Volume B – Business Plan 2017–2020

May 2017
This document was prepared by the Kangaroo Island Natural Resources Management Board and is a policy of the South Australian Government.

This plan was adopted by the Minister for Sustainability, Environment and Conservation, Mr Ian Hunter MLC on the 22 May 2017.

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Cover photos
Top: AgKI Potential Project field visit
Bottom: Dudley Peninsula Credit: Quentin Chester
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I, Honourable Ian Hunter MLC, Minister for Sustainability, Environment and Conservation, after taking into account and in accordance with the requirements of section 81 of the Natural Resources Management Act 2004 hereby adopt the Kangaroo Island Regional Natural Resources Management Plan 2017–2027.

22 May 2017
Honourable Ian Hunter MLC
Minister for Sustainability, Environment and Conservation
Foreword

Through 18 months of thought, conversation and workshopping, the Kangaroo Island community contributed ideas, visions and plain hard work to the plan for managing their natural resources.

Kangaroo Islanders belong to their Island. It is more than just their home; they love and respect it and are proud to be Islanders. And the Kangaroo Island Natural Resources Management (NRM) Board is proud to have brought their efforts together into the Natural Resources Management Plan 2017–2027 to guide us for the next 10 years. This business plan describes the Board’s program of activities in the 2017–18 financial year to ensure the strategic management plan is implemented.

The Board is obliged, under the Natural Resources Management Act 2004, to supply services for the control of pest animals and plants, and to plan and manage water use within the Kangaroo Island region. The Act instructs the Board to apply an appropriate levy to all landholders within the region to enable this work to be done. The NRM levy previously applied does not meet the costs of fulfilling our obligations. In 2017–18 the NRM levy will rise to $78 per rateable property to offset these costs.

Kangaroo Island Council provides an efficient service in collecting this levy for the NRM Board at the same time as it collects its own rates. This levy is not revenue for Council and is not set by them. All responsibility for this levy rests with the Board, which sets and manages the levy. We thank Kangaroo Island Council for collecting the NRM levy on the Board’s behalf.

I believe everyone on our Island benefits from the work done in natural resources management – in community well-being, as the backbone of our tourist industry and in underpinning our sustainable farming systems. I can assure the people of Kangaroo Island that this small levy will be money well spent.

The Australian Government has financially supported a number of NRM projects over previous years, to Kangaroo Island’s great benefit. Funding for these projects ends in June 2018 and future funding opportunities are uncertain. Our small population and consequent low levy base mean that Kangaroo Island will always need some government financial support to manage our abundant natural resources. I also thank the South Australian Government and particularly the Department of Environment, Water and Natural Resources for its continued support and funding, and assure this community that the Board will not waver in advocating for continued funding from both levels of government, and from all Australian taxpayers, to help manage our nationally renowned and valued natural assets.

Richard Trethewey
Presiding Member
Kangaroo Island Natural Resources Management Board
Acknowledgements

Thanks go to the many people and organisations that have assisted in the development of this climate change ready NRM Plan for Kangaroo Island.

Thanks also go to the Australian Government whose generous funding has made this work possible.

The Kangaroo Island Natural Resources Management Board recognises that the sustainable use and care of the region’s beautiful environment and natural resources is everyone’s responsibility. The Board acknowledges the many landowners, land and water managers, individuals, community groups and other organisations that have taken up this responsibility. The Board also acknowledges the ongoing spiritual connection that Aboriginal people have with the region and their concern and care for country.

Together we are working towards a more resilient future for the benefit of current and future generations.
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1. Introduction

1.1 What is natural resources management?

The Kangaroo Island community understands that the Island’s outstanding natural resources support our physical, mental and spiritual well-being, our way of life and the Island’s economy. Kangaroo Island’s spectacular beaches, productive farms, extensive reserves and bountiful seas are essential to the Island’s primary production and tourism industries. The Island’s dynamic natural ecosystems need to be protected to sustain these industries. Balancing people’s needs with those of nature and making wise decisions about exploitation and extraction levels will help guarantee continued access to these goods and services for future generations.

Natural resources management (NRM) aims to maintain a sustainable balance between social, cultural, economic and environmental interests in the use of our natural resources for the benefit of both current and future generations. This means taking into account the effect of our natural resources management decisions on communities and businesses as well as the environment and its ecosystems. As our reliance on natural resources increases, so does the importance of making well considered decisions based on an integrated natural resources management plan.

The responsibility for natural resources management rests with everyone. We all rely on fresh air and clean water and we all consume food, building materials and energy for home, industry or travel, all of which are derived from natural resources. We also appreciate the physical, mental and spiritual benefits of the natural environment for recreation, relaxation and meditation. Everyone uses natural resources, so everyone has an interest in and responsibility for sustainable natural resources management to support our current and future well-being and lifestyles.


1.2 Role of the NRM Board

Regional NRM boards established under the *Natural Resources Management Act 2004*, have responsibility for facilitating the wise management of natural resources. In addition to the preparation, implementation and review of regional natural resources management plans, NRM boards also promote public awareness and understanding of the importance of integrated and sustainable natural resources management and provide advice to the Minister on the condition and management of natural resources in the region.

NRM boards take an active role in ensuring that both regional NRM plans and regional development plans promote the objectives of the *Natural Resources Management Act 2004* and that they together form a coherent set of policies. NRM boards work with local councils, the Minister and his/her department in considering any proposed amendments to Development Plans that are relevant to the activities of the board. NRM boards also work collaboratively with other regional NRM boards, state and Commonwealth agencies and relevant industry, environment and community groups and organisations.

Regional NRM boards consist of up to nine members, appointed by the Minister, who collectively have the knowledge, skills and experience in areas such as primary production, conservation, land and water management, and animal and plant control to effectively carry out the functions of the board. All Kangaroo Island Natural Resources Management Board members live in the region and many are engaged in an activity related to land management. All members have an interest in facilitating and negotiating for the sustainable use and conservation of natural resources and an awareness of natural resource issues across the region. This arrangement is complemented by the strong relationship with Kangaroo Island Council.

1.3 NRM Board governance

The Kangaroo Island Natural Resources Management Board (the Board) has a role in providing efficient and effective leadership and management of Board business. Sound governance and administration is critical to the ongoing operation of the Board and the development of its capacity to deliver effective NRM programs in the region.

The Board has adopted a set of adaptive governance principles (see table 1) to ensure it is effective and dynamic and that it operates with integrity.
Table 1: Seven principles of adaptive governance
(Adapted from Griffith et al. 2009)

<table>
<thead>
<tr>
<th>Governance Principle</th>
<th>Description</th>
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<tbody>
<tr>
<td>Legitimacy</td>
<td>The conferred or earned authority and necessary diligence and integrity to make decisions on behalf of others</td>
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<tr>
<td>Procedural fairness</td>
<td>An ethical basis for the way decisions are made and how communities and stakeholders are involved and treated</td>
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<td>Accountability</td>
<td>Being answerable to those on whose behalf decisions are made</td>
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<td>Institutional networks</td>
<td>The linkages, networking and knowledge exchange that enables coordination of effort to occur</td>
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<tr>
<td>Reflective process</td>
<td>The awareness, reflection and responsiveness to changing conditions that enables learning, new knowledge and feedback to be incorporated into planning and action</td>
</tr>
<tr>
<td>Adaptation</td>
<td>Flexibility to manage and respond to change and manage towards desired outcomes</td>
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<tr>
<td>Transformation</td>
<td>Potential to navigate a shift to a fundamentally different system of natural resources use and management when the existing system becomes untenable</td>
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Board inductions are held annually by DEWNR for new board members. The Board also conducts an induction process when new members join. In 2016, the administration undertook a significant revision of the Board Manual. Much of the material is based on DEWNR’s existing requirements, plus additional documentation as recommended by Effective governance. directors at work: A practical guide for boards (2012).

The Board conducts formal independent and semi-formal reviews of its governance processes. External stakeholder evaluation is undertaken annually. The next independent review will be undertaken in 2018.

The Board operates under a risk matrix approach. This is reviewed annually by the Board’s finance and audit committee to reassess the level of risk and effectiveness of mitigating strategies, and to identify new risks. Resulting recommendations for changes to the risk matrix are endorsed by the Board and recorded in their minutes.
2. About this Business Plan

2.1 Purpose

The Business Plan 2017–2020 sets out how the Board aims to deliver on the goals and objectives of the Strategic NRM Plan for the Kangaroo Island Region 2017–2027 through its investment over the three-year period. The Business Plan’s implementation program contained in section 4 details such activities to be undertaken in the 2017–18 financial year. Under the Act, the Business Plan must be reviewed at least once every three years, or at any time the Board is proposing an increase above CPI in the amount to be raised by a levy.

This Business Plan identifies the expected sources of investment for the financial year 2017–18 only, as funding from the South Australian and Australian governments past this date is not certain. The Business Plan 2017–2020 does not reflect all funding the region receives as it does not include the state allocation to parks and public lands as well as state based project activities in the region. However, an integrated approach is in place whereby the Natural Resources Kangaroo Island Regional Director, who is also Executive Officer to the Board, is responsible for managing staff and resources within the region involved in both Department of the Environment, Water and Natural Resources (DEWNR) and Board related programs.

Appended to the Business Plan are the Board's main policies, including policies relating to water resources management on the Island and local government and development. This allows the policies to be updated on a one to three year basis, rather than waiting for the ten year revision of the Strategic NRM Plan.

The Strategic NRM Plan for the Kangaroo Island Region 2017–2027 provides a regional framework and guidance for everyone managing and deriving benefit from Kangaroo Island’s natural resources, as contemplated by the Act. It is intended to present a clear and defensible statement of what is needed to achieve the sustainable ecological management of Kangaroo Island’s natural resources, why this action is needed, and how the most effective and efficient actions are determined and delivered. The NRM Plan is based on the best science and approaches currently available and effective, ongoing monitoring, evaluation and improvement are key elements in its implementation.

2.2 Planning principles and approach

The Natural Resources Management Act 2004 requires that an NRM plan:

- communicates a shared vision and goals for managing natural resources in the region
- presents the current state and condition of the region’s natural resources, the current and likely future processes that threaten them, and opportunities for their protection and management
- sets long-term targets or objectives for the desired state and condition of the region’s natural resources and describes the broad strategies and actions required to achieve them
• provides a sound basis for investing in the management of the region’s natural resources by a range of funding investors, including the Australian Government and Government of South Australia

• guides the approach of all stakeholders managing natural resources in the region, including government, industry, community groups and individuals.

Five core principles have fundamentally shaped the Strategic NRM Plan for the Kangaroo Island Region 2017–2027 and the activities that will be undertaken to deliver on its objectives (i.e. the Implementation Plan contained in section 4):

• **Systems approach**: nature teaches that everything in the world is connected. A system is a set of interrelated elements that make a unified whole, where the whole is greater than the sum of the parts, i.e. it has emergent properties. Individual things like plants, people, schools, watersheds or economies are themselves systems and at the same time cannot be fully understood apart from the larger systems in which they exist. In order to achieve a holistic approach we need to understand the interplay of different factors at different spatial and temporal scales. Systems thinking is an essential part of sustainability. It helps people understand the complexity of the world and encourages them to think in terms of relationships, connectedness and context.

• **Resilience thinking**: requires that we examine the capacity of communities and natural systems to absorb shocks while retaining their basic structure and function in a desirable state that continues to deliver our needs. It may also be about preparing for system transformation where this is unavoidable or driving transformation where this is possible and desired.

• **Localism**: governments and the community should partner together to manage natural resources in an integrated way. Wherever possible, functions, resources and accountability should be devolved to capable local people and local knowledge and observations must be considered and incorporated.

• **Quadruple bottom-line accounting**: social, cultural, environmental and economic factors should be considered in a balanced and sustainable manner, and the needs and well-being of our current community assessed without compromising the ability of future generations to enjoy a similar quality of life. This requires that we consider challenges and solutions at appropriate time scales, making conscious trade-offs as needed. An ecosystem services approach may be useful in this regard.

• **Adaptive management and governance**: the decisions we make, and how we make them, should be informed by a rigorous learning process that improves our ability to respond to and drive change and better manage systems.
### 2.3 Planning process

The inaugural regional NRM plan for Kangaroo Island was adopted in 2009 and has guided natural resources management in the region since then. The Plan was due for five year review in 2014 but sufficient funding was made available by the Australian Government for a complete rewrite of the plan with the aim of making it ‘climate change ready’. Kangaroo Island, together with many other NRM regions from around the country, took advantage of this opportunity to ensure their NRM plans factored in the latest climate change scientific knowledge.

Care was taken to ensure that the plan was developed from the ground up in consultation with a broad range of stakeholders including Kangaroo Island landholders and residents, community groups, local non-governmental organisations (NGOs), business and industry, and local and state government agencies. Its development was overseen and guided by the KI NRM Board and its NRM Plan Steering Committee and was supported by the Natural Resources Kangaroo Island Regional Management Team and staff. Figure 1 provides an overview of the planning process, indicating the extensive stakeholder consultations undertaken.
2.4 Vision, goals and objectives

Vision statements were developed by community members at the start of the planning process through an ‘envisioning’ workshop. The values and aspirations expressed were cross-checked for consistency against information collected from stakeholders at focus group and ‘what’s going on in your backyard’ workshops, as well as information collected by other planning processes on the Island.

The vision statements translate into five broad goals, which are supported by a suite of objectives and strategies to guide regional NRM action on Kangaroo Island over the next ten years.

The five goals are:

- Distinctiveness
- Healthy, resilient environment
- Thriving community
- Vibrant economy
- Local knowledge and governance.

These five goals are supported by a suite of objectives and strategies that unpack how the goals will be achieved.

The Implementation Program in section 4 details the actions that will be undertaken against each objective for the financial year 2017–2018.

Community NRM plan and ‘envisioning’ workshop at the Kingscote Yacht Club, April 2014
3. The Kangaroo Island Region

3.1 Overview

The Kangaroo Island region is one of eight natural resources management regions established in South Australia under the Act (Figure 2). The Island lies 15 km from the tip of the Fleurieu Peninsula in southern South Australia and covers 4,370 km² and has 457 km of coastline. The population of approximately 4,600 is centred in the four larger townships, of which Kingscote is the largest with about 1,500 residents, followed by Penneshaw, Parndana and American River.

Native vegetation covers almost 50% of the Island, of which almost 65% is protected in national parks, wilderness protection areas and conservation parks. Native wildlife is diverse and relatively abundant. The Island is surrounded by a healthy marine environment, including four marine parks, that supports commercial and recreational fishing as well as tourism.

The economy is almost entirely dependent on the natural resources base with primary production and nature-based and farm-based tourism making up around 90% of the gross regional product. Kangaroo Island welcomes over 200,000 visitors each year. About a third of annual visitors are international travellers, with the remainder coming from interstate and mainland South Australia. They are drawn to the inspiring natural environment of the Island, its interesting heritage, and its premium food and wine. The primary production sector is varied, and includes broadacre cropping, sheep for meat and wool, viticulture, horticulture (especially seed potatoes), forestry and aquaculture.

Figure 2. Map of the Kangaroo Island region
### 3.2 Regional conceptual models

The Regional Strategic NRM Plan contains state of the region snapshots, a number of which are accompanied by conceptual models developed to reflect the ‘state and transition’ of the various social-ecological systems under consideration (see section 6 of the Strategic Plan). They are based on the systems and resilience thinking approaches adopted in this Plan and represent our current view of more desirable and less desirable states and our understanding of the stressors (threats, drivers, shocks) that impact on systems pushing them to a less desirable state, as well as the interventions or management responses that push them towards a more desirable state.

