

# Policy Impact Assessment

SEPP Waters Review

December 2017



Environment  
Protection  
Authority Victoria



Environment,  
Land, Water  
and Planning

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# **Policy Impact Assessment**

SEPP Waters Review

December 2017

SEPP Waters Review – Integrated Water and Catchments – Water and Catchments



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## Acronyms

ANZECC Guidelines	Australian and New Zealand Guidelines for Fresh and Marine Water Quality
BMPs	Best management practices
CaLP Act	<i>Catchment and Land Protection Act 1994</i>
CMAs	Catchment Management Authorities
DELWP	Department of Environment, Land, Water and Planning
DEPI	Department of Environment and Primary Industries
DNRE	Department of Natural Resources and Environment
EAP	Environmental Assessment Program
EMP	Environmental Management Plan
EP Act	<i>Environment Protection Act 1970</i>
EPA	Environment Protection Authority
EQIP	Environmental Quality Improvement Plan
ERA	Ecological risk assessments
GVW	Goulburn Valley Water
INFERR	Investment Framework for Environmental Resources
MID	Macalister Irrigation District
MIDNRP	Macalister Irrigation District Nutrient Reduction Plan
MLDREN	Murray Lower Darling Rivers Indigenous Nations
MLWMP	Macalister Land and Water Management Plan
MSS	Municipal Strategic Statements
NEIP	Neighbourhood Environment Improvement Plan
NHMRC	National Health and Medical Research Council
OCBR	Office of the Commissioner for Better Regulation
ODWMS	On-site domestic wastewater management systems
PANs	Pollution abatement notices
PFAS	Polyfluorinated alkyl substances
PIA	Policy Impact Assessment
PINs	Penalty infringement notices
RCBs	Regional Coastal Boards
RTS	Regional target setting
RWS	Regional waterway strategy
SEPPs	State environment protection policies
SEPP (GoV)	State environment protection policy (Groundwaters of Victoria)
SEPP (WoV)	State environment protection policy (Waters of Victoria)
SPR	Statutory Policy Review
SRW	Southern Rural Water
TDS	Total dissolved solids
the Review	SEPP (Waters) Review
VCAT	Victorian Civil and Administrative Tribunal
VCEC	Victorian Competition and Efficiency Commission
VGR	Victorian Guide to Regulation

VPP	Victorian Planning Provision
VWT	Victorian Water Trust
WGCMA	West Gippsland Catchment Management Authority
WMPs	Waste Management Policies
WQOF	Water Quality Offsets Framework

# Executive Summary

## The roles and functions of the Water SEPPs

Victoria's water environments are diverse and valuable. The primary regulatory mechanism for protecting these waters from pollution is the *Environmental Protection Act 1970* (the EP Act). The EP Act defines high level objectives for protection of Victoria's water environments and gives the EPA roles, responsibilities and powers in respect to environmental protection.

State Environment Protection Policies (SEPP) sit under the EP Act and support it. SEPP (Waters of Victoria; SEPP (WoV)) and its five Schedules and SEPP (Groundwaters of Victoria; SEPP (GoV)) support protection of Victoria's waters.

The Water SEPPs support the EP Act in two key ways.

- They outline the beneficial uses (or public values) to be protected for different water bodies, and associated environmental quality objectives required to support these beneficial uses; and
- They provide further clarification and guidance around the processes, tools and mechanisms used by agencies in order to protect the water environment.

## The Review

The EP Act requires SEPPs to be reviewed every 10 years. The Victorian government, led by the Department of Environment, Land, Water and Planning (DELWP) with support from the Environment Protection Authority (EPA), has embarked on this decennial review of these policies.

This process provides the opportunity to review achievements, key risks, new science and community attitudes, and to ultimately set new goals and develop and apply new approaches. This review has been informed by, and built upon, the outcomes of the Statutory Policy Review in 2013, the Independent Inquiry into the EPA in 2016 and associated government response to the EPA Inquiry in 2017. The review process has included significant consultation with, and feedback from stakeholders, and additional analysis completed by the review team.

The key products of the review are a combined policy for all waters, the Draft SEPP (Waters), an Implementation Plan and this document — the consultation Policy Impact Assessment (PIA). A Policy Impact Assessment is required for all new or revised SEPPs. It provides an explanation of the problems that have emerged with the implementation of the current Water SEPPs. It also identifies and assesses the impacts (or costs and benefits) of alternative policy responses and based on this analysis, outlines proposed reforms to be included in the Draft SEPP (Waters). The purpose of the consultation PIA is to seek feedback and comment from the public on these proposed changes.

## Key reforms in the Draft SEPP (Waters)

The PIA analyses in detail the significant reforms in the Draft SEPP (Waters). This could be on the basis that they involve moving to a more interventionist approach, or that the proposed reforms are novel, controversial/sensitive, or address a water quality threat of particular public concern.

The significant reforms assessed in detail within the PIA are as follows:

- **Revisions to the SEPP structure (Chapter 6)** — A key feature of the reforms proposed in the Draft SEPP (Waters) is the amalgamation of the two existing Water SEPPs and Schedules into one instrument and the revisions to the structure of the SEPP to make it a simpler and more streamlined.
- **Updated environmental quality indicators and objectives (Chapter 7)** — The Draft SEPP (Waters) applies the latest science, monitoring data and learnings to revise environmental quality indicators and objectives. It also updates the beneficial uses and segments to which the environmental quality objectives relate.
- **Regional target setting (Chapter 8)** — The Draft SEPP (Waters) includes a trigger for further investigation to assess the risk to beneficial uses if a SEPP environmental quality objective is not met. To help drive this, the Draft SEPP (Waters) includes a revised regional target setting clause

(similar to that contained in SEPP (WoV)) to support the continued consideration of environmental water quality for high priority reaches identified in the regional waterway strategy renewal process.

- **Load based targets (Chapter 9)** — The Draft SEPP (Waters) includes new and updated load based targets for nitrogen, phosphorous and sediment. The Draft SEPP (Waters) specifies both baseline and annual load targets (tonnes per annum), for four areas — Corner Inlet and Nooramunga, Lake Wellington, Western Port and Port Phillip Bay. It notes that annual loads need to be progressively reduced from the baseline to the target and outlines agencies responsible for implementing management actions in order to achieve these reductions.
- **Managing the discharge of wastewater to surface waters (Chapter 10)** —Water SEPPs support the assessment process for works approvals and licence applications. The Draft SEPP (Waters) reforms existing arrangements by consolidating and simplifying the content in the existing SEPP (WoV) clauses. It identifies the obligations on a works approval or licence amendment applicant and the considerations of the EPA in assessing an application for a wastewater discharge.
- **Enabling offsets to licence discharge conditions (Chapter 11)**—the existing SEPP (WoV) includes a provision for economic measures or “offsets”. The Draft SEPP (Waters) includes minor reforms to better enable licensees to adopt offset measures. The proposed reforms clarify the circumstances in which the EPA will consider offset schemes. This is intended to be supported by guidance material on how offset measures will be assessed through these application processes, and the information required from proponents.
- **Management of onsite domestic wastewater systems (ODWMS) (Chapter 12)** — The Draft SEPP (Waters) includes measures to increase the transparency of municipal council activities in respect to ODWMS (or septic tanks). Additional reporting will be required from Councils and Water Corporations. It includes requirements to strengthen Water Corporations early involvement in the development of Domestic Wastewater Management Plans. Proposed further minor revisions to the existing wording reference updated guidance material and the removal of requirements which duplicate those in the EP Act.
- **Stormwater and sewerage system overflow management (Chapter 13)** — While there was significant stakeholder interest in these areas the Draft SEPP (Waters) has not significantly reformed the approach to stormwater and sewerage system overflow management.

The Draft SEPP (Waters) also includes a large number of other revisions to existing clause wording that are not assessed in detail in this PIA. These are summarised in Appendix 1. The changes are not envisaged to significantly or practically impact on duty holders. They include:

- changes to language to make the instrument clearer, simpler and more accessible;
- the removal of provisions that duplicate those in the EP Act; and
- updates to wording to reflect updated guidance and reference documents.

Clauses in the existing Water SEPPs, which outline general roles and responsibilities of agencies, have been removed or replaced with a separate implementation plan. The Implementation Plan focusses on the key activities required to give effect to the SEPP and will accompany the release of the final SEPP (Waters).

This consultation PIA is part of the information to support at least three months of consultation on the Draft SEPP (Waters). On completion of the consultation period, submissions will be considered and a final SEPP (Waters) prepared for gazettal.

# 1. About this report

## 1.1 Introduction

Victoria's water environments are diverse and valuable. Our unique rivers, wetlands, groundwater, estuaries and coasts are crucial to environmental health. These water environments also sustain demands for drinking water, industrial and agricultural production, recreation, tourism and supporting industries. Protecting our water environments is therefore essential to supporting future economic and social development.

State environment protection policies (SEPPs) are part of the legislative framework that helps to protect the environment. Two separate SEPPs currently cover the protection of Victorian waters:

- surface water environments, including inland waters, estuaries and marine systems, are protected under SEPP (Waters of Victoria; SEPP (WoV)) and its Schedules<sup>1</sup>; and
- the protection of groundwater environments is addressed separately under SEPP (Groundwaters of Victoria; SEPP (GoV)).

Together these policies protect and improve the quality of Victoria's water environments by providing a common understanding of what Victorians' want to protect, and a framework for doing this.

## 1.2 The SEPP (Waters) Review

Section 19 of the *Environment Protection Act 1970* (the EP Act) requires SEPPs to be reviewed every 10 years. The SEPP (WoV) was last reviewed in 2003 with a minor administrative revision made to SEPP (GoV) in 2002. The Victorian government, led by the Department of Environment, Land, Water and Planning (DELWP) with support from the Environment Protection Authority (EPA), has implemented the decennial review of these policies and their associated Schedules. This process provides the opportunity to review achievements, key risks, new science and community attitudes, and to ultimately set new goals and develop and apply new approaches, to ensure continuous improvement. This SEPP (Waters) Review (the Review) has been informed by, and built upon, the outcomes of recent related Reviews<sup>2</sup> and Inquiries<sup>3</sup>, significant consultation with and feedback from stakeholders (see chapter 15) and additional analysis completed by the Review team.

It has:

- Considered the need for revisions to the broader structure and content of the Water SEPPs to make a simpler, more streamlined and accountable statutory policy.
- Reviewed the scientific basis for the segments, environmental quality indicators and objectives contained in the Water SEPPs.
- Reviewed the efficiency and effectiveness of clauses contained in the Water SEPPs.
- Considered whether and how to address any new and enduring water quality threats.

## 1.3 Structure and purpose of this report

This consultation Policy Impact Assessment (PIA)<sup>4</sup> is an outcome of the Review.

- 
1. The SEPP (WoV) contains a number of location-based schedules that set out the water quality objectives and attainment programs in more detail for particular areas. The Schedule areas include Schedule F3 (Gippsland Lakes and Catchment), Schedule F5 (Waters of the Latrobe and Thompson River Basins and the Merriman Creek Catchment), Schedule F6 (Waters of Port Phillip Bay), Schedule F7 (Waters of the Yarra Catchment) and Schedule F8 (Waters of Western Port and Catchment).
  2. EPA and DEPI (2013) Statutory Policy Review – Final Report, (EPA Publication 1498)
  3. Victorian Government (2016) Independent Inquiry into the Environment Protection Authority
  4. Under the EP Act, PIAs are required for all new or revised SEPPs. PIAs are intended to bring together all the relevant information collected for the policy review via scientific analysis and public comment in a clear and transparent manner for the community and decision-makers. The analysis contained in the PIA includes a discussion of the key options considered for the policy revision process and documents the likely impacts (environmental, social and financial) of the new proposed SEPP.



It provides an explanation of the problems that have emerged with the implementation of the current Water SEPPs. It also identifies and assesses alternative policy responses and based on this analysis, outlines proposed changes to the Draft SEPP (Waters). The PIA discusses and analyses the major changes proposed to the Draft SEPP (Waters). These are detailed in chapters 6 – 13. Policy areas that have not changed or where there have only been minor changes are not discussed in detail in the PIA. All minor changes and revisions proposed to the Draft SEPP (Waters) are summarised in Appendix 1.

The purpose of the consultation PIA is to seek feedback and comment from the public on these proposed changes. This consultation will help inform the final policy changes which will be outlined in a Final PIA.

The remainder of the report is structured as follows:

- Chapter 2 outlines relevant background on the content, structure and successes of the existing Water SEPPs
- Chapter 3 outlines the broad problem that the Water SEPPs are intended to address and summarises any key issues that have emerged with the implementation of the current Water SEPPs.
- Chapter 4 outlines the objectives that have guided the Review.
- Chapter 5 outlines the framework for the impact analysis.
- Chapters 6 to 13 looks in detail at significant proposed reforms to the Water SEPPs. For each significant reform area, alternative policy responses are identified and their impacts (or costs and benefits) are assessed; on the basis of this analysis recommendations for proposed reform are outlined.
- Chapter 14 summaries the recommended suite of significant reforms.
- Chapter 15 summarises the consultation, conducted to date, that has informed the proposed reforms.
- Chapter 16 summarises the plan for implementing and enforcing the proposed reforms.
- Chapter 17 summarises the proposed approach to monitoring and evaluating the success of the proposed reforms.

A number of Appendices are attached which provide additional information in relation to:

- Minor clause revisions and mapping of existing clauses to the Draft SEPP (Waters) structure (Appendix 1)
- Existing and proposed beneficial uses (Appendix 2)
- Existing and proposed surface water segments (Appendix 3)



## 2. Contextual Background

### 2.1 Victoria's current environmental quality protection framework for water

There are significant environmental, social and economic costs associated with deteriorating water environments (e.g. loss of biodiversity, lost production and tourism revenue, environmental rehabilitation, clean up and water treatment costs). Regulatory and policy mechanisms are needed to prevent their decline (see chapter 3).

The EP Act is the primary legislative instrument involved in protecting the environment and regulating water pollution. This is supported by the Water SEPPs, which are whole of government policies. The Water SEPPs establish in law the uses and environmental values (beneficial uses) to be protected in Victoria, define the environmental quality indicators and objectives needed to protect these beneficial uses and set out a program for attaining them.

The Water SEPPs work in parallel with a number of other pieces of legislation and supporting mechanisms to protect Victoria's water environments (Figure 1). The arrangements are described in more detail in the sections that follow.

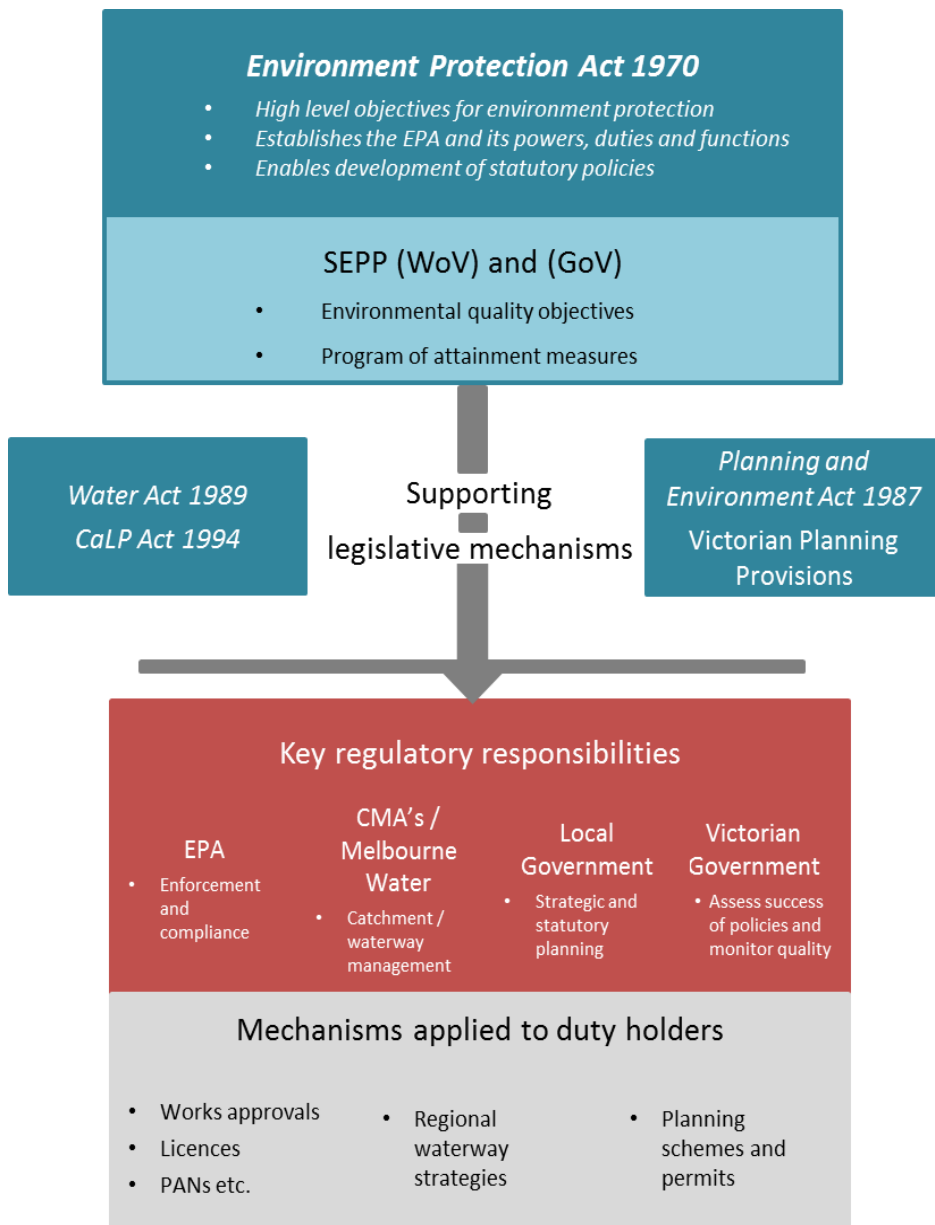


Figure 1 Key instruments and agencies involved in regulating water quality

### 2.1.1 The Environment Protection Act 1970

Victoria’s environment protection framework is primarily established by the EP Act. The EP Act establishes the EPA, defines EPA’s powers, duties and functions, and enables a number of instruments to minimise pollution, wastes and environmental risks.

These instruments include statutory policies (SEPPs, Waste Management Policies (WMPs)), works approvals, licences and pollution abatement notices (PANs) and other notices, environmental audits, environmental improvement plans and industry waste agreements.

### 2.1.2 The State Environment Protection Policies for water

SEPPs are statutory instruments, or subordinate legislation, established under the EP Act. SEPPs describe what we want to protect and how we are going to protect it (Figure 2). SEPPs provide detailed requirements and guidance to help apply the EP Act. They aim to protect Victoria’s environment from the effects of pollution and waste by:

- stating in law, community expectations, needs and priorities for using and protecting the environment
- setting out the values and uses of environments that Victorians want to protect (known as beneficial uses) and objectives and indicators required to protect those beneficial uses
- describing clauses and programs that will manage, protect and improve environmental qualities.



**Figure 2 Content of statutory policy**

The key components of the current Water SEPPs are:

- Beneficial uses and environmental quality objectives
- Detailing the attainment program

#### ***Beneficial uses and environmental quality objectives***

The Water SEPPs establish in law the beneficial uses to be protected in Victorian waters and define the environmental quality indicators and objectives needed to protect these beneficial uses.

A beneficial use is defined in the EP Act and means a use of the environment or any element or segment of the environment which—

- (a) is conducive to public benefit, welfare, safety, health or aesthetic enjoyment and which requires protection from the effects of waste discharges, emissions or deposits or of the emission of noise; or
- (b) is declared in State environment protection policy to be a beneficial use.

The beneficial uses in the Water SEPPs describe the values and uses of our water systems that the community considers important and want to protect, and community aspirations for Victorian water environments. These are described in more detail in chapter 7.

The environmental quality indicators and objectives in the Water SEPPs describe the levels of physical, chemical and biological parameters required to protect beneficial uses in specific areas or segments of Victoria's water environments. The exceedance of these objectives indicates a risk to beneficial uses.

There are two important things to note about these objectives:

First, the environmental quality objectives are not intended to be directly applied to individuals and businesses. They instead specify the desired levels within the surrounding water environment, not levels in runoff from land or discharge from drains and pipes. That said, the SEPP's environmental quality objectives provide a legal basis to guide the EPA's decision making in relation to works approvals, licensing, environmental risk assessment and enforcement (see section 2.1.3).

Second, the current SEPPs recognise that not all beneficial uses will be able to be fully protected, and not all environmental quality objectives will be met. Rather they act as markers of where a beneficial use may be facing an unacceptable level of risk. Therefore, the environmental quality objectives are used to identify areas where beneficial uses may be facing an unacceptable level of risk such that actions may be required.

Hence, the key role of the environmental quality objectives is as follows:

- They are used to assess the success of Victorian government strategies, prioritise water quality actions around the State and to inform regional catchment management planning and to identify "at risk areas" which then trigger further investigation and improvement actions.
- To inform the conditions for licences, and guide the assessment of works approvals; and
- To help in assessing whether a general offence under the EP Act has occurred, i.e. the pollution of waters in a manner detrimental to the beneficial uses specified in the SEPP.

The environmental quality indicators and objectives in the Water SEPPs have been developed, in line with, and to complement, the nationally agreed approach outlined in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC Guidelines)<sup>5</sup> and the National Water Quality Management Strategy<sup>6</sup> (see Box 1). The ANZECC guidelines are periodically reviewed and the Review has considered the most recent science developed. The revised ANZECC guidelines are expected to be released in 2018.

The ANZECC Guidelines establishes water quality indicators and objectives for the protection of a range of environmental values for water resources, such as drinking water, recreation and ecological values. Victoria uses these guidelines for some indicators and objectives (e.g. as a guide to quality requirements for drinking). The guidelines also provide a framework to develop more locally specific environmental quality objectives where the national values are too generic and do not provide adequate protection of beneficial uses (e.g. ecosystem protection). The current Water SEPPs have adopted the approach outlined in the guidelines to develop specific environmental quality objectives for Victorian waters, while also adopting the national standards where appropriate. Further details are provided in chapter 7.

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5. ARMCANZ and ANZECC (2000) National Water Quality Management Strategy. Paper No 4 – Australian and New Zealand Guidelines for Fresh and Marine Water Quality – Volume 1.

6. ARMCANZ and ANZECC (2000) National Water Quality Management Strategy

## Box 1 The National Water Quality Management Strategy

The National Water Quality Management Strategy has been developed by the Australian and New Zealand Environment and Conservation Council (ANZECC) and the Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) to provide a national, strategic direction for the management of Australia's surface, groundwater and coastal waters. The Strategy's objective is *"to achieve sustainable use of the nation's water resources by protecting and enhancing their quality while maintaining economic and social development"*.

The strategy is based on nationally agreed policies and principles for water quality management. This strategic direction forms the basis for programs to manage water quality in particular catchment areas, while allowing for local conditions and the needs of the local community.

The strategy has also driven the production of a range of guidelines covering key elements of the water cycle. In particular, the ANZECC Guidelines establishes water quality indicators and objectives for the protection of a range of environmental values for water resources, such as drinking water, recreation and ecological values.

However, for others (most notably ecosystem protection) the specific guideline values are risk adverse, generic values. When a water body fails to meet the ANZECC objective this is intended to trigger further investigation and the development of more appropriate, locally specific objectives based on the type of water resource and inherent differences in water quality across regions. The ANZECC guideline also incorporates protocols and detailed advice to assist in the tailoring the water quality objectives to local conditions.

### ***Detailing the attainment program***

The attainment program describes management requirements to be adopted by industry and policy actions to be undertaken by agencies in order to meet the objectives described in the section above. Attainment clauses typically include:

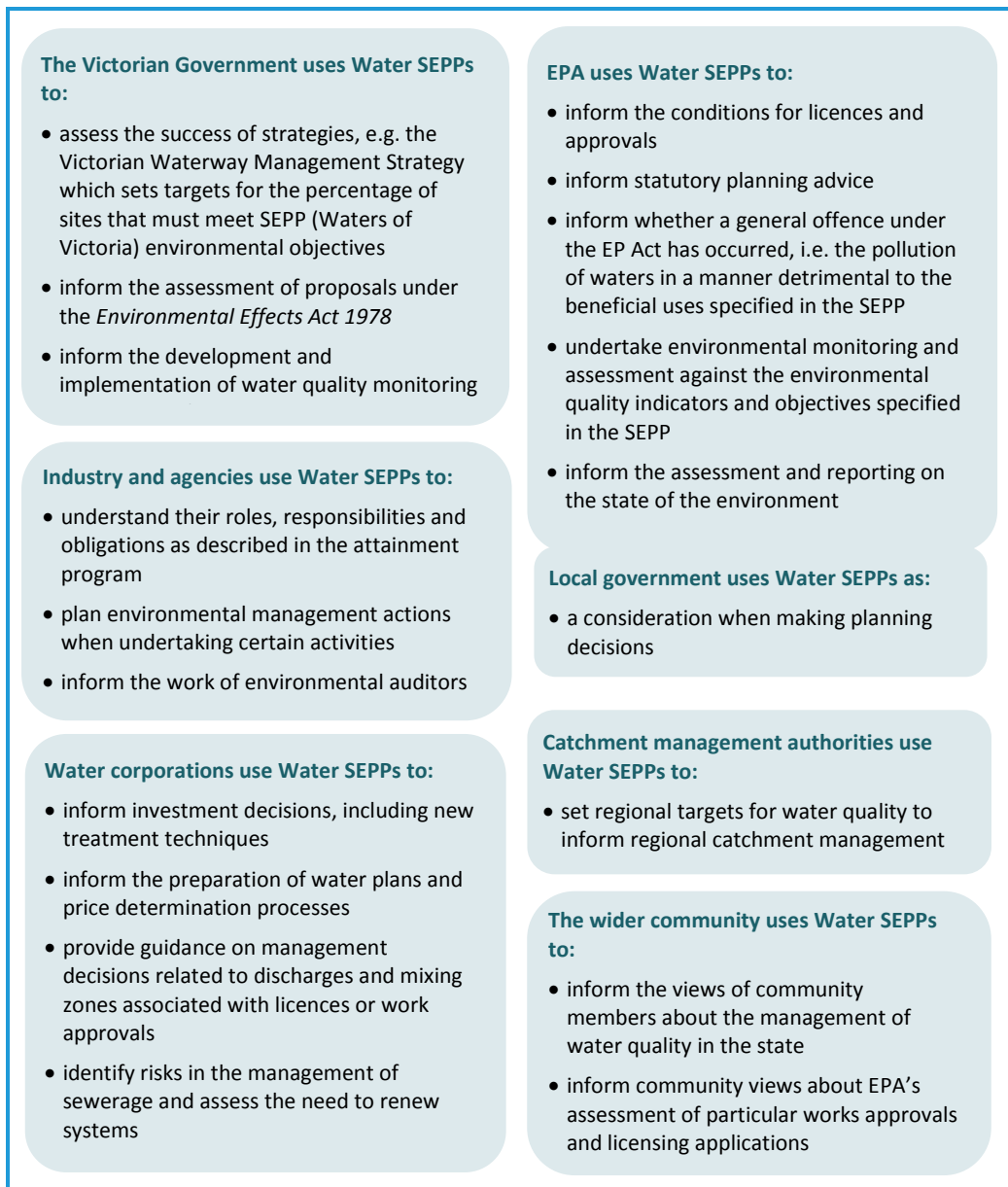
- obligations on duty holders — detailed expectations and requirements for a range of activities that impact on water quality (e.g. sewerage infrastructure needs to contain flows associated with a 1-in-5 year rainfall event or a comparable design standard that avoids losses of wastewater); and
- provisions that assign responsibility, give discretion or empower agencies to take action (e.g. in issuing a licence, the EPA may approve a mixing zone); and,
- decision rules for, and processes to be follow by regulators (e.g. there must not be any direct discharge of waste to any aquifer except for specific purposes and where specified conditions are met).

The attainment clauses collectively (in both the SEPP (WoV) and (GoV)) make up a program of priority actions and management practices by which environmental quality objectives are to be achieved or 'attained' to protect beneficial uses.

The current attainment clauses in the Water SEPPs cover waste and wastewater management (e.g. licensing of wastewater discharges, onsite domestic wastewater management, sewerage management), water management (e.g. dredging, urban stormwater, aquatic pests), catchment management (e.g. agricultural activities, construction activities, vegetation protection) and groundwater management protection (e.g. hydrogeological assessment, rising water tables, clean-up of polluted groundwater) Details of the proposed reforms to the attainment clauses are described in chapters 8 to 13.

### **2.1.3 How are SEPPs used?**

The Water SEPPs are used by a range of different parties and work in parallel with other pieces of legislation and supporting mechanisms to protect Victoria's water environments (Figure 3). Together these regulatory and policy instruments define the mechanisms that are ultimately applied to duty holders whose activities represent a risk to the water environments.



**Figure 3 How Water SEPPs are used by different parties**

Their key roles in enabling and informing a wider set of regulatory and policy instruments are detailed in the sections below and can be summarised as follows.

- They inform works approval and licence application assessments of the EPA.
- They help in assessing whether a general offence under the EP Act has occurred but rely on the enforcement and compliance mechanisms of the EPA for acting on this.
- They inform the statutory planning controls of local governments.
- They are used to inform and enable the wider catchment and waterway management and planning activities of DELWP, Melbourne Water and Catchment Management Authorities (CMAs) under the *Water Act 1989* and the *Catchment and Land Protection Act 1994* (CaLP Act).

### **Works approvals and licencing**

Under the EP Act, works approvals from the EPA are required for industrial and waste management activities that have the potential for significant environmental impact. A works approval is required when the operation of works, plant or equipment to be installed will result in one or more of the following:

- the discharge of waste to the environment
- an increase in, or alteration to, an existing discharge
- a change in the way waste is treated or stored.

The EPA works approval process is designed to ensure the best and most cost-effective environmental outcomes on projects are achieved. Without works approvals there is an increased risk of industrial projects causing pollution issues and requiring expensive retrofitting. Works approvals are an opportunity to save energy and water, and to reduce waste at the project design stage, creating value for a business.

The Legislative framework governing works approval assessments is three tiered as follows:

- Tier 1 - The EP Act
- Tier 2 - SEPPs
- Tier 3 – Practice guidance

Licences issued by the EPA are required for all scheduled premises and contain standard and specific conditions that aim to control the operation of the premises so that there is no adverse effect on the environment. The EP Act specifies penalties for breach of licence conditions and for operating a site without a licence.

The EPA uses the Water SEPPs to inform works approvals and licence decision making processes in two ways.

First, the environmental quality objectives represent the water quality level which would not cause harm or pose a significant risk to beneficial uses. These are the environmental standards that must be considered when assessing the risk of an activity on water environments when applying for a works approval and the baseline water quality to be considered when setting licence conditions. The actual licence discharge conditions are determined by the EPA on the basis of localised information on the costs and benefits of pollution abatement obtained during the works approval process.

Second, the SEPPs attainment clauses outline the specific considerations, consistent with the requirements of the EP Act, that the EPA must have in assessing works approvals and developing conditions in licences. Under the EP Act, the EPA is required to have regard to SEPPs when considering applications for works approvals and licences, and the authorisation and any condition of these must be consistent with the SEPP. These attainment clauses provide clarity and certainty for both the EPA and duty holders about their obligations under the EP Act and the criteria which is used to inform decisions. For example, the EPA may approve a mixing zone as part of a discharge licence where a discharge cannot be practicably be avoided, reused or recycled, and where wastewater management practices are not effective in fully protecting beneficial uses, however the EPA will not approve a mixing zone if it will result in harm to humans, unacceptable impacts on plants and animals or acute lethality to organisms at the point of discharge, or chronic impacts outside the mixing zone.

### ***Enforcement and compliance***

SEPPs are indirectly enforced by EPA. There is no direct offence for non-compliance with SEPPs. The EPA uses the broader enforcement and compliance powers provided for under the EP Act to achieve or enforce compliance with the requirements housed in the Water SEPPs (see chapter 16). This can involve consideration of whether the relevant SEPP environmental quality objectives have been exceeded or whether the obligations in the attainment program have been complied with.

Under the EP Act, the EPA has powers to issue remedial notices such as PANs, and penalty infringement notices (PINs) for failure to comply with provisions in a SEPP or other instrument under the EP Act. PANs are written statutory directions that require the recipient to undertake works or activities to prevent further occurrence of pollution through installation of risk controls and changes to on-site processes and practices. For example, to conduct a clean-up, stop works, install controls, or change a process or activity. It is an offence under the EP Act not to comply with a remedial notice (see Box 2).

Under the EP Act, for the period 1 July 2011 to 30 June 2017, there has been:

- 1,264 water pollution related PANs issued;



- Three water related Prosecutions; and
- Three water related Enforceable Undertakings.

### Box 2 The issuing of remedial notices under the EP Act

Remedial notices are served to protect or remedy actual or likely pollution, environmental hazards and a range of non-compliance with the EP Act. The provisions of a SEPP can support the EPA in issuing a remedial notice, by providing greater detail about the nature of an offence under the EP Act.

As an example, the EPA issued a remedial notice to a vessel operator in relation to the discharge of treated wastewater into Port Phillip Bay. In their assessment, EPA noted that the operator failed to have an adequate monitoring and maintenance program in place to test effluent quality and ensure discharges were compliant with environmental quality objectives.

In issuing the notice, the EPA referenced provisions in SEPP (WoV) Schedule F6 (Waters of Port Phillip Bay) which states that vessels must ensure that their operations do not have an adverse impact on beneficial uses and that wastes are managed in accordance with best practice. In this instance, the EP Act identifies offences for the pollution of waters, while the SEPP provided greater clarity about how such obligations relate to vessel operators.

### Planning controls

Good land use planning has an important role to play in the protection of Victoria's waters. Planning schemes and permits issued by responsible authorities (under the *Planning and Environment Act 1987*) are the primary regulatory mechanism for controlling the use and development of land. For example, planning schemes establish zones for various land uses and determine how they should be developed and managed. Environment protection is a major consideration of planning schemes.

The Victorian Planning Provision (VPP) is a template from which planning schemes are sourced and constructed. Clause 14.02-1, common to all planning schemes across Victoria, specifically references that, in order to assist the protection and, where possible, restoration of catchments, waterways, water bodies, groundwater, and the marine environment, planning must consider the SEPP (WoV). The SEPP (GoV) also directs planning authorities to ensure that planning schemes and planning permits are consistent with the provisions of the SEPP. In practice, a SEPP will be one of a number of matters a responsible authority will consider before deciding on a planning permit application, and as such, will have varying levels of effect on the outcome of the decision.

### Catchment and waterway management

DELWP, Melbourne Water<sup>7</sup> and the CMAs have various responsibilities for waterway and catchment management in Victoria. These roles are defined in other legislative instruments, but are informed by the Water SEPPs.

The Victorian government relies on the Water SEPPs' environmental quality objectives when assessing the success of various waterway and catchment management policies, and when prioritising water quality improvement actions across Victoria<sup>8</sup>.

Melbourne Water and the CMAs use the Water SEPPs to help prioritise and guide their waterway planning and management activities (and for CMAs their regional catchment planning). In particular, the *Water Act 1989* requires these agencies to develop a regional waterway strategy (RWS) for priority waterways in partnership with other key stakeholders.

RWSs are a single planning document for river, estuary and wetland management in each of the 10 catchment management regions. They identify high value waterways and outline a regional work program of management activities for priority waterways for an eight-year period. The regional priority

7. Melbourne Water has the waterway management responsibilities in the Port Phillip and Westernport region.

8. The *Water Act 1989* requires DELWP to deliver a program of long-term water resource assessments, which includes collecting, collating, analysing and publishing information about water quality.

setting approach involves the assessment of information on the environmental, social and economic values of rivers, threats to these values, and the level of risk to the values. RWSs are guided by the Victorian Waterway Management Strategy which amongst other things provides an integrated waterway management framework to facilitate regional decision-making and outlines aspirational targets for key regional management activities over the next eight years that aim to maintain or improve the condition of waterways.

There are also other regulatory instruments, for the protection of catchments and water supply sources, contained in the CaLP Act. Under the CaLP Act, CMAs are required to develop regional catchment management strategies that may be incorporated into a Water SEPP, in whole or in part, and with or without changes. This allows the content of regional catchment strategies, that include among other things measures to promote improved use of water resources, actions to implement the strategy and procedures for monitoring, to be adopted into SEPPs, as required, for a catchment management region.

## 2.2 The success of the Water SEPPs to date

### 2.2.1 What would happen without the Water SEPPs

One way of judging the success or continued need for the Water SEPPs is to look at what would have happened in their absence.

The primary regulatory mechanism used for addressing water pollution is the EP Act. The EP Act defines high level objectives for protection of Victoria's water environments and gives the EPA roles, responsibilities and powers in respect to environmental protection.

Statutory policies (i.e. the Water SEPPs) that sit under the EP Act outline the beneficial uses (or public values) to be protected for different water bodies, and associated water quality objectives required to support these beneficial uses. Essentially, the objectives specified in the current Water SEPPs outline the ambient water quality levels, for specific water bodies across Victoria, which pose minimal risks to beneficial uses.

This means in some circumstances the costs of achieving the SEPP environmental quality objectives may be quite high. Hence, they are not intended to be directly applied as compliance standards on polluters. Instead they create a benchmark for assessing existing water quality levels and determining water bodies where beneficial uses may be facing an unacceptable level of risk. In this way they are intended to help prioritise action and inform decision making as part of a wider set of considerations.

The Water SEPPs also specify measures to help meet and attain the high level principles in the EP Act. These are contained in attainment clauses of the Water SEPPs. The entities with regulatory powers, including the EPA, develop specific policy responses or regulatory mechanisms, i.e. licences or planning provisions (sometimes informed by the SEPP) that apply to specific dischargers or groups of dischargers. The attainment clauses therefore clarify what is required from dischargers (and other entities<sup>9</sup>) in order to comply and to facilitate enforcement action<sup>10</sup>. In the absence of the Water SEPPs, the EP Act would still exist and outline what constitutes a pollution offence and enable regulatory tools like works approvals and licences to be applied to help control water pollution.

However, the EPA would need to take this regulatory, enforcement and compliance action in the absence of:

- an agreed suite of environment standards that define with legal weight and certainty, the meaning of clean (non-polluted) water in Victoria to help inform its regulatory and enforcement decision; and

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9. There are also a range of actions currently identified in the attainment program identifying what other agencies should be doing to reduce the impact of their activities on beneficial uses.

10. There is no direct offence for non-compliance with the SEPPs. Instead the EPA uses other provisions of the EP Act, such as PANs, licence conditions and other offences, to enforce compliance with statutory policy. While the SEPP is not directly enforced, environmental quality objectives may be used to inform enforcement actions under s39 where pollution of waters is suspected. The objectives represent levels that need to be met to protect water environments and human health and provide a benchmark that can be used to determine whether an activity is likely to have led to environmental harm. The objectives may be used, along with other available information, including the background conditions, to determine how elevated a substance may be above levels that need to be met to protect the environment and the risk to the environment likely as a result of those elevated levels. Objectives are not a hard pass/fail but are used within a risk based assessment. In general, large exceedances of an objective indicate a higher risk to the environment, and likelihood of harm, than smaller exceedances



- clear and detailed requirements around how its role and regulatory tools should be applied with respect to water pollution and protecting the environment.

This would otherwise result in a number of inefficiencies, described below, which the Water SEPPs help address. On this basis, the current Water SEPPs are considered to have delivered a number of benefits.

#### ***Lower regulatory administrative costs***

The Water SEPPs could be argued to reduce the costs of environmental regulation in two ways.

First, by defining ambient water quality levels (i.e. the environmental quality objectives), at which the threat to the environment and other users, is minimal across the State. This enables pollution management action to be prioritised around Victoria on the basis of risk. This is because the SEPP environmental quality objectives create a benchmark for assessing existing water quality levels and determining water bodies which are most likely to be at risk. Hence, they help prioritise action and inform decision making.

Second, by centralising the task of determining the environmental quality objectives. This task is complex and specialised. The process of developing the environmental quality objectives involves the gathering of a significant amount of water quality monitoring data plus the application of high levels of science to the task of analysing and interpreting this data. Given the technical knowledge and expertise required to undertake this task it would be difficult and inefficient to mobilise the necessary expertise on a case by case basis. Furthermore, this would slow down the regulatory decision making process (relating to assessing works approvals and licence applications) and therefore increase the costs for regulated parties.

#### ***Lower compliance costs as a result of reducing regulatory uncertainty***

The Water SEPPs provide regulatory certainty in addition to that provided by the EP Act and *Scheduled Premises Regulations 2017* for polluting entities:

- by defining, with legal weight and certainty, the environmental water quality levels, which may be indicative of a problem; and
- the responsibilities of agencies, and the process or form their actions may take, to effectively minimise risks to beneficial uses.

This may help ensure agencies make more consistent decisions in respect to setting regulatory mechanisms. For example, the SEPPs form part of the considerations of the EPA when determining works approval and licence conditions. As a result, they also provide greater certainty for parties that discharge water pollutants, in terms of what is likely to represent compliance with the EP Act, by describing a water quality level that avoids harm to beneficial uses.

Where the licenced discharge requirements or pollution limits are subject to a high level of uncertainty or vulnerable to change, because of changing priorities, this uncertainty may otherwise cause delays in investment decisions.

Therefore, by reducing regulatory uncertainty, the Water SEPPs encourage efficient investment in managing water pollution.

### **2.2.2 Changes in water quality in Victoria**

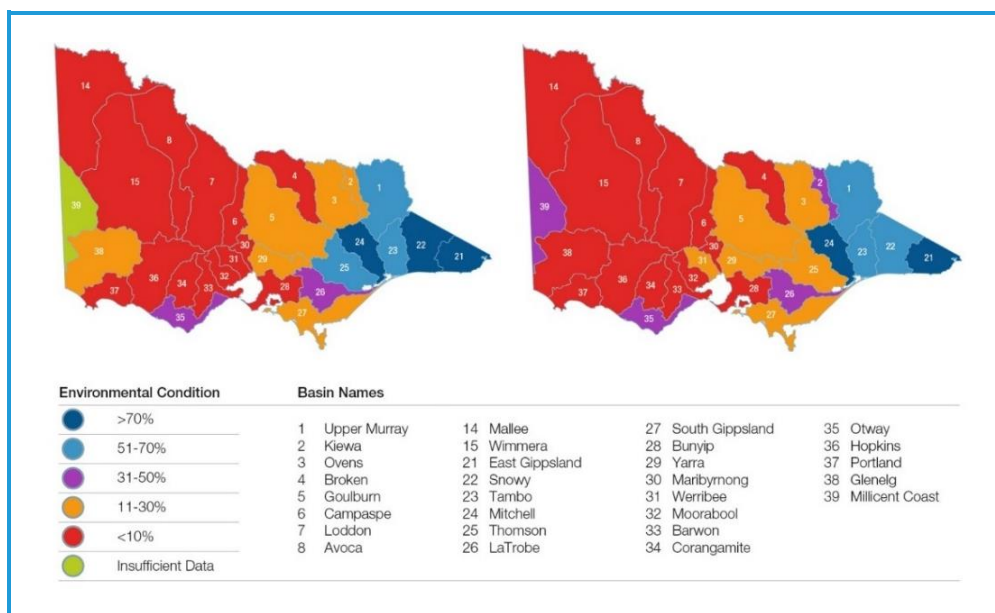
In theory, changes in water quality over time may also provide an indication of the success of the Water SEPPs. However, many factors, in addition to regulatory arrangements (of which the SEPP is only a part), contribute to the quality of Victoria's water, making it challenging to isolate the effect of the Water SEPPs. This includes rainfall (volume and intensity), land use, catchment management policies, extraction levels, environmental flow and both point source and diffuse pollution.

Climatic events are likely to have strongly influenced water quality outcomes post introduction of the 2003 SEPP (WoV). Since then, there has been a prolonged, extreme, dry period (the Millennium drought) that ended in 2009 followed by two years of above average rainfall and severe flooding in some areas. These conditions affect water quality. For example, extreme droughts reduce the quantity of water in water bodies which can increase the concentration of some pollutants i.e. salt. Furthermore, it can increase water temperature which in combination with high levels of nutrients can

contribute to increased algal blooms. Conversely high rainfall events can trigger runoff, overland flows and lead to increases in diffuse pollution from runoff.

The available monitoring data suggests that state-wide, inland surface water quality has remained substantially unchanged since 2005 to present<sup>11</sup>. Comparisons between stream flow conditions in 2004 and 2010 shows that small improvements were observed (Figure 4) over this period. This is in spite of these extreme climatic condition and significant population growth. In the face of increasing threats to beneficial uses, Victoria’s overall environmental water quality policy and regulatory framework which includes the SEPPs has been effective in maintaining water quality.

That said, there is always more that can be done. The monitoring data also shows that the magnitude and direction of the change has varied from region to region suggesting that water quality risks vary by location and over time. In terms of priorities, Victoria’s inland water quality monitoring network<sup>12</sup> shows that water quality at some sites, particularly in cleared catchments, does not meet the SEPP environmental quality objectives. In particular, the 2010 Index of Stream Condition<sup>13</sup> showed that 43 per cent of river length was categorised as being in moderate condition, 19 per cent in poor condition and 13 per cent in very poor condition.



**Figure 4 Condition of Victoria’s stream by river basins in 2010 and 2004**

Source: DEPI (2013) Index of Stream Condition – the third benchmark of Victorian River Condition

It is a similar story in relation to Victoria’s marine and estuarine waters, where water quality is variable. Water quality in Lake Wellington (Gippsland Lakes) is generally categorised as poor, while water quality of Port Phillip Bay is generally categorised as reasonable to good (except after large flood events), and water quality of Western Port is generally categorised as good.

The Water SEPPs have been an effective tool for prioritising action with the above monitoring programs, along with strategies and management plans, using the non-attainment of SEPP objectives to identify areas at risk and inform the development and prioritisation of management actions. For example, the Victorian Waterway Management Strategy uses SEPP objectives (through the Index of Stream Condition) to identify the level of risk to high value waterways and prioritise regional management actions. Similarly, state of environment reporting has used SEPP indicators and objectives to characterise and report on the health of waterways (e.g. the Yarra and Bay report card,

11. Department of Environment and Primary Industries (2013) Victorian Water Quality Trends 1991 – 2010, [http://data.water.vic.gov.au/monitoring.htm?ppbm=websw&rs&3&rskr\\_org](http://data.water.vic.gov.au/monitoring.htm?ppbm=websw&rs&3&rskr_org)

12. Department of Environment and Primary Industries (2013) Victorian Water Quality Trends 1991 – 2010, [http://data.water.vic.gov.au/monitoring.htm?ppbm=websw&rs&3&rskr\\_org](http://data.water.vic.gov.au/monitoring.htm?ppbm=websw&rs&3&rskr_org)

13. Department of Environment and Primary Industries (2013) Index of Stream Condition – the third benchmark of Victorian River Condition.

State of Bays in 2013 and 2016). Water quality targets based on SEPP indicators and objectives have also been included in Gippsland Lakes and Western Port Ramsar site strategic management plans for the protection of environmental values.

Monitoring of groundwater is currently more sporadic, and focused on management areas and contaminations sites. This means there is less evidence on state-wide overall trends.

Overall, 233 groundwater quality restricted-use zones have been declared by the EPA. These are areas where the EPA has become aware of, and formally recognised that, groundwater is polluted<sup>14</sup>. But there are potentially more areas with impaired groundwater quality associated with Victoria's legacy of contaminated land sites.

The SEPP (GoV) has been effective in prioritising actions for the clean-up and management of groundwater pollution. The groundwater objectives and associated attainment program clauses have effectively been used to guide the EPA's determination of whether groundwater has been cleaned up to the extent practicable and decisions regarding the identification of a groundwater quality restricted use zones for areas of aquifers where one or more beneficial uses of groundwater are precluded by pollution.

