Regional State of the Environment Report Summary 2020

For the North Coast Region of NSW

October 2021

Regional State of the Environment Report Summary

2020

Published by North Coast Region State of the Environment Report Working Group
(on behalf of the participating councils)
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Cover Photo: Bellingen Shire Council

The authors would like to acknowledge the traditional custodians of the land reported on, including the Bundjalung, Yaegl, Gumbaynggirr, Dunghutti, Biripi, Bunyah, Nganyaywana and Ngarabal nations and their people, and pay respect to the Elders past and present and emerging of these nations.

Table of Contents

Introduction 05

01

01 People & the Environment **06**
1.1 Regional climate characteristics 07
1.2 Population characteristics and change 08
1.3 Climate change: reducing emissions & preparing for change 09
1.4 Surface water demand 13
1.5 Waste 15
1.6 Environmental levy 18

02

02 Biodiversity & Vegetation **19**
2.1 Ecologically functional landscapes 20
2.2 Native vegetation restoration 25
2.3 Conservation: reserves & agreements 26
2.3.1 Protection of Native vegetation 26
2.3.2 Council land-use zoning 27
2.4 Native Flora & Fauna 28
2.5 Invasive species 29
2.5.1 Invasive weed species 29
2.5.2 Invasive fauna species 30

03

03 Land & Soils **31**
3.1 Soil condition 33
3.2 Landuse 34
3.3 Funded land & soils management activities 35
3.4 Acid sulfate soils 35
3.5 Mining 36

04

04 Water **37**
4.1 Estuarine & freshwater rivers 38
4.1.7 River restoration works & riparian vegetation 45
4.1.8 Stormwater improvement works & WSUD 45
4.2 Wetlands -
4.3 Groundwater 46
4.4 Near-shore marine 47

List of Abbreviations

ASS	Acid sulfate soils
CMP	Coastal management program
CO_2	Carbon dioxide
CZMP	Coastal zone management plan
DISER	Department of Industry, Science, Energy and Resources
DCP	Development control plan
DPIE	NSW Department of Planning, Industry and Environment
EHA	Effective habitat area
EPA	Environment protection agency
GDE	Groundwater dependent ecosystem
ICOLL	Intermittently closed or open lakes or lagoons
IP&R	Integrated planning and reporting
LEP	Local environmental plan
LGA	Local government area
LiDAR	Light Detection and Ranging
LLS	Local land services
LULUCF	Land use, land-use change and forestry
MEMS	Marine estate management strategy
MPA	Marine protected area
NRAR	Natural resources access regulator
NRM	Natural resource management
OSMS	Onsite sewage management system
PNF	Private native forestry
RSoE	Regional State of the Environment Report
SLATS	State-wide land cover and trees study
SoE	State of the Environment report
WSP	Water sharing plan
WSUD	Water sensitive urban design
WWTP	Waste water treatment plant

Introduction

This Regional State of the Environment 2020 (RSoE) is the third prepared for the North Coast Region of New South Wales (NSW). It involved collaboration between the 12 general purpose councils (councils) along the Region's coast, from Port Macquarie-Hastings Council in the south to Tweed Shire Council in the north, including Lismore and Kyogle councils, and Rous County Council. It aims to report on environmental condition at both a regional and local level from 2012 to 2020. This condition information may inform the community and local and state governments on key pressures acting on the environment, and responses to those key pressures.
This **condition–pressure–response** information can be used to increase community awareness of environmental issues, and to guide natural resource managers in prioritising and addressing management actions.
This document is a summary for the 2016 to 2020 reporting period.

Image: Map of North Coast Region of NSW

AIM: To increase community awareness of environmental issues, and to guide natural resource managers in prioritising and addressing management actions

01 People & the Environment

Photo: Bellingen Shire Council

1.1 Regional climate characteristics

Photo: Coffs Harbour City Council

KEY FACTS

Hottest
year on record
for Australia
2019

Driest
year on record
2019

Highest Sea Surface Temperatures
on record
2019

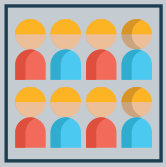
Drought
Whole of NSW
declared
August 2018

Bushfires
started in North
Coast region
July 2019

Floods
impacted
the region
2013
2015
2016
2017 &
2020

1.2 Population characteristics & change

KEY FACTS



Highest Population Growth

Port Macquarie Hastings and Byron LGAs at over

17%

since 2009

Highest Population Density

Ballina

93 People

per square kilometre

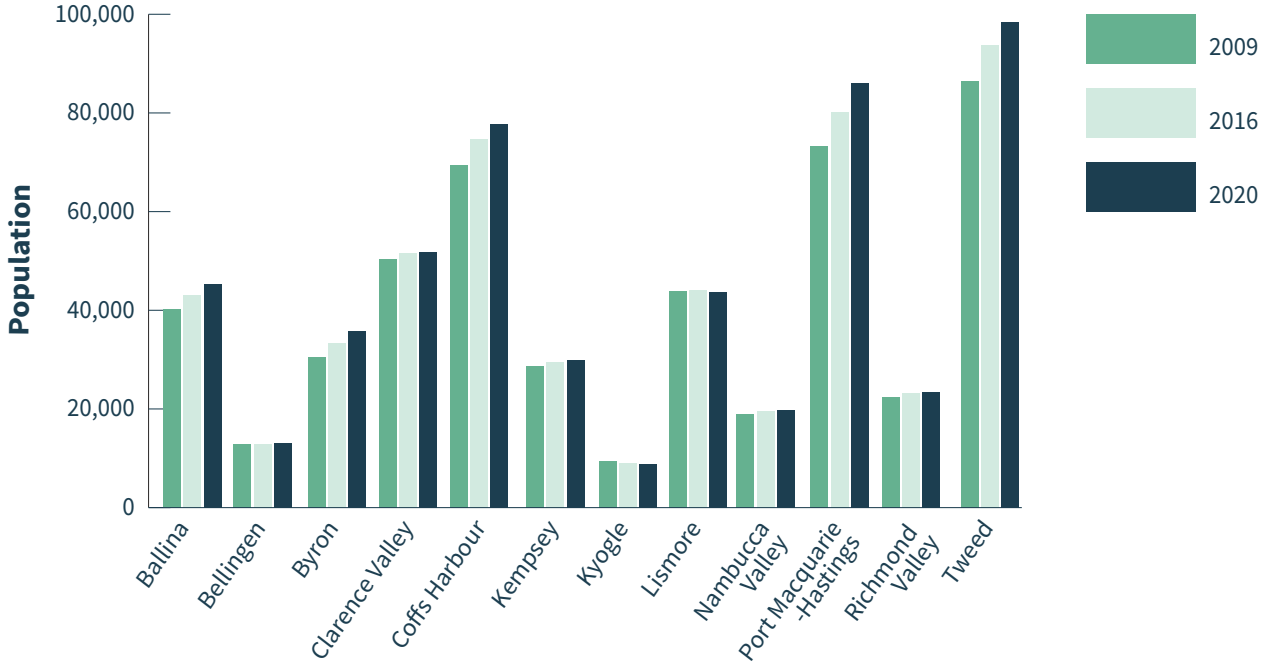
Lowest Population Density

Kyogle

2.5 People

per square kilometre

Population by local government area from 2009-2020



- Port Macquarie-Hastings had the highest increase in population over 10 years at **17.2%** followed closely by Byron at **17.1%**
- Both were above the NSW 10 year average of **15.5%** population increase.
- Tweed, Ballina and Coffs Harbour also had substantial population increases over 10 years at **13.7%**, **12.2%** and **12%** respectively.
- Kyogle and Lismore experienced a slight decline in population over 10 years.
- Population density is highest in Ballina at 93 people per square kilometre, followed by Tweed at 75, Coffs Harbour at 66, and Byron at 63.
- Kyogle has the lowest at 2.5 people per square kilometre, with Clarence Valley at 5, and Richmond Valley at 7.7.

1.3 Climate change: reducing emissions & preparing for change

KEY FACTS

Atmospheric carbon dioxide (CO_2)

Atmospheric carbon dioxide concentrations have been measured at Cape Grim, Tasmania since 1976 and continue to increase.

2012
388.8 ppm
(parts per million)

2020
410 ppm
(parts per million)

Australia's Greenhouse Gas Emissions
(megatonnes carbon dioxide equivalent – Mt CO_2-e)

2007
peak emissons at
632.93
Mt CO_2-e

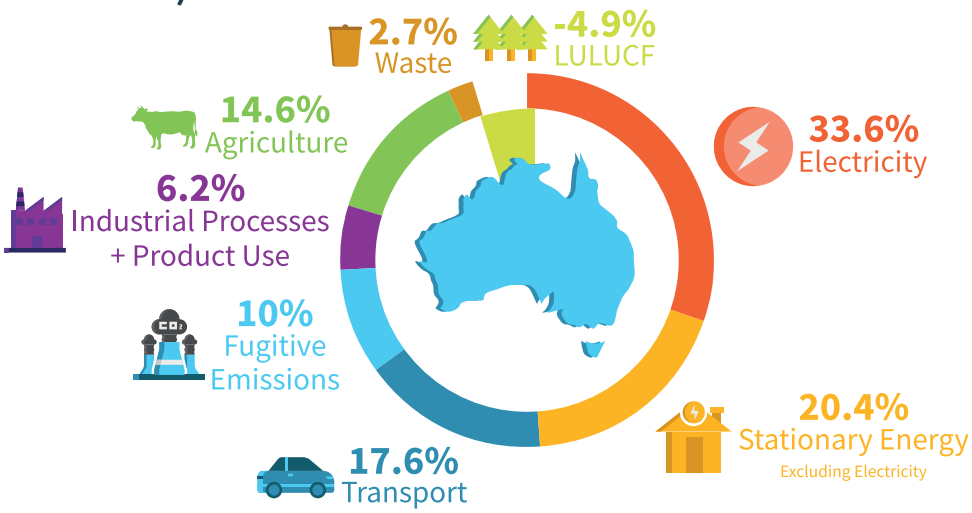
Bushfires increased NSW CO_2 emissions in December
2019
NSW alone emitted
181
Terragrams CO_2-e
(10 times the average monthly emissions)

2020
lowest emissons in 31 years
499
Mt CO_2-e
(the COVID19 effect!)

Australia's annual total greenhouse gas emissions peaked in 2007 at 632.93 Mt CO_2-e. Since our reporting began in 2012, the annual emissions have decreased from 546.8 Mt CO_2-e in March 2012 to 513.45 Mt CO_2-e in June 2020, down to 499 Mt CO_2-e in December 2020 – the lowest level in 31 years. This was due to the ongoing steady decrease in emissions from electricity, a drop in fugitive emissions from reduced coal production, and the impacts of COVID-19 reducing transport emissions, which fell 12% from 2019 (source: DISER 2021).

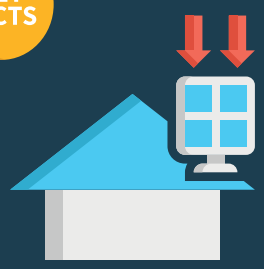
Electricity use continues to be the greatest contributor to emissions in Australia.

Figure 4: Share of total emissions, by sector, for the year to December 2020 (Source: DISER 2021)



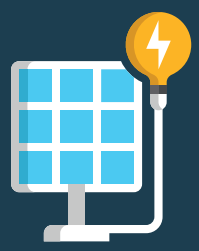
Total Electricity Consumption

KEY FACTS



30-43%

of buildings have solar installations in the North Coast Region of NSW, up by 33% across most LGAs since 2016.



10%

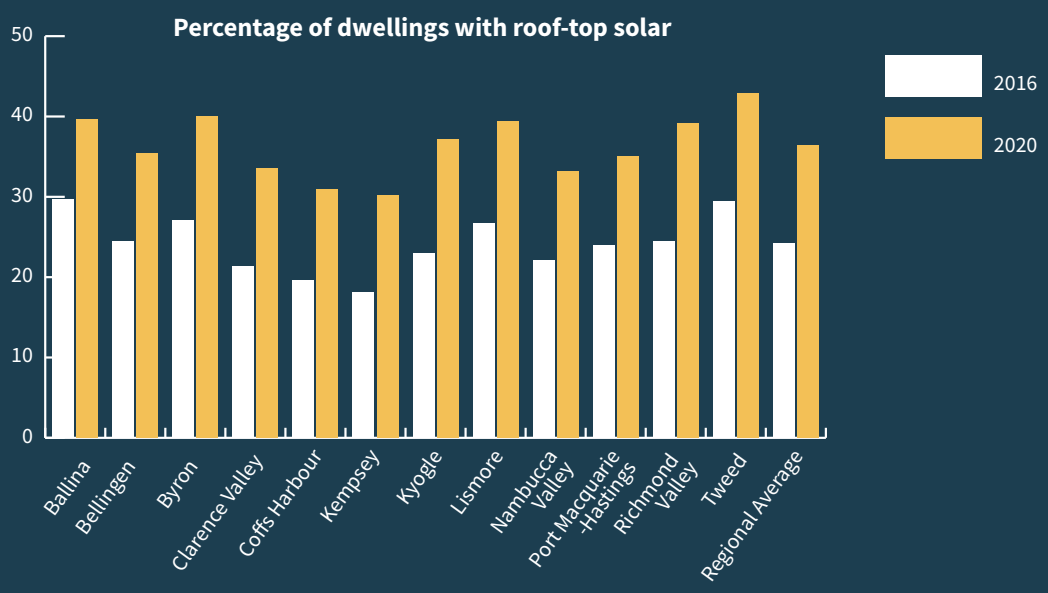
of the region's electricity comes from solar.

2020

Total electricity generated by solar sent back to the grid was 225,658 megawatt hours.

Renewable energy from roof-top solar installations now provides 10% of total electricity consumption for the north coast region, up from 4% in 2014. Note this does not include the rooftop solar energy used by each solar household or business.

Total electricity consumption from the grid has remained steady since 2014 due to the increased number and capacity of solar installations.



Each Council's electricity and fuel consumption

has been collected since 2010 in most cases. For all Councils, emissions from general electricity consumption are the largest contributor to total greenhouse gases (75% on average), usually followed by fuel (17%) and street lighting (8%).

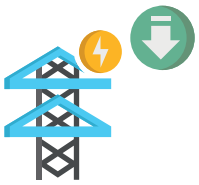
Almost all councils have adopted targets for renewable energy and/or policies for net zero emissions by certain dates, with some investing in multiple large solar installations, purchasing green power, and transitioning their fleet to hybrid and electric vehicles. Byron Council has a 100% carbon neutral electricity agreement, thereby offsetting nearly 100% of electricity emissions. Rous County Council generates enough solar power to run their administrative premises.

The following graph show emissions by source for each council

General trends show:

KEY FACTS

All councils have reduced street lighting emissions due to LED retrofits.



Electricity use from the grid is decreasing due to increased solar installations.

