge of *Precambrian* rocks which separates the Palaeozoic rocks of the Lake Ontario Basin from those of the Ottawa and St. Lawrence Valleys. The axis lies just east of Kingston, in

Cataraqui Source Protection Area
Proposed Assessment Report
(July 2010)

the Thousand Islands, Gananoque areas. It is an ecoregion of the Mixedwood Plains. It also separates the *Canadian Shield* and the Lowlands.

Geology

The science of the composition, structure and history of the Earth. It thus includes the study of the material of which the Earth is made, the forces which act upon these materials and the resulting structures.

Glacial

Pertaining to glaciers.

Glacial drift

The loose and unsorted rock debris distributed by glaciers and *glacial* melt waters.

Glaciation

The covering of an area or the action on that area, by an ice sheet or by glaciers.

Glaciofluvial

Pertaining to *glacial* melt water *streams*.

Glaciolacustrine

Sediments deposited into lakes that have come from glaciers. These lakes include ice margin lakes or other types formed from *glacial erosion* or deposition.

Gneiss

A foliated rock with banded appearance formed by regional metamorphism.

Gradient

The rate or regular graded ascent or descent.

Granite

A medium- to coarse-grained, sialic, plutonic rock made predominantly of potassium feldspar and quartz.

Great Lakes connecting channels

The large *rivers* that connect the Great Lakes (St. Clair River, St. Lawrence River, Ottawa River).

Groundwater discharge

The function of the ground below the surface to accept subsurface water and hold it for release over long periods of time through an *aquifer*.

Groundwater recharge

The addition of water to a groundwater system by natural or artificial processes. In most cases, *recharge* is derived from the component of *precipitation* that infiltrates to the *water table* i.e. that component of *precipitation* that neither evapotranspires nor runs off as overland flow, or by *surface water* exfiltration.

Groundwater recharge area

The area where an *aquifer* is replenished from (a) natural processes, such as the *infiltration* of rainfall and snowmelt and the seepage of *surface water* from lakes, *streams* and *wetlands*. (b) from human interventions, such as the use of storm water management systems, and (c) whose *recharge* rate exceeds a threshold specified in the regulations. The Director's rules will specify the acceptable methodologies to determine *groundwater recharge* rates i.e. what qualifies as significant.

Groundwater under direct influence of surface water (GUDI)

A location in which water quality can be altered by the travel of pathogens and organic debris from nearby *surface water* to the groundwater. Groundwater characteristics such as turbidity, conductivity, pH and temperature can also change when surface water mixes with a groundwater source (well, spring, sinkhole).

Hardness

Water that contains more minerals than ordinary water; most commonly calcium and magnesium (although iron, manganese and aluminum can also contribute to water *hardness*). *Hardness* is not a drinking water health risk but may cause incrustations and increase soap consumption.

Hazard

In the context of this guidance, a *hazard* is equivalent to a *contaminant* and *pathogen threat*.

Hazard rating

The numeric value which represents the relative potential for a *contaminant of concern* to impact drinking water sources at concentrations significant enough to cause human illness. This numeric value is determined for each *contaminant of concern* in the *threat* assessment and *issues evaluation* within the *Assessment Report*.

Heavy water

Water containing a substantial proportion of deuterium atoms, used in nuclear reactors.

Highly vulnerable aquifer (HVA)

An *aquifer* that is or is likely to be significantly and adversely affected from external sources, and includes the land above the *aquifer*.

Hilsenhoff Biotic Index

A biomonitoring assessment of aquatic insects used to determine water quality and the degree of organic pollution within a watercourse. Some species are pollution tolerant while others are

Cataraqui Source Protection Area
Proposed Assessment Report
(July 2010)

extremely pollutant sensitive. The *Hilsenhoff Biotic Index* classifies tolerance values in a range of 0-10; where 10 indicates severe organic pollution/very poor water quality to 0 indicating excellent water quality/no apparent organic pollution.

Hydraulic conductivity

A variable expressing the ability of a geologic medium to transmit fluids with dimension of length per unit time.

Hydraulic gradient

The rate of change in total head per unit of distance in the direction of flow. The slope on a water surface such as the *water table* or potentiometric surface.

Hydrogeology

Hydrogeology is the study of the movement and interactions of groundwater in geological materials.

Hydrology

The study of the Earth's water, particularly of water on and under the ground before it reaches the ocean or before it evaporates into the air.

Igneous

Rock that solidified from magma.

Inland lake

An inland body of standing water, usually fresh water, larger than a pool or pond or a body of water filling a depression in the earth's surface.

