High Conservation Value Aquatic Ecosystems Project – identifying, categorising and managing HCVAE

FINAL REPORT

- Final
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Sinclair Knight Merz
ABN 37 001 024 095
590 Orrong Road, Armadale 3143
PO Box 2500
Malvern VIC 3144 Australia
Tel: +61 3 9248 3100
Fax: +61 3 9500 1182
Web: www.skmconsulting.com

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Executive Summary

Project background, objectives and scope

To assist the preparation of a national framework for the identification and management of Australia's high conservation value aquatic ecosystems (HCVAE) the Australian Government and jurisdictions require a review of the approaches currently used to identify, categorise and manage HCVAE in Australia.

Sinclair Knight Merz has been engaged by the Department of the Environment and Heritage to undertake a project which has reviewed existing policy, planning and legislative frameworks used to identify, categorise and manage HCVAE across Australia. Its primary purpose is to document and describe the current approaches in each jurisdiction and provide an analysis of common elements and similarities across jurisdictions.

Importantly, it is not the purpose of this report to propose a national framework for the management, identification and categorisation of HCVAE, as that will be the role of the HCVAE Task Group. The findings contained in this report may be used to inform the HCVAE Task Group as it formulates a policy position and recommendations in relation to a national framework for managing and conserving HCVAE.

This report

This report summarises the approaches taken to identifying, categorising and managing HCVAE in each jurisdiction. Summaries take into account approaches to protecting and managing aquatic ecosystems as well as terrestrial ecosystems and species management where relevant. They also consider water allocation and management frameworks in the context of water for the environment. The focus of the jurisdictional summaries centres on the legislative, policy and planning mechanisms (statutory and non-statutory) and supporting tools utilised by each jurisdiction to identify, categorise and manage HCVAE.

As summarised in this report (section 3) the case for a nationally consistent approach to the identification, categorisation and management of HCVAE is one which has been raised in many forums and literature. While a detailed literature review was not within the scope of this project, the report summarises the key findings and recommendations of a number of key studies examining gaps in the existing frameworks and proposals for a national approach.

This report also provides a comparative analysis of approaches and of the common elements and similarities across jurisdictions in identifying, categorising and managing HCVAE.

Identification and categorisation of HCVAE

Most jurisdictions have some form of instrument that protects, either directly or indirectly, some HCVAE. By default, those HCVAE that are contained within the terrestrial reserve or protected area system appear to have been afforded the best protection. Victoria and New South Wales have designated rivers for protection. Queensland recently declared its first six wild river areas under its Wild Rivers legislation, which protects these river systems and their entire catchments. Aside from the protection of Ramsar and DIWA (although DIWA sites are not automatically protected) the states of New South Wales, Western Australia and Queensland also provide some protection for coastal wetlands and lakes under state legislation.

Currently there is no national categorisation or classification system for rivers, estuaries or other freshwater aquatic ecosystems, with the exception of those associated with Ramsar wetlands and DIWA. Although as noted by many stakeholders there are inconsistencies in the way in which aspects of these frameworks are applied and interpreted across jurisdictions.

All jurisdictions use different approaches, tools and terminology but there appears to be some degree of similarity across the broad ecological criteria used, such as for example – naturalness; representativeness; diversity; and importance for other systems or species. There is not a great deal of similarity in the way in which economic and social values have been considered, except that in most cases there are no such criteria.

Approaches and tools developed by Tasmania (CFEV) and Queensland (Wild Rivers) were identified by some stakeholders as being of interest and value. This was the case particularly for jurisdictions with a low level of water resource development and HCVAE in pristine condition. The approach to protection, river health and environmental water allocation undertaken in Victoria was considered by stakeholders to be comprehensive and well-integrated but of limited application to other jurisdictions (particularly those with unregulated rivers) given the differences in the biophysical environment and institutional settings. There maybe potential however for application of some elements and tools (e.g. Index of Stream Condition) in other jurisdictions.

Effective non-statutory instruments for protection and management of HCVAE (particularly wetlands and rivers) are being implemented in Tasmania (CFEV project), Victoria (River Health Framework), Queensland (wetland mapping and categorisation program) and Western Australia (waterways and wetlands frameworks). In all of these cases, state governments provide state-level guidance and tools for regional natural resource management organisations to identify, categorise, prioritise and ultimately develop management actions for HCVAE.

The approaches to identification and categorisation of HCVAE and their supporting tools and legislative frameworks in each jurisdiction are vastly different, but do contain some broad similarities. These differences are influenced by the diversity of environments and institutional and

implementation arrangements including policy and management objectives (e.g. protection, restoration or rehabilitation), the institutional and delivery arrangements (e.g. regional or state) and the dominant paradigms within the key stakeholder agencies (e.g. conservation or sustainable use). Key areas of similarity across jurisdictions occur on several levels:

1) Federal legislation – i.e. protection afforded by the EPBC Act.
2) Existing identification and categorisation frameworks with national application – i.e. Ramsar and DIWA frameworks although implementation often differs across jurisdictions.
3) Tiered priorities (i.e. national/state/regional) and overarching principles and guidelines for conservation, protection and management of natural resource assets – e.g. protect assets of high value and good condition; rehabilitate and restore assets with high value and moderate condition and be prepared to not invest in low value or poor condition assets.
4) Broad ecological criteria for assessing value and condition (as above).
5) Wide recognition of the key implementation role of regional NRM organisations (catchment and water managers) in identifying, categorising and managing HCVAE.

While the instruments and mechanisms through which these are delivered differ, these areas offer the greatest opportunity for alignment and synergy across jurisdictions.

Management of HCVAE

The management of HCVAE is complex and involves interlocking players, instruments and agendas. Given the relative progress in developing identification and categorisation frameworks for HCVAE, management of HCVAE appears to be less progressed in most cases. While governments are developing and implementing frameworks for identifying and categorising HCVAE, in many cases this has not yet translated into real management actions.

In some cases however, these frameworks are playing a significant role in guiding policy, planning and on-ground action. In Tasmania for example, the CFEV framework has been embedded into water management frameworks to underpin water management decisions via the assessment of dam applications for the dam approvals process, the assessment of major projects and development proposals and using CFEV in NRM planning and investment processes. In 2006 the CFEV framework was introduced into the water management planning process and the development of water management plans. The CFEV program is currently focusing on promoting the use of the framework in other planning processes.

River and water managers (e.g. catchment management authorities and water authorities) play a significant role in the management and protection of HCVAE through the provision of environmental water and appropriate wetting regimes. While the scope of this consultancy did not allow for engagement or consultation of this group, as potential implementers of a national approach, there should be consideration given to their engagement in its future development.

In a practical sense, the management of HCVAE operates at a catchment and/or local scale, generally either by private landholders (on private or leasehold land) or government agencies or local government on public land. Those HCVAE with formal protection such as a Ramsar wetland will generally have a management plan that guides and directs management and on-ground action. For those HCVAE that lie outside of formal protected areas and on private land, it is difficult to determine their management regime. This issue of land tenure (i.e. public vs private/leasehold land) was consistently identified by stakeholders as a key issue for the management of HCVAE.

It is therefore important to develop management frameworks and programs that can influence management of HCVAE on private land. Such programs involving market-based instruments, incentives, extension and education, covenants and management agreements are being implemented by state/territory agencies and regional NRM organisations to varying degrees in each jurisdiction with varying degrees of effectiveness. As such, stakeholders felt that regional NRM bodies will have a key role in integrating priorities for HCVAE protection and investment into regional NRM planning frameworks and in engaging with private landholders to influence management.

Coordinated and focused management can be problematic given the wide range of instruments and managers that have roles in protecting and managing HCVAE. A possible conclusion is that as states and territories become better at managing catchments and natural resources, then the protection afforded to HCVAE will also improve and the need for specific management requirements may lessen.

The case for a nationally consistent approach

There are a number of organisations and researchers that support the development of a national approach to the identification, classification and management of HCVAE in Australia due to the gaps and inconsistencies between national, state and territory approaches. The identified benefits of a nationally consistent approach include:

- Co-ordinated and integrated approach to managing national assets to ensure samples of different types of rivers and wetlands are protected. Improved management of transboundary assets, threats and resources.
- Consistent identification of HCVAE, monitoring and evaluation to enable comparisons between jurisdictions.
- The creation of common language around HCVAE in order to promote a consistent approach and shared knowledge and co-operation between states and territories.
- Improved and transparent prioritisation of aquatic ecosystems for funding and research ensuring that limited resources are strategically targeted.

- The establishment and reporting of national targets and objectives for maintaining and enhancing HCVAE.
- The alignment of existing policies and programs to ensure that they are working towards the same goals.
- Reduced risk of costly duplication and bureaucratic inefficiencies.
- Transferral of the benefits gained from a national approach to the management of terrestrial and marine areas through the determination of aquatic ecosystems with national significance.
- Improved capacity to meet commitments under the National Water Initiative, NHT's Rivercare and Coastcare Programs, the Convention on Biological Diversity and the Ramsar Convention.

Whilst there are sound arguments supporting the development of a consistent national approach, possible limitations and constraints have also been identified. Most stakeholders appear to agree in principle with the concept of a national approach but have aired concerns regarding its scope and implementation. This is particularly true for jurisdictions that have already spent considerable effort and investment in developing and implementing a framework for their state or territory.

Stakeholders identified the need for a clear statement about the outcomes sought by a consistent categorisation system and the decision-making processes in which it would be used. For example, how would such a categorisation system be used to guide investment or determine conservation priorities or facilitate monitoring and reporting? Some stakeholders felt that there was a need for a more clearly articulated case for investing in a nationally consistent approach when it would divert investment away from other programs and projects that were considered to provide more tangible on-ground outcomes.

Most advocates agreed that a national framework should support rather than replace existing state/ territory mechanisms for protection and management. They suggest that this could be achieved through national high-level principles and objectives rather than a prescriptive framework. Discussions with jurisdictional stakeholders highlighted that a nationally consistent approach should focus on filling existing gaps rather than 're-inventing the wheel'. Overwhelmingly, stakeholders felt that such an approach should provide overarching principles and guidance supported by tools rather than a detailed prescriptive method. A high level of flexibility and pragmatism is desired to account for:

- existing approaches and legislative, policy and planning frameworks;
- existing priorities for investment and action;
- a diversity of ecosystems and environments;

- a range of implementation and delivery mechanisms;
- the different levels of capacity and maturity of key stakeholder organisations;
- the different levels of data availability and knowledge; and
- various land tenure and ownership/management arrangements.

There was wide recognition that achieving high level agreement across jurisdictions for a nationally consistent approach will be challenging and will require leadership, direction and support from the Australian Government. Significant engagement, coordination and cooperation among agencies within and across jurisdictions will be required to reach agreement. Stakeholders also identified the need for better coordination and integration of similar and relevant projects and programs across federal, state and regional levels to ensure the development of integrated frameworks and to reduce the risk of duplication.

Next steps

In principle, most stakeholders support the concept of a nationally consistent approach to identifying, categorising and managing HCVAE but require greater detail and understanding regarding the objectives and outcomes of such an approach and the way in which it would be embedded into existing frameworks. Given the findings of this report the greatest progress towards agreement on a nationally consistent approach can be made by:

6) Development of an overarching national policy position for HCVAE in Australia that articulates:
   - National principles, strategic and policy objectives for identifying, categorising and managing HCVAE.
   - Agreed definitions and terminology for use in identifying, categorising and managing HCVAE.
   - An implementation plan for the national policy framework that maps out how it would be embedded and applied in each jurisdiction.
7) Development of a nationally consistent categorisation system for freshwater aquatic ecosystems that includes:
   - Processes and criteria for identifying and categorising HCVAE
   - Consideration of tiers of significance (e.g. international/national/state or territory/ local)
   - Guidance on principles for data collection, storage and analysis
   - Guidance on principles for monitoring, evaluation and reporting, and mapping protocols.
8) Facilitating coordination and integration across agencies and jurisdictions through the HCVAE Task Group.
9) Identification of further priorities and actions to assist with related:

- policy development;
- implementation;
- research and development; and
- data and knowledge management.

Abbreviations

ACA	Aquatic Conservation Assessment
ACTPLA	Australian Capital Territory Planning and Land Authority
ANZECC	Australian and New Zealand Environment and Conservation Council
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
AUSRIVAS	Australian River Assessment System
CAMBA	China - Australia Migratory Bird Agreement
CAR	Comprehensive, Adequate and Representative
CFEV Project	Conservation of Freshwater Ecosystem Values Project
COAG	Council of Australian Governments
DAFF	(C'wth) Department of Agriculture, Fisheries and Forestry
DEC	(New South Wales) Department of Environment and Conservation
DEC	(Western Australia) Department of Environment and Conservation
DEH	(C'wth) Department of the Environment and Heritage
DEH	(South Australia) Department for Environment and Heritage
DIER	Department of Infrastructure, Energy and Resources
DIWA	Directory of Important Wetlands in Australia
DNR	(New South Wales) Department of Natural Resources
DoIR	(Western Australia) Department of Industry and Resources
DPC	Department of Premier and Cabinet
DPI	(New South Wales) Department of Primary Industries
DPI	(Northern Territory) Department of Planning and Infrastructure
DPI	(Victoria) Department of Primary Industries
DPI	(Western Australia) Department for Planning and Infrastructure
DPIF	(Queensland) Department of Primary Industries and Fisheries
DPIFM	(Northern Territory) Department of Primary Industry, Fisheries and Mines
DPIW	(Tasmania) Department of Primary Industries and Water
DSE	(Victoria) Department of Sustainability and Environment
DSS	Decision Support System
DTAE	(Tasmania) Department of Tourism, Arts and the Environment
DWLBC	(South Australia) Department of Water, Land and Biodiversity Conservation
EPA	Environment Protection Authority
EPBC Act	Environment Protection and Biodiversity Conservation Act
FHAs	Fish Habitat Areas
HCVAE	High Conservation Value Aquatic Ecosystems
IBRA	Interim Biogeographic Regionalisation for Australia
INRM Plan	(Northern Territory) Integrated Natural Resource Management Plan
ISC	Index of Stream Condition
IUCN	International Union for the Conservation of Nature and Natural Resources
JAMBA	Japan- Australia Migratory Bird Agreement
LWA	Land and Water Australia

MDB	Murray Darling Basin
MDBC	Murray Darling Basin Commission
MER	Monitoring, evaluation and reporting
NAPSWQ	National Action Plan for Salinity and Water Quality
NCA	National Capital Authority
NGO	Non Government Organisation
NHT	Natural Heritage Trust
NRETA	(Northern Territory) Department of Natural Resources, Environment and the Arts
NRM	Natural Resource Management
NRMC	Natural Resource Management Ministerial Council
NRS	National Reserve System
NRW	(Queensland) Department of Natural Resources and Water
NSESD	National Strategy for Ecologically Sustainable Development
NWC	National Water Commission
NWI	National Water Initiative
PIRSA	Primary Industries and Resources, South Australia
PV	Parks Victoria
QPWS	Queensland Parks and Wildlife Service
RNWS Programme	Raising National Water Standards Programme
RPDC	(Tasmania) Resource Planning and Development Commission
SRA	Sustainable Rivers Audit
TAMS	(Australian Capital Territory) Department of Territory and Municipal Services
VRHS	Victorian River Health Strategy
WWF	World Wide Fund

1. Introduction

1.1 Background

In 2004 the Council of Australian Governments (COAG) agreed upon the National Water Initiative (NWI) to better manage Australia's water resources. The NWI encompasses a range of issues associated with the management of the nation's water resources including the sustainable use of surface waters and aquifers. Provisions in the Intergovernmental Agreement on a National Water Initiative commit signatories to:

> *25 x) identify and acknowledge surface and groundwater systems of high conservation value, and manage these systems to protect and enhance those values.*

Under this clause, each signatory is obliged to implement a water planning framework that recognises, protects and appropriately manages high-conservation value surface water and groundwater systems. Whilst implementation is largely the responsibility of the states and territories, the Australian Government requires an effective response to meet its national and international agreements and initiatives.

Currently there is no nationally consistent approach to the identification, categorisation and management of high conservation value aquatic ecosystems (HCVAE). Principles, objectives and targets have not been established for the management of these areas at a national scale. Consequently it is currently not possible to comprehensively assess the conservation significance or condition of Australia's aquatic ecosystems using a nationally consistent approach, assess the adequacy or otherwise of the management of these resources, nor to adequately report against a range of national and international obligations.

At its November 2005 meeting, the Natural Resource Ministerial Council's Natural Resource Policy and Programs Committee established a high level strategic High Conservation Value Aquatic Ecosystems Task Group. The primary purpose of the group is to oversee the development of a nationally consistent approach for both the identification and management of high-conservation value aquatic ecosystems (HCVAE) across all jurisdictions.

1.2 Project objectives and scope

To assist the preparation of a national framework for the identification and management of Australia's HCVAE the Australian Government and jurisdictions require a review of the approaches currently used to identify, categorise and manage HCVAE in Australia.

Sinclair Knight Merz has been engaged by the Department of the Environment and Heritage to undertake a project which will review existing **policy, planning and legislative frameworks** used

to identify, categorise and manage HCVAE across Australia. The purpose of the project is **to document, review and provide a comparative analysis of frameworks used in different jurisdictions for the identification, categorisation and management of HCVAE.**

Importantly, the project is **not an evaluation or audit of frameworks nor a technical review** – its primary purpose is to **document and describe the current approaches in each jurisdiction and provide an analysis of common elements and similarities across jurisdictions**. The project will also describe 'lessons learnt' and key challenges but it will not provide recommendations regarding the suitability or preference for a particular model or approach or consider in detail the case for a nationally consistent approach.

The major project tasks involve:

1) A desktop review of relevant policy, planning and legislative frameworks in each State and Territory using a consistent analysis framework (September – October 2006)
2) Engaging key government agency stakeholders through in-person interviews to confirm, clarify and illicit further detail regarding frameworks and approaches (October 2006)
3) Holding a Stakeholder Workshop with representatives from each State and Territory to identify and discuss commonalities of approaches and broad recommendations for inclusion in the draft report and to progress the development of a nationally consistent approach (29 November 2006).
4) Draft and Final reports (January – February 2007)

The study findings will be presented to the Project Steering Committee and ultimately the High Conservation Value Aquatic Ecosystems Task Group for further consideration.

1.3 This report

The purpose of this report is to document findings resulting from the project tasks outlined above. The findings contained in this report may be used to inform the HCVAE Task Group as it formulates a policy position and recommendations in relation to a national framework for managing and conserving HCVAE.

This report is structured into five sections as follows:

- **Section One** (this section)- provides an introduction to the project and an overview of its objectives.
- **Section Two**- provides a summary of methods and approaches to identifying, categorising and managing HCVAE in Australian at an international, national and state/territory level. This includes a discussion of successful approaches and future challenges and directions at a jurisdiction level.

- **Section Three**- provides an overview of proposed frameworks for a nationally consistent approach and relevant categorisation systems.
- **Section Four**- provides a comparative analysis of approaches across jurisdictions, discusses the case for a nationally consistent approach and summarises key challenges and future directions for identification, categorisation and management of HCVAE in Australia.
- **Section Five**-summarises the project's findings.
- **Appendices:**
  - **Appendix A**- outlines the key stakeholders who have been consulted in the preparation of this report.
  - **Appendix B**- provides the interview questions directed at stakeholders.
  - **Appendix C**- sets out a comparative summary of different jurisdictions approaches to identification, categorisation and management of HCVAE.
  - **Appendix D**- provides a summary of each jurisdiction and the key legislative and policy documents governing the identification, categorisation and management of HCVAE.

Key terms used in this report have the following scope and meaning:

- *HCVAE* - for the purposes of this study and as outlined in the project brief, aquatic ecosystems include rivers, wetlands, floodplains, lakes, inland saline ecosystems, groundwater dependent ecosystems and estuaries but not the marine environment.
- *Stakeholders* – jurisdictional stakeholders for the purposes of this study are state or territory government agencies and national /basin agencies (DEH, MDBC, NWC, LWA) (refer to Appendix A for full list of stakeholders consulted). While it was recognised at the outset of the project that regional natural resource management organisations, river/catchment managers and local government play a role in identifying and managing HCVAE, the project steering committee decided that the primary focus of the project was to be at an international-national/state and territory scale and that regional or local organisations would not be consulted as part of this project.
- *Identification and categorisation of HCVAE* – through consultation with stakeholders it was determined that processes for identifying and categorising HCVAE are so linked that there were no obvious benefits in considering them separately for this report. For the purposes of this project, 'categorisation' has taken on a broader meaning than that traditionally used in some national biophysical classification frameworks (e.g. Interim Biogeographic Regionalisation for Australia (IBRA) framework). This report has attempted to include information provided by jurisdictions on the suite of policy, processes and tools used to identify and 'categorise' HCVAE. These include categories or criteria for asset values and condition, significance/importance, and protection and conservation status of HCVAE. While

not strictly biophysical classification frameworks as such, this information is important to include as it forms the basis of approaches in each jurisdiction.

- *Management of HCVAE* – as highlighted above, the purpose of this project is to document and analyse policy, planning and legislative frameworks used to identify, categorise and manage HCVAE across Australia. As such, a detailed investigation of management arrangements and on-ground implementation of HCVAE did not form part of the scope of this consultancy. A higher level assessment of management of HCVAE was undertaken that considered roles and responsibilities for management, as well as planning and policy instruments used to influence management. Regional or local management plans were not analysed as part of this project.

2. Approaches to HCVAE

This section summarises the approaches taken to identifying, categorising and managing HCVAE in each jurisdiction. Summaries take into account approaches to protect and manage aquatic ecosystems as well as terrestrial ecosystems and species management where relevant. They also consider water allocation and management frameworks in the context of water for the environment.

Jurisdictional summaries focus on the legislative, policy and planning mechanisms (statutory and non-statutory) and supporting tools utilised by each jurisdiction to identify, categorise and manage HCVAE. Summaries are structured according to the following format:

- **Primary organisations and roles**- this outlines the key government agencies involved in the identification, categorisation and management of HCVAE and their primary role. (NOTE: This is not included for the international summary as international treaties are implemented through national/ state/ territory agencies).
- **Key legislative, policy and planning instruments**- this provides a brief overview of the key instruments and guiding documents as identified by stakeholders. A more detailed assessment is provided in Appendix D.
- **Identification and categorisation of HCVAE-** this provides a summary of approaches to identify and categorise HCVAE including a discussion on principles, values, criteria and indicators where relevant.
- **Management of HCVAE-** this section includes a discussion on delivery and implementation issues, management arrangements (including water for the environment) and the level of implementation progress.
- **Effective or innovative approaches that may be transferable-** this section provides a brief summary of comments provided by stakeholders regarding the effective or innovative approaches or tools either used within their jurisdiction (i.e. successes) or approaches from other jurisdictions that may be considered valuable and/or transferable.
- **Future directions and challenges-** this section provides a brief summary of comments provided by stakeholders regarding the future direction and challenges faced by stakeholders in developing and implementing a nationally consistent approach.

This information has been summarised from a desktop review of available literature and from meetings with key government agency stakeholders in each jurisdiction. Stakeholders consulted for this project are listed in Appendix A. The list of question prompts used for these meetings are provided in Appendix B while more detailed information is tabulated in Appendix D. A comparative analysis of approaches is provided in section 4.1 and Appendix C.

2.1 International

Key instruments

Australia is party to a number of international agreements of relevance to the identification, categorisation and management of HCVAE. Key instruments of relevance are:

- *Ramsar Convention on Wetlands of International Importance*- provides the framework for international cooperation for the conservation of wetlands through the creation of the List of Wetlands of International Importance.
- *United Nations Convention on Biological Diversity*- requires the development of national strategies and action plans designed to promote the conservation of biological diversity.
- *Bonn Convention on the Migratory Species of Wilds Animals*- provides a framework for the protection of endangered migratory species.
- *Japan Australia Migratory Bird Agreement (JAMBA)*- provides for the protection of areas used by birds which migrate between Japan and Australia.
- *China Australia Migratory Bird Agreement (CAMBA)*- provides for the protection of areas used by birds which migrate between China and Australia.
- *World Heritage Convention*- established the World Heritage List that designates sites around the world that are outstanding for their cultural value or their unique natural beauty or ecological importance.

Please refer to Appendix D for more detail on these agreements.

Identification and categorisation of HCVAE

While most international agreements predate the HCVAE terminology, there are three key international treaties which influence the identification and categorisation of HCVAE in Australia:

- Ramsar Convention on Wetlands of International Importance
- World Heritage Convention
- UN Convention on Biological Diversity

The Ramsar Convention deals with the management of wetlands of international importance. Under the Convention wetlands are designated to the List of Wetlands of International Importance on the basis of their ecological, botanical, zoological, limnological or hydrological importance. For a wetland to be designated as a Wetland of International Importance under the Ramsar Convention, it must satisfy one or more of the following criteria:

- *Criterion 1*: it contains a representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic region.
- *Criterion 2:* it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.

- *Criterion 3:* it supports populations of plant and/or animal species important for maintaining the biological diversity of a particular biogeographic region.
- *Criterion 4:* it supports plant and/or animal species at a critical stage in their life cycles, or provides refuge during adverse conditions.
- *Criterion 5:* it regularly supports 20,000 or more waterbirds.
- *Criterion 6:* it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.
- *Criterion 7:* it supports a significant proportion of indigenous fish subspecies, species or families, life-history stages, species interactions and/or populations that are representative of wetland benefits and/or values and thereby contributes to global biological diversity.
- *Criterion 8:* it is an important source of food for fishes, spawning ground, nursery and/or migration path on which fish stocks, either within the wetland or elsewhere, depend.

Australia currently has 53 wetlands listed under the Ramsar Convention. Ramsar wetlands are protected as matters of national environmental significance under the EPBC Act (section 2.2).

The World Heritage Convention sets out a framework for listing sites that are considered outstanding for their natural beauty or ecological importance. To be included on the World Heritage List, natural world heritage sites must satisfy the following selection criteria:

- *Criteria 1:* Be outstanding examples representing major stages of the earth's history, including the record of life, significant ongoing geological processes in the development of landforms, or significant geomorphic or physiographic features, or
- *Criteria 2:* Be outstanding examples representing significant ongoing ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals,
- *Criteria 3:* Contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance, or
- *Criteria 4:* Contain the most important and significant natural habitats for *in situ* conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.

Australia has three HVCAE sites listed on the World Heritage List, including Kakadu National Park (NT), Willandra Lakes Region (NSW) and Fraser Island (Qld).

Under the United Nations Convention on Biological Diversity governments are required to develop national biodiversity strategies and action plans, and to integrate these into broader national plans for environment and development. Other treaty commitments relate to identifying, protecting/enhancing and monitoring the important components of biological diversity that need to be conserved and used sustainably and also promoting public awareness and participation in

biological diversity. The Convention requires that Contracting Parties report on actions to implement the objectives of the Convention, and the effectiveness of their actions.

Management of HCVAE

While the Australian Government, specifically DEH, has a role in assessing and listing sites and in reporting on progress under these agreements it does not have a role in managing these sites (unless on Commonwealth land). Responsibility for management and monitoring of these sites usually falls to State or Territory Governments and/or their delegates (e.g. catchment management authority, management committee etc.).

Management of HCVAE listed under an international agreement (such as a Ramsar wetland for example) is generally supported and guided by a site management plan. Implementation of the plan and on-ground management of the site is often dependent on the land tenure at the site and the governance arrangements put in place.

International treaties rely on compliance by signatories, who set protection and management frameworks structured around ensuring treaty objectives are met. Contracting Parties to the Ramsar Convention make a commitment to:

- designate at least one site that meets the Ramsar criteria for inclusion in the List of Wetlands of International Importance and to promote its conservation, including, where appropriate, its wise use;
- include wetland conservation within their national land-use planning and to formulate and implement this planning so as to promote, as far as possible, "the wise use of wetlands in their territory";
- establish nature reserves on wetlands and promote wetland training; and
- consult with other Contracting Parties about the implementation of the Convention.

Under the Ramsar Strategic Plan 2003-2008, Contracting Parties seek to deliver their commitments to wetland conservation and wise use through "three pillars" of action:

1) Working towards the wise use of their wetlands through a wide range of actions and processes, including establishing national wetland policies and plans; reviewing and harmonizing the framework of laws and financial instruments affecting wetlands; undertaking inventory and assessment; integrating wetlands into the sustainable development process; promoting education and public involvement.
2) Further identifying, designating and managing Wetlands of International Importance.
3) Cooperating internationally in their delivery of wetland conservation and wise use.

Since its inception, the Convention has progressively developed an increasingly comprehensive range of policy and technical guidelines to assist Contracting Parties with implementing the

Convention. Contracting Parties are required to report on progress in implementing their commitments under the Convention by submission of triennial National Reports to the Conference of the Contracting Parties.

Implementation issues (including effective approaches and future directions) specific to Australia regarding relevant international agreements are further discussed below in the 'national' summary.

2.2 National

Primary organisations and roles

The key government agencies with a role in the identification, categorisation and management of HCVAE at a federal level are summarised below.

Organisation	Primary Roles
Department of the Environment and Water Resources	The Australian Government Department of the Environment and Water Resources (formerly the Department of the Environment and Heritage) develops and implements national policy, programs and legislation to protect and conserve Australia's natural environment and cultural heritage. The role of DEWR is to focus on matters of national environmental significance by: ■ Advising the Australian Government on its policies for protecting the environment and water resources ■ Administering environment and heritage laws, including the *Environment Protection and Biodiversity Conservation Act 1999* ■ Managing the Australian Government's main environment and heritage programmes including the $3 billion Natural Heritage Trust ■ Implementing an effective response to climate change ■ Representing the Australian Government in international environmental agreements related to the environment and Antarctica
Department of Agriculture, Fisheries and Forestry (DAFF)	The role of the DAFF is to develop and implement policies and programs that ensure Australia's agricultural, fisheries, food and forestry industries remain competitive, profitable and sustainable. Responsibilities include: ■ encouraging and supporting sustainable natural resource use and management; ■ protecting the health and safety of plant and animal industries; ■ enabling industries to adapt to compete in a fast-changing international and economic environment; ■ Helping to improve market access and market performance for the agricultural and food sector; ■ encouraging and assisting industries to adopt new technology and practices; and ■ assisting primary producers and the food industry to develop business and marketing skills, and to be financially self-reliant.
The National Water Commission	The National Water Commission is responsible for helping to drive national water reform and advising the Prime Minister and State and Territory governments on water issues. The Commission is also responsible for managing the implementation of the National Water Initiative and implementing two programmes of the Australian Government Water Fund – the Water Smart Australia programme and the Raising National Water Standards programme.
Natural Resource Management Ministerial Council	The role of the NRMC is to promote the conservation and sustainable use of Australia's natural resources and integrate Australia's conservation and natural resource management objectives.

Key legislative, policy and planning instruments

In addition to the international agreements highlighted above in section 2.1, Australian Government stakeholders identified a number of key instruments of relevance to the identification, categorisation and management of HCVAE:

- *The Environment Protection and Biodiversity Conservation (EPBC) Act* -promotes the conservation of biodiversity by providing strong protection for threatened species and ecological communities, migratory, marine and other protected species and natural heritage, which include sites of particularly high species diversity and endemism.
- *Intergovernmental Agreement on the Environment* -an agreement between heads of Government of the Commonwealth, States and Territories of Australia, and representatives of Local Government in Australia, on the Environment to provide a mechanism by which to facilitate a cooperative national approach to the environment.
- *The National Strategy for the Conservation of Australia's Biological Diversity*- provides the framework for protecting Australia's biodiversity and implementing the Convention on Biological Diversity. The Strategy is advisory and is given effect through various State and commonwealth legislation and/or strategies.
- *The National Water Initiative*- agreement between the Council of Australian Governments (COAG) to achieve a nationally compatible market, regulatory and planning based system of managing surface and groundwater resources that optimises economic, social and environmental outcomes.
- *The Wetlands Policy of the Commonwealth Government of Australia*- provides strategies to ensure that the activities of the Commonwealth Government promote the conservation, ecologically sustainable use and enhancement, where possible, of wetlands functions.
- *The National Water Quality Management Strategy*- provides the information and tools to help communities manage their water resources to protect and enhance the quality of water resources while maintaining economic and social development.

A more detailed summary of relevant instruments is provided in Appendix D while selected elements of these and associated approaches are described further in the following sections. Table 1 provides a summary of the policy, planning and legislative framework at both a national and international level.

Table 1: International and national policy, planning and legislative framework

	Water allocation and management	Biodiversity conservation & protected area management	Integrated catchment/ natural resources management	Water- dependent ecosystems	Environmental protection & land use planning
Legislation/ Conventions	National Water Initiative COAG Agreement on Water Murray Darling Basin Agreement	International Convention on Biological Diversity World Heritage Convention China/ Australia Migratory Bird Agreement Japan/ Australia Migratory Bird Agreement Aboriginal and Torres Straight Islander Heritage Protection Act 1984 Australian Heritage Council Act 2003 Environment Protection and Biodiversity Conservation Act 1999 Wet Tropics of Queensland World Heritage Area Conservation Act 1994		Ramsar Convention on Wetlands	Rio Declaration On Environment and Development World Charter for Nature Natural Heritage Trust of Australia Act 1997 Intergovernmental Agreement on the Environment
National policy and planning	A National Framework for improved Groundwater Management in Australia National Principles for the Provision of Water for Ecosystems National Water Quality Management Strategy	National Objectives and Targets for Biodiversity Conservation National Strategy for the Conservation of Australia's Biological Diversity Australian National Strategy for the Conservation of Australian Species and Communities Threatened with Extinction	Commonwealth Coastal Policy Framework for Marine and Estuarine Water Quality Protection NAP/NHT programmes	Framework for Marine and Estuarine Water Quality Wetlands Policy of the Commonwealth Government Protecting Australia's rivers, wetlands and estuaries of high conservation value	

	Water allocation and management	Biodiversity conservation & protected area management	Integrated catchment/ natural resources management	Water- dependent ecosystems	Environmental protection & land use planning
Programs	Living Murray Initiative	National Reserve System Program	Coastal Catchments Initiative	Directory of Important Wetlands in Australia National Wetlands Program	

Identification and categorisation of HCVAE

At a federal level, the central piece of environmental legislation that has potential to protect HCVAE is the EPBC Act. The EPBC Act provides for: (1) identification of key threatening processes; (2) protection of critical habitat; (3) preparation of management plans; and (4) issuing of conservation orders and regulation of wildlife import/export. This provides for the conservation of biodiversity by providing strong protection for:

- World Heritage areas;
- National Heritage List areas;
- Ramsar wetlands;
- Threatened species and ecological communities; and
- Migratory and marine species.

Ramsar wetlands are protected as matters of national environmental significance under the EPBC Act. Approval is required for actions that are likely to have a significant impact on matter of national environmental significance. In order to invoke the protection of the EPBC Act an area/ species/ process must be listed. Listing requires nomination, consideration by a committee and approval from the Minister. The EPBC Act also protects listed threatened species and maintains a register of habitats which are 'critical' to the survival of listed threatened species.

The most established national program for identifying and categorising HCVAE is the *Directory of Important Wetlands in Australia* (DIWA). The criteria are those agreed to by the Natural Resource Policies and Programs Committee (NRPPC) in September 2006. Under the DIWA, a wetland may be considered nationally important if it meets at least one of the following criteria:

- It is a good example of a wetland type occurring within a biogeographic region in Australia.
- It is a wetland which plays an important ecological or hydrological role in the natural functioning of a major wetland system/complex.
- It is a wetland which is important as the habitat for animal taxa at a vulnerable stage in their life cycles, or provides a refuge when adverse conditions such as drought prevail.
- The wetland supports 1% or more of the national populations of any native plant or animal taxa.
- The wetland supports native plant or animal taxa or communities which are considered endangered or vulnerable at the national level.
- The wetland is of outstanding historical or cultural significance.

Further criteria for assessing high conservation value rivers, wetlands and estuaries are suggested by Kingsford et. al. (2005):

1) it is largely unaffected by the direct influence of land and water resource development;
2) it is a good, representative example of its type or class;
3) it is the habitat of rare or threatened species or communities, or the location of rare or threatened geomorphic or geological feature(s);
4) it demonstrates unusual diversity and/or abundance of features, habitats, communities or species;
5) it provides evidence of the course or pattern of the evolution of Australia's landscape or biota; and
6) it performs important functions within the landscape.

Currently these criteria and the report's recommendations (Kingsford et. al., 2005) have not yet been formally incorporated into legislation or policy.

The National Reserve System (NRS) is a national system of terrestrial protected areas designed to contribute to the conservation of Australia's native biodiversity. The NRS aims to protect samples of all regional ecosystems, their constituent biota and associated conservation values. This is achieved through collaboration between states and territories and legislative protection at this level. Protected areas include National Parks and other types of conservation areas which are dedicated to the protection and maintenance of biological diversity and formally managed and protected for this purpose. While not specifically directed at protecting and managing HCVAE the NRS is an important tool for assisting with the conservation of Australia's biodiversity.

Under the National Water Initiative an assessment of Australia's water resources has recently been undertaken. The Australian Water Resources (AWR) 2005 Level 1 Assessment report (NWC, 2006) identifies environmental assets that have legislative protection based on their naturalness. In addition, the report documents the status of environmental water provisions that have been determined by each jurisdiction since 1994.

The AWR 2005 Level 1 assessment identifies rivers, wetlands, and catchments that are protected by relevant legislation. Relevant legislation is defined as that which is designed to preserve an area's 'naturalness' and aquatic ecosystem values. The assessment has identified and mapped key environmental assets that have been afforded relevant legislative protection. These assets are primarily wetlands, rivers, river catchments and protected terrestrial areas (for example national parks and other types of protected land use zones). The assessment provides two map categories:

1) protected wetlands, rivers and catchments
2) terrestrial protected areas such as national parks and state recreation areas.

Both categories contain one national map and a map for each state and territory. More information can be found in the AWR 2005 Level 1 assessment report (NWC, 2006) and map layers can be created and viewed in Australian Natural Resources Map Maker[1]. The maps are not intended to be interpreted as maps of river and wetland health, rather they depict the progress of the various jurisdictions in providing legislative protection for the health of their water assets.

'Maps - protected wetlands, rivers and river catchments'[2] illustrates Australia's wetlands, rivers and catchments that are specifically covered by legislation designed to protect their high conservation value.

The AWR 2005 Level 1 assessment has also identified terrestrial areas that are protected under legislation in Australia by their World Conservation Union (IUCN 1994) category[3]. Table 2 below outlines in greater detail the categories used in the maps. 'Maps - protected terrestrial areas'[4] illustrates Australia's terrestrial areas protected under legislation.

Table 2: Categories used in the protected terrestrial areas map (from NWC, 2006)

Category	Description
Strict nature reserve	IUCN category Ia protected area: strict nature reserve; a protected area managed mainly for science
Wilderness area	IUCN category Ib protected area: wilderness area; a protected area managed mainly for wilderness protection
National park	IUCN category II protected area: national park; a protected area managed mainly for ecosystem conservation and recreation
Natural monument	IUCN category III protected area: natural monument; a protected area managed for conservation of specific natural features
Habitat/species management area	IUCN category IV protected area: habitat/species management area; a protected area managed mainly for conservation through management intervention
Protected landscape/seascape	IUCN category V protected area: protected landscape/seascape; a protected area managed mainly for landscape/seascape conservation and recreation
Managed resource protected areas	IUCN category VI protected area: managed resource protected area; a protected area managed mainly for the sustainable use of natural ecosystems

[1] http://www.water.gov.au/Maps/index.aspx?Menu=Level1_6
[2] http://www.water.gov.au/RiverandWetLandHealth/ProtectedWetlandsRiversAndRiverCatchments/Maps/index.aspx?Menu=Level1_4_3_1
[3] http://www.iucn.org/
[4] http://www.water.gov.au/RiverandWetLandHealth/ProtectedTerrestrialAreas/Map/index.aspx?Menu=Level1_4_4_1

The AWR report (NWC, 2006) makes it clear that the extent of protection that has been mapped is not necessarily correlated with any specific river or wetland health objectives, and the spatial characteristics of the protected areas in most cases do not recognise river catchments or upstream and downstream connectivity. In terms of the proportion protected, the Australian Capital Territory has the largest level of protection followed by Tasmania, South Australia, and Victoria.

Through the NWI and the 1994 Framework Agreement and 1996 National Principles for the Provision of Water for Ecosystems[5], national water policy principles and determination methods have been developed for allocating water to the environment. The approaches of each state and territory to the allocation of environmental water vary, as do differences in the implementation of associated allocation plans. The AWR 2005 Level 1 assessment (NWC, 2006) has produced maps and data to illustrate the progress of implementation of environmental water provisions across jurisdictions. These maps illustrate the proportion of each surface water management area that has environmental water provisions in place and these can be viewed at 'Maps – environmental water provisions'[6].

Finally, *The Sustainable Rivers Audit* (SRA) is an initiative of the Murray-Darling Basin Commission involving partner agencies in each state and territory within the Basin. The program is designed to measure the health of the rivers at this large Basin scale. The Audit uses scientific indicators of health to determine the current status of the Basin's rivers and any potential trends. Groups of indicators or "themes" for immediate implementation include fish, macroinvertebrates and hydrology. Indicator themes to be further developed over the next three years include floodplains; riparian vegetation and physical form of river channels.

Management of HCVAE

The Australian Government's lawmaking powers are limited by those provided in the Constitution. Under the Constitution, the Commonwealth has power to enact legislation to formalise international agreements but has no explicit powers in relation to environmental management. This means that DEH relies on the cooperation of the states and territories to ensure appropriate management of HCVAE. As highlighted above in section 2.1, the Australian Government has a limited role in management of HCVAE unless on Commonwealth land. Responsibility for management and monitoring of these sites usually falls to state or territory governments and/or their delegates (e.g. catchment management authority, management committee etc.).

Despite this, the EPBC Act (which DEH administers) is a primary tool for management of biodiversity across all jurisdictions. This Act formalises Australia's obligations under international

[5] http://www.deh.gov.au/water/publications/pubs/ecosystems.pdf
[6] http://www.water.gov.au/RiverandWetLandHealth/EnvironmentalWaterProvisions/Maps/index.aspx?Menu=Level1_4_5_11

law and sets out rules for the management of Crown land. The Act requires the preparation of management plans for protected areas/ species/ wetlands and habitats.

Despite its limited law-making powers, the Australian Government is able to set policy and prepare strategic plans. There are a number of national scale strategies, policies and agreements that impact on priorities for HCVAE management and protection, as summarised below.

The National Strategy for the Conservation of Australia's biological diversity was prepared in response to international commitments and commits Australia to the protection, enhancement and restoration of biodiversity. The National Water Strategy sets out a strategy for the management of Australia's water bodies to achieve sustainable use by protecting and enhancing water quality.

One of the key national level documents for management of HCVAE is the Wetlands Policy of the Commonwealth Government (EA, 1997). This was developed in accordance with Australia's commitments under Ramsar to promote the conservation, repair and sustainable use of wetlands. The policy outlines the Australian Government's responsibilities for managing wetlands on Commonwealth land.

Another key document is the National Principles for the Provision of Water for Ecosystems (ARMCANZ and ANZECC, 1996), which provides policy direction on how the specific issue of water for the environment should be dealt with in the context of general water allocation decisions.

Other national level policy documents include the Framework for Marine and Estuarine Water Quality Protection (EA, 2002), which provides a nationally consistent approach to protecting the marine environment from the effects of land based pollution. This is supported by the Framework for a National Cooperative Approach to Integrated Coastal Zone Management (NRMMC, 2006), which provides for more active rehabilitation, protection and improvement of coastal zone assets.

In addition to setting policy the National Government is able to provide specific funding for projects and programs and thereby influence management of HCVAE. There are a number of key national level programs, including:

- *National Reserve System* (NRS) - Provides funds predominantly for the acquisition of lands for addition to the national reserve system to facilitate the creation of a comprehensive, adequate and representative reserve system.
- *National Water Initiative:* The NWI is a program to improve water management in Australia. The *Australian Government Water Fund* operates under the NWI. The Water Fund is a $2 billion program to invest in water infrastructure, improved water management, and better practices in the management of Australia's scarce water resources. The Fund supports practical on-ground water projects that will improve Australia's water efficiency and environmental

outcomes. The Fund comprises three programs: Water Smart Australia; Raising National Water Standards; and the Community Water Grants programs.

- *National Action Plan for Salinity and Water Quality (NAP):* 21 priority regions affected by salinity and water quality issues have been identified under the NAP. These have been the focus of targeted investment using a regional delivery model.
- *The Natural Heritage Trust (NHT*): NHT was established by the Australian Government in 1997 to help restore and conserve Australia's environment and natural resources. It provides funding to for environmental and natural resource management projects.
- *The Living Murray:* The Murray-Darling Basin Ministerial Council established The Living Murray Initiative in 2002. The aim of the Living Murray is to improve the health of the Murray River through (1) water recovery; (2) statutory support; (3) environmental delivery; and (4) works and measures.
- *The National Land and Water Resources Audit:* The National Land and Water Resources Audit involves the collection and collation of primary data and information related to Australia's natural resource. This provides data and information that will underpin the monitoring and evaluation of investment by the Australian Government and State and Territory Governments and regional organisations in improved natural resource management.

Effective or innovative approaches that may be transferable

Identification, categorisation and criteria frameworks for Ramsar wetlands and DIWA and assessment for National Heritage List nominations provide the only consistent frameworks for HCVAE identification that are applied across all jurisdictions.

DEH held a non-marine wetland ecological communities internal workshop in July 2006 to discuss their classification and condition assessment. The workshop found that further information was needed to define and describe non-marine wetland ecological communities including:

- geographic boundaries (e.g. bioregion, catchment and basin);
- abiotic/climatic variables (e.g. rainfall, salinity, temperature and oxygen levels);
- biota (e.g. vegetation, fish, microbial, macro invertebrate communities and other indicator species or groups); and
- more specialised and localised categorisations, such as those based on more detailed hydrogeomorphic descriptions (e.g. River Styles or the Qld Wetland Inventory Categorisation).

Future directions and challenges

- DEH in conjunction with the cross-jurisdictional Wetlands and Waterbirds Taskforce is currently working on projects that will:

  - develop a more integrated and consolidated approach to the management and protection of HCVAE under the guidance and oversight of the HCVAE Task group.
  - develop a systematic approach to assessment against Ramsar categorisation criteria and ecological character descriptions. Current focus is on the nomination process and tightening up of criteria and in providing supporting guidance and documentation.
  - develop better guidance and direction through a package of tools relating to mapping guidelines, management planning, nomination processes and ecological character descriptions. While it will focus on Ramsar wetlands it will have broader application.
  - pursue an overarching framework for a national wetlands inventory to coordinate information and data across states and regions. It would consider and provide guidance on methods, information collected, data structures and specifications for spatial data.
- Protection and management of sites under national and international frameworks are often site-specific and do not necessarily consider the catchment context. Therefore it is imperative that management of these sites are integrated into regional and state NRM planning and management frameworks.
- The NWI, as a national level agreement, is designed to address water reform more broadly and includes commitments to good planning and management of HCVAE.

Many state and territory stakeholders also identified issues and challenges associated with implementing the international (i.e. Ramsar in particular) and national frameworks (i.e. DIWA) – see for example sections 2.5 and 2.6.

2.3 Australian Capital Territory

Primary organisations and roles

The key government agencies with a role in the identification, categorisation and management of HCVAE in the ACT are summarised below.

Organisation	Primary roles
National Capital Authority (NCA)	The NCA is an Australian Government statutory agency which is responsible for ensuring that Canberra and the Territory are planned and developed in accordance with their national significance. National Land areas are administered by the National Capital Authority or the Department of Finance and Administration on behalf of the Commonwealth. The functions of the Authority include: ■ to prepare and administer the National Capital Plan; ■ to commission works to be carried out in Designated Areas in accordance with the Plan where neither a Department of State of the Commonwealth nor any Commonwealth authority has the responsibility to commission those works; ■ to recommend to the Minister the carrying out of works that it considers desirable to maintain or enhance the character of the National Capital; ■ to foster an awareness of Canberra as the National Capital; ■ with the approval of the Minister, to perform planning services for any person or body, whether within Australia or overseas; and ■ with the Minister's approval, on behalf of the Commonwealth, to manage National Land designated in writing by the Minister as land required for the special purposes of Canberra as the National Capital.
Department of Territory and Municipal Services (TAMS)	TAMS plans, develops and delivers a range of state municipal services for the people of the ACT including the implementation of sustainable environmental practices, particularly in the management of parks, nature reserves and waste. Responsibilities include Parks, Conservation and Lands, Recreation Services, Sustainability Policy and Programs and Environment Protection and Compliance.
ACT Planning and Land Authority (ACTPLA)	ACTPLA brings together a range of state and local government services in the areas of urban and regional planning, land management, sustainable development, building and urban design. ACTPLA is responsible for the Territory Plan, the Land Release program, development applications, leases and licences, regulating development and the building industry, land use, community consultation and public education.
Office of Sustainability	The Office of Sustainability has an across government role and functions. Major water policy areas addressed by the Office include implementation of Think Water, Act Water - the ACT's strategy for sustainable water resource management, catchment management, water restrictions regimes, cross border water issues, water pricing, assessment of ACTEW Corporation's Future Water Supply Options, Murray Darling Basin Commission, Living Murray commitments, and National Water Initiative policy and implementation.
ACTEW Corporation Limited	ACTEW is a Territory Owned Corporation whose primary functions are to provide energy, water and wastewater services to the ACT. ACTEW has ownership of the ACTs water and wastewater assets and is responsible for the operation and management of those assets.

Key legislative, policy and planning instruments

While the existing policy, planning and legislative framework in the ACT does not specifically address the issue of identifying, categorising or managing HCVAE, stakeholders identified a number of key instruments of relevance:

- *Environment Protection Act 1997* - protection of the environment with a focus on regulation and control of threatening processes, primarily pollution.
- *Water Resources Act 1998* – focus on water sharing, protection of water-dependent ecosystems from an environmental flows/ environmental water requirements perspective.
- *Nature Conservation Act 1980* – sets out the rules and regulations for the management and protection of flora and fauna.
- *Fisheries Act 2000* – focus on the management of fish species and their habitats.
- *Land (Planning and Environment) Act 1991* – empowers the Territory Plan and extensive control over planning decisions and the manner in which these decisions are implemented.
- National Capital Plan – is the strategic plan for Canberra and the Territory. It ensures that '*Canberra and the Territory are planned and developed in accordance with their national significance*'.
- The Territory Plan – focuses on planning and development and identifies water use catchments for conservation, water supply and drainage and open space.

A more detailed summary of relevant instruments is provided in Appendix D while selected elements of these and associated approaches are described further in the following sections. Table 3 below provides a summary table of the key legislative, policy and planning instruments in the ACT of relevance to the identification, categorisation or management of HCVAE.

