Healthy waters for Queensland: Environmental values, management goals and water quality objectives

Frequently asked questions

Why are local environmental values and water quality objectives being developed for Queensland waters?

Identifying local environmental values (EVs), management goals and water quality objectives (WQOs) for Queensland's tidal and non-tidal waters protects the state's water environment whilst allowing for development that is ecologically sustainable.

What legislation governs the development of environmental values and water quality objectives?

Under the *Environmental Protection Act 1994*, the Environmental Protection (Water) Policy 2009 (EPP Water) provides the framework for developing EVs, management goals and WQOs for Queensland waters.

Schedule 1 of the EPP Water lists the EVs and WQOs for Queensland waters. These are a part of the legislation and therefore considered by planners and managers when making decisions about waters and/or water quality.

What are EVs?

EVs are the qualities that make water suitable for supporting aquatic ecosystems and human use. These EVs need to be protected from the effects of habitat alteration, waste releases, contaminated runoff and changed flows to ensure healthy aquatic ecosystems and waterways are safe for community use.

All tidal and non-tidal waters, including wetlands, lakes and groundwater have EVs. Aquatic ecosystem health is an environmental value of all waters.

Table 1 provides a full list of EVs that include:

- aquatic ecosystem health
- aquaculture and human consumption of aquatic foods
- agricultural uses (e.g. stock watering and irrigation)
- recreational uses (e.g. swimming, wading, boating, fishing and aesthetic)
- drinking water (raw water supply)
- industrial uses (e.g. power generation and manufacturing, mining and minerals refining/processing)
- cultural and spiritual values.

What are management goals?

Management goals are measures or statements used to assess whether EVs are being maintained (see figures 1 and 2).

What are water quality guidelines?

Water quality guidelines are technically-derived numbers to protect particular EVs. They are based on best-available science and are developed under the processes outlined in the Australian and New Zealand Water Quality Guidelines (ANZECC Guidelines) and the Queensland Water Quality Guidelines[1] and use local water quality data where possible. They are a key input in deriving the WQOs (see figures 1 and 2).

[1] ANZECC 2000, Australian and New Zealand Guidelines for Fresh and Marine Water Quality: Volume 1 The Guidelines, Australian and New Zealand Environment and Conservation Council, Agriculture and Resource Management Council of Australia and New Zealand.

What are WQOs?

WQOs are long-term goals for water quality management. They are measures, levels or narrative statements of particular indicators of water quality (such as salinity or turbidity) that protect EVs. They define what the water quality should be to protect the EVs--after consideration of the socio-economic assessment of protecting the water quality (see Figures 1 and 2).

WQOs are defined for a range of physical indicators (e.g. turbidity, suspended sediment and temperature), chemical indicators (e.g. phosphorus, nitrogen, biochemical oxygen demand and toxicants), biological indicators (e.g. macroinvertebrates and fish), pathogens, and measures of waterway condition (e.g. erosion and riparian vegetation extent and condition).

The WQOs for waters that have not been listed in Schedule 1 are the set of water quality guidelines for all indicators that will protect the EVs (see the Queensland Water Quality Guidelines[2] for relevant guidelines).

WQOs are derived from site-specific scientific studies, the Queensland Water Quality Guidelines 2009, the Australian and New Zealand Guidelines for Fresh and Marine Waters 2000, and other documents published by recognised entities.

WQOs apply to receiving waters (i.e. rivers, estuaries, coastal waters, groundwaters, lakes and wetlands)—they are not end-of-pipe or emission objectives.

What are levels of aquatic ecosystem protection?

For the aquatic ecosystem EV, the EPP Water identifies four levels of protection according to the current condition of waters. These are high ecological value (HEV), slightly disturbed, moderately disturbed and highly disturbed (refer Figure 3).

Each level of protection is assigned a specific management intent. For HEV waters, the management intent is to maintain natural values/condition, and WQOs are set accordingly to maintain this natural state. For waters identified as slightly disturbed, the intent is to progressively improve them towards the HEV condition (with corresponding WQOs).

How are environmental values and water quality objectives being developed for Queensland waters?

