PERFORMANCE REPORT

Performance summary

Each year the department is required to meet a number of targets set by the state government. These targets relate to government-desired outcomes, financial management, services to be delivered and performance targets to be achieved. The agreement is a transparent way for the state government to monitor the operational performance of the department.

The department evaluates, measures and reports on the effectiveness of its services in achieving its desired agency level outcomes through Key performance indicators or 'KPIs'. KPIs comprise both Effectiveness and Efficiency indicators.

Effectiveness indicators show the extent to which the department achieved its department-level outcome and the Efficiency indicators show the cost of services delivered by the department, as summarised in the tables following.

Actual results versus budget targets

Financial and working cash targets

	2017–18 Budget1 $,000	2017–18 Actual $,000	2017–18 Variance2 $,000
Total cost of services (i.e. endorsed expense limit)	180 259	173 409	6 850
Net cost of services (details in the Income statement)	71 215	52 423	18 792
Total Equity (details in the Statement of financial position)	383 346	467 366	(84 020)
Agreed salary expense level	87 599	88 236	(637)
Working cash limit	8 240	7 693	(518)

1. As specified in Budget Papers
2. Further explanations are contained in Note 9.12 'Explanatory statement' to the financial statements.

Summary of key performance indicators

For a more detailed explanation of the indicators and reasons for variances, please refer to the audited 'Key performance indicators' section of this report.

Summary of key effectiveness indicators

Outcome	Key effectiveness indicator	2017–18 Target %	2017–18 Actual %	2017–18 Variance %	
1 Western Australia's growth and development is supported by the sustainable management of water resources for the long-term benefit of the state	Proportion of stakeholders who perceive the department to be effectively managing the state's water as a resource for sustainable, productive use	60	64	4	↑
	Proportion of priority growth areas that have a water supply planning strategy	94	75	(19)	↓
2 Emissions, discharges and clearing of native vegetation are effectively regulated to avoid unacceptable risks to public health and the environment	Percentage of regulatory compliance activities completed as planned	100	78	(22)	↓
	Percentage of potential environmental risks identified during compliance monitoring program that are rectified within two months	80	45	(35)	↓
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	95	97	2	↑
4 Waste avoided and the recovery of materials from landfill maximised	Percentage of municipal solid waste reported as diverted from landfill through recycling compared to waste strategy target in the Perth metropolitan region	50	33	(17)	↓
	Percentage of commercial and industrial waste reported as diverted from landfill through recycling compared to the state-wide waste strategy target	55	46	(9)	↓
	Percentage of construction and demolition waste reported as diverted from landfill through recycling compared to the state-wide waste strategy target	60	77	17	↑
5 Quality advice to the EPA and the Minister for Environment on significant proposals and environmental issues	The EPA's satisfaction with the department's Environmental Impact Assessment (EIA) service, during the year, in line with Best Practice Principles of EIA	82	97	15	↑
	Percentage of project-specific conditions which did not require significant change following the appeal process	80	94	14	↑
	Percentage of assessments that met agreed timelines	83	92	9	↑
	The EPA's satisfaction with the department's provision of environmental management services during the year	83	90	7	↑
6 Compliance with Ministerial statement implementation conditions are monitored effectively	The number of Ministerial Statements audited compared to targets	100	100	0	

