



Protection tools for freshwater ecosystems in Tasmania

'A strategic framework for statewide management and conservation of Tasmania's freshwater ecosystem values'



Report to the Conservation of Freshwater Ecosystems Values Project
Water Development Branch
Water Resources Division
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1. Context

Management of freshwater ecosystems, particularly rivers, is characterized by the complexity of legislative and planning instruments, and the number of responsible authorities. The range of potential tools for protection of freshwater ecosystems demonstrates something of this complexity. This raises issues of not only what is available, their effectiveness and any deficiencies, but also how such tools might be administered in a coordinated and integrated fashion to protect ecosystems of high conservation value.

The nature of freshwater ecosystems demands more complex approaches to conservation and protection than are presently applied to most terrestrial and marine systems. Freshwater ecosystems are dynamic systems, often with key drivers (flow, nutrient input, for example) operating in a uni-directional flow, with strong seasonal and interannual variations. Issues of connectivity are critical. Connectivity operates vertically via groundwater as well as laterally and longitudinally within the catchment.

Protection of freshwater ecosystems is likely to require both protection of the place and protection of the processes that sustain the system. These processes may not be obvious and may be poorly understood scientifically and almost unknown to the wider public. Examples include the interaction of (unseen) groundwater with rivers and especially karst, the impacts of catchment activities such as land clearance on water yields and subtle changes in water temperature or flow that trigger fish movement or spawning.

Secure reservation is an important goal for the protection of freshwater ecosystems of high conservation value but it is unlikely that this could be achieved for all prospective places. Some places of high conservation significance occur in systems that are otherwise degraded or where reservation is impractical or not feasible. Even within reserves, management must ensure that fundamental ecological processes are protected. This might include, for example, ensuring adequate flow into a wetland or estuary site.

For many identified high value systems, there will be existing uses and pressures, so the tools needed to protect the ecosystem values will need to be integrated into a broader management approach and within a clear policy mandate.

2. Key information sources

There have been several recent and current initiatives that have provided key sources of information on tools for protection of aquatic systems and identification of key threatening processes in the Tasmanian environment. These include:

- The website of the Department of Primary Industry, Water and Environment website, which provides information on government legislation, policy and guidelines.
- The 2003 State of Environment (SoE) report for Tasmania, particularly sections on inland waters and marine and coastal environments. The SoE website provides a very detailed discussion of threats to aquatic systems. It is currently not publicly accessible.

- The *Waterways and Riverworks Manual* produced under the Rivercare program in 2002 which contains brief summaries of key legislation that is crucial to local government and others undertaking works in rivers.
- Several reports on protection of karst geoconservation values compiled in the Nature Conservation Branch of DPIWE.

Other sources of information used in compiling this summary report include: Officers of the Nature Conservation, Fisheries, and Land and Water Management Branches of DPIWE, Environment Division DPIWE, Forestry Tasmania, Hydro Tasmania, and the Inland Fisheries Service. In addition to providing specific information on tools, comment was often made on issues of implementation, including levels of knowledge and resources, devolution of responsibility, inconsistent application of requirements and other gaps in provisions for protection of aquatic ecosystems.

3. Threats to aquatic systems

Threats to aquatic ecosystems have been well documented, classified and analysed. Lists of threats, including some of the activities which generate the threats, were identified in workshops conducted in Tasmania for the Water Development Plan (published as *Strategic environmental issues scoping report* P. E. Davies 2001 available at <http://www.dpiwe.tas.gov.au/inter.nsf/Attachments/SSKA-4ZA7UU?open>). A detailed analysis of threatening processes, their impacts and potential tools for amelioration or prevention is provided in the State of Environment Report Tasmania 2003. This information will soon (as at October 2003) be publicly available on the SoE website. Detailed case-based analysis of threats to karst systems have been undertaken for the discussion paper *Options for an integrated approach to karst management at Mole Creek* (Aug 2003) which will be publicly available later this year.

Threats to aquatic systems may be broadly categorised as:

- Changes to natural water quantity, including flow patterns
- Changes to natural water quality, including chemical and physical properties
- Changes to physical characteristics of the system, including barriers, channelization and sediment movement
- Introduced flora, fauna and pathogens
- Overharvesting and other direct impacts on biota

Various different activities generate effects that threaten aquatic systems. Changes in land use are a primary cause of many different threatening processes. Land clearance or conversion between land uses can impact upon water yield, sediment transport, movement of chemicals through the soils and into the water course and increased demands for regulation and availability of water. The impacts are not limited to the immediate reach of the river but can also impact upon associated wetlands or the estuary.

The various threatening processes often operate at different spatial and temporal scales. For example, an overall loss of flow will, over time, alter the natural river geomorphology, while changes in the annual pattern of flow may affect fish behaviour or triggers for life-cycle stages of macroinvertebrates. Land clearance will influence yield of water in a stream but may vary over decades, while removal of the riparian cover immediately exposes banks to erosion, trampling, exotic species and consequent changes in water quality.

Threatening processes can also work cumulatively over time, notably in incremental increases in permits for dams, irrigation and ground-water extraction. Threatening processes can also interact to produce greater impact than any potential individual impact. For example, lower flows resulting from high levels of abstraction, together with increased sediment loads from catchment activities such as roading provide an ideal environment for invasion of exotic flora such as *Spartina anglica*.

4. Tools for protection of aquatic systems and their ecological values

Two types of tools must be considered in order to protect aquatic systems: tools to protect places and tools to protect essential ecosystem processes. Thus even if the area (place) of a wetland is protected, the processes that sustain that wetland must also be managed to ensure the protection of wetland values. These processes might include protection of the necessary levels of water inputs and regimes, protection of water quality in the drainage into the wetland, management of exotic riparian species, controls on taking of aquatic fauna, and so on. A river may have protection in a reserve, but without appropriate management of the processes that sustain that river, notably water quantity and quality, it cannot be considered to be fully protected.

The tools identified to date are listed below and include both tools for protection of places and tools that may be applied to protect ecosystem processes. The tools listed do not necessarily have as their primary function protection of conservation values. Thus protection of water quality is primarily an issue of human health and, arguably, provisions for dam approvals are largely a matter of equitable distribution of a limited resource (an economic issue).

Three broad types of tool have been identified: legislative tools, policies and strategies, and a range of voluntary tools. Incentive tools are also included.

Legislation requires compliance at some level. Some issues with respect to legislation are noted under section 6. Several of the tools apply to both protection of places and protection of processes.

Policies, strategies and agreements are common approaches by governments to the need for change in practice. In recent years, some major environmental and conservation issues have been driven by Commonwealth government commitments (sometimes devolving from international agreements) and subsequent intergovernmental agreements through the Council of Australian Governments (COAG). Once COAG agreement has been reached, for example on water quality standards, water reform and biodiversity conservation, then each state must prepare its own program for implementation. In some cases, significant financial incentives underpin adoption and implementation by states of such agreements. Financial incentives can flow down to community level through grant programs. These may appear as voluntary tools for protection.

