

Main purpose	Comments	Critical things to test or survey						Locating your sites			When do you test?	
		pH	PO ₄ (o) nitrate DO	PO ₄ (t) conductivity velocity	Macro-invertebrates	Algae	Habitat	Reference, impact and recovery sites	Sample in paired catchments	Other areas to test	Regular	Other times
Establish a baseline	Essential if condition of waterway is not known	turbidity temp flow	PO ₄ (o) nitrate DO	PO ₄ (t) conductivity velocity	✓	✓	✓	reference site		Choose representative sites, bottom of main tributaries	Weekly – monthly for physical/chemical site tests during base flow conditions Twice yearly for macro-invertebrates	
Determine suitability for particular uses:												
Protection of aquatic ecosystems	Ecosystems are affected by many contaminants and by clearing of riparian vegetation	turbidity temp pH	PO ₄ (o) nitrate DO	PO ₄ (t) conductivity	✓	✓	✓			Sample within waterbody to be protected	As above	
Drinking water	Quality determined by chemicals, bacteria and taste	turbidity pH	nitrate taste	conductivity		✓	✓			Sample drinking water	Weekly to monthly for physical/chemical tests	
Recreation	Bacteria and aesthetics are main problems	turbidity				✓	✓			Sample at recreation site		During times of recreational use
Agriculture	Farm productivity may be affected by poor water quality	conductivity pH	nitrate	pesticides	✓	✓	✓	✓	✓	Sample water used for agriculture	Weekly to monthly for physical/chemical tests	Sample water used for irrigation during summer
Assess effect of land uses/contamination sources:												
Forest practices	Roading, clearing and fires can lead to soil erosion and algal growth Herbicides may be used	turbidity velocity	PO ₄ (o) nitrate	flow	✓		✓	✓	✓			During rain

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Urbanisation/ stormwater	Runoff contamination and flooding are common problems	turbidity flow	PO ₄ (o) nitrate	velocity DO	✓	✓	✓	✓	✓	Sample at run-off points	✓	During rain and discharge events
Livestock operations	Manure, bacteria and nutrients from feedlots affect waterways	turbidity DO	PO ₄ (o) nitrate	nitrate	✓	✓	✓	✓			✓	Per discharge from feedlot and rain
Cropland/ pastures	Soil erosion from heavy grazing. Fertiliser or herbicide runoff and salinity problems.	turbidity velocity	PO ₄ (o) nitrate flow	conductivity PO4(t)	✓	✓	✓	✓	✓	Sample within cropping areas Sample ground water	✓	During rain and after fertilising
Mining operations	Sediment, tailings, dust, chemicals can have very long-term effect	turbidity conductivity	DO flow	pH velocity	✓		✓	✓	✓	Sample at single point discharge sites		During rain and discharge events
Construction sites	High sediment and chemical runoff from poorly managed sites	turbidity velocity	pH flow	conductivity	✓		✓	✓	✓	Sample at run-off points		During rain and discharge events
Septic systems	Leaks, overflows and leachate can have severe effect on quality and cause health problems	nitrate	PO ₄ (o)		✓	✓		✓	✓	For lakes, sample near and away from contamination source	✓	During times of high demand, rain and recreational use of waterway
Golf courses and playing fields	Runoff carries nutrients and pesticides	NO ₃	PO ₄ (o)		✓	✓	✓	✓	✓	Sample at runoff points	✓	During rain
Dams	Changes in flow rates during filling or releases stress aquatic ecosystem. Low DO release water is a problem.	turbidity temp	DO flow	pH velocity	✓		✓	✓	✓	Profile temp and DO from top to bottom	✓	During filling of dam or release of stored water