Prepared for WaterNSW

Regulatory Impact Statement for review of the Water NSW Regulation 2013

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March 2020

sapere research group

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Glossary

Act	*Water NSW Act 2014*
ADWG	Australian Drinking Water Guidelines, refer NRMMC (2011)
ARA	Appropriate regulatory authority under the POEO Act
EPA Act	*Environmental Planning and Assessment Act 1979 (NSW)*
EPA	Environment Protection Authority
ILP Act	*Inclosed Lands Protection Act 1901(NSW)*
IPART	Independent Pricing and Regulatory Tribunal
NPV	Net present value
NPW Act	*National Parks and Wildlife Act 1974 (NSW)*
NPWS	NSW National Parks and Wildlife Service
OEH	Office of Environment and Heritage
PIN	Penalty Infringement Notice
POEO Act	*Protection of the Environment Operations Act 1997(NSW)*
RIS	Regulatory Impact Statement
SASPOM	Special Areas Strategic Plan of Management (WaterNSW and OEH, 2015).
SCA	Sydney Catchment Authority
SEPP-SDWC	*State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011(NSW)*
SI–PLEP	Standard Instrument – Principal Local Environment Plan
SL Act	*Subordinate Legislation Act 1989 (NSW)*
Regulation	Water NSW Regulation 2013
SWCM Regulation	Sydney Water Catchment Management Regulation; the regulation preceding the Water NSW Regulation 2013
WMP	Water monitoring program
WTP	Willingness to pay

Executive summary

WaterNSW is a NSW Statutory State-Owned Corporation established under the *Water NSW Act 2014* (the Act). WaterNSW's role includes managing and protecting Greater Sydney's water supply catchments and infrastructure and being a bulk supplier of water to its customers.

The Act reflects the multi-barrier approach to water quality of establishing the catchments as a critical first barrier in preventing pollutants entering the water supply. The Act establishes Special Areas, surrounding the water storage as buffer zones that act as a filter to help protect water quality. These areas are primarily located on land that is owned by WaterNSW or NSW National Parks and Wildlife Service. Similarly the Act establishes Controlled Areas, which are primarily declared over land owned by WaterNSW that contains and surrounds key WaterNSW water supply assets such as pipelines and canals.

The Water NSW Regulation 2013 (the Regulation) is a regulation made under the Act that supports the WaterNSW's water quality protection and catchment management functions, in particular, its regulation of Special Areas and Controlled Areas. Sections 51 and 55 of the Act provide guidance in respect to regulations regarding the Special Areas and Controlled Areas.

In accordance with the *Subordinate Legislation Act 1989*, this regulation is due to lapse on 1 September 2020. Before the regulation can be remade a regulatory impact statement (RIS) assessing the economic and social costs and benefits of the proposed regulation, and any alternatives, is required. This report is a RIS for the making of the proposed regulation for 2020.

The objective of the regulation

The objective of the regulation is to support WaterNSW in fulfilling its one of its principal statutory objectives under the Act of protecting the quality and quantity of water in declared catchment areas. The regulation does this by:

- regulating conduct in Special Areas and Controlled Areas by:
  - regulating access and conduct
  - establishing offences and penalties relating to prohibited access and conduct
- conferring on the WaterNSW functions that include enforcement powers under the *Protection of the Environment Operations Act 1997* (POEO Act) in and around the catchments.

The rationale for regulation rests on the efficiency and effectiveness of enforcing compliance with the Act. In the absence of regulation:

- there would be insufficient disincentives for activities that pose risks to water quality and the environment in and around the catchments
- residual compliance powers would be insufficient and the costs of enforcing compliance primarily due to the remote locations involved would be unnecessarily high.

Proposed regulation and alternative options

Three options have been considered as part of this RIS process. These are:

- a 'do nothing' case, where the current regulation is repealed and no replacement regulation is introduced (Option 1)
- a 'minimalist' (roll-over) case, where a replacement regulation is introduced which mirrors the current regulation in place (Option 2)
- a 'proposed' case, where the current regulation is combined with various amendments. (Option 3). The proposed amendments and their rationale are summarised in Table 1 below.

Table 1: Amendments proposed under Option 3

Amendment	Rationale
1. Broadening the nature of chemicals regulated by including 'environmentally hazardous chemicals' alongside references to 'pesticides'	Improve efficiency in protecting the water supply from hazardous chemicals
2. Allow authorised officers to respond to offensive conduct and prohibiting the consumption of alcohol in certain areas	Address developing problems in recreational areas. Reduce incidents (a public benefit), the costs of security and police involvement.
3. Prohibit operation of unmanned vehicles on Schedule 1 land and Schedule 2 land	Address the risk of drones impacting on catchment infrastructure
4. Prohibit commercial activity on Schedule 1 land and Schedule 2 land	To reduce risk of illegal dumping that is associated with commercial activities
5. Amend clause on animal management on land	Improve consistency with other legislative instruments and remove redundant clause
6. Amendment to address pollution originating from land adjacent to special areas and controlled areas	To address a long-standing issue of pollution migrating from adjacent lands to special areas and controlled areas
7. Introduction of a new offence to 'enter water'	Address a loop-hole in protection of water-supply
8. Increases in penalties by way of Penalty Infringement Notice for some offences	Greater deterrent in relation to activities that threaten the water supply and the catchment

Amendment	Rationale
9. Schedule 1 updates	To improve clarity and reflect changes in use
10. Other minor amendments	To improve clarity.

Note: References are to the Regulation.

Internal discussions within WaterNSW have not led to any other alternatives being considered.

Costs and benefits of options

The costs and benefits of the three options were evaluated. Option 1 (no-regulation) is considered to be the 'base case' against which other options are evaluated.

A roll-over of the existing regulation (Option 2) is estimated to have significant benefits over the base case (Option 1) primarily in reducing the WaterNSW's (and others) costs of managing the catchments and in reducing risks to water quality.

The proposed regulation (Option 3) includes amendments, which individually and collectively provide additional benefits over and above Option 2. Most of the amendments are minor; however, they all have a clear positive benefit.

A summary of the evaluation is provided in the table below. While the values provided should be considered indicative, the conclusions are not sensitive to any reasonable changes in assumptions.

Table 2: Summary comparison of options

	Net present value (NPV) benefit relative to Option 1	Notes
Option 1 — No regulation	No net benefit; Option 1 is the base case.	
Option 2 – Rollover case	Substantial positive net benefits. • Management cost savings ≈ $37 million NPV • Reduction in water quality risks (in order of $20 million NPV) Total benefit in excess of $55 million NPV.	• Includes costs to WaterNSW and other agencies

	Net present value (NPV) benefit relative to Option 1	Notes
Option 3 – Proposed regulation	Same as Option 2 + additional net benefits including: •	• Each proposed amendment has a clear net benefit. • None of the proposed amendments impose material costs.

Source: Summarised from Section 4. NPV calculated over 20 years using a 7% discount rate.

Consultation

A consultation plan has been developed that involves public exhibition of the draft regulation and the RIS. The communication of the public exhibition will an update to WaterNSW's website, advertising in metropolitan media and direct correspondence to identified stakeholders.

1. Introduction and background

1.1 Overview

WaterNSW is a Statutory State-Owned Corporation established under the *Water NSW Act 2014* (the Act).[1] WaterNSW owns and operates 40 dams across the state, and supply two-thirds of water used in NSW to regional towns, irrigators, Sydney Water Corporation and local water utilities

WaterNSW's role includes identifying and managing impacts on water quality in the 'declared catchment areas', which at present refers to the catchment area that supplies the drinking water for the 5 million people living in Greater Sydney (encompassing Sydney and the Illawarra, Blue Mountains, Southern Highlands, Goulburn, and Shoalhaven regions).

The *Water NSW Regulation 2013* (the Regulation)[2] is subordinate regulation to the Act. The Regulation's primary existing purpose is to enable WaterNSW to control access activities to Greater Sydney's drinking water catchments. Indirectly, this enabling piece of legislation plays a part in ensuring the WaterNSW is able to fulfil its obligation to its customers, and Sydney has access to quality water supplies. Sections 51 and 55 of the Act provide guidance in respect to regulations regarding the Special Areas and Controlled Areas.[3]

Under the *Subordinate Legislation Act 1989 (NSW)* (SL Act) the Regulation will lapse on 1 September 2019.[4] WaterNSW proposes to remake the regulation. In order to do so, it is required under the SL Act to prepare a regulatory impact statement (RIS) to assess the economic and social costs and benefits of the proposed Regulation and its alternatives. The SL Act also requires that the RIS and the draft of the proposed Regulation are publicly exhibited and that the community is given an opportunity to comment.

This report is a RIS for the making of the proposed Water NSW Regulation 2020.

Purpose of the RIS and structure of this report

The purpose of the RIS process is to improve the quality of regulatory proposals, to ensure that alternative options are considered, and that the regulations selected provided the best approach to meet the objectives proposed.

The SL Act requires that a RIS include:

(a) a statement of the objectives sought to be achieved and the reasons for them

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1 WaterNSW formed on 1 January 2015 by bringing together the Sydney Catchment Authority and State Water.

2 The Regulation formed as a replacement of the *Sydney Water Catchment Management Regulation 2008* (SWCMR) which was repealed on 1 September 2013.

3 Section 74 is also relevant. s 74(1) of the Act states that 'The Governor may make regulations, not inconsistent with this Act, for or with respect to any matter that by this Act is required or permitted to be prescribed or that is necessary or convenient to be prescribed for carrying out or giving effect to this Act'.