Policies, strategies and agreements can be powerful tools for protection and may offer both incentives and penalties to ensure goals are progressed. The Regional Forest Agreement (RFA) for Tasmania has progressed a targeted approach to a Comprehensive, Adequate and Representative (CAR) forest conservation strategy. The Commonwealth Biodiversity Strategy has spawned a State strategy and, in a similar way, the Marine Protected Areas (MPA) Strategy (Tasmania) provides for a CAR reserve system for marine areas, which may include estuaries. However, the Commonwealth does not have quite an equivalent power in MPA's as under the RFA to enforce compliance. The Biodiversity Strategy also spawned the National Reserves Program that is addressing the conservation needs for the non-forest terrestrial ecosystems.

Voluntary tools include advisory guidelines, optional management plans, and voluntary approaches to conservation by landowners. The latter category may then fall within a legislative protection, if the landowner chooses to proceed to a private reserve status where the property meets the appropriate criteria.

The tools identified to date are listed below. Appendix 1 provides summary information on what specifically these tools address. Appendix 2 provides a list of contact people where specific responsibilities can be attributed.

Legislation

Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)
(Commonwealth)
World Heritage Properties Conservation Act 1983 (Commonwealth)
Quarantine Act 1908 & Amendment Act 1986 (Commonwealth)
Nature Conservation Act 2002
Crown Lands Act 1976
Forest Practices Act 1985
Forestry Act 1920
Inland Fisheries Act 1995
Water Management Act 1999
Threatened Species Protection Act 1995
Land Use Planning and Approvals Act 1993 (LUPAA)
Local Government Act 1993
Environment Management and Pollution Control Act 1994 (EMPCA)
Weed Management Act 1999
National Parks and Reserves Management Act 2002
Living Marine Resources Management Act 1995
Mineral Resources Development Act 1995
Agricultural and Veterinary Chemicals (Control of use) Act 1995
Electrical Supply Industry Act 1995
Plant Quarantine Act 1997
Public Health Act 1997
Rivers and Water Supplies Commission Act
State Coastal Policy Validation Act 2003
State Policies and Projects Act 1993

Specific mandatory tools may be scheduled under acts and regulations. These include the Forest Practices Code (2000), Mineral Exploration Code of Practice (1999), Threatened Species Recovery Plans (various), Weed Management Plans (2003), Quarry Code of Practice (1994), and Water Management Plans (various).

Policies, strategies and agreements

International

Convention on Wetlands (Ramsar)
International Convention on Biological Diversity 1993
China-Australia Migratory Birds Agreement (CAMBA)
Japan-Australia Migratory Birds Agreement (JAMBA)
World Heritage Convention

Commonwealth

National Strategy for the Conservation of Australia's Biological Diversity Strategic
Plan of Action for the National Representative System of Marine Protected Areas
Wetlands Policy of the Commonwealth Government of Australia 1997
National Water Quality Management Strategy
National Reserves System Program
National Wetlands Program
National Action Plan for Salinity and Water Quality
National Local Government Biodiversity Strategy

Tasmania

Resource Management and Planning System (RMPS)
Natural Resource Management (NRM) Framework
State Policy on Water Quality Management 1997
Marine Protected Areas Strategy 1997
Water for Ecosystems Policy 2001
Nature Conservation Strategy 2002-2006, 2003
Wetlands Strategy for Tasmania 2000 (draft)
Threatened Species Strategy for Tasmania 2001
Weedplan (Tasmania's Weed Management Strategy) 2003
State Coastal Policy 1996
State Stormwater Strategy (draft)
Regional Coastal Management Strategies (Various)
Management Decision Classification (MDC) system for forest planning
Policy Guidelines to Assess Applications for new Water Allocations from
Watercourses (draft)
Forest Practices Code (FPC)
Water Management Plans (various)
Carp Management program

Voluntary tools

National Reserves System Program
Conservation covenants
Private nature reserves
Land Management agreements
Rivercare
Catchment management plans
Waterways and Riverworks manual (2003)
Willow removal guidelines (2003)
Waterwatch
Envirofund
Emission Limit Guidelines for Sewage Treatment Plants ...
Wastewater Management Guidelines...

Community Coastcare Handbook
Managing streambanks: stock control, fencing and watering options (2000)
Australian Ballast Water Decision Support System (BWDSS)
Strategy for the management of Rice Grass (2002)
National Introduced Marine Pests Information Systems (NIMPIS) Toolbox
Fish passage guidelines (under *Inland Fisheries Act*)
Weir removal Program (under *Inland Fisheries Act*)
Stormwater Management Guidelines (draft)
Income tax incentives

The status of some voluntary tools such as the Rivercare and Fishcare Programs, Waterwatch and Envirofund are in review as a consequence of the changes to federal government programs under the Natural Heritage Trust.

5. Particular management issues for different ecosystem classes

Many of the tools listed above are generic or could be applied to all freshwater ecosystems of interest to the Conservation of Freshwater Ecosystem Values Project. The brief comments that follow are examples only of some particular threats to different ecosystem classes and are not intended to be an exhaustive or comprehensive analysis for the purpose of planning for protection. Individual sites will each require assessment of threats and tools with reference to the particular conservation values present.

Immediate and high risk threats for wetlands include drainage and vegetation clearance, change in hydrological regimes and damage from recreational vehicles, especially in the coastal zone. Introduction of exotic fish species, including trout, is a particular risk for some inland lakes.

Karst systems are prone to a range of threatening processes, with the added complexities of the sub-surface drainage patterns. Changes and impacts on groundwater are specific problems of karst systems, compounded by a very poor level of knowledge of groundwater in Tasmania. Karst systems are very vulnerable to visitor impacts including changes to air quality as well as physical damage. Vegetation clearance and agricultural practices cause a range of damage to karst systems.

Rivers and estuaries are affected by a range of threats from catchment to site scale. Perhaps the greatest threats are those that affect the systems at catchment scale through land clearance and demands for water for human uses. Such threats are amongst the most difficult to ameliorate because of the numerous contributing activities, interest groups, managing authorities and sometimes mutually incompatible legislation.

Estuaries are subject to similar threats as rivers exacerbated by the fact that many are sites of major urban development and with additional issues relating to the marine environment. Marine issues include intensive in-stream use for aquaculture, recreational and commercial fishing activities with additional pressure on the biota and access issues, and a separate suite of marine pests and estuarine species that demand particular strategies to address.

Developing appropriate suites of tools requires analysis on a site-by-site basis to assess the particular values to be protected and the environmental and ecological requirements.

6. Identified gaps and implementation issues

Some gaps and limitations have been identified on the capacity of currently available tools to adequately protect conservation values of freshwater ecosystems. These gaps and limitations fall into two broad categories: limitations of tools to address particular threats to aquatic ecosystems and the limitations of current tools for conservation generally. Table 1 summarises tools for managing major threatening processes in Tasmania.