*Figure 3. Stressors and interventions act to move systems towards more or less desirable states*

The models are a simplification of how social-ecological systems work for the purposes of testing and improving our understanding and decision making on what action to take. Defining thresholds of concern (sometimes called acceptable limits of change) is more easily done for system components, such as soil acidity, than for the system as a whole where there is a complex interplay of different factors at different spatial and temporal scales. Nevertheless, this approach looks to identify where and how best to target intervention in any given system to leverage the desired change. The approach also acknowledges that social-ecological systems are not static or frozen in time, but rather, are continually changing.

The primarily biophysical models focus on the ‘health’ of terrestrial, aquatic, and marine and coastal ecosystems, and are complemented by the state of the environment snapshots, which document the condition and trend in natural assets. The two more socially based conceptual models describe the dynamics between people and natural resources management, including a community capacity and engagement model and a land management model.

The conceptual models and the evidence base that supports them guide natural resources management action at the regional and local level. The models aim to inform prioritised and targeted intervention at key points in social-ecological systems to leverage maximum effectiveness and ‘best bang for buck’. They will be used to inform the design of regional programs and projects as well as local landscape action plans to achieve the goals and objectives outlined in the Strategic NRM Plan and will be improved over time as our understanding and knowledge grows.
3.3 Managing the public estate in the region

Within the Kangaroo Island region, there are more than 494,220 hectares of protected areas in national parks, marine parks, other reserves and specific areas of Crown land managed for conservation and other purposes. These public lands form an important part of the regional social-ecological systems and contribute to natural resources outcomes such as conservation of biodiversity and improved water quality.

The Board works in an integrated way across the landscape taking into account public land areas and working closely with relevant land managers. Most services to the Board come from DEWNR (to deliver their regional plan), so there is a particularly close relationship and integration of NRM activities across DEWNR managed public land. This contributes to improved outcomes for both the Board and DEWNR.

Activities in national parks, marine parks, other reserves and specific areas of Crown land are delivered through the following region-wide strategic actions:

- improve visitor infrastructure, access and experiences across the public estate
- manage and enhance the protected area network to maintain or improve biodiversity conservation values
- minimise bushfire risk on public land and maintain appropriate bushfire response capability and capacity.
4. Implementation Program

The Implementation Program describes the activities to be undertaken by Natural Resources Kangaroo Island on behalf of the Board in the 2017–2018 financial year. These activities are funded through the NRM levy, the state allocation to Natural Resources Kangaroo Island and Commonwealth project funding (see section 5). Not included are activities by Natural Resources Kangaroo Island for managing the reserve estate and Crown lands (see also section 3.3).

The current programs and projects overseen by the Board were developed under the previous NRM Plan 2009–2019 and are aligned with the resource condition targets contained in that plan. The activities remain relevant and have been realigned with the objectives of the new Plan.

As the NRM Plan 2017–2027 adopts a resilience and systems thinking approach it has a greater focus on ‘triple loop learning’ with regular evaluation and reprioritisation to ensure targeted management interventions. It also looks to introduce more holistic, integrated key performance measures that are related to the conceptual models.

The Implementation Program does not include natural resources management activities that will be undertaken by other stakeholders in the region, including other agencies, industry and community groups. There is currently no mechanism for integrated reporting of regional delivery against the regional NRM plan and this issue requires further consideration.
Goal 1: Distinctiveness

Kangaroo Island’s unique qualities and character are protected and enhanced for the enjoyment and benefit of the community and visitors and for future generations.

Kangaroo Island is defined by rugged coastlines and sweeping vistas, unspoilt beaches and sparkling ocean waters, lighthouses and shipwrecks, extensive native vegetation and abundant wildlife, solitude and space to roam, dark night skies and the sounds of nature, the characteristic agricultural mosaic, a welcoming community and sense of safety; an ideal place to raise a family or retire. These are the things that landholders, residents and visitors to the Island value and wish to retain, while acknowledging that some change is desirable and other change is inevitable.

Kangaroo Island has a unique landscape. The focus for the Board is to deliver actions that support the ecologically sustainable use and development of our Island’s natural resources in order to maintain its essential character.
<table>
<thead>
<tr>
<th>Objectives</th>
<th>Activities</th>
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<tbody>
<tr>
<td>1.1 Land-use decision making and development activities are proactively informed by aesthetic, heritage and environmental considerations.</td>
<td>Continue to provide comment and advice to the Kangaroo Island Council on the Development Plan for Kangaroo Island, as contemplated by the NRM Act 2004. Continue to provide comment and advice on development proposals and activities as part of the public consultation process. Continue to participate in and make comment at regional economic development fora and initiatives.</td>
</tr>
<tr>
<td>1.2 Visitor management practices and tourism infrastructure suit activities and visitation levels, effectively avoiding, minimising or mitigating negative impacts and encouraging people to use and enjoy the assets respectfully.</td>
<td>Continue Board membership of and active participation in the Tourism Optimisation Management Model (TOMM), aimed at ensuring the continual improvement and sustainability of the tourism sector on the Island. Continue to collaborate with Kangaroo Island Council and other stakeholders to ensure that tourism activities and infrastructure are adequate and are sustainably managed in accordance with industry best practice.</td>
</tr>
<tr>
<td>1.3 Native vegetation, wildlife, landscapes and other natural assets are sensitively managed to maintain the sense of identity and unique appeal, while the evolutionary character of KI is maintained.</td>
<td>Collaborate with the Kangaroo Island Council and the Commissioner for Kangaroo Island in the development of sustainability indicators for the Island. Explore opportunities for the development of a bioregional planning tool that informs the development planning process to proactively identify potential impacts on threatened or iconic species, breeding refuges and sensitive or threatened ecosystems. Support all processes aimed at developing renewable energy supplies on Island, working towards becoming carbon neutral.</td>
</tr>
<tr>
<td>1.4 Historical, archaeological and paleontological sites and features are suitably managed, protected and interpreted.</td>
<td>Continue working with the Aboriginal Nations Group to improve the exposition of Indigenous heritage on the Island. Support research partnerships aimed at improving understanding and protection of paleontological assets on the Island, including the fossil research undertaken by the University of Adelaide on public and private land.</td>
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1.5 KI’s iconic ‘natural’ status is used to leverage business, research and funding opportunities.

<table>
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<tr>
<th>Work with relevant stakeholders to explore opportunities to establish a Kangaroo Island conservation trust (or other suitable legal vehicle) that is able to receive and administer donations from visitors, philanthropists, corporations and other public and private agencies for biodiversity and cultural conservation.</th>
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<tbody>
<tr>
<td>Continue to collaborate with the University of Adelaide, the NESP Threatened Species Hub and other research providers to promote biodiversity and NRM research activities on the Island.</td>
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Goal 2: Healthy, resilient ecosystems

Kangaroo Island’s ecosystems are healthy and resilient, biodiversity loss is minimised and ecosystems continue to deliver life-supporting services.

Kangaroo Island is famous for its beautiful, natural environment and diverse and abundant wildlife that attracts visitors from far and wide. The Kangaroo Island community appreciates the beauty of its natural environment and the fundamental contribution the natural resources base makes to its prosperity and well-being. However, factors such as habitat and species loss, over-abundant native species, pollution, weeds, feral animals, and changes in fire regime continue to impact on biodiversity.

Soil needs to be suitably managed to minimise acidification, erosion and salinisation and the accompanying impact on ecosystems. Water resources need to be carefully managed to protect riparian and aquatic environments while supporting human needs, primary production and other economic activity. The marine environment is biologically diverse and has considerable conservation value, but is under threat from climate change and other localised stressors.

Targeted intervention is required to address key threats, reduce the stress on natural systems, and build resilience for adapting to the impacts of climate change so that the natural environment continues to exist in a healthy state and deliver the many benefits that support human prosperity and well-being.
## Goal 2: Healthy, resilient ecosystems

<table>
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<tr>
<th>Strategies</th>
<th>Activities</th>
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<tbody>
<tr>
<td>2.1 The unique, iconic and endemic elements of terrestrial biodiversity on KI are identified and suitably protected and species loss is minimised.</td>
<td>Incorporate climate change considerations into all planning, programs and projects.</td>
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<td></td>
<td>Provide local and technical advice on development applications, tourism and infrastructure projects, and any other activities potentially affecting ecosystems, including threatened species.</td>
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<td>2.2 The structure and function of terrestrial ecosystems is maintained or enhanced so that it continues to deliver multiple benefits for the community and the environment.</td>
<td>Support and provide incentives to land managers to improve the extent, connectivity and condition of native vegetation through the on-ground works program and other means.</td>
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<td></td>
<td>Support the development of the Kangaroo Island roadside vegetation management plan.</td>
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<td>Provide advice and recommendations on native vegetation management and clearance applications through the Bush Management Advisor.</td>
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<td></td>
<td>Provide technical support to landholders for the establishment and on-ground management of heritage agreements.</td>
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<td>Work with key stakeholders to develop a proposal for a regional native vegetation management plan and seek funding to deliver.</td>
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<td></td>
<td>Improve the community’s understanding and promote the benefits of native vegetation on the Island.</td>
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<td></td>
<td>Work with privately held/commercially operated natural resources based businesses to maintain and improve the health and resilience of the Island’s ecosystems.</td>
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<td></td>
<td>Support ecological restoration and revegetation through the provision of a native plant nursery and planting advice.</td>
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<tr>
<td>2.3 The impact of over-abundant native species on primary production, biodiversity and social amenity is suitably managed.</td>
<td>Continue to manage koala populations in accordance within state and Commonwealth policy options, supporting strategies and projects that address koala over-abundance and its impact on native vegetation.</td>
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2.4 Weeds, feral animals and disease are contained or eradicated where possible.

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<tr>
<th>Encourage research and explore management options for over abundant species (e.g. kangaroos/wallabies/possums), including the potential for sustainable harvesting of suitable macropod species on the Island.</th>
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<tr>
<td>Manage environmental weed species in accordance with risk assessment priorities and regional management plans.</td>
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<tr>
<td>Undertake targeted control operations for priority Weeds of National Significance (WONS), including gorse, Montpellier broom, bridal creeper, bridal veil and blackberry.</td>
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<tr>
<td>Inspect all properties listed under the National Gorse Taskforce Memorandum of Understanding.</td>
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<td>Work with primary producers to prevent (or reduce) the spread of agricultural crop and pasture species out of the paddock.</td>
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<tr>
<td>Seek funding to continue the Feral Cat Eradication Program as outlined in the feral cat investment prospectus.</td>
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<td>Undertake and support local pig management and peacock control.</td>
</tr>
<tr>
<td>Finalise eradication of feral goats and deer and continue with strategic monitoring.</td>
</tr>
</tbody>
</table>

2.5 Kangaroo Island’s marine and coastal environment is maintained and enhanced to conserve its wild and relatively pristine nature and to support a wide range of environmental, cultural, social and economic benefits.

<table>
<thead>
<tr>
<th>Promote best practice land and infrastructure management to improve catchment water quality and decrease diffuse and point source pollutant loads flowing or seeping into the ocean.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restore seagrass meadows through direct plantings in Nepean Bay.</td>
</tr>
<tr>
<td>Support delivery of the local marine parks program, including education, compliance and performance aspects.</td>
</tr>
<tr>
<td>Undertake surveillance and monitoring for marine pests at key high risk invasion sites such as entry ports around Kangaroo Island and undertake appropriate control of new incursions.</td>
</tr>
<tr>
<td>Support community groups and the Green Army to remove litter from beaches.</td>
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<tr>
<td>2.6 Aquatic biodiversity on KI is described, understood and suitably protected</td>
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<tr>
<td>Provide local and technical advice and recommendations on coastal development applications and coastal planning processes, particularly for potential impacts on coastal communities and endangered coastal species such as hooded plovers and the white-bellied sea-eagle.</td>
</tr>
<tr>
<td>Collaborate with Kangaroo Island Council, DPTI and the DEWNR Coastal Protection Board to investigate how sea level rise will impact the Island and to facilitate planning for infrastructure management and habitat retreat.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2.7 Water quality in priority catchments and wetlands is improved.</th>
<th>Investigate aquatic ecosystems to assess existing and potential trends in condition to inform the determination of sustainable extraction limits and to monitor threats.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continue to monitor sediment and nutrient loads in selected watercourses in order to plan and evaluate management interventions to improve water quality.</td>
<td></td>
</tr>
<tr>
<td>Assist land managers to protect riparian vegetation through fencing (stock exclusion), the installation of stock crossings and relocation of watering points</td>
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</tr>
<tr>
<td>Promote best practice land management to minimise chemical, nutrient and sediment runoff.</td>
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</table>

<table>
<thead>
<tr>
<th>2.8 Watercourse connectivity is maximised and refugia are protected.</th>
<th>Implement water affecting activity policies to restrict the placement of dams on high order watercourses.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implement water affecting activity policies to ensure installation of low flow bypasses or other measures to release low flows to the environment.</td>
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</tbody>
</table>

| 2.9 Water take limits are used to balance environmental, social and economic needs. | Apply updated water take limits to manage water resources in a sustainable, equitable and transparent way. |

<table>
<thead>
<tr>
<th>2.10 Water management is effective, efficient and sensitive to landholder needs, recognising</th>
<th>Continue to improve water management policies, practices and processes.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify and promote ways of conserving and recycling water, and increasing water use efficiency across the Island.</td>
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</tbody>
</table>
the economic and social benefits of water resources. | Progress the development of sustainable extraction limits for KI catchments, aiming to balance the quadruple bottom line.

2.11 Kangaroo Island’s biosecurity arrangements are strengthened to minimise the risk of future terrestrial/aquatic/marine pest or disease invasions. | Undertake a risk assessment to inform targeted pest control action, with consideration for climate change and other relevant factors.

Implement the Kangaroo Island Biosecurity Strategy.

Advocate for stricter legislative controls for feral pigs.

Advocate for Kangaroo Island to be its own marine biosecurity zone in order to facilitate more effective marine biosecurity management.

Implement permitting systems to prevent the escape of high risk captive species.

2.12 Implementation of surveillance, monitoring and response plans to ensure early detection and rapid response to biosecurity threats. | Develop pest incursion and response plans for high-risk species.

Respond rapidly to pest incursions and proactively manage biosecurity incidents.

Conduct regular surveys for marine pests at the major entry ports to Kangaroo Island.

Provide mechanisms to support community surveillance and rapid reporting of biosecurity issues.
Goal 3: Thriving community

The Kangaroo Island community enjoys a high level of well-being, is resilient and connected

The Kangaroo Island community values its slow and peaceful way of life, strong social connections and vibrant community spirit, as well as its safe and healthy environment. The community faces a number of socio-economic challenges including limited employment opportunities and lower than state average per capita earnings. It acknowledges that education and ongoing skills development are key ingredients for success, as are good communications and collaboration.

The community continues to work towards a future where all Island residents are able to thrive in a healthy, natural environment that supports their well-being and preferred lifestyle. Off-Island landholders and Aboriginal nations with deep spiritual connections to the Island are integrally involved in caring for country.