Infiltration

The movement of water into soil pores or rock fissures from the ground surface by means of rainfall, snowmelt or irrigation.

Intake protection zone (IPZ)

The area of land and water that contributes *source water* to a *drinking water system* intake within a specified distance, period of flow time (for example, two hours), and/or *watershed* area.

Interbedded

Occurring between beds, or lying in a bed parallel to other beds of a different material.

Impact

Often considered the consequence or effect, the impact should be measurable and based on an agreed set of indicators. In the case of drinking water source protection, the parameters may be an acceptable list of standards which identify a maximum *raw water* levels of *contaminants* and *pathogens* of concern. In the case of water quantity, the levels may relate to a minimum annual flow, piezometric head or lake level.

Issue

See *drinking water issue*.

Kame

A small mound or ridge of layered *sediment* deposited by a stream that flows on top of, within, or beneath a glacier.

Karst

Terrain made up of porous, irregular limestone or dolomite in which erosion (through rock solubility) can produce fissures, sinkholes, underground streams, and caverns.

Land cover

The physical and biological cover on the land, including vegetation and anthropogenic features.

Liaison member

Are those individuals who fulfill the intent of Section 19 of Ontario Reg. 288/07 to act as a liaison between the Committee and other bodies.

Limestone

A *sedimentary rock* consisting chiefly of calcium carbonate.

LNAPLs

Light non-aqueous phase liquids which include all hydrocarbons, like oil and gas. Similar to *DNAPLs*, these liquids do not generally mix with water. LNAPLs are less dense than water and therefore will float on the surface of water (where *DNAPLs* will sink). LNAPL *contaminants* include benzene, toluene, ethylbenzene and xylenes.

Loam

Soil that contains a mixture of sand, clay, and silt and a generous amount of organic matter.

Local area

Specific area around a wellhead or *surface water* intake as determined through the Tier 2 analysis and within which a Tier 3 analysis is undertaken. This area must encompass a *drinking water system* and surrounding potential quantity *threats*.

Macroinvertebrates

Animals lacking a spinal column that are visible with the unaided eye.

March formation

A rock formation that consists of *interbedded sandstones* and *dolostones*, with boulder- and cobble-sized interclasts of quartzite where the unit is in contact with *Precambrian* rocks.

Marsh

Marshes are wet areas with standing or slowly moving water. They are characterized by emergent plants as well as anchored floating plants and submergents.

Member

Is the Chair and an Individual appointed by Cataraqui Source Protection Authority under Section 7(3) of the Ontario Clean Water Act, 2006.

Mesotrophic

Reservoirs and lakes which contain moderate quantities of *nutrients* and are moderately productive in terms of aquatic animal and plant life. Characterized through total *phosphorus* concentrations of 0.01 milligrams per litre to less than 0.02 milligrams per litre as expressed in the Interim Provincial Water Quality Objectives and the Canadian Water Quality Guidelines.

Metamorphic rock

A rock formed when *igneous*, sedimentary, or other *metamorphic rocks* re-crystallize in response to changes in temperature, pressure, chemical *conditions*, and/or deformation.

Meteoric water

Groundwater of recent atmospheric origin reaching the zone of saturation from above, either as rainfall or as seepage from surface-water bodies.

Model

An assembly of concepts in the form of mathematical equations or statistical terms that portrays a behavior of an object, process or natural phenomenon.

Model calibration

The process for generating information over the life cycle of the project that helps to determine whether a model and its analytical results are of a quality sufficient to serve as the basis of a decision.

Monitoring

Periodic evaluation of a site to determine success in achieving goals.

Moraine

A mound or ridge of *till* deposited directly by *glacial ice*

Municipal residential drinking water system

A *drinking water system* or part of a *drinking water system*, (a) that is owned by a municipality or by a municipal service board established under the Municipal Act, 2001 or a city board established under the City of Toronto Act, 2006, (b) that is owned by a corporation established under sections 9, 10 and 11 of the Municipal Act, 2001 in accordance with section 203 of that Act or under sections 7 and 8 of the City of Toronto Act, 2006 in accordance with sections 148 and 154 of that Act, (c) from which a municipality obtains or will obtain water under the terms

of a contract between the municipality and the owner of the system, or (d) that is in a prescribed class.

