Queensland

STATE OF THE ENVIRONMENT REPORT 2024

SUMMARY

Queensland Government

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September 2025

#32876

Executive Summary

The 2024 Queensland State of the Environment Report (SoE) is the ninth iteration, which continues the regular assessment of the state and condition of Queensland's environment, as well as the pressures and trends that impact it.

The latest report covers a four-year period to 30 June 2024 of the former Queensland Government and evaluates 124 indicators related to extent and condition (state) as well as pressures.

Its publication fulfills the legislative requirements of the *Environmental Protection Act 1994* and the *Coastal Protection and Management Act 1995* and provides an evaluation of the extent, condition, and significant trends and pressures affecting Queensland's environment. The QSoE provides an essential evidence base against which to understand the underlying health and state of Queensland's environment and the impact it can have on the lifestyle, economy and future of Queenslanders.

Its findings show that while progress has been made towards delivering improved management responses across the report's themes of Biodiversity, Heritage, Pollution, Climate and Liveability, overall Queensland's relatively intact and globally renowned environment and biodiversity, is being subject to pressures, for which all Queenslanders have an interest in better managing into the future. For example, the number of threatened fauna species has increased; the extent and rate of change of remnant native vegetation is worsening; and the proportion of household waste diverted from landfill continues to worsen.

The QSoE 2024 is the result of a collaborative endeavour, with experts from various Queensland Government agencies providing a detailed analysis. Their extensive contributions have been instrumental in this publication.

Acknowledgement of Country

The Department of the Environment, Tourism, Science and Innovation acknowledges the First Nations peoples across Queensland. We pay our respects to elders, past and present. We acknowledge the continuous living culture of First Nations Queenslanders—their diverse languages, customs and traditions, knowledge and systems. We acknowledge the deep relationship, connection and responsibility to land, water and sky Country as an integral element of First Nations identity and culture.

Contents

How to use the State of the Environment 2024 Report

Structure

The full online report and this summary provide information structured around five themes—Biodiversity, Heritage, Pollution, Climate and Liveability. These are divided into sub-themes, which are reported on using 124 indicators related to:

- extent and condition (state)
- pressures.

Each theme contains:

- key messages (describing the theme and why it is important)
- key facts developed from the (state/pressure) indicators
- Queensland Government management responses between 2020-2024
- illustrative case studies (in the full online content).

The five themes are related, and the State of the Environment Report online system allows for a seamless transition from content in one topic to another.

Key themes

Just like the website, these theme buttons are interactive. They're located at the top of each page for easy navigation. Their sub themes are also interactive. Click them to jump through the document and themes.

Key facts

The key facts in this summary are represented by infographics for each sub-theme. They were developed after evaluating the indicators and selected based on their relevance to the core theme, level of empirical support, and public interest.

A trend is provided for each key fact to describe the general direction of change in the state or pressure, where this can be differentiated from natural background variation. The trend is measured over the four-year reporting period; however, longer-term data is also considered where this gives a more valid picture of a trend's direction.

Key fact trend	Symbol	Interpretation
Getting better	 Getting better	The trend in the state or pressure for the indicator is considered to be improving.
Stable or no change	 No change	No significant change in state or pressure is evident.
Getting worse	 Getting worse	The trend in state or pressure for the indicator is considered to be declining.
Not applicable		No comparison is possible with the last reporting period. This may be due to a change in the method for the data collection or that the nature of the indicator does not allow for comparison.

State and pressures

Depending on their role in assessing environmental conditions, indicators are identified as either 'state' or 'pressure' indicators.

- 'State' indicators describe the current condition or quality of the environment.
- 'Pressure' indicators identify and (if possible) quantify factors that exert stress on the environment. Where indicators enable comparison across the years, trends in data are identified.

Management responses

Management responses are the actions or initiatives undertaken by or for the Queensland Government between 2020 and 2024. They include legislative frameworks, policies, programs or initiatives developed in relation to the observed or anticipated pressures and impacts or the state of the environment.

Biodiversity

Introduction

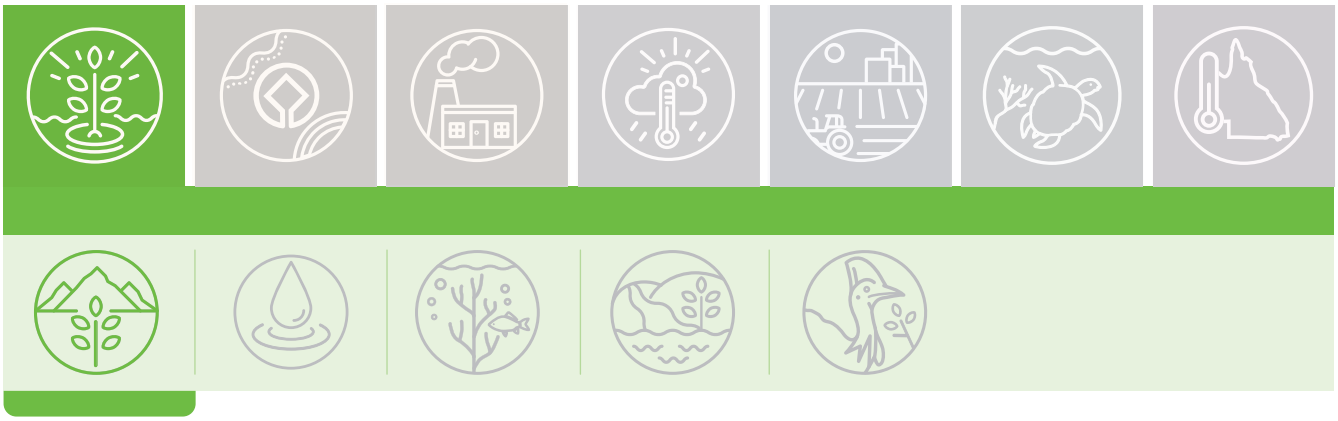
The variety of life—its biological diversity—is commonly referred to as biodiversity. Queensland is widely considered a biodiversity 'hotspot'. Our state's vast landscape:

- covers an estimated area of 172.8 million hectares
- has a mainland coastline of about 6,900 kilometres
- 1,165 offshore islands and cays
- contains a massive number of plant and animal species
- spans different ecosystems, such as deserts, rainforests and coral reefs.

An ecosystem is a collection of communities and includes all living things interacting with each other and their non-living environments. The biotic—or living—things in an ecosystem include various life forms, such as plants and animals. The abiotic—or non-living—things found in an ecosystem include the various landforms, soil and climate.

The biodiversity theme has three sub-themes:

- terrestrial ecosystems
- aquatic ecosystems (including riverine ecosystems, marine ecosystems and wetlands)
- species and habitat.



Terrestrial ecosystems

Terrestrial ecosystems in Queensland vary from tropical rainforests and eucalypt woodlands to arid grasslands and coastal heathlands. They provide essential habitat for many animals and plants. Queensland's terrestrial environment is divided into 13 distinct terrestrial regions or 'bioregions'.

Regional ecosystems are discrete vegetation communities in a bioregion consistently associated with a particular combination of geology, landform and soil. The biodiversity status of regional ecosystems is classified as follows:

- 'endangered'
- 'of concern'
- 'no concern at present'.

Broad vegetation groups are a higher-level grouping of vegetation communities across the state, encompassing a wide variety of landscapes across temperate, wet and dry tropics and semi-arid to arid climatic zones.

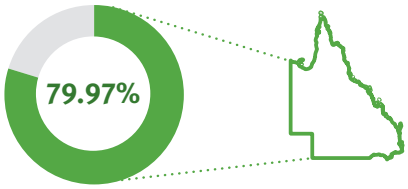
Why terrestrial ecosystems are important

Healthy functioning ecosystems are essential for the survival of species, many of which are endemic to Queensland. They provide essential ecosystem services, including carbon sequestration, water filtration, and soil stabilisation. They also sustain industries such as agriculture, forestry, and tourism.

Key facts

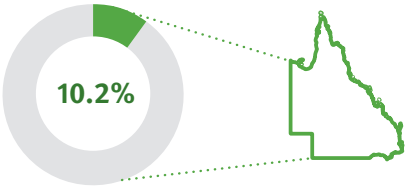
Remnant vegetation
state coverage

Getting worse



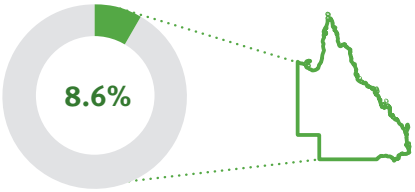
Remnant vegetation
within protected areas

Getting better



Protected Area Estate

Getting better



Getting better

1.479 MILLION HECTARES
woody vegetation cleared
2018-2022

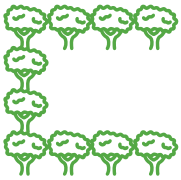
N/A

37
invasive
plant species
successfully
eliminated

15
plant species
on track to be
eradicated

Getting worse

12 out of **13**
BIOREGIONS
remnant vegetation under
increasing pressure
due to **fragmentation**



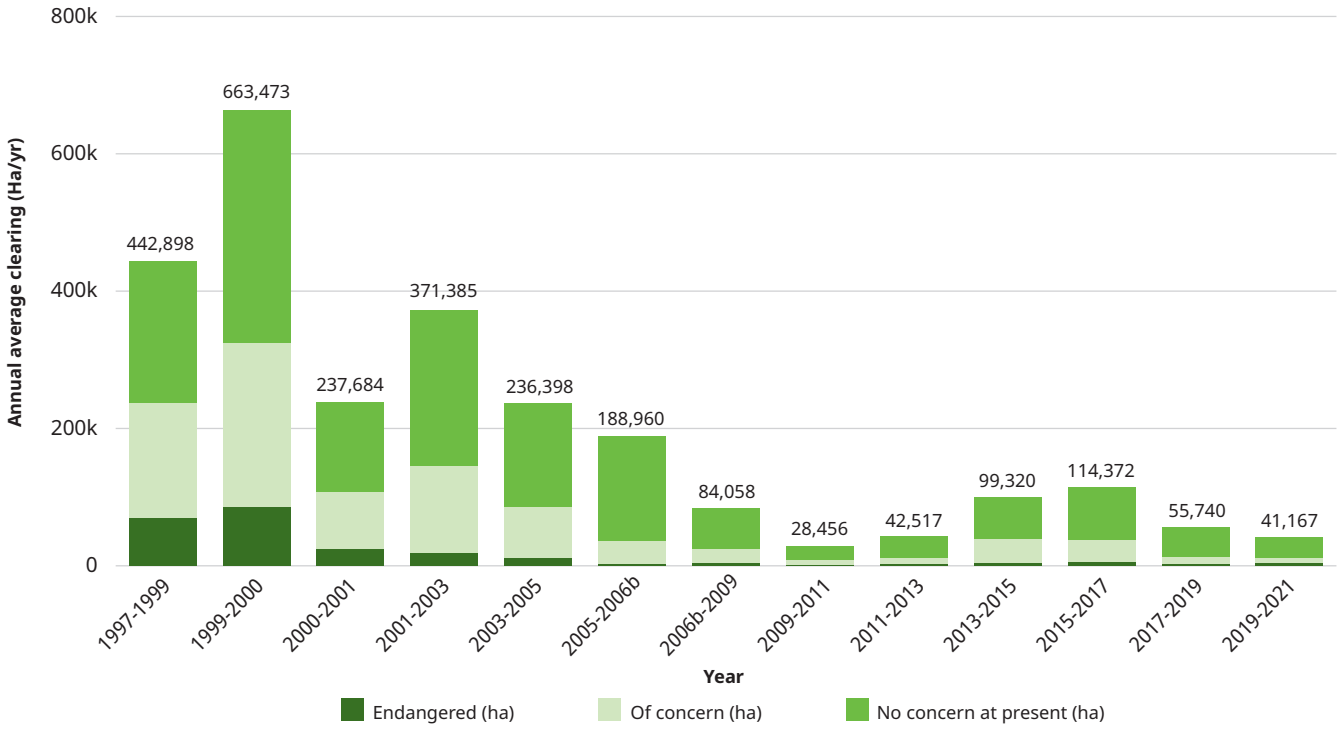
State

By 2021, Queensland's remnant vegetation extent covered 79.97% of the state. Between 2018 and 2022, land-clearing activities impacted approximately 2% (1,772,500ha) of woody vegetation, with 1,479,900ha of this resulting in full removal of the woody vegetation. The remainder was partially cleared. Of the total area impacted by clearing activity, 24% (433,100ha) was in regulated remnant vegetation:

- 20% (357,100ha) of *no concern at present* regional ecosystems
- 3% (60,800ha) of *of concern* regional ecosystems
- less than 1% (15,200ha) *endangered* regional ecosystems.

This reflects a worsening trend in the extent and rate of change of remnant native vegetation.

Long term temporal trend in annual clearing of remnant vegetation, by biodiversity status in Queensland



Regrowth of woody vegetation was documented for the first time in this reporting period. Between 2019 and 2022, 133,300ha of regrowth was added to the state's woody extent.

Pressures

The main pressures facing Queensland's terrestrial ecosystems continue to be from:

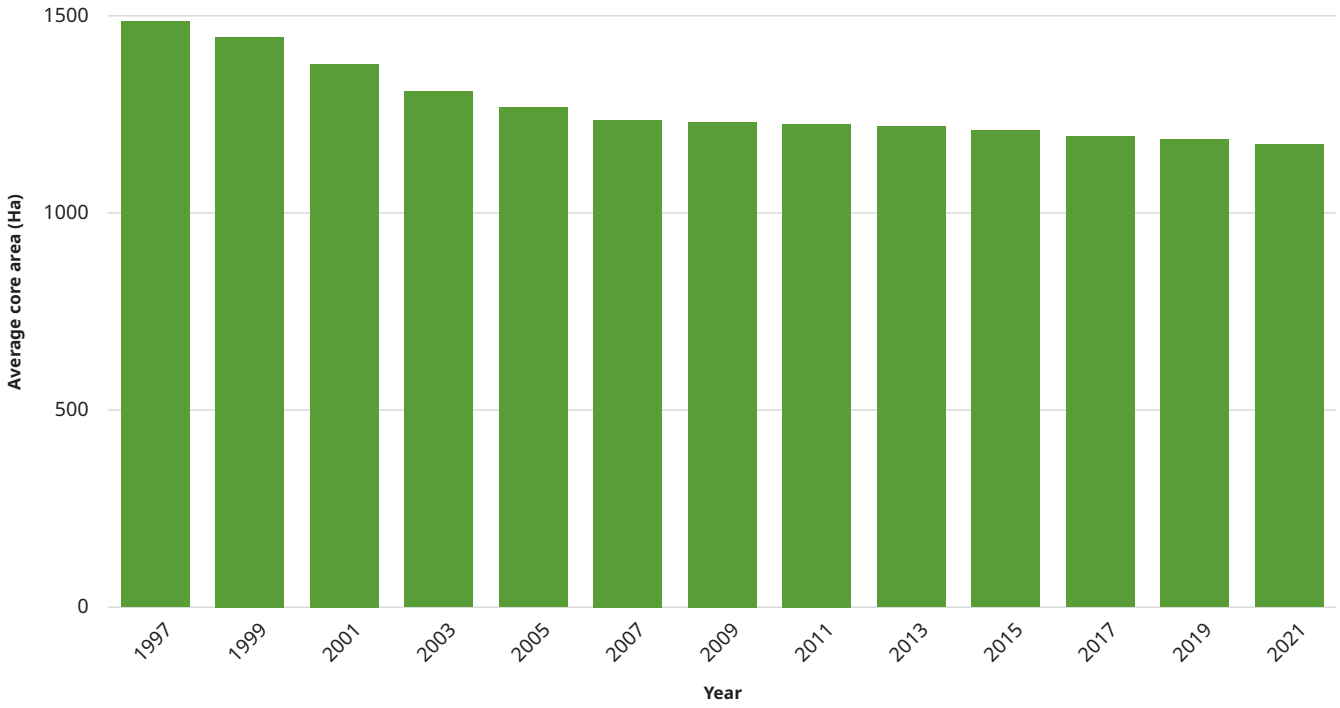
- vegetation clearing and fragmentation
- invasive non-native fauna and flora
- climate change impacts.

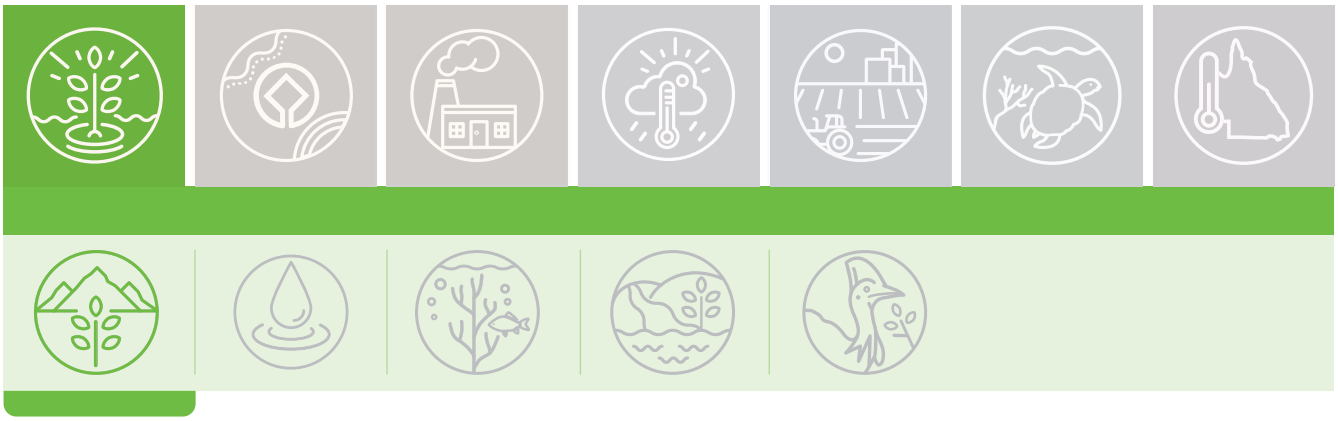
Fragmentation

Fragmentation, or the 'breaking up' of large areas of intact native vegetation, reduces the ecological connectivity between habitats. This connectivity allows wildlife to cross the landscape for food, breeding and, ultimately, survival. Of the 13 Queensland bioregions, 12 had a declining average core area, which suggests increasing pressure on remnant vegetation due to fragmentation.

The New England Tableland bioregion had the smallest average core area (approximately 50ha). The Mitchell Grass Downs and Einasleigh Uplands bioregions had the most significant overall decrease in average core areas (6.6% and 3.4%, respectively).

Queensland long-term temporal trend in landscape fragmentation





Invasive non-native fauna and flora

In Queensland, 37 high-risk invasive plant species have been eliminated during this reporting period, with another 15 on track to be eradicated.

Invasive plants and animals, including weeds, pests and diseases, now affect more than half of Australia's threatened plants, fish, reptiles and invertebrates. Introduced invasive plants and animals place considerable pressure on biodiversity. This pressure can be directly from predation or indirectly by altering vegetation structure, ecological/physical processes, or landscape resilience.

Invasive plants and animals can disrupt native ecosystems by outcompeting native species for resources, such as food, water, and habitat. This disruption can lead to declines in biodiversity and alteration of ecosystem structure and function, with consequences such as the extinction of native species.

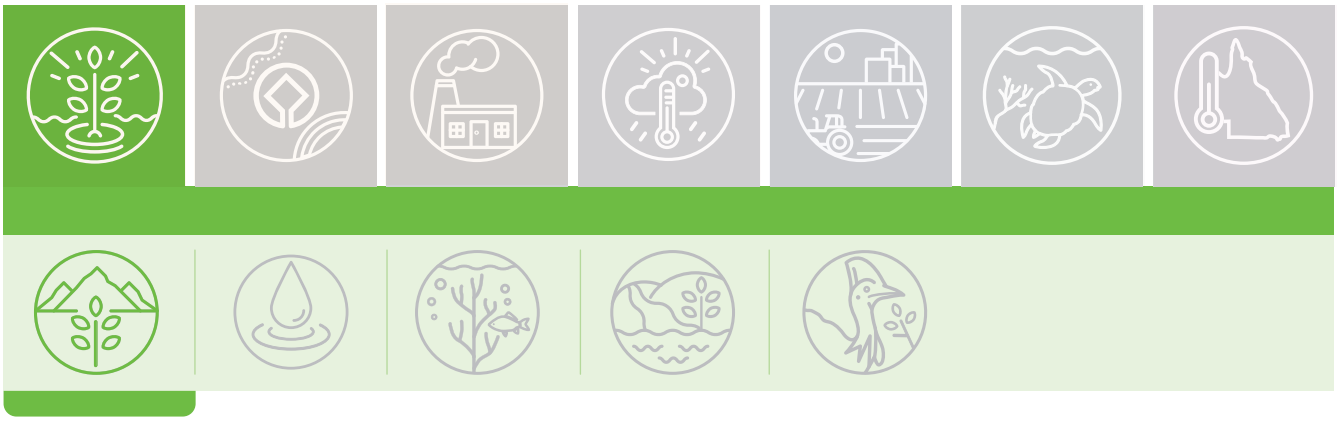
Headline management responses

The Queensland Government took various actions to mitigate these pressures during this reporting period (see the list included in Appendix 1 of this summary). Conservation efforts focused on protecting and restoring of key habitats through the implementation of legislative and policy frameworks, protected areas declaration and management, and sustainable land management practices.

Conserving Nature – a Biodiversity Strategy for Queensland (the strategy) was published in October 2022. The strategy outlines the approach to conserving the state's biodiversity values. It acts as a coordinating framework for programs and initiatives contributing to biodiversity conservation in Queensland. It contains four goals: Protect, Restore and Recover, Adapt and Connect.

Queensland's vegetation management

In Queensland, vegetation clearing is regulated through the vegetation management framework and monitored to ensure people comply with the laws. The 2021-22 annual Statewide Landcover and Trees Study (SLATS) reported that clearing has fallen 52% since 2018-19, with most clearing in areas not regulated by the *Vegetation Management Act 1999* (Qld). Clearing of regulated vegetation reduced by 64% between 2018-19 and 2021-22.



In 2022, an independent panel of experts was established to review the factors behind land clearing identified in the 2018-2019 SLATS report. In late 2023, the Queensland Government accepted (in full and in principle) the panel's ten recommendations.

The impact of these changes

According to Australia's National Greenhouse Accounts (ANGA), emissions from Queensland's Land Use, Land Use Change & Forestry (LULUCF) sector have decreased by approximately 131% from 2000 to 2022, following the introduction of the state's vegetation management laws.