4 The Regulation was originally due to lapse on 1 September 2018. It was extended for 12 months due to extensive inquiries into the water sector and for a further 12 months due to the NSW election and other delays..

(b) an identification of the alternative options by which those objectives can be achieved (whether wholly or substantially)

(c) an assessment of the costs and benefits of the proposed statutory rule, including the costs and benefits relating to resource allocation, administration and compliance

(d) an assessment of the costs and benefits of each alternative option to the making of the statutory rule (including the option of not proceeding with any action), including the costs and benefits relating to resource allocation, administration and compliance

(e) an assessment as to which of the alternative options involves the greatest net benefit or the least net cost to the community

(f) a statement of the consultation program to be undertaken.

The rest of this report broadly follows this structure. Following the next sub-section which provides a background:

- Section 2 reviews the objectives and rationale for the regulation
- Section 3 reviews the alternative options including the proposed regulation and the option of no-regulation
- Section 4 examines the costs and benefits of the proposed regulation and alternatives and provides an overall evaluation
- Section 5 outlines the planned consultation program.

1.2 Background

1.2.1 About WaterNSW

Legislative and policy background

WaterNSW's activities are guided and regulated by a range of legislation and other instruments.[5]

As defined by the Act (s 6), the principal objectives of WaterNSW are to:[6]

(a) to capture, store and release water in an efficient, effective, safe and financially responsible manner, and

(b) to supply water in compliance with appropriate standards of quality, and

(c) to ensure that declared catchment areas and water management works in such areas are managed and protected so as to promote water quality, the protection of public health and public safety, and the protection of the environment, and

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5 See https://www.waternsw.com.au/about/legislation. These include: *Water NSW Act 2014*, *Water NSW Regulation 2013*, *Water Management Act 2000 and Water Act 1912*, Operating licences, Water sharing plans, Memoranda of understanding, Water supply agreements, Catchment audits, NSW draft rural water pricing, Dam Safety Act 1978

6 In this report the word catchments is used to mean the term 'catchment areas' that is defined in the Act.

(d) to provide for the planning, design, modelling and construction of water storages and other water management works, and

(e) to maintain and operate the works of Water NSW efficiently and economically and in accordance with sound commercial principles.

The Regulation exists primarily to support objective (c), which relates to the declared catchment areas serving Greater Sydney.

The Act also specifies other objectives, which of relevance to the RIS include:

- to exhibit a sense of social responsibility by having regard to the interests of the community in which it operates, and
- where its activities affect the environment, to conduct its operations in compliance with the principles of ecologically sustainable development.[7]

WaterNSW also has additional obligations established by other legislation. These include a general obligation as a NSW State-Owned Corporation to identify and maintain heritage assets under its care.[8]

Another relevant legislative instrument independent of the Regulation is the *State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011*(SEPP-SDWC).[9] The SEPP-SDWC is made under the Act and the *Environmental Planning and Assessment Act 1979 (NSW)* (EPA Act). It is essentially a planning instrument under which the WaterNSW has a concurrence role rather than an approval role for development in the catchments. The SEPP-SDWC also provides for a range of initiatives to address water quality issues in the catchments.

The declared catchments

The declared catchment has five sub catchments which together cover 16,000 square kilometres and extends from the headwaters of the Coxs River north of Lithgow to the Shoalhaven River south of Braidwood.

The catchments incorporate natural systems such as rivers and bush land as well as farms, industry, animals and people. It includes a number of regional population centres (including Lithgow, Goulburn and Bowral) and 4,850 square kilometres of agricultural land (around one third of the total catchment).

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7 These principles are contained in section 6 (2) of the *Protection of the Environment Administration Act 1991*. Of note, the principles of ecologically sustainable development emphasise the application of the precautionary principle; that is if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

8 *NSW Heritage Act 1977*, section 170–170B.

9 The SEPP-SDWC had the effect of replacing and repealing the Drinking Water Catchments Regional Environmental Plan No.1.

The catchments are critical to the protection of water quality and thus public health. The catchments form the first and, as is commonly recognised, significant barrier in a multi-barrier approach to protecting water quality.[10]

The importance of the catchments was recognised in the 1998 Sydney Water Inquiry (which led to the NSW Government passing the *Sydney Water Catchment Management Act 1998* and the creation of the SCA), which recommended that 'Water quality should be the primary consideration in decision making affecting the catchment.' This recommendation was reaffirmed in the 10 year review of the inquiry (O'Keefe 2010, page 12) which stated the catchments are the 'first and most important barriers to the entry of pathogens into the water supply system'.

This view is also found in the Australian Drinking Water Guidelines[11] (ADWG) [12] principles (see Box 1 below) which include statements that a 'multiple barrier approach is universally recognised as the foundation for ensuring safe drinking water' and 'protection of water sources [...] are of paramount importance'.

Box 1: Key ADWG principles regarding catchments as a preventative barrier

The ADWG includes principles that:

- Protection of water sources and treatment are of paramount importance and must never be compromised.
- All waterborne disease outbreaks are avoidable. Pathogens can only cause disease and death in humans if water source protection, pathogen removal by disinfection or filtration, or integrity of distribution systems fail.
- With regard to barriers:
  - The multiple barrier approach is universally recognised as the foundation for ensuring safe drinking water. No single barrier is effective against all conceivable sources of contamination, is effective 100 per cent of the time or constantly functions at maximum efficiency.
  - The drinking water system must have, and continuously maintain, robust multiple barriers appropriate to the level of potential contamination facing the raw water supply.
- Prevention of contamination provides greater surety than removal of contaminants by treatment, so the most effective barrier is protection of source waters to the maximum degree practicable.
- Risk management is about taking a carefully considered course of action. As the obligation is to ensure safe water and protect public health, the balancing process must be tipped in favour of taking a precautionary approach.

10 For further information see https://www.waternsw.com.au/water-quality/quality/multi-barrier

11 NRMMC (2011).

12 The Australian Drinking Water Guidelines are designed to provide an authoritative reference on what defines safe, good quality water, how it can be achieved and how it can be assured.

Source: ADWG, Section 1.1.

While raw water from the catchments is generally of good quality, there are number of sources of risks. These include risks associated with pollutants coming from land uses and human activity in the catchment area. Fire is also an important threat. Potential pollutants include:[13]

- Sediment run off which can be carried into the water by rainfall, particularly after droughts and bushfires. It can increase turbidity (cloudiness) of water and carry other pollutants with it.
- Pesticides and chemicals from industry and farming which can pollute the water.
- Nutrients such as phosphorous and nitrogen, from fertilisers and detergents, washed into the storages which can encourage algae to grow.
- Algae which can change the taste and smell of water and clog up water treatment plants. Some blue-green algae (known as Cyanobacteria) can produce toxins that can make people or animals sick.
- Pathogens which are disease causing micro-organisms like Cryptosporidium and Giardia found in human faeces, animal and bird droppings.

WaterNSW undertakes a range of catchment management activities to protect the quality of water in catchment areas. These activities are primarily to manage key risks to avoid pollutants entering the water supply and also involve extensive water quality monitoring.[14]

The catchments have important environmental value and are of cultural importance as they include Aboriginal and historical heritage sites. The protection of the catchments for these purposes is an additional benefit of managing water quality in the catchments.

The Special Areas

To support WaterNSW in meeting its catchment management functions, the Act enables Special Areas to be declared. These are areas of land around the water storages that act as buffer zone to help stop nutrients and other substances that could affect the quality of water entering the storages. In total there are 364,917 hectares of land in the Special Areas (see Figure 1 in Appendix 1). The land in the Special Areas is owned by WaterNSW and a mix of government agencies, private land holders and the Crown (see Table 3 below). A large portion of the land is owned by NSW National Parks and Wildlife Service (NPWS).

In accordance with the Act (s 52), WaterNSW and the Office of Environment and Heritage (OEH) jointly developed a plan of management for the Special Areas, which is known as the Special Areas Strategic Plan of Management (SASPOM).[15] The SASPOM also establishes a framework for jointly managing the Special Area lands.

The Act also enables the declaration of Controlled Areas; lands WaterNSW owns (or vests) and uses to protect key assets. These are primarily water supply infrastructure such as canals and pipelines (also depicted in Figure 1).

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13 https://www.waternsw.com.au/water-quality/quality/pollution

14 See https://www.waternsw.com.au/water-quality/quality/monitoring

15 WaterNSW and OEH (2015).

Table 3: Land tenure in Special Areas

Land tenure	Area (Hectares)	Per cent of Special Area
NPWS reserves	243,634	66.76
Water NSW freehold	69,026	18.92
Other	52,118	12.13
Total	**364,917**	**100**

Note: 'Other' includes Crown lands, private freehold and leases and no data areas.

Source: SASPOM (WaterNSW and OEH 2015, p.7).

1.2.2 The Water NSW Regulation

The Regulation (Water NSW Regulation 2013) commenced on 1 September 2013 as a replacement for the Sydney Water Catchment Management Regulation 2008 (SWCMR).[16]

The Regulation is a similar regulatory instrument to those that have previously been made.[17] Its primary effects are to:

- regulate conduct in (and access to) Special Areas and Controlled Areas that are defined under the Act
- allow Water NSW to exercise certain powers of the EPA and other regulatory authorities under the *Protection of the Environment Operations Act 1997* (POEO Act) in and around the catchments,[18] and
- provide for other miscellaneous items in accordance with the Act.

The Regulation establishes a number of offences and penalties that WaterNSW has authority to apply. The offences largely relate to failure to comply with access and conduct conditions established by WaterNSW. The size of the penalties is $750 for individuals and $1500 for corporations. The number of incidents is provided in Table 4 below.

