

ACRONYM LIST

AWQMA – Agricultural Water Quality Management Area
BLM – Bureau of Land Management
BMP – Best Management Practice
BOF – Board of Forestry
BTU – British Thermal Unit
°C – Degrees Celsius
CAFO – Confined Animal Feeding Operation
CBOD – Carbonaceous Biochemical Oxygen Demand
CC – Canopy Cover
CFR - Code of Federal Regulations
cfs - cubic feet per second
CWA - Clean Water Act
d/s - downstream
DEM - Digital Elevation Model
DH – Distance from Headwaters
DMA – Designated Management Agency
DO – Dissolved Oxygen
DOQ - Digital Orthophoto Quad
ESU – Evolutionarily Significant Unit
EMC – Event Mean Concentration
EQC – Environmental Quality Commission
°F – Degrees Fahrenheit
FPA – Forest Practices Act
HUA – Human Use Allowance
HUC - Hydrologic Unit Code
INFISH – Inland Native Fish Strategy
LA - Load Allocation
LC - Loading Capacity
MOA – Memorandum of Agreement
MOS – Margin of Safety
MOU – Memorandum of Understanding
NBOD – Nitrogenous Biochemical Oxygen Demand
NPDES – National Pollutant Discharge Elimination System
NTP – Natural Thermal Potential
OAR - Oregon Administrative Rules

ODA - Oregon Department of Agriculture
ODEQ - Oregon Department of Environmental Quality
ODF - Oregon Department of Forestry
ODFW - Oregon Department of Fish and Wildlife
ODOT – Oregon Department of Transportation
OSU – Oregon State University
OWRD - Oregon Water Resources Department
RM - River Mile
SE - Standard Error
SOD – Sediment Oxygen Demand
STP – Sewage Treatment Plant
TIR – Thermal Infra-red Radiometry
TKN – Total Kjeldahl Nitrogen
TMDL - Total Maximum Daily Load
UNR – University of Nevada Reno
u/s – upstream
USACE – United States Army Corps of Engineers
USEPA – United States Environmental Protection Agency
USGS - United States Geological Survey
USFWS – United States Fish & Wildlife Service
W:D - Width to Depth (ratio)
WPCF – Water Pollution Control Facilities
WQ – Water Quality
WQMP – Water Quality Management Plan
WQRP – Water Quality Restoration Plan

GLOSSARY OF TERMS

Abscissa – The coordinate representing the distanced of a point from the *y*-axis in a plane Cartesian coordinate system, measured along a line parallel to the *x*-axis.

Advection – Flowing open channels transport suspended/dissolved substances and heat. The rate of transportation of substances and heat in the water column is called advection. It is a function of stream gradient, channel dimensions and channel roughness.

Ambient Stream Temperature – Means the stream temperature measured at a specific time and place, and is representative of the stream in the vicinity of the point being measured.

Anthropogenic – When used to describe “sources” or “warming”, means that which results from human activity.

Applicable Criteria – Means the biologically based temperature criteria set out in OAR 340-041-0028(4), the superseding cold water protection as described in OAR 340-041-0028(12), or the superseding natural condition criteria as described in OAR 340-041-0028(8). In addition, the applicable criteria may be site-specific criteria approved by USEPA. A subbasin may have a combination of applicable temperature criteria derived from some or all of these numeric and narrative criteria.

Average Deviation – The absolute average between deviations of known *x*'s and known *y*'s.

Background – All non-anthropogenic sources of pollutants. In cases DEQ is unable to distinguish background and anthropogenic sources of pollutants, the pollutants are considered as background in the analysis.

Background Sources – Includes all sources of pollution or pollutants not originating from human activities. In the context of a TMDL, background sources may also include anthropogenic sources of a pollutant that the Department of another Oregon state agency does not have authority to regulate, such as pollutants emanating from another state, tribal lands or sources otherwise beyond the jurisdiction of the state.

Background Solar Heat Load – An estimate of the solar heat load under potential land cover and channel morphology conditions. This condition implies no anthropogenic warming from nonpoint sources.

