

Manual for Victoria's Salinity Accountability in the Murray-Darling Basin

2021



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Acknowledgment

We acknowledge and respect Victorian Traditional Owners as the original custodians of Victoria's land and waters, their unique ability to care for Country and deep spiritual connection to it. We honour Elders past and present whose knowledge and wisdom has ensured the continuation of culture and traditional practices.

We are committed to genuinely partner, and meaningfully engage, with Victoria's Traditional Owners and Aboriginal communities to support the protection of Country, the maintenance of spiritual and cultural practices and their broader aspirations in the 21st century and beyond.



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Secretary's Foreword

Victoria's salinity management program has produced positive impacts in the mitigation and offset of salinity impacts on the Murray River for more than 30 years.

Salinity is an issue that can have impacts across the environment, economy, cultural uses of water, recreation, and agriculture. Without proper management it poses a large threat to our land and river systems.

The Murray-Darling Basin is experiencing a long-term trend of warmer and drier conditions. This trend, coupled with a highly competitive irrigation sector, presents many new complex challenges for salinity management alongside land and water use in Victoria.

The Department of Environment, Land, Water and Planning (DELWP) maintains our commitment to working with our regional partners to manage salinity impacts in the Victorian Murray-Darling Basin. This is part of our commitment to the Murray-Darling Basin Agreement and Basin Salinity Management 2030 strategy, but also to the health of our river systems and communities.

The Victorian irrigation sector and salinity management in the Murray-Darling Basin has changed significantly since 2011, when the manual for Victoria's Salinity Accountability in the Murray-Darling Basin was last reviewed.

DELWP has updated this manual to align with contemporary policy and procedure. The manual for Victoria's Salinity Accountability in the Murray-Darling Basin 2021 will guide Victoria's salinity and water managers in salinity policy, practices, and procedures to continue managing the threat of salinity in our landscape.

Thank you to the Victorian Salt Disposal Working Group who have provided direction and leadership in delivery of continued success in the management of salinity across Victoria.



John Bradley
DELWP Secretary

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1. Introduction

1.1 Purpose of this Manual

This manual, developed by the Department of Environment, Land, Water and Planning (DELWP) in collaboration with the Victorian Salt Disposal Working Group (VSDWG), is intended to serve as a guide to assist Victoria's salinity managers in meeting Victoria's obligations under Schedule B of the Murray-Darling Basin Agreement and other obligations under Victorian legislation, regulations, and policy.

The objectives of this manual, through the documentation of Victoria's salinity management principles and procedures, are to provide:

- an outline of Victoria's framework for meeting legislative responsibilities with respect to salinity management.
- Victoria's salinity managers the knowledge required to continue efficiently managing Victoria's salinity accountability and reporting obligations in the Murray-Darling Basin.
- other natural resource managers with the knowledge of the salinity management legislation, regulations, and policy requirements in the estimation, mitigation/offsetting and reporting on the salinity impacts of different land and water management activities within the Murray-Darling Basin.
- clarity of roles and responsibilities in the ongoing assessment of Accountable Actions, the assignment of accountabilities, and the meeting of reporting obligations.
- guidance in the ongoing efficient, coordinated, and controlled use of Victoria's salinity credits.
- guidance to ensure optimum (economic, social, and environmental) investment decisions in salinity management are made in the interests of Victoria.

This manual may be complemented by separate regional documents where location specific procedures and protocols apply, and the basin wide documents mentioned here within.

It is intended that this manual will serve for the life of the Basin Salinity Management 2030 (BSM2030) strategy. The manual will undergo a review following the development of the next basin salinity strategy.

1.2 Background

Salinity management policy and strategy in Victoria has developed significantly since the threat of salinity was first recognised as a major issue after the extraordinarily wet years of 1974 and 75 and the proceeding early days of intervention. Various strategies and institutional arrangements have evolved to keep pace with a range of biophysical changes in the landscape, the evolution in the understanding of salinity processes, and Victoria's resultant management actions. In 2015 at the completion of the Basin Salinity Management Strategy 2001–2015 (BSMS), the Murray-Darling Basin Ministerial Council (MinCo) adopted the BSM2030 strategy as the overarching framework for the management of salinity in the Murray-Darling Basin. Its implementation is governed by *Schedule B to the Murray-Darling Basin Agreement* (Schedule 1 to the Commonwealth *Water Act 2007*) and a range of implementation protocols under Schedule B.

As a State Contracting Government to the *Murray-Darling Basin Agreement*, the Victorian Government is obligated to manage salinity impacts on the Murray River environment and downstream water users. DELWP is the Victorian Government's delegated agency responsible for implementing salinity policy and accounting for Victoria's obligations under BSM2030. Through the *Catchment and Land Protection Act 1994*, DELWP has delegated regional management of many BSM2030 responsibilities to the catchment management authorities (CMAs) located within the Murray-Darling Basin.

1.3 Legislative Framework for Salinity Management in Victoria

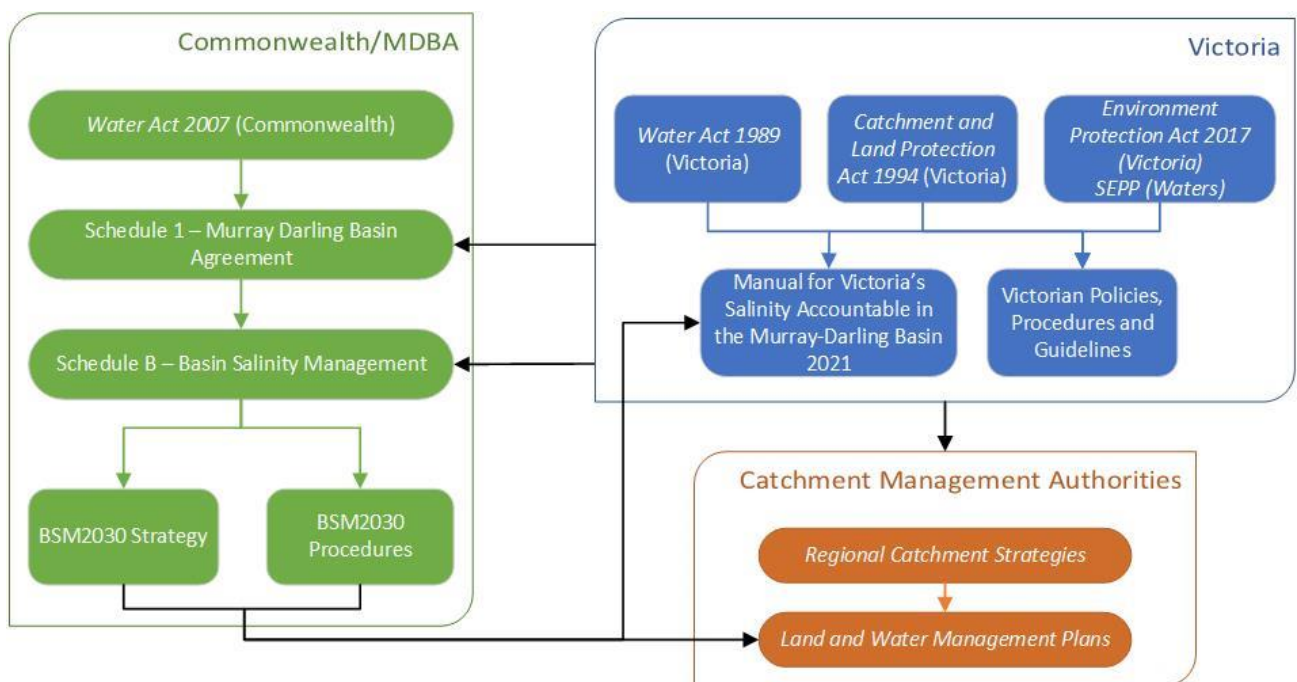
Salinity management in the Murray-Darling Basin is governed by the Commonwealth *Water Act 2007* as shown in Figure 1 below. The Murray-Darling Basin Agreement (the Agreement), which is included in the Commonwealth *Water Act 2007* as Schedule 1, incorporates the BSM2030 strategy through Schedule B to the Agreement. The BSM2030 strategy and its supporting Operational Procedures detail the arrangements for managing salinity as agreed to by all Contracting Government signatories to the Agreement.

The Victorian legislative framework has inherent links to Commonwealth legislation as shown in Figure 1: Legislative and Management Framework for Salinity.

The *Water Act 1989* provides for statements of obligations governing the work of water corporations and catchment management authorities. It also sets out water use objectives that allow for conditions to be placed on water-use licences to help manage salinity.

The *Catchment and Land Protection Act 1994* provides for statements of obligations for catchment management authorities including the preparation of Land and Water Management Plans. These plans, once endorsed by DELWP, outline the priorities for regional salinity management.

Environmental protection legislation and policy underwent significant changes following the proclamation of the *Environment Protection Act 2017*. At the time of writing this manual the ongoing arrangements are not set in stone. Previously the *Environment Protection Act 1970* generated subordinate legislation in the form of the State Environment Protection Policy (Waters). SEPP (Waters) gives Victoria’s salinity management agencies general environmental duties, including those related to salinity impacts and other externalities affecting the environment. SEPP (Waters) also obliges water corporations to participate in Land and Water Management Plans. These arrangements are anticipated to persist through the new legislation and subordinate instruments in some form.



Victoria are a signatory to the Murray Darling Basin Agreement (Schedule 1 of the *Water Act 2007* (Cwth))
 Victoria are a Contracting Government under Schedule B to the Agreement and therefore to BSM2030

Figure 1: Legislative and Management Framework for Salinity

1.4 Basin Salinity Management 2030

Basin Salinity Management 2030 (BSM2030) provides the guiding policy for how basin state governments “will work individually and collectively to meet the obligations of Schedule B of the Murray-Darling Basin Agreement and the Basin Plan”.

The following principles as taken from BSM2030 are intended to underpin and guide the implementation of BSM2030; as such they have helped guide the development of this manual and basin salinity management in Victoria more broadly.

- Building on the legacy of BSMS: BSM2030 will build on the successful elements of BSMS, and refine and improve them, as required, for consistency with contemporary policy settings and salinity risks.
- Shared responsibility: partner governments will share responsibility for continued action to manage salinity impacts consistent with agreed cost sharing and benefit allocation arrangements under BSM2030 and Schedule B.
- Accountability and transparency: partner governments will demonstrate accountability by recording the salinity impacts of Accountable Actions and delayed salinity impacts on the salinity registers and adopting robust monitoring, review, reporting and audit arrangements. The outcomes of monitoring, reporting, reviews, and audits will continue to be publicly available.
- Consistency and coordination with the Basin Plan: a consistent and coordinated approach will be undertaken to meet the salinity management requirements of BSM2030, Schedule B and the Basin Plan.
- Cost-efficient and cost-effective management: efforts to manage salinity will seek to optimise benefits while minimising costs.
- Balanced decision-making: decisions about salinity management will consider, integrate, and balance long-term and short-term economic, environmental, cultural, and social costs and benefits.
- Risk-based approach: management actions and investigations will be targeted to address significant salinity risks and take into account the potential for cumulative and future impacts. Monitoring will be undertaken to identify changes in salinity risks and enable further investigation and action.
- Adaptive management: by setting clear objectives, by investing in improved science and knowledge to support decisions and actions, and by monitoring, evaluating, and reporting, Basin salinity management will be adapted to changes in the understanding of the magnitude, location and trends of salinity risks and impacts across the Basin.
- Streamlined and fit-for-purpose governance: governance arrangements (decision-making, implementation, reporting, reviews, and audits) will be flexible, efficient and fit-for-purpose, and they will consider risk in prioritising effort. Collaborative decision-making and advisory arrangements will enable partner governments and agencies to implement BSM2030 in an effective manner.

1.5 Schedule B of the Murray-Darling Basin Agreement and Victoria's Salinity Management Obligations

Schedule B of the Murray-Darling Basin Agreement provides the legislative backing of BSM2030. The schedule outlines the implementation of BSM2030 including detailing the obligations of State Contracting Governments.

As a State Contracting Government, Victoria is accountable for:

- ensuring that it does not, undertake, alter, or cease, or permit the undertaking, alteration, or cessation of, any action that may have a Significant Effect except in accordance with Schedule B.
- ensuring that any public authority such as Catchment Management does not undertake, alter, or cease, or permit the undertaking, alteration, or cessation of, any action that may have a Significant Effect except in accordance with Schedule B.

Schedule B defines a Significant Effect as:

- (a) a change in average daily salinity at Morgan which the Authority estimates will be at least 0.1 E.C. by the year 2100; or
- (b) a salinity impact which the Authority estimates will be significant.

Victoria has committed to the BSM2030 accountability framework and underpinning obligations in Schedule B. BSM2030 retains the accountability framework of the former BSMS, which is established by Schedule B. This framework commits the partner governments to maintain agreed salinity levels and ensure that their actions that increase river salinity are offset by investing in actions to reduce salinity. The framework is built on several key elements which are introduced briefly in this section.

1.5.1 Baseline Conditions

The accountability framework of BSM2030 relies on the adoption of the agreed estimate of baseline conditions across the Murray-Darling Basin. Baseline conditions are the conditions that contributed to the movement of salt through land and water within the Murray-Darling Basin on 1 January 2000. For New South Wales, Victoria and South Australia, the estimate of baseline conditions includes the salinity effect of Accountable Actions from 1988 to 2000.

