



Government of **Western Australia**
Department of **Water and Environmental Regulation**

*We're working for
Western Australia.*

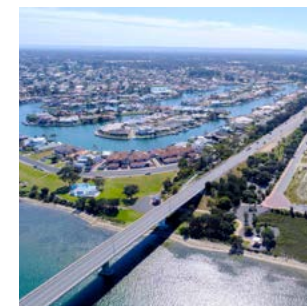
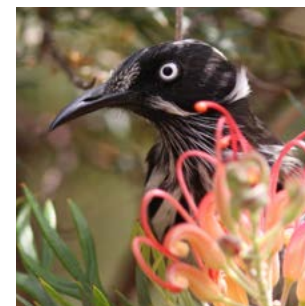
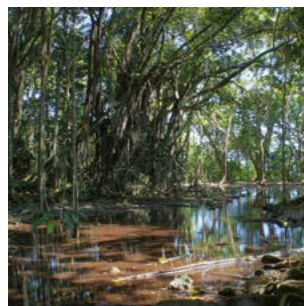
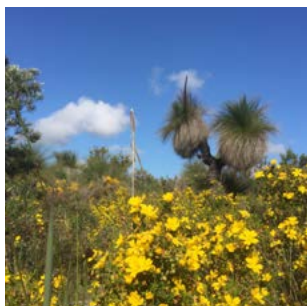


Annual report 2018-19

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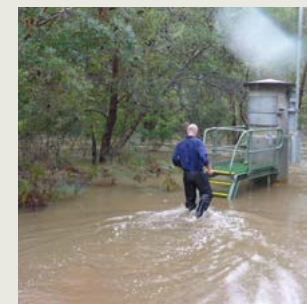
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Planned container deposit scheme

Countdown to June 2020

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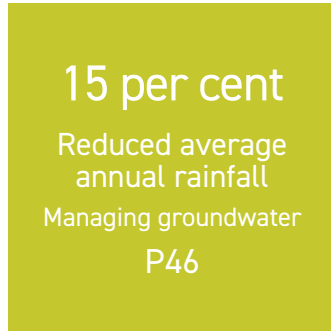


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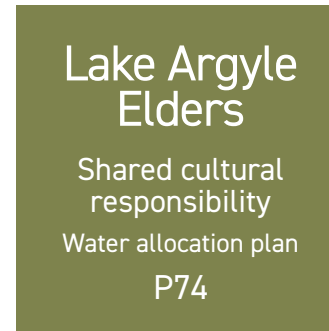


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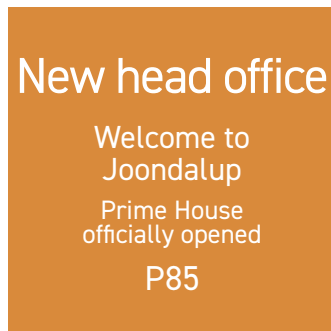


New head office

Welcome to Joondalup

Prime House officially opened

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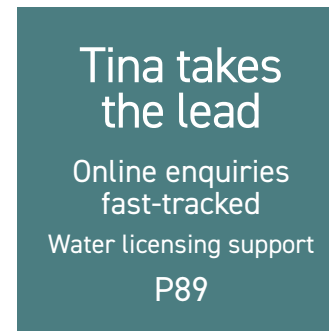


Tina takes the lead

Online enquiries fast-tracked

Water licensing support

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Our staff are central to our success and we will continue to create a culture of excellence and leadership, built on strong internal and external relationships. We will be inclusive and open in our interactions, influencing positive and effective change through our information, advice and programs.

Shortened forms

Term	Definition
AAS	Australian Accounting Standards
CALD	cultural and linguistically diverse backgrounds
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DFES	Department of Fire and Emergency Services
DMIRS	Department of Mines, Industry Regulation and Safety
DWER	Department of Water and Environmental Regulation
EPA	Environmental Protection Authority
FOGO	food organics and garden organics
FTE	full-time equivalent

Term	Definition
MLA	Member of the Legislative Assembly
MLC	Member of the Legislative Council
NAIDOC	National Aborigines and Islanders Day Observance Committee
NEPM	National Environment Protection Measure
OSH	occupational safety and health
PFAS	per- and polyfluoroalkyl substances
WALGA	Western Australian Local Government Association
WARR	waste avoidance and resource recovery
WIR	Water Information Reporting
WSS	WestState Superannuation Scheme



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How we report on our operational performance



This section outlines our achievements and how we go about delivering our services to the community.

To do this, we follow our [Strategic plan 2018–21](#), which supports our aspirations of stewardship, building on our successes and achievements over time. This includes how we are tackling waste and climate change, encouraging a more waterwise Perth, making our services more contemporary and tailored to clients, being professional and productive in supporting our people, and managing our financial affairs.

Our [strategic plan](#) is available online.

► Our strategies

Strategy 1	Sharing responsibility for water and the environment
Strategy 2	Delivering effective legislation and policy
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Strategy 4	Delivering trusted information, science and evidence-based advice
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Strategy 1

Sharing responsibility for water and the environment

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Water and environmental management involves weighing up competing demands from a diverse range of stakeholders for a limited water supply, while safeguarding the richness of our environment. We work with industry, the community, our regulated stakeholders, other departments and universities to achieve good outcomes. We look to make systemic changes to the way the system works to get better outcomes – whether changes to laws or policies, changing behaviour, providing advice and information, or building partnerships with others.

These matters include the government's priority issues such as [METRONET](#), the Westport Strategy (meeting the state's future trade needs), sensible and measured approaches for a waterwise Perth, the operation of the Pilbara Environmental Offset Fund and [Streamline WA](#).

On 6 December 2018, Premier Mark McGowan launched [Streamline WA](#), a one-stop-shop for business, industry and the community to refer regulatory issues – making it easier for businesses to invest in Western Australia, and to diversify the economy and create more jobs. The Streamline WA Steering Committee, jointly led by our department and the Department of Mines, Industry Regulation and Safety, has identified mining environmental approvals, tourism attraction approvals and business licensing as the first three areas for reform.

Our climate

Delivering actions for a waterwise Perth remains an important government priority. We are working with other agencies and interested organisations to develop strategies that improve the liveability and resilience of Perth, including delivering changes in urban form, promoting community water literacy and adopting new thinking and approaches.

As with a 'water sensitive city', the concept of 'waterwise' moves beyond water efficiency to include smarter water use in our homes and gardens, creating liveable green and resilient communities, and developing Perth in harmony with its water resources, under leadership from government.

Examples of collaborative projects follow in this section and throughout the report, demonstrating our commitment to sharing responsibility for water and our environment across government and the community.

Climate change is significantly impacting our state. These impacts include decreasing rainfall in the south-west of the state, an increase in extreme weather events, bushfires and coastal erosion, as well as changing patterns of disease – all of which have the capacity to adversely affect primary industries, infrastructure, terrestrial and marine ecosystems, and communities.

On 5 December 2018, the Minister for Environment announced the development of a new state climate policy to draw together and build on climate-related initiatives already underway. This will include measures to enhance renewable energy, accelerate the uptake of electric vehicles and unlock the state's significant carbon sequestration potential. Our Climate Change Unit was tasked to develop and deliver the climate policy in 2020. A directors general steering group comprising key agencies influencing climate policy was established in February 2019 to oversee the policy's development.

Our Climate Change Unit has also been working on initiatives such as:

- leading the preparation of a strategy for electric vehicles
- assisting other agencies with carbon sequestration projects on pastoral lands
- providing technical and policy support to the Department of Health on the sustainable health review.

► Electric vehicles

The transition to electric vehicles is gaining momentum worldwide. During 2018–19, we continued to investigate actions to promote the uptake of electric vehicles to reduce greenhouse gas emissions and air pollution. The previous year, Western Australia joined other states and territories, local governments and an industry group that jointly committed to increase the uptake of electric vehicles and share information through a memorandum of understanding. In 2018, the Government of Western Australia set up an electric vehicles working group to lay the groundwork for

Waste Avoidance and Resource Recovery Strategy 2030



accelerated uptake of electric vehicles in our state. We support this initiative as chair of the group, which focuses on the following three work streams:

- coordinating planning and construction of infrastructure (lead agencies – Main Roads Western Australia and Western Power)
- investigating standards and financial and non-financial incentives (lead agency – Department of Transport)
- developing an action plan to increase electric vehicle uptake in fleets (lead agency – Department of Finance – State Fleet).

The purpose of the government's work is to ensure Western Australia is prepared to capture the benefits of electric vehicles.



Among the government's main strategic priorities are reducing waste generation and increasing materials recovery. On 1 July 2018, it introduced a ban on the supply of lightweight plastic bags and has committed to introducing a container deposit scheme in June 2020. We have had considerable success in planning for these initiatives at all levels. Through these initiatives, the department, together with the Waste Authority, is helping to shape and transform state and local government, industry and community behaviours around waste.

The *Waste Avoidance and Resource Recovery Act 2007* (WARR Act) sets out requirements for the Waste Authority to develop and review a waste strategy for the state. The waste strategy is a long-term strategy for continuous improvement of waste services, waste avoidance and resource recovery, and sets targets for waste reduction, resource recovery and the diversion of waste from landfill disposal.



This year we supported the Waste Authority to review Western Australia's first waste strategy, which was published in 2012. Community and stakeholder consultation was held from October 2017 to March 2018 and was followed by a second extensive consultation stage in October 2018. In addition, with the Waste Authority, we consulted other government agencies to ensure the strategy was right and the accompanying action plan would be effective.

The *Waste Avoidance and Resource Recovery Strategy 2030* aims for Western Australia to become a sustainable, low-waste, circular economy in which human health and the environment are protected from the impacts of waste.

In February 2019, Premier Mark McGowan and the Minister for Environment Stephen Dawson launched the result – Western Australia's [Waste Avoidance and Resource Recovery Strategy 2030](#). The strategy aims for Western Australia to become a sustainable, low-waste, circular economy in which human health and the environment are protected from the impacts of waste. Its objectives are to avoid waste, recover more value and resources from waste, and protect the environment and human health through an effective action plan and ambitious targets.

More examples of our achievements in this area during the year include:

- worked with other jurisdictions on a new national waste policy

- amended regulations to allow use of uncontaminated fill without the requirement for a licence or triggering the waste levy
- worked with the Department of Transport and Main Roads Western Australia to encourage reuse of construction and demolition waste in road construction
- introduced the [lightweight plastic bag ban](#) from 1 July 2018
- introduced legislation to establish Western Australia's [container deposit scheme](#) from June 2020
- worked with the Department of Finance to implement the Premier's Circular for state agencies to avoid the use of unnecessary single-use plastics
- gazetted amendments to the Waste Avoidance and Resource Recovery Regulations 2008 and developed procedures to require reporting of waste and recycling data annually to DWER
- established a waste taskforce to develop advice on recycling market issues and opportunities in Western Australia, largely in response to China's import restrictions on recyclable waste.

► Waste Reform Advisory Group

In March 2019, we supported the establishment of the Waste Reform Advisory Group by the Minister for Environment. The group is chaired by the Director General and includes representatives from the Waste Authority, local government, peak industry and resource bodies, community groups, non-government organisations and material recovery operators. The group held its inaugural meeting on 9 April 2019.

The group's role is to inform the development of waste and recycling policy and legislation in Western Australia following the release of the waste strategy and the Premier's waste target as part of [Our Priorities: Sharing Prosperity](#). This inclusive approach to the development of policy and legislation will support the best waste outcomes for the community, industry and the state.

Cockburn community volunteers

This year, the Cockburn community supported the department to better understand the sources and causes of dust and odour around Beeliar, Munster and Yangebup. The Community Odour and Dust Monitoring Program was one of four programs including odour patrols and two programs related to dust.

The community volunteers monitored and reported dust and odour events in the area. Information included the date, time, duration, odour intensity and frequency during the dust or odour event but also the level of annoyance the community volunteers were exposed to and the impacts on their household or health.

The 10-week program was initiated in early March and concluded on 12 May 2019 with a total of 242 odour and 105 dust reports collected and analysed. A report covering findings of the program is set to be released in late 2019.

The participation of volunteers is a great example of the value stakeholder groups can bring to managing these sorts of matters. In

this case, the department gained valuable insight into the extent of odour and dust impacts in the community. This helps us decide whether to change how we regulate premises in the area.

Also important to our overall monitoring program is the establishment of a new air quality monitoring station at Mandurah. This will supplement the existing seven metropolitan sites and six regional sites. The station will include instruments to measure carbon monoxide, ozone, nitrogen dioxide and particles as well as a range of meteorological parameters.

► Dust monitoring

During the year, we also undertook dust monitoring across Beeliar and Munster using a comprehensive network of Australian standard dust monitors. LiDAR (light detecting and ranging) technology was used to visualise dust plumes as they moved. It generated images that displayed the source and pathway of dust in the region every 10 minutes over a region

of about 35 square kilometres. The LiDAR ran from 21 January 2019 to 19 May 2019. Together with the output of the Australian standard monitors, a live feed of the images was made publicly available on our website.





Lightweight plastic bag ban and reducing single-use plastics



The government is pursuing a range of initiatives to reduce the environmental impact of single-use plastics. These initiatives include a ban on the supply of lightweight single-use plastic bags from 1 July 2018, the introduction of a container deposit scheme from 2 June 2020 and the Premier's instruction to government agencies to avoid buying single-use plastic items including plastic cups, straws, plates and cutlery.




It is estimated that before the plastic bag ban, Western Australians used about 670 million single-use plastic bags. Of these, about seven million were littered annually, with most of the remainder ending up in landfill. In the marine environment, plastic bags can be mistaken for food by animals and ingested, or animals can become entangled in them, restricting their movement. Plastics persist in the environment for many decades. Eventually they break up into smaller pieces and their ingestion has devastating impacts on marine wildlife and birds.

To successfully implement the ban, the government partnered with the Boomerang Alliance to help deliver specific components of the program, which provided valuable information for community and retail behaviour change campaigns. The messaging tested by the Boomerang Alliance was incorporated into our 'What's Your Bag Plan?' campaign materials that included television, radio and print media as well as web-based and social media resources.

Plastic bag ban social media resources

Hashtags: #BYOBags

 [Own Your Impact WA](#)

 [ownyourimpactwa](#)

National Retail Association:
www.bagbanwa.com.au



Feature story:

Lightweight plastic bag ban and reducing single-use plastics



We also partnered with the National Retail Association to help retailers to understand all aspects of the ban and find suitable alternatives to meet their business and customer needs. A comprehensive engagement program was undertaken that included one-on-one visits to more than 4000 individual retailers across Western Australia, a retailer-specific website and a telephone hotline.

The work with the National Retail Association also resulted in the development of novel and engaging approaches to community and retailer engagement – including making Famous Sharron the face of the campaign. A series of short films featuring Famous Sharron and willing community members delivering messages about the bag ban were distributed via social media to coincide with the offence provisions that came into effect on 1 January 2019. During this time, other materials about

the bag ban were being delivered via web-based and social media, shopping centre signage and street performance activities.

Under the Regulations, it is an offence (with fines of up to \$5000) for a retailer to supply a lightweight plastic bag to their customers. Community members may also report a retailer suspected of supplying a banned bag via the National Retail Association website.



Research undertaken in 2017 shows the Western Australian community is concerned about the impacts plastics pollution is having on our environment. To build on the success of the ban, the Minister for Environment launched the [Let's not draw the short straw, reduce single-use plastics issues paper](#) and survey in April 2019. The aim was to gather ideas from the community and businesses on how to reduce single-use plastics and their impacts on the environment, waste facilities and human health. The results of the consultation will be available in 2019–20.

Fitzroy River catchment



The Fitzroy River and its catchment is one of Western Australia's last remaining areas that still retains its wilderness values. In March 2018, the government committed to:

- creating a national park in the upper part of the Fitzroy River catchment
- developing a management plan to ensure the health of the river and provide a basis for sustainable economic development
- no dams on the river or its tributaries.

We share responsibility for this whole-of-government management program, and will contribute by developing a water allocation plan for the Fitzroy River. This plan will put in place a regulatory framework to manage water resources, including protecting the natural and cultural values of the river. It will also establish tools to manage water use and an adaptive management framework to track and ensure social, environmental and cultural objectives are met.

In developing this plan, we have been listening to and meeting with stakeholders. These include the Martuwarra Fitzroy River Council, additional Aboriginal groups and native title holders, pastoralists and environmental

groups, the Australian Government, other state departments, and research institutions.

Water allocation planning is an important tool in protecting natural systems. Through identifying ecological and cultural values, and the water regimes needed to support them, allocation can be designed to ensure these values are not affected by use of water.

Our water allocation planning is supported by many years of investment in cultural, hydrological and ecological investigations by state and federal governments, universities, research institutions and non-government organisations.

In November 2018, native title specialist Bardy McFarlane was appointed as the Fitzroy River stakeholder convenor to help guide the delivery of the government's election promises about the national park and the river. In June 2019, Mr McFarlane and government agencies held consultative forums to bring stakeholders together to share their concerns, discuss their views and balance some of their differing perspectives about protection and small-scale sustainable development of the river catchment.

Rural water planning

We understand the importance of an assured water supply to dryland parts of the state, both for agricultural purposes and to support the communities in which they are based. The key to successfully tackling the two most pressing problems in dryland areas – lack of water and poor water quality – is a coordinated approach that draws together integrated actions with clear outcomes.

We implement the Rural Water Plan, which applies to dryland areas that are defined as agricultural regions receiving less than 600 mm of annual rainfall (compared with Albany's 927 mm and Perth's 733 mm). In particular, we give priority to areas without access to reticulated (piped) water services, as these areas are the most vulnerable to serious water deficiencies.

