

THE NORFOLK ISLAND STATE OF THE ENVIRONMENT REPORT 2016/17 - 2020/21

AND

NORFOLK ISLAND ENVIRONMENTAL ASSESSMENT

SUMMARY REPORT



INTRODUCTION & CONTEXT

Norfolk Island is a place of immense natural beauty. Due to its isolation, the community has traditionally relied, almost exclusively, on its natural resources to support the human population. For this reason, it is critically important to understand the environmental health of the island, and the resources that are extracted or generated from the land and sea. Planning for the community – from roads and ports to timber and rock – relies on accurate information. Environmental data also helps to identify measures to protect Norfolk Island’s endemic and agricultural environment. *State of the Environment* reporting is an established process undertaken by local governments and regions to understand trends in the natural environment. Information gathered for *SoE* reporting is dependent on regional context, with local governments establishing the most appropriate data and metrics for their local needs. For Norfolk Island, relevant environmental data was identified during the development of the *Environment Strategy* in 2018. The release of the *Norfolk Island State of the Environment Report* is the region’s first release of environmental data and achievements under this framework.

Data in the report is presented for the period 2016/17 to 2020/21.



Emily Bay © Norfolk Island Tourism

During this period, the Norfolk Island Regional Council also undertook to develop a broad-ranging assessment of the island’s environmental resources. **The Norfolk Island Environmental Assessment**, undertaken by Monash University and their associates, sought to collect critical information for the development of Sustainable Population Strategy for the island. This work was concluded in 2021, with an extensive report now released to the community, including a separate 8-page Executive Summary for readers to get a snapshot of the report. It is hoped that this information, along with the *SoE* and other data sources, will provide the essential inputs to develop a population strategy – a document identified in the NIRC Community Strategic Plan, which will support a review of the Norfolk Island Plan, the island’s strategic land use planning document.

Cover image: A birds nest in a tree on Norfolk Island © NIRC

This summary publication provides highlights of both the SoE and the Environmental Assessment, including key findings and recommendations. We hope the community find the information in both reports informative and seek to engage further with the island's environmental issues and opportunities.

Please get in touch with Council, if you wish to understand more about the reports and how Council aims to use the findings in future planning.

State of the Environment Report, 2016/17 to 2020/21

The SoE has been developed in accordance with the Norfolk Island Environment Strategy 2018. Data and information are presented across six key themes:

- 1 Energy, transport Utilities & Resources**
- 2 Waste**
- 3 Sustainable Food from the Land & Sea**
- 4 Clean Water in our Tanks and Marine Area**
- 5 Population Planning and Retaining Open Spaces**
- 6 Biodiverstiy**



SoE THEME 1

Energy, Transport, Utilities & Resources

NIRC achieved a milestone in February 2021 purchasing and installing a Tesla 1200 kWh Battery Energy Storage System (BESS), which will substantially reduce the island’s diesel requirements for electricity generation. Additional battery storage is planned for the near future, and smart meterage from properties around the island will mean that solar generation for homes and businesses can assist in driving down diesel generation further.

While the island’s water resource issues remain of critical importance, NIRC acquired a 20kL desalination unit to supplement the island’s water needs, particularly during extended dry periods, which has previously had significant impacts on the local community.

There continues to be a shortage of useable rock on the island, with no operational quarry or other sources of aggregate for use in construction. This presents an issue for local roads and the building industry. Plans to extract rock from Youngs Road at Cascade are well advanced and it is expected this project will resource the island’s rock demand for a 2 year period.

The island continues to source timber both locally and from New Zealand, primarily pine (local Norfolk Island pine or imported Radiata pine). Data on locally sourced pine was unavailable for this report, but it is understood that both local and imported timber contribute significantly to the local building industry.