- **Table 3: Policy, planning and legislative framework for the ACT**

	Water allocation and management	Biodiversity conservation & protected area management	Integrated catchment/ natural resources management	Water- dependent ecosystems	Environmental protection & land use planning
Legislation	Water Resources Act 1998	Nature Conservation Act 1980 Fisheries Act 2000			Environmental Protection Act 1997 Planning and Development Act 2006 Land (Planning and Environment Act) 1991
State-wide policy and planning	National Capital Plan The Territory Plan				
	Water Resources Management Plan: Think Water, Act Water Environmental Flow Guidelines	The ACT Nature Conservation Strategy Draft Aquatic Species and Riparian Zone Conservation Strategy	Integrated Catchment Management Framework for the ACT ACT Natural Resources Management Plan	Draft Wetlands Policy The Planning Framework for Natural Ecosystems- NSW Table Systems and ACT	
Regional scale planning and projects		Murrumbidgee River Corridor Management Plan			
		Ramsar Wetland Management Plans	Murrumbidgee Catchment Action Plan Murrumbidgee Catchment Blueprint		

Identification and categorisation of HCVAE

There are no agreed principles for identifying or categorising HCVAE in the ACT with the exception of those associated with Ramsar and DIWA (see sections 2.1 and 2.2 above).

The Territory Plan however contains principles for identifying and designating land for protection, including three types of water use catchments - 'conservation', 'water supply', and 'drainage and open space'. Under the Territory Plan, River Corridors Land Use Policies seek to conserve the ecological and cultural values of the ACT's major river corridors and to protect stream flow, water quality and flood-plains from adverse impacts, among other objectives (see Appendix D).

The Conservation Water Use and Catchment policies seek to:

- to protect and conserve the water quality and aquatic habitats of highly valued lakes, rivers and streams;
- to make provision for a range of water uses and environment values which are compatible with the conservation values of the Catchments;
- to ensure that water and catchment land use are consistent with maintaining ecological sustainability and the conservation values of the Catchments;
- to ensure that the stream-flow and quality of discharges from the catchments are consistent with protection of environment values of downstream waters; and
- to protect and conserve the water quality of ground-water resources of the ACT.

The Murrumbidgee River Corridor Policy Plan is a statement of the National Capital Planning Authority's proposals for future land and water use in the river corridor. The Murrumbidgee River Corridor system comprises interrelated values, land and water uses, and stream flow and water quality characteristics. The Policy Plan consists of General and Specific Policies:

- *General Policies* - are broadly based and define the National Capital Planning Authority's key objective and the primary values for the river corridor as a whole which are reflected in the Policy Plan.
- *Specific Policies* - relate to the particular components, locations and issues within the river corridor and are presented as a series of policy statements referring directly to areas defined on the Policy Plan. These areas have been identified on the basis of their existing characteristics and the predominant future use considered to be suitable in the context of the General Policies.

In the ACT, identification and assessment processes of high conservation value ecosystems are varied but generally include technical and ground-based assessment, modelling and community participation. Currently, the ACT Government does not manage an inventory of rivers or wetlands

in the ACT, although a list of sites of significance has been used in the past. The reserve system is captured through land tenure spatial information.

The AWR 2005 Level 1 assessment (see section 2.2 above) identifies the following areas and provides associated maps for the ACT:

- Rivers, wetlands and catchments that are protected by relevant legislation in the ACT (see Protected Wetlands and River Catchments (Australian Capital Territory and New South Wales[7]))
- Terrestrial protected areas such as national parks and state recreation areas in the ACT(see Protected Terrestrial Areas (Australian Capital Territory and New South Wales[8]))

Management of HCVAE

While currently there is no systematic or documented approach to identifying or categorising HCVAE in the ACT, stakeholders felt that much of these areas have been protected within the terrestrial reserve system for some time. Conservation and riverine corridor reserves have been established along the Murrumbidgee and Cotter Rivers for example.

The ACT Nature Conservation Strategy outlines objectives and implementation strategies to protect biological diversity and maintain ecological processes. An Implementation Plan is prepared annually and contains agreed priority actions, performance indicators and targets. Management plans for specific areas have also been developed which reflect information and issues gathered from past processes and input from the community, special interest groups, experts and governments agencies, for example:

- Murrumbidgee River Corridor Management Plan;
- Tidbinbilla Nature Reserve Management Plan;
- Belconnen Region Plan of Management; and
- Woden/Weston Region Plan of Management.

A number of specific management principles apply to each plan and provide guidance on management of the area.

If land is designated or reserved under legislation than the ACT Government, as land manager, is responsible for managing that area, with the exception of Commonwealth land. Management is guided by the objectives and actions outlined in a management plan specific to the area. Much of the focus of these activities relates to fauna and flora management and protection from threats such as pollution.

The *Water Resources Act* 1998 requires environmental flows to be defined for all waterbodies in the ACT and the Territory Plan explicitly requires that environmental flows be maintained to ensure that the stream flow and quality of discharges from all catchments protect environmental values of downstream waters. Environmental Flow Guidelines set out the environmental flow requirements needed to maintain aquatic ecosystems in the ACT, including volumes and timings of environmental flows and abstraction limits in streams, rivers, lakes, and aquifers. The Guidelines are a statutory instrument under the *Water Resources Act* 1998 and set ecological objectives and indicators for ACT aquatic ecosystems, taking also into account social and economic consequences. The ecological objectives and indicators identified in the guidelines are based on advice from the Cooperative Research Centre for Freshwater Ecology. The guidelines were established by an expert panel in 1999 and reviewed in 2005.

The *Water Resources Management Plan* provides the ACT government with a decision-making framework and strategic direction for the long-term management of the ACT's water resources. The Plan sets out total water resources, environmental flow requirements in accordance with the Environmental Flow Guidelines, and water available for non-environmental uses. The Plan sets environmental targets including:

- Aquatic ecosystems managed to enhance and protect natural integrity (with a target to be determined by 2006).
- Condition and resource assessment (of aquatic flora and fauna) are provided for.
- Riparian zone values are provided for a number of waterways.

The AWR 2005 Level 1 assessment (see section 2.2 above) provides a map that details the status of environmental water provisions throughout the ACT (Environmental Water Provision (Australian Capital Territory and New South Wales[9])) for each surface water management area.

Stakeholders felt that historically ACT land managers and policy makers have been concerned with management issues that are constrained by land tenure – that is with issues specific to that parcel of land rather than from a broader catchment perspective. This is likely to be a result of dominant conservation paradigms within agencies and the existing legislative and policy framework (i.e. statutory processes triggered by changes in land use). Stakeholders felt that a transition from 'land managers' to 'catchment managers' needed to occur in the future.

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[7] http://www.water.gov.au/MapPdfs/Assets_NSW_Final.pdf
[8] http://www.water.gov.au/MapPdfs/ProtTerr_NSW_Final.pdf
[9] http://www.water.gov.au/MapPdfs/EnvirFlow_NSW_Final.pdf

Effective or innovative approaches that may be transferable

ACT stakeholders felt that collaboration and knowledge-sharing with other agencies was good given resource constraints. They identified the work of the following organisations or individuals as being of interest and potential value in considering approaches to identifying, categorising and managing HCVAE:

- Tasmanian Conservation of Freshwater Ecosystem Values approach;
- Queensland's approach (Wild Rivers, Fish Habitat Areas etc);
- Simon Linke's work on macroinvertebrates;
- Jon Nevill's work on aquatic protected areas; and
- The University of Canberra's work on high conservation streams.

A significant challenge will be to adopt elements of approaches that are relevant to ACT conditions – institutional, legislative and policy frameworks; the landscape and biophysical conditions; funding and resource constraints; and the information base to support such approaches.

Future directions and challenges

ACT stakeholders identified the following issues in terms of future directions and challenges for identifying, categorising and managing HCVAE in the ACT:

- *Institutional issues:*
  - Break down the disconnect that sometimes exists between natural resource agencies with different or competing priorities and work more collaboratively.
  - Better engagement and collaboration with Commonwealth agencies and resource managers.
- *Strategic framework and objectives:*
  - Further development and documentation of strategic and policy objectives to guide investment and targeted actions.
  - Move from a land management paradigm to a catchment management paradigm.
  - Justification required to invest in developing and implementing a new approach, when investment in on-ground activities is seen as providing more tangible benefits.
- *Implementation issues:*
  - Most of the areas are already protected within the reserve system, so the benefits and ecological outcomes of a different approach would need to be clearly demonstrated before it could be justified.
  - Improved management of trans-boundary assets and resources.

- *Knowledge management:*
  - Improving the knowledge and information base for decision-making.
  - Expanding and documenting organisational knowledge.
- *Resourcing:*
  - Organisational capacity and limited funding make it difficult for the ACT to engage in these cross-jurisdictional initiatives.
  - Concerns regarding the high transaction costs involved with Commonwealth programs and initiatives.
  - Nature of short-term funding cycles vs long-term management commitments.

2.4 New South Wales

Primary organisations and roles

The key government agencies with a role in the identification, categorisation and management of HCVAE in New South Wales are summarised below.

Authority	Description of Work
Department of Environment and Conservation (DEC)	The DEC leads an ongoing environment reform program to protect the natural and cultural heritage of New South Wales and achieve a healthy environment. The Department's responsibilities include: ■ Sydney's Royal Botanic Gardens and Domain, Mount Annan and Mount Tomah Botanic Gardens; ■ air and water quality, noise control, chemical and radiation regulation; ■ national parks and reserves, biodiversity and threatened species, Aboriginal cultural heritage, historic sites and pest management; and ■ programs to reduce waste, toxicity, litter and illegal dumping.
Department of Natural Resources (DNR)	The DNR is responsible for the sustainable and equitable management of water, soil and native vegetation resources across the state. Responsibilities include: monitoring water quantity and quality; managing and protecting catchments, soil and vegetation, the coastal zone, and floodplains; providing and administering a compliance program for water, vegetation and other natural resource legislation, and a licensing program that processes applications for licences, consents or other authorities; and developing knowledge, managing information and assessing the impacts of natural resource management initiatives.
Department of Primary Industries (DPI)	The DPI provides a wide range of services in many areas of primary industry development, production and education including policy development and scientific research, commercial services, regulation, education and advice, and corporate services. The industries managed by DPI include minerals, petroleum, fishing, aquaculture, agriculture and forests.
Department of Planning	The role of the Department of Planning is to lead strategies and decisions to support orderly growth and employment, generating activities that are environmentally and economically sustainable. The Department is the principal government agency vested with statutory, policy and administrative responsibility for strategic land use planning, environmental impact assessment and development approvals.
Sydney Catchment Authority	The Sydney Catchment Authority is a NSW Government agency whose task is to manage and protect Sydney's catchments and supply bulk water to its customers. It's role is to capture, store and supply quality bulk raw water through responsible management and partnerships with stakeholders.
State Water Corporation	State Water Corporation delivers bulk water in regional and rural NSW, to all authorised users such as river pumpers, irrigation companies, towns, farms, mines and electricity generators. They also deliver water for the environment as well as unlicensed stock and domestic users on regulated rivers.
Sydney Water	Sydney Water provides drinking water, recycled water, wastewater services and some stormwater services to more than four million people in Sydney, Illawarra and the Blue Mountains. Drinking water is sourced from a network of dams managed by the Sydney Catchment Authority, then treated and delivered to customers' homes and businesses by Sydney Water.
Catchment Management Authorities	Catchment Management Authorities provide catchment level planning for natural resources. This involves the development of catchment action plans, working with landholders, providing community education and the management of funding arrangements for natural resource management.

Key legislative, policy and planning instruments

NSW government stakeholders identified a number of key instruments of relevance to the identification, categorisation and management of HCVAE:

- *Fisheries Management Act 1994* – aims to conserve, develop and share the fishery resources of the State for the benefit of current and future generations. In particular, the objectives of this Act include:

  (a) to conserve fish stocks and key fish habitats;

  (b) to conserve threatened species, populations and ecological communities of fish and marine vegetation, and

  (c) to promote ecologically sustainable development, including the conservation of biological diversity.

  The amendment to this Act inserts Part 7A requiring the protection and conservation of threatened fish and marine vegetation.
- *Marine Parks Act 1997* - establishes the legal basis for creating a system of marine parks in NSW. Marine parks are designed to protect marine animal and plant life along the NSW coastline but also allow many recreational and commercial uses. They fit into a broad framework for managing coastal and marine biodiversity.
- *Threatened Species Conservation Act 1995* – protects biological diversity through the listing of species, populations and ecological communities, identification and declaration of critical habitat, promotion of management measures and constraint of threatening processes;
- *National Parks and Wildlife Act 1974* – allows for the creation of national parks, nature reserves and karst conservation areas to enable the conservation of nature;
- *Water Management Act 2000* – protects and enhances water sources, their associated ecosystems, ecological processes, biological diversity and water quality. This is primarily allowed for through the establishment of management plans, categorisation of water sources and the identification of water management principles;
- *State Water Management Outcomes Plan 2002* – Under the Water Management Act this plan is intended to provide a clear direction for all water management in NSW by allowing for the creation of management plans;
- *State Environment Planning Policy Coastal Wetlands* (SEPP 14) – preserve and protect coastal wetlands in the environmental and economic interests of the State through limiting the activities that can occur in these areas without consent;
- *NSW Wetlands Management Policy 2000* – protects wetland areas by placing special protection on wetlands of regional and national significance;

- *NSW Water Quality and River Flow Objectives* – agreed environmental values and long-term goals for NSW's surface waters. They identify the key elements of the flow regime that protect river health and water quality for ecosystems and human uses.

A more detailed summary of relevant instruments is provided in Appendix D while selected elements of these and associated approaches are described further in the following sections. Table 4 below provides a summary table of the key legislative, policy and planning instruments in NSW of relevance to the identification, categorisation or management of HCVAE.

- **Table 4: Policy, planning and legislative framework for NSW**

	Water allocation and management	Biodiversity conservation & protected area management	Integrated catchment/ natural resources management	Water- dependent ecosystems	Environmental protection & land use planning
Legislation	Water Management Act 2000	Fisheries Management Act 1994 Threatened Species Conservation Act 1995 Native Vegetation Act 2003 Nature Conservation Trust Act 2001 National Parks and Wildlife Act 1974 Marine Parks Act 1997	Rivers and Foreshore Improvement Act 1948 Wilderness Act 1987 Catchment Management Authorities Act 2003 Sydney Water Catchment Management Act 1998		Environmental Planning and Assessment Act 1979 Local Government Act 1993
State-wide policy and planning	State Water Management Outcomes Plan 2002 NSW State Groundwater Framework Policy NSW Weirs Policy NSW Water Conservation Strategy 2000	NSW Biodiversity Strategy NSW Draft Priorities Action Statement (DEC)	NSW Salinity Strategy 2000 NSW Water Quality and River Flow Objectives NSW Groundwater Quality Protection Policy	NSW State Rivers and Estuary Policy NSW Wetlands Management Policy NSW Estuary Management Policy Coastal Wetlands (SEPP 14) NSW State Groundwater Dependent Ecosystems Policy NSW Estuary Management Program (and Manual)	State Environment Planning Policies NSW Statewide Standards and Targets for Natural Resource Management DPI (NSW Fisheries) Policy Guidelines for Aquatic Habitat Management and Fish Conservation 1999

	Water allocation and management	Biodiversity conservation & protected area management	Integrated catchment/ natural resources management	Water- dependent ecosystems	Environmental protection & land use planning
Regional scale planning & projects	Macro and Catchment Water Sharing Plans		Catchment Management Blueprints/ Plans Catchment Action Plans	Healthy Rivers Commission Various Studies Stressed Rivers Assessment Report	Regional Strategies and Regional Environmental Plans Local Environment Plans

Identification and categorisation of HCVAE

There does not appear to be an agreed definition of HCVAE in NSW and the term is rarely used across the various NSW legislative, policy and planning instruments as they generally pre-date more recent use of the term. In practice however, the term 'high conservation value' is well-utilised, as is a number of other terms with similar concepts such as for example - critical habitat, Wild Rivers; Special Area; and aquatic reserves.

There are no agreed principles for identifying or categorising HCVAE in NSW with the exception of those associated with Ramsar and National Directory wetlands (see sections 2.1 and 2.2 above). There is no freshwater categorisation system or systematic approach to identification of HCVAE in NSW but some inventory work has been done at a regional level. Identification processes vary according to ecosystem, but in some cases, scientific committees determine if species, populations or endangered ecological communities should be listed for protection. Approaches to identification may also include technical assessment, ground-based assessment, modelling and community participation. The Priority Action Statement (2006) indicates identification of HCVAE as a priority.

The concept of high conservation value does not have a generic application and differs between issues such as groundwater dependant ecosystems, fish communities, wetlands and so forth. Social and cultural values often play a role but not universally.

At an ecosystem scale, criteria are either based on international or national status (e.g. Ramsar), conservation status (e.g. the presence of threatened species, populations and communities) or threat (e.g. coastal wetlands from development). Implementation of certain acts and policies undoubtedly apply concepts of priority, for example the Murray Catchment Action Plan indicates fish passage will be provided within "priority reaches". Systematic prioritisation either already exists or will be implemented for coastal wetlands, fish passage, and groundwater dependant ecosystems. DPI is currently developing aquatic decision support tools to assist in prioritising investment.

Legislation to conserve habitat, ecosystems and ecosystem processes, biological diversity, landscapes and natural features of significance including wilderness and wild rivers has been enacted in NSW for decades through the *National Parks and Wildlife Act 1974*. The Act can lead to the creation of national parks, nature reserves, karst conservation reserves, state conservation areas and the declaration of wild rivers.

The purpose of declaring a river or part of a river as a wild river is to "identify, protect and conserve any water course or water course network, or any connected network of water bodies, exhibiting substantially natural flow (whether perennial, intermittent or episodic) and containing remaining examples, in a condition substantially undisturbed since European occupation of New South Wales, of biological, hydrological and geomorphological processes". Wild Rivers only

occur within conservation reserves. Five catchments have been designated legislative protection under the Act, these are - the Upper Brogo, Kowmung, Forbes, Upper Hastings Rivers and Washpool Creek.

The *Fisheries Management Act 1994* seeks to conserve, develop and share state fishery resources, in particular to conserve fish stocks and key fish habitat. The Act can lead to the declaration of aquatic reserves to protect fish habitat, provide for species management, or protect threatened species, populations and ecological communities. In relation to the identification of critical habitat, "*The Minister is to identify (where this is possible) the critical habitat of each endangered species, population and ecological community. The whole or any part of the habitat of an endangered species, population or ecological community that is critical to the survival of the species, population or ecological community is eligible to be declared"*. An ecological community is eligible to be listed as an endangered ecological community if it represents a type of ecological community that is likely to become extinct in nature in New South Wales.

The *Marine Parks Act 1997* seeks to conserve marine biological diversity and marine habitats, maintain the function of marine ecosystems and permit ecologically sustainable use by declaring and providing for the management of a comprehensive system of marine parks. Under this Act Marine Parks can include estuarine environments.

While aquatic reserves have thus far only been implemented in estuarine and marine environments, there is potential to implement them in riverine environments. Stakeholders believe that this instrument will provide a powerful tool for protecting aquatic habitats in private and public areas, although it is currently largely untested.

Despite some engagement and collaboration between agencies on the issue of HCVAE, there has not been a consolidated process and little progress has been made until more recent activity surrounding the State Water Management Outcomes Plan (SWMOP). Working under the *Water Management Act* 2000, the SWMOP is intended to provide clear direction for all water management in New South Wales including (but not limited to) the creation of management plans addressing water sharing, water use, drainage management, floodplain management, controlled activities and aquifer interference, and environmental protection.

With the recent water reforms in NSW, an inter-agency policy and technical working group were tasked with identifying stressed rivers using available hydrological and riparian habitat data in order to prioritise water planning. The Stressed Rivers Assessment Process was designed as a rapid assessment of the current and potential future stress of unregulated rivers. It used a categorisation system that separates subcatchments into nine categories based on assessments of both environmental and hydrologic stress. The categorisation process also attempted to identify all subcatchments which have special conservation value (e.g. presence of threatened or high value

species or wetlands, or high biodiversity or may reflect the pristine or near pristine condition of the rivers). High Conservation Rivers were identified through the process and while the need to identify high conservation value ecosystems was recognised, stakeholders felt that the analysis undertaken at the time was too broad and not prescriptive enough.

NSW has a large number of coastal wetlands that are protected under state legislation through the State Environment Planning Policy - Coastal Wetlands (SEPP 14). The SEPP aims to preserve and protect coastal wetlands through limiting the activities that can occur in these areas. Many of the wetlands listed are in poor condition and recent projects aim to prioritise coastal wetlands for management based on a number of criteria. The SEPP is based on a series of maps defining SEPP 14 wetlands and their boundaries.

The AWR 2005 Level 1 assessment (see section 2.2 above) identifies the following areas and provides associated maps for NSW:

- Rivers, wetlands and catchments that are protected by relevant legislation in the NSW (see Protected Wetlands and River Catchments (Australian Capital Territory and New South Wales[10]))
- Terrestrial protected areas such as national parks and state recreation areas in the NSW (see Protected Terrestrial Areas (Australian Capital Territory and New South Wales[11]))

Management of HCVAE

Apart from wetlands and rivers that are listed under various national and state legislation (e.g. Ramsar, SEPP 14 and Wild Rivers), limited protection of HCVAE exists in NSW. There does not appear to be any distinct recognition of HCVAE such as riverine communities, floodplains, lakes and estuaries however protection is afforded indirectly through aquatic or marine reserves, wilderness areas, national parks, and state forests. Indirect protection of HCVAE in NSW often applies in the context of threatened species, populations and communities.

The *Water Management Act* 2000 requires that all water sources within the state must be defined with respect to their risk (the extent to which harm to the water source or dependent ecosystems is likely to occur), stress (the extent to which harm to the water source or its dependent ecosystems has occurred or is occurring), and conservation value (the extent to which their intrinsic value merits protection from risk and stress). While provision of water for the environment is not specifically recognised under the *Water Act 2000*, it states that environmental water provisions are "to be established for all of the water sources in the state as soon as practicable…"

[10] http://www.water.gov.au/MapPdfs/Assets_NSW_Final.pdf
[11] http://www.water.gov.au/MapPdfs/ProtTerr_NSW_Final.pdf

In NSW, provision of water for the environment is provided mostly by policies affecting the operation of regulated rivers and the administration of water abstraction from regulated and unregulated systems and groundwater resources. The Act requires water-sharing management plans to be developed, including environmental water rules to establish an environmental water allocation for water sources. The plans also set rules that affect the management of water access licences, water accounts, the trading of or dealings in licences and water provisions, the extraction of water, the operation of dams, and the management of water flows. Thirty-six draft water sharing plans were developed by local water management committees and were gazetted between 2002 and 2004.

The AWR 2005 Level 1 assessment (see section 2.2 above) provides a map that details the status of environmental water provisions throughout NSW (see Environmental Water Provision (Australian Capital Territory and New South Wales[12])) for each surface water management area.

Implementation of many of the key instruments (highlighted above) is well advanced as they have been in place for several years. Many are adaptive in practice, undergoing regular reviews while much of the more recent legislation and policies are still in implementation phases. More recently the development and implementation of various instruments has tended to focus on marine and aquatic reserves, water sharing and environmental flows.

Management plans for specific areas and reserves on public land identify management objectives and guidance for management. Management plans have also been developed for marine and estuarine reserves.

Effective or innovative approaches that may be transferable

Stakeholders felt that the declaration and management of marine parks, which incorporates estuaries, established under the *Marine Parks Act 1997*, has been an effective process and sound investment in protected area management for multiuse outcomes, involving the inter-agency co-operation at State and Commonwealth levels. A similar approach to freshwater areas needs to be considered, utilising this effective model. Aquatic reserves, declared under the *Fisheries Management Act 1994*, have the potential to be a powerful tool for protecting HCVAEs on public and private land. However, a comprehensive and integrated process for addressing catchment management issues affecting aquatic reserves and management arrangements for private land need to be resolved before progress can be made.

Stakeholders were also aware of the work being done and relevant approaches in Queensland, Tasmania and Victoria and were interested in sharing knowledge and understanding across

[12] http://www.water.gov.au/MapPdfs/EnvirFlow_NSW_Final.pdf

government agencies. Sharing of knowledge and experience between NSW and Tasmanian stakeholders is already taking place.

Future directions and challenges

NSW stakeholders identified the following issues in terms of future directions and challenges for identifying, categorising and managing HCVAE in NSW:

- *Strategic framework and objectives:*
  - There is a need to develop a clear statement about the outcomes sought by a consistent categorisation system and how such a system would be used. For example, will it be used to guide investment or determine conservation priorities or assist in monitoring and reporting, and at what scale?
  - There is a need to recognise that in some cases it may be more effective to manage or mitigate threats (e.g. cold water pollution, fish passage) than bring areas into the reserve system. An effective protection system depends on the management objectives.
  - Overarching guiding principles for a nationally consistent approach are preferred over a prescriptive approach. There is a risk that a national approach becomes the lowest common denominator if too prescriptive but guiding principles allows flexibility.
  - Principals should be flexible and pragmatic and aim for a workable mix of 'conservation' (e.g. CAR systems as in terrestrial parks) and 'sustainable use' (e.g. healthy working river) paradigms, recognising the implementation role that CMAs and regions will play.
  - The Framework for Assessment of River and Wetland Health will be an important step. It will need to influence main players and transcend transboundary issues.
- *Institutional issues:*
  - Identification and categorisation of HCVAE should reflect State priorities but it needs to have capacity to roll out at regional scale. The State should provide guidance and overarching principles to direct and support regional implementation and investment in HCVAE.
  - Given the current regional delivery model for NRM, regional prioritisation will be important. The approach will need to be linked to regional NRM planning processes.
  - Achieving high level agreement for a nationally consistent approach will be challenging. A whole of government at Commonwealth and State and Territory levels will be required. What are the first hurdles and how do we address them?
- *Issues of scale:*
  - There are implementation and management issues associated with HCVAE that are located outside of the reserve system on private land. How can we influence management of HCVAE on private land?

  - Connectivity is a problem when dealing with catchment issues and threats, particularly where these occur across regions and jurisdictions.
- *Engagement and communication issues:*
  - Need to raise the profile of freshwater aquatic ecosystems and gain resonance across jurisdictions.
  - There is a need to agree on a common language and consistent definitions to progress a nationally consistent approach and to influence trans-boundary issues.
  - Regional organisations such as CMAs will have a major role in influencing the identification and management of HCVAE and in implementing and delivering programs on private land so will need to be engaged.
  - Community awareness and engagement needs to be raised and improved, in the same way that has successfully occurred with marine parks in NSW. Private landholders as land managers especially need to be engaged.
- *Knowledge management:*
  - Centralised information would support decision-making and assist in monitoring, evaluation, and reporting.

2.5 Northern Territory

Primary organisations and roles

The key government agencies with a role in the identification, categorisation and management of HCVAE in the Northern Territory (NT) are summarised below.

Authority	Description of Work
Department of Natural Resources, Environment and the Arts (NRETA)	NRETA is responsible for conserving, enhancing and ensuring best possible access to, and enjoyment of, the Territory's natural and cultural assets. This includes native wildlife and habitats, renewable natural resources including water and natural landscapes, historic buildings and places, scientific and cultural collections as well as promotion and development of creative communities. Responsibilities include park and reserve management; natural resource assessment management, regulation and enforcement activities; environment protection; heritage and conservation services; and art and museum management and support.
Department of Planning and Infrastructure (DPI)	The DPI is the lead agency for spatial information in the Northern Territory Government, largely delivered through the Land Information Division. The DPI is responsible for transport, infrastructure development, Government roads and building infrastructure, Crown land management, land use planning and building control, government land information, land administration and land development services.
The Department of Primary Industry, Fisheries and Mines (DPIFM)	The DPIFM core business is working in partnership with industry to facilitate, regulate and promote industry and resource development across the Territory's mining, petroleum, gas, pastoral, horticulture, agriculture and fishing sectors. DPIFM's key priorities and directions include: ▪ providing value-added information; ▪ facilitating resource industry development within the Northern Territory; ▪ monitoring resource development to encourage sustainability; and ▪ working with stakeholders to identify opportunities in regional areas and support Indigenous economic development.
Power and Water	Power and Water is the Northern Territory's provider of electricity, water and sewerage services. Power and Water provide water supply and sewerage services within five major and thirteen minor centres.

Key legislative, policy and planning instruments

NT government stakeholders identified a number of key instruments of relevance to the identification, categorisation and management of HCVAE:

- *Territory Parks and Wildlife Conservation Act 2000* – allows for the establishment of Territory parks and reserves. It also provides for the study, protection, conservation and sustainable utilisation of wildlife through different levels of protection and the preparation of management plans.
- *Northern Territory Parks and Conservation Masterplan* – a State-wide plan for the conservation of biodiversity through a range of means including enhanced partnerships research and monitoring and improved legislation and regulation.

- *Integrated Natural Resources Management Plan for NT* – sets the policy and investment areas to better protect natural assets, develop more sustainable enterprises and improve skills and knowledge for the community to manage and benefit from the NTs natural resources.
- *Strategy for Conservation through the Sustainable Use of Wildlife in the Northern Territory of Australia* – aims to enhance the conservation of Northern Territory plants and animals through the development of programs incorporating their sustainable use.
- *Strategy for the Conservation of Threatened Species and Ecological Communities in the Northern Territory of Australia* – aims to protect species through the categorisation of species into protection categories.

A more detailed summary of relevant instruments is provided in Appendix D while selected elements of these and associated approaches are described further in the following sections. Table 5 below provides a summary table of the key legislative, policy and planning instruments in the NT of relevance to the identification, categorisation or management of HCVAE.

- **Table 5: Policy, planning and legislative framework for the Northern Territory**

	Water allocation and management	Biodiversity conservation & protected area management	Integrated catchment/ natural resources management	Water- dependent ecosystems	Environmental protection & land use planning
Legislation	Water Act 2004	Territory Parks and Wildlife Act 2000 Fisheries Act 2005			Environment Assessment Act 1980 Waste Management and Pollution Control Act 2003 Heritage Conservation Act 2000 Pastoral Land Act 2006
State-wide policy and planning	Lake Eyre Basin Agreement NT Strategy for the Conservation of Wetlands	A Strategy for Conservation through the Sustainable Use of Wildlife in the NT A Strategy for the Conservation of Threatened Species and Ecological Communities in the NT NT Parks and Conservation Masterplan NT Bioregions and sites of Conservation significance Wildlife Utilisation Policy Wildcare Policy	Integrated Natural Resource Management Plan for the NT	Living Rivers Program	
Regional scale planning & projects	Regional Water Resources Strategies	Management Plans for protected species Mapping of sites of Conservation Significance Vegetation mapping of the NT		Top-End Waterway Project Daly River Management technical reports Arid wetlands inventory baseline condition assessments for Roper, Daly and Victoria	

Identification and categorisation of HCVAE

There is no formal or systematic categorisation system used to identify or categorise HCVAE in the NT except those associated with Ramsar, the National Directory of Wetlands and World Heritage sites (see sections 2.1 and 2.2 above). However there is an inventory of wetlands in the arid (southern) part of the Northern Territory.

Generally, protection of HVCAE in the NT is embedded in the over-all management regime for natural resources, with a particular focus on biodiversity, wildlife conservation and species management for terrestrial ecosystems more broadly. Under the *Territory Parks and Wildlife Conservation Act 2000* and the Parks and Conservation Masterplan both native wildlife and specific areas can be protected.

Biodiversity conservation is governed primarily by the *Territory Parks and Wildlife Conservation Act 2000.* This provides for the protection of both native wildlife and specific conservation areas. Species are classified as:

- **Extinct** when there is no reasonable doubt that the last individual has died. A taxon is presumed 'Extinct' when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.
- **Extinct in the Wild** when it is known only to survive in cultivation, in captivity or as a naturalized population (or populations) well outside the past range. A taxon is presumed Extinct in the Wild when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.
- **Critically Endangered** when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered, and it is therefore considered to be facing an extremely high risk of extinction in the wild.
- **Endangered** when the best available evidence indicates that it meets any of the criteria A to E for Endangered, and it is therefore considered to be facing a very high risk of extinction in the wild.
- **Vulnerable** when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable, and it is therefore considered to be facing a high risk of extinction in the wild.

- **Near Threatened** when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.
- **Least Concern** when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category.
- **Data Deficient** when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. Data Deficient is therefore not a category of threat.

The categorisation of wildlife is consistent with the criteria used by the World Conservation Union and is based on:

- Absolute size, number of subpopulations and extent of reduction in population size;
- Extent, degree of fragmentation, and degree of fluctuation in geographic range (both the extent of occurrence and the area of occupancy); and
- Quantitative analysis of the probability of extinction.

These categorisations are used throughout the other management frameworks such as 'A Strategy for the Conservation of Threatened Species and Ecological Communities in the Northern Territory of Australia', 'A Strategy for Conservation through the Sustainable Use of Wildlife in the Northern Territory of Australia' and in species specific management plans.

As set out above, the protection of specific conservation areas is also provided for under the *Territory Parks and Wildlife Conservation Act 2000,* which is supported by the Northern Territory Parks and Conservation Masterplan. One of the key actions in the Masterplan is the conservation of biodiversity through the identification of priority areas for biodiversity conservation. Sites are prioritised for management consideration because:

- There are explicit national and international obligations for the site; or
- The exceptional biodiversity that the site contains which makes its protection highly cost effective.

In addition, the Masterplan builds on the categories of at-risk species set out in the Act by identifying areas which have high concentrations of threatened species and targeting them as 'significant'. Under the Masterplan, areas/ecosystems/ communities are identified as 'significant' in the following way:

- **Wetlands**- Ramsar listing or listing on the Directory of Important Wetlands in Australia.

- **Migratory birds**- criteria for significance as listed under the East Asian-Australasian Flyway and Shorebird Reserve Network program.
- **Sites of botanical significance**- the significance of these sites is based on relict, endemic and threatened species and vegetation types.

Under the Masterplan, 114 sites of significance (international, national and other) have been identified on public and private land, however these include terrestrial as well as aquatic ecosystems and have been identified as having significant social, cultural and/or environmental values. The Masterplan provides a broad-scale approach to identifying sites of significance through engagement with landholders and relevant representative bodies.

The NT Government is currently in the process of developing a statutory-based 'Living Rivers Program' which will identify and protect 'icon rivers' (i.e. areas of low disturbance). The progam is still being scoped but will initially focus on developing and implementing policy, legislative and planning instruments. The approach will be partly based on Queensland's Wild Rivers policy but amended to NT conditions and will take into consideration the role of rivers and connectivity in the landscape, the relatively low consumptive demand and use, and the pristine condition and high ecological values of the NT's rivers.

The AWR 2005 Level 1 assessment (see section 2.2 above) identifies the following areas and provides associated maps for the NT:

- Wetlands that are protected by relevant legislation in the NT (see Protected Wetlands (Northern Territory)[13])
- Terrestrial protected areas such as national parks and state recreation areas in the NT (see Protected Terrestrial Areas (Northern Territory[14]))

In addition, NRETA have made the following maps available:

- Maps which underpin the Northern Territory Parks and Conservation Masterplan – Sites of Conservation Significance[15]
- Northern Territory Bioregions
  - Maps of the key bioregions in the NT[16]
  - Maps of the 23 bioregions showing threatened species and biological hot spots[17]

[13] http://www.water.gov.au/MapPdfs/Assets_NT_Final.pdf
[14] http://www.water.gov.au/MapPdfs/ProtTerr_NT_Final.pdf
[15] http://www.nt.gov.au/nreta/parks/management/masterplan/pdf/draft_masterplan_map.pdf
[16] http://www.nt.gov.au/nreta/parks/management/masterplan/pdf/bioregions_assessment.pdf
[17] http://www.nt.gov.au/nreta/parks/management/masterplan/draft_bioregion_maps.html

Management of HCVAE

At a Territory-wide level, the agenda for natural resource management is set through the *Integrated Natural Resource Management Plan for the NT*. This sets the policy and investment areas for: the protection of natural assets; the development of more sustainable enterprises; and the improvement of skills and knowledge in the community. The INRM Plan identifies five asset classes, including inland waters and coastal and marine areas, for which targets and management actions have been set. The INRM Plan is supported by the *Regional Investment Strategy* which identifies priorities for Territory funding based on the actions set out in the INRM plan. While these documents discuss wetlands, biodiversity and riverine environments, stakeholders feel that there is no real focus or investment in HCVAE.

The regional NRM delivery model (i.e. for NAP and NHT) that is being implemented throughout Australia is somewhat different for the NT in that that there are no regional bodies such as CMAs and the NT is considered as just one region. Recently, a NHT-funded project has been assessing sites of significance and determining appropriate management strategies through engagement of local communities.

As highlighted above, the primary mechanism for protection of species in the NT is the *Territory Parks and Wildlife Conservation Act* 2000 which provides for the categorisation of at-risk species and conservation areas. A number of strategies and management plans have been developed to provide management guidance for on-ground activity under this Act. The *Parks and Conservation Masterplan* sets out a state-wide plan for the conservation of biodiversity. This is supported by the *Strategy for Conservation through the Sustainable Use of Wildlife in the NT* and the *Strategy for the Conservation of Threatened Species and Ecological Communities in the NT*. In addition to these state-wide strategies individual management plans are prepared for specific species depending on their level of threat.

The management and protection of the Northern Territory's water resources are controlled by the *Water Act* 2004 which provides the legislative framework that defines the extent to which both surface and groundwater can be used and for what purposes. Under the Act, water can be allocated to 'Beneficial Uses' (including the environment), provided that the allocation falls within an estimated sustainable yield. To facilitate sustainable water extraction, water allocation plans may be declared for a water control district. These plans provide a mechanism for the formal allocation of water resources to the types of Beneficial Uses occurring in the district (NWC, 2006).

In an effort to avoid water issues experienced in southern Australia in recent years, the Northern Territory is currently preparing regional water strategies. The development of regional water resource strategies has been governed by decisions on which areas are ecologically significant and have a high chance of being preserved as a result of management actions. Species are then selected based on their capacity to reflect broader catchment health. Two regional water strategies have

been developed to date which have examined the way in which different species and ecological communities respond to changes in the flow regime.

The AWR 2005 Level 1 assessment (see section 2.2 above) provides a map that details the status of environmental water provisions throughout the NT (see Environmental Water Provisions (Northern Territory[18])) for each surface water management area.

Identification and management of HCVAE in the NT can be problematic as approximately 90% of land is private or leasehold land. Currently, NHT funded projects are identifying incentive mechanisms to engage landholders in better management of HCVAE and to provide off-reserves for such areas. Stakeholders felt that there was a strong reticence among landholders to nominate wetlands for Ramsar listing because the process and funding required are prohibitive – not only for listing but for the on-going management and monitoring of the site. So while the concept has a reasonably good level of support, the costs and obligations for landholders associated with nominating and managing such a site are a disincentive. For many people there appears to be a mismatch between perceptions of the status and condition of the asset and the management and reporting requirements and costs. In addition, political intervention can veto community and NGO nominations for protection or listing.

There is also a current focus on indigenous protected areas using Commonwealth assistance and inclusion into the National Reserve System. The "Healthy Country Healthy People" program uses NRM as a means to deliver other social priorities. The program is a research project of the Institute of Advanced Studies, Charles Darwin University. It aims to inform policy regarding sustainable Aboriginal futures in northern Australia by exploring the relationship between landscape health and Aboriginal health.

The Tropical Rivers and Coastal Knowledge (TRACK) research hub is a major new research initiative that brings together a multidisciplinary consortium to focus on the rivers and coasts between the tip of Cape York Peninsula and Broome. The TRACK research programme has been developed through close collaboration of researcher and key stakeholders and aims to:

1) Increase understanding of natural and cultural assets and ecosystem services
2) Develop tools for assessing the implications of potential developments
3) Identifying opportunities to develop genuinely sustainable enterprises
4) Build capacity of researchers and stakeholders in the region

[18] http://www.water.gov.au/MapPdfs/EnvirFlow_NT_Final.pdf

The TRACK research program has seven interconnected themes and is designed to generate and share the knowledge needed by regional NRM bodies, governments, Indigenous communities and industry to underpin the sustainable management of tropical rivers and coastal environments while fostering opportunities for the regions' people to develop improved and sustainable livelihoods.

Currently there are no dedicated river officers within NRETA to monitor, maintain, analyse and update river-related data that might assist decision-makers and resource/asset managers. Stakeholders felt that while there was adequate hydrological data there was very little ecological information available, with the exception of baseline condition assessments undertaken in the late 1990s for the Roper, Daly and Victoria Rivers.

Stakeholders felt that there was good integration and communication across government agencies within the NT. Rivers that cross jurisdictions trigger co-operative management across state and territory borders (e.g. Lake Eyre Basin Agreement).

Effective or innovative approaches that may be transferable

Stakeholders felt that the NT would benefit from the experience and learnings of other jurisdictions but that a suitable approach for the NT would need to take into account the unique condition and values of HCVAE in the NT. A river categorisation system (see section on AUSRIVAS[19] in Qld discussion) and work undertaken in the Tropical Rivers field was considered to be of value. The Queensland approach to Wild Rivers was also considered of relevance and will influence the development of the 'Living Rivers Program' in the NT. Some stakeholders felt that the Canadian Heritage Rivers System[20] provided a good model for nominating, funding and ultimately protecting and managing rivers with natural and cultural heritage values.

Future directions and challenges

NT stakeholders identified the following issues in terms of future directions and challenges for identifying, categorising and managing HCVAE in the NT:

- *Legislative, policy and strategic frameworks:*
  - There is currently no territory-held policy position on Ramsar wetlands in the NT. The Living Rivers Program will need to determine policy positions for Ramsar and Heritage sites and provide the strategic framework for protection and management of HCVAE in the NT.
  - While reserve systems are good for conservation outcomes there is a need to achieve NRM outcomes across the landscape. The Living Rivers Program provides an

[19] http://ausrivas.canberra.edu.au/
[20] http://www.chrs.ca/Main_e.htm

opportunity to explore possibilities beyond a declaration process for certain sites and consider broader catchment scale issues.

  - The EPBC Act and Ramsar have the ability to consider impacts from activities off-site but this is not currently included in NT policy or legislation. The Masterplan identifies these issues and there is now a need develop and implement relevant policy frameworks to address them.
  - There is a need for better integration of various instruments, projects and programs at the federal level (e.g. NWI, NRS and biodiversity conservation). The Australian Government must provide leadership and direction on such issues as bio-regionalisation.
  - States and territories should operate under their own statutes (e.g. as with water allocation) but HCVAE could potentially come under national legislation through strengthening of the EPBC Act.
  - Guiding principles for a national approach are more likely to achieve broad agreement across jurisdictions than a prescriptive approach.
  - The NT could learn from other states but the unique 'pristine' conditions in NT means that the focus is more on protection and conservation of excellent condition and high values rather than the rehabilitation and restoration and river health focus that is dominant in some of the more developed states.
- *Engagement and communication issues:*
  - Whether a national or state/territory process is adopted, community support and engagement and consultation with landholders are very important. This is particularly true in the NT given the dominant land tenure arrangements (e.g. private and pastoral land) and the lack of regional organisations such as CMAs for delivery (see also *Implementation issues* below).
  - Identification, nomination and management of HCVAE (such as Ramsar sites) requires on-going engagement with landholders and the community as well as government agencies and NGOs.
- *Implementation issues:*
  - The implementation model should consider engagement of groups such as Waterwatch and Indigenous Rangers as they may have an important delivery and engagement role. But how do we bring these groups into the mainstream effort? Amalgamation of local government councils could also provide a mechanism for delivery.
  - There needs to be recognition at the federal level that on-going management, monitoring and reporting for protected sites such as Ramsar wetlands needs on-going funding, support and guidance from the Australian Government. Costed work plans need to be associated

with Ramsar sites to ensure continuity of funding for protection and management, and on-going monitoring and reporting.

  - The Australian Government needs to recognise and acknowledge its on-going role for supporting management of these sites. Dedicated funding may actually achieve better conservation outcomes by facilitating appropriate management.
  - Incentives to nominate ecosystems for protection need to be developed. There is a need strengthen and articulate the benefits for landholders and engage with the community to encourage active proponents.
- *Resourcing:*
  - The level of resourcing within the NT government departments is considered a constraint. Support from the Australian Government and non-government organisations (i.e. WWF) will be required.
- *Knowledge management:*
  - While there is adequate hydrological data there is very little ecological information available in the NT.

2.6 Queensland

Primary organisations and roles

The key government agencies with a role in the identification, categorisation and management of HCVAE in Queensland are summarised below.

Authority	Description of Work
The Department of Natural Resources and Water (NRW)	The NRW manages and allocates Queensland's land and water resources, providing information on, managed access to, and sustainable use of the State's natural resources. It also supports the processes associated with Aboriginal and Torres Strait Islander land, including native title and cultural heritage. Responsibilities include: ▪ planning, allocation and sustainable use of the state's water resources; ▪ custodian of the state land estate; and ▪ management of native vegetation including the control of pest plants and animals and the use and sale of native forest resources.
The Department of Primary Industries and Fisheries (DPI)	The DPI assists Queensland food and fibre industries to increase productivity, sustainability, market growth and adaptability. It provides research, development and policy leadership, protects industries against pests and diseases and maintains animal welfare standards.
The Environmental Protection Agency (EPA)	The EPA, which includes the Queensland Parks and Wildlife Service (QPWS), protects Queensland's natural and cultural heritage, promotes sustainable use of its natural capital and ensures a clean environment. Key functions of the organisation are environmental planning, environmental policy, management of parks, forestry and wildlife, environmental operations, sustainable industries, environmental and technical services, corporate affairs, and corporate development.
Queensland Water Commission	The Commission is an independent, statutory authority responsible for achieving safe, secure and sustainable water supplies in South East Queensland and other designated areas. Its role is to ensure sustainable water supplies by developing long term water supply strategies, establishing a regional water grid, implementing water restrictions, managing water demand, providing advice to government and reforming the water industry.
Regional NRM bodies	Regional NRM bodies are responsible for protecting and managing natural resources in Queensland. These organisations develop regional NRM plans which outline how it will identify and achieve the region's NRM targets.

Key legislative, policy and planning instruments

Queensland government stakeholders identified a number of key instruments of relevance to the identification, categorisation and management of HCVAE:

- *Wild Rivers Act 2005* – provides for the declaration of a 'wild river area' to regulate the impacts of all future land, water, mineral and vegetation development within the entire catchment to preserve the river system's natural values, which are largely intact;

- *Water Act 2000* – provides for the sustainable management of water and other resources, a regulatory framework for providing water and sewerage services and the establishment and operation of water authorities;
- *Fisheries Act 1994* – provides for ecologically sustainable development for fisheries management. It allows for the creation of management plans and the declaration of fish habitat areas;
- *Environmental Protection Act 1994* and *Environmental Protection (Water) Policy 1997* (EPPW) – provides a framework for the identification of environmental values of waters, including high ecological value waterways, and the determination of water quality objectives. Provides for management mechanisms to achieve the water quality objectives and hence protect the environmental values.
- *Queensland Water Quality Guidelines* - sets out water quality indicators and guideline values for protection of aquatic ecosystems.
- *Wild Rivers Code* – a development assessment code that specifies desired outcomes that must be met by all future developments in a wild river area in order to preserve the river system's natural values.
- *Queensland Water Plan* - sets out key policy objectives for water management in Queensland, of which one is to provide water for the environment.
- *State Coastal Plan (under Coastal Protection and Management Act 1995* - The State Coastal Plan establishes the long-term vision for the coast, identifies outcomes and principles for coastal management and includes policies for coastal use including criteria for identifying Significant coastal wetlands.
- *Regional Coastal Plans*- Regional coastal plans map and identify specific areas where policies of the State Coastal Plan apply and give regional direction for State Coastal Plan policies. Significant coastal wetlands have been identified and mapped for many areas in Queensland
- The *Vegetation Management Act 1999* (VMA)- regulates the clearing of remnant vegetation in a way that conserves remnant regional ecosystems, prevents the loss of biodiversity and maintains ecological processes. Some small scale clearing such is still permitted and include provisions for the regulation of clearing of remnant vegetation in and adjacent to wetlands and water courses in a way that prevents the loss of biodiversity and maintains ecological processes and assessable vegetation associated with any natural significant wetland and/or natural wetland is protected to maintain
- *Strategy for the Conservation and Management of Queensland Wetlands 1999* – Provides an integrating framework to guide state agencies responsible for wetlands management and to set out initiatives to encourage and assist landholders to sustainably manage wetlands under their control

- *Queensland Wetlands Programme* - The Queensland Wetlands Programme is a joint Australian and Queensland government initiative that helps landholders, industry, Natural Resource Management regional bodies and other groups manage and restore their wetlands.
- *Marine Parks Act – Provides for the development for Zoning Plans which identifies areas (estuarine and marine) of high conservation value and provides protection for these areas*

A more detailed summary of relevant instruments is provided in Appendix D while selected elements of these and associated approaches are described further in the following sections. Table 6 below provides a summary table of the key legislative, policy and planning instruments in Queensland of relevance to the identification, categorisation or management of HCVAE.

Table 6: Policy, planning and legislative framework for Queensland

	Water allocation and management	Biodiversity conservation & protected area management	Integrated catchment/ natural resources management	Water- dependent ecosystems	Environmental protection & land use planning
Legislation	Water Act 2000	Fisheries Act 1994 Nature Conservation Act 1992 Vegetation Management Act 1999 Wet Tropics World Heritage Protection and Management Act 1993 Marine Parks Act 2004		Wild Rivers Act 2005	Environmental Protection Act 1994 Coastal Protection and Management Act 1995 Integrated Planning Act 1997 National Environment Protection Council (Qld) Act 1994
State-wide policy and planning	Queensland Water Plan		Queensland Water Quality Guidelines	Queensland Wetlands Programme/Wetland Strategy	Environment Protection (Water) Policy
Regional scale planning & projects	Catchment Water Resource Plans	Fish Habitat Area Management Plans Wet Tropics Conservation Strategy and Wet Tropics Management Plan	Integrated Natural Resource Management Plans Regional Coastal Management Plans	Wild river declarations	

Identification and categorisation of HCVAE

There are a number of mechanisms for identifying and categorising HCVAE in Queensland. These include a suite of policy, processes and tools: (1) the declaration of fish habitat areas; (2) wetland mapping and categorisation; (3) establishing high ecological value (HEV) waterways under EPPW and associated water quality guidelines; (4) the identification and protection of wild rivers; (5) the designation of marine park zones; (6) identification of of-concern and endangered regional ecosystems, (7) the designation of significant coastal wetlands: (8) identification of HCVAE through the AquaBAMM process . Also DIWA and Ramsar sites are nominated through state processes.

One of the mechanisms through which HCVAE are protected in Queensland is through the protection of Fish Habitat Areas. Fish Habitat Areas (FHAs) are declared under s120 of the *Fisheries Act 1994* as part of the ongoing identification, management and protection of critical fish habitats in Queensland. Candidate fish habitat areas are nominated to the DPI&F by fishery stakeholders, researchers, local government and members of the community. Candidate areas are then prioritised for investigation taking into consideration factors such as: existing or potential threats to each candidate area, the likely level of community and political support, likelihood of success and available funding for investigation and declaration. Full investigations are then undertaken on priority candidate areas which involves detailed documentation of the fisheries and habitat values of the candidate area. Criteria for selection are:

- High fish species richness;
- High diversity and abundance of regionally targeted species;
- Supports existing fisheries;
- Supports external/ regional fisheries;
- Constitutes a large habitat;
- Constitutes a diverse range of habitat types;
- Presence of a functioning riparian buffer zone;
- Limited disturbance from in-stream artificial structures;
- Good water quality;
- Limited disturbance from water impounded structures;
- Limited interaction with developments of major significance to the state;
- Compatible adjacent land and aquatic planning; and
- Presence of regionally unique natural fish habitat features.

