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Improving the utility and sensitivity of estuarine monitoring

Jeff Ross, Christine Crawford, John Gibson, Barry Gallagher, Jason Beard and Stephen McGowan

SUMMARY

This chapter describes the development and key outputs of a study that examined the links between land use, land management and the health of estuarine ecosystems in Tasmania. The project originally involved four major tasks: retrospectively examining the relationships between land use, water quality and quantity, and parameters of estuarine health; assessing change in the condition of selected estuaries in relation to land use change over the period; evaluating indicators of estuarine resource condition and trigger levels of change; and reconstructing a history of estuarine condition back to European settlement. Differences in location, time of year and methods of past sample collection and analysis lead to high levels of variation in the data, which limited our ability to clearly identify land use impacts. This and partner feedback highlighted the need for a standardised framework for the design and interpretation of estuarine monitoring. In response, the contemporary survey in task 2 was modified to identify the key sources of variation so that future monitoring programs could be designed to detect anthropogenic-driven change, with data collection focused on characterising the physical, chemical and biological conditions of the water column and sediments. The findings from historic data and contemporary surveys were used to develop a decision tree and conceptual