The estimate of baseline conditions should include conditions pertaining to:

- Land use (level of development of the landscape)
- Water use (level of diversions from the rivers)
- Land and water management policies and practices (including diversions under the Murray-Darling Basin Cap agreements and any subsequent flow management agreements up to 1 January 2000)
- River operating regimes
- Salt interception schemes
- Run-off generation and salt mobilisation processes
- Groundwater status and conditions.

The relationship between these conditions and the salinity, salt load, and flow regime at End-of-Valley Target sites and the Basin Salinity Target site is established by developing a benchmark period model from the calibrated model.

1.5.2 Benchmark Period

The biggest influence on the variability of flows, salinities and salt loads in the Murray-Darling Basin is climate variability. The benchmark period is used to eliminate the influence of climatic variability on salinity impact assessments.

Data on flow, salinity and salt loads must also be expressed over a period of at least 20 years for it to be directly useful in determining whether a percentage probability of non-exceedance over the long term is being met or not. The benchmark period has been set over a 25-year period, 1 May 1975 to 30 April 2000, to encompass a range of hydrological and climatic conditions in the basin.

1.5.3 Accountable Actions

Any action taken in Victoria after 1 January 1988, which has a Significant Effect on the baseline conditions outlined above is called an **Accountable Action**. A Significant Effect is any action that changes the average daily salinity at Morgan, by 0.1 EC, within 100 years after the estimate is made. The assessment of an Accountable Action requires a measurement over the benchmark period.

Victoria's primary obligation as defined under clause 16 of Schedule B is to take whatever action may be necessary:

- to keep the total of any salinity credits in excess of, or equal to, the total of any salinity debits, attributed to it in Register A
- to keep the cumulative total of all salinity credits in excess of, or equal to, the cumulative total of all salinity debits, attributed to it in both Register A and Register B

1.5.4 Salinity Registers A and B

Salinity registers are maintained by the Murray-Darling Basin Authority (MDBA) in accordance with Schedule B to the Murray-Darling Basin Agreement (Schedule 1 to the *Water Act 2007*). Actions that increase salinity in the river incur a salinity debit, and actions that reduce salinity attract a credit on the relevant Register. Victoria's obligation is to maintain the Registers in a positive balance; that is Victoria's credits must exceed its debits.

Debits and credits are recorded in a centralised MDBA register which includes:

- **Register A** lists Accountable Actions, their salinity effect at Morgan, their economic cost outcomes and the salinity debits and salinity credits attributed to those Accountable Actions. Register A entries must indicate the level of certainty associated with the estimate of the salinity impact at years 2000, 2015, 2030, 2050 and 2100 and are based upon the projected effect of an action, averaged over 30 years, and updated every 5 years. (An example of Register A, at a point in time, is shown in Appendix A)
- **Register B** records the Delayed Salinity Impacts' effects at Morgan as well as the cost outcomes for each tributary valley of additional delayed salinity impact debits. It also records credits for actions taken after the baseline date that will offset 'legacy of history' impacts.
The salinity debits in Register B represent the predicted increases in salinity at Morgan attributed to each tributary valley. Current Register B values are based on predictions from the 1999 Basin Salinity Audit. (An example of Register B, at a point in time, is shown in Registers A and B.)

Detail on the types of salinity credit and debit actions in Victoria and how they are modelled over the **benchmark period** (1975 – 2000) is included in Appendix D.

2. Victoria's Salinity Accountability and Management Framework

To maintain registers A and B in balance Schedule B sets out various requirements and expectations to allow for a consistent and manageable approach to the estimation of salinity impacts, these include:

- Developing, maintaining, and from time to time altering, models that:
 - simulate, under Baseline Conditions, the daily salinity, salt load and flow, over the Benchmark Period, for the Ovens, Kiewa, Goulburn, Broken, Avoca, Loddon, Campaspe, Wimmera River Valleys and Vic Mallee Zone as identified as the Victorian Valleys in Appendix 1 of Schedule B (unless an MDBA model can simulate these matters),
 - simulate, under Baseline Conditions, saline groundwater accessions to surface waters, where required for the assessment of Accountable Actions or Delayed Salinity Impacts for which Victoria is responsible,
 - must be capable of estimating or, in the case of groundwater, supporting the estimation of the salinity impacts of Accountable Actions and Delayed salinity impacts for each Valley and each End-of-Valley Target site specified in Appendix 1 for each of the years 2000, 2015, 2030, 2050, 2100 and for such other years as the Authority determines.
- Proposing amendments to any estimate of Accountable Actions, using the best information available at the time.
- Informing the MDBA of any Proposal which may have a Significant Effect, or which the Victorian Government, acting reasonably, considers is likely to have a Significant Effect
- In accordance with BSM2030 Procedures providing the MDBA all relevant information to allow the Authority to accurately assess the salinity impacts of a proposal or action it has declared an Accountable Action.
- Providing the MDBA all relevant information to assist it to make estimates of Provisional entries in registers
- Carrying out the monitoring it is required to undertake: to fulfil its reporting obligations, and giving the MDBA the results of its monitoring
- Giving the MDBA a proposed program to monitor the salinity impacts of Accountable Actions and Delayed Salinity Impacts for which it is responsible
- Reviewing matters specified in the Review Plan prepared by the MDBA, including:
 - matters for which Victoria is responsible under the Review Plan, in accordance with the Review Plan and any relevant BSM2030 Procedures.
 - an estimate (based on the best information available) of the cumulative effect of the Accountable Actions or Delayed Salinity Impacts, in Victoria, on the salinity, salt load and, where relevant, the flow regime in the Murray River in the current year and in each of 2000, 2015, 2030, 2050 and 2100
 - information about salinity trends, predictions, and risk profile for the relevant valley in relation to Victoria's End-of-Valley Targets
- Meeting the cost of undertaking and monitoring State Actions, as defined in Schedule B, in Victoria.
- Contributing to maintaining river salinities at Morgan below 800 EC for 95% of the time

Further context for many of these obligations will come to light later in this manual.

2.1.1 Delayed Salinity Impacts

Any action taken in Victoria before 1 January 1988 which has a Significant Effect on the baseline conditions outlined above after 1 January 2000 is called a **Delayed Salinity Impact**. The salinity impacts of these actions may take many decades to become manifest in rivers, or their salinity response curve may not be linear in the first 30 years. 'Legacy of History' actions undertaken in the catchments, such as the clearing of native vegetation in the Mallee, are examples of the Delayed Salinity Impacts recorded in a register.

2.1.2 Reporting, auditing, and review

Victoria must meet the reporting obligations specified in Schedule B that is, it must provide the MDBA with a status report or a comprehensive report in alternating years. These reports include monitoring data from end-of-valley target sites, Accountable Actions, environmental watering, proposals that have been notified to the MDBA, joint works and measures, and any other BSM2030 related activities and responsibilities.

Part VII of Schedule B sets the obligation for Victoria and other basin states to prepare, in accordance with any BSM2030 Procedures:

- a status report for the financial year commencing on 1 July 2017 and every second financial year thereafter,
- a comprehensive report for the financial year commencing on 1 July 2018 and every second financial year thereafter, and
- to give those reports to the Authority as soon as practicable after the end of the financial year to which the report relates and, in any case, by 30 November in the following financial year.

Full details on Victoria's specific Monitoring, Reporting and Auditing are included in Section 4 of this manual.

3. Roles and responsibilities

The hierarchy of agencies involved in Victorian salinity management is shown Figure 2: Victorian salinity management agencies below. DELWP is the lead agency under the Murray-Darling Basin Agreement in Victoria and hence has the responsibility to manage accountabilities under BSM2030. Many of the regional implementation responsibilities are devolved to CMAs through the *Catchment and Land Protection Act 1994*.

3.1 Murray-Darling Basin Authority (MDBA)

MDBA administers the Murray-Darling Basin Agreement and has the primary carriage for the implementation of BSM2030.

3.2 Victorian Minister for Water

The Minister for Water has responsibility for meeting Victoria's BSM2030 implementation, monitoring, and reporting responsibilities. Importantly the Minister has responsibility to ensure Victoria keep the cumulative total of all salinity credits in excess of, or equal to, the cumulative total of all salinity debits, attributed to it in both Register A and Register B. The Minister then determines how these credits are allocated to CMAs in Victoria to offset debit actions.

The Minister for Water allocates Victorian salinity credits to CMAs, following an application by the CMA to manage a particular debit. The magnitude of the allocation is based on the calculated long-term impact of the proposed actions. The application should put forward a case based on the benefits of using the credits, the consistency with relevant Land and Water Management Plans, the ability to use the salinity credits, and the cost sharing arrangements. Appendix B details the minimum information required in such applications.

The Minister for Water can allocate salinity credits to CMAs to offset preliminary salt impact assessments for projects prior to the works being undertaken. The Minister reserves the right to recall the allocation from the CMA for various reasons including to reallocate in Victoria's best interest if the preliminary estimate is over estimated or in the case of removal of an Accountable Action from the registers. The project proponent must undertake more detailed salt impact assessment as the scope of work is refined.

3.3 Department of Environment, Land, Water and Planning (DELWP)

DELWP is the Government Department responsible for Victoria's compliance with BSM2030 on behalf of the Minister for Water. DELWP is responsible for managing the Victorian state salinity register, coordinating annual reports, overseeing rolling reviews of register items, salinity credit claims and assessing new Accountable Actions, including all formal submissions to the MDBA. DELWP co-ordinates and chairs the Victorian Salt Disposal Working Group (VSDWG) and the Victorian Salt Disposal Advisory Group (VSDAG) and co-ordinates advice to the Minister.

DELWP oversees the development of salinity models in Victoria for assessing salinity impact in the basin. DELWP then presents the models and outcomes for endorsement by the Basin Salinity Management Advisory Panel, and approval by MDBA. The enduring storage and management of salinity models remains a responsibility of the CMAs.

DELWP develops and oversees the implementation of environmental watering policies for Victoria, and it funds environmental water management in Victoria.

DELWP conducts community awareness and communication activities to highlight the importance of salinity management and actions being undertaken to protect land and water from salinity impacts.

All of Victoria's salinity credits are held by DELWP on behalf of the Minister for Water. This includes the salinity credits generated by the CMA's investment in partnership with the individual irrigators and credits generated by project proponents to offset project impacts.

3.4 Department of Jobs, Precincts and Regions (DJPR)

DJPR support salinity management in the Murray-Darling Basin through the Agriculture Victoria Group. The Agriculture Victoria Group supports a productive, globally competitive, and sustainable Victorian economy for an innovative and resilient agriculture, food, and fibre sector.

Agriculture Victoria Research (AVR) division undertake groundwater monitoring of "dryland salinity" bores in several CMA regions. Dryland salinity observation bore information is provided to the Victorian Water Measurement Information System (WMIS), Bureau of Meteorology (BOM), and on request to Landcare groups, local government, and landholders. These works support the review of new or existing Accountable Actions and this information is used to determine any likely emerging impact of dryland salinity on key environmental and productive assets.

Independently of dryland salinity monitoring the Biosecurity and Agriculture Services (BAS) division undertake groundwater monitoring of bores in some irrigation regions across Victoria in partnership with the relevant CMA.

DJPR staff maintain a watching brief on dryland salinity, allowing them to provide dryland salinity advice (not investigations) to all relevant stakeholders and advise communities on the importance of salinity management and actions undertaken to protect land and water from salinity impacts.

Agriculture Victoria BAS staff offer a broad range of extension services and manage several incentive projects funded under the wider DELWP Sustainable Irrigation Program. Benefits provided to an irrigation region or property through this work may provide ancillary benefits for salinity management and an opportunity for specific engagement on salinity management.

DJPR provide input to DELWP's BSM2030 reporting each year and are represented on VSDWG.

3.5 Catchment Management Authorities (CMAs)

The CMAs manage, at a regional level, the salinity debits offset by the allocated salinity credits within the State policy framework, ensuring:

- debits incurred are consistent with their application
- debits are accounted for in a regional salinity register managed by each CMA

Debits are reported in the biennial State comprehensive report that is audited by the Independent Audit Group for salinity in accordance with the Review Plan prepared by the MDBA.

The CMAs manage salinity credits and debits at a regional level. This management includes, but is not limited to the following actions:

- Coordinating the development and implementation of Land and Water Management Plans.
- Keeping communities aware of the importance of salinity management and actions being undertaken to protect land and water from salinity impacts.
- Promoting activities that minimise salinity impacts.
- Managing, storing, and archiving salinity models.
- Overseeing the initial assessments of potential new Accountable Actions, and continued maintenance on register if deemed an Accountable Action.

- Identifying potential new actions being implemented by government or private enterprise in their regions and for ensuring that the projects comply with Victoria's requirements.
- Preparing Seasonal Watering Proposals to inform the Victorian Environmental Water Holder's Seasonal Watering Plan.
- Managing environmental watering events.
- Applying through the VSDAG for the Minister to allocate credits to offset regional debits in certain circumstances.
- Allocating credits to offset the salinity impact of regional actions and activities in accordance with Government agreed priorities to maximise regional benefits.
- Monitoring Accountable Actions including undertaking, reporting, and reviewing, asset management, replacement, and installation of new sites.
- Undertaking rolling reviews of regional Accountable Actions in accordance with BSM2030, its Procedures, and the MDBA endorsed Review Plan.
- Updating regional registers each year using new data and agreed assumptions.
- Annual reporting on BSM2030 implementation at a regional level.
- Providing regional input to DELWP's BSM2030 biennial status reports and comprehensive reports.
- Providing representation on VSDWG and VSDAG.