Currently there is a network of 71 FHAs with many located in areas that are threatened (e.g. south-east Queensland), while some are in wild or pristine areas (e.g. Gulf of Carpentaria). This strategy

recognises the need to sustain fishing in heavily populated areas as well as protecting less threatened fish habitats. FHAs may be declared over both marine and freshwater wetlands; however, the network focuses on coastal estuarine systems, which reflects the importance of these areas in sustaining fisheries productivity. There are two levels of management for FHAs. Management category 'A' affords the highest level of protection and is used for areas that contain fish habitats that are critical for fisheries productivity and sustainable fishing in the short- and long-term and to maintain the ecological character and integrity of undisturbed fishery habitats. Management category 'B' is declared over areas that contain fish habitats that are important for productive and sustainable fishing in the short- and long-term. FHA category B affords more flexible management and is often used as a buffer to protect FHA category A.

There are a number of programs of wetland assessment and categorisation in Queensland in addition to those used for Ramsar and National Directory wetlands (see sections 2.1 and 2.2 above). Key wetland assessment programs and methods include:

- **Aquatic Conservation Assessment (ACA) using AquaBAMM** – is a systematic method (using data and expert panels) for assessing and mapping the conservation values of aquatic ecosystem (i.e. wetlands, lakes, rivers, bogs and estuaries). Aquatic Conservation Assessment assesses ecosystems against the following criteria: Naturalness – Aquatic; Naturalness – Catchment; Diversity and Richness; Threatened Species and Ecosystems; Priority Species and Ecosystems; Special Features; Connectivity; and Representativeness.
- **Queensland Wetland Programme -** Under the Queensland Wetland Programme, a comprehensive project is mapping and categorising all wetlands in Queensland, with the broadest definition of wetlands (i.e. it includes rivers, streams, estuaries, lakes etc.). The project maps and classifies wetlands but does not prioritise them. Queensland has not as yet identified all HCVAE areas as part of the mapping and categorisation process.
- **A decision support system (DSS)** developed to help prioritise investment in wetland management activities.

Queensland's *Wild Rivers Act 2005* provides a legislative mechanism to protect river systems that have all or almost all of their natural values intact. The process for declaring a wild river area (normally the entire river catchment) has three stages: (1) nomination; (2) public review and (3) declaration. Wild river areas may contain the following management areas:

- High preservation areas- up to one kilometre each side of the wild river, its major tributaries and special features (such as off-stream wetlands);
- Floodplain management areas- the key elements of a floodplain that is strongly connected to the river system; and
- Sub-artesian management areas- aquifers that are strongly linked to river base flows.

Constraints on future development, including prohibitions, apply in these management areas, depending on the type of development and its impact on the wild river natural values. The first six wild river areas were declared in February 2007; they are the Gregory, Staaten, Settlement and Morning Inlet in the Gulf of Carpentaria as well as Fraser and Hinchinbrook, which are east coast islands.

Queensland has developed the *Environmental Protection (Water) Policy 1997* under the *Environmental Protection Act 1994*. The objective of this policy is to protect Queensland's environment while allowing for development that is ecologically sustainable. It establishes a process for scheduling waterway values and uses, including the identification of HEV waters, as well as giving formal recognition to the Queensland water quality guidelines.

The Queensland Water Quality Guidelines set out guidance for water quality which are based on the national ANZECC 2000 Guidelines. The Guidelines use the reference based approach of the national guidelines and set out water quality guideline values for (1) ecosystem protection; and (2) some values and uses of waters other than ecosystem protection. From an ecosystem protection perspective, the Guidelines provide for two categorisations of aquatic ecosystem condition:

- Level One: High ecological/ conservation value ecosystems; and
- Level Two: Slightly to moderately disturbed ecosystems.

In the Queensland Water Quality Guidelines the state is divided into seven regions: Wet tropics; South East Queensland; Eastern Cape; Lake Eyre; Central Coast; South-East; and Murray Darling. Water quality indicators and guideline values are set for each region and in some cases sub-regions.

Other instruments that may be used to protect HCVAE in Queensland include national parks within the National Reserve System, marine parks, conservation agreements on private land, coastal management plans, the *Vegetation Management Act* 1999, the environmental protection and planning framework.

The AWR 2005 Level 1 assessment (see section 2.2 above) identifies the following areas and provides associated maps for Queensland:

- Wetlands that are protected by relevant legislation in Queensland (see Protected Wetlands (Queensland)[21])
- Terrestrial protected areas such as national parks and state recreation areas in Queensland (see Protected Terrestrial Areas (Queensland[22]))

[21] http://www.water.gov.au/MapPdfs/Assets_QLD_Final.pdf
[22] http://www.water.gov.au/MapPdfs/ProtTerr_QLD_Final.pdf

Management of HCVAE

The management intent for waterway protection in Queensland via the EPPW is through establishing environmental values, including High Ecological Value Waterways and then implementing actions through a number of statutory and non-statutory mechanisms, including:

- Environmental protection legislation and Environmental Protection Policy (Water) implemented by the EPA;
- The Water Act and in particular environmental flow provisions implemented by the Department of Natural Resources and Water;
- Coastal/ Marine legislation and supporting management plans (e.g. Regional Coastal Management Plans and Marine Park Plans) implemented by the EPA and the Great Barrier Reef Marine Park Authority;
- The Integrated Planning Act and local planning mechanisms implemented the Department of Local Government and Planning and local governments; and
- Integrated natural resource management plans and investment strategies (which include water quality improvement plans) developed and implemented by NRM regional bodies.

The primary responsibility for implementing the management intent varies according to the relevant mechanism.

The *Water Act* 2000 provides legal recognition of the need to make adequate provision of water for the natural processes that underpin river health. The Act establishes a system for the allocation and use of water within sustainable limits, with the objective of ensuring that the biological diversity and the health of natural ecosystems are maintained (NWC, 2006).

Under the Act, water resource plans assess and allocate water resources to different users, including the environment. They establish a framework to share water between human and environmental needs and are developed through detailed technical, scientific and community consultation. Water resource plans are supported by resource operations plans which detail how water resources will be managed to meet the specific environmental and consumptive objectives of the water resource plans. The Act requires that the water resource plans take into account social, economic and environmental demands on a catchment's water resources.

The Queensland Water Plan 2005–2010 details strategies and actions to meet future water needs for consumption and the environment. Significant actions include:

- statutory, catchment-based, water resource plans to provide secure water provisions for farms, businesses and homes;
- legally protected environmental flows to ensure the health of rivers and groundwater systems;

- water trading to provide access to water and encourage high value use;
- wild rivers legislation to protect pristine rivers;
- pricing water to reflect the costs of supply and encourage people to invest in efficient water supply and use;
- working with local government and the community to develop regional plans to ensure long-term water supply, including new infrastructure;
- programmes and financial incentives to encourage smarter use of existing supplies through more efficient use, reuse, and recycling of water;
- developing regional strategies to set water quality objectives and to better manage pollution sources and rivers; and
- monitoring and research to underpin sustainable water management.

The AWR 2005 Level 1 assessment (see section 2.2 above) provides a map that details the status of environmental water provisions throughout Queensland (see Environmental Water Provisions (Queensland)[23]) for each surface water management area.

The *Coastal Protection and Management Act 1995* is the primary mechanism for protection and management of the coast. The act requires the preparation of a state coastal management plan and regional coastal management plans. Regional management plans identify key coastal sites requiring special management.

The key document for wetland management is the *Strategy for the Conservation and Management of Queensland Wetlands*. The Wetland Strategy provides the primary policy document to guide wetlands conservation and management within the State.

Under the *Fisheries Act 1994* management plans may be prepared for declared Fish Habitat Areas and DPI&F has a series of published operational policies that set out the objectives for the declaration and management of FHAs. Since their inception in the 1960s FHAs have been declared over approximately 700,000ha of Queensland's coastal and estuarine waterways.

Effective or innovative approaches that may be transferable

The Queensland Government's work in the area of HCVAE protection and management predates and aligns with much of the current focus brought about by the NWI. In Queensland there has been lots of activity regarding mapping and prioritisation of wetlands (including rivers) and in developing a standardised process for assessing their ecological values. A tool and process for

[23] http://www.water.gov.au/MapPdfs/EnvirFlow_QLD_Final.pdf

prioritising aquatic ecosystems is currently underway and, through the EPPW process, HEV waterways have been scheduled in three regions and are currently underway in five other regions.. Good cooperation, communication and integration across agencies have been critical and efforts to strengthen legislative protection continue.

The Wild Rivers legislation and Code were thought to be successful and relevant to other states and territories where there is a low level of development in these systems (e.g. Northern Territory, Western Australia and Tasmania) but not so relevant to the highly developed systems of the southern MDB states such as Victoria, South Australia and New South Wales.

The water allocation planning process has been useful in that places greater emphasis on the science of environmental flows and environmental water requirements. Stakeholders also felt that the MDBC's Sustainable River Audit was a good process and the work of Kingsford and Dunn (see section 3) was valuable.

Future directions and challenges

Queensland stakeholders identified the following issues in terms of future directions and challenges for identifying, categorising and managing HCVAE in Queensland:

- *Legislative, policy and strategic frameworks:*
  - A national approach needs to be simple and have flexibility so that States and Territories can implement instruments relevant to their conditions and within their existing frameworks i.e."horses for courses". For example, the wild rivers concept may be OK for Queensland, the NT and WA but probably not relevant to Victoria, SA and NSW.
  - A national approach must be underpinned by good science and must have a solid ecological basis. There is a need to ensure that it is not MDB-centric and is readily applicable and applied across jurisdictions.
  - A common framework needs to be focussed on achieving the 'best bang for buck' at a broad strategic planning level rather than a specific site level.
  - The terms and objectives of such an approach need to be clear in order to develop appropriate instruments and frameworks. For what purpose are HCVAE being identified, classified and managed?
  - A tiered system of significance may be appropriate (i.e. International – National – State – Regional).
  - A good first step would be to agree on a national categorisation system for types of freshwater ecosystems. We need to be able to categorise river systems in the biophysical sense so we can define 'representiveness' in this context?

- Guidelines will need to be developed for different organisations depending on their role and the scale that they are concerned with (i.e. sites or reaches).

- *Engagement and communication issues:*
  - Significant impediment is a resistance to change and a good understanding of the issues within the community. Governments have a role in education and capacity building.
- *Implementation issues:*
  - There are difficulties in managing diffuse impacts on water quality (e.g. land use and management practices) and in developing incentives on private land.
  - Political interference undermines efforts for protection and management of HCVAE (e.g. federal politicians that don't support state initiatives such as Wild Rivers).
  - With regard to Ramsar and National Directory of Important Wetlands it is not clear what the Australian Government's vision is for management of these areas. The Australian Government needs to provide leadership, direction and on-going support for identifying and managing these sites. What role, if any, does the NWI play?
  - Given the large catchment areas that cross local government boundaries, it is difficult to consistently implement instruments at a local government planning scale but this is important given the potential impacts of development.
- *Knowledge management:*
  - Data capture and storage is largely opportunistic but there are plans to better integrate different datasets (e.g. wetlands, wild rivers, FHAs etc) by the end of 2007.

2.7 South Australia

Primary organisations and roles

The key government agencies with a role in the identification, categorisation and management of HCVAE in South Australia are summarised below.

Authority	Description of Work
Department of Water, Land and Biodiversity Conservation (DWLBC)	The DWLBC undertakes a range of functions that underpin the sustainable use of the State's natural resources. Significant activities undertaken in this regard include resource allocation, licensing, compliance, research, monitoring and assessment. The DWLBC also provides policy advice and the development of approaches to address NRM issues. DWLBC also has a role in the management of NRM infrastructure and the management of large-scale NRM related projects.
Department of Environment and Heritage (DEH)	The DEH has a primary role in environment policy, biodiversity conservation, heritage conservation, environmental sustainability and animal welfare, and is a custodian of information and knowledge about the State's environment. DEH also manages the State's public land - land held in the conservation reserve system and as Crown lands.
Primary Industries and Resources, South Australia (PIRSA)	PIRSA works with industry to manage resources sustainably and enhance their value chains. PIRSA also works with communities to enhance the amenity and sustainability of their built environments. Business activities include agricultural and horticultural industry and policy development, fisheries and aquaculture management and industry development, minerals and petroleum exploration and development, sustainable resources management including soil, landcare and productive use of water, development planning, rural and remote community support services and State / Local Government relations.
The Environment Protection Authority (EPA)	The EPA is South Australia's primary environmental regulator, responsible for the protection of air and water quality, and the control of pollution, waste, noise and radiation. The EPA's responsibilities cover regulation of activities that pose a significant risk to the environment, the development of environment protection policies, environmental monitoring and evaluation, programs and investigations that promote ecologically sustainability development, and consultation with all levels of government, the private sector and the community on matters related to environmental protection and management.
Natural Resources Management Council and NRM Boards	The NRM Council is the statewide peak body for natural resources management. A key function of the NRM Council is to 'prepare, and to keep under review, the State NRM Plan, and to keep under review the extent to which regional NRM plans and policies and practices adopted or applied by NRM authorities are consistent with the State NRM Plan (Natural Resources Management Act 2004, Section 17(1)(c)). The NRM Council has established eight NRM regions, each with a regional NRM board. The regions are: (1) Adelaide and Mount Lofty Ranges; (2) Alinytjara Wilurara; (3) Eyre Peninsula; (4) Kangaroo Island; (5) Northern and Yorke; (6) South Australian Arid Lands; (7) South Australian Murray Darling Basin; (8) South East
SA Water	SA Water own, manage and operates South Australia's water supply and wastewater treatment systems.

Key legislative, policy and planning instruments

South Australian government stakeholders identified a number of key instruments of relevance to the identification, categorisation and management of HCVAE:

- *Fisheries Act 1982*- provides for the creation and management of aquatic reserves;
- *National Parks and Wildlife Act 1972*- provides for the establishment and management of reserves;
- *Natural Resources Management Act 2004*-makes provisions for the sustainable and integrated management of the States natural resources. This includes the declaration of certain water bodies as 'prescribed';
- *River Murray Act 2003* - provides for the protection and enhancement of the River Murray and related areas and ecosystems;
- *State Natural Resources Management Plan 2006*- assesses the state and condition of the natural resources of the state and identifies management actions to manage natural resources in SA;
- *South Australia's Water Future*- identifies priorities and actions for water management in SA;
- *Wetlands Strategy*- framework for sustainable development of wetland ecosystems; and
- *Regional Biodiversity Plans*- identify regional biodiversity priorities.

A more detailed summary of relevant instruments is provided in Appendix D while selected elements of these and associated approaches are described further in the following sections. Table 7 below provides a summary table of the key legislative, policy and planning instruments in South Australia of relevance to the identification, categorisation or management of HCVAE.

Table 7: Policy, planning and legislative framework for South Australia

	Water allocation and management	Biodiversity conservation & protected area management	Integrated catchment/ natural resources management	Water- dependent ecosystems	Environmental protection & land use planning
Legislation	Groundwater (Border Agreement) Act 1985 Murray Darling Basin Act 1993	Fisheries Act 1982 National Parks and Wildlife Act 1972 Native Vegetation Act 1992 Wilderness Protection Act 1992 Pastoral Land Management and Conservation Act 1989	Natural Resources Management Act 2004	River Murray Act 2003	Environment Protection Act 1993 National Environment Protection Council (SA) Act 1995 Coast Protection Act 1972
State-wide policy and planning	South Australia's Water Future Stressed Resources Report		State Natural Resources Management Plan Living Coast Strategy River Murray Salinity Strategy River Murray Salinity Zoning	Draft Estuaries Policy and Action Plan Wetlands Strategy Framework to Categorise and Assess Wetland Condition (in progress) The Environmental Flows for the River Murray 2005-2010	Environment Protection (Water Quality) Policy 2003
Regional scale planning & projects	Water Allocation Plans	Regional Biodiversity Plan Biological Survey of SA Ramsar Management Plans	Regional NRM Plans and Investment Strategies River Murray Improvement Program Land and Water Management Plans	River Murray Wetland Prioritisation Project Wetland Inventories River Murray Floodplain Prioritisation Project Catchment Water Management Plans	

Identification and categorisation of HCVAE

There is no formal or systematic process used to identify or categorise HCVAE in South Australia (SA) except those associated with Ramsar and DIWA (see sections 2.1 and 2.2 above). While South Australia has terrestrial and marine (which include estuaries) protected areas there are currently no protected areas for freshwater aquatic ecosystems with the exception of Ramsar and National Directory wetlands.

There are four broad approaches that address HCVAE in some way in South Australia: (1) threatened species; (2) areas of conservation importance (including aquatic reserves); (3) prescribed water resources and (4) wetlands, estuaries and coastal management.

The management framework for threatened species and areas of conservation importance is inter-related. Under the *National Parks and Wildlife Act 1972* species can be declared to be:

- **Endangered species** are under the most threat and likely to become extinct in the near future unless the circumstances and factors threatening their survival cease to occur.
- **Vulnerable species** are those likely to move into the endangered category in the near future unless the circumstances and factors threatening their survival cease to occur.
- **Rare species** are those that are the least threatened, but at some risk due to their low numbers, restricted distribution or observed declines.

In this way, threatened species are effectively prioritised by the level of risk to continued species survival. Notably, there are differences between state and national definitions of threatened species which means that a species may be threatened at a state level but not under federal legislation.

The Act also allows for the declaration of specific areas as special conservation areas (e.g. National Parks and Conservation Parks). Again, the degree of protection afforded to areas of special conservation status is tied to an assessment of the relative ecological value of the area. Specific areas of conservation significance can also be protected under the *Wilderness Protection Act 1992* and the *Fisheries Act 1982*. Areas with special conservation status are defined as follows:

- **National Parks (NP)** - areas considered to be of national significance due to wildlife, natural features of the land or Aboriginal or European heritage;
- **Conservation Parks (CP**) - areas that are protected for the purpose of conserving wildlife or the natural or historic features of the land;
- **Wilderness Protection Areas (WPA)** - land set aside under the *Wilderness Protection Act 1992* to protect natural and remote areas; and
- **Aquatic Reserves**- areas which have been identified as nurseries or spawning grounds for heavily fished aquatic species.

Each of these categorisations has special controls associated with them which are generally designed to protect representative habitats, ecosystems and communities.

SA is currently working on the *Stressed Resources Project* which is designed to provide a framework for identifying and prioritising water resources under stress or at risk of stress. This will support the existing framework set out in the *Natural Resources Management Act 2004* which is the primary mechanism for protecting specific water resources through listing them as 'prescribed'. This occurs when the level of development is causing stress on the water resource and once a water resource has been prescribed a Water Allocation Plan must be prepared. This sets the limit on the amount of water that can be diverted from a water way. In defining the limits, the plan must consider the needs of both the environment and consumptive users.

The decision to prescribe a resource is made only after consultation with the community and investigation into the social, economic and environmental implications of such a system. Significantly, the declaration of an aquatic reserve is not necessarily linked to the declaration of a water resource as 'prescribed' as there are separate criteria for each of these categorisations. One depends on fish species whereas the other is tied to the level of stress within a water resource.

A framework to categorise and assess wetland, estuary and coastal zone condition is also currently under development in South Australia. The strategic and policy frameworks for wetlands, estuaries and coastal zones are still emerging but there have been a number of key publications developed to lay the foundation for their management. These include:

- **Living Coast Strategy** which makes an assessment of the ecological significance of coastal, estuarine and marine habitats in order to identify areas of conservation significance of these areas. This effectively prioritises regions coastal regions and species.
- **Wetland Strategy** is a non-statutory instrument which sets a framework for achieving ecologically sustainable development of wetland ecosystems.
- **Wetland inventories** are field-based projects that provide information about the ecological, biological and hydrological attributes of wetlands. While there is a SA Wetland Inventory, its management is not centralised.
- **Estuary Policy and Action Plan** (Draft).

Wetland identification and categorisation is evolving at state and regional levels but is largely being driven by the regions with advice from DEH and other relevant agencies. Without statewide policies, processes or guidelines, regional NRM Boards have undertaken a number of projects using a variety of methods to identify and categorise HCVAE in their regions. Recent examples of two projects currently being undertaken for the SA MDB region are the Floodplain Prioritisation Project and the Wetlands Prioritisation Project. These projects, using an assets-based approach,

aim to identify and prioritise floodplains and wetlands (using different methods) along the River Murray for environmental watering and associated management actions. Other approaches in other regions have taken an inventory type approach. Approaches to identification and categorisation of HCVAE therefore vary within regions and across regions.

The AWR 2005 Level 1 assessment (see section 2.2 above) identifies the following areas and provides associated maps for South Australia:

- Wetlands that are protected by relevant legislation in South Australia (see Protected wetlands (South Australia[24]))
- Terrestrial protected areas such as national parks and state recreation areas in South Australia (see Protected Terrestrial Areas (South Australia[25]))

Management of HCVAE

The DEH manages the State's public land and reserve system and is so responsible for the management of HCVAE in these areas. Historically the Department has had a terrestrial focus but its roles and responsibilities together with other agencies for water-dependent ecosystems are evolving. DEH have a key role in implementing the Wetlands Strategy, but to date this has been difficult to resource. There is recognition that some sites are better managed and in better condition than others.

Regional Biodiversity Plans have been prepared which identify the regional conservation priorities including significant biodiversity assets, plants, communities, habitats and species of significance. The management framework of threatened species is well-established and there are a number of species which have associated management plans. Similarly, areas of conservation significance have been in place for a long time and a number of management plans exist.

Management of HCVAE on private land is influenced by statutory mechanisms such as the legislation described above and non-statutory mechanisms such as regional and local programs and projects. Regional scale planning in South Australia is conducted through the Natural Resource Management Boards who are responsible for the development of *Regional NRM Plans* and *Investment Strategies* that set out strategies to manage wetlands, rivers, estuaries and other aquatic ecosystems from a 'whole of catchment' perspective. NRM Boards are also responsible for the review and development of *Catchment Water Management Plans* which seek to improve the health of catchment waterways and the sharing of water resources to meet economic, social and environmental objectives.

[24] http://www.water.gov.au/MapPdfs/Assets_SA_Final.pdf
[25] http://www.water.gov.au/MapPdfs/ProtTerr_SA_Final.pdf

There are a number of strategies or plans which impact on priorities for HCVAE management in South Australia. On a state-wide level, the *State of the Environment Report* highlighted the need to evaluate the environmental water requirements of major rivers, streams and wetlands and to take action to restore environmental flows. Special reference is made to the River Murray which it highlights urgently requires additional water. This recommendation is supported by both *South Australia's Water Future* and the *State Natural Resources Management Plan (2006).*

DWLBC as a resource manager is responsible for protecting conservation values and in managing and allocating water resources, including to the environment. The River Murray is a waterway of particular focus in SA and has been the subject of considerable planning and policy efforts, including:

- River Murray Water Allocation Plan;
- River Murray Improvement program;
- River Murray Salinity Strategy;
- River Murray Floodplain Prioritisation Project;
- River Murray Wetland Prioritisation Project;
- The Environmental Flows for the River Murray (2005-2010); and
- River Murray Salinity Zoning.

These are supported by the *Murray Darling Basin Act 1993* which provides the legal basis for the Murray Darling Basin Commission in SA.

The management and allocation of water resources in South Australia was provided by the South Australian State Water Plan 2000 and the *Water Resources Act* 1997 which are now encompassed in the *Natural Resource Management Act* 2004. Under the Act institutional arrangements to protect the environmental values of water are embedded in: prescribed water resources, water protection areas, catchment water management plans, water allocation plans, and local water management plans. Together, the Plan, the *Water Resources Act* 1997 and the *NRM Act* 2004 provide for formal provision of water for the environment in South Australia.

NRM Boards are responsible for preparing water allocation plans for prescribed water resources in its region. The water allocation plan must include "an assessment of the quantity and quality of water needed by the ecosystems that depend on the water resource and the times at which, or the periods during which, those ecosystems will need that water". It should also ensure that "an equitable balance is achieved between environmental, social and economic needs for the water".

The AWR 2005 Level 1 assessment (see section 2.2 above) provides a map that details the status of environmental water provisions throughout South Australia (Environmental Water Provisions (South Australia)[26]) for each surface water management area.

Effective or innovative approaches that may be transferable

Legislation such as the *NRM Act* 2004 has the potential to be used to protect HCVAE but it has not yet been applied and tested in the way to date.

Stakeholders identified Queensland's approach as being good across the various scales with well-divided roles and responsibilities and an appropriate level of resourcing.

Mapping frameworks and guidance are very important and are considered a key tool by stakeholders. An inventory approach was also considered to be a good approach but would require a lot of resources to undertake it properly. Native fish habitat mapping has also been useful for monitoring native fish populations and identifying important habitat areas.

Future directions and challenges

South Australian stakeholders identified the following issues in terms of future directions and challenges for identifying, categorising and managing HCVAE in South Australia:

- *Legislative, policy and strategic frameworks:*
  - There is currently no clear or consistent terminology for HCVAE in SA with the exception of wetlands. There is also no statewide policy position or guiding principles for HCVAE in SA. Regional approaches to identification and categorisation of HCVAE are inconsistent and incomprehensive and tend to be data driven. High level guidance needs to be provided to regions.
  - Under the *NRM Act* 2004 it is imperative for NRM Boards to consider social, economic and environmental considerations and impacts of its activities. There is increasing collaboration around NRM in SA but it depends on whether HCVAE will be prioritised in regional plans and investment strategies.
  - A national approach needs to be pragmatic and supported by tools and rigorous conceptual models and would need to recognise the diversity of different ecosystems and environments and data availability.
  - It may be difficult to reach common agreement on a national approach given that some jurisdictions have already implemented a process. There is a need to allow for this and

[26] http://www.water.gov.au/MapPdfs/EnvirFlow_SA_Final.pdf

ensure some flexibility by developing a continuum framework that will be able to include all jurisdictions regardless of their starting point.

  - Ausrivas (section 3) is a scientific categorisation approach developed in the south east States which will not be relevant to all jurisdictions. An approach can not just be based on science – it needs an overarching policy framework.

- *Implementation issues:*
  - The Wetlands Strategy has potential to influence management of HCVAE but it is a non-statutory document and has lacked an implementation strategy. It has also lacked funding for implementation and needs better coordination and integration across scales. There is potential for better implementation and delivery through NRM plans and investment strategies.
  - There is an impediment caused by the lack of integration and coordination between resource managers and biodiversity conservation managers brought about by the dominant paradigms and structures operating within different agencies. There is recognition that better coordination and integration is required across various departments and organisations to achieve better links between site managers, river managers and catchment managers and the instruments that they are responsible for implementing.
  - There is recognition that it is difficult to influence management outside of a protected site but there is potential for the *NRM Act* 2004 to do so although it is yet untested.
- *Resourcing*
  - While DEH has wetland implementation/extension officers in the regions, there are few resources within DEH to deal with strategic and policy issues for HCVAE.
- *Knowledge management:*
  - Need to be wary of an inherent bias in categorising and prioritising HCVAE that are data-rich as opposed to those that are data-poor.
  - While the SA Wetland Inventory uses a consistent approach across regions (for values, threats, risks, monitoring and evaluation), data is not centrally managed or stored. Centralising the management of the inventory is a work in progress.

2.8 Tasmania

Primary organisations and roles

The key government agencies with a role in the identification, categorisation and management of HCVAE in Tasmania are summarised below.

Authority	Description of Work
Department of Primary Industries and Water (DPIW)	The primary role of the DPIW is to manage the State's natural resources - air, land, water, plants and animals. The DPIW's broad range of services include agriculture; fisheries and aquaculture; land and water resource management; nature conservation; Crown land management; biosecurity; land title, valuation and mapping; and Service Tasmania shop management.
Inland Fisheries Service	Responsibilities include the regulation and promotion of commercial freshwater fisheries and the protection of native freshwater fauna. The Inland Fisheries Service is responsible for administering the *Inland Fisheries Act 1995*, *Inland Fisheries Regulations 1996. Core functions include to* manage, control, protect, develop, improve, maintain and regulate salmon fisheries, fisheries in inland waters and freshwater fish.
Department of Tourism, Arts and the Environment (DTAE)	The DTAE is responsible for the sustainable management and promotion of the State's unique natural, Aboriginal, historic and cultural heritage assets. Responsibilities include: ■ management of parks and reserves; ■ administration of environment protection legislation; ■ protection and management of Aboriginal heritage and historic heritage; ■ developing and supporting the arts in Tasmania; ■ promoting Tasmania nationally and internationally; and ■ management and promotion the State's botanical heritage.
Department of Justice	The Department of Justice contributes to a just and safe society by providing systems and services for the promotion and maintenance of rights and responsibilities and the resolution of disputes, for the benefit of the Tasmanian community. The Department provides a range of services, including land use planning. It also provides administrative support for the Resource Planning and Development Commission.
Department of Infrastructure, Energy and Resources (DIER)	The Department's role is to support the existing commercial and social structure and to facilitate new development that will enable Tasmania to prosper. The delivery areas within the Department comprise: ■ Infrastructure (infrastructure policy, land transport safety and roads and public transport.) ■ Energy (energy policy, and energy advisory and regulatory services) ■ Resources (forest policy and mineral resources) ■ Racing Services (racing industry policy advice and racing industry regulatory services)
Rivers and Water Supply Commission (RWSC)	The RWSC is a Government Business Enterprise responsible for the State Government owned water schemes. It core functions include: administering water districts, to managing property of the Crown or the Commission, providing services to the commercial water industry and related industries
Esk Water	Esk Water collects, conserves, treats and sells water to local councils and other major industrial and wayside users in the Launceston/Tamar Valley region.

Hobart Water	Hobart Water's primary function is to provide quality bulk water to councils in southern Tasmania.
Cradle Coast Water	Cradle Coast Water is responsible for the collection, treatment and distribution of bulk water to its participating Councils along the North West Coast of Tasmania.
Regional Natural Resource Management Committees	Three regional committees, their main role being to develop and implements a NRM strategy for their region.

Key legislative, policy and planning instruments

Tasmanian government stakeholders identified a number of key instruments of relevance to the identification, categorisation and management of HCVAE:

- *Nature Conservation Act 2002*- provides for the conservation and protection of the fauna, flora and geological diversity of the State;
- *Threatened Species Protection Act 1995*- sets out the mechanisms for management and protection of threatened species;
- *Water Management Act 1999*- provides for the Tasmanian water allocation framework;
- *Conservation of Freshwater Ecosystem Values Project* – a planning and information tool to support the inclusion of freshwater values within a strategic framework for the management of Tasmania's natural resources;
- *Natural Resource Management Framework*- provides for integrated natural resource management to ensure consistency, efficiency and improved natural resource management outcomes;
- *Tasmania's Nature Conservation Strategy*- outlines a plan to protect Tasmania's natural diversity and maintain ecological processes and systems; and
- *Regional Natural Resource Management Plans*- currently being prepared.

A more detailed summary of relevant instruments is provided in Appendix D while selected elements of these and associated approaches are described further in the following sections. Table 8 below provides a summary table of the key legislative, policy and planning instruments in Tasmania of relevance to the identification, categorisation or management of HCVAE.

- **Table 8: Policy, planning and legislative framework for Tasmania**

	Water allocation and management	Biodiversity conservation & protected area management	Integrated catchment/ natural resources management	Water- dependent ecosystems	Environmental protection & land use planning
Legislation	Water Management Act 1999	Nature Conservation Act 2002 Threatened Species Protection Act 1995 Crown Lands Act 1976	Natural Resource Management Act 2002	Water Management Act 1999	Land Use Planning Act Environmental Protection and Pollution Control Act 1994 Inland Fisheries Act 1995 National Parks and Reserves Management Act 2002 Forest Practices Act 1985
State-wide policy and planning	State Policy on Water Quality Management Water Development Plans for Tasmania	Regional Forest Agreement Tasmania's Nature Conservation Strategy Threatened Species Strategy	State Coastal Policy Natural Resource Management Framework	Conservation of Freshwater Ecosystem Values Projects Water for Ecosystems Policy Wetlands Strategy	Forest Practices Code
Regional scale planning & projects			Regional NRM Plans Regional Coastal Management Strategies	Wetlands and Waterways Works manual Environmental best practice guidelines for waterway management Protection tools for freshwater ecosystems in Tasmania	

Identification and categorisation of HCVAE

The primary tool for identifying and categorising HCVAE in Tasmania is the "Conservation of Freshwater Ecosystem Values[27] (CFEV)" Project. This includes the classification and condition assessment of the State's rivers, lakes and wetlands, saltmarshes, estuaries, and karst systems (regardless of tenure). The CFEV assessment is based on Comprehensive, Adequate and Representative (CAR) principles and thereby complements marine and terrestrial management systems already in place.

CFEV special values are ecological only and include - conservation status (rare or threatened); unusual diversity (biodiversity); evolutionary evidence; and provision of important resources for species (e.g. migratory stopovers). CFEV assessment includes consideration of naturalness, which relates to threats, but threats are not specifically included as part of the classification.

CFEV identifies areas of high conservation management priority. Ecosystem units are assessed against criteria of Naturalness, Representativeness and Distinctiveness to identify the relative conservation value of all units across the state. Input to the CFEV assessment has included existing data sets, expert panel and local knowledge. The key output of this project is the development of a database which acts as a planning and information tool to support the inclusion of freshwater values within a strategic framework for the management of Tasmania's natural resources and integrated with existing planning and regulatory instruments.

Under the *Marine Protected Areas Strategy* specific marine areas in Tasmania are protected. Marine Protected Areas Selection criteria includes social, economic and environmental criteria, including; economic interests; indigenous interests; social interests; scientific interests; practicality/feasibility; vulnerability assessment; and replication.

Terrestrial reserves are declared under the *Nature Conservation Act* 2002 and can be specified as:

- National Park- large natural area of land containing a representative or outstanding sample of major natural regions, features or scenery;
- State Reserve - an area of land containing significant natural landscapes; natural features; and/or sites, objects or places of significance to Aboriginal people;
- Nature Reserve - area of land that contains natural values that contribute to the natural biological diversity or geological diversity of the area of land, or both; and are unique, important or have representative value;

[27] http://www.dpiw.tas.gov.au/inter.nsf/WebPages/JMUY-5QF35H?open

- Game Reserve - an area of land containing natural values that are unique, important or have representative value particularly with respect to game species;
- Conservation Area - an area of land predominantly in a natural state but mining, and in some cases, hunting, may be permitted;
- Nature Recreation Area - an area of land predominantly in a natural state; or containing sensitive natural sites of significance for recreation;
- Regional Reserve - an area of land with high mineral potential or prospectivity; and predominantly in a natural state;
- Historic Site - an area of land of significance for historic cultural heritage; and
- Private Nature Reserve or Private Sanctuary.

Threatened species are protected under the *Threatened Species Protection Act 1995*. Under the Act threatened species are classified according to their level of threat as endangered, vulnerable or rare. In order to provide overarching direction for the management of threatened species the state government has prepared the *Threatened Species Strategy*. This sets out actions for the management of threatening processes and priority threatened species which are supported by species specific management plans.

There are also a number of state level planning and policy frameworks of relevance to identifying and categorising HCVAE:

- **Natural Resource Management Framework –** this sets out a framework for a systemic approach to integrated natural resource management to ensure consistency, efficiency and improved outcomes.
- **Nature Conservation Strategy-** an action plan to protect Tasmania's natural diversity and maintain ecological processes and systems.
- **Wetlands Strategy for Tasmania-** this sets out a decision-making framework providing for the conservation and good management of wetlands in Tasmania, giving high priority to those of high conservation value.

The AWR 2005 Level 1 assessment (see section 2.2 above) identifies the following areas and provides associated maps for Tasmania:

- Wetlands that are protected by relevant legislation in Tasmania (see Protected wetlands (Tasmania[28]))

[28] http://www.water.gov.au/MapPdfs/Assets_TAS_Final.pdf

- Terrestrial protected areas such as national parks and state recreation areas in Tasmania (see Protected Terrestrial Areas (Tasmania)[29])

Management of HCVAE

Whilst there is no legislated management arrangement specific to HCVAE in Tasmania, management is being achieved through the development of Water Management Plans and regional NRM bodies are now actively using the CFEV database to help target investment programs. Many of Tasmania's HCVAE are located within its extensive reserve system. In total, the Tasmania Parks and Wildlife Service manages 441 reserves covering 2,477,314 hectares, or about 36% of the State.

In Tasmania, the *Water Management Act* 1999 provides for the management of water for ecosystems. The Water Management Policy -Water for Ecosystems is embedded in the Act. Under this policy, water provisions for the environment and environmental water requirements are set in accordance with the National Principles for the Provision of Water for Ecosystems (ARMCANZ and ANZECC, 1996).

The Water Development Plan for Tasmania identifies water development opportunities to meet Tasmania's economic and social objectives. Initiatives include not only water development projects, but also improved environmental outcomes and streamlined administrative processes for water management. The CFEV Project also forms part of the plan.

The Department of Primary Industries and Water has adopted a suite of tools for assessing environmental water provisions. The Department of Primary Industries and Water has developed a new framework for determining holistic environmental water requirements and is currently refining and testing the new methodology in catchments with different hydrological regimes. It consists of four main components:

1) clearly identifying the goals and objectives of environmental flows for the reach;
2) conducting site assessments at representative sites and hydraulic modelling to determine the required flow events to meet specific objectives;
3) conducting hydrological analyses to determine the frequency, magnitude, timing, duration and rate of change of the flow events; and
4) defining the recommended environmental flow regime with reference to the stated environmental flow objectives.

[29] http://www.water.gov.au/MapPdfs/ProtTerr_TAS_Final.pdf

The AWR 2005 Level 1 assessment (see section 2.2 above) provides a map that details the status of environmental water provisions throughout Tasmania (Environmental Water Provisions (Tasmania)[30]) for each surface water management area.

The *State Coastal Policy* provides for the sustainable development and use of the coastal zone, this includes wetlands, marshes, lagoons and swamps. Finally, the *State Policy on Water Quality Management* aims to maintain or enhance water quality. The policy provides a strategic framework for water quality management through the determination of Protected Environmental Values (PEVs), the setting of water quality objectives and the management of point and diffuse sources of pollution.

On a regional level, *Regional Coastal Management Strategies* and Regional NRM plans are prepared. The Regional NRM Plans provide over-arching direction for the management of NRM in each of the regions. In addition to the Regional NRM Plans, Tasmania has six regional coastal management strategies which set regional actions for the sustainable management of the coastal zone. As detailed above, this includes wetlands, marshes, lagoons and swamps.

Effective or innovative approaches that may be transferable

A very useful output of the CFEV Project has been the development of a database which acts as a planning and information tool to support the inclusion of freshwater values within a strategic framework for the management of Tasmania's natural resources and integrates with existing planning and regulatory instruments.

The results of the state-wide audit, based on multiple criteria to discern 'significant value' in a spatial sense, has been used as input to a spatial selection algorithm which determines each ecosystem's conservation value and current priority for management. The CFEV framework is based on known spatial data and has proved to be an extremely useful data set to underpin decision making in a suite of state planning processes in Tasmania. The CFEV framework by validation of conservation management priority assignation and groundtruthing by targeted field assessment.

[30] http://www.water.gov.au/MapPdfs/EnvirFlow_TAS_Final.pdf

Future directions and challenges

Tasmanian stakeholders identified the following issues in terms of future directions and challenges for identifying, categorising and managing HCVAE in Tasmania:

- *Legislative, policy and strategic frameworks:*
  - Water Management Plans have become a strong tool for consideration of flow requirements for important aquatic ecosystems identified through the CFEV assessment process.
  - The focus has been on identifying water requirements for HVCAEs (predominantly rivers) and ensuring consideration of these needs are part of subsequent planning activities.
  - Improved communication between jurisdictions would help to enhance development of comprehensive legislative and policy/planning tools, but this must be cognisant of the fact that different jurisdictions have different frameworks within which to achieve the outcomes required and should be helped rather than directed.
  - A national approach is emerging at the strategic level with respect to criteria that describe high conservation value.
  - There are a number of interrelated strategic planning processes being driven at a national level that need to be effectively coordinated to prevent duplication and confusion.
- *Implementation issues:*
  - Challenge to regional NRM bodies and local government to effectively put HCVAE management into practice, given that many management decisions are made by private landholders.
  - Wetlands condition assessment process still in development stages.
  - Need to build trust between NRM bodies and local government bodies to ensure effective management.
- *Knowledge management:*
  - Establishing good base data layers takes money and resources, but is well worth it.
  - Accessibility of good data will enhance understanding of key issues.

2.9 Victoria

Primary organisations and roles

The key government agencies with a role in the identification, categorisation and management of HCVAE in Victoria are summarised below.

Authority	Description of Work
The Department of Sustainability and Environment (DSE)	DSE, which includes the newly established Office of Water, is responsible for managing Victoria's natural and built environments, including: ■ sustainable water management and supply ■ sustainable catchment management ■ services for management and governance of Victoria's parks ■ services for biodiversity, conservation, ecosystem, heritage recreation and tourism ■ public land and sustainable forest management services ■ fire prevention operations and planning environment ■ urban and regional strategies and programs ■ sustainability and Greenhouse Policy ■ sustainable Cities, regions and heritage conservation ■ land information ■ policy frameworks, regulations and services to protect the environment.
The Department of Primary Industries (DPI)	DPI has the responsibility of managing agriculture, fishing, aquaculture, minerals, energy, petroleum, forest industries, science & research and trade & investment for all Victorians.
Parks Victoria	Parks Victoria is the custodian of a diverse estate of significant parks in Victoria and of the recreational management of Port Phillip Bay, Western Port and the Yarra and Maribyrnong rivers. These assets total approximately 4.1 million hectares.
Environment Protection Authority (EPA)	EPA's purpose is to protect, care for and improve the environment. The EPA supports businesses, industries, communities and government in partnerships and through regulation to reduce the amount of energy, materials and water used and waste produced. The EPA are also responsible for delivering accurate, scientific information on the quality of the air, water and land.
Catchment Management Authorities (CMAs)	Under the *Catchment and Land Protection Act 1994* Victoria is divided into ten catchment regions and a Catchment Management Authority is established for each region. Catchment Management Authorities are responsible for setting regional priorities for natural resource management. They are: North Central, Mallee, North East, Goulburn Broken, East Gippsland, West Gippsland, Port Phillip, Corangamite, Glenelg-Hopkins, Wimmera
Water Authorities	Water authorities deliver a range of services that include providing water and wastewater services, water for irrigation, stock and domestic bulk supplies. They manage and operate the irrigation districts and the stock and domestic supply systems, and administer the extraction and diversion of water from waterways and groundwater sources.

Key legislative, policy and planning instruments

Victorian government stakeholders identified a number of key instruments of relevance to the identification, categorisation and management of HCVAE:

- *Heritage Rivers Act 1992* – provides for protection of public land adjacent to declared heritage rivers (or parts of rivers) which have significant nature conservation, recreation, scenic or cultural heritage attributes;
- *Catchment and Land Protection Act 1994* – provides for integrated catchment management through the development of Regional Catchment Management Strategies and the establishment of catchment management authorities;
- *Water Act 1989* – establishes a system for the planning, allocation and use of water. It extends to the use, flow and control of all water in the state;
- *Conservation Forests and Land Act 1987* – provides for the conservation of Victoria's land, waters, flora and fauna and the management and administration of conservation areas;
- *Crown Land (Reserves) Act 1978* - defines the ability and purpose for which the Government can reserve land. Land can be reserved for protection of waterways, areas of ecological significance or wildlife protection.
- *Flora and Fauna Guarantee Act* - Commits to protection of wild populations of flora and fauna, sustainable use and management of potentially threatening processes on public land.
- *Planning and Environment Act* - Provides for planning processes to achieve sustainable land use and development whilst protecting the environment and establishes the statutory planning process.
- *Wildlife Act* - Procedural act for the protection of wildlife and management of handling wildlife.
- *Our Water Our Future* – high level government policy for the use of water in Victoria. Defines the water allocation framework and committed to establishment of environment water reserves;
- *River Health Strategy* – Sets long-term direction for the management of Victoria's rivers. HCVAE are defined as very high community value rivers (Heritage Rivers), icon rivers (Ovens and Mitchell), representative rivers and regional high priority rivers.

A more detailed summary of relevant instruments is provided in Appendix D while selected elements of these and associated approaches are described further in the following sections. Table 9 below provides a summary table of the key legislative, policy and planning instruments in Victoria of relevance to the identification, categorisation or management of HCVAE.

Table 9: Policy, planning and legislative framework for Victoria

	Water allocation and management	Biodiversity conservation & protected area management	Integrated catchment/ natural resources management	Water- dependent ecosystems	Environmental protection & land use planning
Legislation	Water Act 1989	Flora and Fauna Guarantee Act 1988 Wildlife Act 1975 Conservation Forests and Lands Act 1987 Crown Land (Reserves) Act 1978 National Parks Act 1975	Catchment and Land Protection Act 1994 Coastal Management Act 1995	Heritage Rivers Act 1992	Environmental Protection Act 1970 Planning and Environment Act 1987
State-wide policy and planning	Our Water Our Future Victorian Water Trust Investment Strategy	Advisory List of Rare and Threatened Species in Victoria Biodiversity Strategy Victoria's Native Vegetation Management- A Framework for Action	Our Environment Our Future Coastal Strategy	Victorian River Health Strategy	SEPPs
Regional scale planning & projects	Sustainable Water Strategies	Bio-regional Strategic Overviews Flora and Fauna Action Statements Biodiversity Action Planning	Regional Coastal Priorities and Action Plans Regional Catchment Strategies and investment proposals.	Regional River Health Strategy Heritage River or Natural Catchment Area Management Plans Index of Wetland Condition Index of Stream Condition	Local government planning schemes

Identification and categorisation of HCVAE

There are a number of synonymous definitions and categorisations for HCVAE in Victoria covering a range of ecosystems including - heritage rivers, icon rivers, natural catchments areas, high priority reaches, representative rivers, ecologically healthy rivers, wetlands of bioregional significance, wetlands of national significance, groundwater management areas, Ramsar wetlands, rivers/streams with condition scores of Excellent or Good. In general, such definitions are used consistently in state and regional planning documents.

Victoria has several major instruments for identifying, categorising and managing HCVAE including (1) Heritage Rivers; (2) River Health Strategies; and (3) wetland priorities.

The *Heritage Rivers Act 1992* provides for the protection of public land along the 18 Heritage River Areas and 26 natural catchments described in the Act. These areas were first identified by a public inquiry of the Victorian Land Conservation Council. Identification of these areas was based on a systematic assessment of very high nature conservation, recreational, social or cultural value or combination of these. The Victorian River Health Strategy and Regional River Health Strategies provide management direction for the Heritage Rivers.

The Victorian River Health Strategy (VRHS) sets the long term-term direction for the management of Victoria's rivers and provides framework for identifying and managing priority unregulated rivers. Overarching principles for protection and restoration priorities are:

- protection of existing high value areas or areas in good condition; and
- restoration of those areas where there is:
  - the highest environmental and community gain for the resources invested, and
  - real community commitment towards long term improvement of river health.

The VRHS is supported by regional river health strategies which set out priorities for specific river systems in each CMA region. These regional river health strategies use an assets-based approach to identify the environmental, social and economic assets and associated threats to these assets at a river reach scale. The VRHS notes that in making decisions on river protection, management and restoration, communities need to balance the economic, social and environmental values associated with rivers using the following criteria:

- **Environmental:**
  - naturalness – how close the system is to a natural state (i.e. natural macro-invertebrate communities; natural riparian vegetation width, structure and continuity; natural fish populations; fish migration; ecologically healthy river);
  - rarity – how rare are the features or functioning of the river (i.e. rare and threatened species, significant Ecological Vegetation Classes; rare genetic strains of species; wetland

significance; unusual geological or geomorphological features, rare macrohabitats (i.e. floodplains in good working order);

- representativeness;
- diversity;
- importance for other systems – some systems are of considerable value because of their significance at the landscape scale (as breeding areas (estuaries, floodplains)) (e.g. Heritage Rivers, Ramsar wetland or as source areas for stressed systems.

- **Economic**:
  - important regional industries that depend on river health;
  - town water supplies that depend on river health; and
  - public infrastructure associated with rivers.
- **Social** - important recreation sites and sites that are significant for Indigenous and European culture.

Under the guidance provided by the VRHS, CMAs are responsible for the development and implementation of regional River Health Strategies via the following process:

- identify river reaches of high value;
- identify threats (this involves the identification of any processes which threaten these values and the severity of the risk involved);
- set broad priorities for protection and restoration using a risk-based approach;
- identify broad actions/action plans required;
- include outcomes of detailed issue-specific action plans, where these have already been undertaken;
- provide five year implementation targets and 10 year resource condition targets for major river reaches;
- set integrated river health objectives for major river management units;
- include a monitoring, reporting and review program; and
- include a community awareness program.

Assessment processes include expert panels, field assessments, systematic assessment against Index of Stream Condition criteria, and community consultation.

In Victoria, river categorisations and condition assessments make the distinction between pristine, ecologically healthy (excellent condition), high community values, and management of threats to other high value systems. Rivers can be classified accordingly:

- Heritage Rivers - very high community value rivers.

- Icon Rivers - large rivers that are in good condition, relatively intact throughout their entire systems and provide vital inputs to larger scale systems (Ovens and Mitchell).
- Representative rivers - rivers in an ecologically healthy condition that can be used to represent the major river classes that once occurred naturally across Victoria, based on a relative assessment against other rivers within a region.
- Regional high priority rivers – as determined in regional River Health Strategies as of high community value.

While high-value reaches do not necessarily have legislative protection, they are prioritised for protection and enhancement actions through the development of integrated work programmes implemented by CMAs.

In Victoria, wetlands are identified and classified using the national and international definitions and criteria (e.g. Ramsar, Nationally Directory). Eleven wetland sites of very high conservation value have been listed as Ramsar wetlands and are consequently subject to protection mechanisms under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999*. Historically, wetlands have also been indirectly protected in conservation reserves.

DSE is in the process of developing a similar approach for wetlands and estuaries as for its river health framework. Stakeholders felt that it would unlikely that State significant wetlands would be determined but that regional wetland priorities would be identified through regional planning processes. Wetlands and river reaches in pristine condition tend to be located within Victoria's reserve system. DSE has developed a draft Ecological Character Description Framework for wetlands on behalf of the Wetlands and Waterbirds Taskforce and is managing the development of the Ecological Character Descriptions for individual wetlands.

The AWR 2005 Level 1 assessment (see section 2.2 above) identifies the following areas and provides associated maps for Victoria:

- Wetlands and rivers that are protected by relevant legislation in Victoria (see Protected wetlands and rivers (Victoria)[31])
- Terrestrial protected areas such as national parks and state recreation areas in Victoria (see Protected Terrestrial Areas (Victoria)[32])

Management of HCVAE

Parks Victoria manages the majority of Victoria's parks and reserve system and any HCVAE that fall within that network. CMAs are directly responsible for the coordination of strategic direction

[31] http://www.water.gov.au/MapPdfs/Assets_VIC_Final.pdf
[32] http://www.water.gov.au/MapPdfs/ProtTerr_VIC_Final.pdf

and implementation of detailed work programs for land and water management in their region. They have responsibility for regional waterway, floodplain, drainage and environmental water reserve management under the *Water Act 1989*. On private land, management of HCVAE can be influenced by programs and incentives generally developed by CMAs under Regional Catchment Strategies.

Victoria's strategic planning framework provides guidance for natural resource management and management of HCVAE in Victoria. The VHRS states that the management approach for rivers will be to:

- protect rivers that area of highest community value from any decline in condition;
- maintain the condition of ecologically healthy rivers;
- achieve an 'overall improvement' in the environmental condition of the remainder of the State's rivers; and
- prevent damage form future management activities.