This goal focuses on building local social capital, adaptive capacity, social resilience and self-sufficiency. Community engagement in caring for the Island is facilitated through a number of means, including local landscape action planning.
<table>
<thead>
<tr>
<th>Objectives</th>
<th>Activities</th>
</tr>
</thead>
</table>
| 3.1 The community understands and values its natural environment and the social and economic benefits it provides. | Provide information to and share knowledge with the community through displays, presentations, workshops, conferences, field days and shows, brochures, newsletters, factsheets, etc.  
Share NRKI project stories, activities and achievements with the community (local, state and national) through the NRKI website, social media channels and other media. |
| 3.2 The community is empowered and engaged, taking care of the natural environment, thinking globally and acting locally. | Support the development and implementation of local landscape action plans that promote community stewardship of the environment and coordinate on-ground action.  
Notify the community about public consultation opportunities for NRM related plans, policies, strategies and regulations.  
Provide NRM skills training and support for on-ground work by landholders and volunteers.  
Coordinate and support citizen science projects, fauna and flora surveys, field trials, demonstration site visits, building awareness and promoting the uptake of appropriate new technologies and innovations.  
Support environmental NGOs, community groups and Landcare with information, advice and expertise, including on accessing available grant funding.  
Involve community volunteers in on-ground activities, including ecological restoration and revegetation, clean-ups, weeding, and seagrass restoration.  
Recognise individual and community group best practice through the Local Achievers NRM Awards.  
Promote compliance with legislation aimed at protecting the Island’s natural environment.  
Pursue opportunities for Aboriginal involvement in caring for land and sea. |
<table>
<thead>
<tr>
<th>3.3 Youth are empowered through their understanding of and connection to nature.</th>
<th>Promote ways in which individuals and households can reduce their ecological footprint, saving energy and water, reducing waste, recycling, and contributing to the transition KI makes to becoming carbon neutral.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deliver classroom and field-based teaching sessions to KICE students.</td>
<td>Involves youth in NRM events and nature-based activities.</td>
</tr>
<tr>
<td>Explore opportunities for establishing a young environmental champions program.</td>
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</tr>
<tr>
<td>3.4 A healthy, peaceful environment and access to nature continues to contribute to the well-being of all Island residents.</td>
<td>Continue to support the South Australian Living Artists Festival, Kangaroo Island ‘how do I love thee’ art exhibition.</td>
</tr>
<tr>
<td>Collaborate with the hospital and community health services to promote the numerous health benefits of spending time in nature.</td>
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</tbody>
</table>
Goal 4: Vibrant economy

Kangaroo Island prospers with a vibrant economy that is based on sustainably managed natural resources, primary production and industry that underpins its brand value.

Kangaroo Island’s economy is predominantly based on the sustainable use of its natural environment. Its brand value is derived from the Island’s character, including its native vegetation and abundant wildlife, and its ‘clean, green’ image. The Kangaroo Island community recognises the advantage this offers and is committed to ensuring economic activity on the Island is not only sustainable, but leads the way in industry best practice and innovation.

Agricultural soils that are well managed and healthy support the production of premium food and wine. Acidification, erosion and salinisation need to be addressed while improving soil structure and fertility and building soil biota. Appropriate new technologies and innovations have a key role to play in increasing productivity and profitability while reducing the impact farming can have on ecosystem health. Building natural capital through a farm stewardship approach may also lead to improved access to investment capital from financial institutions.

The Island faces a number of economic challenges, including the ‘water gap’ and high cost of freight and inadequate communication infrastructure. A constrained power supply and distribution network also impact economic activity. The increased cost of doing business on the Island ideally needs to be offset by obtaining a premium for Island products and experiences.

Collaboration and cooperative approaches together with alternative economic models may offer means for overcoming some of the challenges.
## Goal 4: Vibrant economy

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Activities</th>
</tr>
</thead>
</table>
| 4.1 The natural resources base that supports primary production, tourism and other enterprises is maintained and improved over time. | Collaborate with Tourism Kangaroo Island and commercial tour operators to ensure the sustainable use and management of natural tourism assets.  
Maintain Board membership of and active participation in Agriculture Kangaroo Island, TOMM, and the Kangaroo Island Industry and Brand Alliance.  
Regulate surface and ground water affecting activities in accordance with NRM policy objectives and principles.  
Support land managers to improve vegetation condition and extent to increase free, ecosystem services such as pest suppression, pollination and good water quality, and to provide aesthetic landscapes that underpin the tourism sector and community lifestyles.  
Investigate and share the anticipated impacts of climate change on production systems and industry sectors, and recommend and support the implementation of mitigation and adaptation strategies.  
Monitor pasture condition and production benefits of the Agriculture Kangaroo Island (AgKI) Potential project to support innovative land management techniques that improve profitability without compromising sustainability.  
Promote best on-farm biosecurity practices. |
| 4.2 The physical, chemical and biological health of agricultural soils is maintained and improved over time. | Continue to promote the importance of physical, chemical and biological soil health and continue the regional soil testing and advice program to assist land managers to rectify soil acidity and nutrient imbalances and deficiencies.  
Promote the adoption of minimum and no till cropping, maintaining ground cover in grazing systems and other practices that build soil health and address degradation processes. |
| 4.3 Agricultural resilience is strengthened through sustainable and regenerative production practices and systems. | Promote the application of lime sands to agricultural soils to reduce soil acidification and increase production. |
| | Continue to monitor regional lime sand sales and incorporate into long term data set to gauge the amount of acidic soil being treated across the Island. |
| | Share information and facilitate training opportunities to increase the capacity of land managers to undertake profitable, sustainable and regenerative agriculture practices. |
| | Support the Kangaroo Island Beekeeper’s Association in the development of a Kangaroo Island Beekeeper’s Management Plan. |
| | Support landowners to reduce the impacts of pests on agricultural production through implementing Integrated Pest Management and other suitable management practices. |
| | Continue to support the KI Field Day and the AgKI conference as a means of sharing knowledge and promoting best land and business management practice. |
| 4.4 The environmental footprint of industry, businesses and agencies is managed through the implementation of environmental best practice, supporting the KI brand. | Share information and collaborate with the Kangaroo Island Business Alliance, the Kangaroo Island Industry and Brand Alliance and other Island agencies to promote environmental best practice. |
| | Recognise industry best practice through the Local Achievers NRM Awards. |
| 4.5 Diversification, specialisation and innovation broadens economic opportunities and improves their long term sustainability, viability and local/farm-gate profitability | Investigate and promote relevant research, industry developments and appropriate emerging technologies to Island industries. |
| 4.6 KI is promoted nationally and globally as a suitable pilot site for new technologies and innovations and is showcased as a model community that embraces positive transformation. | Support the Islands of the World Conference 2017 through sponsorship and active participation in the event. |
| | Maintain relations with National Environmental Science Program’s Threatened Species Hub to attract innovative research programs. |
| | Support the Commissioner for Kangaroo Island in promoting the Island as a ‘Centre of Excellence’.
Goal 5: Governance and local knowledge

The Kangaroo Island community uses an adaptive governance approach, learning and making decisions together, valuing all knowledge types and sharing information freely

Good decision making is fundamental to good natural resources management. Decision making based on local and the best available technical knowledge, which is inclusive, fair, transparent, accountable and timely, is a foundation for building a sustainable, resilient community that enjoys high levels of well-being over time. However, some of the most important natural resources management issues facing the KI community are highly complex, with interactions between social, economic and environmental factors, sometimes driven by processes well removed from the Island.

There are no simple solutions to many of these issues and resolving them will involve trade-offs between what different stakeholders value. These issues also cut across organisational and stakeholder roles and boundaries and operate at different scales, in both space and time. This means that no single organisation or stakeholder can address these issues alone. It will need collaborative partnerships between organisations and the Island community, and as such, will be fundamental to the role of the Commissioner for Kangaroo Island. Coupled with this complexity, there are frequently major knowledge gaps or high levels of uncertainty about how some of the most important issues and drivers such as climate may play out in the future.

Creating good, adaptive governance processes that bring together local knowledge with other types of knowledge, that are inclusive of all stakeholders where possible, and that evolve and learn over time as more experience and knowledge is gathered, are a cornerstone of meeting future challenges for KI.
### Goal 5: Governance and local knowledge

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Activities</th>
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</thead>
<tbody>
<tr>
<td>5.1 Adaptive governance and management principles are embedded in NRM decision making.</td>
<td>Regularly evaluate the effectiveness and suitability of NRM decision making processes, programs and projects and improve as needed.</td>
</tr>
<tr>
<td></td>
<td>Undertake regular Board performance self-assessments and independent governance audits.</td>
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<td></td>
<td>Actively engage in cross-agency collaboration to deliver integrated community services and outcomes.</td>
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<td></td>
<td>Provide timely and accurate scientific and technical advice to all stakeholders and interested parties.</td>
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<td></td>
<td>Identify and promote the uptake of a suitable mechanism for all stakeholders to report on their progress in supporting and implementing the regional NRM plan.</td>
</tr>
<tr>
<td>5.2 The Island’s terrestrial, aquatic and marine environment is understood and key changes in its condition are detected.</td>
<td>Maintain and expand state and national research partnerships and collaborations to improve knowledge of ecology and biodiversity.</td>
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<td></td>
<td>Revise Natural Resources Kangaroo Island’s knowledge management systems to improve the capture and use of monitoring data and information to test NRM assumptions, and assist in identifying key knowledge gaps and improving NRM decision making.</td>
</tr>
<tr>
<td></td>
<td>Quantify and map changes in seagrass condition (health) and extent (area and cover) in Nepean Bay.</td>
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<td></td>
<td>Investigate the relationship between nutrient distribution and seagrass health in Nepean Bay through a study of water circulation patterns.</td>
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<td></td>
<td>Conduct surveys to investigate the relationship between fish communities and seagrass health in Nepean Bay.</td>
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<td></td>
<td>Investigate the influence of annual climatic fluctuations and land use and land management change on water flow, nutrient and sediment loads in Cygnet River and Deep Creek.</td>
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<td></td>
<td>Support research into the role feral cats play as vectors of livestock and wildlife diseases and its impact on biodiversity and primary production.</td>
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<td></td>
<td>Conduct surveillance for the detection of terrestrial and marine biosecurity risks.</td>
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<td></td>
<td>Continue to measure stream flow and water quality in selected catchments.</td>
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<tr>
<td></td>
<td>Seek funding for the installation of a gauging station on the Harriet River.</td>
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<tr>
<td></td>
<td>Use catchment modelling to understand the impacts of land use and land management practices on nutrient and sediment runoff.</td>
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<tr>
<td></td>
<td>Determine the environmental water requirements of selected water dependent ecosystems.</td>
</tr>
<tr>
<td></td>
<td>Investigate plant and animal species distribution modelling under projected future climate scenarios and incorporate these considerations into planning and policy as needed.</td>
</tr>
<tr>
<td></td>
<td>Continue to support fur seal and sea lion research and monitoring programs on the Island.</td>
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<tr>
<td></td>
<td>Continue to support regular monitoring of shorebirds and coastal raptors (sea eagle and osprey).</td>
</tr>
<tr>
<td><strong>5.3 Natural resources management activities are adequately funded to achieve the goals and objectives of this Plan.</strong></td>
<td>Continue to identify and pursue funding opportunities at all levels, including ‘out of the square’ options such as philanthropic and corporate social responsibility investment.</td>
</tr>
<tr>
<td></td>
<td>Continue to advocate for the existence of a community-based NRM Board and strengthen its local governance foundation.</td>
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</tbody>
</table>
| 5.4 The community is empowered through the devolution of decision making to the most appropriate level. | Continue to encourage and support community representation on Board advisory committees and task forces.  
 Participate in and share information to support the work of the Native Vegetation Local Advisory Board.  
 Identify and implement mechanisms for increasing community participation in NRM decision making. |
|---|---|
| 5.5 The community is communicating effectively, actively sharing and embracing new ideas and knowledge, innovating and learning together to design and build a resilient future. | Support and facilitate the sharing of relevant information, knowledge and new ideas, investigating the feasibility of establishing an Island ‘knowledge hub’.  
 Investigate and promote ways of increasing local adaptive capacity, social resilience, and self-sufficiency.  
 Analyse and report on the effectiveness of communication strategies to encourage the sharing and embracing of NRM outcomes and to improve community knowledge. |
5. Funding Board Actions – Income

5.1 NRM Board funding sources

NRM boards receive funding from the NRM levy and additional funding from state and Commonwealth governments. This funding supports the implementation of the NRM Plan, including projects and activities to maintain and improve the condition of the region’s natural resources and encourage their sustainable use.

To enable the Kangaroo Island Natural Resources Management Board to undertake its functions, section 92 of the *Natural Resources Management Act 2004* enables the Board to specify the amount of levy to be collected from the community. The regional NRM levy collected varies from region to region and it is up to each NRM Board to set its levy as part of its business planning cycle. On Kangaroo Island, only a land levy is charged. Regions that have prescribed water allocation plans are also able to charge a water levy.

Section 92(2) of the Act specifies the basis or method of determining the regional NRM levy. The following options are provided for in the Act as a basis for collecting the levy:

- a) the value of rateable land
- b) a fixed charge of the same amount on all rateable land
- c) a fixed charge of an amount that depends on the purpose for which the rateable land is used
- d) the area of rateable land
- e) the purpose for which the rateable land is used and the area of the land

Based on the principles of shared responsibilities, administrative efficiency and transparency the Board has adopted a fixed charge of the same amount on all rateable land in accordance with section 95(3)(a)(i) of the NRM Act as the basis for determining the Kangaroo Island NRM levy.

For Kangaroo Island, the NRM levy makes a small but important contribution to managing and protecting the Island’s natural assets. The levy is collected from local and off-Islander ratepayers by local government on behalf of the Board and contributes towards the control of priority pest plants and animals, and water resource management. For example, in 2015–16 the levy enabled the board to:

- control 214 hectares (ha) of African boxthorn (*Lycium ferocissimum*) between Western River and Cape Willoughby
- control 12 ha of Salvation Jane (*Echium plantagineum*) along 8 kilometres (km) of roadside in the Hundreds of Haines, MacGillivray and Gosse
- control 22 ha of one-leaf Cape tulip along Kangaroo Island roadsides and assist land managers to identify and control one-leaf Cape tulip on their properties through advice and the use of the carpet weed wiper
- control 38 ha of Italian buckthorn (*Rhamnus alaternus*) at Emu Bay and Kingscote
- control horehound on 15 km of roadside at Dover Farm and Emu Bay
- assist the Kangaroo Island Council and Dudley Football Club to control caltrop
(Tribulus terrestris)

- assist the Kangaroo Island Green Army to control 3 ha of Italian buckthorn and 111 ha of bluebell creeper (Billardiera heterophylla) at Parndana and Vivonne Bay, and to undertake 179 trap nights for feral cats in little penguin colonies at Emu Bay and Kingscote.

As levy income is small, the Board is significantly reliant on supplementary funding from the South Australian and Australian governments. Funding received from the state government is used to ensure provision of the human resources and infrastructure required to build the Board’s capacity to attract external funding for investment in natural resources management projects.

Funding is received from the Commonwealth through a performance accreditation process and competitive bids process. This means that funding will only be allocated to the Board if it meets the Commonwealth’s governance standards. In the past the Board has submitted funding applications to the National Landcare Program, including priority areas such as Regional Delivery, Regional Landcare Facilitators, Environment Stewardship, Biodiversity Fund, small grants, 20 Million Trees Program, and the Green Army. There are no guarantees that funding applications will be successful and furthermore the Board is obliged to respond to and broadly fit with the Commonwealth’s priorities and themes, rather than being able to wholly determine its own priorities for funding. Boards that receive more substantial income from their levies than the KI NRM Board do have more funding available to spend at their own discretion.

The Board will increasingly be looking for innovative ways (e.g. philanthropic donations, crowd-funding) to raise funds and finance the NRM work that is required in the region.

5.2 Allocation of funds

Natural resources management requires complex decision making which considers biophysical science, economics, community values, and legislative and policy frameworks. Given the spread of natural resources management issues the Island faces together with limited public and private funding, it is critical to ensure that investment in natural resources management activities is sound and has maximum effect. In order to achieve this, the following criteria are applied to the allocation of any discretionary funding the Board may have at its disposal:

- alignment with the regional NRM Plan
- a resilience and systems thinking approach
- quadruple bottom line outcomes
- the extent to which investment is likely to result in the desired outcome
- the extent to which the efforts and investment of all stakeholders involved can be coordinated to achieve optimal outcomes
- the potential to build on past investments to ensure maximum impact and return
- the potential to empower and build the capacity of the community
- decision making is fair, transparent and accountable
- the range of local, expert and agency knowledge is respected and integrated to support decision making.
5.3 The 2017–2018 financial year

The Business Plan is required to outline the estimated resources available for investment in natural resources management by the Board for the next three financial years.