Resource Facts

- Annual Average Diesel Importation – 1.93 ML
- Annual Average Diesel use for Electricity Generation – 1.46 ML
- Annual Average Petrol Importation – 1.21 ML
- Annual Average Timber Importation – 620 m3

Key Highlights



Tesla Battery Energy Storage System will substantially reduce diesel consumption



Desalination unit to supplement water supply



Timber resources are contributed to by both imported Radiate Pine and locally-grown Norfolk Island Pine



SoE THEME 2

Waste

NIRC made significant advancements in waste management during the reporting period. This was through acquiring a multi-purpose baler (2018), car baler (2020) and commercial composter (2020).

In 2018/19, Council diverted around 75% of the island's municipal waste from the Headstone Waste Facility, avoiding significant marine pollution as a result. This trend has continued to now, where only small amounts of waste (glass and butcher's waste) are deposited at Headstone. NIRC is required to stop this practice by January 2023 under a directive from Parks Australia.

Wastewater continues to be the focus for environmental protection on the island. Work has commenced to improve onsite wastewater management for properties around the island through improving standards in the Development Control Plan for Water (DCP 2). Council has also developed a business case for the replacement of the aging Sewage Treatment Plant (STP) and is seeking funding to make this change.

Community action on waste management has also been a major change during the reporting period. This was notable through the development of the Norfolk Wave Campaign, an effort to raise awareness of marine pollution, which is supported through an Our Marine Parks grant provided by Parks Australia.

Waste Facts

- Almost 600 tonnes of municipal waste was generated in 2020. This does not include construction, demolition and other bulky wastes previously disposed of at Headstone.
- Income from Waste Management Centre ticket sales has reduced over the reporting period (\$124,000 in 2017/18 to \$58,000 in 2020/21). This may correlate to an increase in backyard burning, with around 45% of respondents to a waste survey still practicing home waste burning of some type.
- 90% of butchers' waste and food scraps are now recycled through the Hotrot composter.
- Almost 100 tonnes of legacy asbestos waste was exported to the mainland in December 2020.
- 1,100 vehicle tyres are delivered to the WMC each year.

Key Highlights



Significant advancements in waste management over the past 4 years include multi-purpose baler, car baler and commercial composter



75% of municipal waste has been diverted from Headstone since 2018/19



90% of butchers' waste and food scraps is now recycled through the Hotrot composter



Community responsibility for waste has increased, influenced by Norfolk Wave Campaign



SoE THEME 3

Sustainable Food from the Land & Sea

A Food Security Strategy is currently under development for the island. This will seek to identify ways for the island to increase local food production, particularly through regenerative farming practices.

Biosecurity arrangements have been raised by the community, including management of pests and disease and the opportunity to import vegetable root stock and live ruminants.

Pests continue to have a significant impact on local agriculture, including impacts from Argentine Ant, Army Grub, Rats and crop-specific pests and disease.

Fishing remains a major part of the local food economy. The Norfolk Island Inshore Fishery Management Policy, originally developed in 2008, and developed between Australian Fisheries Management Authority, Norfolk Island Fishing Association and the former Norfolk Island Government, is understood to be getting updated.

Agricultural Facts

The island has:

- 4 major market gardens
- 2 honey producers
- 2 egg producers
- 1 coffee producer
- 1 mushroom producer
- 1 pork producer
- 1 duck meat producer
- 1 cow milk producer (ceased operation temporarily in April 2021)
- 1 goat milk (and other dairy products) producer
- Numerous commercial fishermen

Key Highlights



A Food Security Strategy is under development to identify ways to increase local food production



The Argentine Ant Eradication Program continues, with the majority of infestations now treated



Fishing remains a major source to the local food economy, along with market gardens, honey and egg producers