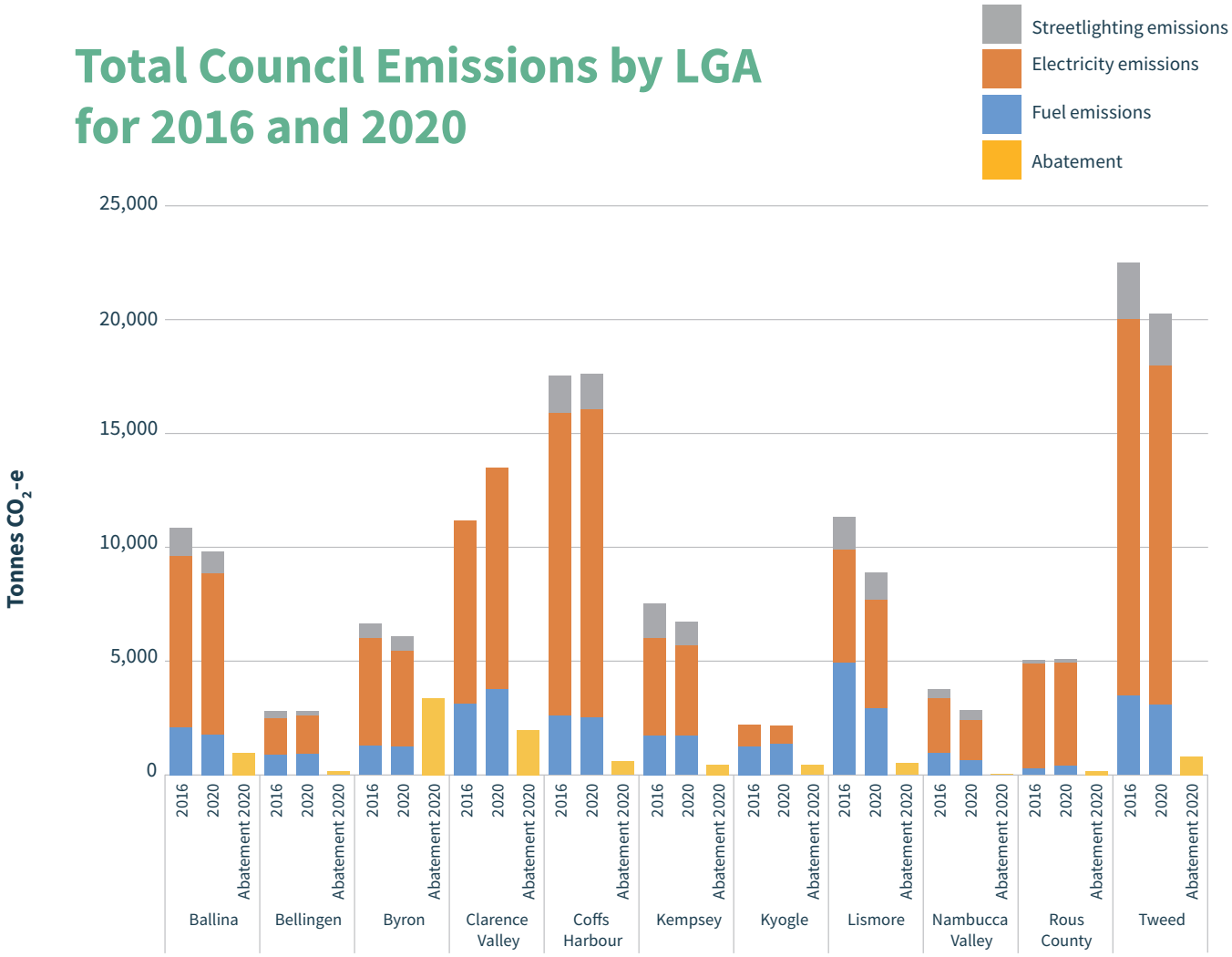
Fuel use is variable and often increases when large works are required such as road repairs after flood.

Abatement measures are now showing a real impact on reducing emissions for some councils.

*Note that waste and waste water emissions are not included.

Photo: Bellingen Council

Total Council Emissions by LGA for 2016 and 2020



Progress towards net zero emissions for each Council

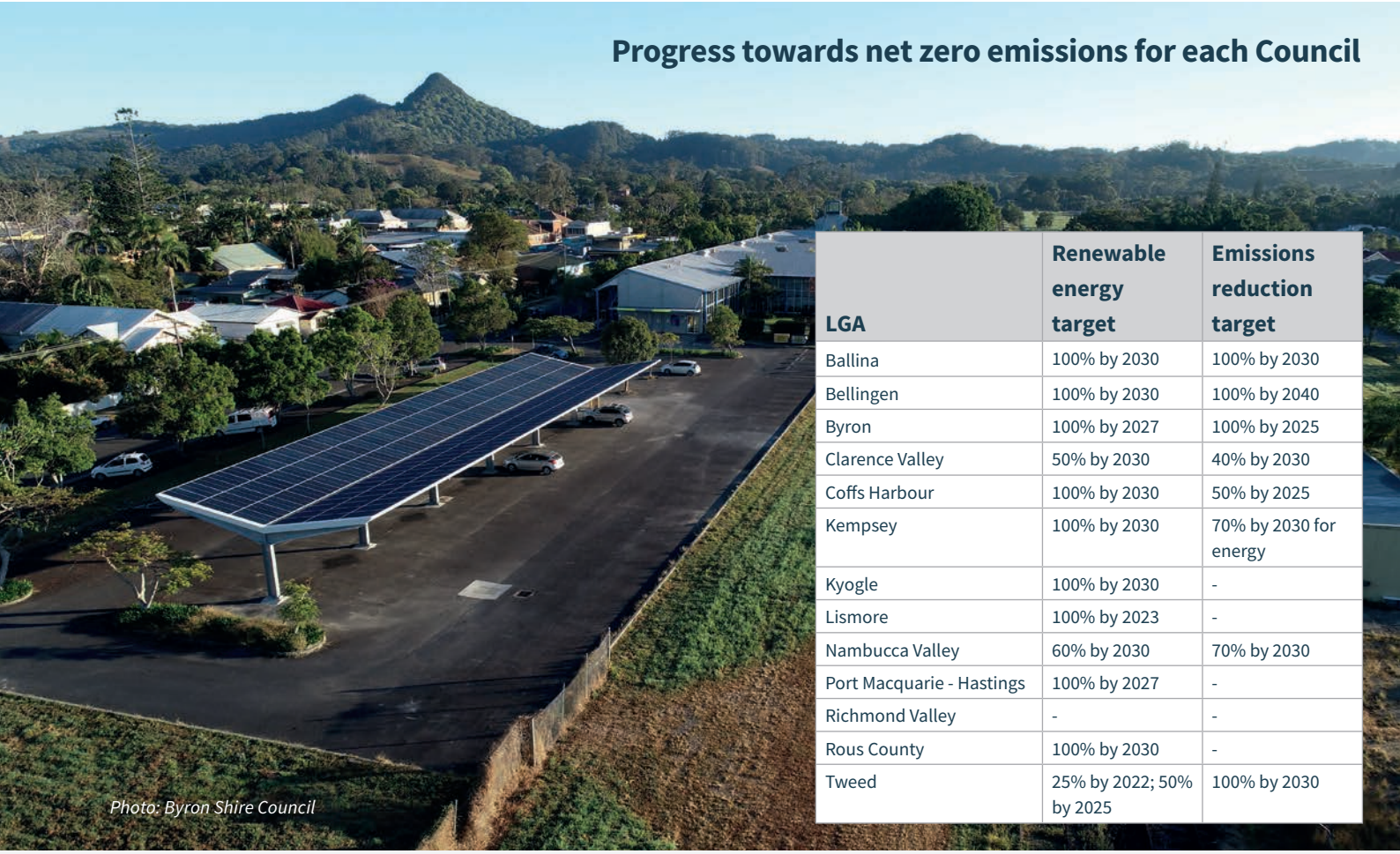


Photo: Byron Shire Council

LGA	Renewable energy target	Emissions reduction target
Ballina	100% by 2030	100% by 2030
Bellingen	100% by 2030	100% by 2040
Byron	100% by 2027	100% by 2025
Clarence Valley	50% by 2030	40% by 2030
Coffs Harbour	100% by 2030	50% by 2025
Kempsey	100% by 2030	70% by 2030 for energy
Kyogle	100% by 2030	-
Lismore	100% by 2023	-
Nambucca Valley	60% by 2030	70% by 2030
Port Macquarie - Hastings	100% by 2027	-
Richmond Valley	-	-
Rous County	100% by 2030	-
Tweed	25% by 2022; 50% by 2025	100% by 2030

1.4 Surface water demand

KEY FACTS

Residential Water Use

dropped in 2019-20 for 10 of 12 LGAs during the very dry 2019. Byron showed an increase of 9%, with Kyogle increasing by 5%.

Non-residential Water Use

remained high or increased during 2018-2019 in Byron, Kyogle, Nambucca, Richmond Valley and Kempsey LGAs by over 15% since 2016.

Water Restrictions

All councils introduced water restrictions during the drought declared years in 2018-2020, with some at Level 4 – severe.

Imported Water

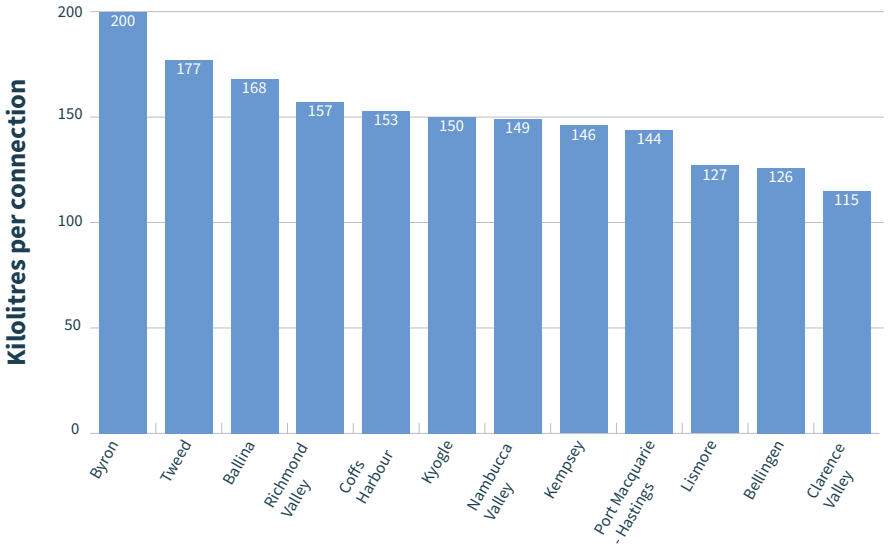
Kyogle Council imported water from outside the region during the 2017/18/19 drought.

Water Supply Impact

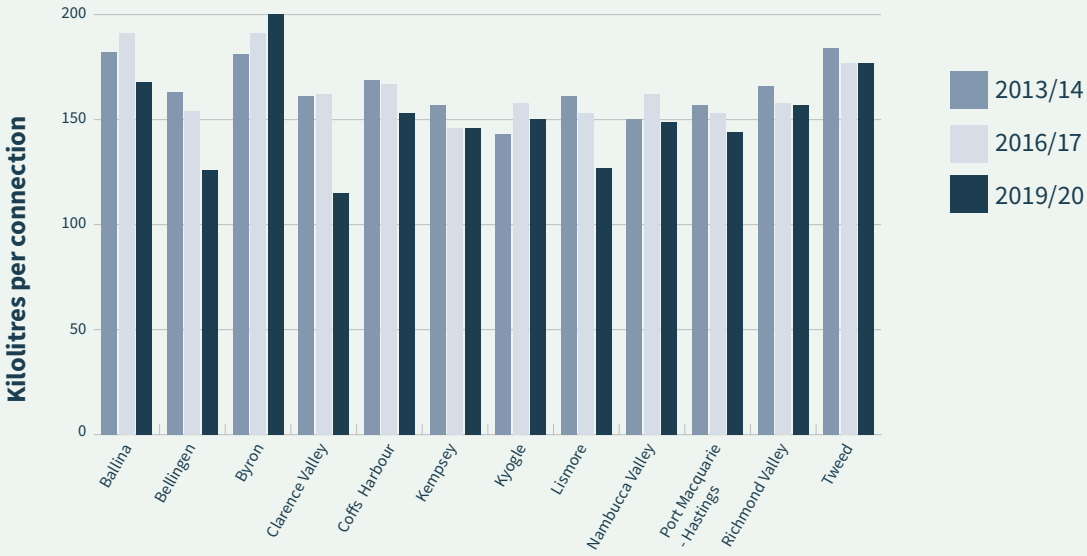
The 2019 bushfires impacted water supply catchments in the region, including Rous County Council's Emigrant Creek catchment which supplies four LGAs, and Clarence Valley's Shannon Creek dam supplying two LGAs.

Photo: Upper Macleay River - Paul Koch

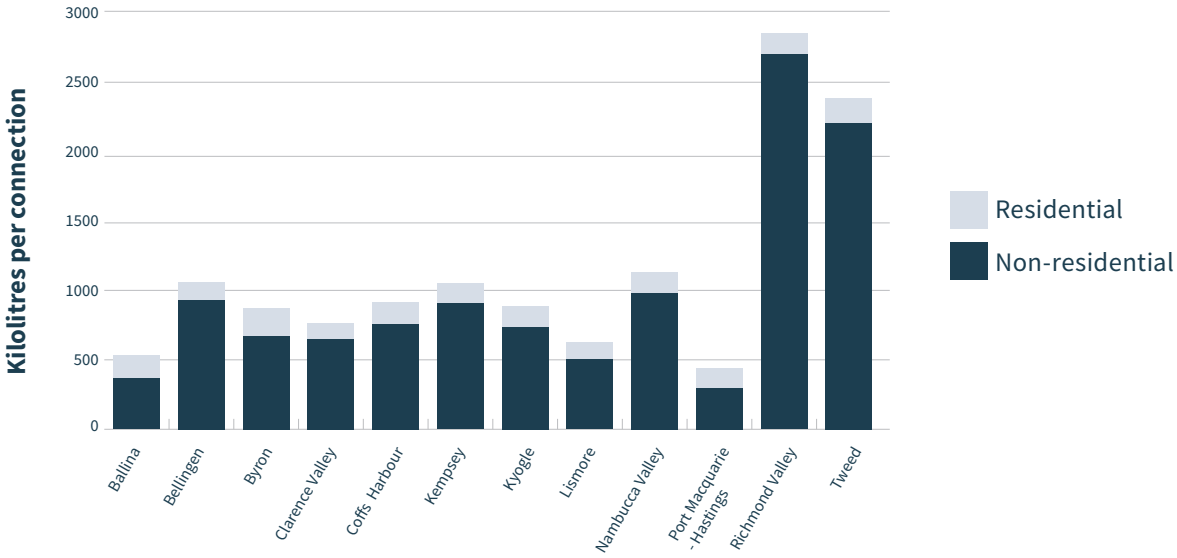
Residential Water Use - Kilolitres per connection 2019/20



Residential Water Use - Kilolitres per connection



Residential Versus Non-residential Water Use - 2019/20



1.5 Waste

KEY FACTS

Waste Data
is variable so trends are difficult to identify

50% On average, 50% of **total waste**

+

59% **domestic waste** recycled/reused and has remained steady since 2012

Natural disasters
and legislative changes substantially increase the amount of waste produced

Many LGAS are **nearing capacity** for their landfill sites

The **container deposit scheme** has shown a reduction in bottles on beaches and in waterways for the North Coast Region

Trends show an increase in construction/demolition waste to landfill in recent years

Photo: Hat Head - Paul Koch

Waste is a key issue for the north coast region with many landfill sites nearing capacity, pressure to find better ways to manage our waste, and the need to reduce greenhouse gas emissions from landfill. Trends are difficult to identify in the waste data as it is variable, and natural disasters cause large inputs into waste facilities. For example, in 2013, Ballina's storms increased green waste by 12,000 tonnes, in 2016 floods added waste to landfill for many LGAs, and the 2019-20 bushfires impacted Clarence Valley Council's waste more than any other LGA in the region despite hazardous waste such as asbestos being removed to separate facilities under the NSW Government's clean up. Coffs Harbour's biomass facility had a fire in 2016 which closed it for 10 months, resulting in much of Nambucca Valley, Bellingen and Coffs Harbour waste going to landfill.