The Board considered various options for increasing the levy and how these would offset the costs associated with meeting its statutory duties under the Act (pest plant and animal control, and soil and water resources management). The Board is proposing to slightly more than double the regional NRM land levy from $36 per rateable property to $78 per rateable property in the 2017–2018 financial year ($1.52 cents per week). The Board considers the proposed increased levy charge to be reasonable and affordable to Island landholders and notes the considerable economic benefit to the region of the NRM services provided. In 2015–2016, the Board leveraged an additional $17.24 worth of NRM investment into the region for every dollar contributed by landholders.

Income to support the Board’s programs in 2017–2018 therefore includes:

- funds collected through the NRM land levy (16%)
- state government funding to ensure provision of human resources and infrastructure required to build the Board’s capacity to attract external funding for investment in natural resource projects (44%)
- Australian Government funding to contribute to the Australian Government’s environmental and agricultural priorities and targets (39%).

The Board will also pursue additional funding opportunities as they arise. The Board’s anticipated income is shown in table 2.

Income to support the Board’s programs includes the NRM Levy, State and Australian Government funding including the National Landcare Program and Biodiversity Fund (table 2). This funding is recognised as the Board’s budget and is used to inform Department of Treasury and Finance’s (DTF) forward estimates and in turn determine how much the Board is able to expend annually. The Board have an opportunity each year to amend the forward estimates to reflect additional funding received.
Table 2. Summary of income sources in 2017–2018 to 2019–2020

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<tbody>
<tr>
<td><strong>NRM Levies</strong></td>
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<tr>
<td>Regional NRM Levy</td>
<td>176,402</td>
<td>385,000</td>
<td>394,625</td>
<td>404,490</td>
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<tr>
<td><strong>South Australian Government</strong></td>
<td></td>
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<tr>
<td>State NRM Fund</td>
<td>1,058,000</td>
<td>1,082,000</td>
<td>1,109,000</td>
<td>1,137,000</td>
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<tr>
<td>Biosecurity SA</td>
<td>78,000</td>
<td></td>
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<tr>
<td><strong>Australian Government</strong></td>
<td></td>
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<tr>
<td>National Landcare Program: Regional Allocation</td>
<td>949,680</td>
<td>949,680</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>National Landcare Program: Biodiversity Fund</td>
<td>222,000</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>National Landcare Program: Threatened Species</td>
<td>537,000</td>
<td></td>
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</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Interest</td>
<td>20,000</td>
<td>10,000</td>
<td>5000</td>
<td>5000</td>
<td></td>
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<tr>
<td><strong>Total</strong></td>
<td>3,041,082</td>
<td>2,426,680</td>
<td>1,508,625</td>
<td>1,546,490</td>
<td></td>
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</tbody>
</table>

5.4 Social impact assessment of levy

The entire Kangaroo Island community derives benefit from a well managed environment and also impacts on that environment in one way or another. The Kangaroo Island region is one of South Australia’s most important tourism areas and also has a good reputation for the production of premium food and wine. The social and economic stability of the region is fundamentally dependent on a well managed natural resources base that is able to support viable economic activity and the lifestyles that people value in the future. Healthy, functioning ecosystems will continue to support human well-being through the many benefits that they provide, and building the resilience of natural systems will act as a type of ‘insurance’ under future climates.

The Board has developed the following guiding principles for setting the regional NRM levy:

- Shared responsibility – the responsibility to achieve ecologically sustainable development is a shared responsibility between the public sector, the private sector and community

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1 NLP Threatened Species funding received in 2015-16 for eradication of feral species activities will be completed in 2016-2017
groups. The approach of the Board is to manage natural resources, and undertake activities and provide services that will benefit everyone in the region.

- Administrative efficiency – regional NRM levy collection and management procedures should operate at minimum cost and with minimum red tape
- Accountability – the Board should be publicly accountable for its use of the levy funds
- Transparency – the process for calculating the levy and the amount paid by users should be readily observable, subject to individual user confidentiality constraints
- Affordability – in setting its levy, the Board takes into account what is a reasonable cost to incur in managing the natural resources of the region, and that such costs should be affordable.

On consideration of Australian Bureau of Statistics data on median weekly incomes, the Board believes the levy will not place an unreasonable burden on property owners in the region.
6. Funding Board Actions – Expenditure

6.1 Proposed expenditure 2017–2018

The Board’s proposed expenditure is allocated to each of the five goals of the regional NRM plan for the next three financial years, as indicated in table 3. The figures indicated for 2018–2019 and 2019–2020 are projections based on guaranteed funding; however, the Board will also seek extra funding each financial year to implement the plan.

Table 3: Summary of expenditure to deliver NRM plan goals 2017–18

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</tr>
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<tbody>
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<td>Distinctiveness</td>
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<td>Governance and local knowledge</td>
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<td><strong>Total</strong></td>
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<td><strong>1,508,625</strong></td>
<td><strong>1,546,490</strong></td>
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</tr>
</tbody>
</table>

6.2 Regional service delivery

The activities outlined in this plan are delivered by the Department of Environment, Water and Natural Resources (DEWNR) on behalf of the Kangaroo Island Natural Resources Management Board. Collectively the two parties are branded as Natural Resources Kangaroo Island. Agreed activities are delivered through a service level agreement, negotiated annually by the Board and DEWNR.

The Natural Resources Kangaroo Island Regional Director is responsible for managing staff within the region involved in both DEWNR and Board related programs.

DEWNR programs that are not included in this business plan include the management of parks and public lands, the management of marine parks and other state invested regional projects.

Activities in this plan are implemented directly through staff and a range of partnerships, service agreements and grants tied to specific project outcomes. Project officers are generally funded on a project specific basis through service agreements with state and local government and community based organisations.

There are 21.20 full time equivalent employees funded for the 2017–18 financial year to support implementation of Board programs and they are distributed across the region. The receipt of
further funding could result in changes to the full time equivalent employees funded through the year.

DEWNR locally supports the Board through four units:
• Planning and Adaptive Management Unit
• Parks and Sustainable Landscapes Unit
• Community Engagement Unit
• Business Support Unit.
The Board does not own any land and all infrastructure is leased.
7. Monitoring, Evaluation, Reporting and Improvement

7.1 Monitoring and evaluation

Monitoring has a central role to play in adaptive management and adaptive governance as it gathers the evidence needed to evaluate performance and test assumptions documented in the conceptual models of how ecosystems work. Evaluation needs to answer different questions at different levels and at different scales, as shown in Figure 4.

![Figure 4](image.png)

**Figure 4. Multi-layered evaluation, learning and refining** (Source: Pahl-Wostl 2009; Peschl 2007)

Well formulated and articulated management questions will support a targeted monitoring program that can directly inform improvements and thereby the achievement of NRM goals and objectives. These questions need to be incorporated into the design of all programs/projects and tracked through specifically chosen Key Performance Measures (KPMs) that provide the necessary evidence to evaluate our performance and implement adaptive management and adaptive governance.

Evaluation at the regional level has a critical role to play in reviewing the goals and objectives, ensuring they continue to reflect the best available knowledge and understanding as well as the community’s vision for natural resources management in the region, while also reflecting our
broader commitments to sustainability (e.g. conservation of nationally and globally threatened species). Effective monitoring and evaluation should trigger a review and amendment of the objectives if new information results in a fundamental change in the understanding of the dynamics of regional and subregional systems.

7.2 Reporting

The Board reports on its progress in a number of ways:

- to the Community - annual Achievements Report, board meetings and minutes, meetings and presentations, website, print media, social media and flyers/brochures
- to the State – through the Group Business Plan and financial reporting, annual independent audits
- to the Commonwealth – project-based quarterly MERI reporting and bi-annual progress reports, self and formal independent performance assessments.

7.3 Improvement

The Kangaroo Island community along with state and federal funding bodies have an expectation that their investment in natural resources management, through the implementation of the Regional NRM Strategic Plan, will lead to desirable outcomes for the environment, society and economy. Demonstrating the results of investment in NRM and improving our management approach will be achieved through a commitment to structured monitoring and evaluation. The Plan spells out a strong commitment to such learning and improvement. Developing a learning ‘culture’ requires a shift in mindset to one that sees the issues and uncertainties as opportunities to learn about the nature of those issues, to test solutions, monitor and reflect on the process and refine future management.

Adaptive governance (also called adaptive decision making) is the process of making decisions in complex settings under uncertainty. Objective 5.1 of the Plan directs that adaptive governance principles be embedded in decision making. Creating good, adaptive governance processes that utilise all forms of knowledge, are inclusive of stakeholders, and evolve and incorporate learnings over time as more experience and knowledge is gathered are a cornerstone of meeting future challenges for Kangaroo Island.

Adaptive management acknowledges the complex nature of social–ecological systems and that we will never have perfect knowledge of the future based on our past experience. A central focus of adaptive management is to test our assumptions, acknowledging that they will change through time as external forces change and as knowledge grows. Acknowledging this uncertainty allows us to identify knowledge gaps that are currently impeding or undermining effective natural resources management. Adaptive management is explicit about knowledge building as a key part of planning and provides a structure for assimilating and testing new knowledge, as well as applying knowledge at crucial decision points in the planning process. A ‘triple loop’ approach (see figure 4) to learning will be applied on Kangaroo Island, providing a means to learn from on-ground management and practice and to use that learning to improve strategic decision-making over time.
Glossary

**Acidity.** About three quarters of cleared land on Kangaroo Island is moderately to highly susceptible to acidification. Nutrients such as potassium, calcium and magnesium can become depleted due to leaching; phosphorus and molybdenum can become deficient due to fixation; and elements such as aluminium, manganese and iron can become toxic to plants. Acidification can result from normal agricultural practices such as use of nitrogen fertilisers, removal of product, breakdown of organic matter, nitrogen fixation by legumes and leaching of nitrate from the soil profile. The application of lime is an efficient and cost effective way of reversing it.

**Adaptive governance.** Structures and processes put in place to ensure that good decisions are made and implemented can readily adapt in the face of uncertainty and constantly changing circumstances. Adaptive governance can deal with different knowledges, values, interests, perspectives and power at any scale. This might include a Landcare group deciding what their priorities are for the next year, a community project deciding where revegetation will occur, or an NRM Board deciding how resources will be allocated between competing issues.

**Adaptive management.** Learning-by-doing: the implementation of policies and programs in flexible ways that enable frequent monitoring, reflection and changes in methods of implementation through learning.

**Aquatic ecosystem.** An ecosystem where regular saturation by ground- or surface-water is the major driver of biophysical characteristics and processes. Includes permanent or temporary rivers.

**Ecosystem.** The living resources, habitats and residents of an area, and the complex set of relationships among them.

**Ecosystem services.** The benefits that people obtain from ecosystems and value them accordingly. It does not consider the intrinsic value of nature, i.e. the value of nature in and for itself, only its utilitarian value, i.e. what its use is to people. All of these services work together to ensure human health and well-being, providing for our physical, mental and spiritual needs.

**Erosion.** If topsoil is lost at a rate greater than new soil is formed, the productive capacity of the land is almost always reduced. Good management practices such as minimum tillage, stubble retention and maintenance of ground cover will reduce the risk.

**Fertility.** Fertile soils need organic matter, soil macronutrients (especially phosphorus, potassium and sulphur) and trace elements. Most Kangaroo Island soils lack phosphorus and some trace elements; deficiencies of potassium and sulphur are most likely to occur in sandy soils in high rainfall areas. About 60% of farm land on KI is classed as having moderately low to very low inherent soil fertility. Poor land management can lead to further decline in soil fertility, but even well-managed farms require nutrient inputs to replace those lost as agricultural products are harvested and sent to markets. Without fertilisers in some form, to firstly build fertility and then maintain it, current levels of agricultural productivity could not be achieved.

**Governance.** The arrangements put in place to administer something. For example how people in society can share and organise information with each other and governments in the decision making and delivery of policies and programs.

**Non-wetting soils.** Water repellence is caused by organic waxes coating soil particles, preventing water from mixing with soil grains. The application of clay to these soils immediately increases
water holding capacity and nutrient retention. Non-wetting soils occur on 20% of Kangaroo Island’s farmland.

**Pests.** Pests include weeds, feral animals, diseases, problem animals and plants, invasive species and aquatic pests.

**Resilience.** The capacity to bounce back from disturbance or adversity; the amount of change a social-ecological system can undergo (its capacity to absorb disturbances) and remain within the same regime – essentially retaining the same function, structure and feedbacks.

**Resilience thinking.** Applying a range of ideas relating to how well a social-ecological system (in general) – or parts of the system (as ‘specified’ resilience) – can or will rebound after disturbance; the thinking includes an analysis of system feedbacks, thresholds, adaptability (the ability to stay within a current state) and transformability (the ability to cross over into alternate states).

**Salinity.** Over time, salt blown from the sea is deposited on land. Most is washed back out to sea each year but some gets stored deep in the soil. When deep-rooted, perennial native vegetation is replaced with shallow-rooted crops and pastures which use less water, the water table rises bringing salt with it. When saline groundwater comes to the surface it creates saline land. As salt levels increase there is reduced agricultural productivity, loss of native flora, breakdown of soil structure, increased risk of soil erosion, damage to infrastructure and reduced water quality.

**Soil Structure.** Soil structure is the way in which individual soil particles are bound together into crumbs or aggregates by clay, organic matter, plant roots and microbes. Many Island soils are prone to hard pan formation which seals off soil pores. Good structure is necessary to allow the ready entry of air and water and to enhance plant germination and healthy root growth. The widespread ‘texture contract soils’ of the central plateau region and the eastern plains are most prone to loss of soil structure.

**Stakeholder.** Any person or group who has or feels they have an interest in the KI NRM Plan decisions, projects and programs, and who may influence or make decisions about the project and program outcomes. For example, Aboriginal people, local, state and federal governments, farmers, schools and industry. All stakeholders have an equal stake in every aspiration and opportunity of this plan.

**Support.** The term support is used to describe a range of options/mechanisms that could be used in implementing several priority actions and strategies, including but not restricted to, provision of finances, staff support, and physical resources.

**Sustainable.** Actions or technologies that do not damage the environment in the long term.

**Synergy.** Developing integration by focusing on the interactions between distinct elements or ideas that both enhances the individual elements or ideas and the sum of the elements or ideas.

**Threshold.** Points on a trajectory of change for a particular variable (especially one that changes slowly) that, when crossed, can potentially change the structure, function and identify of the system affected.

**Tipping point.** Another commonly used term for a threshold, especially in social and political spheres.

**Transition.** A shift from one recognisable form or state to another, usually over a period of time, and which can build from adaptations and/or transformations.
**Transition management.** Designing when and how transformations or structural changes in society can be initiated, facilitated and influenced.

**Triple loop learning.** An extension of double loop learning whereby the assumptions underpinning broader societal and governance arrangements are uncovered and questioned.

**Waterlogging.** Waterlogging is too much water in the root zone of a plant. The water excludes oxygen from the root zone, toxic gases such as carbon dioxide and ethylene may accumulate and sensitive plants exhibit poor growth, wilting, yellowing, premature maturation and leaf drop and may die. It occurs where large volumes of surface or sub-surface water feed into flat low lying areas of internal drainage, underlain by poorly drained duplex or clay soils. A large proportion of Kangaroo Island is susceptible to some degree of waterlogging.

**Well-being.** The contentment and satisfaction levels of people living within the landscape or catchment, linked to their mental and physical health, which leads to having a sense of purpose and self-determination in their lives.
References


RIRDC. (2015) Rural industries futures: Megatrends impacting Australian agriculture over the coming 20 years. Rural Industries Research and Development Corporation, Barton, ACT.