Our aim is to develop long-term self-sufficiency and optimise the efficient use of all available non-drinking water supplies. We do this by supplying water and environmental data that supports a variety of programs, grants and rebates. We also advise farmers and pastoralists about on-farm water supplies and deliver emergency water for livestock.

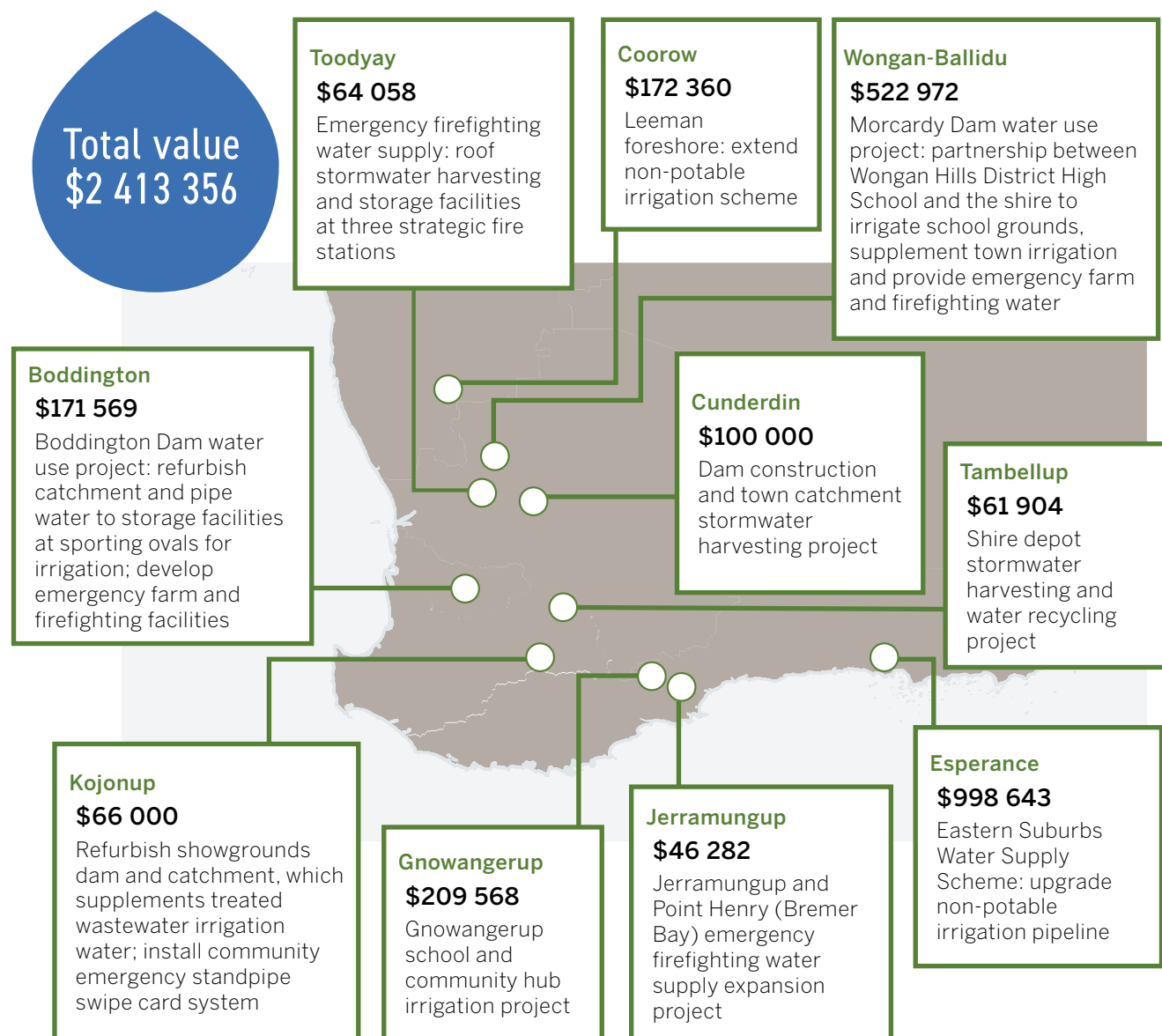
► Watering WA Towns completed projects, 2018–19

During 2018–19, the Community Water Supply Program worked on four projects to be delivered in 2019–20. These projects will benefit the community by providing strategic emergency water supplies for fighting fires and supplying non-potable water for town irrigation schemes. During the year, the following initiatives were funded:

- audits to assist farmers with their farm water planning (\$92 880 to 142 applicants)
- rebates to assist farmers to implement water infrastructure identified in their farm water plans (\$1.7 million to 168 applicants)
- grants to assist pastoral businesses to develop water infrastructure to support their livestock water needs (\$114 137 to 13 pastoralists)
- support for local governments and communities to develop non-potable water supplies for local community benefit (\$2.4 million to 10 projects – see map).

► Water deficiency declarations

Low rainfall resulted in major farm water shortages in the shires of Kent, Lake Grace, Jerramungup, Ravensthorpe and Esperance during the year. To offer support, the government



During the year, we have collaborated with the community in preparing for the next stage of water management planning.

approved three water deficiency declarations covering the affected areas with severe water shortages. The aim is to support animal welfare at times of very dry seasonal conditions, specifically where five or more farmers within a 20 km radius are having to cart water for livestock from an off-farm source more than 40 km away.

Three water deficiency areas were declared in 2019 – Ravensthorpe (7 May), Lake Grace (15 May) and Kent (4 June). Under the Rural Water Program, \$109 917 was spent on carting water from community water supplies to these drought-affected areas.

Taking advantage of dry conditions in the south-east Wheatbelt, the Rural Water Program carried out works to desilt dams and upgrade catchments for community water supplies. These works will optimise water capture and storage from rainfall events in preparation for future dry years. Work continues in Lake Grace Shire (desilting, tank installation and catchment upgrades) and Kent Shire (catchment repair, tank installation and repair, new and upgraded pipework).

Gingin: investing in community

Groundwater resources in the Gingin area are under pressure from high levels of demand and the impacts of climate change. The Shire of Gingin's southern boundary adjoins the Perth metropolitan region, resulting in further pressure from urban expansion.

The challenge is to balance water use for the environment and agriculture – by using allocation limits, licensing rules and monitoring – to supply water security for a range of users. Our approach highlights the importance of regional and local groundwater systems not only to support agricultural and horticultural activities in the region but also groundwater-dependent environments such as Moore River and the Gingin and Lennard brooks.

During the year, we collaborated with the community to prepare for the next stage of water management planning. We participated in community forums, workshops and presentations and explained how climate change would impact aquifers, stream flows, water availability and ecosystems into the future and shared advice on adapting to a drier climate.

We have listened to feedback so we can make use of local knowledge and respond to residents' concerns. Our visits were well received with a number of people asking us to come back and help them with their future water supply challenges.

Our approach is driven by a commitment to high levels of transparency and genuine partnership. We know that providing help and education, smart support tools and the right services will encourage water users to make the needed adaptations, as well as help other stakeholders understand the water policy directions that affect their community.

Through these initiatives, we have built a close relationship with the Gingin Water Group, which is now using our science and information for additional community engagement and education. This has led to the establishment of a Water Advisory Committee under the Gingin Shire, which includes representation from our department.



This enhanced community involvement and education is a great example of the value stakeholder groups can bring to managing our water resources. By working with the Gingin Water Group, we will continue to collaborate with landholders on how they can adapt to climate change, improve their water use practices and reduce cumulative impacts on water resources.

Armadale drainage works

During the year, we worked with the City of Armadale and the Metropolitan Redevelopment Authority to develop a flood and drainage study using modelling techniques not previously used in Western Australia. This will inform changes to urban design so that new homes built to meet the needs of Armadale's expanding population are protected from flooding and inundation from the Wungong River.

The results of the study showed a large shortfall in floodplain storage in the masterplan area for the expected increase in flood height – leaving the site with the potential to impact properties within the Wungong catchment and downstream.

Using flood modelling tools and scenario planning, we were able to quantify the flooding and provide accurate information to land development proponents. We are confident that by using new modelling techniques and an open and collaborative approach with developers, the City of Armadale and state government agencies, we will find innovative ways to plan for large flood events in the area.

Regional estuaries

More than 80 per cent of the Western Australian population lives in and around estuaries and relies on good water quality for recreation, fishing, commercial enterprises and overall amenity value. Due to population pressures and intensive agriculture in the catchments, water quality in many estuaries has deteriorated.

We combine the scientific understanding of how nutrient losses from catchments lead to poor water quality and the practical actions needed to improve the situation by means of water quality improvement plans. For effective regional delivery, these plans rely on shared responsibility involving government agencies, local government, community, natural resource management groups and industry.

Estuaries are where rivers meet the ocean, and their health is linked to conditions of the catchment land surrounding them as well as conditions in the water itself. Our estuaries of focus in the [Regional Estuaries Initiative](#) are the Peel-Harvey estuary, Leschenault estuary, Vasse-Wonnerup estuary and Geographe Bay, Hardy Inlet, Wilson Inlet, and Oyster Harbour.



The initiative is in the third year of a four-year program, developing innovative, integrated and on-ground actions for catchment-scale outcomes. By partnering widely, we use a system-steward approach to improve water quality. Our world-class science helps direct catchment investment where it will have the biggest impact, and promotes understanding of the current health status of the estuaries.

About 200 people across all sectors are working to deliver the five strategies of the initiative across the estuaries and their catchments.

Aboriginal Water and Environmental Advisory Group

We strive to provide strong support for Aboriginal people in our community. On 27 February 2019, our new Aboriginal Water and Environmental Advisory Group met for the first time.

The group, chaired by the Director General, was briefed on the role we play in securing water supplies for the state, protecting the environment, implementing the applicable legislation and undertaking projects including the Murujuga Rock Art Strategy, container deposit scheme, water allocation planning and the department's first [Reconciliation Action Plan](#).

The group was established to ensure Aboriginal knowledge, values and needs are appropriately addressed in policies, planning, legislation, regulation and management that relate to the state's water and the environment. This collaboration will ensure that Aboriginal social, cultural and economic needs remain central to the department's decisions on water and environmental management.

Other shared activities

Significant projects during 2018–19 have included supporting water matters for the government's METRONET projects, driving engagement to support the development of the Fitzroy and Derby water allocation plans, supporting the development of the lithium and nickel battery industry and managing the Port Hedland dust issue. In addition, water quality improvement plans were completed for the Vasse-Wonnerup wetlands, Toby Inlet and the Lower Vasse River. These plans were developed with our project partners, the City of Busselton and the Department of Biodiversity, Conservation and Attractions, and will form the basis of future management of Geographe waterways, continuing our work in at-risk estuaries.

About 200 people across all sectors are working to deliver the five strategies of the initiative across the estuaries and their catchments.



Our approach is driven by a
commitment to high levels of
transparency and genuine partnership



Revitalising Geographe Waterways



The Revitalising Geographe Waterways program is a successful example of stewardship. During the year, we worked closely with partners and the local community to increase community input and knowledge, and worked with farmers to improve dairy effluent management, manage fertiliser run-off, protect waterways and improve water quality in the catchment.

This collaborative approach has accelerated water quality improvements in the Geographe catchment and restored community confidence in the government's management of the waterways.

The award-winning waterways program monitors the Vasse-Wonnerup wetlands and priority waterways to identify key ecosystem features and threats. This helps us target our actions and resources to protect and improve waterway health and water quality. The \$15 million program was recognised in October 2018 with a state Australian Water Association Award for program innovation.

The wetlands regularly support peak numbers of 25 000–35 000 waterbirds in most years and provide the most significant regular breeding habitat for black swans in the state.



In April 2019, the government announced the program would be extended for a fifth year to ensure water quality improvements and nutrient reductions in the Geographe catchment could continue under the oversight of the Interagency Vasse Taskforce, chaired by Dr Sally Talbot MLC. More than 20 organisations, including government agencies, universities, and catchment and industry groups have been involved with the delivery of the program, ensuring whole-of-community commitment to tackling the challenges and complexity of water quality in the catchment.



Feature story: Revitalising Geopraphe Waterways



We are making it easier for stakeholders to understand the waterways and improve their decision-making through:

- hydrological models developed for specific waterways, including Toby Inlet and Vasse Estuary, resulting in improved water quality and waterway health
- a major ecological study on the Vasse-Wonnerup wetlands, greatly increasing our understanding of this important link between water quality and the ecology of the Ramsar-listed wetlands
- river health assessments, highlighting the importance of protecting waterways for their ecological and social benefits.

These findings have been shared with project partners and the local community at science updates that continue to be well received and attended.



On-ground works in the catchment have continued strengthening partnerships with farmers and industry groups.

- Modelling predicts that improved fertiliser management in this catchment since 2015 has resulted in a reduction of nearly 2000 kg per year of phosphorous entering the Vasse-Wonnerup wetlands and Geopraphe Bay.
- Over 70 farmers have been involved in the program since 2016 contributing to improved farming practices (fencing, revegetation, soil testing, and better management of fertiliser and dairy effluent).
- Over 40 km of fencing and 20 hectares of revegetation (tuarts, peppermint, rushes and sedges) have been completed over the past three years, protecting and improving riparian vegetation and reducing nutrient run-off from agricultural land.
- More than 300 community members attended gardening workshops to learn how to create beautiful gardens while protecting the waterways.



Our partnership with the urban community through the GeoCatch Bay OK project has also been strengthened through a major project with the City of Busselton and the Water Corporation to upgrade the Vasse diversion drain and install rain gardens in priority sites.

S2

Strategy 2

Delivering effective legislation and policy

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This section focuses on how we ensure environment and water legislation, policies, procedures and guidelines that we administer on behalf of the government are effectively carried out.



Waste not, want not

The Waste Authority's [*Waste Avoidance and Resource Recovery Strategy 2030*](#) envisages that the state will become a sustainable, low-waste, circular economy in which human health and the environment are protected from the impacts of waste. To achieve this, much of the waste we generate must be valued as a resource that can be reused or recycled for the benefit of the economy and the environment.

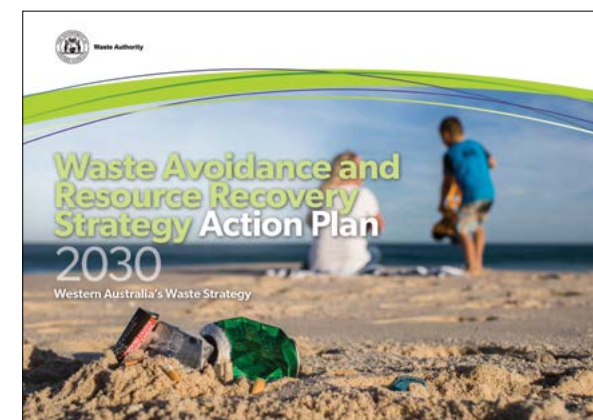
Materials that could be recovered are being sent to landfill, stockpiled indefinitely or disposed of illegally. Where they do not create a risk to human health or the environment, such materials can be re-evaluated as fit-for-purpose products.

In June 2019, we released an issues paper, *Waste not, want not: valuing waste as a resource*, for a 12-week comment period. This paper seeks comments on the legislative approach for a waste-derived materials framework that will work best for Western Australian conditions. Current legislation does not include a framework for these materials, creating uncertainty for industry about which

materials will cease to trigger licensing and waste levy requirements.

Together with the Waste Authority, we are working with Main Roads Western Australia to increase the use of recycled construction and demolition products (crushed concrete) in major civil construction projects throughout the state. The Kwinana Freeway Northbound Widening Project from Russell Road to Roe Highway was the pilot project, using about 25 000 tonnes of recycled product.

During the year, we continued to work with stakeholders, including the Waste Reform Advisory Group, on the legislative framework for the regulation and management of Western Australia's waste, which consists of the Environmental Protection Act, WARR Act, *Waste Avoidance and Resource Recovery Levy Act 2007* (WARR Levy Act) and their regulations.



► If it didn't grow, it's not FOGO



FOGO (food organics and garden organics) is food and garden waste (such as kitchen scraps, lawn clippings, small branches and garden debris) which is placed in the new lime green-lidded bins and used to create high-quality compost. The three-bin FOGO system allows households to more easily separate items that can be composted and recovered as a resource, for example, quality compost. The other two bins have yellow or red lids.

The yellow-lidded bins are for items that can be recycled (such as aluminium, plastic, paper, cardboard, newspaper and glass which are separated and sorted before being turned into

new products). The red-lidded bins are for waste that cannot be composted or recycled.

The state government has committed over \$10.5 million in funding through the [Better Bins program](#) to encourage local governments to implement better kerbside collection systems.

One of the headline strategies in the *Waste Avoidance and Resource Recovery Strategy 2030* is the government's commitment to a consistent three-bin kerbside collection system, which includes separation of FOGO, to be provided by all local governments in the Perth and Peel regions by 2025.

A three-bin service that includes FOGO can achieve recovery rates of around 65 per cent, or higher if residual waste undergoes further treatment for recovery.

High performing FOGO services can make the single biggest contribution to achieving the waste strategy material recovery targets for municipal solid waste.

This year, we supported the Waste Authority to develop a revised Better Bins FOGO program and business case through a consultation process with local governments.

Three workshops were held with the cities of Stirling and Melville and the Western Australian Local Government Association, and eight written submissions were received. The business case for a revised Better Bins program informed the Waste Authority's 2019–20 draft business plan.

During 2017 and 2018, the City of Melville also conducted a three-bin FOGO trial across 7000 households within the suburbs of Bicton, Brentwood, Bull Creek, Mount Pleasant and Willagee. The trial, which achieved a recovery rate of 66.5 per cent and indicated likely lower waste management costs for the city over time, was watched closely by other local governments. Subsequently, the City of Melville, the City of Fremantle and the Town of East Fremantle all committed to implementing the three-bin kerbside collection system in 2019.