Given their role in informing the decisions of the EPA and Government, Industry and agencies often refer to the SEPP to inform their forward planning in respect to environmental management actions and investment decisions.

SEPPs play an important role in promoting the effectiveness of the regulatory system for water protection overall but as water quality risks and success in addressing these vary across Victoria, a key challenge for the Water SEPPs going forward will be to continue to identify and prioritise actions to address these risks where and when they emerge.

## 2.3 Future challenges and issues

In the last ten years, communities in Victoria have adapted and changed, and their relationship with water and expectations may also have changed.

Public consultation and discussions have been held with communities across a range of issues related to water over the period of this review and revising the Water SEPPs provides an opportunity to confirm community values, priorities and expectations (see chapter 15).

The nature and extent of our impact on water quality may also alter with changes to climate and the activities undertaken within our catchments. Significant future threats to environmental water quality exist. These include:

- population growth leading to changing land use and increasing urbanisation;
- greater intensity of agriculture and shifting locations, particularly as export markets develop and in response to climate change; and
- the effects of climate change on flow regimes and extreme events such as fire, droughts and floods that in turn impact water quality and beneficial uses.

Science has advanced and our knowledge of water quality has improved. Therefore, we also have an opportunity to ensure that the latest science is applied in the Draft SEPP (Waters). In particular, by updating the environmental quality indicators and objectives to ensure they are based on the latest data and learnings.

It is also important to ensure the Draft SEPP (Waters) continues to represent best practice. Therefore, the Review has given careful consideration to how the Water SEPPs might be improved upon by restructuring, simplifying and clarifying the instrument to improve their effectiveness.

These improvements have been informed by the recommendations and findings of a number of recent reviews which have touched on how the effectiveness of SEPPs might be improved (albeit that

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14. Note the intention and purpose of a groundwater quality restricted use zone is to retain information about the condition of groundwater and to ensure such information is made available to those who may be interested in using groundwater. The identification of a restricted use zone allows interested parties to determine for themselves the significance of the condition of groundwater and any resulting restrictions on use – in the context of the current or proposed use of the site.

this was not their sole focus). These include, the 2013 Statutory Policy Review (SPR<sup>15</sup>), the 2016 Independent Inquiry into the EPA<sup>16</sup> and the Victorian Competition and Efficiency Commission (some functions now undertaken by the Office of the Commissioner for Better Regulation (OCBR)) review of environmental regulation<sup>17</sup> (see chapter 3 for further discussion of these).

The reviews revealed widespread support for statutory policies, such as the Water SEPPs. Similarly, the feedback received through the different stages of this Review has also informed the development of a Draft SEPP (Waters) as outlined in this PIA.

The Review has also been mindful of the requirement of the *Climate Change Act 2017* in undertaking its analysis (see Box 3).

### **Box 3 How the SEPP Review has met the requirements of the Climate Change Act**

The *Climate Change Act 2017* was passed on 28 February 2017 and comes into effect on 1 November 2017, replacing the *Climate Change Act 2010*.

This legislation introduces a new set of policy objectives and an updated set of guiding principles to embed climate change in government decision making. In completing the review of the Draft SEPP (Waters) the impacts of climate change must be considered in the context of managing the States natural resources, ecosystems and biodiversity to promote their resilience.

In a broad sense the Draft SEPP (Waters) is aimed at maintaining water quality sufficient to protect existing and potential beneficial uses which is consistent with the policy objective of the *Climate Change Act 2017* to manage the State's natural resources, ecosystems and biodiversity to promote their resilience.

The Review has met the requirements of the *Climate Change Act 2017* by having regard to the potential impacts of climate change on the outcomes of the policy approaches adopted and the potential contribution to greenhouse gas emissions of the decision. This has been achieved through accounting for the full suite of impacts (economic, environmental, health and social), both direct and indirect, in comparing policy options.

For example, hydrodynamic modelling was undertaken to predict the future changes to catchment flows and the hydrodynamics of the major embayments. This has been undertaken to assist in the identification of actions to be taken to mitigate the risks to water environments. Distinct modelling scenarios, all of which included climate scenarios, were selected for each region reflecting differences in their key pressures, threats and processes.

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15. EPA and DEPI (2013) Statutory Policy Review – Final Report (EPA Publication 1498)

16. Victorian Government (2016) Independent Inquiry into the Environment Protection Authority

17. VCEC (2011) *Strengthening Foundations for the Next Decade: An Inquiry into Victoria's regulatory framework*, Final Report and VCEC (2009) *A Sustainable Future for Victoria: Getting Environmental Regulation Right*

## 3. Problem statement

Human activity can result in pollution and waste<sup>18</sup> discharges into surface and groundwater resources across Victoria. These can, if not appropriately managed, have adverse impacts on water quality. For example, by changing the concentrations of naturally occurring chemicals (such as nitrates, phosphates and metals); by introducing new synthetic substances and pathogens; and by changing sediment loads, flow regimes and temperature.

In addition to point-source pollution from domestic and industrial wastewaters (both controlled releases and deliberate or accidental events), pollution from diffuse sources remains a major cause of poor water quality. The resultant water quality affects water-using industries and the general public's use and enjoyment of water resources as well as the aquatic ecosystems dependent on these resources. For example, excess nutrients can result in algal blooms and fish deaths.

Water in the public realm is vulnerable to pollution. This is because it is difficult to prevent people from disposing pollution and waste to the water body (particularly in respect to diffuse pollution) and because the capacity of the water body to receive and treat pollutants is finite.

There is a strong rationale for regulating disposal of waste to water. This relates to the fact that polluters do not necessarily incur all of the losses and damages incurred by other users and the broader public that result from water pollution. Hence, private incentives can lead to under-provision of water pollution management below the socially acceptable level. For that reason, regulation has long been relied on as a means of managing pollution.

### 3.1 Market failure

The disposal of waste to water, whether from a point or diffuse source creates externalities. An externality is a cost or benefit that affects a third party who was not involved in the original activity. For example, the use of fertilisers on agricultural land can result in runoff that contains high levels of nitrogen and phosphate. This can enter adjacent water bodies and result in algal blooms which affect the aquatic ecosystem and make the water unsuitable for use by other parties, such as irrigators or the general public.

Economic theory suggests individual actions will result in the level of water pollution being in excess of the societally acceptable level if some of the costs of, and the risks posed by, water pollution are borne by other users and the broader community. In these circumstances, more waste will be disposed to water bodies than would be the case if individuals had to pay for the full cost of their actions. Hence, this leads to excessive pollution of the common pool resource and reduction in its value.

As with other forms of pollution, it is not reasonable to seek to prevent all pollution and waste from entering water resources since the cost of doing so would exceed the benefits to other users and the ecosystem. The acceptable level of water pollution will be where the marginal cost of pollution abatement is just equal to the marginal benefit from pollution abatement (were the benefits include those to water users and the environment). This will be where society's welfare as a whole is maximised. Using the example above, this would be where the cost to the producer of either not applying the fertiliser (in terms of lost production) or of putting in other runoff controls equals the benefit to other users and the environment in terms of the associated water quality improvements.

A challenge here is that the acceptable level of water pollution will vary across Victoria by water body as the aquatic ecosystems and the users of water differ across the state. Furthermore, it will differ over time as the value of any water quality improvements and the costs of greater pollution control can be expected to vary over time.

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18. The EP Act defines waste as including "any matter whether solid, liquid, gaseous or radio-active which is discharged, emitted or deposited in the environment in such volume, constituency or manner as to cause an alteration in the environment"



## 3.2 Regulatory response

As a result of the above, environmental regulations exist to help maintain the quality of water bodies.

As discussed in chapter 2, the EP Act defines high level objectives for protection of Victoria's water environments and gives the EPA roles, responsibilities and powers in respect to environmental protection. The Water SEPPs that sit under the EP Act, provide the detail and specific measures to help meet and attain the high level principles of environment protection in the EP Act. In the absence of the Water SEPPs, the EP Act would still enable action to control water pollution (such as the application of licences and enforcement action against specific offences) however, this action would be determined:

- in the absence of defined environmental quality standards; and
- without further clarification and guidance around tools and mechanisms that may be used by agencies in order to achieve these objectives (see section 2.2.1 for further discussion).

## 3.3 Problems with the existing regulatory framework

While there is a clear role for the Water SEPPs in protecting the environment, and regulating water pollution, there are some inefficiencies that have emerged since they were last reviewed in 2003 (SEPP (WoV)) and in 2002 (SEPP (GoV)).

In particular, there are a number of key problems that appear to prevent the Water SEPPs from achieving desired water quality outcomes in the most effective way. These are summarised below and described in more detail in the chapters that follow.

- The structure and format of the Water SEPPs is overly complex and is making them poorly understood (e.g. SEPP (WoV) has five separate Schedules developed at different times over a 15 year period).
- The environmental standards contained in the Water SEPPs no longer reflect current science, latest monitoring information, changing community values or uses.
- The implications when water quality fails to meet the SEPP environmental quality objectives are unclear.
- There is a need for clarity around applicant requirements and EPA considerations when assessing and determining works approval and licence conditions (e.g. the Water SEPPs need to clearly describe what represents compliance with the EP Act).
- The way some attainment clauses are currently drafted may be limiting the use of market based, outcome focussed regulatory approaches.
- The Water SEPPs may not facilitate the most effective regulatory response to some diffuse sources of pollutants, in particular on-site domestic wastewater management systems.
- Other minor issues which may affect the Water SEPPs effectiveness such as readability issues, duplication of other instruments or outdated references.

These issues are discussed in further detail in the sections that follow.

### 3.3.1 Structure and content of the SEPP regulatory instrument

There are currently two policies for Victorian waters (SEPP (GoV) and SEPP (WoV) and its five Schedules), all of which specify indicators and objectives, and rules and obligations to the areas to which they relate. As these instruments were developed at different periods of time between 1988 and 2003, they reflect the state of knowledge at that time, and are often inconsistent, specifying different indicators or beneficial uses. This has created challenges for the useability and consistency of use across water bodies.

Furthermore, since the development of the existing Water SEPPs, two key reviews have been undertaken of statutory policy instruments:

- Statutory Policy Review - *Review of Statutory Policy under the Environment Protection Act 1970 completed in June 2013*<sup>19</sup>; and
- *Independent Inquiry into the Environment Protection Authority completed in 2016*<sup>20</sup>.

The key recommendations of these reviews are described in Box 4 below.

The SPR found that current statutory policy is often complex, difficult to access and poorly understood by community and businesses. Stakeholders were of the view that the standards and obligations within statutory policy are sometimes unclear, which often confuses businesses, industries, agencies and communities. It also considered that some functions of a SEPP may be better delivered through the use of other instruments such as regulations and guidance documents.

The key endorsed recommendations of the Independent Inquiry into the EPA were that the EP Act should be re-drafted with a preventative duty at the centre. Hence the Review has been mindful of the potential implications of this new model for the Draft SEPP (Waters). The SEPP (Waters) will be reviewed again once legislative changes to the EP Act are complete. However, the Review has looked to identify changes in the structure and content of the SEPP that could aid in moving towards these arrangements without leaving gaps in the existing regulatory framework.

Reforms for addressing these matters are considered in Chapter 6.

**Box 4 Key recommendations of the 2013 Statutory Policy Review and the 2016 Independent Inquiry into the EPA**

***Statutory Policy Review 2013***

In June 2013, the EPA and the Department of Environment and Primary Industries (DEPI; now DELWP) completed a public *Review of Statutory Policy under the Environment Protection Act, 1970*<sup>19</sup>. The findings and recommendations of the Review were endorsed by the Secretary of DEPI and the Chair of the EPA.

A comprehensive consultation process confirmed the fundamental importance of statutory policy for environmental protection as a result of defining the environmental objectives that are to be protected in Victoria and the indicators and standards used to determine whether these are being met; obligations on duty holders, and decision rules for, and processes to be followed by regulators.

It also revealed wide support for reforms to deliver a simpler, more streamlined and accountable statutory policy framework. In particular, by:

- Focusing the SEPPs on setting long term objectives (that provide a measurable point that if not achieved, would then require assessment by EPA or DELWP) and associated rules for regulatory decision makers and emitter or industry obligations (where they are unsuited to Regulation and needed in law).
- Removing elements that do not need statutory force or where statutory force is not appropriate i.e. clauses that outline general roles, partnerships or programs.
- Establishing new approaches for 'at risk areas'.
- Strengthening links with the statutory land use planning system and catchment and waterway management.
- Improving public accountability for implementation through developing a separate implementation plan that will be publicly reported on.
- Improving the readability of, and language used in, statutory policies.

***Independent Inquiry into the EPA 2016***

In May 2015, the Minister for Environment, Climate Change and Water appointed a Ministerial Advisory Committee to undertake an independent Inquiry into the EPA.

The Final Report of the *Independent Inquiry into the EPA* was released in May 2016. The Report recommends changes to the EP Act, SEPPs and to the EPA's regulatory tools. It envisages EPA taking a

19. EPA and DEPI (2013) Statutory Policy Review – Final Report, (EPA Publication 1498)

20. Victorian Government (2016) Independent Inquiry into the Environment Protection Authority

stronger preventative approach to protect human health and the environment by reducing the harmful effects of pollution and waste. Central to this are the recommendations to introduce a general duty to minimise risks of harm to human health and the environment and for EPA to take a greater role in strategic land use planning to prevent future health and amenity risks.

The Government released its response to the inquiry on 17 January 2017 in which it supported 40 of the 48 recommendations (in full), with seven supported in principle, and one supported in part.

Key endorsed recommendations included re-drafting the EP Act with a preventative duty at the centre, and also for reframing the statutory policy framework incorporating:

- overarching policy settings to be established by DELWP — This includes the introduction of a general preventative duty for a person or organisation undertaking an activity to take reasonably practicable steps to eliminate or reduce the risk of harm to human health and the environment from pollution and waste;
- technical standards to be determined by EPA; and
- compliance obligations being moved into regulations.

The government response also noted that reviews of statutory policies currently underway will continue and revised statutory policies will be adapted to the new model as soon as practicable.

The government intends to legislate for a new EP Act by mid-2018. Implementation activities, including developing the agreed final suite of regulatory tools will commence after the legislative reform is completed.

### 3.3.2 Outdated environmental quality indicators and objectives, and targets

The environmental quality indicators and objectives, and load based targets<sup>21</sup> in the Water SEPPs have been developed at various times from 1988 through to 2003. It should be expected that specification of the level of water quality in the Water SEPPs that minimises threats to beneficial uses will vary over time as:

- There are advances in our scientific understanding of the required environmental quality to protect beneficial uses.
- The users and uses of water change and/or our level of understanding of the pollution threats from different uses, and users, of water expands.
- As the baseline receiving water environment changes in response to climate variability.

In the time since the Water SEPPs were introduced, changes in respect to all of these points have occurred.

Outdated environmental quality objectives have the potential to undermine stakeholder confidence and create additional work for decision makers even when not directly applied to dischargers. Essentially, the more outdated the objectives become, the more inefficiency they may generate. This is because they become less reflective of the conditions likely to be imposed by the EPA in licences, or likely to be considered representative of a pollution offence. As a result it become more likely that industry will disregard them and more likely that the EPA will have to assess applications and pollution offences on a case by case basis.

This suggests there may be value in updating the environmental quality indicators and objectives, and load based targets to better reflect current circumstances or improved understanding of the aspects of water quality to ensure that beneficial uses are being protected.

Furthermore, by combining the existing Water SEPPs into one proposed Draft SEPP (Waters) going forward, the Review has provided an opportunity to simplify and harmonise the beneficial uses and the presentation of environmental quality indicators and objectives across surface and groundwater.

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21. Load based targets are used in a similar manner to environmental quality objectives, however, they specify the mass of pollutants entering a water body over time that is required to protect beneficial uses, rather than the concentration. Load based targets exist for specific marine and lake bodies which are often more sensitive to the overall quantity of pollutants, rather than the concentration (see chapter 9 for further information).



Reforms for addressing these matters in respect to the environmental quality objectives are considered in Chapter 7 and in respect to load based targets in Chapter 9.

### **3.3.3 Unclear implications of failing to meet environmental quality objectives**

The current Water SEPPs recognise that not all beneficial uses will be able to be fully protected, and not all environmental quality objectives will be met. This results from some uncertainty around whether the environmental quality objectives contained in the Water SEPPs are in all circumstances reflective of societally acceptable pollution levels — where the marginal cost of pollution abatement is just equal to the marginal benefit from pollution abatement<sup>22</sup>.

At a high level, the environmental quality objectives in the Water SEPPs reflect this, given they take account of community values (i.e. the uses of water that Victorians want to protect) identified through stakeholder consultation on beneficial uses (see chapters 7 and 15).

However, at a localised level the objectives may vary from societally acceptable pollution levels. For example they may imply a higher standard than is necessary - in other words the costs of the pollution abatement actions necessary to achieve the objective (i.e. increased wastewater treatment costs) exceed the benefits from improvements in water quality and ecosystem health (i.e. to beneficial uses in terms of increased production or tourism impacts).

This can occur because the costs and benefits of pollution abatement will be highly localised and vary over time as the sources of water pollution change, the costs of pollution control vary and the uses of water change impacting on the benefit and cost of any water quality improvements. Determining more localised specific objectives, that are set based on an assessment of localised costs and benefits of reducing pollution would be cost prohibitive.

Instead the environmental quality objectives reflect the water quality conditions at which the risk to beneficial uses is minimal. As a result, the EPA uses objectives to inform its decisions on discharge conditions, in works approvals and licences, as part of a wider set of considerations (see chapter 10).

The environmental quality objectives are used in a risk based framework and where environmental quality objectives are not met this may indicate that further management action is required to reduce water quality threats. There are a number of processes that exist within and outside the Water SEPPs to identify the extent to which water bodies are at risk and to help drive action in these “at risk” areas. Most notably the regional waterway strategy process and the regional target setting process (see section 8.2).

The Review has identified a number of issues with these existing arrangements. This includes the lack of a single agency clearly tasked with undertaking a periodic state-wide assessment which benchmarks water quality monitoring data to the SEPP environmental objectives in order to identify areas that may be subject to an unacceptable level of risk<sup>23</sup>. The development and implementation of regional targets has not always occurred as the regional target setting process (which includes identifying regional actions and programs to improve water quality) was seen as enabling rather than mandatory. These issues are considered further in Chapter 8.

### **3.3.4 Clarity around works approval and discharge licence applications**

As discussed in section 2.1.3 the environmental quality objectives help frame the works approval and licence conditions developed by the EPA. In addition, the Water SEPPs attainment clauses (e.g. SEPP (WoV) clauses 27-31); SEPP (GoV) clauses 19-21) outline requirements for applicants and the considerations of the EPA in assessing approvals and developing conditions. These arrangements have the potential to drive significant impacts on industry and pollution abatement.

The Review consulted widely on these matters and overall, very few major issues were identified by stakeholders or EPA operational staff with the implementation of the existing clauses. Minor improvement were identified that focused on:

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22. Society's welfare will be maximized in respect to environmental quality when this occurs. See discussion under section 3. 1 Market Failure.

23. There was a process in place where DELWP/EPA provided annual comparison of the partnership water quality data to the SEPP environmental quality objectives. The report outlined for each basin which sites met SEPP objectives and which were at risk requiring further investigation. In 2006 this reporting ceased.

- improving readability and clarity;
- solidifying the move towards a more risk based framework; and
- better clarifying the considerations taken by the EPA.

While these issues are minor, any improvements in the processes for determining specific compliance obligations could still drive significant impacts. This is because these processes can help ensure compliance obligations being applied to polluters are efficient (i.e. based on societally acceptable pollution levels which integrate economic, social and environmental considerations). Any uncertainty around what is required to apply/comply could otherwise increase regulatory compliance costs.

These issues are considered in detail in section 10.3 and reforms to address these matters are considered more broadly in chapter 10.

### **3.3.5 Constraints on the adoption of innovative market based, outcome focussed approaches**

The 2011 Victorian Competition and Efficiency Commission (VCEC; now OCBR) review of environmental regulation (whose scope was broader than the Water SEPPs) considered there was likely to be opportunities to improve efficiency in some areas by replacing prescriptive regulations with outcome-based approaches (see

**Box 5** below).

The Review considered the attainment programs of the Water SEPPs, looking for clauses that may directly constrain the actions of both emitters and decision makers in terms of moving towards more outcome focussed, innovative market based approaches.

Specific clauses in the Draft SEPP (Waters) identify that in order to avoid pollution, certain measures must be implemented 'so far as practicable'. This is supported by a clause which explains how practicability is to be assessed in these instances. In particular, by considering the risks to existing and potential beneficial uses, the availability and suitability of measures to reduce risks, and the proportionality of these management practices. This recognises that there are a range of measures that can be adopted to reduce the risk of pollution occurring. The concept of practicability in the Draft SEPP (Waters) acknowledges that in some instances, the total elimination of runoff of pollutants is not possible, or the costs of achieving elimination may not be proportionate to the risks identified to beneficial uses.

While SEPP (WoV) included a clause on 'practicability', this was focused more on how government would work with others to assist them manage their activities over the life of the policy. The practicability clause has been revised in the Draft SEPP (Waters) to focus more on those undertaking activities that could impact water quality to manage their risks.

It should be noted that SEPP (GoV) already included provisions for 'clean up to the extent practicable'. This provision was further explained in EPA publications, such as Clean Up and Management of Polluted Groundwater (EPA Publication 840). This has a specific meaning in the context of groundwater management and so has been retained for this purpose in the Draft SEPP (Waters).

Offset measures are an example of an economic measure that can be used to cost effectively protect or regulate the environment. Offset measures are currently enabled in the SEPP (WoV), however, despite interest there has been only limited take up of this option over the life of the SEPP (WoV). Therefore, the Review has considered whether there are any barriers that are limiting the use of offset or economic measures, or whether more could be done to facilitate their expanded use.

These issues are considered in detail in section 11.3 and reforms to address these matters are considered more broadly in chapter 11.

## Box 5 Key recommendations of the 2011 VCEC review of environmental regulation

### **VCEC review of environmental regulation**

VCEC reported most recently in 2011<sup>24</sup> on opportunities for improving environmental regulation in Victoria. It made a number of recommendations for improving the efficiency of regulatory interventions which included:

- the need to have clear regulatory objectives, including the outcomes that regulation is intended to achieve;
- extending a risk-based approach to regulation in some areas;
- replacing some prescriptive regulations with outcome-based approaches;
- improving assessment and approval processes to reduce timeframes;
- more effective compliance including performance reporting and evaluation; and
- improving regulation with the use of indicators (outcome, output and input) and frequency of reporting.

This review has considered these recommendations and whether there are opportunities to improve the efficiency of the attainment clauses in the SEPP.

### **3.3.6 Approaches to managing diffuse pollution**

To date, water pollution regulation has focussed heavily on point source waste discharges which are primarily regulated by the EPA through works approvals and licensing. The pathway for point source discharges is often obvious and easily identified, making mitigation reasonably straightforward. These concentrated sources of pollutants are easier to regulate and monitor, and targeting a few large-scale operations may result in significant water quality improvements.

However, water quality is also significantly affected by diffuse sources of pollutants such as stormwater runoff or smaller unlicensed point sources (e.g. from septic tanks). In some cases, the environmental impact from diffuse sources is more significant than that from point sources. For example, in the Goulburn Broken catchment, point source discharges were estimated to account for less than 10% of total phosphorus loads and total nitrogen loads estimated at a catchment scale. Over 80% of loads were associated with unlicensed point sources<sup>25</sup>.

Mitigation for diffuse pollution is much more difficult as it is caused by a variety of activities that have no specific point of discharge.

The content of the current Water SEPPs give consideration to these sources of pollutants in the attainment clauses. Reducing pollutants from diffuse sources is administratively more complex and difficult to monitor, but because it may provide lower cost pollution abatement opportunities it is potentially a more cost-effective way of maintaining or improving water quality going forward.

In particular, the Review has looked at whether there may be benefits from reforms which attempt to better manage these diffuse sources of pollutants. This included exploring reforms to:

- regional target setting (see chapter 8)
- load based targets and the management actions they drive (see chapter 9);
- the management and regulation of on-site domestic wastewater management systems (i.e. septic tanks) (see chapter 12);
- sewerage system overflows (see chapter 13); and
- stormwater runoff (see chapter 13).

The Review looked to identify whether there were any problems in respect to the Water SEPPs management and regulation of these source of pollutants. In respect to load targets these appear to have been highly successful and hence the focus was on updating and expanding their use (see

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24. VCEC (2011) *Strengthening Foundations for the Next Decade: An Inquiry into Victoria's regulatory framework*, Final Report

25. Goulburn Broken CMA (2006) Draft Goulburn Broken Catchment Water Quality Strategy

section 9.3). In respect to stormwater runoff and sewerage system overflows only minor issues were identified or issues were broader and not within the scope of the SEPPs control (see chapter 13).

However, one area where issues were identified related to the management of on-site domestic wastewater management systems (ODWMS). These related to:

- the effectiveness of planning controls on ODWMS installation and maintenance;
- barriers to wastewater being managed in the most efficient way; and
- duplication of the EP Act.

These issues are discussed in detail in section 12.3 and reforms to this area are considered in chapter 12 more broadly.

### **3.3.7 Other Issues**

General feedback from industry and other stakeholders indicates SEPPs are often complex, difficult to access and poorly understood. While this is in part associated with the structure and content of the Water SEPPs some of these concerns appears to relate to readability issues.

Furthermore, in some areas the Water SEPPs duplicate other instruments, or refer to agencies or guidelines that no longer exist or are outdated.

Addressing these issues does not require major reform and so changes relating to resolving these matters have been considered minor and are discussed in Appendix 1.

## **3.4 Summing up**

The discussion serves to highlight that the existence of market failures and existing regulatory inefficiencies could warrant a regulatory response. While the observations set out above suggest the need for revisions to the regulatory approach, they do not, in and of themselves, provide a basis for assessing the appropriate compliance and enforcement response. Determining this requires an assessment of the extent to which the regulatory options:

- deliver incremental benefits — primarily in terms of improvements in water quality or reductions in compliance costs relative to the counterfactual (or base case), which assumes that the content of the existing Water SEPPs would continue to be implemented (albeit with their content merged)
- impose incremental costs —on businesses, industry and governments when compared to the counterfactual

The chapters that follow give consideration to the regulatory options that exist to address the problems described and the incremental costs and benefits of these alternate options.



## 4. Objectives for the review

The overarching policy goal underpinning the current Water SEPPs is, “To protect and improve the quality of Victoria’s waters while providing for economic and social development”.

The objectives for the Review and the policy revisions considered in this PIA, which support this policy goal, are outline below.

- To ensure that appropriate regulatory mechanisms continue to exist to support the implementation of the EP Act and the achievement of its principles in protecting Victoria’s water quality (see Box 6).
- To provide a risk based framework that provides a benchmark for measuring environmental water quality, enables risks to be identified and actions to be prioritised.
- To update the SEPP environmental quality indicators and objectives to align with the latest science, data and community values to ensure their continued relevance.
- To ensure the SEPP enables water quality risks to be addressed using the most efficient and effective mechanisms.
- To ensure the SEPP encourage the adoption of the most efficient pollution abatement responses which balance the costs and benefits for the entire community.
- To improve duty holders understanding of water quality roles, requirements and obligations through changes to the structure and content of the SEPP.
- To improve transparency and public accountability for implementation of the SEPP.

### Box 6 Environment protection principles

The Water SEPPs provide a framework to protect and improve the quality of Victoria’s waters having regard to the 11 principles of environment protection.

1. *Principle of integration of economic, social and environmental considerations*
2. *The precautionary principle*
3. *Principle of intergenerational equity*
4. *Principle of conservation of biological diversity and ecological integrity*
5. *Principle of improved valuation, pricing and incentive mechanisms*
6. *Principle of shared responsibility*
7. *Principle of product stewardship*
8. *Principle of wastes hierarchy*
9. *Principle of integrated environment management*
10. *Principle of enforcement*
11. *Principle of accountability*

# 5. Framework for the impact assessment

## 5.1 Introduction

This chapter described the framework that has been used to assess the alternative policy reforms proposed in the Draft SEPP (Waters).

The impact assessments contained in Chapters 6 to 13 have been prepared based on guidance in the Victorian Guide to Regulation (VGR), as well as documentation and advice developed by the OCBR.

Under these requirements, a necessary starting point for the analysis is to identify the underlying problem that the proposed options seek to address. The discussion in Chapter 3 serves to highlight that the existence of existing regulatory inefficiencies could warrant a revised regulatory response.

However, it does not provide a basis for assessing the appropriate compliance and enforcement response. Determining this requires an assessment of the extent to which various policy options:

- deliver incremental benefits — primarily in terms of an improvement in environmental water quality or a reduction in the costs of compliance or administering the regulatory regime, relative to the counterfactual or base case (see section 5.3 below) which assumes that the content of the existing Water SEPPs would continue to be implemented.
- impose incremental costs — primarily on industry and governments agencies associated with complying with and administering new regulations, relative to the baseline.

The analysis in the chapter does not seek to measure the impact of any reform options versus no regulation at all. Rather, it assesses the *incremental* impact of options against a counterfactual (or base case).

For each significant reform area, current arrangements (or the base case for the purposes of this analysis) are described, the problems with these arrangements are identified, options for addressing the problems are described, the impacts of any policy options are assessed and on this basis recommendations for reform are made.

Further details on key aspects of this framework are contained in the sections that follow.

## 5.2 Definition of a significant reform

The chapters that follow assess the likely economic impacts (on the community, industry and regulators) of proposed revisions which constitute a significant change. A significant change has been defined according to the criteria in Box 7 below.

The Draft SEPP (Waters) also proposes a number of minor clause revisions, where the changes are minimal and for the purpose of simplifying or clarifying the clause. These are summarised in Appendix 1.<sup>26</sup>

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26. Minor revisions involve changes to the language and structure of the instrument to make it clearer, simpler and more accessible. Examples include removing provisions that duplicate those in the EP Act, making direct compliance obligations clearer and moving implementation actions into a single implementation and monitoring plan.



## Box 7 Definition of a significant change

Clauses that were categorised as requiring a significant change fell into one or more of the categories listed below:

- **Moving away from minimal intervention:** there has been no active management of a particular water quality threat in the past.
- **Moving to a more interventionist approach:** the level or type of intervention in the past has not been effective in addressing a water quality threat and water quality impacts are evident such that more intervention is being considered, which may impose greater regulatory burden.
- **Proposed interventions are novel:** the proposed intervention has not been commonly applied in the past or is being applied in a novel context. Therefore, there is some uncertainty as to the likely impact.
- **Proposed revisions are addressing controversial/sensitive issues:** this may be because they affect many stakeholders or have a concentrated effect on a few stakeholders.
- **Changing public expectations and scientific understanding:** the level of public expectation in addressing a water quality threat has increased.

### 5.3 The base case

The first step in any impact analysis is defining the baseline against which policy options will be assessed.

The base case for the analysis is the status quo (i.e. that the content of the existing Water SEPPs would continue to be implemented (albeit with their content merged). This implies the costs and benefits of any change to the SEPP will be incremental to those occurring under the current Water SEPPs. Put another way, the costs and benefits of the various options will be defined by the way in which they improve outcomes relative to the outcomes that are already expected to occur under current arrangements.

This is not the same as a 'do nothing scenario' which would actually involve unwinding existing regulatory instruments.

Where the base case is not the status quo this has been noted. For example, because of any upcoming changes to other complementary regulation in this space that may already be driving changes in outcomes.

### 5.4 Categories of impacts

The primary groups affected by the policy reforms proposed in Draft SEPP (Waters) will be:

- Industry — such as water corporations, agricultural producers, port and marina operators who are subject to obligations within the Water SEPPs, and
- Government agencies with regulatory or policy making responsibilities in respect to environmental water quality protection — such as the EPA, government agencies or other planning authorities who are charged with implementing changes to the arrangements in the Draft SEPP (Waters), and
- The public at large as a result of any change in environmental water quality which may affect their ability to use and enjoy Victoria's water environments.

Impacts throughout the analysis in the following chapters have been categorised as follows.

- **Impact on environmental water quality** — This category captures the extent to which environmental water quality may change as a consequence of changes in agency action and industry practices (which are themselves a consequence of the change in regulation). This reflects the impact on beneficial uses.

- **Industry administrative costs** — For industry the administrative costs of complying with any new or revised regulations will reflect:
  - Any investments it needs to make to modify or develop new reporting and information management systems; and/or employ additional staff to manage these systems in order to implement the regulations and demonstrate compliance.
  - The costs incurred in dealing or negotiating with the regulator throughout any additional processes (i.e. over and above what is required under the base case). This may include the need for management and staff time to complete monitoring, prove compliance; and the cost of obtaining advice from external sources.
  - Any delay costs/savings incurred as a result of a change in the time involved in seeking and obtaining approval or in complying with regulations. This may take the form of additional expenses or lost income.

These costs are distinct from the costs that regulations may impose on industry by requiring them to undertake specific investments in order to ensure their discharge complies.

We have given consideration to whether industry administrative costs are likely to have been affected by the subjectivity of the process. By this we mean situations where a duty holder is uncertain of what information is required to satisfy the regulator of its compliance.

- **Costs of achieving compliance** — These costs reflect the impact of changes to industry and business practices that result from changes to regulations. They will typically reflect:
  - Additional staff costs — industry may need to increase the labour force to comply with requirements.
  - Capital and associate operating costs — industry may need to undertake additional capital investments and there may be additional operating costs associated with these investments.

The costs of achieving compliance will differ depending on the specific nature of the industry being considered. They will also depend on the level of prescription which may impose constraints on industry response and can lead to efficiency losses by reducing the ability of industry to respond in the lowest cost way.

- **Regulator/policy maker’s administrative costs** — Policy options could result in additional:
  - one-off costs for the regulator or policy maker associated with recruiting, educating and training existing staff, developing new systems, and working with industry to bring them up to speed on the new requirements.
  - additional ongoing costs associated with the need for additional staff to audit and monitor compliance as well as educate other staff, to inform and maintain records. This would be the case if the amount of record keeping required increases under the policy option.

## 5.5 Quantifying and presenting impacts

For each area of significant reform we have looked to identify the *incremental impacts* (costs and benefits) of regulatory reform options.

A challenge for this assessment comes from the fact that the Water SEPPs are largely enabling instruments. For example, they enable plans to be developed which consider how best to address a particular water quality threat which may possibly result in a change in policy or a particular regulatory approach. Similarly, they describe the considerations regulatory agencies must have in deciding whether to take enforcement action rather than the specific threshold for taking this action.

Hence, to understand the impact of any reform options it is necessary to identify the chain of causation or logic between the reform or change in the action prescribed in the Draft SEPP (Waters) and the intended long term outcomes. For example, the Draft SEPP (Waters) may influence the form or extent of planning undertaken by CMAs, which may lead to alternative policy instruments being applied in some areas which in turn affects the level and form of investment by regulated entities such as water corporations which flows through to a change in environmental water quality.

The longer the chain, the more difficult it is to clearly identify impacts. This means there is often little quantifiable evidence linking changes to the form or extent of enabling regulation with environmental water quality risk-reduction benefits. As a result, quantification has focused on the costs associated with the implementation of different regulatory options.

This has constrained the quantification of the net present value of the costs and benefits associated with the options. Consequently, the analysis draws on available information and data to establish, for each category of impact, relative option rankings.

The results are reported in tables. For each category of impact, we have assigned either:

- NA (non applicable) where there is no change relative to the baseline.
- a positive ranking (+) to options with a favourable impact relative to the baseline; or
- a negative ranking (-) to options with an unfavourable impact relative to the baseline.

Where an option is of significant benefit relative to the base case in relation to a single category of impact it may receive ++.

Because of data constraints, the overall rankings are unweighted (i.e. each impact category is treated as equal). In practice, there may be evidence to suggest that one category of impact is more significant than another. Where this is the case this is noted within the table and discussed in the accompanying text.

## 6. Revisions to the SEPP structure

### 6.1 Problems with current arrangements

As discussed previously in section 3.3.1 there are currently two water policies for Victoria. SEPP (GoV) applies to groundwaters while SEPP (WoV) and its five Schedules applies to surface waters, all of which were developed at different periods of time. Inconsistencies across these instruments have created challenges for useability and consistency of application across water bodies.

The SPR found that current statutory policy is often complex, difficult to access and poorly understood by community and businesses. Hence the SPR recommended the content of statutory policy be simplified and streamlined.

### 6.2 Proposed revisions and their impacts

Two key complementary revisions to the structure of the Draft SEPP (Waters) are proposed.

#### 6.2.1 Creating a single, streamlined SEPP (Waters)

The proposed Draft SEPP (Waters):

- brings together both surface water and groundwater policies to eliminate undesirable duplication and address inconsistencies that have emerged between policies;
- adopts recommendations from the 2013 SPR (see section 3.3.1, and Box 3); and
- adopts recommendations from the Independent Inquiry into the EPA (2016) and Government response (2017) (see section 3.3.1, and Box 3).

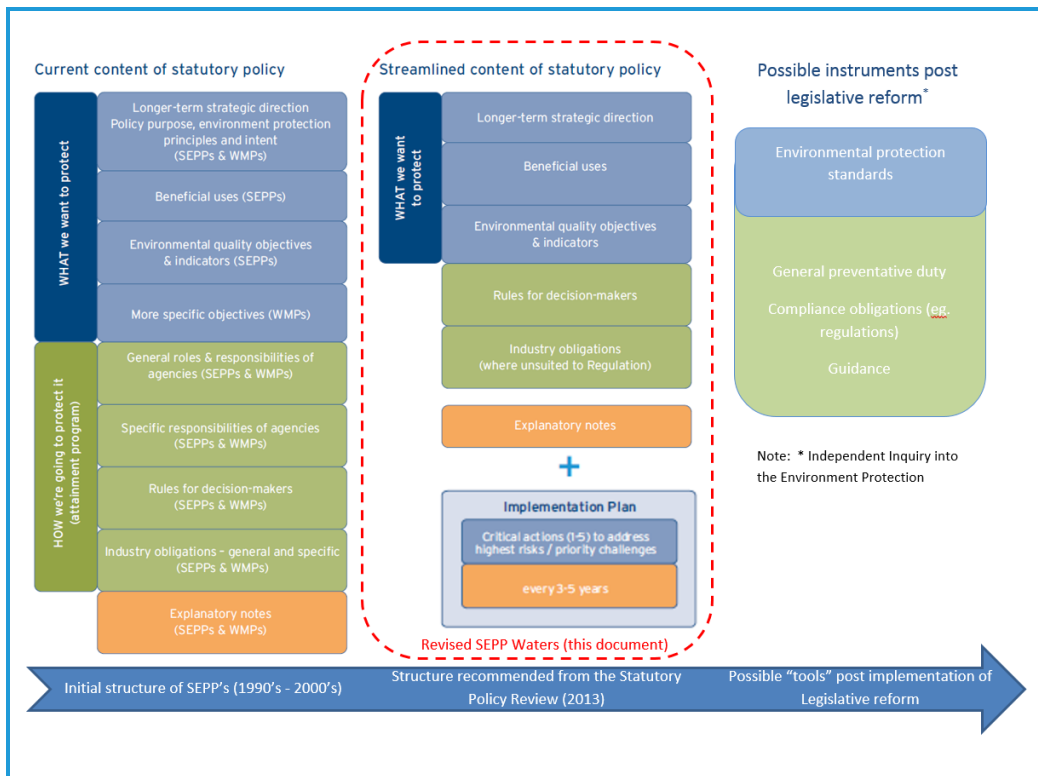
The Independent Inquiry into the EPA and Government response clearly acknowledge the need to continue the review of SEPPs while the changes to the EP Act were progressing, and that the SEPPs adapt to the proposed “new model” of regulatory tools as soon as practicable. This Draft SEPP (Waters) represents a progression from the existing SEPP (WoV) and its Schedules, and SEPP (GoV), incorporating key recommendations from the SPR and moving toward the instruments envisaged as part of the proposed revision of the EP Act. The proposed revision of the EP Act may provide a further opportunity to review the Draft SEPP (Waters) and how the various duties, regulatory and non-regulatory tools may be applied (Figure 5).

The structure of the Draft SEPP (Waters) focusses on the key function of supporting the EP Act. It is streamlined to describe:

- the beneficial uses and environmental quality objectives and indicators for waters;
- rules for decision-making by protection agencies
- obligations on polluters

Attainment clauses that outlined general roles and responsibilities of agencies, have been replaced, in part, with a stand-alone implementation plan as recommended by the SPR. The Implementation Plan will accompany the release of the final SEPP (Waters).

The Draft SEPP (Waters) also considers how clauses may migrate into new instruments in line with the recommendations of the SPR and proposed legislative reforms. Through the consultation process, there was strong support for retaining clauses in the revised Draft SEPP (Waters) in the knowledge that the proposed legislative reforms may result in a more comprehensive process to move statutory requirements into other instruments following the introduction of a new EP Act. This ensures regulatory consistency through the transition period and that no protection measures are “left out” of transition to new instruments without appropriate consideration.



**Figure 5 Recommended changes to the content and structure of draft SEPP (Waters)**

Source: Reproduced from Figure 9: Recommended changes to the content of statutory policy, EPA & DEPI (2013) SPR Final Report

To further assist in the consultation phase of the development of the Draft SEPP (Waters), explanatory notes have been included immediately after the clause. This enables clauses to be considered in conjunction with their explanatory note to inform the clause application.

### 6.2.2 Simplification

Restructuring the Water SEPPs into a single document enabled the document to be further simplified and consolidated, in order to improve consistency and reduce overlaps.

A summary of how existing clauses map to the revised clauses, the nature and extent of the change to clauses and a summary of clauses removed is provided in Appendix 1.

Removed clauses were identified as no longer necessary as they:

- did not require statutory definition;
- were now addressed through other policies or legislation;
- outlined general roles, partnerships or programs only;
- could be consolidated with other clauses.

Given the basis for the removal of the clauses, the policy impact is considered negligible.

For clauses that are retained, any clause where there was significant change, updating of knowledge and / or consultation, are addressed within the PIA. There are also many clauses where the intent, and in many cases the wording, has been retained. These are considered minor changes – principally wording changes for clarity and consistency. No further analysis is provided on these clauses.

Some clauses are identified as moderate changes. In most cases this relates to removal of activities related to implementation (terms such as “work with”, “develop”) and harmonisation of wording between SEPPs and Schedules. The result is a better definition of the requirement and / or the responsibilities within the clause.

In some cases the modification is the removal of actions where government would “work in partnership” with other entities to develop a program, guidance or plan. By removing these descriptions, it could be perceived that obligations are increased. In many cases, these actions have been completed. Where there is a relevant action to be retained, it is incorporated into the implementation plan. In most cases, however, the change modifies the clause to clearly focus on the outcome and better define existing responsibilities. A moderate change is where there is some additional change, but it is either net neutral (i.e. something was increased and something decreased) or the impact is relatively low in consideration of the overall activity.

These are further discussed in Appendix 1.

### 6.3 Impacts

The reforms to the structure and content of the Draft SEPP (Waters) enables a number of opportunities to be realised.

In particular, the amalgamation has enabled an integrated water management approach that aligns objectives and policies across the whole of the water cycle. Surface water and groundwater are strongly connected within many catchments, and some beneficial uses for surface water are highly dependent on groundwater. Amalgamating the Water SEPPs enables regulatory frameworks to better reflect the physical connections and interdependencies between beneficial uses for groundwater, inland waters, estuaries and marine systems. For example, this facilitates integrated management of diffuse sources of pollution to protect both surface water and groundwater. It also better enables a risk based approach to contaminated groundwater to be incorporated.

Other opportunities to be realised in bringing the Water SEPPs together include:

- clarifying roles and responsibilities;
- clarifying the rules for decision makers and obligations for industry; and
- eliminating undesirable duplication.

In practice, this amalgamation of policies and streamlined structure will have limited effect on the resulting obligation imposed on polluters or rules applied by decision makers (except where explicit changes are made as described in the following chapters 7 - 13). However, it will make these rules and obligations clearer by removing existing inconsistencies and content associated with implementation approaches that do not require statutory force. This in turn may lead to a small reduction in administrative, and compliance and enforcement costs for industry and regulators.

# 7. Updated environmental quality indicators and objectives

## 7.1 Current approach to setting environmental quality indicators and objectives

### 7.1.1 Role and function

The Water SEPPs define with legal weight and certainty the characteristics of water required to protect beneficial uses under the EP Act.

The beneficial uses in the Water SEPPs describe the values and uses of water environments that Victorians want to protect.<sup>27</sup> To define whether these beneficial uses are being protected, the SEPPs set environmental quality objectives for different physical, chemical and biological indicators. These vary across different water segments in Victoria, in recognition of the fact that natural environmental quality varies significantly across areas, for example between groundwater and estuaries.

The environmental quality indicators and objectives in the Water SEPPs are adopted in a wide range of applications across the water sector, as described in section 2.1.3, and are intended to be used within a risk-based framework. In summary, the Water SEPPs provide a benchmark for assessing environmental water quality in order to identify at risk areas and assess the success of policy measures. They also inform the EPA's approach to assessing works approvals and licenses and to undertaking enforcement action. While not strictly applied, in this context, they set a threshold for the level of pollution that will be deemed to be non-polluting and hence describe the minimum water quality levels (i.e. pollutant levels) for approval and licence conditions. This means the choice of objective will impact on polluters behaviour and indirectly affect compliance costs.

### 7.1.2 Key steps in establishing environmental quality indicators and objectives

The development of proposed environmental quality indicators and objectives involved a number of key steps, including:

- Confirming the beneficial uses to be protected by reviewing the existing, and identifying new, beneficial uses that the community considers important and want to protect through stakeholder consultation.
- Defining water body segments and sub segments that share common features in terms of environmental condition and natural characteristics.
- Assigning beneficial uses to these segments consistent with community expectations and water quality.
- Identifying and defining the environmental quality indicators that suggest the presence of a threat to beneficial uses. For example, indicators related to nitrogen and phosphorous are a measure of nutrients present in the water, which when elevated, can cause harm by promoting nuisance plant growth or toxic algal blooms
- Defining environmental quality objectives, for each indicator, in each segment/sub-segment at levels which would not cause harm or pose a significant risk to beneficial uses.

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27. The beneficial uses are categorised into six themes — Water dependent ecosystems and species; water for human consumption; water for agriculture, aquaculture and industry; water for recreation, cultural and spiritual values, other beneficial uses.



The Water SEPPs include environmental quality indicators and objectives clauses, which describes the risk based framework in which the SEPP objectives are to be used. These clauses guide the use of indicators and the protection of beneficial uses.

## 7.2 Why was an update required?

### 7.2.1 Changing context and improved understanding

The environmental quality indicators and objectives in SEPP (WoV) were developed at various times from 1988 through to 2003, while those in SEPP (GoV) date back to 1997. Our understanding of the water quality required to protect beneficial uses, has and will continue to change and improve over time as:

- There are advances in scientific understanding of the required environmental quality to protect beneficial uses. This is because of emerging scientific research, availability of more sophisticated modelling tools and the incorporation of additional long-term or new monitoring data that can better characterise baseline conditions and climatic variability.
- For example, there are now over 30 years of long term water quality monitoring data available to better characterise baseline conditions in the Gippsland Lakes, compared to the limited data that was available when the SEPP (WoV) Schedule F3 for this area was developed in 1988. Similarly, the incorporation of decades of long term data means that a large amount of climate variability has now been captured and can be used to better characterise changes in environmental quality that are beyond natural levels of variability.
- Our level of understanding of the pollution threats from different uses, and users, of water expands. By way of example, new and emerging environmental contaminants, such as per- and polyfluorinated alkyl substances (PFAS), have been shown to possess toxic properties and bioaccumulate in the food chain, but there is still much to be learnt about how these chemicals can be identified and managed.
- The users and uses of water change, increasing the risk of pollution. For example, there is increased use of the geothermal properties of groundwater and use of aquifers for carbon sequestration compared to 10 years ago.