Summary of key efficiency indicators

Service	Key efficiency indicators	2017–18 Target	2017–18 Actual %	2017–18 Variance %	
Service 1 Water information and advice	Proportion of statutory referrals from decision-making authorities where advice is provided within target timeframes	96%	95%	(1%)	↓
	Average cost per statutory referral assessment	$10 273	$13 072	$2 799	↓
	Average cost per water measurement site managed	$12 933	$8 754	$4 179	↑
Service 2 Water planning, allocation and optimisation	Average cost per plan, report or guidance document to support water planning, allocation and optimisation	$218 250	$417 794	$199 544	↓
	Average cost per hour of scientific support for water planning, allocation and optimisation	$210	$196	$14	↑
Service 3 Water regulation, licensing and industry governance	Average cost of assessing a water licence application by risk assessment category:				
	• Low risk	$4 709	$1 071	$3 638	↑
	• Medium risk	$5 551	$14 297	$8 746	↓
	• High risk	$8 571	$28 762	$20 191	↓
	Average time taken (days) to assess a licence application by risk assessment category:				
	• Low risk	65	73	(8)	↓
	• Medium risk	75	134	(59)	↓
	• High risk	57	158	(101)	↓
	Average cost of compliance monitoring and enforcement action	$576	$743	$167	↓
Service 4 Environmental regulation	Average cost per works approval and licence application	$24 263	$55 962	$31 699	↓
	Average cost per native vegetation clearing permit application	$7 991	$34 405	$26 414	↓
Service 5 Environmental policy	Average cost per hour of policy advice and recommendations	$107	$89	$18	↑
Service 6 Waste strategies	Cost of landfill levy compliance as a percentage of landfill levy income collected	2.8%	1.3%	1.5%	↑
Service 7 Environmental impact assessment services to the EPA	Cost per standardised unit of assessment output	$23 513	$34 681	$11 168	↓
Service 8 Environmental management services to the EPA	Cost per standardised unit of environmental management services output	$26 790	$31 377	$4 587	↓
Service 9 Compliance monitoring services to the Minister	Average cost per environmental audit completed	$39 846	$18 069	$21 777	↓

Our performance

outcome 1

Western Australia's **growth and development** is supported by the sustainable management of water resources for the long-term benefit of the state

Service 1

Water information and advice

The department enables investment decisions of regional and state significance by providing data and information on the quantity, quality, location of and demand for water across the state. The information also underpins policy advice for consideration by government and supports other government agencies and stakeholders to plan for future economic growth and urban and rural development.

Perth-Peel Water @ 3.5 million

The department is continuing to guide Greater Perth's transition from heavy reliance on shallow groundwater resources impacted by climate change, to a waterwise city with a diverse range of water sources and demand-management practices.

In February 2018, the department held local government forums to discuss the water demand and supply situation for Greater Perth and the need to plan for a future with less groundwater. Eighty representatives from 26 local government authorities examined our water demand and supply outlook for a forecast population of 3.5 million people by 2050.

Water supply for Perth's green spaces and the Swan Valley

In 2017–18, the department completed a cost-benefit analysis, financial viability assessment and technical study into six water supply options for meeting the future non-potable water needs of green spaces in Perth's North East Corridor and irrigated agriculture in the Swan Valley. The study found that wastewater recycling could make an important contribution to the non-potable water needs in the area and would be economically beneficial under particular circumstances.

In partnership with the Western Suburbs Regional Organisation of Councils and the Town of Cambridge, the department also completed the first phase of an evaluation of supply options for watering of green spaces. The options include infiltrating highly-treated wastewater or stormwater back into aquifers. The evaluation found that even though recycled wastewater and recycled drainage water were more expensive than direct groundwater abstraction, both options were cheaper than the potable water supplied from the Perth Integrated Water Supply Scheme.

Outcome 1
Service 1

Water supply for Wanneroo agriculture

A preliminary investigation was undertaken, in partnership with the City of Wanneroo, into alternative water supply options for irrigated agriculture in North Wanneroo. The study identified five alternative supply options for providing an additional three gigalitres per year of water for intensive agricultural use. The report suggested that once a structure and scale for the future agriculture industry in the area was agreed on, a more detailed feasibility assessment could be undertaken.

The study was used to inform the North Wanneroo Water and Agriculture Taskforce about water supply options for the area where groundwater was not available to support future expansion of irrigated agriculture.

Peel Integrated Water Initiative

The Peel Integrated Water Initiative, a key component of the Transform Peel program, is focused on finding solutions for the future water demands of the planned Peel Food Zone to the north-east of Mandurah. This zone is expected to incorporate a multi-use 1000-hectare business park, including product processing and distribution. The initiative also aims to ensure that water resource development to support growth proposed under Transform Peel is carried out in a way that addresses the nutrient enrichment issues in the Peel-Harvey estuary.