16 The SWCMR was repealed on 1 September 2013 by section 10 (2) of the SL Act.

17 The Regulation was similar in effect to the SWCMR, which in turn replaced with changes, the Sydney Water Catchment Management (Environment Protection) Regulation 2001 and the Sydney Water Catchment Management (General) Regulation 2000, which were repealed on 1 September 2008. Regulation of access to catchments was a long standing policy of the Water Board, and the Warragamba "inner catchment area" was first proclaimed in 1942.

18 More specifically 'relating to relevant non-scheduled activities within a catchment area or outside a catchment area but being of such a nature as affect or may affect a catchment area.'

Table 4: Compliance incidents

Function exercised	2018-19	2017-18	2016-17	2015-16
Under the Regulation				
Authorised officers entered onto land	7	9	11	0
Authorised officers issued search warrants	0	0	0	0
Authorised officers exercised the power to require a person to answer questions	0	0	0	0
Authorised officers issued notice requiring a person to provide information and records	53	1	2	0
Authorised officers require person to state name and address or produce drivers licence	2	2	0	0
Under POEO Act				
Clean-up notices (section 91)	1	0	4	1
Prevention (section 96)	0	1	0	0
Compliance cost notices (section 104)	0	0	0	0
Requirements to provide information and records notices (sections 192 and 193)	5	5	0	3
Requirements to answer questions (section 203)	2	1	4	
Prosecutions commenced	0	0	0	0
Penalty infringement notices issued	1	0	0	0
Warning letters issued	3	0	0	0

Source: WaterNSW Annual reports.

The Regulation divides the Special Areas into Schedule 1 and Schedule 2 lands with differing levels of access.

- Schedule 1 lands are, in general, lands immediately surrounding the water storages. With a few exceptions, no public access is allowed to these areas
- Schedule 2 lands are a second tier buffer zone that generally adjoin Schedule 1 lands. While some public access and activities are permitted, restrictions apply.

The Regulation also establishes that WaterNSW can provide consent to enter Special and Controlled Areas. A summary of WaterNSW's access consent policy is in Appendix 1.

The Regulation is not designed to regulate development activities.[19] Of note, WaterNSW has an advisory role but not a concurrence role in state significant developments, such as mining developments in the catchments. As noted on WaterNSW's website:[20]

> *The NSW Department of Planning and Environment, Independent Planning Commission and the Division of Resources and Geosciences are responsible for assessing and approving mining and coal seam gas activities.*
>
> *WaterNSW has no legislated powers to control or stop mining in the declared catchments, but as the partial owner and joint manager of the Special Areas we seek to influence the planning decisions and hold the subsequent mining operations to account for all impacts which significantly harm our values (principally water quantity, water quality and ecological integrity).*

[19] Under Sect 51 and Sect 55 of the Act, regulations made under the Act do not prevail when they are inconsistent with a State environmental planning policy under the EPA Act.

[20] https://www.waternsw.com.au/water-quality/catchment/mining/sca-role

2. Objective of regulation

The objective of the Regulation is to support WaterNSW in fulfilling its statutory objectives under the Act and one of its functions of protecting the quality and quantity of water in catchment areas. It provides WaterNSW with a means of regulating activity in and around the catchments and Controlled Areas by:[21]

- regulating conduct in Special Areas and Controlled Areas by:
  - regulating access and conduct
  - establishing offences and penalties relating to prohibited access and conduct
- conferring on WaterNSW certain regulatory functions under the POEO Act in and around the catchments.

The rationale for regulation[22] rests on improving the efficiency and effectiveness of implementing the objectives of the Act and the POEO Act with regards to water quality.

In the absence of a regulation, WaterNSW would need to rely on other legislation (and possibly common law) and existing enforcement authorities (including the police, councils and EPA) in order to achieve its objectives. For a number of reasons, this would neither be efficient nor effective.

First, there would be insufficient disincentives for activities that pose risks to water quality and the environment in and around the catchments. For example, the penalties for trespass relate only to access, are relatively light and would be relatively difficult to enforce.

Second, in the absence of regulation the efficiency and effectiveness of the protection and enforcement activities would be diminished. The majority of key assets (the catchment and built structures) are in remote locations away from regular law enforcement and so it is more efficient for WaterNSW to undertake enforcement activities relating to water quality given its objectives and its presence in the catchment areas.

Some form of regulation is required to address these failings.

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21 The Regulation also addresses a number of other miscellaneous administrative matters (the Act Part 4), such as prescription of prescribed local councils to whom the WaterNSW supplies water.

22 This might also be characterised as the addressing issues in the enforceability of property rights. The enforceability of property rights is a condition for efficient markets. Thus weaknesses in the enforceability of rights can be a cause of 'market failure', situations where markets fail to efficiently allocate resources. As noted in NSW DFS (2016), regulation is commonly justified on the basis of market failures, which include market power, externalities, public goods and asymmetric information.

3. Proposed regulation and alternative options

3.1 Overview

As part of the RIS process, the SL Act requires the identification and consideration of the alternative options by which those objectives can be achieved (whether wholly or substantially).[23]

WaterNSW has identified three options that have been considered as part of this RIS process. These are:

- a 'do nothing' case, where no replacement water catchment management regulation is introduced and the current regulations are repealed (Option 1)
- a 'minimalist' (roll-over) case, where a replacement water catchment management regulation is introduced which mirrors the current regulation in place (Option 2)
- a 'proposed' case, where the current water catchment management regulation is combined with various additional changes and is implemented as the new regulation in place (Option 3).

This section discusses these options and considers whether there are other options that should be evaluated. In doing so it first considers the substantive costs and benefits that are relevant and the key issues associated with the regulation.

3.2 Consideration of alternatives

3.2.1 Key issues for consideration

It is desirable to find the option that meets the required objectives with the highest net-benefit; that is, the option whose sum of benefits less costs is the greatest.

There are four key issues, which affect the costs and benefits of the options being considered.[24] These relate to:

- water quality
- environmental and culture heritage values
- alternative land uses
- management costs.

[23] SL Act, Schedule 2, section 5(1)(b).

[24] The NSW Guide to Better Regulation (NSW DFS 2016, p. 14) categorises costs and benefits into compliance costs, economic impacts, social impacts and environmental impacts.

As the objectives of the Regulation primarily relate to the protection of lands held by WaterNSW, other government agencies and the Crown from illegal activity, there are negligible costs of complying with the regulation (compliance costs).

Water quality

The consequences of poor water quality can be severe. Water is a known potential carrier of pathogens and chemicals that can cause disease in humans. The impacts of these diseases range from mild discomfort to death.

The costs associated with poor water quality include:

- health costs, including:
  - direct costs of illness including loss of quality of life and medical expenses
  - indirect costs of illness, including impact on carers and workplaces
  - risks associated with large scale outbreaks of disease
- avoidance costs by water users, for example, the costs of purchasing bottled water and/or boiling water
- management costs associated with managing a water crisis
- the social impact of a loss of confidence in water quality.

The costs of poor water quality are difficult to quantify due to the uncertainty as to the risk. Nevertheless, there are a number of public estimates that provide some indication of the importance. Recently Tooth and Zhang (2018) recommended using a baseline estimate of $135 per-person per-year (i.e. ~$700 million per year for Greater Sydney) for the benefits of meeting Australian Drinking Water Guidelines (ADWG).

The management and avoidance costs by themselves can be significant. For example, the 1998 Sydney water crisis (see Box 2 below) caused boil-water alerts to be issued for 35 days and a substantial increase in Sydney Water's operating expenses. The total social costs of this incident have been estimated at around $435 million.

Box 2: Costs of the 1998 Sydney water crisis.

The 1998 outbreak of *Cryptosporidium* and *Giardia* contamination in Sydney caused boil water alerts to be put into place for 35 days. The operating expenses and foregone revenue to Sydney were estimated by the Productivity Commission at $74.6 million. This included abnormal operating expenses included compensation to customers, insurance claims, monitoring and testing costs, inquiry costs, and other costs (Hrudey & Hrudey 2004).

Jaguar Consulting (2004) undertook a broader estimate of the costs. Costs from direct health effects and indirect costs were estimated to be nearly negligible; however the costs of averting behaviours were extremely large. These 'averting behaviour costs' included cash expenses (e.g. boiling water costs, buying bottles of water or substitutes) and the loss of utility. Based on a previous study[25] that had estimated the average aversion costs per person per day for a giardiasis outbreak, they estimated the total aversion behaviour costs

[25] The original source is assumed to be Harrington et al (1989).

for Sydney (given the duration of the boil alerts and the population affected) to be around $308 million in 2004, which in 2018 is equivalent to around $435 million.

Source: Moore et al. (2010), Jaguar Consulting (2004).

Given its significance, there has been substantial work on establishing effective approaches to ensuring water quality. The current approach employed is based on the principle of establishing the catchments as a barrier in a multi-barrier approach to prevent contamination of the water supply. As discussed in Section 1.2.1, this approach is consistent with the 1998 Sydney Water Inquiry recommendations and best-practice as reflected in the ADWG.

The Regulation is critical to this approach to managing water quality as it regulates access and conduct in the Special Areas and Controlled Areas. Changes in the level and type of access (i.e. recreational activities) that can be undertaken in water catchment areas may have a variety of impacts to water quality including:

- the introduction of pollutants to the catchments
- increased fire risk, and
- the deterioration of land, resulting in an increase of soil run-off.

Environmental and cultural value

The catchments are home to a diverse range of native flora and fauna and areas of cultural heritage. As such the catchments have value over and above their use for managing water quality and/or alternative land-uses as discussed below. This value incorporates:

- the benefits of maintaining biodiversity
- peoples' intrinsic desire for the areas to be preserved
- the option values associated with being able to use the resource in the future.