In the time since the Water SEPPs were introduced, changes in respect to all of these points have occurred. This has meant that some of the existing environmental quality indicators and objectives may no longer be relevant or set at the right level to protect beneficial uses.

### 7.2.2 Simplifying and harmonising their presentation

As discussed in section 6.2, a key objective of the Review was to simplify the existing statutory policies related to water, by combining the existing Water SEPPs into one instrument which would cover both surface waters and groundwaters. This has provided an opportunity to simplify and harmonise the beneficial uses and presentation of environmental quality indicators and objectives, and ensure consistency wherever possible across different segments of the water environment.

For groundwaters, the beneficial uses, and environmental quality indicators and objectives are defined by national guidelines and standards, that reflect the state of knowledge from 20 years ago. As such, many of the references are out-dated or no longer reflect best practice.

## 7.3 Proposed revisions

The Review updated the following components of the Water SEPPs:

- the beneficial uses to be protected across water environments;
- the segments of water environments based on common features;
- the assignment of beneficial uses to the different segments; and
- the environmental quality indicators and objectives to protect beneficial uses.

While updates have been proposed in these areas, the framework adopted has not changed and continues to reflect ANZECC Guidelines.

Leaving the Water SEPP objectives unchanged (the base case), was an unsatisfactory option as it would not have addressed the issues described in section 7.2. In particular, the contextual changes that have occurred mean that some of the existing environmental quality indicators and objectives are now understood to be either too stringent or not stringent enough to protect beneficial uses. Hence, the SEPP environmental quality objectives need to be revisited in order to ensure they remain relevant and effective going forward. The key revisions proposed are described below.

### 7.3.1 Revisions to Beneficial Uses

The beneficial uses proposed in the Draft SEPP (Waters) were developed based on feedback received from extensive stakeholder consultation, as well as a detailed analysis of the existing, and any potential new, beneficial uses identified.

Feedback was sought from stakeholders on the appropriateness of the existing beneficial uses, as well as any new beneficial uses that required consideration. This feedback was sought through submissions to the SEPP (Waters) Review Discussion Paper<sup>28</sup>, as well as through extensive consultation undertaken in 2015-2017, including through the consultation paper Beneficial Uses – Proposed Changes.<sup>29</sup> (see chapter 15)

The options identified were analysed against a set of criteria intended to evaluate whether the beneficial uses would be suitable for the Draft SEPP (Waters). This included considering if the beneficial use could be applied across Victoria, had relevance to difference segments, required a certain quality of water to protect it, and had an existing set of suitable indicators available to appropriately monitor quality.

These processes highlighted a number of areas where beneficial uses could be updated. In particular, some changes were needed to harmonise the groundwater and surface water beneficial uses, remove or add new beneficial uses and ensure that beneficial uses were defined appropriately (e.g. groundwater ecosystems). The most significant of the changes proposed involves the number of beneficial uses being streamlined from 30 to 14. These changes are contained in Table 1 below.

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28. DELWP (2015) SEPP (Waters) Review Discussion Paper.

29. DELWP (2017) Beneficial Uses – Proposed Changes <https://www.water.vic.gov.au/waterways-and-catchments/rivers-estuaries-and-waterways/state-environment-protection-policy>

Table 1 Scope of proposed changes to Beneficial Uses

Existing SEPP (WoV and Schedules, GoV)	New SEPP (Waters)
<b>Concept of beneficial uses as describing the values and uses of water environments that Victorians want to protect</b>	No change
<b>Beneficial uses sit under 6 key themes<sup>30</sup></b>	No change
<b>Separate beneficial uses for surface water and groundwater</b>	<ul style="list-style-type: none"> <li>• Combine in a single policy</li> <li>• The beneficial uses relating to protection of water dependent ecosystems and species will be harmonised into a single beneficial use of <i>water dependent ecosystems and species</i>, intended for ‘protecting water dependent ecosystems and species from both surface water and groundwater quality impacts’.</li> <li>• This expands the beneficial use to ensure that groundwater ecosystems and their dependent species are protected, rather than the previous focus in SEPP (GoV) of only protecting surface water ecosystems from the impacts of poor groundwater quality.</li> </ul>
<b>30 beneficial uses</b>	Streamlined to 14 beneficial uses (including new beneficial uses below) (see Appendix 2)
<b>Changes to beneficial uses</b>	
<b>– geothermal use of water</b>	A new beneficial use added: to protect the natural thermal properties of the groundwater and the surrounding aquifer
<b>– aquifer recharge</b>	Beneficial use was removed
<b>– cultural and spiritual</b>	Extended to all waters (previously only applied to surface waters)

### 7.3.2 Changes to segments

In order to recognise spatial variation in baseline water quality, Victoria’s water environments are defined into areas called segments. In updating the environmental quality objectives, the Review has, for the most part, continued the approach used to define segments in the current Water SEPPs. This approach to defining segments is based primarily on areas with consistent natural characteristics.

For groundwater, segments will continue to be classified based on the background level of total dissolved solids (TDS). While the Review considered other options for defining groundwater segments, including identifying segments spatially or geologically, or using other indicators, TDS remained the most practical option as it can be easily measured in all groundwater and is the most common determinant of uses of groundwater (i.e. as it is a measure of the salinity of the groundwater which is a key determinant of how it can be used).

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30. The beneficial uses listed in the current water SEPPs are categorised into six themes. With between 2 and 9 subthemes sitting underneath these. The six themes are Protection of water dependent ecosystems and species; Water for human consumption; Water for agriculture, aquaculture and industry; Water for recreation; Cultural and spiritual values; Other beneficial uses.

While the approach to defining segments in groundwater has not changed, changes are proposed to segment classification as a result of reviewing national standards or guidelines, and groundwater use data. The key changes proposed for groundwater are described in

Table 2 which indicates that number of segments change from five to seven with revised TDS segment thresholds to more accurately reflect the beneficial uses of groundwater.

**Table 2 Current and proposed groundwater segments<sup>31</sup>**

Current Segment	Current TDS range	Proposed Segment	Proposed TDS range
A1	0-500	A1	0-600
A2	501 - 1,000		
A2	501 - 1,000	A2	601 - 1,200
B	1,001 - 3,500		
B	1,001 - 3,500	B	1,201 - 3,100
C	3,501 - 13,000	C	3,101 - 5,400
C	3,501 - 13,000	D	5,401 - 7,100
C	3,501 - 13,000	E	7,101 - 10,000
C	3,501 - 13,000	F	> 10,001
D	>13,000		

In the current SEPP (WoV), surface waters are classified into 12 broad state-wide segments. The SEPP (WoV) Schedules contain additional segments specific to the region to which they apply. For example, the SEPP (WoV) Schedule F7 (Waters of the Yarra Catchment) has seven defined segments for this catchment area while in the SEPP (WoV) Schedule F6 (Waters of Port Phillip Bay) there are six defined segments. The SEPP (WoV) segments do not apply to the Schedule areas.

For surface waters, a consistent approach using criteria developed and agreed by technical experts<sup>32</sup> was adopted to define segments for the Draft SEPP (Waters). This approach was supported by the independent expert Scientific Advisory Panel<sup>33</sup> to address previous inconsistencies, as a result of the SEPP (WoV) and associated Schedules being developed at different times. The criteria used to define surface water segments include:

- water quality characteristics, such as pH, nutrients, salinity and dissolved oxygen;
- physical system characteristics, such as waves, currents, substrate and altitude;
- ecosystem character, such as key ecological features, naturally occurring biological communities;
- climatic influences, such as relative climate variability, rainfall and temperature; and
- population pressure and (surrounding) land use.

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31. Groundwater beneficial uses vary depending on the TDS range with higher salinity water less suitable for a range of beneficial uses (i.e. potable water and agriculture and irrigation). All beneficial uses are protected in segment A1, while only five of the 11 groundwater beneficial uses are protected in segment F (i.e. protection of water dependent ecosystems and species, water based recreation, buildings and structures, geothermal, and cultural and spiritual values).

32. The EPA set up internal working groups of Victorian scientists with expertise in freshwater, estuarine and marine environments and ecosystems to assist with the scoping and development of the science components of the Review.

33. The independent expert Scientific Advisory Panel was composed of five scientists and a chairperson with recognised expertise in aquatic environmental science.

The changes to surface water segments proposed in the Draft SEPP (Waters) largely reflect changes resulting from an updated understanding of the criteria described above, or alignment with the broader state-wide segments. The key changes proposed to surface water segments are shown in Appendix 3 and include:

- inland segments defined in the various regional Schedules to be incorporated into the broader SEPP (WoV) segments, with some minor changes to segment names;
- an expansion of the urban segment in Schedule F7 (Waters of the Yarra Catchment) to incorporate the rest of urban waterways in Melbourne;
- new sub-segments used to define open coasts, and wetlands;
- revised sub-segments for the Port Phillip Bay and Gippsland Lakes segments; and
- a new segment for Corner Inlet.

In general, the approaches used mean that segments (and the resulting objectives) in the Draft SEPP (Waters) better reflect natural boundaries and differences in baseline water condition than in the previous policy.

The expanded urban segment has been included in the Draft SEPP (Waters) to provide environmental quality objectives that are more reflective of modified environments. Objectives for this segment are based on reference sites in modified agricultural areas, so represent a condition for urban waterways that are largely free of urban impacts, and therefore still represent a target for improvement for these waterways.

The urban segment excludes the mainstem of the Yarra, Maribyrnong and Werribee rivers, as well as undeveloped land beyond the current urban boundaries of Melbourne, to protect the better quality of these waterways. While the urban segment does not include other regional centres, interim regional targets may be considered for these areas.

### 7.3.3 Assigning beneficial uses to segments

As described above in section 7.3.1, the beneficial uses to be protected in Victorian waters were identified through extensive stakeholder consultation. The beneficial uses are then assigned to each segment based on whether the quality of the water is suitable to support that use or value. The Review explored a range of options for assigning beneficial uses to segments and assessed which options would result in a more accurate or meaningful allocation of beneficial uses across Victorian waters to meet community expectations.

All options were compared to the base case of current policy implementation (i.e. would a change in the approach result in easier assignment of beneficial uses or make it more effective in terms of being able to implement the SEPP). Qualitative criteria and information used to rank each option was obtained from a combination of literature review, consultation with relevant departments and workshops with government agencies. This was then tested with stakeholders through the consultation paper *Beneficial Uses – Matching beneficial uses to segments*.<sup>34</sup>

For surface waters the approach largely involved deciding where a beneficial use should be protected, and identifying how that can be represented (spatially or in clauses). For surface waters two options ranked the highest, and could be used in conjunction. They were:

- the use of broad segments supported by a series of exclusions of particular beneficial uses. This is essentially the same as the process for assigning beneficial uses in the current SEPP (WoV);

For example: *primary contact recreation* is currently, and is proposed to remain protected, in most surface water segments with a small number of local exceptions. One of these local exceptions is within the aquatic reserves segment where water quality is suitable for primary contact recreation

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34. DELWP (2017) Beneficial Uses – Matching beneficial uses to segments, <https://www.water.vic.gov.au/waterways-and-catchments/rivers-estuaries-and-waterways/state-environment-protection-policy>.

however public access is restricted within declared Special Water Supply Catchment Areas and so it is not a protected beneficial use in these areas.

- a general clause about a use, instead of mapping a use across segments, with specific exclusions noted as clauses in SEPP (i.e. it applies to all segments when the conditions specified can be met).

For example: the beneficial use of *aquaculture* applies to those surface water segments where the environmental quality is suitable and it has been approved by the Government in accordance with the *Fisheries Act 1995*.

Options for groundwater were more limited, which reflects the ability of management to influence the system, the data available and the way the resource is used. A literature review of legislative, regulatory and policy instruments as well as guidance materials from Victoria, elsewhere in Australia and internationally concluded that the existing approach to setting groundwater segments and the application of beneficial uses in SEPP (GoV) was still appropriate. TDS remains the most appropriate primary indicator for segment definition because the salinity of groundwater affects what it can be used for and it has proved to be an effective way to classify groundwater for beneficial uses.

For example: the quality of potable water is affected by salinity. Ideally, potable water should have a TDS between 0 – 600mg/L for palatability. However, it is not considered unpalatable until TDS is greater than 1200 mg/L. Based on these figures, *potable water supply (desirable)* is a protected beneficial use in segments where the TDS range is between 0-600 mg/L (the upper limit of good palatability) and *potable water (acceptable)* is a protected beneficial use in segments where the TDS range is between 0-1,200 mg/L (i.e. the upper limit before potable water is considered unpalatable).

#### 7.3.4 Proposed revisions to environmental indicators and objectives

The Review process developed revised environmental quality indicators and objectives. This work was undertaken with oversight from an independent expert Scientific Advisory Panel.

Where environmental quality indicators and objectives have changed, this has been due to new science, improved understanding of the aspects of water quality that matter for different beneficial uses, and improved water quality monitoring data, including the inclusion of long term monitoring, rather than any change in approach. Some changes will also have occurred as a result of updating beneficial uses and segments (as described above).

Some beneficial uses, such as *Traditional Owners' and Aboriginal Victorians' cultural values* do not have identified environmental quality indicators and objectives stated in the policy. Murray Lower Darling Rivers Indigenous Nations (MLDREN) advise that “Establishing specific water quality objectives and indicators to support Indigenous cultural and spiritual values will require further research and engagement with Aboriginal groups at the local level. This is because Indigenous water-dependent values are geographically and culturally specific to individual Traditional Owner groups. MLDRIN is not in a position to define specific water quality objectives or indicators required to protect the beneficial use category ‘Indigenous cultural and spiritual values’”.

Environmental quality objectives and indicators would need to be based on consultation with appropriate Traditional Owners at the scale of individual waterways, wetlands and river reaches (segments and sub-segments), with a focus on locally specific cultural values and uses. Close engagement will allow Traditional Owners (in partnership with waterway managers) to communicate water dependent values, articulate objectives for water quality, identify traditional indicators of water quality condition and to inform the setting of regional targets.

The proposed changes to environmental quality indicators and objectives in the Draft SEPP (Waters) are summarised here and further detailed in the sections that follow:

- A consistent suite of indicators adopted across rivers, streams and marine water segments. These represent the key threats to environmental quality in surface waters.
- Revision and update of groundwater environmental quality indicators and objectives based on relevant national and international standards



- New indicators introduced for sediment toxicology for surface waters
- Marine bio-indicators for application across all marine embayments.
- New indicators and environmental quality objectives developed for wetlands
- Inclusion of revised indicators for aquaculture based on ANZECC guidelines.
- Revised environmental quality indicators and objectives for primary and secondary contact recreation based on relevant national and international standards

### ***Revised indicators and objectives for surface waters***

To develop a consistent suite of environmental quality indicators, a set of conceptual models of threats and threat pathways to all beneficial uses were developed for surface waters, as well as an extensive synthesis of available research on threats to environmental values. Most of the environmental quality indicators adopted in the Draft SEPP (Waters) are well established as significant indicators of pollutants or risks to environmental values in the ANZECC guidelines.

The environmental quality indicators proposed for the Draft SEPP (Waters) are the most cost effective and easily measured proxies for threats to beneficial uses that result from pollution because they can be measured rapidly, cheaply and with quick turnaround of results using highly standardised approaches to sampling and data analysis. These indicators are broadly applicable across all waters and are sensitive to both environmental change and anthropogenic impact.

### ***Revised indicators and objectives for groundwater***

While environmental quality objectives for surface waters are typically derived based on extensive water quality monitoring data, this is not possible for groundwater, as there is very limited groundwater quality monitoring data available in Victoria. Instead, SEPP (GoV) relied on referencing values in ANZECC guidelines, or other relevant national standards.

The Review of environmental quality indicators and objectives for groundwater involved reviewing the appropriateness of these existing references, and where necessary, updating these with the most relevant contemporary national guideline or standards required to protect beneficial uses.

As discussed in Section 7.3.3, a literature review<sup>35</sup> was undertaken to review the existing approach to SEPP (GoV) environmental quality objectives, which are based on TDS. The review recommend that TDS is still considered appropriate as the primary indicator for groundwater environmental quality objectives.

### ***Sediment toxicants and ecotoxicity***

The benthic environment (i.e. the surface and sub-surface layers of sediment) have an important role in the storage and transport of toxicants. The Draft SEPP (Waters) proposes the use of indicator species for ecotoxicity testing, using a sediment weight-of-evidence toxicant scoring system. This inclusion in the Draft SEPP (Waters) will mean that if an emerging chemical causes toxicity to biota, then this should trigger further investigation to determine if the levels of this chemical are likely to cause harm to beneficial uses. This approach will provide a sensitive indicator of emerging chemicals and help to identify toxicity of complex chemical mixtures and reflects the science that has been developed for the new ANZECC guidelines, which are expected for release in 2018.

Under the current Water SEPPs, a toxicant only triggers further investigation if there is an unexpected exceedance of one of the toxicants listed in the ANZECC guidelines. However, there is growing concern regarding new and emerging chemicals as the risk they pose to human health and the environment is not yet fully understood. Examples of these include pharmaceuticals, personal care

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35. Senversa (2015) Water SEPP Review – Literature Review of Groundwater Science Components.



products and endocrine disrupting compounds. At present, when a chemical of emerging concern is detected, the absence of a toxicant value in the ANZECC guideline would typically result in no further action being taken.

In addition, the Draft SEPP (Waters) introduces ecotoxicity indicators for freshwater, estuarine and marine environments. Ecotoxicology bioassays involve the use of an organism to test for toxicity and can be used to quickly evaluate chemicals and ambient samples for their collective toxicity.

### **Marine bio-indicators**

Biological indicators (or bio-indicators) refer to organisms, species or communities of biota whose characteristics show the presence of specific environmental conditions. Physical and chemical parameters (e.g., nutrients, light availability, salinity, temperature, oxygen levels) provide simple, reliable and cost effective ways to detect the presence of pollution in waters. However, these parameters can act together in cumulative and complex ways and do not provide direct, integrated measures of the impacts and responses that SEPPs are ultimately trying to protect.

Bio-indicators can be monitored for changes that may indicate a problem within their ecosystem, particularly changes associated with pollution and waste. In particular, bio-indicators can provide information about the cumulative effects of different pollutants in the ecosystem, and about how long a problem may have been present, which physical and chemical testing cannot.

While bio-indicators have been previously used in SEPP (WoV) for rivers and streams, the Draft SEPP (Waters) introduces these for marine waters. In particular, seagrass and phytoplankton (harmful algal bloom) condition have been included as bio-indicators for environmental quality for Port Phillip Bay, Western Port, Corner Inlet and the Gippsland Lakes.

Seagrasses and phytoplankton were selected based on their importance for beneficial uses in Victorian bays and estuaries<sup>36</sup>, ability to indicate pressures and threats to beneficial uses due to pollution impacts, and ability to be assessed to identify risk to marine waters.<sup>37</sup> Harmful algal (phytoplankton) blooms can have significant impacts on a range of beneficial uses<sup>38</sup> and are often driven by excessive nutrients entering marine waters. A range of metrics for phytoplankton such as biomass and diversity can be used as measures of environmental condition.

The objectives for these bio-indicators will seek to ensure that inputs of nutrients and sediments into these marine waters do not result in a reduction in the coverage of seagrasses (within the bounds of natural variation) or an increase in the frequency, duration or spatial extent of harmful algal blooms.

### **Environmental quality objectives for wetlands**

When SEPP (WoV) was gazetted in 2003, it was identified that environmental quality indicators and objectives would need to be developed for wetlands and lakes as these did not exist at the time. This work commenced in 2005 and in 2010 the EPA released the *Environmental Quality Guidelines for Victorian Lake*.<sup>39</sup> These guidelines were based on four years of water quality monitoring and

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36. Seagrasses are critical habitats in Victoria marine environments that support a range of beneficial uses including recreational and commercial fisheries, the maintenance of water quality through the stabilisation of sediments and nutrient cycling and coastal protection from waves. A recent synthesis of a large body of research on seagrasses in Port Phillip also demonstrates clear changes in seagrass condition and extent due to the impacts of pollution, particularly excess nutrients and sediments (source: Jenkins, G., Keough, M.J., Ball, D., Cook, P., Ferguson, A., Gay, J., Hirst, A., Lee, R., Longmore, A., Macreadie, P., Nayer, Sasi., Sherman, C., Smith, T., Ross, J., York, P., (2015) Seagrass Resilience in Port Phillip Bay. Final Report to the Seagrass and Reefs Program for Port Phillip Bay).

37. EPA (2016) Marine biological indicators for the state environment protection policy. State Environment Protection Policy Waters of Victoria Science Advisory Panel Science Discussion Paper.

38. Including adverse effects on human health through direct and indirect consumption, posing a direct risk to beneficial uses such as primary contact, aquaculture and shellfish harvesting, causing fish kills and reducing light availability for other marine plants that provide ecosystem services and habitats that support many broader beneficial uses.

39. EPA (2010) Environmental Quality Guidelines for Victorian Lakes (EPA Publication 1302).

assessment, and included environmental quality indicators and objectives, as well as objective values for biological indicators.

The Draft SEPP (Waters) will adopt the environmental quality indicators and objectives for wetlands that are provided in this guideline document, with some minor changes to better reflect current science and to ensure consistency with other water segments.

### ***Aligning indicators for aquaculture with national standards***

Revised environmental quality indicators are proposed for the protection of the beneficial uses of *aquaculture* and *human consumption of aquatic foods*. Currently, SEPP (WoV) defines the protection of these beneficial uses using a single indicator, being *E.coli*, or instead relies on the environmental quality indicators and objectives used for the protection of aquatic ecosystems.

The Review found that this approach was insufficient to promote the quality of water necessary to support the development of healthy aquatic organisms. In particular, there are a range of toxicants and stressors that aquaculture species can be more sensitive to than those required to protect aquatic ecosystems.

The Draft SEPP (Waters) includes a broader range of environmental quality indicators and objectives for the protection of these beneficial uses. This includes adopting the relevant national toxicant standards defined in the ANZECC guidelines, as well as the pathogen standards defined in the Food Safety Standards.

Ensuring that the Draft SEPP (Waters) aligns with relevant national guidelines allows for the protection of these beneficial uses against a broader range of toxicants and environmental stressor than previously in line with the latest science and standards.

### ***Revised indicators and objectives for recreational water quality***

Environmental quality indicators and objectives for the beneficial uses of *water based recreation - primary and secondary contact recreation* are provided for in SEPP (WoV) and its Schedules. These objectives play an important role in helping water managers and the public to understand the risks to recreational values due to compromised water quality. In particular, these objectives underpin public information and reporting in areas where the recreational use of waterbodies is high during summer months (e.g. Port Phillip Bay).

The current SEPP (WoV) objectives are based on established, but out-dated guidelines that no longer represent best practice and are not well linked to health outcomes.<sup>40,41</sup> As such, the Draft SEPP (Waters) has been updated and expanded to include:

- microbial objectives that are more closely linked to health outcomes;
- additional indicators and objectives for recreational water quality relating to algal blooms, chemical hazards and aesthetic effects; and
- additional short-term objectives for use in issuing immediate warning about health risks during the summer as well as the longer term objectives for primary and secondary contact.
  - These revised environmental quality indicators and objectives are mostly based on the National Health and Medical Research Council (NHMRC) guidelines<sup>42</sup>, with freshwater microbial objectives based on the relevant applicable guidelines from New Zealand.<sup>43</sup>

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40. ANZECC (2000) Guidelines for Recreational Water Quality and Aesthetics

41. World Health Organisation (WHO) (2001) Bathing Water Quality and Human Health

42. NHMRC (2008) Guidelines for Managing Risk in Recreational Water

43. Ministry for the Environment (2003) Microbial water quality guidelines for marine and freshwater recreational areas

- This approach was adopted because at the time the NHMRC guidelines were developed, there was considered to be insufficient evidence linking *E.coli* to swimmer related illness. However, further research has been conducted since these guidelines were released in 2008, which justifies the use of both *E.coli* and enterococci as freshwater indicators. As such, objective values were adopted from relevant guidelines from New Zealand, which were considered appropriate given the similar environmental conditions in Victoria.
- The revised indicators and objectives for the Draft SEPP (Waters) are based on studies linking microbial levels with the risk of illness to humans. They use statistics which are more conservative for protecting public health than the current SEPP (WoV) objectives, as they capture the high microbial results from monitoring which are more likely to cause outbreaks of illness.

This work was supported by the expert advice of a technical panel involving representatives from the Department of Health and Human Services, Melbourne Water, EPA and Monash University, and was subject to an independent peer review by leading experts in the field of microbiology and public health. This peer review concluded that the indicators and objectives in the Draft SEPP (Waters) were based on sound evidence and are scientifically defensible.

## 7.4 Impacts of these proposed changes

The impacts of the various changes to beneficial uses, segments, environmental quality indicators and objectives in the Draft SEPP (Waters), described above, all result in either a change in:

- the form or number of indicators used to measure environmental water quality; or
- the level of the indicator (i.e. the environmental quality objective) applying in a particular location.

The overall impact of the updated environmental quality indicators and objectives is described in the sections that follow along with the impact of other specific changes.

### 7.4.1 Impact of changes in the form and number of indicators

Overall there have been minimal changes to the total number of indicators used to measure environmental water quality. For example, there is no change to the number of indicators specified for rivers and streams segments currently covered by the SEPP (WoV). For Port Phillip Bay the total number of physical and chemical indicators has increased from nine to 12, to include a wider range of nutrient and light indicators. However, in contrast the total number of physical and chemical indicators specified for estuaries has decreased from 11 to eight. The total number of indicators for other segments have increased or decreased by one to two indicators, depending on the segment.

There have been some limited changes in the form of the indicators used, however, these are largely intended to make water quality monitoring more consistent, certain and/or cost effective to monitor. These changes affect the form of how objectives are described. For example, previous SEPP (WoV) Schedules had specified concentrations in terms of the 90th percentiles for some indicators. However, significantly more samples, and thus significantly more cost and effort, are required to robustly calculate a 90th/10th percentile (~ 30 samples) compared to a 75th/25th percentile (~ 11 samples). Therefore all indicators that are specified as percentiles now adopt a 75th(or 25th) percentile in the Draft SEPP (Waters), which reduces the monitoring costs required to determine attainment with objectives.

These changes are anticipated to result in only minor changes in monitoring costs (for both industry and relevant government agencies). They are not anticipated to require an expansion in the monitoring programs currently in place and in many cases will enable water quality monitoring against objectives to be conducted at lower cost. For example, the EPA already monitors the majority of the indicators specified in the Draft SEPP (Waters) in its Marine Environmental Assessment Program (EAP).

## 7.4.2 Overall impact of updating environmental quality objectives

The changes proposed to the environmental quality indicators and objectives in the Draft SEPP (Waters) are intended to ensure that water environments in Victoria are protected, and are of a suitable quality to support beneficial uses.

In particular, these changes proposed are not intended to make the environmental quality objectives more or less stringent in general. Rather they are intended to make the environmental quality objectives more reflective of environmental conditions in healthy environments (by using up to date monitoring data) and to better reflect improved scientific understanding and knowledge (see Box 8). This is consistent with the nationally agreed approach for setting environmental standards, and does not represent any significant change to the existing framework of the Water SEPPs.

### Box 8 Example of changes to nutrient environmental quality indicators and objectives<sup>44</sup>

Nitrogen and phosphorous are important indicators of nutrient pollution in fresh, marine and estuarine waters that can drive nuisance plant growth and an increase in harmful algal blooms.

Nitrogen is commonly discharged into waterways because of waste and run-off from fertilizers used in agricultural activities or in treated wastewater discharged from treatment plants. For all surface waters, nutrient objectives in the Draft SEPP (Waters) have been updated based on long term monitoring of water quality to establish reference, or baseline, conditions that are protective of beneficial uses. In places like the Gippsland Lakes and Port Phillip Bay objectives have been updated based on an additional 20 years of long-term monitoring data that provide a much better characterisation of baseline nitrogen levels.

For Port Phillip Bay the revision of nitrogen objectives has meant that proposed objectives are now less stringent in the Corio Arm and Hobsons Bay segments but are slightly more stringent in the Central-East and Exchange segments when compared to SEPP (WoV). By contrast phosphorous objectives are less stringent across all segments. The number of indicators have also increased in Port Phillip Bay, allowing a wider range of pollution related risks to be identified. These additional indicators are routinely monitored by the EPA and so assessing their attainment does not require changes to the assessment of objectives.

For estuaries, the revision of nutrient objectives has meant that the proposed objectives for nitrogen are less stringent than those in SEPP (WoV). The SEPP (WoV) objectives were based on trigger values in the ANZECC guidelines which were largely derived from large, well-mixed marine estuaries outside of Victoria, which are reflective of the conditions of Victoria's typically smaller, riverine estuaries.

The revised nutrient objectives have been updated based on long-term water quality monitoring data in reference, or healthy, Victorian estuaries and are more locally appropriate. The decrease in stringency does not mean that estuaries are less protected than they were – the estuary objectives represent levels found in healthy Victorian estuaries that are protective of beneficial uses – they provide a realistic objective that is more characteristic of Victorian estuaries and provide better indicators of risks.

Were these environmental quality indicators and objectives not updated, Victoria would continue to rely on out-dated and potentially inappropriate standards. Objectives will only drive efficiency when they themselves are set efficiently and based on accurate and up to date information. Hence reviews of environmental quality objectives from time to time are considered necessary. Otherwise these objectives may prove less effective in:

- Prioritising water quality actions around the State by identify “at risk areas” — Areas may be more likely to be incorrectly classified as being at risk when they are not and vice versa. This will ultimately affect the ability of the SEPP to drive policies aimed at improving environmental water quality.

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44. Stakeholders are advised to refer to the relevant provisions in the Draft SEPP (Waters) to review the specific changes to environmental quality objectives applying in their area.

- Informing the conditions for licences, and guiding the assessment of works approvals and licence amendment applications — as described previously, the objectives frame the bounds of these conditions by describing the minimum water quality levels (i.e. pollutant levels) that could be set. While the discharge conditions are determined on the basis of localised information on the costs and benefits of pollution abatement, where the objective reference level is based on out of date information it will be increasingly likely to impose inefficient administrative and compliance costs on industry (see further discussion below).
- Assessing whether a general offence has occurred under the EP Act — if objectives are not updated based on improved understanding and knowledge ongoing enforcement costs for the EPA and industry will be higher. This is because it would lead to an increased likelihood of discharges being inappropriately classified as pollution offences. This means the EPA would otherwise need to spend more time and effort reassessing potential offenses against localised update information and knowledge. It also means in some areas pollution offences will be missed which will have negative impacts on beneficial uses.

Furthermore, out-dated objectives may undermine stakeholder confidence and create uncertainty for decision makers.<sup>45</sup> Essentially, the further away the objectives move from the level of water pollution that may be deemed acceptable from a societal point of view (based on a consideration of the costs and benefits of meeting the objective) the more inefficient they will become. This is because they become less reflective of the conditions likely to be imposed by the EPA in licences, or likely to be considered representative of a pollution offence. As a result, it becomes more likely that industry will disregard them and more likely that the EPA will incur higher administrative costs assessing applications and pollution offences on a case by case basis.

Conversely the closer environmental water quality objectives come to representing the conditions likely to be imposed by the EPA the more likely they will dissuade unsuitable works approval and licence applications from ever being made and so reduce administrative costs for the EPA and industry. The challenge here is that a robust assessment of localised pollution abatement costs and benefits across all Victorian water bodies would impose prohibitively high upfront costs. Therefore, the proposed updates reflect a reasonable balance between these positions.

### 7.4.3 Changes to beneficial uses

The harmonisation of beneficial uses is not expected to lead to any change in the protection of beneficial uses across Victoria's water environments. The Draft SEPP (Waters) includes clearer and more consistent descriptions and definitions so is likely to be more easily understood.

Changes to the beneficial uses will drive minor changes in the environmental quality objectives applying in certain area (as discussed above in section 7.4.2). Aside from this, the expansion and creation of additional beneficial uses is not expected to have significant impacts for the reasons outlined below:

The beneficial use relating to *Traditional Owners' and Aboriginal Victorians' cultural values* currently applies to all Victorian surface waters and has been recommended to be expanded to include groundwaters. This ensures Traditional Owners' and Aboriginal Victorians' cultural practices can be protected. Consideration of this beneficial use will be required when completing risk assessments to inform the assessment of applications and works approvals. There is no net change to the assessment of surface waters. For groundwater, this will need to be incorporated into the overall risk assessment process. This may slightly increase the cost of completing a risk assessment as part of this process, although this would be marginal and only be relevant in a minimal number of applications.

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45. This was identified in the EPA and DEPI (2013), *Statutory Policy Review-Final Report, Review of Statutory Policy under the Environment Protection Act 1970*, Publication 1498, p5.



The beneficial use *geothermal* has been included to protect the natural thermal properties of the groundwater and surrounding aquifer and ensure that no activity affects the geothermal capacity of the groundwater. Geothermal groundwater is principally used in Victoria for spa complexes in south west Victoria and the Mornington Peninsula. These developments principally occurred after the development of the SEPP (GoV) in 1997. Its inclusion as a beneficial use recognises this growing use, and the ongoing development potential for geothermal projects. The creation of this beneficial use would result in a slightly increased cost for completing a risk assessment in some limited situations during the assessment of a project in the development phase. However, this will improve the effectiveness of environmental quality objectives in protecting this beneficial use and maintain the opportunity for further developments both now and in the future within developed aquifers.

The definition for the beneficial use *water dependent ecosystems and species* has been expanded to ensure that groundwater systems and their dependent species are protected, rather than the previous focus in SEPP (GoV) of protecting surface water ecosystems from the impacts of poor groundwater quality. The intention in the expansion of the definition is to protect systems that we know exist, or where they have potential to exist based on current scientific understanding of these systems. The expansion is not intended to require assessment of cave ecosystems and subterranean fauna in all locations, but to protect them in areas they are likely to be present.

#### **7.4.4 Changes to segments of water environments**

Segments have been revised to better reflect natural boundaries and differences in baseline water condition. The changes to segments realistically reflect beneficial uses and enable users of the Draft SEPP (Waters) to assess relevant water quality indicators to minimise the risk to those beneficial uses. Changes in the segments will drive changes in the environmental quality objectives applying in certain area (as discussed above in section 7.4.2). It is not anticipated to have any further effects beyond those described previously.

#### **7.4.5 Matching beneficial uses to segments**

Beneficial uses are assigned to each segment based on whether the quality of the water is suitable to support that use or value. There is minimal change compared to the current policy and there are no expected impacts on users of the Draft SEPP (Waters).

#### **7.4.6 Weight of evidence toxicant objectives**

The inclusion of weight-of-evidence toxicant objectives in the Draft SEPP (Waters) is not a mandatory requirement and therefore does not have any direct impact on users of the Draft SEPP (Waters).

Rather than relying on the assessment of toxicant values, which often cannot keep pace with new and emerging chemicals, these indicators incorporate an assessment of different lines of evidence to evaluate the risks from toxicants. The use of these indicators will assist in the identification of sources of pollution and contamination in the catchment, supporting the clean-up and management of sites.

It is proposed that these will be incorporated as part of ambient aquatic ecosystem assessment programs, such as the EPA EAP. These methods are already used by Melbourne Water as part of their existing monitoring program in urban waterways in Melbourne and testing has already occurred as part of a risk assessment for large marine outfalls.

Unlike other environmental quality indicators, monitoring sediment is an average of time and so is only required to be assessed as part of an ambient monitoring program every four years or on a case by case basis as a specific issue arises. The estimated cost of testing for sediment chemistry and ecotoxicity would be approximately \$7,000-\$10,000 per site.

#### **7.4.7 Recreational water quality indicators and objectives**

Where the new environmental quality indicators and objectives are likely to represent more of a change from existing Policy, is in relation to primary and secondary contact recreation.

The current indicators and objectives for primary and secondary contact recreation are recognised as being out-dated, no longer referring to the most appropriate national standards, and are inconsistent with approaches adopted in most other Australian jurisdictions. As such, the Draft SEPP (Waters) provides objectives that are more strongly based on protecting human health, and better align with the most current understanding of human health risks from recreational water use.

These objectives are more contemporary and protective of human health. When applied to short term reporting, this is expected to result in small increases in the number of swim advisories issued by the EPA over summer. Long term objectives can inform water managers of which recreational waters are most susceptible to pollution over time. This may prompt managers to better understand the sources of pollution and risk to human health at these sites. Further work can then determine whether action is needed. The change in long term objectives will mean more sites being assessed as susceptible to pollution, and needing longer term management actions.

The Victorian Government has committed through the Port Phillip Bay EMP to undertake studies to measure risks to human health from swimming in the bay and the mid-upper Yarra River. This will help set more locally derived objectives for these areas. In instances where water quality is assessed as not meeting or unlikely to meet revised objectives, this will result in more comprehensive monitoring. This includes follow-up sampling and investigations by water managers to better understand risks and options for interventions to improve water quality, as well as improved communication about the changes in objectives to the public. This will have implications for the agencies that currently report on recreational water quality, namely the EPA, Melbourne Water, Surf Coast Shire and Alpine Shire. The costs of these changes are expected to be relatively minimal, particularly when weighed against the benefits in terms of reduced public health risks.

The new objectives are based on the latest scientific understanding of the costs of the potential human health risk to the public. The objectives have been formally assessed by a technical panel<sup>46</sup> as delivering net benefits by increasing community awareness and potentially lowering public health risks. In recognition of these implications of these changes, further work will be required to develop a communication plan for how these changes will influence Beach Report, Yarra Watch and other programs that report recreational water quality to the community.

#### **7.4.8 Marine Biological indicators and objectives**

The costs of monitoring marine biological indicators are typically greater than monitoring physical and chemical parameters, but there are significant benefits that counterbalance these costs.

The key advantage of using biological indicators is that they act as proxies for overall ecosystem health required to support beneficial uses given they:

- respond to the complex effects of multiple physical and chemical stressors acting together; and
- provide a measure of the lasting effects of the accumulation of stressors and sudden sporadic stress events that can be missed in samples of other water parameters.

The monitoring of marine biological indicators in the Draft SEPP (Waters) will not be mandatory, rather the expectation is that these will be incorporated into existing ambient aquatic ecosystem assessment programs. Regular sampling of algal abundances, identities and concentrations are already used by EPA as part of their existing marine EAP in Port Phillip Bay, and assessment of algal abundances doesn't represent a significant change from current arrangements. There are currently no ongoing or long term seagrass assessment programs, although there have been significant mapping exercises in Port Phillip Bay and Western Port that can inform future assessment.<sup>47</sup> That said,

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46. The technical panel included representatives from the Department of Health and Human Services, Melbourne Water, EPA and Monash University, and their work was subject to an independent peer review by leading experts in the field of microbiology and public health.

47. Blake, S. and Ball, D. (2001). Victorian Marine Habitat Database: Seagrass Mapping of Port Phillip Bay. Geospatial Systems Section, Marine and Freshwater Resources Institute Report No. 39. Marine and Freshwater Resources Institute: Queenscliff.



seagrass condition can be assessed relatively easily by measuring cover, stem/shoot density and length, epiphyte cover and change in depth range in the field. Remote sensing techniques are making it more feasible to assess changes in seagrass extent and cover across large spatial area. The expectation is that seagrass assessment will be adopted where the benefits of monitoring seagrasses are considered proportional to both the costs and the potential risks to marine beneficial uses.

#### **7.4.9 Summary of Impacts**

Under the Water SEPP framework, the exceedance or non-attainment of an objective indicates where there is a potential risk to beneficial uses and outlines that a risk assessment process should be used.

Where objectives have become more stringent they will trigger earlier, which may trigger mitigation actions earlier. Given these objectives may be used to inform works approval and licence discharge conditions, more stringent objectives may potentially lead to more stringent discharge conditions, increasing the compliance costs for industry. Where objectives have become less stringent they will be exceeded less often, resulting in the triggering of fewer mitigation actions and potentially less costly discharge conditions than previously. Hence the overall impact on industry compliance costs is unclear.

In all cases, the revised objectives provide a better characterisation of levels needed to protect beneficial uses than previous policies, which means that actions should be triggered at levels that more appropriately reflect potential risk to beneficial uses. This should improve water quality outcomes and reduce administrative costs. For example, by better prioritising water quality actions around the state and by dissuading unsuitable applications for discharge.

**Table 3 Impact assessment of update to environmental quality indicators and objectives**

Expected Impact	Rationale	Benefit/Cost (relative to base case)
Industry administration costs	Small cost saving from having a consistent, updated set of indicators and objectives contained in the one instrument	+
Industry compliance costs	Unclear given overall objectives are not becoming more or less stringent rather they are more reflective of levels where there may be a risk to beneficial uses.	<b>Unclear</b>
Regulatory administration costs	<p>Combined impact of changes unclear.</p> <ul style="list-style-type: none"> <li>• Government has already incurred a one-off cost associated with updating indicators and objectives.</li> <li>• Some minor changes in on-going monitoring costs associated with revised indicators and recreational water quality objectives. This will depend on whether non-mandatory objectives are included in ambient monitoring programs.</li> <li>• Some ongoing savings from reductions in EPA costs associated with reduced need for localised assessments when assessing works approval / licence applications and. potential pollution offences.</li> </ul>	<b>Unclear</b>
Water quality impact	<p>Given objectives are more reflective of the quality level where beneficial uses are at risk, it is more likely that;</p> <ul style="list-style-type: none"> <li>• the most “at risk” areas will be identified and hence that remediation/abatement action will be better targeted/prioritised</li> <li>• pollution offences will be appropriately identified.</li> </ul>	+
Overall impact		<b>Net benefit</b>

## 7.5 Recommendation

An update to the environmental quality objectives is expected to deliver a net benefit mostly arising from improved water quality outcomes and reduced administrative costs for industry and the regulators, from having objectives that are more reflective of risk.

The Draft SEPP (Waters) includes updated environmental quality indicators and objectives for water bodies across Victoria. A consistent suite of indicators has been adopted across rivers, streams and marine water segments and updates have been made to reflect relevant national and international standards, and updated data and knowledge.

Associated with this, the Draft SEPP (Waters) also:

- Harmonises and updates the beneficial uses and segments to which these environmental quality objectives relate—existing beneficial uses are proposed to be retained in the Draft SEPP (Waters) albeit in a harmonised form with clear and consistent descriptions and definitions. In addition the beneficial use *cultural and spiritual values* has been expanded to apply to all waters (i.e. both groundwater and surface water) and *geothermal* has been included as a new beneficial use. Segments have been revised to better reflect natural boundaries and differences in baseline water condition.
- New indicators and environmental quality objectives have been introduced for sediment toxicology for surface waters and wetlands, and marine bio-indicators have been developed for application across all marine embayments. These are considered better indicators of risks to beneficial uses in these waters.
- Revised environmental quality indicators and objectives for primary and secondary contact recreation based on relevant national and international standards including the National Health and Medical Research Council (NHMRC) guidelines.<sup>48</sup>
- Revised indicators for aquaculture based on ANZECC guidelines.

The approach adopted to determining environmental quality objectives has not significantly changed and continues to reflect the framework outlined in the ANZECC Guidelines.

The impact of these updates on the environmental quality objectives contained in the Draft SEPP (Waters) varies across Victoria. In some areas these objectives are similar while in other areas they have become more or less stringent to better reflect the local conditions required to protect beneficial uses.

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48. NHMRC (2008) Guidelines for Managing Risk in Recreational Water

## 8. Regional target setting

### 8.1 Introduction

Currently there are areas in Victoria where water quality is of a condition that ensures that beneficial uses are protected. However, surface water monitoring data also shows that there are many areas where water quality needs to be improved in order to protect beneficial uses. The extent of intervention and investment needed to protect beneficial uses will vary significantly for different water environments.

It is critical that the Draft SEPP (Waters) ensures protection of water quality and identifies opportunities for improvement at a cost acceptable to the community.

If an environmental quality objective is not attained, the beneficial uses are likely to be at risk. Hence, the non-attainment of an environmental quality objective should trigger further investigation to assess the risk to beneficial uses, whether this risk is acceptable and if not what should be done about it.<sup>49</sup>

### 8.2 Current arrangements

The SEPP (WoV) (clause 24) acknowledges that not all beneficial uses will be able to be fully protected, and not all environmental quality objectives will be met, within the lifetime of the Policy. In these cases, regional targets were to be developed (under clause 24) to drive the rehabilitation of environmental quality.

The clause enables the development of regional aspirational targets (based on maximising the protection of beneficial uses); regional resource conditions targets (intermediate targets) which take into account regional environmental, social and economic values; and regional management action targets that are set to assess the implementation of rehabilitation actions or management interventions intended to rehabilitate water quality.

The intent of clause 24 was that as targets were met, new ones could be set to ensure that, eventually, environmental quality improved to a level to meet the aspirations of communities expressed in terms of the beneficial uses. This was important as meeting community aspirations for environmental quality to protect the beneficial uses would require significant time and resources and these needed to be recognised in regional planning and budgeting processes.

The regional target setting process was intended to occur as part of the wider catchment strategy work of the CMAs. Under the CaLP Act (section 12 (1) (a)) CMAs are required to prepare regional catchment strategy and to co-ordinate and monitor its implementation. The regional catchment strategy was the primary integrated planning framework for land, water and biodiversity management in regions and was an overarching strategic document, under which are found the various action plans and strategies of a region. Clause 24 advocated that targets should be set through these regional catchment strategies.

Clause 24 outlined that Regional Coastal Boards (RCBs) and the Victorian Coastal Council could use their coastal action planning process to protect the water quality and beneficial uses in the marine and estuarine segments, particularly Port Phillip, Western Port, Gippsland Lakes and open coasts (as noted in clause 16 of the SEPP (WoV)).

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49. It may not be appropriate to seek to prevent any impact on beneficial uses as the cost of doing so may exceed the benefits to other users and the ecosystem. Hence the acceptable level of water pollution will be where the marginal cost of pollution abatement is just equal to the marginal benefit from pollution abatement (were the benefits include those to water users and the environment). This acceptable level of water pollution will vary across Victorian water bodies as the aquatic ecosystems and the users of water differ across the state. Furthermore, it will differ over time as the value of any water quality improvements and the costs of greater pollution control can be expected to vary over time.

In addition, since the SEPP (WoV) was gazetted in 2003, new *Water Act 1989* obligations have been enacted. CMAs and Melbourne Water must develop a regional waterway strategy as per Section 190(3)(b) of the *Water Act 1989* and reviewed every 8 years.

The *Water Act 1989* states that CMAs must take SEPPs into account when preparing regional waterway strategies in their standing as policies under the EP Act:

*In preparing a regional waterway strategy, an Authority must...(b) take into account any relevant strategy or statement of policy or plan prepared under this Act, the Catchment and Land Protection Act 1994, the Flora and Fauna Guarantee Act 1988, the Heritage Rivers Act 1992, the Planning and Environment Act 1987 and the Environment Protection Act 1970.*

Surface water data is collected from around 780 surface water monitoring sites across the state under Victoria's Regional Water Monitoring Partnerships' program. The SEPP environmental quality objectives create the benchmark for assessing existing water quality levels and determining water bodies in which beneficial uses, may be at risk within each SEPP segment. This information about where water quality is at risk is used by CMAs to develop their regional waterway strategy priorities. This means that CMAs know which sites within the SEPP segments are not meeting the environmental quality objectives for aquatic ecosystem protection.

The Department issued guidance to CMAs and Melbourne Water in 2012 about what must be contained in the regional Waterway Strategies. Guidance outlined that strategies must:

- Identify high value waterways based on environmental, social and economic values.
- Through a risk based prioritisation process, identify and spatially map high priority waterways for investment over the next eight years.
- Develop a regional work program for high priority waterways (over the eight-year planning cycle) that:
  - sets output targets, estimating the type and scale of management actions required to achieve management outcomes for key threats to the community values
  - considers the full range of tools and approaches available for waterway management (including planning, environmental water management, on-ground works, community participation and awareness raising)
  - identifies regional priorities for environmental watering that will form the basis of annual seasonal watering proposals
  - guides investment into multi-year projects and annual work programs
  - incorporates planning and management actions for Ramsar<sup>50</sup> sites.

