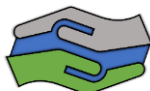


Basic information

Cost for 1 data card → 1 Resource

Conductivity	Gives information about the amount of dissociated ionized molecules in the water. High conductivity may indicate bad water quality due to high input from ionized molecules.
Dissolved organic carbon (DOC)	Mixture of organic compounds; result of decomposition; sources include detritus and primary producers from within or from outside the river.
Oxygen	Dissolved oxygen is vital for aquatic organisms and is reduced by high temperatures or biological activity of microorganisms; indicator of organic pollution.
pH	Concentration of hydrogen ions on a scale of 0 – 14 to specify acidity (< 7) and alkalinity (> 8) with river water normally around 7 – 8. Deviations may indicate anthropogenic pollution (i.e. agricultural runoff, acidic mine drainage, fossil fuel emissions), plant-based activity from photosynthesis or acid rain. Limestone in river bank or river bed may act as a buffer.
Hydromorphological structure	The closer the riverbed and the riparian margin are to their natural state, the better the structural quality.
Temperature	Is influenced by shading, size, depth of the water body, proximity to the river source, and potential discharge of heated wastewater.
Turbidity	Provides optical information about the amount of particles in the water. High turbidity may indicate erosion, algae growth, or general pollution.



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Biology

Cost for 1 data card → 2 Resources

Macrozoobenthos Index	Small organisms such as insect larvae or snails living at the surface of sediments in the water; indicator organisms for water quality.
Chlorophyll a	Pigment in plant photosynthesis complex. The quantity corresponds to algae biomass; high amounts reflect increased plant biomass due to high nutrient load in water.
Fish Index	Indicator for water quality and the state of the fish population as it is sensitive towards stressors such as pollutants.
Total coliforms	Fecal contamination indicator; coliforms are introduced with wastewater and manure.
Antibiotics Resistance	Is high where bacteria are found in high densities and/or where bacteria are exposed to high concentrations of antibiotics from human or veterinary use, i.e. wastewater.
Estrogenic potential	Reference to hormone-like substances in the water; i.e. natural or synthetic hormones and pharmaceuticals from wastewater which interfere with the hormonal regulation in organisms.
Mutagenic potential	Indication of substances in water which can change the DNA by causing mutations; i.e. products of combustion processes, industrial chemicals, or heavy metals.



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Chemistry

Cost for 1 data card → 3 Resources

Benzo(a)-pyrene	A polycyclic aromatic hydrocarbon (PAH) that results from incomplete combustion processes of organic matter (i.e. wood, coal) like engine exhaust fumes and particularly smelting industries. Its metabolites bind to DNA and are highly carcinogenic.
Caffeine	Central nervous system stimulant (i.e. in coffee) that is usually not removed during wastewater treatment in municipal treatment plants. Potentially toxic to wildlife at high concentrations, effects of continuous exposure at low levels are possible.
Chlorpyrifos	Widely used organophosphate insecticide which acts on the nervous system; toxic effect on both humans and animals.
Manganese	Transition metal often found in minerals that naturally occurs as manganese dioxide; it is used industrially and mined in large quantities.
Nitrate	Essential nutrient that promotes growth of plants and algae and therefore used as fertilizer; adverse effects on fish occur at high concentrations.
Phosphate	Essential nutrient for plants, animals and humans; used as fertilizer to promote plant growth.
Sulfamethoxazole	Antibiotic from the group of sulfonamides, which is mainly used to combat urinary tract infections and pneumonia.
Sulphate	May occur naturally or from anthropogenic sources including industrial activity such as mining.
Tylosin	Antibiotic from the group of macrolides, which is used in veterinary medicine.



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Types of Land Use

Agriculture	All kinds of plant cultivation and livestock farming which include activities such as irrigation and fertilization of farm land, treatment of plants and animals. Connected to aquatic ecosystems i.e. via runoff and erosion from agricultural soil.
Industry	All kinds of industry sectors such as pharmaceutical, textile, plastics or mining. Affects aquatic ecosystems i.e. via discharge of wastewater, acid mine drainage or runoff.
Informal settlement	Area with dense illegal housings without important infrastructure and governmental regulation. Affects aquatic ecosystems via i.e. discharge of untreated wastewater and erosion.
National park	Natural reserves that are of importance for conservation efforts and under governmental protection.
Urban	Built-up and densely populated area surrounding a city. Affects aquatic ecosystems via i.e. runoff from sealed surfaces, treated wastewater from municipal sewage treatment plants, or structural changes to river bed and river bank.

Stakeholder Teams

Civilians	Responsible for urban area, informal settlement and protected area with support from researchers; supervises the entire catchment.
Industry	Responsible for industrial area, supervised by the city; collaborates with research and agriculture.
Farmers	Responsible for agricultural area and food production, including crops and livestock.
Researchers	Situated in urban area and partly responsible for protected area; cooperate with all other stakeholders with aims of innovation and environmental protection.



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