In May 2019, the Waste Authority released a [position statement](#) confirming the authority's support for FOGO collection systems provided by local governments to households.

► Hazardous waste in the household

The Household Hazardous Waste program funds local governments and regional councils to help collect, store, recover and dispose of households' hazardous waste. The program is managed by the Western Australian Local Government Association and administered by the Waste Authority on behalf of the government.

Our homes can contain dozens of flammable, toxic, explosive or corrosive products. If not disposed of correctly, these products (collectively called household hazardous waste) can pose a threat to public health, safety or the environment.

Since 2008, thousands of tonnes of materials have been collected from 13 permanent facilities (eight metropolitan, five

Household Hazardous Waste program in 2018–19



518+ tonnes

collected for safe recovery or disposal

non-metropolitan) and through temporary collection events.

In 2018–19, more than 518 tonnes of materials including acids, batteries, flammable liquids, paint and cleaning products were collected for safe recovery or disposal.



► Waste Wise Schools expansion

The Waste Wise Schools program targets schools in Western Australia with educational strategies for avoiding waste, recovering waste as a resource, and reducing waste to landfill while developing positive environmental values in students and the whole school community. These schools model responsible environmental behaviours through hands-on learning experiences that are linked to the Australian Curriculum. This year, the highlights included the following:



- 310 schools were accredited, including 37 newly accredited schools.
- Grants were provided to 84 accredited schools for projects such as paper and plastics recycling systems; composting and worm farming; Waste Wise vegetable gardens; and reuse collection infrastructure. A total of \$228 967 was awarded during the financial year.
- 15 professional development workshops were delivered, while educational waste audits and student activities were undertaken at 52 schools.

- Funds were provided to support waste management activities in schools in the Kimberley and to deliver waste education workshops at early years learning services.
- Waste management curriculum material continued to be developed and provided to schools, to support teachers in the delivery of waste wise education to Western Australian students.

► Controlled waste

Our regulations aim to minimise the risk to the public and the environment of inappropriate or illegal transport and disposal of controlled waste.

Under the Regulations, carriers, drivers and vehicles involved in transporting controlled waste need to be licensed. Carriers and drivers record the movements of these vehicles using an online tracking system as well as a paper-based system for small business operators.

Controlled waste is defined under the Environmental Protection (Controlled Waste) Regulations 2004. It includes substances like sewage, heavy metals, acids, arsenic, asbestos, clinical waste, organic compounds, tyres, food

processing and grease trap wastes, and waste pharmaceuticals and medicines.

During 2018–19, a total of 642 new licences and 1491 renewals were processed by the Controlled Waste Branch, with 89 836 controlled waste forms received. This equates to about 225 000 vehicle movements that were tracked by the controlled waste tracking system.

► MyCouncil website expanded to include waste data

During 2018–19, we partnered with the Department of Local Government, Sport and Cultural Industries to include local government waste and recycling data in the upgraded [MyCouncil](#) website.

The MyCouncil website is a government initiative to improve local government accountability and performance by providing clear, transparent data. This approach is based on the belief that by making a problem transparent, we have created the conditions for solving it.

Controlled waste licences processed in 2018–19



642

New licences



1491

Renewals

Published data includes disaggregated quantities of waste collected, disposed of to landfill and recovered by each local government from kerbside and vergeside services and will be updated annually. The data is collected from the annual Local Government Waste and Recycling Census, which we carry out on behalf of the Waste Authority.

With the publication of data on MyCouncil, one of the many actions identified in the Waste Avoidance and Resource Recovery Strategy 2030 action plan was completed.

Updating the *Environmental Protection Act 1986*

► Waste levy

The WARR Levy Regulations set out methods for calculating amounts of waste (tonnes and cubic metres) disposed of to landfill. Some of the current methods are inherently imprecise.

One of the key levers to reduce waste generation and promote recovery is the waste levy. The levy places a cost on disposal of waste to landfill, making recycling more attractive.

In May 2019, we released a discussion paper proposing reforms to improve the accuracy and consistency of waste measurement, ensure a level playing field for landfill premises and enhance the effectiveness of the waste levy regime. As weighbridges are generally acknowledged to be a more accurate method

of waste measurement, the paper proposed amendments to introduce the requirement for liable landfill premises to use weighbridges.

Feedback from this discussion paper will inform the development of amendments to the WARR Levy Regulations.

Other amendments made to the WARR Regulations, which came into effect on 1 July 2019, require recordkeeping and reporting of waste and recycling data by local governments, waste recyclers and some large regional landfill premises. These amendments will provide data to help us develop policy and programs which promote recycling and reduce waste to landfill.

The government intends to update Western Australia's primary environmental legislation to ensure it meets future challenges and continues to meet the expectations of industry and the community in protecting public health and our environment while promoting sustainable development.

It is timely to update this legislation since the last major amendments to the *Environmental Protection Act 1986* occurred in 2003. This will include reflecting modern technology and promoting transparency and accountability. For example, amendments proposed for the Act will allow us to support meetings of the Environmental Protection Authority by teleconferencing, use satellite imagery for prosecution of clearing offences and allow digital recordings of investigative interviews.



Guidance

In addition, new streamlined approval processes and reduced duplication will facilitate sustainable development and provide industry and the community with greater certainty. One specific area we will be looking to improve will be the implementation of bilateral agreements between the state and federal governments under the *Environment Protection and Biodiversity Conservation Act 1999*, thereby reducing duplication of state and federal assessment and approval processes.

The department plans to release a draft Bill and discussion paper for consultation later in 2019 before bringing a Bill to Parliament.

The amendments will complement priority reforms initiated by the government to create a one-stop-shop for water and environmental regulation in Western Australia and the Streamline WA initiative aimed at delivering better regulation.

Delivering effective legislation and policy also means being proactive in working with industry and other stakeholders to prevent problems before they occur. During the year, we have continued our program of issuing practical guidelines. These guidelines and procedures enable stakeholders to position themselves within approaches that we describe as low risk. During the year, we:

- Progressed development of environmental guidelines on odour, air, noise and dust emissions.
- Published nine industry-specific guidelines that provide information on how we administer licensing of those industries. These publications have been welcomed by industry because they provide better information on how to correctly comply with licensing requirements.
- Continued to develop guidance material for industry stakeholders and internal staff to guide decision-making processes.
- Finalised the [Guideline: Odour emissions](#), to ensure we receive adequate data when assessing odour impact.

- Relaunched the [Guideline: Industry regulation guide](#) to licensing, which outlines our licensing framework for applicants proposing to construct or undertake activities under Part V, Division 3 of the Environmental Protection Act.
- Continued to standardise procedures for licensing and works approvals under Part V Division 3 of the Act, native vegetation clearing permits under Part V Division 2 of the Act, and water licensing under the *Rights in Water and Irrigation Act 1914*, bringing consistency across the four regulatory areas.

Publication of the above procedures and guidance will provide clarity to applicants on our requirements and provide visibility on how we harmonise our processes across regulatory delivery.

During the year we also provided support to the EPA on guidance and procedures under Part IV of the Act. This included development of a technical report on the issues affecting Carnaby's cockatoo in the Perth and Peel region, and updated spatial data and maps in the *Pilbara coastal waters quality consultation outcomes*.



Container deposit scheme



From 2 June 2020, the container deposit scheme, called Containers for Change, will allow consumers to take eligible empty drink containers to refund points to obtain a 10 cent refund. Drink containers account for 44 per cent of litter by volume in Western Australia and this initiative will reduce litter, increase recycling and provide opportunities for social enterprise participation.

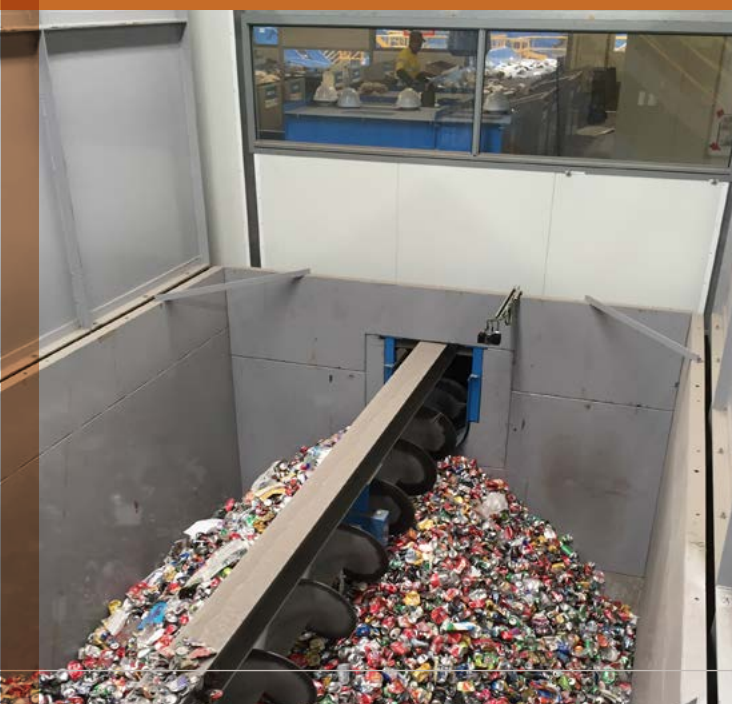
Modelling shows that over 20 years the scheme will recycle an additional 6.6 billion containers, of which 5.9 billion containers would have been landfilled and 706 million containers would have been littered. It will also create around 500 new jobs and provide significant opportunities for social enterprises and community groups to generate additional revenue, while complementing existing recycling efforts.

Substantial progress was made during the year on preparations for the scheme, with the department consulting with the community and other jurisdictions to help design the

scheme. An advisory group of experts from across Australia also meets on a monthly basis to assist. This advisory group is supported by three technical working groups that provide guidance on operational considerations as the scheme develops.

Legislation to establish the scheme was passed in March and the first regulations were made on 18 April 2019. The regulations deal with matters such as the appointment process, performance targets, reporting and the civil penalty regime. Further regulations are being prepared. Minimum network standards have been set to ensure that refund points are easy to access for 98 per cent of the population.

On 14 May 2019, the Minister for Environment announced the selection of a coordinator for the container deposit scheme – a not-for-profit company named WA Return Recycle Renew Ltd. This company will be responsible for running the scheme and ensuring it meets all objectives set by the government.



Managing groundwater

We take seriously the evidence of climate change and its effects on groundwater resources. As a result of climate change, since 1975 the south-west of Western Australia has experienced a 15 per cent decline in average annual rainfall. This has reduced recharge to groundwater aquifers from Geraldton to Esperance.

Across much of the south-west corner of the state, groundwater is an important part of the water supply mix and is used for town drinking water supplies, to irrigate public open space and for irrigated horticulture. Perth's groundwater resources provide more than 40 per cent of scheme supplies to households and businesses, almost all of the water supply

By planning future water allocation we will be able to provide certainty about any changes needed, allow plenty of time to adjust and keep the changes small.

used for parks, sports grounds and agriculture, and one in four domestic gardens. Groundwater also plays an important role in our natural environment by supporting wetlands, lakes and deep-rooted vegetation.

Managing groundwater sustainably to provide for our current needs and for future generations means making sure the amount of groundwater pumped from aquifers stays in balance with the amount of recharge to groundwater aquifers from rainfall. The amount of groundwater available for use in each location is identified through the department's water allocation plans. To get this right, water allocation planning involves considerable science, including future climate projections.

Water allocation planning responds to climate change by using the projected climate trend to identify water availability over the 10-year life of the plans. Because rainfall in the south-west is decreasing, in many cases this means that no more groundwater can be made available for use. Water users respond to climate change by using the water that is available more effectively including through

improving irrigation technology, better design of green space, reducing leaks and wastage, and through water trading. Looking ahead, in some locations we will need to begin to reduce groundwater use as rainfall decreases. By planning future water allocation we will be able to provide certainty about any changes needed, allow plenty of time to adjust and keep the changes small.

In the next few years we aim to complete or progress groundwater allocation plans for Cockburn, Gnangara, Gingin, Myalup, Perth South and Jandakot, Serpentine and Albany.

Water policies

State planning policies provide the highest level of land planning policy control and guidance and are the basis for coordinating and promoting the state's land use planning, transport planning and sustainable land development. They guide all public authorities and local governments.

To achieve good water outcomes in the land planning system, we provided considerable input into the Department of Planning, Heritage and Lands' review of state planning policies and specifically State Planning Policy 2.9 *Water resources*. Our input ensures that water resource management and information are considered early in statewide decisions on land planning and development.

In May 2019, we published a two-year extension to the exemption for local government drainage service providers. Local governments are currently exempted from licensing under the *Water Services Act 2012* for their drainage management activities.

We worked closely with the Water Corporation, Busselton Water and Aqwest to prepare for the publication of regulated fees and charges for 2019–20 for the three water corporations, which were published in the *Government gazette* in June 2019.

We are also developing and updating a wide range of water policies to support water allocation and licensing decisions across the department.



S3

Strategy 3

Being a responsive and credible regulator

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This section focuses on our streamlined approach to regulatory assessments and advice. Much of our effort as an agency is directed at delivering our regulatory functions under the 22 Acts, 38 Regulations and 150-plus pieces of subsidiary legislation we administer.

Part of being a responsive and credible regulator is ensuring we are delivering on the reason we were established as a department, which is to be a one-stop-shop for environmental and water regulation. Our objective is to provide the most efficient and effective approvals mechanisms that we can to ensure the environment, including water resources, is managed and protected from contamination and other threats.

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Balancing environmental values and growth

We strive to ensure there is a balance between protecting environmental values while still enabling responsible socioeconomic growth. Under Part V of the Environmental Protection Act, we regulate activities of industrial premises and the clearing of native vegetation.

► Industry regulation

[Works approvals and licences](#) place regulatory controls on the construction and operation of industrial premises to ensure there are no unacceptable impacts from emissions and discharges to public health or the environment.

In 2018-19, our industry regulation division received 191 works approval and licence applications, and 151 were determined, with the average time for determining applications being 79 days, compared with 72 days the previous year when the department received 170 applications. As of 30 June 2019, we administered 1042 licences and 271 works approvals across the state.

► Improving delivery

In 2018–19, we continued to develop our internal processes to improve the way we make decisions as well as carrying out projects to improve the timeliness and delivery of our services. The focus has been on improving the delivery of works approvals and licences and streamlining the Part V approvals process for industry, delivering practical and effective reform.

Although we have not been able to meet our target timeframes for the year (48 per cent instead of 80 per cent of applications being determined within 60 business days), steps have been taken to improve our timelines. Through an increase in fees on 1 June 2019, an extra 22 staff were allocated to the department to increase our capacity to process applications. Other initiatives include:

- Addressing the backlog of works approval and licence applications in the resources sector. Of 100 applications identified as backlog in January 2019, over two-thirds have been completed with the remainder under assessment and expected to be resolved in the near future.

Works approval and licences processed in 2018–19

 **1042**
Licences

 **271**
Approvals

- Investing in new systems including the Environment Online platform.
- Improving the transition process from works approval to licensing using our new [Guideline: Industry regulation guide to licensing](#). This has helped industry move more quickly from construction to commissioning and operation of their premises.
- Consolidating licences for premises with multiple amendment notices. This ensures clarity of licence conditions for licence holders and other stakeholders.

With more staff, better systems, clear guidance documents and training, we are working towards improving the delivery of decisions and instruments, which also reduces the regulatory burden on industry. Continual improvements to the approvals process ensure that public health and the environment are protected from activities taking place at prescribed premises. These are industrial premises with potential to cause emissions and discharges to air, land or water that trigger regulation under the Environmental Protection Act.

Environmental impact assessment

We support the Environmental Protection Authority (EPA) in conducting environmental impact assessments and developing guidance and procedures to protect the environment.



Increased diversity and complexity of both developmental proposals and planning schemes requiring formal assessment continued this year.

► Development proposals

During 2018–19, we worked on 43 development proposals that were referred to the EPA for environmental impact assessment. The EPA determined that 20 referred proposals required formal assessments. Almost one-third (30 per cent) of these proposals related to the Burrup Peninsula or Dampier Archipelago. Our concern in these matters is to protect culturally significant rock art in the area from damage due to industrial air pollution. A further seven proposals did not require assessment, but specific advice was provided to proponents, helping companies get things right.

► Planning schemes and scheme amendments

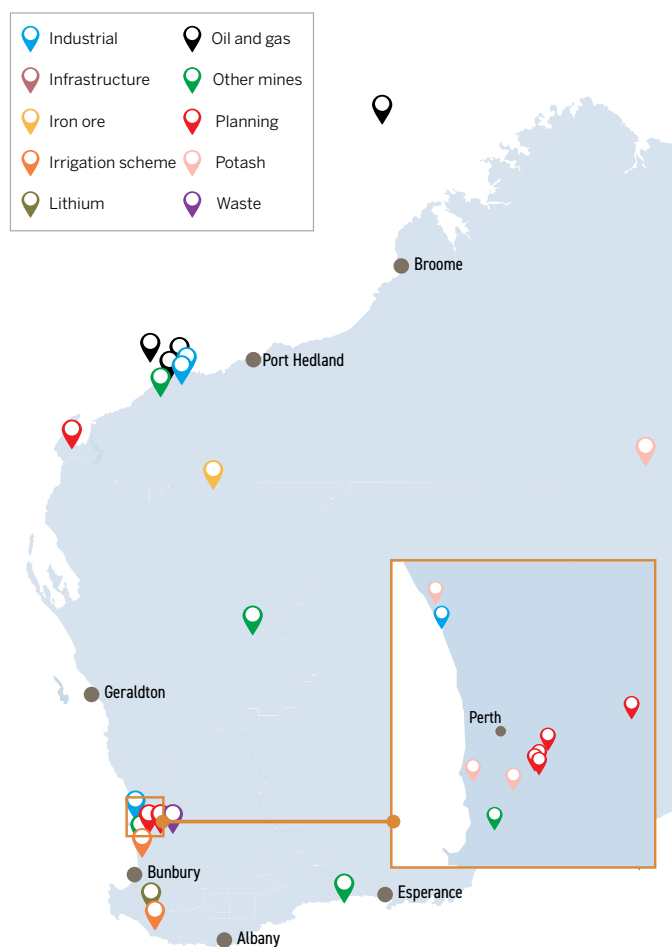
During 2018–19, we dealt with 161 planning schemes and amendments to schemes that were referred to the EPA for environmental impact assessment. Due to planning reforms introduced in 2014–15, the number of these referrals has continued to decline. The new 'deemed' scheme provisions have meant local planning schemes require fewer amendments, and reduced planning activity across the state.