In 2017–18, the department, in partnership with the Department of Primary Industries and Regional Development, the Peel-Harvey Catchment Council and CSIRO worked on:

- Quantifying ecological water requirements, to define the water needed to preserve groundwater-dependent ecosystems, wetlands, streams and other water-sensitive environmental assets.
- Undertaking a water resource assessment, to quantify the safe yields from local surface water and groundwater sources.
- Identifying opportunities for potential superficial aquifer water resource enhancement, to define and evaluate options based on targeted abstraction-replenishment in the superficial aquifer.
- Assessing strategies to reduce nutrients entering the estuary system through fertiliser management, soil amendment and nutrient pathway modelling.
- Considering various horticultural development scenarios (Stage 1 water demand modelling) to identify how much and when the additional water will be required to realise the Peel Food Zone development.
- Identifying a range of technically viable conventional and innovative water sources (including transferring treated wastewater, rainfall harvesting, subsoil and surface drainage flow) to enable consideration of a range of supply options to meet the expected growth in demand from the Peel Food Zone.

Outcome 1
Service 1

- Conducting a managed aquifer recharge field investigation and preliminary modelling to support a future water injection trial at Nambeelup. An assessment of the investigation has found that managed aquifer recharge and storage within the deep Cattamarra aquifer is technically feasible and could enhance the long-term resilience of the Peel Food Zone.

The outcome of current studies will be used primarily to define environmental water requirements and refine performance criteria, reviewing existing allocation limits and test scenarios, and finalise supply-demand analysis.

Water supply options for green space irrigation in the South West 2015–2060

The department has been working with state and local government agencies, utilities and industry to plan future water supplies for the South West. The project focuses on water for public open space, schools and community recreation facilities, collectively known as 'green space irrigation needs'.

Seven areas (Australind, Wanju, Central Bunbury, Boyanup, Busselton East, Busselton Vasse and Dunsborough) were found to be at increased risk of demand exceeding supply by 2060. Across these seven areas, a shortfall of 1549 megalitres per year is predicted by 2030, rising to 3450 megalitres by 2060.

More than 85 per cent of current water used is from proclaimed groundwater sources, with just over 7 per cent coming from scheme water, 3 per cent from wastewater and 2.5 per cent from unproclaimed surface water.

For each focus area, options have been assessed and pathway solutions developed to meet future demands.

The Dunsborough area was the initial focus, as it was considered to have the greatest risk, and the City of Busselton requested assistance to find a timely solution. Initial figures indicated a shortfall of 250 megalitres per year. However, much of the shortfall was associated with the demand values provided by the Dunsborough Lakes Golf Club and, after further analysis and water efficiency trials, the current shortfall was found to be only 25 megalitres per year.

Six costed options were presented to the City of Busselton and the city selected the Sue Coal Measures confined aquifer resource as the best proposal to meet the full shortfall of 528 megalitres per year by 2060.

Land use planning advice

In 2017–18, the department continued to advise decision-making agencies and proponents on managing impacts to the state's water resources from land planning and development proposals.

A planning advice function was added to the department's Water Online portal in October 2015. Since then, the department has serviced more than 7800 requests for water advice and information from various decision-making agencies and other stakeholders.

In 2017–18, the department assessed and responded to 324 requests for water advice from the Department of Planning, Lands and Heritage; 437 from local governments; 162 from the Department of Mines, Industry Regulation and Safety; and 57 from the EPA. The department also responded to 55 requests from other state government agencies, and advised on 239 water management reports associated with land planning and mining activities.

In 2017–18, the department reviewed its statutory functions, external referral base, delegation frameworks and internal systems and processes in relation to advice about the land planning process. This work is establishing greater internal coordination; overall it aims to provide a single consolidated response to external requests for water and environment advice.