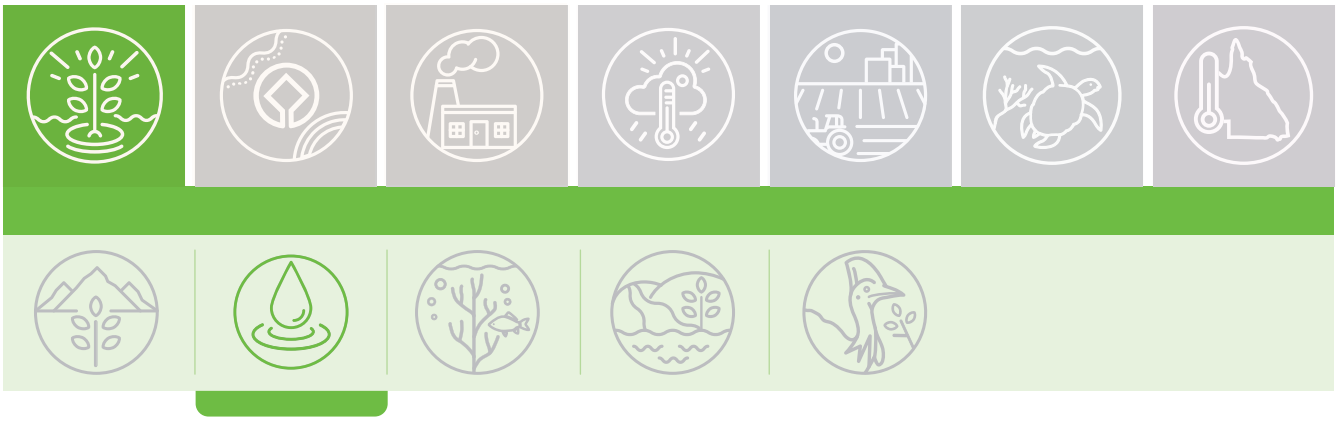
The Queensland Government continues to oversee the state's environmental offsets framework, which provides a structured approach to delivering, measuring, monitoring, and securing offsets that help counterbalance the environmental impacts of development.

Protected areas

Since 2020, the government has expanded Queensland's protected area estate by acquiring 29 land parcels under the Queensland's Protected Area Strategy 2020-2030, safeguarding critical habitats for threatened species. The private protected area network has also grown by approximately 520,000 hectares, with a net increase of 41 nature refuges. Additionally, in late 2023, 2,550 hectares of state forest in Southeast Queensland were designated protected areas. However, despite these efforts, Queensland remains well short of its long-term target of increasing protected areas to 17% of the state's land mass. Over the period of this report, only 616,711 hectares (0.36%) of Queensland was added to the protected area estate.

Queensland's commitment to conservation is further demonstrated by the establishment of its first special wildlife reserve, Pullen Pullen, in September 2020. This reserve grants private land the same protections as a national park. In May 2024, a second reserve, Edgbaston, was created.

The state continues to implement key conservation initiatives, including the updated Biosecurity Strategy, Invasive Plant and Animal Strategy and the Threatened Species Program, to preserve Queensland's unique biodiversity and maintain ecosystem resilience. By balancing ecological sustainability with economic development, Queensland is working to protect its rich terrestrial ecosystems for future generations.



Riverine ecosystems

Healthy riverine ecosystems—including component rivers, riparian zones, floodplains, and associated wetlands—are dynamic, interconnected systems that regulate water flow and support aquatic and terrestrial biodiversity.

Why riverine ecosystems are important

Riverine ecosystems are vital for maintaining water quality and ecological balance as they:

- filter pollutants
- cycle nutrients
- mitigate floods
- sustain groundwater recharge
- serve as migration corridors for wildlife
- support fisheries
- contribute to carbon sequestration and climate resilience.

Preserving riverine health, including maintaining water quality, biodiversity, and habitat integrity, is critical to ensuring long-term environmental sustainability, economic prosperity, and societal wellbeing.

Key facts

Common drivers affecting riverine catchments

N/A

Climate change

Climate variability

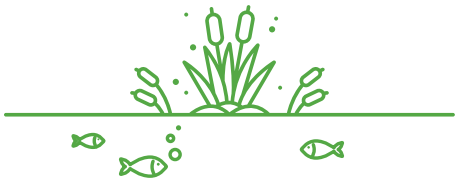
Population growth

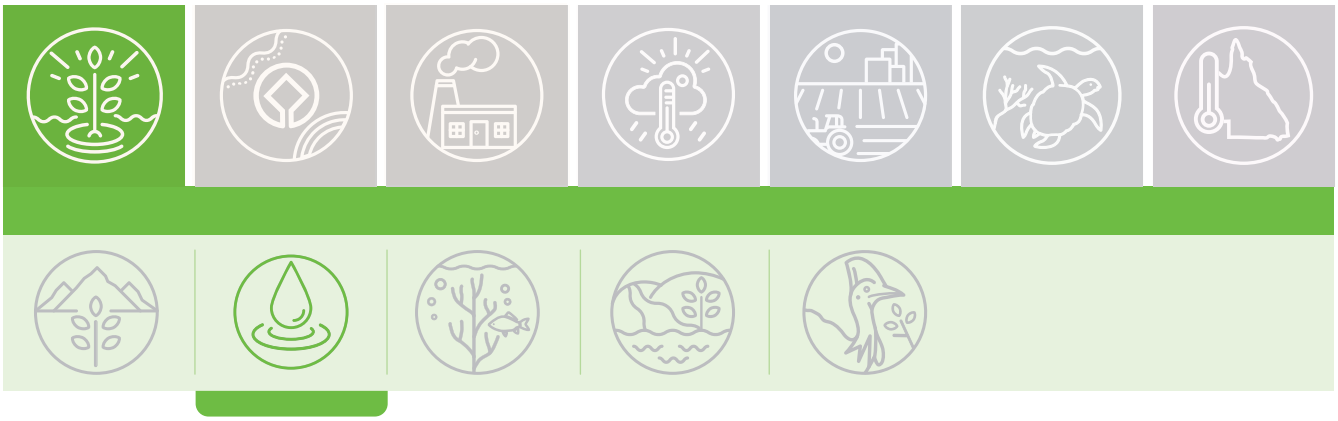
Economic growth

Riverine Ecosystem Health

Getting better

remained stable or improved





State

The condition of riverine ecosystems is monitored and reported in the GBR Catchment and Southeast Queensland by two distinct initiatives:

- the Paddock to Reef Integrated Monitoring, Modelling and Reporting Program (Paddock to Reef program) and Reef Water Quality Report Card
- the regional report card program.

Q-catchments is a state-wide program that assesses the risk of threats to the condition of freshwater ecosystems in Queensland's river basins. Twenty river basins were assessed between 2012 to 2018, and the findings reported in previous State of the Environment Reports. They do not form part of the current State of the Environment Report as the data falls outside the reporting period.

Great Barrier Reef

Catchments in the eastern Cape York, Wet Tropics, Burdekin, Mackay Whitsunday, Fitrzoy and Burnet Mary regional natural resource management areas feed into the Great Barrier Reef (GBR) lagoon. The relevant riverine ecosystem indicators from the Reef Water Quality Report Card are wetland condition, wetland extent, groundcover and riparian vegetation. Results from the most recent Reef Water Quality Report Card (2021 and 2022) include:

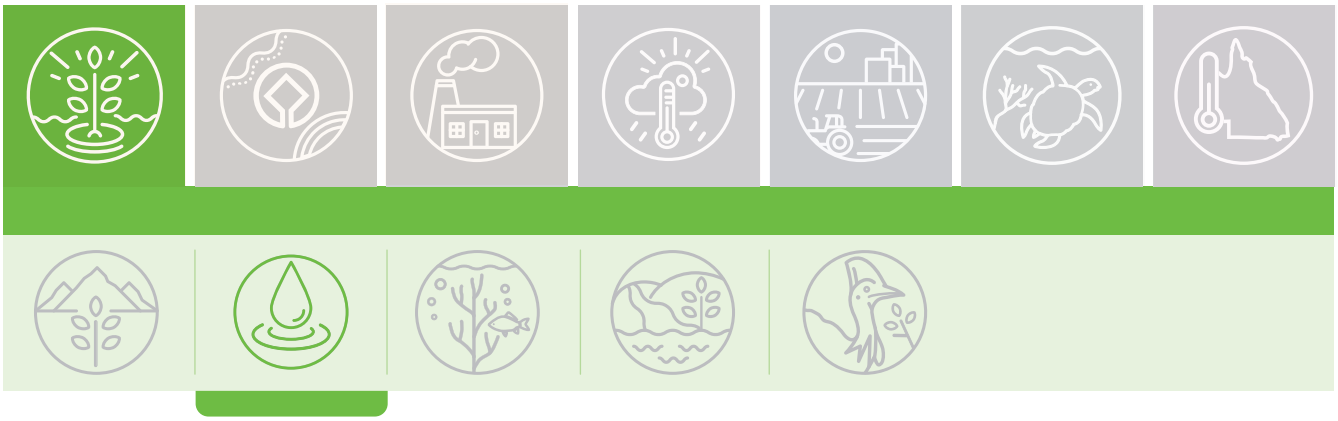
- overall, the freshwater floodplain wetland condition within the GBR Catchment overall is generally in a good (B) state
- the biotic integrity and local hydrology are in a good (B) state
- the local physical integrity and connectivity are in a moderate (C) state
- the rate of loss of natural wetlands across the GBR catchment is slowing, with a minimal loss of less than 0.1% (135ha) between 2017 and 2019.

Overall, the loss of riparian woody vegetation in GBR catchments due to land clearing from 2018-2021 was 47,519 hectares. This showed very poor progress towards the target that the extent of riparian vegetation is increased.

In the late dry season of 2022, 92% of the GBR catchment's grazing lands had ground cover levels above 70%, meeting the 2025 catchment management target of 90% for the first time since 2012. This change broadly reflects the increased average annual rainfall across the state in this reporting period.

Regional areas

The regional report card program found that the Burdekin, Fitzroy, Mackay Whitsunday and Wet Tropics regions have generally improved, ranging from moderate to good waterway condition. The Wet Tropics Daintree sub-catchment is an exception and has remained in very good condition. Southeast Queensland (SEQ) waterway conditions have generally remained stable or improved, except in four sub-catchments (Bremer, Lockyer, and Upper and Lower Brisbane).



Pressures

Great Barrier Reef

The Reef Water Quality Report Card found that, overall, freshwater floodplain wetlands in the GBR catchments are under low pressure from pollutant inputs (B) and moderate pressure from:

- catchment land use (C)
- pest species (C)
- loss of native vegetation (C)
- changes to water flow patterns (C).

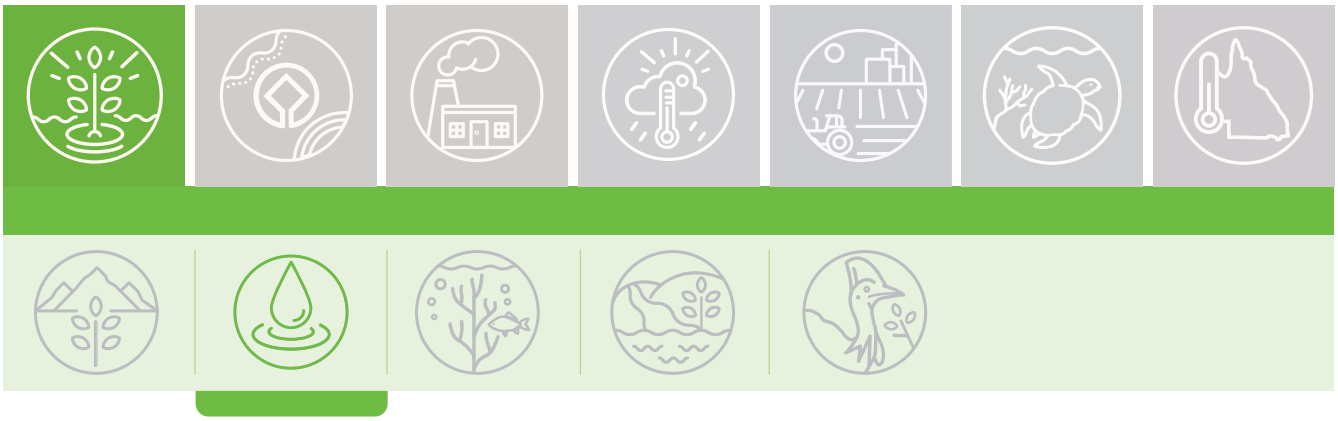
Estuarine wetlands in the GBR catchment have a range of chronic and acute pressures, such as:

- excess nutrients and sediment
- pesticides
- loss of connectivity
- changes in hydrology
- coastal development
- climate change, including sea level rise.

Regional areas

The regional report card program from 2020 to 2024 reported the common drivers affecting SEQ waterway catchments monitored as climate change, climate variability, population growth and economic growth.

The combined volume of treated sewage released to Queensland coastal waterways has been relatively steady since 2010 at around 290 gigalitres per year, except for 2021 and 2022, due to significantly above-average annual rainfall in Southeast Queensland.



Headline management responses

Water quality is protected across Queensland through several policies and plans including:

- Environmental Protection (Water and Wetland Biodiversity) Policy 2019
- Healthy Waters Management Plans (HWMPs)
- Point Source Water Quality Offset Policy.

The Environmental Protection (Water and Wetland Biodiversity) Policy 2019 establishes Healthy Waters Management Plans (HWMPs) as a key planning mechanism to improve the quality of Queensland waters. The department has worked with regional partners throughout Queensland to implement HWMPs and Water Quality Improvement Plans (WQIPs) that meet policy requirements. HWMPs have been developed for all Queensland Murray–Darling Basin catchments.

Great Barrier Reef catchments

The Reef 2050 Water Quality Improvement Plan 2017–2022 (Reef 2050 WQIP) guides how industry, government and the community work together to improve the quality of water flowing to the GBR lagoon.

The Reef Water Quality Report Card measures the progress towards the Reef 2050 WQIP objectives and targets. The outcomes from the 2021 and 2022 report card show:

- there is continued progress towards the water quality targets, primarily for particulate nutrients, with slower progress towards the dissolved inorganic nitrogen and sediment targets
- freshwater wetland conditions improved from previous reports and were rated good (B)
- there was a 0.7% reduction in dissolved inorganic nitrogen across the GBR catchment
- there was a 0.8% reduction in fine sediment across the GBR catchment.

Several programs across the reporting period delivered on-ground environmental projects, creating regional jobs for Queenslanders while improving water quality in GBR catchment. These include:

- the Reef Assist Program 1 & 2: 21 projects, 249,000 plants planted, and 1,484 hectares were actively managed
- the Natural Resources Recovery Program 2022-2024: 31 projects improving soil and land, vegetation, education, and decision-making
- the Natural Resources Investment Program 2018-2022: 30 projects improving the quality of the state's natural resources, specifically land, vegetation, water and the GBR.

Marine ecosystems

Marine ecosystems are aquatic environments that exist in saltwater conditions, including oceans and coastal zones. They are vital to Queensland as they support rich biodiversity, including the GBR, seagrass meadows, and mangrove forests, which provide habitats for fish, turtles, and marine mammals.

Why marine ecosystems are important

Marine ecosystems:

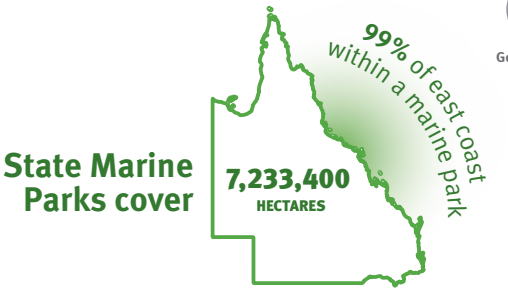
- help maintain water quality by filtering pollutants
- protect coastlines from erosion and storm surges
- play a key role in carbon storage, helping to mitigate climate change
- support tourism, fishing, and Indigenous cultural practices, contributing significantly to Queensland's economy and heritage.

Protecting marine ecosystems ensures the health of marine life, sustainable industries, and the resilience of coastal communities.

Key facts

State Marine Parks cover

Getting better



Marine Environments

N/A

Inshore

Impacted by pollutants from catchments

Offshore

Generally good condition

Fish stocks

Getting better

93%
no sustainability concerns

7%
depleted

State

Marine ecosystems along Queensland's east coast are monitored across six regions where most of the population resides. Monitoring programs primarily assess water quality, coral health, and seagrass coverage, with additional parameters evaluated in the GBR catchment to assess broader ecological impacts:

- offshore marine environments are generally in good condition as they are less affected by terrestrial runoff and pollutant loads from coastal catchments
- inshore marine ecosystems near the coast experience more significant impacts from sedimentation, nutrient enrichment, and contaminants from catchments and river systems. The pollutants stem from historical land use changes, coastal development, and unsustainable land management practices, including deforestation, intensive agriculture, and urban expansion
- regional ecosystem health varies. The Fitzroy and Mackay Whitsunday regions classified as being in poor condition due to high sediment and nutrient loads. In contrast, the Burdekin and Wet Tropics regions exhibit moderate ecosystem health, reflecting ongoing but relatively lower levels of environmental stress.

Great Barrier Reef

Since 2019, most ecological processes within the GBR have remained relatively stable. However, key environmental pressures continue to drive long-term degradation:

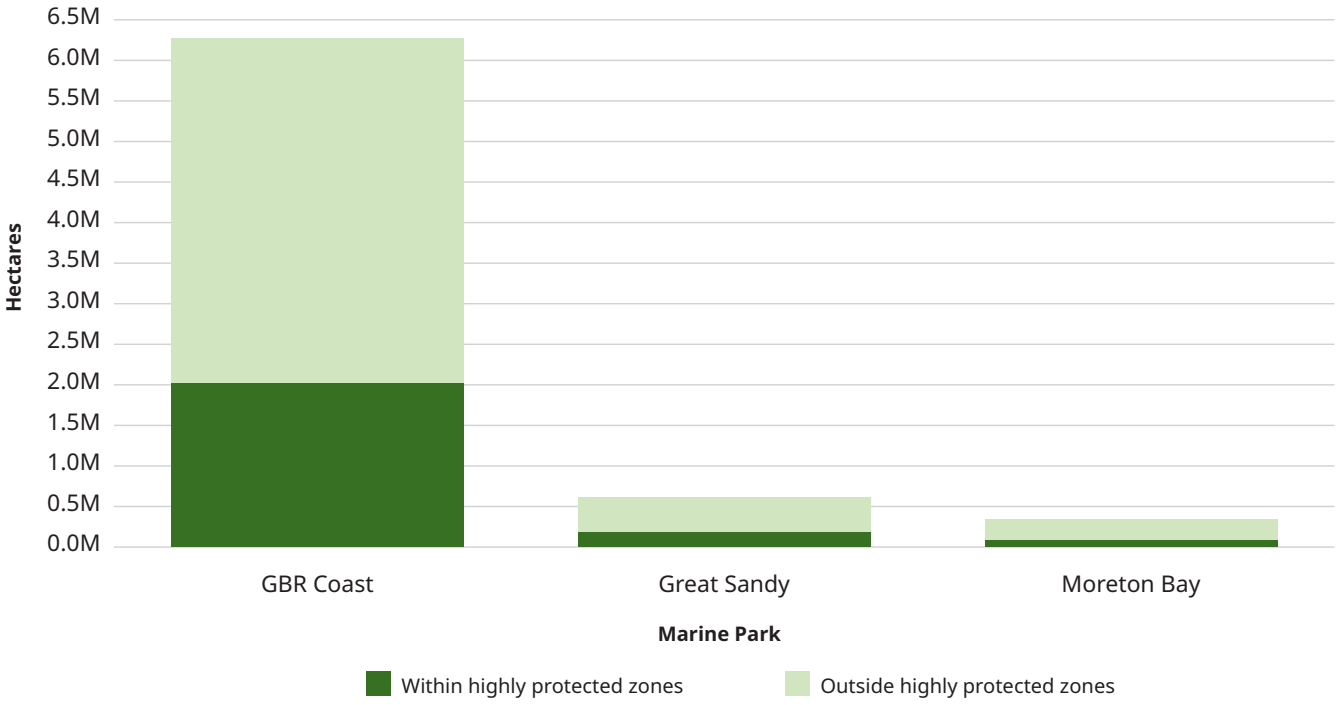
- coral reef accretion is declining due to reduced calcification rates associated with ocean acidification, which weakens the ability of reef-building corals and coralline algae to deposit calcium carbonate
- coral recruitment trends vary, but declines have been observed in some populations, particularly in response to mass bleaching events, cyclonic disturbances, and disease outbreaks
- iconic marine species, including dugongs, marine turtles, and some coral species, have shown population declines, likely driven by habitat loss, climate change, and cumulative human pressures.

Fish stocks and marine protected areas

Queensland's fisheries are managed under a sustainability framework, and key fish stock assessments indicate favourable outcomes. About 93% of fish stocks are considered to have no sustainability concerns. In comparison, 7% are depleted or depleting and have rebuilding strategies in place with targeted conservation and fisheries management interventions to aid recovery.

Approximately 99% of Queensland's east coast is within a marine park. These parks provide varying levels of protection, with 31% (2,275,000ha) designated as highly protected zones.

Extent of each marine park within and outside highly protected zones



Additionally, 72 declared Fish Habitat Areas (FHAs) safeguard approximately 1.2 million hectares of critical estuarine and coastal habitats, essential for supporting commercially and ecologically significant fish species.

Pressures

Pressures affecting marine ecosystems within the GBR catchments are:

- catchment and coastal development
- extreme weather events
- climate change.

In Southeast Queensland, the major pressures affecting marine ecosystem health are sediment and the long-term loss of riparian vegetation, exacerbated by climate change and population growth.

The Great Barrier Reef Outlook Report 2024 found that of the four main factors influencing the GBR, climate change has the highest negative impact. Its impacts on natural and heritage values are already apparent and expected to increase.

Other pressures include:

- coastal development has a high impact on ecological and heritage values
- the GBR is vulnerable to exposure to pollutants (mainly sediments, nutrients and pesticides) transported in land-based runoff from unsustainable agricultural land management practices
- crown-of-thorns starfish outbreaks continue to affect reefs, but control efforts have reduced impacts at some scales.

Headline management responses

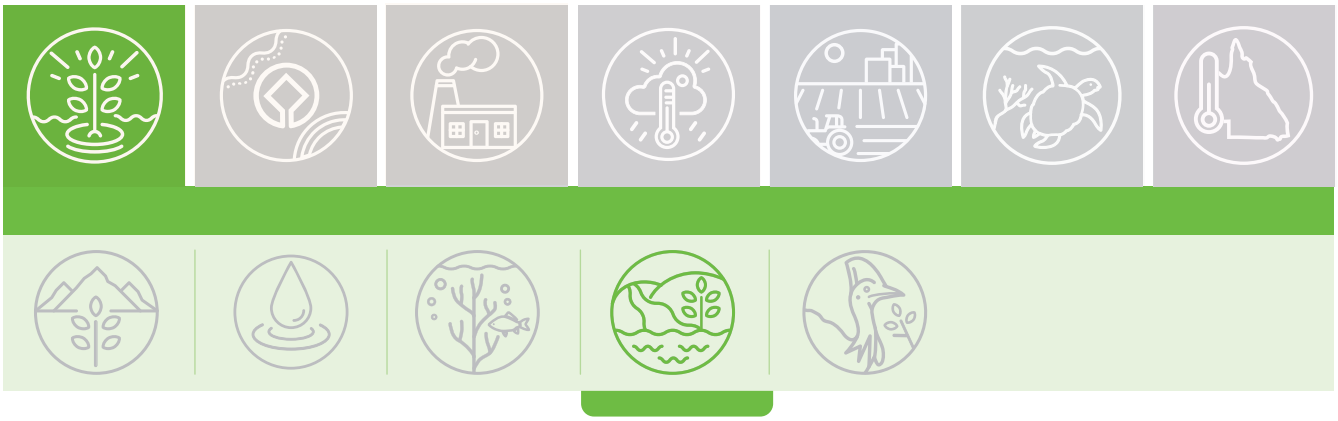
The Reef 2050 Long-Term Sustainability Plan (Reef 2050 Plan) is the overarching Australian and Queensland Government action plan to work with partners to protect and manage the GBR and the catchments that feed it.