Additional pressures to landfill came in late 2018 when the NSW Environmental Protection Authority (EPA) revoked the recovery of organics from mixed waste (ie red bins) for use in composting due to risks associated with chemical and physical contaminants.

For total waste generated in 2020, Bellingen, Nambucca Valley and Coffs Harbour had the highest rates of diversion from landfill at 68%, 67% and 60% respectively, while Kyogle and Clarence Valley had the lowest at 26% each. However, the waste data is of low confidence and is impacted by natural disasters.

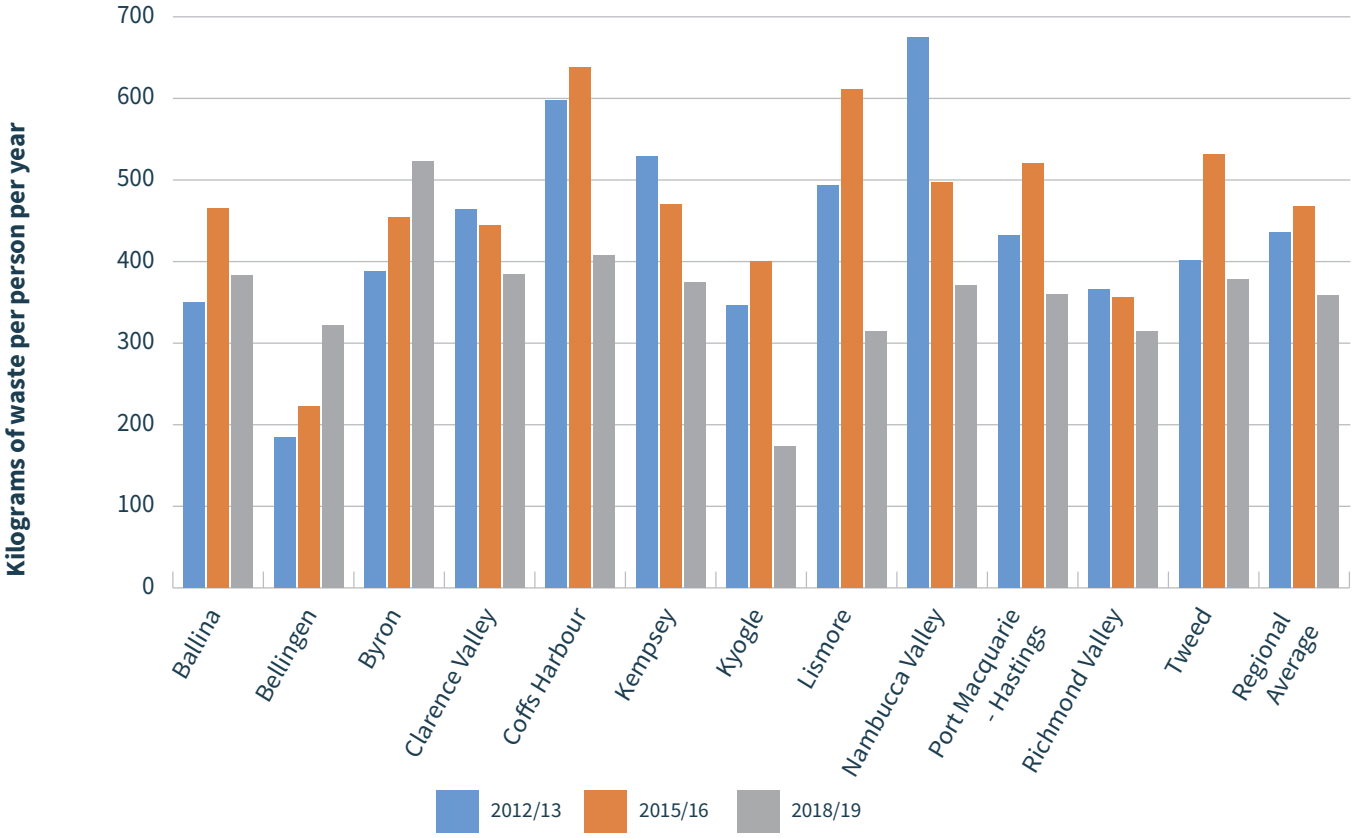
For domestic waste only in 2020, Bellingen, Nambucca Valley and Coffs Harbour again had the highest rates of diversion from landfill at 73%, 71% and 72% respectively, while Kyogle and Kempsey had the lowest at 29% and 35%.

Per capita domestic waste shows a decreasing trend since 2012, dropping from a regional average of 435 kilograms of waste per person in 2012 to 358 in 2019. In 2020, Byron and Coffs Harbour have the highest per capita domestic waste rates, with Kyogle by far the lowest, followed by Lismore, Richmond Valley and Bellingen.

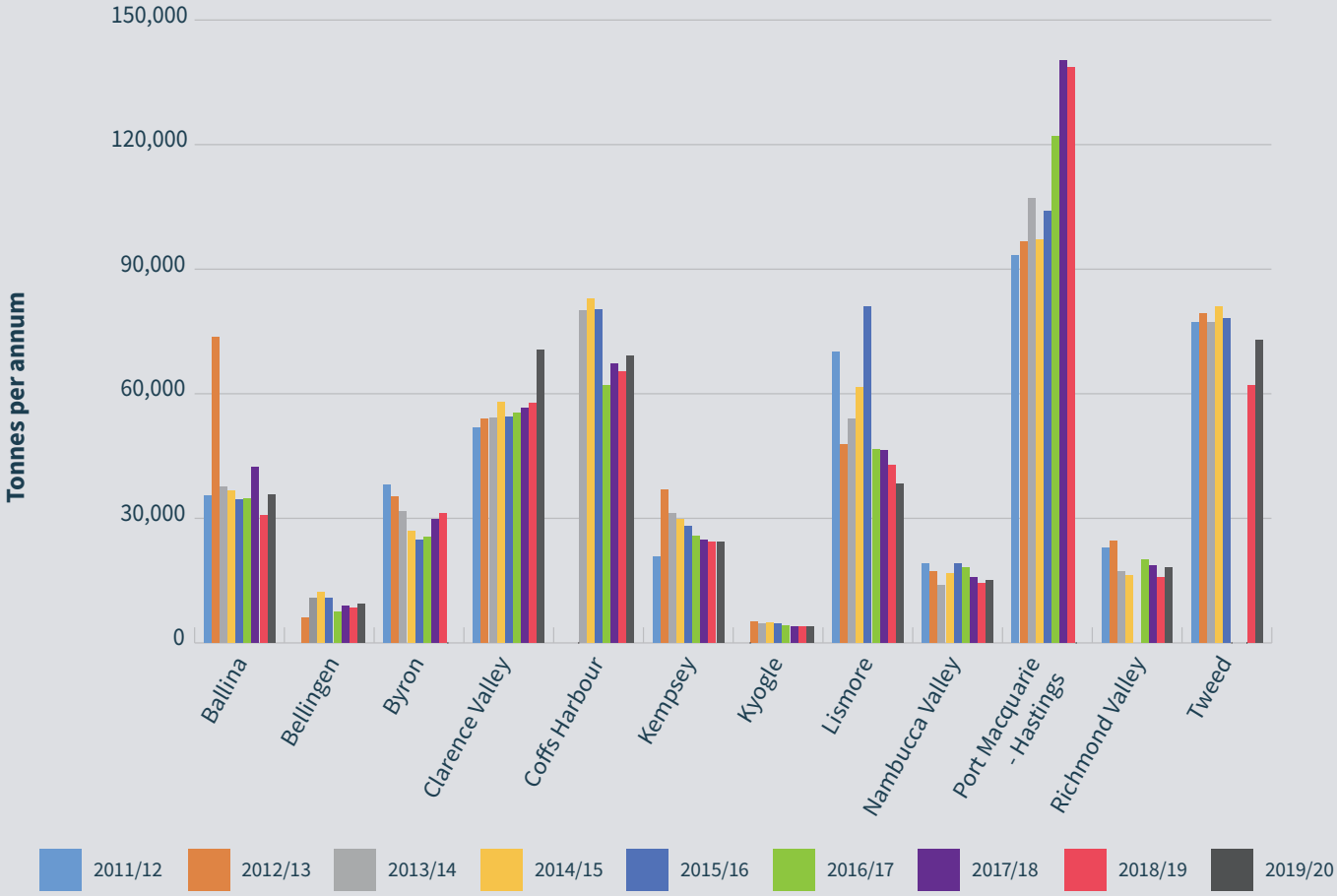
The container deposit scheme was introduced in NSW in 2018, and collected 44.2 million bottles and cans in its first 6 months for the North Coast Region. This has increased to 86.3 million bottles and cans in the first 6 months of 2020. This program has contributed to fewer bottles and cans on beaches and in waterways in recent litter and debris research which is still ongoing (see section 4.1).

Photo: Bellingen threatened species tree planting day - R Dwyer

Per capita domestic waste generated in 2013, 2016 and 2019 in kilograms kerbside collection only



Total waste generated in tonnes by year and LGA



1.6 Environmental levy

KEY FACTS

8 of 12

North Coast region Councils has an environmental levy

2020

$5 million dollars raised from environmental levies

8 of 12 councils in the region have a levy on rates to fund environmental works and programs either conducted by council themselves or used to fund community and other projects to carry out necessary on-ground works.
Some councils have other levys such as stormwater levys to fund other works that benefit the environment.

Environmental Levy Funding 2020

LGA	$ 2019 - 20
Ballina	$323,100
Bellingen	$246,900
Byron	$401,164
Clarence Valley	no levy
Coffs Harbour	$1,300,000
Kempsey	$814,308
Kyogle	no levy
Lismore	$578,260
Nambucca Valley	$425,000
Port Macquarie - Hastings	$875,800
Richmond Valley	no levy
Rous County	no levy
Tweed	no levy
TOTAL	$4,964,532.00

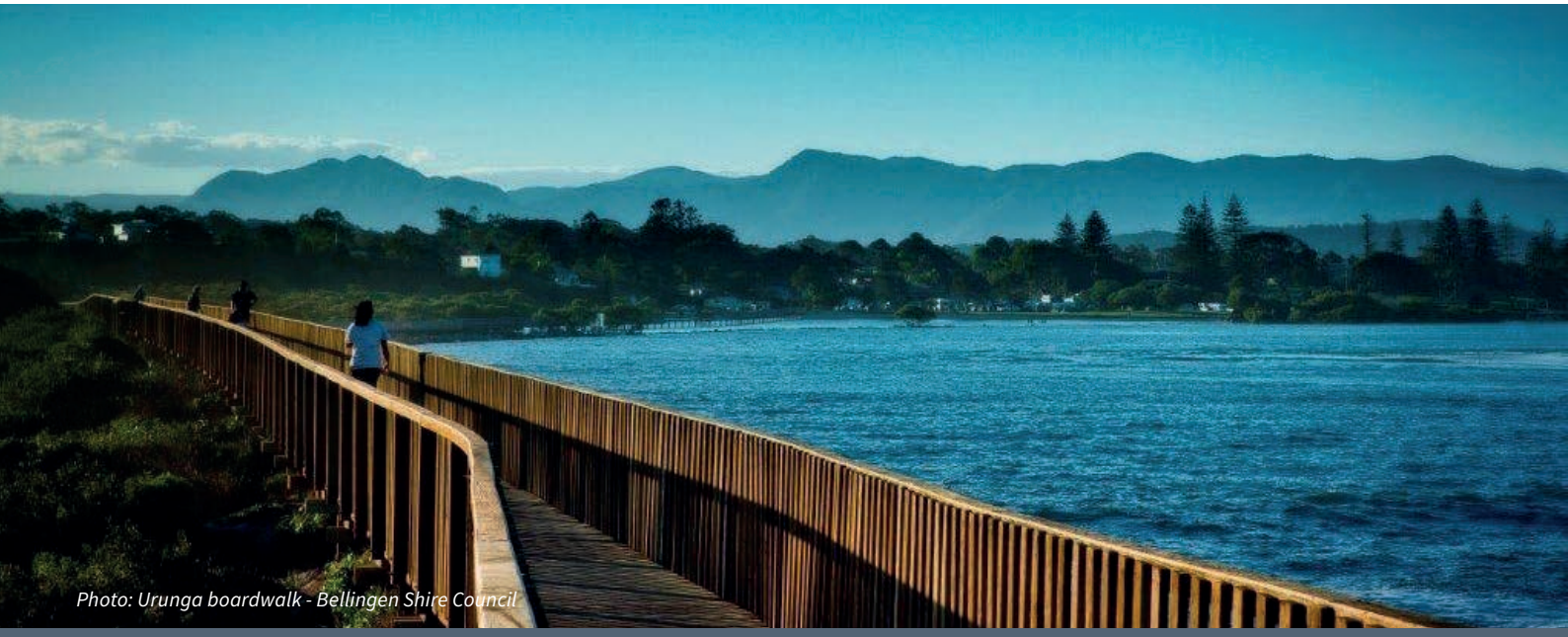
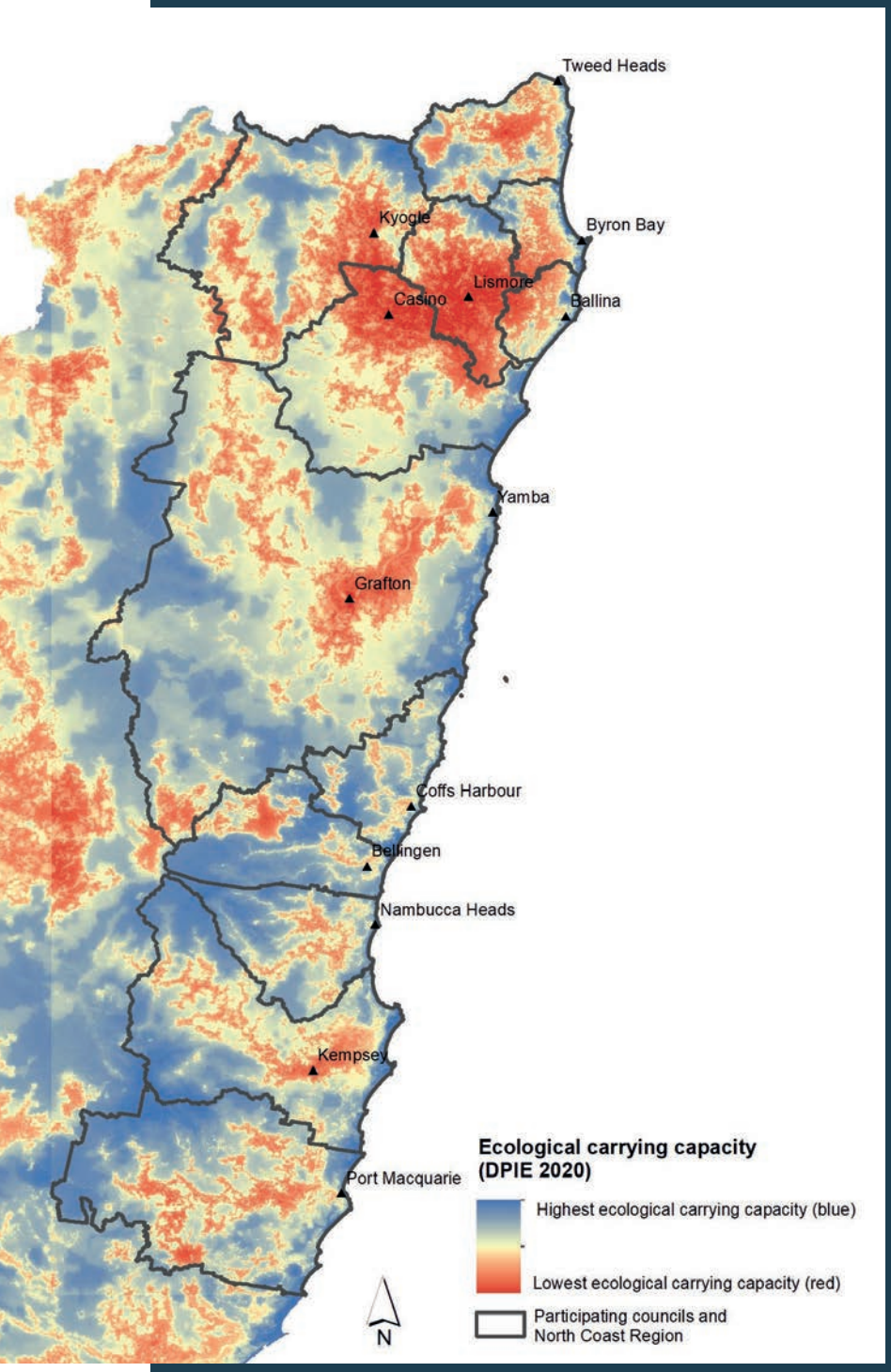