Maintaining the Special Areas and broader catchments for water quality has the additional benefit of protecting these lands from environmental impacts. In effect, this benefit is equal to the avoided costs associated with damage to the environment.

An approach to estimating the value of preservation of the catchments is to use surveys to estimate people's willingness to pay (WTP) to preserve the environments. Mazur and Bennett (2009) conducted a study in which they included people's WTP to preserve flora and fauna of the Hawkesbury-Nepean catchment. The study indicated that the Sydney households' implicit price to prevent the loss of up-to 1500 square kilometres of native vegetation was in the order of $0.06 per square kilometre per household. While great care is required in applying such values, the results provide an indication of the order of value people place on preserving the catchment environment.[26]

The Special Areas are also home to some sites of cultural significance. Thus an additional benefit of the Special Areas is in preventing damage to these areas.

[26] For example, the survey measured people's WTP for preservation over only a marginal range. The results would not be expected to be reflective of preserving all land within the catchment.

Alternative land-uses

The key 'cost' associated with regulating activity in the Special and Controlled Areas and catchments relates to limiting the use of the land covered by the regulation. The Special and Controlled Areas have potential value for alternative uses.[27] These alternative land-uses include:

- recreational uses such as:
  - walking, fishing and non-powered boating, which is currently allowed only in Schedule 2 lands
  - mountain biking, which is currently allowed in limited areas in the Woodford Special Area as the area is not presently an active water supply
  - other activities which are generally not allowed including powered vehicle use, which are prohibited on Schedule 1 and Schedule 2 lands
- commercial activities, such as farming and mining
- other activities such as waste disposal, which is currently disallowed.

Management costs

The different alternatives have a potentially significant effect on the amounts WaterNSW and others spend on activities to protect the catchment and manage and monitor water quality.

The WaterNSW's annual catchment management expenditure amounts to around $16 million (refer Table 10 in Appendix 1). These catchment management activities include:

- land management including activities relating to fire prevention, pests and weed, soil erosion, mining, cultural heritage, picnic sites at the dams and one camp site
- statutory and regulatory operations including surveillance, land use planning and targeted inspections
- support activities relating to rural lands and sewage management and storm water management
- research and investigation.

These catchment management activities may include for different purposes, actions in relation to:

- water quality: these include fencing programs, signage requirements, education programs, surveillance activities, clean-up activities, fencing activities, surveillance programs, environmental protection functions such as fire prevention, education programs, land inspection activities
- security of catchment lands and WaterNSW assets: for example, erection of perimeter barriers and signage near WaterNSW assets, physical and remote surveillance, and working with police to respond to incidents
- general agency operations: these can include building internal capacity in relation to water catchment management, and devoting time and resources to building and

[27] As noted above the Regulation has only limited relevance to developments that have received environmental planning approval.

maintaining effective working relationships with other agencies WaterNSW may draw on in managing catchment lands (for example, local councils, National Parks and Wildlife Services, the NSW Police).

In addition to catchment management, WaterNSW has a significant water monitoring program (WMP), within its catchments, storages and raw water supply system and in rivers downstream of storages. WaterNSW's annual expenditure on the WMP is around $6.5 million. The program incorporates locations, frequency, benchmarks or guideline values for more than 200 water quality characteristics. It includes routine and event monitoring employing field sampling, laboratory testing and telemetered 'real-time' data collection. The data collected is used to inform operational decisions and verification of water quality to demonstrate compliance.

A reduction in the effectiveness of the Regulation would have implications for the extent, and costs, of the WMP. Due to the heightened risk, there would be an increase in the number of monitoring sites and frequency of monitoring focussed on diffuse sources where there are access points into the catchment.[28]

The Regulation also has implications for management costs by other parties. The Regulation provides WaterNSW with functions (e.g. enforcement powers) that may otherwise be undertaken by other agencies. Thus modification of the Regulation that impact the relative efficiency and effectiveness of WaterNSW in management activities has potential for costs to be transferred to other agencies, which would have their compliance costs increased.

Other issues

Regulations often impose significant compliance costs on parties to the regulation; that is costs (including effort and money) of parties (businesses, other organisations or individuals) in complying with the requirements of the regulation. Such compliance costs are often a key issue that are reviewed as part of a RIS.

Compliance costs are not a material issue in this case as the Regulation does not seek to impose additional requirements or functions on other parties; rather the purpose of the Regulation is primarily based around improving the efficiency and effectiveness of WaterNSW in enforcing existing obligations.

Restrictions on land-use might be considered a 'compliance cost', however these are considered as part of the alternative land-uses discussion. There are also some other possible minor exceptions. For example, under the current regulation (clause 13 (4)) a person may be asked to comply with a direction given by WaterNSW for the removal of waste. Such a direction may be viewed as an additional compliance cost. These appear to be minor matters and, regardless, have also been considered within the category of alternative land-uses.

3.2.2 Discussion of alternative options

The current regulatory approach (included the proposed approach) can be characterised as encompassing:

[28] More information on the water monitoring program can be found in the Annual Water Quality Monitoring Report 2017–18: Sydney Catchment Area, available at https://www.waternsw.com.au/water-quality/quality/reports.

- the regulation of access to and conduct in Special and Controlled Areas
- the allocation of enforcement powers to WaterNSW
- the imposition of penalties for non-compliance.

These are discussed below.

The regulation of access to and conduct in Special and Controlled Areas

With regard to the control of conduct in Special and Controlled Areas, the current approach can be described as follows. WaterNSW's objectives relating to the catchment (which focus on promoting water quality, protecting public health and safety, and protecting the environment) are defined in the Act and therefore outside of the scope of a review of the regulation. The current (and proposed) regulations can then be characterised as:

- establishing a default level of access and conduct that can occur in Special Areas and Controlled Areas (effectively bushwalking and non-powered boating in Schedule 2 land)
- allowing WaterNSW to modify access and conduct from the default.

The current regulation allows for WaterNSW to provide consent. WaterNSW has established guidelines and a process for providing its consent for access and conduct in Special and Controlled Areas.[29] The Regulation also allows WaterNSW on WaterNSW and Crown land to regulate conduct by way of signage (clause 17) and restrict access by way of physical barriers (clause 24).

The Regulation does not specify WaterNSW's criteria for consent but it is guided by WaterNSW's objectives, particularly relating to promoting water quality and protecting public health and safety. WaterNSW will only give consent when there is no increase in water quality risk. This approach is consistent with the ADWG principles and approach as described above.

It is possible this approach will result in some situations whereby activities in Special and Control Areas are prevented despite their societal benefit outweighing any water quality risks. Given its role and objectives, WaterNSW may be expected to err on the side of caution and disallow any activity that increases water quality risk, even when risk is negligible.

An alternative approach would be to use the Regulation to provide for greater access for some activities that may have societal benefit. In effect this approach would be simply changing the default level of conduct allowed. As WaterNSW's objectives are fixed by the Act, the result would be a change in the level of management activity undertaken by WaterNSW to maintain the same level of water quality risk. Such an alternative was considered as part of the 2000 RIS (Hassall and Associates, 2000) and 2013 RIS (Tooth and Hefter, 2013) but rejected as having a negative societal benefit. Nevertheless, this alternative is considered further below (Section 3.3.4).

Of note, there does not appear any merit in reducing WaterNSW's flexibility in modifying access and conduct (e.g. by removing the WaterNSW's ability to provide consent or deny access). There appears to be no downside to the current approach of allowing WaterNSW to

[29] A summary is in Appendix 1. Further details can be found at https://www.waternsw.com.au/water-quality/catchment/manage/special-areas/access

provide consent where it deems it is consistent with its objectives. Any reduction in WaterNSW's ability to control activities in Special Areas and Controlled areas would lead to an increase in management cost and/or water quality risk to catchments.

The allocation of enforcement powers to WaterNSW

For efficiency and effectiveness, enforcement powers are provided to WaterNSW. In the absence of these enforcement powers, the burden of enforcement management of water quality, environmental damage and WaterNSW water assets would be increased to other parties that include the police service, the EPA and councils.

There appears to be negligible downside to the provision of WaterNSW's powers so long that they are limited to the stated purpose. The provision of enforcement powers to WaterNSW has not created concern issues historically. There does not appear to be any realistic alternatives that might have a net benefit over the current broad approach.

The imposition of penalties for non-compliance

The regulation specifies the penalties for offences relating to the Regulation and the Act. The size of the penalties that apply when a matter is dealt with a Penalty Infringement Notice (PIN)[30] was increased as part of the SWCM Regulation 2008 from $300 to $750 for individuals and $750 to $1500 for corporations. This change was on the basis that the penalties were low (relative, say, to park access fees) and that increasing the penalties would provide a stronger deterrent that would reduce the number of incidents.

The current level of penalties aligns with similar penalties under other regulations, e.g. the regulations under the POEO Act. However, WaterNSW has observed evidence of regulatory signage being ignored, gates and barriers being by-passed and vandalism occurring, and is concerned that the current penalties are insufficient.

[30] There are maximum penalties referred to in the Regulation which could be imposed if the matter is dealt with by a Court.

3.3 Description of options considered

3.3.1 Option 1: The do nothing case

Under Option 1, the Regulation would expire on 1 September 2020, and no replacement regulation would be introduced.

Under this option, WaterNSW would still be required to meet its objectives under the Act. The existing offences and penalties under the Act would also remain. Similarly the offences that WaterNSW enforces under the POEO Act would remain, although WaterNSW would have to rely on third parties for enforcement.