Table 1. Key threats to aquatic systems and some examples of tools for management

Threat and causes	Tools for managing threat
<p>Changes to natural water quantity, including flow patterns</p> <p>Caused by:</p> <ul style="list-style-type: none"> ▪ Instream dams ▪ Abstraction of surface water ▪ Abstraction of groundwater ▪ Changes in land use and cover ▪ Climate change ▪ Increasing demands from domestic users 	<p>RPMS</p> <p>Dam approval process (<i>Water Management Act 1999</i>)</p> <p>Water use permits (<i>Water Management Act 1999</i>)</p> <p>Forest Practices Code</p> <p>Environmental flows (<i>Water Management Act 1999</i>)</p> <p>Catchment management plans</p> <p>Water Management Plans</p> <p>Hydro flow regimes management</p> <p>Metering of household water use</p>
<p>Changes to natural water quality, including chemical and physical properties</p> <p>Caused by:</p> <ul style="list-style-type: none"> ▪ Point source pollution such as industrial and agricultural waste discharge, stormwater, spillage and waste from boats ▪ Diffuse source pollution such as leaching of agricultural chemicals through soil, fouling by stock, ▪ Cooling effects of large dams ▪ Intensive aquaculture, poor management practices in marine farms 	<p><i>EMPCA 1994</i> –guidelines on discharge</p> <p>National Water Quality Management Strategy</p> <p>State Water Quality Policy</p> <p>Guidelines for waste disposal</p> <p>Draft Stormwater Guidelines</p> <p>Guidelines for use of agricultural chemicals</p> <p>Ballast Water DSS</p> <p>Forest Practices Code</p> <p>Mineral Exploration Code of Practice</p> <p><i>Mineral Resources Development Act 1995</i> (gravel extraction, quarrying)</p>

Table 1 (continued).

Threat and causes	Tools for managing threat
<p>Changes to physical characteristics of the system, including barriers, channelization and sediment movement</p> <p>Caused by:</p> <ul style="list-style-type: none"> ▪ Channelization and artificial barriers ▪ Land clearance generating excess sediment ▪ Bank erosion from over-exposure by vegetation clearance, trampling ▪ Abstraction of materials from streambed ▪ Road construction, exploration activities ▪ Poor design of culverts and weirs 	<p><i>Water Management Act 1999</i></p> <p><i>LUPAA</i></p> <p><i>Local Government Act</i></p> <p>Waterways and Riverworks manual</p> <p><i>Mineral Resources Development Act</i></p> <p>Forest Practices Code</p> <p>Weir removal guidelines</p> <p>Fish passage guidelines</p> <p>Rivercare</p>
<p>Introduced flora, fauna and pathogens</p> <p>Caused by:</p> <ul style="list-style-type: none"> ▪ Deliberate introduction of alien species ▪ Spread from existing infestations ▪ Discharge of ballast water and waste ▪ Movement of vehicles, boats, stock and humans 	<p><i>Quarantine Acts (Comm)</i></p> <p><i>Plant Quarantine Act</i></p> <p><i>Weed Management Act</i></p> <p><i>Nature Conservation Act</i></p> <p><i>Inland Fisheries Act</i></p> <p>Ballast Water DSS</p> <p>Weed management plans</p> <p>Willow removal program</p> <p>Weeds of National Significance program</p> <p>Carp eradication program</p>
<p>Overharvesting</p> <p>Caused by:</p> <ul style="list-style-type: none"> ▪ Pressure from recreational and commercial fishers ▪ Use of inappropriate harvesting methods such as netting ▪ Inappropriate catch levels 	<p><i>Living Marine Resources Management Act</i></p> <p><i>Inland Fisheries Act</i></p> <p><i>Threatened Species Act</i></p>

Specific gaps in legislation arising from this analysis lie in the absence of protection of the riparian zone and in the weakness of the *Water Management Act* with respect to groundwater. There is evidently no requirement for a license application to drill a bore, or to approve a level of take from groundwater, even where this may occur adjacent to a surface water system unless the system is under stress. Although Tasmania has currently a very limited level of use of groundwater as a major water supply source, some areas could become stressed and, although not immediately obvious to users, groundwater and surface water are inextricably linked. Use of groundwater is a particular issue for karst management and protection.

Restrictions on clearing of the riparian zone, and requirements for fencing against stock access were identified as critical issues in management of several threatening processes and protection against degradation of riverine values. There is some capacity for councils to invoke restrictions where water supplies are being contaminated.

The *Water Management Act* only makes provision through Water Management Plans for management of the water. Wider issues of river management are not covered by plans under the *Water Management Act*. These include, for example, catchment land use, land clearance, instream habitat management or control of river works. The Act has limited influence on the use of groundwater. Priority is given to preparing Water Management Plans for more stressed rivers or where there is likely to be conflict between environmental water requirements and water demand. Currently resources are committed for the next 5 years to developing such plans. Therefore those rivers which emerge from the CFEV analysis as being of high ecological value will not trigger the development of a Water Management Plan, unless specific resources can be provided to deliver this tool.

There is a wide range of legislative provisions for protection of invasion and spread of exotic species but often the capacity of responsible agencies to police and prosecute offenders is limited. Continuing community education and industry support is also needed. Measures to avoid spread of marine pests and management of waste by recreational and professional fishers depend largely upon on voluntary tools, although ballast water discharge controls have now reduced the risk of introduction of some marine organisms.

The application of several key tools is limited by availability of basic information and inadequate resources. Examples include difficulties in providing sound advice on environmental flow requirements to protect estuaries or wetlands, lack of meters for monitoring water use and limited staffing for a variety of protection activities and enforcement of legislated controls.

Implementation is devolved to local government for several Acts that are relevant to the protection of water quality and activities in the riparian zone. Different councils have different provisions of their planning schemes that can shape interpretation of an act and different strategies, standards and protocols for implementation. Councils may have limited resources and skills to apply to environmental issues including those matters relevant to protection of aquatic ecosystems and other conservation issues.

The *LUPAA* and the Forest Practices Code (FPC) are independent processes that do not articulate to provide for good management of aquatic systems. While both aim to achieve similar ends, they work separately, and there is a limited public appeal process in the FPC. Councils and Forestry may informally have dialogue about planning but this is not mandatory.

Although a number of policies relating to biodiversity conservation exist and, arguably, freshwater ecosystems are properly an important element of biodiversity, implementation strategies, frameworks and programs are very poorly developed. Some key policy tools, including the Tasmanian Wetlands Strategy, Stormwater Strategy and Policy Guidelines to Assess applications for new Water Allocations from Watercourses remain in draft form. Plans to produce habitat protection plans within the *Living Marine Resources Management Act* have not come to fruition. Future funding arrangements that have in the past supported voluntary programs including Rivercare are unclear.

The Ramsar Convention on Wetlands promotes conservation of all freshwater ecosystems but little progress had been made in Australia towards meeting its commitments. The National Reserves Program addresses terrestrial and marine systems but not freshwater ecosystems. In Tasmania, the CAR reserve framework is embedded in conservation planning for forest, and more recently, non-forest terrestrial ecosystems have begun to be addressed but the CAR foundation has not been progressed for freshwater aquatic systems. The current CFEV Project is the opportunity to progress towards such a comprehensive system.

Even if a site important for aquatic ecosystem values is encompassed with a secure reserve, the management plan for that reserve should be scrutinized to ensure that potential threatening processes for the aquatic system and its values have been addressed.

Further work should be done to examine the effectiveness of available tools once a framework for implementation is progressed. Some fields are sensitive, complex and highly political and require a substantial and carefully crafted evaluation process. These fields include the provisions of the *Water Management Act* and the way it operates, and the functions of local government in natural resource management. The whole issue of catchment-based planning which needs to underpin the protection of many types of freshwater ecosystem is another critical factor, yet does not emerge from the separate analyses of specific tools.