It is valuable to note that the list above is not an exhaustive list of CMA responsibilities or actions. It is also important to mention that many actions undertaken by the CMAs deliver regional benefits on a far wider spectrum than just the CMAs commitments to manage salinity.

CMAs are active partners in the implementation of activities to support the BSM2030 in Victoria. The CMAs provide a valuable contribution during the meeting with the Independent Audit Group (IAG) for Salinity. The Auditors have commended Victoria's partnership approach on many occasions.

The CMA in partnership with DELWP and DJPR undertake a review of Delayed Salinity Impacts in accordance with the Review Plan.

In the Mallee region of Victoria, the CMA is also responsible for managing the salinity impact to the landscape and floodplain from irrigation development, as well as the impact to the Murray River. This is supported by the Determination of Salinity Impact Zones and Salinity Impact Charges in this region. It is not a requirement under the BSM2030 strategy, although closely aligned.

3.6 Goulburn-Murray Water (GMW)

GMW's primary role under BSM2030 is as the Victorian Constructing Authority under the Agreement which sees GMW responsible for the implementation of the joint works salt interception program and the management of a range of Victorian salinity management works. In Victoria this includes the Pyramid Creek GIS, Barr Creek Drainage Diversion Pumps, and the Mildura-Merbein SIS.

GMW is also represented on the VSDWG due to the nature of its regional relationships with CMAs in developing and delivering works and activities as part of Land and Water Management Plan implementation.

GMW helps in keeping communities aware of the importance of salinity management and actions being undertaken to protect land and water from salinity impacts.

3.7 Lower Murray Water (LMW)

LMW undertakes a range of administrative functions associated with the issuing of water-use licences, the collection of salinity impact charges in salinity impact zones, and the provision of data to the Mallee CMA. LMW also support the development and implementation of the Victorian Mallee Irrigation Region Land and Water Management Plan.

LMW support efforts to maintain community awareness of the importance of salinity management and the actions being undertaken to protect land and water from salinity impacts.

3.8 Victorian Salt Disposal Working Group (VSDWG)

The VSDWG is a multi-agency working group with the primary purpose of supporting DELWP in the management of Salinity Registers A and B. The VSDWG advises the DELWP Deputy Secretary Water and Catchments Group on the management of Victoria's salt credits and provides advice on Victoria's compliance with BSM2030. The working group members represent DELWP, Murry-Darling Basin CMAs, Agriculture Victoria (DJPR), GMW and LMW.

VSDWG meet quarterly, the full terms of reference for the VSDWG and the VSDAG are attached to this manual as Appendix C.

3.9 Victorian Salt Disposal Advisory Group (VSDAG)

The Victorian Salt Disposal Advisory Group includes the Chairs and Chief Executive Officers of the Mallee, North Central, and Goulburn Broken CMAs. It is chaired by the DELWP Executive Director Markets, Infrastructure and Rural Strategy, with executive support provided by the Convenor of the Victorian Salt Disposal Advisory Group. The purpose of the Victorian Salt Disposal Advisory Group is to advise the Victorian Minister for Water on the generation, allocation, and management of Victoria's salinity credits and to ensure the cooperative and coordinated state-wide management of the salinity credits. VSDAG meet on an ad hoc basis.

3.10 Summary of the interactions between different agencies

Figure 2 below summarises the interactions between the different agencies involved in salinity management in Victoria.

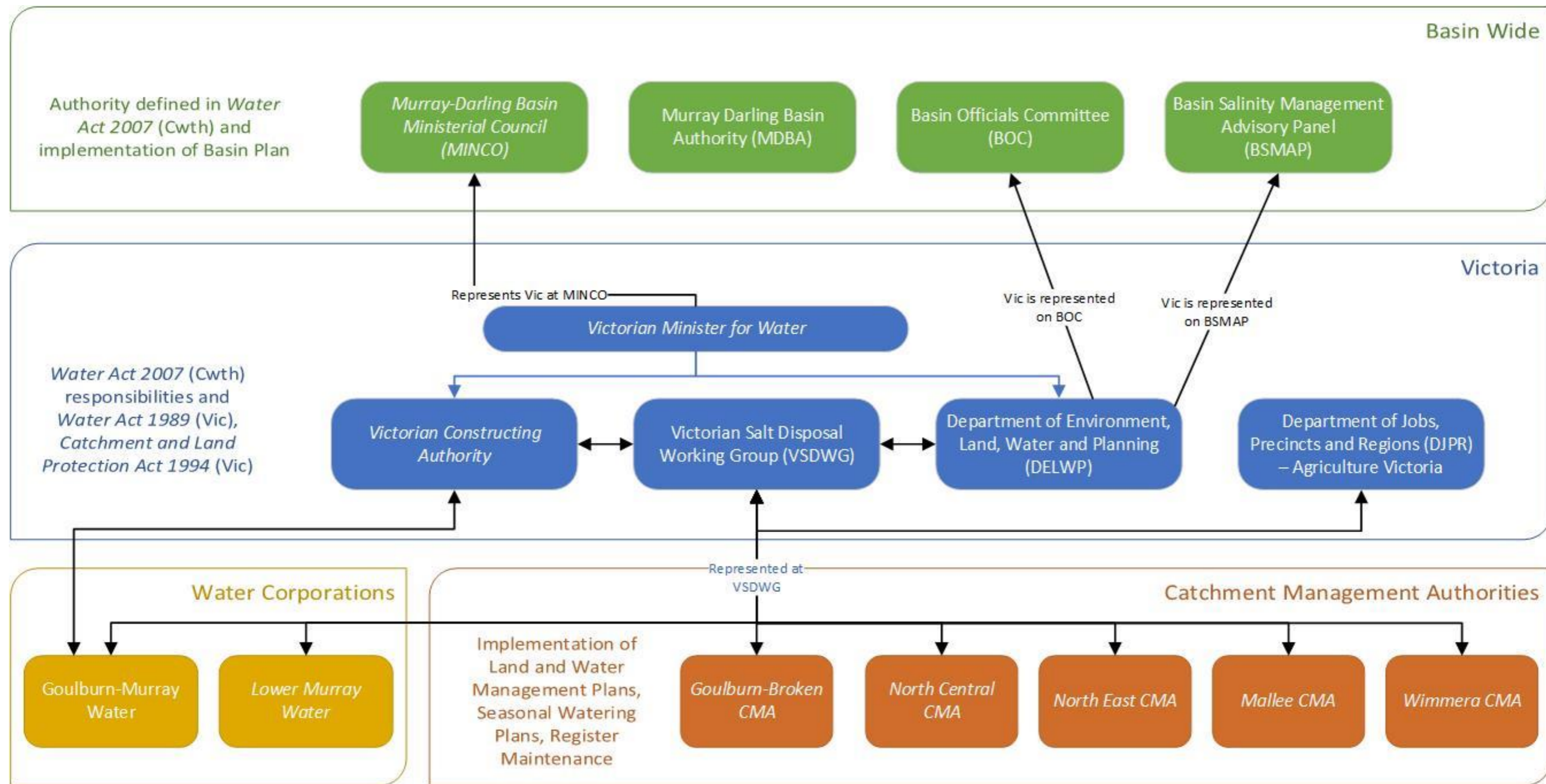


Figure 2: Victorian salinity management agencies

4. Victoria's Salinity Accountability and Management Framework

The following section provides a high-level guide for salinity managers and sets out the procedures and processes Victoria follow to ensure compliance with Schedule B and to deliver BSM2030 commitments in a cost-effective way. Collectively, these procedures and processes constitute Victoria's salinity accountability and management framework.

Any action undertaken within the Murray-Darling Basin which could have a Significant Effect on the salinity in the Murray River must undergo a salinity impact assessment to determine if it becomes an Accountable Action. A Significant Effect is a change in electrical conductivity (EC) of 0.1EC in the Murray River at Morgan, South Australia. Once an activity is determined to be an Accountable Action it is listed on the MDBA's Salinity Registers and is periodically reviewed by an identified lead agency.

4.1 Assessing the salinity impact of potential Accountable Actions

When a new action is undertaken within Victoria, and it has been identified as potentially having a significant salinity impact an initial salinity impact assessment needs to be completed. Assessments must follow the *BSM Procedure – Salinity impact assessment* process. The *BSM Modelling Procedures* provide guidance on choosing a suitable modelling approach to be used in assessing salinity effects. If the proposed action involves an action likely to increase the salinity in the Murray River the assessment must be completed prior to the action becoming fully operational. If the action is likely to reduce the amount of salinity in the Murray River the assessment must be completed after the works are fully operational. The initial assessment involves three stages:

- Identifying potential Accountable Actions.
- Determining whether they potentially have a Significant Effect on the salinity at Morgan.
- Assessing the salinity impact and recommending to MDBA that a new Accountable Action is required (if appropriate).

The first stage requires the CMA to identify new or upcoming activities and report these to DELWP. The activities are then discussed by the VSDWG and it is determined whether or not an initial salinity impact assessment is considered necessary. The initial salinity impact assessment, such as a Rule of Thumb or Ready Reckoner approach will advise the next process, whether the action is deemed not to have an effect and recorded in VSDWG meeting papers and minutes or whether the action is referred to MDBA as a recommendation for a new Accountable Action.

The assessment procedure for this first step is outlined in Figure 3. It applies to all potential Accountable Actions in Victoria – whether the proponent is a government agency or a commercial entity.

Assessing the salinity impact of a new proposal

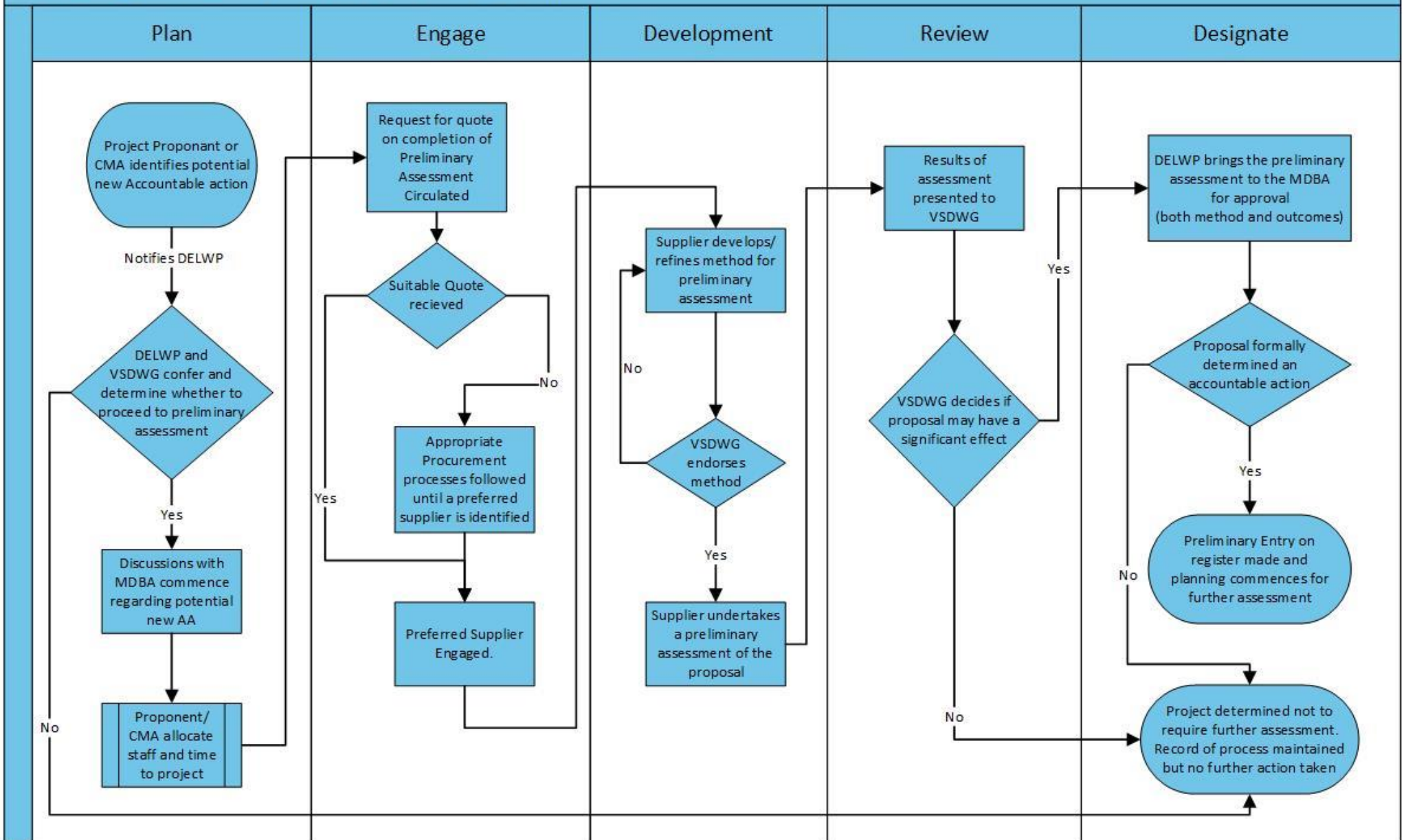


Figure 3: Assessing the salinity impact of a new proposal

4.2 Further assessment and review of Accountable Actions, and delayed salinity impacts

4.2.1 General approach for the review and assessment of Accountable Actions and delayed salinity impacts

The salinity impacts of proposed works programs must be approved by the MDBA before being entered onto the register. Further assessment and review must follow the *BSM Procedure – Conducting reviews and assessments*. The *BSM Modelling Procedures* provide guidance on choosing a suitable modelling approach to be used in assessing salinity effects.