Photo: Urunga boardwalk - Bellingen Shire Council

02 Biodiversity & Vegetation

Photo: Brett Vercoe

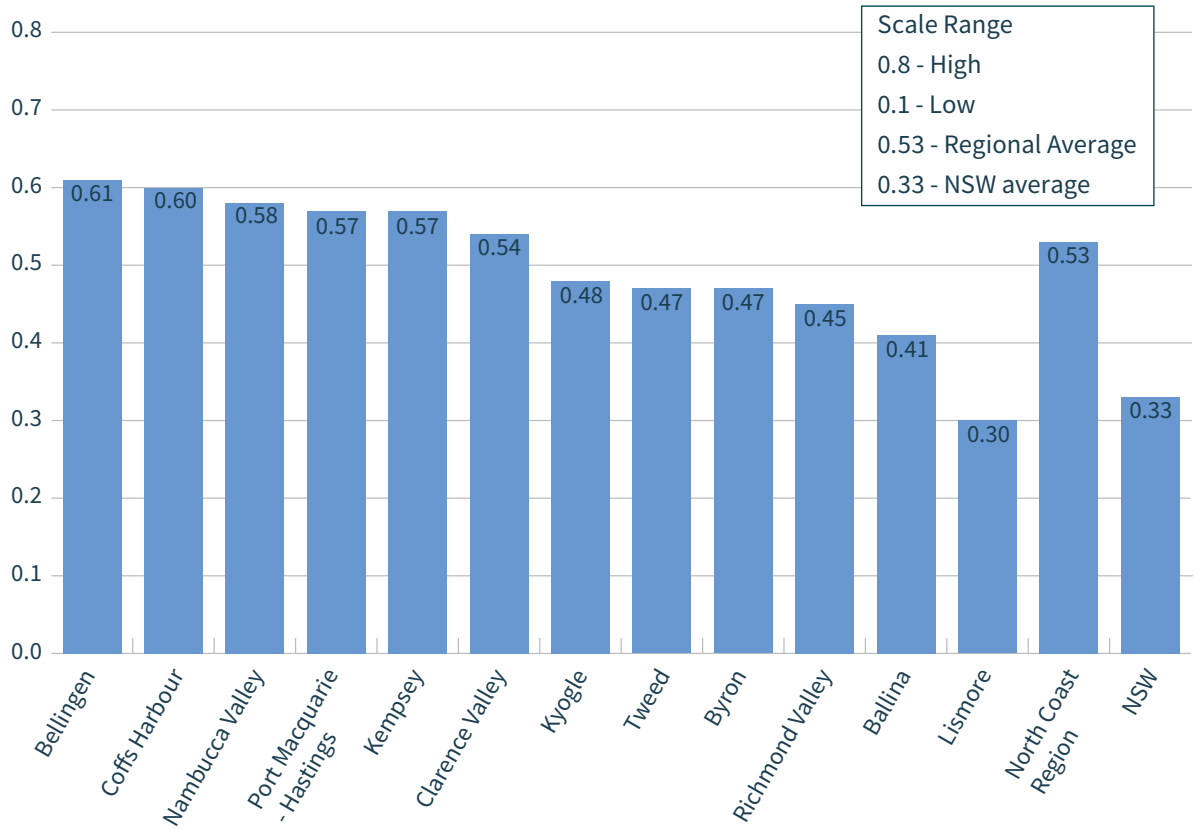
2.1 Ecologically functional landscapes



The data reported on in the 2012 and 2016 reports has not been updated since then. However, a new method for measuring habitat condition was developed in 2017 after the introduction of the NSW Biodiversity Conservation Act 2016 in order to monitor changes. The indicator reported on here is ecological carrying capacity, which is defined as "the ability of an area to maintain self-sustaining and interacting populations of all species naturally expected to occur there, given the habitat resources, such as food and water, and connections to other habitat, needed for persistence". (DPIE 2020)

Results from this modelling are summarised below by LGA and for the region:

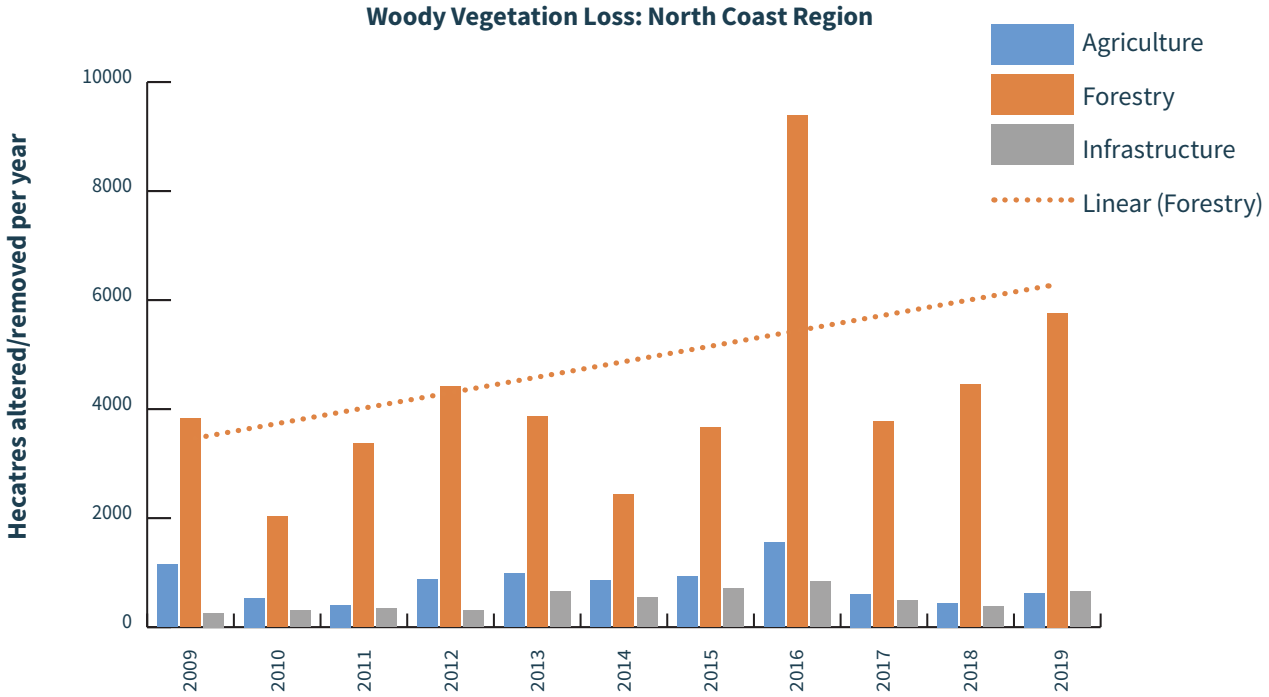
Ecological carrying capacity



The modelling indicates the northern LGAs have a below-average score for ecological carrying capacity, with Lismore being the lowest at 0.30 – below the NSW average of 0.33 – primarily due to historical clearing and smaller protected areas. The southern LGAs are above the regional average and the NSW average, with the third highest values in the state (DPIE 2020).

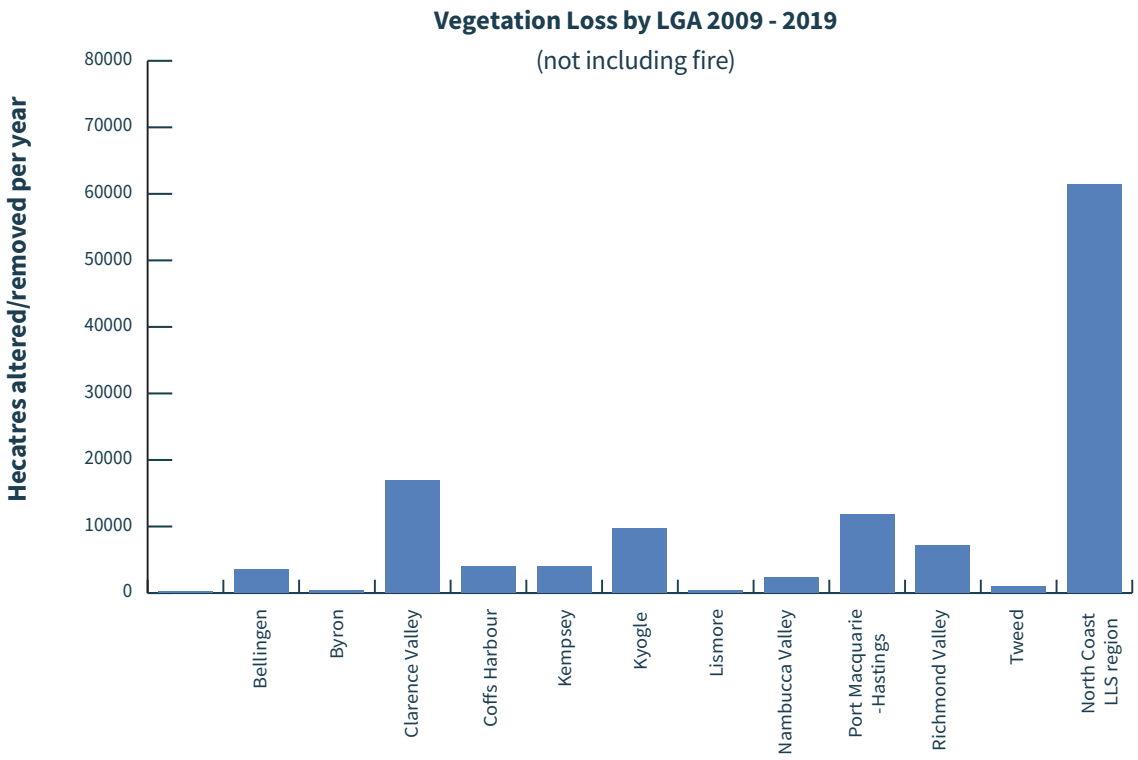
Photo: Tiger quoll (top left) - Brett Vercoe, Yellow-bellied glider (bottom left) - Coffs Harbour City Council, Brush-tailed rock-wallaby (right) - Brett Vercoe

Net Vegetation Change

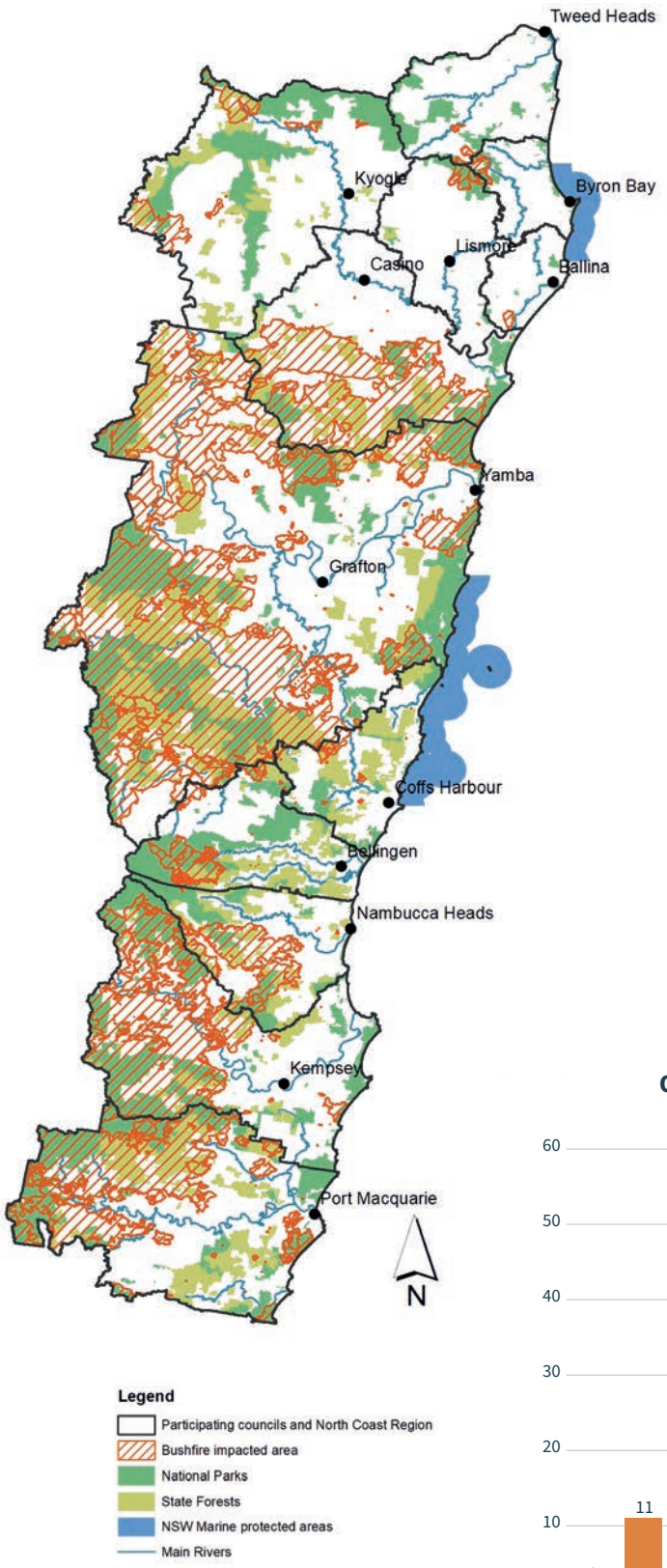


2016

2016 saw a significant increase in vegetation clearing NSW-wide which has remained above the average of the previous 10 years since then, which was under a different legislative framework (DPIE 2021).
The LGAs with the highest level of vegetation loss are Clarence Valley and Port Macquarie-Hastings, Kyogle, then Richmond Valley. A significant increase in vegetation loss was observed in these LGAs from 2016 with the change in legislation.