The CMAs use the priorities from their strategies as the basis to seek annual funding through DELWP and they are obliged to report annually through their annual reports on their achievements. Melbourne Water report annually through their annual reports on their achievements to its customer base.

### 8.3 Problems with the current approach

A range of problems, outlined below, have emerged in practice, which suggest that regional target setting has not worked as expected for protecting or improving water quality in high priority areas.

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50. The Convention on Wetlands, called the Ramsar Convention, is the intergovernmental treaty that provides the framework for the conservation and wise use of wetlands and their resources.

### 8.3.1 Clause was seen as enabling, not mandatory

The consistent development and implementation of the regional targets under clause 24 has not occurred, despite guidance and incentives being offered to implement the clause. The clause was seen as enabling CMAs to undertake regional target setting if they chose to, as opposed to mandating target setting including the development of regional management action targets to improve water quality.

In 2004, the Victorian Water Trust (VWT) funded EPA to develop guidelines for undertaking risk assessment for site not attaining the SEPP objectives. The *Guidelines for Environmental Management. Risk-based assessment of ecosystem protection in ambient waters*<sup>51</sup> were used as the basis for CMAs to also apply for funding to the VWT to undertake risk assessments, with the aim of using that information to develop targets and actions. There is evidence that ecological risk assessments were funded in 2009/10, however documentation on how this informed CMA targets and action was limited in most cases.

### 8.3.2 Uncertainty around what to do with information from risk assessment processes

As mentioned there is limited documentation of regional targets being set, despite the ecological risk assessment processes as per *The Guidelines for Environmental Management. Risk-based assessment of ecosystem protection in ambient waters* undertaken by some CMAs in the mid 2000's. One CMA commented that they were not sure what to do with information from their risk assessment process, as the research suggested the SEPP environmental quality objective for one indicator might need to be revised because it was not correct, as opposed to a new target developed.

### 8.3.3 Melbourne Water are not named in the clause

Melbourne Water are not mentioned in the clause, despite also being a waterway manager with management functions under the *Water Act 1989*. This was probably reflective of the fact Port Phillip and Western Port CMA were responsible for the regional catchment strategy development. This is considered an oversight as Melbourne Water develop and implement the Healthy Waterway Strategy in the Port Phillip and Westernport region, in consultation with the Port Phillip and Western Port CMA.

### 8.3.4 Regional Coastal Board capacity

RCBs have insufficient resources to lead the development of regional water quality targets and it is no longer useful to retain the regional coastal planning process as a practical mechanism to help achieve the targets.

RCBs may be abolished in the future so including them in the Draft SEPP (Waters) does not make sense (as proposed in the recent Marine and Coastal Act Consultation Paper<sup>52</sup>). Furthermore, RCB staff have previously acknowledged that CMAs are better placed to address water quality issues, given their wider catchment remit.

### 8.3.5 Statutory Policy Review recommendations

As noted earlier in section 3.3.1, the 2013 SPR included a number of recommendations for improving statutory policies. A key recommendation was to focus the primary role of statutory policies on setting longer-term objectives and environmental quality standards. To support this a number of criteria were identified that should be considered reviewing SEPPs, with the following relevant to regional target setting:

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51. EPA (2004) Guidelines for Environmental Management. Risk-based assessment of ecosystem protection in ambient waters (EPA Publication 961).

52. DELWP (2016) Marine and Coastal Act Consultation Paper. August 2016. *Department of Environment, Land, Water and Planning*

1. publishing interim targets in non-statutory documents and regularly publicly reporting against them
2. where relevant, setting out agreed methodologies and processes for the establishment of interim targets in statutory policies, and using these to inform the delivery of programs and planning by agencies.

These points are discussed in section 8.4.

## 8.4 Options

The reform options considered are described in the sections that follow.

### 8.4.1 Base Case – Status Quo

The base case in this analysis would involve retaining a clause, unchanged from SEPP (WoV) 2003 clause 24. This option will not drive regional target setting in its current format as it is only enabling and would not address the issues as outlined in the section 8.3.

### 8.4.2 Option 1 Minor revisions to regional target setting clause (Clause 24 under current SEPP (WoV) 2003)

Clause 24 enables CMAs to take action where beneficial uses are at risk, but does not mandate this.

Section 8.2 outlines the DELWP regional waterway strategy guidance to CMAs and Melbourne Water which includes the community consultation required to determine priorities and actions.

Water quality attainment is one consideration in the prioritisation process, however the guidance provided by DELWP in the past has been limited with respect to water quality management, as a consequence the extent to which management actions are documented varies within CMA regional waterway strategies.

Collectively the revised clause and the existing *Water Act 1989* provisions can be used to drive the attainment of the SEPP environmental quality objectives (in high priority reaches<sup>53</sup>) by:

- placing an obligation for the development of regional targets and management actions on Melbourne Water and CMAs (not RCBs) in SEPP;
- focusing the clause on high priority reach protection through an explicit link to high priority reaches as defined in regional waterway strategies, where water quality is a threat (within SEPP segments); and
- requiring CMA's (where a waterway management district exists) and Melbourne Water, to develop regional water quality targets within the revised regional waterway strategy in 2020/22.

DELWP would need to make funding available to CMAs to undertake regional target setting (RTS) processes in their next round of strategy reviews 2022/23 to ensure it was done to a high standard. CMAs and Melbourne Water could use their discretion to develop regional targets outside priority areas identified in the regional waterway strategy.

Using the *Water Act 1989* provisions, the regional targets can be formally documented and approved. The regional waterway strategies are approved by the Minister for Water, on recommendation from DELWP.

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53. The regional high priority (reach) setting process is outlined in the Victorian Waterway Management Strategy, and underpins the development of the regional waterway strategies. The process includes development of a set of regional goals for waterway management and identification of high value waterways.



Annual reporting against funded priority actions in the regional waterway strategies is already a requirement on CMAs and Melbourne Water.

To support the regional target setting arrangements DELWP will also need to:

- Continue provide guidance on the setting of regional water quality targets as part of guidelines issued for regional waterway strategies. An action to updating these guidelines would be included in the SEPP Implementation Plan.
- Update the new prioritisation decision support tool with new SEPP (Waters) environmental quality objectives data for the CMAs to use. This would be included as an action in the SEPP Implementation Plan.
- Commit to work with CMAs and Melbourne Water to establish a process and timelines for development of targets. Regional Waterway Strategies are due for renewal in 2020/22. This has been included in the SEPP Implementation Plan.

The EPA has already developed preliminary guidance material on tiered objectives (i.e. environmental quality objectives that reflect the different states of waterways that can occur within a segment) that could be used to guide the regional targets in waterways. These tiers contained in guidance do not have the same legal weight as the objectives within the Draft SEPP (Waters), however they are useful to assist determine what interim objective could be attained within the life of the policy, when management interventions are known.

#### **8.4.3 Alternative options that were deemed impractical to implement**

##### ***New clause relating to 'at risk' areas (EQIP)***

Through the review process, stakeholders expressed an interest in strengthening clause 24 and, in addition, requested exploration of a broader mechanism to address diffuse pollution management over and above the water quality targets and actions determined within the regional waterway strategy process.

A new Environmental Quality Improvement Plan (EQIP) clause was developed for other beneficial uses, such as recreational uses, which may or may not involve CMAs as a lead.

The option tested involved including in the Draft SEPP (Waters) a new clause which would outline a formal process for:

- Identifying areas where there are unacceptable risks to beneficial uses — The EPA would be enabled to recommend that the Minister declare that beneficial uses are at risk in an area. The EPA would be required to publicly release and consult on a statement of reasons for making recommendations to the Minister. Government agencies and stakeholders potentially affected (such as those that might be affected or expected to do participate) will be provided with the opportunity to comment on the recommendation and the EPA will respond and publish its response. The Minister has discretion about whether to make a declaration.
- Preparing an EQIP — The intent of the plan would be to identify the threats to beneficial uses and put measures in place to address those threats. The clause would outline the elements that must be included in the plan which is to:
  - address known high-priority water quality issues;
  - control high priority future risks to beneficial uses; and
  - establish an EQIP which outlines objectives, actions, timelines, reporting processes and clearly identified and assigns accountabilities.
- Public consultation (on any declaration of risk and on the draft EQIP) which would enable the public to consider whether the benefits of various actions exceed the costs —actions may include offsets, market based mechanisms, expenditure of public funds or imposition of regulations.

- The Minister, after considering the amended draft EQIP and the advice of the EPA, may accept the plan and direct a lead agency to implement the plan.
- Public reporting on the implementation of actions identified in the plans.

Legal advice regarding the new clause indicated that the EP Act does not authorise the delegation of declarations to the Minister and as such there is no separate head of power for this. Given there was not sufficient legal head of power for the SEPP to obligate the Minister in the way intended by the proposed EQIP clause that component of the clause could not be maintained.

The option to remove the Minister from the clause and retain the requirements on EPA was also explored. EPA can identify areas where beneficial uses are at risk without statutory definition in SEPP. The EP Act provides a mechanism for EPA to investigate whether beneficial uses are at risk and direct a protection agency to plan to address the risk. The existing mechanism is a Neighbourhood Environment Improvement Plan (NEIP).

### ***Reliance on NEIP provisions in the EP Act***

NEIPs were included in the EP Act in 2001 as part of the Liveable Neighbourhoods Bill and were in use between 2002 and 2009. NEIPs were intended to enable the community (including residents, businesses, organisations and government) to have influence on complex environmental problems in a local neighbourhood area. NEIPs were designed to be used where there were multiple sources of pollution affecting a clear geographic location with multiple stakeholders affected. The stages of a NEIP are described below.

- Stage 1 – NEIP proposal. Can be directed or voluntary. However, the focus of EPA has been on voluntary proposals.
  - Can be initiated by any interested member of the community,
  - Need a protection agency (local government, water authority, CMA or State Government department) to sponsor the process.
  - Several requirements and steps to be met by community members and sponsor during the proposal stage (for example - defining the ‘neighbourhood’, identifying problems and solutions, obtaining formal sign-on by partners, establishing a steering committee, community consultation, determining a vision for the neighbourhood and how the vision might be achieved, identifying financial and other resources needed to fund the plan, proposed process for developing the plan).
- Stage 2- NEIP plan — Focus at this stage is on consistency with State law, resourcing, monitoring, evaluation and review.
- Stage 3 – EPA approval, publish in government gazette – they become legally binding.

Three NEIP projects (Anglesea, Stony Creek and Edwardes Lake) were piloted with a further five NEIPs developed after the pilot phase. While some seed funding was initially available for the NEIP process, it was mostly voluntary and relied heavily on the community resources – time, facilities, expertise, technical support and advice, communication skills and products (like newsletters etc.).

The EPA is currently reviewing the role and purpose of the NEIPs as part of the legislative reform process - particularly the review of the EP Act. A number of issues have been raised with the NEIP process, in particular, it is considered to be lengthy and onerous at both the proposal and planning stage which could constrain typically inexperienced, unskilled and volunteer community members from seeking to develop a NEIP.

Even though the NEIP process exists in legislation, it is unlikely that that process will drive action in the manner consistent with what was envisaged under the draft EQIP. However, in the short term it continues to provide a mechanism which could be used by EPA and stakeholders.

## 8.5 Impacts

The changes to the regional target setting clause proposed in Option 1 create an obligation to set regional targets in high priority reaches. They are expected to deliver improvements in water quality by mandating regional target setting processes which are intended drive and prioritise action in regions where water quality is threatened.

It is expected that the benefits of these changes in terms of water quality improvements will outweigh the costs. The reasons for this are as follows.

The incremental upfront costs associated with refining the regional target setting process are limited. The regional target setting clause already exists in the current policy. Also, the process to develop the regional targets and management actions exists as part of the regional waterway strategy process. The strategy is signed off by the Minister and funding is provided to CMAs based on priorities. Actions to assist with the attainment of SEPP objectives will be developed through the regional waterway strategy renewal process. That said, there would be some additional administrative costs relating to revising guidelines/tools.

CMAs and Melbourne Water would now be required to develop regional targets in high priority reaches (and regional management actions and programs to improve water quality). This would form part of the existing regional waterway strategy process and help keep additional plan development costs to a minimum. DELWP would need to make funding available to CMAs to undertake regional target setting processes in their next round of strategy reviews 2022/23 to ensure it was done to a high standard.

The regional target setting process can be expected to result in further pollution abatement actions and programs as it is expected that these costs would be minimised and outweighed by the water quality improvement benefits that would be delivered. This is because the regional waterway strategy priority setting process (of which regional target setting for water quality would form a part) requires an assessment of the feasibility and cost effectiveness of management activities.<sup>54</sup>

The regional target setting process outlined in the Draft SEPP (Waters) requires management outcomes to be developed taking into account environmental, social and economic values. This is intended to introduce transparency around the costs and benefits of pollution abatement action and should assist in ensuring any costs associated with this are at least proportionate to the water quality improvements that would be delivered. Similar processes formed part of the Environmental Management Plans required to support load based targets under the current SEPP (WoV). An example of what this might entail is contained in Box 13 in Chapter 9.

The table below summarises the impacts of adopting the recommendation – Option 1.

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54. Department of Environment and Primary Industries (2013) *Victorian Waterway Management Strategy*

Table 4: Impact of reforms relating to the management of risks to beneficial uses

Expected Impact	Rationale	Benefit/Cost (relative to base case)
<b>CMA/ Melbourne Water pollution abatement costs</b>	Where the new regional target setting drives greater action to protect beneficial uses, this will impose costs on CMAs / Melbourne Water or the polluter to implement any resulting pollution reduction actions. Any costs associated with pollution abatement should only be imposed in areas where they are deemed to be less than the benefits of pollution abatement because the regional target setting process requires management outcomes to be developed taking into account environmental, social and economic values.	-
<b>Administration costs</b>	<p>Staff time primarily for DELWP developing guidance and building capacity. This would include costs associated with:</p> <ul style="list-style-type: none"> <li>• Developing and disseminating guidance on regional target setting to CMAs/MW – one off cost of \$70k.</li> <li>• Updating decision support data – one off cost of \$20k.</li> </ul> <p>CMA / Melbourne Water staff time to develop regional targets in priority areas (\$500k in 2022/23)</p>	-
<b>Water quality improvements</b>	If the regional target setting process is able to effectively identify, prioritise and drive actions to address water quality threats where beneficial uses are facing an unacceptable level of risk then they should generate water quality improvements at the lowest cost.	++

## 8.6 Recommendation

It is recommended that the revised regional target setting clause be included in the Draft SEPP (Waters). The impact assessment indicates that this is expected to result in a net benefit, mostly arising from improvements in water quality being delivered at lower cost. This is a result of improvements in the regional target setting process which is intended to drive action in high priority regions where water quality is threatened.

Option 1 is recommended

The Draft SEPP (Waters) includes a clause similar to clause 24 in the SEPP (WoV) which is intended to drive the attainment of the SEPP environmental quality objectives (in high priority reaches).

It reforms existing arrangements by:

- placing an obligation for the development of regional targets and management actions on Melbourne Water and CMAs (not RCBs) in the Draft SEPP (Waters) which is to be developed within the revised regional waterway strategies.
- focusing the clause on high priority reach protection through an explicit link to priority reaches as defined in regional waterway strategies, where water quality is a threat (within SEPP segments).

To support these arrangements, the Implementation Plan includes actions to:

- Update guidance on the setting of regional water quality targets as part of guidelines issued for regional waterway strategies.
- Update the new prioritisation decision support tool with Draft SEPP (Waters) environmental quality objective data.
- DELWP would need to make funding available to CMAs to undertake regional target setting processes in their next round of strategy reviews 2022/23 to ensure it was done to a high standard.

## 9. Load based targets

### 9.1 Introduction

Victoria's large marine bays, Port Phillip Bay, Western Port, and Corner Inlet, and largest estuarine lake system, the Gippsland Lakes, are the receiving environments for large amounts of nutrient and sediment pollution generated from sources in the surrounding catchment and coast. Urban and agricultural runoff, land-clearing, river bank erosion and the discharge of wastes and wastewater are just some of a wide range of activities that cause these pollutants, which are ultimately transported downstream to these major bays and lakes.

Over time, excessive nutrient and sediment pollution entering bays and lakes can have significant adverse effects on the health of ecosystems and protection of other beneficial uses. For example, excessive nutrients can cause nuisance plant growth and harmful algal blooms which pose a significant risk to human health, through primary and secondary contact with water and the consumption of water and aquatic foods. The combined impacts of excessive nutrients and sediment can cause the die off aquatic plants, and other key aquatic habitats, that maintain healthy water environments and support valued biodiversity and important recreational and commercial fisheries.

Recent, comprehensive scientific reviews of Port Phillip Bay, Western Port, Corner Inlet and the Gippsland Lakes<sup>55</sup> have identified the current loads of excessive nutrients and sediments as representing a significant threat to the health and values of these water bodies.

Successfully reducing nutrient and sediment loads from diffuse sources requires a variety of management actions to reduce catchment inflows, coastal sediment inputs and the resuspension of sediments in marine waters; actions which can require significant capital. A combination of direct investment, landholder incentives and regulation is often used to support these actions.

Similar to the broader set of environmental quality objectives, load based targets — which specified the mass of pollutants entering the water body over time, rather than the concentration<sup>56</sup> - provide a clear quantitative target for the reduction of pollutants over time, which are typically linked to the implementation of management actions. The management actions to achieve the load target reduction are typically implemented and funded through regional management strategies (e.g. regional waterway and catchment strategies, land and water management plans, and Ramsar strategic plans). These strategies can use the SEPP load based targets to inform the water quality management priorities over the life of the plan/strategy. Including the load targets in SEPP provides a target, and statement of strategic intent, to reduce pollution entering large receiving waters which are often more sensitive to the overall quantity of nutrient and sediment pollutants, rather than the concentration.

Load-based targets for large receiving water bodies (e.g. marine bays) are considered one of the most effective ways for driving management interventions and investment to reduce pollution from diffuse sources.<sup>57</sup> This approach is recommended by the ANZECC guidelines and the National Water Quality Management Strategy and has been used effectively to protect marine, freshwater and estuarine water bodies across Australia over the last 15 years.

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55. *Draft Port Phillip Bay Environmental Management Plan 2017-2027* (Department of Environment, Land, Water and Planning, Melbourne, 2016); *Draft Port Phillip Bay Environmental Management Plan 2017-2027: Supporting Document* (Department of Environment, Land, Water and Planning, Melbourne., 2016) *Understanding the Western Port Environment: A summary of current knowledge and priorities for future research* (Melbourne Water 2011); *Corner Inlet Water Quality Improvement Plan* (West Gippsland Catchment Management Authority, 2013); *Draft Gippsland Lakes Ramsar Site Management Plan* (East Gippsland Catchment Management Authority, 2013)

56. Load based targets specify the mass of a pollutant entering a water body over time. For example, the tonnes of nitrogen entering a water body per year is a commonly expressed load target. Load based targets are distinct from the environmental quality objectives, which specify the concentrations of pollutants in water, but not quantity over time.

57. ANZECC and ARMCANZ (2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality



This chapter explores the proposed changes to the current SEPP (WoV) load based targets and related management requirements in more detail.

## 9.2 Current approach to setting load based targets

### 9.2.1 Existing targets

The SEPP (WoV) Schedules define load (or attainment) targets for Port Phillip Bay, Western Port and Lake Wellington (see Table 5). The Lake Wellington target was also supported by a specific load reduction target from the Macalister Irrigation District (MID), which was identified as the largest source of phosphorous entering Lake Wellington<sup>58</sup> (Table 5).

Table 5: Current load based targets in SEPP (WoV) Schedules

Area	Total Phosphorous (tonnes/year)	Total Suspended Solids (tonnes/year)	Total Nitrogen (tonnes/year)	Relevant clauses	Achievement of targets
Lake Wellington	Less than 115 tonnes/year	No current target		SEPP (WoV) Schedule F3 (Waters of the Gippsland Lakes) - Clause 3A	Target achieved for phosphorous loads (but not for the related chl-a concentration)
Macalister Irrigation District <sup>59</sup>	40% per from baseline annual load (~46 tonnes/y <sup>60</sup> ) by 2005	No current target		SEPP (WoV) Schedule F5 (Waters of the Latrobe and Thomson River Basins and Merriman Creek Catchment) - Clause 15	Target was generally achieved (in average rainfall years)
Western Port	No current target. Required a sediment action program to be developed within 30 months to reduce sediment and associated pollutant loads entering the East Arm segment (Clause 19(2))			SEPP (WoV) Schedule F8 (Waters of Western Port) - Clause 19,22	Target not achieved (but difficult to assess without a quantitative target) <sup>61</sup>
Port Phillip Bay	No current target		1000 tonnes/year total nitrogen reduction by 2006	SEPP (WoV) Schedule F6 (Waters of Port Phillip Bay) - Clause 6, 11 and 12.	Target achieved
Corner Inlet	No current target/new segment in SEPP (Waters)			N/A	No previous target set

Source: SEPP (WoV) Schedule F3; Schedule F5; Schedule F8; Schedule F6

These load targets specify the quantities of total phosphorous or total nitrogen that should be allowed to enter these waterbodies per year, or in the case of Western Port, provide a narrative statement requiring the reduction of sediment loads.

58. SRW and DNRE (1998) Macalister Irrigation District Nutrient Reduction Plan.

59. The load target for the Macalister Irrigation District is a subset of the Lake Wellington load target with the specific aim of reducing nutrients entering Lake Wellington.

60. SRW and DNRE (1998). Macalister Irrigation District Nutrient Reduction Plan.

61. The requirement to reduce sediment loads in clause 19 of the SEPP (WoV) Schedule F8 were implemented through the Better Bays and Waterways plan (2009-2014)

No load based targets currently cover Corner Inlet.<sup>62</sup>

### 9.2.2 Role and function

The role and function of the load targets, is similar to environmental quality objectives, which is to set the environmental standard that protects beneficial uses. The load targets for the bays and Gippsland Lakes provide the long-term water quality goal (or target) to drive management actions to reduce pollution to these receiving environments.

Currently these targets are incorporated within regional planning frameworks which includes development of implementation activities, management actions and monitoring actions within a separate, discrete management plan.

In some cases, the development of these plans has been directly required in SEPP (WoV) Schedules, such as the Port Phillip Bay Environmental Management Plan (EMP) (see Box 14). In other cases, Plans have used the SEPP load target to inform actions to achieve the load targets, such as the Better Bays and Waterways plan (2009-2014)— a Water Quality Improvement Plan with a specific focus on water quality issues in the Port Phillip and Western Port region.

Typically, these plans undertake a threat identification process, select interventions or management actions to address the threat and undertake a cost benefit analysis of identified management actions, to ultimately inform the suite of management actions that can achieve the load based target over a specified period of time. In this way SEPP (WoV) sets the target and requires a more focused planning process to determine the suite of actions that can feasibly be implemented to achieve the target. These plans typically aim to manage the cumulative impacts from land uses and activities.

These plans identify responsibilities for delivering the actions, however are typically not binding in nature and all parties work towards the achievement of the loads, based on their ability to fund those activities.

The types of actions commonly used to reduce nutrients and sediment loads include:

- construction of retention systems, urban wetlands and swale drains.
- working with landholders to revegetate and fence waterways and develop drainage management plans (that may increase the re-use of irrigation drainage water and so reduce runoff from land to decrease phosphorous loads).
- holding reverse auctions to reduce pollutant loads
- re-establishment of catchment and shoreline vegetation.

A combination of direct investment, landholder incentives and regulation is required to support these actions. Including these targets in legislation drives the implementation of projects aimed at reducing pollution.

More generally, organisations have used the requirement to assist in the achievement of the load based targets to:

- support future funding applications for the implementation of policies aimed at reducing the nitrogen, phosphorus and/or suspended solid loads — For example, Melbourne Water used the target and their assigned responsibility to seek funding from the Essential Services Commission to implement actions aimed at meeting the target.

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62. Corner Inlet supports outstanding environmental values that have been recognised through its listing as a wetland of international importance under the Ramsar Convention. The Corner Inlet Ramsar Site includes the areas known as Corner Inlet and Nooramunga.

- inform catchment and waterway planning;
- inform decisions around licensing and offsets associated with local sewerage treatment plants that discharge into waterways of interest;
- inform decisions around future policy setting and program directions for stormwater and irrigation outfall management led by DELWP and other government agencies; and
- to inform investment by a range of management organisations and research institutes in monitoring, modelling and research.

The reduction of pollutant loads requires actions that are aimed at reversing the effects of historical and long term environmental degradation and take time both and resources to implement and to achieve reductions in loads. As such, the reduction of pollutant loads can require several Policy cycles (i.e. more than 10 years) to achieve the levels that are needed to rehabilitate waterways (see for example Box 9).

### Box 9 Phosphorus load reduction from the Macalister Irrigation District

Lake Wellington is part of the Gippsland Lakes Ramsar area, providing important habitat for a wide variety of resident and migratory bird species, and is valued for its commercial and recreational fisheries, and biodiversity significance. The commercial fishery for the entire Gippsland Lakes system, is estimated at approximately \$1.1 million annually, based on data from 2000/01 to 2010/11. Victoria's largest recreational fishery for black bream is found in the Gippsland Lakes. The economic values of tourism to the lakes, of which recreation, wildlife and biodiversity and visual amenity are an integral element, is as much as \$550 million each year, based on conservative estimates. While these estimates apply to the entire lake system, Lake Wellington is the largest of the four lakes comprising the Gippsland Lakes and supports a significant share of these values.

Lake Wellington underwent major changes in the late 1960's, transforming from a clear lake covered in aquatic vegetation with extensive fringing reeds, to a turbid phytoplankton dominated lake with no aquatic vegetation and much reduced fringing reed beds. Since that time, recurring harmful algal blooms have led to a loss of recreational amenity and periodic closures of recreational and commercial fisheries. Excessive nutrient loads, particularly phosphorous, from the surrounding catchment are the major driver of these algal blooms.

In response to concerns about the condition of the Lake Wellington, a phosphorus load reduction target was included in the SEPP (WoV) Schedule F3 (Waters of the Gippsland Lakes) aimed at reducing the frequency and duration of algal blooms. The MID was identified as a significant source of phosphorous loads entering Lake Wellington and a further load target was included in SEPP (WoV) Schedule F5 (Waters of the Latrobe and Thomson River Basins and Merriman Creek Catchment). The baseline phosphorus load discharge during the years 1994-96 was established as 70 tonnes per annum, requiring phosphorous discharges to be reduced to 42 tonnes per year.

Clause 15 of SEPP (WoV) Schedule F5 required Southern Rural Water (SRW) to work with the then Department of Natural Resources and Environment (DNRE) and landholders to develop a plan to meet the phosphorous load reduction objective for the MID. To fulfil this obligation, SRW in association with the DNRE, EPA and local farmers developed and implemented the MID Nutrient Reduction Plan (MIDNRP) throughout the 1990s and the Macalister Land and Water Management Plan (MLWMP) in 2007. The MLWMP is administered by the West Gippsland Catchment Management Authority (WGCMA), with Agriculture Victoria, EPA Victoria, Gippsland Water and SRW maintaining a key role in nutrient management under the Plan. Funding was provided to implement the MLWMP by the Department of Environment, Land Water and Planning's (DELWP) Sustainable Irrigation Program.

These plans fulfilled the obligations set out in SEPP (WoV) Schedule F5 by including specific actions to reduce phosphorous loads from the MID, increasing diversion of drainage flows and monitoring the phosphorous load leaving the irrigation drainage system.

A recent review of the Plan found that MIDNRP / MLWMP implementation has made an important contribution towards managing the discharge of phosphorus from the MID to the Gippsland Lakes. The phosphorous load target was met for 10 of the last 16 years particularly through the 'Millennium Drought' when rainfall was low. Loads have been over-target by an appreciable amount in the six years where rainfall was generally high.

Generally, however, the load target for the MID is met for years of average annual rainfall or less.

Reductions are still needed, in part, to reduce the stores of phosphorous that have built up in lake sediments over time and are a major source bio-available phosphorous that support the growth of algal blooms.

The Draft SEPP (Waters) sets out the revised load target to reduce phosphorous entering Lake Wellington from 115 t/y to 100 t/y by 2028. A synthesis of research projects completed for the Gippsland Lakes Taskforce identified irrigation areas in the MID, streambank erosion in dryland agriculture and point sources in western catchments as contributing the greatest proportional load of phosphorous into Lake Wellington. These activities have also been identified as sources where the greatest gains can be made for reducing nutrient loads to the Lakes by applying the most cost-effective best management practices (BMPs).

A cost/benefit analysis using the Investment Framework for Environmental Resources (INFERR) analysis conducted for the Gippsland Lakes demonstrated that, based on a 10 year average load, a 4% (~ 13.16 tonne per year) P reduction in the annual load entering the Lakes as a whole could be achieved with no public cost. A 10% P reduction (~ 32.9 tonnes per year) could be achieved through a combination of current incentives for best management practices and streambank stabilisation costing \$11.6m with \$0.7m annual costs. A 40% reduction could be achieved through paying full costs of BMPs best management practices and streambank stabilisation, enforcing effluent regulations in the dairy industry and retiring large amounts of agricultural land but would cost \$1.3 billion.

The combination of the above analyses suggest that it is feasible and cost effective to reduce annual phosphorous loads entering Lake Wellington by a further 15 tonnes over the next 10 years through a combination of implementing BMPs, stream protection measures and enforcement of existing dairy effluent regulations.

### 9.3 Why the need for an update?

As discussed in section 3.3.2 there is a need to ensure environmental quality objectives and targets in the Draft SEPP (Waters) remain relevant and effective and take account of changing water quality threats. These issues are discussed in more detail in the sections that follow.

#### 9.3.1 Ensuring targets remain relevant and effective

The existing load based targets need to be updated and refined to ensure they remain relevant and effective in the new Policy.

The existing load targets were established and set in the SEPP (WoV) Schedules over 20 years ago for Port Phillip Bay, and the Gippsland Lakes and the MID, and over 16 years ago in Western Port. At the time that these targets were set they represented estimates based on the best available scientific understanding of these systems, their responses to pollution impacts and the targets required to protect them.

Since that time extensive management actions have been implemented to meet these targets. There has been increasing urbanisation and changes to the location and intensity of agriculture in the catchments around the major bays and Gippsland Lakes, changing and, in some cases, increasing threats from pollution. There have also been significant advances in our scientific understanding of these areas, including our understanding of pollution threat and impacts, and the scientific tools available to understand the load limits that are required to protect beneficial uses.

While existing loads targets have driven improvements in environmental quality, the Review identified that further improvement is still needed in Western Port, Corner Inlet and the Gippsland Lakes.

Even where existing load targets have been achieved (e.g. in Port Phillip Bay) there is still a need to continuously and actively manage activities that generate pollution to prevent future increases in pollutant loads, particularly in response the pressures of future urban growth and land-use change. In particular, future nutrient and sediment loads entering Victoria's major bays and the Gippsland Lakes

are predicted to become more pronounced because of climate change and population growth (see Box 10).

Updating load targets to reflect, and mitigate the predicted future increases in pollution is important for the future protection of these environments.

#### **Box 10 Risks associated with increased population growth (Port Phillip Bay)**

Over four million people live within the bay's catchment, incorporating two major cities. Victoria in Future 2016<sup>63</sup> predicts that Greater Melbourne's population will almost double over the next 35 years, from around four million to more than eight million people, leading to much greater urbanisation of the catchment, both within established areas and on the urban fringes, at a level unprecedented for Melbourne. Due to this, pollution loads from stormwater run-off and wastewater treatment plant discharges are predicted to increase, without active interventions and investment.

Climate change is predicted to exacerbate these water quality risks for the bay, with storm events likely to be more intense and occurring more often in the summer period (rather than the winter and spring periods as they currently do). This increases the likelihood of more intense and frequent algal blooms at a time of year when it is likely to have the most impact on the bay's beneficial uses, including recreational use and aesthetic values.

The most popular beaches in Port Phillip Bay (the eastern beaches) are those that are most impacted by water quality pollution loads. For this reason, Hobsons Bay near the mouth of the Yarra River and the popular beaches of Port Melbourne and St Kilda, often display the most significant water quality issues following major rainfall events.

#### **9.3.2 Expansion of pollutants and waterbodies covered**

In addition to updating existing load based targets on the basis of improved understanding of the impact of pollutant loads, recent evidence has re-affirmed the need to:

- actively manage a broader set of pollutant inputs (beyond nitrogen or phosphorous alone);
- in an expanded number of waterbodies (beyond Port Phillip Bay, Western Port and Lake Wellington).

While existing load targets have driven actions to reduce loads for some pollutants, the current SEPP (WoV) Schedules do not provide targets for other pollutants that are now known to be a significant threat. For example, the risks associated with excessive sediments are comparable to those associated with nitrogen in some bays (see for example, Box 11), however, the absence of a sediment load target within the existing SEPP (WoV) has meant that management actions to directly address sediment issues may have been limited. This greatly contrasts with the extent of effort and investment that has been directed to the management of nutrients over the last fifteen years.

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63. Victoria in Future 2016 is the official state government projection of population and households. It includes trends and projections in birth rates, life expectancy, migration, and living arrangements across all of Victoria.

### Box 11 Risks associated with sediment loads (Western Port)

In 2011, a large scientific review on the environmental values of Western Port identified significant threats to Western Port's ecosystems and health including excessive sediments entering the bay from the surrounding catchments and coasts, as well as through resuspension within the bay itself.

Since 1980 an estimated average 23.8 kilotons are deposited in Western Port each year from its rural catchments, and 8 kilotons from erosion of nearly 20km of its northern and north-eastern coasts.<sup>64</sup>

High levels of turbidity and low light levels in marine waters, due to these excessive marine sediment loads are believed to be the major cause of the large scale loss, and inhibition of the recovery, of Western Port's seagrass.<sup>65</sup> In particular, excessive sediment loads are believed to be the major cause of the loss of 70% of Western Port's seagrass during the 1970s and 80s. There has only been limited recovery of seagrass in the northwest of Western Port and no recovery in the northeast (where erosion and turbidity are still excessively high). Seagrass is important for sustaining ecosystems that support economically important commercial and recreational fisheries and maintain good water quality through stabilisation of sediments and protection of coastal areas from wave driven erosion.

Elevated levels of suspended sediments can also have direct negative impacts on fish and other reef dwelling flora and fauna in Western Port due to the smothering and clogging of breathing and feeding structures, and reduced light levels.<sup>66</sup>

In places like Corner Inlet, a large marine embayment that supports significant environmental, social and economic values, high nutrients and turbidity loads are now recognised as significant risk to its environmental quality (see Box 12). The current SEPP (WoV) did not set a load target for Corner Inlet.

### Box 12 Quality of water in Corner Inlet

An audit by CSIRO concluded that the Corner Inlet Ramsar site, which encompasses most of its bay, was threatened by the inflow of nutrients and sediment from its catchment— which is potentially linked to the historical loss of seagrass cover (the number and scale of seagrass beds in Corner Inlet have been declining significantly since 1978).<sup>67</sup> Poor water quality due to a historical increase in catchment input of nutrients and sediments is considered the most likely cause of this die off

Data from Waterwatch programs collected by DEPI in 2007 indicates that phosphorous concentrations (reactive and total) and turbidity, were elevated in the near shore area of north western Corner Inlet, and exceeded the current SEPP guidelines for estuaries and inlets by six to ten times for total phosphorous and 3.5 times for turbidity over the period of assessment.

Direct and indirect (e.g. through seagrass loss) impacts from nutrient and sediment pollution on other important marine and estuarine ecosystem components including fish and bird populations are also probable.

The status of water quality in the Corner Inlet's catchment was generally reported as poor in 2009 for the Corner Inlet Catchment Condition Report. SEPP objectives for total phosphorous were not met at any of the sites in the Franklin and Agnes rivers and Bennison Creek were not met for dissolved oxygen at five

64. Tomkins, McLaughlin, and Coleman (2014), *Quantification of coastal bank erosion rates in Western Port*, CSIRO Water for a Healthy Country, Australia.

65. Walker (2011) IN: *Seagrasses, Understanding the Western Port Environment: A summary of current knowledge and priorities for future research*, Melbourne Water; (Holland, Cook, Mac Nally, Thomson, Womersley, Ball, Longmore, Keough, Lee, Martinez and Greer 2013), *Preliminary assessment of water quality requirements of seagrasses in Western Port*, Water Studies Centre, Monash University, Clayton, Victoria, A report prepared for Melbourne Water.

66. Bathgate, Keough and Quinn (2011), *Rocky Reefs in Understanding the Western Port Environment: A summary of current knowledge and priorities for future research*, Melbourne Water; Jenkins (2011), *Seagrasses, Understanding the Western Port Environment: A summary of current knowledge and priorities for future research*, Melbourne Water.

67. Kirkman, H. (2013) *Historical Changes in Seagrass Extent and Condition in Corner Inlet and Nooramunga. For the West Gippsland Catchment Management Authority*; (Malloy et. al. 2005) *Corner Inlet Environmental Audit CSIRO Land and Water Client Report to the West Gippsland Catchment Management Authority and Gippsland Coastal Board*; (Poore, G. C. B. 1978) *The decline of Posidonia australis in Corner Inlet. Environmental Studies Program Project Report. Marine Studies Group, Ministry for Conservation, Victoria, Queenscliff.*



assessable sites, but there was insufficient data to assess total nitrogen. Water quality in the Corner Inlet catchment is generally better in the upper catchment areas and deteriorates downstream.<sup>68</sup>

## 9.4 Development of the revised load targets

In general, the process for developing these revised load targets was similar to that used previously for setting these in the current SEPP (WoV) and involved:

- **Identifying water quality dependent beneficial uses based on ecological character, social and economic values** — this involved characterising and documenting the values of the waterway, and monetising these values (as much as possible).
- **Identifying pollution threats to beneficial uses** — drawing upon research, investigation, spatially dynamic catchment-to-bay hydrodynamic and biogeochemical models, long-term water quality monitoring data and anecdotal local knowledge, and quantifying these threats (to the extent possible).
- **Determining key actions to achieve the aim of protecting the sites and the costs associated with undertaking those key actions** — through the use of cost benefit analysis in some instances including the use of modelling to understand the impacts and effects of management actions. This varies in complexity depending on the target area, reflecting the trade-off between the often significant resources involved in monetising various impacts and their relative size/impact on the feasibility of the action.
- **Development of the targets** — this involved community and stakeholder consultation, supported by the above steps. Again, this varies in complexity with the target.

Box 13 and

Table 6 provide an example of the development of the revised load targets for Corner Inlet. Unlike the other major embayments in Victoria, the load reduction targets for Corner Inlet were developed independently from the SEPP review. However, the tools and general framework adopted for setting load reduction targets parallel many of those adopted in the current SEPP review.

### Box 13 Development of revised load targets (Corner Inlet)

The Corner Inlet Water Quality Improvement Plan (WQIP) was finalised in 2013 by the WGCMA in recognition of the threat of poor catchment water quality in Corner Inlet's marine environment. Agricultural land uses contribute most of the nutrient and sediment loads to the Corner Inlet Ramsar site. Accordingly, it is with the improved management of these lands that the largest gains in nutrient and sediment reduction are likely to be made.

Water quality load reduction targets for the Corner Inlet WQIP were developed from a combination of catchment and receiving waters modelling coupled with an economic decision support tool. The modelled contributions of land use categories to the overall end-of catchment loads in Corner Inlet and Nooramunga were used to help quantify the management actions and land-use changes required to achieve nutrient and sediment load reduction targets. INFERR analysis was used to assess the technical feasibility, cost effectiveness and socio political implications of 20 scenarios outlining the required management actions and land use changes developed through consultation with an expert scientific advisory panel and discussion with project managers.

Of the three scenarios outlined in

Table 6, the third was selected for the implementation of the Corner Inlet WQIP. The choice of scenario was

68. West Gippsland CMA and Hyder Consulting (2009) Corner Inlet Catchment Condition Reporting



an iterative process:

- An initial scenario representing aspirational reduction targets of total nitrogen (TN), total phosphorous (TP) and total suspended solids (TSS) in Corner Inlet and Nooramunga (scenario A). However, achieving the aspirational targets were considered unfeasible, due to high costs (\$30.15 million/year), the socio-political impacts of management actions and uncertainty around the impact of water quality in Corner Inlet's environmental values.
- The costs of scenario C is only slightly greater than scenario B at \$8.95million/year for a much more politically acceptable outcome (no land retirement). The trade-off, however, is that the sediment reduction target in Nooramunga is only 5% in scenario C rather than 10% in scenario B.

As such, Scenario C was identified as the base case scenario based on cost effectiveness and having low estimated socio-political implications (it required no land-use change, just the adoption of better management practices coupled with fencing of waterways and erosion control (traditional activities)). Because some load reduction targets could be achieved at higher levels than outlined in Scenario C for no extra costs, the final agreed targets were higher for some parameters.

Table 6: Costs and management implications of achieving load reduction targets for the Corner Inlet and Nooramunga catchments

Scenario	% Load reduction TN, TP, TSS	Cost (\$million / year)	Summary of management actions required to achieve targets
A: Aspirational targets at least cost	<ul style="list-style-type: none"> <li>• Corner Inlet - TN: 30%, TP: 22%, TSS: 11%.</li> <li>• Nooramunga – TN: 20%, TP: 22%, TSS: 20%.</li> </ul>	<ul style="list-style-type: none"> <li>• \$30.15 million/year</li> </ul>	<ul style="list-style-type: none"> <li>• 46% dairy land retirement to beef/sheep</li> <li>• Dairy BMPs in some of both catchments</li> <li>• 28% beef land retirement to native vegetation</li> <li>• BMPs in beef/sheep in remainder and traditional activities</li> </ul>
B: Implementation targets at least financial cost	<ul style="list-style-type: none"> <li>• Corner Inlet - TN: 15, TP: 19%, TSS: 10%.</li> <li>• Nooramunga – TN: 12%, TP: 17%, TSS: 15%.</li> </ul>	<ul style="list-style-type: none"> <li>• \$ 8.58 million/year</li> </ul>	<ul style="list-style-type: none"> <li>• 59% dairy land retired to beef/sheep</li> <li>• Small amount of dairy intensification in several subcatchments</li> <li>• 2% beef retirement to native vegetation. Dairy BMPs in some of both catchments</li> <li>• Extensive beef BMPs</li> <li>• Range of traditional activities</li> </ul>
C: Implementation targets using BMPs across both catchments and focus on sediment reduction in Jack and Albert River catchments	<ul style="list-style-type: none"> <li>• Corner Inlet - TN: 15%, TP: 20%, TSS: 10%.</li> <li>• Nooramunga – TN: 10%, TP: 11%, TSS: 5%.</li> </ul>	<ul style="list-style-type: none"> <li>• \$8.95 million/year</li> </ul>	<ul style="list-style-type: none"> <li>• Extensive dairy and beef/sheep BMP in both catchments including small amount of dairy intensification in several subcatchments and extensification in others in the Franklin River and Bennison Creek and Western Tributaries and subcatchments.</li> </ul>
Recommended load reduction target	<ul style="list-style-type: none"> <li>• Corner Inlet - TN: 15%, TP: 15%, TSS: 10%.</li> <li>• Nooramunga – TN: 10%, TP: 10%, TSS: 5%.</li> </ul>		

## 9.5 Proposed changes to the targets

The current nutrient load reduction targets in Port Phillip Bay, Lake Wellington (including the MID) and Western Port has driven actions to reduce nutrients and sediment loads, with the overarching policy driver successfully supporting catchment activities to reduce loads over the long-term.<sup>69</sup>

Given their success, the proposed changes to load targets in the Draft SEPP (Waters) are aimed at expanding the current approach.

- Revised and expanded targets have been proposed for Port Phillip Bay and Lake Wellington covering nitrogen, phosphorous and/or sediment loads.
- Revised target for the MID which has been incorporated into the overall Lake Wellington target.
- Explicit nutrient and sediment load reduction targets for Western Port and Corner Inlet. Corner Inlet has been included as a new segment in the Draft SEPP (Waters) in recognition of its high environmental, social and economic values unique physical system characteristics, ecosystem character and the risk that high levels of diffuse pollution from the catchment and coast pose to its health and values.

In respect to the proposed updates to the existing load reduction targets,

- For Lake Wellington the Total Phosphorus target requires further reductions in loads of 13%. The target for Lake Wellington is shared equally between irrigation activities (replacing the current MID target of Schedule F5) and the combination of dryland agriculture and waterway sources, which ensures that these major sources of nutrient loads will both be the focus for achieving load targets (see Box 9).
- For Western Port a quantitative sediment load target will replace the narrative/descriptive target, which will provide a more transparent and effective target to aim for.
- For Port Phillip Bay, the Total Nitrogen targets have not changed, however, load reductions in the order of 1,500 – 2,200 tonnes/year will be required to prevent the forecast increase in loads from urban growth in the surrounding catchment.
- For Corner Inlet and Nooramunga the new load targets require a reduction in phosphorus, nitrogen and suspended solids loads (

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69. DNRE (2001) Port Phillip Bay EMP; DELWP (2017) Port Phillip Bay EMP; MW and EPA (2009) Better Bays and Waterways; WGCMA (2008) Macalister Land and Water Management Plan.

- Table 7 and Box 13).

These changes have been consolidated in the Draft SEPP (Waters) and outline the load targets and the associated management requirements across the four areas (see

Table 7).

Implementation of these targets will need to include the monitoring, evaluation and reporting of loads and load-reductions from their current baseline, including the on-ground actions implemented to achieve the reductions using an adaptive management approach.

Table 7: Draft SEPP (Waters) proposed load targets

		Total Phosphorous (tonnes/year)	Total Nitrogen (tonnes/year)	Total Suspended Solids (tonnes/year)
Lake Wellington	Baseline (2017)	115		
	Target (2030)	100		
Port Phillip Bay	Baseline (2017)		1,500-2,200	60,000-70,000
	Target (2027)		1,500-2,200	60,000-70,000
Western Port	Baseline (2017)			30,000
	Target (2032)			25,500
Corner Inlet	Baseline (2017)	19	105	2,050
	Target (2032)	16	90	1,800
Nooramunga	Baseline (2017)	7	74	1,820
	Target (2032)	6	68	1,730

## 9.6 Impacts of the proposed changes

### 9.6.1 Benefits from improvements in water quality

In Port Phillip Bay and Lake Wellington, existing nutrient load reduction targets have enabled significant work to focus on, and reduce, the total quantities of nutrients flowing into the bay and lake, which has led to improvements in water quality over time (see Box 9 and Box 14).

The specific impact of existing load targets and the likely incremental impact on the proposed revisions in the Draft SEPP (Waters) are difficult to ascertain. This is because it is challenging:

- to isolate the contribution of the SEPP load targets to any water quality improvements;
- to monetise the value of incremental water quality improvements; and
- to cost the actions that may result from any associated plan developed in future (for example Western Port).

What can be concluded is that in areas that have been subject to load based targets in the past there have been improvements in water quality.