While 2018–19 saw a significant reduction in planning schemes and scheme amendments referred to the EPA compared with previous years, a high number of schemes (six) were determined to be assessed as 'environmental review'. These included proposals to rezone land on the Swan coastal plain, land with black cockatoo habitat and land uses that conflicted with residential land uses. The EPA also determined that one proposed amendment was incapable of being made environmentally acceptable based on the significance of the proposed clearing and likely fragmentation of remnant native vegetation. The amendment would have threatened black cockatoo habitat (roosts and breeding sites), banksia woodlands and the ecological community.

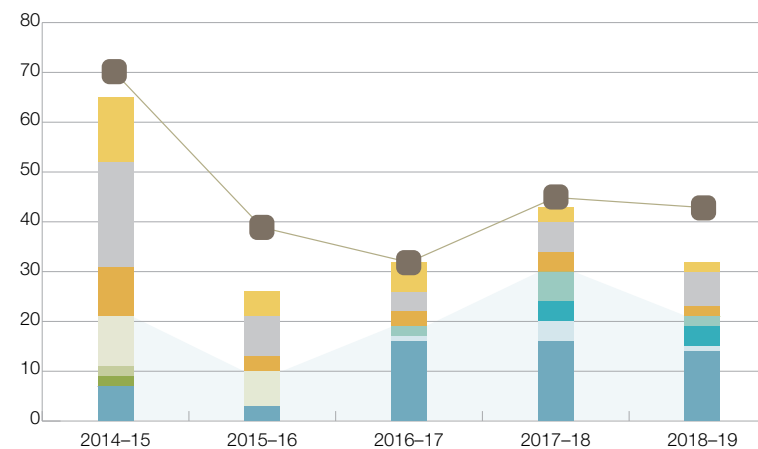
► Formal assessment

Increased diversity and complexity of both developmental proposals and planning schemes requiring formal assessment continued this year. These included METRONET projects, oil and gas developments and infrastructure on the Burrup Peninsula, lithium, iron ore mines, irrigation schemes and potash.

The map shows the location of proposals and schemes where a formal level of assessment was set during 2018–19.



► Total development proposals referred and decision

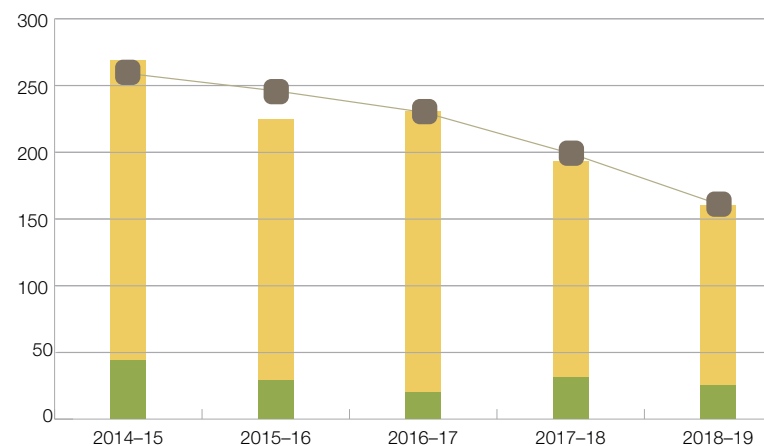


*Includes the environmental review – public review level of assessment

**Level of assessment is no longer used

Total received	
No advice given	
Not assessed	
Public advice given	
Managed under Part V	
Assessed	
Assessment on proponent information category A** (API A)	
Assessment on proponent information category B** (API B)	
Derived proposal	
Referral information – no public review	
Referral information – with public review	
Environmental review – no public review	
Public environmental review*	

► Total schemes and scheme amendments referred and not assessed decision



Total received	
Advice given	
Not assessed	
No advice given	

► Completed assessments

During 2018–19, we provided support to the EPA to complete 24 assessment reports, including the formal assessment of 15 mining, industrial and infrastructure proposals. This included the first METRONET project (Yanchep Rail Extension: Part 1 – Butler to Eglinton),

the first potash project in the state (Beyondie Sulphate of Potash Project), an expansion to the Greenbushes Lithium Mine to supply the high global demand for lithium that was reported in the 2017–18 annual report and several iron ore mines.

► Assessments completed

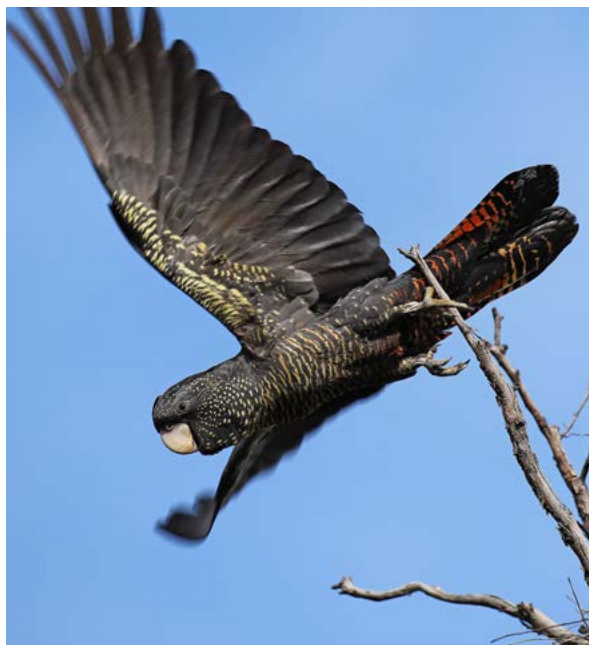
Type of assessment	2015–16	2016–17	2017–18	2018–19
Formal assessments				
Public environmental review	6	11	5	10
Environmental review (no public review)	-	-	-	2
Assessment on referral information (with public review)	-	-	1	1
Assessment on referral information (no public review)	-	1	5	2
Strategic proposal	-	-	1	-
Assessment on proponent information (Category A)*	6	5	-	-
Changes to conditions				
s.46 changes to conditions	6	14	7	9
Total	18	31	19	24

*Level of assessment is no longer used.

EPA guidelines and procedures framework review

We continued to implement recommendations from the review of the EPA's guidelines and procedures framework, reported in last year's annual report. The review has ensured a clear and contemporary guidelines and procedures framework for the EPA. Our support for environmental protection continues as an active body of work. Some examples include:

- Regular consultation with the EPA's Stakeholder Reference Group, which ensures the direct contribution of key external stakeholders and peak industry bodies who provide input to the EPA on its guidelines, processes and performance. The group met four times during the year.
- Continued opportunities for the public to participate in the environmental impact assessment process. These include seven-day public comment periods on referrals received and public review periods for environmental review documents. The public is encouraged to participate in consultation by offering advice, identifying omitted relevant data or information, providing local knowledge and proposing alternatives.



- Progress in capturing and consolidating environmental data contained in biodiversity survey reports on our Index of Biodiversity Surveys for Assessments (IBSA).

Contaminated sites

There were 220 known or suspected contaminated sites reported to us under the *Contaminated Sites Act 2003* between 1 July 2018 and 30 June 2019, and 368 sites were classified during the period. Each site typically is classified more than once to reflect new information. By 30 June 2019, a total of 4001 sites had been classified under the Act.

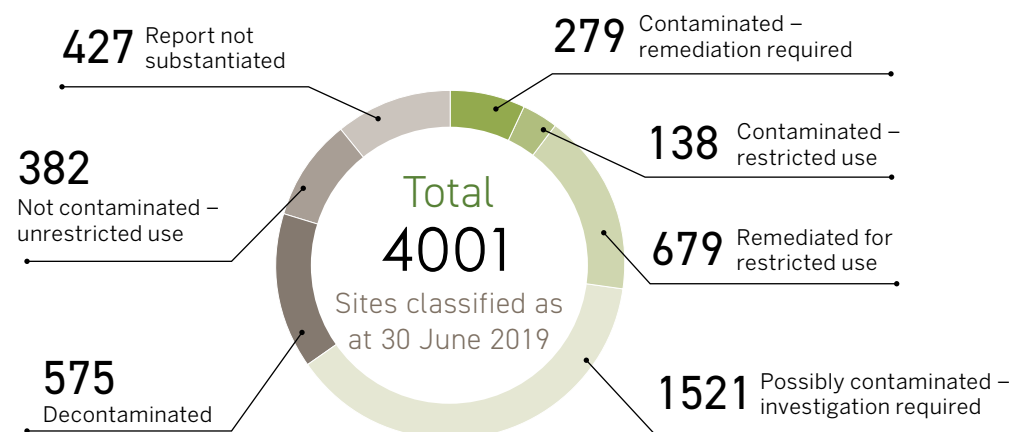
In addition, we reviewed more than 145 acid sulfate soil reports and responded to about 475 requests for technical advice.

► Number of sites reported and classified

	Form 1 reports*	Sites classified
2015–16	136	390
2016–17	371	448
2017–18	188	452
2018–19	220	368

*Known or suspected contaminated sites are reported to the department using a Form 1 report.

► Classification of contaminated sites



Port Hedland dust management

The world's largest bulk handling port at Port Hedland plays a major role in Western Australia's economy but also significantly contributes to longstanding dust issues in the town.

On 15 October 2018, the government released its [response](#) to the [2016 Port Hedland Dust Taskforce report](#), which focuses on decreasing dust exposure for the community without jeopardising the industries that underpin prosperity in the Pilbara. The department is leading the whole-of-government response. With funding provided by the government for this purpose, this year we set up a dedicated project team to:

- develop and implement best-practice dust management guidelines for bulk handling port premises, designed to reduce emissions from port operators
- take control of the ambient air quality monitoring network (subject to negotiations with industry), ensuring any incurred costs are covered by industry in accordance with the 'polluter pays' principle
- implement a coordinated risk-based review and assessment of all port operator licences, to incorporate more robust regulatory controls in line with best-practice guidelines.



Controlling odour emissions

We investigated transient odours in the Mandurah area and identified both natural odour sources and odours from industrial facilities. One or more of three prescribed premises located at Nambeelup Farm and licensed by the department under Part V of the Environmental Protection Act were a key source of odour emissions. Odours were recognisable at distances of between 1200 metres and 8 kilometres downwind of the premises.

In response to these odour issues, we completed a risk-based review of the licences for the three prescribed premises. This review process concluded in August 2018 and resulted in all three licences being amended to have additional controls imposed to address the risk of odour emissions and confirm the integrity of containment infrastructure (such as pond liners and hardstands).

Since the completion of the reviews, odour complaints in the Nambeelup area have significantly reduced.

Illegal dumping and littering

We are continuing our air monitoring study for the Nambeelup area with a number of licence holders participating. The study aims to provide a greater understanding of odour sources on the licensed sites and the risk they present. Should the study indicate that there are opportunities to further improve environmental performance, we will work with the licence holders to implement improvements.

Illegal dumping occurs when people intentionally circumvent their obligations to dispose of waste responsibly, such as by dumping waste in the bush. This behaviour impacts many aspects of our community – endangering human health, contaminating groundwater and imposing significant clean-up costs. Not only does illegal dumping damage the environment, it is also unsightly.

Under the Environmental Protection Act, illegal dumping of waste is an offence, with maximum penalties of \$62 500 for individuals and \$125 000 for corporations.

This year, our Waste Operations Branch investigated 290 illegal dumping and littering complaints. Working with local government authorities and land managers, we identified the offenders through surveillance footage (hidden cameras) and conducted regular patrols of known dumping sites to deter would-be offenders.

During 2018–19, we instigated 26 prosecutions involving 44 charges for illegal dumping of waste and littering. Thirteen illegal dumping and littering prosecutions involving 20 charges were finalised with convictions before the courts.

Through the Pollution Response Unit, we conducted a joint aerial observation program with the Department of Fire and Emergency Services (DFES) to assess waste facilities for fire and environmental risks, assessing over 100 sites and identifying those requiring closer inspection.

Illegal dumping investigations in 2018–19



290

Investigations



44

Charges



20

Charges finalised



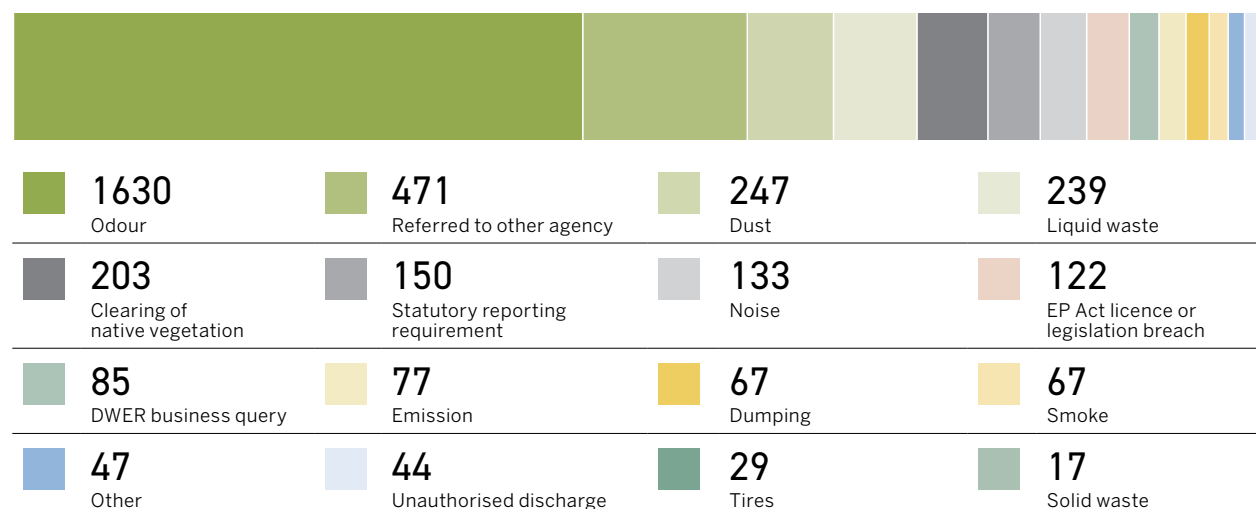
Significant incidents response

Across the year, we continued to respond to serious pollution and hazardous materials incidents, in line with Environmental Protection (Unauthorised Discharges) Regulations 2004. Primary responsibility for responding sits with our 24-hour on-call Pollution Response Unit. We work with local government and other state government agencies to respond to such incidents and emergencies statewide.

In 2018–19, we dealt with 3200 reports to our 24-hour Pollution Watch hotline and responded to 387 pollution incidents and emergencies, including several large industrial fires, chemical spills, hazardous materials releases, fuel tanker rollovers and oil spills. Some incidents resulted in significant pollution risks and community concern over potential exposures.



► Pollution Watch reports by segment, 2018–19



Specialist officers carried out rapid-field environmental monitoring to determine the risk, took rapid action to protect public health and the environment, provided important advice to the emergency services and collected evidence for future enforcement.

Significant incidents included a 30 000-litre oil spill at Fremantle Port, major scrap-metal fires in Forrestfield and Maddington, industrial fires

in Karragullen, Kwinana and Kewdale, and a liquid ammonia release in Kwinana.

In October 2018, we hosted four federal on-scene coordinators from the United States Environmental Protection Agency to provide specialist training for our field officers in hazardous materials incident response. This was a joint exercise with DFES, which provided its training academy for the event.

New intelligence branch

During 2018–19, the Compliance and Enforcement Division incorporated an intelligence function to consolidate and analyse data held across the agency and enable transparent and evidence-based regulatory decision-making.

Management of the department's 24-hour Pollution Watch Service will transition to the intelligence function. Pollution report management will be aligned with best-practice systems and triage processes to improve communication with pollution reporters, data collection and targeting of resources to pollution issues of greatest significance.

Emergency preparedness

Our pollution response officers have been certified or re-certified as emergency drivers after successfully completing accredited emergency driver training.

The training is required to enable the officers to quickly and safely respond to emergencies where air monitoring and other support is required by the emergency services. This includes incidents such as chemical fires and hazardous materials (HAZMAT) spills and discharges.

While many of our pollution incidents are considered routine, there are emergencies where prompt attendance on the scene is required. The department responds to 50–60 emergency incidents per year, with about one per month requiring lights and sirens.



Native vegetation

Clearing of native vegetation is one of the major causes of biodiversity loss in Western Australia. It also contributes to other environmental problems such as erosion, invasive species and salinity.

On 3 May 2019, the government endorsed the development of a general policy on native vegetation, a study of improved mapping and monitoring of native vegetation, and an investigation into strategic regional conservation planning. This follows the announcement by government of an increase in fees for clearing permit applications, taking into consideration the feedback received during consultation for the new fees.

To progress this work, we have established interagency working groups and will consult with interested parties and the community as work progresses throughout 2019–20.