Outcome 1
Service 1

Feature

Supporting key government priorities

A waterwise METRONET

The department is supporting delivery of METRONET with advice on key water opportunities, water resource issues and risk management.

As a first step the department worked with the Water Corporation to identify important water matters to be managed in collaboration with other government agencies, as well as current water availability and supply issues, public drinking water source area protection and opportunities to demonstrate best practice for waterwise urban design outcomes.

The department contributed to waterwise design for stormwater management associated with the Yanchep rail extension, planning processes for precincts at Redcliffe and Forrestfield, and drainage for liveability options at Redcliffe.

The waterwise approach to managing stormwater includes attention to managing small events – particularly as these create significant water quality risks to receiving waterbodies. The intent is to manage small rainfall events 'at source', meaning lot-scale runoff is managed within lots and road runoff is managed within road reserves.

The department's Director General Mike Rowe is a member of the METRONET Station Precincts Steering Committee and an observer on the METRONET Taskforce.

Jump to the webpage!

Outcome 1
Service 1

Water information

Water data and information 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.

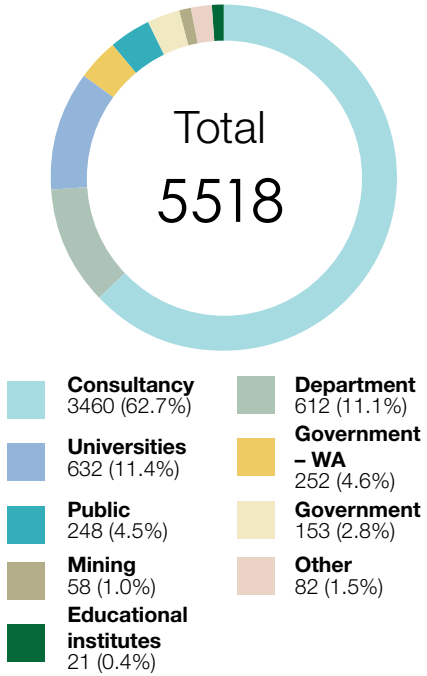
In 2017–18, the department's Water Information Reporting portal and GIS services provided data and information on the quantity, quality, location of and demand for water across the state. Information from the portal is delivered instantaneously and puts vital information at the fingertips of consultants, miners, land and property developers, farmers, infrastructure providers, government departments, researchers and students.

The portal has been operating successfully for the past four years to provide reliable, customised water information quickly and easily. This free and online service provides instant access to more than 132 000 water monitoring sites and an additional 80 million new measurements during the year.

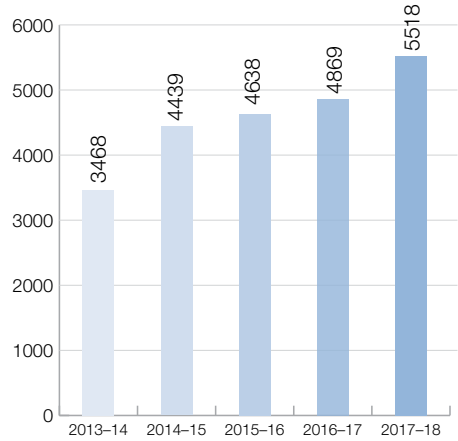
In 2017–18, the multi award-winning portal received more than 5500 requests for water information, 644 more than last year. Requests for data came mainly from the private sector, government and the education and research sectors.

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.

Data requests by sector 2017–18



Data requests per financial year



Outcome 1
Service 1

Data requests

It was another record year for data requests, with 5518 requests received in 2017–18. As expected, consultants were the largest users with 3460 requests. This rose from 3157 last year, or up nearly 10 per cent. Universities also featured strongly this year with 632 requests, compared with 343 last year, up 84 per cent.

Vital data now available online

Scientific data from more than 6300 hard copy hydrological reports have been digitally captured and are available on the department's portal. The project identified and captured information for more than 7000 bores not previously accessible in a digital format. The reports span from the 1980s to the present day and contain vital data on water resources in regional Western Australia.