For example, the inclusion of the nitrogen target in the SEPP (WoV) Schedule F6, and the requirement for the Port Phillip Bay EMP, catalysed a range of programs and actions to reduce loads of nutrients and other pollutants to the Bay over the proceeding 16 years. Since then, the Bay has continued to meet SEPP marine water quality objectives overall<sup>70</sup> and there is evidence to indicate that the SEPP nitrogen reduction target from the 2001 EMP was achieved.<sup>71</sup> Similarly, in Lake Wellington a recent review found that the MLWMP has reduced phosphorus loads from the MID to

70. [http://yarraandbay.vic.gov.au/report-card/report-card-2016/bay#top\\_of\\_report](http://yarraandbay.vic.gov.au/report-card/report-card-2016/bay#top_of_report)

71. Department of Environment, Land, Water and Planning, Melbourne, (2016) *Draft Port Phillip Bay Environmental Management Plan 2017-2027: Supporting Document*, (Jacobs and HydroNumerics 2015b) *Integrated modelling for the development of the new Port Phillip Bay Environmental Management Plan: Port Phillip Catchments to Bay Scenarios Report. Report to Melbourne Water, Melbourne, Australia*

Lake Wellington and made an important contribution towards achieving the SEPP (WoV) Schedule F3 and F5 TP load objectives and the Schedule F3 load and chlorophyll-a objectives.<sup>72</sup>

This does suggest these mechanisms have been effective in driving water quality improvements and will continue to be effective in the future. The load reduction target in the Draft SEPP (Waters) provides a visible statement of the State Government's intent to support the ongoing reduction of loads entering the water bodies to protect and sustain beneficial uses. SEPP assigns specific agencies with responsibility for driving this change, using their existing strategic planning frameworks. These existing plans recognise these areas as important and requiring management, however the SEPP assists prioritise the limited government funding due to the presence of a load target. Inclusion of the load based target provides a higher level of priority to support the ongoing activities for the improvement of the relevant catchments, coasts and marine waters. This includes future funding for activities to reduce pollutant loads.

While the exact benefits flowing from any improvement in water quality, resulting from the update/introduction of load based targets across the four areas, will vary, potential benefits include:

- The protection of the diversity and abundance of marine mega-habitats (seagrass, mud and sandflats, mangroves etc.) which amongst other things support populations of fish, waterbirds and other threatened species, which in turn support recreation, tourism and other commercial operations (scenic values, boating, recreational fishing, camping etc.)
- Provision of water supply for urban and rural production in the catchments feeding into the embayments;
- Protection of Aboriginal cultural heritage areas;
- The maintenance and protection of the ecological character of the relevant Ramsar sites.

### 9.6.2 Costs associated with meeting the targets

The Draft SEPP (Waters) does not direct how the load targets should be achieved, and therefore, does not prescribe a single management instrument with an associated cost. As such, the clause allows for flexibility in the delivery by management organisations, so that the most cost effective approach to reduce the load can be taken. The clauses also use existing management and funding arrangements to implement load targets and expect activities to achieve load targets only to be undertaken to the extent that they receive funding. In this way the targets do not impose unrealistic or unachievable costs on management agencies with responsibilities for achieving targets. For example, many of the management actions for achieving the load target Western Port, Corner Inlet and the Lake Wellington will be implemented and funded through the existing frameworks set out in Regional Waterway Strategies.

It is expected that the Draft SEPP (Waters) load based targets will generate efficient outcomes as they have been based on accurate and up to date data and scientific knowledge, and set on the basis of weighing up the expected costs and benefits of alternative targets. Formal cost benefit analysis was not typically used, given the challenges associated with monetising the benefit of ecosystem maintenance from any incremental water quality improvement. However, most targets were set using cost effectiveness analysis (typically the INFERR model) which compares the relative costs of different portfolios of management action with the expected outcomes (in terms of anticipated pollutant reductions). Targets were then selected based on maximising the incremental outcomes delivered (see section 9.4).

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72. The review also found that it was not possible to reliably quantify the reduction in TP loads to Lake Wellington achieved by Plan implementation or attribute the reduction to actions at particular locations. This was because of the climate driven variability of flows and loads to Lake Wellington and because it was impractical to establish a monitoring network to measure the effects of individual works and measures. However, water quality monitoring of Lake Wellington itself does show that changes in catchment nutrient loads had immediate and noticeable effect to reduce phytoplankton biomass and that existing phosphorous loads were met for 10 of the last 16 years. In six of the years, which were particularly wet years, load targets were substantially exceeded, re-enforcing the need to keep reducing phosphorous loads going forward.

Analysis conducted as part of revising the Port Phillip EMP suggests the load based target developed through these approaches will drive significant net benefits (Box 14). A similar narrative also exists for the other bays and lakes.

#### Box 14 Impacts of load based targets in Port Phillip Bay

The revised Port Phillip Bay EMP 2017 (replacing the 2001 plan) includes an economic assessment of potential actions to reduce runoff and pollutants into the bay in line with load reduction targets.

The estimated cost range for potential actions under the new plan were estimated to be in the order of \$25 to \$45 million over the next 10 years. This included the direct costs estimated for actions, including the program /agency costs of implementing actions and estimated costs for community participation in actions. The costing excludes costs associated with actions not entirely relating to the new plan that will occur irrespective of the new plan being implemented.

The economic analyses valued the long-term benefits provided by the bay under a range of potential future management scenarios. And these benefits far exceeded the costs. A large body of scientific research and modelling has identified that increased nitrogen loads to the bay will cause a major shift in its ecological character (termed the “greening of the bay”). This type of shift would cause a breakdown of nutrient cycling, leading to an increase in nuisance plant growth and harmful algal blooms, which would threaten other beneficial uses.

The key findings from the economic impact assessment were that the maintenance of current nutrient loads (as per actions within the new plan and targets within SEPP (WoV)) will reduce the occurrence of algal blooms and poor water quality (from the base case). If the actions as proposed are not implemented it is estimated that the value of enjoyment locals and tourists derive from visiting Port Phillip Bay would be reduced by \$39 million per year. This equates to an NPV of \$324 million over 10 years using a real discount rate of 4.5% which exceeds the anticipated costs above.

On top of these benefits, there is evidence that suggests the value of water quality within the bay being protected is significant (albeit harder to value in monetary terms) and that load reduction actions are necessary to prevent significant degradation. While the new plan does not generate these benefits in isolation, the following ecosystem services are provided by a healthy bay, some proportion of which may be lost if ecosystems and habitats are not maintained:

- *Nitrogen cycling*: the bay naturally processes more than 5000 tonnes of nitrogen per year from catchment run-off and treated wastewater discharge, thus preventing eutrophication, which leads to algal blooms, anoxia and other negative effects from excessive nutrient loading. This service is potentially worth \$11 billion compared to managing the nitrogen in the catchment through the construction of wetlands or new wastewater treatment plants.
- *Commercial and recreational fisheries*: seagrass ecosystems in the bay provide important habitat services for a number of fish species including Australian anchovy, southern sea garfish and King George whiting. The value of these habitat services is reflected in the enhancement of fish stocks that has been estimated at a minimum of \$6 million per year across the 7,350 hectares of seagrass in Port Phillip Bay. Important fisheries would otherwise be impacted and possibly decline due to the loss of important habitat and impacts of harmful algae on fish.
- *Coastal protection*: established mangroves, wetlands and saltmarshes provide in the order of \$3million per kilometre of coastal protection benefits, compared to the alternative of having to construct seawall protection for communities.
- *Carbon sequestration and storage*: each year the bay sequesters in the order of 8,500 tonnes of carbon. The economic value of this carbon capture is relatively small, likely less than \$1million each year. If all carbon stored in the bay’s saltmarsh, mangrove and seagrass habitat was released, the one-off cost to offset these emissions would be in the order of \$6 to \$25 million, based on current approaches to valuing the cost of carbon.

Source: Department of Environment Land Water and Planning, (2016) *Marine and Coastal Ecosystem Accounting: Port Phillip Bay. Report to the Commissioner for Environmental Sustainability*

In some areas, the inclusion of a new sediment load reduction target does not represent a significant change from the existing SEPP (WoV) and its Schedules given other mechanisms were in place to drive actions to reduce sediment loads.



For example, in Western Port (where no explicit load target was stipulated) SEPP (WoV) Schedule F8 required the development of plans and actions to reduce sediment loads entering the Bay. Hence, the inclusion of the new sediment reduction clause represents a continuation of activities detailed in the Schedule.

**Table 8: Impact assessment from reforms to load based targets**

	Rationale	Expected impact (relative to the base case)
Industry administration costs	Minimal anticipated costs for industry given plans to achieve the targets are to be developed by government	<b>NA</b>
Industry compliance costs	Minimal anticipated costs for industry given most actions are funded through government programs	<b>Unknown</b>
Regulatory administration costs	One-off plan development costs already incurred, but will be ongoing costs associated with undertaking actions proposed	<b>.-</b>
Water quality impact	Water quality threats more likely to be addressed given existence of updated, measurable targets. Therefore this is expected to drive benefits associated with water quality improvements	<b>+</b>
Overall impact	Given many of the proposed actions are supported by an assessment of costs and benefits, the targets are expected to result in overall net benefits	<b>Net benefit</b>

## 9.7 Recommendation

It is recommended that the suite of load based targets be updated and expanded in the Draft SEPP (Waters). The impact assessment has identified a net benefit, mostly arising from the expectations that water quality threats are more likely to be addressed with the existence of updated, measurable and efficiently set targets. The benefits associated with improvements in water quality are expected to outweigh the costs of the management actions necessary to meet the load based targets, given targets were set with these costs and benefits in mind.

The Draft SEPP (Waters) includes new (Corner Inlet and Nooramunga) and updated (Lake Wellington, Port Phillip Bay and Western Port) load based targets that cover nitrogen, phosphorous and sediment loads.

The Draft SEPP (Waters) specifies both baseline and annual load targets (tonnes per annum), for four areas. It notes that annual loads need to be progressively reduced from the baseline to the target (at a specified date) and outlines the agencies responsible for implementing management actions in order to achieve these reductions.

The agencies developing plans and implementing actions use an adaptive management approach that includes periodic monitoring, evaluation and reporting arrangements.

The four areas and associated responsible agencies are:

- Corner Inlet and Nooramunga— where the WGCMA is to coordinate management actions and implement the Corner Inlet Water Quality Improvement Plan (2013) to deliver the target specified.
- Lake Wellington — where the WGCMA and SRW must deliver load reductions through developing and implementing the Lake Wellington Land and Water Management Plan and the Gippsland Lakes Ramsar Site Strategic Management Plan.
- Western Port — where DELWP (in conjunction with Melbourne Water and the EPA) must develop and implement a plan which amongst other things incorporate the SEPP load based target.
- Port Phillip Bay — where DELWP (in conjunction with Melbourne Water and the EPA) must develop and implement the Port Phillip Bay EMP which incorporates the SEPP load based target.

# 10. Managing the discharge of wastewater to surface waters

## 10.1 Introduction

Point source wastewater discharges are a major contributor to poor water quality in sensitive inland and coastal areas. Unless adequately managed, toxicants, nutrients and sediments can be concentrated in point source discharges, leading to significant impacts on receiving waters.

The overarching legislative framework for the management of wastewater discharges is provided for under the EP Act. This enables the EPA to license, monitor and audit wastewater discharges to surface waters from scheduled premises.<sup>73</sup>

Through works approvals and licences, the EPA sets operating conditions for managing pollution and wastewater impacts at licensed sites. For significant pollution sources, such as from wastewater treatment plants, the licenses typically include site-specific pollutant discharge limits.

The Water SEPP's have a role to provide greater definition of rules and obligations in respect to these wastewater discharges. This includes details on the sort of information a licence applicant would need to provide to the EPA and details on how the EPA would approach assessing any application.

Consideration was given to moving management of wastewater discharges to regulations to give effect to the recommendations of the SPR and proposed legislative reforms. Through the consultation process, there was strong support for retaining the clause(s) relating to wastewater discharges in the revised Draft SEPP (Waters). Stakeholders acknowledged that the proposed legislative reforms may result in a more comprehensive process to move statutory requirements into other instruments following the introduction of a new EP Act. By retaining it in the proposed SEPP (Waters), it ensures regulatory consistency through the transition to new instruments post EP Act amendment and that no protection measures are "left out" of transition to new instruments without appropriate consideration. The option of removing management of wastewater discharges and moving it into regulation as part of this review was not considered further.

There are currently over 15 different scheduled categories which are licensed by EPA to discharge wastewater to surface waters. Of over 350 licences which allow for such discharges, 232 relate to sewage treatment plants. While most of these licences are held by water corporations, these clauses in SEPP (WoV) need to be applicable to a broad range of industries.

In considering these existing arrangements, the Review explored whether, as noted in the recommendations of the SPR, there was a need for more clearly identifying rules for EPA to follow and obligations on industry in respect to wastewater discharges. Furthermore, the review considered whether there were opportunities to simplify the existing clauses and better reflect the current processes used by EPA in assessing applications.

After careful consideration and stakeholder feedback the Review considers that there are some minor opportunities to improve in this area.

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73. The EP Act provides that premises, from which waste is, or is likely to be, discharged, emitted or deposited to the environment, are to be scheduled. And require that the occupier of a scheduled premises must not discharge waste to the environment unless licenced to do so under the EP Act (S20(1)).

## 10.2 Current arrangements

SEPP (WoV) includes clauses that explain how the provisions of the EP Act apply to the licensing of wastewater discharges. In the current SEPP (WoV), clauses 26- 31 provide guidance on the management of wastewater discharges, and are structured as follows:

- Clause 26 provides for offset measures to be considered in licensing a wastewater discharge to enable improved environmental outcomes to be achieved at a lower cost to the community.
- Clause 27 outlines the general provisions that need to be incorporated into licences, some considerations of the EPA, and the requirement for licence holders to implement effective wastewater management practices to avoid the generation of wastewater and minimise the impact of wastewater discharges.
- Clause 28 expands on these general provisions and provides some specific rules that EPA will follow in assessing new wastewater discharges.
- Clause 29 outlines specific obligations for existing wastewater discharges.
- Clause 30 outlines the provisions which relate to the use of mixing zones<sup>74</sup> to manage the residual impact of wastewater discharges on surface waters.
- Clause 31 outlines expectations for the management of wastewater reuse and recycling and identifies circumstances in which EPA may consider a wastewater discharge for environmental benefits.

The combined effect of these clauses is that under the current SEPP (WoV), in setting conditions on works approvals and licences, the EPA:

- requires new applicants to incorporate measures that avoid, re-use and recycle wastewater, or otherwise incorporate effective management practices to avoid discharges impacting on beneficial uses, or where this cannot be achieved, a mixing zone may be approved;
- considers the existing environmental quality of surface waters;
- considers the potential impacts of future wastewater discharges on beneficial uses;
- only approve wastewater management practices, including disinfection, that will not increase the toxicity of the wastewater discharge; and
- will not approve new discharges in specific circumstances.

SEPP (WoV) also enables the EPA to revise licences as well as requiring licence holders to assess options to maximise the implementation of the wastes hierarchy<sup>75</sup> and to develop environmental improvement plans to implement preferred options with the purposes of progressively reducing impacts of discharges on beneficial uses.

Following the Compliance and Enforcement Review in 2011<sup>76</sup>, the EPA introduced a risk based compliance and enforcement approach. This has entailed moving away from prescriptive standards to more performance-based or outcome-based standards in licencing. Increasingly, the EPA is requiring applicants for works approvals or licences to undertake risk assessments as the means for setting risk-based licence limits<sup>77</sup>, with details for this provided in guidance.<sup>78</sup>

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74. Mixing zone means an area contiguous to a licenced wastewater discharge point and specified in a licence, where the receiving environmental quality objectives otherwise specified in the Policy do not need to apply to certain indicators and some or all beneficial uses may not be protected.

75. One principle of the EP Act is the principle of wastes hierarchy. Wastes should be managed in accordance with the following order of preference: a) avoidance; b) re-use; c) recycling; d) recovery of energy; e) treatment; f) containment; g) disposal.

76. EPA (2011) Compliance and Enforcement Review: A review of EPA Victoria's approach (EPA publication 1368)

77. EPA (2017) Works approval application (EPA Publication 1658)

78. EPA (2009) Guidelines for risk assessment of wastewater discharges to waterways (EPA Publication 1287)

Risk assessments are formal processes which involve evaluating the magnitude and probability of risks posed to values from stressors. The results of a risk assessment can assist the EPA in setting risk-based licence limits which are based on the conditions of the receiving environment, rather than environmental quality objectives which may not be suitable for the circumstances of the particular discharge location.

### 10.3 Problems with current arrangements

Overall, very few issues were identified by stakeholders or EPA operational staff with both the drafting and implementation of the existing clauses.

Feedback that was received, largely focused on areas of minor improvement within the existing clauses. These focused mainly on:

- improving readability and clarity;
- solidifying the move towards a more risk based framework; and
- better clarifying the considerations taken by the EPA.

These are considered in turn.

Feedback was also received on offset measures and pollutant load reduction targets. However, these matters are considered specifically in Chapter 11 and 9 respectively.

#### 10.3.1 Improving readability and clarity

The SPR recommended that statutory policies should be reformed to make it easier for industry to understand and comply with their obligations under the EP Act. The review also recommended that only clauses in the attainment program that required statutory definition (e.g. rules for regulatory decision makers) be retained.

Some of the provisions in clauses 26 – 31 of SEPP (WoV) reflect statements of intent whereas others are more prescriptive. There remains a need within the legislative framework for the Draft SEPP (Waters), consistent with the requirements of the EP Act, to provide clear rules for the EPA to follow in licensing a wastewater discharge, and clear obligations on industry to provide certain information to EPA as part of a works approval or licence amendment application.

Nonetheless, it has been noted that the requirements on applicants and the considerations of the EPA are split across multiple clauses in the SEPP (WoV), with statements often being duplicative, making obligations and responsibility difficult to understand. All things being equal, a lack of clarity and transparency can increase the cost of regulation, by increasing both the EPA's and applicants' administrative costs.

This is because uncertainty increases the costs incurred by EPA and the applicant through the licence or works approval process. For example, applicants might not prepare sufficient information to support their applications which then requires the EPA to respond, where they might otherwise not have needed to. Similarly, potential application may be received for discharges that would never be deemed acceptable. Clear requirement can therefore dissuade unsuitable applications.

#### 10.3.2 Moving towards a risk based framework

Another key issue which should be considered in revising this clause, is whether there is an opportunity to make the provisions more risk-based rather than prescriptive. For example, in their submission to the SEPP (Waters) Review Discussion Paper in 2015, VicWater<sup>79</sup> stated:

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79. VicWater (2015) SEPP Waters Discussion Paper: VicWater submission

*'The implementation of the current SEPP has focused on inflexible licensed discharge conditions at the expense of flexible solutions... Water corporations support a risk-based approach to regulation, such that the regulator is required to focus its activities where they will achieve the greatest benefit, whilst applying consistent and clear processes'.*

The EPA has increasingly applied risk-based approaches to the setting of licence conditions, by requiring works approval and licence amendment applications to include a location specific risk assessment. For example, the EPA required water corporations to undertake ecological risk assessments (ERA) for all wastewater discharges in the 2008-13 pricing period<sup>80</sup>, and this obligation was also reiterated by EPA in the guidance it provided for the 2013-18<sup>81</sup> and 2018-23 pricing periods.

While the value of ERA is well recognised, and these are typically requested by EPA as part of a works approval or licence application, their preparation is not currently a specified obligation within the current SEPP (WoV).

### 10.3.3 Uncertain expectations

An issue which was raised as being of particular interest to water corporations was the obligations that related to the management of mixing zones. Even when stringent limits are set and strict waste minimisation is practiced, discharges may be of a poorer quality than the receiving water. It has been accepted practice by environmental regulators to apply mixing zones, as an explicitly defined area around a discharge where certain environmental values are not protected. Without mixing zones, dischargers would be required to treat water to a much higher standard which may not be practicable in all instances.

As the mixing zone identifies that an area of the environment is being compromised, there is an expectation that efforts should be made to reduce the size of the mixing zone over time. SEPP (WoV) places an obligation for licence holders to be *'continually reducing the size of the mixing zone and preferable achieving its complete elimination'*. Water corporations questioned how the obligation to 'continually reduce' was intended to apply when the opportunities to improve the quality of discharges typically only occurred during periodic plant upgrades. This wording created concerns that EPA may stipulate a reduction in a mixing zone at any point, potentially disrupting investment plans or pricing submissions.

Furthermore, water corporations noted that there may be situations where maintaining the existing mixing zone is necessary, particularly where there has been an increase in loads associated with a growing population.

The Review has provided an opportunity to better clarify the expectations for how these provisions of SEPP are intended to apply to licence holders.

## 10.4 Options

The options considered by the Review are described below. The substantive changes in these policy options relate to:

- combining and simplifying the existing clauses; and
- solidifying the move towards a risk based approach for approving works approvals and licences.

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80. EPA (2006) Principles to Establish EPA Environmental Obligations for Water Businesses for the 2008-13 Pricing Determination (EPA Publication 1069)

81. EPA (2011) EPA Water Plan 3 Guidance (EPA Publication 1406.1)

#### 10.4.1 Base Case – Status Quo

The base case in this analysis would involve including within the proposed Draft SEPP (Waters) wording equivalent to the current SEPP (WoV), as drafted in clauses 26 - 31.

This option would not attempt to modify the wording in these clauses, and so would not address the minor issues described above. Under the status quo, risk assessments would continue to be requested from applicants, but this would not be referenced in the SEPP.<sup>82</sup> This may mean applicants would be unaware of this requirement and the type of supporting evidence they may be required to prepare. It would also enable the EPA to move away from this approach in the future.

#### 10.4.2 Option 1 – Update information and improve readability

Option 1 could be considered a simplification of the current approach, focussed on consolidating and simplifying the content of the clauses, in the existing SEPP (WoV), which relate to the management and licensing of wastewater discharges.<sup>83</sup>

The consolidated content would be simplified and categorised in a way that is more easily interpreted: by specifically identifying the obligations on a works approval or licence amendment applicant and also the rules the EPA will follow in assessing an application for a wastewater discharge. Such an approach would better align with the recommendations from the SPR to improve the readability of, and language used in, statutory policies to make it easier for industry to understand and comply with their obligations.<sup>84</sup> This restructuring would also assist with these obligations potentially being moved into regulations under the future regulatory framework.<sup>85</sup>

#### 10.4.3 Option 2– Solidifying the move towards a risk based approach

Option 2 would include the changes outlined in Option 1 which consolidate and simplify the content in the existing SEPP (WoV) clauses relating to wastewater discharges, but also additional changes aimed at clarifying obligations on applicants, and in particular, supporting the setting of risk-based licence limits.

Firstly, this option would identify that an application for a wastewater discharge may be required to include a risk assessment and that the EPA must have regard to the results of this (amongst other things) when assessing an application. This risk assessment would therefore inform the setting of licence limits and discharge rates that would reflect the relative risks posed by the discharge to the particular receiving environment. The costs and level of assessments required would need to be proportionate to the potential risks and impacts on beneficial uses from the discharge, but would help ensure licences are protective of the ecological integrity of the local environment where the discharge is occurring.

This approach is consistent with how EPA is already approaching the licensing of many wastewater discharges, with a risk assessment being identified as a possible requirement in the *Works Approval Application*<sup>86</sup> guidelines. However, this would be made clearer by referencing this as a sub-clause in the Draft SEPP (Waters), ensuring that applicants are aware of their potential obligations.

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82. The EPA has been able to require such information through the powers it has under Section 20(4) of the Environment Protection Act 1970.

83. Clauses 26-31. Clause 26 provides for offset measures for wastewater discharges, clause 27 provide the principles by which wastewater should be managed, clause 28 provides specific rules for new wastewater discharges, while clause 29 provides rules for existing discharges, clause 30 provides for the management of mixing zones, and clause 31 includes provisions which provide for consideration of recycled wastewater being provided for environmental purposes.

84. DEPI and EPA (2013) Statutory Policy Review (EPA Publication 1498) Recommendation 15: Reviews of statutory policies currently underway will continue and revised statutory policies will be adapted to the new model as soon as practicable

85. This is consistent with the government response to Recommendation 15.1 of the Independent Inquiry into the Environment Protection Authority.

86. EPA (2017) Works approval application guideline (EPA publication 1658)



Secondly, it better clarifies the intent behind how mixing zones are to be managed. As discuss in section 10.3.3 a mixing zone is an area of the environment is being compromised as a result of the licenced discharge. Under Option 2, the Draft SEPP identifies that *'where a mixing zone is approved the licence holder must monitor and to the extent practicable implement measures to progressively reduce the size of the mixing zone and preferably achieve its complete elimination'*. This is supported by a new clause in the Draft SEPP (Waters) which explains how practicability is to be assessed and applied with further context of this obligation provided in the accompanying explanatory note.

#### 10.4.4 Reforms not progressed as part of this Review

Stakeholders, including the Victorian Fisheries Authority, suggested that the revised wastewater management clauses should include an obligation which would require EPA to ensure that measures adopted to manage wastewater are cost-effective and proportionate to the risks posed to the environment. These suggestions were raised in respect to members of the aquaculture industry which have licences from EPA to discharge wastewater, but are typically small operators.

The principles of environment protection provided for in the EP Act are intended to inform statutory processes and decisions made by the EPA pursuant to the EP Act. The EP Act requires that EPA must have regard to these principles in all of its assessments and decisions. This includes the principle of integration of economic, social and environmental considerations, which states that *'the measures adopted should be cost-effective and in proportion to the significance of the environmental problem being addressed'*.

However, the EP Act also includes many other principles which also have relevance to the assessment of a wastewater discharge, including intergenerational equity, biological diversity and ecological integrity and the precautionary principle. While different principles, or combination of principles, may have more relevance to particular applications, they are not to be considered in isolation. EPA has provided guidance to explain how these principles should be taken account of when making an application.<sup>87</sup>

Nonetheless, in applying these principles, EPA focuses on achieving efficient and practicable outcomes that are in proportion to the significance of the environmental problem being addressed. Furthermore, in assessing a works approval or licence amendment application, the EPA expects an applicant to demonstrate how it has balanced competing considerations to achieve the best overall environmental outcome.<sup>88</sup> As such, while it was not considered appropriate to include such an obligation in the SEPP, these concerns are addressed by the provisions of the EP Act.

## 10.5 Impacts

Given all the options retain a large proportion of the relevant existing provisions from SEPP (WoV), they are not expected to generate significant impacts.

### Option 1

It is not clear whether Option 1 would be of net benefit when compared to the base case.

It does not change the intent of the existing wastewater discharge clauses — meaning it should deliver similar environmental quality outcomes to the status quo and impose a similar level of compliance costs on industry.

That said, in making industry obligations and the EPA's required considerations clearer. Clarity and transparency can decrease both the EPA's and applicants' administrative costs associated with dealing with each other throughout the works approval and licence application process. For example,

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87. EPA (2014) Application of environment protection principles to EPA's approval process (EPA Publication 1565)

88. This is predominately through a multi-criteria analysis required to support a works approval application (see EPA (2017) Works approval application (EPA Publication 1658)

applicants might be more likely to prepare sufficient information to support their applications reducing the risks of delays due to requests for additional information to be provided. Similarly, clearer requirements can dissuade unsuitable applications.

In order for these changes to be implemented, there will be a need to change/update supporting guidance issued by EPA. The EPA has various guidelines which support the licensing of wastewater discharges, including the Works Approval Application<sup>89</sup> guideline, Licence Assessment Guidelines<sup>90</sup>, Guidelines for the Determination of Mixing Zones<sup>91</sup> and the Guidelines for Risk Assessment of Wastewater Discharges to Waterways.<sup>92</sup>

Updating these guidelines to reflect the changes proposed to the wastewater management clauses, particularly in the way clause numbers are referenced will impose one-off administrative costs on the EPA of approximately \$20,000 per guideline, or \$80,000 in total.

Overall, it is not clear whether Option 1 would generate net benefits relative to the status quo. The costs of this option are one off and relatively small (relating to the cost of updating guidelines). The benefits arising from reduced ongoing administration costs for the EPA and applicants as a result of improved clarity around obligations and processes are also likely to be small, given the majority of applicants are well informed.

By way of example if we make the following assumptions:

- The cost of updating guidance and developing additional tools is in the order of \$80,000 one off.
- There are approximately 20 works approval or licence amendment applications annually which involve a discharge to water.<sup>93</sup>
- The reforms proposed under Option 1 would need to reduce the cost per application by approximately \$280 to be of value.<sup>94</sup> This would equate to approximately 7 hours of time saved per application.<sup>95</sup>

## Option 2

Option 2 would require supporting guidelines to be updated to reflect the changes proposed to the wastewater management clauses and so would impose one-off administrative costs on the EPA (as per Option 1). Given, the reforms proposed under Option 2 really only involve documenting the current approach of the EPA, its immediate impacts are limited.

For example, this option identifies that applicants may be required to include a risk assessment, which is consistent with the current *Works Approval Application* guidelines. This is not considered to be significant as the EPA has increasingly been requiring some applicants (water corporations in particular) to undertake risk assessments as a means for setting licence limits. The cost to industry of developing risk assessments will depend on the volume of the discharge, the characteristics of the wastewater and the sensitivity of receiving waters. As such, the risk assessment should be proportionate to the level of risk posed by the discharge and the complexity of the situation, but may be in the range of:

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89. EPA (2017) Works approval application (EPA Publication 1658)

90. EPA (2016) Licence management (EPA Publication 1322.7)

91. EPA (2010) Guidance for the determination and assessment of mixing zones (EPA Publication 1344)

92. EPA (2009) Guidelines for risk assessment of wastewater discharges to waterways (EPA Publication 1322)

93. Based on 2016/17 data which was identified as an "average" year. In 2016/17 three of the 20 works approvals assessed involved a discharge to surface waters. In addition, of the 68 licence applications assessed, 18 involved a water discharge (of which 12 were applications related to water corporations).

94. This assumes there are on average 20 applications pa which involve a discharge to water. The NPV of a cost saving of \$ 280 per application for the next 20 equates to \$80,000 (using inflation rate of 2.5% and nominal discount rate of 7%).

95. Using a monetary value of time of approximately \$40 per hour based on the ABS Average Weekly Total Earnings figures for the May 2017 of \$1608.4 assuming 40 hours worked per week.

- \$10,000 - 15,000 for a desktop assessment where water quality data is already available and the risk is thought to be minor.
- \$40,000 - \$50,000 where a more rigorous assessment is required because the discharge is in a high priority river reach failing to meet SEPP objectives, or where there are rare and endangered species, or substantial other concerns. Examples are the ERA for Yackandandah by North East Water, or Longwarry by South East Water (\$50,000)(see Box 15 and Box 16)
- \$80,000 - \$90,000 where there are complex investigations required on ecological condition, including macroinvertebrates, fish and flows which require water quality sampling, or where there are multiple discharges or waterways involved. An example is the ERA for Beechworth by North East Water (\$80,000).
- The costs to the EPA of considering these risk assessments would need to be added to these estimates and is considered to be in the order of \$4,500.

It should be noted that the expectation is that risk assessments need to be proportionate to the level of risk posed and the scale of the operation.<sup>96</sup> Therefore, the EPA should not be requiring a risk assessment to be prepared on a scale that would be unreasonable for the size of the operation or the environmental risk posed. Given the EPA already requires risk assessments for large discharges and when risks are thought to be high, the additional costs would only be at the low end of the scale estimated above.

Option 2 is still considered likely to generate some additional benefits for industry as a result of making industry obligations clearer and by bringing greater transparency to the EPA decision making processes.

The purpose of these risk assessments is to enable proponents and the EPA to understand the nature and extent of impacts associated with wastewater discharges.

This is to enable the EPA to make better, more targeted and ultimately more efficient decisions on the acceptability of these discharges. Given the beneficial uses that may be affected and the costs of wastewater treatment may differ around the state, the socially optimal level of pollution abatement would also be expected to vary. For example, discharge in a pristine environment may have a greater risk than in an already degraded environment, irrelevant of cost. Therefore, in setting a licence the EPA should be looking to explicitly consider the impact to waterways and the cost of achieving a higher quality discharge.

The requirement for the EPA to have regard to the assessment outcomes will bring rigour and transparency to the setting of licence and works approval conditions. This transparency should reduce the likelihood of the EPA acting in an unreasonably risk adverse manner in the future by placing inefficient requirements on dischargers.

The risk assessments conducted to date by water corporations have proven useful to both decision makers and proponents, better enabling them to evaluate alternatives, compare or prioritise risks, evaluate the most cost effective actions to maximise environmental gains or determine the extent to which stressors must be reduced to achieve a given outcome (see Box 15 and Box 16).

While there is a cost associated with undertaking the risk assessment, these are likely to be negligible when compared to the reduction in compliance cost from enabling more appropriate limits to be set on a wastewater discharges.

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96. This is consistent with the principle of integration of economic, social and environmental considerations which requires that measures adopted should be cost effective and in proportion to the significance of the environmental problems addressed. The EPA guidelines for risk assessment of wastewater discharges to waterways (EPA publication 1287) provides guidance on deciding whether a risk assessment should be conducted and the level of assessment required.

Therefore, where not mandated it is still anticipated that applicants may look to undertake these assessments where they are considered likely to generate net benefit. For example, the case study examples shown in Box 15 below delivered benefits which exceeded the cost of the risk assessment by at least 36 times. These costs saving may or may not translate to a wider group of discharge applicants (i.e. beyond water corporations). While these compliance cost savings are not directly attributable to the Option 2 reforms, clarifying that the EPA must have regard to risk assessment outcomes would help ensure opportunities for compliance cost savings continue to be identified into the future.

Overall, Option 2 is also considered likely to generate net benefits. The costs of this option are largely the same as Option 1 and relate to the administrative costs of updating the guidelines. These costs are considered likely to be outweighed by the benefits arising from ensuring a transparent and rigorous process continues to exist for setting discharge conditions which should enable compliance cost savings to be realised into the future.

#### **Box 15 Yackandandah Ecological Risk Assessment**

North East Water operates the Yackandandah wastewater treatment plant which services the small rural town of Yackandandah in North East Victoria. Under normal operating conditions, all treated wastewater generated by the plant is used for agricultural irrigation. However, the plant has previously requested permission from the EPA to discharge to surface waters, due to having insufficient irrigation area and storage capacity during high rainfall periods. Nearby land purchases to expand the irrigation areas are unavailable or unsuitable due to types of soil and terrain.

North East Water developed an ecological risk assessment consistent with EPA guidelines to determine the probability and magnitude of these discharges impacting on the beneficial uses and values of Yackandandah Creek. It was determined through the risk analysis process that discharges from the plant posed a 'low' risk to all the beneficial uses identified. These results provided EPA confidence that such discharges could be allowed and avoided requiring a major upgrade to the plant.

While the costs of undertaking this ecological risk assessment for North East Water were estimated at \$50,000, the benefits from avoided costs were estimated to be greater than \$1,800,000 when considering the capital investment and running costs of pumping water to holding ponds, and energy costs.

Further work to improve the treatment process in the form of a flow through wetland are being evaluated to further enhance discharge quality based on the results from the ecological risk assessment.

## Box 16 Longwarry Ecological Risk Assessment

The Longwarry water recycling plant operated by South East Water typically stores treated wastewater on site for irrigation when climatic conditions are suitable. However, in periods of high rainfall, irrigation alone has not been sufficient to reduce the stored volume to a desirable level, necessitating emergency discharges to King Parrot Creek.

South East Water commissioned an ecological risk assessment to determine the effects of these discharges on the receiving environment of King Parrot Creek. The ecological risk assessment indicated that King Parrot Creek is a highly-modified waterway with poor background quality of receiving water, with the main stressor associated with the discharge being from total phosphorus. The results of the risk assessment provided confidence to EPA that a wastewater discharge could be allowed during high flows (and only discharged between the months from June through to November), when there would be sufficient dilution (20:1) to minimise the impact on the receiving environment.

Without this discharge, South East Water would have had to spend approximately \$10 million to purchase additional land to irrigate treated wastewater or expand storages. In comparison, the costs of undertaken the ecological risk assessment were \$70,000.

### 10.5.2 Summary of impacts

The expected impacts of Option 1 and 2, relative to the baseline, are summarised in the table below.

**Table 9 Impact assessment for options relating to wastewater discharge management**

Impact	Option 1	Option 2
Industry administration costs	<b>+ / Negligible</b> Small ongoing reduction in costs associated with applying for works approval and licence amendments from improved readability and hence clarity around obligations	<b>-</b> Possibility of small ongoing cost increase associated with preparing additional risk assessments (maximum likely estimate of \$135k per annum). <sup>97</sup> This may be offset by some cost saving associated with improved clarity around obligations
Industry compliance costs	<b>NA</b>	<b>++</b> On-going possible reductions in industry compliance costs associated with greater certainty and transparency around setting of discharge conditions (i.e. greater certainty and likelihood that these decisions are being informed by the risk assessments) and therefore greater likelihood that these will be set in a more targeted and efficient manner
Regulator administration costs	<b>-</b> Small one-off costs associated with updating associated guidelines (in the order of \$80k)	<b>-</b> Small one-off associated with updating guidelines and ongoing costs associated with assessing additional risk assessments

97. If we assume all applications now involve a risk assessment, then the assumption is that an additional nine annual applications would now require a risk assessment to be completed (water corporations were already required to conduct risk assessments so this figure excludes applications from water corporations). Preparing the risk assessments would cost \$15,000 for each application. This equates to \$135,000 per annum or \$1.850 million NPV for the next 20 years (using inflation of 2.5% and nominal discount rate of 7%).

Impact	Option 1	Option 2
		(maximum likely estimate of \$40.5k per annum). <sup>98</sup>
Water quality impact	<b>NA</b>	<b>NA</b>
Overall impact	<b>Unclear</b>	<b>Small net benefit</b>

## 10.6 Recommendation

Option 2 appears preferable to the base case as detailed in Table 9. Option 2 is viewed as being as likely to generate net benefits as a result of reduced industry compliance costs from solidifying the move toward a more risk-based approach.

The Draft SEPP (Waters) reforms existing arrangement in two key ways.

First, it consolidates and simplifies the content in the existing SEPP (WoV) clauses which relate to the management and licensing of wastewater discharges. This involved re-categorising the content to specifically identify the obligations on a works approval or licence amendment applicant and also the rules the EPA will follow in assessing an application for a wastewater discharge.

Second, it includes reforms aimed at solidifying the move toward a more risk-based approach by indicating that works approval and licence amendment applicants may be required to provide a risk assessment to the EPA, and that the EPA will be required to have regard to the outcomes of risk assessments. As a result, these assessments would form the basis of considerations by EPA and inform the setting of risk-based licence limits. Such an approach would be consistent with how the EPA is already approaching the licensing of wastewater discharges, but this would be made explicit, certain and transparent.

98. Assumes there are nine annual applications that may now require a risk assessment to be assessed by the EPA (water corporations were already required to conduct risk assessments so this figure excludes applications from water corporations). Assessing a risk assessments cost the EPA \$4,500 for each application. This equates to \$40, 500 per annum or \$635 million NPV for the next 20 years (including the one-off cost associated with updating the guidelines and using inflation of 2.5% and nominal discount rate of 7%).



# 11. Enabling offsets to licence discharge conditions

## 11.1 Introduction

Emerging regulatory best practice suggests that regulation should ideally be focussed on achieving the outcomes that are important to society. This leaves regulated entities free to focus on how best to manage their resources to deliver these outcomes. This flexibility enables businesses to look for and adopt lower costs ways of delivering the required outcomes. This reduces the cost of pollution abatement while still protecting other outcomes valued by society.

The Review has looked for whether there are opportunities to better enable outcome focussed, risk-based approaches. In particular, by exploring whether there are improvements that can be made to the clauses that enable dischargers to offset actions or activities that have the potential to degrade environmental quality (e.g. wastewater discharges) with actions which enhance environmental quality, provided a net environmental benefit can be achieved. This chapter identifies and assesses options in relation to this.

As discussed in section 6.2, consideration was given to moving some provisions, including offsets, to regulations to give effect to the recommendations of the SPR and proposed legislative reforms. To ensure regulatory consistency through the transition to new instruments post EP Act amendment the option of removing offsets and moving it into regulation as part of this review was not considered further.

## 11.2 Current arrangements

The EPA has a broad head of power under the EP Act to develop economic measures for the purposes of providing an economic incentive to avoid or minimise harm to the environment. While the EP Act provides for this head of power, these measures are required to be enacted through statutory policies and regulations.

Water quality offset measures were first introduced as an economic measure into statutory policies for water in SEPP (WoV) Schedule F5 (Waters of the Latrobe and Thompson River Basins and Merriman Creek Catchment) in 1995.

This option was provided to enable works approval or licence applicants to develop innovative proposals to protect beneficial uses of water affected by their licensed discharges. The EPA is responsible for issuing licences and works approvals for point source discharges. This includes setting conditions on the quality of wastewater discharges from premises that are scheduled under the *Environment Protection (Scheduled Premises) Regulations 2017*.

This provision was intended to allow the EPA to apply less stringent discharge limits in a wastewater discharge licence than would otherwise be the case, if the proponent could demonstrate that equivalent or greater environmental benefits would be achieved by carrying out alternative measures.

Similar arrangements were subsequently introduced in other Schedules and then mirrored in clause 26 of the SEPP (WoV) 2003<sup>99</sup> which enables proponents applying for an EPA works approval and discharge licence, to apply for an offset measure.

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Provisions for offset measures were subsequently incorporated into Schedule F7 (Waters of the Yarra Catchment) in 1999, Schedule F8 (Waters of Western Port and Catchment) in 2001, and then the revised SEPP (Waters of Victoria) in 2003. The Policy Impact Assessment for Schedule F7 and Schedule F8 included an example to explain how offset measures were intended to apply. When the 1988 SEPP (Waters of Victoria) was reviewed in 2003, offset measures were included.



Clause 26 also required the EPA to work with protection agencies, businesses and communities to provide guidance on developing and approving offset measures. This guidance was not developed by EPA, however, a Water Quality Offsets Framework (WQOF) was developed by the water industry in 2015<sup>100</sup> which outlined a series of stages that a water corporation should consider in developing an offset proposal.

While there has been considerable academic interest in the concept of water quality offsets, the first proposal for an offset measure for a wastewater discharge was only recently considered and approved by EPA, with the Kilmore Creek Environmental Offset Scheme developed by Goulburn Valley Water (GVW) (see Box 17 below)

#### Box 17 Kilmore Creek Environmental Offset Scheme

GVW proposed that, rather than purchasing additional land for increased winter storage and the irrigation of recycled water, and constructing new treatment works to accommodate population growth in and around Kilmore, to instead implement an Environmental Offset Scheme to achieve a net environmental benefit. This proposal agreed to by EPA will see recycled water discharged to Kilmore Creek with offset measures implemented to improve the ecological value of the Kilmore and Kurkurac Creeks. The offset scheme proposed by GVW consists of:

- Augmentation of the existing Kilmore WMF to appropriately disinfect, and reduce the nutrient concentrations in the recycled water;
- Targeted recycled water releases at specified times of the year that will support ecological values within the creek systems using the existing winter storages to control releases; and
- Catchment works that will minimise the transportation of sediments and nutrients from farmlands into waterways. These offset measures will include stock exclusion from the waterways and connection of off-stream watering points, enhancement of riparian vegetation, gully erosion works and removal of aquatic weeds.

The offset proposal is considered to represent a significant cost saving for GVW and their customers, as well as achieving a net environmental benefit at a lower cost to the community. GVW estimates that the proposal will produce a net benefit of \$3.2 million compared to the base case scenario, which involved purchasing additional land for increased winter storage and irrigation, and the construction of a mechanical treatment plant.<sup>101</sup>

### 11.3 Problems with current arrangements

While offset measures have been provided for in statutory policy for over 20 years, it has only been in recent years that licence holders have become increasingly interested in the provision. This is likely the result of population growth and climate change increasing the cost of meeting licence conditions in some areas —pressures that can be expected to continue. As a result licence holders are focusing more heavily on identifying innovative risk-based or market-based approaches to meeting environmental obligations at a lower community cost.

Therefore, it is reasonable to consider the barriers and drivers that have influenced the adoption of offset measures, and whether current arrangements in the SEPP (WoV) are in any way limiting the use of offset or economic measures, or whether more could be done to facilitate their expanded use.

As part of the Review, very few issues were identified specifically with the provisions in SEPP (WoV), rather the main barriers that were identified related to the lack of certainty with how offset measures should be developed and in turn, how they would be assessed and approved by EPA. The

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. Alluvium (2015) Water Quality Offsets Framework

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. GVW (2016) Kilmore Environmental Offsets Works Approval

development of the WQOF is likely to have assisted in addressing this barrier, by providing some clarity to industry and EPA about how an offset measure can be identified and a proposal developed.

The intent of offset measures in SEPP (WoV) is that they represent a regulatory tool to support licence holders to achieve compliance and drive environmental improvement. This has been perceived to constrain the application of offsets only to those premises subject to EPA works approvals and licensing requirements. Recognising this, some water corporations have expressed an interest in offset measures being applied to sites not licensed by EPA, specifically sewerage infrastructure. In particular, some water corporations expressed an interest in using offset measures to defer obligations to upgrade sewerage infrastructure.

## 11.4 Options

A number of options were considered for enabling the greater use of offsets and economic measures by expanding the application of the existing clause and/or through addressing uncertainty in terms of what the EPA will deem acceptable. These options are expanded upon below.

### 11.4.1 Base Case – Status Quo

The base case in this analysis would involve maintaining a standalone offset clause (as drafted in Clause 26 of the SEPP (WoV)) which would continue to enable licence holders to seek approval to offset their licence discharge conditions, subject to EPA approval.

### 11.4.2 Option 1: Clarifying where offset may be applied and developing guidance material to support applications

As discussed above stakeholders have suggested that the main barrier to the implementation of offset schemes relates to uncertainties about how offset schemes should be developed and what schemes would be acceptable to the EPA. Option 1 attempts to address this in two ways:

First, by clarifying the circumstances in which the EPA will consider offset schemes. The provisions for offset measures would come under the matters that EPA can consider in issuing a works approval or licence amendment application. The purpose of this approach would be to provide greater clarity about how offset measures are intended to be used, as well as providing triggers for proponents to consider offset measures where net environmental benefits can be achieved at a lower community cost.

Second, Option 1 would involve an action in the SEPP Implementation Plan for EPA to develop guidance on how offset measures will be assessed through a works approval and licence amendment application, and the information required from proponents. This guidance would be informed by the industry developed WQOF and any lessons learnt through the assessment of the GVW case study, and others. This would be updated with relevant information as it comes to hand.

### 11.4.3 Alternative options investigated but deemed to be unnecessary or unworkable

#### *Broadening the applications of the clause*

In general, there is the potential to use offsets, or market based mechanisms, anywhere there are clear, legally enforceable obligations imposed on polluters and there is an appropriate instrument to agree to the offset arrangements. Concerns were raised that aligning offset measures in the Draft SEPP (Waters) to licenced wastewater discharges may preclude other opportunities for adopting innovative approaches. However, this position does not seem to play out.

One area where offset measures can be used is in managing stormwater pollution. Under the VPP developers face stormwater pollution reduction targets which are contained in Guidelines referenced in the VPP. There are already provisions in the VPP to enable these schemes. Developers located within a wider drainage scheme may be able to make a financial contribution to towards providing offsite urban run-off management infrastructure. For example, Melbourne Water currently operates a

stormwater quality offset program which enables residential developers within its drainage schemes to make a financial contribution for Melbourne Water to develop stormwater management works to 'offset' impacts not treated within the development. Hence, the Draft SEPP (Waters) is not required to enable this form of offset scheme.

Some stakeholders identified that there may be potential for offsets to apply to dewatering for construction activities, or to discharges from quarries, for example. However, as neither of these examples relate to specific obligations in the Water SEPPs or have a legally enforceable instrument available to regulate against, they are not able to be addressed or adequately considered in the Review.

Instead, this and other potential opportunities could be better addressed through Action 3.2 of Water for Victoria which involves DELWP and EPA working with water corporations to look into using water quality offsets more broadly to achieve better environmental outcomes at least community cost by 2018.

Similarly, there may be opportunities for the broader use of market based instruments beyond offset schemes. For example, to deliver pollutant load reductions, however, this would also require consideration of a wider set of policy and regulatory instruments that are beyond the scope of the Review process. Similarly market based instruments more broadly could be considered in future, as part of future legislative reforms.

Extensive consultation was undertaken with the water industry to investigate how offset measures could be applied to sites not subject to EPA works approvals and licences, in particular sewerage infrastructure.