Our Environment Our Future establishes a sustainability framework and sets strategic direction for Victoria's approach to environmental management. The objectives set out in this statement include heathy and productive water systems. Specific actions include returning water to the Snowy and Murray Rivers, and improving the health of all Victorian rivers by 2010 with ecologically sustainable flows provided for 21 priority unregulated rivers.

Our Water Our Future is a high level government policy document outlining the direction of water use and allocation in Victoria. Importantly, this document sets out the water allocation framework and commits the government to the establishment of the environmental water reserve. The objective of the environmental water reserve is to preserve the environmental values and health of water ecosystems, including their biodiversity, ecological functioning and quality of water and the other uses that depend on environmental condition. The environmental water reserve has been established under the *Water Act 1989* and is provided for through a number of different mechanisms including environmental entitlements, specifications on diversion licences and caps.

The environmental water reserve is not a specific area set aside to preserve HCVAE but a number of ways in which the environment's right to water is protected. The reserve provides statutory recognition for water to be set aside to meet environmental and other public benefit outcomes, including the provision of statutory environmental entitlements. In addition, Victoria is preparing regional 'Sustainable Water Strategies'. These set out the strategic direction for water allocation in each of five regions (central, northern, southern, eastern and western).

The AWR 2005 Level 1 assessment (see section 2.2 above) provides a map that details the status of environmental water provisions throughout Victoria (Environmental Water Provisions (Victoria)[33]) for each surface water management area.

The mechanism for the protection of flora and fauna in Victoria is provided for in the *Flora and Fauna Guarantee Act 1988*. Listing under the Act affords species and processes special management status. Flora and Fauna Action Statements provide management plans for listed threatened species and threatening processes. In addition habitats of listed flora and fauna may be determined to be 'critical' to the ongoing survival of specific species. These critical habitats are also given special protection status under the Act. The protection and management priorities for flora and fauna in Victoria is set out in the Biodiversity Strategy. Underpinning this strategy is the biodiversity action planning process which is a structured approach to identifying priorities and mapping significant areas for native biodiversity at landscape and bio-regional scales across Victoria.

In addition, Victoria has the 'Native Vegetation Framework' which sets out a framework for providing a 'net gain' in native vegetation extent and quality across Victoria through the provision of tools for evaluating native vegetation communities.

The Coastal Strategy provides for the protection and improvement of significant environmental features along the Victoria coastline, this includes the provision of environmental flows to estuaries. This is supported by regional Coastal Priorities and Action Plans which identify priority areas and actions for coastal management and direction.

Effective or innovative approaches that may be transferable

Stakeholders felt that the river health approach implemented within Victoria provides a consistent framework and logic across the state for identifying, categorising, and prioritising high value rivers. It has enabled the State and regional bodies to prioritise investment and management effort in a systematic, repeatable and pragmatic way. The approach was felt to be a dramatic leap forward in terms focussing effort and in ensuring transparent prioritisation. The assets-based approach used for rivers is now being applied to estuaries, wetlands and land assets.

There are a number of decision-support and management tools used by DSE and CMAs:

- The RiVERS database integrates environmental, social, and economic information from a variety of sources into a single package. For each of the assets and threats, an index value

[33] http://www.water.gov.au/MapPdfs/EnvirFlow_VIC_Final.pdf

between 0-5 is assigned, with the higher values generally representing an increasing 'value' of the asset, or a decreasing level of the threat.

- The Index of Stream Condition (ISC) benchmarks river health across Victoria. ISC assessments are surveyed once every 5 years providing a snap shot of river reach condition. CMAs utilise ISC data for target-setting and prioritising actions in Regional River Health Strategies. The ISC method consists of five components, including – hydrology; biology; physical and chemical parameters; streamside zone; and physical condition.
- Index of Wetland Condition is currently being developed.

Future directions and challenges

Victorian stakeholders identified the following issues in terms of future directions and challenges for identifying, categorising and managing HCVAE in Victoria:

- *Legislative, policy and strategic frameworks:*
  - A cohesive integrated framework has been developed for rivers in Victoria. The focus of current activity will be to broaden this assets-based approach to cover wetlands, estuaries and land assets.
  - Improved consistency in approaches to HCVAE across Australia would be beneficial but there is a need to recognise the diversity of communities and ecosystems, and some states such as Victoria, have already made significant progress in implementing their own approach.
  - A national approach should have broad principles of prioritisation and it needs to be driven by pragmatism and investment priorities. There needs to clarity regarding the outcomes that are being sought.
  - A national approach needs to recognise that protection and conservation will be a focus in some areas (and even jurisdictions) but enhancement, rehabilitation and restoration will be the focus in others. Care must be taken so that a national approach doesn't bias one against the other.
- *Implementation issues:*
  - Returning water to the environment is an on-going and challenging process. Decisions to improve the environmental water reserve need to be made in conjunction with local communities who are most affected by decisions regarding water allocation.
  - It is challenging to manage HCVAEs in a catchment setting (i.e. wetlands can be protected in reserves but they also require protection of hydrological processes). This is being addressed through for example the Water Act (farm dams) and the EWR.

- DSE trying to integrate priorities and management across land and water assets within the catchment context.
- Need to build trust between regions and States and also between States and the Australian Government.

2.10 Western Australia

Primary organisations and roles

The key government agencies with a role in the identification, categorisation and management of HCVAE in Western Australia (WA) are summarised below.

Authority	Description of Work
Department of Water	The Department of Water's purpose is to ensure that the State's water resources are planned, managed and developed to meet community requirements, now and into the future. The Department is responsible for strategic and operational aspects of water resource management including the collection and analysis of water resources information, issuing of licences, regulating water use, protecting the quality of water, and preparing policies and plans critical to the future development of Western Australia.
Department of Environment and Conservation (DEC)	The Department has responsibility for protecting and conserving the State's environment. This includes managing the State's national parks, marine parks, conservation parks, State forests and timber reserves, nature reserves, marine nature reserves and marine management areas. Its key responsibilities include broad roles in managing, regulating and assessing many aspects of the use of the State's natural resources. The Department contributes to the development of environmental protection policies, managing the environmental impact assessment process, management of contaminated sites, coordination of pollution incident responses and fire preparedness.
Conservation Commission	All the State's National Parks, conservation parks, nature reserves, State forests and timber reserves are vested in the Conservation Commission of Western Australia. The Conservation Commission's mission is to conserve the State's biological diversity and to ensure the conservation estate, for which it has responsibility, is managed in an ecologically sustainable manner.
Environment Protection Authority (EPA)	The EPA's objectives are to protect the environment and to prevent, control and abate pollution. The EPA advises the Minister on the environmental acceptability of new development proposals (including planning schemes and scheme amendments), formulates environmental protection policies to protect specific parts of the environment, and advises the Minister on environmental issues generally.
The Department for Planning and Infrastructure (DPI)	DPI is responsible for land use and infrastructure planning. It has responsibility for the regulation of roads, waterways, railways and pastoral lands.
The Water Corporation	Provides water and wastewater services and maintain drainage and irrigation services for both residential and commercial properties.
Harvey Water	Harvey Water is a private irrigators' cooperative (formerly known as South West Irrigation) which delivers water to irrigators via a gravity pipe and channel system which it operates, maintains and improves
Busselton Water Board & Bunbury Water Board	Purpose is to obtain, treat and distribute water supplies
Natural resource management regional groups	There are six natural resource management regional groups in WA. They are responsible for setting regional priorities for NRM

Key legislative, policy and planning instruments

Western Australian government stakeholders identified a number of key instruments of relevance to the identification, categorisation and management of HCVAE:

- *Conservation and Land Management Act 1984*- provides for the management of land to preserve conservation and biodiversity values;
- *Rights in Water and Irrigation Act 1914*- sets out the water allocation framework for WA;
- *Waterways Conservation Act*- creates management areas to protect the environmental values of certain waters and associated land;
- *Wildlife Conservation Act*- provides for the conservation and protection of protected and endangered flora and fauna;
- *Draft Waterways WA Policy*- provides a platform for balancing the management of the environmental values and consumptive values associated with WA's waterways;
- *Water and Rivers Commission Position Statement: Wetlands (2001)* - provides for the categorisation of wetlands for protection and management purposes;
- *Framework for mapping, categorisation and evaluation of wetlands in Western Australia (2006)* – outlines the state-wide process for the mapping, categorisation and evaluation of wetlands in WA;
- *Environmental Protection (Swan Coastal Plain Lakes) Policy (1992)* - designates several lake areas in the Swan Coastal Plain for protection.

A more detailed summary of relevant instruments is provided in Appendix D while selected elements of these and associated approaches are described further in the following sections. Table 10 below provides a summary table of the key legislative, policy and planning instruments in Victoria of relevance to the identification, categorisation or management of HCVAE.

■ **Table 10: Policy, planning and legislative framework for Western Australia**

	Water allocation and management	Biodiversity conservation & protected area management	Integrated catchment/ natural resources management	Water- dependent ecosystems	Environmental protection & land use planning
Legislation	Rights in Water and Irrigation Act 1914 Water and Rivers Commission Act 1995	Wildlife Conservation Act 1950 Biodiversity Conservation Bill (proposed)	Conservation and Land Management Act 1984	Swan River Trust Act 1988 Waterways Conservation Act 1976	Environment Protection Act 1986 National Environment Protection Council (WA) Act 1996
State-wide policy and planning	State of Water Report	Conservation of Threatened Flora in the Wild Policy Conservation of Endangered and Specially Protected Flora in the Wild Policy Setting Priorities for Conservation of WA's Threatened Flora and Fauna Policy Conservation of Threatened Species and Threatened Ecological Communities Guidelines Biodiversity Strategy (in progress)	Foreshore Policy Salinity Strategy State Water Quality Management Strategy	Environmental Water Provisions Policy for WA Environmental Protection of Waterways Position Statement Water and Rivers Commission Position Statement: Wetlands (2001) Planning for Waterways: Management Guidelines Draft Waterways WA Policy Waterways WA Strategy Statewide Waterways Needs Assessment State Wild Rivers Policy (to be developed) Framework for mapping, categorisation and evaluation of wetlands in WA	Environmental Offsets Environmental Guidance for Planning and Development Environmental Protection Policies

	Water allocation and management	Biodiversity conservation & protected area management	Integrated catchment/ natural resources management	Water- dependent ecosystems	Environmental protection & land use planning
Regional scale planning & projects	Groundwater Management Plans Regional Water Management Plans Sub-regional Water Management Plans Local Area Water Management Plans	Management Plans for Protected Species Recovery Plans for Protected Species	Natural Resource Management Strategies and Investment Plans	River Recovery Plans Management Plans for Ramsar Wetlands	

Identification and categorisation of HCVAE

Identification and categorisation of HCVAE in Western Australia falls within three broad categories: (1) wetlands; (1) waterways; and (3) threatened species. Each of these has an explicit framework for categorisation and categorisation which are embedded in WA's policy and planning framework. Policy and planning instruments appear to be well integrated vertically (e.g. for each ecosystem type such as river or wetlands) but not well integrated across ecosystem type or discipline.

Wetland categorisations vary according to their significance at a state or federal level. As set out in the preceding sections (see sections 2.1 and 2.2 above) wetlands can be classified as Ramsar wetlands (internationally significant) or National Directory wetlands (nationally significant). At a state level, wetlands can be classified into one of three management categories under the *Water and Rivers Commission Position Statement: Wetlands* and the emerging *Framework for mapping, categorisation and evaluation of wetlands in WA.* -

- **C – Conservation**- Wetlands support a high level of ecological attributes and functions. Highest priority wetlands. Objective is preservation of wetland attributes and functions through various mechanisms. These are the most valuable wetlands and the Commission will oppose any activity that may lead to further loss or degradation. No development.
- **R - Resource enhancement**- Wetlands which may have been partially modified but still support substantial ecological attributes and functions. Priority wetlands. Ultimate objective is for management, restoration and protection towards improving their conservation value. These wetlands have the potential to be restored to conservation category. This can be achieved by restoring wetland structure, function and biodiversity. Protection is recommended through a number of mechanisms.
- **M - Multiple use**- Wetlands with few important ecological attributes and functions remaining. Use, development and management should be considered in the context of ecologically sustainable development and best management practice catchment planning through landcare. Should be considered in strategic planning (e.g. drainage, town/land use planning).

This categorisation provides the basis for their protection and management. Identification and prioritisation is undertaken by regional NRM organisations with advice and review from DEC.

The *Waterways WA program* is the over-arching program governing waterway management in WA. The *State Waterways Needs Assessment* fits within this program and sets out the method for prioritising rivers according to social, economic and environmental criteria. There are three scales for prioritisation as follows:

- **Value-** waterway value is assessed against the following criteria: economic benefits, biodiversity, uniqueness, recreation, aesthetics, spirituality and culture, conservation and heritage.

- **Condition-** waterway condition is assessed against the following criteria: erosion and sedimentation, eutrophication, salinisation, feral animals, wood infestations and point source pollution.
- **Pressures-** waterway pressures are assessed against the following criteria: land development, water development, recreation, commercial fishing, industrial discharge, water abstraction and waterway drainage.

Waterways are ranked as 'high', 'medium' and 'low' against each of these scales. There is also a current proposal to pass a *Wild Rivers Act*. It is likely that this will contain categorisations about rivers of special conservation value.

Under the *Conservation and Land Management Act (1984)* areas may be declared to be National Parks, Conservation Reserves or Nature Reserves. This gives them special conservation status. This process is not designed specifically to protect aquatic ecosystems but can do so if a HCVAE is located within a protected area.

The *Wildlife Conservation Act 1950* provides for the categorisation of flora and fauna as 'threatened' and 'protected'. The Act explicitly creates a management framework through which species are listed and given protected status. This is supported by the Conserving Threatened Species and Communities policy which sets priorities and triggers the development of Recovery Plans and management plans for protected species. Management and/or recovery plans set out the management actions necessary to support the recover of threatened species and ecological communities. Categories of threat are based on the International Union for the Conservation of Nature (IUCN) Red Book criteria relating to:

- Absolute size, number of subpopulations and extent of reduction in population size;
- Extent, degree of fragmentation, and degree of fluctuation in geographic range (both the extent of occurrence and the area of occupancy); and
- Quantitative analysis of the probability of extinction

Notably, a species may be threatened under state legislation but not under Commonwealth legislation.

The *Environment Protection Act* 1986 and the environmental harm provisions are also important in protecting HCVAE against vegetation clearance and pollution.

The AWR 2005 Level 1 assessment (see section 2.2 above) identifies the following areas and provides associated maps for Western Australia:

- Wetlands that are protected by relevant legislation in Western Australia (see Protected wetlands (Western Australia)[34])

[34] http://www.water.gov.au/MapPdfs/Assets_WA_Final.pdf

- Terrestrial protected areas such as national parks and state recreation areas in Western Australia (see Protected Terrestrial Areas (Western Australia)[35])

Management of HCVAE

The evolution of the management frameworks for wetlands, waterways, and threatened species are at various levels of evolution and implementation in WA. The management of threatened species in WA is an established process with several management plans currently in place. The waterway management framework is more recent with the central instrument, *Waterways WA Framework,* being drafted in 2000. Several assessments of environmental water requirements have been made since then. The State Waterways Needs Assessment process was developed in 2002. In this sense it is an emerging management regime which is just beginning to be implemented. The framework for categorising and evaluating wetlands provides overarching principles for wetland protection and management in WA and is still being finalised.

As set out above, wetlands have a state level management program as set out in the *Framework for mapping, categorisation and evaluation of wetlands in WA*. This program is only emerging and as such there has been no management plans prepared under this however management plans have been prepared for Ramsar wetlands.

The *Waterways WA policy* and *Waterways WA strategy* form the basis for state-wide framework for waterways management. One of the key aims of the *Waterways WA* program is to provide for balancing the management of the environmental values associated with waterways and consumptive use. Protection of water dependent ecosystems is a stated objective of the *Rights in Water and Irrigation Act* 1914. The division of water for consumptive and environmental use is supported by the *Environmental Water Provisions Policy for WA*. This policy describes principles and processes for determining how much water should be retained for the environment when reviewing and allocating water rights. One of the guiding principles in this document is the need to protect ecological values through the water allocation process. The AWR 2005 Level 1 assessment (see section 2.2 above) provides a map that details the status of environmental water provisions throughout Western Australia (Environmental Water Provisions (Western Australia)[36]) for each surface water management area.

Western Australia is also developing a state water plan which is anticipated to be finalised and released by March 2007. The state water plan will supported by a series of regional water plans. Groundwater also plays an important role in water allocation. In groundwater areas in which resources are stretches Groundwater Management Plans are prepared. These provide for the management of allocation of groundwater between environmental and consumptive use.

[35] http://www.water.gov.au/MapPdfs/ProtTerr_WA_Final.pdf
[36] http://www.water.gov.au/MapPdfs/EnvirFlow_WA_Final.pdf

The Department of Water is currently developing a spatial database that lists all surface water and groundwater environmental water requirements and environmental water provision work done in Western Australia. There are a number of tools which have also been developed in WA to monitor streamflow and waterway health. These include:

- Water Resources Information Data;
- Statewide River Water Quality Database
- River monitoring stations
- Hydrogeological atlas; and
- WALIS Interrogator-(Natural Resource Monitoring node.)

The *State of the Environment Report* is prepared by the Environment Protection Agency and outlines key environmental issues facing West Australia and sets out suggested responses. The most recent report was prepared in 2006 which made the following recommendations in relation to inland waters:

- The implementation of the State water quality management strategy
- The implementation of the Waterways WA policy
- The development of a State wild rivers policy
- The development of water resource plans including environmental water provisions for priority areas and stressed ecosystems.
- Review and promote the Wetland conservation policy for Western Australia and environmental protection policy targeted at the South Coastal Plain wetlands and the South West agricultural wetlands
- Finalise and implement the draft Water resources statement of planning policy and guideline for the determination of wetland buffer requirements
- Enhanced monitoring of fringing and in-stream vegetation that is at risk of degradation.

In addition, the *State of the Environment Report* recommended that the draft *Biodiversity Conservation Bill* which is currently before parliament should be passed and the *Biodiversity conservation strategy be implemented.*

On a regional level, waterway management occurs primarily through Natural Resource Management Strategies and investment plans. There are six natural resource management groups in WA. Natural resource management plans are prepared on both a regional and sub-regional level. Sub-regional plans specifically define the environmental water requirements of a region. *River Recovery Plans* provide an integrated and co-ordinated approach to on-ground waterway management at a local scale. They set out a priorities list of timetable of on-ground works and actions to improve the health of waterways.

Effective or innovative approaches that may be transferable

The wetland framework will be useful will be useful in providing guidance to regional NRM groups for investment priorities for wetland management and protection. The framework provides a consistent and standardised method across the state for mapping, evaluating or categorising and prioritising wetlands. While the framework is only just being published it is already in use and being implemented.

The River Restoration Manual has been a huge success in providing practical advice for on-ground restoration activities and a similar manual is being developed for wetlands.

Inter-agency (including regional NRM groups) workshops to build capacity and share knowledge have been successful in rolling out the new wetlands framework and in standardising mapping and monitoring methods across WA.

Future directions and challenges

West Australian stakeholders identified the following issues in terms of future directions and challenges for identifying, categorising and managing HCVAE in Victoria:

- *Legislative, policy and strategic frameworks:*
  - Level of integration and coordination depends on the government agencies and their roles and responsibilities. With recent department merges and restructures many of the instruments and roles and responsibilities are still being bedded down.
  - Development and implementation of a national approach would need to be accompanied by funding. There is a need to recognise the difficulties in moving across a national approach when States may already be implementing their own frameworks.
  - The level and scale of information potentially dealt with in a national approach would be scaling up from more detailed State and regional information. Need to recognise these differences.
  - Need more guidance on determining the ecological character of Ramsar wetlands. States need to report this but currently there is no consistent method or approach or funding to assist.
  - Need to ensure that a national approach is not biased towards Murray-Darling systems which are not relevant to some States and Territories.

- *Implementation issues:*
  - Identification is the key – can't protect them unless you know where they are.
  - There is a difference in terminology used in WA – where 'categorisation' is used in this project the WA uses 'evaluation'.
  - Managing property rights issues and associated community education can be difficult leading to miscommunication and misinformation. A lack of community understanding works against protection.

- The impacts of climate change on HCVAE appear to be gap.
- Work undertaken for wetland protection and management for the Swan Coastal Plain has been well-developed for about 10 years. Current focus on areas outside of the Swan Coastal Plain has been facilitated by increased funding through NAP/NHT programs. Activity in these areas is focussing on further identification and categorisation and in improving the mapping and information base.
- Wetlands and Waterbirds Taskforce provides a good forum for knowledge sharing and standardisation of some approaches and would provide a good model for the HCVAE Task Group.

3. Approaches for a nationally consistent framework

The case for a nationally consistent approach to the identification, categorisation and management of HCVAE is one which has been discussed in many forums. While a detailed literature review was not within the scope of this project, this section summarises the key findings and recommendations of a number of key studies examining gaps in the existing frameworks and proposals for a national approach.

Most studies indicate that there are gaps and inconsistencies between the national, state and territories approach to the management of aquatic ecosystems (see ACF, date unknown; Nevill & Phillips, 2004; Scientists' consensus statement, 2006; and WWF-Australia, 2006). Moreover, some suggest that Australia is falling short of meeting its obligations under international law with regard to protection and managing of these ecosystems (Nevill & Phillips, 2004). As such, they argue that there is a need for a national framework which provides for a consistent approach across jurisdictions.

National Rivers Consortium of Land and Water Australia

In 1999 National Rivers Consortium of Land and Water Australia (LWA) commissioned a study looking at improving the legislative basis for river management in Australia (Mayer *et al*, 2005). This report reviews Australian water resources law through analysis of the legislation and stakeholders experiences. This was done through questionnaires, interviews and workshops in South Australia, Tasmania, Victoria and Western Australia. The authors' conclude that there is a need for a national framework that is based on processes for good governance and systems management. This marks a shift away from conventional 'command and control' approaches to legislation.

The LWA approach outlines key elements for enhancing river management in Australia which include:

- **Broad definitions-** Defining a river broadly to include catchment boundaries and interconnected aquifers;
- **Binding and measurable standards-** Developing binding and measurable standards for catchment management. These would be embedded in law and may include environmental flow principles, monitoring and reporting frameworks for ecosystem assessment and requirements for catchment plans to be prepared within a specified time frame;
- **Primacy of legislation-**Establishing a legislative framework which has primacy over other legislation;
- **Combining top-down and bottom-up planning approaches**- This would involve establishing a hierarchy of planning instruments for NRM management which is integrated with State, regional, catchment and local plans. Management structures would mirror this with high level independent panels to advise on technical, institutional and procedural matters.
- **Catchment based agencies-** Establishing catchment based custodians responsible for setting strategic direction and reporting publicly against objectives. Part of the responsibilities of these

agencies would be for stake-holder engagement, public involvement and developing a close working relationship with local government agencies. Catchment custodians would need to be adequately funded and would be responsible for co-ordinating investment.

- **Ongoing review-** Ongoing review of strategic plans to provide for adaptive management.
- **Improving compliance-** Auditing and enforcing compliance with water allocations.
- **Auditing and reporting-** Independent auditing and reporting of management processes.

Many of these elements are already being implemented. For example, most jurisdictions are now taking a whole-of-catchment approach to water management which recognises that surface water and groundwater resources are connected. Similarly, most jurisdictions have catchment or regional based agencies responsible for implementation.

The development of binding and measurable standards for catchment management is currently undertaken on a state/ territory level and varies from jurisdiction to jurisdiction. As noted above it may be difficult to develop a nationally consistent approach to this given the strong emphasis on catchment-based management and the varied contexts for water management across Australia. Despite this, interviews indicated that over-arching principles such as the precautionary principle may be appropriate for setting a consistent tone across jurisdictions.

The Australian Freshwater Protected Area Resource book

Possibly one of the most comprehensive reviews of the management of freshwater ecosystems in Australia is *The Australian Freshwater Protected Area Resource book: the policy background, role and importance of protected areas for Australian inland aquatic ecosystems* (Nevill & Phillips, 2004). This document examines the policy background, history, role and importance of protected areas for the conservation of inland aquatic ecosystems. It also examines the extent to which the obligations set out in the Bonn Convention on Biological Diversity 1992 have been implemented in an Australia. According to this document, only Victoria, Tasmania and the ACT have founded specific programs aimed at establishing full representative systems of inland aquatic protected areas.

Whilst all Australian states have established reserve systems which protect terrestrial ecosystems, the extent to which these can and are being used to protect aquatic values is unknown. Further, while national and regional inventories of terrestrial and marine ecosystems are relatively comprehensive there are gaps with respect to the coverage of wetlands, rivers and groundwater aquifers.

In light of this, the authors recommend the accelerated development of comprehensive inventories of freshwater ecosystems in all Australian jurisdictions. This, they argue, would provide the platform for the identification and selection of aquatic protected areas. The second recommendation is the development of a national framework through which aquatic protected areas could be established. There are a number of administrative models, both within Australia and internationally, which could be used as a basis for this national approach. These include: ACT river reserves, NSW aquatic reserves, NSW and Queensland Wild

Rivers, Queensland fish habitat areas, Western Australian reserves, Victorian Heritage Rivers and Victorian Fisheries reserves.

Protecting Australia's rivers, wetlands and estuaries

A national approach to the management of aquatic ecosystems is set out in: *Protecting Australia's rivers, wetlands and estuaries* (Kingsford *et al,* 2005). This approach is predicated on two key questions:

- What rivers, floodplains, wetlands and estuaries are of high conservation value; and
- How can these be protected?

The authors argue for a three-pronged approach:

1) consistent data collection;
2) protections schemes that operate at different spatial scales; and
3) operational and institutional arrangements that co-ordinate a national approach.

They recognise that implementation of a national framework requires the co-operation of all jurisdictions. To this end they suggest that it would be best implemented through the National Water Initiative and indeed the consistent data collection is currently being investigated as part of the National Water Initiative (see below).

The National Water Initiative

In 2005 the National Water Initiative published '*A Framework for Comparable Assessment of the Ecological Condition of Australian Rivers and Wetlands'* (NWI, 2005). This assessment formed part of the Australian Water Resources 2005 project. The aim of the framework was to develop an approach to assessing ecological condition which could be used by all Australian states and territories that could be reported on a national scale. The framework incorporates a range of river and wetland attributes that indicate key ecological features, including - catchment disturbance, hydrological change and the spatial extent of wetland and temporal change, water quality, physical form and biota. The approach is designed to enable states/territories to include data that has already been collected and has been negotiated and agreed upon by all the states.

As highlighted in section 2.2, the NWC, through Australian Water Resources (AWR) 2005 identifies environmental assets that have legislative protection based on their naturalness and documents the status of environmental water provisions that have been determined by each jurisdiction since 1994.

WWF- Australia

Early in 2006 WWF- Australia published '*Securing Australia's National Water Infrastructure Assets: Solutions for Protecting High Conservation Value Aquatic Ecosystems*' (WWF - Australia, 2006). This report has strong synergies with the current study and sets out a proposed framework for the future. The proposal argues that the rationale for a nationally compatible system and highlights key federal policies and

programs. In addition it provides an overview of national and state approaches to aquatic ecosystem management.

The WWF-Australia proposal argues for cross-jurisdictional agreement on a national policy framework and action plan for the management of HCVAE. The proposed approach would not require individual states/ territories to establish the same processes but would enable compatibility and consistency by setting over-arching goals. In doing so it would enable the states/ territories to speak a consistent language and therefore provide for more effective communication. WWF-Australia proposes a framework for protecting and managing HCVAE based on the spatial scale of significance:

- High national conservation value = international, national and state/territory scale.
- Medium national conservation value = regional scale (catchment or bioregion)
- Low national conservation value = local scale

These categories would be used for determining investment priorities at a national scale and enable management actions to be tailored to the significance of the asset. This tiered categorisation system would be supported by a publicly available toolkit which would assist landholders, government and the community to understand the identification and classification tools at their disposal.

The proposal recommends that:

- Governments agree to develop a National Policy Framework and consistent approaches.
- Governments identify and protect all HCVAE by 2010 through a bioregional conservation planning approach.
- Governments adopt HCVAE conservation targets.
- Existing initiatives and programs need to be better coordinated and implemented using a whole of government approach.
- Jurisdictions use existing policies and pass stronger laws.
- A 'horses for (water)courses' approach be adopted – allowing flexibility for jurisdictions to use the range of tools and approaches available to them.
- An Australian Aquatic Ecosystem Tool Kit and DSS be developed.

One of the key recommendations from the WWF-Australia proposal is that a strategic review of the effectiveness of existing laws and programs should be undertaken to guide the development of a national policy framework. It argues that current national measures are inadequate and draws on previous studies which highlight the limitations of the terrestrial reserve system in protecting lakes and wetlands. Similarly, the existing terrestrial bio-regionalisation does not provide for a detailed guide for freshwater ecosystem protection.

Interim Biogeographic Regionalisation for Australia (IBRA)

The Interim Biogeographic Regionalisation for Australia (IBRA) categorisation framework provides an agreed framework for categorising terrestrially-focussed ecosystems across Australian landscapes and of assessing the condition of those ecosystems. It divides Australia into regions of like geology, landform, vegetation, fauna and climate. There are 85 bioregions throughout Australia and 404 sub-regions.

The bioregions and sub-regions are the reporting unit for assessing the status of native ecosystems, their protection in the national reserve system and for use in the monitoring and evaluation framework in the Australian Government's current NRM initiatives.

Nominal attributes that make up IBRA are: climate, lithology/geology, landform, vegetation, flora and fauna, and land use. The use of these attributes varies across the jurisdictions and is derived by compiling the best available data and information about each State and Territory including specialist field knowledge, published resource and environmental reports, and biogeographic regionalisations for each State and Territory, as well as continental data sets.

4. Discussion and findings

4.1 Comparison of approaches

The AWR 2005 Level 1 assessment of river and wetland health (NWC, 2006) found that the level of conservation protection afforded to rivers in Australia to be relatively low. According to Nevill (2006), aquatic ecosystems can be protected through the following mechanisms:

- special purpose legislation;
- legislation designed primarily for the purpose of creating terrestrial reserves;
- fisheries legislation;
- management plans having authority under statutes;
- statutory land use planning controls including project assessment mechanisms; and
- mechanisms to provide for environmental flows.

Many of these statutory mechanisms and other non-statutory approaches are already being employed to some degree by jurisdictions and have been described in previous sections (section 2). This section provides a comparative analysis of approaches and of the common elements and similarities across jurisdictions in identifying, categorising and managing HCVAE. Appendix C illustrates a comparative summary table of existing frameworks in each state and territory.

4.1.1 Identification and categorisation of HCVAE

Most jurisdictions have some form of instrument that protects, either directly or indirectly, some HCVAE. By default, those HCVAE that are contained within the terrestrial reserve or protected area system appear to have been afforded the best protection. Only Victoria and New South Wales have designated rivers for protection whereas Queensland has declared six entire catchments to protect their near-pristine waterways under its Wild Rivers legislation. Aside from the protection of Ramsar and DIWA (although DIWA sites are not automatically protected) the states of New South Wales, Western Australia and Queensland also provide some protection for coastal wetlands and lakes under state legislation.

Currently there is no national categorisation or classification system for rivers, estuaries or other freshwater aquatic ecosystems, with the exception of those associated with Ramsar wetlands and DIWA. Although as noted by many stakeholders there are inconsistencies in the way in which aspects of these frameworks are applied and interpreted across jurisdictions. NSW DPI notes however that a national classification scheme based on the NSW marine parks CAR process, is also potentially in place for estuaries, using the NSW system as a model.

Aside from the Ramsar and DIWA frameworks there are a number of approaches (statutory and non-statutory) being applied for rivers and wetlands (mostly) across jurisdictions and even within jurisdictions. In general, most jurisdictions appear to have focussed on rivers or/and wetlands and not a great deal of

work has been done for other ecosystem types, although this does depend on the definitions used. The exception is Tasmania which has developed a categorisation system for the State's rivers, lakes and wetlands, saltmarshes, estuaries and karst systems.

All jurisdictions use different approaches, tools and terminology but there appears to be some degree of similarity across the broad ecological criteria used. Table 11 below lists the broad ecological, economic and social criteria used in various approaches to identify and categorise HCVAE across jurisdictions. Aside from the criteria used in Ramsar and DIWA across all jurisdictions, there are similarities in some criteria used in different approaches such as – naturalness; representativeness; diversity; and importance for other systems or species. There is not a great deal of similarity in the way in which economic and social values have been considered, except that in most cases there are no such criteria.

- **Table 11: Ecological, economic and social criteria used in approaches developed by jurisdictions.**

Approach	Ecological criteria	Economic criteria	Social criteria
Ramsar wetlands	▪ Representative ▪ Rare ▪ Threatened sp. ▪ Diversity ▪ Life cycle/refugia ▪ Supports populations (importance for other systems/sp)		
DIWA	▪ Example wetland ▪ Natural function ▪ Habitat/refugia ▪ Supports populations (importance for other systems/sp		▪ Historical or cultural significance
Australian Capital Territory			
New South Wales (Stressed Rivers Assessment)	▪ Environmental & hydrological stress ▪ Threatened sp. ▪ Biodiversity value ▪ Condition		
Northern Territory (Masterplan – priority areas for biodiversity conservation	▪ Ramsar or DIWA listing ▪ Migratory birds ▪ Botanical significance		
Queensland (Aquatic Conservation Assessment using AquaBAMM)	▪ Naturalness (aquatic & catchment) ▪ Diversity and richness ▪ Threatened sp & ecosystems ▪ Priority sp. & ecosystems ▪ Special features ▪ Connectivity ▪ Representative		

Approach	Ecological criteria	Economic criteria	Social criteria
South Australia			
Tasmania **(Conservation of Freshwater Ecosystem Values (CFEV) project based on CAR principles)**	▪ Conservation status ▪ Diversity ▪ Evolutionary evidence ▪ Support for species (importance for other systems/sp) ▪ Naturalness		
Victoria **(Victorian River Health Strategy)**	▪ Naturalness ▪ Rarity ▪ Representative ▪ Diversity ▪ Importance for other systems/sp	▪ Industry dependence on river health ▪ Town water supply ▪ Public infrastructure	▪ Recreation sites ▪ Cultural significance
Western Australia **(State Waterways Needs Assessment)**	▪ Biodiversity ▪ Uniqueness ▪ Conservation ▪ Waterway condition ▪ Waterway pressures	▪ Economic benefits	▪ Recreation ▪ Aesthetics ▪ Spirituality & culture ▪ Heritage

Approaches and tools developed by Tasmania (CFEV) and Queensland (Wild Rivers) were identified by stakeholders yet to implement their own approaches as being of interest and value. This was the case particularly for jurisdictions with a low level of water resource development and HCVAE in pristine condition. The approach to protection, river health and environmental water allocation undertaken in Victoria was considered to be comprehensive and well-integrated but of limited application to other jurisdictions given the differences in the biophysical environment and institutional settings. There maybe potential however for application of some elements and tools (e.g. Index of Stream Condition) in other jurisdictions.

Effective non-statutory instruments for protection and management of HCVAE (particularly wetlands and rivers) are being implemented in Tasmania (CFEV project), Victoria (River Health Framework), Queensland (wetland mapping and categorisation program) and Western Australia (waterways and wetlands frameworks). In all of these cases, state governments provide state-level guidance and tools for regional NRM organisations to identify, categorise, prioritise and ultimately develop management actions for HCVAE. This is consistent with the regional NRM investment and delivery model. In South Australia, some NRM Boards (e.g. the SA MDB NRM Board) are developing their own approaches to identification and categorisation of HCVAE in the absence of formal state-level policy and guidance.

The approaches to identification and categorisation of HCVAE and their supporting tools and legislative frameworks in each jurisdiction are vastly different, but do contain some broad similarities. These differences are influenced by the diversity of environments and institutional and implementation arrangements including policy and management objectives (e.g. protection, restoration or rehabilitation),

the institutional and delivery arrangements (e.g. regional or state) and the dominant paradigms within the key stakeholder agencies (e.g. conservation or sustainable use). Key areas of similarity across jurisdictions occur on several levels:

1) Federal legislation – i.e. protection afforded by the EPBC Act.
2) Existing identification and categorisation frameworks with national application – i.e. Ramsar and DIWA frameworks although implementation often differs across jurisdictions.
3) Tiered priorities (i.e. national/state/regional) and overarching principles and guidelines for conservation, protection and management of natural resource assets – e.g. protect assets of high value and good condition; rehabilitate and restore assets with high value and moderate condition and be prepared to not invest in low value or poor condition assets.
4) Broad ecological criteria for assessing value and condition (as above).
5) Wide recognition of the key implementation role of regional NRM organisations (catchment and water managers) in identifying, categorising and managing HCVAE.

While the instruments and mechanisms through which these are delivered differ, these areas offer the greatest opportunity for alignment and synergy across jurisdictions.

4.1.2 Management of HCVAE

The management of HCVAE is complex and involves interlocking players, instruments and agendas. Given the relative progress in developing identification and categorisation frameworks for HCVAE, management of HCVAE appears to be less progressed in most cases. While governments are developing and implementing frameworks for identifying and categorising HCVAE, in many cases this has not yet translated into real management actions.

In some cases however, these frameworks are playing a significant role in guiding policy, planning and on-ground action. In Tasmania for example, the CFEV framework has been embedded into water management frameworks to underpin water management decisions via the assessment of dam applications for the dam approvals process, the assessment of major projects and development proposals and using CFEV in NRM planning and investment processes. In 2006 the CFEV framework was introduced into the water management planning process and the development of water management plans. The CFEV program is currently focusing on promoting the use of the framework in other planning processes.

River and water managers (e.g. catchment management authorities and water authorities) play a significant role in the management and protection of HCVAE through the provision of environmental water and appropriate wetting regimes. While the scope of this consultancy did not allow for engagement or consultation of this group, as potential implementers of a national approach, there should be consideration given to their engagement in its future development.

In a practical sense, the management of HCVAE operates at a catchment and/or local scale, generally either by private landholders (on private or leasehold land) or government agencies or local government on public land. Those HCVAE with formal protection such as a Ramsar wetland will generally have a management plan that guides and directs management and on-ground action. For those HCVAE that lie outside of formal protected areas and on private land, it is difficult to determine how they are being managed. This issue of land tenure (i.e. public vs private/leasehold land) was consistently identified by stakeholders as a key issue for the management of HCVAE. Management of HCVAE is *ad hoc* and is very much dependent on its significance status and land tenure arrangements (e.g. private land).

It is therefore important to develop management frameworks and programs that can influence management of HCVAE on private land. Such programs involving market-based instruments, incentives, extension and education, covenants and management agreements are being implemented by state/territory agencies and regional NRM organisations to varying degrees in each jurisdiction with varying degrees of effectiveness. As such, stakeholders felt that regional NRM bodies will have a key role in integrating priorities for HCVAE protection and investment into regional NRM planning frameworks and in engaging with private landholders to influence management.

Another important management issue identified is the need to manage and protect HCVAE within a catchment context and the need to think beyond site boundaries to effect good management of these sites. On-going support and management of Ramsar wetlands was also identified by stakeholders as being a significant issue for the management of HCVAE. These issues have been further described in the jurisdiction summaries in section 2.

Coordinated and focused management can be problematic given the wide range of instruments and managers that have roles in protecting and managing HCVAE. A possible conclusion is that as states and territories become better at managing catchments and natural resources, then the protection afforded to HCVAE will also improve and the need for specific management requirements may lessen. Some stakeholders have also suggested that it may be unlikely that a 'national framework' will have a better chance of ensuring protection objectives are achieved than the steady progress of states through their own systems and processes for environmental improvement and catchment management.

4.2 The case for a nationally consistent approach

As highlighted above in section 3 there are a number of organisations and researchers that support the development of a national approach to the identification, categorisation and management of HCVAE in Australia. The identified benefits of a nationally consistent approach include:

- Co-ordinated and integrated approach to managing national assets to ensure samples of different types of rivers and wetlands are protected. Improved management of transboundary assets, threats and resources.

- Consistent identification of HCVAE, monitoring and evaluation to enable comparisons between jurisdictions.
- The creation of common language around HCVAE in order to promote a consistent approach and shared knowledge and co-operation between states and territories.
- Improved and transparent prioritisation of aquatic ecosystems for funding and research ensuring that limited resources are strategically targeted.
- The establishment and reporting of national targets and objectives for maintaining and enhancing HCVAE.
- The alignment of existing policies and programs to ensure that they are working towards the same goals.
- Reduced risk of costly duplication and bureaucratic inefficiencies.
- Transferral of the benefits gained from a national approach to the management of terrestrial and marine areas through the determination of aquatic ecosystems with national significance.
- Improved capacity to meet commitments under the National Water Initiative, NHT's Rivercare and Coastcare Programs, the Convention on Biological Diversity and the Ramsar Convention.

The rationale for a nationally consistent approach to HCVAE in Australia, in many ways mirrors that of current activities and investment under the NWI to improve consistency and coordination in water resource planning and management across the broader water sector. In fact, more effective and efficient management of environmental water, including the conservation of high value surface water and groundwater ecosystems, forms part of one of three strategic investment areas under the Raising National Water Standards (RNWS) Programme.

Whilst there are sound arguments supporting the development of a consistent national approach, possible limitations and constraints have also been identified. Most stakeholders appear to agree in principle with the concept of such an approach but have aired concerns regarding its scope and implementation. This is particularly true for jurisdictions that have already spent considerable effort and investment in developing and implementing a framework for their state or territory.

Most advocates agree that a national framework should support rather than replace existing state/ territory mechanisms for protection and management. They suggest that this could be achieved through national high-level principles and objectives rather than a prescriptive framework. Some commentators who argue for a national approach (see for example WWF-Australia, 2006) do not suggest that this would replace state/ territory level classifications and investment priorities, instead, it would follow a similar approach to that currently used for Ramsar or DIWA wetlands whereby nationally and internationally important wetlands are integrated into state and regional planning and management frameworks.

Discussions with jurisdictional stakeholders highlighted that a nationally consistent approach should focus on filling existing gaps rather than 're-inventing the wheel'. Overwhelmingly, stakeholders felt that such an approach should provide overarching principles and guidance supported by tools rather than a detailed prescriptive method. A high level of flexibility and pragmatism is desired to account for:

- existing approaches and legislative, policy and planning frameworks;
- existing priorities for investment and action;
- a diversity of ecosystems and environments;
- a range of implementation and delivery mechanisms;
- the different levels of capacity and maturity of key stakeholder organisations;
- the different levels of data availability and knowledge; and
- various land tenure and ownership/management arrangements.

Recognising that these factors differ across jurisdictions, it was felt by some that guiding principles should aim for a workable mix of 'conservation' (e.g. CAR principles) and 'sustainable use' (e.g. healthy working river) principles. It was generally agreed however that a holistic catchment management approach, rather than site-specific focus, is required.

It was also suggested that a national policy framework should be supported by a toolkit for community, government and landholders to assist in decision-making for the conservation of aquatic ecosystems on a local level. This would promote consistency and enable best practice approaches to be shared across jurisdictions but would not threaten regional and local level autonomy. This toolkit could be complemented by publicly available baseline data and would contribute to regional and local planning.

In addition, stakeholders identified the need for a clear statement about the outcomes sought by a consistent categorisation system and the decision-making processes in which it would be used. For example, how would such a categorisation system be used to guide investment or determine conservation priorities or facilitate monitoring and reporting? Some stakeholders felt that there was a need for a more clearly articulated case for investing in a nationally consistent approach when it would divert investment away from other programs and projects that were considered to provide more tangible on-ground outcomes.

There was wide recognition that achieving high level agreement across jurisdictions for a nationally consistent approach will be challenging and will require leadership, direction and support from the Australian Government. Significant engagement, coordination and cooperation among agencies within and across jurisdictions will be required to reach agreement. Stakeholders also identified the need for better coordination and integration of similar and relevant projects and programs across federal, state and regional levels to ensure the development of integrated frameworks and to reduce the risk of duplication.

Given the current regional delivery model for NRM in Australia, the engagement of regional NRM organisations (catchment and water managers) will also be important, particularly in the implementation

phase. A nationally consistent approach will not only need to be integrated into state or territory planning and policy frameworks but also regional NRM planning and prioritisation processes. In instances where this is already occurring (e.g. Tasmania), the introduction of a national framework and purpose would need to be clearly articulated to the regions to avoid confusion and covering old ground.

4.3 Challenges and future directions

Some of the major concerns and challenges for each jurisdiction in developing and implementing a nationally consistent approach are highlighted above in section 2. A brief synthesis of the major issues is documented here.

Institutional issues:

Some stakeholders felt that a disconnect often exists between natural resource agencies with different or competing priorities that poses a barrier to agreement on a national approach. In light of this there is a need for better engagement and collaboration between agencies, both within and between jurisdictions. It was felt that the Australian Government will therefore need to play an important role in providing leadership, guidance and support in facilitating cooperation and agreement. ***A national approach – purpose and strategic objectives:***

In principle, most stakeholders supported the concept of a nationally consistent approach and felt that there was considerable value in sharing expertise, approaches and lessons learnt across jurisdictions. Decision-makers must be clear however regarding the outcomes sought from a national approach and its application in decision-making processes. Stakeholders felt that a national approach must be underpinned by good science and have a solid ecological basis.

There should be recognition that some jurisdictions have already heavily invested in developing and implementing their own frameworks. So, a national approach would need to support rather than duplicate existing frameworks. A national approach needs to be simple and flexible so that States and Territories can implement instruments relevant to their conditions and within their existing frameworks i.e."horses for courses". A consistent framework would need to focus on achieving the 'best bang for buck' at a broad strategic planning level rather than a specific site level.

Existing frameworks – Ramsar, DIWA and the NRS:

Whilst there was recognition that the Ramsar and National Directory of Important Wetlands provides a useful basis for identification and categorisation of HCVAE, stakeholders identified a number of gaps and limitations, particularly in the application and interpretation of these frameworks. Many stakeholders identified a need for the Australian Government to provide greater guidance to improve consistency across jurisdictions and articulate a vision and provide on-going support for the management of these sites. Costed work plans may be appropriate to ensure continuity of funding for protection and management, and on-going monitoring and reporting.

The NRS provides indirect protection for aquatic ecosystems contained within terrestrial reserves. Whilst the NRS was perceived to be a well-established system providing protection for high value natural resource assets, it was recognised that it can be limited for the protection of HCVAE because NRS boundaries do not necessarily align with catchment boundaries. It was noted by some stakeholders however that in some cases it may be more effective to manage or mitigate threats (e.g. cold water pollution, fish passage) than bring areas into the reserve system. So while reserve systems can provide conservation outcomes there is a need to achieve these outcomes across the landscape.

Implementation issues:

The lack of integration and coordination between different jurisdictions and within jurisdictions was considered by stakeholders to be a significant impediment to the effective implementation of measures to protect and manage HCVAE. Better coordination and integration is required across various departments and organisations to achieve better links between site managers, river managers and catchment managers and the instruments that they are responsible for implementing.

The availability of funding support was considered by stakeholders to be critical to the implementation of a national approach. A national framework would need to have dedicated funding for on-going implementation, and monitoring and reporting. Incentives may also need to be devised to facilitate nomination and protection of HCVAE on private land. There is a need to strengthen and articulate the benefits for landholders and engage with the community to encourage active proponents.

Finally, a major gap in the management of HCVAE is the impact climate change which has not been explicitly addressed in this context, in most jurisdictions.

Resourcing:

Resourcing was highlighted by several jurisdictions as a major constraint. Variable organisational capacity and limited funding make it difficult for cross-jurisdictional programs to be successfully implemented in some cases. This is exacerbated by the nature of short-term funding cycles designed to implement long-term management commitments. In light of this, there are concerns about the high transaction costs involved in the implementation of federal programs and initiatives.

Knowledge management:

Centralised information would support decision-making and assist in monitoring, evaluation, and reporting. It would improve the knowledge and information base for decision-making and facilitate identification of HCVAE. Until such time as nationally consistent data is available, decision-makers should be wary of the inherent bias in identifying and categorising HCVAE that are data-rich as opposed to those that are data-poor.

Engagement and communication issues:

There is a need to agree on a common language and consistent definitions to progress a nationally consistent approach and to influence trans-boundary issues. This would assist in raising the profile of freshwater aquatic ecosystems, facilitate communication between jurisdictions and enable exchange of useful lessons and approaches between states and territories.

Regional organisations such as catchment management authorities will have a major role in identifying and managing HCVAE and in influencing implementation and delivery on private land. A significant impediment is a resistance to change and a good understanding of the issues within the community so education and capacity building programs will be an important part of implementation.

4.4 Next steps

In principle, most stakeholders support the concept of a nationally consistent approach to identifying, categorising and managing HCVAE but require greater detail and understanding regarding the objectives and outcomes of such an approach and the way in which it would be embedded into existing frameworks. Given the findings of this report outlined above, the greatest progress towards agreement on a nationally consistent approach can be made by:

1) Development of an overarching national policy position for HCVAE in Australia that articulates:
   - National principles, strategic and policy objectives for identifying, categorising and managing HCVAE.
   - Agreed definitions and terminology for use in identifying, categorising and managing HCVAE.
   - An implementation plan for the national policy framework that maps out how it would be embedded and applied in each jurisdiction.
2) Development of a nationally consistent categorisation system for freshwater aquatic ecosystems that includes:
   - Processes and criteria for identifying and categorising HCVAE
   - Consideration of tiers of significance (e.g. international/national/state or territory/ local)
   - Guidance on principles for data collection, storage and analysis
   - Guidance on principles for monitoring, evaluation and reporting, and mapping protocols.
3) Facilitating coordination and integration across agencies and jurisdictions through the HCVAE Task Group.
4) Identification of further priorities and actions to assist with related:
   - policy development;
   - implementation;
   - research and development; and
   - data and knowledge management.

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Appendix A Government agency stakeholders

Many thanks to the following people who gave up their time to provide very valuable input to this project.