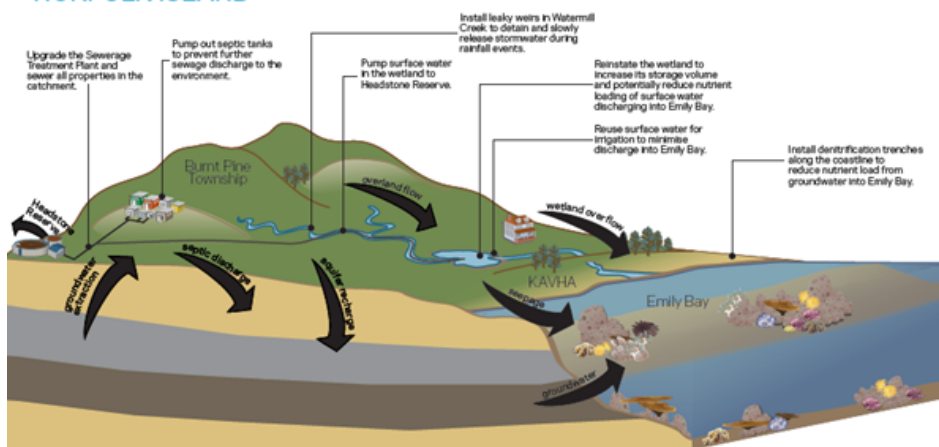
SoE THEME 4

Clean Water in our Tanks & Marine Areas

Protection of the island's waterways progressed during the reporting period, with cattle being excluded from many waterways in public reserves.

MANAGEMENT OPTIONS FOR EMILY BAY, NORFOLK ISLAND

Emily Bay is a critical tourist and environmental asset for Norfolk Island. However, a chronic loading of polluted groundwater, the uncontrolled release of contaminated surface water, and increased temperatures have resulted in significant algal overgrowth and coral bleaching in the Emily Bay reef. Immediate action is required to protect the reef from further damage.



BLIGH TANNER

Water quality in our surface and groundwater continues to be a major issue with failing septic systems and cattle grazing being the two primary factors impacting our waterways.

This has a big impact on the marine environment, particularly Emily and Slaughter Bays, which has been identified in several reports over recent decades.

Further work is required to improve the standard of onsite wastewater systems, which NIRC will be required to undertake with the community over several years.

Key Highlights



Increase in waterways on Norfolk Island now protected from cattle grazing



Water quality in Emily and Slaughter Bays continues to be impacted by poorly managed wastewater and cattle grazing



Water resources continue to be insufficient for the island, including water for community and agriculture



SoE THEME 5

Population, Planning & Retaining Open Spaces

Official numbers for the island's population are around 1,750 people, although this is likely to be much higher at present (approximately 2,100). This will be substantiated with the results of the Census conducted in 2021.

Climate change is having an effect on the ability of the island to support the resident population. Infrastructure improvements are critical to supporting the population, particularly regarding water and housing.

If there is to be an increased resident and visitor population, planning for additional pressures on resources such as water, transport utilities and telecommunications infrastructure is essential.

A network of nearly 10km of off-road tracks are well maintained in the National Park and Botanic Garden. There are approximately 6km of walking trails across Council land, including public reserves.

Key Achievements

- Development Control Plan – 'Kingston and Arthurs Vale Historic Area' prepared
- Contribution to development of NIRC 'Heritage and Culture Strategy', 'Environment Strategy', 'CSIRO Norfolk Island Water Resources Assessment Project'

Key Highlights



There are 19 public reserves on Norfolk & Nepean Islands



41% of the island's economy is based on tourism



Council's walking/bike paths increased by almost 1 km in 2017/18



SoE THEME 6

Biodiversity

Encouraging advancements have been made in native vegetation regeneration, particularly recently in 2020/21. This is following a substantial decline in native vegetation communities on Norfolk Island.

Woody weeds present a significant challenge in protecting local biodiversity. These include Hawaiian Holly, Red Guava and African Olive. This has been supported through Council's roadside weed control activities and recent efforts to remove weeds from Council's Reserves and the National Park.

Rats, cats, feral chickens and other introduced species continue to have a devastating effect on endemic species, including nesting seabirds and forest birds.