The absence of a policy framework for conservation of freshwater ecosystem values is seen as a serious shortfall in tools for protection. Without such a framework, attempts to make provision for protection of values using existing tools could be challenged.

7. Applying the tools

The wide range of possible tools for protection of separate elements of aquatic systems has been demonstrated. Given adequate data and resources, tools are in place to address many specific threatening processes. Two particular gaps in legislated protection have been noted, each raised by key informants with different concerns. These are the absence of protection for the riparian zone and very limited opportunity of regulation of groundwater use.

Several broader, but critical, issues in the application of available tools were raised by the key informants. It should be noted that the information used in compiling this report was not only gathered from some of those identified as key contacts in Appendix 2, but others who have been working in the field of aquatic ecosystem management but without direct responsibility for individual tools.

Connectivity of freshwater systems is a key issue in their management. Protection of aquatic systems at a whole of catchment scale seems only feasible in the most undisturbed areas, and management of diffuse and/or cumulative threats remains problematic. Barriers to catchment wide or integrated planning for freshwater ecosystems were widely seen as significant issues. Application of specific tools has little power for protection if negative management occurs regarding other aspects of the system, across the catchment or upstream of the site.

Concern was widely expressed amongst informants for the level of resourcing for management of freshwater systems, especially with changes in funding arrangements, new expectations on local councils and unknown strategies, priorities and outcomes of the NRM process. How NRM will meet statewide priorities, especially for conservation, was a particular concern. Scientific data and sound models for decision-making are fundamental to management yet there are shortfalls in such information regarding groundwater, water yields, flow requirements for different river types, estuaries and wetlands, and so on. Proper regulation of water use is limited by lack of information on actual numbers of farm dams and weaknesses in the capacity to monitor water use without proper metering.

The need for a clear policy framework is a central issue in applying the tools to protecting aquatic systems for their conservation value. This policy framework would need to have at least endorsement as a government policy and possibly additional legislation to confer status as 'heritage rivers systems/wetlands'. It will also require a strategic approach to implementation (including financial resources) and some incentives for adoption.

Unlike some states Tasmania has no legislation to declare Heritage Rivers or otherwise protect rivers of high value, except within formal reserves. The Victorian River Health Strategy (*Healthy Rivers, Healthy Communities and Regional Growth: the Victorian River Health Strategy*, Department of Natural Resources and Environment, Victoria, 2002) and the recent Paroo River Agreement (<http://www.nationalparks.nsw.gov.au/npws.nsf/Content/Paroo+River+Agreement>) are examples of alternative approaches to protecting conservation values within a context of multiple use and multiple tenure.

Several drivers for such as policy are already in place. These include the government's commitments in the Nature Conservation Strategy, Marine Protected Areas Strategy, and aspects of the Water Development Plan. The latest intergovernmental agreement for Natural Heritage Trust (NHT) funding has highlighted the need to address protection of non-forest terrestrial systems, leaving only freshwater ecosystems without a strategic policy commitment for biodiversity conservation. The CFEV Project may be seen as the first stage in the development of such a policy tool.

If a freshwater ecosystem conservation policy is to be put in place, a range of different approaches to protection and management can be applied utilizing as appropriate tools identified. These include formal reserves declared under *Nature Conservation Act*, *Forestry Act* and *Inland Fisheries Act*, including private nature reserves. The current Protected Areas on Private Land Program has developed approaches to work with landowners eager to preserve nature conservation values on their properties. The new project on protection of non-forest vegetation communities will also generate examples and experience that could be relevant to protection of freshwater ecosystem values. However, other alternative and innovative approaches will need to be explored to cater for those places where there is multiple tenure. A multi-tiered or multi-faceted approach to the freshwater conservation system will be necessary where the highest possible level of protection is offered and specific threatening processes are addressed.

Appendix 1: Summary list of tools for protection

Tools for the protection of places

Legislative tools

What it is	Jurisdiction	What it does in relation to CFEV objectives	Scope for CFEV system
<i>Nature Conservation Act 2002</i>	Tas	Provides for the declaration of different classes of reserved land, including private reserves and covenants. 'Land' includes land covered by sea or other water.	All
<i>Crown Lands Act 1976</i>	Tas	Management of Crown Land. Provides for the declaration of public reserves. Not secure reserves for conservation. 'Land' includes land covered by sea or other water.	All
<i>Forestry Act 1920</i>	Tas	Provides for declaration of forest reserves	Rivers, wetlands, karst
<i>Forest Practices Act 1985</i>	Tas	Forest Practices Code protects riparian zone in different categories of stream.	Streams and rivers, some wetlands
<i>Environment Protection and Biodiversity Conservation Act 1999</i>	Comm	Areas listed as Ramsar wetlands protected from potential 'significant impact' of new projects or developments.	All
<i>Land Use Planning and Approvals Act 1993</i>	Tas	Regulates land use and development via planning schemes and must be in accordance with RPMS objectives.	Wetlands and waterways
<i>Inland Fisheries</i>	Tas	Enables creation of fauna reserves within inland waters and to put restrictions on	Rivers, wetlands,

<i>Act 1995</i>	activities within these reserves.	karst
<i>Threatened Species Protection Act 1995</i>	Tas Allow for interim protection orders to conserve habitat of a listed species.	All
<i>State Policies and Projects Act 1993</i>	Tas Provides for state policies	All
<i>World Heritage Properties Conservation Act 1983</i>	Comm Provides for scheduling and management of World Heritage Areas	All
Policies and strategies		
What it is	Jurisdiction	What it does in relation to CFEV objectives
Marine Protected Areas Strategy 2001	Tas	Establish and manage a CAR system of marine protected areas (MPA's)
Strategic Plan of Action for the National Representative System of MPA's	COAG	Establish a national representative system of marine protected areas
Tasmania's Nature Conservation Strategy 2003-2006	Tas	Maintain a CAR system of land, freshwater and marine reserves and ensure that all other areas are managed to protect natural diversity using a range of mechanisms
		Estuaries

Convention on Wetlands (Ramsar)	Intern	Nominate sites as wetlands of international importance and ensure that these sites are managed to maintain ecological character	All
Wetlands Policy of the Commonwealth Government of Australia 1997	Comm	Applies only to places under Comm jurisdiction and to decisions made by Comm. Govt. and agencies. Expectation for a national approach to wetland conservation through state wetlands policies. Promote conservation and ecologically sustainable management of wetlands.	All except rivers
Wetlands Strategy for Tasmania 2000 (draft)	Tas	Proposed strategies include secure reservation for high conservation value wetlands.	All except rivers
National Reserve System Program	Comm	Facilitates development of CAR –based reserve system for terrestrial and marine systems	Wetlands, estuaries
Threatened Species Strategy for Tasmania 2001	Tas	Proposes protection and management of critical habitat for listed threatened species.	All
World Heritage Convention	Intern	Listing of places of international significance on World Heritage list	All
Management Decision System for forest planning	Tas	MDS required under Forest Practice Code can schedule various classes of forest reserve, which may be protected for a range of ecological values	all