Bushfires 2019-2020



KEY FACTS

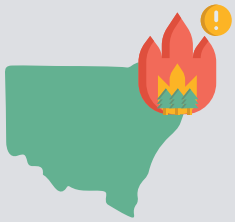
In 2019/20

34%

of entire north coast region was

BUSHFIRE-IMPACTED

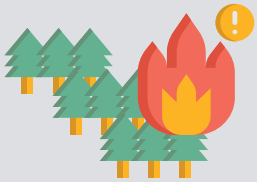
over 1 million hectares.



51%

of region's National Park area was

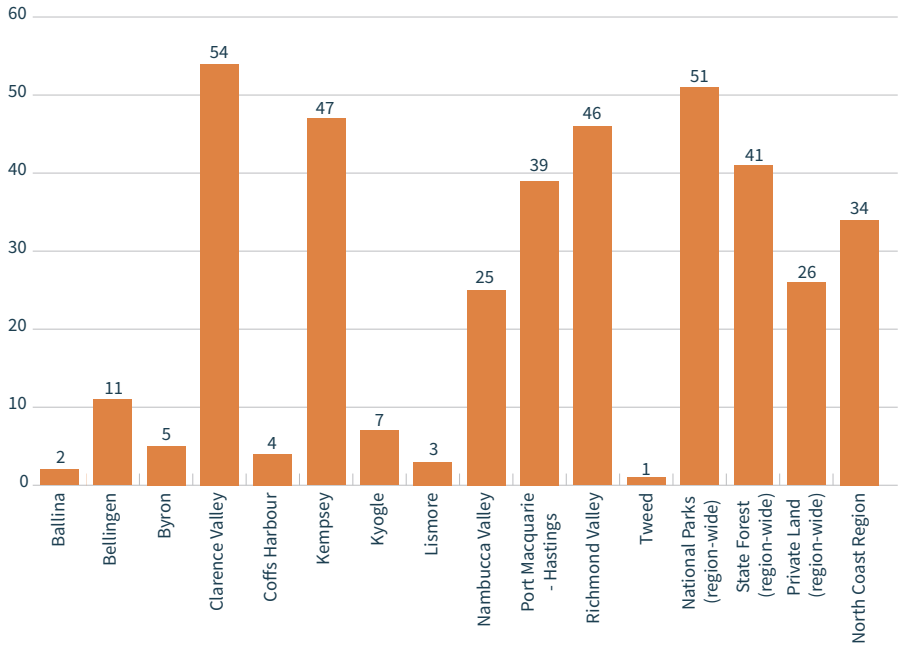
BUSHFIRE-IMPACTED



The 2019-20 bushfires impacted 1,098,479 hectares of bushland in the North Coast region of NSW. Clarence Valley topped the region for bushfire impact with 562,603 hectares burned, or 54% of the LGA, followed by Kempsey with 160,072 hectares burned or 47% of the LGA, then Richmond Valley with 140,692 hectares or 46% burned, and Port Macquarie-Hastings with 142,283 hectares or 39% burned.

Mapping shows the extent of the bushfires, and the land tenure. 51% of the Region's National Park was impacted (337,300 hectares), 41% of the Region's State Forest (266,800 hectares), and 494,400 hectares or 26% was private land.

% Land bushfire-impacted 2019-20



Private Native Forestry

Private native forestry (PNF) is an approved form of forestry on private land. Landholders must apply for a PNF plan approval under the *Local Land Services Act 2013*. There continues to be concern that approvals are being given for areas designated as koala habitat under gazetted koala management plans, and for areas of rainforest, and that PNF is inappropriate in areas with very poor habitat particularly post the 2019-20 bushfires.

Data for the 2016-2020 period has not been made available by LLS for this report.

Area of Private Native Forestry approvals by year and LGA (source: EPA 2016)

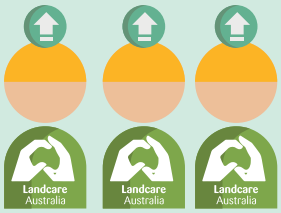
LGA	2007	2008	2009	2010	2011	2012	2013	2014	2015
Ballina	-	-	-	-	25	14	49	-	-
Bellingen	17	1,398	947	794	1,786	1,381	377	554	280
Byron	-	-	-	-	59	94	85	-	-
Clarence Valley	4,655	22,859	35,663	17,561	22,793	16,804	9,684	9,921	2,364
Coffs Harbour	32	881	1,100	1,229	610	797	604	570	11
Kempsey	1,950	4,460	2,789	2,190	2,076	2,345	3,182	1,649	91
Kyogle	1,728	3,016	4,022	3,287	3,079	3,628	1,241	2,433	12
Lismore	-	397	150	176	34	259	59	-	-
Nambucca Valley	785	1,091	2,094	1,415	1,765	1,383	714	704	267
Port Macquarie - Hastings	1,428	3,288	1,381	2,986	2,790	2,548	1,336	1,664	1,259
Richmond Valley	6,146	8,026	5,634	2,808	2,650	4,506	2,877	2,571	507
Tweed	-	139	124	215	11	79	274	20	-
Total Area (Ha)	**16,741**	**45,555**	**53,904**	**32,652**	**37,678**	**33,838**	**20,482**	**20,086**	**4,791**

Photo: Bellingen Shire Council

2.2 Native Vegetation Restoration

KEY FACTS

Landcare Volunteers
contribute the equivalent of
35
full time positions each year!



325
Landcare Groups
working on
community proprieties

5,500
Landcare Members
Region-wide

Over
4,000
Hectares
of land rehabilitated
annually in the Region

External Grant Funding
is essential for habitat
rehabilitation projects

Councils, Landcare Groups & Local Aboriginal Land Councils
all collaborate on environmental
projects rehabilitation projects

LGA or County Council	Annual average area restored (ha)	Annual average trees planted	Volunteer hours*
Ballina	775	5,540	9,000
Bellingen	210	1,800	500
Byron	265	2,500	9,000
Clarence Valley	500	2,000	2,500
Coffs Harbour	1050	3,000	12,000
Kempsey	200	500	2,000
Kyogle	50		2,300
Lismore	210	7,000	6,500
Nambucca Valley	260	1,000	2,000
Port Macquarie - Hastings	500	400	10,000
Richmond Valley	50		2,000
Tweed	100	1,500	7000

* Volunteer hours are estimates based on approximate volunteer numbers and working bee days and may be underestimated

Each LGA manages its own public land, and works on both public and private land are achieved through the work of Councils and the various Landcare groups, the Local Aboriginal Land Councils and other community groups. Vegetation rehabilitation is dependent on external grant funding in most cases, from organisations such as North Coast Local Land Services, NSW Environmental Trust, NSW DPIE Fisheries, Saving our Species program, and the Australian Landcare Program among others. Works target riparian rehabilitation, weed control, revegetation, livestock exclusion fencing, wetland and dune rehabilitation, and threatened species habitat. Since the 2019 bushfires, regeneration works have also targeted affected areas of both private and public land. Volunteers and landholders provide a vast rehabilitation workforce, which is generally underestimated.

2.3 Conservation: reserves & agreements

2.3.1 Protection of Native vegetation

KEY FACTS for the North Coast Region:

Over **8,000** hectares added to National Parks since **2016**

21% of the region is in National Park

24% is State Forest

4% of private land is under environmental zoning through Council LEPs

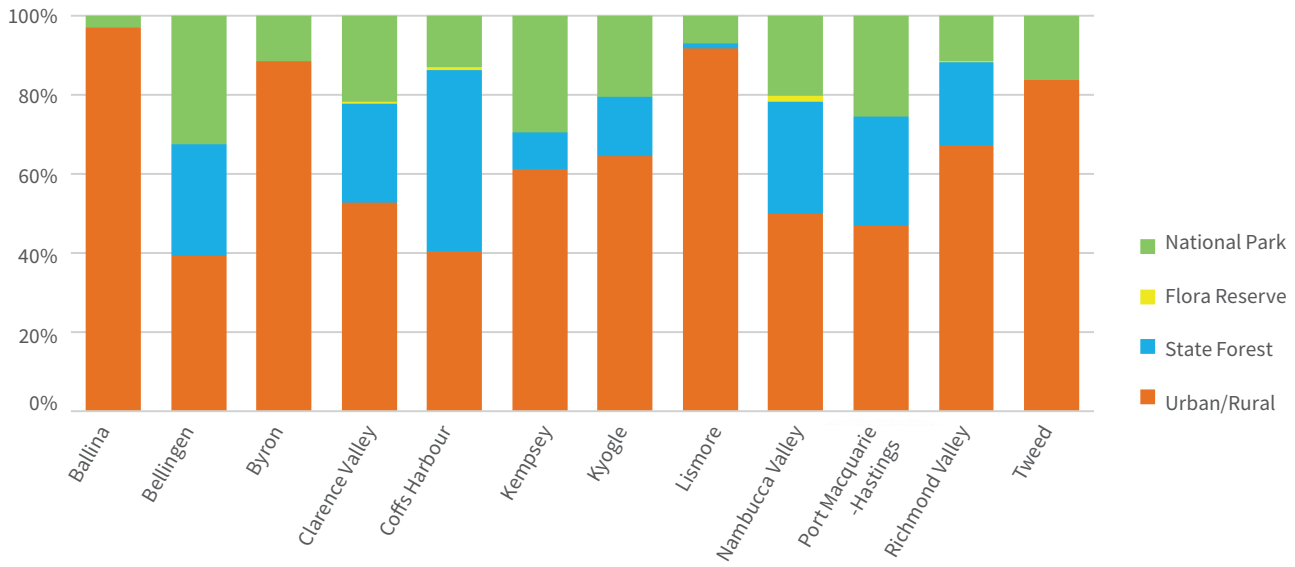
0.2% of private land is under conservation agreements

Up from **25,128** hectares in **2016** to over **43,000** in **2020**

Photo: Dorrigo National Park - Bellingen Shire Council

With the area of both private and public forested land as well as National Parks impacted by the 2019 bushfires, the increasing area of private land under conservation agreements is very important. However, it represents a very small area (0.2%) of the total privately-owned rural land in the region.

Land use by LGA



2.3.2 Council land-use zoning

All LGAs have a Local Environmental Plan (LEP) which governs land use and includes areas of environmental protection. In 2012, the northern LGAs of Byron, Ballina, Kyogle, Lismore and Tweed had their environmental zones (E zones) deferred by the then Department of Planning and Environment. Since 2016, the affected LGAs have each worked to finalise their chosen option for environmental protection. In some cases, the area under environmental protection has reduced, in others it has remained the same. One council is in the process of proposing to use a biodiversity overlay in rural zones in place of environmental zones, which would still provide protections for riparian and other high biodiversity land.

Council Environmental Land-use Zoning by LGA in 2020

LGA	Area national parks estate (ha)	% LGA	Area environmental protection (ha)	% LGA	Change since 2012 %
Ballina	1,453	3.0	not finalised		
Bellingen	51,915	32.5	10,873	6.8	
Byron	6,570	11.6	2,290	4.0	
Clarence Valley	227,541	21.8	56,781	5.4	
Coffs Harbour	15,168	12.9	7,866	7	
Kempsey	99,645	29.5	12,092	3.6	
Kyogle	73,725	20.6	not finalised		Proposed biodiversity overlay
Lismore	9,128	7.1	377	0.3	
Nambucca Valley	30,273	20.3	1,784	1.2	
Port Macquarie - Hastings	93,523	25.4	5,871	1.6	
Richmond Valley	35,128	11.5	not finalised		
Tweed	21,467	16.3	13,613	10.3	
Reporting region	665,536	20.8	129,565	4.0	-0.28

Photo: Nest box installation post-bushfire - S Hessey

2.4 Native flora & fauna

KEY FACTS

5 New critically endangered species

1 New critically endangered community

4 New endangered species

Since our previous report in 2016 and the introduction of the *Biodiversity Conservation Act 2016*, the classifications for endangered species have been amended. To ensure our reporting is consistent with previous reports, the previous categories have been used.

Eight of the additions to endangered species listings in the region since 2016 have been flora, with one aquatic species – Whites seahorse.

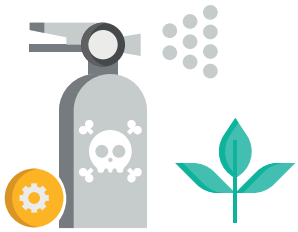
Status in NSW	Total in North Coast Region	Change since 2016	Species	Relevant LGA
Critically endangered species - E4A	14	5 new flora	Scrub Turpentine - *Rhodamnia rubescens*	North Coast Region
			Native Guava - *Rhodomyrtus psidioides*	North Coast Region
			Kardomia prominens - a shrub	Clarence Valley
			Lenwebbia sp. Main Range - small tree restricted to higher altitudes	Tweed to Clarence Valley
			Phebalium speciosum - a shrub	Tweed, Lismore, Kyogle, Richmond Valley
Critically endangered community - E4B	2	1	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast	Most of North Coast region
Endangered population - E2	6	no change		
Endangered ecological community - E3	17	no change		
Endangered species - E1	150 - 38 fauna, 112 flora	3 new flora	*Gingidia rupicola* - a small herb	Coffs escarpment; Clarence Valley, Bellingen
			Magenta Lilly Pilly - *Syzygium paniculatum*	Port Macquarie-Hastings, Kempsey
			Knicker nut - *Caesalpinia bonduc* - recently discovered in the region	Port Macquarie-Hastings, Kempsey, Clarence Valley
Key Threatening Processes - KTP	37	No change		
Aqautic Species				
Critically endangered	2	no change	Grey nurse shark, marine brown alga *Neriea lophocladia*	
Endangered	6	1	Eastern freshwater cod, Oxleyan pygmy perch, Southern bluefin tuna, Scalloped hammerhead shark, Southern purple spotted gudgeon, Whites seahorse	North Coast Region

The Saving our Species program was introduced in 2016 with the new *Biodiversity Conservation Act 2016*. It currently has projects in all LGAs within the region covering 92 endangered or vulnerable species, populations and communities. Program actions include surveys and monitoring, vertebrate pest control, weed control, fire control, managing human disturbance, landholder engagement, and species translocations. Councils assist with implementation of species recovery and threat abatement plans through a range of strategic plans, operational practices, and environmental assessments for development.