To progress the assessment and for the impacts of proposed works to be estimated by the MDBA the proponents must contact and provide the Victorian representative on the Basin Salinity Management Advisory Panel (BSMAP) with details of:

- Proposed operating rules.
- Estimation of monthly salt disposal over the benchmark period.
- Likely effects of drainage effluent on water quality (particularly algal blooms) and environmental values of waterways which receives drainage discharges.
- Monitoring arrangements.

It is the responsibility of DELWP to arrange for the MDBA to estimate or re-estimate the credit/debit outcome using the approved MDBA River Model. The onus is on the CMA to provide all relevant information to make a salinity assessment. This should be done in accordance with the steps outlined in Figure 4.

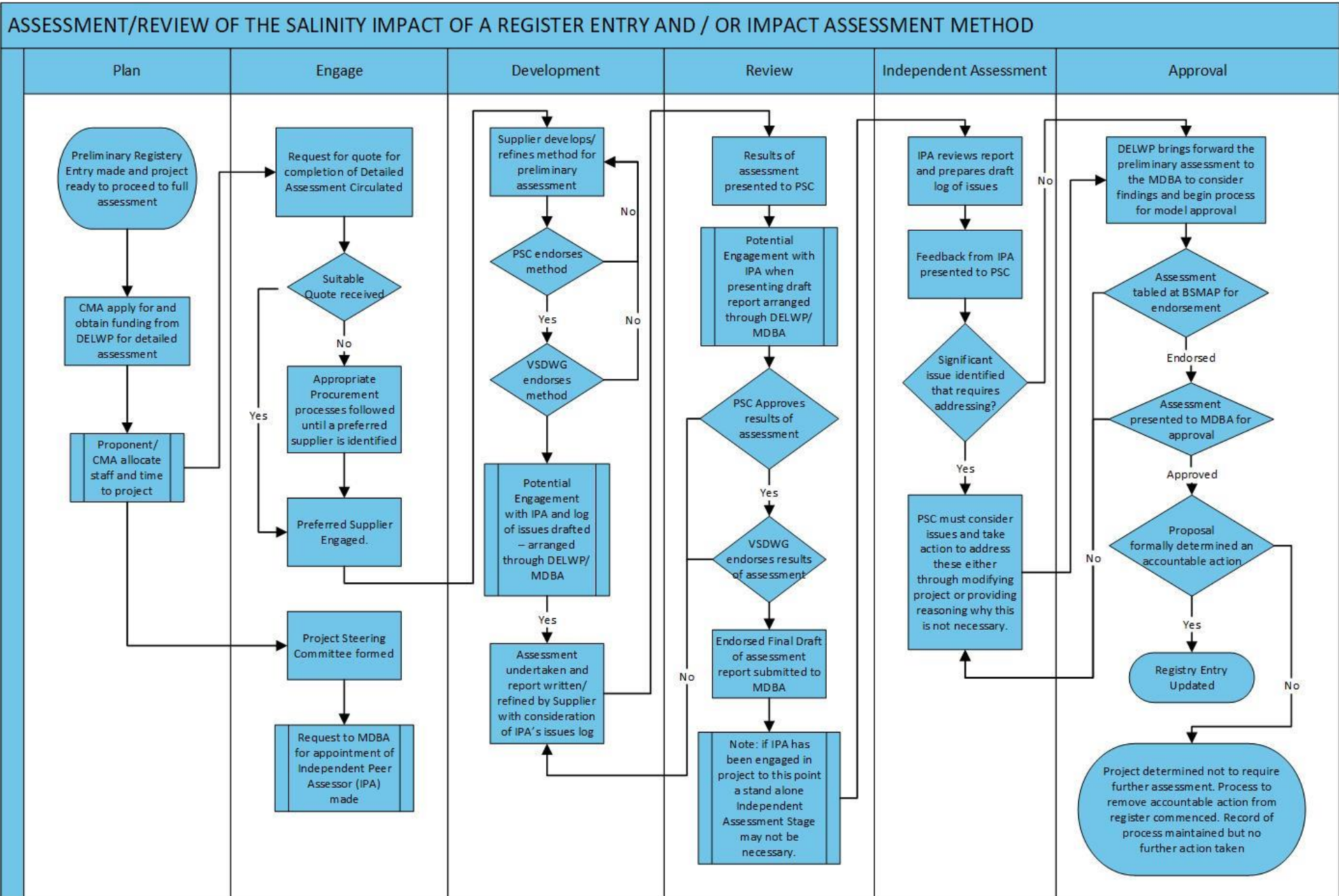


Figure 4: Assessing the Salinity Impact of an Accountable Action or Reviewing an Existing Accountable Action or Method

4.2.2 Accounting for environmental watering actions

In accordance with *BSM Procedure – Environmental water accountability*, environmental water actions must be brought forward as proposals for assessment to determine whether an Accountable Action should be declared and if so, what the corresponding register entry should be. The salinity impact assessment process for environmental water actions must be undertaken in accordance with the *BSM Procedure – Salinity impact assessment process* in addition to the specific requirements set out in this manual.

The review of any Accountable Actions arising from environmental water actions must be undertaken in accordance with the *BSM Procedure – Conducting reviews and assessments* and the *Review Plan*

Unless otherwise agreed, DELWP is the lead agency responsible for the salinity impact assessment of the following environmental water actions in Victoria:

- Recovery of Basin Plan water.
- Operation of Sustainable Diversion Limit (SDL) adjustment works or measures.
- Operation of The Living Murray (TLM) works or measures.

Where the MDBA is the lead agency for an assessment, if Victoria has any information in its possession that may assist the MDBA to assess the salinity impacts of the Accountable Action accurately, Victoria must give the information to the MDBA.

Environmental watering is estimated to have a net long-term salinity benefit for the shared water resources due to the substantial dilution benefits from delivering the water. However, some environmental water actions may also mobilise salt into the river system.

The Commonwealth must make available to Victoria and to the Collective Account, sufficient credits to offset debits associated with environmental water actions, except where:

- salinity credits are not available in the Commonwealth Account.
- pre-existing contractual arrangements stipulate other arrangements for Commonwealth credits.
- the requirements set out in Table 1 below are not met.

Table 1: Requirements for processing Commonwealth offsets

Debit to be offset	Demonstration of alignment
Recovery of Basin Plan water	Clear documentation demonstrating that water recovered is Basin Plan water Salinity impacts are determined using approved fit-for-purpose models or methods, in accordance with Schedule B
Operation of SDL adjustment works or measures	Clear documentation demonstrating the alignment between the project and the achievement of ecological outcomes of the Basin-wide Watering Strategy, e.g., endorsed operational plan Salinity impacts are determined using approved fit-for-purpose models or methods, informed by an endorsed operational plan, in accordance with Schedule B
Use of environmental water to support Basin Plan outcomes	Clear documentation demonstrating the use of environmental water consistent with Basin-wide Watering Strategy e.g., environmental water proposals Salinity impacts are determined using approved fit-for-purpose models or methods in accordance with Schedule B (Note: this is a knowledge priority under BSM2030)

If the requirements detailed in Table 1 are met, and there are existing credits available in the Commonwealth Account the MDBA require the issues in Table 2 to be addressed before credits can be transferred to a State Contracting Government.

Table 2: Requirements for the MDBA to transfer credits to a State Contracting Government

Issue	Requirement
Timing	State Contracting Governments must make a request for transfer to the MDBA by 30 November of a given year in order to have offsets incorporated into register updates for the following year.
Analysis of impacts	After receiving a request for transfer of TLM credits to a State Contracting Government, the MDBA must, using a method commensurate with risk, analyse the impacts to the registers and inform Contracting Governments of the findings
Mitigation of impacts	If MDBA or any Contracting Government considers the impacts of the transfer on the Collective Account to be unacceptable, the MDBA, acting on the advice of BOC and in accordance with Schedule B and any BSM Procedures, may take further action to mitigate the impact on the Collective Account. The MDBA must, regardless of impacts on the Collective Account, process the transfer of a State Contracting Governments TLM credits, unless the MDBA is directed otherwise by BOC

4.3 Accountable Action and Delayed Salinity Impact Reviews

The salinity registers are continually updated both as works and measures change through time and as the available data sets for assessing the impact of works and measures against a benchmark period is extended.

In the interests of streamlined and fit-for-purpose governance, reviews should be flexible, efficient and fit-for-purpose, and they should consider risk in prioritising effort. In this context, BSM2030 has moved away from a strict five-year review cycle for all Accountable Actions.

Individual register entries are now reviewed under the Review Plan prepared by the MDBA in accordance with Schedule B. This involves a more detailed analysis compared to the content of an annual report and a description of the requirements is included in *BSM Procedure – Conducting reviews and assessments*.

Victoria’s primary accountability is to review the register entry and to submit updates to the MDBA. A range of checks and approvals have been built into the procedure to ensure that the relevant stakeholders are kept informed as the reviews are completed. It should be noted that there are also MDBA procedures for approving and implementing any register changes. These are not shown in Figure 4 but can be referenced through the *BSM Procedure – Register entries*.

In following this procedure, Victoria continuously meets its accountability to maintain and update the Registers. It is important to note that under Clause 24 of the Agreement, the MDBA can review the register entries at any time if it so chooses. It should also be noted that each CMA maintains its own register to track all changes to the assessed impacts of actions within its region. These regional registers are audited and updated regularly and are used for annual reporting purposes.

CMAs may undertake a risk analysis before commencing a review, and based on the outcomes of this analysis, they may propose a revised approach to DELWP and MDBA. This may include splitting actions or alternatively packaging Accountable Actions together. The magnitude and variability of salinity effect should be used to determine the frequency of reviews of Accountable Actions and Delayed Salinity Impacts.

4.4 Process for applying for salinity credits

The instance where an action causing a salinity debit is related to recovery of environmental water, Victoria may be eligible to claim equivalent credits from the Commonwealth account.

4.4.1 MDBA 'Joint Works' Salinity Credits Process

Salinity credits are entered on the Register in accordance with *BSM Procedure – Register entries*. State generated credits as accounted for under the state's salinity account, however this is more difficult when considering the accountabilities and allocation of credits associated with shared activities. The default arrangements are shown in Table 3 below.

Table 3: Default arrangements for entering credits and debits by register account

Accountable Action type	Default arrangements for entering credits and debits on the Register
State action	Relevant Basin State account
Shared state action	Shared between relevant Basin State accounts in a proportion agreed by the relevant State Contracting Governments
Joint works or measures	According to agreed arrangements for attributing the benefits of joint works or measures
Shared works or measures	Joint works or measures component according to agreed arrangements for attributing the benefits of joint works or measures State action component to the relevant state account
Salinity and Drainage Strategy works or measures	According to agreed arrangements Salinity and Drainage Strategy works or measures
Environmental water actions excluding TLM	According to agreed environmental water accountability arrangements
The Living Murray (TLM) actions	According to agreed arrangements for attribution of TLM set out in <i>BSM Procedure – Environmental water accountability</i>
Other	As formally agreed by concerned parties, where no other agreement existed previously.

The BSMS sought to increase the number of available salinity credits by 61EC through a program of joint works. This was a direct action to address the outcomes of the Salinity and Drainage Strategy (S&D Strategy) review in 2000, which identified continued increases in the projected future salinity levels, including the effects of the Delayed Salinity Impacts. It was anticipated at the time that some 31 EC would be required to offset Delayed Salinity Impacts across the basin. On top of this, the three State Government signatories to the joint works program required, in total, an additional 10EC to offset a range of Accountable Actions within their jurisdictions. These included new irrigation development, surface drainage construction, and Land and Water Management Plan implementation.

The vehicle for achieving the 61EC gain was a series of joint Salt Interception Schemes (SISs). The arrangements for division of the 61 EC credits is covered in Table 4 below.

Table 4: Distribution of credits gained from joint SIS

Jurisdiction	Register A	Register B
South Australia	16.39% (10/61)	8.61% (5.25/61)
Victoria	16.39% (10/61)	8.61% (5.25/61)
New South Wales	16.39% (10/61)	8.61% (5.25/61)
Commonwealth	0% (0/61)	25% (15.25/61)
Subtotal	49.17% (30/61)	50.83% (31/61)

The Commonwealth’s share of the 25% of Register B credits are shared between the three states according to the level of risk posed by Legacy of History, meaning South Australia received 80%, NSW received 15% and Victoria received 5%.

An overview of key roles and responsibilities is provided in Table 5 below.