The Department of Environment and Heritage Protection (the department) is working with communities (including industry and commerce sectors) in partnership with regional natural resource management (NRM) groups and local governments to develop EVs and WQOs for all Queensland waters. The current focus is on waters draining into the Great Barrier Reef and those within the Murray–Darling Basin. EVs and WQOs for waters scheduled under the EPP Water are available on the department's website at www.ehp.qld.gov.au.

Can I comment on local EVs?

Yes. The department's website contains information about consultation opportunities for particular EVs projects and how you can provide comments (e.g. by email). Figure 2 outlines the generic EVs process, including the stages at which consultation typically occurs during the process.

How will EVs and WQOs be used?

Figure 4 summarises the ways in which EVs and WQOs can be used in statutory and non-statutory decision making. Under the EPP Water, EVs and WQOs become part of the legislation by being included in Schedule 1. Once scheduled, local EVs and WQOs will inform planning and decision making for development under the Environmental Protection Act (e.g. point source environmentally relevant activities); local government planning and decision making for urban land development under the State Planning Policy (Water Quality State Interest - Sustainable Planning Act); best practice management approaches to address diffuse emissions from rural lands; development of report cards on aquatic ecosystem health; and catchment scale management planning and decisions by non-statutory Regional NRM bodies.

Further information

Guidelines and fact sheets under the Environmental Protection (Water) Policy 2009 are available on the department's website at www.ehp.qld.gov.au. For more information, email evinfo@ehp.qld.gov.au.

[2] EHP 2009, Queensland Water Quality Guidelines 2009, Department of Environment and Heritage Protection (re-published 2013).