One area where the current SEPP (WoV) contains an obligation that could, in theory, be offset against is the requirement imposed on water corporations to upgrade sewerage infrastructure. However, the use of offset measures for this purpose was not the intent of the provision in SEPP (WoV). As is discussed in Chapter 13 sewerage infrastructure is designed to overflow when the hydraulic capacity of the system is exceeded, during periods of heavy rainfall. To minimise the threat this poses to the environment, SEPP (WoV) provides a minimum design standard for sewerage infrastructure, identifying that it should contain flows associated with a 1-in-5 year rainfall event.

As sewerage infrastructure is exempted from EPA works approvals or licences, this obligation is framed in a way that provides discretion to water corporations about when upgrades to meet this standard are to occur, with the expectation that investment will be prioritised to those areas which pose the greatest threat to beneficial uses. This is different from an enforceable limit set in an EPA licence, which is a legal instrument. As such, given the lack of legal instrument and enforceable limit, it is not considered appropriate to use offset measures in the SEPP (Waters) to offset the obligation to manage the risk of sewer overflows.

### ***Removal of the clause***

Some consideration was also given to whether to remove the offset clause and instead rely on the provisions for economic measures in Section 19AA(2) of the EP Act. However, this option was discounted. While the EP Act provides a head of power for economic measures, such measures need to be enabled through subordinate instruments. Removing the clause would remove the ability for EPA to agree to an offset measure for a wastewater discharge with legal certainty. Furthermore, while this provision has not been drawn on significantly in the past, it is likely to become more important in the future as the cost of meeting existing licence conditions is likely to increase. In particular, population growth will increase the level of wastewater and drive increases in the costs of complying with load-based licence requirements. As a consequence, there may be an increased value in the application of offset measures in instances they negate the need for expensive infrastructure upgrades.

## 11.5 Impacts

Table 10 shows the various expected incremental impacts of Option 1, relative to the base case, and that overall it is viewed to have a positive impact or net benefit.

Under the base case (status quo) the EPA already has statutory functions to issue works approvals and licenses, and through clause 26 in the SEPP (WoV), the ability to enable licence holders to meet these obligations through alternative means.

Hence Option 1 merely provides greater clarity around the process involved in applying for an offset scheme. This should reduce the future administrative costs of the EPA in assessing any applications and potentially reduce the administrative costs of proponents in applying for approval of an offset scheme.<sup>102</sup>

The most substantial impact would come if the increased clarity around processes increases the number of offset schemes developed.

It is reasonable to assume that water corporations would only seek approval for offsets schemes where it enables its compliance costs to be reduced. By way of example, GVW estimates that even with additional expenses for research and consultation, the proposal Kilmore Environmental Offset Scheme, will produce a net benefit of \$3.2 million compared to the base case scenario, which involved purchasing additional land for increased winter storage and irrigation, and the construction of a mechanical treatment plant.

As such, if improved clarity around processes makes a proponent more likely to develop and implement an offset scheme then this option would deliver significant economic benefits in terms of reduced industry compliance costs.

The primary cost associated with this option would be that associated with the EPA developing guidance for licence holders to explain the information requirements and assessment process for offset measures. This guidance will be based on the experience involved with assessing the GVW Kilmore Environmental Offset Scheme and so will be unlikely to impose a significant one-off cost.

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This necessarily involves proponents of offsets schemes undertaking additional research and studies to prove the suitability of their propose approach. Where this forms part of a licence amendment the proponent would be required to develop an ecological risk assessment (ERA) irrespective of whether applying for offset measures. the scope of the ERA is likely to be more detailed, as it would need to consider the downstream environment and may require additional hydrological modelling, adding additional expenses. In addition, there may be a requirement for greater consultation on the offset measures proposed than would have been required for a works approval or licence amendment application without offsets.

Table 10 Impact assessment for options relating to Offsets

Expected Impact	Rationale	Incremental impact (relative to base case)
<b>Industry administration costs</b>	Greater clarity around the offset application process should marginally reduce the administrative costs of any future proponents. This could increase the number of offset schemes developed which would lead to additional administrative costs. However, these costs would only be incurred where industry can make a compliance cost saving.	Negligible
<b>Industry compliance costs</b>	A reduction in compliance costs is expected given industry would only seek approval for offsets schemes where it enables its compliance costs to be reduced. These are expected to be significantly larger than any administration cost. For example GVW estimates they will save \$3.2m through the development of its offset scheme	+
<b>Regulator administration costs</b>	Greater clarity around the process involved in applying for an offset scheme should marginally reduce the future costs of the EPA in assessing applications leading to small ongoing savings.  There would however, be a small one-off cost associated with developing guidance for applicants (i.e. \$150k)	Negligible
<b>Water quality impact</b>	Offsets would not deliver any change in water quality outcomes as they are designed to displace alternative management actions	NA
<b>Overall impact</b>		Net benefit

## 11.6 Recommendation

As detailed in Table 10, Option 1 is viewed to have an overall positive impact or net benefit when compared to the base case. This arises from improved clarity around offset scheme requirements and processes better enabling offset scheme to be implemented (where cost effective) which would in turn reduce industry compliance costs. These costs savings have the potential to outweigh the administrative costs involved.

### Option 1 is recommended

This option involves the following reforms to existing offsets arrangements.

Clarifying in the Draft SEPP (Waters) the circumstances in which the EPA will consider offset schemes namely when considering applications for approvals or licensing of wastewater discharges.

Including an action in the SEPP Implementation Plan for the EPA to develop guidance on how offset measures will be assessed through these application processes, and the information required from proponents.

# 12. Management of onsite domestic wastewater systems

## 12.1 Introduction

In Victoria, sewage is predominantly treated either through reticulated systems or individual on-site (non-reticulated) systems. A reticulated system comprises a network of collection pipes, sewer mains and pumping stations that transports wastewater to a treatment plant. On-site domestic wastewater management systems (ODWMS) stand alone, and all waste should be treated and contained on-site, within the property boundaries. The septic tank is the most common type of on-site system.

Increasingly different treatment methods and combinations of treatment systems are now being explored to manage sewage in new developments or when upgrading existing unsewered communities. These scenarios range from fully-contained onsite treatment and recycling systems to various combinations of onsite and offsite treatment and recycling, to all wastewater reticulated offsite and treated at a central location.

ODWMS are traditionally used to treat wastewater in areas where the density of development does not justify the cost of centralised sewerage facilities, such as in regional and rural areas where the population is dispersed. It was estimated that in Victoria, in 2007, there were around 266,000 ODWMS and that the number of systems was increasing by approximately 3 per cent per annum.<sup>103</sup>

Septic tanks are an acceptable sewage solution provided the wastewater is contained and disposed of effectively on-site. If it seeps from the property it can pollute surrounding soils, waterways or groundwater, exposing the community to environmental, public health and amenity risks. Poorly treated sewage can contain pathogenic (disease causing) micro-organisms and chemicals and this has been identified as the likely cause of some incidence of infectious diseases in urban communities. Furthermore, chemicals, in poorly treated sewage pose a risk, to environmental ecosystems and high levels of nutrients can be harmful to aquatic life by contributing to algal blooms.

Environmental, public health and amenity issues arise where domestic wastewater systems are operated beyond their intended lifespan and/or because of past decisions to subdivide land into allotments that were too small and did not have suitable soil types to contain the effluent. It has been estimated that over 50 per cent of ODWMS are older than their estimated lifespan (e.g. more than 25 years old), and around 35 per cent are discharging wastewater off-site.<sup>104</sup>

Some issues have been raised about whether SEPP (WoV) is adequately driving ongoing management of poorly performing ODWMS and whether it is providing incentives for addressing risks of ineffective ODWMS in the most cost-effective way.

## 12.2 Current arrangements

ODWMS can be effective in treating wastewater in areas where the housing blocks are of sufficient size, soil types are suitable for effluent disposal, the land is not too steep, and the systems are properly maintained. However, where these criteria are not met issues can arise.

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. MAV (2008) Victorian Local Government Costs and Capacity for Domestic Wastewater Management

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. MAV (2008) Victorian Local Government Costs and Capacity for Domestic Wastewater Management



Around the state, legacy issues with ODWMS exist as a result of successive subdivision of land into allotments that were too small or solid incapable of containing effluent. This particularly occurs in areas where there has been significant population growth such as on the urban fringe.

Policy to tackle this problem has involved regulatory and planning controls, including through the EP Act and SEPP (WoV) to ensure new residential developments are serviced by appropriate wastewater management systems.

The EP Act sets out legal obligations for Councils and premise owners (53J-53O). Key obligations are:

- Council may only permit the installation of an onsite wastewater system that is a type approved by the EPA [53M(7)(a)].
- Council must refuse to issue a Permit if it considers that the site is unsuitable or the area available for the system is not sufficient [53M(6)].
- Council must refuse to issue a Permit for a treatment system (or systems) that does not treat all the sewage from the premises [53M(7)(c)].
- A person must not construct, install or alter an onsite wastewater system unless they have a Permit from Council to carry out the works (53L).
- A person must not use an onsite wastewater system until Council has inspected the system and issued a Certificate to Use. A penalty may be issued for non-compliance (53MB).
- The occupier of premises where an onsite wastewater system is installed must maintain it in accordance with the conditions in the Council Permit. A penalty may be issued for non-compliance (53N).

Under the EP Act, Council is the primary agency responsible for the management of ODWMS.

SEPP (WoV) is subordinate legislation to the EP Act and slightly expands on the elements above stating that:

- occupiers of premises need to manage their onsite wastewater system in accordance with council permit conditions and the Code of practice – onsite wastewater management and;
- municipal councils need to assess the suitability of land for onsite wastewater management and ensure that permits are consistent with the guidance provided in the Code of practice – onsite wastewater management.

In addition to regulating the installation and operation of ODWMS, the SEPP (WoV) and SEPP (WoV) Schedule F8 (Waters of Western Port and Catchment), and SEPP (WoV) Schedule F7 (Waters of the Yarra Catchment) includes that municipal councils, in consultation with the EPA, is responsible for identifying areas where systems are failing.

These areas should be highlighted in a domestic wastewater management plan (DWMP). The purpose of this planning process is to evaluate risks, identify treatment options, consult with the local community, determine the most cost effective solution (doing nothing may be the most effective solution in many instances) and agree on actions to be taken and accountabilities.

If the preferred sewage treatment option is reticulated sewerage, the relevant water corporation, needed to prepare a sewerage management plan (SMP). Clause 33 of SEPP (WoV), clause 20 of SEPP (WoV) Schedule F7 and clause 30 of SEPP (WoV) Schedule F8 provide further definition around what is involved in a SMP. The water corporation is then responsible for providing and managing sewerage infrastructure and ensuring premises are connected to sewer.

Water corporations have a major interest in the correct functioning of onsite systems under the *Water Act 1989*, the *Water Industry Act 1994* (for Melbourne metropolitan water retailers), the *Planning and Environment Act 1987* and the *Catchment and Land Protection Act 1994*. The key area of concern for water corporations is failing onsite systems which may:



- impact water quality in waterways, channels and reservoirs, especially in declared Special Water Supply Catchment Areas. As this may result in increased health risks to customers and increased operational costs to manage the problems associated with additional treatment of that water.
- lead to providing reticulated sewerage and enforcing connection to the sewer mains within the sewerage district. This involves major works and a significant capital cost that is ultimately passed on to the community.
- Programs to address legacy problems of unsewered developments or existing residences with inadequate wastewater treatment have involved very significant investment by the State Government and the water corporations. These are often referred to as backlog works which refers to the residential properties not being connected to a reticulated sewerage system. These programs usually ensue where:
  - properties are too small to enable waste to be contained and disposed within its boundaries;
  - the waste leaving the property pollutes surrounding soils, waterways or groundwater, thus causing public health and amenity risks;
  - pooling of septic tank effluent causes a health threat; or
  - the municipal council, in collaboration with the EPA, identified that the property's septic tank is an environmental, public health and/or amenity risk.

The term backlog has traditionally only been applied to metropolitan Melbourne. The inability to safely retain wastewater on-site (and the consequent environmental, public health and amenity risks) is a defining characteristic of a backlog property (Box 18).

#### **Box 18 Investment in backlog sewer works**

Since the 1970s, successive governments have established sewerage programs to address these risks by providing affected properties with access to a reticulated sewerage or other appropriate wastewater systems.

Backlog works in a declared sewerage district are developed and funded by water corporations and directly affected property owners. There has been a dramatic fall in the estimated number of estimated backlog properties since 1970. From around 173,000 to around 45,000 properties. In metropolitan Melbourne, South East Water (SEW) and Yarra Valley Water (YVW) spent \$109 million on backlog works to service 10,498 properties over the period 1995-2005.<sup>105</sup> However, investment continues. In the 2013 -2018 Water Price Review proposed funding for backlog sewerage programs in Metropolitan Melbourne is approximately \$225m for investment by SEW and YVW. This increase in forecast investment suggests the cost of servicing remaining backlog properties is increasing.

Backlog works in areas of regional Victoria (outside declared sewerage districts) have often received partial government seed funding most recently through:

- The New Town Sewerage Initiative that commenced in 2000 (expenditure of \$22million over 3 years for 54 towns involving an estimated 17,500 properties) and
- The Country Towns Water Supply and Sewerage Program of 2005-2008 (\$42 million over 3 years to service an estimated 9,000 properties).

Government typically paid 25% of the costs, property owners contributed about 10% through special charges and the water corporations covered the remainder.<sup>106</sup>

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. Victorian Auditor General's Office (2006) *Protecting our environment and community from failing septic tanks*

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. Victorian Auditor General's Office (2006) *Protecting our environment and community from failing septic tanks*

## 12.3 Problems with current arrangements

The relative size of the water quality threat posed by ODWMS is uncertain. There are a number of reasons for this as detailed below.

Municipal councils are not required to report on their monitoring and compliance activities. As a result, there is no collated source of information on the extent of implementation / compliance with a DWMP. It is thought that most municipal councils have produced a DWMP however their current status, with regards to implementation of actions, is unknown. Data obtained in 2014 by DELWP highlighted that of 37 councils surveyed in 2014, 35 advised they had an DWMP ranging in age from 2006 to 2014 and two advised they did not have a plan.

As a diffuse source of pollution, the relative contribution of a failing or inadequate ODWMS to poor water quality is unclear. It is often difficult to identify and measure the specific cause-and-effect relationships between ODWMS and the quality of surrounding water resources.

The key water quality problems that have emerged in respect to ODWMS primarily relate to issues with their effectiveness given poor siting, and/or poor maintenance.

In addition, individual ODWMS can become an inefficient wastewater management option for a region, as a result of changes in the density of development making the provision of centralised sewerage facilities justifiable (e.g. in areas where there has been significant population growth such as on the urban fringe). Legacy issues associated with this have largely been addressed by building new sewerage schemes at priority locations where these are affordable and cost effective. High priority locations have been addressed. Addressing issues in the remaining locations may be physically or geographically more challenging, and the costs per connection are typically higher (see Box 18). Nevertheless, this issue needs to be kept under review as the population of Victoria continues to grow and relocate.

Three key issues have been identified as potentially hampering the effectiveness of the SEPP (WoV) in addressing the risk of ODWMS to water quality. These relate to:

- the effectiveness of controls on ODWMS installation and maintenance;
- barriers to wastewater being managed in the most efficient way; and
- duplication of the EP Act.

These issues are discussed in turn.

Furthermore, the clauses link to outdated information which needs to be updated to ensure decision making uses best available information.

### 12.3.1 Effectiveness of controls on systems installation and maintenance

For many regional and rural areas, onsite wastewater treatment systems will continue to serve as the appropriate sewage treatment method given high costs of connecting to reticulated systems. In these areas, there is still an ongoing need to ensure that wastewater can be safely managed onsite.

Issues associated with the effectiveness of ODWMS more generally are likely to arise from the fact that the cost of ODWMS failure are uncertain and often fall on parties downstream in the catchment and beyond. In the presence of such costs (externalities) those involved in their siting, installation, operation and management do not have sufficient incentives to deliver pollution abatement.

This issue is exacerbated by the fact that it is difficult to identify and then hold a specific party to account for a decline in water quality associated with ineffective ODWMS— this includes both occupiers and local government.

This means municipal councils have a reduced incentive to respond to the water quality threat. Taking action (in relation to planning, management or monitoring on the problem) would impose certain costs on municipal council while any benefits (in terms of water quality improvements) would be uncertain and likely to accrue to individual and industries beyond their local area. Given municipal council priorities are informed by competing interests from the rate paying community management of downstream impacts may not be accorded high priority.

Similarly, occupiers and land-owners have limited incentive to maintain their system where the pollutants do not impact on their property or water source, or impacts are difficult to directly attribute to certain occupiers.

The SEPP already addresses this by imposing requirements on:

- occupiers/owners in terms of managing their systems in accordance with permit conditions and the Code of Practice.<sup>107</sup>
- municipal councils in terms of assessing land capability and ensuring sewerage is provided for at the time of subdivision, and developing the DWMPs.

However, there is limited visibility or oversight of the extent of municipal council action in this space making it difficult to identify the relative success of these regulatory measures. Anecdotally there seems to be a spectrum where some councils are actively implementing their DWMPs to manage onsite domestic wastewater systems in their municipality, whilst others have a plan but implementation of the plan is less obvious.

Stakeholders' other concerns predominately relate to capabilities of councils to undertake some of these tasks. In particular, there is a continued risk of ineffective ODWMS siting and maintenance, because of a lack of oversight of ODWMS and managing the risks.

While this may be an issue, it can be resolved through tendering work and hiring experts as required, and probably emerges from the lack of priority given to ODWMS issues more broadly. Hence the Review has focussed on addressing the requirement to continue to plan and manage systems, and monitor the DWMP implementation over time.

### **12.3.2 Barriers to managing wastewater in the most efficient way**

DWMPs mostly assist in planning and prioritising the provision of reticulated sewerage systems. If a municipal council identifies a number of failing onsite systems or unsuitable allotments in an established area, then the SEPP (WoV) makes provision for the consideration of domestic wastewater management options in these areas.

However, stakeholders have pointed to disagreements often arising between water corporations and municipal councils in relation to what sort of action should be proposed in a DWMP. In particular, anecdotal evidence suggests reticulated sewerage is often the only option in a DWMP, especially if the water corporation isn't engaged during its development.

Other alternative solutions such as enhanced onsite domestic wastewater treatment and localised off-site treatment solutions are often not considered. This may be for two reasons. First, by 'requiring reticulated sewerage' the responsibility for resolving the issues falls to water corporations and removes ongoing responsibilities on council. Secondly examples of other innovative options, combination of septic upgrades and reticulated sewer are only starting to be piloted.

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*Code of Practice – Septic Tanks Onsite Domestic Wastewater Management 2016* – Publication 891.4. This specifies requirements for planning, siting, installation, maintenance and monitoring of onsite systems.

In relation to new developments, the current SEPP (WoV) clause 32 wording could be interpreted to restrict the alternative treatment options that can be considered where ODWMS are inappropriate. Therefore, innovative solutions are often not explored in new development areas.

### 12.3.3 Duplication of sewerage planning processes

Possibly in acknowledgement of these issues described above in section 12.3.2 the SMP that must be prepared by water corporations are required to demonstrate the detailed assessment of the wastewater management options irrespective of what recommendations were made as part of the DWMP.

### 12.3.4 Duplication of requirements in the EP Act

Under the EP Act (section 53N) occupiers of premises with an onsite system are ultimately responsible for ensuring their system is in working order and well maintained in accordance with the requirements of their permit. The SEPP (WoV) clause 32 largely replicates this requirement, with the difference being that the EP Act requirement only relates to permitted septic.

However, 11 Councils were surveyed in 2008 and their statistics suggest that only 40% of septic have a permit<sup>108</sup> (as those installed prior to 1990 did not require a permit). These occupiers are not required to hold a permit therefore enforcement of permit conditions is not applicable. Hence, the EP Act obligation does not cover non permitted tanks. This could be addressed through broader EPA Regulatory reform process which includes consideration of regulations and is outside the scope of this Review.

## 12.4 Options

A number of reform options were considered as part of the Review and are described below.

### 12.4.1 Base Case – Status Quo

The base case in this analysis would involve including within the proposed Draft SEPP (Waters) wording equivalent to the current SEPP (WoV) as drafted in clause 32-24.

This option would not leave ODWMS unregulated, and Councils would continue to be responsible for planning ODWMS appropriately to avoid environmental and health impacts:

- Municipal councils would continue to develop risk based DWMP to identify, prioritise and where necessary, act to address existing wastewater problems would continue to exist.
- Water corporations would be required to develop SMPs in response to the DWMP.
- Where sewerage is provided, water corporations would ensure premises must be connected to the sewerage system, unless wastewater is re-used in accordance with guidance provided by the EPA and is retained on-site

This would deliver outcomes similar to today. However, it would not address any of the issues outlined above. In particular, there may be limitations on the effectiveness of decision making in respect to ODWMS management, barriers to implementation of the most effective wastewater management option would remain. As a result, there would be no expected change in water quality outcomes.

### 12.4.2 Option 1: Update information and address duplication

Option 1 could be considered a light handed regulatory approach which focusses on using information and education to improve the effectiveness of council decision making in relation to setting controls on and managing ODWMS installation and maintenance). Improving the effectiveness of decision making, could be expected to lead to improved water quality outcomes.

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. MAV (2008) Victorian Local Government Costs and Capacity for Domestic Wastewater Management

This option would involve:

- Including within the Draft SEPP (Waters) implementation plan measures to improve understanding within councils and increase councils' and rate payers' capacity to manage ODWMS. This could involve:
  - Scoping and updating existing technical advice — Revising the Code of Practice –Onsite Wastewater Management 2016, Land Capability Assessment (LCA) framework material and ministerial guidelines and updating DWMP guidance
  - Determining the feasibility of an automated tool to determine/assess permit eligibility for housing/developments.
  - Determining the feasibility of providing information on sampling and assistance in developing a generic technique for determining where ODWMS are likely to have failed.
  - Determining the feasibility of developing a system to accredit LCA providers (to ensure the standard of LCA).
  - Preparing a variety of case studies to highlight how current and legacy issues have been dealt with.
  - Developing public education materials to assist councils inform ratepayers about ODWMS and why they need to be effectively managed.
- Minor revisions to the existing clause wording in the Draft SEPP (Waters) to reference updated guidance material. In particular, within open potable water supply catchments, the DWMP would need to be prepared in accordance with the Guidelines for Planning permit applications in open, potable water supply catchments, 2012, as amended.
- Removing requirement on occupiers to maintain their onsite systems in order to remove duplication of the EP Act which already requires this in accordance with the conditions on the permit issued by municipal council (53N).

#### **12.4.3 Option 2: Increased transparency around DWMP actions and addressing duplicative processes**

The option would involve the reforms described under Option 1 above. However, it would also include a number of other reforms.

The first set of reforms are aimed at increasing transparency around municipal council activities in respect to onsite domestic wastewater management. This transparency would facilitate public oversight of council DWMP implementation and would be intended to incentivise greater action on the part of councils. Improving the scale of implementation of the DWMP (driven through accountability for achieving plan outcomes) could be expected to lead to improve water quality outcomes. The Draft SEPP (Waters) would include additional requirements describing that for municipal councils should:

- Review and update its DWMP at intervals of no more than five years.
- Conduct an audit to assess progress against the DWMP and publicly report on this every three years.
- Water corporations to report to councils, five yearly, on their progress in assessing and implementing the preferred wastewater management solutions in areas where a DWMP identified action was needed.

The second set of reforms are aimed at enabling more innovative, cost-effective wastewater management approaches to be adopted by addressing the barriers described in section 12.3.2. This would be achieved through the following.

- The role of water corporations in the DWMP process would be strengthened in order to incentivise the most cost-effective wastewater management actions. This would be achieved by adding a requirement that councils must consult with water corporations when developing and implementing

the DWMP. In special water supply catchment areas, the DWMP must be prepared or reviewed in consultation with water corporations and in line with Departmental Guidelines.<sup>109</sup>

- In combination with this there would no longer a requirement for water corporations to prepare and submit a SMP to government. Instead water corporations would provide a response to the DWMPs which would specifically build upon the DWMP by:
  - reviewing the preferred solution;
  - outlining the preferred solution cost, funding strategy and timeline for implementation;
  - justifying the required works in relation to other sewerage connection works within the water corporation’s sewerage district; and
  - providing municipal councils with a five-yearly report on the progress of the response.
- Reinforcing municipal councils can consider alternative off-site treatment options, as well as reticulated sewerage, when assessing planning applications for subdivisions, as allowed for in the Code of Practice –Onsite Wastewater Management 2016.

#### 12.4.4 Reforms not progressed as part of this Review

##### ***Moving ODMWS obligations into regulations***

Aspects of the onsite domestic wastewater management framework are currently managed under various instruments, including the EP Act, *Planning and Environment Act 1987*, *Water Act 1989*, the SEPP (WoV) and its Schedules, and a Code of Practice.

The 2006 VAGO audit: Protecting our environment and community from failing septic tanks<sup>110</sup> recommended that the current regulatory framework could work better in alternative instruments. The Review forms part of this recommendation.

The current process overhauling Victoria’s environment protection statutory framework includes reviewing section 53 of the EP Act and enabling the creation of new regulations pertaining to septic tank systems. As part of the Review an objective was to ensure there is no net loss of power when SEPP (Waters) takes effect in 2018, and the overhauled EP Act and subordinate instruments that come into effect in 2020. We do not want to create a gap by removing onsite domestic wastewater management clauses from SEPP (Waters) before the new EP Act and associated regulations take effect. Therefore, removal of the clauses for future incorporation into regulations was not considered a viable option at this point because it creates a short term gap in management.

##### ***The EP Act reform process***

The EP Act reform process will consider a number of issues raised as part of this process that were not able to be addressed within the SEPP review. These include:

- The need for the EP Act enforcement powers to require improvements or rectification works be carried out on ODWMS.
- Current limitations with the EP Act permitting powers in respect to local government’s ability to withdraw/amend/transfer existing permits.
- Dealing with all tanks (permitted and non-permitted)
- Cost recovery for local government services

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. Department of Sustainability and Environment (2012) *Planning permit applications in open, potable water supply catchment areas* November 2012.

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. VAGO (2006): Protecting our environment and community from failing septic tanks



- Inquiry into EPA, Government Response: More effective local response-Recommendations 18.1-18.3.<sup>111</sup>

### ***Make water corporations responsible for the development of the DWMP***

An alternative way of encouraging greater management of the risks of failing ODWMS may be to move some responsibilities for onsite domestic wastewater management from councils to water corporations. This would include:

- responsibilities for monitoring whether the operation and maintenance of ODWMS's are in-line with the EPA Code of Practice, and
- for developing the DWMP.
  - Responsibility for siting and design would still rest with councils through their statutory planning processes.

Essentially this would make a water corporation largely responsible for providing, managing and maintaining sewerage infrastructure whatever form this takes (whether it is on-site or reticulated).

The rationale for this option is that compliance of water corporations could more readily internalise all the costs, benefits and externalities such that they are more likely to make investment decisions that are of net benefit. It may also be easier to assess the degree of compliance or risk management being undertaken in respect to sewerage management as under these arrangements the major source of human pathogens would primarily be the responsibility of water corporations.

There are provisions contained in the *Water Act 1989* for water corporations to create by-laws about private works and septic tank systems, in addition to powers in relation to septic tanks within declared sewerage districts. However, clarity in relation to when or why a water corporation would use these particular powers has never been sought by water corporation or considered by government. Unlike the EP Act, the *Water Act 1989* has clear provisions for enforcing maintenance of onsite systems and cost recovery mechanisms.

A reform of this nature would require revisions to the EP Act and *Water Act 1989* and so has not been progressed as part of the Review.

In any case this may introduce a different, equally problematic incentive problem. While water corporations may have more technical capacity and potentially greater access to funding for works in this area, as regulated monopolies they may also be incentivised to expand their services beyond what would be optimal.

### ***Comparative benchmarking***

Some consideration was given to whether the EPA or DELWP should undertake comparative benchmarking of municipal councils activities in relation to ODWMS. This would involve collecting and auditing information from councils and publicly reporting on the relative degree of actions undertaken, for example by producing a league table.

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111. EPA Inquiry recommendations included:

18.1: Local response to pollution and waste complaints is an important role for government. Commencing in 2017, government will work with the local government sector to design and implement a pilot program of local government environment protection officers, working alongside the EPA and with authority under the EP Act.

18.2: Government commits \$4.8 million to deliver a pilot local government environment protection officer program in 2017–18. Informed by the pilot, government will consider further investment to expand the program.

18.3: Oversight, strategic coordination, standard setting, technical support, training and capacity building by the EPA will be essential to support local government environment protection officers.



Comparative benchmarking of this form is likely to deliver greater benefits when compared to general transparency provision (as proposed in Options 1 and 2) when the public is unable to assess the appropriateness of the council's activities.

Given this approach would introduce additional administrative cost and in the absence of compelling evidence on the additional benefits it may generate the review did not further consider this option.

### **Removal of the clause**

Some consideration was given to whether the clauses relating to ODWMS could be removed. Under this arrangement municipal councils would continue to be required to manage tank permit applications, under the EP Act. However, the EP Act is silent on planning to limit the risk of poorly functioning ODWMS.

Therefore, as discussed in section 12.3.1 Councils may not always have a sufficient incentive to respond more broadly to the water quality threat posed by failing ODWMS. This is because taking action (in relation to planning, management or monitoring of the problem) would impose costs on councils while any benefits (in terms of water quality improvements) would be uncertain and possibly accrue to individual and industries beyond their local area.

The SEPP (WoV) is also the instrument that assigns responsibilities and costs to the developer for sewage management by stating that all subdivisions must provide sewerage prior to subdivision. Therefore, removal of any ODWMS clauses may result in the need for future costly remedial action that would have to be funded by local communities, water corporations and governments as has happened in the past (i.e. it would create a new set of legacy problems of unsewered developments as discussed in section 12.2).

## **12.5 Impacts**

### **12.5.1 Option 1**

Option 1 is considered likely to generate net benefits relative to the status quo.

This is a light handed option which relies on actions being undertaken by DELWP and the EPA as part of the implementation plan with very minimal changes to the wording and intent of the Draft SEPP (Waters). As a result the costs and benefits of this option are driven by the implementation actions proposed.

The costs of this option are one off and relatively small, relating to the cost of developing tools and technical advice to support municipal councils.

However, given stakeholders have pointed to a lack of understanding (by property owners) about the limitations and the appropriate maintenance of ODWMS, as contributing to risks (see section 12.3) it seems credible to assume that addressing this would generate benefits that may outweigh the costs.

These benefits are expected to arise as a result of additional information and education being made available to improve the effectiveness of council decision making in relation to setting controls on ODWMS installation and maintenance and landholders in managing their septic tanks.

Improved management of the risk could be expected to:

- Improve public health by reducing incidents of infectious disease outbreaks as a result of direct exposure to pathogens in impacted downstream water sources or through consumption of contaminated food or seafood (see Box ).
- Reduced downstream water treatment costs.
- Improve agricultural productivity in adjacent areas by reducing the build-up of salt concentrations and nutrients in soils and reducing water table levels and soil waterlogging.

- Improve environmental health by reducing the risk to downstream ecosystems (see Box )

Monetising the value of all these benefits would be challenging, but it would seem reasonable to assume that the cost would be outweighed by the benefits. By way of example if we make the following assumptions:

- The cost of updating guidance and developing additional tools is in the order of \$800,000 one off.
- The cost per patient of a hepatitis A infection is approximately \$12,300<sup>112</sup>;
- Poorly functioning ODWMS can lead to Hepatitis A outbreaks similar to that experienced in NSW in 1997, where 444 people were infected (see box below). This equates to a cost of \$5.5 million per incident.

The reforms proposed under Option 1 would only need to reduce the likelihood of such an incidence by 15% to be of value. This does not take into account the other impacts for public health, environmental health and agricultural productivity that can arise from reducing contamination through improved ODWMS.

### Box 19 Human health and environmental risks from poorly treated sewage

#### Human health risks

Failing ODWMS can present a potential risk to human health as poorly treated sewage can contain pathogenic (disease causing) micro-organisms and chemicals.

Public health risks can arise through direct exposure to pathogens in downstream water sources impacted by poorly treated sewage. For example through recreational pursuits or through the use of affected bore water at public toilets or through resident using this water directly for garden watering.

If downstream water sources are contaminated this also has the potential to result in exposure to pathogens through the consumption of contamination of crops which rely directly on these water sources.

The Mornington Peninsula Shire Council recently identified unsewered areas in the Nepean Peninsula were significantly contributing to these risks. A South East Water study in 2004 found that onsite systems were a major contributor to elevated nitrate and bacteria levels in the shallow groundwater aquifer throughout the region, which is directly used by local residents and market gardeners. In July 2007, the Council introduced a new wastewater management policy to minimise the groundwater risks posed by onsite systems and SEW is implementing a backlog sewerage program in the area to reduce the impacts from onsite systems.

Poorly treated sewerage has been identified as the likely cause of some incidence of infectious disease outbreaks as a result of consumption of contaminated seafood. Two such incidences are described below.

- A viral outbreak of waterborne Hepatitis A in Wallis Lake, New South Wales (NSW) in 1997 affected approximately 444 people throughout Australia through the contamination of shellfish.<sup>113</sup> The investigation which followed concluded that these people had consumed shellfish that had been contaminated by human faecal waste. Although the source of the waste was not able to be determined, failing onsite systems were considered a likely source due to high rates of system failure and because of the coarse sandy soils and high groundwater table in the area.
- In 2005 SafeFoods NSW found human viruses in oyster tissue in the Tilligerry Estuary near Port Stephens in NSW.<sup>114</sup> A number of oyster farms were closed and prevented from harvesting oysters for commercial

112. Costs based on estimates contained in *The Cost of Hepatitis A Infections in American Adolescents and Adults in 1997* (source: <http://onlinelibrary.wiley.com/doi/10.1002/hep.510310229/pdf>). These estimates have been converted into AUD using a long term exchange rate of 1 USD:1.35 AUD and by inflating 1997 value to 2017 dollars using ABS CPI Index numbers for health (Series A233111C).

113

Geary, P, (2004) Onsite Domestic System Effluent Tracing in a Coastal Catchment, 10th National Symposium on Individual and Small Community Sewage Systems proceedings, American Society of Agricultural Engineers, St Joseph, Michigan, 722-732.

114

Geary, P, Lucas, S, Weekes, A, and Horn, K, (2008) Onsite Wastewater Treatment using Sand Mounds near Port Stephens, NSW. Onsite and Decentralised Sewerage and Recycling Conference Benalla, Victoria; pp 325-333.

sale for more than 18 months. Domestic onsite systems were considered to be the primary source of faecal contamination. It was established that pollution of Tillgerry Creek was not just a problem for the oyster farmers, but if left unchecked, could lead to significant public health risks and further restrictions on fishing, boating, swimming and other uses of the creek. This in turn, could have negative impacts on local businesses, tourism and the economy.

#### **Environmental Risks**

- For the environment, failing ODWMS can present risks to eco-systems, by:
- contaminating groundwater with nitrate, ammonium and faecal pathogens;
- contributing nutrients to water catchments, stimulating algal growth and reducing aquatic ecosystem health by reducing oxygen levels;
- causing dieback of native vegetation and stimulate prolific weed growth; and
- harming aquatic life through the release of chemical and toxicants.

#### **12.5.2 Option 2**

Option 2 is also considered likely to generate net benefits. It includes the costs and benefits associated with Option 1, however, it also includes the following costs:

- Additional ongoing administrative costs for councils which relate to the additional review, audit and reporting requirements (relating to DWMP);
- Ongoing costs of DWMP implementation; and
- A small amount of additional administrative costs for water corporation. This relates to increased involvement in participating in the development and review of a DWMPs which is partially offset by reductions in obligations for reporting against the SMP (5 yearly instead of three yearly).

The benefits of this option are that it is expected to lead to additional action in managing risk of ODWMS, by municipal councils, where risks are high and so improve water quality outcomes (where the benefits exceed the costs).

It also raises the prospect of possible reductions in the costs of sewerage provision going forward by enabling more innovative wastewater management responses through greater involvement of water corporations early in the process.

These costs are considered likely to be outweighed by the benefits arising from improved water quality (as discussed in Option 1 and the box above) and the prospect of possible reductions in the costs of sewerage provision going forward.

By way of example if the combined administrative cost of this option equates to \$24.6 million NPV for the next 20 years as a result of

- The cost of updating guidance and developing additional tools is in the order of \$800,000 one off (as per Option 1).
- The costs of increased reporting by councils represents \$19.5 million dollars for the next 20 years.
- The cost of increased involvement of water corporations in the DWMP process (less reduction in SMP costs) is of the order of \$4.3 million over the next 20 years.

And we make the following assumptions in respect to potential benefits:

- The cost per incident of a hepatitis A infection is approximately \$5.5 million as per Option 1.
- The saving in the cost of servicing by adopting alternative approaches to reticulated sewerage could be around \$26 million based on Park Orchard Case study (see box below).

To be of net benefit the reforms proposed under Option 2 would only need to prevent a single incidence of such an outbreak and lead to a substantial revision of the proposed servicing strategy in one area, in the next 20 years.

### Box 20 Park Orchards Case study

A 2013 trial project *the Park Orchards sewerage project* emerged out of desire to investigate alternative approaches to traditional sewerage servicing approaches. This is part of Yarra Valley Water's (YVW) Community Sewerage Program.

The field trial involves up to 100 properties which represents up to 10% of the properties in the Park Orchards Sewerage Area (1,250 in total) and was considered of suitable scale to return meaningful results.

The estimated costs – Park Orchards Trial (as at June 2016)

	YVW NPV 25 yr	
	Cost	Saving
<b>Hybrid Sewer</b>	Unknown	
<b>Smart Pressure</b>	\$37M	0%
<b>Onsite system - Customer Managed</b>	\$27M	27%
<b>Onsite system - YVW managed</b>	\$26M	30%

Note – savings have been calculated relative to the 'Smart Pressure' option, which is the cheapest reticulated sewerage option.

Description of options:

1. Hybrid system – YVW's original servicing plan. Includes a combination of gravity and (traditional [i.e. not smart]) pressure sewer pipelines to service 1,200 properties.
2. 'Smart' pressure system – uses SCADA to get pumps to 'talk' to each other, which means YVW can minimise pipe sizes.
3. Onsite systems – Customer managed. Wastewater is treated and managed using onsite (septic) systems. Capital expenditure includes the upgrade of septic systems on 1,000 properties and a 'cluster system' (includes pressure pumps, pressure pipe, local treatment) to treat excess flows from some properties.
4. Onsite systems – YVW managed. Wastewater treatment using onsite systems. Capital expenditure includes upgrade septic systems on 1,000 properties and the 'cluster system as per option 3. However, this option assumes YVW upgrades and manages the onsite systems.

Whilst this case study suggests significant savings can be made from adopting alternative to reticulated sewerage, it is worth noting uncertainties<sup>115</sup> remain about the effectiveness of a managed, on-site approach.

115 The uncertainties include:

- the role of water authorities, other agencies and private citizens in a managed solution approach;  
There are limited examples historically on how a managed solution approach can be effectively designed and achieved, and where multiple parties play a role in the oversight of onsite domestic wastewater management systems. As part of the trial a Memorandum of Understanding was signed by YVW, Manningham Council and the EPA (with DELWP an interested party) to clearly define the roles and responsibilities of each party during the trial. At the completion of the trial all parties will jointly evaluate the trial results and agree on the preferred on-site management model for the remaining lots in Park Orchards. YVW will use the trial to explore what roles they could take on in the future regarding use and management of onsite systems.
- the policy, legislative and regulatory support;  
The regulatory framework for onsite domestic wastewater management systems contains many players and legal instruments, and is not effective in managing on site systems. There are issues with these current instruments and YVW will use the trial to generate a more detailed appreciation of whether onsite servicing is an option and feed this knowledge into the current legislative reform process.
- the use of risk based regulatory instrument;  
There are uncertainties surrounding the implementation of an onsite servicing approach. The trial area properties were classified according to their potential to successfully contain their wastewater onsite using modern onsite wastewater management systems. An assessment is completed on the level of risk the property presents to the environment and public health if serviced with an onsite containment approach

## Outcomes of the trial

The key outcomes of the trial will be:

- Informing future policy development for the Community Sewerage Program.
- A more detailed understanding of the performance on onsite systems and what is involved in constructing and managing them.
- A determination of the appropriate management model for onsite systems (i.e. YVW or landowner).
- Whether YVW will consider onsite servicing for the properties on our Program

An understanding of customer acceptance of onsite systems as a servicing approach.

Source: Yarra Valley Water (2017)

**Table 11 Impact assessment for options relating to ODWMS**

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(Low, Medium, High risk of pollution), as per the Code of Practice for Onsite Wastewater Management (2016) and the MAV Victorian Land Capability Framework (2014). The results of the risk based approach determined the ultimate servicing option for each property.

- the efficacy in achieving public health and environmental protection outcomes;  
The use of an onsite servicing approach has the potential to reduce servicing costs and achieve similar environmental performance to reticulated sewerage. The trial is testing whether a managed onsite upgrade and maintenance solution offers the most sustainable wastewater service to Community Sewerage Areas (CSA's) where properties are capable of achieving containment on site. Previous case studies have indicated investment in upgrades of existing systems will not achieve the long term environmental and health outcomes sought if the maintenance of systems is not completed. A key component of the trial is the quantitative measurement of the environmental performance of the onsite servicing approach.
- cost and management models; and  
To date councils have generated highly variable performance outcomes in terms of system maintenance compliance. This is generally associated with funding levels assigned to supervisory staff roles. Through the trial YVW will generate a more detailed appreciation of whether onsite servicing is an option that should be pursued as a sustainable servicing option and which of the identified models should be considered further.
- community acceptance.  
YVW is undertaking a social research study as part of the trial. The social research will document attitudes to, and knowledge of, onsite systems and explore customer acceptance of onsite servicing. This will be used to inform future management options in Community Sewerage Areas.

Impact	Rationale	Option 1 (relative to base case)	Rationale	Option 2 (relative to base case)
<b>Industry administration costs</b>		NA	<p>Increase in water corporations administrative costs.</p> <p>Increase costs for some water corporations from increased involvement in participating in preparing DWMP and preparing a response in areas where they were previously not consulted.<sup>116</sup></p> <p>Decrease in costs for other water corporations that were previously required to prepare a SMP across the region.<sup>117</sup></p>	-  Small (In the order of \$316k pa, \$1.5million NPV for the next 5 years <sup>118</sup> )
<b>Industry compliance costs</b>		NA	<p>Possible reductions in compliance costs.</p> <p>Increases the likelihood of efficient investment in sewerage infrastructure by providing an obligation on Councils to consult with water corporations.</p>	+  Uncertain cost saving
<b>EPA and council administration costs</b>	<p>Small increase in one-off state government administrative costs</p> <p>Cost of developing tool to aid in assessing permit eligibility</p> <p>Collating and updating technical advice.</p> <p>Disseminating tools and</p>	. -  Small one-off costs (In the order of \$800k) <sup>119</sup>	<p>Costs as per option 1 <i>plus</i></p> <p>Increase in ongoing reporting costs for municipal councils relating to:</p> <p>Developing/ updating their DWMP (5 yearly)</p> <p>Audit and reporting on progress against the DWMP (3 yearly)</p>	-  Medium sized ongoing costs (In the order of \$1 million pa, \$4.7million NPV for the next 5 years <sup>120</sup> )

116. Assumes there are 79 Councils, with the cost of a water corporation's contribution and response to a DWMP being \$100,000 per council every 5 years. This equates to \$1.58 million per annum or \$21.7 million NPV for the next 20 years (using inflation of 2.5% and discounting rate of 7%)

117. Assumes there are 79 Councils, and the cost of a water corporations of preparing a SMP is \$400,000 for 4% of councils every year. This equates to \$316k per annum or \$4.3 million NPV for the next 20 years (using inflation of 2.5% and discounting rate of 7%)

118. The combined effect of these changes equates to a cost increase of \$316k per annum or \$4.3 million NPV for the next 20 years (using inflation of 2.5% and discounting rate of 7%)

119. Assume \$200k per task listed in the table

120. Assumes there are 79 Councils, with the cost of updating/developing a DWMP of \$200,000 per council every 5 years, however, this option only increases this task for 20% of Councils and the remaining 80% were already undertaking this. The cost of reporting on progress against the DWMP is \$30,000 per Council every 3 years. This equates to \$1.42 million per annum or \$19.5 million NPV for the next 20 years (using inflation of 2.5% and discounting rate of 7%)

Impact	Rationale	Option 1 (relative to base case)	Rationale	Option 2 (relative to base case)
	guidelines  Developing and disseminating public education materials.			
<b>Water quality impact</b>	Improvement in water quality and associated benefits <sup>121</sup> resulting from:  Improved planning decision of councils as a result of increased information on how to assess and manage risks of ODWMS systems.  Improvement in maintenance/management by landholders.  (note these benefits rely on the actions being undertaken as part of the implementation plan).	<b>+</b>	Improvement in water quality and associated benefits <sup>122</sup> resulting from:  Improved servicing decisions as a result of councils being more likely to implement and update DWMPs (given greater transparency around actions).	<b>++</b>
<b>Overall impact</b>		<b>Small net benefit</b>		<b>Larger net benefit</b>

### 12.5.3 Recommendation

Both Option 1 and 2 are preferable to the base case and considered likely to deliver net benefits given the costs are relatively low. However, as detailed in Table 11, Option 2 is viewed as being more likely to generate greater net benefits mostly arising from reduced sewerage servicing costs.

Option 2 is recommended

This option would involve:

Including an action within the Draft SEPP (Waters) implementation plan to update the relevant guidance documents and Codes of Practice and the development of tools and informational measures to support these documents in order to improve understanding within councils and increase councils' and rate payers' capacity to manage ODWMS.

121. Improved management of the risk could be expected to i) improve public health by reducing incidents of infectious disease outbreaks as a result of direct exposure to pathogens in impacted downstream water sources or through consumption of contaminated food or seafood ii) reduced downstream water treatment costs, iii) improve agricultural productivity in adjacent areas by reducing the build-up of salt concentrations and nutrients in soils and reducing water table levels and soil waterlogging, iv) improve environmental health by reducing the risk to downstream ecosystems.

122. ibid



Minor revisions to the existing wording to reference updated guidance material.

Removing duplicative requirements in the EP Act e.g. remove the requirement on occupiers to maintain their onsite systems in accordance with the conditions on the permit issued by municipal council (53N).

Establishing additional requirements in the Draft SEPP (Waters) whereby municipal councils must:

- Review and update the DWMP at intervals of no more than five years.
- Conduct an audit to assess progress against the DWMP and publicly report on this every three years.
- Highlighting in Policy, municipal councils should consider alternative off-site treatment options, as well as reticulated sewerage, when assessing planning applications for subdivisions and selecting options in the DWMP
- Strengthening the role of water corporations in the DWMP process
- Water corporations to respond to councils DWMP, five yearly, on their progress in implementing the preferred wastewater management solutions in areas where a DWMP identified action was needed.

# 13. Stormwater and sewerage system overflow management

## 13.1 Introduction

As part of the Review, two issues were identified by stakeholders as being a priority for consideration. These were the management of wet weather sewer overflows, and also that of stormwater. In both cases, consideration was given to substantive reforms to the management of these two issues, beyond the current arrangement in the SEPP.

This section is structured differently to companion sections of the PIA as while these substantive reforms were considered and assessed as part of the Review, they were deemed unworkable, or as requiring more overarching reform. Therefore, only minor changes have been proposed for the Draft SEPP (Waters).

## 13.2 Current arrangements

### 13.2.1 Stormwater management

Urbanisation and increased imperviousness of the catchment changes natural hydraulic processes. The increased stormwater run-off volumes and frequency of flows following urbanisation can have a significant impact on surface waters including rivers, streams, lakes, estuaries, wetlands, bays and coastal waters. In addition, stormwater carries pollutants from the urban catchment to the receiving surface and groundwater.

The current clause 46 of SEPP (WoV) was developed in recognition that stormwater was a diffuse source of pollution and that it impacted waterways, and improved stormwater management was necessary to protect the beneficial uses of Victoria's water environments.