Table 5: Lead agency responsible for undertaking the assessment

Accountable Action is wholly or partly:	Lead agency
Joint work or measure	Contracting Government responsible for the work or measure
State action	Relevant State Contracting Government/s
Collective Account actions	Contracting Government nominated by BOC
Environmental water actions	See BSM Procedure – Environmental water accountability

4.4.2 Victorian salinity credits process

The general process for developing and approving new proposals in Victoria is defined according to the key stages in Figure 5. It should be noted that there is no restriction on who can act as the proponents for proposals.

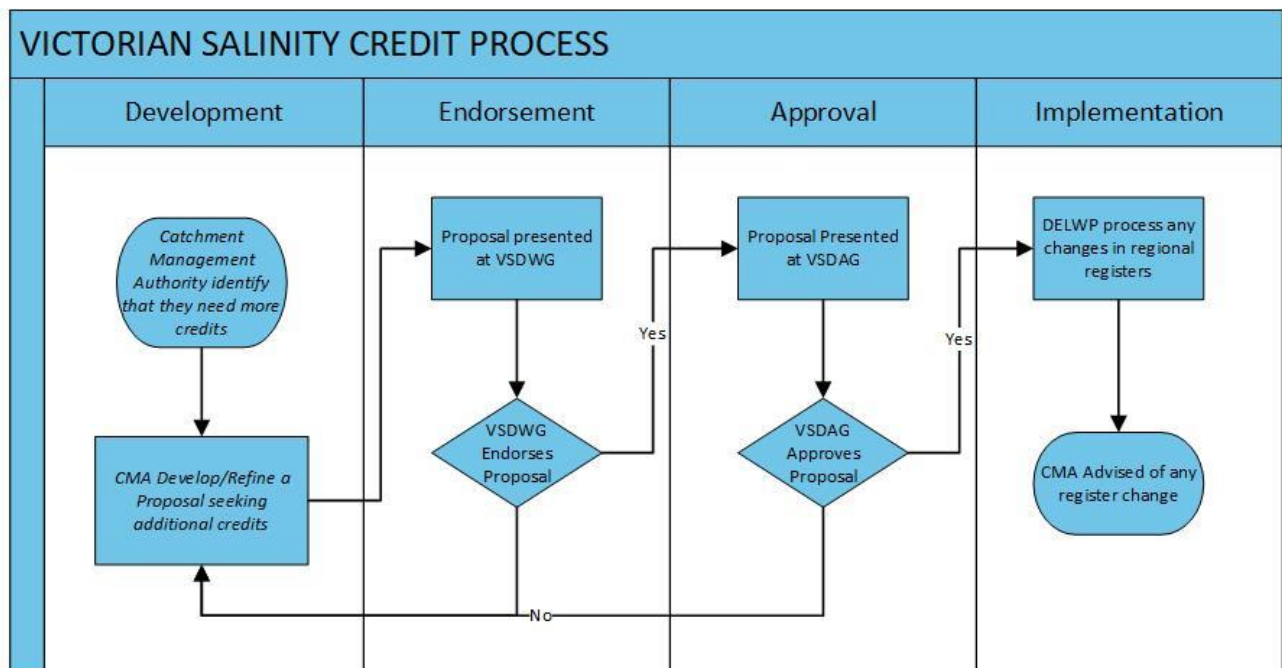


Figure 5: Victorian salinity credit process

5. Monitoring, Reporting and Auditing

Under Schedule B, Victoria is required to carry out monitoring essential to fulfil its reporting obligations to the MDBA. Victoria is required to maintain an accurate record of sites which are part of the Basin Wide Core Salinity Monitoring Network, and supply this to the MDBA on request. Each of the basin states report to the MDBA on an annual basis alternating between comprehensive and status reports biennially.

The MDBA appoints Independent Auditors who audit the comprehensive reports prepared by basin states biennially. The independent auditors must, in each audit, reach a view by consensus about the performance of each Contracting Government (including Victoria) and of the Authority in implementing the provisions of Schedule B since the previous audit.

This section outlines the requirements, the processes which guide these functions, and steps required to deliver on these commitments.

5.1 Monitoring

Monitoring in the context of basin salinity management in Victoria is guided by the *BSM Procedure – Monitoring*. Monitoring is required for DELWP to fulfil the reporting obligations discussed below, briefly these requirements include monitoring of End-of-Valley-Target (EoVT) sites, Accountable Actions, and delayed salinity impacts. The design of monitoring programs is guided by the reporting requirements and to ensure appropriate data is collected to support the tools used in evaluating the success of Victoria's implementation of BSM2030.

Monitoring of EoVT was a product of the BSMS development, more recently BSM2030 states that contemporary understanding of future increases in salt loads from most valleys are less than previously estimated and that shared impacts will continue to be recorded through the salinity register. Consequently, the focus on End-of-Valley-Targets (EoVT) was reduced in BSM2030. End-of-Valley Target sites and the associated targets are set out in Appendix 1 of Schedule B. EoVTs provided an indicator of catchment health under the BSMS and were retained under BSM2030 to support consistency of monitoring and reporting activities. Monitoring at EoVT sites has been retained to provide a valley scale context for management of salinity risk to shared water resources and within-valley assets and to provide information for assessing the risk of salinity upon water resources within the water resource areas of the Basin Plan.

Victoria has several established EoVT monitoring sites. Monitoring at EoVT sites must involve continuous flow and salinity monitoring. Requirements for the interpretation and use of the results of monitoring at EoVT sites are described in more details in *BSM Procedure – Catchment salinity*.

Individual Accountable Actions have a range of associated monitoring requirements covering observation bores, stream/drain gauging sites, etc. Individual monitoring programs are developed for each Accountable Action during the assessment process. The proponent (CMA or otherwise) is then obliged to continue the monitoring program unless desirable changes are identified during a review.

Typically, the CMAs are responsible for the development, operation, and maintenance of salinity monitoring programs.

5.2 Reporting

Victoria's reporting responsibilities in relation to salinity management are guided by the *BSM Procedure – Reporting*. Victorian reporting alternates biannually with status reports one year and comprehensive reports on alternating years. State Comprehensive reports undergo a coordinated audit by a panel of independent auditors appointed by the MDBA.

The reporting period is the financial year from 1 July to 30 June, and reports are due by 30 November. Table 6 outlines the reports required from DELWP up to 2030. All reports are made publicly available.

Table 6: Victorian Reporting Schedule

Monitoring Period		Type of Report	Report Delivery Year	Audit Year	Report Name
Start	End				
Jul-20	Jun-21	Comprehensive	2021	Yes	Victoria's Comprehensive Report 2021 Basin Salinity Management 2030
Jul-21	Jun-22	Status	2022		Victoria's Status Report 2022 Basin Salinity Management 2030
Jul-22	Jun-23	Comprehensive	2023	Yes	Victoria's Comprehensive Report 2023 Basin Salinity Management 2030
Jul-23	Jun-24	Status	2024		Victoria's Status Report 2024 Basin Salinity Management 2030
Jul-24	Jun-25	Comprehensive	2025	Yes	Victoria's Comprehensive Report 2025 Basin Salinity Management 2030
Jul-25	Jun-26	Status	2026		Victoria's Status Report 2026 Basin Salinity Management 2030
Jul-26	Jun-27	Comprehensive	2027	Yes	Victoria's Comprehensive Report 2027 Basin Salinity Management 2030
Jul-27	Jun-28	Status	2028		Victoria's Status Report 2028 Basin Salinity Management 2030
Jul-28	Jun-29	Comprehensive	2029	Yes	Victoria's Comprehensive Report 2029 Basin Salinity Management 2030
Jul-29	Jun-30	Status	2030		Victoria's Status Report 2030 Basin Salinity Management 2030

In Victoria, CMAs report annually to DELWP. The CMA reports inform DELWP's Statewide report to the MDBA. The process for the preparation of Victorian BSM2030 reports is as outlined in Figure 6 below.

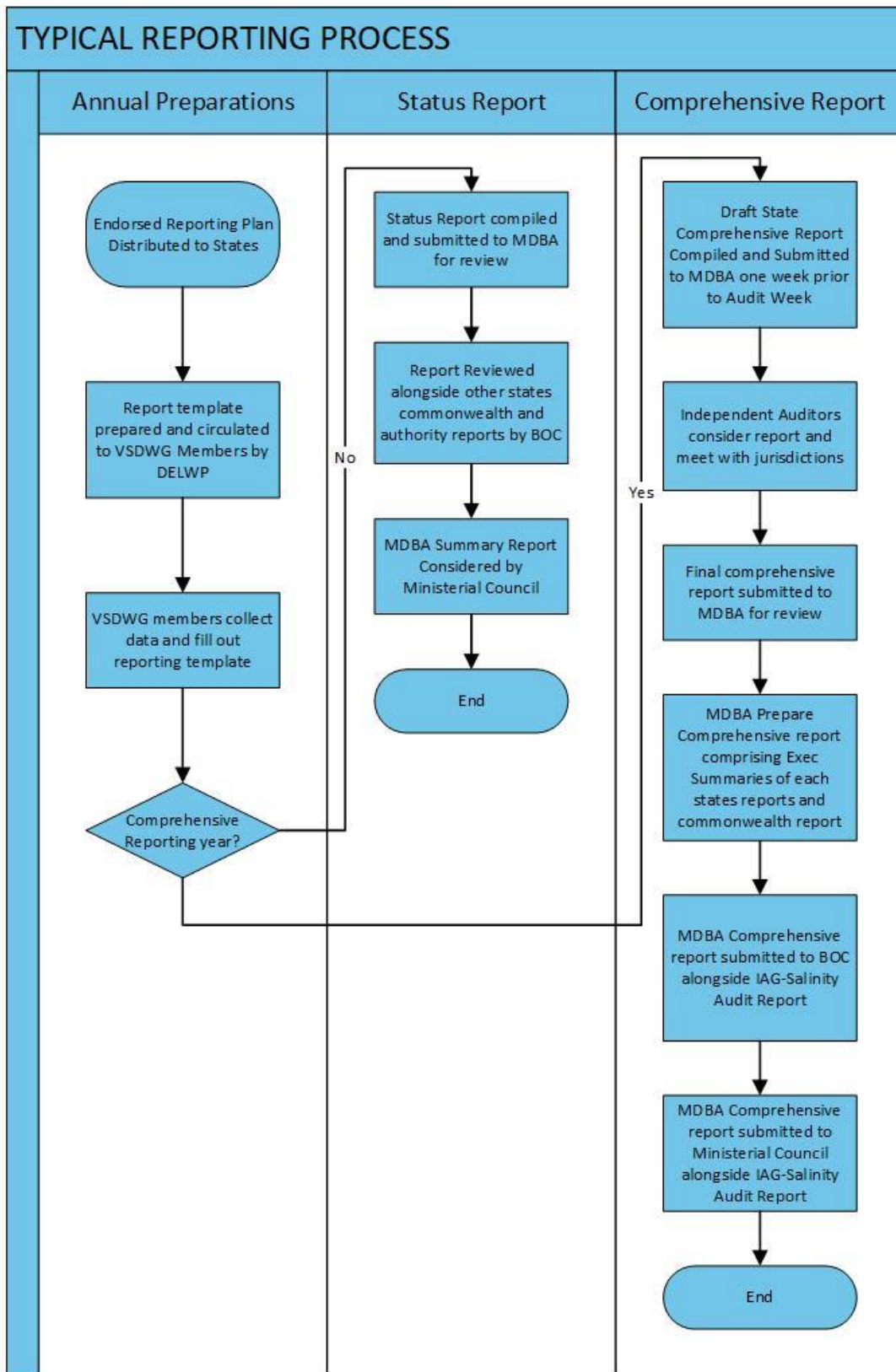


Figure 6: Typical Reporting Process and Timeline

The CMAs submit annual regional progress reports to DELWP to demonstrate their compliance with BSM2030 and to inform Victoria’s Reports to the MDBA. The biennial reports describe the magnitude of the annual and cumulative salinity debits and credits recorded in the registers – based on the assumptions included in the original application for, or the most recent reviews of, the Accountable Actions and Delayed Salinity Impacts.

5.3 Auditing

The MDBA and Contracting Governments must seek independent and constructive feedback on whether the BSM2030 objectives and obligations under Schedule B of the Murray-Darling Basin Agreement are being met. The MDBA facilitates an independent audit and assessment every second year to meet this requirement and ensure continuous improvement over the life of the BSM2030 strategy. The MDBA submits Victoria's Comprehensive Reports, covering a two-year monitoring period, to the Independent Audit Group for Salinity, for auditing.

In preparing for audits, the CMAs provide detail pertinent to the relevant audit cycle. This includes information on context, priorities, reporting requirements, timelines, and meeting schedules. It also includes new developments, and progress on matters raised in previous audits, to inform continuous improvement.

An independent Auditor must, under the provisions of Schedule 1, audit both Victoria's Comprehensive report and the two Registers; A and B. The Independent Audit Group for Salinity undertakes this biennial audit as part of a broader set of reporting and auditing requirements for BSM2030 implementation, these are outlined in Schedule B and reporting BSM2030 procedures.

The Independent Audit Group for Salinity reports its findings and recommends actions it feels need to be taken to ensure continued or improved compliance with BSM2030. Victoria and other Contracting Governments are given an opportunity to respond to these recommendations. These recommendations are used to guide ongoing work in salinity management, and progress towards them is assessed in subsequent audits.