Voluntary and non-legislated tools

What it is	Jurisdiction	What it does in relation to CFEV objectives	Scope for CFEV system
National Reserves System Program	Comm	Incentives for the development and refinement of methods for identification of protective areas and consistent management principles. Funds purchase of site to fill gaps in present reserves system, targets most systems but not rivers.	Wetlands, estuaries
Conservation covenants	Tas	Agreement between landowner and govt. to provide permanent protection for an area identified as of conservation value, with management agreements. Negotiated under RFA Private Land Reserve Program and Protected Areas on Private Land Program (PAPL). Registered on property title and binding on present and future property owners. (Under Nature Conservation Act 2002	Wetlands, riparian land, catchments
Private nature reserves	Tas	Private Reserve can be declared with consent of landowner and is recorded on the property title in perpetuity (Under Nature Conservation Act 2002). Imposes conservation regulations on the public enforceable by PWS. Must have unique, important or representative value and contribute to natural diversity.	as above
<i>Income Tax Assessment Act</i> 1997	Comm	Provides concessions to landowners for loss of value of land if dedicated as reserve.	?as above
Management agreements	Tas	Voluntary contract between land manager and another party that governs use and management of an area of land, specifying the management regime. Legally binding document but not registered on land title and does not ensure ongoing protection.	All?

Tools for the protection of ecological processes

Legislation

What it is	Jurisdiction	What it does	Scope for CFEV system
<i>Water Management Act 1999</i>	Tas	Provides for preparation of water management plans for rivers and provision of water for the environment (environmental flows)	All
<i>National Parks and Reserves Management Act 2002</i>	Tas	Provides for management plans and control of various activities in parks and reserves	
<i>Land Use Planning and Approvals Act 1993</i>	Tas	Regulation of land use and development through local government planning schemes & permits, and must seek to further RMPS objectives.	All
<i>Local Government Act 1993</i>	Tas	Councils have a general power to make by-laws that may include works in wetlands and waterways, and can issue abatement notices for anything which may cause pollution of waterways.	All
<i>Environment Management and Pollution Control Act 1994</i>	Tas	Environmental regulation for point source pollution, other environmental harm	All
<i>Inland Fisheries Act 1995</i>	Tas	Maintain fish passage and fish habitat, prohibits taking of 'fish' (ie all aquatic fauna), & protects waterways from damage by any matter entering waterways and likely to damage food or spawning.	Inland waters

<i>Forest Practices Act 1985</i>	Tas	Forest Practices Code sets out provisions for riparian zones and environmental guidelines for forest operations including limits on works near watercourses, swamps and drainage lines, and in karst areas.	Wetlands, rivers, karst
<i>Environment Protection and Biodiversity Conservation Act 1999</i>	Comm	Powers over new projects and developments which may have a ‘significant impact’ on matters of national environmental significance which include Ramsar and World Heritage sites, threatened species and communities listed under the Act, migratory species, Commonwealth properties listed on the Register of the National Estate, and in future, nationally listed heritage places	All
<i>Threatened Species Protection Act 1995</i>	Tas	Protects listed flora and fauna , and provides for interim protection orders to conserve habitat of a listed or nominated taxon	All
<i>Nature Conservation Act 2002</i>	Tas	Provides for creation of reserves and for the protection and management of wildlife Prohibits importation of certain animals into the State.	All
<i>National Parks and Reserves Management Act 2002</i>	Tas	Provides for management of areas reserved under Nature Conservation Act, including preparation of Management Plans	All
<i>Weed Management Act 1999</i>	Tas	Management of declared weeds and allows for legally enforceable measures to be undertaken to control them (eg Willows, blackberry, aquatic weeds)	All
<i>Living Marine Resources Management Act 1995</i>	Tas	Makes provision for management plans for marine resources including fish, invertebrates and flora. Sets harvesting limits, protects nursery areas and netting areas	Estuaries

<i>Mineral Resources Development Act 1995</i>	Tas	Provides permits for quarrying, gravel extraction (Also addressed through LUPAA). Lays out Code of Practice for Mineral Exploration including management of drainage, road construction as per FPC	Wetlands, Rivers, Karst
<i>River and Water Supply Commission Act 1999</i>	Tas	Sets the legal basis for the work of the Rivers and Water Supply Commission which is responsible for the commercial operation of State Government water schemes, currently for 9 areas or systems	Specific rivers
<i>Electricity Supply Industry Act 1995</i>	Tas	Control of water under Hydro Tasmania	Rivers, lakes
<i>Quarantine Act 1908</i>	Comm	Controls imports at national level of biological materials, flora and fauna	All
<i>Plant Quarantine Act 1997</i>	Tas	Provides for scheduling of weeds, prevention of importation, management prescriptions, including aquatic weeds	All
<i>Agricultural and Veterinary Chemicals (Control of Use) Act 1995</i>	Tas	Controls the use and application of agricultural chemical products and veterinary chemical products, including protection of the environment	All
<i>Public Health Act 1997</i>	Tas	Sets water quality standards	All
<i>State Coastal Policy Validation Act 2003</i>	Tas	Provides endorsement of coastal policy with some changes to definitions	Some wetlands, estuaries

Policies and strategies

What it is	Jurisdiction	What it does	Scope for CFEV system
State Policy on Water Quality Management 1997	Tas	Sets out policies and strategies for water quality in both surface and ground waters, including point and diffuse source pollution All stream management works must comply with requirements of the policy adopting best practice guidelines and not prejudice water quality objectives.	All
National Water Quality Management Strategy	Comm	Sets out national framework for development of an action plan for water by each state based on principles of ecologically sustainable development. Sets out water quality guidelines for marine and freshwaters.	All
Resource Management and Planning System	Tas	Integrated planning and environmental management framework to achieve sustainable outcomes. Includes avoiding, remedying or mitigating adverse environmental impacts of development or use of resources.	All
Tasmania's Nature Conservation Strategy 2002-2006 (2003)	Tas	Identifies obligations for key industries involving natural resources and, generally, reduction in threatening processes notably clearance of native vegetation, weed, pest and disease control, and catchment management	All
International Convention on Biological Diversity 1993	Intern	Provides a framework for global action for protection and sustainable use of biological diversity. Requires identification and monitoring of ecosystems and habitats of high diversity, endemic or threatened species, representative or associated with key evolutionary processes.	All
Threatened Species Strategy 2001	Tas	Provides for the management of threatening processes and protection of key habitat	All

National Strategy for the Conservation of Australia's Biological Diversity 1996	Comm/ COAG	Aims to ensure best practice environmental management to maintain healthy ecosystems, conserve all element of natural diversity, improve and coordinate conservation measures.	All
Convention on Wetlands (Ramsar) 1975	Intern	Targets identification and protection of wetlands.	All
Wetlands Policy of the Commonwealth Government of Australia 1997	Comm	Applies only to places under Comm jurisdiction and to decisions made by Comm. Govt and agencies. Expectation for a national approach to wetland conservation through state wetland policies. Promote conservation and ecologically sustainable management of wetlands.	Wetlands
Wetlands Strategy for Tasmania 2000 (draft)	Tas	Identifies threats to wetlands and proposes a wide range of strategies to address these threats	Wetlands as defined
National Reserves System Program	Comm	Incentives for the development and refinement of methods for identification of protective areas and consistent management principles.	Wetlands, estuaries
National Wetlands Program	Comm	Promotes conservation of wetlands through variety of actions including preparation of management plans, research, training and awareness.	Inland wetlands not including rivers