Between 2020 and 2024, several significant commitments under the Reef 2050 Plan were delivered, including:

- 30 actions from 33 in the Sustainable Fisheries Strategy progress report- year 7 (2023-2024)
- updating the Reef 2050 Wetlands Strategy that aims to improve the management of the wetlands in reef catchments
- progress towards the Reef 2050 Water Quality Improvement Plan targets detailed by the Reef Water Quality Report Card 2021 and 2022
- the reduction of net fishing and other high-risk fishing activities impacting the reef. This includes ensuring the GBR is gillnet-free by mid-2027.

In 2024, the Reef Authority published the Great Barrier Reef Blueprint for Climate Resilience and Adaptation, a strategic roadmap to strengthen reef resilience.

A review of the zoning plan for the Great Sandy Marine Park was completed in 2023, resulting in a new zoning plan that increased the protection of vulnerable habitats and threatened species from 2024.



Wetlands

Wetlands are areas of permanent or periodic/intermittent inundation, with water that is static or flowing, fresh, brackish, or salt. They include areas of marine water where the depth at low tide does not exceed six metres. Queensland's freshwater and estuarine wetlands are essential ecosystems. They include lakes, swamps, floodplains, saltmarshes, mudflats and mangrove forests that support diverse wildlife.

Many Queensland wetlands are internationally important and recognised under the Convention on Wetlands of International Importance, known as the Ramsar Convention.

Why wetlands are important

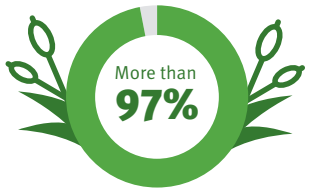
Wetlands help maintain water quality by:

- filtering sediments
- processing nutrients
- reducing pollutants, protecting downstream ecosystems
- acting as natural flood controls by absorbing excess water and shielding communities from storms and erosion.

Wetlands cover around 4.5% of Queensland and offer ecosystem services comparable to rainforests. They also serve as fish nurseries, supply fresh water for agriculture, and support key industries, such as fishing and tourism.

Key facts

N/A



Palustrine (swamp) and **lacustrine (lake)** wetlands **remain** of pre-settlement extent

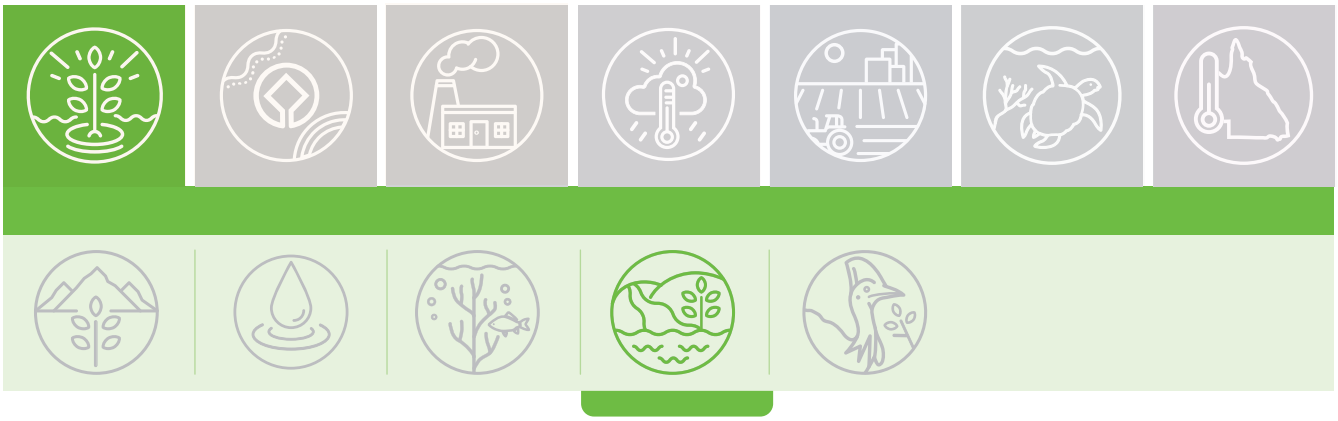
N/A

Palustrine (swamp) and **lacustrine (lake)** wetlands are in **protected areas**

Pressures on freshwater wetlands

No annual increase or reduction

No change



State

In 2024, over 97% of the pre-European settlement extent of palustrine (swamp) and lacustrine (lake) wetlands and 95% of vegetated intertidal wetlands remained in Queensland.

The overall trend in the rate of wetland loss has decreased, but there are regional variations. The greatest losses have occurred in the North East Coast drainage division (GBR catchment) and for swamps/lakes, including in the Murray Darling division. The losses for 2017-2019 were less than 0.01% by area for the:

- Murray Darling (208ha)
- GBR catchment (129ha).

Losses in freshwater wetlands across the state are mainly due to agricultural expansion, development, and infrastructure. The estimated historic loss of intertidal wetlands has occurred mainly due to draining, development and bunding associated with converting intertidal to freshwater wetlands.

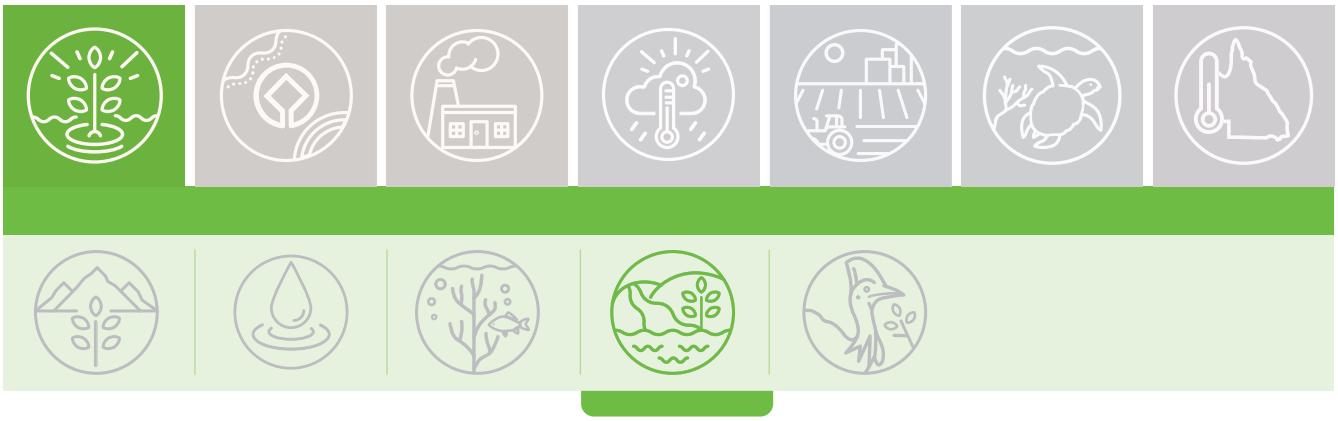
Since 2016, the condition of natural, freshwater floodplain wetlands (lakes and vegetated swamps) in major aggregations within the GBR catchments has been monitored annually, with have identified no improvement or decline in their overall condition.

In Queensland, almost 11% of palustrine and lacustrine wetlands and 30% of intertidal wetlands are in protected areas.

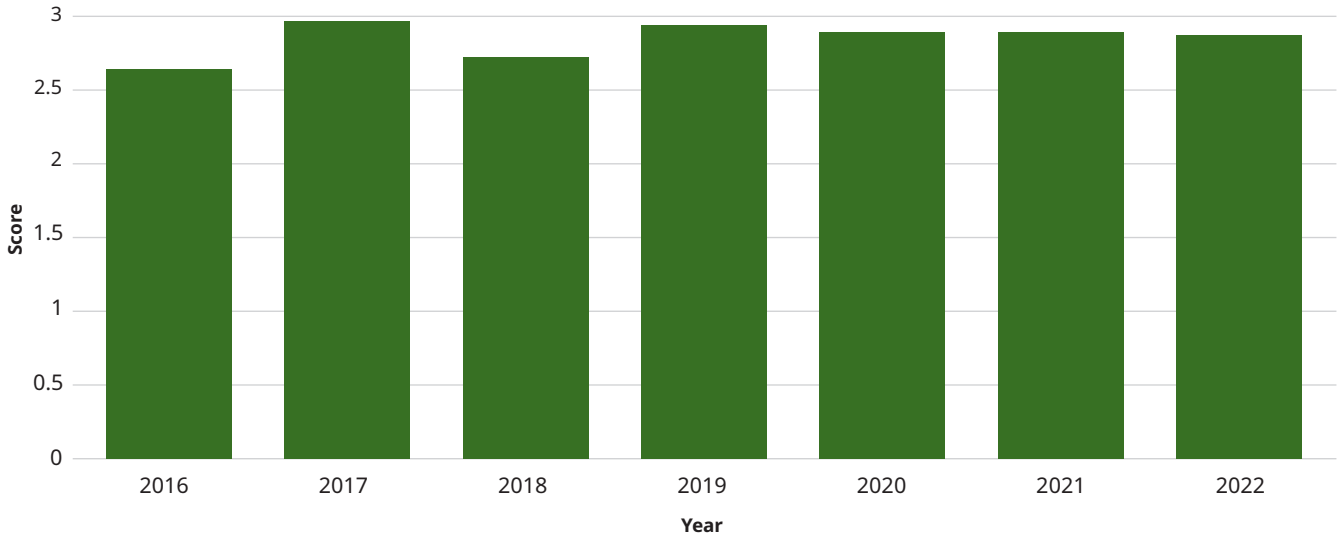
Pressures

Between 2016 and 2022, there has been no annual increase or reduction in the overall pressure (invasive species, habitat modification, water regime change, pollutants) on freshwater wetlands within the GBR catchment.

A rapid assessment method called Wetland Tracker uses desktop analysis based on imagery and spatial data to score a set of pressure indicators related to wetland health (listed above), which is confirmed in the field. Indicators are scored from one (least pressure or least disturbed state) to five (greatest pressure or most disturbed state). There was a slight annual increase in the pressure on wetlands from water regime change (i.e. natural wetland water levels altered by a dam or levee).



Overall pressures affecting freshwater wetlands *(1-5 Lower scores – lower pressures)*



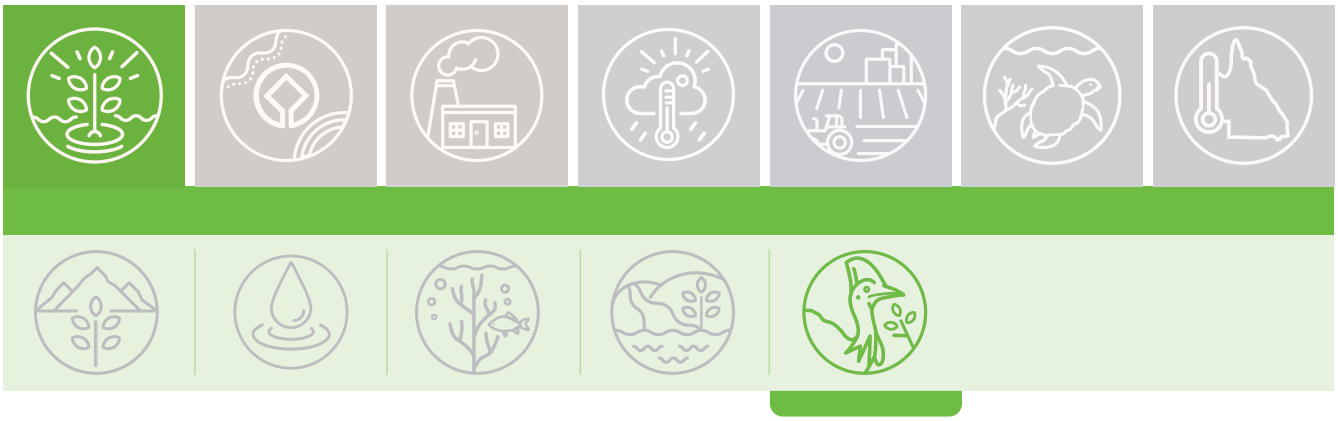
Headline management responses

Between 2020 and –2024, a range of Queensland Government legislation, policies and programs focused on protecting wetlands. These include:

- the Environmental Protection (Water and Wetland Biodiversity) Policy 2019, which protects Queensland's water environment while allowing for ecologically sustainable development
- the State Planning Policy (State Interest Water Quality - Planning Act), which informs local government planning and decision-making for urban land development
- the Point Source Water Quality Offsets Policy 2019, which ensures an improvement is delivered to water quality in the receiving waters.

The Queensland Wetlands Program was established by the Australian and Queensland Governments in 2003 to support projects and programs that enhance the wise use and sustainable management of Queensland's wetlands. The Program provides an umbrella for wetlands policies and programs across Queensland. It promotes collaboration, coordination and information sharing among government agencies, Natural Resource Management groups, First Nations and community groups.

The Reef 2050 Wetlands Strategy supports the objectives and outcomes of the Reef 2050 Long-Term Sustainability Plan. Developing and implementing the strategy is a key action under the Reef 2050 Plan to increase effective land management practices, focusing on the values of wetlands and their catchments. It sits alongside the Reef 2050 Water Quality Improvement Plan and helps drive progress towards the water quality targets that have been set. It adopts a whole-of-system, values-based approach to wetland management that considers management at multiple scales, including at the catchment scale, and the services and values wetlands provide.



Species and habitat

Queensland has some of Australia's most naturally diverse species and habitats, in native flora (plants) and fauna (animals).

Queensland has:

- about 85% of Australia's native mammals
- 72% of its native birds
- more than half of the nation's native reptile and frog species
- more than 14,000 native plant species.

Every species requires a certain set of environmental conditions to survive, move around, feed and reproduce. Whether in the forest, grassland, desert or ocean, the place where each species finds the conditions needed to live and thrive is called its habitat. When habitats are threatened, so are the animals and plants that live there.

Why species and habitat are important

Flora and fauna are essential to Queensland's rich biodiversity, maintaining healthy ecosystems and supporting environmental, economic, and cultural values. Native plants provide oxygen, store carbon, and support wildlife by offering food and shelter. Animals contribute to pollination, seed dispersal, and natural pest control.

Queensland's unique species, from towering eucalypts to iconic koalas and cassowaries, are vital to ecosystem balance. Protecting flora and fauna:

- helps sustain industries like tourism and agriculture
- preserves Indigenous cultural heritage
- ensures the resilience of the natural environment for future generations.

Key facts

N/A

Threatened fauna species

2019-2024
total number of threatened species **increased** by

48 ↑

N/A

Threatened flora species

2019-2024
total number of threatened species **increased** by

66 ↑

N/A

Threatened flora pre-clear habitat cleared across Queensland

N/A

Threatened fauna pre-clear habitat cleared across Queensland

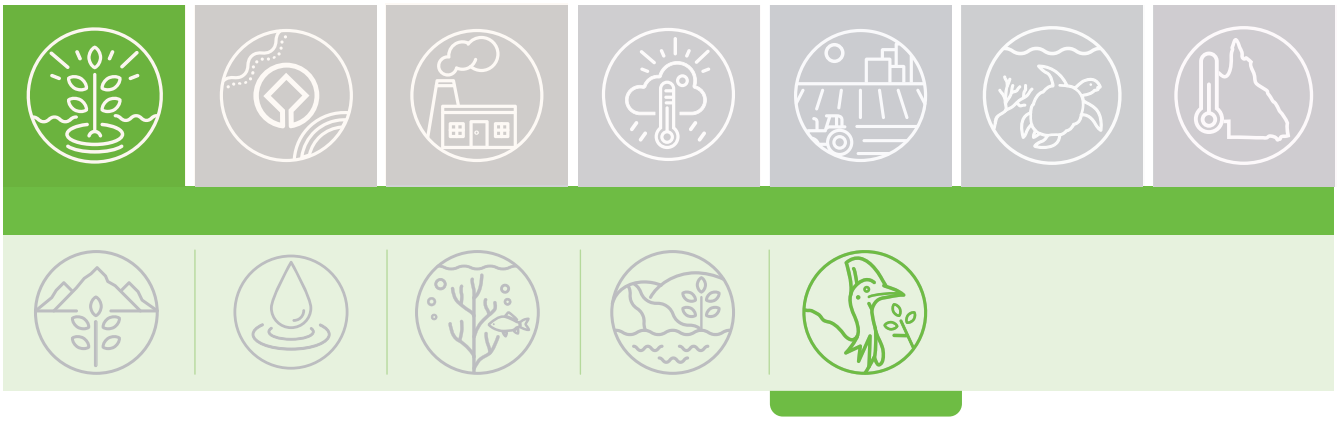
N/A

Threats affecting fauna and flora species

Habitat loss and fragmentation

Invasive and problematic species

Numbers are not comparable to SoE2020 due to methodology changes



State

Threatened species numbers

Monitoring the changes in threatened species numbers provides an overview of whether species, over time, are still experiencing pressures that put them at risk of extinction. During the reporting period, applying the Common Assessment Method process to align threatened species status between the *Nature Conservation Act 1992* and the Australian Government's Environment Protection and *Biodiversity Conservation Act 1999* (EPBC) resulted in adding and removing several threatened species categories. Misaligned species have been reviewed, resulting in some significant changes to:

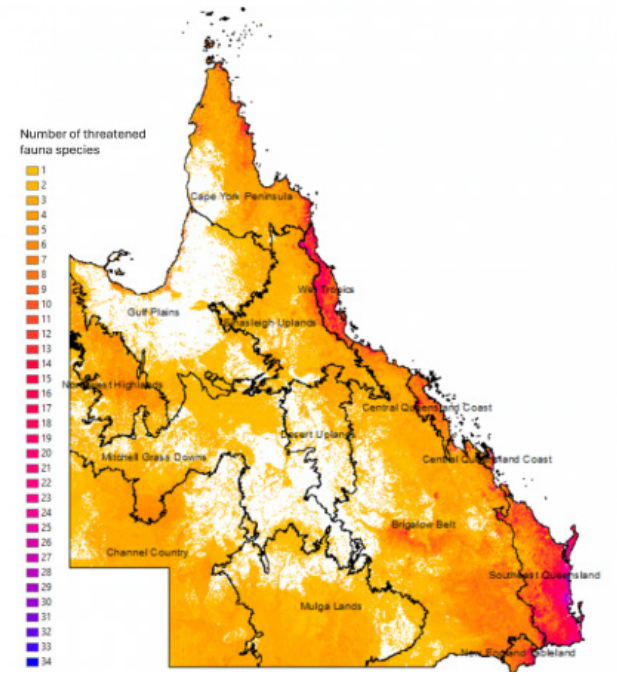
- the status of many listed species
- the number of species in each category
- the total number of listed species.

As a result, changes in the number of species within each category may reflect a reassessment of the species' status, not just the addition of new species to the threatened list. Between 2019 and 2024, the number of threatened species for Queensland has increased by 48 fauna species and 66 flora species.

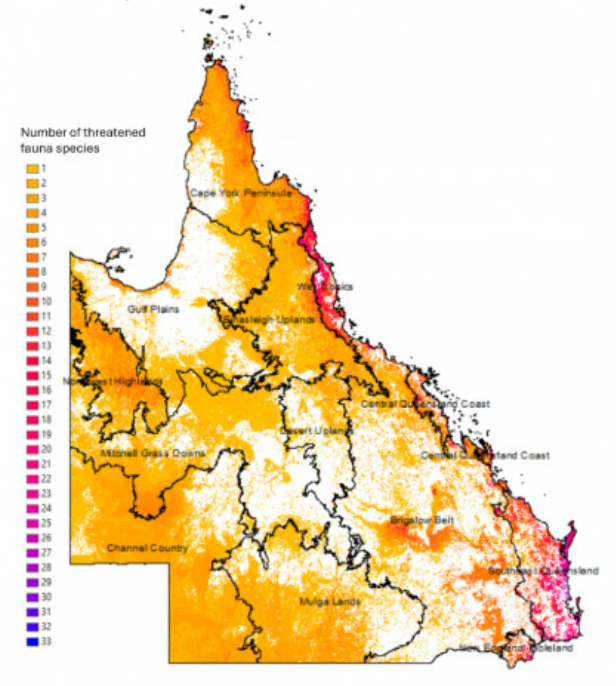
Threatened species habitat

By 2021, across the state there was a 22% loss in threatened fauna species habitat compared to pre-clearing habitat extent and a 29% loss of threatened flora species habitat. Knowing how much threatened species habitat has been cleared is crucial for assessing habitat loss trends across bioregions and the state. By understanding the distribution of these habitats before clearing, we can determine how much remains as remnant vegetation and evaluate the adequacy of current protected areas and conservation efforts. National parks in Queensland protect 10.2% of the modelled threatened fauna habitat and 8.2% of the modelled threatened flora habitat.