We have improved our performance overall with respect to our target of assessing clearing permit applications within 60 business days.

► Native vegetation regulation

We have improved our performance overall with respect to our target of assessing [clearing permit](#) applications within 60 business days. In 2017–18, we reported that 43 per cent of applications were assessed within this target timeframe, which has increased to 49 per cent in 2018–19.

Permit applications from state development (mineral production, mineral exploration, petroleum production and exploration and other) comprised the majority of approved clearing, with most of that occurring within the Kimberley region.

During the year, we received 443 clearing permit applications, granted 287 applications and refused 15 applications. Of these, 69 were applications to amend an existing clearing permit. We took an average of 79 days (excluding stop clocks) to determine these applications.

Clearing permit applications are also assessed and determined under delegation by the Department of Mines, Industry Regulation and Safety (DMIRS). The above performance figures do not include permit applications processed by DMIRS.



To facilitate further performance improvements, this year the government approved improved cost recovery for clearing permit applications. The new fees came into effect on 1 July 2019 and have allowed the creation of new positions.

We also commissioned an independent review of existing processes for the assessment of clearing permit applications. We are reviewing the recommendations and will implement a number of changes through 2019–20 for increased efficiency.

During the final quarter of 2018–19, a significant increase was experienced in relation to new clearing permit applications. Improved processes and the increased resources will help us meet the challenge of efficient and effective assessment of applications received.

► Managing roadside vegetation

This year, we participated in events in Margaret River and Northam that focused on the management of roadside native vegetation by local government authorities. These events were coordinated by the Western Australian Local Government Authority (WALGA).

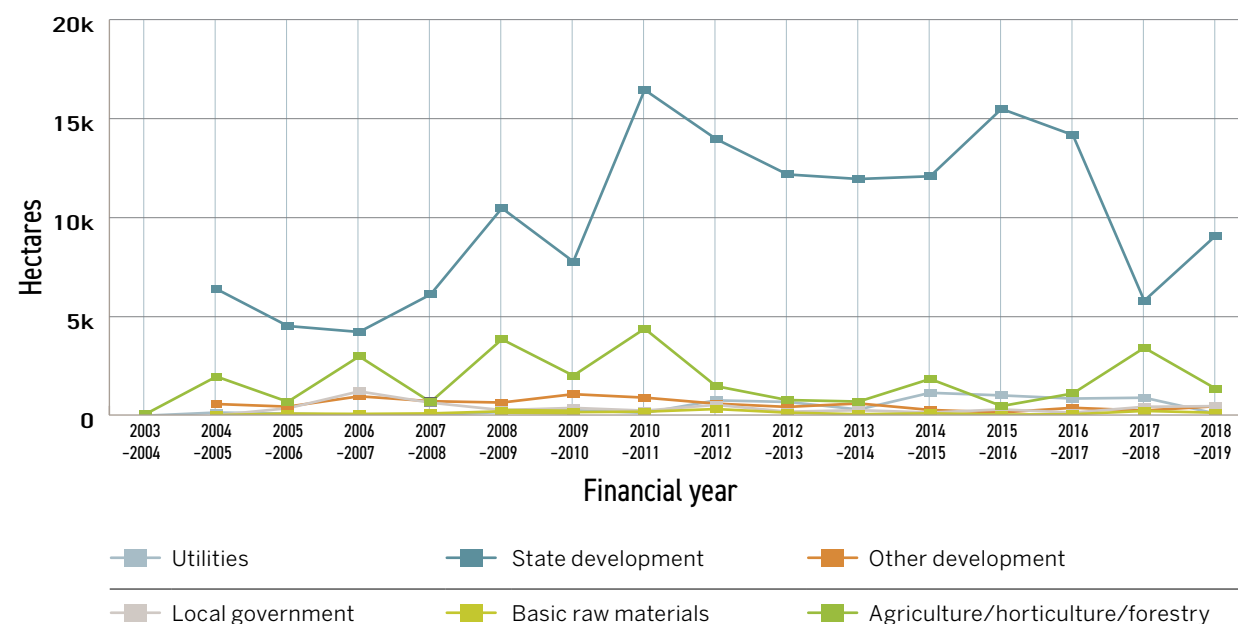
Earlier consideration of potential environmental constraints to road upgrade projects is a core part of our approach to avoid or minimise the extent of clearing. This is also expected to produce benefits for local governments by ensuring that the necessary approvals are in place well before roadworks are due to begin.

► Clearing statistics webpage

We are committed to expanding and improving the transparency of native vegetation information. In December 2018, we published [interactive historical statistics online](#) showing clearing of native vegetation that was approved by both the department and DMIRS.

The webpage provides information on the amount of clearing (in hectares) approved and refused through clearing permit applications since the clearing provisions were introduced

► Area granted by industry group



under the Environmental Protection Act in 2004. The webpage also includes a variety of charts providing data that can easily be sorted by approving agency, industry groups and location.

Publishing this data provides the community with clear, accessible information relating to native vegetation, enhancing public trust and confidence. This initiative represents the first step in providing comprehensive, publicly accessible data on an emerging issue.



Murujuga – hip bone sticking out



Murujuga, which means 'hip bone sticking out' in the Ngarluma-Yaburara language, is the traditional Aboriginal name for the Dampier Archipelago and surrounds, including the Burrup Peninsula. It is home to the Ngarda-Ngarli, a collective Aboriginal term for the five traditional owner groups – Ngarluma, Yindjibarndi, Yaburara, Mardudhunera and Wong-Goo-Tt-Oo – who have been part of this cultural landscape for tens of thousands of years and have a deep and spiritual connection to it.

With more than one million images, Murujuga is home to one of the largest, densest and most diverse collections of rock art in the world*. The archaeological record also includes campsites, quarries, shell middens and standing stone arrangements, including lines of up to three or four hundred stones.

Murujuga also hosts multi-billion-dollar industries that contribute significantly to the local, state and national economy and provides

employment in the area. Further expansion and future developments are proposed, some of which are being assessed under the *Environmental Protection Act 1986*. Tourism is also emerging as an important economic and employment diversification opportunity for the Murujuga Aboriginal Corporation and the local community.

The government is committed to protecting the rock art of Murujuga and considers that the unique Aboriginal cultural and heritage values of Murujuga can coexist with a well-regulated industry and new economic opportunities that deliver benefits to the local community.

In February 2019, the Minister for Environment released the Murujuga Rock Art Strategy. The strategy establishes the framework for the long-term management and monitoring of environmental quality to protect the rock art on Murujuga from the impacts of industry and shipping emissions. The framework provides a transparent, risk-based and adaptive approach

* Australian Heritage Council (2012). *The potential outstanding universal value of the Dampier Archipelago site and threats to that site*. A report by the Australian Heritage Council to the Minister for Sustainability, Environment, Water, Population and Communities.





Feature story:

Murujuga – hip bone sticking out

that is consistent with the government's responsibilities under the Environmental Protection Act.

The strategy is being implemented by the department in partnership with the Murujuga Aboriginal Corporation. We are working together to oversee the development and implementation of a new world best-practice scientific monitoring and analysis program that will determine whether the rock art on Murujuga is being subjected to accelerated change. This will be undertaken in close consultation with a team of national and international experts in relevant disciplines.

The Murujuga Rock Art Stakeholder Reference Group was established in September 2018 by the Minister for Environment to facilitate engagement between the Murujuga Aboriginal Corporation and key government, industry and community representatives on the development and implementation of the strategy.

Water licensing

Western Australia's prosperity depends largely on secure, sustainable and fit-for-purpose water supplies, where fit-for-purpose means recognising that not all water uses – such as dust suppression and some industrial uses – call for high-quality drinking water. Overall water use in the state has almost doubled in the past three decades and projections show that demand will again double by about 2050.

The rising demand is heightening competition for available water in many parts of the state and, when coupled with the impacts of climate change in the South West, is increasing the number of fully allocated water resources and the complexity of water resource management.

Licensing is our principle regulatory tool for ensuring that the state's water resources and dependent ecosystems are protected, and that water is allocated for productive and efficient use. We issue licences and permits to regulate the use of water for mining, agriculture, horticulture, irrigation of public parks and recreation spaces, and many other purposes that benefit the state's economy and the community.

More than 83 per cent of the state's licensed water supports industry and development, while about 16 per cent is used in homes.

At 30 June 2019, we administered 13 562 licences and permits across the state and managed 465 groundwater and 229 surface water resources respectively.

In 2018–19, a total of 3765 gegalitres was licensed for use. This comprised 2854 gegalitres from groundwater resources and 911 gegalitres from surface water resources. Surface water figures contain licensed dam storage volumes that are not always available for use due to climate and inflow variation.

A total of 3347 licence applications were received in 2018–19 and 2928 were processed. A total of 1683 were licences to take groundwater, 302 were licences to take surface water and the remainder were a combination of permits to interfere with beds and banks,

Water licences administered in 2018–19

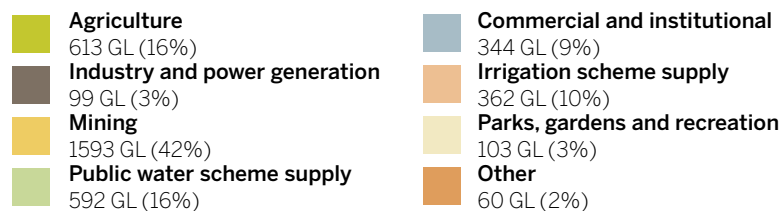


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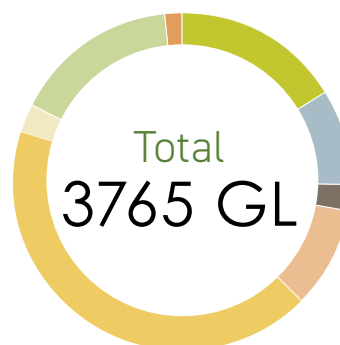
Licences and permits

► Western Australia's water users by sector

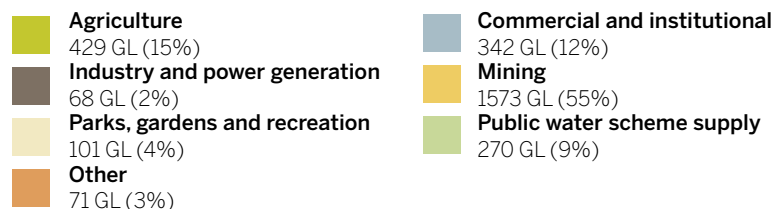
► Total licensed volume by sector



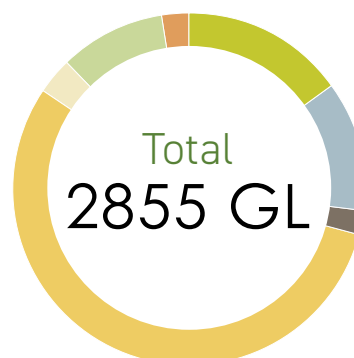
* Other includes environment and conservation, and stock and domestic sectors.



► Groundwater licensed volume by sector



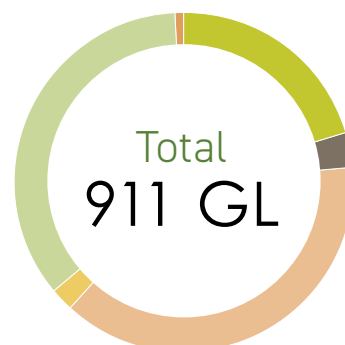
* Other includes environment and conservation, irrigation scheme supply and stock and domestic sectors.



► Surface water licensed volume by sector (allocated volume)



* Other includes environment and conservation, commercial and institutional, parks, gardens and recreation and stock and domestic sectors.



licences to construct wells and agreements. Seventy-nine private water entitlement trades between licensed water users were approved in 2018–19, comprising 49 permanent trades and 30 temporary trades equating to a total transacted volume of 24 gigalitres.

In a major milestone, from 31 December 2018 all water licensees across Western Australia with a licensed entitlement between 50 and 500 ML per year have been required to measure and submit their water use online. Our measurement and monitoring of licensed water use was significantly enhanced after the introduction of these changes. Ninety per cent of all water licensed for use in Western Australia now requires metering or alternatively measurement.

► Delivery of water licences

Key performance indicators for the assessment of water licences are based upon the time taken to assess the application and level of associated risk. The department has started a targeted program to reduce the total water licensing backlog to less than 350 applications by October 2019. This includes applications

Protecting drinking water sources

currently under assessment and received more than 65 days previously.

We have reduced the total water licensing backlog by 100 applications (or 21 per cent) since February 2019. As at 30 June 2019, the reported backlog was 477 applications.

The significant reduction in water licensing backlog means we can better meet the timeframes for assessment objectives through 2019–20. In addition, the introduction of fees for assessing water licences and permits from the mining and public water supply sectors has enabled us to increase staff numbers by four and made funding available for systems upgrades to these sectors. Through dedicating extra resources, we have been able to fast track low-volume and low-risk licences.

When we turn on our taps, we all expect safe, good-quality drinking water. One aspect of safe drinking water is to make sure recreation events and facilities in drinking water catchments are managed so that contamination does not happen. 'Recreation' in this context refers to a wide range of leisure, pastime or entertainment pursuits, including bushwalking, orienteering, swimming, boating, fishing, camping, horse riding and four-wheel driving. It also includes group outings and commercial activities such as camel trails, llama walks and car rallies.

During the year, we updated the policy guiding events in water source protection areas, making it easier to use and understand. The new policy, published on our website in June 2019, achieves a balance between recreation and the protection of drinking water quality. It also makes it clearer to decision makers and people who are enjoying the outdoors about what they need to consider when planning recreation events and facilities near public drinking water sources.

We also launched a new online tool enabling members of the public to locate public drinking water areas. The mapping tool can be used to find out if you live, work or recreate in a drinking water catchment. It will also show you the public drinking water source areas within a five-kilometre radius of your location. Developed by our Water Source Protection and Information Technology teams, this project was the first of its kind for the department.



Compliance and enforcement

Being a responsive and credible regulator also means consistently applying and enforcing the laws that the department is responsible for administering.

► Environmental compliance

We undertake environmental regulation functions, principally under the Environmental Protection Act, of licensing, approvals, compliance and enforcement in relation to emissions and discharges, waste, noise and the clearing of native vegetation. These licences and works approvals authorise activities that may otherwise be unlawful. Our regulatory functions include ongoing reviews and compliance activities to ensure activities do not pose unacceptable risks to public health

or the environment. Enforcement sanctions available to us include formal letters of warning, infringement notices, modified penalty fines or court prosecution.

We manage the risks of non-compliance through a structured, risk-based program to identify and address significant environmental issues. We plan our compliance activities annually, setting inspection targets and reporting on our performance openly and transparently. We consider this approach to be the best possible use of public resources.

Our compliance and enforcement activities are consistent with our regulatory principles in the following key ways:

- Compliance and enforcement resources and activities will be targeted at premises or activities that present the greatest risks to public health and the environment.
- Enforcement action will be proportionate to the magnitude or seriousness of the potential or actual harm to public health or the environment, considering the conduct of the responsible parties.



- Compliance and enforcement decision-making should result in consistent outcomes under similar circumstances.
- Responses will be targeted, effective and proportionate to the risk to public health or the environment.

Being visible in the community is a core part of our approach to address non-compliance. This year, our compliance and enforcement team completed all of its 140 planned inspections of prescribed premises for the year.

We continued to monitor significant proposals authorised under Ministerial Statements, completing all 60 targeted audits of high-risk proposals, including iron ore mining activities, oil and gas facilities and large infrastructure projects.

Our agency works as a team, reflecting our 'better together' value, in delivering our compliance and enforcement program. For example, our team includes water science experts (for impacts on the estuarine environment), noise experts (for advice on the impacts of noise on nearby residences),

air quality experts (for advice on a range of emissions), regulatory services and Environmental Protection Authority services (to ensure the regulatory instrument or conditions were effective), the enforcement team (for guidance about issuing statutory instruments), and policy (for guidance on implementing newly introduced legislation and regulating large greenhouse gas emitters).

During 2018–19, we targeted several high-risk matters, some requiring the use of our legislative powers under the Environmental Protection Act, including environmental protection notices, closure notices and vegetation conservation notices. In addition to our structured compliance program, we continued to monitor and manage compliance with each of these statutory instruments issued.

► Waste levies compliance

Landfills can result in issues such as the contamination of soil and water with toxins and the release of greenhouse gases. In recent

years, the Government of Western Australia has increased the rate of the waste levy, which works by raising the price of landfill – indirectly increasing the attractiveness of recycling and reducing the actual amount of waste generated.

In 2018–19, we conducted 220 inspections, targeting compliance with the levy. This total includes waste levy compliance inspections, audits of levy return forms to collect information, and inspections of associated industries. Among other highlights:

- Information received from waste industry stakeholders resulted in an increase in investigations related to alleged unauthorised waste activity.
- Relationships with local government authorities regarding potential unauthorised landfilling or waste storage were strengthened, allowing early intervention and minimising environmental impacts.

- We intervened to cease unlawful waste operations at King Road, Oldbury, and supported the local government's prosecution action instigated against the owners of the property, Kingroad Holding Pty Ltd and Global Corp Enterprises Pty Ltd, the operators of the site.
- The focus of our compliance program has broadened to include non-landfill waste premises to identify and track waste to the final disposal points to identify levy evasion.

► Environmental breaches

In 2018–19, we received and assessed more than 1400 reports of alleged breaches of environmental legislation. We issued 32 formal letters of warning and nine infringements. In addition, we issued nine vegetation conservation notices, requiring offenders to revegetate areas that were assessed to have had native vegetation cleared without the necessary approvals or exemptions.