2.5 Invasive species

2.5.1 Invasive weed species

KEY FACTS



In 2020, nearly **8,000 km** of high-risk pathways and **2,700** high-risk sites were treated for weeds in the region through the **Weeds Action Program**.

The **Biosecurity Act 2015 came into force in July 2017**, and aims to prevent the introduction and spread of pests, diseases, weeds and contaminants.

Numerous **local control authorities** reported new weeds appearing during and after Pacific Highway upgrade works.

Key current weed threats are:

- Tropical soda apple – key region-wide weed threat – further resources needed after fires and floods
- Cockspur coral tree – increasing spread
- Grader grass – newly introduced since 2016 during the Pacific Highway upgrade

Biological controls are being used for salvinia, madeira vine and parramatta grass

Additional funding from various sources such as Local Land Services and bushfire recovery funding has allowed additional targeted weed control programs, particularly in bushfire-impacted areas. Ongoing riparian weed control is required to protect rivers and riverbanks.

2020 High risk weed sites & pathways	Bellingen	Clarence Valley	Coffs Harbour	Kempsey	Nambucca Valley	Port Macquarie-Hastings	Rous County Council*	Region total
High risk sites inspected (number)	113	817	420	275	32	258	1,500	**3,302**
High risk pathways inspected (km)	3,428	3,512	884	1,006	482	2,084	5,731	**17,127**
High risk sites treated (ha)	190	93	310	155	215	324	1,424	**2,711**
High risk pathways treated (km)	646	597	342	370	1,200	1,245	3,458	**7,858**

* Rous County Council is the local control authority for Tweed, Byron, Ballina, Lismore, Kyogle and Richmond Valley LGAs

2.5.2 Invasive Fauna Species

Photo: Cow eating tropical soda apple - Geoff Foster

Photo: Cane Toad - Nigel Cotsell

Key Fauna Pest Species

Deer, pigs, wild dogs, foxes, feral cats, cane toads, indian mynas, rabbits and hares, carp, mosquito fish.

Pathogens

are of increasing concern in the area

Councils

are involved in managing vertebrate pests

From 1 July 2017, the management of pest animals came under the *Biosecurity Act 2015*.

In the North Coast region, key fauna pest species are deer, pigs, wild dogs, foxes, feral cats, cane toads, indian mynas, rabbits and hares, carp, mosquito fish.

Deer have reportedly increased their distribution and abundance by up to 60% in NSW since 2016, and have become an increasing issue in the north coast region, particularly in Port Macquarie-Hastings and Coffs Harbour LGAs.

Carp and goldfish sightings have increased in areas where they are not usually seen.

Feral cats are a continuing problem.

Fall army worm were detected in the north coast region in 2020.

Crazy ants were detected in Lismore in 2018.

Cane toads populations appear to be static with management containing their spread in the region.
Pathogens are of increasing concern in the area and include –

- Myrtle rust affecting plants from the family Myrtaceae.
- The frog fungus infection chytrid fungus.
- Phytophthora cinnamomi (root rot fungus) which causes native plant dieback.

Councils continue to manage vertebrate pests, often in conjunction with Local Land Services and the regional and local Landcare groups.
Actions include:

- Loan of traps for Indian mynas, cats, wild dogs, foxes, rabbits.
- Cane toad musters, exclusion fencing, tadpole/egg collections.
- Collaborating with Local Land Services and for wild dog and fox control.
- Carp musters in the Richmond Valley.
- Education campaigns.
- Regional feral deer program in Tweed, Byron and Kyogle LGAs
- Regional cat management issues paper in development with a number of stakeholders in the northern LGAs

03 Land Use & Soils

Photo: Lismore City Council

KEY FACTS

Photo: Lismore City Council

Soil Condition

Is decreasing due to intensification of landuse.

Land Use Mapping

Confirms intensification in the North Coast Region.

Since the 2016 report, landuse mapping was completed, and some new analyses conducted of soil acidification. There has been no comprehensive update of soil condition and land management within capability since our previous report in 2016.

3.1 Soil condition

A new study by the CSIRO has found the intensification of landuse from cropping and horticulture, with associated increased use of high nitrogen fertilisers, has increased soil acidity on the NSW North Coast, in areas that were previously unaffected. Overuse of fertilisers also creates increases in on-farm acidity and deficiencies in other soil nutrients, and off-farm with high inputs into waterways, into groundwater, and nitrous oxide emissions (McKenzie et al, 2017). Soil organic carbon levels are declining under current land management, and this region has the highest hillslope soil erosion rates in NSW, averaging 5.57 tonnes per hectare per year over the period 2000 to 2014. Salinity is another concern for soil quality in the North Coast region, with low lying areas north of the Richmond River to the Queensland border, and coastal areas in the south of the region at highest risk of very high salinity. Acid sulfate soils are being managed in the region, and there is an improvement due to remediation works conducted (McKenzie et al, 2017).

Photo: Ryan Fowler

3.2 Landuse

The landuse mapping completed by DPIE in 2016 used aerial imagery to classify landuse in the region. The figures below are similar to those from the 2013 landuse mapping and do not capture the recently observed substantial intensification of landuse since 2016. For example, in the Coffs Harbour region, bananas have been replaced by hothouses, which are a more intensive landuse requiring land modification, construction of hothouses, and large water, fertiliser and pesticide applications when compared to bananas, but are still considered as horticulture. Although land use practices have generally improved, the increase in intensity has increased pressure on soil condition.

Monitoring of land disturbance has shown an increase in disturbance from higher intensity land uses (NSW SOE 2018), which reflects what has been observed in the region with the transition from grazing and former lower intensity horticulture to intensive plant agriculture, particularly nuts, hothouse horticulture (cucumbers, tomatoes) and berries.

Photo: Dairy - Kyogle Council

Photo: Horticulture Coffs Harbour - Shane White

Land Use Summary 2016	Area (hectares)	% North Coast Region
Conservation/minimal use	1,306,657	40.79
Grazing	1,021,256	31.88
Forestry	542,241	16.93
Residential and farm infrastructure	86,378	2.70
Cropping (sugar, coffee, silage, cereals)	61,755	1.93
Intensive plant agriculture - IPA (includes transition land that was IPA)	31,858	0.99
Transport and communication	14,991	0.47
Services and utilities	9,526	0.30
Mining	1,628	0.05
Intensive livestock agriculture	1,581	0.05
Manufacturing/industrial	1,134	0.04

Monitoring of land disturbance has shown an increase in disturbance from higher intensity land uses (NSW SOE 2018).

3.3 Funded land & soil management activities

Data for soil improvements and erosion controls was not available for this summary. However it will be reported on in the main Regional State of the Environment 2020 report due in November 2021.

3.4 Acid sulfate soils

Acid sulfate soils (ASS) are found in all coastal LGAs in the region. Comprehensive mapping has identified and classified them, and the current status of management in each LGA is in the table below. Most LGAs manage ASS through their Local Environmental Plan (LEP) and Development Control Plans (DCP). Rous County Council is the Flood Mitigation Authority for the Richmond River floodplain, responsible for reducing the environmental impact of flood management infrastructure including those located in areas of acid sulfate soils.
Sugar cane is often grown in areas of ASS and the industry self-regulates the management of ASS.

LGA	Acid Sulfate Soils Management
Ballina	Managed through Local Environmental Plan except for sugar cane
Bellingen	Managed through Development Control Plan
Byron	Managed through Development Control Plan
Clarence Valley	Managed through Local Environmental Plan and ongoing liaison with landholders who have had remediation works or control structures on their properties
Coffs Harbour	Managed through Development Control Plan
Kempsey	Managed through Local Environmental Plan and ongoing lision with landholders who have had remediation works on their properties
Kyogle	NA
Lismore	NA
Nambucca Valley	Managed through Local Environmental Plan together with remediation undertaken by Council on private land with ongoing monitoring
Port Macquarie-Hastings	All ASS remediated in LGA
Richmond Valley	Managed through Local Environmental Plan except for sugar cane
Rous County Council	Works cooperatively with landowners and stakeholders to remediate historical disturbance of acid sulfate soils; has an Active Floodgate Management Program.
Tweed	Managed through Local Environmental Plan and ongoing liaison with landholders who have had remediation works on their properties

Photo: Craig Stehn

Photo: Lismore City Council

Photo: Bill Larkin

3.5 Mining

KEY FACTS

4 active mining licences

recorded in the region in 2020, down from **8** in **2016**

Area under exploration licences

has increased by **80%** since **2016**

The area under active mining has reduced since 2016, from 399.6 hectares to 284.7 hectares in 2020, with the closure of a clay extraction site and 2 very small mineral mines.

The area under current exploration license has increased since 2016 from 168,061 ha to 303,414 ha in 2020. Exploration is not an approval to mine, but a search for what minerals may lie below the surface. If suitable minerals are found, then a separate comprehensive approvals process must be undertaken. The majority of exploration licences are not developed into active mines (NSW Mining 2021).

Activity	Year	Number	Area (Hectares)	Substances identified
Active mines	2016	8	399.6	Antimony, Gold, Silver, clay, dolomite, phosphate, limestone, gold, silver
	2020	4	284.7	Antimony, Gold, Silver, clay, dolomite, phosphate, limestone, gold, silver
Exploration licences	2016	30	168,061	Metallic minerals, non-metallic minerals, mineral sands
	2020	30	303,414	Metallic minerals, non-metallic minerals, semi-precious stones, mineral sands

Photo: Farmhouse - Lismore City Council

04 Water

Photo: Bellingen Shire Council

Since the 2016 report, the NSW Marine Estate Management Strategy (MEMS) 2018-2028 was released by NSW DPI to respond to priority threats to water quality, habitat and biodiversity of NSW coastal waters and estuaries.

4.1 Estuarine & freshwater rivers

Comprehensive River Health Assessment

KEY FACTS

All the region's waterways

have had comprehensive ecosystem health assessments conducted

since 2016.

Most monitoring indicates slight declines in water quality, with increasingly high nutrients loads and reduced flows particularly during the dry years.

All 12 LGAs in the reporting region conduct some type of regular river health monitoring. Tweed conducts its own comprehensive water quality monitoring program, Byron conducts comprehensive monthly and event-based water quality parameters and bi-annual vegetation transects in Belongil and Tallow Creeks, all other LGA's have had at least one round of the University of New England's Ecohealth program, which monitors water quality as well as riparian and geomorphic condition, macroinvertebrates and sometimes fish and zooplankton. Bellingen has taken a citizen science approach teaming up with Bellinger Riverwatch to take basic water quality metrics, but not nutrients, macroinvertebrates or riparian condition.

Key findings for all programs are:

- General slight decline in water quality
- Concern with increasing nutrient loads on many waterways
- Poor tidal exchange and infrequent natural ICOLL opening during the dry years
- Poor riparian vegetation and geomorphic condition are common

Photo: Upper Clarence Bonalbo - KyogleCouncil

Water quality monitoring by LGA

Council-led Water Quality Monitoring								
LGA	**Catchment Unit**		**2018**	**2019**	**2020**			
Tweed	Tweed estuary	Water quality assessed annually by Council for bacteria, Chlorophyll-a, total phosphorous, total nitrogen, turbidity, pH, dissolved oxygen	A	A	A			
	Tweed mid & upper estuary		B	C	B			
	Coastal Creeks		B	B	B			
	Cobaki-Terranora		A	A	A			
	Upper Cobaki-Terranora		D	D	D			
	Upper Catchment		B	B	B			
	Rous estuary		D	C	C			
Byron	Tallow Creek	A variety of water quality monitoring (monthly, event based and environmental health) by Council - no scorecard	Not graded but concerns with nutrient loads and low dissolved oxygen at times					
	Belongil Creek							
Bellingen	Bellinger & Kalang	Bellingen Riverwatch	Monthly monitoring of water temperature, pH, electrical conductivity (salinity) , dissolved oxygen, turbidity, available phosphate.					

Ecohealth program (University of New England)								
LGA	**Catchment Unit**	**Assessment Year**	**Overall Grade**	**Water Quality**	**Riparian**	**Macro- Inver-tebrates**	**Geo- Morphic**	**Fish**
Ballina, Byron, Kyogle, Lismore, Richmond Valley (combined Ecohealth 2015)	Wilsons River	Ecohealth 2015	F	F	D-	D	C-	
	Richmond River (main stem)	Ecohealth 2015	D-	F	D-	D	D+	
	Eden, Iron Pot Creeks, Shannon Brook	Ecohealth 2015	D+	D-	C-	D	C-	
	Bungawalbin, Myrtle, Sandy Creeks	Ecohealth 2015	D	D-	D	D-	C	
	Richmond - Emi-grant, Macguires, North Creeks	Ecohealth 2015	D+	D	D-	C	D+	
	Clarence - Northern tributaries	Ecohealth 2015	C+	C+	D+	C-	-	A-
Clarence	Clarence River (main stem)	Ecohealth 2014	C+	C	D+	D+	-	A
	Mann-Nymboida-Boyd	Ecohealth 2014	C+	C+	D+	C+	-	B+
Coffs Harbour	Coastal tributaries (Orara)	Ecohealth 2014	C-	D	C+	F	-	A
	Coffs coastal cat-chments	Ecohealth 2012	C	C	C+	D-	C+	
		Ecohealth 2015	C-	C	C+	F	C+	B-
Bellingen	Bellinger	Ecohealth 2009	B-	B	C+	C+		
	Kalang		C+	B-	C	C-		
Nambucca Valley	Nambucca	Ecohealth 2018	C-	D	C-	D+	C	B-
Kempsey	Macleay	Ecohealth 2016	C-	D+	D+	D+	C	B-
Port Macqua-rie-Hastings	Hastings catchment	Ecohealth 2011	B-	C+	C-	C+		B
		Ecohealth 2015	C-	C-	D-	C-	B-	B
	Lake Innes/Lake Cathie	Ecohealth 2011	B-	C-	A-			B+
		Ecohealth 2015	C+	D-	B+		B+	
	Camden Haven catchment	Ecohealth 2011	C	C	C	C-		B
		Ecohealth 2015	C	D-	C	F	B	B

Estuarine water quality

Photo: Nambucca Heads - Seen Australia

Estuarine water quality monitoring is conducted regularly by the NSW Department of Planning, Industry and Environment (DPIE). The program was initially conducted under the NSW Monitoring Evaluation and reporting strategy until 2015, and is now conducted as part of the Marine Estate Management Strategy (MEMS).