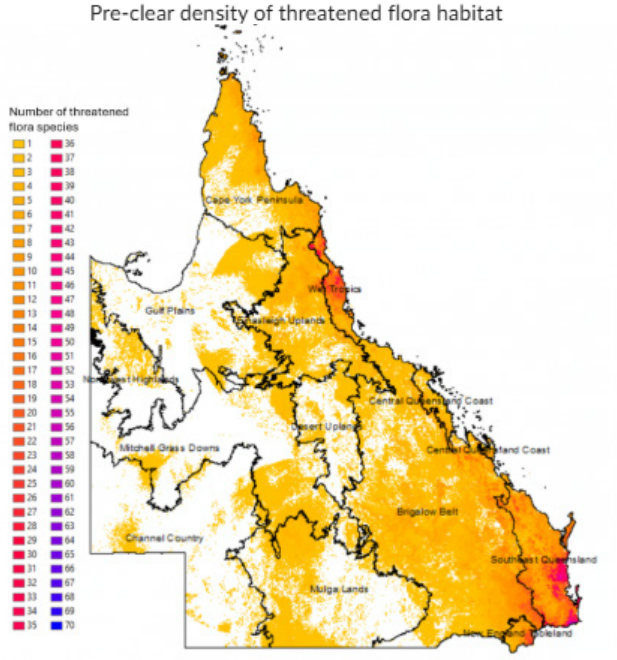
Pre-clear density of threatened fauna habitat



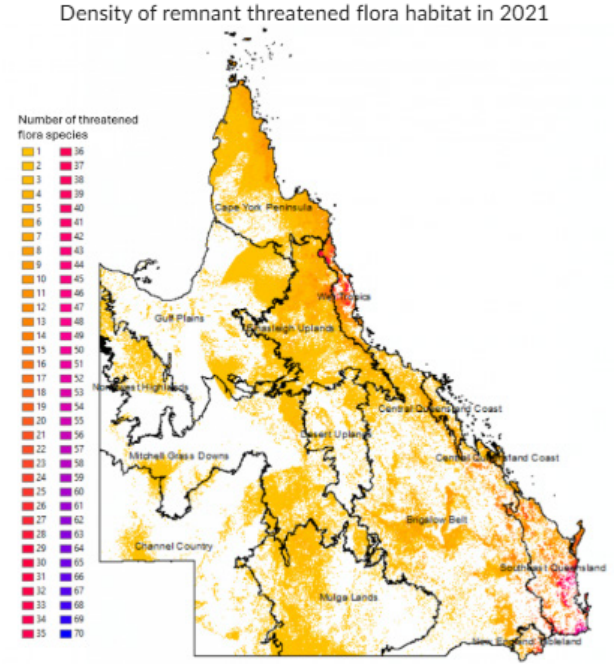
Density of remnant threatened fauna habitat in 2021

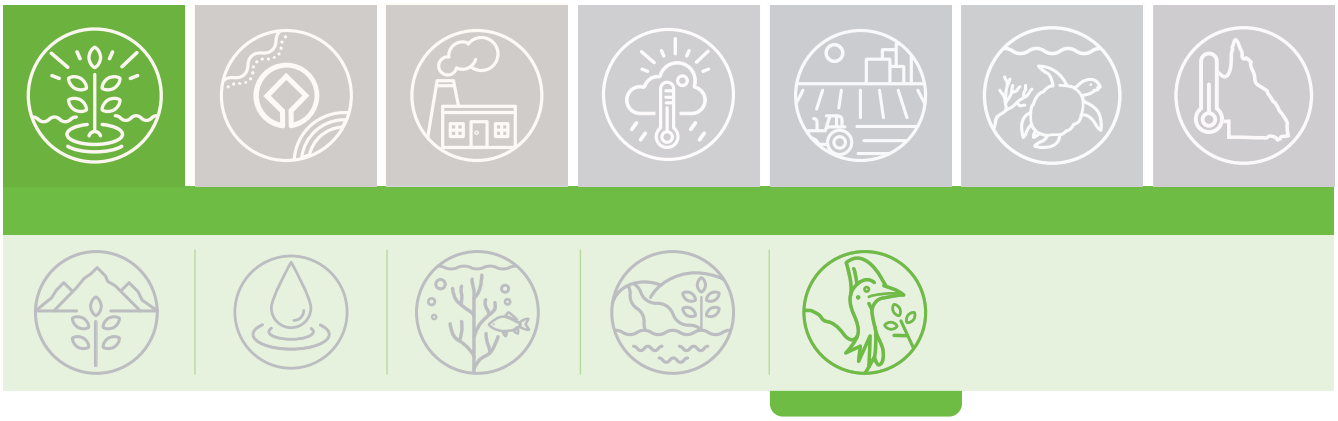


Pre-clear density of threatened flora habitat



Density of remnant threatened flora habitat in 2021





Pressures

Between 2020 and 2024, the top five threats impacting the greatest number of threatened fauna species were:

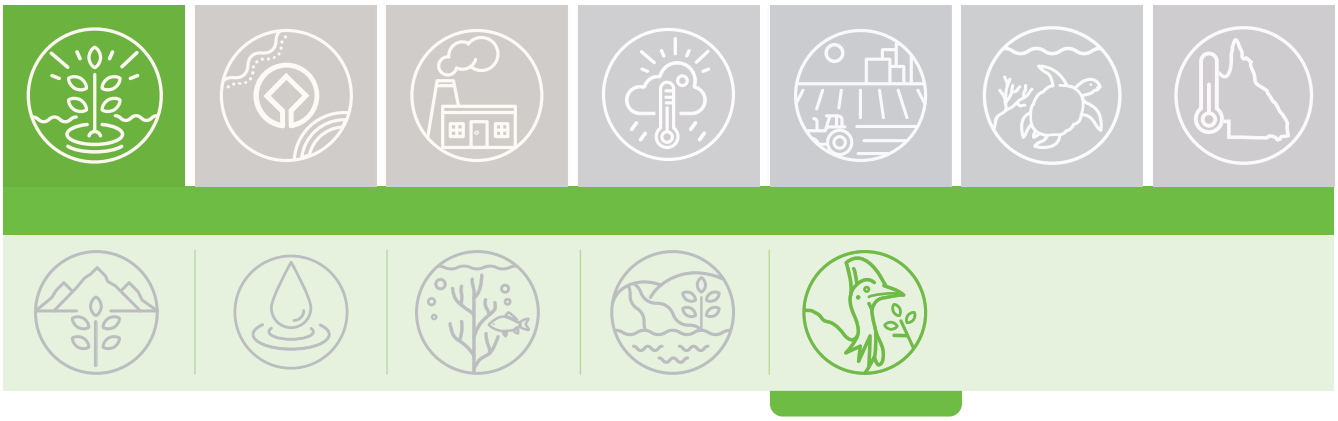
- habitat loss and fragmentation
- invasive and problematic animals
- climate change and severe weather
- harm from human activities
- adverse fire regimes.

The top five threats impacting the greatest number of threatened flora species were:

- habitat loss and fragmentation
- restricted populations and/or low population viability
- adverse fire regimes
- invasive and problematic plants, such as weeds
- harm from human activities, such as the illegal collection of plants.

The annual rate of clearing of threatened flora and fauna habitat (identified as woody vegetation) has declined since 2018 in Queensland. Clearing has predominantly been for pasture development, which remains the greatest pressure.

Threatening processes, such as habitat degradation, loss of habitat connectivity, disease, predation, invasive species, grazing and inappropriate fire management, place significant additional pressure on threatened flora and fauna in remnant and non-remnant habitats.



Headline management responses

In 2022, the Queensland Government published Conserving Nature—a Biodiversity Conservation Strategy for Queensland (the strategy). It acts as an overarching framework for a coordinated approach to government strategies, programs and initiatives that contribute to positive outcomes for biodiversity.

Queensland's Protected Area Strategy 2020-2030 establishes the overarching framework, strategic direction and actions to enhance Queensland's terrestrial protected areas.

Queensland's Threatened Species Program 2020-2040 details the state's long-term plan to conserve its most vulnerable flora and fauna.

The Queensland Government, in collaboration with the CSIRO, has co-developed a Threatened Species Prioritisation Framework to guide threatened species investment and recovery actions across Queensland. The framework aims to address the 2018-2019 Queensland Audit Report findings that the department lacked a system to prioritise recovery efforts for threatened species.

During 2019–2020, Queensland experienced a catastrophic bushfire season. In response, the Threatened Species Bushfire Recovery Program delivered priority threatened species recovery actions through four recovery projects:

1. Gondwana World Heritage Area (Lamington, Mt Barney and Main Range National Parks)
2. Cooloola section of Great Sandy National Park
3. Oakview and Nangur National Parks
4. Bulburin National Park.

Phase one of the recovery program was completed in June 2021, and phase two in October 2022. This work:

- improved priority threatened species' immediate survival
- enhanced long-term recovery
- delivered crucial fire and pest management actions to support ecological recovery.

Heritage

Introduction

Queensland has a rich and diverse heritage that contributes to our sense of place, reinforces our identity and helps define Queensland's story. It forms part of our common inheritance, and we have a responsibility to ensure its conservation for present and future generations.

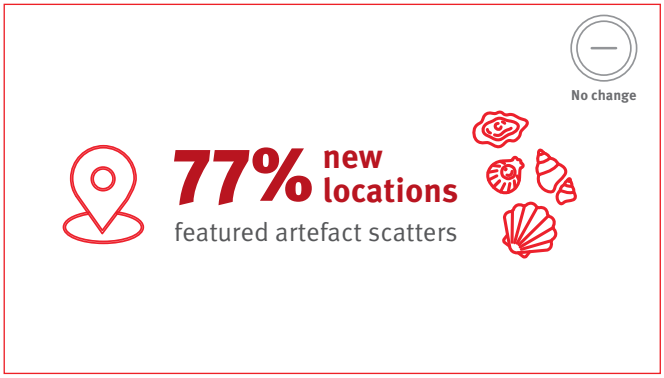
Queensland's rich Indigenous history and five World Heritage properties must be protected and recorded for future generations. These objects and sites of cultural and environmental significance represent important places and experiences of those who came before us.

Aboriginal and Torres Strait Islander cultural heritage

Aboriginal and Torres Strait Islander cultural heritage can be both tangible and intangible. It intrinsically links people to place and enables cultural connections with Country.

Australia is home to the oldest continuous culture on Earth, 65,000 years of uninterrupted heritage. Queensland is also home to two distinct cultural groups with their own diversities. The Aboriginal peoples and the Torres Strait Islander peoples share a symbiotic relationship with the land, waters and sky Country, with everything in it.

Key facts



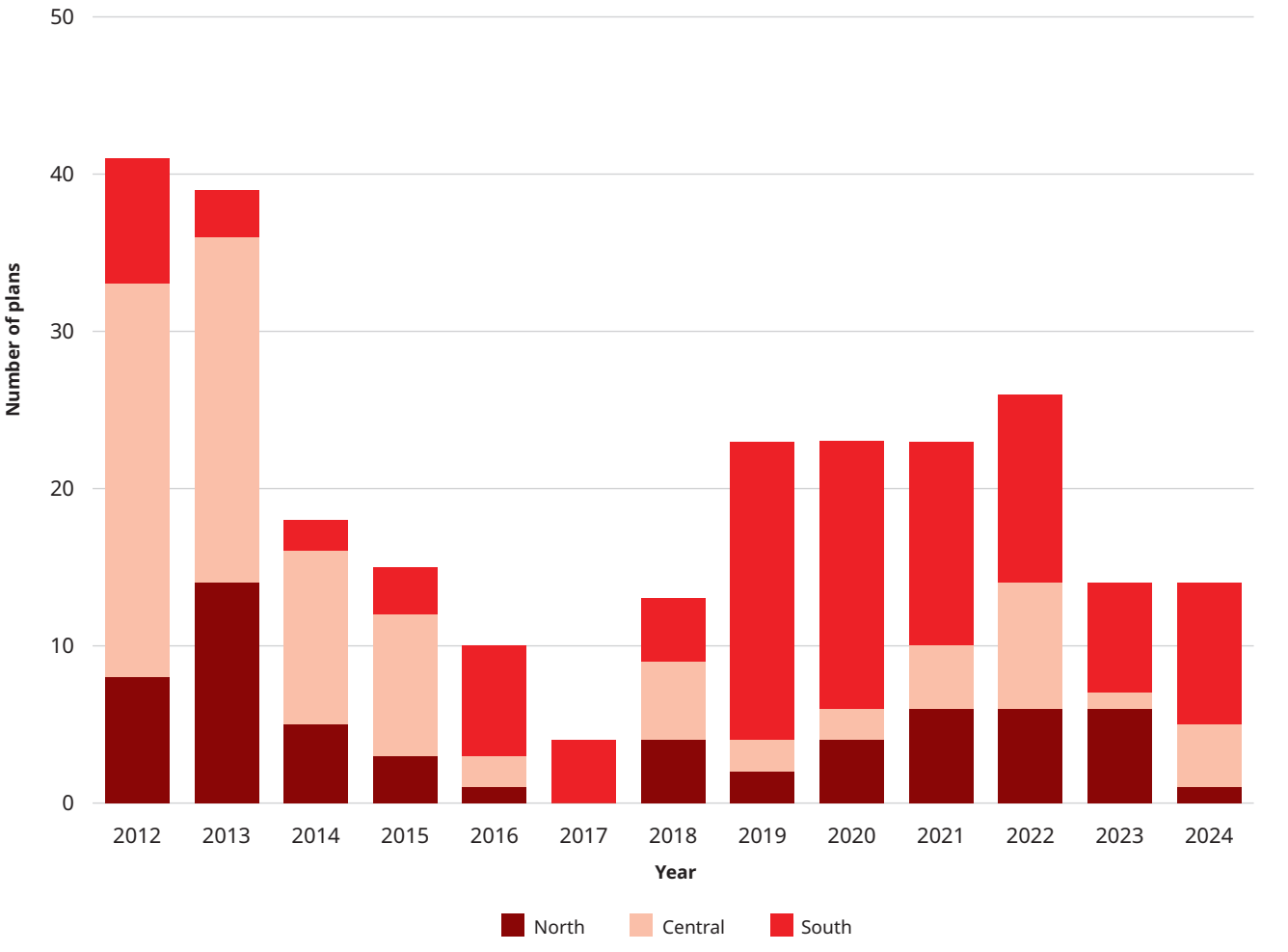
State

Artefact scatters are still the most prevalent site location recorded on the Aboriginal and Torres Strait Islander Cultural Heritage Database, representing about 77% of new locations. Scarred trees are the second most prevalent at approximately 11%.

Pressures

From April 2020 to June 2024, 79 cultural heritage management plans were approved, a slight increase of 11% compared to the last reporting period.

Number of management plans registered, by cultural heritage region



Cultural heritage search requests processed for land users increased by 25.5%, from 27,242 searches in 2019 to 34,204 in 2024. The increased number of search requests suggests increasing land use activity and greater awareness of duty of care obligations.

Headline management responses

The purpose of the *Aboriginal Cultural Heritage Act 2003* and the *Torres Strait Islander Cultural Heritage Act 2003* is to provide effective recognition, protection, and conservation of Aboriginal and Torres Strait Islander cultural heritage. This is defined as anything that is a significant Aboriginal or Torres Strait Islander area or object in Queensland, or evidence of archaeological or historic significance of Aboriginal or Torres Strait Islander occupation of an area of Queensland.

A significant area or object is an area or object that is of particular significance to Aboriginal or Torres Strait Islander people because of either or both the tradition or the history (including contemporary history) of any Aboriginal or Torres Strait Islander party for the area.

Cultural heritage duty of care guidelines have been developed to help land users assess reasonable and practicable measures to meet their cultural heritage duty of care. Land users should consult the guidelines before undertaking a land-use activity.

The Gurra Gurra Framework 2020–2026 was launched in April 2020, reflecting the need for the then Department of Environment, Science and Innovation (now DETSI) to be culturally capable, integrated and respectful in its relationship with First Nations people. The framework takes a holistic approach to improve business processes and outcomes with ten initiatives driving change. A mid-way review was undertaken in late 2023 to ensure continued improvement, assess its impact and ensure it meets its desired outcomes.

Queensland First Nations World Heritage Strategy

The Queensland First Nations World Heritage Strategy was co-designed and developed with First Nations people and seeks to centre Country and people across all aspects of World Heritage.

The strategy demonstrates how the Queensland Government can empower First Nations peoples and local communities to better identify, protect, conserve, present and transmit the irreplaceable values of World Heritage areas to future generations.

The strategy:

- contributes to delivering on Queensland's obligations under the World Heritage Intergovernmental Agreement between the State and the Commonwealth
- demonstrates the Queensland Government's commitment to integrating First Nations rights, interests and knowledge into World Heritage nominations, governance, planning and management
- is anchored in the acknowledgement that First Nations peoples have cared for Country for tens of thousands of years and continue to have rights, interests and responsibilities to care for Country

Supporting whole-of-landscape outcomes

The department recognises that delineating space through lines on a map often runs counter to how they are inhabited and relate to Country. The Queensland Indigenous Land and Sea Ranger program facilitates tenure blind management and stewardship over the entire Country footprint, supporting whole-of-landscape outcomes. Over the reporting period, the department completed consultation on the Engagement and Partnering Guide, which was co-developed with over 100 Aboriginal and Torres Strait Islander people from around the state. The guide will provide an instructive blueprint for staff to embed these practices in their work in the future.

The department also acknowledges the significant history of First Nations peoples' fire management across Country over millennia. First Nations culture, heritage, knowledge and values are intrinsically connected to Country. First Nations people and their knowledge are at the forefront of efforts to provide Queensland landscape-wide fire management skills and services. The department works to co-design the management of parks and forests with First Nations people, including culturally responsible and appropriate fire management.

The department's First Nations on Country Partnerships Program began in December 2023, which:

- provides funding and project support to First Nations organisations participating in species recovery and threat management
- expands existing partnership arrangements with Indigenous Land and Sea Ranger groups to deliver projects and build capacity to manage threatened species on Country.

World Heritage

World Heritage sites are places that have Outstanding Universal Value transcending the significance they hold for a particular nation.

Queensland has five World Heritage places:

1. Great Barrier Reef
2. Wet Tropics of Queensland
3. Australian Fossil Mammal Sites - Riversleigh section
4. K'gari (Fraser Island)
5. Gondwana Rainforests of Australia (Queensland section).

Why World Heritage is important

The World Heritage Convention aims to promote cooperation among nations to protect heritage around the world that is of such Outstanding Universal Value that its conservation is important for current and future generations.

Great Barrier Reef

Getting worse

Whole and intact

Outstanding Universal Value remains

Condition deteriorated to varying elements

Integrity being challenged

Crown-of-thorns starfish

No change

continue to affect parts of the Great Barrier Reef

Control efforts have reduced impact

Wet Tropics of Queensland

No change

Climate Change is **very high threat** to unique biodiversity

cyclones

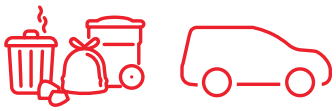
drier dry periods

heatwaves

K'gari (Fraser Island)

No change

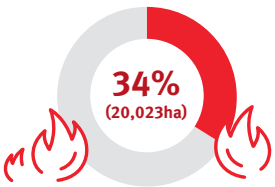
Impacts of **increased tourism** poses **threats** to the Outstanding Universal Value



Gondwana Rainforests of Australia (Queensland Section)

Getting worse

2019-2020 bushfires impacted



4,000ha rainforest burnt

State

The Great Barrier Reef

The Great Barrier Reef World Heritage Area remains whole and intact, but its integrity is being challenged. Its Outstanding Universal Value remains; however, the site's condition has deteriorated to varying extents. Increasing pressure brought about by climate change, combined with chronic and legacy impacts are undermining the Reef's resilience.

Wet Tropics of Queensland

Degradation of the Wet Tropics of Queensland's Outstanding Universal Values and threats to its long-term integrity are outpacing management efforts. The pressures on the area's integrity and its Outstanding Universal Values include climate change, invasive species, and altered fire and hydrological regimes.

Australian Fossil Mammal Sites - Riversleigh section

The conservation outlook remains good. While several threats affect the site; they are minor and do not impact on its Outstanding Universal Value.

K'gari (Fraser Island)

The state of K'gari (Fraser Island) Outstanding Universal Values remains relatively good, and significant resources are being directed to managing threats to these values. Pressures from tourism and climate change will require continued monitoring and increased management efforts to ensure preservation of the site's values in the long term.

Gondwana Rainforests of Australia (Queensland section)

Wildfires in 2019-2020 have demonstrated the vulnerability of the Gondwana Rainforests of Australia (Queensland section) Outstanding Universal Values to increased temperature, drought conditions and catastrophic events. In addition, invasive species, including pathogens, may affect some species' natural ongoing evolutionary processes. This trend is likely to increase. The trends for some threatened species are uncertain.

Pressures

Great Barrier Reef

The Great Barrier Reef Outlook Report 2024 provides assessments of the impacts of climate change, coastal development, direct use, crown-of-thorns starfish, and land-based run-off pressures for the GBR's ecological, heritage, economic and social values and the risk posed by climate change into the future.

Wet Tropics of Queensland

Climate change, through extreme weather events, including cyclones, drier dry periods, and heatwaves, is a very high threat to the Wet Tropics' unique biodiversity. Recent widespread landslides from extreme weather events have left large-scale scours in key parts of the World Heritage Area. The impacts on its Outstanding Universal Value and biodiversity are yet to be fully quantified and understood.

The major invasive threats to the Wet Tropics are yellow crazy ants, electric ants, chytrid fungus, myrtle rust, pigs, cats and a growing list of weed species. The ongoing and increasing impact of invasive animal and plant species and diseases poses a very high threat to the Outstanding Universal Value of the Wet Tropics.

Australian Fossil Mammal Sites - Riversleigh section

Threats to the Riversleigh section of the Australian Fossil Mammal Sites include possible fossil displacement from large-scale flooding. Monitoring of the impacts from flooding in 2023 is conducted through fossil health check monitoring. The impacts of climate change on this World Heritage site are considered very low. Threats such as site damage and fossil theft are low due to the nature of public access, remoteness and relatively low visitor numbers at Riversleigh.

K'gari (Fraser Island)

There are a number of pressures on K'gari including:

- pollution
- erosion and siltation
- disturbance
- extreme weather events
- invasive species.

However, these threats are unlikely to alter the landscape's ongoing geomorphological or ecological processes; rather will require ongoing management.

Gondwana Rainforests of Australia (Queensland section)

The 2019-20 bushfires impacted approximately 34% (20,023ha) of the Queensland section of the Gondwana Rainforests of Australia World Heritage area, with 4,000 hectares of rainforest burnt. While some areas and particular plant and animal species appear to be recovering, some areas experienced high to catastrophic ecological impacts from the fires.

Climate change presents one of the greatest emerging threats to the Outstanding Universal Values of the Gondwana Rainforests of Australia (Queensland section). The impacts include:

- higher temperatures
- extended periods of drought
- more frequent and intense storms
- changes to the cloud base, mist availability or rainfall.

Other pressures include invasive species and pathogens, fragmentation, and tourism, which has a minor and site-specific impact.

Headline management responses

In Australia, World Heritage obligations are met through cooperative and legislative arrangements between the Australian Government, State and Territory governments, local government agencies, property owners/site managers and Traditional Owners.

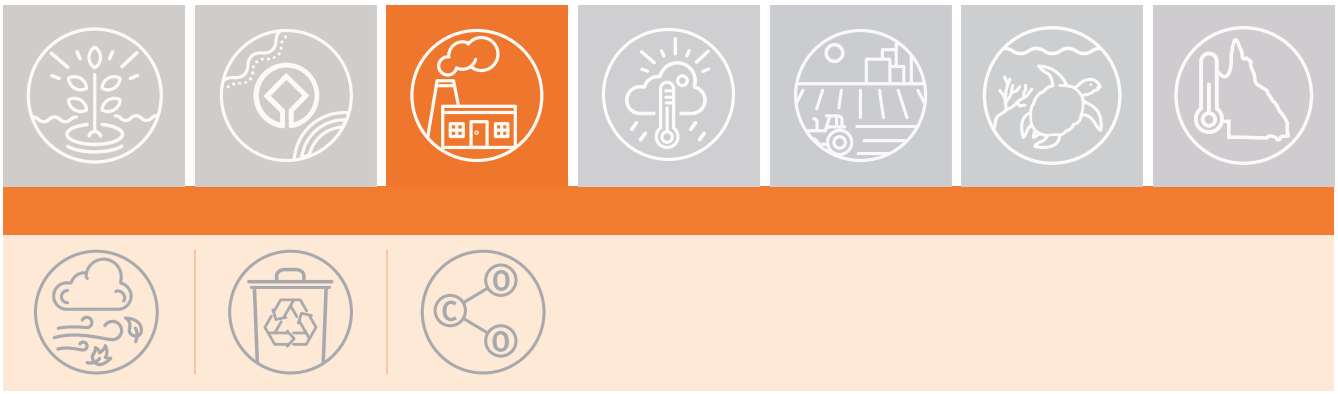
The World Heritage Convention and the Australian Government's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) require the preparation of property-specific World Heritage Management Plans for each of Australia's World Heritage properties. The World Heritage Intergovernmental Agreement between the Queensland and Australian Governments establishes that the Queensland Government is responsible for developing World Heritage Management Plans consistent with the EPBC Act provisions.

World Heritage Management Plans provide direction for effective coordination of management efforts by clearly defining a 'line of sight' between strategic goals, objectives, strategies, and those responsible for implementation.

The *Nature Conservation Act 1992* requires that a management statement or management plan be prepared for each protected area to guide how its management. These documents provide strategic direction for the management of key park values. There is a strategic line of sight from management statements and plans to on-the-ground operations.

The Wet Tropics Management Plan 1998 (the Management Plan) provides the legal framework for managing the Wet Tropics of Queensland World Heritage Area. It is required under Queensland's *Wet Tropics World Heritage Protection and Management Act 1993* and only applies to the Wet Tropics World Heritage Area. An updated plan came into effect on 11 September 2020.

The department commenced a process, through the Queensland First Nations World Heritage Strategy, to work with First Nations people and other external partners to update the World Heritage Management Plans for Riversleigh, K'gari (Fraser Island) and the Gondwana Rainforests. The Gondwana Rainforests site extends across the New South Wales border and includes the Country of multiple First Nations groups.