The digital data capture project was part of the Water for Food program and was designed to provide a solid knowledge base to underpin the state's agricultural development. By capturing water information from existing reports, the project saved time and money, fast-tracked activities and reduced impacts on the environment by reducing the need to use exploratory bores.

Decision process for stormwater management in WA

In September 2017, the department released the third edition of the *Decision process for stormwater management in WA*. This process provides an approach and outcome criteria for planning and designing stormwater management systems for both new urban (greenfield, infill and brownfield) developments and retrofitted systems.

The decision process supports the design of urban stormwater management systems that protect public health and safety, and save infrastructure and buildings from flooding. Well-designed systems also protect and enhance sensitive receiving environments, by managing the water cycle, water quality, habitat diversity and biodiversity. They enable economically-sustainable construction and maintenance costs, and achieve good urban amenity.

Outcome 1
Service 1

Drainage for Liveability

The Drainage for Liveability program in collaboration with the Water Corporation has been operating for two years. During that time a partnering agreement with the Peel-Harvey Catchment Council has also been developed, outlining a shared vision of creating liveable communities with improved management of water and drainage in the Peel-Harvey catchment.

The program involved consultation with more than 17 local governments, both in the metropolitan and regional centres, to instigate projects for improved liveability outcomes near Water Corporation stormwater infrastructure. Most notable was the upgrade of the Russell Street detention basin and launch of a ninja-style obstacle course in April 2018, resulting in a multi-functional public open space in the City of Bayswater. Projects have ranged from possum bridges, fish tagging and water quality research to the creation of public open space, bike paths and walkways.

Guidance notes have also been developed to support implementation of the partnering agreements and inform stakeholders on stormwater integration into public open space and small rainfall event management.

Waterwise Council Program

The Waterwise Council Program fosters a cooperative working relationship between the department, the Water Corporation and local governments to build demand-management capability and improve water efficiency, climate resilience and liveability in council operations that extends to the wider community. More than 80 per cent of metropolitan councils are participating in the program, reaching about 1.6 million residents.

In 2017, in partnership with the Water Corporation, the department launched an expansion of the Waterwise Council Recognition Scheme criteria to align with the Water Sensitive Cities Index. While supporting councils to be more water efficient will always be a key focus for the program, the expanded criteria will allow us to highlight the great work councils are doing to create resilient, sustainable, productive and liveable communities (and thus contributing to a more balanced water cycle).

More information is available at the Waterwise Council Program website.

Kent Street Weir refurbishment

In May 2017, the department, using a capital funding allocation and in collaboration with the then Department of Parks and Wildlife and the City of Canning, began reconstruction of the Kent Street Weir. The upgrade was completed on 22 December 2017 and officially opened by the Minister for Water on 8 March 2018.

The upgrade has provided an improved facility for the public, enhanced the safety of operators and visitors, and helped protect the freshwater environment for the next 50 years.

The upgrade also benefits the conservation of native fish species through the addition of a fishway and will ensure this historically significant site will continue to be enjoyed for many years to come.

Service 2

Water planning, allocation and optimisation

The department's water planning, allocation and optimisation ensures the sustainable management of water resources for the state's long-term benefit and relies on good science. This includes planning and allocating water for sustainable productive use, protecting public drinking water source areas, and ensuring the sustainability of water resources and their dependent ecosystems.

Feature

Securing Perth's water future

Gnangara groundwater system

The Gnangara groundwater system is a crucial, shared water source for Perth, supplying nearly half of Perth's scheme water and most self-supplied water north of the Swan River.

This includes water for parks, gardens and sporting grounds; domestic garden bores; the Swan Valley tourism precinct; and fresh produce from Wanneroo and Gingin. Many environmental features also depend on Gnangara groundwater – such as lakes, wetlands and unique vegetation.