The Special Areas and Controlled Areas, defined under the Act, would also exist. WaterNSW would still be jointly responsible for determining how NPWS Reserves within the Special Areas are managed.[31]

However the absence of the Regulation would have significant implications.

First, WaterNSW would no longer be able to undertake functions under the POEO Act for non-scheduled activities in and around the catchments. In these cases, the appropriate regulatory authority (ARA) would generally be the local council. This would likely be less effective and efficient as:

- the efficiencies from having WaterNSW resources actively managing catchments and undertaking the functions from the POEO Act would be lost
- the councils would have to increase the level of skilled resources to manage and investigate water quality to compensate for WaterNSW no longer undertaking this activity
- the councils do not have the same objectives in protecting water quality.

Second, controls specific to the Special Areas and Controlled Areas would be removed, in particular:

- 'no interference with water', and 'control of pollution' regulations (Division 2) that apply to all land in Special Areas and Controlled Areas
- 'animal management' regulation (Division 5) that applies to land in Special Areas other than Excluded Land
- regulations of access and conduct that apply to WaterNSW and Crown land (Divisions 3 & 4) including offences and penalties and WaterNSW's authority to apply them.

In the absence of a specific regulation granting WaterNSW powers to control land access and permissible activities in the Special and Controlled Areas, WaterNSW will need to rely on the general powers granted by other relevant legislation, and by the common law. This alternative enforcement framework in relation to land access would potentially consist of:

- offences of trespass through the *Inclosed Lands Protection Act 1901* (the ILP Act) and, where this does not apply, common law

[31] Of note, s 49 (Crown land in special areas) of the Act provides WaterNSW with powers and functions in Crown lands in the Special Areas.

- the NPW Act.

Under the ILP Act it is an offence to trespass; enter lands without the consent of the owner or occupier of the land. The act applies to any land that is surrounded by fence or feature that makes that makes the boundaries recognisable.[32] Where an offence occurs, the ILP Act (sect. 4) imposes monetary fines and allows WaterNSW staff to ask for details and people to leave the lands.

However relying on the ILP Act would be problematic for a number of reasons. First, it only provides the WaterNSW with opportunities for recourse in relation to unauthorised land access, and not issues relating to the protection of water. Thus, for example, in the absence of regulation, there would be no separate offence for polluting the waters or for prohibited animal management practices. Furthermore, in the absence of regulation WaterNSW would have reduced evidence seeking powers. For example, WaterNSW currently (under clause 15) may inspect any article in a person's possession on WaterNSW or Crown land.

Second, the ILP Act would provide a reduced deterrent to illegal access. The penalties under the ILP Act are lower than in the current regulation. In addition enforcing the penalties may be more difficult. An action in trespass may bring with it additional transaction costs (legal costs, delays in court proceedings, internal business administration costs etc) and would also carry with it the risk that the penalty, or threat of penalty, is not in proportion to the potential damage that could be caused.

Third, WaterNSW is the direct land owner of only some of the Special Areas lands. WaterNSW would likely be reliant on the NPWS in managing access to NPWS reserves. Furthermore, in the absence of regulation WaterNSW would not be able to regulate currently prohibited activities (relating to pollution of waters and intensive livestock management) on private lands within the Special Areas.

On NPWS reserves, WaterNSW could, in conjunction with the NPWS, draw on the NPW Act to help achieve its objectives. The objects of the NPW Act are: a) the conservation of nature, b) conservation of objects, places or features of cultural value, c) the fostering of public appreciation, understanding and enjoyment of natural and cultural heritage and their conservation, and d) providing for the management of lands reserved under the NPW Act.[33] Maintaining water quality, or restricting access to lands for the purposes of maintaining water quality, is not an objective or concern of the legislation. The offences in the NPW Act primarily relate to conduct within parks lands as it relates to the conservation of flora and fauna, rather than illegal entry and access. Consequently, WaterNSW reliance on this legislation to achieve its objectives would also be of limited value.

Given these difficulties, it is assumed WaterNSW would need to expend more on defensive expenditure protection of water quality, environmental management and security, including:

- increased activities to stop access to the Special Areas including:
  - erection of more physical barriers
  - more signage and educational material
  - increased level of security controls

[32] Where the ILP Act does not apply common law of trespass would apply.

[33] NPW Act, section 2A(1).

- increased surveillance in Special Areas
- increased efforts to detect and address water quality risk incidents
- greater use of other agencies, for example, approaching other state government agencies and local councils to negotiate agreements aimed at protecting water quality.

Of note, the loss of the regulation would not necessarily change what activities WaterNSW and NPWS allow on the lands they control in the Special Areas and Controlled Areas. Given the objectives of the Act, WaterNSW, as owner of WaterNSW land and (via the Minister) joint sponsor of the NPWS reserves in Special Areas, would seek to ensure that currently prohibited conduct and access remains prohibited. Rather than allow increased access—in response to the increased challenge in regulating conduct—WaterNSW in conjunction with the NPWS may choose to reduce access in Special Areas.

Nevertheless, WaterNSW expects that the removal of the regulation would ultimately lead to increase pressure to provide increased access in some Schedule 1 areas, which would lead to WaterNSW undertaking additional expenditure (e.g. in providing wastewater facilities) by WaterNSW to help manage the risk this access creates.

The removal of the Regulation would also significantly change WaterNSW's ability to enforce what is allowed in WaterNSW and Crown land. As such, despite an increase in defensive expenditure, it is likely that there would be an increase in the use of these lands. Furthermore, as noted, the loss of regulation reduces some restrictions on private land in relation to pollution and animal management.

Some of the concerns raised by WaterNSW with the removal of the Regulation include:

- People prefer the untouched and isolated areas offered in Special Areas over permitted areas
- Heritage Areas will be targeted
- Where members of the community have access to the Special Area there is an increase in illegal disposal of waste
- Increased entry leads to greater chance of erosion and therefore greater chance of water pollution
- There is a risk to animals re destruction of habitats and shooting and hunting activities.

3.3.2 Option 2: No change

Option 2 is simply a roll-over of the existing regulation (in-effect, the status-quo).

3.3.3 Option 3: Proposed case

The proposed regulation involves 10 changes, as follows:

1. **Broadening the nature of chemicals regulated by including 'environmentally hazardous chemicals' alongside references to 'pesticides'**

Clause 27 of the Regulation includes restrictions on introducing and using pesticides on Schedule 1 land or Schedule 2 land. However, there are no similar provisions regarding other 'hazardous chemicals' (which include industrial chemicals). Similarly Clause 17 (relating to regulating conduct by signs) refers to 'pesticide' and not any other hazardous chemicals.

The proposed modification is to include references to 'environmentally hazardous chemicals' alongside references to 'pesticides', thereby broadening the chemicals regulated. The definition of 'environmentally hazardous chemicals' refers to the definition in the *Environmentally Hazardous Chemicals Act 1985*.

Of note, Clause 27 includes a subclause for exceptions on pesticides that are solely for household or domestic purposes, or in accordance with an environment protection licence.

2. Allow authorised officers to respond to offensive conduct and prohibiting the consumption of alcohol in certain areas.

WaterNSW has been facing increasingly difficulties in managing behaviour in recreational areas (most significantly, the Bendeela Recreation Area in the Kangaroo Valley is getting increasingly difficult to manage).

There were three incidents at Bendeela between December 2017 and January 2018. Incidents requiring police to be called to Bendeela and resulting in arrests averages two per summer holiday period over the last two years. NSW Police have expressed concerns regarding site security and there would be some incidents that police have dealt with that WaterNSW would not be aware of.

A new clause is proposed to allow authorised officers[34] to respond to offensive conduct, based on Clause 15 of the National Parks and Wildlife Service Regulation 2019. This would enable the WaterNSW to enforce current imposed rules at Bendeela and other recreational areas in Schedule 1 and 2 land, such as unruly behaviour and use of generators.

Such powers would be useful for regulation of anti-social behaviour particularly in WaterNSW recreation areas where the WaterNSW allows access and recreation, so that other members of the public are not impacted. There are currently no provisions in the Regulation to penalise offensive conduct. Many of these areas are remote and police attendance is rare.

WaterNSW requires some authority to regulate antisocial behaviour in recreational areas. This should provide authorised officers the ability to obtain a person's name and address, request someone to leave an area, and to provide a PIN to offenders.

A new clause is also proposed to allow WaterNSW to prohibit the consumption of alcohol in contravention of a sign or notice. This is similar to Clause 16 of the *National Parks and Wildlife Service Regulation 2019*.

The proposed changes would enable WaterNSW to help control behaviour. This would have the benefits of:

- reducing the costs of security at Bendeela and other recreation areas. The current costs are significant; estimated at $540,000 per year.
- reducing the need for police involvement
- improving the experience for people using the recreational areas.

[34] The term "authorised officer" is defined in the Act.

3. Prohibit operation of unmanned vehicles on Schedule 1 land and Schedule 2 land

The regulation (Clause 25 (1)) currently prohibits landing of any 'aircraft' on Schedule 1 and Schedule 2 land. However the definition of aircraft does not clearly prevent the operation of unmanned vehicles (i.e. drones),[35] which WaterNSW believe presents a risk to the catchment.

WaterNSW's primary concern is that there is a small but non-negligible risk that a drone could fall into catchment and interfere with catchment infrastructure (e.g. caught in drum gates of the Warragamba Dam). WaterNSW is also concerned that drones could impinge on the wellbeing of those visiting the recreational areas within the catchment.

