

[Home](#)[About Us](#)[Commercial](#)[Publications](#)[Events](#)[Latest News](#)[Canopy Crane](#)[RESEARCH](#)[Task 1](#)[Task 2](#)[Task 4](#)[Task 5](#)[Task 6](#)[Task 7](#)

## CATCHMENT TO REEF JOINT RESEARCH PROGRAM

### Task 3: River health assessment tools

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River "health" is a concept that describes the naturalness (and deviation from it) of river/stream ecosystems; it incorporates measures of physical condition and biological well being, including key components of structure and function such as biodiversity, habitat integrity, food webs and community metabolism, water quality and response to natural disturbances (flood, drought, etc). River health is important because (i) it reflects catchment condition, including condition of the riparian zone; (ii) healthy river systems provide ideal contaminant-stripping mechanisms; and (iii) healthy river systems support rich biodiversity (including important fishery species) and provide for successful multiple use (e.g. water supply).

A number of indices of river health have been developed in previous CRC, JCU and GU research that compare measures of different components of the system against measures expected from benchmark or reference sites. Different measures (e.g., dissolved nutrients, diversity of fish) quantify different aspects of "health," and the preferred contemporary model (e.g. in SE Queensland) is to combine a suite of important physical, chemical and biological variables. Given that the Wet Tropics bioregion is very different from elsewhere (in terms of hydrology, biodiversity, etc.), measures, protocols and benchmarks need to be developed separately for this region.