Clause 46 includes a range of provisions that involve EPA working with relevant protection agencies to implement actions to improve stormwater management. This includes working with Municipal Councils to develop stormwater management plans, and implementing practices to minimise the generation and transport of pollutants. As well as assisting Municipal Councils to monitor and report to the community on the impact of stormwater drains on surface water.

In particular, clause 46 references the *Best Practice Environmental Management Guidelines for Urban Stormwater*<sup>123</sup> (otherwise known as the Urban Stormwater BPEM), which is also called on in clause 56 of the Victoria Planning Provisions and enacted by Municipal Councils. The Urban Stormwater BPEM specifically guides the construction of assets for the treatment of stormwater in new residential sub-divisions.

Stakeholders consulted during the Review identified interest in promoting substantive reform to the broader framework for the management of stormwater in Victoria, however, ultimately the role which the Draft SEPP (Waters) could play was limited.

### 13.2.2 Sewerage management

Sewerage systems are designed to collect and deliver raw sewage from properties and transport it to treatment plants. Despite best efforts, these systems can be subject to overflows, blockages, leaks and collapses. When this occurs, it can pose serious risks to the beneficial uses of waterways.

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123

. CSIRO (1999) Best Practice Environmental Management Guidelines for Urban Stormwater. CSIRO

Untreated sewage discharge to waterways can exert physical, chemical and biological effects on the receiving environment, which can result in human health, environmental and aesthetic impacts that can be both acute and cumulative. These events can constitute a pollution offence under the EP Act.

Ideally, there should be no overflows from sewerage systems apart from those caused by exceptional circumstances, such as extreme wet weather events or major system failures. Events that occur in 'dry weather', are typically those associated with pipe blockages or breakages, or with failures at pumping stations. There are higher expectations that these events are addressed as a priority, as they may occur at times when people may be using waters to recreate, or may occur when there is limited flow in the receiving environment, causing greater impact on aquatic ecosystems.

However, there is a recognition that sewerage systems are unable to contain all flows under all climatic conditions. During periods of heavy rainfall, additional flows can enter the sewerage systems through infiltration or improper plumbing connections overloading the system. Rather than backing up into properties, sewerage systems are designed to overflow when the capacity of the system is exceeded, spilling into creeks and waterways through emergency relief structures.

As sewerage infrastructure is not subject to EPA works approvals or licences, the SEPP outlines expectations for how these systems should be managed to minimise impacts on beneficial uses. In particular, SEPP (WoV) identified that sewer overflows, leakages and collapses need to be avoided, and that sewerage infrastructure needs to contain flows associated with a 1-in-5 year rainfall event. This has come to be known as the 1:5 containment standard. It means that sewerage infrastructure should be designed with additional capacity to contain flows that would be associated with a large rainfall event that would typically happen once every five years. Informally this represented a balance between the cost of upgrading to contain larger flows, and the environmental risk posed by overflow events. As the 1:5 containment standard has been included in statutory policy since 1997, in effect it has represented the design standard used by industry for the past twenty years.

Clause 35 of SEPP (WoV) has been recognised as driving significant investment by water corporations to upgrade sewerage infrastructure to reduce the risks of sewer overflows on beneficial uses. Hence the clause was identified as a priority for review by stakeholders. However, as will be described in the following sections only minor amendments were made to this clause, with more substantive changes likely under the future legislative reforms.

### 13.3 No reforms are proposed, only minor revisions

As part of the Review, extensive consultation was undertaken with stakeholders regarding these two particular policy issues. While a range of policy options were considered for reforming the management of stormwater and sewerage systems overflows, these changes were not pursued in the Draft SEPP (Waters). The revisions considered and the reasons for not pursuing major reform in these areas are described below.

#### 13.3.1 Revisions to stormwater management

In considering options for revising the management of stormwater in the Draft SEPP (Waters), two main options were considered. The first involved minor amendments to the wording in clause 46 to provide greater clarity about the roles and responsibilities for managing stormwater, the other option involved a more substantive reform to incorporate stormwater quality standards into the Draft SEPP (Waters).

##### *Option 1*

Clause 46 mainly places obligations on EPA to work with Municipal Councils to improve the management of stormwater. However, as part of the Review it was noted that these arrangements do not reflect the broader roles and responsibilities of landowners, land managers, developers and water corporations in stormwater management.

Option 1 involved minor amendments to Clause 46 to better reflect these roles and responsibilities, with a continued reference to the Urban Stormwater BPEM. This option also continues the obligation in clause 46 for Municipal Councils to develop stormwater management plans, but includes a reference to equivalent plans to recognise that stormwater management may be considered in the broader integrated water management framework.

### ***Option 2***

Substantive work was previously undertaken by government to review the Urban Stormwater BPEM in 2014, in recognition that the stormwater quality standards in the guidelines no longer reflected current science. In particular, to the impact of stormwater flows on receiving environments, as well as the contribution of toxicants in runoff from industrial areas and roads.

This review in 2014 included updating water quality standards, as well as developing new standards for flow reduction objectives. These standards were not adopted at the time because of concerns about the lack of evidence of their effectiveness, and uncertainty that the benefits of the standards outweighed the potential costs.

Since this time, however, there has been increasing scientific evidence about the impacts on surface waters from stormwater flows, particularly the timing and volume of events. In addition, more recent preliminary economic analysis demonstrates potentially greater benefits from addressing this issue via new stormwater management standards for flow reduction.

As such, as part of the Review, consideration was given to whether the revised stormwater quality standards and flow reduction objectives intended for an updated Urban Stormwater BPEM could instead be incorporated into the Draft SEPP (Waters) as additional environmental quality indicators and objectives required to protect beneficial uses. This option was proposed to provide a means for the revised standards and objectives to be formally adopted by government.

### ***Impacts***

Option 2 involved considering how the stormwater quality standards could be incorporated into the tables of environmental quality indicators and objectives in the Draft SEPP (Waters).

However, over the course of the Review, there have been subsequent commitments made by government to review the policy framework for stormwater management in Victoria. These include commitments made under Water for Victoria, the Yarra River Action Plan, the Port Phillip Bay EMP, the Victorian Flood Plain Management Strategy as well as amendments proposed to the Victoria Planning Provisions. As these commitments including updating the Urban Stormwater BPEM, this was considered to be a more appropriate approach than incorporating the stormwater quality standards into the Draft SEPP (Waters).

As such, the stormwater quality standards and objectives will continue to be set in the Urban Stormwater BPEM. This allows for standards and objectives to be developed for different development types (e.g. residential, commercial and industrial), retains flexibility to amend the standards and objectives to ensure that they respond to new scientific research and supports the authoritative of these guidelines in guiding permit approval processes through the Victoria Planning Provisions.

While, Option 1 identifies that Municipal Councils are required to develop stormwater management or equivalent plans, this is considered to be a continuation of the obligation in SEPP (WoV). The Victorian Government previously provided grant funding for Municipal Councils to develop such plans under the Victorian Stormwater Action Program. The development and implementation of these plans should be prioritised to those areas where urban stormwater poses a threat to beneficial uses.

### ***Option 1 is recommended***

Recognising the government commitments made to address the broader policy framework for stormwater management in Victoria, Option 1 was recommended. This will see only minor

amendments made to clause 46 to provide increased clarity around the stormwater management responsibilities for landowners, land managers, developers and water corporations, rather than primarily focusing on those of Municipal Councils.

### **13.3.2 Revisions to sewerage system overflow requirements**

As noted above, one of the priority issues identified by stakeholders for consideration in the Review was clause 35 which requires water corporations to manage the risk to beneficial uses posed by sewer overflows, leakages and collapses. In particular, water corporations raised concerns that the clause adopted a 'one size fits all' approach to managing the risk of sewerage system overflows by specifying a minimum design standard for infrastructure.

Water corporations noted that there are a number of sewerage systems across both metropolitan and regional areas which are not yet meeting the 1:5 containment standard. Some of these remaining systems are very expensive to upgrade, and have less obvious environmental benefits in comparison to those already upgraded. In these situations, upgrading these systems to meet this standard may involve a significant cost to customers, with only minimal environmental benefit.

Rather than spending significant funds upgrading all sewerage infrastructure to meet this standard, some water corporations argued that this investment should be prioritised, on other sources of poor water quality, which may be posing greater threats to beneficial uses in some areas, such as stormwater.

While water corporations raised concerns with the costs of meeting the 1:5 containment standard in some areas, the standard itself was considered to be broadly protective of the environment, and suitable to be retained as a minimum design standard.

In considering options for revising this clause, two main options were considered. The main differences between these two options related to whether the 1:5 containment standard would continue to be defined in the Draft SEPP (Waters) or whether this would be moved into a new Code of Practice that would be developed to support the clause and the extent to which a more risk based approach to meeting this obligation was enabled.

#### ***Option 1***

While the intent of the clause would remain the same, this option would see the clause revised to identify that while new sewerage infrastructure should be designed to meet the 1:5 containment standard, there would be a need for existing infrastructure to be progressively upgraded over time, to the extent practicable.

In assessing practicability, a water corporation would need to assess the risks to existing and potential beneficial uses, the availability and suitability of measures to eliminate the risks identified, and the proportionality of these measures. This should inform water corporations in the prioritisation of infrastructure investment.

In addition, this option would also place two additional obligations on water corporations to:

- eliminate chronic sewer leakages and dry weather sewer overflows to the extent practicable. These events are typically associated with equipment failure, pipe blockages, or collapses or breakages in ageing pipes. These events can pose the greatest risk to public health and the environment as they are not accompanied by rainfall runoff which may otherwise dilute their effects; and
- notify EPA of sewer spills. This would formalise the voluntary notification protocol already in place with water corporations.

#### ***Option 2***

An alternative option was considered to investigate whether the clause could become less prescriptive and even more risk-based.

This option would require water corporations to undertake a risk assessment for its sewerage system, with the results of the risk assessment informing infrastructure upgrades and management actions. Water corporations would then be expected to implement measures to progressively reduce the risks identified. These measures could include, but would not be limited, to upgrading infrastructure to meet the 1:5 containment standard.

To support this option, a Code of Practice would be developed to identify how a risk assessment would need to be conducted by a water corporation, and the requirement for a preparation of a plan. This plan would document how the water corporation had assessed and evaluated risks to beneficial uses, identified measures to address these risks, and document investment plans for how these risks would be reduced over time. These plans would be developed every five years to inform discussions with EPA as part of pricing submissions to the Essential Services Commission. This approach would replicate the process used in South Australia to deal with sewerage management.

While designing sewerage infrastructure to contain flows associated with at least a 1-in-5 year rainfall event would be identified in the hierarchy of control measures water corporations could consider, the focus of this option would be placing an obligation on water corporations to be managing risk, rather than being 'compliant' with the 1:5 containment standard.

### ***Impacts***

While Option 1 reflects the intent of the current provision of SEPP (WoV), the proposed wording of the clause is considered to be an improvement upon the existing clause 35 in SEPP (WoV).

Most notably, it places clearer obligations on water corporations to manage the impacts of both dry weather and wet weather sewer overflow events. It also recognises that not all infrastructure would be able to be upgraded immediately, rather water corporations would need to be progressively upgrading existing infrastructure to meet the 1:5 containment standard, to the extent practicable.

Option 1 enables water corporations to be risk-based in the way in which they prioritise their investment. In situations where sewerage systems are not meeting the 1:5 containment standard, there are a range of measures that can be adopted by water corporations to reduce the risk posed to beneficial uses, with sewer augmentation likely to be the most expensive approach. For example, water corporations could invest in preventing and removing groundwater and surface water intrusions into sewers, and removing illegal stormwater connections, each of these actions will reduce flows entering the sewerage system, potentially reducing the risk of overflows.

Once issues associated with inflow and infiltration have been addressed, then water corporations could look at increasing pumping station storage to increase the effective volume of sewage handled before overflows occurs. These options could be considered before the more expensive options associated with physically increasing the capacity either at pumping stations or within the system itself, or developing other storage options, such as retardation basins within the reticulated sewerage systems, are considered.

When assessing the practicability of actions or management practices, a water corporation would need to assess the risks to existing and potential beneficial uses, the availability and suitability of measures to eliminate the risks identified, and the proportionality of these measures, consistent with clause 12 of the Draft SEPP (Waters).

It is important to note that clause 35 did not preclude these measures being considered by water corporations. Indeed, EPA had previously recommended that such measures should be considered as part of effective environmental management of sewerage infrastructure. However, an action in the Implementation Plan will require EPA to work with water corporations to develop guidance that will clarify expectations in instances where it is not practicable for sewerage infrastructure to be upgraded to meet the 1:5 containment standard in the short term.

While Option 2 has the potential to provide a more risk-based approach, without having the Code of Practice drafted, there were uncertainties as to the degree of change this would represent to water

corporations. This is because the 1:5 containment standard has essentially provided a benchmark for what constitutes an acceptable level of risk to government. Without clarity about how this obligation would be specifically framed within a Code of Practice, there were challenges in quantifying whether or not additional investment would be required to meet government expectations for an acceptable level of risk reduction.

Nonetheless, as described in chapter 6, the development of such a Code would be more appropriately addressed under the future legislative framework.

***Option 1 is recommended***

On the basis of the analysis undertaken as part of the Review, Option 1 is recommended which represents minor revisions to the wording of clause 35 in the existing SEPP (WoV).



## 14. Summary of preferred reforms

The chapter summarises the reforms contained in the Draft SEPP (Waters) and discusses how these will reform will work in practice.

### 14.1 New structure of the Draft SEPP (Waters)

A key feature of the reforms proposed in the Draft SEPP (Waters) is

- the amalgamation of the existing Water SEPPs and
- the revisions to the structure of the Water SEPPs.

#### 14.1.1 Amalgamation of surface water and groundwater policies

The Draft SEPP (Waters) brings together both surface water and groundwater policies. This is particularly complex in the case of surface waters as there are currently six policy documents (SEPP (WoV) and five Schedules), all of which specify indicators and objectives, rules and obligations to the areas to which they relate. These can be inconsistent, reflecting the different times they were gazetted and state of knowledge at that time, creating challenges for useability and consistency.

Therefore, many of the changes in the Draft SEPP (Waters) relate to eliminating undesirable duplication and addressing these inconsistencies.

This amalgamation has also enabled an integrated water management approach that aligns objectives and policies across the whole of the water cycle. For example, this enables integrated management of diffuse sources of pollution to protect both surface water and groundwater.

In practice this amalgamation of policies will have limited effect on the resulting obligation imposed on polluters or rules applied by decision makers (except where explicit changes are made as described below). However, it will make these rules and obligations clearer (by removing existing inconsistencies). Which in turn should reduce compliance and enforcement costs.

#### 14.1.2 Streamlined structure and content

In addition to amalgamating the relevant policies, the structure of the Draft SEPP (Waters) has been streamlined to focus on its key functions of supporting the EP Act by clearly specifying:

- the beneficial uses and environmental quality objectives for waters;
- obligations on polluters;
- rules for decision-making by protection agencies
- processes to be followed to identify, prioritise and control existing and emerging risks.
- processes to monitor and publicly report on the effectiveness of the policy.

In addition, many of the attainment programs specified in the existing Water SEPPs which outline general roles and responsibilities of agencies, have been replaced, in part, with the implementation plan. The Implementation Plan will accompany the release of the final SEPP (Waters), and will drive effective implementation planning between agencies, focusing on the delivery of critical actions, and demonstrate achievement of environmental quality objectives.

In practice this streamlined structure will have no effect on the obligation imposed on polluters or rules applied by decision makers. However, it will make the SEPP simpler and clearer by removing content associated with implementation approaches that do not require statutory force.

## 14.2 Updated environmental quality indicators and objectives

A fundamental component of the existing Water SEPPs is that they specify a series of environmental quality objectives for water bodies and groundwater systems around Victoria. These objectives describe the levels of physical, chemical and biological parameters required to protect beneficial uses.

The Draft SEPP (Waters) includes updated environmental quality indicators and objectives for water bodies across Victoria. Associated with this, the Draft SEPP (Waters) also:

- updates the beneficial uses and segments to which these environmental quality objectives relate; and
- includes new or revised environmental quality objectives to protect beneficial uses.

The reason for this update is twofold.

First, understanding of the water quality required to protect beneficial uses has improved over time. In the time since the Water SEPPs were last reviewed there have been advances in scientific understanding, additional water quality monitoring data to draw on, changes in the users and uses of water, and change in the water environment in response to climate variability.

Secondly, there is a need to simplify and harmonise the environmental quality objectives within the revised, combined structure of the Draft SEPP (Waters).

The approach adopted to determining environmental quality objectives has not significantly changed and continues to reflect the framework outlined in the ANZECC Guidelines.

However, the impact of these updates on the environmental quality objective contained in the Draft SEPP (Waters) varies across Victoria. In some areas, these objectives will be more stringent and in others less so. Further details on the specific changes are contained in Chapter 7.

As is currently the case, these revised environmental quality objectives can be expected to inform:

- the assessment of applications and works approvals and to inform conditions for licences and approvals — in particular by creating a baseline for the pollutant discharge limits that might be specified in a wastewater discharge licence.
- the EPA's enforcement action given the exceedance of SEPP environmental quality objectives is used to help inform whether a general pollution offence under the EP Act has occurred.
- future policy and program development ( in combination with new clauses) by helping to identify at risk areas and assessing the success of existing policies and programs.

## 14.3 Processes for attaining objectives

Something that is recognised in the existing Water SEPPs and continues to be recognised in the proposed Draft SEPP (Waters) is that not all beneficial uses will be fully protected, and not all environmental quality objectives will be met.

Because of this the Draft SEPP (Waters) includes supplementary targets and planning processes intended to help identify at risk areas and drive progressive rehabilitation of environmental quality where beneficial. The key proposed reforms relating to these processes are described below.

### 14.3.1 Load based targets

For specific marine and lake bodies, concentration based environmental quality objectives may not be the most relevant indicator of a threat to beneficial uses. This is because these enclosed water bodies are often more sensitive to the overall quantity, rather than the concentration, of pollutants they are exposed to.

Therefore, the Draft SEPP (Waters) includes within it new and updated load based targets that cover nitrogen, phosphorous and sediment loads. The Draft SEPP (Waters) specifies both baseline and annual load targets (tonnes per annum), for four areas (see below). It notes that annual loads need to be progressively reduced from the baseline to the target and outlines agencies responsible for implementing management actions in order to achieve these reductions. The four areas and associated responsible agencies are:

- Corner Inlet and Nooramunga — where the WGCMA is to coordinate management actions and implement the Corner Inlet Water Quality Improvement Plan (2013) to deliver the target specified.
- Lake Wellington — where the WGCMA and SRW must deliver load reductions through developing and implementing the Lake Wellington Land and Water Management Plan and the Gippsland Lakes Ramsar Site Strategic Management Plan.
- Western Port — where DELWP (in conjunction with Melbourne Water and the EPA) must develop and implement a plan which amongst other things incorporate the SEPP load based target.
- Port Phillip Bay — where DELWP (in conjunction with Melbourne Water and the EPA) must develop and implement the Port Phillip Bay EMP) that incorporates the SEPP load based targets.

These load reduction targets along with associated management actions are the mechanisms for driving needed actions across the catchment to protect beneficial uses.

#### **14.3.2 Regional target setting**

Consistent with the framework outlined in the ANZECC Guidelines, if a SEPP environmental quality objective is not attained, this is intended to trigger further investigation to assess the risk to beneficial uses, whether this risk is acceptable and if not what should be done about it.

To help drive this, the Draft SEPP (Waters) includes a revised regional target setting clause (similar to that contained in SEPP (WoV)) to support the continued consideration of environmental water quality. The reforms:

- focus on high priority reach protection through an explicit link to priority areas identified in the regional waterway strategy renewal process — scheduled to occur in 2020/22.
- place an obligation on Melbourne Water and CMAs to develop regional targets and management actions as part of their revised regional waterway strategies.

To support these arrangements the Implementation Plan (see chapter 17) includes actions to:

- Update guidance on the setting of regional water quality targets as part of guidelines issued for regional waterway strategies.
- Update the new prioritisation decision support tool with the new SEPP (Waters) environmental quality objective data.

This process should work to drive the formulation and implementation of policies and programs to improve environmental water quality in areas where the risk to beneficial uses is deemed to be unacceptable.

### **14.4 Rules and obligations for wastewater management**

Wastewater from a range of sources (e.g. sewerage discharge and agricultural operations) can enter waters and can cause elevated nutrient, pathogen and other pollutant levels, resulting in unsafe and poor quality water which can impact on beneficial uses.

To prevent this, the Draft SEPP (Waters) includes a range of clauses that outline

- obligations and requirements on polluters who discharge wastewater
- rules for decision-making by protections agencies

For the most part the obligations, requirements and rules remain unchanged for the current Water SEPPs. The areas where more significant reforms have been made are outlined below.

#### **14.4.1 Applications for wastewater discharge (works approvals and licences)**

In accordance with the EP Act, the Water SEPPs are intended to guide the assessment of applications and to inform conditions for licences and approvals not only through the environmental quality objectives but also through outlining the process involved in applying for approvals and licences.

The Draft SEPP (Waters) reforms existing arrangement in two key ways.

First, it consolidates and simplify the content in the existing SEPP (WoV) clauses which relate to the management and licensing of wastewater discharges. This involved re-categorising the content to specifically identifying the obligations on a works approval or licence amendment applicant and also the rules the EPA will follow in assessing an application for a wastewater discharge.

Second, it includes reforms aimed at solidifying the move toward a more risk-based approach by indicating that works approval and licence amendment applicants may be required to provide a risk assessment to the EPA, and that the EPA will be required to have regard to the outcomes of risk assessments. As a result, these assessments would form the basis of considerations by EPA and inform the setting of risk-based licence limits. Such an approach would be consistent with how the EPA is already approaching the licensing of wastewater discharges, but this would be made explicit, certain and transparent.

These reforms are aimed at reducing the transactional, administrative costs associated with making and assessing applications for wastewater discharge. By making industry obligations and the EPA's required considerations clearer administrative costs might be reduced. For example, clearer requirement could dissuade unsuitable applications.

The requirement that an applicant may be required to produce a risk assessment is consistent with current arrangements provided in the *Works Approval Application* guidelines. While developing a risk assessment imposes a cost for an applicant, they have proved useful for enabling the evaluation of alternatives and prioritising risks.

These arrangements together with the requirement for the EPA to explicitly consider the impact on waterways should ultimately reduce industry compliance costs while delivering an equivalent or improved level of water quality.

#### **14.4.2 Enabling offsets**

Consistent with regulatory best practice the Draft SEPP (Waters) includes reforms aimed at reducing the costs of pollution abatement by better enabling licensees to adopt economic measures or "offsets" which enable them to offset actions or activities that have the potential to degrade environmental quality (e.g. wastewater discharges) with actions which enhance environmental quality, provided a net environmental benefit can be achieved.

Offsets schemes are possible under the current SEPP (WoV) however reforms to existing arrangements have been made to address barriers to the implementation of these schemes in two ways:

First, by clarifying the circumstances in which the EPA will consider offset schemes namely when considering applications for approvals or licensing of wastewater discharges.

Secondly by including an action in the SEPP Implementation Plan for the EPA to develop guidance on how offset measures will be assessed through these application processes, and the information required from proponents. Management of on-site domestic wastewater management systems

It is expected that these arrangements will by virtue of providing clarity around application processes will increase the number of offset schemes developed. If this occurs this reform can be expected to deliver significant economic benefits in terms of reduced industry compliance costs associated with meeting any licence discharge limits.

#### **14.4.3 Planning associated with on-site domestic wastewater treatment systems (ODWMS)**

Under the EP Act, Council is the primary agency responsible for the management of ODWMS. The SEPP (WoV) slightly expands on the EP Act by stating obligations for:

- occupiers — in relation to maintaining their systems
- councils — in terms of assessing the suitability of land for ODWMS and issuing permits, and identifying areas where systems are failing in a DWMP.
- Water corporations — for prepare a SMP where the DWMP identifies reticulated sewerage is required.

The Draft SEPP (Waters) includes a number of reforms to these current arrangements

First, the Draft SEPP (Waters) implementation plan incorporates actions for agencies to prepare information, assessment tools and education material. This is intended to support councils and occupiers in meeting their obligations, thereby improving the effectiveness of council decision making and encouraging occupier to better maintain their systems in order to improved water quality outcomes.

Secondly, it makes a number of minor revisions to the existing wording in the SEPP (WoV). In particular, the Draft SEPP (Waters) reference updated guidance material relating to potable water supply catchments and removes requirement on occupiers in order to remove duplication of the EP Act which already requires this.

Thirdly, it includes a series of measure aimed at increasing transparency around municipal council activities in respect to ODWMS. Increased public accountability is intended to incentivise greater action on the part of councils in respect to ODWMS. Which is ultimately expected to improve water quality outcomes. In particular, the Draft SEPP (Waters) include additional requirements for:

- Councils to review and update its DWMP at intervals of no more than five years.
- Councils to conduct an audit to assess progress against the DWMP and publicly report on this every three years.
- Water corporations to report to councils, five yearly, on their progress in assessing and implementing the preferred wastewater management solutions in areas where a DWMP identified action was needed.

Fourth the Draft SEPP (Waters) includes reforms aimed at ensuring more innovative, cost-effective wastewater management approaches are adopted in areas where properties are currently serviced by ODWMS. In particular:

- Councils must consult with water corporations when developing and implementing the DWMP.
- Water Corporation must provide a response to the DWMPs intended to inform Council decision making processes, which reviews the preferred solution; outlines the cost of the preferred solution, a funding strategy and timeline for implementation; and provide municipal councils with a five-yearly report on progress in implementing the plan in their response.
- Given their strengthened involvement in the DWMP process, to remove duplication Water Corporations are no longer required to prepare and submit a 'Sewerage Management Plan' to government.
- Wording which reinforces that councils can consider alternative off-site treatment options, as well as reticulated sewerage, when assessing planning applications for subdivisions.

## 14.5 Other minor revisions

The Draft SEPP (Waters) includes a large number of other minor revisions to existing clause wording as documented in the Water SEPPs. These changes are not intended to practically impact on agencies or polluters rather they include:

- changes to language to make the instrument clearer, simpler and more accessible;
- removing provisions that duplicate those in the EP Act, and updating wording to reflect updated guidance.

These are summarised in Appendix 1.

# 15. Communication and consultation

DELWP and the EPA consulted a range of stakeholders representing water beneficial use interests during the past four years to prepare the Draft SEPP (Waters) and associated PIA. This chapter summarises the consultation processes, how key issues were investigated and resolved, and steps for consultation following release of the Draft SEPP (Waters) and this PIA.

## 15.1 Commencement of Consultation Processes

### 15.1.1 Consultation and project scoping

In 2013, prior to the Review being formally triggered, government agency representatives were interviewed to discuss gaps and issues with the current Water SEPPs and highlight water quality issues in general that a revised SEPP should cover.

Consultation for the review of statutory policy must comply with the requirements under section 18A of the EP Act. The review of SEPP (WoV) (and Schedules) and SEPP (GoV) formally commenced in 2015 with the publication by the EPA Chairman of a notice of intent to declare or vary a Policy as required under the EP Act.

As part of the Review scoping, a Stakeholder Engagement Plan was developed to inform the PIA and policy design processes using the International Association for Public Participation (IAP2) public participation spectrum as the framework.

The objectives of consultation were to:

- Inform stakeholders (including the general public) about SEPP's and SEPP (WoV) and SEPP (GoV) in particular;
- Provide statements of intent around the Draft SEPP (Waters) directions for stakeholder consideration and comment;
- Collaborate with stakeholders to –
- Develop an understanding of stakeholder's aspirations for their waterways, estuaries, groundwater and marine systems (i.e. the beneficial uses they wish to see protected); and
- Develop an understanding of what clarification they required regarding the Draft SEPP (Waters), to meet their obligations.

Initial stakeholder analysis prioritised consultation with:

- sectors of the public (businesses, community groups, not-for-profits) that may face a significant economic or social burden from the policy change;
- Government departments and agencies that may be affected, or who have related responsibilities and regulatory regimes; and
- other stakeholders affected or who derive benefit from the policy.

Based on this analysis, the following engagement approaches were used to inform the Review:

- Establish a DELWP/EPA Project Control Board (PCB) to provide strategic oversight and quality assurance throughout the Review;
- Release of a Discussion Paper to inform stakeholders at the time of the Review trigger with advertising to promote opportunities to provide submissions to the Review;
- Establish Stakeholder Reference Committees to monitor project progress, maintain and influence strategic focus and provide critical input into the development of the policy positions;



- Targeted workshops in line with project objectives to capture targeted intelligence and inform policy direction;
- Establish targeted working/focus groups to facilitate ongoing policy development and implementation;
- Attend existing stakeholder working groups/meetings to leverage information and engagement channels and share project updates, developments and identify opportunities to collaborate;
- Establish a dedicated webpage that provides project scope and promotes opportunities to be involved;
- Individual stakeholder meetings to discuss and understand policy positions and resultant impacts;
- Briefing of accountable Ministers (Water and Environment and Climate Change) to discuss and understand policy positions and resultant impacts;
- Regular meetings with the OCBR to confirm requirements and expectations for the development of the Draft SEPP (Waters), PIA and Implementation Plan.
- A large number of different stakeholder groups were consulted on a priority basis throughout the review including those listed in Table 12.

**Table 12 Consulted parties**

<ul style="list-style-type: none"> <li>• Aboriginal Affairs Victoria</li> <li>• Australian Environment and Business Network</li> <li>• Australian Industry Group</li> <li>• Australian Water Association</li> <li>• Catchment Management Authorities</li> <li>• Cement Concrete &amp; Aggregates Australia</li> <li>• Central Coastal Board</li> <li>• Centre for Aquatic Pollution Identification and Identification</li> <li>• Construction Material Processors Association (CMPA)</li> <li>• Department of Health and Human Services</li> <li>• Department of Economic Development, Jobs, Transport and Resources</li> <li>• Department of Treasury and Finance</li> <li>• Environmental Health Professionals Australia Limited</li> <li>• EPA Community Reference Group</li> <li>• EPA Industry Reference Group</li> </ul>	<ul style="list-style-type: none"> <li>• Essential Services Commission</li> <li>• Federation of Victorian Traditional Owner Corporations</li> <li>• General public</li> <li>• Gippsland Lakes Ministerial Advisory Council</li> <li>• Gippsland Local Government Network</li> <li>• Governor in Council</li> <li>• Landcare Victoria</li> <li>• Local governments</li> <li>• Melbourne Water</li> <li>• Metropolitan Planning Authority</li> <li>• Minerals Council of Australia</li> <li>• Minister for Agriculture and Food Security</li> <li>• Murray Lower Darling Rivers Indigenous Nations (MLDRIN)</li> <li>• Office of the Commissioner for Better Regulation (formerly Victorian Competition and Efficiency Commission)</li> <li>• Parliament</li> <li>• Port Authorities</li> </ul>	<ul style="list-style-type: none"> <li>• Researchers/academics</li> <li>• River Basin Management Society</li> <li>• SEPP (WoV) Project Control Board</li> <li>• Stormwater Victoria</li> <li>• Victorian Catchment Management Council</li> <li>• Victorian Coastal Councils</li> <li>• Water corporations</li> <li>• Waterwatch Victoria</li> <li>• Yarra Riverkeeper</li> <li>• Victorian Water Industry Association</li> </ul> <p><b>Internal Review Committee</b></p> <ul style="list-style-type: none"> <li>• DEDJTR</li> <li>• EPA</li> <li>• DELWP</li> <li>• DHHS</li> </ul> <p><b>Stakeholder reference committee</b></p> <ul style="list-style-type: none"> <li>• Landcare Australia</li> <li>• Municipal Association of Victoria</li> <li>• Seafood Industry Victoria</li> <li>• Victorian Farmers Federation</li> <li>• VicRoads</li> <li>• Victorian Recreational Fishing Peak Body</li> <li>• CMA Chief Executive Officers forum</li> <li>• Environment Victoria</li> <li>• Parks Victoria</li> <li>• Victorian Aboriginal Heritage Council</li> <li>• Water Corporations - Melbourne Water</li> <li>• Department of Premier and Cabinet</li> <li>• Environmental Justice Australia</li> </ul>
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## 15.2 Summary of key consultation outcomes

Key outcomes from the application of the communication approaches are summarised below.

### 15.2.1 Discussion Paper

The Discussion Paper<sup>124</sup> outlined the scope and intent of the Review and called for registration of interest and submissions. The notification to vary was advertised in The Age and the Herald Sun newspapers on 20 June 2015, 22 July 2015 and 24 July 2015. Notice of the formal commencement of the Review, the discussion paper and the opportunities to participate were placed on both EPA Victoria's and DELWP's internet sites.

The discussion paper asked questions and sought feedback on the policy scope and objectives, beneficial uses and water quality indicators and objectives. This helped communities and stakeholders give informed feedback on how water environments should be managed and protected in the future.

Over 250 stakeholders registered their interest to be kept informed of developments in the Review. Feedback on the Discussion Paper was received via 46 written submissions as well as through workshops, meetings and discussions. This information has been used to shape the Draft SEPP (Waters), particularly the review of beneficial uses and the rules and obligation section of the draft Policy. For example, stakeholder feedback suggested that the geothermal capacity of groundwater should be protected by recognising it as a new beneficial use under the Policy. This proposal was investigated and validated through further consultation with impacted stakeholders and has been included in the draft Policy.

### 15.2.2 Consultative Committees

Two stakeholder reference committees were established for the Review. These were the:

- Stakeholder Reference Committee (SRC); and the
- Internal Review Committee (IRC).

Under its Terms of Reference the SRC and the IRC provided a forum for stakeholders with an interest in the Review to collaborate in the policy development process. Eight committee meetings were held over 2016-2017 with feedback discussed and incorporated into draft policy positions. The consultative committees:

- Included stakeholders with a high interest or impacted by the Draft SEPP (Waters);
- Ensured geographic representation across Victoria;
- Included stakeholders with implementation knowledge in the SEPP or related areas;
- Represented interests in all water environments covered by the SEPP– marine, groundwater, freshwater/surface water, agriculture, stormwater; and
- Had broad composition so that the major stakeholder groups views are represented (Table 12).

Feedback received from these meetings were critical in informing the development of the Draft SEPP (Waters). Committee members were also provided with the opportunity to view the Draft SEPP (Waters), PIA and Implementation Plan.

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• State Environment Protection Policy (Waters) Review Discussion Paper, DELWP, June 2015

### 15.2.3 Project Control Board

A PCB was established with representation from DELWP and EPA to provide governance, strategic oversight and quality assurance of the Draft SEPP (Waters) and PIA. The PCB met monthly for the duration of the review. The PCB provided overall approval for work programs, the outcomes of the analysis of clauses and the final sign off of the draft PIA, SEPP (Waters) and Implementation Plan.

### 15.2.4 Targeted workshops

Targeted workshops were held with key stakeholders to capture targeted intelligence and inform policy direction. Key policy areas included regional target setting, offset measures, sewerage management, onsite domestic wastewater management, and stormwater management.

### 15.2.5 Targeted focus/working groups

Targeted working groups were established to facilitate ongoing policy development and implementation. These included-

- Inland Waters Reference Group with members from EPA, DEWLP, CMAs, Melbourne Water, CAPIM, and consultants. The group met three times - May 2015, July 2015 and Sept 2015;
- Recreational Water Quality Technical Reference Group with members from DHHS, MW, EPA and Monash University who met on average once every two months; and
- Groups that provided feedback on clauses of particular interest to, or impact on, them including the CMA waterway manager's forum, a VicWater SEPP review group comprising water corporations and a local government focus group coordinated by the Municipal Association of Victoria.

### 15.2.6 Attend existing stakeholder working groups

Existing stakeholder working groups /meetings were attended to leverage information and engagement channels and share project updates, inform policy development. For example, EPA's existing Water Industry Reference Group (WIRG) provided access to water corporations.

### 15.2.7 Dedicated webpage

A dedicated webpage (<https://www.water.vic.gov.au/waterways-and-catchments/rivers-estuaries-and-waterways/state-environment-protection-policy>) was established in 2015 to provide project scope and background information, and links to key documents. A dedicated email account ([Water.SEPPreview@delwp.vic.gov.au](mailto:Water.SEPPreview@delwp.vic.gov.au)) was also established for contact and dialogue with stakeholders.

### 15.2.8 Individual stakeholder meetings

While stakeholder associations were primarily targeted in order to reach a broad range of stakeholders, individual meetings were also held to discuss and understand issues as they arose throughout the Review.

### 15.2.9 Briefing of Ministers

The Minister for Water and the Minister for Energy, Environment and Climate Change were provided with regular briefings throughout 2017 on progress of the Review.

### 15.2.10 OCBR

Regular meetings were held with the OCBR to confirm requirements and expectations for the development of the policy and policy impact assessment and ensure compliance with the requirements of the *Subordinate Legislation Act 1994* and the Victorian Guide to Regulation.

### 15.2.11 Interdependencies

Other projects running concurrently with the Review also provided opportunities to leverage information and engagement channels. For example, the Gippsland Lakes: Water Quality Science Review project was one component of the broader SEPP (Waters) Review. The project involved extensive engagement with the Gippsland Lakes Community to revise quality objectives and indicators for the SEPP (WoV) Schedule, F3 (Gippsland Lakes), and also SEPP (WoV) Schedule F5 (Waters of the Latrobe and Thomson River Basins and Merriman Creek Catchment). Comprehensive stakeholder feedback was sought on a broad range of issues which was used to inform the development of water quality objectives and indicators for the proposed Policy.

DELWP, EPA and Melbourne Water also undertook a review of the Port Phillip Bay EMP the development of which is required under the SEPP (WoV). Detailed information on beneficial uses and management actions to protect water quality were developed through a community consultation process.

## 15.3 Key areas of consultation

### 15.3.1 Water quality science

The “science review” assessed the science that underpins the policy segments, indicators and objectives in the current water policies.

A Scientific Advisory Panel (SAP) was formed to provide independent advice and direction to the science review. The SAP comprised six scientists from CSIRO and universities with recognised expertise in aquatic environmental science and groundwater. Throughout the science review the SAP approved the methodology to revise the environmental quality indicators and objectives and endorsed the technical science work. The revised segments, indicators, and objectives have been released with the Draft SEPP (Waters).

EPA is planning to hold a stakeholder forum to communicate the development of the science work in December 2017.

### 15.3.2 Priority issues

Feedback on the Discussion Paper identified regional target setting, offset measures, sewerage management and onsite domestic wastewater and stormwater management as priority issues.

Four stakeholder workshops for these priority policy areas were held with stakeholders in November and December 2016. The stakeholder workshops asked participants to contribute to-

- documenting the background to the intent of the existing clauses in SEPP (WoV);
- summarise stakeholder comments/findings, relating to the use and implementation of the clauses; and
- contribute to the revision of the current clause (policy position).

Findings from these workshops directly shaped the revision of the priority policy positions.

### 15.3.3 Beneficial uses

The SEPP project team collaborated with stakeholders to use information from their consultation processes undertaken in 2014 regarding what communities valued. For example, the CMA/Melbourne Water regional waterway strategy renewal process.

In addition, stakeholder consultation processes were undertaken for discrete projects in the Gippsland Lakes and Port Phillip Bay to determine what those communities valued. Furthermore, the information gained through stakeholder consultation in the Yarra catchment, as part of the Yarra River Protection Ministerial Advisory Committee was used in the Review.

In 2017, two consultation papers summarising the proposed changes to beneficial uses were distributed to key stakeholders. Feedback confirmed the beneficial uses of water environments that Victorians value and were discussed in Chapter 7.

#### 15.3.4 Attainment Program review

Within the SEPPs, the attainment program provided a series of environment management practices and actions that protection agencies, businesses and communities need to implement to improve environmental quality and help protect beneficial uses from identified threats. The SPR recommended that attainment activities were taken out of SEPP documents and incorporated into a separate Implementation Plan. All clauses within the two SEPP's and the five Schedules were reviewed to confirm their relevance to the SEPP, inconsideration of the SPR and also of the outcomes of the EPA Inquiry (see section 6.2.1).

For each clause:

- affected stakeholders were identified and consulted through the key consultation mechanisms (section 15.2);
- a clause background paper was prepared with stakeholder input. The background paper addressed questions like:
  - What is the objective of the clause and is the objective still relevant?
  - What is the evidence from data and other information sources that the issue addressed by the clause contributes to achieving WoV/GoV objectives?
  - How is the clause being used and by whom/for what purpose?
- draft policy positions and implementation actions were developed.
  - What are the problems and deficiencies with the current clause?
  - Program logic template for this clause: How will this clause ultimately lead to the broader SEPP objective?
  - What are the expected impacts (costs/benefits) of applying the new provisions (direct and indirect), including Government administration costs (e.g. compliance) and industry?
  - How will the change be implemented? (e.g. changes to licensing, monitoring programs, EMPs, guidelines, enforcement)
  - Monitoring and evaluation (key evaluation questions, data sources)

What risks are associated with the proposal and how will they be mitigated?

A separate Implementation Plan identifies key actions required to ensure successful implementation of the Draft SEPP (Waters).

### 15.4 Final consultation phase

For a period of at least three months DELWP and EPA invites public comments or submissions before it finalises the proposed policy.

As required under the EP Act<sup>125</sup>, separate submissions lodged during the public submission period will be considered, and a response be provided in writing to each submission received before finalising the policy.

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. Environment Protection Act 1970 section 18A(3)

DELWP and EPA will facilitate feedback on the drafts through a range of different forums including targeted workshops and participation in existing stakeholder working groups and meetings.

The final SEPP (Waters) policy and PIA is expected to be released mid-2018. Information on how to lodge submissions can be found on the DELWP website:

<https://www.water.vic.gov.au/waterways-and-catchments/rivers-estuaries-and-waterways/state-environment-protection-policy>.

## 16. Implementation and enforcement

Following the public consultation process, further analysis of the options will be undertaken and a revised final PIA will be released which outlines the preferred options for implementation and evaluation.

### 16.1 Implementation and enforcement of SEPP (Waters)

The SEPP (Waters) will provide a legal framework for State and local government agencies, businesses and communities to work together to protect and rehabilitate Victoria's water environments.

The SEPP (Waters) will apply to all businesses, non-government agencies, community groups, individuals and State and local government agencies that use, plan, manage or derive benefit from Victoria's waters, and each person responsible for making legal decisions in relation to Victoria's waters.

It is an instrument of the EP Act, and is administered by the EPA, which, together with DELWP, is responsible for ensuring its overall implementation. While the EPA and DELWP are responsible for ensuring the overall implementation of the Policy, its implementation on a daily basis is the shared responsibility of protection agencies, businesses and communities.

The Draft SEPP (Waters) identifies the strategic actions and tools to address activities that pose a risk to water environments and beneficial uses. The rules and obligation section of the policy identifies the responsible party and describes the action that must be taken to protect or improve water quality over the life of the policy. These rules and obligations align with and support the delivery of current government policy and programs (e.g. Water for Victoria).

The policy will be supported by an Implementation Plan that is being developed to drive effective implementation planning between agencies, focusing on the delivery of critical actions, and demonstrating the achievement of environmental quality objectives.

The SEPP (Waters) Implementation Plan will:

- identify important risks for the segment the statutory policy relates to, in accordance with its environmental quality objectives;
- set out critical actions that identified agencies have committed to, to address these risks, challenges and community concerns;
- demonstrate how monitoring and assessment against environmental quality objectives will be coordinated;
- be reviewed at least every five years to ensure it remains focused on current risks, challenges and community concerns; and
- be regularly publicly reported against in formal Progress Reports to support accountability.

SEPPs are indirectly enforced by EPA. There is no direct offence for non-compliance with statutory policies. EPA uses other provisions of the EP Act, such as Pollution Abatement Notices, licence conditions and other provisions, to achieve or enforce emitters/industries' compliance with the requirements housed in statutory policy. SEPPs often reference other EPA tools including works approvals, licences, notices, etc. as the mechanisms for how it will be implemented and enforced.

SEPPs are also referenced through a range of other legislative mechanisms as detailed below.



### 16.1.1 Environment Protection Act 1970

Section 20C requires the EPA to have regard to the SEPP when considering an application to issue, transfer or amend an authorisation. Authorisations are: a works approval; licence; accreditation; research, development and demonstration approval; or a permit to transport prescribed waste or prescribed industrial waste. The authorisation and any condition in it must be consistent with all applicable SEPPs.

Section 31A empowers EPA to serve a PAN if the EPA is satisfied that a process or activity which is being carried on or is proposed to be carried on, or any use or proposed use of any premises has caused or is likely to cause a failure to comply with any requirements contained in any SEPP. A person who contravenes a requirement specified in a PAN shall be guilty of an indictable offence and liable to up to 2400 penalty units. Non-compliance with a PAN is also an infringement offence, with body corporates and non-body corporates respectively liable to 50 and 12 penalty units.

Section 37A requires the Victorian Civil and Administrative Tribunal (VCAT) to take account of, and give effect to, any relevant SEPP in determining an application for review<sup>126</sup> or a declaration.

Section 38 requires the discharge or deposit of wastes into waters of the State of Victoria to at all times be in accordance with declared SEPPs and section 39 provides for the offence of pollution of waters. A person who contravenes any of the provisions of section 39 shall be guilty of an indictable offence and liable to a penalty of up to 2400 penalty units.

Part IXB relates to septic tank systems and a municipal council must refuse to issue a permit if the proposed septic tank system is contrary to any SEPP.

Part IXD relates to environmental audits and EPA appointed environmental auditors can respectively conduct assessments of the condition of a segment of the environment; and risks posed to a segment of the environment, via a 53X or 53V audit. In determining whether or not to issue a certificate of environmental audit, an auditor must have regard to any SEPP.

Division 2 of Part X provides for the powers of the EPA and authorised officers. Authorised officers may enter a premises and may therein do any act or thing, including the taking and removal of samples, which in the opinion of the authorized officer is necessary to be done for the purposes specified in section 55(1A). The purposes include the prescribing of any matter under the SEPP.

Section 66A empowers EPA to designate agencies to have specified responsibilities etc. in polluted areas. The EPA can designate a protection agency if it appears to the EPA that a condition of pollution is occurring or is likely to occur in any segment or element of the environment contrary to the provisions of the SEPP.

The following instruments made under the EP Act must also comply with / be consistent with SEPP's; environment improvement plans, neighbourhood environment improvement plans, sustainability covenants, industry waste reduction agreements, Regional Waste and Resource Recovery Implementation Plans and Statewide Waste and Resource Recovery Implementation Plans.

### 16.1.2 Planning and Environment Act 1987 and Victorian planning provisions

Municipal councils plan for and approve land use activities through the VPP, Municipal Strategic Statements (MSSs) and planning permits. The SEPP recognises and supports the provisions of the VPP, which require municipal councils to ensure that their strategic and statutory planning tools and permits are consistent with the SEPP.

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. Section 37 specifies EPA decisions that can be reviewed by VCAT, for example, to issue or transfer a works approval or licence.

Section 60 requires a responsible authority (where responsible authority includes local government) to consider any relevant SEPP before deciding on an application.

Section 84B requires VCAT to take account of and give effect to any relevant SEPP in determining an application for review of a decision.

### **16.1.3 Water Act 1989 and regional waterway strategies**

The *Water Act 1989* outlines the relevant minister's responsibilities with regard to water quality monitoring and reporting. The *Water Act 1989* requires the minister to deliver a program of long-term water resource assessments and requires the preparation of regional waterway strategies that outline objectives and targets to protect and maintain waterway health across Victoria.

Section 190 requires the preparation of regional waterway strategies and in preparing a strategy an Authority must take into account any relevant strategy or statement of policy or plan prepared under the EP Act.

Section 305B requires VCAT to take account of and give effect to any relevant SEPP in determining an application for review of a decision.

### **16.1.4 Catchment and Land Protection Act 1994**

A key responsibility of CMAs, is to coordinate the sustainable development of catchments, floodplains, waterways, and where relevant estuaries and coasts through protecting and rehabilitating the environment.