To address these concerns, WaterNSW proposes to amend Clause 25 to explicitly prohibit operating any unmanned vehicle on Schedule 1 land and Schedule 2 land (including by causing the unmanned vehicle to enter, or fly or otherwise move over, the land).

Such an amendment would appear to have no material costs.

4. Prohibit commercial activity on Schedule 1 land and Schedule 2 land

WaterNSW is concerned that commercial activities are leading to illegal dumping. WaterNSW has observed that fruit sellers (and other commercial activities) located on access roads appear to correlate with illegal dumping of the packaging and/or the fruit that is not sold.

Currently WaterNSW may prohibit or restrict 'commercial activities' by way of signage (Clause 17 1 (h)) but is not listed as a prohibited conduct under clause 25. This proposal would enable WaterNSW to more efficiently restrict commercial activities without having to use signage.

5. Amend clause on animal management on land

Clause 28 (2) states a person must not erect, maintain or use any building or structure for the purposes of aquaculture, intensive livestock agriculture, and/or an animal boarding and training establishment.

It is proposed to update definitions of 'animal boarding and training establishment' and 'intensive livestock agriculture' to be consistent with the Standard Instrument – Principal Local Environment Plan (SI–PLEP), used across NSW (see Table 5 below). It is also proposed to remove Clause 28 (3) (a), as this is a duplication of prohibitions already contained in Clause 28 (2) of the Regulation.

Table 5: Animal management on land definitions

Term	The Regulation	SI-PLEP
Animal boarding and	A building or place used for the breeding, boarding, training or keeping of, or for caring for, animals for commercial	A building or place used for the breeding, boarding, training, keeping or caring of animals for commercial purposes (other than for the

[35] Aircraft are defined 'any airborne craft, including a fixed wing craft, helicopter, gyrocopter, glider, hang glider, hot air balloon or airship'

Term	The Regulation	SI-PLEP
training establishment	purposes (other than for the agistment of horses).	agistment of horses), and includes any associated riding school or ancillary veterinary hospital.
Intensive livestock agriculture	The keeping or breeding, for commercial purposes, of cattle, poultry, pigs, goats, horses or other livestock that are fed wholly or substantially on externally-sourced	The keeping or breeding, for commercial purposes, of cattle, poultry, pigs, goats, horses, sheep or other livestock, and includes any of the following: (a) dairies (restricted), (b) feedlots, (c) pig farms, (d) poultry farms, but does not include extensive agriculture, aquaculture or the operation of facilities for drought or similar emergency relief.

6. An amendment to address pollution originating from land adjacent to controlled areas and special areas

WaterNSW is concerned that pollution from land adjacent to controlled areas and special areas will enter into those areas. A particular concern is that development adjacent to the upper canal will create unacceptable risks of pollution and sedimentation entering the water conveyed by the upper canal.

Currently WaterNSW has, via Clause 4 (2), the functions of a Regulatory Authority under selected provisions of the POEO Act for non-scheduled activities that include activities carried out outside a declared catchment or controlled area. However, currently the Regulation does not prohibit activities that present a risk to the special areas or controlled areas that originate from adjacent areas. An amendment to Clause 13 is sought to address this concern.

The benefits are a reduction in the pollution risks. Potentially, this will impose a cost to developers; however, developers should already be controlling their sites in such a way so as to not cause pollution. Consequently, this amendment may be considered an improving the efficiency of compliance.

7. Introduction of a new offence to 'enter water'

Clause 17 ('Signs regulating conduct on certain land') states that

> *Water NSW may erect a sign or notice on Crown land or Water NSW land that is in a special area or a controlled area prohibiting or restricting any of the following conduct on the land to which the sign relates:*

The conduct listed includes 'fishing or swimming in water' or 'washing in water', but does not explicitly include 'entering water'.

Clause 22 (1) lists a number of Prohibited activities on Schedule 1 land including 'fish or swim in water' but does not explicit prohibit 'enter water'

8. Increased some penalties by way of Penalty Infringement Notice on Schedule 1 and Schedule 2 land

WaterNSW is concerned by evidence of regulatory signage being ignored, gates and barriers being by-passed and vandalism.

To mitigate this issue, WaterNSW is seeking to increase the penalties for two of the more common breaches on Schedule 1 or Schedule 2 land relating to conduct (Clause 25 (1) and the requirement that a person not open, pass, remove, interfere with, damage or obstruct any gate or barrier (Clause 24 (1)).

It is proposed that the penalties for Clause 24 (1) and Clause 25 (1) be increased by $500 for both individuals and corporations; that is, from $750 to $1250 for individuals and from $1500 to $2000 for corporations when these offences are dealt with by the issuing of a PIN.

The maximum penalties for these offences as currently referred to in the Water NSW Regulation 2013 will remain the same.

9. Changes to Schedule 1 land

The following changes are proposed to the Schedule 1 Land

- Addition of Wingecarribee Swamp lands (all WaterNSW land) to the Special Areas. This is to fix an omission and reflect a forthcoming gazette. This will enable the area of Wingecarribee Swamp owned by WaterNSW to be regulated through the remade Regulation.
- Removal of Woodford village from 'excluded land', as it was de-proclaimed in 2007.

10. Minor amendments

To improve clarity a number of minor amendments are proposed. These include:

- change terminology throughout the Regulation to their more accepted term. This includes changing "water course" to "watercourse" and "Internet site" to "website"
- including a definition for the previously undefined term of 'commercial activity'.

3.3.4 Other alternatives

Internal discussions within WaterNSW have not lead to any other alternatives being considered.

As in previous reviews, there is interest in increased access to the Special Areas for recreational activity purposes, including mountain biking and fishing. Some of this interest is expressed in public planning documents. For example:

- The 2017 Blue Mountains Destination Management Plan endorsed by Blue Mountains Council discusses the potential—and the need to carefully assess—multi-day in-park trek through lands controlled by WaterNSW.[36]
- Greater Sydney Commission's Draft Greater Sydney Region Plan (2017) refers 'to re-envisaging Prospect Reservoir for tourism and greater leisure activities'.

[36] There is a need to investigate overnight walks which use new eco-friendly accommodation within the BMNP or on the fringes of the BMNP, but which still provide visitors with an experience of being in an isolated natural environment. [WaterNSW] have control over significant parcels of national park land which contain major waterways and which restrict entry for walkers. This would need to be carefully assessed when developing the concept for a multi-day in-park trek.

4. Cost and benefits of each options

4.1 Approach

Consistent with the RIS requirements, the alternative options are evaluated by consideration of the costs and benefits associated with the proposed regulation and alternatives.

Option 1 is the base-case from which other options are compared. However, for ease of presentation, we estimate the costs and benefits of Option 2 (the status quo) by considering the implications of the base-case (Option 1 – no regulation) relative to the status-quo. The sub-options contained in Option 3 are largely independent of each other and are considered as an increment to Option 2.

The costs and benefits have been estimated with assistance of the WaterNSW. While there is significant subjectivity in the assessment of most amounts, we do not consider these to be material to the conclusions of the evaluation.

As some costs and benefits are measured over different periods, it is necessary to compare amounts in terms of a present value (PV). For discounting future costs a twenty year period and a discount rate of 7 per cent is used.[37] Costs and benefits for each discrete change are estimated in terms of a net present value (NPV).

4.2 Option 1: No-regulation

Option 1 is considered the base case and as such there are no costs or benefits to evaluate.

4.3 Option 2: Roll-over of existing regulation

As outlined above (section 3.3.2), under Option 2 the current regulation would be rolled over and continue to be in force from 1 September 2020. As this represents a 'status-quo' scenario, all current activities and expenditures would be maintained at their current levels.

To evaluate the costs and benefits of Option 2 relative to the base-case (Option 1 — No regulation) we consider the effect of removing the regulation. If this were to occur, the key changes to the status quo would likely be:

1. an increase in defensive expenditure by WaterNSW on protecting the catchment areas and addressing water quality risks
2. a residual increase in risk to water-quality and environmental and cultural value of the Special Areas
3. a change in value from land-use, primarily relating to an increase in (illegal) activity on WaterNSW and Crown lands in Special Areas.

[37] This is consistent with the NSW Treasury guide to economic analysis (NSW Treasury 2017). Also consistent with this guide, analysis using discount rates of 4% and 10% has also been undertaken.

Items 1 and 2 represent a net cost relative to the status-quo (and thus represent a benefit to Option 2). Item 3 involves some cost and benefits. As discussed earlier, there do not appear to be any material compliance costs associated with the regulation. These items are discussed in more detail below.

4.3.1 Defensive expenditure

A starting point for estimating the change in WaterNSW's defensive expenditure is its current annual expenditure for catchment management. Planned operational expenditure for 2018-19 (shown in Table 10 in the Appendix 1) amounted to approximately $16 million; around $12 million of which relates to activities judged to be of some relevance to the regulation.

If there was no regulation, WaterNSW would increase its catchment management expenditure and activities to mitigate the additional risks arising as result of losing the regulation. An indicative assessment of the additional expenditure is summarised in Table 6 below categorised into areas of:

- protection
- surveillance and enforcement
- remediation and monitoring
- other general costs.

Some of this cost includes additional costs imposed on other agencies (e.g. local councils).