We initiated two prosecutions for failure to comply with a hazard abatement notice issued under the *Contaminated Sites Act 2003*. One prosecution was initiated for a company that discharged hydrocarbons into the environment. Two prosecutions were initiated for the clearing of 16 hectares of native vegetation in Boonanarring.

Two modified penalty notices for \$10 000 and \$12 500 were issued to a mining company for failing to comply with a works approval and causing unauthorised emissions. A \$12 500 modified penalty notice was issued to a mining company for failing to comply with a licence condition.

Three convictions were recorded during 2018–19:

- A company constructing a cattle feedlot in Warradarge was fined \$30 000 for constructing it without approval, causing significant erosion.
- A company was fined \$25 000 for clearing 40 hectares in Waddington and Walebing, without approval. The company was ordered to revegetate all 40 hectares.

- A company that operated an abattoir was fined \$12 500 for breaching its environmental licence and \$2500 for an unauthorised discharge.

Penalty notices are available on the department's website.

► Water compliance

Water is a precious resource, particularly within the context of climate change, increasing population and growth in the state's economy. We administer water resource management legislation that enables the take of water while protecting our water-dependent environments.

Legislation provides the basis on which water is allocated to users in Western Australia, and also prescribes offences and penalties for circumstances where statutory provisions are breached. We undertake a range of compliance and enforcement activities primarily aimed at the protection of the water resource and the water-dependent environment.

In 2018–19, our on-ground compliance monitoring effort was targeted to at-risk management areas across Western Australia. A total of 4367 compliance monitoring events were completed, consisting of comprehensive on-ground water licence compliance inspections, water meter audits, desktop water use surveys and a review of licensee submissions.

Investigative and enforcement activities were prioritised based on the seriousness and scale of the alleged offence, the conduct of the responsible parties and public interest considerations. We focused on offences that posed the greatest risk of harm to water resources or that undermined public confidence in effective water resource management. Examples of detected non-compliance included the unauthorised taking of water, exceedence of licensed water entitlements, and failure to install water meters and submit readings.

In 2018–19, 780 investigations were finalised, resulting in the issue of 278 education letters and warning notices aimed at encouraging

and assisting voluntary compliance. We also continued to deliver broad-scale and targeted stakeholder education initiatives, which sought to assist licensees' understanding of their statutory obligations and comply with the terms, conditions and restrictions of their individual water licences.

Where voluntary compliance could not be achieved, we escalated our response to statutory enforcement action. In 2018–19, 38 infringements and 13 directions were issued and one prosecution was instigated, which resulted in a conviction.

Cost recovery

Increased fees for our industry regulation activity and native vegetation clearing, as well as new water licence assessment fees for the mining and public water supply sectors, reflect the government's policy to recover the costs where there is significant industry benefit.

From 1 July 2018, fees for environmental licensing were increased by 14 per cent, reflecting the true cost of environmental regulation of industry. This included increases for works approvals, licences, amendments and registrations.

The extra revenue raised was reinvested in the department to employ additional staff in the industry regulation and compliance areas, and in systems to improve the timeliness of decision-making on environmental approvals.

Contemporary regulation recognises the principle of user pays and that proposed cost recovery will help the department to meet the expectations of our customers, through the future funding of regulatory services to improve our performance and timeliness.

Water compliance in 2018–19



780

Investigations



278

Letters and notice issued

Fees for clearing permit applications had not changed since the clearing provisions were enacted in 2004 and represented an under-recovery rate of 99 per cent.

Between July and November 2018, we undertook extensive consultation on a proposal to increase these fees. The consultation included regional and metropolitan workshops held in September and October. One hundred written submissions were received and 257 people attended the information and workshop sessions. In response to submissions, proposed fee increases for clearing of areas under five hectares were reduced.

The new fees were introduced on 1 July 2019 through amendments to the Environmental Protection (Clearing of Native Vegetation) Regulations 2004. The government committed to reinvesting the additional revenue into staff and business systems to improve the timeliness of decision-making.

► Water licensing fees

Contemporary water management across Australia recognises the principle of user pays with water licensing fees for the mining and public sector water supply sectors paid by licensees. Before the introduction of fees in November last year, Western Australia was the only Australian state that did not recover the costs of licensing services from applicants or holders of water licences and permits.

On 13 November 2018, the government introduced [new fees](#) for assessing water licence and permit applications from the mining and public water supply sectors. The fees recover costs associated with assessing water licence and permit applications. These new fees, made by amendments to the Rights in Water and Irrigation Regulations 2000, relate to applications for:

- a new section 5C licence to take water
- renewing a section 5C licence to take water
- licensee amendments to a section 5C licence to take water

- a section 26D licence to construct or alter wells
- section 11, 17 or 21A permits to interfere with the bed or banks of watercourses.

The mining and public water supply sectors are two of the largest water users by total volume requiring significant effort in assessing licence and permit applications. The fees for these two sectors recognise the need to meet the



costs of assessing water licence and permit applications from which the industries derive a benefit.

Only the applications that trigger assessment are subject to fees. The fee structure is based on the level of effort for assessing an application and generally increases with the scientific complexity and potential environmental impact of the application.



Online services

We aim to provide easy-to-use digital and support services to help people and companies manage their water and environmental business. By moving low-complexity interactions to digital services, we are improving the client experience, as well as reducing our costs. Our key stakeholder survey reveals that 78 per cent of all users rated our website as helpful.

► Environment Online

We continued to work towards the delivery of Environment Online, a major project under our digital strategy. It incorporates expansion of our [Water Online](#) platform to replace legacy environment regulation business systems. Environment Online will enable us to effectively deliver a [one-stop-shop](#) for water and environmental approvals and reporting processes by creating an efficient and integrated online platform for industry and developers.

The business case for Environment Online is under development for submission to Treasury

in 2020. This project will support Streamline WA, a whole-of-government approach to make it easier to do business in Western Australia by improving regulation and regulatory practice.

► Water information reporting

Our water information reporting (WIR) and geographic information system (GIS) services provide water data and information that is used to inform investment decisions of local, regional and state significance, and supports other government agencies and stakeholders in their planning for future economic growth, and urban and rural development.

The portal has been operating successfully for the past five years to provide reliable, customised water information quickly and easily. This free online service provides instant access to more than 132 600 water monitoring sites and over 94.6 million measurements.

During the year, the WIR portal received nearly 5000 requests for water information, comparable to last year's figures. We also received 144 requests for spatial information

and provided over 5500 spatial datasets, mainly to the private sector.

Together the WIR portal and GIS services provided data and information on the quantity, quality, location of and demand for water across the state. Information from the portal is delivered instantaneously and puts vital information at the fingertips of consultants, miners, land and property developers, farmers, infrastructure providers, government departments, researchers and students. Requests for data came mainly from the private sector, government and the education and research sectors.

Water data and information supports a viable, sustainable resource for public benefit while enabling individual economic benefits. Scientists and planners across the public sector use the data for modelling and assessments to help determine flood risk, drainage management, sustainable water allocations and, importantly, water resource planning for the benefit of the wider community.

► Water Online

The [Water Online](#) system has been available to water users to lodge their water licence applications since 2015 and to departmental officers to complete online assessment of applications since June 2017. We continued to promote the uptake of the Water Online customer portal by licensees, which has seen the number of registered customer portal users grow to 3952 at 30 June 2019. The proportion of water licence applications submitted electronically remained steady at 64 per cent in 2018–19. We are investing in system enhancements to expand the functionality of the customer portal and improve the overall user experience.

S4

Strategy 4

Delivering trusted information, science and evidence-based advice

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This section focuses on the confidence we give to a wide range of organisations and people, sharing data and fostering innovation. By providing information to help people improve their decision-making, we contribute to the knowledge base for all sectors to access and share.

Our information and advice is vital to supporting important decisions, whether it be to inform the advice of the EPA to the Minister for Environment, land use planning decisions by local governments or the Western Australian Planning Commission, new water allocation plans, understanding air quality challenges across the state, our own regulatory functions or the work of universities and other departments.

Biodiversity surveys

Western Australia has eight out of Australia's 15 declared biodiversity hotspots and one of the highest rates of new species discovery in the world.

Due to the vastness of the state, rich biodiversity and a finite research capacity, there is a gap in knowledge about many species and ecosystems. But one year on from its launch, our [Index of Biodiversity Surveys for Assessments](#) (IBSA) is well on its way to fixing the 'missing link' in biodiversity data management in Western Australia.

IBSA creates a digital record of plants and animals obtained from everybody who conducts a biodiversity survey in Western Australia to support their environmental assessment. Capturing and sharing this data makes best use of existing effort, providing a cost-effective and efficient way of maintaining data currency over time.

During the year, we continued to collaborate with the other agencies and organisations involved – the EPA, DMIRS and the Atlas of Living Australia, which are partners in IBSA's

ongoing operation, and with the Western Australian Biodiversity Science Institute, which facilitated IBSA from the start.

► Marine ecosystems

With the longest mainland coastline (12 889 km) of all Australian states and over 90 per cent of our population living within 100 km of the ocean, Western Australia truly is a marine state. The function of assessing and managing activities that may impact on Western Australia's marine environment rests with our Marine Ecosystems Branch. This branch is the primary source of marine technical and scientific advice and guidance to the EPA, industry and government.

This year, we provided formal advice to inform the environmental impact assessment and compliance monitoring of 28 development proposals under Part IV of the Environmental Protection Act as well as technical advice on four licences and work approvals under Part V of the Act.

Following the release of a report by the Western Australian Marine Science Institution, we are refining the EPA's technical guidance for marine dredging proposals. The development of one consolidated guidance package will make it easier for our stakeholders to find the information they need, when they need it. It will give clarity and direction to proponents and regulators alike on best practice environmental impact assessment for dredging projects.

An Index of Marine Surveys for Assessment under development will capture and consolidate marine survey data used to support environmental impact assessments under the Act and provide a platform to make this data publicly available. This improved environmental information will complement the biodiversity data captured in IBSA.

In 2018–19, the Marine Ecosystems Branch provided technical support to the *Westport: Port and Environs Strategy* and the revision of the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*.

Environmental noise

In our role of supporting the administration of the Environmental Protection Act and the Environmental Protection (Noise) Regulations 1997, we provided formal environmental noise assessment advice, data analysis and reports to the EPA and external agencies on 70 occasions.

We provided training in environmental noise to local government authorised persons and inspectors in November 2018 as well as in May 2019. We presented research on the jurisdictional comparison of noise criteria for entertainment noise at the Environmental Health Australia National Conference in November 2018.

PFAS management plan

We continue to work to achieve the objectives of the *Contaminated Sites Act 2003* to protect human health, the environment and environmental values by providing for the identification, recording, management and remediation of contaminated sites in Western Australia.

Dealing with perfluoroalkyl and polyfluoroalkyl substances (PFAS) has been a focus of the Contaminated Sites Branch this year. PFAS are a family of manufactured chemicals which do not occur naturally in the environment. Used in a range of common household products as well as in firefighting foam since the 1950s, they are contaminants of emerging concern in Australia and internationally. As a result of widespread use, PFAS have been found to be present in low levels in soils, surface water and groundwater in most urban areas around the world, including in Western Australia.

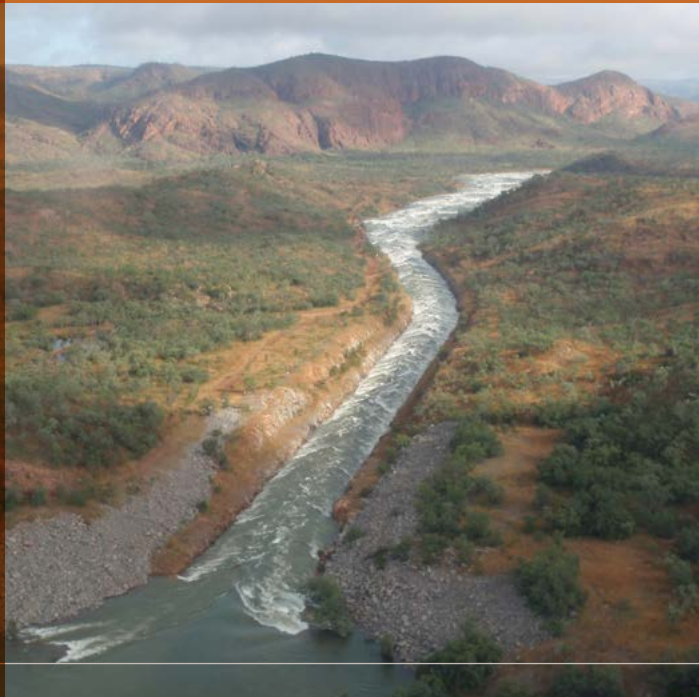
The first PFAS National Environmental Management Plan (NEMP), released in February 2018, listed recommended work to be included in future updates. During the reporting period, we continued working closely

with the National Chemicals Working Group and the National Contaminated Environments Network to incorporate additional guidance in key areas such as wastewater management and soil reuse. Public consultation on the draft updated PFAS NEMP 2.0 was undertaken from March to July 2019. Contaminated Sites and the Strategic Policy team worked together to manage Western Australia's input to the consultation process.

We also advised on the Australian Government's firefighting foam investigations on Department of Defence lands.



Lake Argyle: traditional owners recognised



It is 40 years since the Durack Homestead, relocated piece by piece to the southern shores of Lake Argyle near Kununurra in the Kimberley region, was opened as a museum.

The anniversary was celebrated in June 2019 when the government announced it would hand back part of the historic Durack pastoral lease in far north Western Australia to the traditional owners of the region, the Miriuwung and Gajerrong (MG) people.

Members of the community, MG Corporation and visitors met at the historic Durack Homestead on the edge of Lake Argyle, which holds painful significance for local Aboriginal people as their lands were drowned without consultation and with it their cultural heritage irreversibly changed.

Lake Argyle was formed after the construction of the Ord River Dam 55 kilometres upstream, which was completed in 1973. In 1996, the spillway from Lake Argyle was raised by six metres to improve reliability of water for hydroelectric power generation.

During the past 12 years, the region has set up a joint management committee comprised of department staff and the four MG language groups ('Dawang') that share cultural responsibility over the expanse of Lake Argyle.

Our Kimberley team prepared a water management plan that involved many of the elders visiting their drowned country by boat for the first time and mourning its loss, providing us with a different perspective on the lake that is now the lifeblood of the agricultural region of the Ord. Acknowledging the loss that enabled development of the Ord has been critical for reconciliation and looking to the future.

The Ord Final Agreement identified an aspiration for sole management by MG Corporation of the land handed back (Reserve 31165) and efforts have been directed to this objective through capacity building initiatives, joint decision-making and development of a ranger program to help manage the country.



Feature story:

Lake Argyle: traditional owners recognised

We now support the Department of Planning, Lands and Heritage to progress sole vesting. This is part of the work of our Kimberley team of 15 staff based in the Kununurra office, who deliver a wide range of business including water licensing, planning, industry regulation, strategic policy, and water measurement and monitoring.

The Kimberley has most of the state's wild rivers, many Ramsar-listed and significant wetlands and some of the largest naturally flowing river systems in the country. The pastoral industry, mining and tourism dominate the economy. More recently, the expanding agricultural sector has increased demands on our water and environmental regulation services.

Aboriginal cultural values are internationally recognised in the Kimberley and require special consideration in water and environmental management.

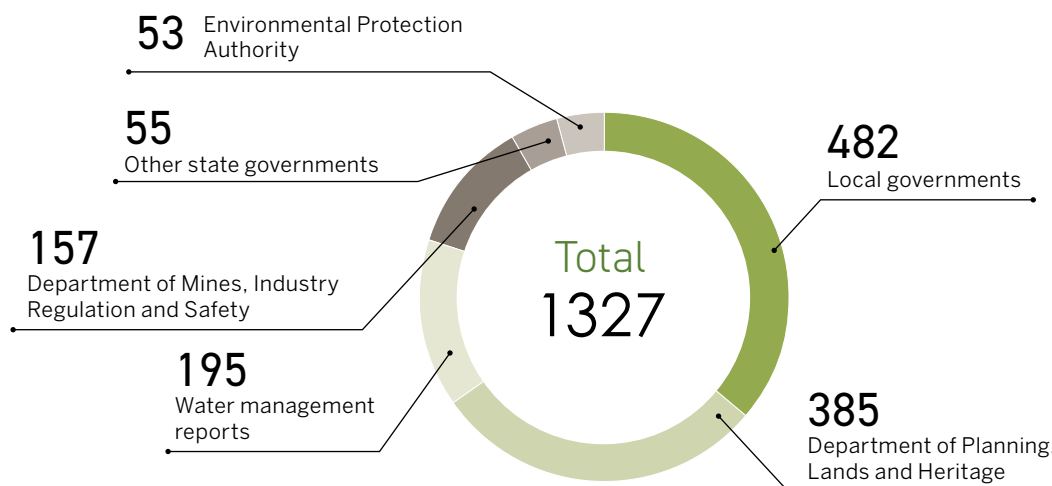


Land use planning advice

One of our primary roles is to help other decision-making agencies and project proponents to manage impacts to the state's water resources and the environment from land planning and development proposals. We do this by providing specialised water and environmental advice services to inform, guide and direct other decision-makers, preferably for early intervention.

This year, we assessed and responded to 385 requests for water advice from the Department of Planning, Lands and Heritage; 482 from local governments; 157 from the Department of Mines, Industry Regulation and Safety; and 53 from the Environmental Protection Authority. We also responded to 55 requests from other state government agencies and advised on 195 water management reports associated with land planning and mining activities.

► Land use advice provided by segment, 2018–19



Surface water and groundwater investigations

We undertake groundwater and surface water investigations and water modelling throughout the state to ensure government and industry have timely knowledge of resources used for drinking water supply, agriculture, horticulture, mining and industry in areas where it is most needed.