The 2018 sampling showed a decrease overall in the percentage of estuaries scoring A - Very good down from 28% in 2015 to 13% in 2018, with the majority (60%) scoring B – Good.

The poorest estuaries were in Byron LGA, scoring D, and Flat Top Point in the Solitary Islands Marine Park at Coffs Harbour scoring an F. The best were in Tweed with Cudgen Creek (A) improving steadily over the past years, Jerusalem Creek (Richmond Valley) and Dalhousie Creek (Bellingen) consistently scoring an A, and the Macleay also scored an A in 2018-19.

In response to increasing pressures on waterways, the MEMS has funded rehabilitation works in the region, with initial projects targeting the Richmond River catchment managed by Local Land Services and the Soil Conservation Service. At this stage MEMS funding is not directly available to Councils for on-ground rehabilitation works, however Councils are encouraged to integrate management actions into Coastal Management Programs (CMP) for future implementation.

Conducted regularly
by the NSW DPIE

2018 sampling
showed the majority (60%) scoring B – Good.

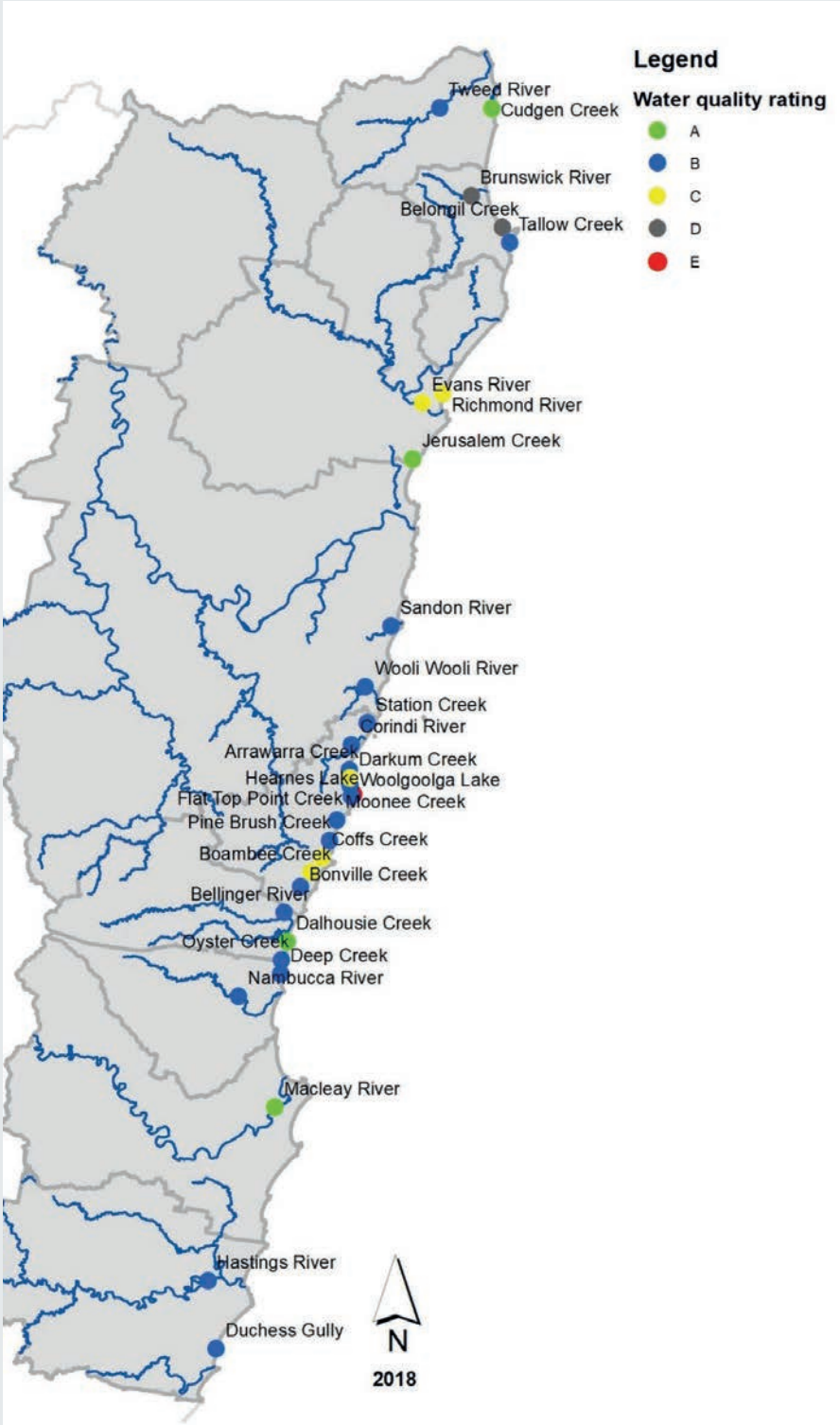
Best estuaries
were in Tweed with Cudgen Creek (A) improving steadily over the past years, Jerusalem Creek (Richmond Valley) and Dalhousie Creek (Bellingen) consistently scoring an A, and the Macleay also scored an A in 2018-19.

Percentage of estuaries attaining each grade

	A	B	C	D	F
2009	0	61	26	10	3
2012	43	40	17	0	0
2015	28	41	28	3	0
2018	13	60	17	7	3

Key

A	Very good
B	Good
C	Fair
D	Poor
F	Very poor



Location (north to south)	2009/10	2012/13	2015/16	2018/19
Tweed River	B			B
Cudgen Creek	B	C	B	A
Mooball Creek		B	B	
Brunswick River	C	C	C	D
Belongil Creek	C	C	C	D
Tallow Creek	B	A	B	B
Broken Head Creek			B	
Richmond River		B	C	C
Salty Lagoon		A	B	
Evans River	C			C
Jerusalem Creek	B	A	A	A
Lake Arragan	C	A		
Sandon River	B	A	A	B
Wooli River	B	A	B	B
Station Creek	B	A	A	B
Corindi River	B	A	B	B
Pipe Clay Creek	C	B	A	
Arrawarra Creek	D	B	B	B
Darkum Creek		B	A	C
Woolgoolga Lake	B	B	A	B
Flat Top Point	E	B	C	E
Hearnes Lake	D	A	C	B
Moonee Creek	B	A	B	B
Pine Brush Creek	C	B	B	B
Coffs Creek	D	C	C	C
Boambee Creek	B			C
Bonville Creek	B	B	B	B
Bellinger River	B			B
Dalhousie Creek		A	A	A
Oyster Creek	B			B
Deep Creek		B	A	B
Nambucca River	B	A	B	B
Macleay River	B			A
South West Rocks Creek	B			
Saltwater Creek (Frederickton)		B		
Korogoro Creek	C		C	
Killick Creek	C		C	
Hastings River	B	A	B	B
Cathie Creek		B	A	
Duchess Gully		C	C	B
Camden Haven	B			

Marine and estuarine debris

KEY FACTS

A collaboration between universities, government agencies and community groups in NSW has comprehensively researched litter entering waterways, estuaries and beaches. This research is still in progress, but preliminary results indicate:

- Mangroves are the main debris collection areas – they are litter traps!
- Ocean beaches have far less litter than estuaries and waterways
- Plastic is the greatest litter type – over 91%
- Cigarette butts and fishing related debris are the next most littered items
- The plastic bag ban has resulted in measurably fewer plastic bags in waterways
- The container deposit scheme has shown benefits for the north coast with fewer bottles in waterways (Smith et al 2020 - NSW Container Deposit Scheme Monitoring Program - Key Littered Items Study – KLIS)

4.1.3 Aquatic macroinvertebrates

4.1.4 Fish condition

4.1.5 Riparian vegetation

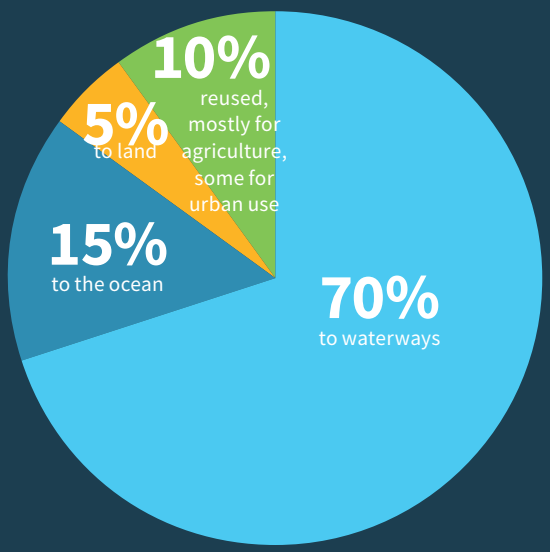
No new information. Please see the Regional State of the Environment Report 2016 for details of previous condition.

4.1.6 Waste water treatment plant performance and onsite sewage management system performance

Waste water reuse is now at **10%** of the total treated waste water in the region up from **6.6%** in **2012**

KEY FACTS

Where does treated wastewater go:



Ballina is treating some wastewater to drinking water standards, and is reusing it for toilets and gardens in urban areas

Water shortages during the 2019 drought may prompt more reuse of wastewater for industry, agriculture – the largest water users

Kyogle and Coffs Harbour have the highest reuse, generally for agriculture

Lismore and Bellingen have the lowest reuse

Most LGAs had lower wastewater treatment volumes during the dry 2018-2019

Percent waste water discharged by location in 2020

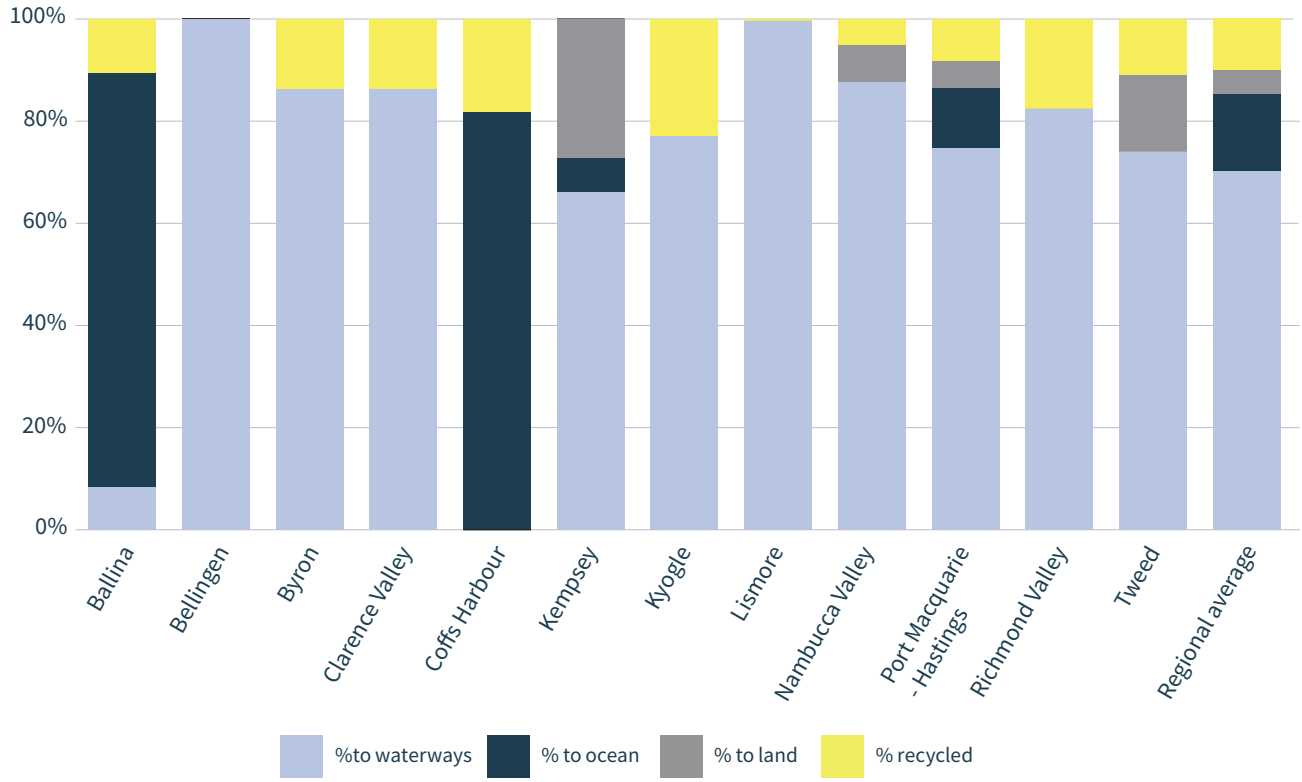
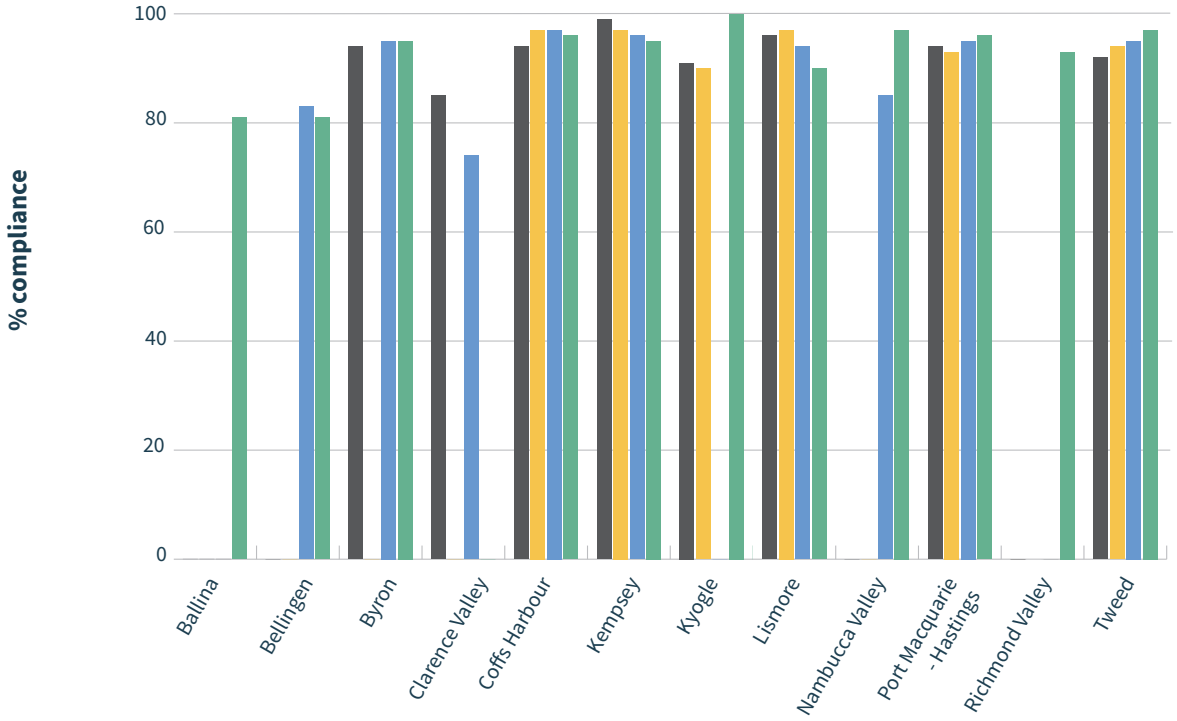


Photo: Nambucca Valley Council

On-site sewage management system performance

KEY FACTS

- For Councils with fully resourced inspections, compliance rates are generally over 90%
- When resourcing is an issue, only systems with complaints are inspected, leading to a high failure rate
- An estimated 10% of all systems are unregistered
- Some LGAs have audited all unregistered systems to register and document them
- Cost is an issue for residents needing to register an unregistered septic system



Note that not all data was available for this summary report.