Nepean formation

A rock formation that consists of fine-to coarse-grained quartz *sandstone* of marine and terrestrial origin, indicating fluctuations of the sea level. The upper part of the formation contains dolomitic beds which are characteristic of marine transgression (increase in water level)

Non-agricultural source material

Any of the following materials, other than compost that meets the Compost Guidelines, or a commercial fertilizer, if the materials are intended to be applied to land as *nutrients*:

- pulp and paper biosolids
- sewage biosolids
- anaerobic digestion output, if less than 50 per cent, by volume, of the total amount of anaerobic digestion materials that were treated in the mixed anaerobic digestion facility were on-farm anaerobic digestion materials
- any other material that is not from an agricultural source and that is capable of being applied to land as a *nutrient*.

Nutrient

Something that nourishes and promotes growth. It is possible to have too many *nutrients* in an *ecosystem*, which can result in an unhealthy imbalance or overgrowth of certain species.

Oligotrophic

Refers to a body of water which is poor in dissolved *nutrients* and usually rich in dissolved oxygen. The Interim Provincial Water Quality Objectives determines *oligotrophic* waterbodies containing less than 0.01 milligrams per litre of total *phosphorus*. The Canadian Water Quality Guidelines for total *phosphorus* ranges between 0.004 milligrams per litre to less than 0.01 milligrams per litre.

Organic Solvents

Compounds that contain carbon atoms able to dissolve solids, gases and liquids. Examples include methyl alcohol, benzene, acetone and ether. Some organic solvents are flammable and pose a risk to human health. Depending on their physical properties, organic solvents can also be classified as dense non-aqueous phase liquids (DNAPLs).

Overburden

Any loose unconsolidated material which rests upon solid rock

Cataraqui Source Protection Area
Proposed Assessment Report
(July 2010)

Paleozoic

Of, belonging to, or designating the era of geologic time that includes the Cambrian, Ordovician, Silurian, Devonian, Mississippian, Pennsylvanian, and Permian periods and is characterized by the appearance of marine invertebrates, primitive fishes, land plants, and primitive reptiles.

Pathogen

A disease causing organism.

Peat

A loose, unconsolidated, brownish mass of partially decayed plant matter; a precursor to coal

Permeability

The degree to which soils and rock are interconnected, depends upon size and shape of pores; size and shape of interconnections and their extent.

Permit to Take Water (PTTW)

A normal permit issued by the Ontario Ministry of the Environment under section 34 of the Ontario Water Resources Act (R.R.O. 1990) to provide permission for an individual or company to take more than 50,000 litres of water in one day.

Pesticide

Any organism, substance or thing that is manufactured, represented, sold or used as a means of directly or indirectly controlling, preventing, destroying, mitigating, attracting or repelling any pest or of altering the growth, development or characteristics of any plant life that is not a pest and includes any organism, substance or thing registered under the Pest Control Products Act (Canada).

pH

The pH is the measure of acidity or basicity of a solution. It is measured on a scale running up from 1 to 14. The pH shows whether a substance is acid (pH 1-6), neutral (pH 7) or basic (pH 8-14). The number of hydrogen atoms in the substance determines the pH. The more hydrogen atoms a substance contains, the lower the pH will be. A substance that contains many hydrogen atoms is acid.

Phosphorus

A non-toxic pollutant that is an essential *nutrient*. In excessive amounts it leads to *eutrophication* of a water system. *Phosphorus* accumulates along the entire length of a *river* or lake from a variety of point and non-point sources.

Physiography

The study or description of landforms.

Porosity

Volume of voids per given volume of rock.

Cataraqui Source Protection Area
Proposed Assessment Report
(July 2010)

Precambrian

Of or belonging to the geologic time period between Hadean Time and the Cambrian Period, often subdivided into the Archean and Proterozoic eras, comprising most of the earth's history and marked by the appearance of primitive forms of life.

Precipitation

The deposits of water in either liquid or solid form which reach the Earth from the atmosphere. It includes rain, sleet, snow and hail.

Project Manager

An individual hired by the Cataraqui Region Conservation Authority to lead efforts by Conservation Authority staff in support of the work of the Authority and the Committee.

Raw water

Water that is in a drinking-water system or in plumbing that has not been treated in accordance with, (a) the prescribed standards and requirements that apply to the system, or (b) such additional treatment requirements that are imposed by the license or approval for the system.

Recharge

Recharge is the process by which water moves from the ground surface, through the unsaturated zone, to arrive at the *water table*.

Recharge area

An area where water enters a saturated zone at the *water table* surface.

Return period

is an estimate of the interval of time between events like an earthquake, flood or *river* discharge flow of a certain intensity or size. It is a statistical measurement denoting the average recurrence interval over an extended period of time.