Appendix A: Natural resources management policies and guidelines

Introduction

This appendix to the Business Plan explains regulatory and operational policy and guidelines for matters set out in the *Natural Resources Management Act 2004* (the Act) as required for inclusion in the *Kangaroo Island Strategic NRM Plan 2017–2027*.

The Board will apply a range of mechanisms in seeking to achieve its goals and objectives. The mechanisms include investment, financial assistance, community capacity building, communication, consultation and engagement activities, research and investigations, and regulatory controls.

The Board will, as its first option, always seek voluntary compliance with its policies. The Board’s preference for this approach is supported by a specific principle in the object of the NRM Act (section 7(3)(g)). To support this voluntary approach the NRM Act sets out a general ‘duty of care’ that applies to everyone in South Australia (Box 1).

The NRM Act gives the Board a number of responsibilities for regulatory controls and associated operational policy and guidelines. This section sets out the details of the controls and policy and guidelines, which the Board believes is necessary or it is required to implement under the NRM Act. The purpose of the regulatory and operational policy and guidelines is to achieve elements of the goals and objectives of the Plan that are best addressed through this mechanism.

All regulatory, operational policy and guidelines will be evaluated annually for its effectiveness and efficiency. Regulatory and operational policy/guidelines is relevant to landholders and land managers, industry, community groups, government agencies and visitors. Landholders and land managers, whether commercial farmers or not, will need to be particularly mindful of policies relating to water, land and pest plants and animals.

The Board will use a variety of means to keep the community informed of their rights, responsibilities and obligations under the NRM Act, including the regulatory and operational policy set out in this section. If in doubt, please contact the Board for clarification.

Rights and responsibilities

The NRM Act sets out a number of rights and responsibilities of all people for natural resources management. The general ‘duty of care’ is a fundamental responsibility. Additional responsibilities are also set out in the NRM Act (notably Chapters 6, 7 and 8). Specific details of how the provisions of these chapters will apply on Kangaroo Island are set out in this volume of the Plan. The rights of individuals to appeal against decisions of relevant authorities to the Environment Resources and Development Court are set out in Chapter 10 of the NRM Act.
Codes of practice

The Board supports the use of codes of practice as a means to seek voluntary compliance with its policies and guidelines. A large number of existing codes of practice have been developed by industry alone or in partnership with governments. The following are examples of codes that provide useful guidance and information to landholders and others:

- Code of Control of Branched Broomrape
- Code of Practice for Safe Use of Agricultural Chemicals
- Quarantine Protocol for Kangaroo Island
- Guidelines for the Establishment and Operation of Cattle Feedlots in South Australia
- Code of Practice for Milking Shed Effluent.

The Board will work with stakeholders such as landholders, industry groups, scientists and businesses to refine codes and develop new codes where necessary.
Local government and development planning guideline

**Background**

The Board identifies the Kangaroo Island Council (with the Kangaroo Island Commissioner) as a key partner in delivering ecologically sustainable development, management and protection of natural resources on the Island.

The Board, Kangaroo Island Council and the Kangaroo Island Commissioner are working together towards better social, economic and environmental outcomes for the Island. Council members and staff have contributed to the development of this Plan. The Board has provided input into the Council’s development planning process. Issues of common concern have been identified through workshops and meetings of members and/or staff of both organisations. Council has representative on the Board and a staff from both organisations meet regularly to discuss issues of common concern.

The Commissioner, through the *Commissioner for Kangaroo Island Act 2014*, is tasked with identifying, developing and implementing management plans to promote the Island and coordinate the efficient and effective delivery of government services and infrastructure on the Island. The Commissioner’s roles is to work with Kangaroo Island community, businesses on the Island and in the region, the Kangaroo Island Councils, State/Federal governments and with key Kangaroo Island Industry bodies and other stakeholders to ensure that the economic, social and environmental needs of the community are clearly defined and met. The Commissioner will also be working closely with the community to maximise the benefits realised by over $171 million of projects that are underway or in the planning stages on Kangaroo Island over the next three to five years creating population growth and over 300 new jobs.

Recently the *Kangaroo Island Economic Development Outlook* was released outlining key areas of development expected to take place on the Island in the short and medium term as well as current projects and areas of future growth. This outlook has been developed in partnership with Kangaroo Island’s key industry groups, the Kangaroo Island Council, the Office of the Commissioner for Kangaroo Island and the Government of South Australia.

Each organisation has voluntarily sought to build linkages and cooperate. These actions are supported by a number of statutory links.

The Act should continue to complement the new *Planning, Development and Infrastructure Act 2016* (proposed repeal of the *Development Act 1993*). This new legislation will have a five year transition period.

Section 29 of the Act requires all regional boards to work with councils to better align development and natural resources management plans; boards must also active in ensuring that development plans promote the objects of the Act.

The Act (section 75) also requires the regional natural resources management plan to identify policies in the relevant development plan that need to be reviewed so as to promote the objects of the Act, as well as to provide consistency between both types of plans. Councils and council subsidiaries must have regard to the natural resources management plan when conducting activities under the *Local Government Act 1999*. 
Additionally, under provisions in the Local Government (Stormwater Management) Amendment Act 2007 and NRM Act, storm water management is an issue that involves and links councils and NRM boards.

The objectives of the guidelines are to:

▪ promote agreed outcomes through complementary roles for the Board and KI Council
▪ provide clarity to the on- and off-Island community as to these roles
▪ achieve development planning outcomes that are consistent with ecologically sustainable development and good natural resources management outcomes
▪ promote efficient and effective use of human and financial resources.

**Strategic directions for NRM, development planning and local government**

The Board together with Council have identified a number of issues relevant to development planning and local government operations that have significant environmental implications.

The Island’s economy and community identity are strongly related to the Island’s distinctive character and natural resource base. Both the Board, Council and the Office of the Kangaroo Island Commissioner have critical roles in shaping the social, economic and environmental future of the Island.

The following principles have been adopted by the Board:

- **Economic and community development**
  The Board supports economic development that has local social and economic benefits, while not causing, or being highly likely to cause damage to or detracting from the Island’s natural resources, heritage and distinctive character.
  
  In assessing the suitability and worth of economic development, the Board supports the use of clear and wide-ranging evaluations. Such assessments will take account of long- and short-term costs and benefits; opportunity costs, social and community costs and benefits, and the risks to natural resources.

- **Organisational cooperation and efficiency**
  The Board seeks to work with Council and the Commissioner on any relevant issue and/or program that can lead to more effective and efficient outcomes. The Board has identified the following areas for exploring greater cooperation and efficiencies: data and information management, policy and planning, community engagement, technical expertise, monitoring and evaluation, training and education, and facilities and equipment.

- **Development planning and land capability**
  Development planning needs to make better use of land capability, land suitability and other natural resource information so as to better match land use and built development to land capability and land suitability. The Board seeks to assist KI Council and the Commissioner through the provision of technical support, the development of a bioregional planning tool and knowledge sharing.
• Development plan amendments

The Board provides feedback on future amendments to the KI Development Plan. The Board will endeavour to assist the Council in these investigations with information, technical expertise and policy development.

• Climate change

Climate change poses a significant threat to Kangaroo Island, as it does nationally and globally. The Board and Council have adopted a joint position paper on climate change and have worked together in the formulation of a Climate Change Adaptation Plan as part of the Resilient Hills & Coasts initiative.

The Board and Council are committed to working together to build the environmental, social and economic resilience and adaptive capacity of the Island, adopting a proactive approach and identifying opportunities that may present themselves for leadership in this regard. There is strong community support for a renewable energy future on the Island and achieving carbon neutrality and the Board and Council are working to effect this.

An ecosystems-based approach to climate change adaptation is preferred as this focuses on working with nature to find solutions to the challenges that are faced, rather than focusing on expensive and potentially maladaptive engineering based responses to climate change.

Key natural resources issues for development planning and local government

The following natural resources issues have been identified as being of significance for development planning and the operation of KI Council. These natural resource issues will be the priorities for the Board in working with the Council:

• Management of roadside vegetation

The management of roadside vegetation is a significant issue for the KI Council. The Council incurs additional road maintenance costs to ensure public safety.

The extensive roadside vegetation is also key habitat for threatened plant species on the eastern part of the Island that is heavily cleared and provides corridors between remaining blocks of vegetation, important for animal movement and gene flow Native vegetation, including roadside vegetation, provides a suite of other ecosystem services including pollination services, pest suppression, visual amenity that is important for residents and visitors, erosion prevention and roadside soil stabilisation, and wind breaks.

Each party supports a common sense approach to managing road side vegetation and is supported by DEWNR and the Native Vegetation Council in this process. More broadly, management of vegetation across the landscape in an integrated manner is the desired outcome.
• **Climate change**

Climate change will impact on a number of issues of concern to Council and also have natural resources management implications. These include sea level rise and increased storm surge resulting in inundation risk for housing subdivisions and infrastructure, including roads and sewage ponds; increasing intensity in rainfall with implications for storm water management, roads and general flooding, increasing heat waves with implications for planning and building codes and fire management, increasing drought with implications for potable water supply. An aging Island population and already stretched emergency services add to the challenge.

• **Land subdivision**

Land subdivision can contribute positively or negatively to social, economic and environmental outcomes depending on many factors. Issues such as minimum allotment size, change of land use, location, infrastructure requirements and vegetation management all have significant natural resources management implications.

• **Primary production**

Land use planning policy must address changing social and economic trends and the importance of primary industries to the Island. Greater alignment of land use to land capability and suitability can optimise outcomes.

• **Commercial forestry**

Commercial forestry has become a significant land use with implications for other water users, including the environment. There are some complex social, economic and environmental issues associated with the industry that require ongoing attention.

• **Coastal development**

Kangaroo Island’s coastline is one of its great natural assets and could be degraded through linear and poorly placed development. Limited nodal development with adequate infrastructure is a possible solution. Marinas and other marine infrastructure need careful design and siting to avoid problems and also pose marine biosecurity risks that need to be considered.

• **Urban water management**

Improved urban water management will minimise pollution and also use a currently wasted resource. Storm water management plans, use of rainwater tanks, and better design of infrastructure need to be examined.

• **Tourism and infrastructure**

Tourism is a critically important industry for Kangaroo Island. Visitor impacts need to be assessed and managed. The Board supports the Tourism Optimisation Management Model (TOMM) project in addressing these issues. The Board will continue to work with the TOMM project, and others, to address tourism impacts.

Development of infrastructure, whether tourism related or not, needs to take account of natural resources issues. The Board will provide technical and other support where relevant.
• Land use conflicts and resource limitations

As the Island is further developed and population growth is encouraged, the interaction between natural resources issues and development planning will become increasingly complex and will require careful consideration. The Board will work with Council and the Commissioner to help address potential conflicts and optimise the outcomes.

Resources such as water may become limiting factors to further development and such issues must be factored into planning and decision making around further development (type and scale), particularly under projected declines in annual rainfall and runoff.

Other policies

The Board has adopted a number of natural resources management policies, guidelines and strategies to support delivery of the plan, which can be found on the Natural Resources Kangaroo Island website, including:

• Land management guiding principles
• Biosecurity guiding principles
• Kangaroo Island Biosecurity Strategy
Appendix B: Kangaroo Island Water Resources Management Policy – Water Affecting Activities

Under Section 75(3)(k) of the Natural Resources Management Act 2004 (the Act) the Kangaroo Island Natural Resources Management Plan is required to set out the matters that should be taken into account when the relevant authority is exercising its power to grant or refuse water-affecting activity permits.

1. General policy provisions

1.1. Management and protection of water resources

Pursuant to section 127(3)(e) and (5) of the Act a water-affecting activity (WAA) permit is required to undertake any of the WAAs listed in column 1 of Table 1.

WAA permits are granted by the “relevant authority”.

Pursuant to section 126 of the Act, the relevant authority is:

1. in the case of an activity referred to in sections 127(3)(a), (b), or (c) of the Act – the Minister; or
2. in the case of an activity referred to in sections 127(5)(a), (b), (d), (f), (g), (h) and (ja) of the Act – the Board.

1.2. Water-affecting activity permit criteria

All WAA permit applications will be assessed against the general objectives and general principles that follow. In addition, more detailed assessment criteria are defined for each specific WAA, as listed in section 2. Pursuant to section 127(5) of the Act, a person may not undertake a WAA contrary to this Plan. In addition, the Board may specify conditions in a permit for a WAA pursuant to section 135(9) of the Act.

Pursuant to section 135(8) of the Act, subject to its terms, a permit is binding on and operates for the benefit of the applicant and the owner and occupier of the land to which it relates, and all subsequent owners and occupiers of the land. Section 135(9) provides that depending on its nature, a permit condition may remain in force after the activity that is authorised by the permit has been completed.

For the purposes of this Plan, data and information on catchment/sub-catchment boundaries, stream orders, catchment/sub-catchment yields, catchment/sub-catchment water take limits, threshold flow rates, date modified and references to supporting information are available from the Natural Resources Kangaroo Island website at www.naturalresources.sa.gov.au/kangarooisland
1.3. **Activities not requiring a WAA permit**

Pursuant to section 129 of the Act a permit is not required to undertake an activity that is required or authorised under certain other legislation, including the *Development Act 1993*.

Pursuant to section 127(7) of the Act, neither the Minister nor the Board requires a WAA permit for a water-affecting activity if they are the relevant authority for the purposes of granting WAA permits for that kind of activity.

Additionally, a WAA permit is not required for the activities identified as exempt activities in section 2 of this plan. The exempt activities are summarised in column 3 of Table 1 in section 1.8

1.4. **Best practice operating procedure (BPOP) permit**

The Board has determined a process for granting a single WAA permit that allows a person to undertake a range of specified WAAs at multiple locations where each WAA is included in a best practice operating procedure (BPOP). This process streamlines the assessment and administration processes for a specified range of WAAs. Permits granted under this section are referred to in this Plan as “BPOP permits”.

A BPOP permit may not be granted unless:

1. the applicant provides a BPOP in relation to the proposed WAAs to the Board, that contains the following:
   a) an assessment as to whether the proposed WAAs may be authorised by a BPOP permit.
   b) the procedure or procedures that will be followed when undertaking each WAA specified in the BPOP.

2. The applicant provides to the Board sufficient details about:
   a) the nature and type of each proposed WAA
   b) the specifications of each WAA
   c) the location of each WAA, including maps.

The Board will advise an applicant whether each of the WAAs described in the BPOP may be undertaken under a BPOP permit or if a separate WAA permit will be required for each WAA. WAAs permitted by a BPOP permit must be undertaken in accordance with the BPOP.

1.5. **Current recommended practice (CRP)**

CRPs will be developed by the Board for a range of simple or routine WAAs. A CRP sets out what the Board considers to be best practice standards for undertaking particular WAAs.

CRPs will be developed by the Board for a range of simple or routine classes of WAAs, including, but not limited to:

- replacing a culvert to the same or better specifications
- controlling exotic vegetation in a watercourse
- installing rip-rap in a first order stream

*Kangaroo Island NRM Business Plan 2017-2020*
• creating mitre drains to divert road runoff
• constructing dams of less than 2 ML capacity.

If the Board has published a CRP for a class of WAAs, a permit is not required to undertake WAAs of that class.

If a person undertakes a WAA pursuant to this section, the WAA must be undertaken in accordance with the CRP.

1.6. General objectives

Applications for WAA permits will be assessed against the following general objective for managing water resources:

1. To support the development of water resources in a sustainable and equitable manner, optimising productive use while providing for the needs of water-dependent ecosystems and other water users.