The combined investment of \$4.89 million in 2018–19 included \$3.94 million of investment in the State Groundwater Investigations Program, plus \$0.95 million in the Water Modelling Program. These programs completed 4863 metres of drilling and installed 41 new monitoring bores, collected 195 samples of water for chemical analyses, built four water models and began six new models.

Our water investigations provided an understanding of which parts of the Fitzroy River discharge to groundwater, which parts rely on groundwater for flow, and how much the aquifers are recharged from rainfall. These results will inform management policies and licensing rules in the Fitzroy water allocation plan, scheduled for release for public comment in early 2020. The allocation plan

is one of a suite of initiatives delivering on the government's election commitment to protect the Fitzroy River.

Bores installed in the Cockburn and Peel Coastal areas allow us to monitor the movement of the seawater interface and sustainably manage coastal aquifers that support the Western Trade Coast and green space in Mandurah.

On-ground works to explore the potential for storage of recycled water through managed aquifer recharge in partnership with the Western Regional Organisation of Councils are complete, and our hydrogeologists are analysing and interpreting data. The project supports long-term management of Gnangara groundwater and informs future water supply planning for irrigation of public open space, sporting areas and other green space.

Through the East Midlands investigation we are installing a new groundwater monitoring network between Moora and Gingin to improve our understanding of groundwater availability and help address water needs for horticulture

and the environment, in particular Gingin Brook. The investigation has progressed significantly, with on-ground works expected to be complete early in the 2019–20 financial year.

We assess the age and condition of groundwater monitoring bores, which provide vital water information about groundwater resources, to determine ongoing maintenance and replacement. The bore replacement program is essential to protect the state's groundwater monitoring network, comprising about 9000 bores. We replaced about 20 deep artesian monitoring bores and numerous (20–25) 'bore head assemblies' that deteriorate on the ground. We replace many shallow monitoring bores annually.

In 2018–19, we monitored 242 surface water sites across the state using telemetry to capture real-time information on stream flow. We also captured telemetered water quality data at 15 key locations, mainly in rivers and estuaries in the South West.

We have instrumentation and assets at 275 operational river gauging stations and 229 operational meteorological sites. The typical cost of one replacement river gauging station is between \$200 000 and \$800 000.

Our monitoring program improved significantly in the past 12 months with changes aimed at ensuring quality data is captured, analysed and delivered to client expectations and our own standards.

The Monitoring and Measurement Steering Committee adopted broader representation and a strong focus on ensuring that all elements of our measurement program have a voice in strategic decision-making.

The steering committee has put in place a Measurement Lead team to bring together the best hydrographers from around the state to coordinate their programs effectively and discuss technical improvements in data capture and analysis. The Technical Advisory Group continued to assess project proposals for the committee's consideration. These processes have fostered a high level of internal

cooperation in our measurement program and delivered improved levels of program efficiency.

All regions delivering measurement programs are implementing operational plans to assess surface water and groundwater operations across the state. The Regional Coordination and Measurement Group also completed scoping work in 2018 to estimate regional measurement workloads and to identify the number of staff required in each region to perform work tasks.

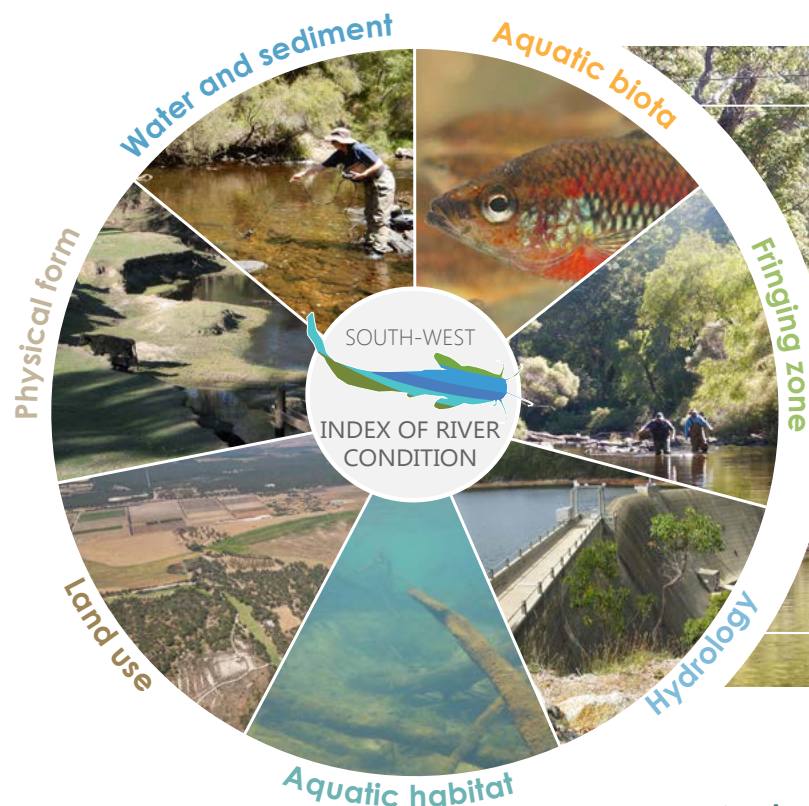
Key operational achievements over the past year include:

- implementation of our groundwater telemetry trial, to deliver real-time groundwater data for all regions
- auto-archiving of measurement data, with nearly 80 per cent uptake
- appointment of additional staff to the North West Measurement Program, with the extra capacity used to better understand and improve the quality of flow data, undertake minor capital works and establish groundwater monitoring programs for areas such as La Grange in the Kimberley
- re-establishment of the principal hydrographer position to provide statewide program coordination and two permanent regional measurement program managers (Swan and North West regions)
- building several priority hydraulic models to improve the quality of data measured at streamflow gauging stations to support resource management decisions
- completion of bathymetric surveys of the Hardy Inlet – part of the Regional Estuaries Initiative – to help understand water and sediment movement in the tidal reaches of the inlet
- completion of bathymetric surveys of two pools in the Collie River to support licensing decisions associated with discharged mine water to the river. Bathymetric surveys allow us to measure the depth of a waterbody as well as map the underwater features of a waterbody. We use the data for a range of purposes including environmental management (for example, establishing baseline data to support environmental monitoring) and for maintaining healthier ecosystems.

Healthy rivers

The Healthy Rivers Program collects and interprets data about rivers and their catchments, and uses the knowledge gained to provide advice to underpin [river management](#). Central to the program is long-term, standardised assessments of strategic river health sites, as well as assessment of emerging issues as required. In addition to use by the department, all river health information, as well as assessment methods and guidance, is made available to support others in assessing and managing rivers.

One aspect of regulation is providing information on environmental flows to allow for abstraction and use of surface water in a way that does not undermine ecosystem values. This program undertakes river health assessments across the south-west of Western Australia which documents the condition of streams and informs the setting of appropriate river flows. It audits compliance against set environmental flows and forms a robust science and evidence base.



In 2018–19, assessments were conducted at 47 sites from Gingin Brook in the north to Chapman Brook in the south, encompassing 13 catchments. River condition summaries have been completed for an additional 40 sites from the Murray River in the north to Scott River in the south. A summary of data from river health assessments (dating back to 2007) will be published later in 2019.

► Aquatic science

Our estuary scientists (chemists, oceanographers and phytoplankton ecologists) investigate water quality changes in estuaries from climate and landscape activities to help inform management decisions. Their research is available on the regional estuaries website rei.dwer.wa.gov.au. This online service will be expanded to the river science team next year. During the year, both groups shared their assessments with universities, community groups and industry.

Water for Peel Food Zone

The Peel Integrated Water Initiative, a key component of the Transform Peel program, is investigating potential solutions to future water demand in the planned Peel Food Zone, north-east of Mandurah. Its aim is to support water resource development in line with planned growth, while addressing nutrient enrichment in the Peel-Harvey estuary.

In partnership with the Department of Primary Industries and Regional Development, the Peel-Harvey Catchment Council and CSIRO, we carried out several studies in the planned zone during the year, including ecological water requirements, water resource assessments, nutrient reduction strategies, development scenarios and associated water demand modelling, and identified alternative, technically viable water sources (i.e. stormwater drainage, wastewater recycling, managed aquifer recharge).

We are using the results to define environmental water requirements, review existing allocation limits and finalise supply-demand analyses in 2019.

High value horticulture

The State Groundwater Investigation Program installed 21 monitoring bores this year for the \$5.1 million East Midlands investigation. This high-value horticultural area has been called the Northern Food Corridor by the Wheatbelt Development Commission and is already home to irrigated crops such as olives, grapes, citrus, mangoes and stone fruit produced in the shires of Gingin, Dandaragan and Moora.

The exploration bores drilled across the Dandaragan Plateau between Gingin and Moora will help support agricultural growth by determining how much groundwater is available to keep growing food while sustaining natural environments. The impacts of climate change on regional aquifers and local streams are also being evaluated. Western Australia relies on groundwater for drinking supplies, irrigated agriculture, local industry, mining, economic development and liveable communities.

Finding water in southern forests

The Southern Forest Irrigation Scheme is an agricultural irrigation scheme proposed for development in the Manjimup-Pemberton area in the south-west. The scheme would comprise a 15-gigalitre dam on Record Brook and a pipeline distribution network that will supply water to irrigators who have purchased a water entitlement.

The government led an investigation into the feasibility of the scheme as part of the Water for Food program. This information will be used to support the Environmental Protection Authority's independent assessment of the scheme in 2019. Pending approval, the scheme will be owned and operated by the Southern Forests Irrigation Co-operative Ltd and all scheme water users will be members of the cooperative.

As part of our research for the scheme, we surveyed aquatic fauna, estimated the reliability of supply for the scheme under different climate change projections, and established the management conditions on when, and at what rate, water could be taken for the scheme, to manage any risk to the environment.





Distinctive water model

Our Water Supply–Demand Model continues to garner interstate and international interest, including being shortlisted in the final 12 best conference papers at OzWater '19, Australia's international water conference and exhibition.

The model is unique in that it provides projections of future water demand and availability for all water resources across an entire state jurisdiction. It indicates where in Western Australia the sustainable use of groundwater or surface water will not be enough to support our future population and economic growth, so we can plan ahead for alternative water supplies.

Water use in Western Australia has more than doubled in the past 30 years. During this time, groundwater has replaced surface water as the main water source and mining has surpassed irrigated agriculture as the state's major water user.

We use the model to project the future water demand for more than 1400 water resources across the state. It works by applying forecast economic and population growth rates to

the current volume of water used from each resource by 75 different types of water user.

These growth rates are derived from equilibrium modelling of the state's economy and population forecasts from the Western Australian Planning Commission. To calibrate the model results and identify where 'trend-breaking' water demand might occur, we consulted with 32 stakeholder groups representing the agriculture, mining, regional development, urban development and water services sectors, as well as local and state government agencies.

Principal Water Planner Daniel Ferguson and Water Resource Planner Amy Cowdell developed our innovative model, which projects demand 40 years into the future.

This program demonstrates how we provide relevant, transparent and credible information to create a shared understanding about our future water outlook, set strategic directions for our water resources and supplies, and collaborate with the stakeholders responsible for the state's sustainable development.



Drone power over Mount Pierre Creek

Galeru Gorge is a picturesque locality on Mt Pierre Creek in the Kimberley region of Western Australia.

Almost 50 years ago, scientists set up a gauge immediately upstream of the gorge to measure flows from the small catchment. There are very few catchments in the Kimberley of this size where runoff is measured for important infrastructure and water resource development studies.

Recording streamflow depends on a defined and reliable flow rating. As the previous flow rating at Mount Pierre Creek was poorly defined and the flow record very uncertain, we used a hydraulic model to produce a more accurate flow rating.



This hydraulic model required a high resolution digital elevation model (HRDEM) to define the geometry of the gorge. In developing the model, we used a drone and image recognition technology to capture a point cloud (a set of data points in space) of more than 83 million ground points. We used GIS software to post-process the point cloud to produce an HRDEM suitable for our purposes.

The project team included members with skills and knowledge in hydrography, spatial and hydraulic modelling.



S5

Strategy 5

Building organisational excellence

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This section focuses on our professionalism, capability and productivity. In 2018–19, a huge amount of work went into evolving our three former departments into a unified whole, engaging our staff, improving the stakeholder experience and reinforcing a service culture in the department for the long haul.



Prime House officially opened

Our new head office, Prime House in Joondalup, was officially opened on 16 April 2019 by Premier Mark McGowan, in an event that celebrated the department's amalgamation and relocation.

Director General Mike Rowe met with guests including the Minister for Environment Stephen Dawson and Minister for Water Dave Kelly, other members of parliament, Noongar representative Walter McGuire and a large number of stakeholders from other departments, as well as media representatives.

Following speeches and the plaque unveiling, guests toured the building and inspected key project areas.

Speaking at the opening, Premier McGowan said the government recognised the vital role the department played in the development of Western Australia and the creation of jobs while protecting the environment and water resources.

He congratulated all those involved in the design, delivery and commissioning of the new building and thanked our staff for their work in



looking after the state's environment and water resources and supporting development for all Western Australians.

More than 700 head office staff have moved to the bright, modern, leased building in the City of Joondalup. The relocation will save an estimated \$28 million over 15 years and reduce the government's office accommodation footprint by 3800 square metres.

The relocation is also expected to play a significant role in the future growth and development of Joondalup as a vibrant and vital city centre, especially for the small businesses that stand to benefit from the increased foot traffic and commerce.

Our first Reconciliation Action Plan

Our inaugural [Reconciliation Action Plan](#) promotes greater cultural awareness and inclusion in the management of Western Australia's water resources and environment. The plan, launched by the Minister for Water in May 2019, commits us to 50 actions in the next two years to enhance positive relationships with Indigenous communities.

These actions include:

- greater engagement, recognition and incorporation of Aboriginal knowledge in managing the state's water resources and environment
- improving cultural awareness within the department
- increasing employment opportunities for Aboriginal and Torres Strait Islander people
- providing greater economic benefits to Aboriginal and Torres Strait Islander people through our state's *Indigenous procurement policy*.

Launching the plan, the Minister for Water said: 'I look forward to seeing the knowledge of Western Australia's traditional custodians play a greater role in the management of our water resources and environment.'

'Aboriginal people have looked after our country for tens of thousands of years. We have an opportunity to learn from their extensive experience in managing our water resources and environment. The state government is seeking recognition of Aboriginal spiritual, social and cultural values as well as rights in legislation and policies that manage water resources and the environment.'

The Minister for Environment commented: 'Providing economic opportunities that allow communities to thrive is central for our government and the future of Aboriginal and Torres Strait Islander people.'

'Strengthening our relationships with Aboriginal people and communities will help protect and promote Aboriginal cultures, histories and land, as well as provide opportunities for social and economic benefit.'



In our new building, which is situated on Noongar Boodja Country, our respect for and recognition of local culture is evident in the Noongar names for meeting rooms. We have commissioned Whadjuk Noongar artist Sharyn Egan to create artwork for the glass panels in the foyer. Also indicative of our respect for the area's traditional owners, customary dances and a smoking ceremony were held to welcome staff to the new offices in April.

Awards and recognition

Individuals and teams from across the department have been recognised for their outstanding work and commitment and for leading the way in their field. Many have been recognised with formal awards, a testament to the calibre of our staff and their dedication to their work and to improving our performance.

This year Sandie McHugh, our A/Director Water Science and Data, was awarded Leader of the Year working within a division/team/organisation by the Institute of Public Administration (Western Australia). The award recognised her outstanding leadership and, particularly her exceptional work in leading the development of our values and culture. When the department was formed in 2017 following the merger of three agencies, Sandie recognised that developing a new culture would be critical to success. She took on the responsibility of driving the development of the department's values that supported the way the new agency would operate on every level.

Our Chief Digital Officer, Yordan Petrovski, received a commendation for Information Technology Practitioner of the Year. His busy

year started with the information, technology and communication merger of three former agencies, so our new department could operate seamlessly as one agency. That was followed by the task of addressing 127 remediations identified by the Office of the Auditor General to improve and modernise the department's digital technology. Then he was charged with the responsibility of moving the new department to state-of-the-art premises in Joondalup. Along the way, he worked with Edith Cowan University to develop advanced cyber security tools to protect sensitive agency information.

Our Contaminated Sites team also received a commendation for best practice in collaboration across government agencies at the Institute of Public Administration (Western Australia) awards for their work with the Department of Planning, Lands and Heritage in addressing lead contamination at Northampton.

Our Director of Environmental Science, Kerry Laszig, was recognised for her achievements as an environmental management expert for the state government with the department

awarding her the Australia Day Achievement Medallion, presented by the Minister for Environment. Kerry has led the development of the state's contaminated sites legislation and the establishment of the statutory function of contaminated science classifications in Western Australia. She has influenced national thinking on the responses to contaminants in firefighting foams, focusing on a practical approach that manages risks to human health and the environment, including contributing to the development of a national environmental management plan.

In October 2018, our Revitalising Geographe Waters program was recognised by industry with a state Australian Water Association Award for program innovation.

Our floodplain mapping tool, which makes it easy for the public to assess flood risk in their areas, was nominated for an award at the 2019 Floodplain Management Australia national conference held in Canberra.

Our 2017–18 annual report won a bronze award in the 'Agencies with less than 1000 FTE' category at the 34th annual WS Lonnie Awards, which recognise excellence in annual reporting.

Graduation ceremony

It is important for the department to recognise the hard work and dedication of staff in pursuing professional development and further studies. Developing and expanding expertise is not only good for personal growth, but also for the department which relies on having skilled, passionate people.

On May 13, the Minister for Water joined the department at its inaugural staff graduation ceremony, which recognised and celebrated each recipient's successful completion of corporate training undertaken in 2018.