Participant	Organisation
Australian Government	
Jacqui Doyle	Department of the Environment and Heritage
Steve Styles	Department of the Environment and Heritage
Charles Edlington	Department of the Environment and Heritage
David Atkinson	Department of the Environment and Heritage
Tim Bond	Department of the Environment and Heritage
Geoff Lamour	Department of the Environment and Heritage
Deb Callister	Department of the Environment and Heritage
Paul Barraclough	Department of the Environment and Heritage
Carly Rickerby	Department of the Environment and Heritage
National Water Commission	
Harry Abrahams	Water Reform Group, National Water Commission
Belinda Wilson	Water Reform Group, National Water Commission
Murray-Darling Basin Commission	
Mark Siebentritt	Murray-Darling Basin Commission
Representing Land and Water Australia	
Richard Davis	Research and Development Co-ordinator, Environmental Water Program
Australian Capital Territory	
John Foster	Department of Territory and Municipal Services
Mark Lintermans	Department of Territory and Municipal Services
Peter Liston	Department of Territory and Municipal Services
Peter Donnelly	Department of Territory and Municipal Services
New South Wales	
Susy Cenedese	Water and Catchment Policy, Department of Environment and Conservation
Barbara Richardson	Water and Catchment Policy, Department of Environment and Conservation
Claire Allen	Parks and Wildlife, Department of Environment and Conservation
John Patten	Department of Natural Resources
Sarah Fairfull	Department of Primary Industries
Northern Territory	
Stuart Gold	Department of Natural Resources, Environment and the Arts
Andrew Buick	Department of Natural Resources, Environment and the Arts
Peter Whitehead	Department of Natural Resources, Environment and the Arts
Ian Lancaster	Department of Natural Resources, Environment and the Arts
Simon Ward	Department of Natural Resources, Environment and the Arts
Stuart Blanch	Freshwater Manager, WWF
Michael Douglas	Charles Darwin University
Russell Willing	Rivercare Facilitator, Australian Government

Participant	Organisation
Queensland	
Bill McFarlane	Department of Primary Industries and Fisheries
John Bennett	Environment Protection Agency
Dane Moulton	Environment Protection Agency
Mike Rowan	Environment Protection Agency
John Amprimo	Department of Natural Resources and Water
Kurt Derbyshire	Department of Primary Industries and Fisheries
South Australia	
Bob Inns	Department of Environment and Heritage
Belinda McGrath-Steer	Department of Environment and Heritage
Michael Goode	Department of Water, Land and Biodiversity Conservation
Sally Gartell	Department of Water, Land and Biodiversity Conservation
Liz Barnett	Department of Environment and Heritage
Tasmania	
Martin Read	Department of Primary Industries and Water
Danielle Hardie	Department of Primary Industries and Water
Stewart Blackhall	Department of Primary Industries and Water
Victoria	
Gary Howell	Department of Sustainability and Environment
Janet Holmes	Department of Sustainability and Environment
Western Australia	
Natalie Thorning	Department of Environment and Conservation
Michael Coote	Department of Environment and Conservation

Appendix B HCVAE interview prompts

Introduction

1) Introductions - names, roles and organisations of participants. Particular interest or relevant projects or programs.

1. Introduction to the project (background, scope, objectives, tasks etc). Any questions or clarification required?

Roles and responsibilities

2. Which organisations are involved in identifying, categorising and managing HCVAE (or equivalent) in this jurisdiction? What are their specific roles and responsibilities in relation to this? (i.e. who does what?).
3. Were you aware of the provisions in the Intergovernmental Agreement on a National Water Initiative that commit signatories to: *25 x) identify and acknowledge surface and groundwater systems of high conservation value, and manage these systems to protect and enhance those values*?
4. Do you feel that it is a significant driver for some of the work that you and your organisations are undertaking in this field?

Definitions and terminology

5. Does this jurisdiction have an agreed definition of HCVAE? What does it actually mean to stakeholders in this jurisdiction?
6. What, if any, synonyms or alternative phrases to HCVAE are used in this jurisdiction that have similar meaning or intent (e.g. priority areas of high conservation value, Significant Ecological Assets, heritage rivers etc)?
7. Is there consistent use of the definitions and terminology across instruments/documents and/or different ecosystem types?

Legislative, policy and planning instruments

8. What are the primary mechanisms or legislative, policy and planning instruments through which HCVAE (or equivalents) are dealt with in this jurisdiction? Refer to the first table of the desktop review:
   a) Is there anything missing? If so what?
   b) Are the brief summaries correct and do they capture the most important elements for the purpose of this project?

c) Which instruments do you consider to be the core or primary ones as opposed to peripheral or secondary?

9. Are there particular legislative, policy or planning instruments or mechanisms that have been particularly effective in achieving desired outcomes for HCVAE (or equivalents)? What are they and how have they been effective? Why do you think this is?
10. Are there particular legislative, policy or planning instruments or mechanisms that have not been as effective as hoped in achieving the desired outcomes for HCVAE (or equivalents)? What are they and how have they been ineffective? Why do you think this is? What are some of the key challenges involved?
11. Do you consider that the key instruments and mechanisms are well-integrated and support one another across i) ecosystem types; ii) governance or administrative boundaries (e.g. departmental responsibilities); and iii) scales (e.g. regional vs state/territory)? Do you have examples of where this works a) well and b) not so well?
12. How much progress has been made in implementing the identified legislative, policy and planning frameworks? (i.e. just beginning to implement, several years of implementation, fully embedded). Does this differ for different ecosystem types?

Guiding principles and conceptual frameworks

Refer to desktop review as required.

13. What are the guiding or overarching principles for identifying or categorising HCVAE (or equivalents)? What is the conceptual basis for assessment as 'high' conservation value – where is the line drawn (i.e asset value/significance/threat and risk)? "Conservation" for what purpose?
14. What are the types of values considered in identifying and categorising HCVAE (i.e. are they only ecological/environmental values or do they also include other social or cultural values for example)?
15. What are the criteria and indicators for identifying or categorising HCVAE?
16. Are threats/risks included as part of the identification, categorisation or prioritisation of HCVAE? If so how and where?
17. What, if any, guidance is provided in relation to determining appropriate scale?
18. What relationships if any are there with approaches taken at the international or national scales or in other states or territories? Are you aware of any similar work or complementary approaches? Which elements?
19. Which approaches and/or elements of approaches are considered to be particularly effective or innovative? Would they be translatable to other regions and/or ecosystem types? What if any are the 'show-stoppers'?
20. What aspects need improving – how and why? Where are the major knowledge/information gaps?

Process and methods

Refer to desktop review as required.

21. How are HCVAE (or equivalents) prioritised? Is it a relative (i.e. compare one to another) or systematic assessment (e.g. via scoring against criteria)? How is it done and what factors are taken into consideration?
22. What are the processes for assessing, validating and agreeing on conservation values and priorities (e.g. expert panel, field investigations, stakeholder/community consultation, biophysical modelling)?
23. Has a decision support framework (tool or process) been used to assist in identifying or categorising HCVAE (or equivalents)? Please describe.
24. What level of confidence (high, medium or low) do you have in the data/information that supports this decision-making?
25. Which processes or methods were effective in achieving outcomes and/or outputs that are well-accepted among stakeholders?
26. What processes or methods didn't work so well? Why?

Management of HCVAE (or equivalents)

27. How is management of HCVAE embedded into the overall management regime and legislative, policy and planning frameworks (i.e. how does it sit within the broader land and water/catchment management context)? What broader catchment impacts or implications are considered in the management of the HCVAE?
28. How will broader frameworks and management actions influence management of the HCVAE (e.g. water allocation frameworks, catchment plans etc)?
29. How would you characterise the management objectives?

    Is the management focus on 'site management' or 'catchment management'?

    Is management focussed on 'asset' management or 'threat' management?

    Is management for protection, restoration or rehabilitation?
30. What are the HCVAE (rivers, wetlands, floodplains, lakes, inland saline ecosystems, groundwater dependent ecosystems and estuaries) of international, national or state/territory significance that have been identified in this jurisdiction?
    a) How is this data captured and stored (e.g. database, spatial layers)? Is it possible to obtain a list or map of these HCVAE and their locations?

b) Who manages this information? Who has access to this information and how readily available is it?

31. For each of the identified HCVAE (or relevant grouping of HCVAE):

What are the primary management and protection mechanisms (e.g. legislation, plan, park/reserve, management agreement, covenant etc)?

What are the management goals, objectives and targets (i.e. what is the HCVAE being managed for - protection, rehabilitation, restoration)?

What are the identified conservation values and 'other' values (i.e. social, cultural, economic, ecosystems services)?

What does management on-ground look like? What are the key actions?

What are the ownership/stewardship arrangements and management responsibilities?

Collaboration, integration and knowledge sharing

32. What is the current level of collaboration, integration and knowledge sharing for identifying, categorising and managing HCVAE:

across ecosystem types?

across government departments?

across governments (i.e. other states and territories and nationally).

33. Are you aware of any approaches, methods, processes or tools that are being used in other jurisdictions that may have some applicability and value to your jurisdiction?

34. Which approaches, methods, processes or tools being used in your jurisdiction might other jurisdictions benefit from? What are the key learnings that you would be prepared to share?

35. What would be the major benefits of a nationally consistent approach for the identification and management of HCVAE?

36. What do you see as the key challenges to achieve this and how might they be overcome?

37. Do you have any further comments?

Appendix C Comparative summary of approaches in each state and territory

	Question		ACT	NSW	NT	Qld	SA	Tas	Vic	WA
Identification	What are the formal mechanisms and processes for identifying HCVAE?		Ramsar Wetlands National Directory wetlands	Ramsar Wetlands National Directory wetlands Wild Rivers Stressed Rivers Assessment Process Marine Parks process (estuaries are included) Aquatic Reserves (estuarine areas)	Ramsar Wetlands National Directory wetlands	Ramsar Wetlands National Directory wetlands Wild Rivers EPP (Water) Coastal Protection and Management Act (CPMA) Marine Parks Act	Ramsar Wetlands National Directory wetlands	Ramsar Wetlands National Directory wetlands CFEV Project	Ramsar Wetlands National Directory wetlands Heritage Rivers and River Health Strategy	Ramsar Wetlands National Directory wetlands Waterways WA
Classification	What are the systems for classifying and prioritising HCVAE?		Ramsar Wetlands National Directory wetlands	Ramsar Wetlands National Directory wetlands Stressed Rivers Assessment Process Marine Parks process (estuaries are included) Aquatic Reserves (estuarine areas)	Ramsar Wetlands National Directory wetlands	Ramsar Wetlands National Directory wetlands Wild Rivers EPP (Water) Qld Wetlands Mapping and Classification project Aquatic Biodiversity Assessment Mapping Methodology (AquaBAMM) Significant Coastal Wetlands under CPMA Decision Support System (QWP)	Ramsar Wetlands National Directory wetlands	Ramsar Wetlands National Directory wetlands CPEV Project	Ramsar Wetlands National Directory wetlands Heritage Rivers and River Health Strategy	Ramsar Wetlands National Directory wetlands Waterways WA Framework for mapping, classification and evaluation of wetlands in WA
Management and Protection	What are the frameworks for managing/ protecting terrestrial areas?	Statutory	Nature Conservation Act	National Parks and Wildlife Act	Territory Parks and Wildlife Conservation Act	Nature Conservation Act Wild Rivers Act (National Parks, Nature Conservation Agreements) Vegetation Management Act	National Parks and Wildlife Act and Wilderness Protection Act	Nature Conservation Act	Wildlife Act and Catchment and Land Protection Act	Conservation and Land Management Act
		Non-statutory	ACT Nature Conservation Strategy	-	NT Parks and Conservation Masterplan	-	-	Tasmania's Nature Conservation Strategy	Victoria's Native Vegetation Management Framework	
	What are the frameworks for managing/ protecting freshwater areas?	Statutory	Ramsar Wetlands National Directory wetlands	Ramsar Wetlands National Directory wetlands Wild Rivers Aquatic Reserves under the Fisheries Management Act	Ramsar Wetlands National Directory wetlands	Ramsar Wetlands Wild Rivers Act Fisheries Act Water Act EPP (Water) Vegetation Management Act Coastal Protection and Management Act (CPMA)	Ramsar Wetlands National Directory wetlands Natural Resources Management Act (through prescribed water resources)	Ramsar Wetlands National Directory wetlands Inland Fisheries Act	Ramsar Wetlands National Directory wetlands Heritage Rivers	Yes- Ramsar Wetlands National Directory wetlands Wild Rivers Act (Proposed)
		Non-statutory	-	NSW State Rivers and Estuary Policy NSW Wetlands Management Policy NSW State Groundwater Dependent Ecosystems Policy NSW Estuary Management Program Stressed Rivers Assessment NSW Weirs Policy DPI Policy and Guidelines for Aquatic Habitat Management & Fish Conservation	Living Rivers Program NT Strategy for Conservation of Wetlands	National Directory Wetlands Wetland Strategy (National) Queensland Wetlands Strategy Queensland Wetlands Programme	Draft Estuaries Policy and Action Plan Living Coast Strategy Framework to Classify and Assess Wetland Condition (in progress) Wetlands Strategy	Conservation of Freshwater Ecosystem Values Project Water for Ecosystems Policy Wetlands Strategy	River Health Strategy	Environmental Protection of Waterways Position Statement Waterways WA Strategy Statewide Waterways Needs Assessment State Wild Rivers Policy (to be developed) Draft Wetlands Strategy

	Question		ACT	NSW	NT	Qld	SA	Tas	Vic	WA
	What are the frameworks for managing/ protecting marine areas?	**Statutory**	N/A	Fisheries Management Act and Marine Parks Act	Fisheries Act Territory Parks abd Wildlife Conservation Act	Fisheries Act Marine Parks Act Coastal Protection and Management Act Vegetation Management Act (Estuaries) National Directory wetlands Wetland Strategy (National) Queensland Wetlands Strategy Queensland Wetlands Programme	Fisheries Act	-	Wildlife Act	Fish Resources Management Act
		Non-statutory	N/A	NSW Estuary Management Policy DPI Policy and Guidelines for Aquatic Habitat Management & Fish Conservation	Marine Protected Area Strategy (in preparation)	-	Draft Estuaries Policy and Action Plan Living Coast Strategy	Marine Protected Areas Strategy	-	-
	For what purpose can protected areas be established?		*Terrestrial* Conservation of ecological and cultural values *Wetlands*- significance	At ecosystem social criteria are based on national/ international status or threat. *Wild Rivers*- protection and conservation *Fisheries*- conservation and sharing	Management of threats and significance (ie national/ international)	*Terrestrial* and *wetlands* significance *Wild Rivers & EPPW* - protection *Fisheries*- management and protection of critical fish habitats	*Wetlands*- level of significance *Terrestrial*- conservation and protection.	*Wetlands*-level of significance *Marine*- social, economic and environmental factors *Terrestrial*- preservation of representativeness/ recreational values/ environmental values	*Rivers*- social, economic and environmental *Wetlands*- level of significance *Terrestrial*- management of threats to species	*Rivers*- value/ condition/ pressures *Wetlands*- protecting ecosystems by setting management categories *Terrestrial*- conservation status *Marine*- conservation of fish
	What are the mechanisms for protecting threatened species, communities and habitats?		ACT Nature Conservation Strategy	National Parks and Wildlife Act Threatened Species Conservation Act Fisheries Management Act	Territory Parks and Wildlife Conservation Act 2000	Nature Conservation Act Fisheries Act Marine Parks Act Vegetation Management Act	National Parks and Wildlife Act	Nature Conservation Act Threatened Species Protection Act Threatened Species Strategy	Yes- Wildlife Act and Flora and Fauna Guarantee Act	Wildlife Conservation Act
	What is the state level mechanism for integrated natural resource management?		The ACT NRM Plan	Catchment Management Authorities Act Natural Resources Commission Act	Integrated NRM Plan for NT	Wetlands – Queensland Wetlands Programme Regional level plans	Natural Resource Management Act State Natural Resources Management Plan	Natural Resource Management Framework	Catchment and Land Protection Act Our Environment Our Future and River Health Strategy	None- regional level plans only
	What is the mechanism for allocating water to the environment?		Water Resources Act 1998	State Water Management Outcomes Plan Water Sharing Plans	Evolving through Regional Water Resources Strategies	Qld Water Plan and Water Resource Plans	Natural Resources Management Act and Stressed Resources Project	Water for Ecosystems Policy	Yes- Water Act	Yes-State Waterways Needs Assessment
	How are HCVAEs managed on…	**Private land?**	Environmental Protection Act Planning and Development Act Land (Planning and Environment Act) Incentives Conservation Agreements Covenants Regional bodies (plans and strategies)	Environmental Planning and Assessment Act Incentives Conservation Agreements Covenants Regional bodies (plans and strategies)	Environment Assessment Act Waste Management and Pollution Control Act Incentives Conservation Agreements Covenants Regional bodies (plans and strategies)	Environmental Protection Act Wild Rivers Act Coastal Protection and Management Act Vegetation Management Act Incentives Conservation Agreements Covenants Regional bodies (plans and strategies)	Environment Protection Act Incentives Conservation Agreements Covenants Regional bodies (plans and strategies)	Land Use Planning Act Incentives Conservation Agreements Covenants Regional bodies (plans and strategies)	Environmental Protection Act Planning and Environment Act Environment Effects Act Incentives Conservation Agreements Covenants Regional bodies (plans and strategies)	Environment Protection Act Incentives Conservation Agreements Covenants Regional bodies (plans and strategies)

	Question		ACT	NSW	NT	Qld	SA	Tas	Vic	WA
		Public land?	Nature Conservation Act Crown Lands	National Parks and Wildlife Act Crown Lands Fisheries Management Act Marine Parks Act	Territory Parks and Wildlife Conservation Act Crown Lands	Nature Conservation Act Vegetation Management Act Wild Rivers Act Lands Act Marine Parks Act Coastal Protection and Management Act	National Parks and Wildlife Act Native Vegetation Act Wilderness Protection Act Pastoral Land Management and Conservation Act Crown Lands	Nature Conservation Act Crown Lands	Flora and Fauna Guarantee Act Wildlife Act Heritage Rivers Act Conservation Forests and Lands Act Catchment and Land Protection Act Crown Land (Reserves) Act	Conservation and Land Management Act Crown Lands

Appendix D Jurisdiction information tables

International

Legislative, policy and planning framework documents:

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
International Convention on Biological Diversity 1993	Convention on Biological Diversity (Rio de Janeiro, 5 June 1992). Entry into force generally and for Australia: 29 December 1993	Generically relevant to HCVAE, the Convention establishes three main goals: ▪ the conservation of biological diversity; ▪ the sustainable use of its components, and ▪ the fair and equitable sharing of the benefits from the use of genetic resources.	All signatory countries
Ramsar Convention on Wetlands	The Convention on Wetlands of International Importance (commonly known as the Ramsar Convention) is an international treaty among governments that provides the framework for international cooperation for the conservation of wetlands (Davies 1994). The broad aims of the Convention are to halt the worldwide loss of wetlands and to ensure the wise use and conservation of those that remain. This includes the promotion of rehabilitation/restoration programs for lost and degraded wetlands. Australia currently has 64 wetlands listed under the Convention [which is an increase of 13 from 1996](see Table 41 and Figure 35). Management plans are being prepared or implemented for 49 of these wetlands[i] Under the Ramsar Convention wetlands are defined as "areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres".	Generically relevant to HCVAE, the Strategic Framework and guidelines for the future development of the List of Wetlands of International Importance as amended by COP9, 2005 specifies 9 criteria for Identifying Wetlands of International Importance that include; ▪ Representativeness or rareness, in natural or near natural state ▪ supports vulnerable, endangered, or critically endangered species or threatened ecological communities ▪ supports plant and/or animal species important for maintaining the biological diversity in a bioregion ▪ supports taxa at a critical stage in their life cycles ▪ specific criteria based on waterbirds, fish and other taxa	Within Australia, implementation of the Convention is undertaken in a cooperative manner across the Australian Government, State Agencies, regional NRM bodies, site managers and non-government organisations.. Management is coordinated by the NRM Wetlands and Waterbirds Taskforce
Rio Declaration On Environment And Development	Reaffirms commitment to sustainable development and environmental protection	Generic reference to value of natural environments	All UN member states
World Charter for Nature (1982)	Proclaims general principles of conservation `by which all human conduct affecting nature is to be guided and judged' (Preamble).	Generically relevant to HCVAE, the principles call for: ▪ nature to be respected and its essential processes not to be impaired;	

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
		■ the maintenance of genetic viability and protection of habitats; ■ special protection for unique areas; ■ management of ecosystems and organisms to achieve and maintain `optimum sustainable productivity'; and ■ the protection of nature against destruction caused by warfare and hostilities.	
World Heritage	Encourage the identification, protection and preservation of cultural and natural heritage around the world considered to be of outstanding value to humanity through an international treaty called the Convention concerning the Protection of the World Cultural and Natural Heritage, adopted by UNESCO in 1972.	To be included on the World Heritage List, sites must be of outstanding universal value and meet at least one out of ten selection criteria. These criteria are explained in the Operational Guidelines for the Implementation of the World Heritage Convention which, besides the text of the Convention, is the main working tool on World Heritage. The criteria include: ■ to represent a masterpiece of human creative genius; ■ to exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design; ■ to bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared; ■ to be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history; ■ to be an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change; ■ to be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal	United Nations Educational, Scientific and Cultural Organization (UNESCO)

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
		significance. (The Committee considers that this criterion should preferably be used in conjunction with other criteria); ▪ to contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance; ▪ to be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features; ▪ to be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals; ▪ to contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.	
CAMBA	China Australia Migratory Bird Agreement came into force on 1 September 1988.	Article IV a) and b) regarding the protection of the environment of migratory birds are directly relevant.	
JAMBA	Japan Australia migratory bird agreement (30 April, 1981)	Article IV regarding “appropriate measures to preserve and enhance the environment of birds” is directly relevant.	

ANALYSIS: Identifying and classifying HCVAEs (or relevant equivalent)

Question	Comments
Definitions and terminology	
Does this jurisdiction have an agreed definition of HCVAEs? If so please describe. What is considered to be included as a HCVAE?	International references relate in a generic, rather than specific way to HCVAE, probably because such agreements predate this terminology and they are inclusive of all natural or culturally significant sites and habitats Ramsar definition of wetlands is used. Those wetlands identified as Ramsar sites are by definition of HCV.
What, if any, synonyms or alternative phrases are used that have similar meaning to the concept of HCVAEs in this jurisdiction (e.g. priority areas of high conservation value, Significant Ecological Assets, heritage rivers etc)? Please describe.	Significance, uniqueness, representativeness, Ramsar wetlands, Wetlands of Internationally Importance
Is there consistent use of the definitions across instruments/documents and/or different ecosystem types? Please describe.	No
Guiding principles and conceptual frameworks	
What are the guiding principles for identifying or classifying HCVAEs? Where this differs for ecosystem types please describe (i.e. on what basis are they assessed as 'high' conservation value – where is the line drawn?)	Not applicable at this scale The Ramsar Convention provides a classification framework for the identification of different wetland types, and criteria for assessing the importance (ie HCV) of wetlands.
What are the types of values considered in identifying and classifying HCVAEs? (i.e. are they only ecological values or do they also include other social or cultural values for example)	Cultural and ecological Ramsar nomination criteria consider ecological values only, but once nominated Ramsar management addresses both ecological and cultural values/
What are the criteria/indicators for identifying or classifying HCVAEs? Where this differs for ecosystem types please describe.	None applicable at this scale Ramsar has 9 criteria: 1 covering representative, rare or unique wetland types; 3 for conserving biodiversity based on species and communities; 2 specific criteria based on birds, 2 specific criteria based on fish; and 1 specific criterion based on other taxa.
Are threats/risks included as part of the identification, classification or prioritisation of HCVAEs? If so how and where?	None detected, except for JAMBA/CAMBA species Not used for identification or classification of Ramsar sites, but may be used for prioritisation for intervention, and is included in the description of all Ramsar sites
What, if any, guidance is provided in relation to determining appropriate scale?	Most international conventions refer to relevant state (country to determine appropriate scale of management) Scale of application of criteria vary – some are to be applied at a bioregional scale (contracting parties to determine), some applied at site scale, and some at national/international scale (ie threatened species or communities should be

Question	Comments
	nationally or internationally listed as threatened).

Process and methods	
How are HCVAEs prioritised? Is it a relative or systematic assessment?	Not applicable Identification and assessment of Ramsar sites not done on the basis of a comprehensive national inventory, rather being done progressively, but varies between jurisdictions.
On what basis is the assessments of values and priorities validated and agreed (i.e. expert panel, groundtruthing, community consultation, modelling etc.)	Most are criteria based with full reference and selection processes
Has a decision support framework (tool or process) been used identify or classify HCVAEs or their equivalents?	Not applicable

ANALYSIS: Managing HCVAEs

Question	Comment
How is management of HCVAEs embedded into the overall management regime and broader legislative, policy and planning frameworks? (i.e. how does the management of HCVAEs fit within the broader management and planning/policy context? What are the links between different biophysical and planning scales?)	Australian Ramsar Management Principles are prescribed in Schedule 6 of the *Environment Protection And Biodiversity Conservation Regulations 2000*. Management, including preparation and implementation of management plans, is the responsibility of Ramsar site managers Funding for management/conservation activities at Ramsar sites is delivered as part of an integrated approach to the management of natural resources in a regional context, via NHT and NAPSWQ programmes..
How much progress has been made in implementing the identified legislative, policy and planning frameworks? (i.e. just beginning to implement, several years of implementation, fully embedded). Does this differ for different ecosystem types?	

National

Legislative, policy and planning framework documents:

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
Legislation			
Aboriginal and Torres Strait Islander Heritage Protection Act 1984	An Act to preserve and protect places, areas and objects of particular significance to Aboriginals, and for related purposes	No specific reference	Commonwealth
Australian Heritage Council Act 2003	Establishes the Australian Heritage Council which administers the National Heritage List or Commonwealth Heritage List; to enable their conservation and protection	List criteria refer to significance and importance of a sites natural and or cultural heritage values	Commonwealth
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	The Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) protects the environment, particularly matters of National Environmental Significance. It streamlines national environmental assessment and approvals process, protects Australian biodiversity and integrates management of important natural and cultural places. The EPBC Act came into force on 17 July 2000. Ramsar wetlands are protected as matters of national environmental significance under the EPBC Act. The matter protected under the Act is the ecological character of the site, as per the Ramsar Convention definition: *"Ecological character is the combination of the ecosystem components, processes and benefits[1]/services that characterise the wetland at a given point in time."*	Approval is required for actions that are likely to have a significant impact on: ■ a matter of national environmental significance; ■ the environment of Commonwealth land (even if taken outside Commonwealth land); and ■ the environment anywhere in the world (if the action is undertaken by the Commonwealth). The EPBC Act promotes the conservation of biodiversity by providing strong protection for threatened species and ecological communities, migratory, marine and other protected species. The Act provides for: ■ identification of key threatening processes; ■ protection of critical habitat; ■ preparation of management plans; and ■ issuing of conservation orders and regulation of wildlife import/export	DEH
Heard Island and McDonald Islands Act 1953	Declared said islands to be a Territory of the Commonwealth	No specific reference	Commonwealth
Natural Heritage Trust of Australia Act 1997	Established in 1997 to help restore and conserve Australia's environment and natural resources, allows for groups and organisations to received funding for environmental and natural resource management projects, including aquatic ecosystems	No specific reference	All governments

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
Wet Tropics of Queensland World Heritage Area Conservation Act 1994	Gives effect to an agreement made between the Commonwealth and Queensland on 16 November 1990 to facilitate the implementation of Australia's international duty for the protection, conservation, presentation, rehabilitation and transmission to future generations of the Wet Tropics of Queensland World Heritage Area.	No specific reference	Commonwealth, Queensland Govts
Agreements			
Intergovernmental Agreement on a National Water Initiative (NWI IGA)	Intergovernmental commitment to water reform in recognition of: ■ the continuing national imperative to increase the productivity and efficiency of Australia's water use; ■ the need to service rural and urban communities; and a) ensuring the health of river and groundwater systems, including by establishing clear pathways to return all systems to environmentally sustainable levels of extraction (paragraph 5, NWI).	Includes an objective for: b) iii. statutory provision for environmental and other public benefit outcomes, and improved environmental management practices; and c) iv. complete the return of all currently over-allocated or overused systems to environmentally-sustainable levels of extraction;	All levels of government
Council of Australian Government's (CoAG) Agreement on Water	Refers to NWI		
Murray Darling Basin Agreement	The purpose of the Murray-Darling Basin Agreement 1992 is: "to promote and co-ordinate effective planning and management for the equitable, efficient and sustainable use of water, land and other environmental resources of the Murray-Darling Basin". Also established institutions at the political, bureaucratic and community levels: ■ The Murray-Darling Basin Ministerial Council; ■ The Murray-Darling Basin Commission; and ■ The Community Advisory Committee.	No specific reference	
Intergovernmental Agreement to	Signed on 25 June 2004, between Commonwealth	Six SEAs include: Barmah-Millewa Forest, Gunbower	Commonwealth of

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
Address Water Over-allocation and Achieving Environmental Objectives in the Murray-Darling Basin (MDB IGA)	Government and the governments of NSW, Victoria, the ACT and South Australia. Identifies the recovery of water to implement the Living Murray First Step decision in regard to achievement of specific environmental objectives and outcomes for six significant ecological assets; through recovered water (refer Clause 21) being built up over a period of five years to an estimated requirement of an average 500 GL/year.	and Koondrook-Perricoota Forests, Hattah Lakes, Chowilla floodplain (including Lindsay-Wallpolla), the Murray Mouth, Coorong and Lower Lakes, and the River Murray Channel	Australia, Governments of New South Wales, Victoria, South Australia, and the ACT
1992 Intergovernmental Agreement on the Environment	01/05/1992 Intergovernmental Agreement on the Environment to provide a mechanism by which to facilitate: ■ a cooperative national approach to the environment; ■ a better definition of the roles of the respective governments; ■ a reduction in the number of disputes between the Commonwealth and the States and Territories on environment issues; ■ greater certainty of Government and business decision making; and ■ better environment protection;	No specific reference	All governments
Bilateral and multilateral agreements for the protection of the Paroo River and Lake Eyre Basin	Includes Paroo River Catchment as an extension to the QLD-Commonwealth Govt Bilateral agreement	*No specific reference*	
Policy and planning frameworks			
Commonwealth Coastal Policy	1995, provides for national principles for the management of coastal resources	No specific reference to HCVAEs	All
Framework for Marine and Estuarine Water Quality Protection	2002 – provides a nationally consistent approach to protecting the marine environment from the effects of land based pollution, therefore contributing to meeting Australia's obligations under the Global Program of Action for the Protection of the Marine Environment from Land-Based Activities	No specific reference to HCVAEs	All
Framework for a National Cooperative Approach to	2003 – provides for nationally consistent approach to encourage more active rehabilitation, protection and	No specific reference to HCVAEs	All governments

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
Integrated Coastal Zone Management	improvement of coastal zone assets through proactive planning and management.		
Wetlands Policy of the Commonwealth Government of Australia 1997	Developed in accordance with Australia's commitments under Ramsar to promote the conservation, repair, and wise use of wetlands and to incorporate the conservation of wetlands into the daily business of the Commonwealth Government. The policy outlines the Commonwealth's responsibilities for managing wetlands on Commonwealth land, implementing policies and legislation and delivering Commonwealth programs. Initiatives outlined in the policy are already being implemented with funding from the Commonwealth-administered National Wetlands Program. In September 1999, the Implementation Plan for the Wetlands Policy of the Commonwealth Government of Australia was released. The plan identifies specific actions, timeframes, responsibilities and performance indicators against each of the strategies of the policy.	Refer to Ramsar Criteria (International review)	Australian government
National Strategies			
National Objectives and Targets for Biodiversity Conservation	2001-2005 - sets objectives and targets for ten priority outcomes which the Commonwealth, States and Territories should pursue between 2001 and 2005.	Includes Freshwater and estuarine ecosystems; refers to significant and important sites	
Protecting Australia's rivers, wetlands and estuaries of high conservation value - 2005	Report presenting a conceptual framework for the protection of rivers, river reaches and estuaries of high conservation value; developed in conjunction with State and Territory agencies during 2003 and 2004.	Suggests six criteria for a river, wetland or estuary top be classified as High Conservation value: ■ Unaffected by development; ■ Representativeness ■ Threatened species, communities, or ecological communities; ■ High diversity and/or abundance. ■ Evolution of landscape or biota ■ Important functions.	
A National Framework for Improved Groundwater Management in Australia 1997	This paper is the result of an undertaking in the Council of Australian Governments (COAG) Water Reform Framework Agreement of 1994.	Recognises need for groundwater management to consider ecological values	

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	Paper prepared by ARMCANZ in response to COAG's specific request to further investigate and report on groundwater. Paper offers advice to jurisdictions on further opportunities for reform in groundwater management, consistent with the principles agreed in the Water Reform Framework, 1994 and the Competition Policy, 1995, but additional to the specifics of these agreements. The paper also establishes inter-governmental agreement or guidance on some implementation issues relating to groundwater within the formal commitments of the Framework Agreement, 1994 and the Competition Policy, 199		
National Principles for the Provision of Water for Ecosystems 1996	Purpose is to: provide policy direction on how the specific issue of water for the environment should be dealt with in the context of general water allocation decisions	Defines “ECOLOGICAL VALUES” as the as the natural ecological processes occurring within water dependent ecosystems and the biodiversity of these systems.	
National Water Quality Management Strategy	Introduced in 1992 as a response to growing community concern about the condition of the nation's water bodies and the need to manage them in an environmentally sustainable way and included in COAG Water Reform Framework; the main policy objective of the NWQMS is, "to achieve sustainable use of the nation's water resources by protecting and enhancing their quality while maintaining economic and social development."	No specific reference to HCVAE	
The National Strategy for the Conservation of Australia's Biological Diversity 1996	Response to international commitments, commits all governments to protect, enhance and restore biodiversity		
Australian National Strategy for the Conservation of Australian Species and Communities Threatened With Extinction	Subordinate of above; applies to all threatened biodiversity		
Programs/Initiatives			
The Living Murray Initiative	The Living Murray Initiative focuses on achieving outcomes at six significant ecological assets (SEAs)	The six SEAs have high conservation, recreation, cultural, heritage and economic value.	MDBC Governments

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	using an integrated program of flow management and structural and operational measures. Will spend $500 million over five years, commencing in 2004-05, and $150 million over eight years on an Environmental Works and Measures Program.		
Directory of Important Wetlands in Australia	Nationally important wetlands listed in A Directory of Important Wetlands in Australia in the Australian Wetlands Database.	Criteria for determining nationally important wetlands in Australia (agreed by ANZECC Wetlands Network in 1994) include: ■ It is a good example of a wetland type occurring within a biogeographic region in Australia. ■ It is a wetland which plays an important ecological or hydrological role in the natural functioning of a major wetland system/complex. ■ It is a wetland which is important as the habitat for animal taxa at a vulnerable stage in their life cycles, or provides a refuge when adverse conditions such as drought prevail. ■ The wetland supports 1% or more of the national populations of any native plant or animal taxa. ■ The wetland supports native plant or animal taxa or communities which are considered endangered or vulnerable at the national level. ■ The wetland is of outstanding historical or cultural significance.	DEH and State/Territory conservation agencies
NWI Implementation Plan	Provides a blueprint for improving management of Australia's water resources for the next decade and beyond.	NWI Paragraph 79(i)(f) The States and Territories agree to: i) establish effective and efficient management and institutional arrangements to ensure the achievement of the environmental and other public benefit outcomes, including: f) any special requirements needed for the environmental values and water management arrangements necessary to sustain high conservation value rivers, reaches and groundwater areas. NWI Paragraph 25(x) The Parties agree that, once initiated, their water	DEH; State and Territory environment/water agencies

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
		access entitlements and planning frameworks will: x) identify and acknowledge surface and groundwater systems of high conservation value, and manage these systems to protect and enhance those values. Also establishes a task group for HCVAE assessment and management framework	
National Wetlands Program	Prior to the extension of the Natural Heritage Trust (NHT2) and delivery of funding under the Rivercare banner via the regional model, this was the program to deliver Australian Government funding for wetlands. No longer in operation.	Wetlands are HCVAE	DEH; State and Territory environment/water agencies
Coastal Catchments Initiative	The Coastal Catchments Initiative (CCI) will seek to deliver significant reductions in the discharge of pollutants to agreed hotspots, where those hotspots have been identified through agreement with the relevant jurisdictions	One of the objectives of the CCI is to protect the environmental values of hotspots.	DEH; State and Territory environment/water agencies
Coasts and Clean Seas Program	Coasts and Clean Seas is the coastal and marine component of the Natural Heritage Trust		DEH; State and Territory environment/water agencies
National Reserve System	The NRMMC released the *Directions for the National Reserve System – A Partnership Approach* in 2005. Implementation of the Directions is the responsibility of the National Reserve System Task Group which reports to the NRPPC	Direction 7 in the *Directions for the National Reserve System – A Partnership Approach* says the Comprehensive, Adequate and Representative reserve system approach needs to be reviewed and an agreed approach finalised to meet the requirements of conserving freshwater (terrestrial aquatic ecosystems) biodiversity.	DEH and State and Territory Conservation Agencies
	The National Reserve System has standards of protected area management and records the reserves and protected areas that comprise the National Reserve System in the Collaborative Australian Protected Area Database (CAPAD)	CAPAD records the conservation status of all protected areas including protected areas containing aquatic ecosystems in Australia.	
	The Interim Biogeographical Regionalisation of Australia (IBRA) is a framework for classifying the ecological landscape of Australia.	IBRA is used as the bioregional reporting framework for Ramsar and Nationally Important Wetlands	

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	Australian Guidelines for Establishing the National Reserve system provide a framework for selecting and prioritising the establishment of protected areas.	The Guidelines make reference to the special needs of migratory or nomadic species and special groups of organisms, which could include waders and water birds and aquatic ecosystems.	
National Reserve System Programme	The National Reserve System Programme is part of the Natural Heritage Trust. The NRSP provides funding for NGOs, government, indigenous groups and private individuals to establish protected areas. The NHT has invested over $80 million in the NRSP and secured over $90 million in matching funding since 1997.	Over the past ten years the NRSP has funded the establishment of protected areas including aquatic ecosystems. A high proportion of the 283 properties purchased have contained aquatic ecosystems important at an International, National and regional level. Protection of aquatic ecosystems is a high priority for the NRSP.	DEH State and Local Govt., NGOs, Indigenous Groups and Private individuals are eligible for funding.
Other			
Environmental Water Requirements of Groundwater Dependent Ecosystems (2001),	Defines issues relating to the environmental water requirements of groundwater dependent ecosystems	Designed to assist in the conservation of GDE	DEH; State and Territory environment agencies
Guidelines for Protecting Australian Waterways. Canberra: Land & Water Australia	Sets out guidelines for the protection of waterways.	The protection of waterways includes the conservation of HCVAE	
EPBC Administrative Guidelines on Significance	Provides overarching guidance on determining whether an action is likely to have a significant impact on a matter of national environmental significance protected by the EPBC Act		Users/ DEH
Australian River Assessment System: National Guidelines for AusRivAS	Provides a generic template as guidance for generating AusRivAS-related metadata in order to facilitate national access and storage of river health assessment results.		Users/ DEH

ANALYSIS: Identifying and classifying HCVAEs (or relevant equivalent)

Question	Comments
Definitions and terminology	
Does this jurisdiction have an agreed definition of HCVAEs? If so please describe. What is considered to be included as a HCVAE?	Definition of wetland as agreed under the Ramsar Convention. At the least, HCVAE are those that meet the criteria for national importance as articulated in *A Directory of Important Wetlands in Australia*
What, if any, synonyms or alternative phrases are used that have similar meaning to the concept of HCVAEs in this jurisdiction (e.g. priority areas of high conservation value, Significant Ecological Assets, heritage rivers etc)? Please describe.	Nationally important, significant ecological asset, DIWA site, Ramsar wetland
Is there consistent use of the definitions across instruments/documents and/or different ecosystem types? Please describe.	Most documentation at the national scale is inclusive of all definitions of 'high conservation value'
Guiding principles and conceptual frameworks	
What are the guiding principles for identifying or classifying HCVAEs? Where this differs for ecosystem types please describe (i.e. on what basis are they assessed as 'high' conservation value – where is the line drawn?)	Guiding principles appear to be consistently generic, applying to all aquatic ecosystems types. The DIWA provides a classification framework for the identification of different wetland types, and criteria for assessing the importance (ie HCV) of wetlands.
What are the types of values considered in identifying and classifying HCVAEs? (i.e. are they only ecological values or do they also include other social or cultural values for example)	Predominantly ecologically based, but some also include social and cultural features Refer to criteria for DIWA
What are the criteria/indicators for identifying or classifying HCVAEs? Where this differs for ecosystem types please describe.	Refer to Kingston et al for generic criteria Refer to criteria for DIWA , DIWA also has an agreed wetland classification system, in use since 1993, but revised in 2004 and endorsed by NRPPC in 2006.
Are threats/risks included as part of the identification, classification or prioritisation of HCVAEs? If so how and where?	Not used for identification or classification of DIWA sites, but may be used for prioritisation for intervention, and is included in the description of all DIWA sites
What, if any, guidance is provided in relation to determining appropriate scale?	Scale of application of criteria vary – some are to be applied at a bioregional scale (IBRA), some applied at site scale, and some at national scale (ie threatened species or communities should be nationally listed as threatened).

Process and methods	
How are HCVAEs prioritised? Is it a relative or systematic assessment?	No agreed prioritisation process yet, apart from international RAMSAR for wetlands Identification and assessment of DIWA sites not done on the basis of a comprehensive national inventory, rather being done progressively, but some jurisdictions have statewide inventory within which the value of sites is systematically assessed.
On what basis is the assessments of values and priorities validated and agreed (i.e. expert panel, groundtruthing, community consultation, modelling etc.)	Process not yet established
Has a decision support framework (tool or process) been used identify or classify HCVAEs or their equivalents?	DIWA for wetlands, nil for other ecosystems

ANALYSIS: Managing HCVAEs

Question	Comment
How is management of HCVAEs embedded into the overall management regime and broader legislative, policy and planning frameworks? (i.e. how does the management of HCVAEs fit within the broader management and planning/policy context? What are the links between different biophysical and planning scales?)	Funding for management/conservation activities at DIWA sites is delivered as part of an integrated approach to the management of natural resources in a regional context, via NHT and NAPSWQ programmes..
How much progress has been made in implementing the identified legislative, policy and planning frameworks? (i.e. just beginning to implement, several years of implementation, fully embedded). Does this differ for different ecosystem types?	

Australian Capital Territory

Legislative, policy and planning framework documents:

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
Legislation			
Environment Protection Act 1997	Some of the key objectives of the Act are to: ■ To protect and enhance the quality of the environment; and ■ To prevent environmental degradation and adverse risks to human health and the health of ecosystems by promoting pollution prevention, clean production technology, reuse and recycling of materials and waste minimisation ■ To achieve effective integration of environmental, economic and social considerations in decision-making; and ■ Promote the principle of ecologically sustainable development	Area of high conservation significance only term used that may apply. Act is more to do regulation and control of threatening processes.	Environment ACT
Water Resources Act 1998	The objects of this Act are: ■ to ensure that the use and management of the water resources of the Territory sustain the physical, economic and social wellbeing of the people of the ACT while protecting the ecosystems that depend on those resources; and ■ to protect waterways and aquifers from damage and, where practicable, to reverse damage that has already occurred; and ■ to ensure that the water resources are able to meet the reasonably foreseeable needs of future generations	Including the flows required to meet the environmental needs of individual waterways or aquifers Environmental flow guidelines and requirements the risk of damaging ecosystems Specific reference to HCVAE is absent and limited reference is provided to conservation in general	Environment ACT
Planning and Development Act 2006 Exposure Draft Implementation in 2007	The main object of this Act will be to provide a planning and land system that contributes to the orderly and sustainable development of the ACT: ■ consistently with the social, environmental and economic aspirations of the people of the ACT; and ■ in accordance with sound financial principles.	Mentions conservation of biological diversity and ecological integrity but overall HCVAE not identified or covered.	Environment ACT

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
Nature Conservation Act 1980	Sets out rules and regulations for the management of flora and fauna	The act includes the following: ■ declarations about special protection status and protected and exempt flora and fauna ■ the need to conserve the significant ecosystems of the Territory, New South Wales and Australia; ■ the conservation of a species or ecological community; ■ vulnerable or endangered, ■ plan in relation to each species, ecological community or process The Act essentially provides mechanisms for fauna and flora management rather than identifying and protecting HCVAE.	Environment ACT
Fisheries Act 2000	The objects of this Act are: ■ to conserve native fish species and their habitats; and ■ to manage sustainably the fisheries of the ACT by applying the principles of ecologically sustainable development mentioned in the Environment Protection Act 1997, section 3 and ■ to provide high quality and viable recreational fishing; and ■ to cooperate with other Australian jurisdictions in sustaining fisheries and protecting native fish species.	Requires the preparation of a draft management plan for the management of fish species and their habitats in the ACT. No other reference to HCVAE	Environment ACT
Heritage Act 2004	The main objects of this Act are as follows: ■ establish a system for the recognition, registration and conservation of natural and cultural heritage places and objects, including Aboriginal places and objects; ■ to establish the heritage council; ■ to provide for heritage agreements to encourage the conservation of heritage places and objects; ■ to establish enforcement and offence provisions	Provides for the preparation of conservation management plan Probably limited application to HCVAE	Environment ACT

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	to provide greater protection for heritage places and objects; ■ to provide a system integrated with land planning and development to consider development applications having regard to the heritage significance of places and heritage guidelines. ■ A function under this Act must be exercised ■ to preserve the heritage significance of places and objects; and ■ to achieve the greatest sustainable benefit to the community ■ from places and objects consistent with the conservation of their heritage significance.		
Land (Planning and Environment) Act 1991	The Act has extensive control over planning decisions taken in respect of Territory land and the manner in which these decisions are implemented. Relevant provisions include: ■ allowing the Minister to declare national parks; ■ prohibiting certain activities from catchments; ■ imposing lease and development conditions; ■ building stormwater ponds etc to trap pollutants; ■ requiring Environmental Impact Assessments on proposals; and ■ requiring the development of management plans for public land.	Environmental reports must be considered No reference to HCVAE	Environment ACT
State- or Territory-wide policy and planning frameworks			
Think water, act water: Water resources management plan 2004	The purpose of the Water Resources Management Plan is to provide the Territory government with a decision-making framework and strategic direction for the long-term management of the Territory's water resources. It provides detailed information on the state of the Territory's water resources and some information on related matters such as soils, geology and land use. The Plan sets out total water resources, environmental flow requirements in accordance with the	Sets environmental targets including ■ Aquatic ecosystems managed to enhance and protect natural integrity (with a target to be determined by 2006). ■ Condition and resource assessment (of aquatic flora and fauna) are provided for. ■ Riparian zone values are provided for a number of waterways. ■ Groundwater is mentioned briefly	Environment ACT Various

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	Environmental Flow Guidelines, and water available for non-environmental uses. The Plan then makes provision for the new water allocations, which the Territory government expects to create over the next 10 years and other actions to be taken by the Territory government to manage the water resources of the Territory. The Plan will be reviewed regularly, as more information becomes available, to ensure that decisions are made on best available knowledge.		
Act Natural Resources Management Plan 2004-2014	The Plan has been developed to: ■ Provide a strategic focus for the protection and management of the ACT's environment; ■ Promote community and government partnerships; ■ Encourage integrated, coordinated actions; ■ Access investment from multiple sources, including the Natural Heritage Trust and the National Action Plan for Salinity and Water Quality; ■ Engage and energise the ACT community; and ■ Provide a link to national and regional agendas in natural resource management.	High conservation value is mentioned as is improve the extent, diversity, and condition of inland aquatic ecosystems. Discusses targets and performance measures including improved conditions for aquatic fauna Objectives stated included 'this will require the management, maintenance and rehabilitation of: ■ the condition and extent of native ecosystems; ■ ecosystem services and functions; and ■ populations of all significant species and communities. Technical documents attached state 'To protect and improve the terrestrial and aquatic biodiversity of the catchment and to restore integrity and function of the catchments' ecosystems'. The document sets the target for 'By 2006 Wetland and Riverine Management policies and management actions to meet determined aquatic ecosystem targets will be developed and progressively implemented' Note that draft documents for these now exist	Environment ACT
The ACT Nature Conservation Strategy 1998 (and Implementation Plans)	The goal of the Strategy is to protect the biological diversity of the Territory and to maintain its ecological processes and systems. Tangible objectives, that will enable the ACT to work towards this goal, are put forward in a structured form. Objectives are		Environment ACT

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
Copy Not Sourced	accompanied by implementation strategies designed to achieve positive conservation outcomes in an environment of economic restraint, and increasing regional collaboration in planning and management of natural resources. An Implementation Plan is prepared annually and contains agreed actions, performance indicators or targets and target dates as well as priorities. The Plan and its implementation is a collaborative effort between agencies and links with other strategies which address biodiversity issues-for example, the ACT *and Sub-region Planning Strategy*. The Plans reflect information and issues gathered from past processes and input from the community, special interest groups, experts and governments agencies. A number of specific management principles apply to each plan and provide guidance on how that area should be managed. Examples include: ■ Murrumbidgee River Corridor Management Plan; ■ Tidbinbilla Nature Reserve Management Plan; ■ Belconnen Region Plan of Management; and ■ Woden/Weston Region Plan of Management.		
Act Nature Conservation Strategy 1997	The strategic goal for the ACT Nature Conservation Strategy is adopted from The National Strategy for the Conservation of Australia's Biological Diversity 'to protect our biological diversity and maintain ecological processes and systems'	Has a section on Conservation through Reservation Mentions that riverine systems are poorly represented in the reserve system One of the implementation strategies is the conservation of threatened species and ecological communities. Another implementation strategy is the management of degradation of aquatic systems. Aside from 'Threatened species identified' there is no direct mention of HCVAE.	
Draft aquatic species and riparian zone conservation strategy (action plan no. 29)	The Aquatic Species and Riparian Zone Conservation Strategy is intended to fulfill a number of roles. These are:	There is no direct mention of HCVAE however the document incorporates management and identification of HCVAE.	Environment ACT

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	■ Action Plans for species listed as threatened under the Nature Conservation Act 1980. ■ Riparian flora and fauna species, ecological communities and habitats. ■ A source document on the rivers and riparian zones for ACT and Commonwealth Government agencies with responsibilities for nature conservation, planning and land management. ■ A source document for community and other stakeholders with an interest in the conservation of aquatic and riparian flora and fauna species, ecological communities and habitats. As an Action Plan prepared under the Nature Conservation Act 1980, the Strategy addresses the requirement in section 23 of the Act, that it 'shall include proposals to ensure, as far as is practicable, the identification, protection and survival of the species, or the ecological community; or proposals to minimise the effect of any process which threatens any species or ecological community'.		
The Planning Framework For Natural Ecosystems—NSW Southern Tablelands And Act 2002	Outlines a planning framework for natural ecosystems within the NSW Southern Tablelands and ACT region. It outlines regional principles for planning, development and conservation. The report also provides a regional context and structure for integrating scientific data on natural ecosystems into the land use decision-making processes of local, state and Commonwealth government agencies.	Wording includes biodiversity and conservation. Principles include : ■ Protect rare and ecologically important species ■ Protect unique or sensitive environments No specific mention of HCVAE	
Integrated Catchment Management Framework For The ACT	The framework consists of principals, processes and commitments to guide natural resources related activities by the community and government. The framework: ■ Documents the development of factors leading to the need for ICM in the ACT ■ Sets the context for ICM in the ACT	No specific reference to HCVAE but provides a general overview of management frameworks that may be relevant	Environment ACT

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	■ Identifies the building blocks that provide the foundations for ICM in the ACT; ■ Outlines how ICM will be advanced in the ACT		
Draft ACT Wetlands Policy	Copy Not Sourced		
Regional scale planning			
Murrumbidgee River Corridor Management Plan 1998 Copy not sourced	This management plan addresses the management issues, objectives, management policies and procedures specific to the Corridor. It is consistent with the National Capital Plan and the Territory Plan. The plan is organised in two parts. The first section explains the role of the Corridor as open space in the ACT. It identifies the function of the Corridor, and discusses management strategies in the context of contemporary planning and legislative guidelines and preferred longer-term management. The second part contains the proposed management objectives, strategies and guidelines for management and proposals for further investigations, and follow-up management planning for specific areas.	The strategy includes the objective 'to conserve native fish and other native aquatic species'	Environment ACT
Murrumbidgee Catchment Action Plan	The Murrumbidgee Catchment Action Plan provides a strategic framework for natural resource management in the Murrumbidgee Catchment and direction for future natural resource management investment.	HCV is used in reference to setting biodiversity targets and actions. Regionally Endangered and Regionally Vulnerable is also used in this context Maintain and improve the population and diversity of the selected 'icon' terrestrial and aquatic native fauna species is also used in this context	Environment ACT
Ginini Flats Wetlands Ramsar Site—Plan Of Management 2001	Plan of management to fulfil RAMSAR requirements		
2006 Environmental Flow Guidelines	The Environmental Flow Guidelines are a disallowable instrument under the Water Resources Act 1998 that set out the environmental flow requirements needed to maintain aquatic ecosystems.	Provides ecological objectives and indicators The primary purpse of Environmental Flows is to maintain aquatic ecosystems, however, the social, and economic consequences of the Environmental Flow Guidelines are also taken into account through two approaches. Sets ecological objectives for act aquatic ecosystems	
The Murrumbidgee Catchment	The blueprint gives first order objectives, catchment		

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
Blueprint	targets, management targets, Management Actions and activities to address salinity, water quality, biodiversity and soil health problems across the Murrumbidgee catchment and the Capacity Building requirements necessary to empower community involvement. The ACT has participated fully in the development of the blueprint both through membership on the Murrumbidgee Catchment Management Board and through community consultation. It is recognised in the ACT and NSW that the catchment must be managed across jurisdictional boundaries and the ACT Integrated NRM Plan should be viewed in the context of the wider Murrumbidgee catchment		
Tuggeranong-Tharwa Sub-Catchment Plan 2002	Sub-catchment plans are developed under the The Integrated Catchment Management (ICM) Framework for the ACT. The Tuggeranong-Tharwa Sub-catchment Plan is the first catchment wide planning effort to be undertaken in the area and it is expected to form the basis, from which future environmental investment in the Tuggeranong-Tharwa sub-catchment will be procured, targeted and implemented.	Some actions and targets refer to high conservation value, but HCVAE not specifically mentioned or identified	

The frameworks used to identify and classify HCVAE

Question	Comments
Definitions and terminology	
Does this jurisdiction have an agreed definition of HCVAEs? If so please describe. What is considered to be included as a HCVAE?	The Term HCVAE is not used in any of the various ACT acts, policies and planning documents however the term High Conservation Value is frequently applied . There does not appear to be an agreed definition of HCVAE In practice, some HCVAE may be captured when threatened species, populations or communities exist Conservation of aquatic habitats in general as opposed to conservation of 'High Conservation Value Aquatic

Question	Comments
	Ecosystems' is a regular theme
What, if any, synonyms or alternative phrases are used that have similar meaning to the concept of HCVAEs in this jurisdiction (e.g. priority areas of high conservation value, Significant Ecological Assets, heritage rivers etc)? Please describe.	Frequently used wording synonymous with HCVAE include: 1. To protect 'threatened species, populations and ecological communities' 2. High conservation significance 3. Conservation of biological diversity and ecological integrity 4. Significant species and communities 5. Aquatic ecosystems managed to enhance and protect natural integrity
Is there consistent use of the definitions across instruments/documents and/or different ecosystem types? Please describe.	There is no consistent terminology across the various acts and policies. The term 'High conservation significance' is perhaps most frequently applied
Guiding principles and conceptual frameworks	
What are the guiding principles for identifying or classifying HCVAEs? Where this differs for ecosystem types please describe (i.e. on what basis are they assessed as 'high' conservation value – where is the line drawn?)	There does not appear to be generic principles for identifying or classifying HCVAE
What are the types of values considered in identifying and classifying HCVAEs? (i.e. are they only ecological values or do they also include other social or cultural values for example)	Social and economic consequences are also factored perhaps more so in the management, for example these are considered in establishing Environmental Flow Guidelines
What are the criteria/indicators for identifying or classifying HCVAEs? Where this differs for ecosystem types please describe.	Seems to be primarily conservation status (eg: the presence of threatened species, populations and communities)
Are threats/risks included as part of the identification, classification or prioritisation of HCVAEs? If so how and where?	
What, if any, guidance is provided in relation to determining appropriate scale?	There appears to be limited written guidance on scale.
Process and methods	
How are HCVAEs prioritised? Is it a relative or systematic assessment?	Whilst not a clear topic, systematic assessment is perhaps the greater basis, for example there is recognition that waterways are poorly represented
On what basis is the assessments of values and priorities validated and agreed (i.e. expert panel,	A mixture of approaches are used in most examples including technical assessment, ground based assessment, modelling and community participation

Question	Comments
groundtruthing, community consultation, modelling etc.)	
Has a decision support framework (tool or process) been used identify or classify HCVAEs or their equivalents?	