1.7. General principles

Applications for WAA permits will be assessed against the following general principles for managing water resources. A WAA must not pose a risk of having significant adverse impacts on:

1. the long term availability of surface water, underground water or water in a watercourse or lake. Availability is defined by:
   a) annual flow
   b) the volume of water stored in the water resource
   c) the volume of water that is fit-for-purpose
2. water quality and flow regimes required to maintain the function of water-dependent ecosystems and meet the needs of existing water users
3. riparian and aquatic biota
4. equitable sharing of water resources for economic, social and cultural benefits
5. incidents of flooding of public and private assets
6. waterlogging, rising water tables or areas affected by salinity
7. soil erosion or bank destabilisation of a watercourse or lake, or erosion of a floodplain
8. an authorised device or an activity for scientific purposes
9. the integrity of an aquifer or aquifers.

1.8. WAA requiring a permit

A person must not undertake a WAA related to a well, as listed in section 127(3)(a) to (c) of the Act, unless authorised by a permit granted by the Minister.
Pursuant to section 127(7) of the Act, the Minister or the Board does not require a permit to undertake a WAA, if it is the relevant authority for granting permits for that kind of WAA. References in this Plan to WAAs that are undertaken as part of a Board-endorsed work plan that specifies that WAA, are WAAs undertaken by the Board pursuant to section 127(7).

Pursuant to section 127(3)(e) and (5) of the Act a person may only undertake activities listed column 1 of Table 1 where the relevant authority listed in column 4 of Table 1 has granted a permit, or the activity is authorised under section 129 of the Act.

Table 1. WAA’s requiring a permit

<table>
<thead>
<tr>
<th>Section of the Act</th>
<th>Examples of WAAs</th>
<th>WAAs exempt from requiring a WAA permit</th>
<th>Relevant authority</th>
</tr>
</thead>
<tbody>
<tr>
<td>127(3)(a)</td>
<td>Drilling, plugging, backfilling or sealing of a well</td>
<td>Well drilling or closure</td>
<td>None</td>
</tr>
<tr>
<td>127(3)(b)</td>
<td>Repairing, replacing or altering the casing, lining or screen of a well</td>
<td>Well maintenance or upgrade</td>
<td>None</td>
</tr>
<tr>
<td>127(3)(c)</td>
<td>Draining or discharging water directly or indirectly into a well</td>
<td>Managed aquifer recharge</td>
<td>None</td>
</tr>
<tr>
<td>1. Section of the Act</td>
<td>2. Examples of WAAs</td>
<td>3. WAAs exempt from requiring a WAA permit</td>
<td>4. Relevant authority</td>
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<tr>
<td>127(5)(a)</td>
<td>The erection, construction, modification, enlargement or removal of a dam, wall or other structure that will collect or divert, or collects or diverts, water flowing in a watercourse or flowing over the land.</td>
<td>Construction of, or modification to, a: • dam • weir • marron pond • clay pit Construction of, or modification to, water infrastructure that is hydraulically connected to a dam, watercourse or crosses catchment, sub-catchment or property boundaries, including: • interception drains • graded catchments • pipes • contour banks • mole drains</td>
<td>De-silting and other routine maintenance to a dam or other structure that is not located on a stream order of 3 or higher (see principle 2.3.2.19). Water infrastructure that is hydraulically disconnected from a dam, watercourse or that does not cross a catchment, sub-catchment or property boundary. (see principles 2.3.2.4, 2.3.2.5 and 2.3.2.8) A WAA that is undertaken as part of a Board endorsed work plan that specifies that WAA, pursuant to section 127(7) of the Act.</td>
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<tr>
<td>127(5)(b)</td>
<td>The erection, construction or placement of any building or structure in a watercourse or lake or on the floodplain of a watercourse.</td>
<td>Constructing a: • building • pump house • stock shelter • creek crossing • bridge Placing any of the following in a watercourse or lake: • culvert • pump • pipes Building a road across a wetland</td>
<td>A WAA that is proposed to be undertaken beyond the 1-in-20 year average flood recurrence interval flood level, where a flood study is available, or a distance of 20 metres or more from the banks of the nearest watercourse where a flood study is not available (see principle 2.4.2.1). Minor maintenance to a building or structure that is not located on a stream order of 3 or higher (see principle 2.4.2.2). This exemption does not apply to any structure associated with the take of water.</td>
</tr>
<tr>
<td>1. Section of the Act</td>
<td>2. Examples of WAAs</td>
<td>3. WAAs exempt from requiring a WAA permit</td>
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<td>S127(5)(d) Depositing or placing an object or solid material in a watercourse or lake.</td>
<td>Island in a watercourse Placing any of the following in a watercourse or lake: • ripraps • rocks • tyres • snags • fill</td>
<td>A WAA that is undertaken as part of a Board endorsed work plan that specifies that WAA, pursuant to section 127(7) of the Act.</td>
<td>Board</td>
</tr>
<tr>
<td>S127(5)(f) Depositing or placing an object or solid material on the floodplain of a watercourse or near the bank or shore of a lake to control flooding from the watercourse or lake.</td>
<td>Levee construction Depositing fill</td>
<td>A WAA that is proposed to be undertaken beyond the 1-in-20 year average flood recurrence interval flood level, where a flood study is available, or a distance of 20 metres or more from the banks of the nearest watercourse where a flood study is not available. (see principle 2.5.2.1)</td>
<td>Board</td>
</tr>
<tr>
<td>S127(5)(g) Destroying vegetation growing in a watercourse or lake or growing on the floodplain of a watercourse.</td>
<td>Removal or destruction of riparian trees, shrubs, grasses. Removal or destruction of aquatic vegetation. Removal or destruction of vegetation in a wetland.</td>
<td>A WAA that involves declared plants. (see principle 2.6.2.3(b)) Vegetation destruction that does not involve the physical removal of the plants. (see principle 2.6.2.3(c)) A WAA that involves clearance of native vegetation in accordance with the Native Vegetation Act 1991. (see principle 2.6) A WAA that is undertaken as part of a Board endorsed work plan that specifies that WAA, pursuant to section 127(7) of the Act.</td>
<td>Board</td>
</tr>
<tr>
<td>1. Section of the Act</td>
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<td>127(5)(h) Excavating or removing rock, sand or soil from— (i) a watercourse, or lake or the floodplain of a watercourse; or (ii) an area near to the banks of a lake so as to damage, or create the likelihood of damage to, the banks of the lake</td>
<td>Excavation within a wetlands, swamps or springs Realigning a watercourse Channelling a watercourse Changing the width or depth of a watercourse</td>
<td>A WAA that is proposed to be undertaken beyond the 1-in-20 year average flood recurrence interval flood level, where a flood study is available, or a distance of 20 metres or more from the banks of the nearest watercourse where a flood study is not available. (see principle 2.6.2.1)</td>
<td>Board</td>
</tr>
<tr>
<td>127(5)(ja) Undertaking commercial forestry</td>
<td>Blue gum plantations Pine plantations Plantations for carbon credits</td>
<td>Plantings solely for the purposes of amenity or biodiversity conservation. (see principle 2.7.2.5) A WAA that is undertaken as part of a Board endorsed work plan that specifies that WAA, pursuant to section 127(7) of the Act.</td>
<td>Board</td>
</tr>
</tbody>
</table>
2. **Specific policy provisions**

Further to the general objectives and principles set out in 1.6 and 1.7, this section sets out the matters to be considered by the relevant authority when determining whether to grant or refuse a permit for a specific WAA.

Pursuant to section 127(5) of the Act, a person must not undertake a WAA contrary to the Plan. This section also sets out requirements that a person must comply with when undertaking WAAs. These requirements apply whether or not a permit is required to undertake the relevant WAA.

2.1. **Constructing, backfilling or repairing wells – section 127(3)(a) and (b)**

The objectives and principles that follow apply to an activity under the following sections of the Act:

- 127(3)(a): drilling, plugging, backfilling or sealing of a well
- 127(3)(b): repairing, replacing or altering the casing, lining or screen of a well.

2.1.1. **Specific objectives**

Further to the general objectives outlined in section 1.6 the following specific objectives apply:

1. Ensure the integrity of well head works are maintained.
2. Ensure wells are constructed in the targeted aquifer system.

2.1.2. **Specific principles: regarding the granting of a WAA Permit**

The following matters should be taken into account by the Minister when determining whether to grant or refuse a permit for an activity under section 127(3)(a) and 127(3)(b) of the Act.

The Minister should not grant a permit for:

1. A well proposed to be drilled within 100 metres of an existing well operated by another landholder, or a groundwater dependent ecosystem.

2. A well proposed to be drilled within 300 metres of a well into which water is drained or discharged pursuant to a permit granted under section 127(3)(c) of the NRM Act for the purposes of aquifer storage and recharge, unless:
   a) the aquifer into which the proposed well will be drilled is not directly hydraulically connected with the existing well, or
   b) the proposed well is part of a managed aquifer recharge (MAR) scheme that includes the existing well.

3. Notwithstanding principle 1, a permit may be granted for a replacement well provided that:
   a) the original well is backfilled in accordance with a permit issued pursuant to section 127(3)(a) of the Act
   b) the replacement well is within 50 metres of the original well, and
   c) the replacement well takes water only from the same aquifer as the original well.

4. For the purposes of this plan, an existing well is defined as a well that has supplied water for irrigation, stock, domestic or commercial use within the last 10 years.
2.1.3. Specific principles: undertaking the WAA

The following principles are recommended well permit conditions:

1. Well construction must be in accordance with the General Specification for Well Construction, Modification and Abandonment in South Australia, as amended from time to time (or any subsequent or related policy), as provided by the relevant authority.

2. The equipment, materials and method used for the activity shall not adversely affect the quality of the underground water resource.

3. Where a well passes through two or more aquifers, an impervious seal must be made and maintained between the aquifers to prevent leakage between aquifers.

4. Wells constructed for the draining or discharge of water at pressures greater than gravity must be pressure cemented along the full length of the casing. This does not exempt the need to follow the general specifications for well construction.

2.2. Drainage or discharging water into a well—section 127(3)(c)

The objectives and principles that follow apply specifically to a WAA under section 127(3)(c) of the NRM Act, comprising draining or discharging water directly or indirectly into a well.

2.2.1. Specific objectives

Further to the general objectives outlined in section 1.6, the following specific objectives apply:

1. Ensure the integrity of head works are maintained.

2. Ensure the sustainable operation and management of managed aquifer recharge schemes (e.g. aquifer storage and recovery schemes).

2.2.2. Specific principles: regarding the granting of a WAA Permit

The following matters should be taken into account by the Minister when determining whether to grant or refuse a permit for an activity under section 127(3)(c) of the Act.

1. A permit to drain or discharge water into a well will not be granted unless a risk assessment is undertaken to the satisfaction of the Minister. This risk assessment must be consistent with the National Water Quality Management Strategy—Australian Guidelines for Water Recycling: Managing Health & Environmental Risks, Phase 1, 2006 and Phase 2, 2009, and other related documents current at the time, including:

   (a) an investigation into the sustainability of the drainage or discharge site, including but not limited to, tests for transmissivity, maximum injection pressures and calculated likely impacts on the integrity of the well and confining layers, and impacts of potentiometric head changes to other underground water users
(b) an appropriate operation or management plan demonstrating that operational procedures and monitoring regimes are in place to protect the integrity of the aquifer, minimise the wastage of water and protect the discharge site on an ongoing basis
(c) a water quality assessment which identifies hazards in the source water, and
(d) a report on the consequences and impacts to the ambient underground water resource where the water quality characteristics (salinity and chemistry composition) of the water to be discharged differs to that of the ambient underground water.

2. Water that is drained or discharged into a well only by means of gravity is exempt from meeting the requirements of principle 1.

2.2.3. Specific principles: undertaking the WAA

The draining or discharging of water directly or indirectly into a well may only be undertaken in accordance with the following principles.

1. Water that is drained or discharged into a well must comply with the Environmental Protection Act 1993 and any associated policy.

2. Further to principle 1, continuation of draining and discharge is dependent on an annual report, being provided to the Minister, that addresses the impacts to the ambient underground water at the draining or discharge site.

3. For the purposes of principles 1 and 2, the relevant concentrations, levels or amounts shall be measured in sufficient representative samples of:
   (a) the water to be drained or discharged
   (b) ambient underground water collected from the proposed point of injection, or as near as possible to the proposed point of injection.

4. For the purpose of principle 3, 'sufficient representative samples' means suitable samples, collected with equipment appropriate for the substance, material or characteristic to be measured and taken at suitable locations and times to accurately represent the quality of the relevant water.

5. The draining or discharging of water directly or indirectly into a well must not degrade ecosystems dependent on the underground water or detrimentally affect the ability of other persons to lawfully take from that underground water.

6. Water may not be drained or discharged directly or indirectly into a well unless the head works for the draining or discharge of water are constructed so that extraction, draining and discharge operations can be metered without interference.

7. Water may not be drained or discharged directly or indirectly into a well unless the head works for the draining or discharge of water are constructed so that water cannot leak if the well becomes clogged.
8. Water may not be drained or discharged directly or indirectly into a well constructed for the draining or discharge of water at pressures greater than gravity unless the well is pressure cemented along the full length of the casing. This does not exempt the need to follow the general specifications for well construction.

2.3. Management of water collection and diversion

Pursuant to section 127(3)(e) and (5)(a) of the NRM Act, a WAA permit is required for the erection, construction, modification, enlargement or removal of a dam, wall or other structure that will collect or divert, or collects or diverts, water flowing in a watercourse, or flowing over any other land, irrespective of the size, type, location or purpose of the dam, wall or other structure.

2.3.1. Specific objectives

As per the general objectives described in section 1.6

2.3.2. Specific principles: regarding the granting of a WAA Permit

The following matters must be taken into account by the Board when determining whether to grant or refuse a permit for an activity under section 127(5)(a) of the Act.

Location, extent and capacity of infrastructure

1. A permit will not be granted for the construction or enlargement of a dam, wall or other structure in, on or across a watercourse with a stream order of three or higher.

2. Principle 1 does not apply where a dam, wall or other structure collects or retains less than 1 megalitre at the cease to flow level.

3. Diversion weirs within a watercourse with a stream order of three or greater may be allowed if the applicant can demonstrate to the Board that there is no reasonably practicable alternative location on the property to collect or divert water.

4. Hydraulically connected water infrastructure that diverts water into a structure that collects water (e.g. a dam or reservoir) shall be considered a component part of the collection structure. Examples of the component parts contributing to the extent of a collection structure include, but are not limited to, interception drains directing water into a dam, or a pipe in a watercourse designed to pump water into a dam.

5. A permit will not be granted for the construction or enlargement of a dam, wall or other structure that collects or diverts water if the deemed take of that structure would cause the total volume of water deemed taken in a catchment or sub-catchment to exceed, or further exceed, the catchment and sub-catchment Water Take Limits as provided in the Attachment 1.
6. For the purposes of this plan, the volume of water deemed taken annually in a catchment or sub-catchment by dams, walls or other structures (including watercourse diversions), shall be 50% of the volume capable of being held by all dams, walls or other structures in the catchment or sub-catchment.

7. Further to principle 5, in regards to the deemed take of water from a watercourse with a stream order of three or greater, references to the sub-catchment water take limit shall also include the cumulative water take limits of all sub-catchments upstream of the sub-catchment in which that watercourse is located.

8. Further to principle 5, a permit will not be granted for the construction, modification or enlargement of a dam, wall or other structure that collects or diverts water if the deemed take of that structure would cause the total volume of water deemed taken on a property to exceed, or further exceed, the property Water Take Limits.

9. Principle 8, does not apply where the applicant can demonstrate to the satisfaction of the Board that:
   (a) the construction, modification or enlargement of a dam, wall or other structure that collects or diverts water would not detrimentally affect the ability of any other person to exercise a right to take water; and
   (b) the construction, modification or enlargement of a dam, wall or other structure that collects or diverts water would not detrimentally affect the enjoyment of the amenity of water in a watercourse or lake by the other occupiers of land within the catchment or sub-catchment; and
   (c) the general objective at section 1.6 and principles at section 1.7 can be met.