Part 4 relates to catchment planning and requires the development of a regional catchment strategy and outlines the contents of the strategies. Under section 25 an Authority that prepares a regional catchment strategy may recommend to a planning authority amendments to a planning scheme to give effect to the strategy. It also provides for a regional catchment strategy to be incorporated in a SEPP, in whole or in part, and with or without changes.

Section 48B requires VCAT to take account of and give effect to any relevant SEPP determining an application under section 48 or 48A (seeking a review of a land use condition or land management notice).

# 17. Monitoring and Evaluation

## 17.1 Introduction

The Draft SEPP (Waters) is supported by an evaluation strategy that has been designed to measure the effectiveness of the policy in achieving its purpose, as outlined in Chapter 4 to “protect and improve the quality of Victoria’s waters while providing for economic and social development”. Evaluation enables DELWP, EPA and stakeholders to know whether SEPP (Waters) has been effective in helping to reach its objectives. The evaluation strategy will be implemented and supported by monitoring, evaluation and reporting activities throughout the life of the policy.

## 17.2 Evaluation objectives

The specific objectives of the SEPP (Waters) evaluation strategy are to:

- Evaluate whether beneficial uses have been protected through the protection and improvement of environmental quality and compliance with obligations and decision rules set out in SEPP (Waters);
- Evaluate the effectiveness of implementation activities in contributing to the policy objectives;
- Test assumptions about how the rules and obligations set in the Policy will drive intended outcomes;
- Support accountability against the roles and responsibilities set out in the Policy and implementation plan; and
- Contribute, through internal reporting and adaptive management, to the effective implementation of the Policy.

## 17.3 Evaluation Framework

To achieve the evaluation objectives described above, the evaluation strategy is supported by an evaluation framework made up of program logics; indicators that can be measured to evaluate both the protection of beneficial uses and compliance with rules and obligations; key evaluation questions and reporting and improvement processes. The evaluation strategy is supported by a monitoring, evaluation and reporting (MER) plan that sets out, and describes in detail, the framework for evaluating the effectiveness of SEPP (Waters) and for using the evaluation cycle to support the improvement of policy interventions. The key components of the evaluation framework and their relationships are described in more detail below, and are shown in Figure 6.

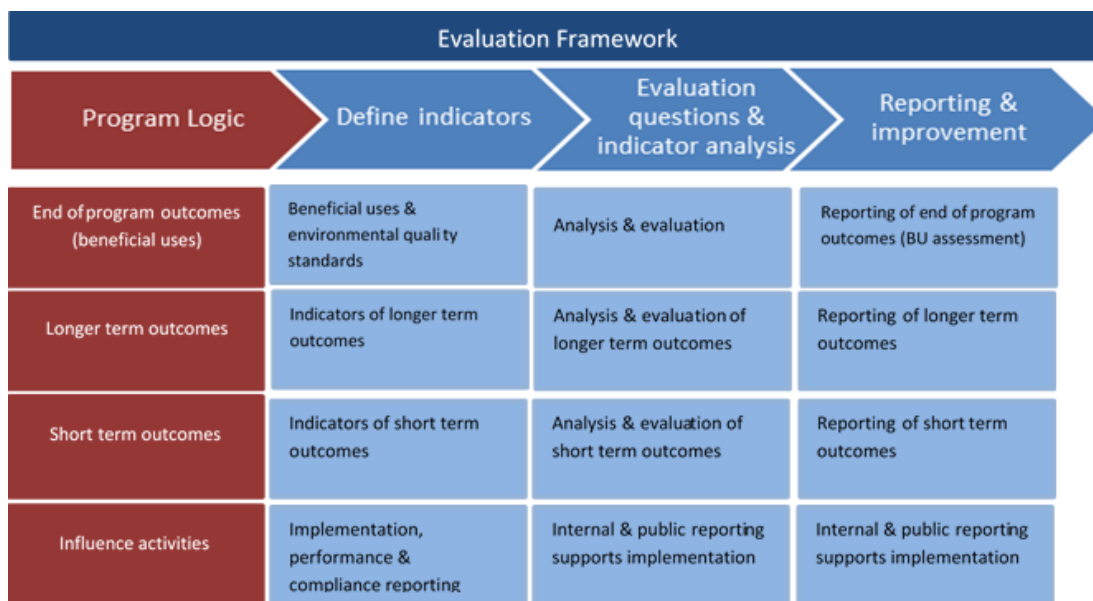


Figure 6 Evaluation Framework for SEPP (Waters)

### 17.3.1 SEPP (Waters) Program Logics

The evaluation framework is supported by detailed program logics that have been developed for the overall policy and for each policy clause. The program logics describe how the rules and obligations of the Draft SEPP (Waters) link to the intended outcomes and are expected to take effect over time to achieve the protection of beneficial uses. The program logics illustrate the relationships (known or assumed) between activities, short and intermediate outcomes and long-term end of program outcomes to provide the chain of reasoning that links actions with results. The program logics support the evaluation framework by providing a guide to when, over the life of the Policy, activities and the expected outcomes should occur and the most appropriate timing for evaluation. The assumptions within each level of the program logics have been identified and documented and then tested through the evaluation process to determine whether the implementation of the Policy requires adjustment to achieve the intended outcomes. An example of a generalised program logic for SEPP (Waters) is shown in Figure 7.

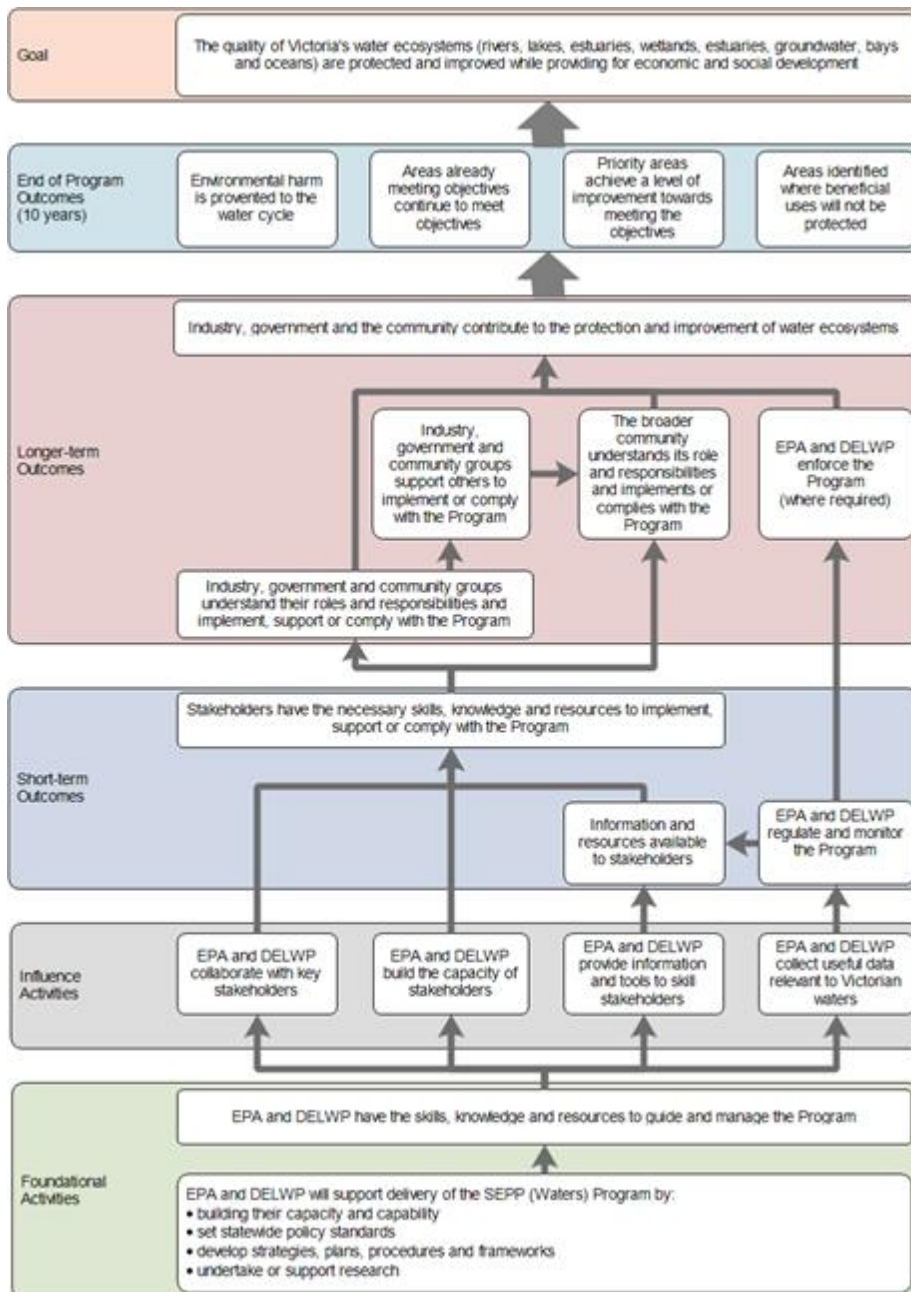


Figure 7 Example of a program logic for SEPP (Waters). Shown here is a program logic that can be generalised across SEPP (Waters)

### 17.3.2 Indicators to measure success

The evaluation framework uses two broad categories of indicators to measure the success of the SEPP (Waters):

- indicators of environmental quality; and
- indicators of compliance with the rules and obligations by protection agencies, businesses and communities with responsibilities.

If the rules and obligations are complied with, and are effective, then we expect environmental quality (and by proxy beneficial uses) to be improved and protected over the life of the Policy.

### ***Environmental quality indicators***

SEPP (Waters) sets out extensive environmental quality indicators with objectives that must be met and maintained to protect beneficial uses. The environmental quality indicators and objectives included in the Draft SEPP (Waters) are designed to be used within a risk based framework and have been adopted because they provide measurable proxies for evaluating the protection of beneficial uses. To determine whether SEPP (Waters) is meeting its goal of protecting beneficial uses, the attainment of environmental quality indicators and objectives must be monitored and evaluated over the life of the Policy.

Long term, ongoing water quality monitoring programs already exist in the majority of segments described in the Policy (e.g. Port Phillip Bay, Western Port, Gippsland Lakes, inland rivers and streams) and these existing programs are the primary means that environmental quality will be evaluated for the Policy.

### ***Indicators of compliance with rules and obligation***

To assess compliance with SEPP (Waters) the evaluation framework uses indicators based on existing data and information that can be used to assess whether rules and obligations are being met. For example, the EPA regularly captures and stores compliance data for licensed wastewater discharges. This data will be used to assess effectiveness and compliance with the wastewater obligations in the Policy. The implementation and success of catchment management works are measured, assessed and reported on through regional waterway strategies annual corporate reporting. The evaluation framework specifies key evaluation questions that can be answered using this type of information to evaluate effectiveness and compliance.

### ***Linking the evaluation of environmental quality and compliance***

Critically, the evaluation framework uses the evaluation of ambient environmental quality and compliance with the rules and obligations together to determine whether the non-attainment of objectives may be the result of non-compliance with the rules and obligations of SEPP (Waters). Likewise, this approach can also be used to identify where perceived compliance with the rules and obligations is not enough to protect beneficial uses and may require changes and updating.

The evaluation framework specifies evaluation periods that will support an adaptive management approach allowing adjustment to improve the implementation of the Policy based on the findings of evaluation.

### **17.3.3 SEPP (Waters) Monitoring, Evaluation and Reporting Plan**

The MER plan is a companion document to the Policy that describes in detail the evaluation framework and requirements for effectively meeting the objectives of the evaluation strategy. The implementation is the responsibility of DELWP and the EPA. The Draft SEPP (Waters) describes environmental quality objectives for segments of the environment and rules and obligation for over 40 clauses relating to activities that pose a risk to beneficial uses. The MER plan will describe:

- The minimum requirement of monitoring needed to effectively evaluate environmental quality in the policy segments.
- The agencies responsible for monitoring, evaluating and reporting on environmental quality across policy segments.
- Program logics for each clause described in the rules and obligations of the Policy
- Specific indicators and key evaluation questions for evaluating whether rules and obligations set in SEPP (Waters) are being met.
- The agencies responsible for evaluating and reporting on compliance with SEPP (Waters) and the custodians of/agencies responsible for capturing data to assess evaluation questions
- When the evaluation of environmental quality and compliance with the Policy should occur.

The MER plan houses decision frameworks that helped guide the prioritisation of monitoring, evaluation and reporting of environmental quality objectives and compliance with the policy based on the level of risk to beneficial uses. This framework provides transparent criteria to identify, and justify, where greater, or lesser effort evaluation is required.

The MER plan also identifies knowledge gaps in the monitoring, evaluation and reporting of environmental quality objectives and compliance that should be addressed over the life of the Policy. The identification of knowledge gaps will help guide where effort needs to be made to improve and enhance current evaluation methods to improve the protection of beneficial uses in future.



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# Appendices

## Appendix 1: Clause Map, Including Minor Clause Revisions

**Objective: To provide a guide to proposed SEPP (Waters) clauses; how those clauses relate to, and the extent of differentiation from, SEPP WoV and GoV clauses. Also provides a summary of minor changes.**

### Key to “Change” descriptions:

No change – the clause is the same as in the source SEPP

Minor – the intent of the clause is retained, with minor updates to reflect current conditions or to harmonise between SEPP (WoV) and Schedules, and SEPP (GoV).

Moderate – the intent of the clause is substantially the same, with wording or clause structure changed due to harmonisation or for more clearly state requirements.

Significant – major reforms or significant updates due to changes in government policy or scientific understanding, either of existing clauses or new clauses.

SEPP (Waters)	Intent/Objective	Original clause numbers							Change	Reason for Change
		WoV	F3	F5	F6	F7	F8	GoV		
Contents										
<b>PART 1 – Application</b>										
1. Title	Identifies the SEPP (Waters)	1		1	1	1	1	1	Minor	Consolidation of SEPP (WoV) and SEPP (GoV)
2. Purpose	Describes the objective of the SEPP (Waters) to improve the quality of Victoria’s waters while providing for economic and social development.	5, 7		4	4	4	5, 7	5	Minor	Harmonises objectives of SEPP (WoV) and SEPP (GoV)
3. Commencement	Sets out when the SEPP (Waters) will come into operation							1	Minor	Updated to reflect commencement date of the SEPP (Waters)
4. Revocation	Revokes the Order declaring SEPP (Waters of Victoria) and SEPP (Groundwaters of Victoria) and all amending Orders								Minor	Updated to reflect revocation of existing Water SEPP’s and associated schedules.
5. Authorising provisions	Sets out the heads of power for the SEPP (Waters) in accordance with section 16 of the EP Act	2							Minor	Reference to a head of power for the SEPP (Waters) was previously part of the

SEPP (Waters)	Intent/Objective	Original clause numbers							Change	Reason for Change
		WoV	F3	F5	F6	F7	F8	GoV		
										SEPP (WoV) context clause and introductory text for SEPP (GoV).
6. Definitions	Defines terms used throughout the SEPP (Waters)	3		3	3	3	3	4	Minor	Updated to definitions required for SEPP (Waters)
7. Application	Sets out who the SEPP (Waters) applies to and responsibilities for its implementation.	2, 13-23		10	10	10	2, 12	11	Minor	Updated to define who the SEPP (Waters) applies to with incorporation of both groundwater and surface water.
8. Policy area	Defines that the SEPP (Waters) applies to all waters throughout Victoria, including both surface waters and groundwaters.	8		5	5	5	8	6	Minor	Updated to incorporate both surface waters and groundwaters within the SEPP (Waters). Landfills are not excluded (as in SEPP (GoV)). This is addressed in Clause 16 (beneficial uses of groundwater).
9. Segments of the water environment	Defines the segments that identify parts of the policy area which have common features in terms of natural characteristics. Surface water segments are based on criteria including water quality in the system, effects of climate, physical characteristics, ecosystem character, population pressure, analysis of spatial gradients and system dynamics. Groundwater segments are based on the background (naturally occurring) level of total dissolved solids (TDS).	9		6	6	6	9	8	Significant	See Chapter 7
10. Applied, adopted or incorporated matters	Defines that a reference to a document in SEPP (Waters) includes amendments to those documents; with the SEPP prevailing if there are any inconsistencies with any document referenced.								Minor	New Clause – Implied in the existing SEPPs and now incorporated into a separate clause for clarity.
11. Policy principles	Sets out the EP Act as the basis for the	6					6	5	Minor	The SEPP (Waters)

SEPP (Waters)	Intent/Objective	Original clause numbers							Change	Reason for Change
		WoV	F3	F5	F6	F7	F8	GoV		
	administration of the SEPP (Waters).									references rather than duplicates the principles set out in the EP Act.
12. Assessing practicability	Defines what 'so far as practicable' means for the purposes of actions and management practices required to minimise risks to and impacts on beneficial uses.	12					18	12	Minor	Updated to more clearly define practicability, implementation of best practice and continuous improvement.
<b>PART 2 – PROTECTION OF ENVIRONMENTAL QUALITY</b>										
<b>DIVISION 1 – PROTECTED BENEFICIAL USES</b>										
13. Objectives	Describes what the introduction and implementation of the policy seeks to achieve, and sets out the mechanisms by which this will be done.	5		4	4	4	5,7	5	Minor	Clearly articulates what the policy is to achieve.
14. Beneficial uses of all waters	Sets out the beneficial uses in relation to all waters, both surface waters and groundwaters that are to be protected by the policy. 'Beneficial uses' is the term used to describe the values and uses of water environments that Victorians want to protect. Each beneficial use requires water of a certain quality and quantity for its protection.	10		7	7	7	10	9	Significant	See Chapter 7
15. Beneficial uses of groundwater	Describes the beneficial uses specific to groundwater and provides for the EPA to decide where a beneficial use does not apply.							9	Significant	See Chapter 7
16. Beneficial uses of surface waters	Describes the beneficial uses specific to surface waters, the limited application of certain uses to particular segments, and provides for the EPA to decide where a beneficial use does not apply.	10		7	7	7	10		Significant	See Chapter 7
<b>DIVISION 2 – ENVIRONMENTAL QUALITY INDICATORS AND OBJECTIVES</b>										
17. The environmental quality indicators and objectives	Sets out a series of environmental quality indicators and objectives that describe the levels of physical, chemical and biological parameters that characterise healthy	11		8	8	8	11	10	Significant	See Chapter 7



SEPP (Waters)	Intent/Objective	Original clause numbers							Change	Reason for Change
		WoV	F3	F5	F6	F7	F8	GoV		
	waterways required to protect beneficial uses. The exceedance of these objectives indicates a risk that should trigger investigations to assess the extent of the risk and develop mitigating actions. The clause also sets out exceptions where indicators and objective do not apply.									
<b>DIVISION 3 – TARGET SETTING</b>										
18. Developing interim regional targets in priority areas	Sets out the requirements for setting interim targets to drive the progressive rehabilitation of environmental quality in priority areas across Victoria. It obliges CMAs and Melbourne Water to undertake planning/actions to address water quality where it is a threat to beneficial uses. Not all beneficial uses in priority reaches.	24							Significant	See Chapter 8
19. Pollutant load reduction targets	Provides for quantitative targets to drive investment in management actions that will reduce pollutant loads generated from point and diffuse sources entering Lake Wellington, Corner Inlet, Western Port and Port Phillip Bay. The targets are based on best available science and describe targets that need to be achieved to protect beneficial uses.		3A	11, 13, 15	11, 12		19 24		Significant	See Chapter 9
<b>PART 3 RULES AND OBLIGATIONS</b>										
<b>DIVISION 1 – ALL WATERS</b>										
<b>SUBDIVISION 1 – WASTE AND WASTEWATER MANAGEMENT</b>										
20. Management of discharges to surface waters	Sets out a requirement for discharges to be managed in accordance with an order of preference— avoidance, re-use, re-cycling, recovery of energy, treatment, containment, disposal.	26, 27, 28, 29, 30	1, 2, 3, 4	16	8, 13, 20, 24	12,	31		Significant	See Chapter 10

SEPP (Waters)	Intent/Objective	Original clause numbers							Change	Reason for Change
		WoV	F3	F5	F6	F7	F8	GoV		
21. Applications for wastewater discharges	Sets out the requirements for applicants of works approvals and licences to manage their discharges to minimise impacts on beneficial uses, including the option to . prepare a risk assessment.								Significant	See Chapter 10
22. Consideration of applications for wastewater discharges	Sets out the responsibilities of the EPA in assessing works approval and licence amendment applications which involve the discharge of wastewater to surface waters, and includes circumstances where approval will not be given.								Significant	See Chapter 10
23. Approval of mixing zones	Sets out the requirements for the approval a mixing zone in an application to discharge wastewater to surface waters where it can be demonstrated that is not practicable to avoid, reuse or improve the effluent quality and where environmental quality objectives set in this Policy cannot be met at the point of discharge. Also, defines where mixing zones will not be permitted.								Significant	See Chapter 10
24. Use of offset measures to protect beneficial uses	Sets out the mechanisms to approve an application to discharge water of a lower quality than would otherwise be acceptable.			14					Significant	See Chapter 10
25. Discharges that provide environmental benefits	Sets out the circumstances where an application to discharge wastewaters to surface water to provide water for the environment may be approved.								Significant	See Chapter 10
26. Management of wastewater reuse and recycling	Sets out high level guidance about the management of wastewater reuse and recycling, identifying that it needs to be managed in accordance with the <i>Guidelines for Environmental Management: Use of Reclaimed Water</i> (EPA Publication 464.2)	31							Minor	Simplifies by making reference to the appropriate guidance.
27. Management of	Sets out the requirements for the	35			21	20			Moderate	See Chapter 13

SEPP (Waters)	Intent/Objective	Original clause numbers							Change	Reason for Change
		WoV	F3	F5	F6	F7	F8	GoV		
sewerage systems	management of the risk posed by overflows, leakages and collapses of infrastructure that collects and delivers sewage to treatment plants.									
28. Consideration of applications for sub-division and onsite domestic wastewater management	Requires local government to ensure that domestic wastewater is treated and managed to prevent any effluent flowing onto neighbouring properties and to avoid any negative impacts on the beneficial uses of surface and groundwater. Requires reticulated sewerage (or alternative system as per the Code of Practice On-Site Wastewater Management) to be provided at the time of subdivision where sites are not capable of containing wastes.	32			21	20			Significant	See Chapter 12
29. Councils to develop a domestic wastewater management plan	Requires local councils to prepare domestic wastewater management plans in their municipal districts. The clause sets out the requirements for a plan.	32			21	20			Significant	See Chapter 12
30. Sewerage planning	Requires water corporations to work with councils to identify and prioritise options for sewerage services where offsite treatment is identified as the preferred option in domestic wastewater management plans.	33				20	30		Significant	See Chapter 12
31. Connection to sewerage	Requires that, where sewerage is provided, a property must be connected, unless wastewater is reused in accordance with EPA guidelines and is retained on-site. Water companies and authorities are responsible for ensuring that properties which cannot contain their waste on-site are connected to reticulated sewerage.	34				20			Significant	See Chapter 12
<b>SUBDIVISION 2 –MANAGEMENT OF SPECIFIC RISKS TO BENEFICIAL USES</b>										
32. Planning schemes and	Provide for the retention of the links with the	17			15,	23	13,	14	Minor	Updated to clearly define

SEPP (Waters)	Intent/Objective	Original clause numbers							Change	Reason for Change
		WoV	F3	F5	F6	F7	F8	GoV		
permits	Victorian Planning Provisions by providing the policy basis for specific State Planning Policy considerations (e.g. 19.03-2 Water supply, sewerage and drainage, 13.02-1 Floodplain management).				23					the role of responsible authorities in the consideration of applications for planning permits and administration of planning schemes.
33. Protecting catchment areas used to supply water	Requires protection agencies to manage potable water supply catchments in aquatic reserves to protect the quality of water from the catchment to minimise the cost of treatment.					21			Minor	Updated to better define obligations for water corporations with water supplies in the aquatic reserves segment and clarifies responsibilities for land managers in the segment.
34. Urban stormwater	Sets out the need to protect surface water environments and their beneficial uses from the impacts of stormwater run-off from urban areas. The clause is one of several instruments that manage stormwater to improve water quality.	46			22	22,	23		Moderate	See Chapter 13.
35. Management of saline discharges	Sets out which protection agencies have responsibilities for avoiding or minimising the impact of saline discharges and the specific actions that are to be taken in carrying out those responsibilities.	36				26			Minor	Updated to better define roles and responsibilities.
36. Minimising impacts of irrigation drains and channels on receiving waters	Sets out that discharge of drainage water and level of pollutants in channel and drainage water needs to be minimised.	18, 36, 50, 51							Moderate	Updated to more clearly emphasise the need to minimise impacts.
37. Responsibilities of protection agencies for irrigation drains	Provides for the responsibilities of relevant protection agencies in minimising the impact of irrigation drains and channels on receiving waters.	18, 36, 50, 51							Moderate	Updated to more clearly state responsibilities and emphasise the need to minimise impacts. Descriptions of support activities are removed, as

SEPP (Waters)	Intent/Objective	Original clause numbers							Change	Reason for Change
		WoV	F3	F5	F6	F7	F8	GoV		
										they are better aligned to the implementation activities.
38. Management of recreational activities	Sets out the need to protect beneficial uses from the impacts of recreational activities and infrastructure on or adjacent to waterways	54			19	17			Moderate	Updated to clearly define obligations for planning/responsible authorities and protection agencies and harmonises existing clauses. The clause specifically states infrastructure, even though it is implied in the definition of "recreational activities". Actions that remain relevant are incorporated into the implementation plan.
39. Minimising runoff of pollutants from agricultural activities	Sets out requirements for an occupier of premises used for agricultural activities to implement measures to minimise runoff of pollutants from that premises to waters, where practicable.	39, 50, 52,				25		24	Minor	Consolidates existing clauses and other partial clauses that address prevention and minimisation of wastes from agricultural related activities from entering waters.
40. Works affecting water dependent ecosystems and biodiversity	Sets out the requirement to minimise the environmental risks to water dependent ecosystems and other beneficial uses from unnatural erosion and sediment re-suspension and other environmental risks from works undertaken in or on a waterway.	43			16	14	25		Minor	Clause clarifies that works must be managed to minimise risks, and replacement of 'aquatic' with 'water dependent' ecosystems – a more appropriate designation.
41. Storage and handling of fuels and potentially polluting chemicals	Sets out the obligation for an occupier of premises to prevent chemicals on premises from reaching surface and groundwaters,	37				14			Minor	Updated to clearly state requirements to prevent chemicals on premises from

SEPP (Waters)	Intent/Objective	Original clause numbers							Change	Reason for Change
		WoV	F3	F5	F6	F7	F8	GoV		
	noting that compliance can be achieved by conformance with the Bunding Guidelines.									reaching surface water and groundwaters.
42. Management of construction activities	Sets out the requirement to reduce the risk of sediments and other pollutants entering surface waters from construction activities.	56			23	23			Minor	Reworded to make it easier to understand and enforce.
<b>DIVISION 2- SURFACE WATERS</b>										
<b>SUBDIVISION 1 – PROTECTING SURFACE WATER BENEFICIAL USES</b>										
43. Management of groundwater risks to surface waters	Sets out the requirement for groundwater management and extraction to not detrimentally affect the quality and flow of surface waters.	45							Minor	More clearly states the requirement for groundwater managers to manage their activities so they do not pose an environmental risk to surface water.
44. Commitment to water conservation	Encourages water saving practices and measures (e.g. re-use and recycling of wastewater) particularly for new developments.	40							Minor	More clearly defines roles for municipal councils and water corporations.
45. Native vegetation protection and rehabilitation	Requires Responsible Authorities to consider the impact on water quality from applications for native vegetation removal within or adjacent to surface waters under the Victorian Planning Provisions. The clause also seeks to ensure rehabilitation of native riparian, instream, coastal and marine vegetation.	53					20, 21, 22		Minor	Updated to more clearly describe requirements.
46. Floodplains and flood detention	Requires protection agencies with responsibility for floodplain and waterway management to ensure as far as practicable that floodplains are managed to protect beneficial uses					16			Minor	More clearly defines who the clause applies to.
47. Management of roads	Sets out the requirements to reduce the amount of sediment and pollutant runoff from sealed and unsealed roads to	57			24	22, 24	18		Minor	Updated to emphasise need for a road authority or protection agencies to

SEPP (Waters)	Intent/Objective	Original clause numbers							Change	Reason for Change	
		WoV	F3	F5	F6	F7	F8	GoV			
	contribute to the protection of surface waters and their beneficial uses .										minimise erosion, sediment and pollutant transport from roads and associated infrastructure.
48. Forestry activities	Requires forestry activities, forestry managers and operators to carry out forestry and timber harvesting activities on both private and public land in compliance with any Code of Practice adopted under the Sustainable Forests (Timber) Act 2004 as it relates to water quality.	55								Moderate	Reference to EPA role relating to audits to assess compliance with the Code for forestry activities on public land have been removed from the clause as it is now a DELWP responsibility and incorporated into an implementation action.
49. Releases from water storages	Requires water storage operators to consider the water quality impacts of releases from storages on the receiving water environment, prior to the release. This is to be done by undertaking a risk assessment to consider how the release may alter flow patterns or vary sediment, salt, nutrients, temperature, dissolved oxygen or other pollutants from the downstream level and then to act to minimise any risks identified.	42		12		15	25			Minor	Clause simplified and explanatory material removed. Harmonisation has adopted the key wording of the schedules.
50. Dredging and desilting management	Requires people to plan and undertake dredging and desilting activities, in accordance with the Best Practice Environmental Management Guidelines for Dredging (2001) to minimise the impact on aquatic ecosystems.	44			13	19				Minor	Updated to focus on the existing commitment to comply with the BPEM.
51. Wastes and wastewaters from ports, marinas and vessels	Sets out the responsibilities of port, marina and vessel operators to ensure that waste and wastewaters from port, marina and vessel operations and maintenance activities are managed to minimise environmental	47	6		14, 15	18	32			Moderate	Harmonises clauses and removes reference to ballast waters as this is managed through the Waste management policy



SEPP (Waters)	Intent/Objective	Original clause numbers							Change	Reason for Change
		WoV	F3	F5	F6	F7	F8	GoV		
	risks to beneficial uses.									(Ships' Ballast Water), Environment Protection (Ships' Ballast Water) Regulations 2006 and Protocol for Environmental Management Domestic Ballast Management in Victorian State Waters. A series of implementation actions capture key elements that were removed from the clause.
52. Aquatic pests	Sets out requirements to implement effective maintenance practices to prevent the introduction and spread of aquatic pests from biofouling on vessels.	49			14		28		Moderate	Reworded to address the introduction, control and management of aquatic pests and minimise their impacts on beneficial uses of waters through biofouling on vessels. Reference to ballast water has been removed as this is dealt with under existing primary legislation.
<b>DIVISION 3 - GROUNDWATERS</b>										
<b>SUBDIVISION 1 – PROTECTING GROUNDWATER BENEFICIAL USES</b>										
53. Prevention of groundwater pollution	Sets out the requirements to prevent pollution of groundwater resources.							12	No change	Minor wording change
54. Direct waste discharge to groundwater	Defines that direct discharge of waste to an aquifer is not allowed to occur other than for the activities identified and where groundwater quality objectives will be met and there will be no detriment to any beneficial use of groundwater, land or surface water.							20	Moderate	Additional activities that can be permitted have been included. These are groundwater remediation, groundwater tracers, carbon geosequestration, recycled water storage and mine rehabilitation. The

SEPP (Waters)	Intent/Objective	Original clause numbers							Change	Reason for Change
		WoV	F3	F5	F6	F7	F8	GoV		
										incorporation of additional activities that can be permitted (with conditions) can reduce the regulatory burden on these activities.
55. Non-aqueous phase liquids	Requires NAPLs, which have the potential to cause long term groundwater contamination. to be removed from groundwater where its presence represents a risk to a beneficial use.							18	Minor	Wording updated for clarity
56. Rising watertables	Sets out the requirements to prevent land based waste disposal activities occurring in areas where an increase in water table height may affect groundwater quality and impact on surrounding beneficial uses. It provides a preventative approach by ensuring the issue is considered during the approval / planning process before any activity is undertaken.							21	Minor	Updated to more clearly describe what must be considered.
<b>SUBDIVISION 2 – IDENTIFYING AND MANAGEING POLLUTANTS IN GROUNDWATER</b>										
57. Hydrogeological assessments	Provides for EPA to require proponents or holders of work approvals and licences to undertake a hydrogeological assessment to determine if there is any existing or potential risk to groundwater quality where waste is permitted to be discharged to groundwater; e.g. irrigation water, managed aquifer recharge or as part of groundwater remediation practices.							16	Minor	Minor wording update to improve clarity.
58. Groundwater Attenuation zones	Provides for the EPA to designate zones where no practicable alternative exists to prevent impacts on groundwater quality from particular activities. An attenuation zone permits exceedance of specified groundwater quality objectives within a designated area and is strictly implemented.							17	Minor	Minor wording changes including reference to environmental quality rather than groundwater or water quality.

SEPP (Waters)	Intent/Objective	Original clause numbers							Change	Reason for Change
		WoV	F3	F5	F6	F7	F8	GoV		
59. Groundwater quality restricted use zones	Sets out the requirements to define an area that has an existing level of groundwater contamination that precludes one or more beneficial use that would otherwise apply.							19	Minor	Updated to improved readability
Schedule 1: Segments	Contains maps of surface water segments and definitions of each segment in the policy	Annex A, Figure 1	Segments	6, Figure 1	6, Figure 1, Figure 2	5, Figure 1, Figure 2	Annex A, Figure 1	8	Significant	See Chapter 7
Schedule 2: Beneficial Uses	Contains the tables of beneficial uses, and exemptions where they are not protected, referenced in clause 15 -17	Table 1	#	Table 1	Table 1	Table 1	Table 1	Table 2	Significant	See Chapter 7
Schedule 3: Environmental Quality Indicators and Objectives	Contains the tables of objectives as well as clauses describing how tables must be used and narrative objectives for each water segments as referenced in clause 18.	Schedule A	#	8, Table 2&3	8, Table 2	8, Table 2, Table 3, Table 4	Table 2, Table 3, Table 4	Table 2 and Table 3	Significant	See Chapter 7
Schedule 4: Pollutant Load Reduction Targets	Contains the tables specifying load reduction targets, and clauses describe conditions and requirements for achieving those targets		3A	15	12		19		Significant	See Chapter 7
Schedule 5: Areas of High Conservation Values	Contains the list if areas of high conservation value	Schedule B							No change	

**Clauses proposed to be removed from WoV and GoV SEPPs.**

<b>Current Clause</b>	<b>WoV</b>	<b>F3</b>	<b>F5</b>	<b>F6</b>	<b>F7</b>	<b>F8</b>	<b>GoV</b>	<b>Intent/objective of original clause</b>	<b>Reason for Removal</b>
Responsibilities	13-23	5	10	10	10	12	11	Identify the roles and responsibilities for the implementation of the SEPPs	Not required as they duplicate legal obligations defined in various Acts and the obligations are more appropriately identified in specific SEPP (Waters) clauses.
Clean-up of polluted groundwater							13	Allows EPA to require clean-up of pollution.	The Clause restates provisions in the EP Act and is not required.
Groundwater Protection Zones							15	Creates a mechanism by which to add groundwater protection zones to Schedule A of the policy, allowing for more stringent controls in areas of highly valued groundwater.	Adequate provisions for the protection of groundwater quality in areas of highly valued groundwater can be provided in relevant planning schemes.
Drilling, bore construction and decommissioning							22	Highlights the need for drilling, bore construction and decommissioning activities to be carried out in accordance with best practice.	The risks of these activities are mitigated through licensing, adoption of national standards and development and implementation of industry best practice guidelines.
Regional catchment strategies							23	Requires EPA to work with CMAs to ensure Regional Catchment Strategies includes consideration of the beneficial uses of groundwater.	The clause does not require statutory force.
Diffuse Sources							24	Seeks to minimise the impacts of activities (primarily agricultural) which have the potential to generate diffuse sources of water pollution.	Intent has been incorporated into draft clause 39.
Guidance on environmental management	25				28		27	Require EPA to be involved in the development of codes of practice and guidelines to protect surface water and groundwater. SEPP (WoV) included reference to specific issues and a requirement for relevant material to be incorporated into planning and approval processes.	EPA has the power to develop and approve guidance and make it publically available - this does not require statutory definition. New guidance material identified from consultation in the development of SEPP (Waters) will be identified in the Implementation Plan.

Current Clause	WoV	F3	F5	F6	F7	F8	GoV	Intent/objective of original clause	Reason for Removal
Research and monitoring			16	24	27	15, 16, 17	25	Sets out EPAs commitment to undertake and facilitate research and monitoring to assist in maintaining and enhancing groundwater quality.	The clause does not require statutory definition.
Hydrogeological information / data gathering							26	Requires DELWP to establish and maintain an extensive hydrogeological information system	A clause for hydrogeological data and information is not required in SEPP (Waters) - to be included in MER Plan (to be developed)
Public Awareness							28	Sets out the requirement for EPA and DELWP to encourage awareness of groundwater resources and protection and to make Codes of Practice and Guidelines available.	Activity does not require statutory definition
Monitoring assessment and reporting of groundwater quality and policy performance							29	Notes that EPA will coordinate the monitoring of groundwater quality and periodically report this and the implementation of SEPP GoV.	A clause for monitoring, assessment and reporting of groundwater quality and policy performance is not required in SEPP (Waters).
Spills, illegal discharge and dumping of waste	38							Provides measures to prevent the spillage of chemicals, oil and other hazardous substances to surface waters etc. and clean up arrangements are in place to minimise environmental risks to beneficial uses.	The threat identified by clause 38 is addressed through the provisions of the <i>Marine (Drug, Alcohol and Pollution Control) Act 1988</i> , and national and state marine pollution contingency plans and legislation administered by EPA. With respect to inland spills, existing water quality incident management frameworks provide adequate response and clean-up arrangements.
Water allocations and environmental flows	41							SEPP (WoV) requires DELWP in consultation with catchment management authorities, relevant water authorities and EPA, to develop and implement measures to provide environmental flows to assist in protecting beneficial uses.	The provision of environmental flows is now legislated for in the <i>Water Act 1989</i> .

Current Clause	WoV	F3	F5	F6	F7	F8	GoV	Intent/objective of original clause	Reason for Removal
Aquaculture	48			17				Requires EPA, DPI and DSE to provide guidance on effective management practices and environmental monitoring requirements to managers of aquaculture operations, particularly for water based operations. Requires EPA, DPI and DSE to ensure operators implement effective management practices and appropriate environmental monitoring systems.	Aquaculture operators are managed through licensing provisions contained within the <i>Fisheries Act 1995</i> and the Environment Protection (Scheduled premises and Exemptions) Regulations 2017.  DEDJTR has provided guidance on its website for operators.
Mining and extractive industries	58							Requires extractive industries to be managed in a way that minimises the environmental impacts of sediments and pollutants on surface waters and groundwater.	Extractive industries that discharge waste to water are managed through the licensing (mining) and work authority (extractive industry) provisions of the Mineral Resources (Sustainable Development) Act 1990, and the Environment Protection (Scheduled Premises and exemption) Regulations 2017.
Schedules – Strategies and plans		5	11		11			Required the preparation and implementation of specific strategies and plans	Yarra Catchment Action Plan requirement from Schedule F7 to be included in Melbourne Waters, The Regional Waterway Strategy and the Yarra River Strategies. The Water Quality Management Strategy requirement in Schedule F5 has been removed to avoid duplication with the West Gippsland CMA Regional Waterway Strategy.

## Appendix 2: Existing and proposed beneficial uses

Beneficial uses in the existing water-related SEPPs SEPP (WoV) and schedules, SEPP (GoV)	Beneficial uses proposed for SEPP (Waters)	Beneficial use purpose or intent	Waters that beneficial use is applicable
Protection of water dependent ecosystems and species			
<ul style="list-style-type: none"> <li>• Aquatic ecosystems</li> <li>• Maintenance of natural aquatic ecosystems and associated wildlife</li> <li>• Maintenance of ecosystems (groundwater)</li> <li>• Maintenance of indigenous riparian vegetation</li> <li>• Passage of native fish</li> </ul>	Water dependent ecosystems and species	Water quality that is suitable to protect the integrity and biodiversity of water dependent ecosystems	groundwater and surface water
Water for human consumption			
<ul style="list-style-type: none"> <li>• Human consumption after appropriate treatment</li> <li>• Potable water supply</li> </ul>	Human consumption after appropriate treatment	Water quality that is suitable for use by drinking water suppliers after appropriate treatment and for delivery to consumers Water quality is protected for the desalination plant	surface water
<ul style="list-style-type: none"> <li>• Potable water supply (desirable / acceptable)</li> </ul>	Potable water supply	Groundwater quality that is suitable for raw/ potable water supply	groundwater
<ul style="list-style-type: none"> <li>• Potable mineral water supply</li> </ul>	Potable mineral water supply	Water quality that is suitable for use as mineral water, which in its natural state contains carbon dioxide and other soluble matter in sufficient concentration to cause effervescence or impart a distinctive taste	groundwater
Water for agriculture, aquaculture and industry			
<ul style="list-style-type: none"> <li>• Agriculture and irrigation</li> <li>• Agricultural water supply</li> <li>• Stock watering and agriculture</li> <li>• Agriculture, parks and gardens</li> <li>• Stock watering</li> </ul>	Agriculture and irrigation	Water quality that is suitable for agricultural activities such as stock watering and irrigation, as well as a range of other uses such as the irrigation of domestic gardens, commercial agriculture, parks and golf courses	groundwater and surface water
<ul style="list-style-type: none"> <li>• Fish, Crustacea and molluscs for human consumption</li> <li>• Production of molluscs for human consumption</li> <li>• Consumption of fish, Crustacea and molluscs for recreation and commercial purposes</li> <li>• Commercial and recreational use of edible fish and crustacean (the consumption of seafood other than molluscs)</li> </ul>	Human consumption of aquatic foods (natural populations - commercial and recreational catch)	Water quality that is suitable for the safe human consumption of fish* and any other aquatic plant, algae or invertebrate  *as defined in the <i>Fisheries Act 1995</i>	surface water



Beneficial uses in the existing water-related SEPPs SEPP (WoV) and schedules, SEPP (GoV)	Beneficial uses proposed for SEPP (Waters)	Beneficial use purpose or intent	Waters that beneficial use is applicable
<ul style="list-style-type: none"> <li>• Aquaculture</li> <li>• Fishing and aquaculture</li> <li>• Production of molluscs for human consumption</li> </ul>	Aquaculture	Water quality that is suitable for the production of fish* for human consumption via aquaculture. Aquaculture is only protected in areas that have been approved by the Minister responsible for administering the <i>Fisheries Act 1995</i>	surface water
<ul style="list-style-type: none"> <li>• Industrial and commercial use</li> <li>• Industrial water use</li> </ul>	Industrial and commercial use	*as defined in the Fisheries Act 1995 Water quality that is suitable for industrial and commercial use	groundwater and surface water
Water for recreation			
<p>Water based recreation</p> <ul style="list-style-type: none"> <li>• Primary contact recreation</li> <li>• Secondary contact</li> <li>• Aesthetic enjoyment</li> </ul>	Water based recreation	Water quality that is suitable for primary contact recreation (e.g. swimming, diving, water skiing, caving and spas), secondary contact recreation (e.g. boating and fishing) and for aesthetic enjoyment.	groundwater and surface water
Water for cultural and spiritual values			
Indigenous cultural and spiritual values	Traditional Owner cultural and spiritual values	Water quality that is suitable for cultural and spiritual needs and that will ensure that Traditional owner cultural, spiritual and ceremonial practices can continue. These include the spiritual values of surface and groundwater held by traditional owner communities.	groundwater and surface water
Non-indigenous cultural and spiritual values	Cultural and spiritual values	Water quality that is suitable for cultural and spiritual needs and that will ensure that cultural, spiritual and ceremonial practices can continue. These include the cultural values held by both urban and rural communities (e.g. water based festivals and celebrations)	groundwater and surface water
Water for other beneficial uses			
Navigation and shipping	Navigation and shipping	Water quality that is suitable for shipping transport and harbour facilities	surface water
Buildings and structures	Protection of buildings and structures	Groundwater quality that will ensure that introduced contaminants do not cause groundwater quality to become corrosive to buildings, structures, property and materials	groundwater

Beneficial uses in the existing water-related SEPPs SEPP (WoV) and schedules, SEPP (GoV)	Beneficial uses proposed for SEPP (Waters)	Beneficial use purpose or intent	Waters that beneficial use is applicable
N/A - new	Geothermal	Water quality that will not affect the geothermal capacity of the groundwater	groundwater

### Appendix 3: SEPP (Waters) proposed segments matched to SEPP (WoV) and schedules

Water	Proposed New Segment	Proposed New Sub-segment	SEPP (WoV)	F3 Gippsland Lakes and Catchment	F5 Waters of the Latrobe and Thomson and Merriman Creek catchments	F6 Waters of Port Phillip Bay	F7 Waters of the Yarra Catchment	F8 Waters of Western Port and Catchment
Aquatic Reserves	Aquatic Reserves		Aquatic Reserves	D: Eastern Lakes F: Lake Coleman G: Wetlands H: Macleods Morass	A: predominately reserves and conservation areas B: predominately forests and forestry activities C: mixed forestry and agricultural activities D: predominantly agricultural activities	Aquatic Reserves	Aquatic Reserves Parks and Forests	
Wetlands and Lakes	Wetlands and Lakes		Wetlands and Lakes	D: Eastern Lakes G: Wetlands	C: mixed forestry and agricultural activities D: predominantly agricultural activities G: wetlands			
Rivers and Streams	Highlands		Highlands	A: Upper riverine	B: predominately forests and forestry activities			
	Uplands A		Forest A		B: predominately forests and forestry activities C: mixed forestry and agricultural activities D: predominantly agricultural activities		Parks and Forests Rural Eastern waterways Rural Western waterways	Northern Hills
	Uplands B		Forest B	A: Upper riverine	B: predominately forests and forestry activities			
	Murray and western plains		Murray and western plains					
	Central foothills and coastal plains		Cleared hills and coastal plains	A: Upper riverine B: Lower riverine	B: predominately forests and forestry activities C: mixed forestry and agricultural activities D: predominantly agricultural activities E: predominately the industrial area of the Latrobe Valley F: natural watercourses draining irrigation		Rural Eastern waterways Rural Western waterways Urban waterways	Northern Hills French Island Peninsula South Eastern Rural Lowlands and Phillip Island

Water	Proposed New Segment	Proposed New Sub-segment	SEPP (WoV)	F3 Gippsland Lakes and Catchment	F5 Waters of the Latrobe and Thomson and Merriman Creek catchments	F6 Waters of Port Phillip Bay	F7 Waters of the Yarra Catchment	F8 Waters of Western Port and Catchment
	Urban						Rural Western waterways Urban waterways	Northern Hills Peninsula Lowlands and Phillip Island
Marine and Estuarine	Estuaries and Inlets		Estuaries and Inlets				Upper Estuary Yarra Port	
	Port Phillip Bay	Hobsons Bay				Hobson, General, Inshore		
		Central-East				General , Inshore		
		Geelong Arm				Corio, Werribee, Inshore		
		Exchange				General , Inshore		
	Western Port	Entrance and north arm						Entrance and north arm
		East arm						East arm
	Corner Inlet		Estuaries and inlets					
	Gippsland Lakes	Lake Wellington			C: Lake Wellington			
		Lake Victoria			D: Eastern Lakes			
		Lake King			B: Lower riverine D: Eastern Lakes			
		Lake Reeve			E: Lake Reeve	G: wetlands		
		Exchange			B: Lower riverine D: Eastern Lakes			
	Open Coast	Otway		Open Coast				
		Bass (Central)						
Gippsland (Two-fold)								