Table 6: Increased management costs associated with removing regulation

Management activity	Response /assumptions	Estimated cost ($ millions)
Protection		
Increased fencing, barriers and signage	Increased fencing requirements, including both 'man-proof' fencing, stock fencing, general fencing for boundary marking purposes. Additional expenditure on locks/ barriers Existing signs would need to be modified to reflect changes. Increase signage to control access and conduct to catchment areas.	$1m capital ($0.8m fencing +$0.2m for signage) $0.1m ongoing due to damage
Education programs	Increased education programs and materials to promote awareness and understanding of permitted and prohibited access and conduct in relation to catchment areas, and also about the impacts of activities on water quality.	$0.5m per annum increase

Management activity	Response /assumptions	Estimated cost ($ millions)
Surveillance and enforcement	Surveillance and enforcement costs would increase due to: • increase in patrols • increased cost due to use of other agencies in patrols (e.g. local councils and police) • increased use of surveillance cameras • some increase in compliance costs.	$0.6 m per annum increase
Remediation / monitoring		
Fire prevention and monitoring	With loss of regulation assume this WaterNSW expenditure would need to increase due to higher risk Estimated additional $0.6 million per year for fire patrols and rapid response to unauthorised fires. This excludes the cost/risk of a large fire.	$0.6m per annum increase
Clean-up of illegal dumping	Additional expenditure to deal with the clean-up of illegal dumping. Current costs associated with dumping are range $50k to $100k per annum. Assume this significantly increase with loss of regulation.	$0.5m per annum increase
Water quality monitoring programs	Assume need an additional 20-30 water quality sites requiring an additional $50k capital per site + $0.3m per year operating cost for all sites. • Capital expense of additional equipment • Increase maintenance expense.	$1.5m in capital (one-off) $0.3m per annum increase
General costs		
NPWS arrangement	Increased fund to support activities on NPWS lands (including for staffing and wastewater facilities)	$0.25m per annum increase
Interagency costs	Increase in staff positions required to establish and maintain arrangements across agencies. Assume (at least) a doubling (from 2 to 4 FTE) of staff positions required to establish and maintain arrangements across agencies. Estimated cost of $0.1m per FTE per annum.	$0.2m per annum increase
Total	• $2.5m capital (one-off) • $3.05m per annum increase	

Management activity	Response /assumptions	Estimated cost ($ millions)
	• Combined ≈$37m NPV (based on a 7% discount rate over 20 years)	

Source: Based on estimates provided by the WaterNSW[38]

4.3.2 Change in risks to water quality

Under a no regulation scenario, it is likely that despite the increased defensive expenditure on maintaining water quality by WaterNSW, there would still be a residual increase in the risks associated with poor water quality. This is because despite the increased expenditure on prevention, surveillance, remediation and monitoring it is expected there will be some increase in undesired access in Special Areas and increase in risks to the broader catchment.

The potential costs of diminished water quality are significant. As noted (Box 2, page 11), the costs of the 1998 Sydney water incident — which involved no loss of life — has been estimated at around $435 million.

The costs of diminished water quality will be determined by changes in frequency and severity of a water quality incident. If it is assumed that the change in access and conduct under a no regulation scenario results in an increased frequency and severity of water quality incidents, then the costs will be very high. The 2013 RIS used an indicative estimate for the residual costs of an additional $2 million per annum (NPV of around $20 million). This estimate was formed having considered that:

- A 1 in 200 per annum increase in the likelihood of event similar to the 1998 crisis is equivalent to around a $2 million annual cost (NPV ~$25 million).
- An indicative estimate of $2.5 million per annum for additional (in excess to that considered in the table above) defensive surveillance expenditure (NPV of around $25 million) to further control illegal access so as to remove the residual risk.

An increase in (illegal) activity in the Special Areas may also result in costs associated with impacts on WaterNSW's ability to meet its statutory obligations to protect the environment under other legislation such as the *Biodiversity Conservation Act 2016*. While WaterNSW's increased defensive measures would help to mitigate these impacts, there may be some small residual risk. These may include:

- costs associated with the loss of ecological integrity and values arising from the impacts of erosion, land clearing, physical damage to flora and fauna, and the spreading of weeds and foreign species
- the potential loss of sites of heritage and cultural value due to illegal access and conduct (for example, vandalism to historical sites)
- the potential negative impact on the ability to undertake scientific studies of preserved areas, both as a result of ecological degradation and malicious damage to scientific monitoring equipment.

[38] I am not able to verify the veracity of the WaterNSW estimates but are of the opinion they are reasonable for the purposes of this RIS.

Nevertheless, we judge that these costs of these residual risks to be negligible compared to the water quality risk.

4.3.3 Other benefits and costs associated increased activity

If there were no regulation, there would likely be an increase in currently prohibited activity on WaterNSW and Crown land because it would be more difficult for WaterNSW to prevent the activity from occurring. The activity would still be illegal to the extent that it involves trespass on WaterNSW and Crown land. This activity would likely include additional recreational activity (e.g. cycling, hiking, fishing, shooting, boating and powered vehicle riding) and other activity such as illegal dumping in the Special Areas.

While there would likely be an increase in this activity, the benefits associated the activity are expected to be small for a number of reasons.

First, the benefit value of increased activities is likely to be small.

- There are other areas which can provide a substitute for those undertaking recreation. To the extent that the increased activities in lands where such activities are currently prohibited is matched by a reduction in activities in lands where such activities are currently allowed, there would be no increased benefit.
- The recreational access would involve trespass. The illegal status would presumably reduce the utility derived by those who obtain access.[39]

Second, the increase in activity is likely to be small. While illegal activity is currently a significant concern to WaterNSW and would likely increase under a no regulation scenario, the increase will be mitigated by the increase in WaterNSW's defensive expenditure (e.g. on physical barriers and surveillance).

For these reasons we expect the total benefits derived from the additional activity to be negligible in comparison to the costs identified in Table 6.[40]

Furthermore, in the absence of the regulation, WaterNSW may decide that to reduce water quality risks it needs to further restrict access into the Special Areas that is currently allowed. Thus, the impact of the removal of the regulation may be to reduce any discretionary activity in the Special Areas.

The removal of regulations may increase the value to private land owners within the Special Areas. We expect these benefits to be minimal. We understand, there have been little concerns expressed by private land-owners over existing restrictions in Special Areas.

4.3.4 Summary: cost-benefit of Option 2

If the regulation were to lapse (Option 1), WaterNSW would be forced to increase its expenditures to protect the catchment to mitigate higher water quality risk. The NPV of this increased expenditure has been estimated at in the order of $37 million. There would also

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[39] It is possible that some people derive additional utility from it being trespass.

[40] For example, 1 000 additional visits in Special Areas at $50 value per visit would still result in benefits of only $50 000 per year.

likely be some residual increase in water quality risk, which although small, is significant given the social costs of a water-supply incident. This cost of the increase in water quality risk has been *indicatively* estimated at around $20 million NPV.

Thus, the estimated net-benefit of Option 2 over the base-case (Option 1) is in excess of $55 million NPV. Use of different discount rates change the amount but make no material difference to the conclusions.

Table 7: Costs and benefits of Option 2 relative to base-case (Option 1)

Issue	Net present value ($m)
Management costs	Reduction of around $37 million
Water quality	Reduced risk – indicative cost $20 million
Environmental impacts	Negligible additional benefit
Alternative land use	Negligible additional cost from recreational use
Total	Clear net benefit, likely in excess of $55 million NPV

Source: Sapere analysis.

4.4 Option 3: Proposed regulation

As described in section 3.3.3, above, Option 3 involves 10 specific amendments to the current Regulation. The proposed changes have been costed separately as incremental changes to Option 2. In most cases the amendment is minor in nature and is unlikely to have any measurable impact that might be quantified.

Table 8: Option 3 amendments and net benefit/cost relative to Option 2

Amendment	Rationale	Net benefit/cost
1. Broadening the nature of chemicals regulated by including 'environmentally hazardous chemicals' alongside references to 'pesticides'	Improve efficiency in protecting the water supply from hazardous chemicals	Small benefit (<$1m NPV), but clearly positive.
2. Allow authorised officers to respond to offensive conduct and prohibiting the consumption of alcohol in certain areas	Address developing problems in recreational areas. Reduce incidents (a public benefit), the costs of security and police involvement.	An indicative estimate is a 30 per cent reduction in current security costs (30%x$0.54m) ~$0.16m per year

Amendment	Rationale	Net benefit/cost
3. Prohibit operation of unmanned vehicles on Schedule 1 land and Schedule 2 land	Address the risk of drones impacting on catchment infrastructure	Small benefit associated with reducing the likelihood of a low-likelihood but possibly high impact event
4. Prohibit commercial activity on Schedule 1 land and Schedule 2 land	To reduce risk of illegal dumping associated with commercial activities	Small benefit (<$1m NPV), but clearly positive.
5. Amend clause on Animal management on land	Improve consistency with other legislative instruments and remove redundant clause	Negligible but positive benefit
6. Amendment to address pollution originating from land adjacent to special areas and controlled areas	To address a long-standing, and increasingly significant risk, of pollution originating outside of controlled areas	Small benefit (<$1m NPV), but clearly positive.
7. Introduction of a new offence to 'enter water'	Address a loop-hole in protection of water-supply	Small benefit (<$1m NPV), but clearly positive.
8. Increases in penalties by way of Penalty Infringement Notice for some offences	Greater deterrent in relation to activities that threaten the water supply and the catchment	Small benefit (<$1m NPV), but clearly positive.
9. Changes to Schedule 1 land	To improve clarity and reflect changes in use	Negligible but positive benefit
10. Other minor amendments	Updates to reflect changes in technology and improve clarity	Negligible but positive benefit
Total	Clear net benefits for each amendment. Aggregate benefits likely to be in the medium range ($1-10m NPV)	

Legend: Benefits classified based on NPV impact: Small (<$1m), Medium ($1-10m), Large (>$10m).

4.5 Conclusion and evaluation of alternatives

The purpose of the regulation is to support WaterNSW in efficiently and effectively meeting its objectives under the Act.