Restoration

Changing existing function and structure of *wetland* habitat so that it is similar to historical conditions.

Risk

The likelihood of a drinking water *threat* causing a drinking water source to become impaired, unusable or unsustainable, or compromising the effectiveness of a drinking water treatment process, resulting in the potential adverse human health effects.

Risk assessment

An assessment of *risks* prepared in accordance with the regulations and the rules.

Cataraqui Source Protection Area
Proposed Assessment Report
(July 2010)

River

Includes a creek, stream, brook and any similar watercourse but does not include a *connecting channel*.

Rules

Are the rules made by the Director under section 107.

Runoff

Water that moves over land rather than being absorbed into the ground. *Runoff* is greatest after heavy rains or snowmelts, and can pick up and transport *contaminants* from landfills, farms, sewers, industry and other sources.

Sandstone

Clastic *sedimentary rock* comprised primarily of lithified sand.

Scale

A graduated series or scheme of rank or order.

Sediment

Material deposited by water, wind or glaciers.

Sedimentary rock

Rock formed of mechanical, chemical or organic *sediment* such as rock formed from *sediment* transported from elsewhere, by chemical *precipitation* from solution or from inorganic remains of living organisms.

Shadow Lake formation

This rock formation is comprised of deeply weathered red, black, and green *shales* and arkose. Thin (up to 0.45 m) beds of black *shale*, a maximum of six metres grey *sandstone* and up to 12 m this beds of arkose occur.

Shale

A fine-grained clastic *sedimentary rock* with finely layered structure composed predominantly of clay minerals.

Significant groundwater recharge area (SGRA)

An area in which there is a volume of water moving from the surface into the ground and groundwater serves either as *source water* or the water that supplies a coldwater *ecosystem* such as a brook trout stream.

Slope

Ground that forms a natural or artificial incline.

Special concern

A wildlife species that may become a *threatened* or an *endangered* species because of a combination of biological characteristics and identified *threats*.

Source protection

A program of education, stewardship, planning, infrastructure, and regulation *activities* that together serve to help prevent the *contamination* or overuse of *source water*.

Source protection area

Those lands and waters that have been defined under Ontario Regulation 284/07 as the “study area” for an *assessment report* and a *source protection plan* under the Ontario Clean Water Act, 2006.

Source protection authority

A conservation authority or other person or body that is required to exercise powers and duties under the Ontario Clean Water Act, 2006.

Source protection committee

A group of individuals who have been appointed under the Ontario Clean Water Act, 2006 by a source protection authority to coordinate source protection *activities* for a source protection area.

Source protection plan

A document that is prepared by a source protection committee under Section 22 of the Ontario Clean Water Act, 2006 to direct source protection *activities* in a source protection area. Each plan is approved by the Ontario Ministry of the Environment.

Source protection region

Two or more source protection areas that have been grouped together under Ontario Regulation 284/07.

Source water

Untreated water that is found in groundwater *aquifers* and *surface water* lakes and *rivers* that is used to supply a *drinking water system*.

Static water level

The level of water in a well that is not affected by pumping.

Stream

A body of running water flowing on the surface of the Earth.

Subwatershed

Topographic perimeter of the catchment area of a stream tributary.

Surface water

Water that is present on the earth's surface and may occur as *rivers*, lakes, *wetlands*, ponds, etc.

Surficial geology

Deals with the study and description of the forms on the outer layer of the Earth.

Swamp

Wooded *wetlands* with 25 per cent cover or more of trees or tall shrubs.

Tables of Drinking Water Threats

An Ontario Ministry of the Environment publication of that name from 2009 (as amended).

Terms of reference (ToR)

The work plan and budget for development of the *source protection plan* that is subject to public comment and approval by the Ontario Minister of the Environment.

Terrane

A series of related rock formations. A crustal block or fragment that preserves a distinctive geologic history that is different from the surrounding areas and that is usually bounded by faults.

Threat

See *drinking water threat*.

Threatened

A wildlife species likely to become *endangered* if limiting factors are not reversed

Till

Sediment deposited directly by *glacial* ice and that has not been re-sorted by a stream

Time of travel

An estimate of the time required for a particle in the water to move from a specific point into a well or intake.

Tolerance of a Water Supply System

A measure of the ability to sustain required pumping levels even during exposure events.

Topography

A detailed description or representation of the features, both natural and artificial, or an area. Also the physical and natural features of an area, and their structural relationships.