The timelines and key steps in the audit process are highlighted in the final steps of Figure 6.

6. Financial arrangements

Salinity management generates a range of costs which Victoria must meet in line with its accountabilities under Schedule B. The salinity cost effect on the users of river water is based on pre-determined cost functions. This cost is reflected in the MDBA Salinity Register. The Basin Salinity Target, to maintain modelled river salinities below 800 EC for 95% of the time, has been set to achieve a reasonable balance between the benefits of lower salinities for water users and the costs of the works and measures necessary to maintain lower salinities. The Basin Salinity Target is the driver for such works and measures; it has led to significant investment in joint salt interception schemes.

The costs of undertaking works and measures to avoid those salinity cost effects are significant. Implementation of works and measures that generate salinity credits not only require capital funding, but they also require ongoing funding to enable operation, maintenance, and asset renewal. DELWP provides ongoing financial support to CMAs to maintain regional programs, it also contributes to the joint works and measures program which operates and maintains the infrastructure installed such as the shared salt interception schemes.

Implementation of works and measures that generate salinity debits also incur similar costs, although the activities are generally driven by land and water management plans which typically have much lower operation and maintenance costs than salt interception schemes.

The financial arrangements for salinity management in Victoria are intended to ensure that Victoria continues to meet its accountabilities under Schedule B. In doing so, the established practice is for the beneficiaries of salinity management in Victoria to meet the ongoing annual costs in a fair and equitable fashion. Based on spreading costs across a mix of local, regional, and state-level beneficiaries in accordance with the level of benefit they derive from salinity management

The process by which the 'beneficiary pays' principle is implemented in Victoria is based on the degree to which local benefit are derived from having salinity credits available to offset the salinity debit impacts of implementing Land and Water Management Plans. Given that salinity debits for the state must be kept in balance with credits, the cost of any local works and measures must be proportional to the cost that was incurred to generate the offsetting credit.

As Land and Water Management Plans are renewed, they consider if and how the costs have changed over time in response to changing threat. The beneficiaries may need to be redefined where the threat has changed as a result of large-scale water projects such as water recovery for the environment, or the GMW Connections Project.

The Minister for Water sets the Salinity Impact Charges for irrigation in the salinity impact zones determined under the *Water Act 1989*. These charges are used to meet requirements under BSM2030, and to manage or mitigate landscape salinity impacts in the areas where the charges are collected.

The approach used for the collection of salinity levies and charges across Victoria should be broadly consistent, as simple as practical, and readily transparent. The revenue should be collected by the Minister's delegate (typically a water authority) and it should be retained for use by CMAs in the implementation of regional salinity programs.

7. References

Commonwealth of Australia. 2009. *Water Act 2007* Office of Legislative Drafting and Publishing, Attorney-General's Department, Canberra.

Catchment and Land Protection Act 1994. Victoria

Murray–Darling Basin Authority, 2015, Basin Salinity Management 2030 (BSM2030) Licensed from the Murray–Darling Basin Authority under a Creative Commons Attribution 3.0 Australia Licence

Murray-Darling Basin Ministerial Council, 2001, *Basin Salinity Management Strategy 2001-2015*, Murray-Darling Basin Commission, Canberra, August 2001.

Murray-Darling Basin Commission, 2005, *Basin Salinity Management Strategy - Operational Protocols Version 2.0*, Murray-Darling Basin Commission, Canberra, March 2005.

Water Act 1989. Victoria

Appendix A Registers A and B

Registers A and B are updated on a regular basis (annually at a minimum); as such the 2020 version attached below should be viewed as an **example only**.

Recent endorsed registers can be found in the appendices of the Basin Salinity Management Comprehensive reports as found on the MDBA webpage: www.mdba.gov.au/publications/mdba-reports/basin-salinity-management-2030

Basin Salinity Management Strategy 2030 (Murray-Darling Basin Agreement Schedule B)

Updated 5/11/2020

Salinity Registers "A" and "B"

Interpolation to Current Year Determined for Year = 2020

AUTHORITY REGISTER A (Accountable Actions)	Type	Date Effective	Provisional Salinity Credit (\$m/yr)	Current Impact on Morgan 95%ile Salinity (EC)	Impact on Flow at Mouth (GL/yr)	Salinity Effect* (EC at Morgan)					Salinity Credits* (Interpolation to Current Year Benefits \$m/year)								Commonwealth Contribution (EC)	BSM2030 review plan		Confidence																
						2000	2015	2030	2050	2100	Modelled Current Conditions (Interpolation to Current Year)	NSW	Vic	SA	Qld	ACT	Collective Actions	Commonwealth		Total	Latest Review	Next Review	Rating	Comment														
JOINT WORKS & MEASURES																																						
Former Salinity & Drainage Works																																						
1	Woolpunda SIS	SDS	Jan 1991	-74	0	-42.1	-43.5		-52.1	-59.1	-44.7	0.756	0.756							4.030	1	11.2	2018	2023	High	Based on 2013 Groundwater model												
2	Improved Buronga and Mildura/Merbein IS	SDS	Jan 1991	-6	0	-3.0	-3.0		-3.0	-3.0	-3.0	0.140	0.140							0.748	2	0.8	2005	2021	Medium	Based on Salt loads in river												
3	New Operating Rules for Barr Creek Pumps	SDS	Jul 1991	-8	0	-4.9	-4.9		-4.9	-4.9	-4.9	0.225	0.225							1.198	3	1.2	2011	2019	High	Rules need to be revisited 2007												
4	Waikerie Stage 1 SIS	SDS	Dec 1992	-22	0	-16.1	-14.2		-13.5	-13.7	-14.1	0.236	0.236							1.258	4	3.5	2018	2024	High	Based on 2012 Groundwater model												
5	Changed MDBC River Operations 1988 to 2000	SDS	Apr 1993	-1	4	-1.6	-1.6		-1.6	-1.6	-1.6	0.150	0.150							0.797	5	0.4	2005	2020	High													
6	Mallee Cliffs SIS	SDS	Jul 1994	-17	0	-11.4	-11.3		-11.3	-11.3	-11.3	0.516	0.516							2.750	6	2.8	2013	2021	High	Based on 2012 Groundwater model												
7	Changed Operation of Menindee and Lower Darling	SDS	Nov 1997	3	8	0.9	0.9		0.9	0.9	0.9	-0.146	-0.146							-0.776	7	-0.2	2005	2020	High													
8	Waikerie Phase 2A SIS	SDS	Feb 2002	-7	0	-3.3	-3.3		-3.6	-3.7	-3.4	0.055	0.055							0.291	8	0.8	2018	2024	High	Based on 2012 Groundwater model												
9	Changed MDBC River Operations 2000 to 2002	SDS	Feb 2002	-4	-1	-1.4	-1.4		-1.7	-1.9	-1.4	-0.136	-0.136							-0.725	9	0.4	2006	2020	High													
	Sub Total - Former Salinity & Drainage Works			-137	11	-83.0	-82.3	0.0	-90.8	-98.4	-83.6	1.795	1.795	0.000	0.000	0.000	0.000	0.000	0.000	9.572		20.9																
Basin Salinity Management Strategy																																						
10	Changed MDBC River Operations after 2002	BSMS	Dec 2003	1	7	-0.2	-0.2		-0.4	-0.4	-0.3	0.022	0.022	0.022							0.136	10	0.1	2005	2020	High												
11	Pyramid Ck GIS	BSMS	Mar 2006	-5	-3	-3.6	-3.5		-3.5	-3.4	-3.5	0.135	0.135	0.135							0.822	11	0.9	2016	2021	High	Remodelled 2016											
12	Bookpurnong SIS	BSMS	Mar 2006	-8	0	-5.0	-4.4		-7.4	-7.9	-4.8	0.090	0.090	0.090							0.551	12	3.0	2020	2025	Low	Updated for Loxton-Bookpurnong gw models											
13	Improved Buronga SIS	BSMS	Mar 2006	-1	0	-0.6	-0.5		-0.5	-0.5	-0.5	0.021	0.021	0.021							0.128	13	0.1	2006	2021	High												
14	Loxton SIS	BSMS	Jun 2008	-9	0	-7.0	-5.8		-10.5	-11.4	-6.4	0.125	0.125	0.125							0.763	14	2.7	2020	2025	High	Updated for Loxton-Bookpurnong gw models											
15	Waikerie Lock 2 SIS	BSMS	Jun 2010	-9	0	-5.9	-6.1		-6.1	-6.2	-6.1	0.068	0.068	0.068							0.416	15	1.5	2018	2024	High	Based on 2012 Groundwater model											
16	Upper Darling SIS	BSMS	Jun 2014	-4	0	-4.5	-4.6		-4.5	-4.5	-4.5	0.241	0.241	0.241							1.472	16	1.1	2014	2019	Low	Based on a reduction of 37.5t/d											
17	Murtho SIS	BSMS	Jun 2014	-15	0	-5.8	-5.9		-20.9	-21.0	-7.9	0.246	0.246	0.246							1.498	17	2.0	2018	2022	Medium	Based on 2014 Groundwater model											
	Sub Total Joint Works under BSMS			-49	4	-32.6	-30.9	0.0	-53.9	-55.4	-34.2	0.948	0.948	0.948	0.000	0.000	0.000	0.000	0.000	5.786		11.4																
	Joint Works Sub Total			-186	15	-115.6	-113.2	0.0	-144.7	-153.8	-117.7	2.743	2.743	0.948	0.000	0.000	0.000	0.000	0.000	15.358		32.3																
The Living Murray Works and Measures and Water for Rivers**																																						
18	TLM-RMIF 570 GL	TLM	Jun 2014	3,696																				2014	2020	Provisional	Provisional											
19	TLM Works and Measures	TLM	Jun 2014	-0.902																				2014	2020	Provisional	Provisional											
	TLM Sub Total			2,794	0	0.0	0.0	0.0	0.0	0.0	-19.8																											
BSM2030																																						
20	Responsive Management SIS	BSM2030	Jun 2016																																			
21	BtG Dilution benefits from delivery ^a	BSM2030	Jun 2015																																			
	Sub Total under BSM2030			0	0	0.0	0.0	0.0	0.0	0.0	-31.0																											
	BSM2030 and TLM Sub Total			0	0	0.0	0.0	0.0	0.0	0.0	-50.8																											
STATE WORKS & MEASURES																																						
Shared New South Wales and Victorian Measures																																						
22	Permanent Trade Accounting Adjustment - NSW to Victoria	50N50V	Jun 2006	0	0	0.0	-0.1		-0.1	-0.1	-0.1	0.003	0.003								0.006	22	0	2006	2020	High	No permanent trade since 2006											
23	Barnah-Millewa Forest Operating Rules	50N50V	Mar 2002	-2	33	-1.9	-2.0		-1.9	-2.3	-2.0	0.186	0.186								0.373	23	0	2006	2020	High												
	Shared Measures Sub Total			-2	33	-2.0	-2.1	0.0	-2.0	-2.3	-2.1	0.189	0.189	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.378		0															
New South Wales																																						
24	Boggabilla Weir	NSW	Dec 1991	0	0	-0.1	-0.1		-0.1	-0.1	-0.1	0.040									0.040	24	0	2007	2021	Medium	Remodelled 2007											
25	Pindari Dam Enlargement	NSW	Jul 1994	0	-17	0.7	0.7		0.7	0.7	0.7	-0.121									-0.121	25	0	2007	2021	Medium												
26	Tandou pumps from Lower Darling	NSW	Sep 1994	2	-3	-0.1	-0.1		-0.1	-0.1	-0.1	0.034									0.034	26	0	2005	2020	Medium												
27	NSW MIL LWMPs	NSW	Feb 1996	-4	57	-4.0	-4.0		-4.0	-4.0	-4.0	0.684									0.684	27	0	2010	2020	High												
28	NSW Changes to Edward-Wakool and Escapes	NSW	Jan 1990	-2	4	-2.0	-2.1		-2.0	-2.0	-2.0	0.366									0.366	28	0	2005	2020	High												
29	Permanent Trade Accounting Adjustment - NSW to SA	NSW	Jun 2006	-3	1	-0.5	-0.4		-0.4	-0.5	-0.4	0.109									0.109	29	0	2005	2020	High	No permanent trade since 2006											
30	NSW Sunraysia Irrigation Development 1997 to 2006	NSW	Jul 2003	3	0	0.0	0.9		4.5	6.1	1.4	-0.324									-0.324	30	0	2007	2021	High												
31	NSW Sunraysia Irrigation Development 2006 to 2018	NSW	Jul 2020									3.7																										
32	RISI Stage 1	NSW	Jun 2010	-5	0	-2.7	-3.9		-4.1	-4.1	-3.9	0.856									0.856	32	0	2016	2021	Medium	Provisional											
33	RISI Stage 2	NSW	Jun 2014	-5	0	-3.6	-3.8		-3.9	-3.9	-3.8	0.860									0.860	33	0	2014	2021	Medium	Coligan to Red Cliffs river reach											
34	NSW S&DS Commitment Adjustment	NSW	Nov 2002	0	0	0	0		0	0	0	0.910									0.910	34	0	2020	2020	Medium												
	New South Wales Works and Measures			-14	43	-12.4	-12.9	0.0	-9.4	-8.0	-8.7	3.414									3.414		0															
Victoria																																						
35	Barr Creek Catchment Strategy	Vic	Mar 1991	-12	0	-7.7	-7.7		-7.7	-7.7	-7.7										1.963	35	0	2020	2025	High	Reviewed in 2019											
36	Tragowel Plains SMP 2002 Drains	Vic	Mar 1991	2	4	0.8	0.9		0.8	0.8	0.9	-0.132									-0.132	36	0	2020	2025	High	Review finalised in 2019											
37	Shepparton Irrigation Region Land and Water Management Plan	Vic	Mar 1991	9	-61	5.7																																