China-Australia Migratory Birds Agreement (CAMBA) & Japan ditto (JAMBA)	Intern	Australia signatory to these agreements that require protection of habitats and management of potential threats for all life stages of migratory birds, addressed under EPBC Act.	Wetlands, estuaries
State Stormwater Strategy (Draft)	Tas	Provides for a consistent approach to stormwater management and adoption of management measures by local councils on pollution control, reuse, remediation for critical run-off sites and control of run-off from development sites	All except karst
Weedplan Tasmania's Weed Management Strategy	Tas	Aims to coordinate weed management and provides for individual weed management plans for listed weed species, including aquatic weeds	all
Natural Resource Management Framework	Tas	Aims to provide a systematic way of integrating natural resources management on a regional basis.	All
Regional Coastal Management Strategies (various)	Tas/ regions	6 regional coastal management strategies covering most of the coastline, eg Derwent Estuary Program, Integrated South-East Coastal Management Strategy and local coastal management plans	Mainly some wetland classes and estuaries, lower reaches of some rivers
Policy Guidelines for Assessing Applications for new Water Allocations from Watercourses (Draft)	Tas	Provide for a clear and consistent approach for the granting of new water allocations in winter	All

Water For Ecosystems Policy	Tas	Provides the mechanism for determining environmental flow requirements with the aim of setting sustainable development limits on water resources	All
State Coastal Policy 1996	Tas	Promotes sustainable development of the coastal zone and protection of natural and cultural values	Some wetlands, estuaries
Forest Practices Code & MDS	Tas	Provides for forest planning and operations to avoid environmental damage including protection of watercourses, wildlife corridors etc.	Rivers, wetland, karst
Voluntary or non-legislated tools			
What it is	Jurisdiction	What it does	Scope for CFEV system
Rivercare	Tas/ Comm	NHT-funded program for river management. Rivercare plans required under assessment process. Ends June 2003?	Rivers
Catchment management plans	Tas/ Regions	Promoted in late 1990's, now largely superseded by water management plans or Rivercare plans. Not active program	All
Waterways and Riverworks manual	Tas	Environmental best practice guidelines for undertaking works, targets local councils	Rivers, wetlands, karst
Willow removal guidelines 2003	Tas	Guidelines for best practice targets farmers and other landowners	Rivers
Community Coastal Handbook	Tas	Best Practice guidelines for dune stabilisation, revegetation weed control etc.	Some wetland classes, estuaries
Mineral Exploration Code of Practice	Tas	(Legislated COP) under Mineral Resources Development Act conditions for approval of licenses include similar provisions to FPC.	Wetlands, waterways

Stormwater Management Guidelines (draft)	Tas	aims to provide a consistent statewide approach to the management of stormwater and to assist local governments in meeting their obligations under the State Policy on Water Quality Management 1997	Rivers, estuaries, wetlands
Toolbox for introduced Marine pests	Comm/Tas	Provides information on identification, control and management of introduced marine pests	estuaries
Waterwatch	Comm/Tas	Encourages community-based involvement in monitoring of water quality	rivers
Emission Limit Guidelines for Sewage Treatment Plants	Tas	Provides guidelines and standards for emission from plants which discharge into fresh and marine water	Rivers. estuaries
Wastewater Management Guidelines	Tas	Provides guidelines of meat premises and pet food works on point source discharges of pollutants	all
Australian Ballast Water Decision Support System	Aus		estuaries

Appendix 2: Key contact information

Note: This information is current as at 24/10/03. Not all listed individuals have been contacted personally. Other individuals who have undertaken work relevant to management of freshwater ecosystems are not listed because they do not have direct responsibility for any particular tool.

Legislative Tools

Tool	Position/Agency	Current contact
<i>Agricultural and Veterinary Chemicals (Control of Use) Act 1995</i>	Registrar of Pesticides, DPIWE (Note role of local govt.) Natural Resource Management Facilitator Local Government Association of Tasmania (and local council officers)	Alex Terauds 6233 6833 Alex.Terauds@dpiwe.tas.gov.au Tim Phillips Timothy.Phillips@lgat.tas.gov.au 6233 5962 Reference: Guidelines related to use of chemicals http://www.dpiwe.tas.gov.au/inter.nsf/WebPages/EGIL-52Q7L9?open
<i>Crown Lands Act 1976</i>	Manager, Crown Land Services, DPIWE	John Toohey John.Toohy@dpiwe.tas.gov.au 6233 2997
<i>Electricity Supply Industry Act 1995</i>	Managing Consultant (Environmental Services), Hydro Tasmania	Mick Howland mick.howland@hydro.com.au 62305534/ 0438 305534
<i>Environment Management and Pollution Control Act 1994</i>	Director, Environmental Management and Pollution Control, DPIWE	Warren Jones Pam Scott pam.scott@rpdc.tas.gov.au 6233 2506

<p><i>Environment Protection and Biodiversity Conservation Act 1999</i></p>	<p>Manager, Strategic Initiatives and Legislative Review, Resource Management and Conservation Division, DPIWE Manager, Nature Conservation Branch, DPIWE</p>	<p>Peter Bosworth Peter.Bosworth@dpiwe.tas.gov.au 6233 6218 Alistair Scott 6233 2471 Alistair.Scott@dpiwe.tas.gov.au</p>
<p><i>Forest Practices Act 1985</i></p>	<ul style="list-style-type: none"> ▪ Chief Forest Practices Officer, Forest Practices Board ▪ Manager Planning (Conservation and Environment), Forestry Tasmania 	<p>Graham Wilkinson 6233 7451 Graham.Wilkinson@fpb.tas.gov.au Gary King Gary.King@forestry.tas.gov.au 6233 8173</p>
<p><i>Forestry Act 1920 (& Amendments)</i></p>	<p>Manager, Planning (Conservation and Environment), Forestry Tasmania</p>	<p>Gary King Gary.King@forestry.tas.gov.au 6233 8173</p>
<p><i>Inland Fisheries Act 1995</i></p>	<p>Inland Fisheries Service</p> <ul style="list-style-type: none"> ▪ Senior Fisheries Manager (Fish passage guidelines) ▪ Senior Fisheries Manager (Protected fish) ▪ Scientific Officer (Weir removal program) ▪ Scientific Officer (Fish translocation policy) ▪ Manger, Fisheries Management Branch (Reserves) <p>Inspector, Fish Management (Pest fish & illegal imports)</p>	<p>Dave Jarvis Dave.Jarvis@ifs.tas.gov.au 6233 2458/0407 880 369 Jean Jackson Jean.Jackson@ifs.tas.gov.au 62332691 Mark Nelson Scott Hardie Stuart Chilcott Victor Causby 6233 2065 0417 139 820</p>

