

Glossary

Algae: Simple single-celled or multicellular, primarily aquatic plants that usually contain chlorophyll, but lack roots, stems, and leaves.

Alkaline: Refers to water with high dissolved carbonate and bicarbonate concentrations, usually derived from the natural weathering of calcite-rich (limestone and dolomite) bedrock, surficial deposits, and soils within a watershed.

Anoxia: The absence of oxygen.

Aphotic Zone: The deep unlit layer in the lake. Also known as the Profundal Zone.

Aquatic Ecosystem: An aquatic area where living and non-living elements of the environment interact, including, but not limited to rivers, lakes, wetlands, and the variety of plants and animals associated with them. (Source: the Alberta government's *Water for Life* program).

Aquatic Environment: The components of the earth related to living in or located in or on water, or the beds or shores of a water body, including, but not limited to:

- a. All organic or inorganic matter, and
- b. Living organisms and their habitat including fish habitat and their interacting natural systems. (Source: Alberta *Water Act*).

Bank: The legal boundary of a water body or watercourse as defined by Section 17 of the *Surveys Act* (Alberta). The term is synonymous with the meaning of the "ordinary high-water mark." The bank separates the shore and bed of a lake from "terrestrial" land. The location of the bank is not affected by drought or flooding.

Bed and Shore: The land covered so long by water as to wrest it from vegetation or as to mark a distinct character on the vegetation where it extends into the water or on the soil. The bed and shore lies below the ordinary high-water mark or bank, and may or may not be covered by water. (Source: the Alberta *Surveys Act*). The **bed** is the land upon which the water sits. The **shore** is that part of the lake below the bank, but above the present water level. It is the part of the lakebed that is exposed when water levels are low. The bed and shore of the lake are public lands that are owned by the Crown.

Benthic Zone: The bottom sediment of a lake.

Benthos: The bottom of the lake, and the organisms living on the bottom of the lake.

Bloom: The mass reproduction or accumulation of cyanobacteria and/or algae to the surface of a water body.

Chemical Algaecide: The chemical compounds used to either suppress the growth, or kill off algae and cyanobacteria in aquatic environments, similar to herbicides used in terrestrial environments to kill weeds.

Chlorophyll: The green pigment of plants (and cyanobacteria) necessary for photosynthesis.

Cultural Eutrophication: The accelerated transition and change to the natural ecosystem of a lake caused by human activities.

Cumulative Impact: The environmental impacts of a proposed action in combination with the impacts of other past, existing, and proposed actions. Each increment from each action may not be noticeable, but cumulative impacts may be noticeable when all increments are considered together.

Cyanobacteria: A group or category of "true" bacteria that possess plant or algae-like characteristics (i.e., have chlorophyll-*a* pigment for photosynthesis).

Deleterious Substance: In part, "any substance that, if added to any water, would degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it

is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man or fish that frequent that water.” (Source: Section 34(1) of the federal *Fisheries Act*).

Detritus: Fine particulate material suspended in the water. Organic detritus comes from the decomposition of the broken down remains of organisms. Inorganic detritus includes settleable mineral materials.

Dissolved Oxygen: Oxygen that exists in a liquid state as opposed to gaseous form. It is required by most living aquatic organisms for life.

Dock: Any pier, wharf or other structure constructed or maintained in a water body, whether floating or not, used for the purposes of mooring watercraft.

Epilimnion: The turbulent superficial (upper) layer of a lake lying above the metalimnion, which does not have a permanent thermal stratification. This layer has at least some light penetration, and is where the majority of productivity or biological growth occurs.

Eutrophic: Waters with a good supply of nutrients and thus a rich organic production.

Eutrophication: The natural gradual aging process of lakes, and the process by which lakes become more biologically productive. Human activities can accelerate the rate of eutrophication of a lake.

Fish: Parts of a fish and the eggs, sperm, spawn, larvae, spat and juvenile stages of fish, shellfish, crustaceans and marine mammals. (Source: Section 2 of the federal *Fisheries Act*).

Fish Habitat: The “spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes.” (Source: Section 34(1) federal *Fisheries Act*).

Floodplain: The land adjacent to any body of water that is subject to flooding. The extent of the floodplain is defined by the one in 100 year flood event, and includes the land that has a one per cent chance of being flooded in any given year. (Source: *Guidebook to Water Management*).

Flotsam: Detritus and other organic debris that floats on the surface of a water body.

Groundwater: All water under the surface of the ground, whether in liquid or solid state.

Harmful Alteration, Disruption or Destruction (HADD): Any change in one or more fish habitat component that causes a reduction in the capacity of the habitat to support the life requirements of fish. (Source: Department of Fisheries and Oceans).

Hypereutrophic: Waters with very high nutrient levels, and thus very high amount of organic production. These lakes can have water that is green with algae during most of the summer.

Hypolimnion: The deep layer of water in a lake lying below the metalimnion (thermocline) and removed from surface influences.