Basin – A third field hydrologic unit as identified by the U.S. Geological Survey.

Biologically-Based Numeric Criteria – Unless superseded by the natural conditions criteria or adopted site-specific criteria, it is the temperature criteria for Oregon State waters supporting salmonid fishes.

Calibration – Simulation models are often refined by adjusting parameters and input data to increase model performance.

Canopy Cover/Density – The percentage of the area vegetation canopy/cover relative to a specific area; commonly measured on the ground with a densiometer or with aerial photos in plan view.

Channel Morphology – The structure, form and evolution of stream channels.

Cold Water Refugia – Those portions of a water body where, or times during the diel temperature cycle when, the water temperature is at least 2 degrees Celsius colder than the daily maximum temperature of the adjacent well mixed flow of the water body.

Core Cold Water Habitat – Biologically based numeric criteria for streams in which seven-day-average maximum temperatures may not exceed 16.0 degrees Celsius (60.8 degrees Fahrenheit).

Continuous Data – Data that is collected at consistent intervals over a specified time period.

Correlation Coefficient – R-Squared Value - The Pearson product moment calculated for two data sets. The r-squared value can be interpreted as the proportion of the variance in *y* attributable to the variance in *x*.

Critical Condition – The seasonal period of maximum stream temperatures and lowest stream flows.

Critical Habitat – Those areas that support rare, threatened or endangered species, or serve as sensitive spawning and rearing areas for aquatic life as designated by the U.S. Fish and Wildlife Service or NOAA Fisheries pursuant to the Endangered Species Act (16 USC 1531).

Designated Management Agency (DMA) – Means a federal, state or local governmental agency that has legal authority over a sector or source contributing pollutants, and is identified as such by the Department of Environmental Quality in a TMDL.

Designated Beneficial Use – The purpose or benefit to be derived from a water body as designated by the Water Resources Department or the Environmental Quality Commission.

Diel – Occurring on a 24-hour cycle.

Director – Means the Director of the Department of Environmental Quality or the Director's authorized designee.

Dispersion - Diffusion in flowing open channels occurs at a high rate due to turbulent mixing. Water flows are turbulent because cross-sectional flow velocities are variable, with slower velocities near the channel boundaries caused by friction. Dispersion refers to turbulent diffusion and is often much greater than molecular diffusion.

Effective Shade – The percentage of direct beam solar radiation attenuated and scattered before reaching the ground or stream surface. Commonly measured with a Solar Pathfinder.

Effluent - A discharge of liquid waste.

Emissivity –The ratio of the actual emitted radiance to that of an ideal blackbody. Emissivity ranges from 0 to 1 (where 1 would be a blackbody) and is a term in the Steffan-Boltzmann Law for black body thermal radiation.

Gage Data – Flow volume information collected at a fixed location over long time periods.

Geographic Information Systems (GIS) – A computer system designed to view, sample and create spatial data sets.

Ground Level Data - Data collected where staff visited a site.

Heat - Energy associated with the random motion of molecules.

Heat Flux – Rate of heat transfer per unit surface area.

Heat Load – In the context of a TMDL, the amount of heat energy that is transferred to a waterbody.

Heat Source – A stream temperature computer model that is utilized by ODEQ.

Heat Transfer - Processes that change the heat of a body, which can occur through direct contact, radiation, evaporation and other related processes.

Human Use Allowance (HUA) – Insignificant additions of heat that are authorized in waters that exceed the applicable temperature criteria.

Hydrologic Unit - A USGS classification of drainage areas: watershed (5th Field), subbasin (4th Field) and basin (3rd Field).

Hydrologic Unit Code – Means a multi-scale numeric code used by the U.S. Geological Survey to classify major areas of surface drainage in the United States. The code includes fields for geographic regions, geographic subregions, major river basins and subbasins. The third field of the code generally corresponds to the major river basins named in OAR chapter 340, division 41. The fourth field generally corresponds to the subbasins typically addressed in TMDLs.