Pollution

Introduction

Pollution affects us all. It impacts the environment and our health. It results in economic costs. All forms of pollution can harm native species and their habitat and impact the scenic amenity of Queensland's natural areas.

Air quality

Air quality is a measure of the purity of the atmosphere, in terms of the quantity of solid, liquid or gaseous air pollutants. The impacts of these pollutants tend to be localised near major sources or groups of sources, since pollutants are continually removed from the atmosphere by processes such as gravitational deposition, rainfall, chemical reaction and solution in water bodies.

The effects of air pollutants can include:

- human health impacts (short and long-term)
- irritation
- nuisance (e.g. soiling of surfaces from deposited dust or increased corrosion rates)
- aesthetics (light scattering, visual range, haze)
- flora and fauna impacts.

Why is air quality important

Good air quality is important to maintaining environmental health, including human health. Poor air quality can negatively impact people's health, particularly children, older people, pregnant women and those with pre-existing respiratory conditions, such as asthma. It can also reduce visibility and damage our environment and ecosystems, for example:

- ground-level ozone damages agricultural crops, forests and plants, reducing their growth rates
- nitrogen oxides and sulfur dioxide harm soil, lakes and rivers by making them more acidic
  This can cause a loss of animal and plant life
- ammonia and nitrogen oxides also disrupt land and water ecosystems by introducing excessive amounts of nutrient nitrogen—a process known as eutrophication.

Key facts

Particle pollution

Getting worse

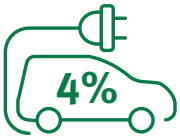
Levels increased in most regions

More bushfires

Hazard reduction burning

Registered motor vehicles

Getting better



hybrid and electrical vehicles

State

Queensland's air quality has improved over the last three decades and remains relatively good. It generally complies with national air quality standards for five of the six major air pollutants.

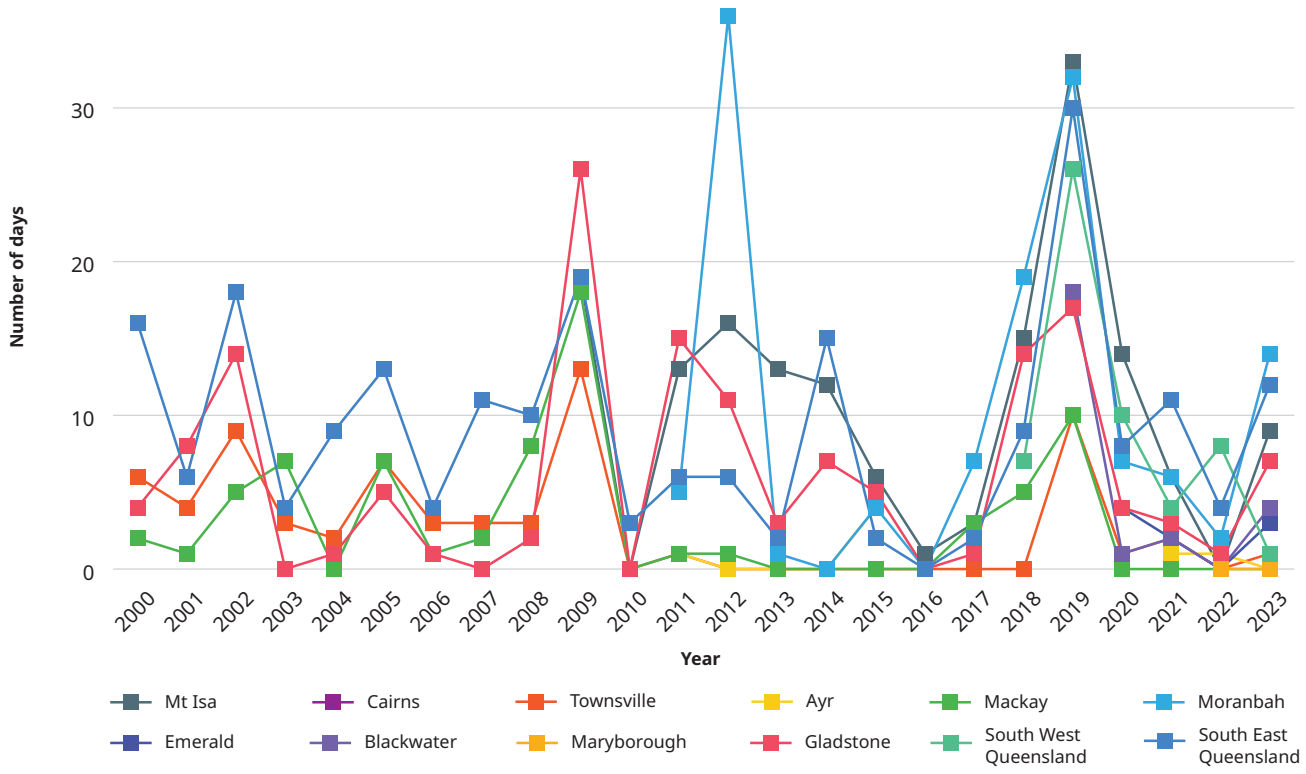
This quality has been achieved despite pressures from a growing population, increased motor vehicle use, and industrial growth. Air quality improvements have resulted from:

- Queensland's regulation of industry
- stricter emission standards for motor vehicles
- new emissions-reduction technology.

Most measures of air quality concentrations (carbon monoxide, lead, nitrogen dioxide, sulfur dioxide and ozone concentrations) have been reduced, with this reduction being particularly significant for carbon monoxide, lead and nitrogen dioxide.

Particle pollution is Queensland's most significant air quality issue. This is mainly due to more bushfires and hazard-reduction burning because of high vegetation fuel loads following two years of above-average rainfall.

Number of days when the 24-hour PM_{10} concentrations exceeded the Air NEPM standards



In the past 20 years, there have been eight years in South East Queensland and two years in South West Queensland when ozone levels have exceeded the eight-hour air quality standard on at least one day. All exceedances are linked to extra emissions of photochemical smog-forming pollutants from major bushfires.

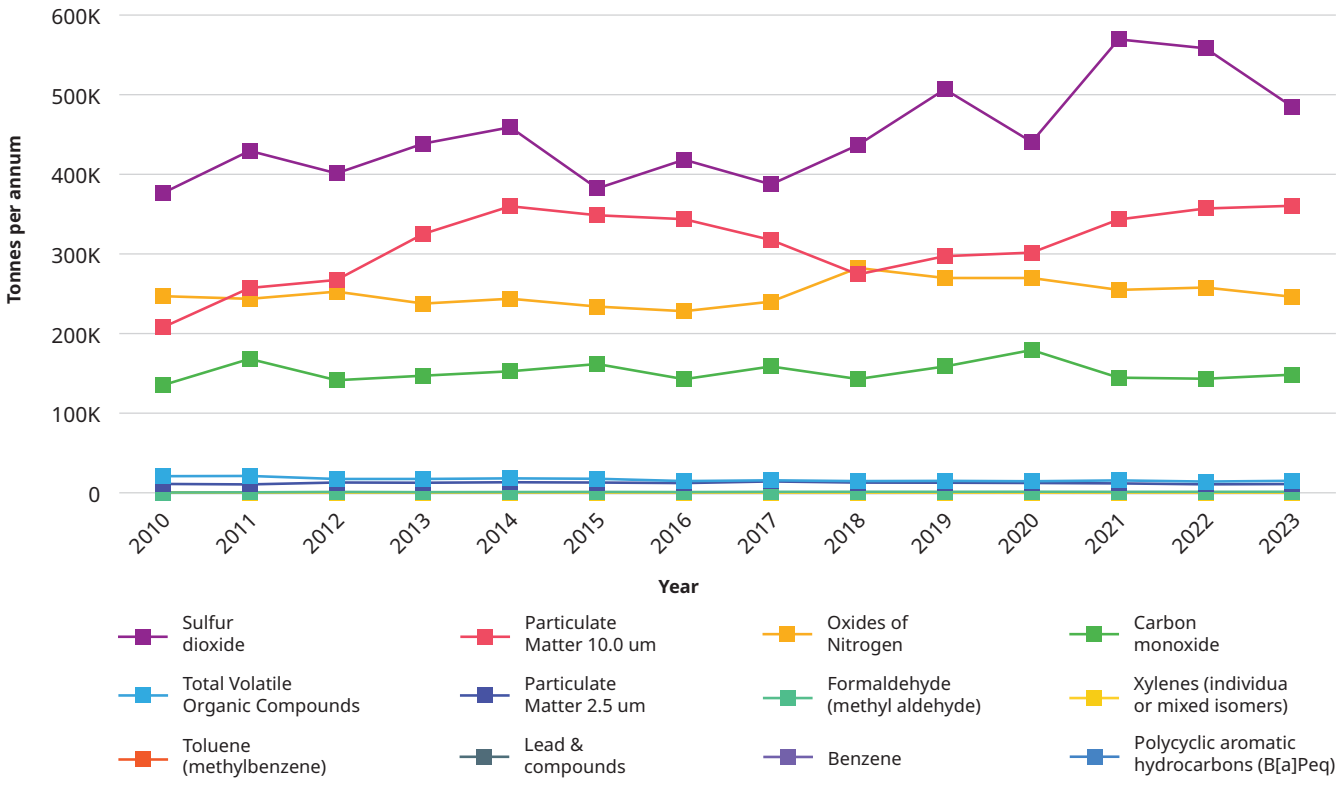
In the past 20 years, we have seen a downward trend in the number of days with reduced visibility (defined as a visual distance of less than 20 kilometres) throughout Queensland.

Pressures

Across Queensland, the top four industrial pollutants by tonnes/annum are:

- sulfur dioxide
- particulate matter (PM10)
- nitrogen oxides
- carbon monoxide.

Trends in emissions for major air pollutants



Headline management responses

The *Environmental Protection Act 1994* (EP Act) is a key element of Queensland's environmental legal system. Its objective is to protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains ecological processes and ecologically sustainable development.

The EP Act and its subordinate legislation provide a range of tools to enable this objective to be met. These tools range from a licensing system for environmentally relevant activities (an environmental authority) to response tools such as environmental enforcement orders.

Under the EP Act, environmental protection policies may be developed to cover specific aspects of the environment. There are approved policies for the air, acoustic (noise), and water and wetland biodiversity. All Queenslanders have a 'general environmental duty' under the EP Act to not carry out any activity that causes, or is likely to cause, environmental harm.

National Clean Air Agreement

In December 2015, Australia's environment ministers established the National Clean Air Agreement (NCAA). The agreement seeks to ensure that the community continues to enjoy clean air and address the impacts on human health and the environment.

The agreement focuses on reducing air pollution and improving air quality through cooperative action between industry and government at the national, state and local levels. It is designed to incorporate a range of existing, new and complementary measures to improve Australia's air quality.

In May 2021, the Senior Officials Group, comprising Commonwealth, State and Territory representatives, agreed on a 2021-2023 work plan outlining the roles, responsibilities, actions and implementation timeframes. The work plan details the rolling program of activities to respond to air quality priorities, including the following actions:

- improving standards for reporting and monitoring air pollution and ensuring national consistency of public air quality information, alert programs and health advice
- developing a nationally-consistent Air Pollution Emissions Inventory
- measuring and assessing motor vehicle emissions
- building knowledge, education and awareness on how to respond to bushfire smoke in response to recommendations made by the Royal Commission into National Natural Disaster Arrangements.

The work plan is formally reviewed by the environment ministers every two years to ensure that actions under the NCAA are relevant and to maintain accountability for delivery.

Ambient air quality

Transport and industrial activities are the primary sources of air pollutants in Queensland, although rural and domestic activities are also sources. Bushfires and hazard-reduction burning activities can also result in poor air quality.

The National Environment Protection (Ambient Air Quality) Measure (Ambient Air Quality NEPM) establishes national protection goals for:

- sulfur dioxide
- nitrogen dioxide
- ozone
- carbon monoxide
- particles
- lead.

The Ambient Air Quality NEPM standards for ozone, nitrogen dioxide and sulfur dioxide were amended in May 2021 to reflect the latest scientific understanding of the health risks associated with these pollutants.

The statewide ambient air monitoring program provides baseline data to:

- assess Queensland's air quality against relevant air quality standards or objectives
- meet state and Commonwealth legislative reporting obligations
- evaluate the effectiveness of management strategies to improve air quality
- inform the public of the state of Queensland's air environment.

Since the severe 2019-2020 summer bushfires, the statewide ambient air monitoring network has expanded from 30 to 99 locations, providing communities with more locally relevant information to make informed decisions that protect their health during poor air quality episodes.

Waste

Waste is any material, substance, or byproduct discarded, unwanted, or useless after a process or activity. It can come from households, commercial, industrial, or construction activities, and take various forms, such as solid, liquid, or gaseous waste.

Why waste management is important

We manage waste to protect human health and environmental quality and to improve the efficient use of resources. Queensland's management of waste is typically reported in terms of three source streams:

- household waste
- commercial and industrial waste
- construction and demolition waste.

Litter, illegal dumping and trackable waste are also source streams.

The effectiveness of the waste management sector is demonstrated in the resource recovery rates for relevant source streams. The amount of waste that has been recovered and disposed of is an indicator of the sustainability of society's use of resources.

Key facts

2023-24

Getting better

4.2M
tonnes waste landfilled

5.6M
tonnes waste recovered

9.81M tonnes waste generated

57.1% recovery rate

No change

80.6%

Materials recovered that were recycled

Waste Management and Resource Recovery Strategy 4 out of 9 targets On track or surpassing

Getting worse

53% IN 2023-24	83% IN 2023-24	56% IN 2023-24	83% IN 2023-24
TARGET 55% BY 2025	TARGET 75% BY 2025	TARGET 60% BY 2025	TARGET 75% BY 2025
Commercial and Industrial Waste Recycling rate	Commercial and Demolition Waste Recycling rate	Overall Waste Recycling rate	Construction and Demolition Landfill diversion rate

N/A

Plastic litter
62.2 items
littered per 1000m²

most litter items are found in retail areas

State

Waste data is published annually through the Recycling and Waste in Queensland report.

Key findings from 2023-24 include:

- a total of 9.81 million tonnes of waste was generated in 2023-24, a 5.4% increase from 2022–23.
- the overall recovery rate for waste increased by 3.2% from 2022–23 to 57.1% in 2023-24.
- 80.6% of materials recovered were recycled in Queensland in 2023-24.

A major concern is that only 28.3% of household waste was diverted from landfill, well below the 55% target set for 2025, and the trend is worsening.

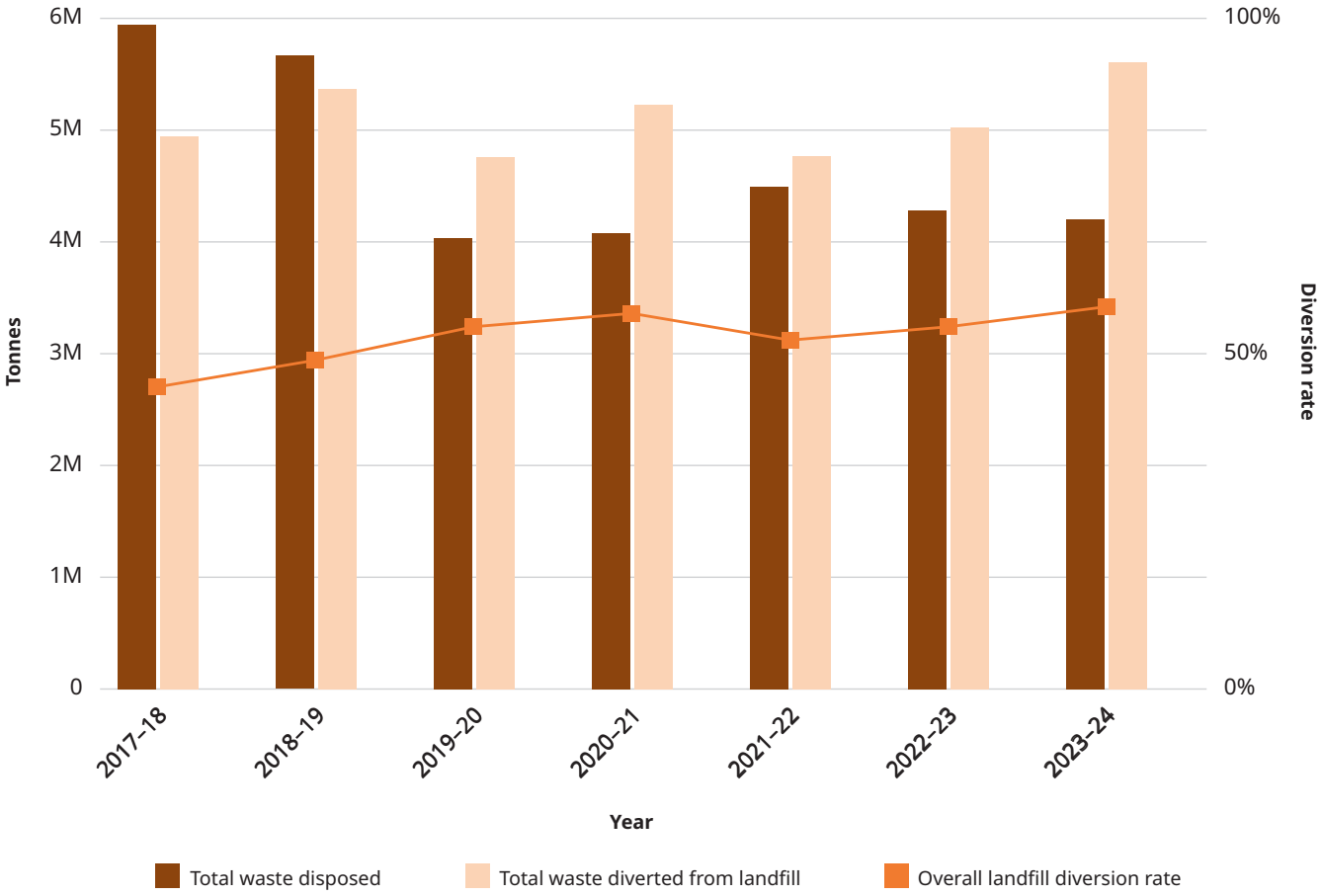
Pressures

Litter

The first Australian Litter Measure audit in mid-2023 found Queensland's average litter count was 122.7 litter items per 1,000m^2. Waste fragments were the most prevalent type in Queensland (56.7 items per 1,000 m^2), followed by cigarettes and food-related waste.

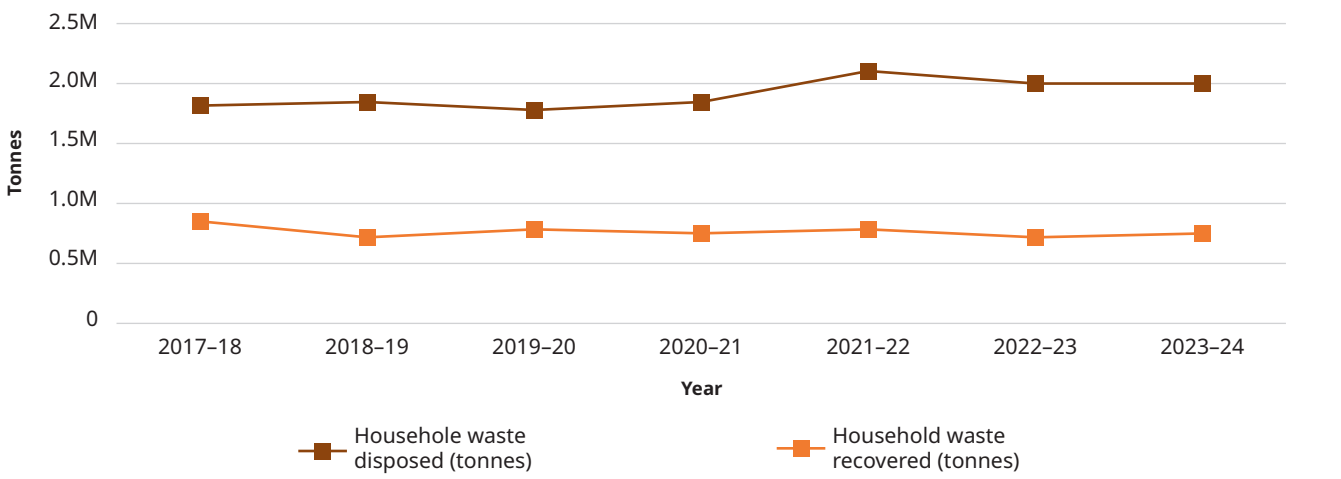
Litter was surveyed in 729 transects across 159 sites in 2023-24. The survey found the most littered items in retail areas and the least at beaches.

Total waste disposed and diverted from landfill per year

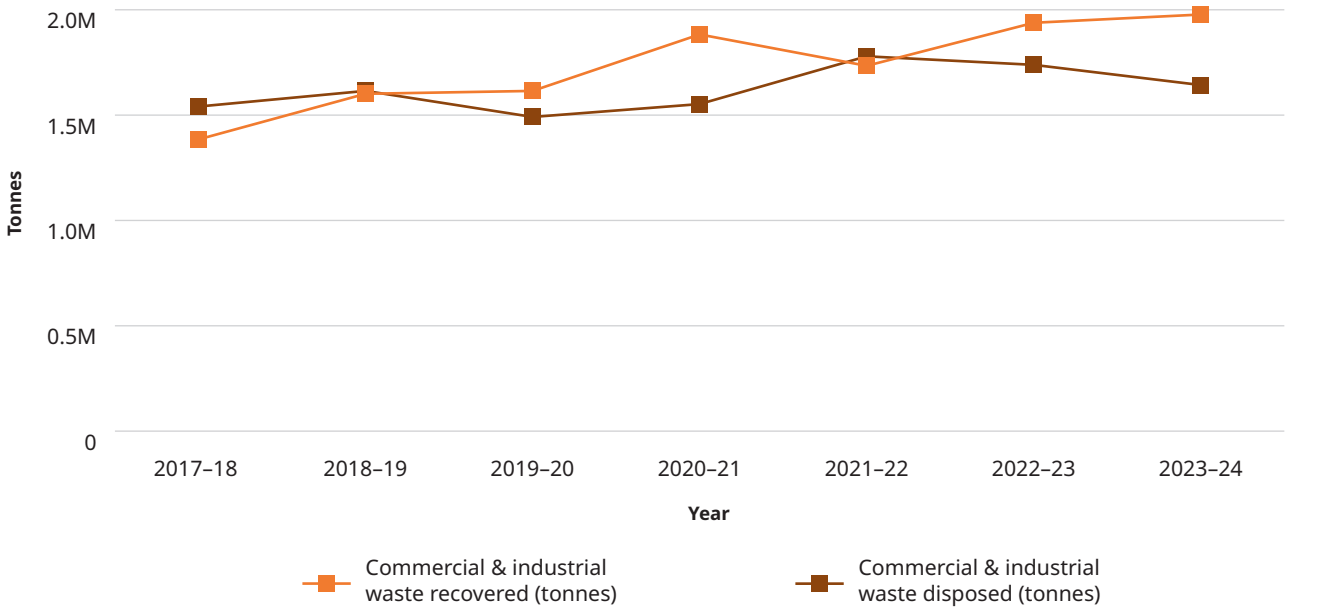


When separated into each waste stream (household waste, commercial and industrial waste and construction and demolition waste), varying trends in recovery and disposal have been seen. Also of note is the high proportion of household waste disposed to landfill compared to the other waste streams.