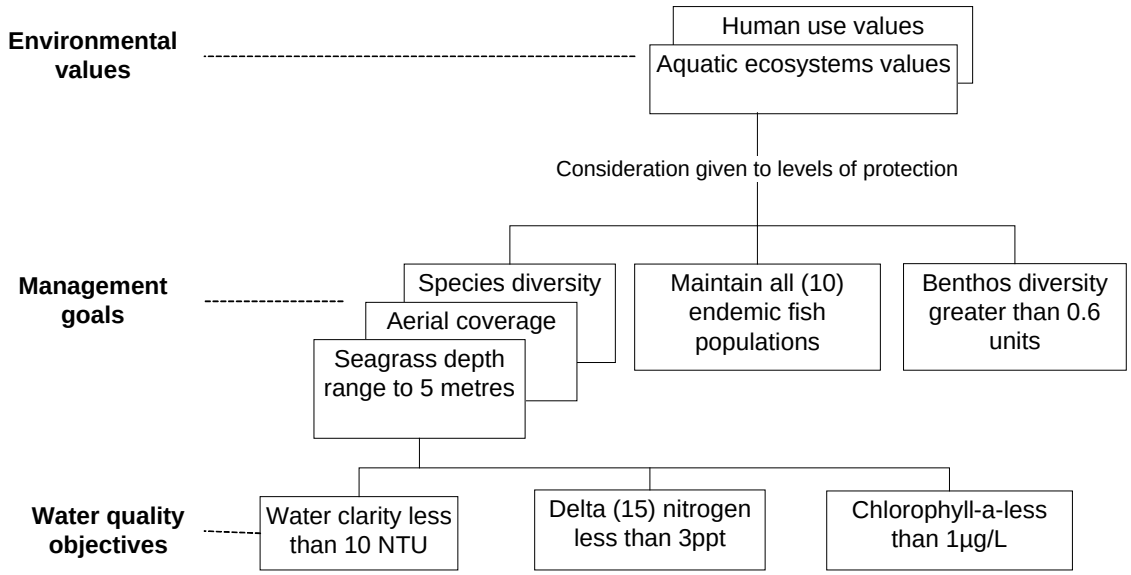


Figure 1 Water quality management concepts

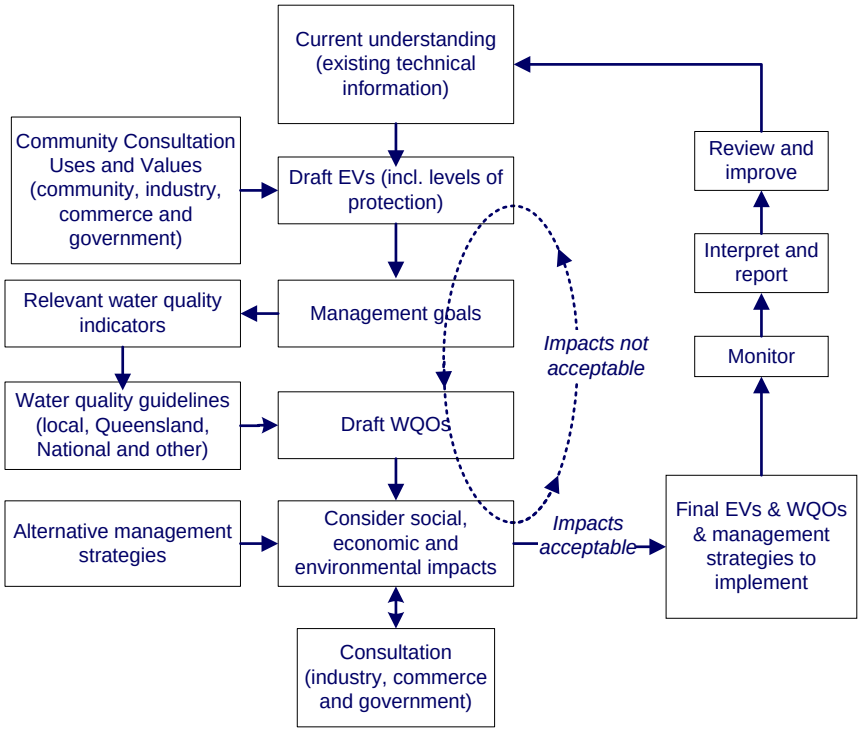
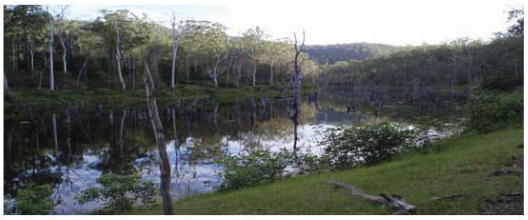


Figure 2 Process for establishing environmental values and water quality objectives under the EPP Water

High ecological value (HEV)

Management intent: maintain natural values/condition



Slightly disturbed (SD)

Management intent: maintain current condition and progressively improve towards HEV

Moderately disturbed (MD)

Management intent: maintain WQOs or improve current WQOs

Highly disturbed (HD)