The Argentine Ant Eradication Program continues to make substantial headway in removing the ant pest from the island. It is hoped this program will continue with support from the Commonwealth Government for the coming years to reach full eradication.

Biodiversity Facts

- 46 native flora species (43 endemic)
- 15 native animal species (12 endemic)
- Several native endemic invertebrates including 60+ land snails
- Over 100 feral cats roaming the island (estimated to be 500 domestic cats)
- Almost 2 kilometers of additional waterways excluding free-roaming cattle

Key Highlights



Recent native vegetation regeneration efforts are doing very well



Council's weed control activities are helping protect local biodiversity



Feral animals continue to devastate local land and seabird species



Meryta latifolia one of the recovering threatened flora on Norfolk Island © Kevin Mills

ENVIRONMENTAL ASSESSMENT 2021

There are six (6) Chapters to the Environmental Assessment, conducted by Monash University and their colleagues from other research institutions and specialist consultants.

Chapters include:

1. Climate, Coastal Data, Land Use Capability Assessment (soils), Ecosystem/Biodiversity
2. Hydrological Assessment and Preliminary Water Balance
3. Norfolk Island's Waste Management System
4. Norfolk Island's Energy System
5. Norfolk Island's Food System
6. Thoughts and Remarks for Building a Resilient and Sustainable Future for Norfolk Island.

Key findings of the Environmental Assessment include:

Land Use

- Only 10 hectares of cultivated land at present, compared to 460 hectares in the 1830's
- 2,912 hectares of Norfolk Island is classed as moderate or very poor catchment condition, which correlates to significant biodiversity loss

Water

- As confirmed by the CSIRO Norfolk Island Water Sources Assessment (2020), the island's water security is under threat due to a reduction in rainfall and increasing temperatures
- Surface water in major creeks often exceed national guidelines after heavy rain, predominantly due to septic tanks and livestock access
- Up to 65% of buildings do not have 'optimised' roof to tank volume ratios to increase rainwater yields

Waste

- Waste management costs are significantly high, primarily due to export costs – at the time of the assessment, NIRC was spending \$454 per person each year to manage waste. This number is increasing due to more responsible waste management practices.
- The suitability of thermal treatment systems are not conclusive due to high costs, operational risks, pollution and ash generation

Energy

- There are abundant natural resources for the generation of energy – particularly solar and wind
- The island has substantially high diesel usage and costs for power generation compared to most communities

Food

- Progressive shift from local food supply to supply from a globalized food market
- A number of impediments to agri-food business including high energy costs, water scarcity and limited access to finance.

ENVIRONMENTAL ASSESSMENT 2021

Continued

While there are several recommendations from the Environmental Assessment, some of which Council is already implementing, NIRC has highlighted a number that would assist the Council and the community in achieving its key strategic goals into the future. Some of those which are not yet being implemented or budgeted for include:

- Use of virtual collars to manage free-roaming cattle for protection of waterways and grazing practices
- Development citizen science tools and digital applications for community awareness and education
- Increase use of leaky weirs and retention/detention devices across several landscapes to help with water recharge
- Optimise building and water tank arrangement to maximise rainwater yield for properties
- Implement a subsidising program for bio-based nappies to reduce the residual waste load generated by the community. Note – nappies a substantial proportion of the island’s general waste load
- Engage with businesses on-island to continuously reduce or remove packaging from products sold on-island
- Consider several renewable energy pilot projects such as rooftop solar and home battery bulk buys
- Consider the establishment of a Regenerative Farm Hub for the island, applying best practices in regenerative farming and focusing on resource efficiency, ecosystem regeneration, soil organic carbon, agrobiodiversity and crop diversification.
- Establish a Farm to School Program at Norfolk Island Central School
- Investigate the promotion of agri-ecotourism for the island to support farmers’ income and assist in supporting production of local food for residents and visitors.



Unrestricted cattle access is having an impact on the health of waterways and water quality

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