The management frameworks for HCVAE

Question	Comment
How is management of HCVAEs embedded into the overall management regime and broader legislative, policy and planning frameworks? (i.e. how does the management of HCVAEs fit within the broader management and planning/policy context? What are the links between different biophysical and planning scales?)	Aside from wetlands that are listed under various national legislation (such as RAMSAR), limited application of HCVAE exists. There does not appear to be any distinct recognition of HCVAE such as riverine communities, floodplains, lakes and estuaries however protection is afforded indirectly through national parks, state forests and so forth. Indirect application of HCVAE applies in the context of threatened species, populations and communities.
How much progress has been made in implementing the identified legislative, policy and planning frameworks? (i.e. just beginning to implement, several years of implementation, fully embedded). Does this differ for different ecosystem types?	Implementation of most frameworks is moderately advanced. Many are adaptive in practice, undergoing regular reviews. Many of the more recent acts and policies are in implementation phases. Identification and protection of aquatic ecosystems is in middle to early stages of implementation.

New South Wales

Legislative, policy and planning framework documents:

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
Legislation			
Fisheries Management Act 1994	The objects of this Act are as follows: ■ to conserve, develop and share the fishery resources of the State for the benefit of present and future generations. ■ in particular, the objects of this Act include: ■ to conserve fish stocks and key fish habitats, ■ to conserve threatened species, populations and ecological communities of fish and marine vegetation, ■ to promote ecologically sustainable development, including the conservation of biological diversity, ■ to promote viable commercial fishing and aquaculture industries, ■ to promote quality recreational fishing opportunities, ■ to appropriately share fisheries resources between the users of those resources, ■ to provide social and economic benefits for the wider community of New South Wales.	The Act can lead to: Declaration of aquatic reserves (a) to protect fish habitat in the reserve, or (b) to provide for species management in the reserve, or (c) to protect threatened species, populations and ecological communities Identification of critical habitat (a) The Minister is to identify (where this is possible) the critical habitat of each endangered species, population and ecological community. The whole or any part of the habitat of an endangered species, population or ecological community that is critical to the survival of the species, population or ecological community is eligible to be declared Endangered ecological communities An ecological community is eligible to be listed as an endangered ecological community if it represents a type of ecological community that is likely to become extinct in nature in New South Wales. There is not specific reference to HCVAE however in practice the act covers such ecosystems	Department of Primary Industries
Marine Parks Act 1997	The objects of this Act are as follows: (a) to conserve marine biological diversity and marine habitats by declaring and providing for the management of a comprehensive system of marine parks, (b) to maintain ecological processes in marine parks,	The Act can lead to the declaration of marine parks which includes any area of waters of the sea or subject to tidal influence, or any area of land from time to time covered by such waters (ie: estuaries). There is not specific reference to HCVAE however in practice the act covers such ecosystems	Department of Primary Industries Department of Environment and Conservation (incorporating National

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	(c) where consistent with the preceding objects: (i) to provide for ecologically sustainable use of fish (including commercial and recreational fishing) and marine vegetation in marine parks, and (ii) to provide opportunities for public appreciation, understanding and enjoyment of marine parks.		Parks and Wildlife). Marine Parks Authority
Threatened Species Conservation Act 1995	The objects of this Act are as follows: (a) to conserve biological diversity and promote ecologically sustainable development (b) to prevent the extinction and promote the recovery of threatened species, populations and ecological communities (c) to protect the critical habitat of those threatened species, populations and ecological communities that are endangered (d) to eliminate or manage certain processes that threaten the survival or evolutionary development of threatened species, populations and ecological communities (e) to ensure that the impact of any action affecting threatened species, populations and ecological communities is properly assessed (f) to encourage the conservation of threatened species, populations and ecological communities by the adoption of measures involving co-operative management.	The Act can lead to: Listing of species Listing of populations Listing of ecological communities Identification and declaration of critical habitat There is not specific reference to HCVAE however in practice the act covers such ecosystems.	Department of Environment and Conservation
National Parks and Wildlife Act 1974	The objects of this Act include: (a) the conservation of nature, including, but not limited to, the conservation of: (i) habitat, ecosystems and ecosystem processes, and (ii) biological diversity at the community, species and genetic levels, and (iii) landforms of significance, including geological features and processes, and	The Act can lead to: National parks Nature reserves Karst conservation reserves State conservation areas Declaration of wild rivers The purpose of declaring a river or part of a river as a	Department of Environment and Conservation (incorporating National Parks and Wildlife).

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	(iv) landscapes and natural features of significance including wilderness and wild rivers,	wild river is to identify, protect and conserve any water course or water course network, or any connected network of water bodies, or any part of those, of natural origin, exhibiting substantially natural flow (whether perennial, intermittent or episodic) and containing remaining examples, in a condition substantially undisturbed since European occupation of New South Wales, of: (i) the biological, hydrological and geomorphological processes associated with river flow, and (ii) the biological, hydrological and geomorphological processes in those parts of the catchment with which the river is intrinsically linked, so as to enable that river or part to be managed in accordance with subsection. There is not specific reference to HCVAE however in practice the act covers such ecosystems.	
Water Management Act 2000	The objects of this Act are: (a) to apply the principles of ecologically sustainable development, (b) to protect, enhance and restore water sources, their associated ecosystems, ecological processes and biological diversity and their water quality, (c) to recognise and foster the significant social and economic benefits to the State that result from the sustainable and efficient use of water, including: (i) benefits to the environment, and (ii) benefits to urban communities, agriculture, fisheries, industry and recreation, and (iii) benefits to culture and heritage, and (iv) benefits to the Aboriginal people in relation to their spiritual, social, customary and economic use of land and water,	The Act can lead to: establishment of the State Water Management Outcomes Plan (SWMOP) to set out the over-arching policy context, targets and strategic outcomes for the development, conservation, management and control of the State's water sources. The outcomes and targets span regulated river, unregulated river, groundwater, estuarine and coastal water sources. Classification of water sources (a) as to the extent to which they are at risk (that is, the extent to which harm to the water source or its dependent ecosystems is likely to occur), (b) as to the extent to which they are subject to stress (that is, the extent to which harm to the water source or its dependent ecosystems has occurred or is occurring), (c) as to the extent of their conservation value (that is,	Department of Natural Resources Catchment Management Authorities

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	(d) to recognise the role of the community, as a partner with government, in resolving issues relating to the management of water sources, (e) to provide for the orderly, efficient and equitable sharing of water from water sources, (f) to integrate the management of water sources with the management of other aspects of the environment, including the land, its soil, its native vegetation and its native fauna, (g) to encourage the sharing of responsibility for the sustainable and efficient use of water between the Government and water users, (h) to encourage best practice in the management and use of water.	the extent to which their intrinsic value merits protection from risk and stress). Environmental Water (a) water that is committed by management plans for fundamental ecosystem health or other specified environmental purposes (b) water that is committed by the conditions of access licences for specified environmental purposes The Act identifies: Water Management Principles (a) water sources, floodplains and dependent ecosystems (including groundwater and wetlands) should be protected and restored and, where possible, land should not be degraded (b) habitats, animals and plants that benefit from water or are potentially affected by managed activities should be protected and (in the case of habitats) restored (c) the water quality of all water sources should be protected and, wherever possible, enhanced (d) the cumulative impacts of water management licences and approvals and other activities on water sources and their dependent ecosystems, should be considered and minimised In relation to water sharing: (a) sharing of water from a water source must protect the water source and its dependent ecosystems In relation to water use, drainage management, floodplain management, aquifer interference activities (a) activities should avoid or minimise land degradation, including soil erosion, compaction, geomorphic instability, contamination, acidity, waterlogging, decline of native vegetation or, where appropriate, salinity and, where possible, land should	

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
		be rehabilitated Protection of the environment is foremost in the objects and principles of the act, which states that sharing of water from a water resource must protect that water source and its dependant ecosystems and that water sharing plans must establish environmental water rules There is not specific reference to HCVAE however in practice the act covers such ecosystems.	
Rivers and Foreshore Improvement Act 1948	The objects of this Act are: (a) to provide for the carrying out of works for the removal of obstructions from and the improvement of rivers and foreshores and the prevention of erosion of lands by tidal and non-tidal waters.	“protected land" means: (a) land that is the bank, shore or bed of protected waters, or (b) land that is not more than 40 metres from the top of the bank or shore of protected waters (measured horizontally from the top of the bank or shore) There is not specific reference to HCVAE however in practice the act covers such ecosystems.	Department of Natural Resources
Environmental Planning and Assessment Act 1979	The objects of this Act include: (a) to encourage: (i) the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment. (ii) the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats.	The following must be taken into account in deciding whether there is likely to be a significant effect on threatened species, populations or ecological communities, or their habitats: in the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction, in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction, in the case of an endangered ecological community or critically endangered ecological community, whether	Department of Planning Local Government

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
		the action proposed: (i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or (ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction, in relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, and (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality, whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly), whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan, whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	
Native Vegetation Act 2003	The objects of this Act are: (a) to provide for, encourage and promote the management of native vegetation on a regional basis	The Act provides an assessment methodology (Environmental Outcomes Assessment Methodology) for Property Vegetation Plans which includes water quality assessment and biodiversity.	Catchment Management Authorities

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	in the social, economic and environmental interests of the State (b) to prevent broadscale clearing unless it improves or maintains environmental outcomes (c) to protect native vegetation of high conservation value having regard to its contribution to such matters as water quality, biodiversity, or the prevention of salinity or land degradation (d) to improve the condition of existing native vegetation, particularly where it has high conservation value (e) to encourage the revegetation of land, and the rehabilitation of land, with appropriate native vegetation, in accordance with the principles of ecologically sustainable development.	There is not specific reference to HCVAE	
Nature Conservation Trust Act 2001	The objects of the Trust include: (a) to encourage landholders to enter into co-operative arrangements for the management and protection of urban and rural land in private occupation that is significant for the conservation of natural heritage (and any cultural heritage associated with natural heritage), (b) to provide mechanisms for achieving conservation of that heritage	The Act refers to: conservation priorities including criteria for identifying land that is of such significance, in relation to the conservation of cultural heritage or natural heritage or both, as to warrant any one or more of the following: (a) the making of a conservation agreement, property agreement or Trust agreement in respect of the land, (b) the acquisition and disposal of the land under the Revolving Fund Scheme, (c) the provision by the Trust of any assistance to the landholder in relation to the land.	Nature Conservation Trust
Wilderness Act 1987	Objects of Act The objects of this Act are: (a) to provide for the permanent protection of wilderness areas, (b) to provide for the proper management of wilderness areas, and (c) to promote the education of the public in the appreciation, protection and management of	There is not specific reference to HCVAE	Department of Environment and Conservation (incorporating National Parks and Wildlife).

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	wilderness		
Catchment Management Authorities Act 2003	The objects of this Act are as follows: (a) to establish authorities for the purpose of devolving operational, investment and decision-making natural resource functions to catchment levels, (b) to provide for proper natural resource planning at a catchment level, (c) to ensure that decisions about natural resources take into account appropriate catchment issues, (d) to require decisions taken at a catchment level to take into account State-wide standards and to involve the Natural Resources Commission in catchment planning where appropriate, (e) to involve communities in each catchment in decision making and to make best use of catchment knowledge and expertise, (f) to ensure the proper management of natural resources in the social, economic and environmental interests of the State, (g) to apply sound scientific knowledge to achieve a fully functioning and productive landscape, (h) to provide a framework for financial assistance and incentives to landholders in connection with natural resource management.	An authority has the following functions: (a) to develop catchment action plans and to give effect to any such approved plans through annual implementation programs, (b) to provide loans, grants, subsidies or other financial assistance for the purposes of the catchment activities it is authorised to fund, (c) to enter contracts or do any work for the purposes of the catchment activities it is authorised to carry out, (d) to assist landholders to further the objectives of its catchment action plan (including providing information about native vegetation), (e) to provide educational and training courses and materials in connection with natural resource management, (f) to exercise any other function relating to natural resource management as is prescribed by the regulations There is not specific reference to HCVAE however in implementing objectives there is consideration of HCVAE.	Catchment Management Authorities
Local Government Act 1993	The purposes of this Act are as follows: (a) to provide the legal framework for an effective, efficient, environmentally responsible and open system of local government in New South Wales, (b) to regulate the relationships between the people and bodies comprising the system of local government in New South Wales, (c) to encourage and assist the effective participation of local communities in the affairs of local government,	Requires councils to: have regard to the protection of the environment when carrying out responsibilities manage, develop, protect, restore, enhance and conserve the environment annually plan and report on its environmental management	Department of Planning Local Government

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	(d) to give councils: (i) the ability to provide goods, services and facilities, and to carry out activities, appropriate to the current and future needs of local communities and of the wider public (ii) the responsibility for administering some regulatory systems under this Act (iii) a role in the management, improvement and development of the resources of their areas, (e) to require councils, councillors and council employees to have regard to the principles of ecologically sustainable development in carrying out their responsibilities.	There is not specific reference to HCVAE	
Sydney Water Catchment Management Act 1998	The principal objectives of the Authority are as follows: to ensure that the catchment areas and the catchment infrastructure works are managed and protected so as to promote water quality, the protection of public health and public safety, and the protection of the environment, where its activities affect the environment, to conduct its operations in compliance with the principles of ecologically sustainable development contained in section 6 (2) of the Protection of the Environment Administration Act 1991 , In implementing its principal objectives, the Authority has the following special objectives: (a) to minimise risks to human health, (b) to prevent the degradation of the environment	The functions of the authority include managing and protecting these catchment areas and protecting and enhancing water quality in the catchment. Land within the catchment can be declared a “special area” or a “controlled area”. The Regulations make provision for the prohibition of abstracting, using or contaminating land and water within a special or controlled area. The authority is also required to prepare and implement a plan of management for land identified as a special area There is not specific reference to HCVAE however special areas may be based or include HCVAE	
State- or Territory-wide policy and planning frameworks			
State Water Management Outcomes Plan 2002	Working under the Water Management Act 2000, the plan is intended to provide clear direction for all water management in New South Wales including (but not limited to) the creation of management plans	Indirect reference to HCVAE include: Environmental outcomes - Healthy, productive and diverse water ecosystems	

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	addressing: water sharing, water use, drainage management, floodplain management, controlled activities and aquifer interference, and environmental protection.	(1) Primary ecological production maintained or improved, including: (a) carbon cycling, (b) production to respiration ratios, and (c) carbon and food fluxes between rivers and floodplains, estuaries and coastal waters. (2) Degraded wetlands improved and those listed as wetlands of national or international significance protected and restored. (3) The diversity and abundance of native aquatic animals and plants protected and restored by addressing the cumulative impacts of water management on their habitats and life cycles. The status of aquatic communities to be informed through but not limited to: (a) the abundance and diversity of invertebrate populations improved, (b) native fish populations within their native range increased and the ratio of alien to native fish species reduced, (c) colonial waterbird breeding opportunities increased, (d) estuarine prawn populations improved, and (e) the status of threatened species populations and ecological communities improved. Targets A network of aquatic reference sites based on biogeographical regions identified, and the monitoring and management implications assessed Groundwater dependent ecosystems identified and mapped for all priority aquifers, and the ecological water requirements assessed to enable local groundwater extraction rates and/or Sustainable Yields	

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
		to be reviewed	
State environment planning policy Coastal wetlands (SEPP 14)	The aim of this policy is: to ensure that the coastal wetlands are preserved and protected in the environmental and economic interests of the State.	The SEPP is based on a series of maps defining SEPP 14 wetlands and their boundaries. Land clearing, levee construction, drainage work or filling may only be carried out within these wetlands with consent. Such development also requires an environmental impact statement to be lodged with a development application. There is not specific reference to HCVAE but indirect conservation arises	Department of Planning Local Government
NSW Wetlands Management Policy (2000)	The aim of this policy is: halt, and where possible, reverse loss of wetland vegetation declining water quality declining natural productivity loss of biological diversity declining natural flood mitigation encourage projects and activities which will restore the quality of the States wetlands, such as: rehabilitating wetlands re-establishing vegetation buffer zones around wetlands, and ensuring adequate water to restore wetland habitats	The policy sets out a number of principles, including: Wetlands of regional or national significance will be accorded special protection	Department of Natural Resources Department of Environment and Conservation Department of Primary Industries Local Government Catchment Management Authorities
NSW State Rivers And Estuary Policy (1993) Copy Not Sourced	We have not sourced a copy of this document however the policy is referred to in several related policies and documents	The policy indicates Non-sustainable resource uses which are not essential should be progressively phased out. Environmentally degrading processes and practices should be replaced with more efficient and less degrading alternatives. Remnant areas of significant environmental values should be accorded special protection.	

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
NSW State Groundwater Framework Policy (1997)	The State Groundwater Policy is designed to establish: objectives and principles for groundwater management a coordinated program for policy development, reporting and review tools for policy implementation opportunities for information sharing	Policy principles includes: Significant environmental and/or social values dependent on groundwater should be accorded special protection. (a) maintenance of intrinsic environmental value, particularly where groundwater dependent ecosystems support threatened species, populations and communities, or critical habitat as defined in the Threatened Species Conservation Act 1995 (b) conservation of special or representative areas. The State's wetlands may, in particular, require special protection against excessive groundwater pumping, particularly where these are afforded protection under other policies, planning instruments, or international agreement Likewise they need to be protected against inappropriate land use in the immediate catchment	Department of Natural Resources
NSW Groundwater Quality Protection Policy (1998)	To encourage the ecologically sustainable management of the State's groundwater resources, so as to: slow and halt, or reverse any degradation of groundwater resources; ensure sustainability of groundwater dependent ecosystems; maintain the full range of beneficial uses of these resources; maximise economic benefit to the Region, State and Nation. To be achieved by: Beneficial Use (Environmental Value) Classification Groundwater Management Plans Guidelines for Industry Education	Management principles linked to HCVAE include: All groundwater systems should be managed such that their most sensitive identified beneficial use (or environmental value) is maintained; Groundwater dependent ecosystems will be afforded protection. This principle recognises that protective strategies may be warranted for areas of environmental value. Ecosystem protection may be sought for a number of reasons, including: (a) maintenance of intrinsic environmental value, particularly where groundwater dependent ecosystems support threatened species, populations and communities, or critical habitat as defined in the Threatened Species Conservation Act 1995; (b) conservation of special or representative areas: the State's wetlands may, in particular, require special protection against excessive groundwater pumping, particularly where these are given protection under other policies, planning instruments, or international	Department of Natural Resources

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	Planning instruments Wellhead Protection Plans	agreements. Likewise they need to be protected against inappropriate land use. Buffer zones that restrict certain activities should be developed in groundwater management areas that include sensitive wetlands, stream banks and remnant vegetation.	
NSW State Groundwater Dependant Ecosystems Policy (2002)	Is a component of the State Groundwater Framework Policy (1997) Discusses what are groundwater dependant ecosystems, types of groundwater dependant ecosystems in NSW, location of groundwater ecosystems in NSW and management principles.	Principles include: The scientific, ecological, aesthetic and economic values of ground-water dependant ecosystems, and how threats to them may be avoided, should be identified and action taken to ensure that the most vulnerable and the most valuable ecosystems are protected. Groundwater extractions should be managed within the sustainable yield of aquifer systems so that the ecological processes and biodiversity of their dependant ecosystems are maintained and/or restored. Priority should be given to ensuring that sufficient groundwater of suitable quality is available at the times when it is needed For protecting ecosystems which are known to be, or are most likely to be, groundwater dependant; and For groundwater dependant ecosystems which are under immediate or high degree of threat from groundwater-related activities. Where scientific knowledge is lacking, the Precautionary Principle should be applied to protect groundwater dependant ecosystems Planning, approval and management of developments and land use activities should aim to minimise adverse impacts on groundwater dependant ecosystems	Department of Environment and Conservation (incorporating National Parks and Wildlife).
NSW Estuary Management Policy 1992	The general goal of the NSW Estuary Management Policy is to achieve an integrated, balanced, responsible and ecologically sustainable use of the State's estuaries.	Specific objectives of the policy are the protection of estuarine habitats and ecosystems in the long-term, including maintenance in each estuary of the necessary hydraulic regime, and the preparation and implementation of a balanced longterm management	Local Government Catchment Management Authorities

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
		plan for the sustainable use of each estuary and its catchment, in which all values and uses are considered, and which defines management strategies, including for the conservation of aquatic and other wildlife habitats, the prevention of further estuary degradation, and repair of damage to the estuarine environment. The policy sets up a process for the preparation for Estuary Management Committees of Estuary Processes Direct reference to HCVAE is absent however indirect recognition is provided	
NSW Weirs Policy (1997)	The goal of the NSW Weirs Policy 1997 is to halt and, where possible, reduce and remediate the environmental impact of 'weirs', including floodgates and related structures.	Whilst various references to the environment, specifically minimising the impact to the environment from weirs, is provided in the document, direct reference to HCVAE is lacking.	Department of Natural Resources State Water Corporation and other NSW water authorities Department of Primary Industries (in relation to fish passage) Local Government Catchment Management Authorities
NSW Biodiversity Strategy (1999)	The strategic goal of this strategy is: To protect the native biological diversity of NSW and maintain ecological processes and systems.	The document provides a broad range of objectives and terms which could be applied to HCVAE. For example: Provide mechanisms for the protection of high conservation value wetlands…… Develop and apply methodologies to undertake comprehensive regional assessments on the allocation and use of land and water (freshwater and marine). Implement mechanisms for the identification, recovery	Local Government Catchment Management Authorities Department of Environment and Conservation Department of Primary Industries

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
		and rehabilitation of threatened species, populations, and ecological communities and protection of critical habitat. Outside of wetland reference, there appears to be limited direct reference to HCVAE.	
NSW Water Conservation Strategy 2000	Sets out the New South Wales Water Conservation Strategy, a set of strategies, aims and actions which will enable New South Wales to use water more efficiently and effectively, to accommodate changes in population, support economic growth and maintain a healthy environment.	There is no reference to HCVAE in the document	
NSW Salinity Strategy 2000	Provides a framework for managing salinity based on setting salinity targets	Refers to the environmental values considered in setting the NSW Interim Environmental Objectives (IEOs) for water quality. Reference to protecting terrestrial and aquatic ecosystems is provided but not specifically HCVAE	Catchment Management Authorities
NSW Draft Priority Action Statement 2006	The objectives of the PAS are to: move as many species as possible from threatened to non-threatened conservation status abate or eliminate the impacts of KTPs provide a comprehensive and strategic approach to threatened species recovery, by making a comprehensive list of strategies and prioritised actions in the PAS readily available involve stakeholders, including managers and decision makers at all levels, in working together to implement PAS actions.	The draft PAS is based on 25 recovery and 12 KTP abatement strategies. Alteration of the natural flow regime to streams, wetlands and floodplains is one priority area Priority actions include: Identify Rivers and Wetlands of high conservation value for biodiversity (High priority) Survey and map structures altering water regimes with respect to affected threatened species and communities (Medium priority)	
Regional scale planning			
Stressed Rivers Assessment Report NSW State Summary 1998	The Stressed Rivers Assessment Process has been designed as a rapid assessment of the current and potential future stress of unregulated rivers.	The Classification system separates subcatchments into nine categories based on assessments of both environmental and hydrologic stress. The classification process has also attempted to identify all subcatchments which have special conservation value. This may relate for example to the presence of threatened or high value species or wetlands, or high	Local Government Catchment Management Authorities Department of Environment and

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
		biodiversity or may reflect the pristine or near pristine condition of the rivers. High Conservation Rivers are identified	Conservation Department of Primary Industries
Healthy Rivers Commission Various studies	The Healthy Rivers Commission was established as part of the NSW Government's water reforms, which aim to improve the health of the state's waterways. The Commission conducts independent public Inquiries to identify appropriate goals and strategies to improve the health of rivers and lakes. Each Inquiry is designed to add value to the range of other initiatives planned or in progress to improve the management of these systems. The Commission also has the role of auditing the implementation of Government decisions based on its Inquiries.	Frequently refers to conservation values, condition and health Provides recommended river health values.	Local Government Catchment Management Authorities Department of Environment and Conservation Department of Primary Industries
NSW Estuary Management Program 1992	The Estuary Management Program was established in 1992 to restore and protect estuaries along the NSW coast. The Program targets a broad range of issues and engages local communities in the process. These plans aim to: Improve the environmental health and condition of estuaries Protect important coastal habitats, features and heritage items Rehabilitate degraded areas Improve public access and amenity Accommodate sustainable population growth and resource utilisation.	No direct reference to HCVAE but the environmental health and condition is a consideration.	Local Government
NSW Estuary Management Manual 1992 Copy not obtained	Outlines the approach for implementing the NSW Estuary Management Program		Local Government
Catchment Blueprints/Management Plans	Catchment blueprints or management plans aim to provide clear direction for action and investment by all the stakeholders in the various Catchment management Authorities area of jurisdiction. They are intended to guide State and local government, and	No direct reference to HCVAE	Catchment Management Authorities

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	other natural resource management bodies in the catchment when planning their own projects and priorities. They covers all levels of action, from resource investigation and planning to guiding investment in onground works but usually do not identify specific projects		
Catchment Action Plans	The Catchment Management Authorities Act 2003 requires each Catchment Management Authority (CMA) to prepare a Catchment Action Plan that provides a strategic framework for natural resource management in the catchment and direction for future investments for the next ten years	Catchment action plans need to consider various state acts as documented in the above tables. Direct reference to HCVAE is absent but targets specify improvements in endangered species and communities, and improvements in creeks, rivers, wetlands and floodplains health. There is usually no specific identification of HCVAE	Catchment Management Authorities
NSW Water Quality and River Flow Objectives	The NSW Water Quality Objectives are the agreed environmental values and long-term goals for NSW's surface waters. They set out: the community's values and uses for our rivers, creeks, estuaries and lakes (i.e. healthy aquatic life, water suitable for recreational activities like swimming and boating, and drinking water); and a range of water quality indicators to help us assess whether the current condition of our waterways supports those values and uses. The River Flow Objectives are the agreed high-level goals for surface water flow management. They identify the key elements of the flow regime that protect river health and water quality for ecosystems and human uses	The Water Quality Objectives provide environmental values for NSW waters at a local scale. Whilst environmental status is a factor, they do not identify HCVAE as such but objectives should reflect the condition of waterways.	Department of Environment and Conservation Department of Natural Resources Catchment Management Authorities Local Government
Macro and Catchment Water Sharing Plans	A water sharing plan is a legal document prepared under the Water Management Act 2000. It establishes rules for sharing water between the environmental needs of the river or aquifer and water users, and also between different types of water users such as town supply, rural domestic supply, stock watering, industry and irrigation. The purpose of a water sharing plan is:	Water Sharing Plans establish environmental water rules for an area or sub-catchment in relation to the following three classes of environmental water: environmental health water supplementary environmental water adaptive environmental water	Catchment Management Authorities Department of Environment and Conservation

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	to protect the fundamental environmental health of the water source to ensure that the water source is sustainable in the long-term to provide water users with a clear picture of when and how water will be available for extraction	Various rules and objectives are specified but they essentially relate to the maintenance or enhancement of aquatic values. HCVAE are not mentioned specifically but there is consideration of waterway condition.	
Regional Strategies and Regional Environmental Plans	Regional Strategies and Regional Environmental Plans may cover several local government jurisdictions. The aims of plans are to promote the balanced development of the region, the improvement of its urban and rural environments and the orderly and economic development and optimum use of its land and other resources, consistent with conservation of natural and man made features and so as to meet the needs and aspirations of the community,	Objectives of plans include: protect natural areas of geological, ecological or scenic interest such as important forests, bushlands, wetlands, rivers, estuaries, lakes, beach and dune systems, headlands, mountain ridges and escarpments, strictly control any reduction in the extent of important natural areas, especially important habitats such as natural wetlands, protect and preserve bushland within larger urban areas because of its natural, aesthetic, recreational, educational, scientific, soil conservation and habitat values, and Direct reference to HCVAE is absent but the intent of certain plans may apply to HCVAE	Local Government
Local Environment Plans	Local Environmental Plan is the legal framework that establishes the land uses within local government area and what can be developed where, with Council consent. One of the aims is the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats	A variety of protection measures for the environment are typically provided but not exclusively HCVAE. Zoning of environmentally important land does occur, with the aim to protect, conserve and enhance land that is environmentally important. Specific reference to HCVAE is absent but in practice HCVAE are provided protection	Local Government
Other (e.g. research projects, programs or tools)			
NSW RiverBank	NSW RiverBank is a program that will: purchase water from willing sellers to rescue some of	The program will focus first on the Macquarie Marshes, the Lowbidgee and Gwydir wetlands, and	Department of Environment and

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	the state's iconic wetlands and river systems provide a new way of using water to support and improve both the environment and the socioeconomic value of rivers and wetlands.	the Narran Lakes. Water may also be purchased for other areas of high conservation value if favourable market and other opportunities arise.	Conservation Catchment Management Authorities

The frameworks used to identify and classify HCVAE

Question	Comments
Definitions and terminology	
Does this jurisdiction have an agreed definition of HCVAEs? If so please describe. What is considered to be included as a HCVAE?	The Term HCVAE is rarely used in any of the various NSW acts, policies and planning documents at a state, regional and local level. This may in part be due to the majority of these documents being several years old. There does not appear to be an agreed definition of HCVAE In practice there is alternative wording that is synonymous with HCVAE. Recent documents, such as the Priority Action Statement, refer to high conservation value
What, if any, synonyms or alternative phrases are used that have similar meaning to the concept of HCVAEs in this jurisdiction (e.g. priority areas of high conservation value, Significant Ecological Assets, heritage rivers etc)? Please describe.	Frequently used wording synonymous with HCVAE include: 1. To protect 'threatened species, populations and ecological communities' 2. Identification of critical habitat 3. Endangered ecological community 4. Wild rivers 5. Conservation value 6. Special Area 7. Wilderness 8. Regional or national significance 9. Significant environmental values 10. Groundwater dependant ecosystems
Is there consistent use of the definitions across instruments/documents and/or different ecosystem types? Please describe.	There is no consistent terminology across the various acts and policies. The term 'threatened species, populations and ecological communities' is perhaps most frequently applied
Guiding principles and conceptual frameworks	

Question	Comments
What are the guiding principles for identifying or classifying HCVAEs? Where this differs for ecosystem types please describe (i.e. on what basis are they assessed as 'high' conservation value – where is the line drawn?)	Scientific committees determine if species, populations or endangered ecological communities are listed Implementation of certain acts and policies undoubtedly apply concepts of priority, for example the Murray CAP indicates fish passage will be provided within priority reaches. The concept of high conservation value does not have a generic application and differs between issues such as groundwater dependant ecosystems, fish communities, wetlands and so forth.
What are the types of values considered in identifying and classifying HCVAEs? (i.e. are they only ecological values or do they also include other social or cultural values for example)	Social and cultural values often play a role but not universally.
What are the criteria/indicators for identifying or classifying HCVAEs? Where this differs for ecosystem types please describe.	At a *ecosystem* scale criteria is either based on international or national status (eg: RAMSAR), conservation status (eg: the presence of threatened species, populations and communities) or threat (eg: coastal wetlands from development).
Are threats/risks included as part of the identification, classification or prioritisation of HCVAEs? If so how and where?	Not broadly applied with the exception of groundwater dependant ecosystems and coastal wetlands which appear to have been listed under SEPP 14 based on threat. Many of the wetlands listed are in poor condition. Recent projects aim to prioritise coastal wetlands for management based on a number of criteria.
What, if any, guidance is provided in relation to determining appropriate scale?	There appears to be limited written guidance on scale. Maps of conservation areas have been prepared using different criteria and revisiting and amending these maps does occur.

Process and methods	
How are HCVAEs prioritised? Is it a relative or systematic assessment?	Systematic prioritisation either exists or will be implemented for: ■ Coastal wetlands ■ Fish passage ■ Groundwater dependant ecosystems The Priority Action Statement (2006) indicates identification of HCVAE is a priority
On what basis is the assessments of values and priorities validated and agreed (i.e. expert panel, groundtruthing, community consultation, modelling etc.)	A mixture of approaches are used in most examples including technical assessment, ground based assessment, modelling and community participation
Has a decision support framework (tool or process) been used identify or classify HCVAEs or their equivalents?	In some instances, for example management of coastal wetlands will be based on a decision support system. Other system also exists to aid management such as predictions of species presence.

The management frameworks for HCVAE

Question	Comment
How is management of HCVAEs embedded into the overall management regime and broader legislative, policy and planning frameworks? (i.e. how does the management of HCVAEs fit within the broader management and planning/policy context? What are the links between different biophysical and planning scales?)	Aside from wetlands that are listed under various national and state legislation (such as RAMSAR and SEPP 14), limited application of HCVAE exists. There does not appear to be any distinct recognition of HCVAE such as riverine communities, floodplains, lakes and estuaries however protection is afforded indirectly through wilderness area, national parks, state forests, local government zoning and so forth. Indirect application of HCVAE applies in the context of threatened species, populations and communities.
How much progress has been made in implementing the identified legislative, policy and planning frameworks? (i.e. just beginning to implement, several years of implementation, fully embedded). Does this differ for different ecosystem types?	Implementation of most frameworks is well advanced as they have been in place for several years. Many are adaptive in practice, undergoing regular reviews. Many of the more recent acts and policies are in implementation phases. Identification and protection of groundwater dependant ecosystems is in middle stages of implementation. Water sharing plans are also in middle stages of implementation

Northern Territory

Legislative, policy and planning framework documents:

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
Legislation			
Environment Assessment Act 1980	Provides for examination of proposed new projects which may cause significant environmental impact.	'Environment' is read to mean all aspects of the surroundings including the physical, biological, economic, cultural and social aspects.	Department of Natural Resources, Environment and Arts.
Waste Management And Pollution Control Act 2003	Provides for the protection of the environment through encouragement of effective waste management and pollution prevention and control practices and for related purposes.	"Environment" means land, air, water, organisms and ecosystems	Department of Natural Resources, Environment and Arts.
Water Act 2004	Provides for the investigation, allocation, use, control, protection, management and administration of water resources, and for related purposes.	'Environment' is read to mean all aspects of the surroundings including the physical, biological, economic, cultural and social aspects.	Department of Natural Resources, Environment and Arts.
Territory Parks and Wildlife Conservation Act 2000	Establishes Territory Parks and other Parks and Reserves. Provides for the study, protection, conservation and sustainable utilisation of wildlife through different levels of protection and the preparation of management plans.	Species are classified as "Extinct in the Wild", "Critically Endangered", "Endangered", "Vulnerable", "Near threatened" and "Data deficient". Species lists are contained at http://www.nt.gov.au/nreta/wildlife/threatened/specieslist.html	Department of Natural Resources, Environment and Arts.
Heritage Act	Provides a system for the identification, assessment, recording, conservation and protection of places and objects of prehistoric, protohistoric, historic, social, aesthetic or scientific value, including geological structures, fossils, archaeological sites, ruins, buildings, gardens, landscapes, coastlines and plant and animal communities or ecosystems of the Territory.	Has potential to declare but not yet used for HCVAEs	
Fisheries Act	Sets out a framework for the management of the aquatic resources of the Territory in accordance with the principles of ecologically sustainable development, whether managing a single fish species or an ecosystem, to ensure the promotion of appropriate	The conservation of fish species, ecosystems and habitats.	Department of Primary Industry, Fisheries and Mines

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	protection of fish and fish habitats.		
Planning Act	Provide a framework of controls for, the orderly use and development of land in the NT.	One of the objectives of the Act is to protect the environment. This includes HCVAE.	Department of Planning and Infrastructure
Pastoral Land Act	Provides a form of tenure of Crown land that facilitates the sustainable use of land for pastoral purposes and the economic viability of the pastoral industry.	No direct reference but the sustainable use of land necessarily protects HCVAE.	Department of Primary Industry, Fisheries and Mines
State- or Territory-wide policy and planning frameworks			
A Strategy for Conservation through the Sustainable Use of Wildlife in the Northern Territory of Australia	Aims to enhance the conservation of Northern Territory plants and animals through the development of programs incorporating their sustainable use.	Sets out a framework for sustainable use of all wildlife.	Parks and Wildlife Commission of the Northern Territory
A Strategy for the Conservation of Threatened Species and Ecological Communities in the Northern Territory of Australia	Aims to protect species and ecological communities threatened with extinction through: ■ Identification of species and ecological communities under threat; ■ Establishing a system of managed National Parks and other protected areas; ■ Investigation of the causes of decline in the distribution and abundance of species and ecological communities; ■ Captive breeding and propagation of species with a high probability of extinction; ■ Researching, trialling and implementing landscape-scale management; ■ Development of a legislating framework providing for the identification and management of species and ecological communities threatened with extinction; ■ Working with other institutions and jurisdictions; and ■ Maintaining an informed public.	Species are classified as “Extinct in the Wild”, “Critically Endangered”, “Endangered”, “Vulnerable”, “Near threatened” and “Data deficient”. Note: these are the categories used by the World Conservation Union.	Parks and Wildlife Commission of the Northern Territory
Northern Territory Parks and Conservation Master-plan	Sets out a state-wide plan for the conservation of biodiversity through: ■ Identification of priority areas for biodiversity conservation;	The conservation of biodiversity includes the conservation of HCVAE.	Parks and Wildlife Commission of the Northern Territory

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	■ Partnerships; ■ Conservation on Aboriginal lands; ■ Working with pastoralists; ■ Conservation on urban and semi-rural lands; ■ Conservation over the marine environment; ■ Enhanced research and monitoring; and ■ Improved legislation and regulation.		
Integrated Natural Resource Management Plan for the Northern Territory	Sets the policy and investment areas to better protect natural assets, develop more sustainable enterprises and improve skills and knowledge for the community to manage and benefit from the NTs natural resouces.	Five assets were identified including: inland waters; and coastal and marine areas. Key issues and threats, current management responses, targets and management actions are set out for each of these assets.	Landcare Council
Regional Investment Strategy	Identifies the priorities for state funding based on the INRM Plan.	Sets out the funding arrangements for the above.	Landcare Council
Lake Eyre Basin Agreement	The Lake Eyre Basin Agreement is a joint undertaking of the Australian, Queensland, South Australian and Northern Territory Governments. The purpose of the Agreement is to ensure the sustainability of the Lake Eyre Basin river systems, in particular to avoid or eliminate cross-border impacts.	The agreement aims to maintain the ecological health of the Lake Eyre basin.	Lake Eyre Basin Ministerial Forum
Wildlife Utilisation Policy	Outlines Parks and Wildlife Commission's commitment to the sustainable use of wildlife.	Wildlife includes HCVAE	Parks and Wildlife Commission of the Northern Territory
Wildcare policy	Outlines Parks and Wildlife Commission's commitment to the wildcare program.	Wildcare includes HCVAE	Parks and Wildlife Commission of the Northern Territory
Regional scale planning			
Management Plans prepared for protected species	Management plans approved under s75(3) of the *Territory Parks and Wildlife Commission of the Northern Territory*	Management plans are prepared for protected species. To date this includes the following HCVAEs: ■ Crocodylus porosus; ■ Crocodylus johnstoni; ■ Magpie goose.	Parks and Wildlife Commission of the Northern Territory
Regional Water Resources Strategies (eg Alice Springs, Ti Tree region)	Regional strategies for the management of water resources, balancing social and environmental protection while allowing for economic growth.	The strategies include water set aside for use by the environment.	Department of Natural Resources, Environment and Arts.

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
Darwin Harbour Regional Plan of Management	Whole of catchment plan for the management of Darwin harbour.	One of the key action is conducting an inventory of data management systems and data sources for water quality, flora, fauna and other relevant data, and evaluating data quality	Department of Natural Resources, Environment and Arts.
Top-end Waterway Project	Catchment based Assessment of the physical and ecological condition of the waterways in the top-end.	Assessment of the ecological condition of waterways with a view to developing regional catchment strategies to preserve HCVAEs.	Department of Natural Resources, Environment and Arts.
Daly River Management Specific technical reports including: ■ Inventory and risk assessment of water dependent ecosystems in the Daly basin, Northern Territory, Australia. ■ Modelling dry season flows and predicting the impact of water extraction on a flagship species ■ Environmental Water Requirements of Vallisneria nana in the Daly River Northern Territory ■ Tree Water Use and Sources of Transpired Water in Riparian Vegetation along the Daly River, Northern Territory ■ Periphyton and Phytoplankton Response to Reduced Dry Season Flows in the Daly River.	The Daly River Management Advisory Committee has been created to work with relevant Government agencies to develop options for the sustainable use and conservation of natural resources within the Daly River region. Specific projects have included: 1) Background for a larger project identifying environmental flow requirements for the Daly basin: ■ Maps the location and extent of a range of water dependent ecosystems in the Daly basin. ■ Identifies and maps threats to these ecosystems. ■ Identifies which ecosystems are most at risk. ■ Provides a tool for the description of habitats critical for other key indicators species being investigated in the Daly basin. 2) Technical reports looking at the correlation between flow and: ■ flagship species ■ Vallisneria nana ■ Riparian Vegetation ■ Periphyton and Phytoplankton In the Daly river.	HCVAEs and their threats identified and mapped for the region. Use of HCVAEs as an indicator of river health.	NT Department of Lands, Planning and Environment –initiated by NHT.
Other (e.g. research projects, programs or tools)			
Vegetation mapping of the Northern Territory	The main objectives for vegetation mapping in the Northern Territory are to: ■ Identify ecologically sensitive areas (e.g .	Mapping of key habitats for HCVAEs	Department of Natural Resources, Environment and Arts.

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	mangroves and wetlands). ■ Map areas recognised as priorities due to possible land use change (e.g. Daly Basin). ■ Delineate broad ecological attributes of particular vegetation types (e.g. Paperbark Forests) or habitats (e.g. National Parks). ■ Enhance Land System and Land Unit mapping - vegetation is an integral component.		
Mapping of sites of Conservation Significance	Maps which underpin the Northern Territory Parks and Conservation Master-plan. http://www.nt.gov.au/nreta/parks/management/masterplan/pdf/draft_masterplan_map.pdf	Mapping of key habitats for HCVAEs	Department of Natural Resources, Environment and Arts.
Northern Territory Bioregions	Maps of the key bioregions in the NT. http://www.nt.gov.au/nreta/parks/management/masterplan/pdf/bioregions_assessment.pdf Maps of the 23 bioregions showing threatened species and biological hot spots: http://www.nt.gov.au/nreta/parks/management/masterplan/draft_bioregion_maps.html	Mapping of key habitats for HCVAEs	Department of Natural Resources, Environment and Arts.
Specific research projects based in the following areas: ■ Biodiversity North ■ Biodiversity South ■ Herbarium	Research projects looking at specific issues eg: ■ Threatened species; ■ Fragmented biodiversity; and ■ Specific species.	Varies depending on project.	Department of Natural Resources, Environment and Arts in partnership with research organisations.

ANALYSIS: Identifying and classifying HCVAEs (or relevant equivalent)

Question	Comments
Definitions and terminology	
Does this jurisdiction have an agreed definition of HCVAEs? If so please describe. What is considered to	No- instead the focus is on biodiversity/ wildlife conservation more broadly. The water issues in southern Australia have triggered the development of regional water strategies. The two regional

Question	Comments
be included as a HCVAE?	water strategies developed to date have examined closely the way in which different species and ecological communities respond to changes in the flow regime. In this sense the idea of HCVAEs is almost developing organically.
What, if any, synonyms or alternative phrases are used that have similar meaning to the concept of HCVAEs in this jurisdiction (e.g. priority areas of high conservation value, Significant Ecological Assets, heritage rivers etc)? Please describe.	Biodiversity conservation is governed primarily by the *Territory Parks and Wildlife Conservation Act 2000* which classifies species as Species are classified as "Extinct in the Wild", "Critically Endangered", "Endangered", "Vulnerable", "Near threatened" and "Data deficient". These categories are based on those used by the World Conservation Union. Under the *Parks and Conservation Masterplan* species and areas are referred to as internationally or nationally 'significant'.
Is there consistent use of the definitions across instruments/documents and/or different ecosystem types? Please describe.	The above definition of at-risk species is used in *'A Strategy for the Conservation of Threatened Species and Ecological Communities in the Northern Territory of Australia', 'A Strategy for Conservation through the Sustainable Use of Wildlife in the Northern Territory of Australia*' and in species specific management plans. The definition of 'significant' used in the *Parks and Conservation Masterplan* is consistent with national and international management systems (eg Ramsar etc).
Guiding principles and conceptual frameworks	
What are the guiding principles for identifying or classifying HCVAEs? Where this differs for ecosystem types please describe (i.e. on what basis are they assessed as 'high' conservation value – where is the line drawn?)	The Species Survival Commission of the IUCN (International Union for the Conservation of Nature) has developed a classification system and criteria for use in assessing the conservation status of species. This system has been widely adopted by conservation agencies around the world. The IUCN uses criteria relating to: ■ Absolute size, number of subpopulations and extent of reduction in population size; ■ Extent, degree of fragmentation, and degree of fluctuation in geographic range (both the extent of occurrence and the area of occupancy); and ■ Quantitative analysis of the probability of extinction to classify the conservation status of species with different values of the above criteria applying to different categories. The IUCN categories are listed below (see http://www.nt.gov.au/nreta/wildlife/threatened/classification.html). **Note- a species could be a threatened species under NT legislation but not for the purposes of the Commonwealth EPBC Act.** Under the *Parks and Conservation Masterplan* sites are prioritised for management consideration because: ■ we have explicit national and international obligations for them ■ the exceptional biodiversity they contain makes site protection highly cost effective.
What are the types of values considered in identifying and classifying HCVAEs? (i.e. are they only ecological values or do they also include other social or cultural values for example)	As set out above, the criteria for listing of species set out in the *Territory Parks and Wildlife Conservation Act 2000* relate primarily to likelihood of species survival. The development of regional water resource strategies has been governed by decisions on which areas are ecologically significant and have a high chance of being preserved as a result of management actions. Species are then selected based on their capacity to reflect broader catchment health. Under the *Parks and Conservation Masterplan* species and areas are prioritised because of their relative ecological value or the level of national or international significance they are given.