Impervious Surfaces: Land surfaces such as roads, parking lots, buildings, etc., that prevent rainwater from soaking into the soil. Stormwater moves over impervious surfaces with greater velocity than it does over pervious surfaces.

Inorganic Nutrients: Nutrients composed of mineral rather than carbon origin.

Lake: A body of standing water entirely surrounded by land with no sustained directional flow detectable to the naked eye.

Lake Stewardship: An attitude that recognizes the vulnerability of lakes and the need for citizens, both individually and collectively, to take action and assume responsibility for the care of those lakes.

Limnetic Zone: The well mixed surface water layer beyond the influence of the shoreline. Also known as the Pelagic Zone.

Littoral Drift: The sedimentary material that is transported in the water along the shoreline by waves and current.

Littoral Transport: Eroded material carried by near-shore currents in the downwind direction along the shore and re-deposited.

Littoral Zone: The shallow area near the shore of a body of water. It includes that portion of a body of water extending from the shoreline lake ward, to the limit of occupancy of rooted aquatic plants.

Macrophytes: Large plants. In a water body they include the large floating, emergent, or submerged plants often referred to as “weeds,” including cattail, reed grass, bulrush, duckweed, water lily, coontail, water buttercup, and common pondweed.

Mesotrophic: Waters with a moderate supply of nutrients, and thus a moderate amount of organic production.

Oligotrophic: Waters with a small supply of nutrients and hence, a low amount of organic production.

Ordinary High Water Mark (OHWM): The legal boundary of a water body or watercourse as defined by Section 17 of the *Surveys Act* (Alberta). The term is synonymous with the meaning of “bank.”

Pier: A platform extending from a shore over water and supported by piles or pillars, used to secure, protect, and provide access to ships or boats.

Phosphorus (Dissolved): Phosphorus-containing substances existing in a liquid state.

Phosphorus (Particulate): Phosphorus-containing substances existing in a solid state.

Photic Zone: The layer of lake water from the surface down to the depth where light levels become too low for photosynthesis to occur. Also known as the Euphotic Zone.

Photosynthesis: The creation of organic matter (carbohydrates) from carbon dioxide and water, with the aid of the energy of light (generally from the sun).

Phytoplankton: Microscopic floating plants, mainly algae, that live suspended in bodies of water and that drift with the current. The plant portion of the plankton.

Private Sewage: Human excreta, and the water-carried waste from drinking, bathing, laundering, and food preparation.

Profundal Zone: The deep region of a body of water below the light-controlled limit of plant growth.

Resident Time: The average time required to completely replace the total volume of water within a lake.

Riparian Vegetation: All plants including natural grasses, shrubs, and trees that border or surround surface waters.

Secchi Disk: A disk with a four to six inch radius that is divided into four quadrates of alternating black and white colour. It is lowered into the lake in shaded water until it can no longer be seen, and then lifted back up to the surface until it can again be seen. The Secchi disk is a measuring device to determine the depth of light penetration in water.

Sedimentation: The addition of soils and organic material to lakes, a part of the natural aging process of a lake that makes the water shallower. Human activities can accelerate this process.

Shorelands: The area of land 1000 feet from the ordinary high water mark.
(Source: Minnesota Extension Service: *Protecting Minnesota waters*).

Spring Turnover: In spring, as the ice melts, the surface waters in a lake become warmer and sink and the temperature and density of the water becomes similar from top to bottom. This allows surface water to mix with bottom water, recharging bottom water with oxygen and circulating nutrients to the surface.

Stewardship: The responsible use of a resource.

Stormwater Runoff: Rainfall and snowmelt that accumulates during storm events and drains overland to a receiving water body.

Surface Water: Water in a watercourse.

Thermocline: Also known as the metalimnion. The layer of water in a lake between the epilimnion and hypolimnion in which the temperature exhibits the greatest difference in a vertical direction. Characterized by a narrow band of rapidly declining temperature and rapidly increasing density in the water strata. This band is colder than the surface waters and warmer than the bottom waters, preventing mixing between the upper and lower strata.

Trophic Status: The level of nourishment, or degree of fertility (plant, algae and cyanobacteria production), within a water body. It is the extent to which a water body can support plant, algae, and cyanobacterial growth.

Watercourse: Is (a) the bed and shore of a river, stream, lake, reek, lagoon, swamp, marsh, or other natural body of water, or (b) a canal, ditch, reservoir, or other man-made surface feature, whether it contains or conveys water continuously or intermittently.

Watershed: The surrounding land area that drains into a lake, river, or river system.

Wharf: A structure extending along the shore of a navigable water body, generally connected to the adjoining upland throughout its length, built or maintained for the purpose of providing a berth for water craft, or for loading or unloading passengers onto, or from a water craft.

Winterkill: The death of large numbers of fish that can occur when the dissolved oxygen in the lake is depleted.

Zooplankton: Microscopic animals in the water. The animal portion of the plankton.