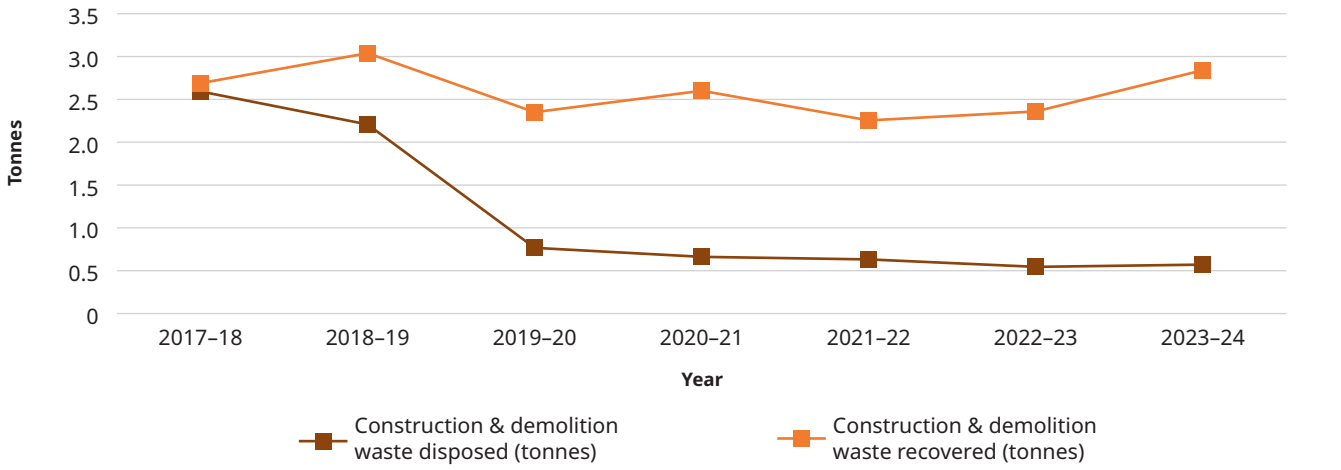
Trend in recovery and disposal of household waste



Trend in recovery and disposal of commercial and industrial waste



Trend in recovery and disposal of construction and demolition waste



The Waste Management and Resource Recovery Strategy sets out a range of targets to reduce waste to landfill and boost recycling. Progress towards these targets is also outlined in the annual Recycling and Waste in Queensland report.

As of 2023-24:

- four out of nine targets are on track or have been surpassed
- accelerated progress will be needed on the remaining targets, particularly the municipal solid waste targets which are significantly off track and are unlikely to be met.

Reduction in household waste generation (% reduction from 2017-18 baseline)

Waste stream	2017-18 baseline	2023-24 data	2025 milestone	Progress status
Municipal solid waste	540kg	7%	10%	Unlikely to reach milestone targets

Landfill diversion rate (amount diverted as percentage of total waste generated)

Waste stream	2017-18 baseline	2023-24 data	2025 milestone	Progress status
Municipal solid waste	32.4%	28%	55%	Unlikely to reach milestone targets
Commercial and industrial	47.3%	55%	65%	Possibly reach milestone targets
Construction and demolition	50.9%	83%	75%	On track/surpassed milestone targets
Overall	45.4%	57%	65%	Possibly reach milestone targers

*Accelerated progress would be needed to meet target

Recycling rate (amount recycled as percentage of total waste generated)

Waste stream	2017-18 baseline	2023-24 data	2025 milestone	Progress status
Municipal solid waste	31.1%	28%	50%	Unlikely to reach milestone targets
Commericial and industrial	46.5%	53%	55%	On track/surpassed milestone targets
Construction and demolition	50.9%	83%	75%	On track/surpassed milestone targets
Overall	44.9%	56%	60%	On track/surpassed milestone targets

Definitions:

- **Municipal solid waste** includes domestic waste and other wastes arising from council activities such as the collection of waste from roads, parks and public places, beaches, waterways, street sweeping and the collection of litter and illegally dumped waste
- **Commercial and industrial waste** includes scrap metal, paper and packaging materials, sawmill residues and green waste
- **Construction and demolition waste** include concrete, scrap metal, asphalt and masonry.

Waste from interstate

Queensland received 2.2% less waste from interstate sources in 2023-34 than 2022–23 (266,563 tonnes received) and 78% less than the 1.19 million tonnes received in 2018–19.

New South Wales represents most (95%) of all interstate trackable waste sent to Queensland. In 2024, Queensland received 103,000 tonnes, 71% of which were oils and hydrocarbons, which consistently increase annually.

Headline management responses

The *Waste Reduction and Recycling Act 2011* contains measures to facilitate Queensland's transition to a circular economy through waste avoidance, reduction, increased resource recovery and safe management and disposal.

The Act's key provisions include:

- a levy on waste delivered to waste disposal sites
- a refund scheme for beverage containers
- a ban on prescribed single-use plastic items
- requirements for Queensland Government agencies and local governments to prepare waste management plans
- an annual report by the department on waste disposal and recycling in Queensland
- product stewardship arrangements for any waste products that are identified as a growing problem for landfills in the future
- offences relating to littering and illegal dumping
- requirements for making end-of-waste codes.

Waste management and disposal

Queensland's Waste Management and Resource Recovery Strategy is a framework to:

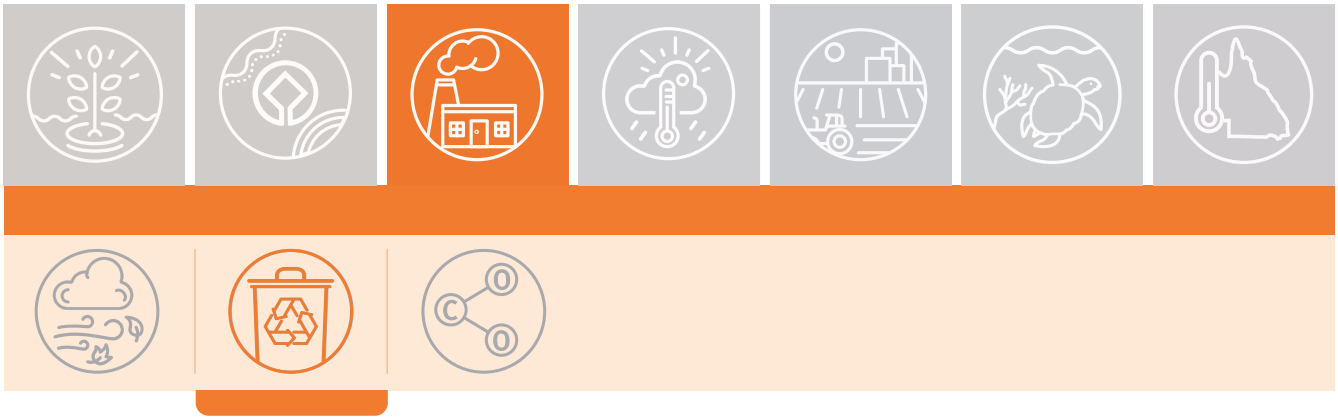
- reduce the amount of waste generated
- grow the resource recovery and recycling industry
- create new jobs
- transition to a circular economy.

The strategy focuses on transitioning to the principles of a circular economy, helping to retain the value of material in the economy for as long as possible and helping deliver coordinated, long-term and sustained growth for the recycling and resource recovery sector. It sets the following stretch targets for 2050:

- 25% reduction in household waste
- 90% of waste recovered (diverted from landfill)
- 75% recycling rates across all waste types.

The strategy's implementation is underpinned by a waste disposal levy, which started on 1 July 2019. The levy aims to:

- reduce the amount of waste going to landfill
- encourage waste avoidance



- provide a source of funding to enable better resource recovery practices
- provide certainty and security of feedstocks for advanced technology
- facilitate industry investment in resource recovery infrastructure.

The levy zone includes 39 of 77 local government areas, covering 90% of Queensland's population, where most waste is generated and disposed of. Waste disposed of in the levy zone or waste that originates in the levy zone or interstate and is disposed of in the non-levy zone is also liable for the levy.

Recycling and Jobs Fund

In 2021, the Queensland Government announced a ten-year $2.1 billion waste and resource recovery package, including a $1.1 billion Recycling and Jobs Fund. The waste and resource recovery package supports infrastructure and non-infrastructure priorities, facilitating the recovery of more resources from waste.

Plastic pollution reduction

Queensland's Plastic Pollution Reduction Plan was released on 7 November 2019. It sets the direction for Queensland's participation in a national and global solution to plastic pollution. The Plastic Plan identifies and prioritises actions at every supply chain step to help reduce plastic waste and the amount of plastic in and entering the environment. Actions within the Plastic Plan support a transition to a circular economy through avoidance and reuse behaviours.

Greenhouse gas emissions

A greenhouse gas is a gas that traps heat in the atmosphere, causing climate change.

Greenhouse gases like carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) trap heat in the Earth's atmosphere, leading to global warming and climate-related impacts, such as rising sea levels, extreme weather events, and biodiversity loss. Accurate measurement helps:

- track emission trends
- assess the effectiveness of climate policies
- ensure consistency with international agreements like the Paris Agreement.

Key facts

Queensland's total greenhouse gas emissions

Getting better

28.7%

of Australia's total greenhouse gas emissions in 2022

35% GHG decrease 2005-2022

Net emissions from **land use, land use change** and **forestry (LULUCF)**

Getting better

124%

reduction below 2005 levels

LULUCF is acting as a **carbon sink** – a trend since 2021

State

Total greenhouse gas emissions

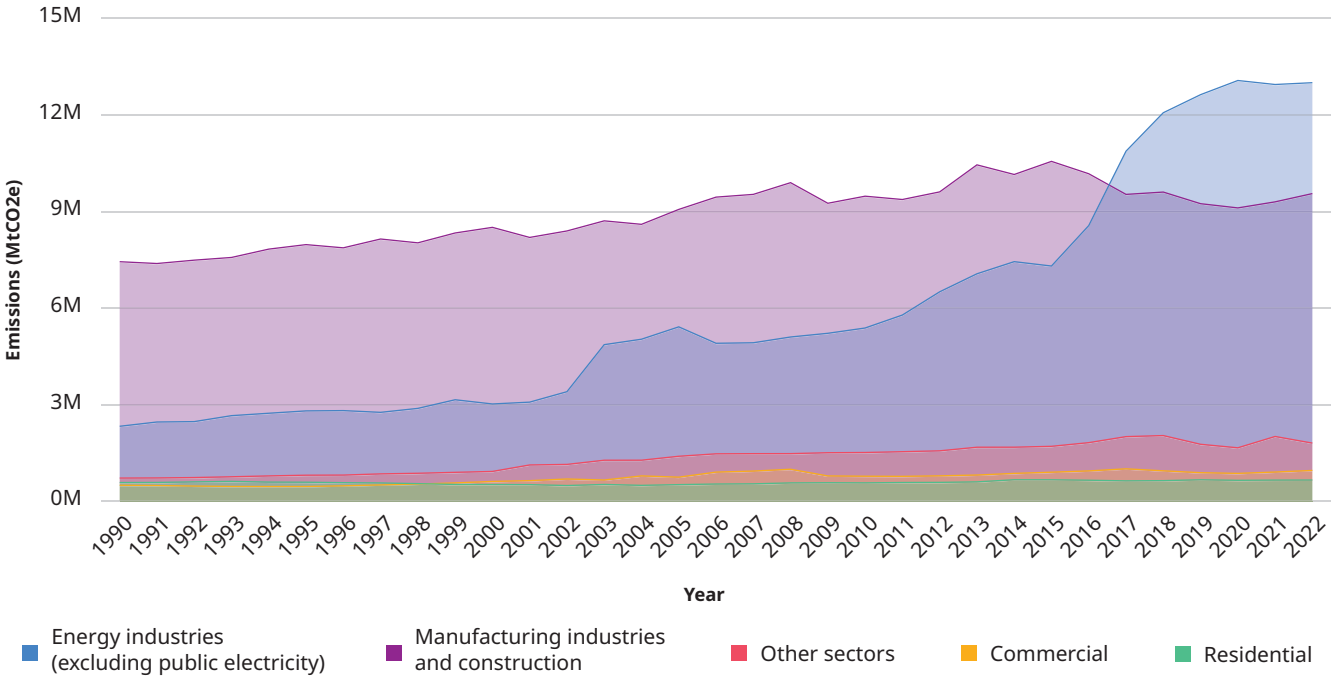
In 2022, Queensland's total greenhouse gas emissions were 124.1 million tonnes of carbon dioxide equivalent (MtCO2e), including emissions from the land use, land use change and forestry sector. Queensland's total emissions made up 28.7% of Australia's total. Between 2005 and 2022, Queensland's emissions decreased by 35%.

Net emissions from land use, land use change and forestry (LULUCF) showed a 124% reduction below 2005 levels to -15.9 MtCO2-e. In Queensland, LULUCF has been acting as a carbon sink—a trend since 2021. Reduced vegetation clearing is the primary driver of LULUCF emissions reductions.

Highest emitters

The stationary and industrial energy sector was the second highest emitter in 2022, contributing 25.8 million tonnes of carbon dioxide equivalent (MtCO2e) or 20.8% of total emissions. Between 2005 and 2022, emissions increased by 52% due to strong growth in mining and exports and long-term growth in the population and economic activity.

Trends in Queensland's stationary energy emissions, by category



Headline management responses

Aiming for net zero emissions

Central to the Queensland Government's climate change management response is a target of zero net greenhouse gas emissions by 2050. In 2024, the Government's framework for emissions reduction action was set out in the *Clean Economy Jobs Act 2024*.

Management responses undertaken from 2020 to 2024 include:

- partnering with Business Chamber Queensland to deliver the ecoBiz program. During the 2023-24 Financial Year, the ecoBiz program delivered a total of 12,077 tCO2-e avoided emissions
- delivering Climate Smart Energy Savers rebates for replacing old appliances with energy-efficient models, with over 72,700 households (within the reporting period) saving hundreds of dollars on new appliances while reducing power bills and emissions
- through the Low Carbon Accelerator program, the Queensland Government worked with entrepreneurs to accelerate the transition to a low-carbon economy
- incorporating the net zero emissions by 2050 target into Queensland Government procurement policy
- continuing membership of the international Under2Coalition to support the global shift to net zero emissions by 2050
- delivering the Queensland Police Service Electricity Optimisation Project that has seen 1.7MW of solar systems installed at 45 police stations across Queensland.

Carbon farming

Carbon farming presents an opportunity to help restore balance by using land-based plant life and wetlands to naturally reabsorb excess carbon dioxide and by changing land management practices to reduce the amount of greenhouse gases emitted from human activities.

Trees and other parts of our environment can reabsorb some of the extra carbon dioxide. However, the capacity of the Earth to do this is limited. Carbon farming land management seeks to:

- reduce carbon emissions from human activities
- increase carbon sequestration in carbon sinks
- provide landholders with a range of benefits, such as increased natural capital and an alternate source of income.

Many Queensland landholders are already earning an income from carbon projects. The Australian Government Clean Energy Regulator provides a register that can be searched to see where registered carbon projects are occurring in Queensland.

Land Restoration Fund

The Land Restoration Fund (LRF) is growing the carbon farming industry in Queensland by supporting premium land carbon farming projects that deliver Australian Carbon Credit Units (ACCUs) plus priority environmental, socio-economic, and First Nations co-benefits. Across the first two investment rounds, the LRF has committed $82.1 million for 20 projects that deliver strong community and environmental outcomes. The outcomes expected as verified co-benefits from LRF investment in Queensland-based carbon projects include:

- delivery of more than 1.15 million ACCUs over the next 16 years, equivalent to more than one million tonnes of carbon dioxide sequestered or avoided
- voluntary restoration or protection of over 13,000 hectares of unregulated (Category X) vegetation as defined under the *Vegetation Management Act 1999*
- direct benefits for threatened species and ecosystems
- direct benefits for the health of the GBR and wetlands.

Climate

Introduction

Queensland's climate is strongly influenced by seasonal variations, such as the location and intensity of the summer monsoon and year-to-year fluctuations in the global climate system related to the El Niño Southern Oscillation phenomenon. Monitoring sea surface temperatures around Queensland is important in terms of extreme events, such as the number, formation and development of tropical cyclones and east coast lows. Warmer-than-average sea surface temperatures increase the risk of these events.

Climate observations

Climate refers to the long-term patterns of temperature, humidity, wind, and precipitation in a specific region, shaped by natural cycles and human activities. At the same time, weather describes the atmospheric conditions over a short period. In Queensland, recent observations indicate significant shifts in climate patterns, including:

- rising temperatures
- altered rainfall distributions
- an increased frequency of extreme weather events.

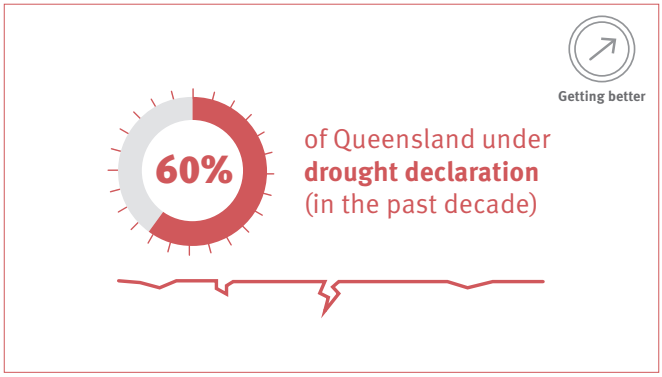
Why climate observations are important

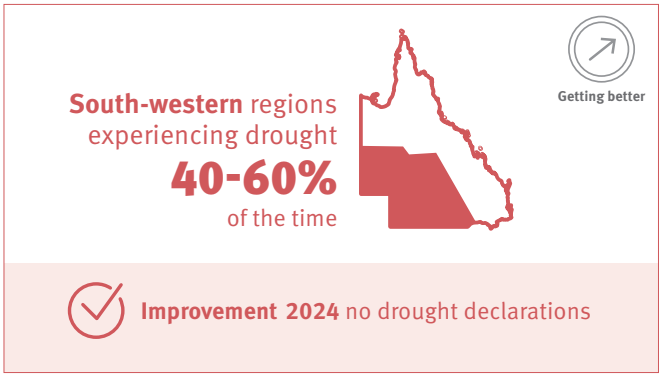
Climate observation and monitoring are essential for understanding long-term climate patterns, detecting changes, and predicting future climate conditions. This data:

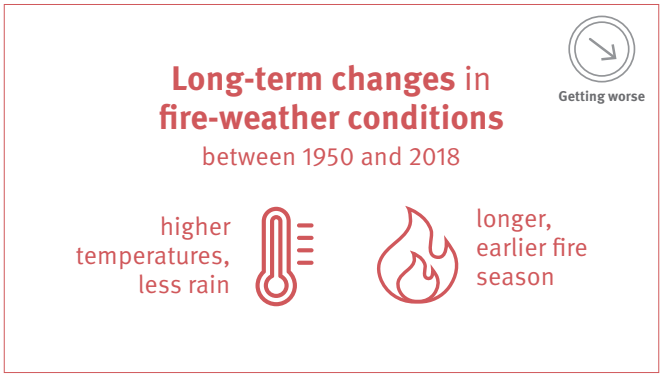
- supports climate modelling
- informs policy decisions
- helps communities prepare for and adapt to climate-related risks like droughts, floods, extreme heat and cyclones.

Monitoring also ensures compliance with international climate commitments and enables early warning systems for natural disasters, ultimately protecting human societies and the environment.

Key facts







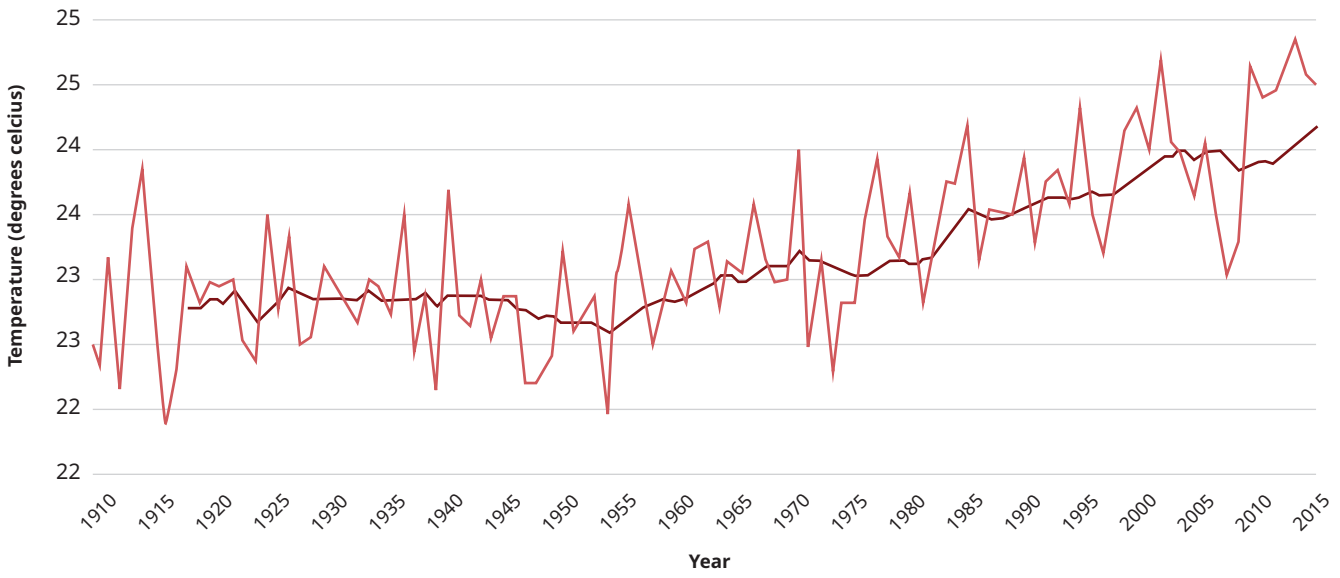
State

Temperature

From 2013 to 2023, all but one year had an average annual temperature above the 30-year (1991–2020) average of 24°C. Nine of these years ranked among the top ten warmest since records began in 1910.

Queensland's state-average temperature has increased by about 1.5°C since 1910, with most of this warming occurring in the past 50 to 60 years. Since 1960, the average temperature has risen by about 0.25°C per decade, with minimum temperatures warming slightly faster than maximum temperatures. In 2023, some inland areas, including Birdsville, Longreach, and Charleville. experienced more hot days (over 35°C) than usual.