<i>Land Use Planning and Approvals Act 1993</i>	Natural Resource Management Facilitator, Local Government Association of Tasmania (and local council officers)	Tim Phillips Timothy.Phillips@lgat.tas.gov.au 6233 5962
<i>Living Marine Resources Management Act 1995</i>	<ul style="list-style-type: none"> ▪ Principal Marine Environment Officer, Marine Farming Branch, DPIWE ▪ Manager, (Wild fisheries) Marine Farming Branch, DPIWE 	Colin Shepherd Colin.Shepperd@dpiwe.tas.gov. 6233 3179 Dennis Witt Dennis.Witt@dpiwe.tas.gov.au 6233 3157
<i>Local Government Act 1993</i>	Natural Resource Management Facilitator, Local Government Association of Tasmania (and local council officers)	Tim Phillips Timothy.Phillips@lgat.tas.gov.au 6233 5962
<i>Mineral Resources Development Act 1995</i>	<ul style="list-style-type: none"> ▪ Managing geologist ▪ Environmental officer Industrial Minerals and Land Management Mineral Resources Tasmania (Minerals Exploration CoP) <ul style="list-style-type: none"> ▪ Mining engineer (Quarrying/extraction) 	Carol Bacon Carol.Bacon@mrt.tas.gov.au 6233 8326 John Pemberton John.Pemberton@mrt.tas.gov.au 6233 8371 Wojciech Grun Wojciech.Grun@dpiwe.tas.gov.au 6233 8320
<i>National Parks and Reserves Management Act 2002</i>	General Manager, Parks and Wildlife Service Tourism, Parks, Heritage and the Arts	Peter Williams 6233 2592 Peter.Williams@parks.tas.gov.au

<i>Nature Conservation Act 2002</i>	<p>Manager, Nature Conservation Branch, DPIWE</p> <p>Manager, Strategic Initiatives and Legislative Review Resource Management and Conservation Division, DPIWE</p>	<p>Alistair Scott 6233 2471</p> <p>Alistair.Scott@dpiwe.tas.gov.au</p> <p>Peter Bosworth Peter.Bosworth@dpiwe.tas.gov.au 6233 6218</p>
<i>Plant Quarantine Act 1997</i>	<p>Weedplan Education Officer, Environment Branch, DPIWE</p>	<p>Christian Goninon 6233 3654</p> <p>Christian.Goninon@dpiwe.tas.gov.au</p>
<i>Public Health Act 1997</i>	<p>(Note role of local govt.) Natural Resource Management Facilitator</p> <p>Local Government Association of Tasmania (and local council officers)</p>	<p>Tim Phillips Timothy.Phillips@lgat.tas.gov.au 6233 5962</p>
<i>River and Water Supply Commission Act 1999</i>	<p>Administrative Officer, Rivers and Water supply Commission</p>	<p>Adrian Paine Adrian.Paine@dpiwe.tas.gov.au 6233 4960</p>
<i>State Coastal Policy Validation Act 2003</i>	<p>Manager, Coastal and Marine Branch, Environment Division, DPIWE</p>	<p>Chris Rees 6233 3963</p> <p>Chris Rees@dpiwe.tas.gov.au</p> <p>Handbook reference: http://www.dpiwe.tas.gov.au/inter.nsf/Publications/LBUN-5R82AT?open</p>

<p><i>Threatened Species Protection Act 1995</i></p>	<p>Manager, Threatened Species Unit, DPIWE Senior Fisheries Manager, Inland Fisheries Service</p>	<p>Sally Bryant Sally.Bryant@dpiwe.tas.gov.au 6233 2863 Jean Jackson Jean.Jackson@ifs.tas.gov.au 6233 2691</p>
<p><i>Water Management Act 1999</i></p>	<ul style="list-style-type: none"> ▪ Manager, Water Management Branch, Water Resources Division, DPIWE (Dam approvals) ▪ Manager, Water Assessment and Planning Branch, DPIWE (Water Management Plans) ▪ Principal Water Environment Officer, Water Assessment and Planning Branch, DPIWE (Environmental flows) 	<p>Mike Temple-Smith Mike.Temple-Smith@dpiwe.tas.gov.au 6233 2576/0417 376 864 John Whittington John.Whittington@dpiwe.tas.gov.au 6233 2578 Martin Read 6233 6834 Martin.Read@dpiwe.tas.gov.au</p>
<p><i>Weed Management Act 1999</i></p>	<p>Weedplan Education Officer, Environment Branch, DPIWE</p>	<p>Christian Goninon 6233 3654 Christian.Goninon@dpiwe.tas.gov.au</p>
<p><i>World Heritage Properties Conservation Act 1983</i></p>	<p>Planning Officer WHA, Planning section, DPIWE</p>	<p>Tim O'Loughlin 6233 2112 Tim.O'Loughlin@dpiwe.tas.gov.au</p>

Policies and strategies

Tool	Position/Agency	Current contact
China-Australia Migratory Birds Agreement (CAMBA) & Japan –Australia Migratory Bird Agreement (JAMBA)	Wildlife Biologist, Nature Conservation Branch, DPIWE	Stewart Blackall Stewart.Blackall@dpiwe.tas.gov.au 6233 6585
Convention on Wetlands (Ramsar)	Wildlife Biologist, Nature Conservation Branch, DPIWE	Stewart Blackall Stewart.Blackall@dpiwe.tas.gov.au 6233 6585
Forest Practices Code & MDS	Chief Forest Practices Officer, Forest Practices Board	Graham Wilkinson 6233 7451 Graham.Wilkinson@fpb.tas.gov.au
International Convention on Biological Diversity 1993	Manager, Nature Conservation Branch, DPIWE	Alistair Scott 6233 2471 Alistair.Scott@dpiwe.tas.gov.au
Management Decision System for forest planning	Manager, Planning (Conservation and Environment), Forestry Tasmania	Gary King Gary.King@forestry.tas.gov.au 62338173
Marine Protected Areas Strategy 2001	Principal Marine Environment Officer, Marine Farming Branch, DPIWE	Doug Nicol Doug.Nicol@dpiwe.tas.gov.au 6233 6717
National Reserves System Program	Manager, Strategic Initiatives and Legislative Review, Resource Management and Conservation Division, DPIWE	Peter Bosworth Peter.Bosworth@dpiwe.tas.gov.au 6233 6218
National Strategy for the Conservation of Australia's biodiversity 1996	Manager, Nature Conservation Branch, DPIWE	Alistair Scott 6233 2471 Alistair.Scott@dpiwe.tas.gov.au