In 2017–18, the department continued work on the next Gnangara groundwater allocation plan. We undertook comprehensive scientific assessments and consulted with the main water use sectors, including public water supply, public open space and horticulture.

Jump to the webpage!

In May 2018, we launched our Gnangara groundwater website and released *Our groundwater future in Perth: Securing Gnangara groundwater and adapting to climate change*. Both of these explain why a new plan is a necessary response to climate change, and keep our licence holders in the Gnangara system and other interested stakeholders informed.

The *Gnangara groundwater areas allocation plan*, released in 2009, was a significant step in adjusting how we manage groundwater in the context of climate change. However, high groundwater use and lower rainfall have reduced recharge to groundwater and altered the system's water balance. Our goal is to rebalance the system by 2030 to secure Perth's largest, most accessible and economically viable water source to support a healthy and liveable environment for the people of Perth. The next Gnangara groundwater allocation plan will be released for public comment in late 2018.

Outcome 1
Service 2

Water security for the Cockburn groundwater area

The *Cockburn groundwater allocation plan* was released for public comment in early June 2018. This plan updates the management of local groundwater resources and accounts for the continuing effects of climate change on groundwater availability. Groundwater resources in the Cockburn groundwater area are now fully or over-allocated. The plan supports the department's implementation of the *Western Trade Coast heavy industry local water supply strategy 2016*.

The plan sets allocation limits that reflect projected declines in rainfall to 2030, protect important local wetlands, and minimise the impacts on water quality from movement of the seawater interface. It ensures sustainable supplies for industrial water use in the Western Trade Coast, as well as for public open space, domestic garden bores, and local irrigated horticulture.

To meet future demand in the Cockburn groundwater area, the department is supporting the use of new and existing alternative water sources – by industry and the Water Corporation – such as the recycling of treated wastewater for managed aquifer recharge and later recovery.

Photo: Kwinana Industries Council

Water security for the north

The state government has a clear vision for sustainable development of the Kimberley and Pilbara and improving the area's economic outlook. The department is committed to engaging with irrigators, Aboriginal people and other stakeholders across the north to inform how water is allocated in the future.

The government has committed to supporting economic development in the Fitzroy Valley without damming the Fitzroy River. Recent hydrogeological investigations will inform preparation of the first water allocation plan for the Fitzroy River catchment.

The department is working closely with researchers – CSIRO's Northern Australia Water Resource Assessment and the National Environmental Science Program's Northern Hub – to complete environmental and cultural water requirement studies to inform planning in the Fitzroy catchment. The Derby groundwater allocation plan is due for release for public comment in late 2018. This plan balances the demands for irrigated agriculture with securing water for the town and maintaining the quality of the water near the coastline.

The department is also refining the way water is allocated in the La Grange and West Canning Basin areas using new science to sustainably develop irrigated agriculture in highly-sensitive environmental and cultural areas.

La Grange groundwater knowledge and licensing

The La Grange area in the West Kimberley has seen increased demand for water to supply irrigation projects.

To provide effective guidance on regional and local water management for project planning, more detailed work on groundwater and vegetation knowledge began in 2017. The department is

Outcome 1
Service 2

investigating environmental water requirements in parallel with collecting groundwater data. During the year, the department's staff visited pastoral stations interested in expanding into irrigated agriculture and pasture to determine a consistent and structured approach to handling licence applications in the La Grange management area.

The department produced a guide for proponents that outlined what hydrogeological assessments they would need to consider. By June 2018 all potential licensees had received consistent and transparent guidance. Groundwater-level data loggers were installed in several monitoring bores to improve our knowledge of groundwater recharge rates, seawater interface dynamics and vegetation dependency on groundwater levels.

The department's understanding of groundwater resources and management in La Grange has built on previous technical investigations and will lead to a sustainable irrigation industry managed on established scientific principles. Expanded cropping and meat production is consistent with regional interests and aspirations. This will provide local employment opportunities and support local business.