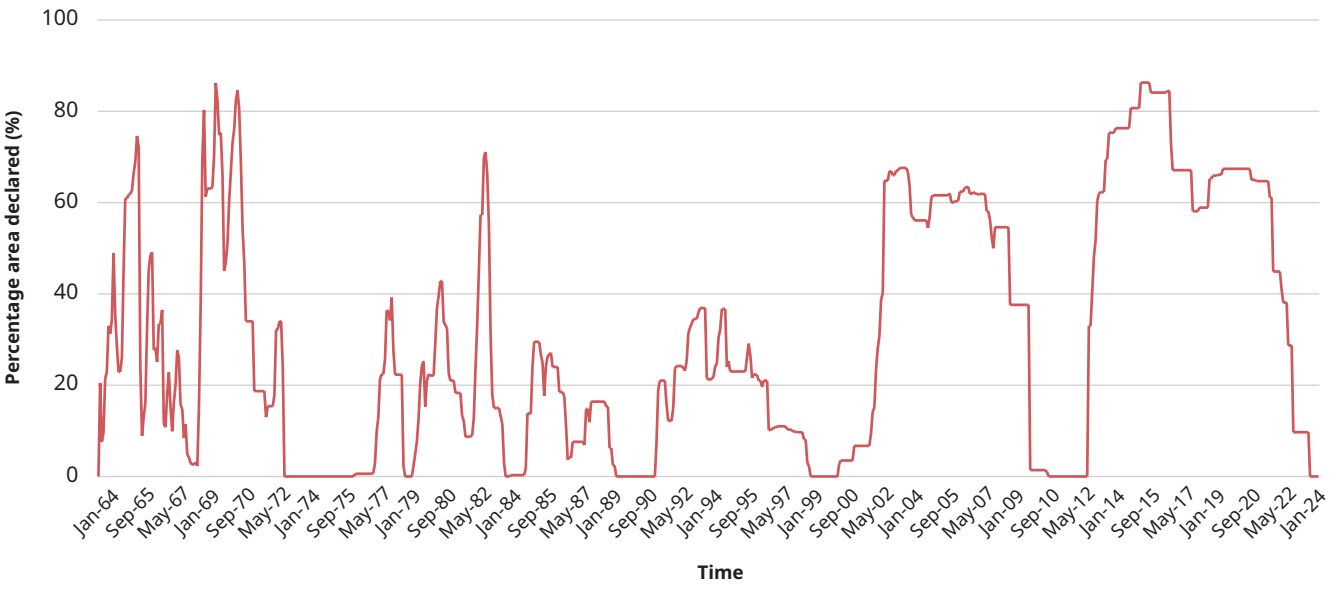
Trend in annual mean temperature, Queensland



Rainfall

Queensland's long-term average annual rainfall is 618mm (1890–2023), but it varies significantly on an annual and a decadal basis. Average to above-average rainfall in many areas from 2021 to 2023 provided a respite from the much-drier-than-average conditions that dominated from 2013 to 2020. Over the past decade, 60% of Queensland has consistently been under drought declaration, with south-western regions experiencing drought 40-60% of the time. In 2024, the state saw significant improvement, with no drought declarations for the first time since 2013.

Extent of drought declarations in Queensland - January 1964 to July 2024



Pressures

Heatwaves

Heatwaves are three or more consecutive days with unusually high maximum and minimum temperatures for a particular location. Over the past 70 years, severe and extreme heatwaves have become more frequent across Queensland.

Since 1958, heatwaves of all intensities have increased, particularly in the southwest and central parts of Queensland. Severe and extreme heatwaves are the leading cause of fatalities from natural hazards in Queensland and Australia, particularly impacting vulnerable people.

Heatwaves often occur before, during, or after other major disasters, such as bushfires or cyclones, worsening the risks. An analysis of fire-weather conditions in Queensland from 1950 to 2018 shows that climate change has:

- increased temperatures
- reduced rainfall
- led to longer, more severe, and earlier fire seasons.

Severe bushfire seasons since 2018 have continued this trend, causing significant loss of life, ecological damage, and high economic costs.

Tropical cyclones and severe thunderstorms

Tropical cyclones and severe thunderstorms have long been part of Queensland's climate, typically during the warmer months, from November to April. Between 2020 and 2024, the state was impacted by eight severe tropical cyclones and over five cyclones of other intensities.

While state-wide trends should be viewed cautiously, observations suggest increased extreme weather events due to climate change. Higher mean temperatures lead to increased surface warming, resulting in additional air moisture due to evaporation. Those extreme events are more common along Queensland's northeastern seaboard and in the Gulf areas more exposed to the northern Australian Monsoon, tropical cyclones, and lows.

Each tropical cyclone is unique in its duration, size, intensity, movement, and impact. Cyclone frequency and intensity vary from year to year and over decades, influenced by factors such as the El Niño-Southern Oscillation. La Niña conditions, which increase the likelihood of above-average summer rainfall, floods, and tropical cyclones, prevailed from late 2020 to early 2023. Recent data shows that cyclones are moving slower and further south, with increased rainfall intensity leading to a higher risk of extreme flooding.

Headline management responses

Effective action against climate change relies on global cooperation. The severity of its impacts will depend on mitigation and adaptation efforts and the speed of greenhouse gas emission reductions. In Queensland, the *Clean Economy Jobs Act 2024* sets targets for the state to achieve net zero by 2050.

Strengthening the state's resilience

The Queensland Future Climate Science Program is delivered through a partnership between the Queensland Government and The University of Queensland. The program produces climate projections of future climate hazards and extremes for multiple future emissions pathways at regional scale to support climate adaptation and enable resilience-building for natural disasters.

The Queensland Government has also implemented various adaptation and disaster management initiatives to strengthen the state's resilience to climate change and natural disasters. These include:

- the Queensland Climate Adaptation Strategy and the Sector Adaptation Plans outline adaptation actions for the community, local governments, key sectors and systems and the Queensland Government
- the Queensland State Disaster Management Plan provides a framework for managing and responding to disasters. It ensures coordinated efforts across all levels of government, agencies, and communities to reduce risks and enhance resilience to disasters. The plan includes access to various warning systems, such as storm, flood, cyclone, bushfire, extreme heatwave alerts, and local government disaster dashboards
- Queensland's suite of Regional Resilience Strategies ensure every region across Queensland is now part of a locally-led, regionally-coordinated and state-facilitated blueprint to strengthen disaster resilience. Every community is different, so these strategies used a co-designed process and place-based approach to recognise communities are best placed to understand and identify their needs, and to reflect local communities working together and sharing local knowledge to address local risks
- the Queensland Statewide Assessment of Flood Risk Factors project identifies and evaluates flood risks across the state, aiming to deliver contemporary flood risk management. In addition, the Queensland Flood Risk Management Framework (QFRMF) provides a structured approach to managing these risks, guiding local governments and communities in assessing, planning, and implementing effective flood risk management strategies. The 2019 State Heatwave Risk Assessment (SHRA) uses regional climate projections to evaluate heatwave risks in Queensland. This assessment helps state agencies and disaster management groups plan for current and future heatwave risks, ensuring comprehensive preparedness and response strategies.

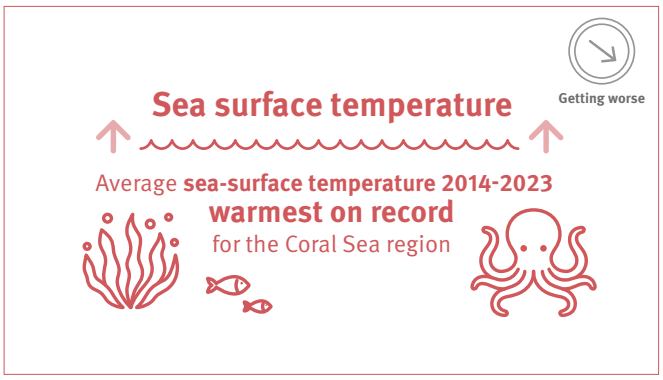
Coasts and oceans

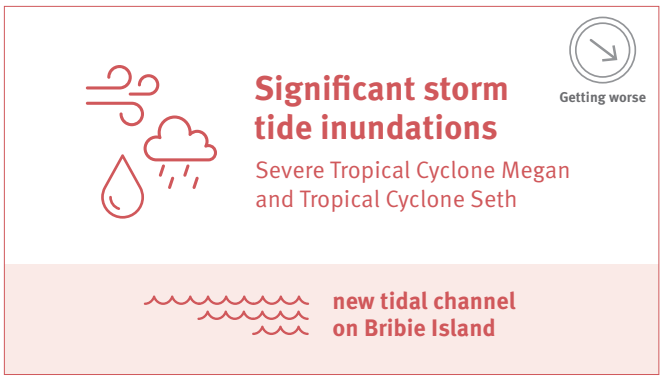
Coasts and oceans are interconnected natural systems that play a vital role in supporting biodiversity, regulating climate, and sustaining human livelihoods. Coasts are the dynamic zones where land meets the ocean, shaped by tides, waves, and weather. Oceans are vast bodies of saltwater that cover about 70% of the Earth's surface. Coasts and oceans provide essential resources such as fisheries, tourism, and coastal protection.

Why coasts and oceans are important

Oceans play a vital role in regulating global climate systems, effectively mitigating the rate of warming on land and sea surfaces. Sea surface temperatures around Queensland, particularly in the Coral Sea and Gulf of Carpentaria, are key indicators of tropical cyclones and low formations on the east coast. Rising sea temperatures, driven by climate change, are increasing the intensity and frequency of these extreme weather events.

Key Facts





State

Ocean temperatures

Large-scale climate drivers, like the El Niño–Southern Oscillation, influence the climate of Queensland annually. Since the 1970s, oceans have absorbed 91% of the extra heat from increased greenhouse gas emissions, causing a significant rise in ocean temperatures. This warming impacts oceanic and atmospheric circulation patterns, sea levels, oxygen solubility, and the frequency and intensity of cyclones. It also leads to longer, more frequent marine heatwaves, with average sea surface temperatures continuing to rise and record high temperatures recorded in 2010, 2016, 2020, and 2022. Warm sea surface temperatures provide the heat and moisture to fuel tropical cyclones and east coast lows.

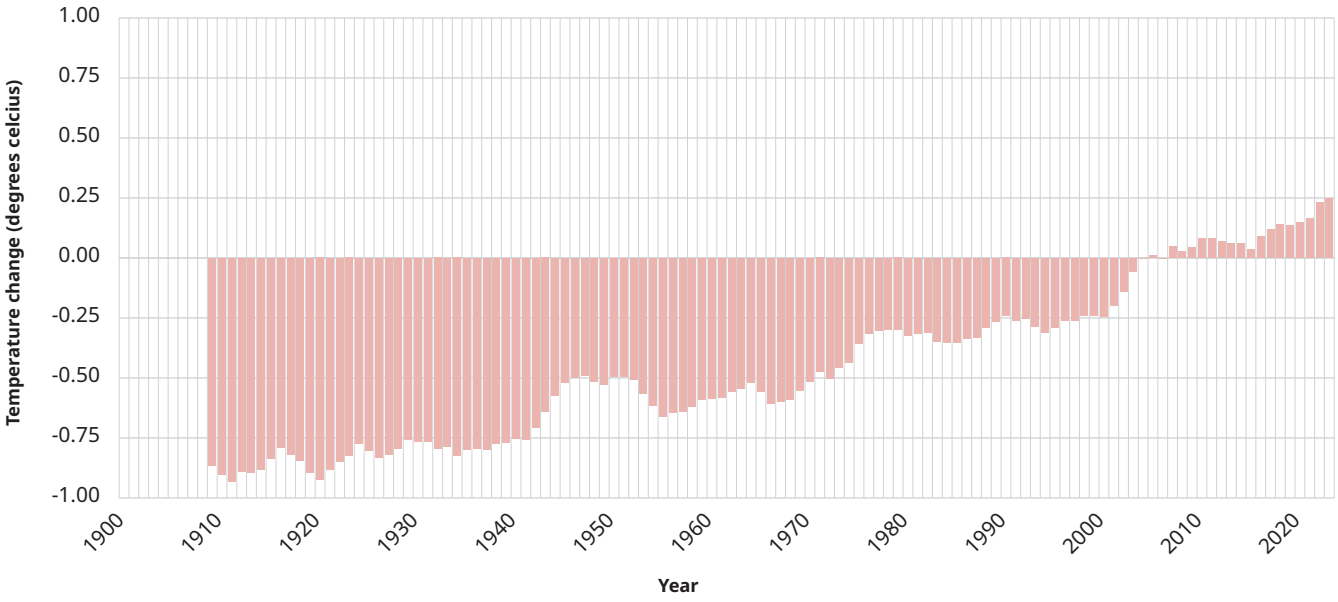
Tropical cyclones and lows

The Coral Sea is a key area for cyclone formation as it borders most of the east coast. The Northern Tropics region, which includes the Coral Sea, the Gulf of Carpentaria, and the eastern Indian Ocean, also influences regional weather and cyclonic activity.

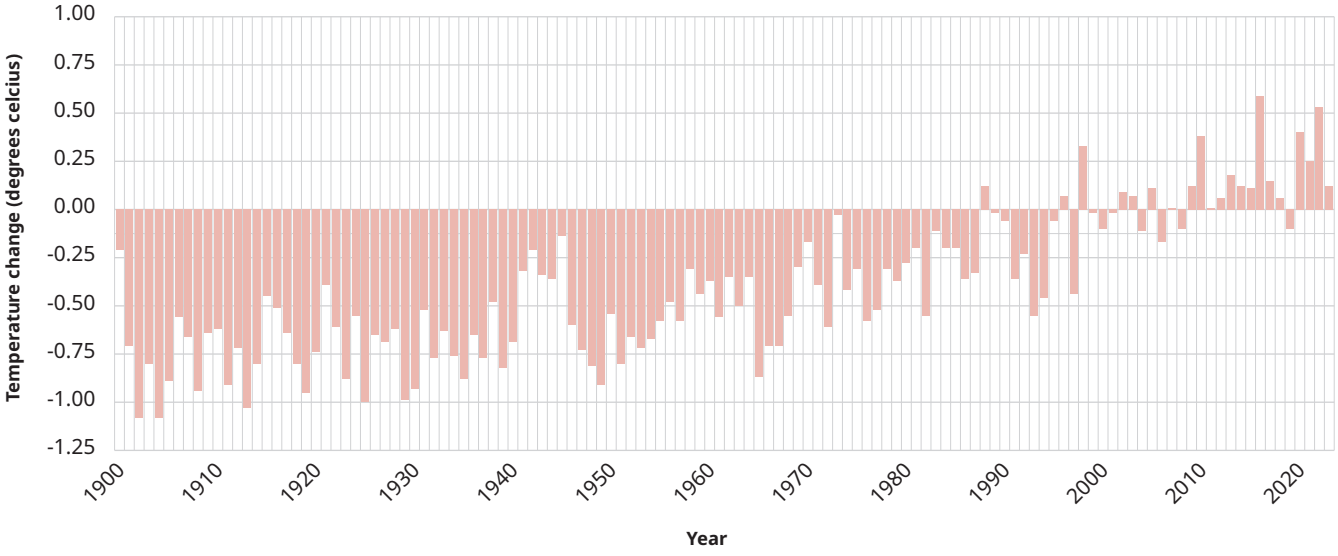
Monitoring sea surface temperatures in these areas is essential for predicting the likelihood and intensity of weather events. The average annual sea-surface temperatures from 1991 to 2020 are 27.5°C for the Coral Sea region and 27.8°C for the Northern Tropics. Both regions have shown a warming trend, with sea temperatures over 1°C higher than 100 years ago. In the Coral Sea, the ten-year period ending in 2023 was the warmest on record, with temperatures 0.3°C above the 1991-2020 average.

In the wider Northern Tropics, the ten-year period ending in 2022 was also the warmest, with temperatures 0.2°C above the average. Within this period, 2022 was the warmest year for the Coral Sea and the Northern Tropics, with temperatures 0.6°C and 0.5°C, respectively, above the average.

Annual mean sea surface temperature 10-year rolling average Coral Sea



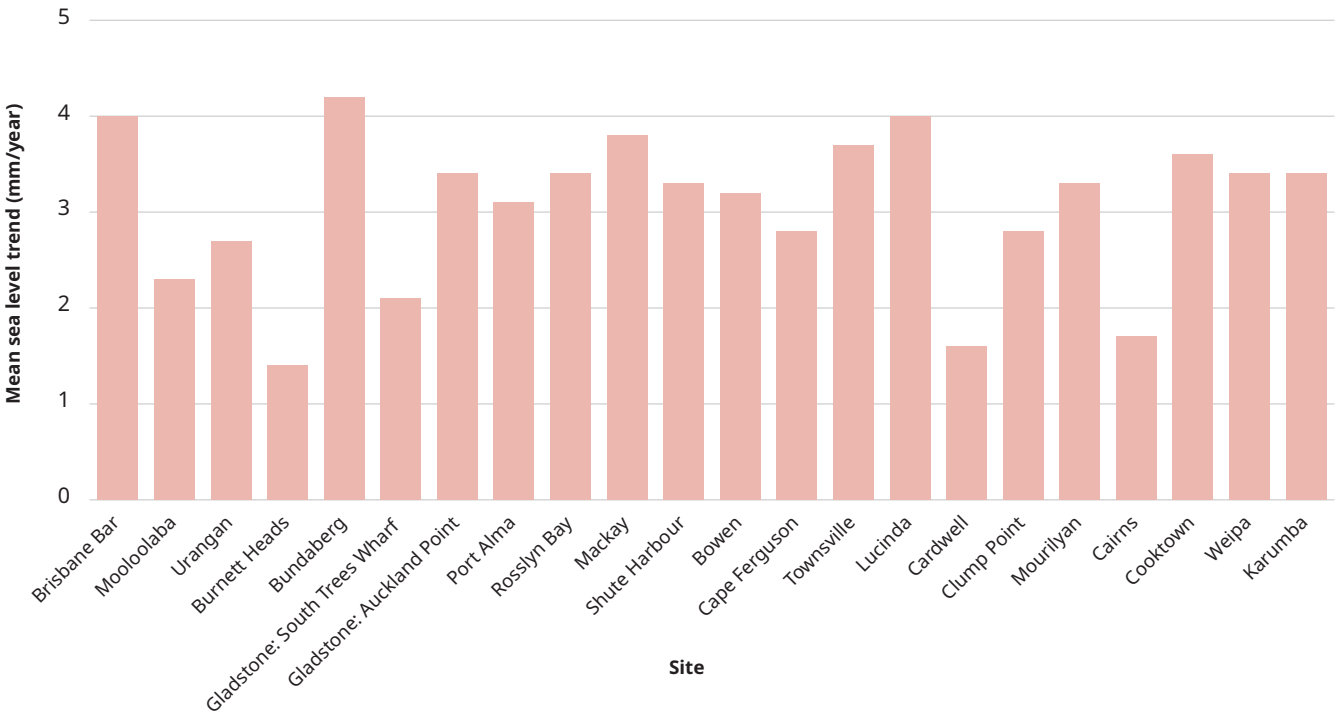
Northern Tropics



Mean sea level

Satellite records from 1993 to 2019 show a global mean sea level (MSL) rise of 3.5mm per year, with signs of acceleration, as the rate increased to 3.7mm per year between 2006 and 2018. In Queensland, sea-level changes can vary seasonally, decadally, and multi-decadally due to factors like the El Niño Southern Oscillation and tectonic movement. From 1986 to 2022, the regional average trend in MSL across 22 coastal tide gauges was 3.0mm (± 0.3) per year, with variations ranging from 1.5mm per year at Cardwell to 4.2mm per year at Bundaberg.

Regional Queensland sea level trends from 1986 to 2022



Storm tides

Queensland's coast is vulnerable to storm tide inundation due to its low, sandy landforms. Storm tide, which combines the tide and surge levels, can destroy human settlements, particularly major urban centres like Cairns, Townsville and Mackay. Severe weather events, such as cyclones in central and northern Queensland and east coast lows in the south, are the primary causes of storm tides. In the past five years, two significant events—Severe Tropical Cyclone Megan (March 2024) and Tropical Cyclone Seth (December 2021)—caused significant storm tide inundations. Most notably, a new tidal channel cut through the northern end of Bribie Island, creating a new entrance to the Pumicestone Passage from Moreton Bay.

Pressures

Erosion-prone areas

Queensland's erosion-prone areas, vulnerable to erosion and tidal inundation, have not changed significantly since 2016. Recent examples of coastal erosion include the following:

- on 2 January 2022, ex-Tropical Cyclone Seth caused large waves to wash over the dunes on northern Bribie Island, creating a tidal channel and eroding the Golden Beach foreshore. This had major impacts on navigation, including the closure of the Caloundra Bar
- persistent erosion at Woodgate Beach in the Bundaberg region threatens roads and council assets
- ongoing erosion at Clifton Beach, north of Cairns, has narrowed dunes, putting roads and public assets at risk. Despite beach nourishment efforts, erosion continues to pose a significant threat.

Satellite image analysis shows that mainland coastlines in the GBR region have been less stable from 2019 to 2022 than the long-term average (1988 to 2022). These changes are mainly due to higher coastal erosion rates, potentially linked to La Niña conditions affecting wave direction. The most significant changes occurred in the mainland Townsville–Whitsunday management area. Non-rocky coastlines in the region remain dynamic, and mainland beaches from Cape York to Bundaberg remain in good condition.

Headline management responses

The *Coastal Protection and Management Act 1995* aims to protect, conserve, rehabilitate, and manage Queensland's coastal zone and resources. Under this Act, the Coastal Management Plan provides non-regulatory policy guidance to coastal land managers on key issues such as preserving coastal landforms and physical processes and promoting knowledge sharing.

QCoast2100

The QCoast2100 initiative helps coastal local governments:

- assess risks from coastal erosion, storm tide inundation, and sea-level rise
- develop a Coastal Hazard Adaptation Strategy
- implement recommended actions to protect their communities.

As of June 2024, 37 of Queensland's 41 coastal councils have joined QCoast2100 and have completed (or are about to complete) their Coastal Hazard Adaptation Strategies or risk assessments. Local governments also develop shoreline erosion management plans with technical guidance from the state to provide science-based, sustainable solutions for areas facing imminent erosion threats.

Disaster risk assessment

The 2023 State Disaster Risk Report assesses state-wide risks for hazards and risk drivers. It also outlines future climate impacts on disaster risk in Queensland and advises decision-makers to consider climate change in their long-term disaster risk reduction planning.

Liveability

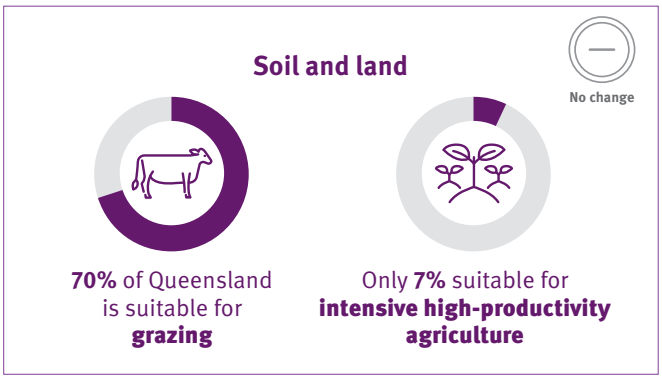
Rural

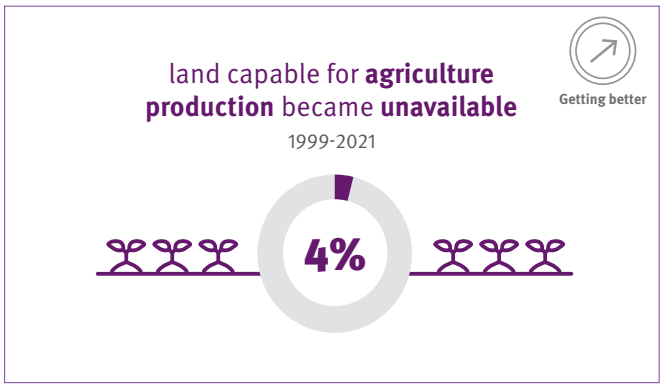
Rural agricultural practices refer to farming activities in sparsely populated areas where open land is used for cultivating crops and raising livestock for food, fibre, and other products. These practices are shaped by the natural environment, including climate, soil type, and resource availability. They are essential to rural economies and livelihoods.