The training programs included Certificate IV in Leadership and Management, the LEAD Program, the Formal Mentoring Program, Certificate IV in Government (Investigations), the International Water Centre – Water Leadership Program, the Copland Leadership Program and the Aboriginal Traineeship Program.



Stakeholder survey

Two of our values are being open minded and building trust. One of the ways that we do that is to survey our stakeholders about what they think of our work, how effective we are and what we could do better. Each year, we measure the 'proportion (%) of stakeholders who perceive the department to be effectively managing the state's water as a resource for sustainable productive use'.

The first benchmark survey was conducted by the former Department of Water in March 2015 and the annual research showed improved relations with water stakeholders for three years.

The 2018 result, the first for the amalgamated department, showed a slight fall in perceptions and the 2019 results showed a material fall. The 2019 research sampled about

1540 stakeholders and the questions were similar to last year, to allow for comparisons with previous years, with the addition of questions about the amalgamation and the move to Joondalup.

Importantly, measurements of such things as the competence of our staff, the provision of sound advice, and providing clear explanations for decisions, remain at high levels and have not moved.

Surveys like these help us understand our clients better and shape the way we engage with them, suggesting what we can do to build on what is working well and address what is not going well. In light of the 2019 results, we are reviewing our approach to communications and stakeholder engagement to address the issues raised in the research.

Diversity and inclusion

In 2018–19, we engaged, consulted and delivered a broad range of programs, celebrations and events, supporting diversity, resilience, inclusion and healing.

In July 2018, we invited Professor Colleen Hayward to present the annual NAIDOC Week address to staff. The Welcome to Country for the celebrations was from Rose Walley on behalf of the Whadjuk Noongar people. NAIDOC Week celebrations are held across Australia each July to celebrate the history, culture and achievements of Aboriginal and Torres Strait Islander peoples. NAIDOC is celebrated not only in Indigenous communities, but by Australians from all walks of life.

Other celebrations included International Men's Day, International Women's Day, Harmony Day, and Reconciliation Week. The department also celebrated its second International Day Against Homophobia, Biphobia, Transphobia and Intersexism (IDAHOBIT) with a presentation to staff by Liz Prendergast, a member of the Parents, Families and Friends of Lesbians and Gays (PFLAG) network. The department is committed to supporting each other by recognising and celebrating diversity in our community.



Students bring fresh knowledge and skills

We recognise and seek to use the skills and fresh ideas of university students through student placements.

In 2018, five students from Edith Cowan University made valuable contributions to the Science and Planning and Native Vegetation teams during their work integrated learning placement with us. The students were each placed for a three-month project to complete as part of their final year of studies. The projects were designed to meet real needs and students were matched to the projects that best suited their interests. The host branches provided leadership and mentoring so that all students benefited from a customised work placement experience.

Two students were placed with Water Allocation Planning and one went on to secure ongoing employment with us.

'Continuous mentorship and encouragement from the Water Allocation Planning team ensured my time at DWER was a wonderful learning experience.' — Joanne, 2018



Tina takes the lead in water licensing support

Tina Taraborrelli has managed our Water Licensing Business Support Unit since it was established in 2015. The unit started as a call centre to help water licence applicants and project developers to use our e-business system, Water Online.

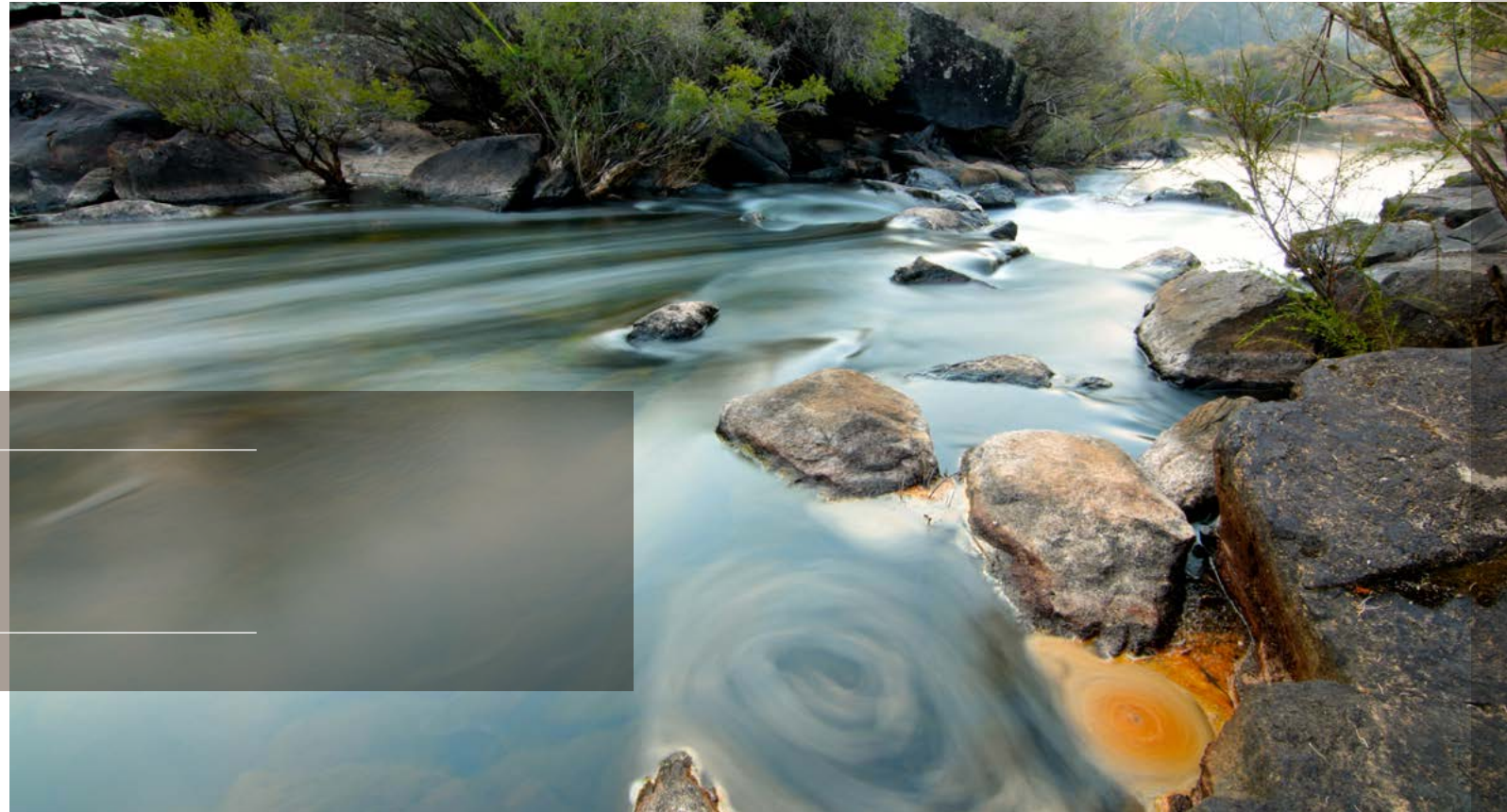
Today, the unit continues to manage applications to Water Online, but also handles queries from clients about water licence processes and advises on multiple applications handled together through our 'one-stop-shop' webpage, resolving applications more quickly. In addition to managing water licensing fees for the mining and public water supply sectors, the unit plays a role in validating new applications and doing quick assessments of low-risk, low-volume licences, sending the more complex applications on for fuller assessment. This fast-track approach is an excellent example of supporting our clients — reducing time, money and effort.

Tina is a communicator who can speak to the diverse range of water licence holders who require assistance — from small vegie growers through to major consulting companies working for BHP or Rio Tinto. She has 16 years' experience in licence assessment coupled with an extensive understanding of our legislative responsibilities and our water licensing support systems.

Tina's drive to collaborate and to try new ways of working have been integral to the success of the unit. She and her team of six aim to find the answers to client problems or get back to them with information and advice that will make their understanding and application easier.

Outside of work, Tina is member of the Army Reserves and volunteers to assist homeless people and kids in need. Tina is a great example of where personal values and our department's values align.





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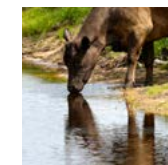
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Appendix A: Legislation

Legislation administered by the Department of Water and Environmental Regulation as at 30 June 2019

- *Carbon Rights Act 2003*
- *Contaminated Sites Act 2003*
- *Country Areas Water Supply Act 1947*
- *Environmental Protection Act 1986*
- *Environmental Protection (Landfill) Levy Act 1998*
- *Litter Act 1979* [The Department of Water and Environmental Regulation is the agency principally assisting the Minister for Environment in the administration of this Act assisted by the Keep Australia Beautiful Council (Western Australia)]
- *Metropolitan Arterial Drainage Act 1982*
- *Metropolitan Water Supply, Sewerage and Drainage Act 1909*
- *National Environmental Protection Council (Western Australia) Act 1996*
- *Plumbers Licensing Act 1995* (except part 5A which is administered by the Minister for Commerce principally assisted by the Department of Mines, Industry Regulation and Safety) – alternative citations are *Water Services Coordination Act 1995* and *Water Licensing Act 1995*)
- *Rights in Water and Irrigation Act 1914*
- *Waste Avoidance and Resource Recovery Act 2007* [The Department of Water and Environmental Regulation is the agency principally assisting the Minister for Environment in the administration of this Act assisted by the Waste Authority]
- *Waste Avoidance and Resource Recovery Levy Act 2007* [The Department of Water and Environmental Regulation is the agency principally assisting the Minister for Environment in the administration of this Act assisted by the Waste Authority]
- *Water Agencies (Powers) Act 1984*
- *Water Agencies Restructure (Transitional and Consequential Provisions) Act 1995*
- *Water Corporations Act 1995*
- *Water Efficiency Labelling and Standards Act 2006*
- *Water Resources Legislation Amendment Act 2007*
- *Water Services Act 2012*
- *Water Services Coordination Act 1995*
- *Water Services Licensing Act 1995*
- *Waterways Conservation Act 1976*



Regulations administered by the Department of Water and Environmental Regulation as at 30 June 2019

- | | | |
|---|---|--|
| <ul style="list-style-type: none"> • Clean Air (Determination of Air Impurities in Gases Discharged to the Atmosphere) Regulations 1983 • Contaminated Sites Regulations 2006 • Country Areas Water Supply (Clearing Licence) Regulations 1981 • Environmental Protection (Abattoirs) Regulations 2001 • Environmental Protection (Abrasive Blasting) Regulations 1998 • Environmental Protection (Clearing of Native Vegetation) Regulations 2004 • Environmental Protection (Concrete Batching and Cement Product Manufacturing) Regulations 1998 • Environmental Protection (Controlled Waste) Regulations 2004 • Environmental Protection (Fibre Reinforced Plastics) Regulations 1998 | <ul style="list-style-type: none"> • Environmental Protection (Goldfields Residential Areas) (Sulfur Dioxide) Regulations 2003 • Environmental Protection (Kwinana) (Atmospheric Wastes) Regulations 1992 • Environmental Protection (Metal Coating) Regulations 2001 • Environmental Protection (NEPM-NPI) Regulations 1998 • Environmental Protection (NEPM-UPM) Regulations 2013 • Environmental Protection (Noise) Regulations 1997 • Environmental Protection (Packaged Fertiliser) Regulations 2010 • Environmental Protection (Petrol) Regulations 1999 • Environmental Protection (Plastic Bag) Regulations 2018 | <ul style="list-style-type: none"> • Environmental Protection (Recovery of Vapours from the Transfer of Organic Liquids) Regulations 1995 • Environmental Protection (Rural Landfill) Regulations 2002 • Environmental Protection (Solid Fuel Burning Appliances and Firewood Supply) Regulations 1998 • Environmental Protection (Unauthorised Discharges) Regulations 2004 • Environmental Protection Regulations 1987 • Litter Regulations 1981 • Noise Abatement (Noise Labelling of Equipment) Regulations (No. 2) 1985 • Plumbers Licensing and Plumbing Standards Regulations 2000 • Rights in Water and Irrigation Regulations 2000 |
|---|---|--|

Other subsidiary legislation affecting our activities

- Waste Avoidance and Resource Recovery (Container Deposit Scheme) Regulations 2019
- Waste Avoidance and Resource Recovery Regulations 2008
- Waste Avoidance and Resource Recovery Amendment Regulations 2019
- Waste Avoidance and Resource Recovery Levy Regulations 2008
- Water Agencies (Entry Warrant) Regulations 1985
- Water Agencies (Infringements) Regulations 1994
- Water Corporations (Transitional Provisions) Regulations 2013
- Water Services Regulations 2013
- Water Services Coordination Regulations 1996
- Water Services (Water Corporations Charges) Regulations 2014
- Waterways Conservation Regulations 1981

For all other subsidiary legislation including by-laws, notices, declarations, proclamations, approvals, exemptions, orders, policy, pollution control areas, vesting orders, irrigation districts, standards, and guidelines, please go to: www.legislation.wa.gov.au

Other key legislation affecting our activities

In the performance of our functions, the department complied with the following laws:





- *Aboriginal Heritage Act 1972*
- *Auditor General Act 2006*
- *Corruption and Crime Commission Act 2003*
- *Disability Services Act 1993*
- *Equal Opportunity Act 1984*
- *Financial Management Act 2006*
- *Freedom of Information Act 1992*
- *Government Employees Housing Act 1964*
- *Industrial Relations Act 1979*
- *National Environmental Protection Council Act 1997 (Cwlth)*
- *Long Service Leave Act 1958*
- *Minimum Conditions of Employment Act 1993*
- *Native Title Act 1993 (Cwlth)*
- *Occupational Safety and Health Act 1984*
- *Public Interest Disclosure Act 2003*

- *Public Sector Management Act 1994*
- *Salaries and Allowances Act 1975*
- *State Records Act 2000*
- *State Supply Commission Act 1991*
- *Workers' Compensation and Injury Management Act 1981*








Appendix B: Summary of our services

We support the government goal of 'Better places: A quality environment with liveable and affordable communities and vibrant regions'. The diagram below illustrates the relationship between our services and desired outcomes, and the government goal to which we contribute. See [Section 04](#) for more detail.

Government goal: Better places: A quality environment with liveable and affordable communities and vibrant regions			
Outcome	Key effectiveness indicator	Services	Key efficiency indicator
1 Western Australia's growth and development is supported by the sustainable management of water resources for the long term benefit of the state	<ul style="list-style-type: none"> Proportion of stakeholders who perceive the department to be effectively managing the state's water as a resource for sustainable, productive use Proportion of priority growth areas that have a water supply planning strategy 	 1. Water information and advice	<ul style="list-style-type: none"> Proportion of statutory referrals from decision-making authorities where advice is provided within target timeframes Average cost per statutory referral assessment Average cost per water measurement site managed
		 2. Water planning, allocation and optimisation	<ul style="list-style-type: none"> Average cost per plan, report or guidance document to support water planning, allocation and optimisation Average cost per hour of scientific support for water planning, allocation and optimisation
		 3. Water regulation, licensing and industry governance	<ul style="list-style-type: none"> Average cost of assessing a water licence application by risk assessment category Average time taken (days) to assess a licence application by risk assessment category Average cost of compliance monitoring and enforcement action
2 Emissions, discharges and clearing of native vegetation are effectively regulated to avoid unacceptable risks to public health and the environment	<ul style="list-style-type: none"> Percentage of regulatory compliance activities completed as planned Percentage of potential environmental risks identified during compliance monitoring program that are rectified within two months 	 4. Environmental regulation	<ul style="list-style-type: none"> Average cost per works approval and licence application Average cost per native vegetation clearing permit application

Government goal: Better places: A quality environment with liveable and affordable communities and vibrant regions

Outcome	Key effectiveness indicator	Services	Key efficiency indicator
3 Development and implementation of strategic policy and legislation that promoted sustainable environmental outcomes	Percentage of advice and recommendations that met Ministerial approval, without the need for significant modification	 5. Water and environment policy	Average cost per hour of policy advice and recommendations
4 Waste avoided and the recovery of materials from landfill maximised	<ul style="list-style-type: none"> Percentage of municipal solid waste reported as diverted from landfill through recycling compared to waste strategy target in the Perth metropolitan region Percentage of commercial and industrial waste reported as diverted from landfill through recycling compared to the statewide waste strategy target Percentage of construction and demolition waste reported as diverted from landfill through recycling compared to the statewide waste strategy target 	 6. Waste strategies	Cost of landfill levy compliance as a percentage of landfill levy income collected
5 Quality advice to the EPA and the Minister for Environment on significant proposals and environmental issues	<ul style="list-style-type: none"> The EPA's satisfaction with the department's Environmental Impact Assessment (EIA) service, during the year, in line with Best Practice Principles of EIA Percentage of project-specific conditions which did not require significant change following the appeal process Percentage of assessments that met agreed timelines The EPA's satisfaction with the department's provision of environmental management services during the year 	 7. Environmental impact assessment services to the EPA	Cost per standardised unit of assessment output
		 8. Environmental management services to the EPA	Cost per standardised unit of environmental management services output
6 Compliance with Ministerial statement implementation conditions are monitored effectively	The number of Ministerial statements audited compared to targets	 9. Compliance monitoring services to the Minister for Environment	Average cost per environmental audit completed

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Feedback form

Your feedback on our 2018–19 annual report would be greatly appreciated. We will use your comments to help improve the clarity and presentation of our publications. Thank you.

► Did the report help you understand the department, its purpose, services and performance?

not at all | not really | somewhat | yes | absolutely

► Did you find the design and presentation functional and effective?

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► Was the report clear, concise and easy to read?

not at all | not really | somewhat | yes | absolutely

► Did you find the structural format of the report simple and logical?

not at all | not really | somewhat | yes | absolutely

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