In May 2018, we published an evaluation statement addressing the current status of the *La Grange groundwater allocation plan*. It states that the aquifer management objectives will be met by continuing with the scientific programs to gain better knowledge of the groundwater system. We will use licence conditions and licensee monitoring to ensure there are no impacts on the long-term sustainability of the aquifer or associated environmental values.

Evaluating allocation plans

The department evaluated water allocation plans across the state to enable a flexible response to changing circumstances, such as when new science becomes available or to account for the effects of climate change. The seventh year of the evaluation program covered 23 water allocation plans and several local strategies.

Highlights from the 2017–18 evaluation program included:

- Identifying where groundwater allocation limit changes may be necessary to support future water security in the Murray, West Canning Basin, La Grange, Jurien and Gingin plan areas.
- Improving monitoring programs in the Lower Collie, Myalup, West Canning Basin, Jurien, Peel Coastal and La Grange plan areas.
- Working with stakeholders and licensees on responding to changes in water demand in the Ord, Warren-Donnelly, La Grange and Myalup plan areas.
- Triggering our planning process for replacing existing water allocation plans in the La Grange, Esperance, Derby, Upper Collie and Lower Gascoyne.

The department also published evaluation statements in 2017–18 for Whicher, Ord and La Grange.

Outcome 1
Service 2

Water for Food

The Water for Food program, launched in 2014, is led by the Department of Primary Industries and Regional Development and is aimed at supporting the state's regional communities by developing and diversifying the agriculture and food sectors. We deliver science to support the program through our water resource assessment, allocation planning and regulatory roles.

In 2017–18 the department finalised drilling campaigns at Myalup in the South West, the Irwin River area in the Mid West and Fitzroy Crossing in the Kimberley. New hydrogeological information from the drilling programs will be used to update our estimates of water supply potential in these key demand areas. At Dinner Hill (Mid West) we used data from investigations to increase groundwater allocation limits for agricultural enterprises. At Myalup a new groundwater model will be completed in August 2018 using data obtained from the recent groundwater investigations. The model will be used to review allocation limits while accounting for different climate change futures.

To support the Southern Forest Irrigation Scheme, we developed a rainfall-runoff model of the Donnelly River basin. The model will be used to assess the future viability of the irrigation scheme, determine environmental flows in the river and update our estimates of water availability in the Donnelly River basin. For the Myalup-Wellington project we have completed predictive scenarios for the Upper Collie catchment (to simulate the range of streamflows and salt loads under different diversion, land use and climate scenarios) and for Wellington Reservoir (to assess the changes in reliability and salinity of supply).

We also finalised a GIS-based groundwater prospectus for the Midlands area from Gingin to Dongara. The digital map makes the regional datasets published in the *Northern Perth Basin bulletin* available online and guides where higher yielding, lower salinity groundwater could potentially be found at different depth slices within the main regional aquifers.

State Groundwater Investigation Program

The State Groundwater Investigation Program made excellent progress on its 'next generation' suite of projects. Since it began in July 2016, the program has invested more than $5.5 million to build our understanding of groundwater systems across the state.

Outcome 1
Service 2

In 2017–18 the department:

- completed 3156 metres of drilling
- installed 36 new groundwater monitoring bores
- collected and analysed groundwater samples from more than 100 bores
- received data from the 8200 square kilometre airborne electromagnetic survey flown late in the previous financial year.

The information from this work allows us to make evidence-based decisions on how to best use this water for agriculture, public open space and industry, while balancing social and environmental values. Also as part of the program, the department is building innovative groundwater modelling tools with The University of Western Australia and the Water Corporation.

East Midlands investigation – providing certainty for agriculture and the environment

The $5.1 million East Midlands groundwater investigation is seeking to discover how much water is available between Gingin and Moora, and where it can be taken from.

Since 2016, the project has flown an airborne electromagnetic survey and used the resulting data to select locations for drilling about 21 groundwater monitoring bores on the Dandaragan Plateau. So far six bores have been drilled, and when the drilling program is complete in late 2018, the department will have new data on the quality, quantity and flow direction of groundwater in this area.