AUTHORITY REGISTER B (Delayed Salinity Impacts)	Type	Year of Predictions	Provisional Salinity Credit (\$m/yr)	Current Impact on Morgan 95%ile Salinity (EC)	Impact on Flow at Mouth (GL/y)	Salinity Credits (interpolation to Current Year Benefits \$m/year)											
						2000	2015	2030	2050	2100	Modelled Current Conditions (interpolation to Current Year)	NSW	Vic	SA	Qld	ACT	Total
Transfers from Register A						0.874	0.658	2.024	0.000	0.000	3.556						
New South Wales																	
62	Darling Catchment Legacy of History - Macquarie	NSW	Jan 2000	0	0	0	0.1		0.3	0.4	0.1	-0.039				-0.039	
63	Darling Catchment Legacy of History - Macintyre	NSW	Jan 2000	0	0	0	0.0		0.0	0.0	0	0.000				0.000	
64	Darling Catchment Legacy of History - Gil Gil Ck	NSW	Jan 2000	0	0	0	0.0		0.0	0.0	0.0	-0.001				-0.001	
65	Darling Catchment Legacy of History - Gwydir	NSW	Jan 2000	0	0	0	0.0		0.0	0.0	0.0	-0.002				-0.002	
66	Darling Catchment Legacy of History - Namoi	NSW	Jan 2000	0	0	0	0.2		0.4	0.5	0.2	-0.057				-0.057	
67	Darling Catchment Legacy of History - Castlereagh	NSW	Jan 2000	0	0	0	0.0		0.0	0.1	0.0	-0.007				-0.007	
68	Darling Catchment Legacy of History - Bogan	NSW	Jan 2000	0	0	0	0.1		0.2	0.3	0.1	-0.029				-0.029	
69	Lachlan Legacy of History	NSW	Jan 2000	0	0	0	0.0		0.0	0.0	0	0.000				0.000	
70	Murrumbidgee Catchment Legacy of History	NSW	Jan 2000	0	0	0	0.1		0.2	0.2	0.1	-0.021				-0.021	
71	NSW Mallee - dryland	NSW	Jan 2000	0	0	0	0.3		1.3	3.6	0.4	-0.104				-0.104	
72	NSW Mallee - Pre 88 Irrigation	NSW	Jan 2000	0	0	0	0.4		1.2	2.3	0.5	-0.126				-0.126	
Victoria																	
73	Camargo Catchment Legacy of History	Vic	Jan 2000	0	0	0	0.1		0.2	0.3	0.1	-0.028				-0.028	
74	Goulburn Catchment Lohf	Vic	Jan 2000	0	-1	0	0.4		0.7	1.1	0.5	-0.106				-0.106	
75	Loddon Catchment Lohf	Vic	Jan 2000	1	0	0	0.6		0.9	1.3	0.6	-0.144				-0.144	
76	Kiewa Catchment Legacy of History	Vic	Jan 2000	0	0	0	0.1		0.0	0.0	0.1	-0.032				-0.032	
77	Ovens Catchment Legacy of History	Vic	Jan 2000	0	0	0	0.0		0.6	1.3	0	-0.022				-0.022	
78	Victorian Mallee - dryland	Vic	Jan 2000	1	0	0	0.6		2.2	5.9	0.8	-0.192				-0.192	
79	Victorian Mallee - Pre 88 Irrigation	Vic	Jan 2000	3	0	0	1.4		4.7	8.3	1.8	-0.441				-0.441	
South Australia																	
80	SA Mallee Legacy of History - Dryland	SA	Jan 2000	3	0	0	1.1		4.8	13.8	1.6	-0.250				-0.250	
81	SA Mallee Legacy of History - Irrigation	SA	Jan 2000	40	0	0	14.0		33.2	39.0	16.7	-2.719				-2.719	
82	SA Improved Irrigation Efficiency and Scheme Rehabilitation Reg B	SA	Jan 2000	-72	0	0	-34.2		-48.1	-53.9	-36.2	5.054				5.054	
Queensland																	
83	Queensland Legacy of History	Qld	Jan 2000	TBA													
84	Queensland Irrigation Development pre 1 Jan 2000	Qld	Jan 2000	TBA													
Balance - Register B			0.000	-21	-1	0.2	-14.8	0.0	2.8	24.6	-12.3	0.488	-0.267	4.109	0.000	0.000	4.330
Balance - Registers A & B				-268	34	-141.3	-172.9	0.0	-136.9	-45.6	-214.9	6.834	5.321	7.435	0.000	0.000	25.154
Modelled Current Status				786	4,952	515	487		525	637	499						

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2010	2022	Medium	
2010	2022	Medium	
2010	2022	Medium	
2010	2022	Medium	
2010	2022	Medium	
2010	2022	Medium	
2010	2022	Medium	
2010	2022	Medium	
2010	2022	Medium	
2010	2022	Medium	Little connection to Murrumbidgee
2010	2020	Low	
2010	2020	Low	
2019	2029	Medium	
2019	2026	Medium	Review finished in 2019
2019	2026	Medium	Review finished in 2019
2019	2029	Medium	
2019	2029	Medium	
2010	2020	Low	
2010	2020	Low	
2012	2026	Medium	Updated for Laxton-Baillupumana gw models
2012	2026	Low	Updated for Laxton-Baillupumana gw models
2012	2026	Low	Updated for Laxton-Baillupumana gw models
2007			

Registers Explanatory Notes

TBA - To be advised
 † Salinity Effect - Increase or decrease in average salinity at Morgan in EC
 ‡ Salinity Credits - Unit of account of Salinity and Drainage Strategy = Reduction in Salinity Costs (\$m/year March 2005 values)
 * These entries are comprised of multiple MODFLOW model outputs accredited at various times. As such they are not reviewed and updated in their entirety in one year but the component models are updated in line with the BSM2030 review plan. The review year reflects the latest model review. Some of the totals are affected by rounding
 ** Assessments based on preliminary reports. Further work is required on how these assessments are presented in the register. Salinity impacts not included in the totals.
 †† Based on 2023 GL representing the LTDL volume of all HEW entitlements
 Total Register A of \$20,284 m/yr excludes transfers to Register B



Appendix B Salinity Credit Allocation Submission Minimum Information Requirements

1. CMA Name.
2. Salinity Credit allocation and use to-date
 - Describe how long allocated salinity credits will last and basis for that estimate.
3. Salinity Credit Request
 - Include advice on period it will provide for implementation.
4. Activities to be Implemented
 - Also describe consistency with the land and water management plan.
5. Cost of Activities to be Implemented
6. Benefits
 - Economic
 - Environmental (describe).
 - Social (describe).
7. Demonstrate Ability to Implement Activities
8. Other Information to Support Proposal
 - Do beneficiaries pay for salinity credits.
 - Process to ensure 'live within salinity credit means' and to maximise benefit from use.
 - Initiatives to Earn Victoria Additional Salinity Credits, and how are they funded.
 - Any other information
9. Attach Regional Salt Register.

Appendix C Reference Group Terms of Reference

a) Terms of Reference for VSDWG



PURPOSE

1. The Victorian Salt Disposal Working Group (VSDWG) will advise the Department of Environment, Land, Water and Planning on the management of Victoria's salinity credits and debits and to provide advice on Victoria's compliance with the obligations under Schedule B of the Murray-Darling Basin Agreement and the Basin Salinity Management 2030 (BSM2030) strategy.

RESPONSIBILITIES

2. The VSDWG will:
 - (a) Provide expert commentary and technical advice on salinity management and policy issues, and identify salinity research needs and opportunities.
 - (b) Advise on the allocation of salinity credits, and the assessment and management of salinity accountable actions and legacy of history impacts consistent with the BSM2030 review plan.
 - (c) Ensure Victoria is compliant under BSM2030 including:
 - Contributing to and overseeing the preparation of Victoria's BSM2030 Comprehensive and Status Reports;
 - Monitoring the regional up-take of salinity credits and debits and advising on the costs and benefits of their use;
 - Advising on the BSM2030 audit and review program of Victoria's regional salinity management and interception activities;
 - Preparing an annual work program; and
 - Ensuring that the State's Salinity Register is maintained and up-dated on a regular basis.
 - (d) Ensure each Catchment Management Authority is meeting its responsibilities under BSM2030, delegated to them through the Catchment and Land Protection Act Statement of Obligations. This includes:
 - Overseeing the preparation of annual regional Salinity Register that shows the allocated salinity credits and debits;
 - Overseeing regional reports; and
 - Ensuring that the necessary technical information is provided to the Murray-Darling Basin Authority to assess Murray River salinity impacts from proposed and declared accountable actions and legacy of history impacts.
 - (e) Increase the understanding of BSM2030 and Victoria's policy and management framework for salinity credits and debits with community and stakeholders.
 - (f) Identify the potential projects which will generate additional salinity credits for Victoria.
 - (g) Oversee investigations of shared (joint and state) salt interception schemes in Victoria, including advising the Deputy Secretary of the Water and Catchments Group on potential schemes.
 - (h) Oversee the performance of Victoria's State salt interception schemes.

CONFLICT OF INTEREST

3. Members of the VSDWG are expected to adhere to their organisations Conflict of Interest policy and manage any conflicts of interest in accordance with relevant Victorian Government policies. Any conflict of interest (real or perceived) must be formally declared to the Chair of the VSDWG.

4. VSDWG members who have a conflict of interest in a particular matter to be discussed at a meeting must disclose that interest. If that interest is:
 - (a) Of financial nature, the member must
 - Not move or second a motion relating to the matter; and
 - Leave the meeting as requested by the Chair for the agenda item.
 - (b) Any other form of conflict of interest, the member must not move or second a motion of any question relating to the matter nor vote on that matter, and may be asked to leave for that particular agenda item.

MEMBERSHIP

5. The VSDWG comprises the following representatives:
 - a DELWP Sustainable Irrigation Program representative;
 - a DELWP Basin Salinity Management representative;
 - a Goulburn Broken Catchment Management Authority representative;
 - a North Central Catchment Management Authority representative;
 - a North East Catchment Management Authority representative;
 - a Wimmera Catchment Management Authority representative;
 - a Mallee Catchment Management Authority representative;
 - an Agriculture Victoria Dryland Health representative;
 - an Agriculture Victoria Research representative;
 - an Agriculture Victoria Extension representative;
 - a Goulburn-Murray Water (non-voting member) representative responsible for overseeing the operation and maintenance of Salt Interception Schemes as Victoria's State Constructing Authority
 - a Goulburn-Murray Water (non-voting member) representative from the Salinity and Drainage; and
 - Lower Murray Water (non-voting member) representative.
6. The VSDWG should review its membership and consider the balance of skills and experience on a regular basis and discuss with DELWP representatives.
7. The role of a VSDWG member is to provide advice on strategic issues and oversight on salinity and drainage management within Victoria. In order to fulfil this role, it will be necessary for the member to:
 - Maintain a thorough understanding of Victoria's salinity and drainage projects/policies and these terms of reference;
 - Understand the requirements under BSM2030; and
 - Contribute to discussions, and where necessary challenge assertions and reports.

OBSERVERS

8. VSDWG members may invite observers to attend meetings on an as needs basis as agreed with the Chair. Members will notify the Chair and Secretariat of observers attending the meeting.

RETAIN OUTSIDE EXPERTS

9. The VSDWG may engage special legal, accounting, or other consultants or experts deemed necessary in the performance of its duties.

VICTORIAN SALT DISPOSAL WORKING GROUP

TERMS OF REFERENCE

CHAIR

10. DELWP will chair VSDWG meetings. The chairperson or, in his or her absence, a member elected by the members present at the meeting, must preside at a meeting of the VSDWG. If the VSDWG cannot reach a consensus on a voting matter, then the chair will raise an option to progress the matter with the Deputy Secretary of Water and Catchments.

SECRETARIAT

11. The secretariat support will be provided DELWP. The secretary cannot be a member of the VSDWG.
12. The secretariat will circulate the agenda and supporting documentation to the VSDWG members within a reasonable time before each meeting.

MEETINGS

13. The VSDWG must hold at least one ordinary meeting every three months, and potentially more frequently during peak implementation periods.
14. Members must provide meeting papers to the secretariat for:
 - decision at least two weeks prior to meeting date; or
 - discussion at least one week prior to the meeting date.

OUT OF SESSION MEETINGS

15. An out of session meeting must not be held unless:
 - at least 24 hours' notice has been given to each member of the VSDWG;
 - it is not practical for the matter to be discussed at the next scheduled meeting; and
 - remote attendance facilities (teleconference or video conference) are made available.
16. Notice of an out of session meeting must be in writing, specify the time and place of the meeting and the reason for it.