Management intent: progressively improve to achieve WQOs

Figure 3 Levels of aquatic ecosystem and corresponding management intent

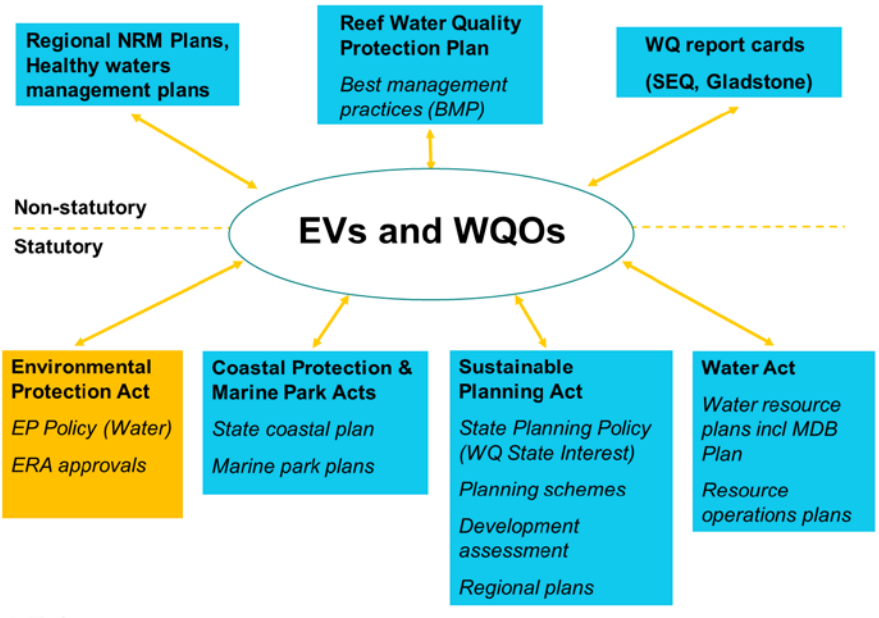


Figure 4 EVs/WQOs linkages to statutory and non-statutory activities

Table 1 List of environmental values considered in EVs processes

Environmental values and definitions
Aquatic ecosystem 'A community of organisms living within or adjacent to water, including riparian or foreshore area'. (EPP Water, Schedule 2) The intrinsic value of aquatic ecosystems, habitat and wildlife in waterways and riparian areas, for example, biodiversity, ecological interactions, plants, animals, key species (such as turtles, platypus, seagrass and dugongs) and their habitat, food and drinking water. Waterways include perennial and intermittent surface waters, groundwaters, tidal and non-tidal waters, lakes, storages, reservoirs, dams, wetlands, swamps, marshes, lagoons, canals, natural and artificial channels and the bed and banks of waterways. (This EV incorporates the 'wildlife habitat' EV used in the South East Queensland Regional Water Quality Management Strategy (SEQRWQMS)). See below for more details on aquatic ecosystems, based on the EPP Water.
High ecological/conservation value waters 'Waters in which the biological integrity of the water is effectively unmodified or highly valued.' (EPP Water, Schedule 2).
Slightly disturbed waters 'Waters that have the biological integrity of high ecological value waters with slightly modified physical or chemical indicators but effectively unmodified biological indicators' (EPP Water, Schedule 2).
Moderately disturbed waters 'Waters in which the biological integrity of the water is adversely affected by human activity to a relatively small but measurable degree.' (EPP Water, Schedule 2).
Highly disturbed waters 'Waters that are significantly degraded by human activity and have lower ecological value than high ecological value waters or slightly or moderately disturbed waters.' (EPP Water, Schedule 2).
Irrigation Suitability of water supply for irrigation, for example, irrigation of crops, pastures, parks, gardens and recreational areas.
Farm water supply/use: Suitability of domestic farm water supply, other than drinking water. For example, water used for laundry and produce preparation.
Stock watering Suitability of water supply for production of healthy livestock.
Aquaculture Health of aquaculture species and humans consuming aquatic foods (such as fish, molluscs and crustaceans) from commercial ventures.
Human consumers of aquatic foods Health of humans consuming aquatic foods, such as fish, crustaceans and shellfish from natural waterways. Note that in some areas oystering is a more specific goal identified under the human consumer EV (see below).

Environmental values and definitions
Primary recreation Health of humans during recreation which involves direct contact and a high probability of water being swallowed, for example, swimming, surfing, windsurfing, diving and water-skiing. Primary recreational use of water means full body contact with the water, for example, diving, swimming, surfing, waterskiing and windsurfing. (EPP Water, s. 6).
Secondary recreation Health of humans during recreation which involves indirect contact and a low probability of water being swallowed, for example, wading, boating, rowing and fishing. Secondary recreational use, of water, means contact other than full body contact with the water, for example, boating and fishing. (EPP Water, s. 6).
Visual recreation Amenity of waterways for recreation which does not involve any contact with water—for example, walking and picnicking adjacent to a waterway. Visual recreational use of water means viewing the water without contact with it. (EPP Water, s. 6).
Drinking water supply Suitability of raw drinking water supply. This assumes minimal treatment of water is required, for example, coarse screening and/or disinfection.
Industrial use Suitability of water supply for industrial use, for example, food, beverage, paper, petroleum and power industries, mining and minerals refining/processing. Industries usually treat water supplies to meet their needs.
Cultural and spiritual values Indigenous and non-indigenous cultural heritage, for example: • custodial, spiritual, cultural and traditional heritage, hunting, gathering and ritual responsibilities • symbols, landmarks and icons (such as waterways, turtles and frogs) • lifestyles (such as agriculture and fishing). Cultural and spiritual values, of water, means its aesthetic, historical, scientific, social or other significance, to the present generation or past or future generations. (EPP Water, s. 6).