Hydrology - The scientific study of the water of the earth, its occurrence, circulation and distribution, its chemical and physical properties, and its interaction with its environment, including its relationship to living things.

Hyporheic Zone – The saturated sediments and interstitial spaces beneath streams, receiving water from both above and below ground.

Load Allocation (LA) – The portion of pollutants allowed in a total maximum daily load for anthropogenic and background nonpoint sources.

Loading Capacity – The greatest amount of loading that a water body can receive without violating water quality standards.

Longitudinal Direction – Parallel to the stream flow direction.

Management Strategies – Means measures to control the addition of pollutants to waters of the state and includes application of pollutant control practices, technologies, processes, siting criteria, operating methods, best management practices or other alternatives.

Mass Transfer – Processes that change the mass of a body. In open channel systems it can occur through advection, dispersion and mixing with surface and subsurface waters.

Migration Corridors – Biologically based numeric criteria for waters that are predominantly used for salmon and steelhead migration during the summer, and where there is little or no anadromous salmonid rearing occurring in the months of July and August. Migration corridors may not exceed seven-day-average maximum temperatures of 20.0 degrees Celsius (68.0 degrees Fahrenheit) and provide sufficiently distributed cold water refugia.

Natural Conditions – Conditions or circumstances affecting the physical, chemical, or biological integrity of a water of the State that are not influenced by past or present anthropogenic activities. Disturbances from wildfire, floods, earthquakes, volcanic or geothermal activities, wind, insect infestation, diseased vegetation are considered natural conditions.

Natural Conditions Criteria – The temperature criteria when the department determines that the natural thermal potential of all or apportion of a water body exceeds (is warmer then) the biologically-based criteria for a water body.

Natural Thermal Potential – The determination of the thermal profile of a water body using best available methods of analysis and the best available information on the site potential riparian vegetation, stream geomorphology, stream flows and other measures to reflect natural conditions.

NPDES – National Pollutant Discharge Elimination System established by the Clean Water Act.

Near Stream Land Cover – Vegetation or other physical structures occur in the near stream area.

Nonpoint Sources – Any source of water pollution other than a point source. Generally, a nonpoint source is a diffuse or unconfined source of pollution where wastes can either enter into, or be conveyed by the movement of water, to waters of the State.

Nonpoint Source Solar Heat Load – Derived by subtracting the nonpoint source solar heat load from the total solar heat load.

Performance Monitoring – Monitoring implementation of management strategies, including sector-specific and source-specific implementation plans, and resulting water quality changes.

Point of Maximum Impact – The location on a waterbody at which the greatest increase in temperature caused by human sources and activities occurs.

Point Sources – A discernable, confined and discrete conveyance, including but not limited to a pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel, or other floating craft or leachate collection system, from which pollutants are or may be discharged.

Pollutant – As provided in the Federal Water Pollution Control Act, Section 502 (33 USC Section 1362). Dredged soil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharge into water.

Pollution – Contamination or other alteration of the physical, chemical, or biological properties of any waters of the State, including change in temperature, taste, color, turbidity, silt, or odor of the waters, or such radioactive or other substance into any waters of the State which by itself or in connection with any other substance present, will or can reasonably be expected to create a public nuisance or render such waters harmful, detrimental, or injurious to public health, safety, or welfare, or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses or to livestock, wildlife, fish or other aquatic life, or the habitat thereof.

Potential Daily Solar Load – The solar heat load that would be received without attenuation or scattering from land cover (i.e. in the absence of stream surface shade).

Reasonable Assurance – A demonstration that a TMDL will be implemented by federal, state or local governments or individuals through regulatory or voluntary actions including management strategies or other controls.

Remotely Sensed Data - Data collected from an aerial or satellite based platform.

Reserve Capacity – The portion of a receiving stream's loading capacity which has not been allocated to point sources or nonpoint sources and natural background as waste load allocations or load allocations, respectively.