2016/17 2017/18 2018/19 2019/20

Photo: Tweed Heads - Ryan Fowler

4.1.7 River restoration works & riparian vegetation

KEY FACTS

- All LGAs and Rous County Council are working to improve waterways and riparian condition, often in conjunction with local Landcare groups
- Many are reliant on external funding to conduct these works
- Funding provided through the Marine Estate Management Strategy has funded some substantial works on the Richmond River
- Habitat rehabilitation works are summarised in section 2.2. Of these works, over 60% are riparian habitats, indicating the importance of these habitats and the need for improvement as indicated by all the region's water quality studies. Information can be used to increase community awareness of environmental issues, and to guide natural resource managers in prioritising and addressing management actions.

Photo: Coffs Harbour City Council

4.2 Wetlands – no new information for this summary

See the Regional State of the Environment Report 2016 for details of previous wetland condition.

4.1.8 Stormwater improvement works & WSUD

KEY FACTS

- All LGAs in the reporting region have Water Sensitive Urban Design (WSUD) requirements for new developments
- Many are modifying stormwater drainage to include filtration devices, ponds, outlet protection, buffer strips, dispersal trenches, increasing natural vegetation, and stormwater storage
- Gross pollutant traps have been upgraded in many LGAs to capture litter and debris

4.3 Groundwater

Groundwater is an essential water source for both ecological systems such as wetlands, streams and their surrounds, but also for rural landholders and towns. Some water sharing plans in the region now include groundwater, recognising the links between ground and surface water.

KEY FACTS

- Since 2016, all water sources in the North Coast region are covered by a Water Sharing Plan
- Four are due for review but have been extended by two years to allow for further resourcing and information gathering
- New mapping of high ecological value waterways and groundwater dependent ecosystems (GDE) completed
- Metering for licensed water users will be implemented in the coastal regions by 1 December 2023
- Natural Resources Access Regulator (NRAR) created in 2018 to be an independent water compliance unit
- Alstonville plateau has the majority of known GDEs in the region and has previously been an overallocated water supply area of concern
- At this stage there is no data on groundwater quality for the region

Water Sharing Plan (WSP) - North to south	Status	Commence date	Cease date
Brunswick Unregulated and Alluvial Water Sources 2016	In force	July, 2016	June, 2026
North Coast Coastal Sands Groundwater Sources 2016	In force	July, 2016	June, 2026
North Coast Fractured and Porous Rock Groundwater Sources 2016	In force	July, 2016	June, 2026
Richmond River Area Unregulated, Regulated and Alluvial Water Sources 2010	In force - 2 year extension	December, 2010	July, 2023
Tweed River Area Unregulated and Alluvial Water Sources 2010	In force - 2 year extension	December, 2010	July, 2023
Bellinger River Area Unregulated and Alluvial Water Sources 2020	In force	July, 2020	June, 2030
Clarence River Unregulated and Alluvial Water Sources 2016	In force	July, 2016	June, 2026
Coffs Harbour Area Unregulated and Alluvial Water Sources 2009	In force - 2 year extension	August, 2009	June, 2022
Hastings Unregulated and Alluvial Water Sources 2019	In force	July, 2019	June, 2029
Lower North Coast Unregulated and Alluvial Water Sources 2009	In force - 2 year extension	August, 2009	June, 2022
Macleay Unregulated and Alluvial Water Sources 2016	In force	July, 2016	June, 2026
Nambucca Unregulated and Alluvial Water Sources 2016	In force	September, 2016	June, 2027
North Coast Coastal Sands Groundwater Sources 2016	In force	July, 2016	June, 2026
North Coast Fractured and Porous Rock Groundwater Sources 2016	In force	July, 2016	June, 2026

Photo: Crescent Head Beach bridge - Paul Koch

4.4 Near-shore Marine

Marine Water Quality

There is little comprehensive data on marine water quality for the region. However, new research underway by DPIE, CSIRO and supported by MEMS is investigating trends in ocean water quality.

Two LGAs – Ballina and Richmond Valley Council, continue to monitor beach and swimming water quality through the NSW Beachwatch program. "Coffs Habour and Byron LGAs have recently rejoined the program.

Photo: Port Macquarie - Matt Cramer

Swimming Site	Site Type	Beach Suitability Grade			
Ballina Shire Council		**2016/17**	**2017/18**	**2018/19**	**2019/20**
Seven Mile Beach	Ocean beach	VG	VG	VG	VG
Lake Ainsworth North	Lake/Lagoon	-	P	P	P
Lake Ainsworth East	Lake/Lagoon	G	P	P	G
Lake Ainsworth South	Lake/Lagoon	G	G	G	G
Lake Ainsworth West	Lake/Lagoon	P	P	P	P
Shelly Beach	Ocean beach	G	G	G	G
Lighthouse Beach	Ocean beach	VG	VG	VG	VG
Shaws Bay North	Estuarine	G	G	G	G
Shaws Bay East	Estuarine	G	G	G	G
Shaws Bay East Arm	Estuarine	-	G	G	G
Shaws Bay East Beach	Estuarine	-	G	G	G
Shaws Bay West	Estuarine	G	G	G	G
The Serpentine	Estuarine	G	G	G	G
Richmond Valley Council		**2016/17**	**2017/18**	**2018/19**	**2019/20**
Airforce Beach	Ocean beach	VG	VG	VG	VG
Main Beach	Ocean beach	VG	VG	VG	VG
Shark Bay	Ocean beach	VG	VG	VG	VG
Evans River	Estuarine	G	P	P	P
Elm Street Bridge North (Evans River)	Estuarine	G	G	G	G

Key

VG	Very good
G	Good
F	Fair
P	Poor
VP	Very poor

Beachwatch monitoring confirms that ocean beaches are generally always good or very good for swimming and recreational use due to the constant tidal flushing. Estuarine sites are variable depending on the level of tidal flushing and impacts of stormwater pollution after rain. Lake/lagoon sites are generally good in dry weather, but they are highly susceptible to the impacts of wet weather during and for up to three days after rain.

Photo: Wooli River - Clarence Valley Council

Rocky Reef Biota

Rocky reef biota are the flora and fauna that inhabit the reefs along the coast. There is little comprehensive state-wide information on the status of rocky reef biota, but due to the presence of two marine protected areas in the region, there is some continued local research. Since 2016, there has been:

- Coastal LiDAR surveys for the entire region from 200m inland out to 25m deep which gives far more detailed imagery of subtidal habitats in the near-shore
- A study of the effect of no-take marine reserve areas compared to other areas in NSW has shown commercially fished species such as pink snapper (Chrysophrys auratus) were significantly more abundant in no-take reserves than in fished areas. Other non-fished species remained in similar abundance regardless of zoning, indicating no-take reserves are a useful fisheries management tool
- Research into the impacts of climate change in ocean waters and modelling refuge areas for various species
- Research demonstrating that ocean waters south of 32°S are warming twice as fast as those north of 32°S.

These will be further detailed in the full Regional State of the Environment 2020 report.

Photo: (top) Grassy Head - Paul Koch, (Bottom) Brett Vercoe

Marine Protected Areas (MPA)

There are two marine parks – Cape Byron and Solitary Islands – and one aquatic reserve – Cook Island – in the reporting region. As Lord Howe Island is not included in the reporting region, the Lord Howe Island Marine Park is not included.

Since the 2016 report, minor changes to sanctuary zones (complete no-take protection zones) in NSW marine protected areas were made in 2018 to allow shore-based recreational fishing from some ocean beaches and headlands. Six percent of the Region's marine waters are completely protected from any extractive activity, with 17.7% zoned for low impact fishing activities.

Marine protected area 2020	Total reserve area (ha)	Area zoned for complete protection — no fishing (ha)	Area zoned for low impact fishing activities — recreational and commercial (ha)
Solitary Islands Marine Park	72,329	8,675	39,370
Cape Byron Marine Park	22,275	6,118	4,271
Cook Island Aquatic Reserve	74	29	45
TOTAL	**94,678**	**14,822**	**43,686**
% of North Coast Region marine area under protection (excl. Lord Howe Island)	38.3	6.0	17.7
TOTAL marine area of North Coast Region (excl. Lord Howe Island waters) (ha)	247,233		

Coastal Management

All coastal LGAs are working towards preparation of Coastal Management Programs (CMPs) for their coasts and estuaries under the NSW Coastal Management Framework, which incorporates the new Coastal Management Act 2016, Coastal Management SEPP, and the Coastal Management Manual. The five-stage process is being worked through by all LGAs in the regional to either create new CMPs or update existing Coastal Zone Management Plans (CZMPs) to the new framework. The new framework encourages whole-of-catchment approaches incorporating other tenures such as National Parks and Crown Lands.

LGA/County Council	Number of CMPs	Coastal Management Status
Ballina	5	1 CMP finalised, 1 CMP in progress, 2 existing CZMPs for updating to CMPs collaboration with Rous County Council for the Richmond River CMP preparation
Bellingen	1	Scoping study in progress, 1 certified CZMP
Byron	5	Two Scoping studies completed for the open coast and ICOLLS. 1 not yet commenced. 1 in progress (Richmond River CMP being produced by Rous County Council and Ballina Council)
Clarence Valley	2	Coastal CMP scoping study complete and estuary CMP scoping study commencing
Coffs Harbour	5	3 in progress, 2 not yet commenced
Kempsey	5	4 in progress
Kyogle	1	Partnering with Rous County Council on the Richmond CMP
Lismore	1	Partnering with Rous County Council on the Richmond CMP
Nambucca Valley	1	At stage 4 - awaiting finalisation and certification
Port Macquarie-Hastings	1	Whole of LGA CMP at scoping stage
Richmond Valley	1	Partnering with Rous County Council on the Richmond CMP
Rous County	1	Richmond River CMP at Stage 1 - scoping study - on behalf of Ballina, Richmond Valley, Lismore and Kyogle LGAs, and parts of Byron and Clarence Valley LGAs. It will replace the existing Richmond River CZMP
Tweed	2	Tweed River Estuary CMP at stage 4, Tweed Coast CMP Stage 1 scoping study complete

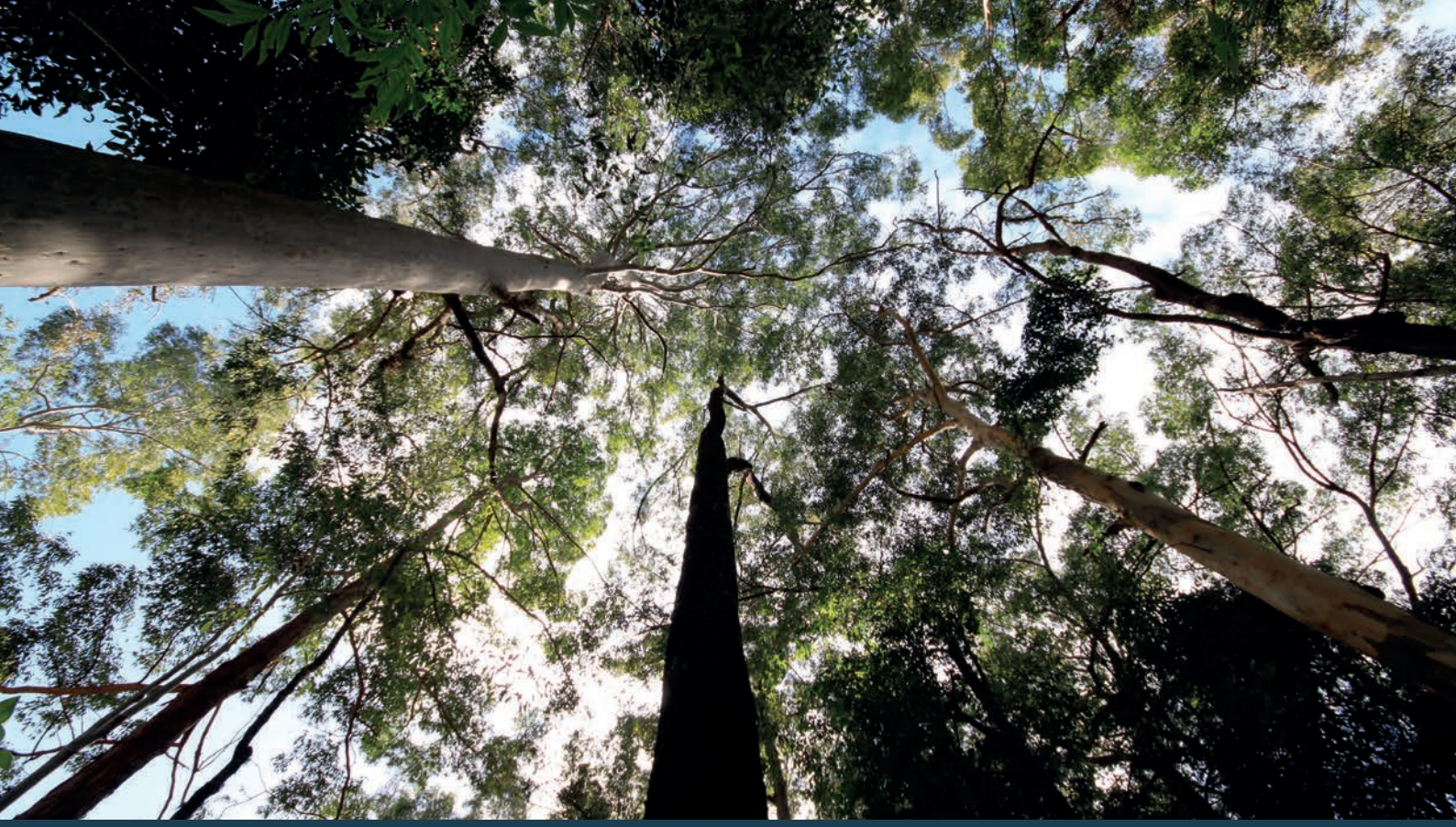


Photo: Coffs Harbour City Council

References - please see the full
Regional State of the Environment 2020 report

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