Tracking drogue

Something attached to a body to create friction and slow it down, especially something towed behind a boat to gather data from the path in which the boat travels.

Transmissivity

The property of an *aquifer* which defines the rate at which water moves through it.

Transport pathways

These are natural or human-made routes where water can flow (e.g. sewer discharge pipes, drainage ditches, utility trenches, and transportation crossings, small tributary channels, fractured rock, and sand lenses) on its way to a drinking water intake or well.

Trihalomethanes

One of a family of organic compounds, including chloroform that forms as a by-product of chlorination of drinking water that contains organic material. *Trihalomethanes* are thought to be carcinogenic.

Tritium

A radioactive isotope of hydrogen; atoms of *tritium* have three times the mass of ordinary hydrogen atoms.

Turbidity

Turbidity is a measure of water clarity. *Turbidity* is measured by quantifying the degree to which light traveling through a water column is scattered by the suspended particles. The more total suspended solids in the water, the murkier it seems and the higher the *turbidity*. *Turbidity* is expressed in nephelometric *turbidity* units (NTU). The aesthetic limit for drinking water is no more than 5 NTU, and should ideally be below 1 NTU. High *turbidity* can interfere with disinfection processes.

UNESCO Biosphere Reserve

As defined by the United Nations Educational, Scientific and Cultural Organization (UNESCO), is an area that has important natural and *ecological* values and is a place where people live, work, and enjoy a variety of economic and recreational *activities* based on respect for the environment. The concept of a biosphere reserve is that local committees of representatives from key sectors such as agriculture, tourism, business, conservation, and education, work together to develop projects that link conservation with economic development in their region. The committees are voluntary and community-based, not connected to governmental or regulatory authorities

Verulam formation

Is a rock formation estimated by Liberty (1971) to be about 105 metres. It is characterized by alternating bands of *limestone* “hardbands” and *shale*. The *limestone* “hardbands” range from 8 to 23 cm in thickness, and are a very even, fine and medium crystalline texture, fossiliferous *limestone*. The alternating *shale* is typically a weathered calcareous claystone. In the middle of the formation, bluish *weathering*, dark grey and blue, sublithographic, fossiliferous *limestone* may dominate. Soft argillaceous, brown *limestone* comprises the lowest member; this unit is fossiliferous.

Vulnerable area

(a) a significant groundwater recharge area, (b) a highly vulnerable aquifer, (c) a surface water intake protection zone, or (d) a wellhead protection area.

Water budget

A description and analysis of the overall movement of water within each *watershed* in the source protection area taking into consideration *surface water* and groundwater features, *land cover* (example: proportion of urban versus rural uses), human-made structures (example: dams, channel diversions, water crossings), and water takings.

Water control structure

A structure designed to hold back water at a planned level by directing, limiting, reducing or containing the flow of *surface water*.

Water quantity risk

The likelihood that the *threats* to water quantity may render an existing or planned drinking water source impaired, unusable or unsustainable.

Watershed

An area of land from which surface *runoff*, including water, *sediments*, *nutrients* and *contaminants*, drains into a common water body, such as a lake, *river*, stream, creek or estuary.

Watershed characterization report

A general description of the *watersheds*, communities, *source water*, *drinking water systems*, patterns of water use, and drinking water problems within a given source protection area.

Water table

The elevation of the water in an unconfined *aquifer* where the groundwater pressure is equal to atmospheric pressure. It is indicated by the level at which water stands in a well.

Weathering

The disintegration of the Earth crust by exposure to the atmosphere, most importantly, rain.

Well capture zone

The area in the *aquifer* that will contribute water to a well in a certain time period. Often measured in days and years. Area at the ground surface is also included if the time period chosen is longer than the travel time for water in the *aquifer* and the *groundwater recharge area* is incorporated.

Wellhead protection area (WHPA)

An area of land surrounding a well, where human *activities* may need to be regulated to protect the quality and quantity of ground water that supplies that well.

**Cataraqui Source Protection Area
Proposed Assessment Report
(July 2010)**

Well yield

The maximum amount of water that can be withdrawn from a water supply well. This value is typically based on a six hour to 72 hour *aquifer*/pumping test, extrapolated to determine long term drawdown.

Wetlands

Land such as a *swamp*, *marsh*, bog or fen that is seasonally or permanently covered by shallow water or has the *water table* close to or at the surface, and that has hydric soils and vegetation dominated by water-tolerant plants.

Working group

A set of individuals who have been asked to conduct research or develop recommendations about a particular theme, topic, or geographic area.