10. The property Water Take Limit is calculated according to the area of the property that lies within the sub-catchment in which water is or will be taken (collected or diverted).

**Adjustments to water deemed taken**

11. Further to principles 5 and 8, the water deemed taken by a dam, wall or other structure, shall be reduced to 0 where the structure is for the purpose of flood mitigation.

12. The design construction and operation of flood mitigation dams must be consistent with the relevant Australian Standard and must meet the following criteria:
   (a) A controlled flow release device with a minimum diameter of 50 millimetres must be fitted.
   (b) The controlled flow release device, referred to in principle (a) (above), shall be sited so as to drain most of the contents of the dam.
   (c) The dam must be constructed to drain within three days of the downstream floodwaters subsiding.

13. Further to principles 5 and 8, the water deemed taken by a dam, wall or other structure, shall be reduced to represent the mean annual volume of water.
deemed taken that is in excess of the normal yield due to hydraulically connected infrastructure that artificially enhances yield. Examples of hydraulically connected infrastructure that artificially enhance yield include but are not limited to: roads, buildings, earthworks, gravelled or paved area, including a graded catchment.

14. Further to principle 13, the applicant must provide to the Board’s satisfaction sufficient details to allow the Board to calculate the annual mean volume of artificially enhanced yield.

15. Where an adjustment to water deemed take by a dam, wall or other structure has been made under principle 11 or 13, the Board should list the adjusted water deemed take as a condition on the permit or otherwise notify the applicant in writing.

**Issue of permits where water take limits have been reached or exceeded**

16. Where the water take limit(s) for either the catchment, sub-catchment and/or property has been reached or exceeded, a WAA permit for the construction of a dam, wall or other structure, or the enlargement of an existing dam, wall or other structure, may be granted:

(a) following the removal or modification of an existing dam, wall or other structure;

i thereby causing the catchment, sub-catchment and/or property water deemed taken to fall below their respective water take limits; or,

ii providing the total surface area of water exposed to evaporation within dam(s), wall(s) or other structure(s) does not increase within the catchment, sub-catchment and/or property relative to the time before the removal of the structure(s).

(b) following the removal of a commercial forest;

i thereby causing the catchment, sub-catchment and/or property water deemed taken to fall below their respective water take limits; or,

ii where the catchment or sub-catchment water take limit is still exceeded, to take up to 25% of the yield from the area cleared of forest.

Yield from an area of cleared forest is determined by the calculations shown in the Kangaroo Island Catchment Data tables available from the Natural Resources Kangaroo Island website.

Water deemed taken following the removal of a dam, wall or other structure, or the removal of a commercial forest, shall be returned to the surface water yield (for water accounting purposes) of the catchment, sub-catchment or property where removed infrastructure or forest was located.

17. Further to principle 16, a WAA permit for the construction or enlargement of a dam, wall or other structure that collects or diverts water, will not be issued until the Board is satisfied that the dam, wall or other structure that is the subject of another WAA permit has been removed or modified, with a resultant reduction in the water deemed taken in the catchment, sub-catchment and/or property.

18. Notwithstanding principle 5, where the water take limit(s) for either the
catchment or sub-catchment but not the property has been reached or exceeded and the applicant can demonstrate to the Board’s satisfaction that there is/are no reasonably practicable alternative option(s), to access water on the property, including from existing water infrastructure or other sources, the applicant may be granted a permit to construct new or modify existing dam, wall or other structure to allow for the take of up to 1 megalitre of water per year on that property. The additional take will be added to the water account for the deemed water taken from the affected catchment, sub-catchment and property.

19. A WAA permit is not required for de-silting of an existing dam, wall or other structure that collects or diverts water where the activity meets all of the following provisions:

(a) appropriate measures are taken to mitigate adverse water quality impacts arising from maintenance activities

(b) the removal of silt includes only unconsolidated material deposited since construction of the structure, or since the structure was previously de-silted

(c) the maintenance activity does not increase the capacity, wall height, width or length of the structure beyond its original dimensions

(d) the structure is not on a watercourse with a stream order of three or higher

(e) the excavated material is not placed:

   i. within the 1-in-20 year average flood recurrence interval flood distance, where a flood study is available; or

   ii. within a distance of 20 metres from the banks of the nearest watercourse or lake, where a flood study is not available, and

(f) the excavated material is not disposed of in a manner or at a location that will:

   i. adversely affect native vegetation

   ii. impede the flow of surface water

   iii. re-enter any water resource

   iv. facilitate the spread of pest plants or pathogenic material.

2.3.3 Specific principles: undertaking the WAA

Location, extent and capacity of infrastructure

1. The capacity of dam, wall or other structure that collects or diverts water must not exceed the volume stated as a condition on the permit. The calculation of the capacity limit and resulting water deemed taken are outlined in principles 2.3.2.5 to 2.3.2.18

Impact on flow regime

2. A dam, wall or other structure that collects or diverts water must have design features or include a device that returns or bypasses water up to the threshold
flow rate. Threshold flow rates for Kangaroo Island sub-catchments are provided in Attachment 1.

3. A design feature or device that will achieve the outcomes required by principle 2 shall:
   (a) not be obstructed or tampered with in any way
   (b) be designed and constructed to ensure its correct operation, and maintained in such a condition that it continues to be effective in meeting principle 2.

4. Principle 2 does not apply if the threshold flow rate is less than 1 litre per second.

Other design, construction and maintenance considerations

5. A dam, wall, or other structure that collects, stores or diverts of water shall, where appropriate and practicable, be designed and constructed to incorporate a range of features to improve water quality and enhance ecological values. Such features include, but are not limited to:
   (a) structures that minimise stock access to water
   (b) an upstream silt trap
   (c) provision for migration of aquatic biota, where appropriate
   (d) for structures that store over 250 megalitres, a mechanism to return water at specified times, frequency and flow rates maybe specified in permit.

6. The erection, construction, enlargement, modification or removal of a dam, wall or other structure that collects or diverts water must be undertaken in a manner that:
   (a) minimises the destruction or removal (e.g. by inundation) of riparian and in-stream vegetation
   (b) minimises silt or sediment runoff, including, but not limited to, the use of erosion control measures such as diversion drains, revegetation, straw bale barriers, filter fences, sediment traps and detention basins
   (c) ensures a minimum 20-year design life under all flow conditions up to the 20-year average flood recurrence interval (0.05 annual exceedance probability) for the proposed location
   (d) has design parameters based on relevant Australian Standards.

2.4. Management of structures

A WAA permit is required for the erection, construction or placement of any building or structure in a watercourse or lake or on the floodplain of a watercourse pursuant to section 127(5)(b) of the Act.

2.4.1. Specific objectives

As per the general objectives described in section 1.6. No additional specific objectives apply.
2.4.2. Specific principles: regarding the granting of a WAA Permit

The following matters should be taken into account by the Board when determining whether to grant or refuse a permit for an activity under section 127(5)(b) of the Act.

**Location and extent**

1. A WAA permit is not required for the erection, construction or placement of any building or structure:
   
   (a) beyond the 1-in-20 year average flood recurrence interval flood distance, where a flood study is available; or 
   
   (b) at a distance beyond 20 metres from the banks of the nearest watercourse or lake, where a flood study is not available.

2. A WAA permit is not required for minor maintenance activities related to an existing building or structure where the activity meets the following provision:
   
   (a) appropriate measures are taken to mitigate water quality impacts arising from maintenance activities.

2.4.3. Specific principles: undertaking the WAA

**Impact on flow regime**

1. Any building or structure that impedes the flow of water must have design features or include a device that returns or bypasses water up to the threshold flow rate.

2. Threshold flow rates for Kangaroo Island sub-catchments are provided in Attachment 1.

3. Principle 1 does not apply to structures authorised by the Minister or the Board under section 127(7) of the Act for the specific purpose of measuring stream flow, or for managing water flow to assist with maintenance, rehabilitation or restoration of water-dependent ecosystems, habitats, communities or species.

**Other design, construction and maintenance considerations**

4. Any building or structure must ensure a minimum 20-year design life under all watercourse flow conditions up to the 20-year average flood recurrence interval flow rate for the proposed location.

5. Buildings and structures shall be maintained in a manner appropriate to meeting the conditions of the WAA permit.

6. In the case of construction of a culvert, the Culvert Construction Guidelines, as amended from time to time, available on the Natural Resources KI website, must be followed.
2.5. Management of obstructions

A WAA permit is required for depositing or placing an object or solid material in a watercourse or lake, pursuant to section 127(5)(d) of the Act.

A permit is required for depositing or placing an object or solid material on the floodplain of a watercourse or near the bank or shore of a lake to control flooding from the watercourse or lake, pursuant to section 127(5)(f) of the Act.

2.5.1. Specific objectives

As per the general objectives described in section 1.6.

2.5.2. Specific principles: regarding the granting of a WAA Permit

The following matters must be taken into account by the Board when determining whether to grant or refuse a permit for an activity under section 127(5)(d) or 127(5)(f) of the Act.

Location and extent

1. A WAA permit is not required for the depositing or placing an object or solid material:
   (a) beyond the 1-in-20 year average flood recurrence interval flood distance, where a flood study is available; or
   (b) at a distance beyond 20 metres from the banks of the nearest watercourse or lake, where a flood study is not available.

2. A WAA permit is not required for minor maintenance activities related to an existing structure where the activity meets the following provision:
   (a) appropriate measures will be taken to mitigate water quality impacts arising from maintenance activities.

2.6. Management of vegetation removal and the excavation of material

A WAA permit is required for removing vegetation growing in a watercourse or lake or growing on the floodplain of a watercourse, pursuant to section 127(5)(g) of the Act.

A WAA permit is required for excavating or removing rock, sand or soil from:

- a watercourse or lake or the floodplain of a watercourse, or
- an area near to the banks of a lake so as to damage, or create the likelihood of damage to, the banks of the lake

pursuant to section 127(5)(h) of the Act.

Permits in relation to section 127(5)(g) relate generally to non-native vegetation. Clearance of native vegetation is subject to the Native Vegetation Act 1991 and the requirements under that Act.

2.6.1. Specific objectives
As per the general objectives described in section 1.6.

2.6.2. Specific principles: regarding the granting of a WAA Permit

The following matters must be taken into account by the Board when determining whether to grant or refuse a permit for an activity under section 127(5)(g) or 127(5)(h) of the Act.

Location and extent

1. A WAA permit is not required for the excavation or removal of rock, sand or soil, or the removal of vegetation that is proposed to be undertaken:

   (a) beyond the 1-in-20 year average flood recurrence interval flood distance, where a flood study is available; or
   (b) at a distance beyond 20 metres from the banks of the nearest watercourse or lake, where a flood study is not available.

2. Further to principle 1, the excavated material or removed vegetation must not:

   (a) be placed in or near a watercourse, floodplain or lake
   (b) be disposed of in a manner or at a location that will:

      i adversely affect native vegetation
      ii impede the natural flow of surface water
      iii cause the removed vegetation to re-enter any water resource, or
      iv facilitate the spread of pest plants or pathogenic material.

Other considerations

3. A WAA permit is not required under this sub-section where:

   (a) the activity is undertaken by the Board under section 127(7) of the Act and as part of a Board-endorsed work plan.
   (b) the activity involves plants declared under Chapter 8 of the Act
   (c) the activity does not involve the physical removal of the plants, or
   (d) the volume of excavation or removal of rock, sand or soil does not exceed two cubic metres over a five-year period.

2.7. Undertaking commercial forestry

A permit is required for the establishment or expansion of commercial forestry pursuant to section 127(5)(ja) of the Act.

Section 127(5)(ja) of the Act provides that a person must not undertake commercial forestry contrary to the provisions of an NRM plan that applies to the region in which that activity is proposed. Section 127(5)(ja) was inserted into the Act in 2011 and came into operation on 1 July 2014.
The objectives and principles in relation to forestry in this plan are consistent with the
document *Managing the water resource impacts of plantation forests. A Statewide policy

2.7.1. **Specific objectives**

As per the general objectives described in section 1.6.

2.7.2. **Specific principles: regarding the granting of a WAA Permit**

The following matters must be taken into account by the Board when determining whether
to grant or refuse a permit for an activity under section 127(5)(ja) of the Act.

**Definition**

1. A commercial forest is defined in the Act as a forest plantation where the forest
   vegetation is grown or maintained so that it can be harvested or used for
   commercial purposes (including through the commercial exploitation of the
   carbon absorption capacity of the forest vegetation).

2. Forest vegetation is defined in the Act and means trees and other forms of forest
   vegetation including—
   
   (a) roots or other parts of the trees or other forest vegetation that lie beneath
   the soil, and
   
   (b) leaves, branches or other parts or products of trees or other forest
   vegetation.

3. The expansion of a commercial forest will be taken to include:
   
   (a) for commercial forests in existence at the date section 127(5)(ja) of the Act
   began (1 July 2014), an increase in the area for which development approval
   for commercial forestry has been granted as at 1 July 2014, or
   
   (b) for commercial forests established from 1 July 2014, an increase in the net
   planted area as approved through a WAA permit. Net planted area means
   the area of the commercial forest measured from stump to stump, minus
   any unplanted areas, areas under clearfell slash or areas consisting of dead
   plantation trees, that are greater that 0.1 hectare. Access tracks less than
   seven metres wide are part of the net planted area.

4. Further to principle 3, any proposed increase in net planted area in the second or
   a subsequent forest rotation of a commercial forest shall be considered to be a
   new commercial forest and therefore the area of forest in excess of the previous
   rotation shall be subject to the principles in this plan.

5. A WAA permit is not required for:
   
   (a) forest vegetation established solely for the purposes of amenity or
   biodiversity conservation, or
   
   (b) forest situated, or to be situated on a farm, and the net planted area of the
   commercial forest does not exceed, or will not exceed, 10% of the total area
   of the land described in a Certificate of Title or Crown Lease, or 10 hectares
   per Certificate of Title or Crown Lease, whichever is the lesser. Such forests
shall be referred to as farm forestry.

**Location and extent**

6. A permit will only be granted for a new commercial forest, or expansion of an existing forest, where the proposed forest is to be situated at least 20 metres from a stream, wetland or water-dependent ecosystem.

7. A permit will not be granted for the establishment or expansion of a commercial forest if the volume of water deemed taken by the new or expanded commercial forest would exceed, or further exceed, the water take limit for the respective catchment, sub-catchment and/or property.

8. For the purposes of this plan, the volume of water deemed taken by a commercial forest is 85% of the mean annual surface water yield from the area of commercial forest.

9. The area of commercial forest is the maximum net planted area over the duration of a rotation.

10. Where a commercial forest is harvested or removed and no further forest rotation is to be planted or re-established by coppice regrowth or other means, the water deemed taken by that forest shall be returned to the surface water yield for the respective catchment, sub-catchment and/or property (for water accounting purposes).

**Issue of WAA permits where water take limits have been reached or exceeded**

11. Where the water take limit(s) for either the catchment, sub-catchment and/or property has been reached or exceeded, a WAA permit for the establishment or expansion of a commercial forest may be granted provided there is firstly a reduction in the volume of water deemed taken by other commercial forests or by dam, wall or other structures that collect or divert water, in the respective catchment, sub-catchment and/or property. The reduction in volume of water deemed taken must be sufficient to allow for the establishment or expansion of a commercial forest without exceeding the water take limit for the respective catchment, sub-catchment and/or property.

12. If, following removal of a commercial forest, the catchment or sub-catchment water take limit is still exceeded, a permit may be granted to take up to 25% of the surface water yield from the area cleared of forest.

13. Further to principles 11 and 12, a WAA permit for the establishment or expansion of a commercial forest, will not be granted until the Board is satisfied that the required reduction in the volume of water deemed taken on another WAA permit has been achieved. This principle applies but is not limited to:

   (a) dam, wall or other structures that collect or divert water have been reduced in capacity or been removed.