Rosgen Stream Type – Stream groupings that are based on basic channel and valley measurements.

Salmon – Means Chinook, chum, coho, sockeye and pink salmon.

Salmon and Steelhead Spawning - Biologically based numeric criteria for streams in which seven-day-average maximum temperatures may not exceed 13.0 degrees Celsius (55.4 degrees Fahrenheit).

Salmon and Trout Rearing and Migration - Biologically based numeric criteria for streams in which seven-day-average maximum temperatures may not exceed 18.0 degrees Celsius (64.4 degrees Fahrenheit).

Salmonid or Salmonids – Means native salmon, trout, mountain whitefish and char (including bull trout). For purposes of Oregon water quality standards, salmonid does not include brook or brown trout since they are introduced species.

Sample Size (n) – The number of discrete measurements or simulated values.

Sector – A category or group of similar nonpoint source activities such as forestry, agriculture, recreation, urban development or mining.

Sector-Specific Implementation Plan or Source-Specific Implementation Plan – In the context of a TMDL means a plan for implementing a Water Quality Management Plan for a specific sector or source not subject to permit requirements in ORS 486.050.

Seven-Day Average Maximum Temperature (7DADM) – A calculation of the average of the daily maximum temperatures from seven consecutive days; made on a centered rolling basis.

Shade Curve – Effective shade for a particular land cover type, latitude and time period for varying channel width values.

Simulation Scenario – Running a simulation while changing the values of one or more of the input parameters, such as land cover or channel width.

Solar Altitude – The vertical angle of the sun during daytime

Solar Azimuth – The horizontal angle of the sun during daytime

Solar Heat Flux – Rate of heating per unit area from solar radiation. For the purposes of this analysis, the solar heat flux is the rate of heat delivery to the stream water column accounting for topographic shading, atmospheric and land cover attenuation and scattering, surface reflection, and stream transmissivity.

Solar Heat Load – Heat derived from solar radiation per day in a given stream segment. For the purposes of this analysis, the solar heat load is the heat delivered to the stream water column.

Solar Radiation – Radiant heat derived from the sun.

Solar Zenith - For any given day, the angle at which the sun is at the highest position in the sky.

Source – Any process, practice, activity or resulting condition that causes or may cause pollution or the introduction of pollutants into a waterbody.

Standard Error – A measure of the amount of error in the prediction of a value for an individual known value

Subbasin – A region drained by a fourth field hydrologic unit (river system) as identified by the U.S. Geological Survey.

Summer – Means June 1 through September 30 of each calendar year.

Surrogate Measures – Means substitute methods or parameters used in a TMDL to represent pollutants.

System Potential – Model parameters that represent near stream vegetation that can grow and reproduce on a site given plant biology, site elevation, soil characteristics, local climate, channel morphology, and stream flow.

Thermal Infrared Radiometry (TIR) – The collection of radiation data used in this analysis to quantify the temperature of streams and the surrounding environment.

Thermodynamic – The physics that relate to the processes of heat transfer and mechanical processes associated with heat.

Total Maximum Daily Load – A written quantitative plan and analysis for attaining and maintaining water quality standards and includes the elements described in OAR 340-042-0040. These elements include a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet state water quality standards, allocations, of portions of that amount to the pollutant sources or sectors, and a Water Quality Management Plan to achieve water quality standards.

Total Solar Heat Load – Total daily heat delivery to the stream in the current condition.

Transverse Direction – Perpendicular to the stream flow direction.

TTools – A GIS sampling tool developed and maintained by ODEQ used to build input data sets for channel morphology, land cover and TIR.

Unit Volume – A standardized volume measurement.

Validation – Statistical quantification of simulation model performance.

Waste Load Allocation - The portion of pollutants allowed in a total maximum daily loads for a point source.

Waterbody –Any surface waters of the state.

Water Quality Management Plan (WQMP) – The element of a TMDL describing strategies to achieve allocations identified in the TMDL to attain water quality standards. The elements of a WQMP are described in OAR 340-041-0042(4)(l).