The preferred option for ensuring that WaterNSW meets this objective under the Act is to make the proposed regulation (Option 3).

The preferred option has some advantages over the existing regulation (Option 2) and is clearly preferred to the no regulation (Option 1) alternative. Other options were considered; however, none were identified that might result in a lower net-cost to achieve WaterNSW objectives under the Act.

The conclusions are not sensitive to any reasonable modifications to the assumptions made.

Table 9: Summary comparison of options

	Net benefit relative to Option 1 (base case)	Note
Option 1 — No regulation	No net benefit; Option 1 is the base case.	
Option 2 – Rollover case	Substantial positive net benefits. • Management cost savings ≈ $37 million NPV • Reduction in water quality risks (in order of $20 million NPV) Total benefit in excess of $55 million NPV.	• Includes costs to WaterNSW and other agencies
Option 3 – Proposed regulation	Same as Option 2 + additional net benefits including which in aggregate are likely to be less than $10 million NPV.	• Each proposed amendment has a clear net benefit. • None of the proposed amendments impose material costs.

Source: Summarised from Section 4.

5. Consultation process

5.1 Context for consultation

Consistent with the requirements of the SL Act[41] and WaterNSW's commitments, the section outlines the process for consultation.

In formulating the public consultation program, WaterNSW has had regard to the nature and extent of the changes proposed. Factors included for consideration are:

- The proposed regulation involves minor change to the existing regulation.
- There was a small public response to the previous review. There were 16 submissions.
  - Key stakeholders (including Sydney Water, OEH and the EPA) were supportive of the changes
  - A number of submissions called for increased recreations access. Other matters raised related to Feral animal and weed control, reporting on pollution in inflows, Coal Seam Gas (which is not a matter for the Regulation), GPS Mapping and signage.

Based on the response to the previous reviews, the issue of increased recreational use is expected to again attract significant attention.

5.2 Consultation plan

Consultation involving a public exhibition of the proposed regulation and the RIS is expected to be conducted by WaterNSW in April and May 2020. The consultation process will include notifying stakeholders, including government agencies and the community at large, about the review prior to public exhibition commencing. It is proposed this communication will include:

- advertising in Sydney metropolitan newspapers
- letters sent to key stakeholders advising about the public exhibition of the regulation. These stakeholders include:
  - NSW Government agencies
  - local councils
  - peak environment/conservation groups
  - local Aboriginal organisation groups
  - recreational groups
- public exhibition information to be made available on the WaterNSW website, and
- internal (to WaterNSW) publication.

[41] Schedule 2 Clause 1 (f) requires that the RIS includes 'A statement of the consultation program to be undertaken.' Consultation is to take place with appropriate representatives of consumers, the public, relevant interest groups, and any sector of industry or commerce, likely to be affected by the proposed statutory rule.

Public notices will state the objects of the proposed regulation, advise where the RIS may be obtained or inspected, and invite comments and submissions within a specified timeframe. As per the requirements of the SL Act, the draft regulation will be on public exhibition for a minimum of 21 days.

It is proposed that following the consultation process there will be additional communication to stakeholders informing them of the publication of the revised regulation. This communication will likely include:

- updated information on the WaterNSW website
- letters to consultation participants advising of the publication of the revised regulation
- letters to other stakeholders (who may not have participated in consultation) advising of the publication of the revised regulation.

6. References

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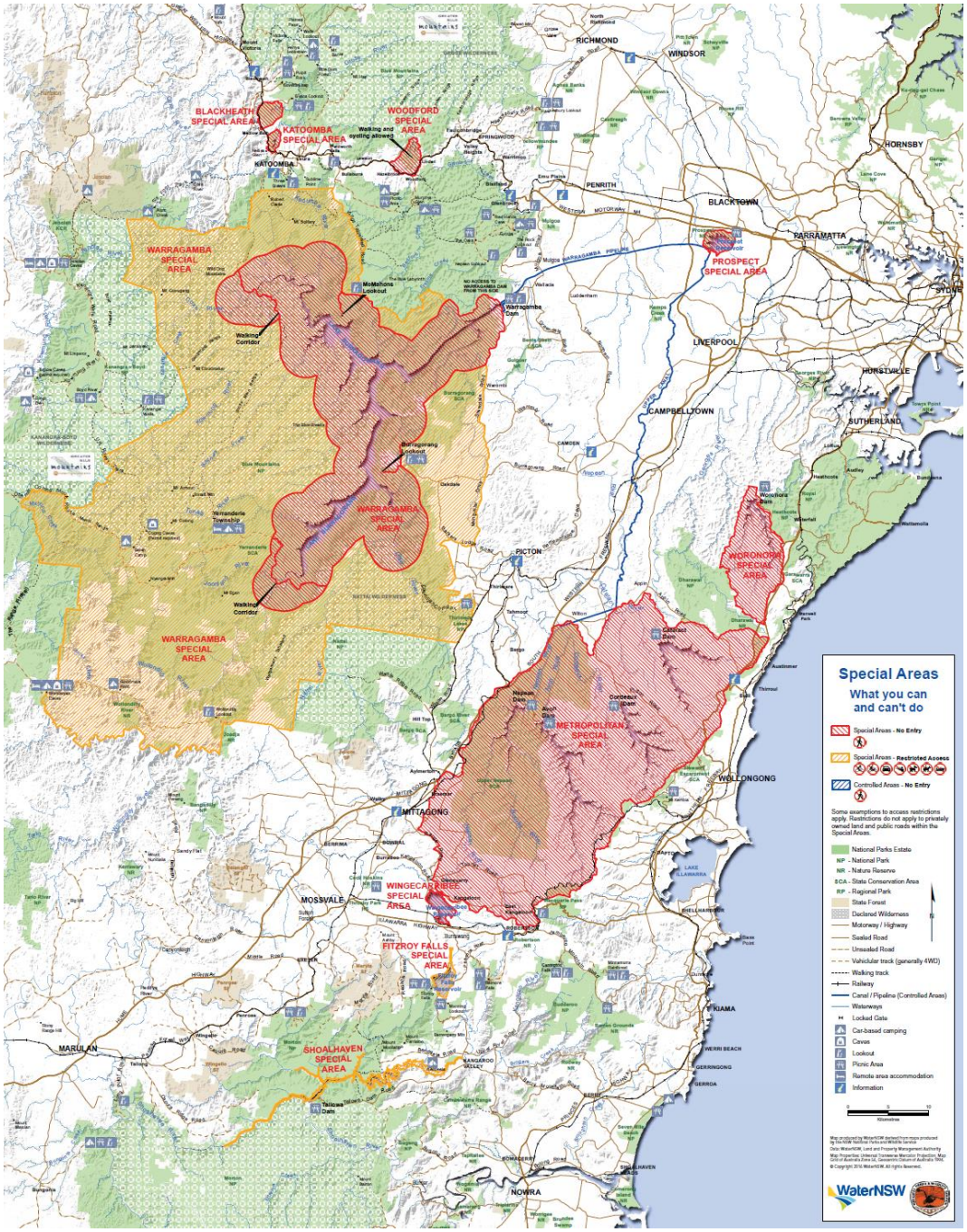
Appendix 1: Background information

Figure 1: Location and tenure of land within Special Areas



Source: https://www.waternsw.com.au/water-quality/catchment/manage/special-areas

WaterNSW Consent Guidelines

Box 3: WaterNSW's Guidelines for consent to enter Special and Controlled Areas

WaterNSW will only grant consent to enter these lands for individuals, companies or groups who can show that their proposed activity meets ALL of the below standard assessment criteria and specific criteria for the relevant category:

- It is for an activity that cannot be carried out elsewhere
- It is for an activity or purpose that will benefit WaterNSW's management of the Special and Controlled Areas, or provide a broader public benefit
- It will not compromise the integrity, operation or management of any WaterNSW infrastructure or catchment areas
- The activity will not:
  - lower the quantity of water in the water storages or catchments
  - lower the quality of surface and groundwater inflows to water storages or catchments
  - have a negative impact on the ecological integrity of the Special Areas.

Source: https://www.waternsw.com.au/water-quality/catchment/manage/special-areas/access

Catchment management expenditure

Table 10: WaterNSW catchment management budget 2018–19

Catchment management program	Budget 2018-19 (000s)	Of relevance to the Regulation*
Source Water Protection	**$2,836**	
Grazing and Erosion Program	$1,615	Unlikely
Urban Stormwater Program	$620	No
Dairy Assistance Program	$393	No
Economic Appraisal	$208	No
Land Management	**$8,791**	
Fire Management	$2,263	Yes
Unsealed Roads Program	$212	Yes
Pests and Weeds Program	$881	Some relevance
Cultural Heritage	$40	Minor relevance
Recreation Areas Management	$1,509	Some relevance
Reserve Management	$3,674	Yes
Barriers and Fencing Activities	$212	Yes
Water Quality Science	**$1,397**	
Evaluation Activities	$443	Unlikely
Mining Research	$383	Unlikely
Risk Assessments	$290	Unlikely
Research Partnerships	$281	Unlikely
Enforcement and Surveillance	**$429**	
Surveillance	$132	Yes
Investigations	$120	Yes
Consent Applications	$177	No
Development Impact Assessment	**$1,747**	
Development Impact Assessment	$749	No
Land Use Planning	$227	No
Mining	$771	No
Engaged Communities	**$928**	
Community Education	$642	Yes
School Education	$286	Yes
Grand total	$16,128	**$11,131**

Source: WaterNSW (2018),

Notes: *Author's assessment, ** Total with some relevance to the Regulation

Appendix 2: Proposed regulation