MINUTES

17. Minutes must be kept of each meeting including the names of the members and attendees present. Minutes will be compiled by the secretariat and circulated to members within two weeks following the meeting.
18. Minutes of past meeting must be confirmed by the VSDWG at the beginning of each meeting. DELWP will maintain a record of each meeting minutes of the VSDWG, which will be made available to all members on request.

USE OF TECHNOLOGY

19. VSDWG members will be deemed to have been present at any meeting if they participate by:
 - Telephone
 - Webcam
 - Any other means of electronic or instantaneous communication.

RESOLUTION OF DECISIONS



VICTORIAN SALT DISPOSAL WORKING GROUP TERMS OF REFERENCE

20. If the VSDWG voting members cannot reach a unanimous decision on a matter, the matter is to be referred to DELWP'S Deputy Secretary of Water and Catchments to make the final decision.

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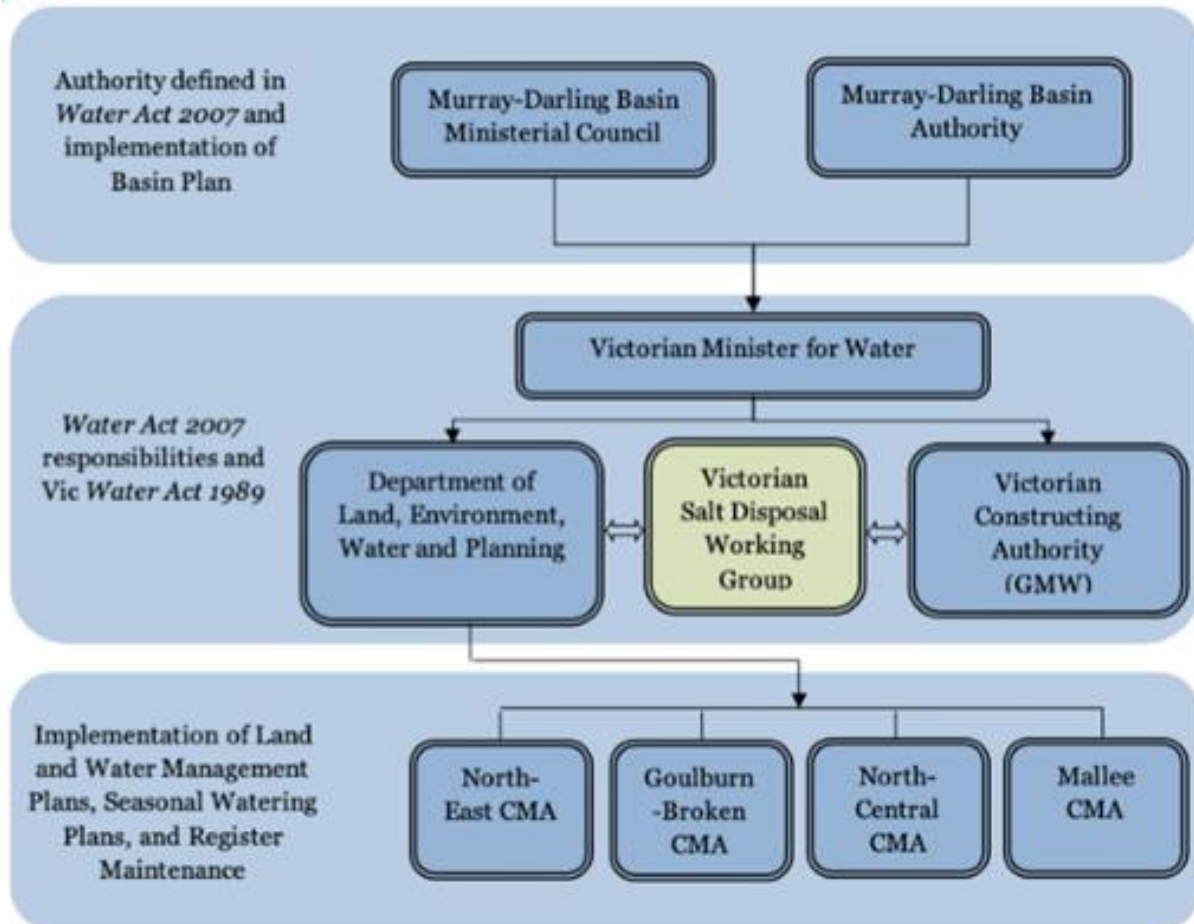
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Approved by:



VICTORIAN SALT DISPOSAL WORKING GROUP TERMS OF REFERENCE

APPENDIX 1 – VSDWG GOVERNANCE STRUCTURE 2020



b) Terms of Reference for VSDAG

VICTORIAN SALT DISPOSAL ADVISORY GROUP

TERMS OF REFERENCE

The Victorian Salt Disposal Advisory Group (VSDAG) is the body to advise the Minister on salinity matters in the Victoria's Murray-Darling Basin. Its purpose is two-fold:

- To advise The Minister for Water on the generation, allocation, and management of Victoria's salinity credits.
- To ensure the cooperative and coordinated Statewide management of the salinity credits.

Specifically, it will advise and make recommendations on:

- Overarching principles to guide in addressing salinity credit management issues.
- A minimum standard for the management of salinity credits.
- A works program to address salinity credit management issues.
- The future allocation of salinity credits.
- Policy and procedural matters relevant to salinity credits for new irrigation development, land protection, and managing the 'legacy of history' including environmental flows.
- Any Victorian salinity credit management issue referred to it by DELWP which will require a coordinated and cooperative response.

The Advisory Group will meet infrequently and probably no more than twice a year.

Appendix D Summaries of Victorian Accountable Actions

Summaries of Victorian Accountable Actions

Register Location	Accountable Action Name	CMA Region located in	Responsible Authority	Operator	What is Victoria Accountable For	Deemed Effective
Register A - Salt Interception Schemes	Improved Buronga and Mildura/Merbein IS (S&DS)	Mallee	MDBA	GMW	The decrease in flow and salt load to the Murray River resulting from enhancements made to the Buronga and Mildura Merbein SIS.	January 1991
	New Operating Rules for Barr Creek Pumps (S&DS)	North Central	MDBA	GMW	The decrease in flow and salt load to the Murray River resulting from the change in pumping rules.	July 1991
	Pyramid Creek SIS (BSMS)	North Central	MDBA	GMW	The decrease in flow and salt load entering the Murray River because of the construction and operation of the SIS.	March 2006
Register A - Shared Schemes	Permanent Trade Accounting Adjustment - NSW to Victoria	All	DELWP, shared entry with NSW (50/50)	N/A	The impact of changes in the dilution flows resulting from transferring irrigation water between NSW and Victoria because of entitlement trades (not allocation trades).	June 2006
	Barmah-Millewa Forest Operating Rules	Mallee	DELWP, shared entry with NSW (50/50)	N/A	The salinity effects (dilution benefits) of changes in Murray River flows caused by the introduction of rules for environmental watering of the Barmah-Millewa forest.	March 2002
Register A - Salinity Credit Actions	Barr Creek Catchment Strategy (BCCS)	North Central	North Central CMA	N/A	The decrease in Barr Creek flow and salt load resulting from implementation of the Strategy.	March 1991
	Psyche Bend	Mallee	Mallee CMA	N/A	This is the entry for the Psyche Bend Lagoon Drainage Diversion Scheme. Victoria is accountable for the decrease in salt load reaching the Murray River from Psyche Bend Lagoon because of the three components of the action	February 1996
	Permanent Trade Accounting Adjustment - Victoria to SA	All	DELWP	N/A	Represents the adjustments for the impact of changes in the dilution flows resulting from transferring irrigation water from Victoria to South Australia because of entitlement (water share) trades (not allocation trades)	June 2006

Register Location	Accountable Action Name	CMA Region located in	Responsible Authority	Operator	What is Victoria Accountable For	Deemed Effective
	Sunraysia Drains Drying up	Mallee	Mallee CMA	N/A	The reduction in drainage volume and salt loads discharged to the Murray River or floodplain from sub-surface drainage catchments in the Mildura, Red Cliffs and Merbein Irrigation Districts because of improvements in irrigation efficiency in the region	June 2004
	Lambert Swamp	Mallee	Mallee CMA	N/A	The decrease in flow and salt load from Lambert Swamp to the Murray River.	June 2004
	Church's Cut Decommissioning	North Central	North Central CMA	N/A	The decrease in flow and salt load to the Murray River resulting from infilling of Church's Cut.	March 2006
	Mallee Drainage Bore Decommissioning	Mallee	Mallee CMA	N/A	The decrease in flow and salt load from regional aquifers to the Murray River associated with the decommissioning of the drainage bores as well as small volumes of drainage water that was previously disposed of directly to the Murray River at Boundary Bend.	June 2008
	Reduced Irrigation Salinity Impact (RISI) Stage 1	Mallee	Mallee CMA	N/A	The reduction in salt load to the Murray River associated with improved irrigation practices (both farm and distribution system) on the pre-1988 irrigated areas of the Victorian Mallee.	June 2010
	Reduced Irrigation Salinity Impact (RISI) Stage 2	Mallee	Mallee CMA	N/A	The reduction in salt load to the Murray River associated with improved irrigation practices (both farm and distribution system) on the pre-1988 irrigated areas of the Victorian Mallee.	June 2014
	Victorian S&DS Commitment Adjustment	Mallee	Mallee CMA	N/A	Represents Victoria's rights to dispose of salt that existed under the historic S&DS.	November 2002
Register A - Salinity Debit Actions	Tragowel Plains Drains at 2002 level	North Central	North Central CMA	N/A	The change in salt export from the Tragowel Plains resulting from the installation of shallow surface drains, and permanent water trade out of the area since the drains were installed.	March 1991
	Shepparton Salinity Management Plan	Goulburn Broken	Goulburn Broken CMA	N/A	The increase in flow and salt load to the Murray River resulting from implementation of the Shepparton SMP.	March 1991

Register Location	Accountable Action Name	CMA Region located in	Responsible Authority	Operator	What is Victoria Accountable For	Deemed Effective
	Nangiloc-Colignan SMP	Mallee	Mallee CMA	N/A	The increase in flow and salt load to the Murray River from the Nangiloc-Colignan private diversion areas because of: <ul style="list-style-type: none"> • Tile drainage systems disposing directly to the Murray River • Tile drainage systems disposing to Karadoc Swamp from which salt is flushed when river levels reach 47,000 ML/day. 	November 1991
	Nyah to SA Border SMP - Irrigation Development	Mallee	Mallee CMA	N/A	The increase in groundwater flow and salt load entering the Murray River as a result of post-1988 irrigation development in the area from Nyah to the South Australian Border.	July 2003
	Kerang Lakes/Swan Hill Salinity Management Plan (SMP)	North Central	North Central CMA	N/A	The increased flow and salt load entering the Murray River because of flushing flows being passed through Lake Charm.	January 2000
	Campaspe West Salinity Management Plan	North Central	North Central CMA	N/A	The increase in flow and salt load entering the Murray and Campaspe Rivers as a result of post-1988 installation of subsurface tile drains and private groundwater pumps as part of the SMP.	August 1993
	Woorinen Irrigation District Excision	North Central	North Central CMA	N/A	The increase in flow and salt load entering the River Murray because of both components of the action: <ol style="list-style-type: none"> 1. The excision of the irrigation district which resulted in water being supplied from further downstream in the Murray River (water is diverted at new pump site instead of being diverted from Torrumbarry Weir) 2. The Environment Protection and Biodiversity Conservation Act (EPBC) requirement to maintain throughflow in the Kerang Lakes System. 	September 2003
Register B Actions (Debits)	Campaspe Catchment Legacy of History	North Central	North Central CMA	N/A	The post 1 January 2000 increase in salt load to the Murray River resulting from pre-1988 actions in the Campaspe catchment (predominantly land clearing).	N/A
	Goulburn Catchment Legacy of History	Goulburn Broken	Goulburn Broken CMA	N/A	The post 1 January 2000 increase in salt load to the Murray River resulting from pre-1988 actions in the Goulburn Broken catchment (predominantly land clearing).	N/A
	Loddon Catchment Legacy of History	North Central	North Central CMA	N/A	The post 1 January 2000 increase in salt load to the Murray River resulting from pre-1988 actions in the Loddon dryland catchment (predominantly land clearing).	N/A

Register Location	Accountable Action Name	CMA Region located in	Responsible Authority	Operator	What is Victoria Accountable For	Deemed Effective
	Kiewa Catchment Legacy of History	North East	North East CMA	N/A	The post 1 January 2000 increase in salt load to the Murray River resulting from pre-1988 actions in the Kiewa dryland catchment (predominantly land clearing).	N/A
	Ovens Catchment Legacy of History	North East	North East CMA	N/A	The post 1 January 2000 increase in salt load to the Murray River resulting from pre-1988 actions in the Ovens dryland catchment (predominantly land clearing in the lower catchment).	N/A
	Victorian Mallee - dryland clearing	Mallee	Mallee CMA	N/A	The post 1 January 2000 increase in salt load to the Murray River resulting from pre-1988 clearing of land for dryland agriculture in the Victorian Mallee.	N/A
	Victorian Mallee - Pre-88 Irrigation	Mallee	Mallee CMA	N/A	The post 1 January 2000 increase in salt load to the Murray River resulting from pre-1988 irrigation developments in the Victorian Mallee.	N/A