Question	Comments
	Notably, the definition of 'environment' in the *Environment Assessment Act 1980, Waste Management And Pollution Control Act 2003* and *Water Act 2004* is broader and includes social and cultural elements.
What are the criteria/indicators for identifying or classifying HCVAEs? Where this differs for ecosystem types please describe.	As set out above, the *Territory Parks and Wildlife Conservation Act 2000* system looks at how threatened species are. Classification is set out as follows: ■ A taxon is Extinct when there is no reasonable doubt that the last individual has died. A taxon is presumed Extinct when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form. ■ A taxon is Extinct in the Wild when it is known only to survive in cultivation, in captivity or as a naturalized population (or populations) well outside the past range. A taxon is presumed Extinct in the Wild when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form. ■ A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered, and it is therefore considered to be facing an extremely high risk of extinction in the wild. ■ A taxon is Endangered when the best available evidence indicates that it meets any of the criteria A to E for Endangered, and it is therefore considered to be facing a very high risk of extinction in the wild. ■ A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable, and it is therefore considered to be facing a high risk of extinction in the wild. ■ A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future. ■ A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category. ■ A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. Data Deficient is therefore not a category of threat. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate. It is important to make positive use of whatever data are available. In many cases great care should be exercised in choosing between DD and a threatened status. If the range of a taxon is suspected to be relatively circumscribed, and a considerable period of time has elapsed since the last record of the taxon, threatened status may well be justified. The *Parks and Conservation Masterplan* builds on the above definition by identifying concentrations of threatened species and targeting the as 'signidicant'. Under the masterplan other ecosystems/ communities are identified as 'significant' in the following way:

Question	Comments
	▪ Wetlands- Ramsar listing or listing on the *Directory of Important Wetlands in Australia* ▪ Migratory Birds- criteria for significance as listed under the East Asian-Australasian Flyway and Shorebird Reserve Network program ▪ Sites of botanical significance- the significance of these sites is based on relict, endemic and threatened species and vegetation types. The *Masterplan* states that sites which have international significance for one or more biodiversity conservation features, together with those which have national significance are the Territory's prime areas for biodiversity conservation. These are the priority sites for biodiversity conservation and are the places where conservation effort will be most cost-effective.
Are threats/risks included as part of the identification, classification or prioritisation of HCVAEs? If so how and where?	Yes- see above
What, if any, guidance is provided in relation to determining appropriate scale?	N/A although mapping of bio-regions has been undertaken.

Process and methods	
How are HCVAEs prioritised? Is it a relative or systematic assessment?	Threatened species are prioritised according to the risk of extinction. Species used in the development of environmental flow recommendations are selected according to their capacity to act as an indicator of river health.
On what basis is the assessments of values and priorities validated and agreed (i.e. expert panel, groundtruthing, community consultation, modelling etc.)	NRETA is currently re-assessing the status of all the Northern Territory's plants and animals. Once the initial review is complete, public comment will be sought. Public comment is considered a vital component of this process.
Has a decision support framework (tool or process) been used identify or classify HCVAEs or their equivalents?	N/A

ANALYSIS: Managing HCVAEs

Question	Comment
How is management of HCVAEs embedded into the overall management regime and broader legislative, policy and planning frameworks? (i.e. how does the	In one sense it is implicitly embedded in the over-all management regime because there is no specific delineation between aquatic and non-aquatic ecosystems. Under the *Territory Parks and Wildlife Conservation Act 2000* and the *Parks and Conservation Masterplan* all native wildlife is protected although some species are afforded higher levels of protection

management of HCVAEs fit within the broader management and planning/policy context? What are the links between different biophysical and planning scales?)	according to the levels of threat to their populations or their significance. In terms of management specifically targeted at aquatic species this is limited to two approaches: ■ Management programs for threatened species which happen to be aquatic (prepared under the *Territory Parks and Wildlife Conservation Act 2000)* ; and ■ Regional water resources strategies. From this perspective specific management of aquatic ecosystems is not systematic but instead falls out of broader management approaches.
How much progress has been made in implementing the identified legislative, policy and planning frameworks? (i.e. just beginning to implement, several years of implementation, fully embedded). Does this differ for different ecosystem types?	Progress towards implementing the *Territory Parks and Wildlife Conservation Act 2000* is well on its way. Several species specific management plans have been prepared. In contrast the *Integrated Natural Resource Management Plan for the NT* was only finalised in March 2005 with the *Regional Investment Strategy* completed after that. As such progress towards the actions set out in these documents is likely to be limited. Simiarly, the *Parks and Conservation Masterplan* was only finalised in September 2005. The development of *Regional Water Resources Strategies* is currently in progress.

Queensland

Legislative, policy and planning framework documents:

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
Legislation			
Brisbane Forest Park Act 1977	Legislation covers allocation and management of land to Brisbane Forest Park.	Land is managed for recreational use.	Brisbane Forest Park Administration Authority (Minister)
Coastal Protection and Management Act 1995	Legislation to cover protection and management of the coast. Governs preparation of State Coastal Management Plan, Regional Coastal Management Plan and their implementation. Coastal Plans are statutory instruments.	S36 – Regional Coastal Management Plans identify key coastal sites requiring special management. S54 – Coastal Management Districts, based on (s56): (a) the area's vulnerability to erosion by the sea or to wind induced effects; (b) whether the area should be kept in an undeveloped state to maintain or enhance the coast or coastal resources; (c) public access to a foreshore in the area; (d) foreseeable human impacts and natural hazards in the area;	Coastal Protection Advisory Council Regional Consultative Groups

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
		(e) the existing tenure of, interests in, and rights to, land in the area; (f) Aboriginal tradition and Island custom of Aboriginal and Torres Strait Islander people particularly concerned with land in the area; (g) planning and development management of the area.	
Currumbin Bird Sanctuary Act 1976	Legislation to establish the role of the National Trust in managing the Currumbin Bird Sanctuary.	No specific reference (unless the Currumbin Bird Sanctuary counts!). It is located in the coastal area of Currumbin, in the Gold Coast.	National Trust Queensland
Environmental Protection Act 1994	Legislation to protect Queensland's environment while allowing for ecologically sustainable development. Covers environmental protection policies, EIS process, development approvals, mining, environmental authorities, environmental management, environmental protection orders, waste management, contaminated land, noise control and air quality.	S9 – environmental value	EPA Queensland
Fisheries Act 1994	Legislation to provide ESD principles for fisheries management.	Management Plans can be made for: (a) a fishery; (b) a fish habitat or declared fish habitat area; (c) a fish way; (d) fisheries resources; (e) aquaculture. S120 – declaration of a fish habitat area.	Department of Primary Industries and Fisheries
Integrated Planning Act 1997	Legislation to achieve ecological sustainability by-- (a) coordinating and integrating planning at the local, regional and State levels; and (b) managing the process by which development occurs; and (c) managing the effects of development on the environment (including managing the use of premises).	Establishes planning schemes, regional plans and state planning policies. Establishes Integrated Development Assessment System (IDAS). Provides for Environmental Impact Statements (and their interaction with IDAS). Provides for the mechanisms to control new developments within wild river areas (IDAS).	Department of Local Government, Planning, Sport & Recreation Relevant local government
Marine Parks Act 2004	Legislation to provide for:	Provides process for declaration and management of	Queensland EPA / Parks

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	(a) the declaration of marine parks; (b) the establishment of zones (designated areas and highly protected areas within marine parks) and zoning plans and management plans; (c) the involvement of public authorities and indigenous communities; (d) the implementation of Australia's international responsibilities; (e) a coordinated and integrated approach with other environment conservation legislation; (f) recognition of the cultural, economic, environmental and social relationships between marine parks and other areas, whether of water or land; (g) the provision of opportunities for public appreciation, understanding and enjoyment of the marine environment; (h) application of the precautionary principle in decision-making processes; (i) monitoring and enforcing compliance with this Act.	marine parks. Establishes appropriate use of marine parks. Marine parks are established over tidal lands and waters to protect and conserve special areas while allowing for the planned use of marine resources.	and Wildlife Service
Nature Conservation Act 1992	Act to conserve nature by: - dedication and declaration of areas representative of the biological diversity, natural features and wilderness of the State as protected areas & management of those areas. - Protection and sustainable use of wildlife habitat.	S13 – Critical habitat is habitat that is essential for the conservation of a viable population of protected wildlife or community of native wildlife, whether or not special management considerations and protection are required. A critical habitat may include an area of land that is considered essential for the conservation of protected wildlife, even though the area is not presently occupied by the wildlife. Activities affecting wildlife are restricted in protected areas. S14 – protected areas are: national parks, conservation parks resources reserves nature refuges, coordinated conservation areas, wilderness areas, World Heritage management areas and international agreement areas.	Queensland EPA / Parks and Wildlife Service
National Environment Protection	To ensure that people enjoy the benefit of equivalent	Establishes National Environmental Protection	Environment Protection

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
Council (Queensland) Act 1994	protection from air, water or soil pollution and from noise, wherever they live in Australia. Establishes National Environmental Protection Council which develops and implements environment protection measures.	Council.	and Heritage Council
National Trust of Queensland Act 1963	Establishes and provides for the administration of the National Trust (Queensland).	National Trust manages properties with high conservation value.	National Trust (Queensland).
Vegetation Management Act 1999	Establishes State policy on vegetation management, regional vegetation management codes and regulates development and clearing of native vegetation.	Minister can declare an area to be of high conservation value if it is: (a) a wildlife refugium; (b) a centre of endemism; (c) an area containing a vegetation clump or corridor that contributes to the maintenance of biodiversity; (e) an area that makes a significant contribution to the conservation of biodiversity; or (f) an area that contributes to the conservation value of a wetland, lake or spring stated in the notice.	Department of Natural Resources and Water
Water Act 2000	Legislation to provide for the sustainable management of water and other resources, a regulatory framework for providing water and sewerage services and the establishment and operation of water authorities, and for other purposes.	Regulates works and overland flow in wild river areas. S25C – When water supply emergency is inconsistent with a wild river area, the water supply emergency rules are ineffective to the extent of the inconsistency.	Department of Natural Resources and Water Water Authorities
Wet Tropics World Heritage Protection and Management Act 1993	Legislation for protection and management of wet tropics world heritage area (as required under international obligations).	Wet Tropics area includes HCVAEs, which are managed by the Wet Tropics Conservation Strategy & Wet Tropics Management Plan.	Wet Tropics Management Authority Queensland EPA / Parks and Wildlife Service
Wild Rivers Act 2005	Outlines process for declaration of a 'wild river' and management requirements. Management implemented through other Acts. Wild rivers declared and management measures outlined via statutory declaration.	HCVAE is a 'wild river'. A wild river is a river system that has all, or almost all, of its natural values intact. That is, the river system is virtually untouched and in almost pristine condition.	Department of Natural Resources and Water
State- or Territory-wide policy and planning frameworks			

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
Wild Rivers Policy (DNRW, 2004) Wild Rivers Code	The policy focuses on managing future development to maintain a wild river's existing natural values. This is done through: ■ Controls on future development activities in a declared wild river; and ■ Limitations on future water allocations in a declared wild river area The Code defines the types of activities that will be limited within the Wild Rivers areas.	One of the motivations behind the policy is the recognition that wild rivers are important because they provide the basis for sustaining healthy ecological processes (and therefore HCVAEs).	Department of Natural Resources and Water
Queensland Water Plan	Sets out key policy objectives for water management in Qld	One of the management objectives is to provide water for the environment.	
Queensland Water Quality Guidelines	Sets out water quality indicators and guideline values for aquatic ecosystems.	One of the key drivers of these Guidelines is the protection of aquatic ecosystems.	Queensland EPA Local Governments
Wetland Strategy	The Wetland Strategy provides the primary policy document to guide wetlands conservation and management within the State.	The primary driver for this strategy is the conservation of HCVAE	
Environment Protection (Water) Policy	A framework for ■ identifying environmental values for Queensland waters; ■ deciding and stating water quality guidelines and objectives to enhance the environmental values; ■ making consistent and equitable decisions about Queensland waters that promote efficient use of resources and best practice environmental management; and ■ involving the community through consultation and education, and promoting community responsibility.	Protects water from pollution. High ecological value (HEV) waterways can be identified and scheduled.	Queensland EPA Local Governments
Regional scale planning			
Catchment Water Resource Plans	*In draft form*	*In draft form*	Department of Natural Resources and Water
Integrated Natural Resource Management Plans (including Water Quality Improvement	Sets the policy and investment areas to better protect natural assets, develop more sustainable enterprises and improve skills and knowledge for the community to	HCVAE are assets for the purpose of these plans	Regional NRM bodies

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
Plans)	manage and benefit from Qld natural resources		
Wet Tropics Conservation Strategy & Wet Tropics Management Plan	Develop and implement management priorities for the WT World Heritage Area.	Priorities based on values and threats. Identifies HCVAEs within the Wet Tropics World Heritage Area.	Wet Tropics Management Authority Queensland EPA / Parks and Wildlife Service
Wild River Areas	Not yet developed		
Fish Habitat Area Management Plans/policies	Set out management objectives and actions for FHAs	FHAs are HCVAE	
Regional Coastal management Plans	Regional management plans identify key coastal sites requiring special management.	HCVAE are one of the assets which coastal sites are managed for.	
Other (e.g. research projects, programs or tools)			
AquaBAMM – a method for assessing wetland conservation values. Wetland mapping and classification program. A decision support system (DSS) developed to help prioritise investment in wetland management activities.			

The frameworks used to identify and classify HCVAE

Question	Comments
Definitions and terminology	
Does this jurisdiction have an agreed definition of HCVAEs? If so please describe. What is considered to be included as a HCVAE?	Wild River areas Fish habitat areas HEV areas Wetlands
What, if any, synonyms or alternative phrases are used that have similar meaning to the concept of HCVAEs in this jurisdiction (e.g. priority areas of high conservation value, Significant Ecological Assets, heritage rivers etc)? Please describe.	See below
Is there consistent use of the definitions across	See below

Question	Comments
instruments/documents and/or different ecosystem types? Please describe.	
Guiding principles and conceptual frameworks	
What are the guiding principles for identifying or classifying HCVAEs? Where this differs for ecosystem types please describe (i.e. on what basis are they assessed as 'high' conservation value – where is the line drawn?)	There are a number of mechanisms for identifying and classifying HCVAE in Queensland. These include: (1) the declaration of fish habitat areas; (2) wetland mapping and classification; (3) establishing high ecological value (HEV) waterways under EPPW and associated water quality guidelines; (4) the protection of wild rivers; (5) the designation of marine park zones; (6) identification of of-concern and endangered regional ecosystems, (7) the designation of significant coastal wetlands: (8) identification of HCVAE through the AquaBAMM process. Also DIWA and Ramsar sites are nominated through state processes. One of the mechanisms through which HCVAEs are protected in Queensland is through the protection of Fish Habitat Areas. Fish Habitat Areas (FHAs) are declared under s120 of the Fisheries Act 1994 as part of the ongoing identification, management and protection of critical fish habitats in Queensland. Candidate fish habitat areas are nominated to the DPI&F by fishery stakeholders, researchers, local government and members of the community. Candidate areas are then prioritised for investigation taking into consideration factors such as: existing or potential threats to each candidate area, the likely level of community and political support, likelihood of success and available funding for investigation and declaration. Full investigations are then undertaken on priority candidate areas which involves detailed documentation of the fisheries and habitat values of the candidate area. Criteria for selection are: ■ High fish species richness; ■ High diversity and abundance of regionally targeted species; ■ Supports existing fisheries; ■ Supports external/ regional fisheries; ■ Constitutes a large habitat; ■ Constitutes a diverse range of habitat types; ■ Presence of a functioning riparian buffer zone; ■ Limited disturbance from in-stream artificial structures; ■ Good water quality; ■ Limited disturbance from water impounded structures; ■ Limited interaction with developments of major significance to the state; ■ Compatible adjacent land and aquatic planning; and ■ Presence of regionally unique natural fish habitat features. There are two levels of management for FHAs. Management category 'A' affords the highest level of protection and is used for areas that contain fish habitats that are critical for fisheries productivity and sustainable fishing in the short- and long-term and to maintain the ecological character and integrity of undisturbed fishery habitats. Management category 'B' is declared over areas that contain fish habitats that are important for productive and sustainable fishing in the short- and long-term. FHA category B affords more flexible management and is often used as a buffer to protect FHA category A.
What are the types of values considered in identifying and classifying HCVAEs? (i.e. are they only ecological values or do they also include other social or cultural values for example)	
What are the criteria/indicators for identifying or classifying HCVAEs? Where this differs for ecosystem types please describe.	
Are threats/risks included as part of the identification, classification or prioritisation of HCVAEs? If so how and where?	
What, if any, guidance is provided in relation to determining appropriate scale?	
How are HCVAEs prioritised? Is it a relative or systematic assessment?	
On what basis is the assessments of values and priorities validated and agreed (i.e. expert panel, groundtruthing, community consultation, modelling etc.)	
Has a decision support framework (tool or process) been used identify or classify HCVAEs or their equivalents?	

Question	Comments
	There are a number of programs of wetland assessment and classification in Queensland. Key wetland assessment programs and methods include: ■ Aquatic Conservation Assessment (ACA) using AquaBAMM — a method for assessing wetland conservation values. ■ Wetland mapping and classification program. ■ A decision support system (DSS) developed to help prioritise investment in wetland management activities. Aquatic Conservation Assessment assesses wetlands against the following criteria: Naturalness – Aquatic; Naturalness – Catchment; Diversity and Richness; Threatened Species and Ecosystems; Priority Species and Ecosystems; Special Features; Connectivity; and Representativeness. This is done through expert panels. The wetland mapping and classification program provides a rapid assessment and mapping tool through which is consistent with a catchment wide approach to management. The program uses remote sensing to map existing wetlands and their basic characteristics (salinity, hydrology, disturbance etc). A decision support system (DSS) is currently being developed to help prioritise investment in wetland management activities. The Queensland Water Quality Guidelines set out guidance for water quality which are based on the national ANZECC 2000 Guidelines. The Guidelines use the reference based approach of the national guidelines and set out WQ guideline values for (1) ecosystem protection; and (2) some values and uses of waters other than ecosystem protection. From an ecosystem protection perspective, the Guidelines provide for two classifications of aquatic ecosystem condition: ■ Level One: High ecological/ conservation value ecosystems; and ■ Level Two: Slightly to moderately disturbed ecosystems. In the Queensland Water Quality Guidelines the state is divided into seven regions: Wet tropics; South East Queensland; Eastern Cape; Lake Eyre; Central Coast; South-East; and Murray Darling. Water quality indicators and guideline values are set for each region and in some cases sub-regions Queensland has recently enacted the Wild Rivers Act 2005. This provides a legislative mechanism to protect river systems that have all or almost all of its natural values intact. The process for declaring a wild river has three stages: (1) nomination; (2) public review and (3) declaration. Wild Rivers may contain the following areas: ■ High preservation areas- up to one kilometre each side of the wild river, its major tributaries and special features; and ■ Preservation areas- the remainder of the wild river area. In addition, a declaration may also outline floodplain management areas and sub-artesian management areas depending on the individual characteristics of the catchment.

The management frameworks for HCVAE

Question	Comment
How is management of HCVAEs embedded into the overall management regime and broader legislative, policy and planning frameworks? (i.e. how does the management of HCVAEs fit within the broader management and planning/policy context? What are the links between different biophysical and planning scales?)	Like many of the states, Queensland prepares natural resource management plans are prepared on a regional basis. These plans set out regional management objectives for natural resource management. The basis for Queensland waterway protection is the 'High Ecological Value Waterway Assessment' program. This operates through a number of legislative and non-legislative mechanisms. These include: ■ Environmental protection legislation and Environmental Protection Policy (Water) implemented by the EPA; ■ The Water Act and in particular environmental flow provisions implemented by the Department of Natural Resources and Water; ■ Coastal/ Marine legislation and supporting management plans (e.g. Regional Coastal Management Plans and Marine Park Plans) implemented by the EPA and the Great Barrier Reef Marine Park Authority; ■ The Integrated Planning Act and local planning mechanisms implemented the Department of Local Government and Planning and local governments; and ■ Integrated natural resource management plans and investment strategies (which include water quality improvement plans) developed and implemented by NRM regional bodies. The primary responsibility for implementing the management intent varies according to the relevant mechanism. The Queensland *Water Act 2000* provides legal recognition of the need to make adequate provision of water for the natural processes that underpin river health. The Act establishes a system for the allocation and use of water within sustainable limits, with the objective of ensuring that the biological diversity and the health of natural ecosystems are maintained. Under the Act, water resource plans and, where necessary, resource operations plans must be prepared to ensure that water is equitably managed to preserve both the quality of life and aquatic ecosystems. Water resource plans establish a framework to share water between human and environmental needs and are developed through detailed technical, scientific and community consultation. They are published as subordinate legislation to the Water Act 2000 . Resource operation plans detail how water resources will be managed to meet the specific environmental and consumptive objectives of the water resource plans. Additionally, the Queensland Water Plan 2005–2010 represents the government's programme to meet future water needs for consumption and the environment. It outlines strategies and actions to ensure that Queensland 's economic growth is underpinned by sustainable water resource management. Significant actions include: ■ statutory, catchment-based, water resource plans to provide secure water provisions for farms, businesses and homes ■ legally protected environmental flows to ensure the health of rivers and groundwater systems ■ water trading to provide access to water and encourage high value use ■ wild rivers legislation to protect pristine rivers
How much progress has been made in implementing the identified legislative, policy and planning frameworks? (i.e. just beginning to implement, several years of implementation, fully embedded). Does this differ for different ecosystem types?	

	■ pricing water to reflect the costs of supply and encourage people to invest in efficient water supply and use ■ working with local government and the community to develop regional plans to ensure long-term water supply, including new infrastructure ■ programmes and financial incentives to encourage smarter use of existing supplies through more efficient use, reuse, and recycling of water ■ developing regional strategies to set water quality objectives and to better manage pollution sources and rivers ■ monitoring and research to underpin sustainable water management. Queensland has developed The Environmental Protection (Water) Policy under the Environmental Protection Act 1994. The objective of this policy is to protect Queensland's environment while allowing for development that is ecologically sustainable. Amongst other things, this policy gives formal recognition to water quality guidelines. The Queensland water quality guidelines have been prepared to give a regional flavour to the national water quality guidelines. The Coastal Protection and Management Act 1995 is the primary mechanism for protection and management of the coast. The act requires the preparation of a state coastal management plan and regional coastal management plans. Regional management plans identify key coastal sites requiring special management. The key document for wetland management is the Strategy for the Conservation and Management of Queensland Wetlands. The Wetland Strategy provides the primary policy document to guide wetlands conservation and management within the State. Under the *Fisheries Act 1994* management plans may be prepared for declared Fish Habitat Areas and DPI&F has a series of published operational policies that set out the objectives for the declaration and management of FHAs. Since their inception in the 1960s FHAs have been declared over approximately 700,000ha of Queensland's coastal and estuarine waterways.

South Australia

Legislative, policy and planning framework documents:

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
Legislation			
Adelaide Dolphin Sanctuary Act 2005	Legislation to establish a sanctuary to protect the dolphin population of the Port Adelaide River estuary and Barker Inlet and its natural habitat; to provide for the protection and enhancement of the Port Adelaide River estuary and Barker Inlet.	Dolphin sanctuary – creation, protection and management	Department for Environment and Heritage
Coast Protection Act 1972	Legislation to make provision for the conservation and protection of the beaches and coast of South Australia. Establishes Coast Protection Board & Coast Protection Districts.	No specific reference – but Coast Protection Districts are protected and managed with statutory management plans.	Department for Environment and Heritage
Environment Protection Act 1993	Legislation to provide for the protection of the environment; to establish the Environment Protection Authority and define its functions and powers. It promotes the principles of ecologically sustainable development. The Act provides for the following standards of care, which apply to industry and the community, to safeguard the State's air, water, land and ecosystems: ■ the general environmental duty of care ■ offences under the Act ■ environment protection policies and regulations.	The Act protects water quality by providing for the licensing of waste discharges that may affect water quality in streams, rivers, coastal waters or groundwater. The legislation also requires that a State of the Environment Report, including information on the state of South Australia's water resources, be produced at least every five years.	EPA South Australia
Fisheries Act 1982	Legislation to provide for the conservation, enhancement and management of fisheries, the regulation of fishing and the protection of certain fish; to provide for the protection of marine mammals and the aquatic habitat; to provide for the control of exotic fish and disease in fish, and the regulation of fish processing.	Enables proclamation and management of aquatic reserves (to protect representative habitats, ecosystems and communities whilst enabling sustainable use and promoting public education). Enables establishment of marine parks in areas that are of national significance by reason of the aquatic flora or fauna of those waters or the aquatic habitat.	Department of Primary Industries and Resources
Groundwater (Border Agreement) Act 1985	Legislation to approve and provide for carrying out an Agreement for the management of groundwater adjacent to the border of South Australia and Victoria.	No specific reference to HCVAEs.	Department of Water, Land and Biodiversity Conservation

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
Murray-Darling Basin Act 1993	Legislation to approve and provide for carrying out an agreement entered into between the Commonwealth, New South Wales, Victoria and South Australia with regard to the water, land and other environmental resources of the Murray-Darling Basin.	Establishes Murray-Darling Basin Commission. No specific reference to HCVAEs.	MDBC
National Environment Protection Council (South Australia) Act 1995	To ensure that people enjoy the benefit of equivalent protection from air, water or soil pollution and from noise, wherever they live in Australia. Establishes National Environmental Protection Council which develops and implements environment protection measures.	Establishes National Environmental Protection Council.	Environmental Protection Council Department of Environment and Heritage Department of Water, Land and Biodiversity Conservation EPA South Australia
National Parks and Wildlife Act 1972	Legislation to provide for the establishment and management of reserves for public benefit and enjoyment; to provide for the conservation of wildlife in a natural environment.	– The Act has been used primarily for terrestrial protection, but could be used for HCVAE. . National parks established when: of national significance by reason of the wildlife or natural features of that land. Conservation parks established when an area should be protected or preserved for the purpose of conserving any wildlife or the natural or historic features of that land. Park Management Plans provide a framework to ensure HCVAE's within parks are appropriately considered and managed for their biodiversity values. Native species are considered to be protected under the Act unless they have been declared otherwise. Species can be declared to be 'endangered', 'vulnerable' and 'rare' under the Act.	Department for Environment and Heritage
Native Vegetation Act 1991	Legislation to provide incentives and assistance to landowners in relation to the preservation and enhancement of native vegetation; to control the clearance of native vegetation. Establishes the Native Vegetation Council.	Controls loss of native vegetation due to clearing. No specific reference to HCVAEs.	Department of Water, Land and Biodiversity Conservation

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
Natural Resources Management Act 2004	Legislation to promote sustainable and integrated management of the State's natural resources; to make provision for the protection of the State's natural resources. The NRM Act repeals the Animal and Plant Control Act 1986, the Soil Conservation and Landcare Act 1989 and the Water Resources Act 1997 and unites their contents in one piece of legislation. Appointed a Natural Resources Management Council along with eight new Natural Resources Management Boards.	No specific reference but is the overriding legislation for NRM and establishes bodies and management plans to protect and manage biodiversity. Biodiversity and ecosystems are included under the definition of natural resources	Natural Resources Management Council Natural Resources Management Boards Natural Resources Management Groups Department of Water, Land and Biodiversity Conservation
Pastoral Land Management and Conservation Act 1989	Legislation for the management and conservation of pastoral land, through monitoring, prevention of degradation and rehabilitation.	No specific reference to HCVAEs, but will provide the means to protect and manage aquatic ecosystems on pastoral land.	Pastoral Board Department of Primary Industries and Resources
River Murray Act 2003	Legislation for protection and enhancement of the River Murray and related areas and ecosystems.	River Murray is a HCVAE	Department of Water, Land and Biodiversity Conservation
Wilderness Protection Act 1992	Legislation for protection of wilderness and the restoration of land to its condition before European colonisation. Establishes Wilderness Advisory Committee and Wilderness Management Code	No specific reference but provides for protection and management of HCVAEs within wilderness protection areas and wilderness protection zones.	Department for Environment and Heritage
State- or Territory-wide policy and planning frameworks			
Adelaide's Living Beaches: A strategy for 2005-2025	Main components of strategy: ■ Continue beach replenishment ■ Recycle sand more effectively using sand slurry pumping and pipelines ■ Add coarse sand from external sources ■ Build coastal structures in critical locations ■ Integrate sand bypassing at harbours with beach management	No specific mention of HCVAEs	Department for Environment and Heritage Coast Protection Board
Environment Protection (Water Quality) Policy 2003	The main objective of the Water Quality Policy is to: "…achieve the sustainable management of waters, by protecting or enhancing water quality while allowing	No specific reference. Aims to protect the ecological integrity of aquatic ecosystems as an environmental value of waters.	EPA South Australia

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	economic and social development ". The policy aims to achieve this objective by: ■ setting environmental values and water quality objectives for streams, rivers, oceans and groundwater; ■ establishing obligations for industry and the community to manage and control different forms of pollution; ■ encouraging better use of wastewater by ■ avoiding its production; ■ eliminating, or reducing it; ■ recycling and re-using it; ■ treating it to reduce potential harm to the environment; ■ promoting best practice environmental management; ■ promoting within the community environmental responsibility and involvement in environmental issues; and ■ setting discharge limits for particular activities.		
Living Coast Strategy (2004)	Protection and management of coastal areas.	Assessment of the ecological significance of coastal, estuarine and marine habitats to identify areas of conservation significance and ensure that efforts are directed toward adequate protection of the State's species and ecosystems. Sets actions to identify and protect coastal HCVAEs (marine parks, threatened species habitats, fish breeding grounds, estuaries, dune & clifftop systems).	Department for Environment and Heritage Coast Protection Board Natural Resource Management Boards Local Government
Marine Protected Areas (MPA) Program	Includes marine conservation areas, community involvement and education	No specific reference to HCVAE	Department for Environment and Heritage
State Natural Resources Management (NRM) Plan 2006	The goals of the State NRM Plan 2006 are: Goal 1: Landscape scale management that maintains	The Act covers terrestrial, inland aquatic, coastal and marine ecosystems, and except where there is any specific reference to the contrary, assumes that policy would apply to all systems..	Natural Resource Management Boards Department of Water, Land and Biodiversity

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	healthy natural systems and is adaptive to climate change Goal 2: Prosperous communities and industries using and managing natural resources within ecologically sustainable limits Goal 3: Communities, governments and industries with the capability, commitment and connections to manage natural resources in an integrated way Goal 4: Integrated management of biological threats to minimise risks to natural systems, communities and industry ■	There are numerous references to HCV ecosystems including in: • Resource condition targets (B1 & B2) • Strategies under milestone 1.3 • Appendices A & E	Conservation
State of the Environment Report 2003	The SoE must ■ assess the condition of the state's major environmental resources ■ identify significant trends in environmental quality using specific indicators ■ review significant programs, activities and achievements of public authorities relating to the protection, restoration or enhancement of the environment ■ review the progress made towards achieving the objectives of the Act ■ identify any significant issues, and make recommendations that, in the opinion of the EPA, should be drawn to the attention of the Minister.	Key recommendation: Evaluate the environmental water requirements of major rivers, streams and wetlands and take action to restore environmental flows. In particular, give the River Murray the additional water it urgently requires to restore its health.	EPA South Australia
South Australia's Water Future	Identifies priorities and actions for water management in SA	Identifies actions to improve and manage the River Murray and associated floodplains, wetlands and estuaries.	Department of Water, Land and Biodiversity Conservation
Draft Estuaries Policy and Action Plan	Sets out management framework and actions to ensure: 'healthy estuaries for the benefit of present and future generations'.	Estuaries are identified as 'important habitats rich in biodiversity.' This is one of the drivers for the development of the policy and action plan.	Department for Environment and Heritage
South Australian Wetland Inventory Database	Guides mapping and inventories of wetland condition and extent. Provides a basis for prioritising wetlands at		Department for Environment and

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	national, state and regional scales		Heritage
Stressed Resources Project	Work in progress. Aims to develop a framework and method to identify and prioritise water resources under stress or at risk of stress.	It is intended that this method will attempt to integrate ecological parameters.	Department of Water, Land and Biodiversity Conservation
Regional Biodiversity Plans	Identify conservation priorities for the region. This includes significant biodiversity assets, plants communities/ habitats and species of significance, key biodiversity areas. Provide guidance on conservation actions.	HCVAEs can be included in the identified conservation priorities.	Department for Environment and Heritage
Wetlands Strategy for South Australia	Framework for achieving ecologically sustainable development of our wetland ecosystems. The objectives of the Strategy are: ■ To manage wetlands as integrated parts of natural resource management at local, regional, state, national and international scales; ■ To support the care, rehabilitation, restoration or creation, of wetlands by the private and public sectors; ■ To ensure effective implementation of this Strategy through appropriate institutional frameworks, supported by the necessary ongoing public resources, and longer term strategic investment by the private sector; ■ To raise community appreciation of wetlands as natural assets and generate support for their gaining attention in integrated natural resource management; ■ To identify those wetlands which are important at the regional, state, national and international levels, and ensure appropriate recognition, management and protection of these sites; ■ To develop, maintain, and make readily accessible to all, a comprehensive inventory of South Australia's wetlands and their resources; ■ To support studies of wetlands that improve	Ramsar wetlands: ■ The Coorong and Lakes Alexandrina and Albert Wetland ■ Riverland ■ Bool and Hacks Lagoon ■ Coongie Lakes ■ Banrock Station Wetland Complex International Biosphere Reserves (Bookmark & Riverland) Sites of international importance for migratory shorebirds: ■ Spencer Gulf ■ The Coorong ■ Price Saltfields ■ Penrice Saltfields ■ Kangaroo Island; and ■ Clinton Conservation Park. Nationally Important Wetlands – 69 wetlands Great Artesian Basin Springs – EPBC listed Identifies threats and sets management priorities.	Department for Environment and Heritage (lead role) Other agencies and NRM boards provide a supporting role

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	understanding, and serve to guide planning and management actions.		
Regional scale planning			
Specific Ramsar Management Plans	Identify the values and threats to the specific Ramsar wetlands and outline management measures.	Each Ramsar wetland has a specific plan: ■ The Coorong and Lakes Alexandrina and Albert Wetland ■ Riverland ■ Bool and Hacks Lagoon ■ Coongie Lakes ■ Banrock Station Wetland Complex	Department for Environment and Heritage
Regional NRM Plans and Investment Strategies	Initial plans and investment strategies are in place.	Must include strategies to manage wetlands and estuaries and other aquatic ecosystems from a 'whole of catchment' perspective. Will identify the values of the region, threats to those values, and management priorities.	Regional NRM Boards
River Murray Improvement Program	Sets out initiatives to improve the River Murray.	No specific reference to HCVAE but 'improvement' includes delivery of environmental benefits. This necessarily includes HCVAEs.	Department of Water, Land and Biodiversity Conservation Supported by: Department for Environment and Heritage Department of Primary Industries and Resources South Australia
River Murray Salinity Strategy	Sets out a 15 year plan for salinity management in the River Murray.	Management of salinity is partially to achieve environmental benefits. This necessarily includes HCVAEs.	Department of Water, Land and Biodiversity Conservation
River Murray Floodplain Prioritisation Project	Assets based approach to determine the priority areas of the River Murray Floodplain.	Priority areas will be HCVAEs.	SAMDBC NRM Board Department of Water, Land and Biodiversity

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
			Conservation
River Murray Wetland Prioritisation Project	Assets based approach to determine the priority areas of the River Murray wetlands.	Priority areas will be HCVAEs.	SAMDB NRM Board
The Environmental Flows for the River Murray 2005-2010	Looks at the delivery and management of flows to priority ecological assets in SA. Builds on existing plans and management initiatives to provide a strategic direction to the management of environmental flows in the River Murray ion SA.	The delivery of environmental flows aims to rehabilitate and preserve HCVAEs in the River.	Department of Water, Land and Biodiversity Conservation
River Murray Salinity Zoning	Zoning policy to implement the salinity management provisions in the Water Allocation Plan. The policy established salinity impact zones. These indicate areas of varying impact to future salinity levels. The policy introduces rules for approvals of license transactions and salinity credits.	No specific reference but increased regulation of land use and water extraction in the River catchment will assist HCVAEs.	Department of Water, Land and Biodiversity Conservation
Water Allocation Plans	Water Allocation Plans set the limit on the amount of water that can be diverted from a water resource for all uses. In defining the limits, the document must consider the needs of both the environment and consumptive water uses. It also considers the water resource's capacity and limits the demands on a water resource.	See for example: River Murray WAP (identifies the environmental values, their water needs and specifies management of water allocation to the environment).	Regional NRM Boards
Other (e.g. research projects, programs or tools)			
Biological Survey of South Australia	▪ Substantially improve our knowledge of the biodiversity of South Australia ▪ Improve our ability to adequately manage nature conservation into the future ▪ Measure the direction of long-term ecological change	No specific reference to HCVAE but surveys will be used to identify these areas	Department for Environment and Heritage
Frog Census	The Frog Census provides a 'snapshot' of the distribution and abundance of frogs in South Australia. It relies on people from all over the State taking tape recordings of frog calls during 'Frog Week' in the second week of September each year.	Identifies trends in quality of aquatic systems.	EPA South Australia
Wetland inventories	Wetland Inventories are field-based projects that provide information about the ecological, biological and hydrological attributes of wetlands. They	Used to determine whether the wetland meets the Nationally Important Wetlands criteria.	Department for Environment and Heritage

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	commonly involve mapping, which helps to resolve the spatial extents of wetlands in the study area. Inventories can be undertaken at a range of different scales (national, regional, catchment, site, habitat), which reflect the accuracy and specificity of the data required. In most cases, baseline data is collected and used in conjunction with as many existing data sources as possible. Wetland inventory data informs policy and assists planning and decision making. One of the significant outcomes of a wetland inventory is the identification of wetlands that meet the criteria necessary for 'A Directory of Important Wetlands in Australia' (DIWA) and the recognition and inclusion of wetlands in land-use planning, NRM and management planning practices.		
Groundwater Resource map	Maps groundwater in SA: http://www.dwr.sa.gov.au/files/groundwater_resource_map.pdf	No specific reference	Department of Water, Land and Biodiversity Conservation
Drainage Regions and Basins	Maps drainage regions and basins in SA: http://www.dwr.sa.gov.au/files/drainage_regions_and_basins_A4p.pdf	No specific reference	Department of Water, Land and Biodiversity Conservation
WaterRAT (water resources risk assessment tool)	GIS- based decision-support tool to assesss hydrological risk to aquatic ecosystems in the Fleurieu Peninsula from water resource development. May be expanded to other areas in time.	Largely used to provide technical advice in relation to hydrological threat management for EPBC – listed threatened ecological community (Peat swamps)	Department of Water, Land and Biodiversity Conservation
Videography imagery	Airborne videography for all of Mount Lofty Ranges, Kangaroo Island, Burra Creek, Broughton, Light, Wakefield, Willochra Creek.	Could be used to indentify HCVAE.	Department of Water, Land and Biodiversity Conservation

ANALYSIS: Identifying and classifying HCVAEs (or relevant equivalent)

Question	Comments
Definitions and terminology	
Does this jurisdiction have an agreed definition of HCVAEs? If so please describe. What is considered to be included as a HCVAE?	Not explicitly. Instead the management framework is primarily based on specific areas being declared to be of special conservation significance- for example River Murray, Lake Eyre etc. In addition to this, special protection measures are afforded to specific species (terrestrial and aquatic) which are under threat.
What, if any, synonyms or alternative phrases are used that have similar meaning to the concept of HCVAEs in this jurisdiction (e.g. priority areas of high conservation value, Significant Ecological Assets, heritage rivers etc)? Please describe.	Water resources (ie waterways, wetlands etc) may be prescribed under the *Natural Resources Management Act 2004.* This means that a *Water Allocation Plan* must be prepared for the resource. Under the *National Parks and Wildlife Act 1972* species can be declared to be 'endangered', 'vulnerable' and 'rare'. In addition to the protection of species the Act allows for the declaration of specific areas as special conservation areas eg National Parks and Conservation Parks. Under the *Wilderness Protection Act 1992* certain areas are declared 'wilderness protection areas and wilderness protection zones'. Again, this means that the area is subject to special controls. Under the *Fisheries Act 1982* 'aquatic reserves' can be declared. Aquatic reserves protect representative habitats, ecosystems and communities. SA is currently developing an action plan for estuaries and a framework to classify and assess wetland condition.
Is there consistent use of the definitions across instruments/documents and/or different ecosystem types? Please describe.	Definitions are vertically consistent. For example the term 'prescribed' water resources is used through out the water allocation planning framework (ie from legislation to local water allocation plans). They are not necessarily horizontally consistent, for example the declaration of an aquatic reserve is not linked to the declaration of a water resource as 'prescribed'. Note- this is not necessarily a problem. Equally, there are differences between state and national definitions. For example, a species may be threatened at a state level but not under commonwealth legislation.
Guiding principles and conceptual frameworks	
What are the guiding principles for identifying or classifying HCVAEs? Where this differs for ecosystem types please describe (i.e. on what basis are they assessed as 'high' conservation value – where is the line drawn?)	The listing of a water resource as 'prescribed' occurs when the level of development is causing stress, or at risk of causing stress on the water resource. The decision to prescribe a resource is made only after consultation with the community and investigation into the social, economic and environmental implications of such a system. In South Australia, the term 'threatened species' refers to species classified as either rare, endangered or vulnerable on Schedules 7, 8 and 9 respectively of the *National Parks and Wildlife (NPW) Act 1972*: ■ **Endangered species** are under the most threat and likely to become extinct in the near future unless the circumstances and factors threatening their survival cease to occur. ■ **Vulnerable species** are those likely to move into the endangered category in the near future unless the circumstances and factors threatening their survival cease to occur. ■ **Rare species** are those that are the least threatened, but at some risk due to their low numbers, restricted distribution or observed declines.

Question	Comments
	This state level definition sits alongside the Commonwealth system for listing of threatened species. Areas with special conservation status are defined as follows: ■ **National Parks (NP) -** areas considered to be of national significance due to wildlife, natural features of the land or Aboriginal or European heritage; ■ **Conservation Parks (CP)** - areas that are protected for the purpose of conserving wildlife or the natural or historic features of the land; ■ **Wilderness Protection Areas (WPA)** - land set aside under the Wilderness Protection Act 1992 to protect natural and remote areas. ■ **Aquatic Reserves**- areas which have been identified as nurseries or spawning grounds for heavily fished aquatic species. As outlined above SA is currently developing a framework to classify and assess wetland condition. In its absence, wetlands are protected using the national and international definitions and criteria (Ramsar, migratory species, nationally important etc).
What are the types of values considered in identifying and classifying HCVAEs? (i.e. are they only ecological values or do they also include other social or cultural values for example)	In the case of prescribed water resources social, economic and environmental factors are assessed before a water resource is prescribed (see above). Species are listed as threatened primarily based on an assessment of the likelihood of species survival. Similarly, the declaration of areas with special conservation status is based on environmental criteria.
What are the criteria/indicators for identifying or classifying HCVAEs? Where this differs for ecosystem types please describe.	See above
Are threats/risks included as part of the identification, classification or prioritisation of HCVAEs? If so how and where?	Level of threat plays an important role in both the protection of specific species and areas (see criteria set out above).
What, if any, guidance is provided in relation to determining appropriate scale?	Scale plays a role in the declaration of a species as 'threatened'. Decision makers will look at the distribution of the species and take this into account when determining a species status. It is unclear what role scale plays in conservation areas. The prescription of water resources aims to be on the basis of entire hydrological or geo-hydrological 'catchments'.

Process and methods	
How are HCVAEs prioritised? Is it a relative or systematic assessment?	Threatened species are effectively prioritised by the level of risk to continued species survival. Similarly, the degree of protection afforded to areas of special conservation status is tied to an assessment of the relative ecological value of the

	area. There are a number of strategies or plans which impact on state-wide priorities for HCVAE management: ■ *Living Coast Strategy*- makes an assessment of the ecological significance of coastal, estuarine and marine habitats in order to identify areas of conservation significance of these areas. This effectively prioritises regions coastal regions and species. ■ *State Natural Resource Management Plan 2006*- assesses the state and condition of the natural resources of the state with a view to setting management priorities. ■ *South Austlralia's Water Future*– identifies priorities and actions specifically for water management. ■ *Wetland Strategy*- identifies wetlands which are important at a regional, state, national and international level. ■ *Regional Biodiversity Plans*- identify conservation priorities for regions. This includes significant areas and species. ■ *Estuary Policy and Action Plan (Draft)* – one of the actions specified in this document is to prioritise estuaries for management. SA is currently working on the *Stressed Resources Project*; this is designed to provide a framework for identifying and prioritising water resources under stress or at risk of stress. Similarly, a framework to classify and assess wetland condition is currently being prepared.
On what basis is the assessments of values and priorities validated and agreed (i.e. expert panel, groundtruthing, community consultation, modelling etc.)	The basis for assessment of values and priorities varies from document to document. In the case of species and conservation areas the primary criteria relate to threats and potential ecological benefits. In contrast, priorities for prescribed water resources are set with consideration of social and economic factors.
Has a decision support framework (tool or process) been used identify or classify HCVAEs or their equivalents?	In progress- see above.

ANALYSIS: Managing HCVAEs

Question	Comment
How is management of HCVAEs embedded into the overall management regime and broader legislative, policy and planning frameworks? (i.e. how does the management of HCVAEs fit within the broader management and planning/policy context? What are the links between different biophysical and planning scales?)	Regional NRM plans can be used to protect HCVAE from threats such as altered water regimes, pest species or land management Where HCVAE's occur in protected areas they are manged through Park Management Plans under the NPW Act.
How much progress has been made in implementing the identified legislative, policy and planning frameworks? (i.e. just beginning to implement,	The management framework for threatened species has been in place for a long time. There are a number of identified threatened species which have associated management plans. Similarly, areas of conservation importance (including aquatic reserves) have been in place for a considerable time and are well established.

several years of implementation, fully embedded). Does this differ for different ecosystem types?	The framework for the management of prescribed water resources is currently being implemented with a number of areas prescribed and water allocation plans developed. Wetlands, estuary and coastal management are currently being developed.