National Water Quality Management Strategy	Senior Policy Officer, Environment Division, DPIWE Manager, Water Assessment and Planning Branch, DPIWE	Steve Howett Steve.Howett@dpiwe.tas.gov.au 6233 6430 John Whittington John.Whittington@dpiwe.tas.gov.au 6233 2578
National Wetlands Program	Wildlife Biologist, Nature Conservation Branch, DPIWE	Stewart Blackall Stewart.Blackall@dpiwe.tas.gov.au 6233 6585
Natural Resource Management Framework	Executive Officer - Strategic Issues, DPIWE	Pat Kelly Pat.Kelly@dpiwe.tas.gov.au 6233 3525
Policy guidelines for water allocation assessment (Draft)	Manager, Water Management Branch, Water Resources Division, DPIWE	Mike Temple-Smith Mike.Temple-Smith@dpiwe.tas.gov.au 6233 2576/0417 376 864
Regional Coastal Management Strategies	Manager, Coastal and Marine Branch, Environment Division, DPIWE	Chris Rees 6233 3963 Chris Rees@dpiwe.tas.gov.au
Regional Coastal Management strategies	Manager, Coastal and Marine Branch, Environment Division, DPIWE	Chris Rees 6233 3963 Chris Rees@dpiwe.tas.gov.au
Resource Management and Planning System	Manager, Resources Planning and Development Commission	Carol Hughes 6233 2795 Carol.Hughes@rpdc.tas.gov.au
State Coastal Policy 1996	Manager, Coastal and Marine Branch, Environment Division, DPIWE	Chris Rees 6233 3963 Chris Rees@dpiwe.tas.gov.au

State Policy on Water Quality Management 1997	Senior Policy Officer, Environment Division, DPIWE Manager, Water Assessment and Planning Branch, DPIWE (Water Quality Monitoring)	Steve Howett Steve.Howett@dpiwe.tas.gov.au 6233 6430 John Whittington John.Whittington@dpiwe.tas.gov.au 6233 2578
State Stormwater Strategy (Draft)	Section Head, Environmental Policy Office, Environment Division, DPIWE	Lynn Powell Lynn.Powell@dpiwe.tas.gov.au
Strategic Plan of Action for the National Representative System of Marine Protected Areas	Principal Marine Environment Officer, Marine Farming Branch, DPIWE	Doug Nicol Doug.Nicol@dpiwe.tas.gov.au 6233 6717
Strategy for the Management of Rice Grass (<i>Spartina anglica</i>) in Tasmania, Australia	Principal Environmental Officer, Marine Farming Branch, DPIWE	Colin Shepherd Colin.Shepperd@dpiwe.tas.gov.au 6233 3179
Tasmania's Nature Conservation Strategy 2003-2006	Manager, Nature Conservation Branch, DPIWE	Alistair Scott 6233 2471 Alistair.Scott@dpiwe.tas.gov.au
Threatened Species Strategy for Tasmania 2001	Manager, Threatened Species Unit, DPIWE	Sally Bryant Sally.Bryant@dpiwe.tas.gov.au 6233 2863
Water For Ecosystems Policy	Manager, Water Assessment and Planning Branch, DPIWE (Water Management Plans, Environmental flows)	John Whittington John.Whittington@dpiwe.tas.gov.au 6233 2578

<p>Weedplan Tasmania's Weed Management Strategy</p>	<p>Weedplan Education Officer, Environment Branch, DPIWE</p>	<p>Christian Goninon 6233 3654 Christian.Goninon@dpiwe.tas.gov.au</p>
<p>Wetlands Policy of the Commonwealth Government of Australia 1997</p>	<p>Wildlife Biologist, Nature Conservation Branch, DPIWE</p>	<p>Stewart Blackall Stewart.Blackall@dpiwe.tas.gov.au 6233 6585</p>
<p>Wetlands Strategy for Tasmania 2000 (draft)</p>	<p>Wildlife Biologist, Nature Conservation Branch, DPIWE</p>	<p>Stewart Blackall Stewart.Blackall@dpiwe.tas.gov.au 6233 6585</p>

Voluntary and non-legislated tools

Tool	Position/Agency	Current contact
<p>Ballast Water Decision Support System</p>	<p>AFFA (Commonwealth initiative)</p>	<p>Reference: www.affa.gov.au/content/output.cfm?ObjectID=D2C48F86-BA1A-11A1-A2200060A1B00715</p>
<p>Community Coastal Handbook</p>	<p>Manager, Coastal and Marine Branch, Environment Division, DPIWE</p>	<p>Chris Rees 6233 3963 Chris.Rees@dpiwe.tas.gov.au Reference: http://www.dpiwe.tas.gov.au/inter.nsf/Publications/LBUN-5R82AT?open</p>
<p>Emission Limit Guidelines for Sewage Treatment plants</p>	<p>Environmental Policy Section, Environment Division, DPIWE</p>	<p>Diana.Williams@dpiwe.tas.gov.au Reference: http://www.dpiwe.tas.gov.au/inter.nsf/WebPages/LBUN-53L7SW?open</p>

Management agreements (various)	Refer to: Manager, Special Projects, DPIWE	Penny Wells Penny.Wells@dpiwe.tas.gov.au 6233 30400400 136390
Mineral Exploration Code of Practice	<ul style="list-style-type: none"> ▪ Managing geologist/ ▪ Senior geologist Industrial Minerals and Land Management, Mineral Resources Tasmania	Carol Bacon Carol.Bacon@mrt.tas.gov.au 6233 8326 John Pemberton John.Pemberton@mrt.tas.gov.au 6233 8371
National Reserves System Program	Manager, Strategic Initiatives and Legislative Review Branch, DPIWE	Peter Bosworth Peter.Bosworth@dpiwe.tas.gov.au 6233 6218 Penny Wells
Protected Areas on Private Land Program (Conservation covenants, Private nature reserves, income tax incentives)	Coordinator, PAPL program, Strategic Initiatives and Legislative Review Branch, DPIWE	Josie Kelman (Acting) /Joanna Edwards Josie.Kelman@dpiwe.tas.gov.au 6233 6210
Rivercare	<ul style="list-style-type: none"> ▪ Section Leader (Rivercare) Land Management Branch, DPIWE ▪ Rivercare Officer, Commonwealth NRM 	Michael Askey-Doran Michael.Askey-Doran@dpiwe.tas.gov.au 6233 6168 Imogen Birley Imogenk@wildmail.com 0414 576 171

Stormwater Management Guidelines (draft)		Reference: http://www.dpiwe.tas.gov.au/inter.nsf/WebPages/RPIO-4YG9NW?open
Toolbox for introduced Marine pests NIMPIS	Senior Marine Environment Officer, Marine Branch, DPIWE	Alice Morris Alice.Morris@dpiwe.tas.gov.au 6233 6555 Reference: http://crimp.marine.csiro.au/nimpis/
Wastewater Management guidelines	Waste Water Management Officer, Environment Division, DPIWE	David Dettrick 6233 3601 wastewater@dpiwe.tas.gov.au
Waterwatch	Likely to be included in NRM regional committees	Northern Regional NRM coordinator Howard Colvin nrmnorth@bigpond.net.au 63365219 North-West Regional NRM coordinator David McCormack dmcormack@cradlecoast.net.au 6431 6285 Southern Regional NRM coordinator Vanessa Elwell-Gavins nrmsouth@bigpond.net.au
Wetlands and Waterways Works Manual	Section Leader (Rivercare), Land Management Branch, DPIWE	Michael Askey-Doran Michael.Askey-Doran@dpiwe.tas.gov.au 6233 6168 Reference: http://www.dpiwe.tas.gov.au/inter.nsf/WebPages/CDA T-5EJ7HC?open

Willow removal guidelines 2003	Section Leader (Rivercare), Land Management Branch, DPIWE	Michael Askey-Doran Michael.Askey-Doran@dpiwe.tas.gov.au 6233 6168
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