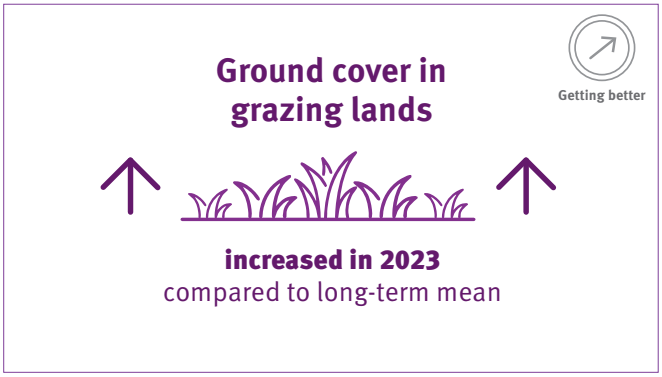
Why good rural practices are important

Queensland covers a vast land area with diverse climate zones and soil types, from tropical rainforests in the north to arid regions in the west. Understanding these variations is crucial for developing effective planning and management practices that support long-term sustainability and prosperity. With challenges such as climate change, water scarcity, and biodiversity conservation, tailored solutions for each Queensland region are necessary to ensure resilient agricultural practices and the protection of natural resources.

Key facts







State

Ground cover

Ground cover includes vegetation (living and dead), biological crusts, and stones in contact with the soil surface. Insufficient ground cover can cause soil erosion, leading to higher sediment loads in waterways and reduced productivity in grazing areas.

In 2023, ground cover in Queensland's grazing lands exceeded the long-term average. The mean ground cover was 65%, slightly above the 1987–2023 average of 64%. However, there was a slight decline in mean ground cover compared to 2022 (67%). Widespread fire events in late 2023 likely contributed to this decrease despite above-average annual rainfall. The Queensland Land Use Mapping Program states that grazing land covered approximately 84% of the state in 2023.

Mean late dry season ground cover across Queensland Natural Resource Management Areas

Pressures

Queensland's agricultural land is a finite resource, constrained by factors such as urban development and conservation protection. Between 1999 and 2021, 3.9% (68,289km^2) of the state's land use changed, with 4% (60,748km^2) of land suitable for agriculture becoming unavailable due to other uses.

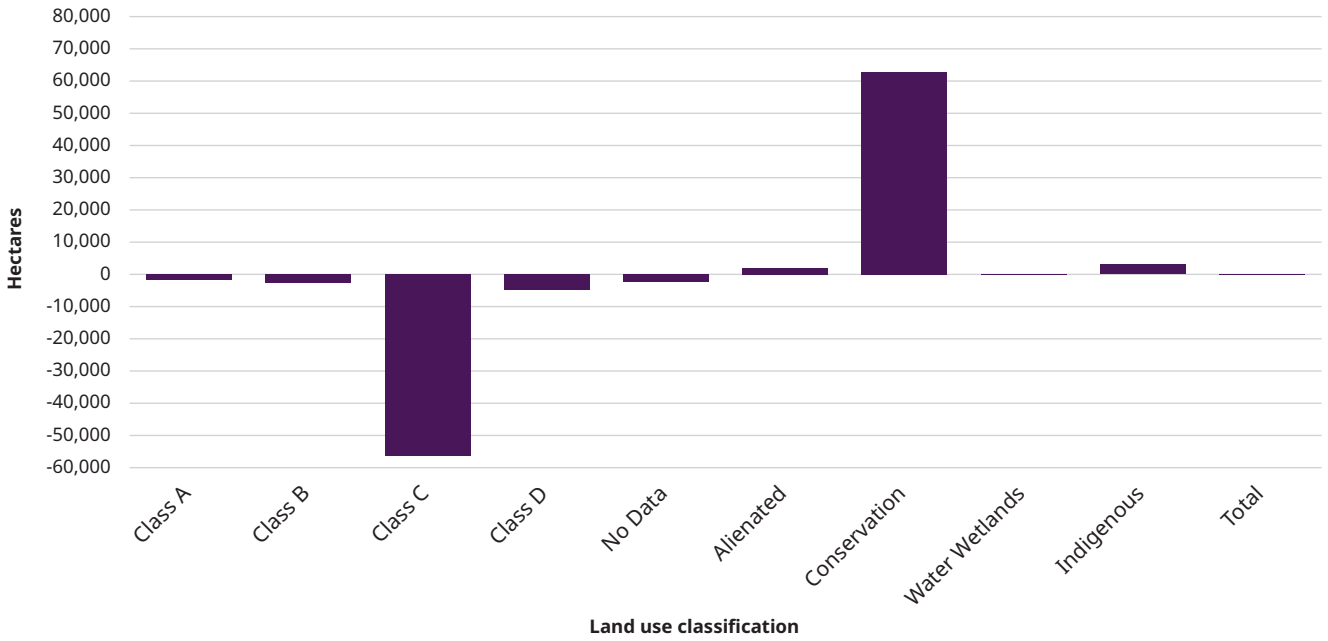
Agricultural land reductions occurred across the following classifications:

- Class A (cropping): ↓1.3% (1,756km^2)
- Class B (cropping): ↓3% (2,557km^2)
- Class C (grazing): ↓4.4% (56,435km^2).

Overall, land reclassification resulted in a 63,411km^2 increase across:

- conservation areas: ↑62% (62,724km^2)
- Indigenous management/title: ↑7.6% (3,095km^2)

Change in available soil and land resources in Queensland 1999–2021



In 2021, 12% (212,494km^2) of Queensland's land was suitable and available for cropping, while 70% (1,258,964km^2) was suitable for grazing, and 1% (15,033km^2) was unsuitable for any form of agriculture. Approximately 17% (296,183km^2) of Queensland's land is unavailable for agriculture due to conservation, Indigenous cultural use, urban development, or unsuitability.

Headline management responses

The Long Paddock

Information related to climate change is crucial for agriculture as it helps farmers adapt to shifting weather patterns, optimise crop yields, and ensure sustainable food production. The Long Paddock, a Queensland Government initiative, provides climate data, rainfall and pasture outlooks, and decision-support tools for landholders, educators, consultants, and extension officers.

Drought and climate change adaptation

Also, the Drought and Climate Adaptation Program (DCAP) helps agricultural producers manage drought and climate change impacts by reducing financial risks through improved forecasting, tools, and collaborative efforts among climate scientists, agencies, and industry leaders. This includes enhancing the management of climate variability in the grazing industry in northern Australia.

Reducing agricultural emissions

Additionally, the Queensland Low Emissions Agriculture Roadmap 2022-2032 supports the state's agribusinesses and the supply chain in reducing greenhouse gas emissions without affecting food and fibre supply. It outlines actions across five key areas: livestock emissions, cropping and horticulture emissions, on-farm energy, carbon farming and landscape management, and regions and supply chains.

Soil quality

The Soil and Land Information (SALI) database supports land management decisions by providing soil and land resource data from nearly 120,000 sites across Queensland. It includes updated soil profiles, chemical data, and maps, accessible through government platforms such as the Queensland Globe and the Queensland Spatial Catalogue. In parallel, the Queensland Soil Monitoring (QSM) Program establishes a robust baseline dataset to help land managers assess soil condition changes caused by land use or environmental factors like climate change.

Land resource decision support tools integrate soil and land science into accessible spatial models, improving science delivery in Queensland. The state-wide land suitability initiative, developed in collaboration with the Office of the Great Barrier Reef, World Heritage, and the Department of Agriculture, Fisheries, and Forestry, provides tools to guide agricultural expansion within reef catchments and assess land suitability for cropping. Among these, the Model for Effluent Disposal using Land Irrigation (MEDLI) helps design effluent reuse schemes for sewage systems, feedlots, and industries like abattoirs, using soil science and hydrology to assess impacts and regulate irrigation.

Great Barrier Reef

The Great Barrier Reef (GBR) cross-cutting theme brings together information and data from all themes in one place, creating a comprehensive picture of the GBR and its pressures.

The GBR is one of the world's most remarkable natural wonders, encompassing a vast and intricate system of coral reefs, marine species, and interconnected ecosystems that sustain life. Covering approximately 10% of the planet's coral reef ecosystems, the Great Barrier Reef is recognised as one of Earth's most complex and well-known natural systems. The Reef comprises diverse habitats, supporting an incredible array of marine biodiversity. Queensland is home to this globally significant icon, which harbours unique and irreplaceable species, playing a vital role in the health of the ocean and the well-being of local communities.

The GBR also protects Queensland's coastline from erosion and storms. It is an economic powerhouse that draws millions of tourists annually and sustains industries like fishing and tourism. Additionally, the Reef holds deep cultural significance, particularly for approximately 70 First Nations groups, whose connection to the region spans over 60,000 years. Recognised for its global importance, it became the first coral reef ecosystem inscribed on the World Heritage List in 1981 under all four natural heritage criteria, underscoring the need for its protection and preservation.

Climate change

The climate change cross-cutting theme brings together information and data from all themes to create a comprehensive picture of climate change and the pressures it creates.

Climate change is one of the most pressing challenges of our time. It influences weather patterns, ecosystems, and the natural processes that sustain life. It drives shifts in temperature, sea levels, and extreme weather events, disrupting environmental stability and resilience.

Queensland's climate is changing due to global warming. As the climate continues to shift throughout this century, its impacts on Queenslanders and the environment are expected to become increasingly pronounced. Increasing temperatures, changing rainfall patterns, and more frequent droughts, heatwaves, and severe storms within the state are expected to intensify, posing challenges such as bushfires and rising sea levels that endanger coastal communities. Addressing these risks through proactive adaptation and mitigation strategies is essential for protecting the environment, public health, and long-term sustainability.

Appendix 1: Management responses

Management responses are the actions or initiatives undertaken between 2020 and 2024 to protect, maintain and restore environmental assets, as well as those that prevent, mitigate or adapt to changes in the environment. They are generally developed in reaction to the observed or anticipated pressures and impacts, or the state of the environment. They act in a multitude of ways, either individually or, more often, in concert with one another, to bring about environmental change.

Biodiversity

Legislation

Biodiscovery Act 1994

Biosecurity Act 2014

Environmental Offsets Act 2014

Environmental Protection Act 1994

Fisheries Act 1994 (Fish Habitat Areas)

Great Barrier Reef Marine Park Act 1975

Marine Parks Act 2004

Nature Conservation Act 1992

The Convention on Wetlands (Ramsar Convention)

Vegetation management laws

Policy and programs

Aquatic Conservation Assessment – AquaBAMM

Carbon farming in Queensland

Conservation and management of crocodiles

Crown-of-thorns starfish response

Environmental Protection (Water and Wetland Biodiversity) Policy 2019

Great Barrier Reef Blueprint for Climate Resilience and Adaptation (2024)

Great Barrier Reef Outlook Report 2024

Marine Park Management

Gurra Gurra Framework

Healthy Water Management Plans

Indigenous Land and Sea Rangers

Koala Conservation Strategy

Native Vegetation Scientific Expert Panel Report and the Queensland Government's Response

Natural Resource Investment Program — 2018 to 2022

Natural Resources Recovery Program NRRP

Nest to Ocean Program

North West Minerals Province (NWMP)

Point Source Water Quality Offsets Policy

Queensland Biosecurity Strategy 2024-2029

Queensland Invasive Plants and Animals Strategy 2019-2024

Queensland's Protected Area Strategy 2020-2030

Queensland Reef Water Quality Program

Queensland Sustainable Fisheries Strategy

Queensland's Biodiversity Conservation Strategy

Reef 2050 Long-Term Sustainability Plan

Reef 2050 Water Quality Improvement Plan

Reef 2050 Wetlands Strategy

Reef Assist Program

Reef Water Quality Report Card

Regional report cards within the Great Barrier Reef catchment

Scientific Consensus Statement 2022 for the Great Barrier Reef

Shorebird protection and management

Statewide Landcover and Trees Study (SLATS)

Strategic and Enhanced Fire Management Program

Strategic Pest Management Program

The Land Restoration Fund

The Queensland Critical Minerals Strategy

Threatened Species Bushfire Recovery Program

Threatened Species Program

Values-Based Management Framework (VBMF)

Water Quality Policy

WetlandInfo

Wildnet Modernisation Project

Heritage

Legislation

Aboriginal Cultural Heritage Act 2003

Torres Strait Islander Cultural Heritage Act 2008

Policy and programs

Aboriginal and Torres Strait Islander cultural heritage database

Cultural heritage compliance and enforcement

Cultural heritage management plans

Gondwana Rainforests protection and management

Gurra Gura Framework

Indigenous Land and Sea Rangers

K'gari protection and management

Land Restoration Program - Indigenous Communities for Conservation

Local Government Illegal Dumping Partnerships Program with ATSI Councils

Protection and management of World Heritage Reserves

Queensland fire program partnering with First Nations people

Queensland First Nations World Heritage Strategy

Reef Assist Program

Riversleigh section of the Australian Fossil Mammal Sites World Heritage area protection and management

Wet Tropics protection and management

World Heritage Listing

World Heritage Management

Pollution

Legislation

Environmental Protection Act 1994

Waste Reduction and Recycling Act 2011

Policy and programs

Air Quality Investigations program

Carbon farming

Climate Solutions Fund - Emissions Reduction Fund

Container refund scheme

Emissions reduction targets

Energy from Waste Policy

Government leading by example

Keeping Queensland Clean; the Litter and Illegal Dumping Plan

Low carbon energy and industries

National Clean Air Agreement

National Environment Protection (Ambient Air Quality) Measure

Natural Resource Investment Program — 2018 to 2022

North West Minerals Province

Plastic Pollution Reduction Plan

Queensland Organics Strategy 2022-2032

Queensland Statewide Air Quality Monitoring Program

Recycling and waste in Queensland report

Reducing emissions from the built environment and infrastructure

Resource recovery

The Future is Electric: Queensland's electric vehicle strategy

Waste disposal levy

Waste management and resource recovery strategy

Climate

Legislation

Clean Economy Jobs Act 2024

Energy (Renewable Transformation and Jobs) Act 2024

Coastal Protection and Management Act 1995

Policy and programs

2023 State Disaster Risk Report

Australian Carbon Credit Unit Scheme (Cth)

Building community capacity and resilience

Climate Change Risk Assessments for Infrastructure Projects

Climate risk management toolkits

Coastal Management Plan

Critical Infrastructure Disaster Risk Assessment

Disaster Recovery Funding Arrangements (DRFA)

Disaster risk management in Queensland

Embedding adaptation and resilience into government operations

Environmental sustainability for households and businesses

Get Ready Queensland

Greenhouse gas emissions data and progress

Low Carbon Accelerator

QCoast2100

Queensland Flood Risk Management Framework

Queensland Future Climate Science program

Queensland Strategy for Disaster Resilience 2022–2027

Queensland Recovery Plan

Queensland State Disaster Management Plan

Regional Resilience Strategies

Renewable Energy Target (Australian Government)

Resilient Homes Fund

Safeguard Mechanism

Scientific Information for Land Owners (SILO)

Severe Wind Hazard Assessments

Shoreline erosion management plans

State Heatwave Risk Assessment

Statewide Assessment of Flood Risk Factors

Liveability

Policy and programs

Drought and Climate Adaptation Program

Land resource decision support tools

Queensland Low Emissions Agriculture Roadmap 2022–2032

Queensland Soil Monitoring Program

Soil and land resource information and state soil collection

Sustainable Agricultural Assistance

The Long Paddock

Great Barrier Reef

Legislation

Environmental Protection Act 1994

Fisheries Act 1994 (Fish Habitat Areas)

Great Barrier Reef Marine Park Act 1975

Marine Parks Act 2004

The Convention on Wetlands (Ramsar Convention)

Policy and programs

Crown-of-thorns starfish response

Environmental Protection (Water and Wetland Biodiversity) Policy 2019

Great Barrier Reef Blueprint for Climate Resilience and Adaptation (2024)

Great Barrier Reef Outlook Report 2024

Marine Park Management

Nest to Ocean Program

Queensland Reef Water Quality Program

Queensland Sustainable Fisheries Strategy

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WetlandInfo

Climate change

Legislation

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Energy (Renewable Transformation and Jobs) Act 2024

Environmental Protection Act 1994

Vegetation management laws

Waste Reduction and Recycling Act 2011

Policy and programs

Air Quality Investigations program

Australian Carbon Credit Unit Scheme (Cth)

Carbon farming

Climate Change Risk Assessments for Infrastructure Projects

Climate risk management toolkits

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Coastal Management Plan

Container refund scheme

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Embedding adaptation and resilience into government operations

Emissions reduction targets

Energy from Waste Policy

Environmental sustainability for households and businesses

Get Ready Queensland

Government leading by example

Great Barrier Reef Blueprint for Climate Resilience and Adaptation (2024)

Greenhouse gas emissions data and progress

Keeping Queensland Clean; the Litter and Illegal Dumping Plan

Low Carbon Accelerator

Low carbon energy and industries

National Clean Air Agreement

National Environment Protection (Ambient Air Quality) Measure

Natural Resource Investment Program — 2018 to 2022

North West Minerals Province

Plastic Pollution Reduction Plan

QCoast2100

Queensland energy policy

Queensland Flood Risk Management Framework

Queensland Freight Strategy and Action Plan

Queensland Future Climate Science program

Queensland Low Emissions Agriculture Roadmap 2022–2032

Queensland Organics Strategy 2022-2032

Queensland Strategy for Disaster Resilience 2022–2027 and Queensland Recovery Plan.

Queensland State Disaster Management Plan

Queensland Statewide Air Quality Monitoring Program

Queensland Walking Strategy 2019–2029

Queensland's Zero Emissions Vehicle Strategy

Recycling and waste in Queensland report

Reducing emissions from government transport and infrastructure initiatives

Reducing emissions from the built environment and infrastructure

Regional Resilience Strategies

Renewable Energy Target (Australian Government)

Resilient Homes Fund

Resource recovery

Safeguard Mechanism

Scientific Information for Land Owners (SILO)

Severe Wind Hazard Assessments

Shoreline erosion management plans

State Heatwave Risk Assessment

Statewide Assessment of Flood Risk Factors

Strategic and Enhanced Fire Management Program

The Future is Electric: Queensland's electric vehicle strategy

The Land Restoration Fund

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Waste disposal levy

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Aboriginal and Torres Strait Islander cultural heritage

Aboriginal Cultural Heritage Act 2003: https://www.legislation.qld.gov.au/view/pdf/inforce/current/act-2003-079

Torres Strait Islander Cultural Heritage Act 2003: https://www.legislation.qld.gov.au/view/html/inforce/current/act-2003-080

Cultural heritage database: https://www.qld.gov.au/firstnations/environment-land-use-native-title/cultural-heritage/cultural-heritage-database-and-register

Gurra Gurra Framework 2020–2026: https://www.detsi.qld.gov.au/our-department/corporate-docs/gurra-gurra-framework

Queensland First Nations World Heritage Strategy: https://environment.desi.qld.gov.au/management/world-heritage-areas/qld-first-nations-wh-strategy

World Heritage Intergovernmental Agreement: https://environment.desi.qld.gov.au/management/world-heritage-areas/management

Queensland Indigenous Land and Sea Ranger program: https://www.qld.gov.au/environment/plants-animals/conservation/community/land-sea-rangers/about-rangers

World Heritage

Great Barrier Reef Outlook Report 2024: https://outlookreport.gbrmpa.gov.au/threats-responses-and-risks/6-factors-influencing-regions-values/63-climate-change

World Heritage Convention: https://environment.desi.qld.gov.au/management/world-heritage-areas/convention

Environment Protection and Biodiversity Conservation Act 1999: https://www.dcceew.gov.au/environment/epbc

World Heritage Management Plans: https://www.dcceew.gov.au/parks-heritage/heritage/about/world/management-australias-world-heritage-listed

Wet Tropics World Heritage Protection and Management Act 1993: https://www.wettropics.gov.au/legislation

Nature Conservation Act 1992: https://www.legislation.qld.gov.au/view/pdf/inforce/current/act-1992-020

Wet Tropics Management Plan 1998: https://www.wettropics.gov.au/ManagementPlan

Air quality

Environmental Protection Act 1994: https://www.legislation.qld.gov.au/view/pdf/inforce/current/act-1994-062

National Clean Air Agreement: https://www.dcceew.gov.au/environment/protection/air-quality/national-clean-air-agreement

National Environment Protection (Ambient Air Quality) Measure: https://www.nepc.gov.au/nepms/ambient-air-quality

Waste

Waste Reduction and Recycling Act 2011: https://www.qld.gov.au/environment/circular-economy-waste-reduction/policy-legislation/legislation

Waste Management and Resource Recovery Strategy: https://www.qld.gov.au/environment/circular-economy-waste-reduction/strategy-plans/strategy

Resource Recovery Industries 10-Year Roadmap and Action Plan: https://www.statedevelopment.qld.gov.au/__data/assets/pdf_file/0014/17204/resource-recovery-roadmap.pdf

Plastic Pollution Reduction Plan: https://www.qld.gov.au/environment/circular-economy-waste-reduction/reduction/plastic-pollution/tackling-plastic-waste

Greenhouse gas emissions

Climate Solutions Fund-Emissions Reduction Fund (ERF): https://cer.gov.au/schemes/australian-carbon-credit-unit-scheme/accu-scheme-methods/domestic-commercial-and-industrial-wastewater-method/guide-to-domestic-commercial-and-industrial-wastewater-method/about-emissions-reduction-fund

Australian Government Clean Energy Regulator: https://cer.gov.au/

State Infrastructure Plan: https://www.statedevelopment.qld.gov.au/infrastructure/infrastructure-planning/state-infrastructure-strategy

Advance Queensland initiative: https://advance.qld.gov.au/

Climate Observations

Queensland Future Climate Science Program: https://www.longpaddock.qld.gov.au/qld-future-climate/

Queensland Climate Adaptation Strategy: https://www.energyandclimate.qld.gov.au/climate/climate-adaptation-strategy

Queensland State Disaster Management Plan: https://www.disaster.qld.gov.au/plans

Queensland Strategy for Disaster Resilience 2022-2027: https://www.qra.qld.gov.au/sites/default/files/2022-09/queensland_strategy_for_disaster_resilience_high_res.pdf

Queensland Statewide Assessment of Flood Risk Factors: https://www.qra.qld.gov.au/flood-risk/SAFRF

Queensland Flood Risk Management Framework: https://www.qra.qld.gov.au/QFRMF

2019 State Heatwave Risk Assessment: https://www.qld.gov.au/__data/assets/pdf_file/0020/339311/QFES-State-Heatwave-Risk-Assessment-Executive-Summary.pdf

Coasts and oceans

Coastal Protection and Management Act 1995: https://www.legislation.qld.gov.au/view/pdf/inforce/current/act-1995-041

Coastal Management Plan: https://www.qld.gov.au/environment/coasts-waterways/plans/coastal-management/management-plan

2023 State Disaster Risk Report: https://www.disaster.qld.gov.au/__data/assets/pdf_file/0020/436070/2023-State-Disaster-Risk-Report.pdf

2022-23 Queensland Government's Low Carbon Accelerator program: https://lowcarbonqld.com/

Liveability. Rural

Drought and Climate Adaptation Program: https://longpaddock.qld.gov.au/dcap/

Queensland Low Emissions Agriculture Roadmap 2022-2032: https://www.daf.qld.gov.au/news-media/campaigns/low-emissions-roadmap

Soil and Land Information (SALI) database: https://land-suit.information.qld.gov.au/

Queensland Soil Monitoring (QSM) Program: https://www.qld.gov.au/environment/land/management/soil/soil-data