Tasmania

Legislative, policy and planning framework documents:

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
Legislation			
Crown Lands Act 1976	An Act to make fresh provisions with respect to the management, sale, and disposal of the lands of the Crown	Establishes Conservation Management Trust for which management plan are prepared (S121).	DPIW
Land Use Planning and Approvals Act 1993	Enables Local Government Planning controls		Local Government
Nature Conservation Act 2002	An Act to make provision with respect to the conservation and protection of the fauna, flora and geological diversity of the State, to provide for the declaration of national parks and other reserved land and for related purposes	Refers to a Conservation Area as "An area of land predominantly in a natural state" (Schedule 1.5) Note that land also refers to water. *Enables private landholders to declare a reserve that can include aquatic ecosystems.*	DPIW
Natural Resource Management Act 2002	An Act to establish the Tasmanian Natural Resource Management Council and regional committees for natural resource management and to provide for the development of regional strategies for natural resource management	Sets Objectives of the Resource Management and Planning System of Tasmania	DPIW
Threatened Species Protection Act 1995	Gives direction on species recovery plans, threat abatement plans, land management plans and agreements and public authority management agreements.	*A key piece of protection legislation that also applies to private property.*	DPIW
Water Management Act 1999	Governing legislation to further the objectives of the resource management and planning system of Tasmania, including: planning, allocation and use of water.	Includes provisions to protect aquatic ecosystems generically, no specific reference to high conservation cases. "…To provide for the use and management of the freshwater resources of Tasmania having regard to the need to – *maintain ecological processes and genetic diversity for aquatic ecosystems (S6(1c)).* Provides for the development of Water Management Plans. Water Management Plans are developed in consultation with stakeholders to ensure the sustainable development and management of a water resource. Water management Plans use the CFEV	DPIW

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
		system to inform their development.	
State- or Territory-wide policy and planning frameworks			
Regional Forest Agreement	Regional Forest Agreement (RFA) defined the Comprehensive, Adequate and Representative (CAR) reserve system. The Tasmanian and Commonwealth governments agreed (through the RFA) that the CAR system provides adequate protection for 'wild rivers'	A wild river is defined as a channel, channel network or a connected network of waterbodies of natural origin with overland flow (perennial, intermittent or episodic) where the biological, hydrological and geomorphological processes associated with river flow and the river's catchment have not been significantly changed since settlement. This includes rivers that may flow underground for all or part of their length, such as rivers flowing through karst (cave) catchments	DPIW, DTAE and Forestry Tasmania
Conservation of Freshwater Ecosystem Values (CFEV) Project	Development of a freshwater ecosystems assessment framework for Tasmania, including: classification and assessment of the State's rivers, lakes and wetlands, saltmarshes, estuaries, and karst systems.	The key output of the CFEV Project is the development of a database which acts as a planning and information tool to support the inclusion of freshwater values within a strategic framework for the management of Tasmania's natural resources and integrates with existing planning and regulatory instruments	DPIW
Marine Protected Areas Strategy 2001	Establishes Framework for identification of marine protected areas		DPIW
Natural Resource Management Framework	Framework (implemented under the State's Natural Resource Management Act 2002) to provide Tasmania with a systematic way of integrating natural resource management, to ensure consistency, efficiency and improved natural resource management outcomes.	aquatic ecosystem health (freshwater, wetlands, estuarine, marine) is a significant value (p.17)	DPIW
State Coastal Policy 1996	statutory document related to sustainable development and use of the coastal zone, which includes *wetlands, marshes, lagoons and swamps along, and immediately inland of, the coast (p.2)*	Principles include recognition of: *the importance of maintaining **representative or significant natural ecosystems** and sites of biological importance, and the biodiversity of Tasmania's indigenous coastal flora and fauna;* (p.5) Includes the following outcomes related to HCVAE: *The coastal zone will be managed to protect ecological, geomorphological and geological coastal features and **aquatic environments of conservation value** (1.1.2)*	DPIW

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
		*Representative ecosystems and areas of **special conservation value** or special aesthetic quality will be identified and protected as appropriate* (1.1.7)	
State Policy on Water Quality Management 1997	*The purpose of the Policy is to achieve the sustainable management of Tasmania's surface water and groundwater resources by protecting or enhancing their qualities while allowing for sustainable development in accordance with the objectives of Tasmania's Resource Management and Planning System.*	Refers to '*Protected environmental values are values or uses of the environment for which it has been determined that a given area of the environment should be protected.* *Water quality objectives may be set for surface waters and groundwaters in Tasmania by determining which of the following protected environmental values should apply to each body of water, including:* *A. Protection of Aquatic Ecosystems* *A1 Surface waters, including estuaries, but not including coastal waters* *(i) Pristine or nearly pristine ecosystems* *(ii) Modified (not pristine) ecosystems* *A2 Coastal waters* *(i) Coastal waters ecosystems* *A3 Groundwaters* *(i) Groundwater ecosystems*	DPIW
Tasmanian Marine Protected Areas Strategy	Primary goal is: *to establish and manage a comprehensive, adequate and representative system of marine protected areas, to contribute to the long-term ecological viability of marine and estuarine systems, to maintain ecological processes and systems, and to protect Tasmania's biological diversity* (p.6)	Adopts a multi layered criteria for selection of Marine Protected Areas (MPAs) based on: Comprehensiveness, Adequacy, Representativeness, Ecological Importance, International or National Significance, Uniqueness, Productivity, Vulnerability Assessment, Biogeographic Importance and Naturalness	DPIW
Tasmania's Nature Conservation Strategy 2003-2006	An action plan to protect Tasmania's natural diversity and maintain ecological processes and systems	Action 15. *Progress a freshwater CAR reserve process. This should be done by:* *• completing a comprehensive assessment of the*	DPIW

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
		status and existing reservation of our waterways and wetlands and directing this information into an integrated catchment management process; *• supporting methodologies to identify rivers and* ***aquatic habitat of high conservation value*** *as potential freshwater reserves;* *• endorsing the draft Wetlands Strategy and ensuring that it has a legislative basis in line with national and international obligations.*	
Threatened Species Strategy for Tasmania 2001	State strategy: *To ensure that threatened species can survive and flourish in the wild;To ensure that threatened species and their habitats retain their genetic diversity and potential for evolutionary development and Prevent further species becoming threatened*	Includes aquatic species, critical habitat and ecological communities	DPIW
Water Development Plan for Tasmania	identifies strategic initiatives to manage and develop the State's valuable freshwater resources, including: specific water development projects, improved environmental outcomes and streamlined administrative processes for water management	Identifies the need for Development of a strategic approach to future water development in Tasmania that comprehensively conserves significant freshwater-dependent ecosystems through the implementation of the Conservation of Freshwater Ecosystem Values Project.	DPIW
Water For Ecosystems Policy	A policy under the Water Management Act 1999 to provide a framework for the identification and provision of water for ecosystems in Tasmania	Establishes an Environmental Water Requirement, the water regime needed to sustain ecological values of aquatic ecosystems at a low level of risk; applies a risk assessment consistent with national framework to identify stressed systems	DPIW
Wetlands Strategy for Tasmania 2000 (draft)	A decision-making framework that ensures the conservation and good management of wetlands	*Wetlands of high conservation value are those which have been designated as Wetlands of International Importance under the Ramsar Convention (see section 4.1), or included in A Directory of Important Wetlands in Australia* (S3.1). Refers to CFEV project	DPIW
Environmental Management and Pollution Control Act 1994	The fundamental purpose of the Act is the prevention, reduction and remediation of environmental harm. Other objectives are to:		

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	▪ provide for the monitoring and reporting of environmental quality on a regular basis coordinate all activities as are necessary to protect, restore or improve the Tasmanian environment		
Inland Fisheries Act 1995	Provides for the declaration of any inland waters as a fauna reserve	In a declared fauna reserve, a person must not - (a) take or remove from, place on or in, or introduce in, a fauna reserve or within 100 metres of the edge of the fauna reserve any animal, fish, plant or other living organism without the Director's approval; or (b) interfere with any animal, fish, plant or other living organism in a fauna reserve; or (c) do any act which, in the opinion of the Director, is likely to – (i) disturb or pollute the fauna reserve; or (ii) alter the character of the fauna reserve; or (iii) have a deleterious effect on, or alter the nature of, any animal or vegetation in the fauna reserve.	Inland Fisheries Service DPIW
National Parks and Reserves Management Act 2002	Provides for the management of reserves declared under the Nature Conservation Act 2002	Sets out the manner in which management plans are formulated and reviewed.	Tasmanian Parks and Wildlife Service DPIW
Forest Practices Act 1985	Ensures that all forest practices are conducted in accordance with the Forest Practices Code and provides for the issue of that Code, the creation of private timber reserves and for the constitution of the Forest Practices Tribunal.		The Forest Practices Authority
Regional scale planning			
Regional Coastal Management strategies	In Tasmania, six regional coastal management strategies have been developed with the assistance of Natural Heritage Trust funding. The following		

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	strategies are available:		
Regional NRM plans	NRM North NRM Strategy is developed and implemented by NRM North regional committees under the Tasmanian Natural Resource Management Act (2002).	Estuaries, Coast and marine program, Water program ■ Water Quality ■ Sustainable Water Usage ■ Wetland Sustainability ■ Decline in River Condition	NRM North, Community
	NRM South NRM Strategy is developed and implemented by NRM North regional committees under the Tasmanian Natural Resource Management Act (2002).	Water program ■ Improving water quality (including managing instream and groundwater salinity) ■ Managing water supplies, allocation and use ■ Protecting freshwater dependent ecosystems Estuaries, coasts and marine program ■ Protecting the ecology of marine, estuarine and coastal systems ■ Managing the interface between marine, terrestrial and freshwater systems ustainable development and use of the coastal zone	NRM South, Community
	Cradle Coast NRM Strategy is developed and implemented by NRM North regional committees under the Tasmanian Natural Resource Management Act (2002).	Water, biodiversity and estuaries, coasts and marine programs	Cradle Coast NRM Community
Other (e.g. research projects, programs or tools)			
Wetlands and Waterways Works Manual	Outlines environmental best practice methods for undertaking work in wetlands and waterways		DPIW
Environmental best practice guidelines for waterway management	Outlines environmental best practice methods for undertaking work in wetlands and waterways		DPIW
Protection tools for freshwater ecosystems in Tasmania			

ANALYSIS: Identifying and classifying HCVAEs (or relevant equivalent)

Question	Comments
Definitions and terminology	
Does this jurisdiction have an agreed definition of HCVAEs? If so please describe. What is considered to be included as a HCVAE?	No agreed definition, but consistent use of terms that reflect high conservation values, including: Presence of threatened, rare or endangered species, ecological communities, and the habitats critical for their survival; special biological and physical values; High species diversity; Natural refugia for flora and fauna; Centres of endemism;. Geomorphic diversity
What, if any, synonyms or alternative phrases are used that have similar meaning to the concept of HCVAEs in this jurisdiction (e.g. priority areas of high conservation value, Significant Ecological Assets, heritage rivers etc)? Please describe.	'Conservation values' regularly used in conjunction with criteria and terms outlined above
Is there consistent use of the definitions across instruments/documents and/or different ecosystem types? Please describe.	Generic and common usage of conservation related terms, but no evidence of agreed definition
Guiding principles and conceptual frameworks	
What are the guiding principles for identifying or classifying HCVAEs? Where this differs for ecosystem types please describe (i.e. on what basis are they assessed as 'high' conservation value – where is the line drawn?)	The CFEV assessment is based on Comprehensive, Adequate and Representative (CAR) principles and thereby complements marine and terrestrial management systems already in place. The scope of the audit included an assessment of rivers (including riparian vegetation), wetlands, lakes and water bodies, salt marshes, estuaries, karst systems and groundwater dependent aquatic values. The results of the statewide audit which identify the existence of significant values on both Crown and private land have been used as input to a spatial selection algorithm which determines each ecosystem's conservation value and current priority for management.
What are the types of values considered in identifying and classifying HCVAEs? (i.e. are they only ecological values or do they also include other social or cultural values for example)	CFEV Special values are ecological only
What are the criteria/indicators for identifying or classifying HCVAEs? Where this differs for ecosystem types please describe.	CFEV criteria include; include conservation status (rare or threatened), unusual diversity (biodiversity), evolutionary evidence, provision of important resources for species (eg: migratory stop overs); remnant vegetation; Marine Protected Areas Strategy Identification criteria includes: Comprehensiveness, Adequacy, Representativeness, Ecological Importance, International or National Significance, Uniqueness, Productivity, Vulnerability Assessment, Biogeographic Importance and Naturalness MPAS Selection criteria include social, economic and environmental criteria, including; economic Interests; indigenous interests; Social Interests; Scientific Interests; Practicality/Feasibility; Vulnerability Assessment; Replication;

Question	Comments
Are threats/risks included as part of the identification, classification or prioritisation of HCVAEs? If so how and where?	CFEV assessment includes consideration of naturalness, which relates to threats, but threats are not specifically included as part of the classification MPAS includes vulnerability (to threats) criteria in the assessment
What, if any, guidance is provided in relation to determining appropriate scale?	CFEV has employed 1:25,000 scale as the basis for assessments

Process and methods	
How are HCVAEs prioritised? Is it a relative or systematic assessment?	CFEV identify areas of high conservation management priority. The classified ecosystem units and their Naturalness, Representativeness and Distinctiveness scores form an input into a conservation value algorithm to identify the relative conservation value of all units across the state. MPAS are prioritised according to International Union for the Conservation of Nature Guidelines for Protected Area Management Categories
On what basis is the assessments of values and priorities validated and agreed (i.e. expert panel, groundtruthing, community consultation, modelling etc.)	A spatial selection algorithm determines each ecosystem's conservation value and current priority for management
Has a decision support framework (tool or process) been used identify or classify HCVAEs or their equivalents?	The results of the statewide audit which identify the existence of significant values on both Crown and private land have been used as input to a spatial selection algorithm which determines each ecosystem's conservation value and current priority for management. The CFEV data has recently been input to a database and the CFEV project team is currently working towards improving the access to this database for users. Access will be made available in two ways: ■ the public interface through the Water Information System for Tasmania (WIST), currently being developed by DPIW; ■ and a corporate interface which will provide regular users with a greater access to the data, enabling specific queries to be run and basic data analysis. Users will be able to view and interrogate the CFEV data at varying scales and levels of information. Completion of these interfaces is expected by late 2006.

ANALYSIS: Managing HCVAEs

Question	Comment
How is management of HCVAEs embedded into the overall management regime and broader legislative, policy and planning frameworks? (i.e. how does the management of HCVAEs fit within the broader management and planning/policy context? What are the links between different biophysical and planning scales?)	
How much progress has been made in implementing the identified legislative, policy and planning frameworks? (i.e. just beginning to implement, several years of implementation, fully embedded). Does this differ for different ecosystem types?	

Victoria

Detailed table of the key instruments that address HVCAE

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
Legislation			
Catchment and Land Protection Act 1994	Integrated catchment management to maintain and enhance the State's land and water resources. Establishes catchment-specific management authorities. Provides extensive powers for management of noxious weeds and pest animals.	Regional Catchment Strategies assess the quality of and threats to land and water resources and identify and implement management strategies.	Catchment Management Authorities
Coastal Management Act 1995	Integrated planning and management of coastal systems.	Protection and maintenance of areas of environmental significance on the coast including ecological, geomorphological, geological, cultural and landscape features. Coastal Action Plans to protect and enhance	Victorian Coastal Council Regional Coastal Boards

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
		significant features on the coast.	
Conservation Forests and Lands Act 1987	Legislative framework for conservation of Victoria's land, waters, flora and fauna.	Provides processes for management and administration of land set aside for conservation.	Minister for Environment Secretary of Department of Sustainability and Environment
Crown Lands (Reserves) Act 1978	Defines the ability and purpose for which the Government can reserve land. Controls the use and change of use of reserved land.	S4 – land can be reserved for, *inter alia*, protection of waterways, areas of ecological significance or wildlife protection.	Department of Sustainability and Environment
Environmental Protection Act 1970	Establishes Environmental Protection Authority and committing to sustainable environmental management. Covers environmental protection and management, primarily with an anthropocentric focus (clean water, clean air, noise, litter, industry).	Creates State Environment Protection Policies (SEPP) that include waterway management. Controls pollution of water bodies.	Environment Protection Authority (Victoria)
Flora and Fauna Guarantee Act 1988	Commits to protection of wild populations of flora and fauna, sustainable use and management of potentially threatening processes. Only applies to public land.	Lists threatened flora and fauna ("listed species") and action statements for their protection. Lists protected flora (requiring permit to handle). Provides for Public Authority Management Agreements to enable public land to be managed for the purpose of protecting flora and fauna.	Department of Sustainability and Environment
Heritage Rivers Act 1992	Provides for protection of public land adjacent to declared heritage rivers (or parts of rivers) which have significant nature conservation, recreation, scenic or cultural heritage attributes.	Describes heritage river areas and natural catchment areas. Management plans can be prepared for these areas. S10 - Restricts impoundments, water diversions and timber harvesting in heritage river areas. Heritage rivers defined as a result of 1991 review.	Catchment Management Authorities
National Parks Act 1975	Provides for the establishment and management of National Parks, State Parks and wilderness areas in Victoria.	No specific reference. Where a HCVAE is located within a Park, Parks Victoria will need to be involved in managing it.	Parks Victoria
Planning and Environment Act 1987	Provides for planning processes to achieve sustainable land use and development whilst protecting the environment. Establishes the statutory planning process.	Establishes Victorian Planning Provisions and Planning Schemes. Provides specific area strategy plans. Implemented by local government.	Department of Sustainability and Environment Minister for Planning

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
			Local government
Water Act 1989	Governing legislation. Establishes a system for the planning, allocation and use of water. Extends to the use, flow and control of all water in the state.	S27 – establishment of water supply protection areas, to ensure ongoing supply but also protection and management of surface and groundwater resources. Various – consideration of impacts to Heritage Rivers when creating or amending entitlements to water (bulk entitlements, licences or water shares). S48B – environmental entitlements to be used for improving the environmental values and health of water ecosystems, including their biodiversity, ecological functioning and water quality (not specific to HCVAE)	Catchment Management Authorities (as a delegate of Minister of Environment) Water Authorities (as a delegate of Minister for Water) Department of Sustainability and Environment
Wildlife Act 1975	Procedural act for the protection of wildlife and management of handling wildlife.	Management of wildlife reserves (including game reserves). Wildlife sanctuaries may be declared on any land or water.	Department of Sustainability and Environment
State- or Territory-wide policy and planning frameworks			
Advisory list of Rare or Threatened Plants in Victoria	Lists rare and threatened plants within Victoria and their conservation status.	No legal authority but may be used as part of planning and management processes.	Department of Sustainability and Environment
Advisory list of Rare or Threatened Vertebrate Fauna in Victoria	Lists rare and threatened vertebrate fauna within Victoria and their conservation status.	No legal authority but may be used as part of planning and management processes.	Department of Sustainability and Environment
Biodiversity Strategy	Sets directions for the management and protection of biodiversity. Uses a bioregional approach to identify biodiversity processes and threats.	Used as part of statutory planning processes. Not legally binding on its own. Provides an overview of inland waters and wetlands (processes and threats) but not HCVAE-specific.	Department of Sustainability and Environment
Biodiversity Action Planning	A structured approach to identifying priorities and mapping significant areas for native biodiversity at landscape and bioregional scales across Victoria.	Builds on the Biodiversity Strategy.	Department of Sustainability and Environment Department of Primary Industries
Bioregional Strategic Overviews	Provides a regional overview of the planning and management of the bioregion and identifies priorities for conservation and biodiversity.	Identifies bioregionally significant wetlands, ecologically healthy rivers and heritage rivers.	Department of Sustainability and Environment

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
			Department of Primary Industries
Coastal Strategy	Strategy to protect and improve significant environmental features and manage the use of the coastal environment sustainably.	Coastal and marine features of ecological, geological, geomorphological, cultural, landscape, scientific and historical significance will be protected. Includes provision of environmental flows to estuaries.	Victorian Coastal Council
Flora and Fauna Action Statements	Management plans specific to listed threatened species (or groups of species) and potentially threatening processes.	Management of threatening processes in rivers and streams such as alteration to natural flows, temperature, degradation of riparian vegetation, prevention of passage of aquatic biota, introduction of fish outside their range and removal of woody debris. No specific HCVAE reference.	Department of Sustainability and Environment
National Water Initiative Implementation Plan 2006	Specifies steps to implement the NWI in Victoria and timelines for implementation.	Lists plans to reserve water for the environment generally (SWS, RRHS, SFMPs, RCS, GMPs). Water recovery in Victoria will be aimed at high priority rivers (high value and high stress). EWR management will be aimed at high priority river, wetland and aquifer assets.	Department of Sustainability and Environment Catchment Management Authorities Water Authorities
Our Environment Our Future 2006	Establishes a sustainability framework and sets strategic directions. High level government policy.	Objectives include healthy and productive water systems. Targets include returning water to the Snowy and the Murray Rivers, significantly improving the health of all rivers by 2010 and providing ecologically sustainable flows in 21 priority unregulated rivers.	Department of Sustainability and Environment
Our Water Our Future 2004	High level government policy for water use in Victoria. Defines water allocation framework and committed to establishment of environmental water reserve. Unbundled water rights to facilitate trade.	Committed to returning water to the Murray River (as part of the Living Murray Initiative) and returning Lake Mokoan to a wetland. Committed to providing ecologically sustainable flows in 21 priority unregulated rivers. Created an environmental water entitlement for the Wimmera and Glenelg systems (from water savings from the Wimmera-Mallee pipeline). Highlights use of regional river health strategies to establish regional priorities and management programs.	Department of Sustainability and Environment Catchment Management Authorities Water Authorities

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
River Health Strategy 2002	Sets long-term direction for the management of Victoria's rivers.	Identifies Snowy and Murray Rivers as priority systems. Relies on regional river health strategies to set priorities. Provides framework for identifying and managing priority unregulated rivers. Sets management priorities for riparian land and river channels. HCVAEs defined as very high community value rivers (Heritage Rivers), icon rivers (Ovens and Mitchell), representative rivers and regional high priority rivers. Priorities for protection and restoration will be set on the basis of: • protection of existing high value areas or areas in good condition; and • restoration of those areas where there is: - the highest environmental and community gain for the resources invested, and - real community commitment towards long term improvement of river health.	Department of Sustainability and Environment Catchment Management Authorities Water Authorities
River Health Program	Sets the vision for river health in Victoria (based on other policies and strategies) and creates the implementation framework.	Relies on regional strategies to identify specific priorities.	Department of Sustainability and Environment
Victorian Water Trust Investment Strategy	Sets objectives and strategy for securing sustainable water supplies for Victoria (including for the environment).	Focus on general improvement in river health rather than specific HCVAE sites.	Victorian Water Trust
Victoria's Native Vegetation Management – A Framework for Action	Framework for providing a 'net gain' in native vegetation extent and quality across Victoria.	Provides tools for evaluating native vegetation communities, including vegetation quality, habitat for rare/threatened species and other features of significance.	Department of Sustainability and Environment Local government
Regional scale planning			
Heritage River or Natural Catchment Area management plans	Some have been prepared but never ratified by the Minister	Identifies assets (value and condition) and risks to those assets within the heritage river area. Identifies specific management measures.	N/A (only in draft form)
Regional Catchment Strategy	Integrated management of catchment natural resources, using an asset-based approach. ▪ Corangamite	Identifies priority actions to achieve resource condition targets within the catchment. Identifies assets (values & conditions) and risks to	Relevant Catchment Management Authority

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	■ East Gippsland ■ Glenelg-Hopkins ■ Goulburn-Broken ■ Mallee ■ North Central ■ North East ■ Port Phillip & Westernport ■ West Gippsland ■ Wimmera	those assets.	
Regional Coastal Priorities and Action Plans	Integrated management of natural resources, development and strategic planning, under the recommendations of the Victorian Coastal Strategy.	Identifies priority areas and actions for coastal management and development.	Relevant Regional Coastal Board
Regional River Health Strategy	■ Corangamite ■ East Gippsland ■ Glenelg-Hopkins ■ Goulburn-Broken ■ Mallee ■ North Central ■ North East ■ Port Phillip & Westernport ■ West Gippsland ■ Wimmera	Identifies high priority reaches (based on high community value and ecological health) for protection and management. Risk-based assessment for threats to high priority reaches. Specific programs for protection and enhancement of high priority reaches. Programs for protection of ecologically healthy rivers and to create more ecologically healthy rivers (and improve other rivers).	Relevant Catchment Management Authority
Sustainable Water Strategies	■ Central SWS (almost complete) ■ Northern SWS (about to commence) ■ Other areas to follow	Regional level strategic planning of the use of water resources to: ■ Identify threats to the reliability of supply and quality of water; ■ Identify ways to improve and set priorities for improving the reliability of supply and quality of water, including managing demand for water, and investing in infrastructure for the supply of recycled water; and ■ Identify ways to improve and set priorities for improving the maintenance of the environmental water reserve in accordance with the environmental water reserve objective; ■ Identify ways to increase and set priorities for increasing the volume of water in the	Department of Sustainability and Environment Catchment Management Authorities Water Authorities

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
		environmental water reserve to improve the environmental values and health of water ecosystems; and ■ Include an implementation plan, setting out timelines or targets for implementing key actions identified by the strategy. Must have regard to heritage rivers, CALP Act, FFG Act, Environment Protection Act and Planning and Environment Act.	
Other (e.g. research projects, programs or tools)			
Framework for describing ecological character of Ramsar wetlands	Based on Parks Victoria's environmental management system and the Convention on Wetlands' risk assessment framework and includes an overarching Strategic Directions Statement and Strategic Management Plans for each individual Ramsar site.	Victoria's Ramsar wetlands: Barmah Forest, Corner Inlet, Gippsland Lakes, Gunbower Forest, Hattah-Kulkyne Lakes, Kerang Wetlands, Lake Albacutya, Port Philip Bay (Western Shoreline) and Bellarine Peninsula, Western District Lakes, Western Port and Edith-Vale Seaford Wetlands.	Parks Victoria
Index of Wetland Condition	Designed for naturally-occurring wetlands without a marine hydrological influence. Considers catchment, physical form, hydrology, water properties, soils and biota.	Used to identify the condition of wetlands, which is used to identify HCVAEs on a regional level.	Department of Sustainability and Environment
Index of Stream Condition	Used to: benchmark the condition of streams, assess the long-term effectiveness of management intervention in managing and rehabilitating streams and aid objective setting by waterway managers.	Used to identify the condition of streams, which is used to identify HCVAEs on a regional level.	Department of Primary Industries Catchment Management Authorities

The frameworks used to identify and classify HCVAE

Question	Comments
Definitions and terminology	
Does this jurisdiction have an agreed definition of HCVAEs? If so please describe. What is considered to be included as a HCVAE?	Can include: heritage rivers, icon rivers natural catchment areas, high priority reaches, representative rivers, ecologically healthy rivers, wetlands of bioregional significance, wetlands of national significance, groundwater management areas, Ramsar wetlands, rivers/streams with ISC scores of Excellent or Good.

Question	Comments
What, if any, synonyms or alternative phrases are used that have similar meaning to the concept of HCVAEs in this jurisdiction (e.g. priority areas of high conservation value, Significant Ecological Assets, heritage rivers etc)? Please describe.	Heritage Rivers, icon rivers, representative rivers, ecologically healthy rivers, high priority reaches, Ramsar wetlands
Is there consistent use of the definitions across instruments/documents and/or different ecosystem types? Please describe.	Generally the above terms are consistently used in the VRHS and the regional RCSs and RHSs.
Guiding principles and conceptual frameworks	
What are the guiding principles for identifying or classifying HCVAEs? Where this differs for ecosystem types please describe (i.e. on what basis are they assessed as 'high' conservation value – where is the line drawn?)	Primary mechanism for identifying HCVAE rivers: **Heritage Rivers**. Eighteen river reaches have been designated as Heritage Rivers under *Heritage Rivers Act* because of their very high nature conservation, recreational, social or cultural value or because of a combination of these values (1991 review). The major classes of river-related assets to be considered in determining the status of reaches at a regional level include: • environmental assets such as: - the presence of rare species and/or communities and geomorphological features associated with the river; - sites of significance; - areas with high levels of naturalness of components of the river system including whether the river or a major river reach meets the criteria for ecologically healthy; and - representative rivers; • economic assets such as: - important regional industries that depend on river health; - town water supplies that depend on river health; and - public infrastructure associated with rivers; and • social assets such as: - important recreation sites; and - sites that are significant for Indigenous and European culture. **Icon rivers**: large rivers in Victoria that are in good condition, relatively intact throughout their entire river systems and provide vital inputs to larger scale systems. **Ramsar wetlands:** see specific Ramsar criteria
What are the types of values considered in identifying and classifying HCVAEs? (i.e. are they only ecological	Conservation, recreational, social, economic or cultural values are all included (either singly or as a combination).

Question	Comments
values or do they also include other social or cultural values for example)	
What are the criteria/indicators for identifying or classifying HCVAEs? Where this differs for ecosystem types please describe.	**Heritage Rivers** – based on the 1991 review that considered nature conservation, recreational, social or cultural value or a combination. **Representative rivers** - rivers in an ecologically healthy condition that can be used to represent the major river classes that once occurred naturally across Victoria **High priority reaches and wetlands** are based on the following indicative assets (have been modified in each regional river health strategy to reflect the values of the region): <u>Environmental Assets</u> *Rarity* • Significant fauna and/or flora, i.e. regarded as rare or threatened species • Significant Ecological Vegetation Classes • Wetland/estuary significance • Wetland rarity • Sites of significance *Representativeness* • Representative river *Naturalness* • Natural macro-invertebrate communities • Natural riparian vegetation: Width, Structural intactness, Longitudinal continuity • Natural fish populations: Observed:expected, Proportion of introduced fish • Fish migration • Ecologically healthy river *Large Scale Significance* • Heritage River • Ramsar wetland <u>Social Assets</u> *Recreation* • Fishing, Non motor boats, Motor boats, Camping, Swimming, Passive recreation

Question	Comments
	Cultural • Sites of cultural significance: Indigenous culture, Historical sites • Native title claim • Listed landscape *Flagship Species* Economic Assets • Irrigation water supply • Proclaimed water supply catchments • Public infrastructure • Agricultural land • Tourism • Power generation • Commercial fisheries • Supply of water for industry • Ecosystem services
Are threats/risks included as part of the identification, classification or prioritisation of HCVAEs? If so how and where?	Yes – primarily at the regional river health strategy level. This helps to define priority for investment.
What, if any, guidance is provided in relation to determining appropriate scale?	Regional River Health Strategies – usually operate at catchment scale. For example, EGCMA: Catchment Planning Units, River Health Management Units and River Reaches.
Process and methods	
How are HCVAEs prioritised? Is it a relative or systematic assessment?	Heritage Rivers – prioritised at a State level, primarily based on a systematic assessment\ Icon rivers – prioritised at a State level, but a mix of systematic (must have certain high values) and relative (as compared to other heritage rivers) Representative rivers – based on a relative assessment against other rivers in the region
On what basis is the assessments of values and priorities validated and agreed (i.e. expert panel, groundtruthing, community consultation, modelling etc.)	State level: generally expert panel (e.g. LCC recommendations in 1991 for heritage rivers) Regional level: involves experts, ground-truthing and community consultation
Has a decision support framework (tool or process) been	Victorian River Health Strategy – identifies assets to be used to nominate high priority reaches at a regional scale

Question	Comments
used identify or classify HCVAEs or their equivalents?	(where reaches can include wetlands and estuaries)

The management frameworks for HCVAE

Question	Comment
How is management of HCVAEs embedded into the overall management regime and broader legislative, policy and planning frameworks? (i.e. how does the management of HCVAEs fit within the broader management and planning/policy context? What are the links between different biophysical and planning scales?)	River health management in Victoria is primarily delivered by CMAs, which operate at a regional catchment scale. Their roles and responsibilities are embedded in legislation (CALP Act, Water Act), policy (OWOF, VRHS) and regional planning (Victorian Planning Provisions, Regional River Health Strategies). Local government planning specifically refers some applications to CMAs and strategic planning considers the RRHSs.
How much progress has been made in implementing the identified legislative, policy and planning frameworks? (i.e. just beginning to implement, several years of implementation, fully embedded). Does this differ for different ecosystem types?	Rivers – several years of implementation with regional river health strategies under the VRHS (2002) Wetlands – just beginning to implement under regional river health strategies. Parks Victoria have been managing Ramsar wetlands for several years. Estuaries – just beginning to implement. Picked up under regional river health strategies but also dependent on the new Coastal Management Boards.

Western Australia

Detailed table of the key instruments that address HVCAE

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
Legislation			
Conservation and Land Management Act (1984)	An Act to make better provision for the use, protection and management of certain public lands and waters and the flora and fauna through the creation of National Parks, Conservation Reserves and Nature Reserves.	Provides for the management of land (and marine reserves) to preserve conservation and biodiversity values.	Department of Conservation and Land Management Conservation Commission Marine Authority Marine Committee
Environmental Protection Act 1986	An Act to provide for an Environmental Protection Authority, for the prevention, control and abatement of pollution and environmental harm, for the conservation, preservation, protection, enhancement and management of the environment and for matters incidental to or connected with the foregoing.	Provides for the preparation of *Environment Protection Policies* which may be used to protect HCVAE. In addition the Act creates controls around the clearing of native vegetation.	Environmental Protection Authority
National Environment Protection Council (Western Australia) Act 1996	The object of this Act is to ensure that, by means of the establishment and operation of the National Environment Protection Council — (a) people enjoy the benefit of equivalent protection from air, water or soil pollution and from noise, wherever they live in Australia; and (b) decisions of the business community are not distorted, and markets are not fragmented, by variations between participating jurisdictions in relation to the adoption or implementation of major environment protection measures.	Provides for the establishment of the NEPC which aims to protect the environment broadly.	National Environment Protection Council (WA)
Rights in Water and Irrigation Act 1914	An Act relating to rights in water resources, to make provision for the regulation, management, use and protection of water resources, to provide for irrigation schemes, and for related purposes.	Provides a framework for the allocation of water for consumptive use. In some cases water resource management plans are required. These must provide do environmental values including HCVAE.	Minister responsible for Water Local water resources management committees
Swan River Trust Act 1988	An Act to establish a body with planning, protection	Creates the Swan River management area and	Swan River Trust

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
	and management functions in respect of the Swan and Canning Rivers and certain adjoining lands, and for connected purposes.	provides for the management of this area to take into consideration the environmental values of the area.	
Water and Rivers Commission Act 1995	An Act to establish a Commission with functions relating to water resources, including functions under various written laws, and for connected purposes.	One of the functions of the Commission is to undertake/ manage/ co-ordinate activities which provide for the conservation of water resources. This will have a direct impact of HCVAE.	Water and Rivers Commission
Waterways Conservation Act 1976	An Act to make provision for the conservation and management of certain waters and of the associated land and environment, for the establishment of a Rivers and Estuaries Council and certain Management Authorities and for incidental and other purposes.	Creates management areas to protect the environmental values (and therefore HCVAE) of certain waters and associated land.	Rivers and Estuaries Council
Wildlife Conservation Act 1950	An Act to provide for the conservation and protection of wildlife.	Imposes regulations/ licensing requirements and conditions on the use and taking of protected flora and fauna and endangered species.	Department of Environment and Conservation
Biodiversity Conservation Bill	Mooted in the State of the Environment Report (2006)		
State- or Territory-wide policy and planning frameworks			
State of the Environment Report draft (SPA, 2006)	Outlines state environmental issues and sets out suggested responses.	The SoE specifically addresses environmental issues relating to inland waters.	Environment Protection Agency
Foreshore Policy 1 - Identifying the Foreshore Area (Water and Rivers Commission, 2001)	This policy position forms the basis by which all future foreshore and riparian land management policy is developed. This provides a consistent methodology for the assessment and determination of foreshore areas.	This policy advocates the use of the biological and physical features associated with a waterway and its values and pressures to determine foreshore areas. This means that HCVAE are one of the considerations in determining foreshore areas.	Department of Environment
Draft Waterways WA Policy (Water and Rivers Commission, 2000)	The Draft Policy forms the basis for the first statewide discussion of waterways management. It is intended that the framework will increase certainty in relation to waterways management and enable the development of agreed management structures for achieving sustainable waterways management.	One of the aims of the policy is to provide for balancing the management of the environmental values (and therefore HCVAEs) and consumptive uses of WA's waterways.	Department of Environment
Waterways WA: Developing a strategy for statewide management of waterways in Western Australia (Water and Rivers Commission, 2001)	Provides for a management framework to protect waterways in the State (linked to above).	See above	Department of Environment

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
Statewide Waterways Needs Assessment: Prioritising Action for Waterways Management in Western Australia (WRC, 2002)	Sets out a decision support tools that enables the prioritisation of the State's waterway management requirements, including economic, social and ecological considerations. This will enable priorities to be set within regions and across the sate.	Prioritisation criteria include ecological considerations. This necessarily includes HCVAE.	Water and Rivers Commission
State wild rivers policy	To be developed.		
Wetlands Conservation policy for Western Australia	This policy provides for the classification of wetlands based on the conservation priorities. This will provide a basis for their management.	Wetlands are classified as follows: ■ C – Conservation Wetlands ■ R - Resource enhancement Wetlands ■ M - Multiple use- Wetlands	Department of Environment
Environmental Water Provisions Policy for Western Australia	This policy describes principles and processes to be applied by the Commission in determining how much water should be retained for the environment when allocating and reviewing water use rights. It also identifies important linkages to the State's statutory framework.	One of the guiding principles is the need to protect ecological values through the water allocation process. This necessarily means HCVAE.	Water and Rivers Commission
State Water Quality Management Strategy (Water and Rivers Commission, 2003)	The State Water Quality Management Strategy has been drafted with the primary objective to ensure that an administrative structure for water quality management is established in Western Australia.	Key water resource management issues outlined in the strategy include salinisation and loss of native flora and fauna.	Department of Environment
Environmental Protection (Gnangara Mound Crown Land) Policy 1992	The purpose of this policy is to protect: ■ The level and quality of groundwater on or under the policy area (an area consisting of Crown land and covering a large portion of the Gnangara mound); and ■ Native vegetation and wetlands in the policy area.	Provides for the conservation of native vegetation in the Gnangara mound.	EPA
Environmental Protection (Peel Inlet - Harvey Estuary) Policy 1992	The purpose of this policy is - ■ to set out environmental quality objectives for the Estuary which if achieved will rehabilitate the Estuary and protect the Estuary from further degradation; and ■ to outline the means by which the environmental quality objectives for the Estuary are to be achieved and maintained.	Provides for the conservation of the environmental values in the Peel Inlet- Harvey Estuary	EPA
Environmental Protection (Swan and Canning Rivers) Policy	The purpose of the EPP is to ensure that the values of the Swan and Canning Rivers are restored,	Provides for the protection of the environmental values in the Swan and Canning Rivers.	EPA

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
1998	maintained and protected by managing the activities that affect them.		
Environmental Protection of Wetlands (2004)	This Position Statement provides the public and other key stakeholders with a summary of the aspects regarding environmental protection of wetlands in Western Australia that the EPA considers to be important in guiding its decisions and advice to government on matters of environmental protection.	Provides for the environmental protection of wetlands.	EPA
Environmental protection (south west agricultural zone wetlands) policy (1998)	The purpose of this policy is to prevent the further degradation of valuable wetlands and to promote the rehabilitation of wetlands in the South West Agricultural Zone of the State.	Provides for the environmental protection of agricultural zone wetlands	EPA
Planning for Waterways: Management Guidelines for Preparing a Regional Strategy for Natural Resource Management (Water and Rivers Commission, 2001)	The purpose of this document is to contextualise waterways management within the regional planning framework and recommend components for inclusion in a regional NRM strategy.	Sets out environmental values which should be considered in management of waterways	Water and Rivers Commission
Framework for mapping, classification and evaluation of wetlands in Western Australia (DoE, 2006)	This framework outlines a state-wide process for the mapping, classification and evaluation of wetlands in WA.	Loss of wetland habitat and environmental values are identified as key drivers for the development for this framework.	DoE
Environmental Offsets (EPA, 2006	States that the EPA considers that environmental offsets should be included, where appropriate, as part of approvals for environmentally acceptable projects to maintain and wherever possible enhance the State's environment.	The document refers to native vegetation which includes anything growing in or near a waterway or wetland.	EPA
Environmental Guidance for Planning and Development (EPA)	Provides advice on protecting the environment during planning, and information on environmental impact assessment processes.	Provides advice to managers of wetlands and waterways on the relevant legislation/ policy requirements.	EPA
Conservation of threatened flora in the wild (CALM Policy statement no9, 1992) Conservation of endangered and specially protected flora in the wild (CALM Policy statement	NOTE: Could not find copies of these the following info is based on secondary sources: Provides a system for listing plants and animals as 'threatened'.	Threatened plants and animals can include HCVAE.	Department of Environment and Conservation

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
no33, 1991)			
Setting priorities for the conservation of WA's threatened flora and fauna (CALM Policy statement no50)	NOTE: Could not find copies of these the following info is based on secondary sources: Sets out methods for deciding priorities for the conservation actions for threatened species.	Threatened plants and animals can include HCVAE.	Department of Environment and Conservation
Wildlife management programs (CALM Policy statement no 44)	NOTE: Could not find copies of these the following info is based on secondary sources: Sets out procedures for the development and implementation of Recovery Plans and Interim Recovery Plans for threatened species.	Threatened plants and animals can include HCVAE.	Department of Environment and Conservation
Conservation of threatened species and threatened ecological communities. (Department of Conservation and Land Management, 1999)	Provides guidance for those involved in the management of threatened species and ecological communities, or in research into their conservation biology.	Outlines the process for management and recovery of threatened species and ecological communities.	Department of Environment and Conservation
Salinity Strategy	Sets out a management framework for addressing both land and water salinity.	Water salinity impacts on HCVAE.	Department of Water
Biodiversity Strategy (currently being prepared)	Currently being prepared		Department of Environment and Conservation
Regional scale planning			
Natural Resource Management Plans	There are six natural resource management regional groups in WA. Natural resource management plans are prepared for each of the sub-regions within each region.	Aims to lead, plan and co-ordinate the sustainable use of natural resources in the region. This necessarily includes HCVAE	NRM Regions
Groundwater Management Plans: ■ Esperance (draft) ■ Gnangara Groundwater Mound	Plans to manage the groundwater resources of the relevant Groundwater Area and to ensure their sustainable use for the benefit of the local community.	Provides for the management of allocation of groundwater resources between consumptive and environmental use. This impacts on groundwater dependent ecosystems.	Department of Water
Regional Water Management Plans	Identify water resource values, including ecological and other environmental values at a regional level, and establishes how these values are to be protected.	Provides for the management of water allocation between consumptive and environmental use.	Department of Water
Sub-Regional Water	As above on a sub-regional level. In addition, these	As above	Department of Water

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
Management Plans	plans specifically define EWRs.		
Local Area Water Management Plans	As above on a local area level. These plans establish how rights to water are to be allocated to meet EWRs.	As above	Department of Water
River Recovery Plans	A prioritised list or timetable of onground works and actions to improve the health of a stretch of waterway. A catchment may typically have several Action Plans. They provide an integrated coordinated approach to onground waterways management at a local scale.	River recovery is undertaken partially in order to promote ecological benefit.	Department of Water
Management Plans for protected species: ■ Saltwater Crocodile (*Crocodylus porosus*) and Freshwater Crocodile (*Crocodylus johnstoni*) Management Plan for Western Australia 2004-2008	Provides for the strategic management for protected species (under the *Wildlife Conservation Act 1950*).	HCVAE are amongst protected species.	Department of Environment and Conservation
Recovery Plan for: ■ Sunset frog (Spicospina flammocaerulea) ■ Western swamp tortoise (Pseudemydura umbrina)	Recovery Plans delineate, justify and schedule management actions necessary to support the recovery of threatened species and ecological communities.	HCVAE are amongst threatened species.	Department of Environment and Conservation
Management Plans for RAMSAR Wetlands	Sets out management actions and priorities for the RAMSAR Wetlands	HCVAE may be identified for specific management actions.	Department of Environment and Conservation
Management Plans for National Parks, Conservation Reserves and Nature Reserves.	Sets out management actions for Conservation Reserves	Conservation Reserves may include habitats for HCVAE	Department of Environment and Conservation
Other (e.g. research projects, programs or tools)			
State of Water Report (WRC)	Explores the key issues for water resources in Western Australia: sustainable use of water resources, salinisation, nutrient enrichment, loss of fringing vegetation, erosion and sedimentation of waterways, and contamination.	Key issues for water resources will impact on HCVAE	Water and Rivers Commission
Native vegetation of estuarine	The Water and Rivers Commission published two	This booklet deals with the species commonly	Water and Rivers

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
and saline waterways in south Western Australia (Water and Rivers Commission, 1997)	companion booklets to encourage protection and restoration of streamline vegetation.	encountered near saline waterways and wetlands.	Commission
Native vegetation of freshwater rivers and creeks in south Western Australia(Water and Rivers Commission, 1997)		This booklet deals with the species commonly encountered near freshwater rivers and creeks.	Water and Rivers Commission
A Biodiversity Audit of WA's 53 Biogeographical Subregions (DEC, 2002)	Sets out detailed information gathered for each sub-region in WA.	Provides a reference document of HCVAEs in WA.	Department of Environment and Conservation
The Importance of Western Australia's Waterways (2004)	Outlines the importance of WA's waterways this includes: Aboriginal significance and the flora and fauna of Western Australia's waterways. It also outlines management approaches and areas of specific importance.	Flora and fauna is identified as one of the important values for WA waterways.	Department of Environment
River Restoration – Manual (DoW, 2006)	Provides guidance in river restoration		Department of Water
Geographic Data Atlas	The Geographic Data Atlas is an interactive web mapping tool that allows you to freely view and download DoW geographic data.		http://portal.water.wa.gov.au/portal/page/portal/dow/general/Tools
Gnangara and Jandakot Mound Data	A selection of hydrographs have been chosen to provide an indication of water levels across the two groundwater mounds.		http://portal.water.wa.gov.au/portal/page/portal/dow/general/Tools
Hydrogeological Atlas	Consists of spatial datasets showing the distribution of aquifers used for groundwater management, with a text description of each, a hydrogeological map of the State, originally produced at 1:2 500 000 scale, and various maps of groundwater salinity.		http://portal.water.wa.gov.au/portal/page/portal/dow/general/Tools
River Monitoring Stations	These pages provide summary and graphical presentations of river levels and some additional parameters including rainfall from selected telemetered sites throughout Western Australia.		http://portal.water.wa.gov.au/portal/page/portal/dow/general/Tools
Statewide River Water Quality Assessment	The Statewide River Water Quality Assessment 2004 uses recent water quality information to determine the status and trends of nine key water quality parameters for all waterways in the state, where consistent data is available.		http://portal.water.wa.gov.au/portal/page/portal/dow/general/Tools
Water Resources Information Catalogue (WRIC)	Index of water resources data, including water quality, rainfall, flows and water levels, collected from a variety of surface and groundwater monitoring sites throughout the State.		http://portal.water.wa.gov.au/portal/page/portal/dow/general/Tools

Document or source	Role and scope	Reference to HCVAE	Key implementing agencies
Water Resources Information Data (WRDATA)	Summary water resources data from surface water and rainfall monitoring sites throughout the state, including monthly and annual streamflow and rainfall information.		http://portal.water.wa.gov.au/portal/page/portal/dow/general/Tools
Perth Groundwater Atlas	The Atlas provides a tool to estimate depth to groundwater, maps to assist in determining if a particular area is suitable for garden bores, and generalised hydrogeological and water quality information.		http://portal.water.wa.gov.au/portal/page/portal/dow/general/Tools
WALIS Interragator - Natural Resource Monitoring Node	The WALIS Interragator is an interactive on-line search engine that allows web browsers to locate information (metadata) about Western Australia's natural resource datasets. With it you can search a comprehensive index of over 10,000 records of Western Australia's geographic and land information held within public and private sector organizations.		http://www.epa.wa.gov.au/NRM/info.asp
The Hydrogeology of Groundwater Dependent Ecosystems In The Northern Perth Basin - Map	Maps potential GDEs in the Northern Perth Basin		http://portal.environment.wa.gov.au/pls/portal/docs/PAGE/DOE_ADMIN/TECH_REPORTS_REPOSITORY/TAB1146235/HG11_MAP.PDF
State Biodiversity Audit	An audit of WA's terrestrial biodiversity as part of the National Land and Water Resources Audit Biodiversity Assessment.		DoE

The frameworks used to identify and classify HCVAE

Question	Comments
Definitions and terminology	
Does this jurisdiction have an agreed definition of HCVAEs? If so please describe. What is considered to be included as a HCVAE?	No- conservation status is primarily based on: ■ At-risk status (ie protected/ threatened); or ■ Location (ie conservation areas).
What, if any, synonyms or alternative phrases are used that have similar meaning to the concept of HCVAEs in this jurisdiction (e.g. priority areas of high conservation value, Significant Ecological Assets, heritage rivers etc)? Please describe.	**Species** The *Wildlife Conservation Act 1950* provides for the classification of flora and fauna as threatened and protected. This is supported by the *Conserving Threatened Species and Communities* policy which goes a step further by establishing priority flora and fauna. **Wetlands** In addition to species specific definitions areas/regions can be identified as having particular environmental significance.

Question	Comments
	For example, under the *Wetlands Conservation policy for Western Australia* wetlands are classified as 'conservation wetlands', 'resource enhancement wetlands' or 'multiple use wetlands'. This classification provides the basis for their management. **Rivers** Rivers are prioritised for management actions through the method set out in the 'State Waterways Needs Assessment'. This sets out a systems through which rivers are classified as: 'High value', 'medium value' and 'low value'. Within these categories rivers are classified in terms of the level of degradation and pressure on them. In addition, it is proposed that a *Wild Rivers Act* be passed. It is likely that this will contain classifications about Rivers of special conservation value. **Areas** Similarly, under the *Conservation and Land Management Act (1984)* areas may be declared to be National Parks, Conservation Reserves or Nature Reserves. This gives them special conservation status.
Is there consistent use of the definitions across instruments/documents and/or different ecosystem types? Please describe.	The classification of threatened species set out in policy is consistent with that used in the *Conservation and Land Management Act (1984).* Despite this, the *Conserving Threatened Species and Communities* policy expands the legislative definition by adding priorities. This definition is recognised in the development of Recovery Plans and management plans for Protected species. Notably, that a species may be threatened under state legislation but not under Commonwealth legislation. Wetland classifications vary on a state and commonwealth level. On a state level wetlands are classified into one of three management categories. At a national level wetlands are classified as 'nationally or internationally significant (RAMSAR)'. The Waterways WA program is the over-arching program governing waterway management in WA. The 'State Waterways Needs Assessment' fits within this program. It is not clear from the documents how this impacts on other management actions ie the development of EWRs and River Recover Plans.
Guiding principles and conceptual frameworks	
What are the guiding principles for identifying or classifying HCVAEs? Where this differs for ecosystem types please describe (i.e. on what basis are they assessed as 'high' conservation value – where is the line drawn?)	**Species** Categories of threat are based on the IUCN Red Book criteria. The Species Survival Commission of the IUCN (International Union for the Conservation of Nature) has developed a classification system and criteria for use in assessing the conservation status of species. This system has been widely adopted by conservation agencies around the world. The IUCN uses criteria relating to: ■ Absolute size, number of subpopulations and extent of reduction in population size; ■ Extent, degree of fragmentation, and degree of fluctuation in geographic range (both the extent of occurrence and the area of occupancy); and ■ Quantitative analysis of the probability of extinction To classify the conservation status of species with different values of the above criteria applying to different categories.

Question	Comments
	The IUCN categories are listed below (see http://www.nt.gov.au/nreta/wildlife/threatened/classification.html) NOTE: This is the same as NT. **Wetlands** Wetlands are classified into one of three management categories as follows: ■ C – **Conservation- Wetlands** support a high level of ecological attributes and functions. Highest priority wetlands. Objective is preservation of wetland attributes and functions through various mechanisms. These are the most valuable wetlands and the Commission will oppose any activity that may lead to further loss or degradation. No development. ■ R - **Resource enhancement**- Wetlands which may have been partially modified but still support substantial ecological attributes and functions. Priority wetlands. Ultimate objective is for management, restoration and protection towards improving their conservation value. These wetlands have the potential to be restored to conservation category. This can be achieved by restoring wetland structure, function and biodiversity. Protection is recommended through a number of mechanisms. ■ M - **Multiple use-** Wetlands with few important ecological attributes and functions remaining. Use, development and management should be considered in the context of ecologically sustainable development and best management practice catchment planning through landcare. Should be considered in strategic planning (e.g. drainage, town/land use planning). **Rivers** The 'State Waterways Needs Assessment' prioritises rivers according to social, economic and environmental criteria. There are three scales for prioritisation as follows: ■ **Value**- waterway value is assessed against the following criteria: economic benefits, biodiversity, uniqueness, recreation, aesthetics, spirituality and culture, conservation and heritage. ■ **Condition**- waterway condition is assessed against the following criteria: erosion and sedimentation, eutrophication, salinisation, feral animals, wood infestations and point source pollution. ■ **Pressures**- waterway pressures are assessed against the following criteria: land development, water development, recreation, commercial fishing, industrial discharge, water abstraction and waterway drainage. Waterways are ranked as 'high', 'medium' and 'low' against each of these scales.
What are the types of values considered in identifying and classifying HCVAEs? (i.e. are they only ecological values or do they also include other social or cultural values for example)	Species are classified in purely in terms of the level of threat to their survival. Wetlands are classified in terms of (a) their conservation value which is understood as the ecological value of conserving them and (b) their potential for 'other uses' eg drainage etc. The process for prioritising rivers is more complex involving social, economic and environmental factors (see above).
What are the criteria/indicators for identifying or classifying HCVAEs? Where this differs for ecosystem types please describe.	See above
Are threats/risks included as part of the identification,	Yes- this is particularly true for species which are classified purely in terms of risk. Wetlands and rivers are partially

Question	Comments
classification or prioritisation of HCVAEs? If so how and where?	identified in terms of their threat but relative ecological value and social/ economic factors also play a role. This is particularly true of waterways which are prioritised based on a questionnaire completed by stakeholders.
What, if any, guidance is provided in relation to determining appropriate scale?	In the case of species, scale is important in determining the level of risk (see '*extent, degree of fragmentation, and degree of fluctuation in geographic range*). For wetlands and rivers this is less relevant as they are effectively units in their own right.
Process and methods	
How are HCVAEs prioritised? Is it a relative or systematic assessment?	Prioritisation is explicitly managed within the WA framework at all levels. Threatened species are prioritised in accordance with the 'CALM Policy statement no50 (Setting priorities for the conservation of WA's threatened flora and fauna)'. Similarly, there is a framework for prioritising rivers which is set out in the 'State Waterways Needs Assessment'. It is intended that this will be a systematic assessment of all Rivers in WA. Wetlands are categorised into three management groups. This categorisation is effectively a prioritisation process.
On what basis is the assessments of values and priorities validated and agreed (i.e. expert panel, groundtruthing, community consultation, modelling etc.)	In the case of threatened species, the prioritisation frame work is unknown (as I could not find a copy of the policy on the internet). Listing of species as 'threatened' is based on scientific assessment of the probability of extinction. Wetlands are categorised into management groups based on a process of data collection. This involves literature reviews and field assessments. The prioritisation of waterways involves a six step process: ■ Establish a stakeholder panel and set study area boundaries ■ Review and adapt generic State Waterways Needs Assessment Questionnaire ■ Complete questionnaire ■ Collate and analyse the results ■ Review results against agreed criteria, determine any bias and test assumptions ■ Panel reaches final prioritisation The standard questionnaire is based of the pressure-state-response model each criteria (see above) is rated based on a 1-5 assessment.
Has a decision support framework (tool or process) been used identify or classify HCVAEs or their equivalents?	See above

The management frameworks for HCVAE

Question	Comment
How is management of HCVAEs embedded into the overall management regime and broader legislative, policy and planning frameworks? (i.e. how does the management of HCVAEs fit within the broader management and planning/policy context? What are the links between different biophysical and planning scales?)	The management framework for threatened species is derived directly from *Wildlife Conservation Act 1950* and the supporting policy. The Act explicitly creates a management framework through which species are listed and given protected status. In contrast, the categorisation of wetlands and waterways are not so explicitly derived from legislation. Despite this, the policy framework clearly sets out the process. This policy framework has direct links to more localised planning (eg the Environmental Water Provisions Policy for Western Australia sets out a framework for management plans at a regional, sub-regional and local area scale).
How much progress has been made in implementing the identified legislative, policy and planning frameworks? (i.e. just beginning to implement, several years of implementation, fully embedded). Does this differ for different ecosystem types?	The management of threatened species appears to be an established process with several management plans currently in place. The waterway management framework is more recent. The Waterways WA Framework was drafted in 2000. Several assessments of environmental water requirements have been made since then. The State Waterways Needs Assessment process was developed in 2002. In this sense it is an emerging management regime which is just beginning to be implemented. The framework for classifying and evaluating wetlands in WA is being finalised at present. It is important to note that while the categories are new they sit on top of the national regime for wetland management which has existed for some time. A number of WA wetlands are recognised as nationally and internationally significant.

[i] http://www.deh.gov.au/soe/2001/inland/water03-4c.html#cambaandlambaprotectionformigratingwaterbirds