   (b) an area of commercial forest has been removed and no further forestry rotation is to be planted, or re-established by coppice regrowth or other means.
2.7.3. Specific principles: undertaking the WAA

Location and extent

1. Any commercial forest, or expansion of an existing forest, shall be situated 20 metres beyond a stream, wetland or water-dependent ecosystem.

2. A commercial forest shall only be replanted no closer to a stream, wetland or water-dependent ecosystem than the existing stump line, or the set-back distance of 20 metres, whichever distance is the greater.

3. Any natural regeneration of commercial forest species shall be removed from the set-back distance determined above.

Forestry activity

4. A WAA permit will continue to authorise commercial forestry activity in the manner and in the area specified in the permit, following clear-felling and replanting for subsequent rotations.

5. The holder of a WAA permit must at all times ensure that the relevant forestry activity is the subject of any necessary approval for the use of the relevant land under the Development Act 1993.
Definitions

**Allotment** — has the same meaning as in the *Real Property Act 1886*.

**Annual exceedance probability (AEP)** — the probability that a given flow or rainfall event will be exceeded in any one year.

**Aquifer** — a formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield economical quantities of water to wells and springs.

**Average flood recurrence interval (AFRI)** — the average value of the periods between exceedances of a given flow or rainfall event.

**Biota** — all of the organisms at a particular locality.

**Best practice operating procedure (BPOP) permit** — Refer clause 1.4 of the Water Resources Management Policy – Water Affecting Activities

**Clear fell or clear felling** — the cutting down or forest harvesting of all of the remaining crop trees from a commercial plantation forest in a given area. The clearfelling of a compartment shall be deemed to have been completed when all of the remaining crop trees within the boundary of the compartment have been harvested or felled. This definition excludes forest thinning.

**Commercial forest** — the Act defines commercial forest to mean ‘a forest plantation where the forest vegetation is grown or maintained so that it can be harvested or used for commercial purposes, including through the commercial exploitation of the carbon absorption capacity of the forest vegetation’ (i.e. carbon farming).

**Coppice regrowth** — for hardwood plantations, trees which have been regenerated from shoots formed from the stumps of the previous crop of trees, root suckers, or both, i.e. by vegetative means.

**Current recommended practice (CRP)** — Refer clause 1.5 of the Water Resources Management Policy – Water Affecting Activities

**Dam, wall or other structure** — refers to a dam, wall or other structure referred to in section 127(5)(a) of the Act.

**Desilting** — the removal of unconsolidated material deposited in a dam, wall or other structure since construction or material deposited since the structure was previously desilted.

**Fit-for-purpose** — water of a quality acceptable for a particular use.

**Flood study** - a published report that documents the measured or modelled extent of flooding.

**Flow bands** — flows of different frequency, volume and duration.

**Flow regime** — the character of the timing and amount of flow in a stream.

**Forest vegetation** — trees and other forms of forest vegetation including, (a) roots or other parts of the trees or other forest vegetation that lie beneath the soil; and (b) leaves, branches or other parts or products of trees or other forest vegetation.

**Groundwater** see underground water.

**Hydraulically connected** — as a result of natural or artificial pressure, water from one location can move water at another location within water infrastructure, a watercourse or a saturated
media in a relatively rapid manner. Sources of natural pressure or artificial pressure include gravity, pumping or syphoning.

Lake – a natural lake, pond, lagoon, wetland or spring (whether modified or not).

Managed aquifer recharge – the process of draining or discharging water directly or indirectly into a well for the purposes of refilling or replenishing the aquifer or for the purposes of aquifer storage and recovery.

NB. Forest vegetation established solely for the purposes of amenity or biodiversity conservation is not considered to be commercial forest.

Net planted area – as applied to commercial forests, means the area of the commercial forest measured from stump to stump, less any unplanted areas, areas under clearfell slash or areas consisting of dead plantation trees, greater than 0.1 hectare. Access tracks less than seven metres wide are part of the net planted area.

Occupier of land – has the same meaning as in section 3 (1) of the NRM Act, meaning a person who has, or is entitled to, possession or control of the land (other than a mortgagee in possession unless the mortgagee has assumed active management of the land), or who is entitled to use the land as the holder of native title in the land.

Owner of land – has the same meaning as in section 3 (1) of the NRM Act, meaning:

a) if the land is unalienated from the Crown – the Crown
b) if the land is alienated from the Crown by grant in fee simple – the owner (at law or in equity) of the estate in fee simple
c) if the land is held from the Crown by lease or licence – the lessee or licensee, or a person who has entered into an agreement to acquire the interest of the lessee or licensee
d) if the land is held from the Crown under an agreement to purchase – the person who has the right to purchase
e) a person who holds native title in the land, or
f) a person who has arrogated to himself or herself (lawfully or unlawfully) the rights of an owner of the land; and includes an occupier of the land and any other person of a prescribed class included within the ambit of this definition (under the NRM Act) by the regulations.

Potentiometric level, potentiometric surface or potentiometric head – the level to which water rises in a well due to water pressure in the aquifer.

Property – An allotment or contiguous allotments owned or occupied by the same person, persons or body and operated as a single unit. Allotments will be considered to be contiguous if they abut at any point, or are separated only by a road, street, lane, footway, court, alley, railway, thoroughfare, easement, right-of-way, watercourse, channel or a reserve or similar open space.
Riparian – relating to or situated on the part of the landscape adjacent to a water body that influences and is influenced by watercourse processes. This can include landform, hydrological or vegetation definitions. It is commonly used to include the in-stream habitats, bed, banks and sometimes floodplains of watercourses.

Runoff – water flowing over land or in a natural or man-made drain, after having fallen as precipitation.

Stream order – a method of classifying the size of a part of a watercourse, based on the hierarchy of connecting watercourse segments. The Strahler stream ordering system is used in the Plan. The most upstream part of a watercourse is a first order stream. Two first order watercourses join together to become a second order watercourse. Two second order watercourses join together to become a third order watercourse and so on. Arthur Strahler first proposed the approach in 1952 in an article in the Geological Society of America Bulletin.

Surface area – as applied to water contained within a dam, wall or other structure when at capacity, the extent of a 2 dimensional surface enclosed by the water line when the structure is filled to capacity.

Threshold flow rate – the flow rate at or below which water must not be taken, or if taken is to be returned to the same watercourse or drainage path immediately downstream of the structure, as soon as reasonably practicable. The threshold flow rate is specified as a flow rate that in an average year will be reached 10% of the time.

To take water from a water resource includes:

a) to take water by pumping or syphoning the water
b) to stop, impede or divert the flow of water over land (whether in a watercourse or not) for the purposes of collecting the water
c) to divert the flow of water in a watercourse from the watercourse
d) to release water from a lake.

Transmissivity – a parameter indicating the ease of underground water flow through a metre width of aquifer section.

Underground water –

a) water occurring naturally below ground level
b) water pumped, diverted or released into a well for storage underground.

Well –

a) an opening in the ground excavated for the purpose of obtaining access to underground water
b) an opening in the ground excavated for some other purpose but that gives access to underground water
c) a natural opening in the ground that gives access to underground water.

Water deemed taken – an estimation of the water taken that approximates the actual average annual take over multiple years.

Water-dependent ecosystems – those parts of the environment, the species composition and natural ecological processes, that are determined by the permanent or temporary presence of
flowing or standing water, above or below ground. The in-stream areas of rivers, riparian vegetation, springs, wetlands, floodplains, estuaries, lakes and aquifer ecosystems are all water-dependent ecosystems.

**Water infrastructure** – for the purposes of this Plan includes artificial lakes, dams or reservoirs, embankments, walls, channels or other works or earthworks, bridges and culverts, buildings or structures, roads, pipes, machinery or other plant or equipment.

**Watercourse** – has the same meaning as in section 3 (1) of the NRM Act, meaning a river, creek or other natural watercourse (whether modified or not) in which water is contained or flows whether permanently or from time to time and includes:

a) a dam or reservoir that collects water flowing in a watercourse

b) a lake through which water flows

c) a channel (but not a channel declared by regulation to be excluded from the ambit of this definition (under the NRM Act)) into which the water of a watercourse has been diverted

d) part of a watercourse

e) an estuary through which water flows, and

f) any other natural resource, or class of natural resource, designated as a watercourses for the purposes of the NRM Act by an NRM plan.

**Water take limits** – the volume of water that can be taken from the shared water resource. Water take limits are based on the total yield of surface water runoff generated by rainfall over a given area of land – either a property, a catchment or a sub-catchment. The default limit of 25% of this volume is available at a particular location while the rest is released downstream.

Water take limits are calculated from the following equation:

\[ WTL = (R \times A \times 0.25)/100 \]

Where:

- \( WTL \) = Water take limit (ML/yr)
- \( R \) = Mean annual runoff (mm/yr)
- \( A \) = Area of catchment, sub-catchment or property (ha)

**Wetland** – has the same meaning as in section 3 (1) of the NRM Act, meaning an area that comprises land that is permanently or periodically inundated with water (whether through a natural or artificial process) where the water may be static or flowing and may range from fresh water to saline water and where the inundation with water influences the biota or ecological processes (whether permanently or from time to time) and includes any other area designated as a wetland:

a) by an NRM Plan

b) by a Development Plan under the *Development Act 1993*, but does not include:

i. a dam or reservoir that has been constructed by a person wholly or predominantly for the provision of water for primary production or human consumption

ii. an area within an estuary or within any part of the sea, or

iii. an area excluded from the ambit of this definition (under the NRM Act) by the regulations.
## Appendix C: Regional NRM targets 2009–2019

<table>
<thead>
<tr>
<th>RT</th>
<th>Regional target</th>
</tr>
</thead>
<tbody>
<tr>
<td>RT1.1</td>
<td>By 2028 erosion risk index is maintained at, or reduced from, 2009 level</td>
</tr>
<tr>
<td>RT1.2</td>
<td>By 2028 the rate of increase in mean groundwater level in priority groundwater recharge areas declines</td>
</tr>
<tr>
<td>RT1.3</td>
<td>By 2028 the mean groundwater level under the most significant &amp; defendable biodiversity assets is below the threshold identified in the 2012 plan</td>
</tr>
<tr>
<td>RT1.4</td>
<td>By 2028 there is at least a 10% increase in the area of agricultural land within defined acceptable limits for acidity compared with 2009</td>
</tr>
<tr>
<td>RT1.5</td>
<td>By 2028 there is at least a 10% increase in the area of agricultural land within defined acceptable limits for fertility compared with 2009</td>
</tr>
<tr>
<td>RT1.6</td>
<td>By 2018 water quality in the Cygnet River at Bark Hut Road meets NWQMS (National Water Quality Management Strategy) targets for lowland rivers at least 95% of the time</td>
</tr>
<tr>
<td>RT1.7</td>
<td>By 2018 at least 50% of all targeted riparian zones have a high QHER (Quantifying the Health of Ephemeral Rivers) score</td>
</tr>
<tr>
<td>RT1.8</td>
<td>By 2018 no change in the status of wetlands meeting ANZECC wetlands criteria as assessed in 2002</td>
</tr>
<tr>
<td>RT1.9</td>
<td>By 2018 no aquatic species are at conservation risk due to changed flow regime</td>
</tr>
<tr>
<td>RT1.10</td>
<td>By 2018 ecologically appropriate environmental flow regimes exist in all monitored rivers</td>
</tr>
<tr>
<td>RT1.11</td>
<td>By 2018 key water quality parameters for aquatic ecosystems are below NWQMS (National Water Quality Management Strategy) thresholds in monitored rivers for at least 90% of the time</td>
</tr>
<tr>
<td>RT1.12</td>
<td>By 2028 no new high risk environmental pest species have established on Kangaroo Island compared with 2009</td>
</tr>
<tr>
<td>RT1.13</td>
<td>By 2018 Narrow-Leaved Mallee vegetation has at least a 25% increase in plant understorey richness across at least 30% of the eastern critical vegetation zone of Kangaroo Island compared with 2009</td>
</tr>
<tr>
<td>RT1.14</td>
<td>By 2028 no additional taxa fulfil the criteria for inclusion on threatened taxa lists (SA &amp; national) due to their changing status on KI compared with 2009</td>
</tr>
<tr>
<td>RT1.15</td>
<td>By 2028 there are no endangered and critically endangered taxa due to their changing status on KI</td>
</tr>
<tr>
<td>RT1.16</td>
<td>By 2018 the net area of native vegetation communities on KI is maintained compared with 2009</td>
</tr>
<tr>
<td>RT1.17</td>
<td>By 2018 the integrity of areas of native vegetation &gt;100 ha is restored or maintained in areas of KI that are variegated or fragmented</td>
</tr>
<tr>
<td>RT1.18</td>
<td>By 2018 there is no net loss of vegetation condition compared with 2009</td>
</tr>
<tr>
<td>RT1.19</td>
<td>By 2028 there is no net loss of functional connectivity in aquatic ecosystems compared with 2009</td>
</tr>
<tr>
<td>RT2.1</td>
<td>By 2018 at least 80% of Kangaroo Island residents identify natural resources management as being highly relevant to themselves</td>
</tr>
<tr>
<td>RT2.2</td>
<td>By 2018 formal cooperative arrangements exist between all key Kangaroo Island organisations which have relevance to NRM</td>
</tr>
<tr>
<td>RT2.3</td>
<td>By 2018 a greater proportion of Kangaroo Island residents are members of community organisations which have relevance to NRM than in 2009</td>
</tr>
<tr>
<td>RT2.4</td>
<td>By 2018 a greater proportion of Kangaroo Island residents participate in organised NRM events than in 2009</td>
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<tr>
<td>RT2.5</td>
<td>By 2018 there is at least a 10% increase in efficiency in applying NRM investments compared with 2009</td>
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<tr>
<td>RT2.6</td>
<td>By 2018 the proportion of KI residents (&gt;15yo) who have post-school qualifications is greater than in 2009</td>
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<tr>
<td>RT2.7</td>
<td>By 2018 a greater proportion of residents have access to the internet than in 2009</td>
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<tr>
<td>RT2.8</td>
<td>By 2018 the number of visits to the Kangaroo Island NRM website is greater than in 2009</td>
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<tr>
<td>RT2.9</td>
<td>By 2018 there is an increased body of NRM knowledge for Kangaroo Island compared with 2009</td>
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<tr>
<td>RT2.10</td>
<td>By 2018 community participation in NRM planning has increased by 50% compared with 2009</td>
</tr>
<tr>
<td>RT3.1</td>
<td>By 2018 there is a reduction in direct urban storm-water discharge into Nepean Bay compared with 2009</td>
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<tr>
<td>RT3.2</td>
<td>By 2018 the per capita reticulated water usage is reduced compared with 2009</td>
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<tr>
<td>RT3.3</td>
<td>By 2018 there is an increase in the economic value of tourism per ML of water compared with 2009</td>
</tr>
<tr>
<td>RT3.4</td>
<td>By 2018 there is a proportional increase in visitation to managed tourist/recreation sites compared with 2009</td>
</tr>
<tr>
<td>RT3.5</td>
<td>By 2018 no new high-risk species of agricultural pest is established on Kangaroo Island compared with 2009</td>
</tr>
<tr>
<td>RT3.6</td>
<td>By 2018 there is a decline in landscape footprint of approved subdivisions compared with 2009</td>
</tr>
<tr>
<td>RT3.7</td>
<td>By 2018 there is a decrease in the water footprint of built development compared with 2009</td>
</tr>
<tr>
<td>RT3.8</td>
<td>By 2018 primary production matches land capability</td>
</tr>
<tr>
<td>RT3.9</td>
<td>By 2018 there is an increase in the economic value of horticulture per ML of water compared with 2009</td>
</tr>
</tbody>
</table>