This information will help the department establish if more water is available for agriculture and industry, and where to access it.

The investigation will also help the management of water use around Gingin Brook, which relies on groundwater to support its flow and has experienced up to a 40 per cent decline in streamflow since 2010.

Kings Park Formation investigation – securing water for green spaces

The department is working to improve our understanding of how groundwater moves in aquifers beneath Perth's western suburbs – where there is potential for saline water from the ocean and river to affect fresh groundwater. The work will help local councils plan future water supplies for green spaces while leaving enough water in the ground to support ecosystems and the urban tree canopy. Along with more efficient use of natural groundwater, options such as managed aquifer recharge are being considered to preserve the city's green spaces for future generations.

The research includes geophysical surveys, the construction of groundwater monitoring bores up to half a kilometre deep, and the use of shallow probes for measuring how much water infiltrates the soil to recharge the aquifers. During the 2017–18 financial year, 1795 metres of drilling was completed, with 20 monitoring bores being installed. Groundwater samples were analysed for chemistry, stable isotopes and groundwater age dating. The project is being conducted in partnership with the Western Suburbs Regional Organisation of Councils and the Town of Cambridge.

Outcome 1
Service 2

Water management in Carnarvon

A sustainable horticulture industry in Carnarvon is important to Western Australia's food supply and to the area's economy. In 2017–18, the department implemented several initiatives to improve water supply security for Carnarvon growers.

An additional 1 gigalitre per year was made available to the Gascoyne Water Cooperative for allocation to members. This was achieved by rebalancing the town water supply allocation and reserve, making more water available for irrigated agriculture.

The department has improved water security for growers by reducing the total volume of entitlements in Subarea A above the sustainable allocation limit of 6.1 gigalitres per year. This resource has historically been over-allocated by up to 180 per cent, which presented a risk to the groundwater resource and the users who depended on it. As prescribed by the *Lower Gascoyne groundwater allocation plan* released in 2011, licensee entitlements were reviewed in early 2018 and reduced where high salinity or low usage were identified.

Investment by government in improving water supply security in Carnarvon has improved industry confidence. Total horticultural water use for 2017 was 12.8 gigalitres, which was the highest recorded usage for the Carnarvon Irrigation Area. Water use in 2018 is predicted to rise to 14 gigalitres. This greater confidence will increase productivity in the area and underpin a long-term economic future for Carnarvon.

Rural Water Planning and Watering WA

The Rural Water Planning program targets the state's dryland agricultural regions, which receive less than 600 millimetres of annual rainfall. Those without access to a reticulated water service are given priority as these areas are the most vulnerable to serious water deficiencies.

The program increases long-term self-sufficiency for and optimises the efficient use of all available non-potable water supplies. It does this by implementing a variety of programs:

- The Farm Water Rebate Scheme, allowed commercial farmers to apply for a rebate of up to 50 per cent of the cost of approved infrastructure improvements, such as dams and catchments, tanks, pipes and pumping systems. This scheme closed on 31 May 2018.
- The Farm Water Supply Planning Scheme, which allows farmers to engage an approved auditor to develop a farm water plan to identify ways to improve the sustainability of

Outcome 1
Service 2

their on-farm water supplies. As of 1 June 2018 rebates under this scheme increased from a maximum rebate of $500 to $1000.

- The Pastoral Water Grant Scheme, which provided grants for commercial pastoralists looking to develop alternative water supplies. This scheme closed on 30 June 2018.
- The Community Water Supply Program, which provides grants for community water supply improvements to ensure reliable non-potable water supplies to meet emergency and community needs.
- Management of strategic community water supplies across the dryland agricultural region to ensure these are available for emergency water requirements.

The Watering WA program is funded by Royalties for Regions. The Watering WA Farms program supplemented funding available for farm water rebates and was closed to new applications from July 2017. The Watering WA Towns program supplemented funding available for community water supply projects and is now fully subscribed.

For the 2017–18 financial year, the Rural Water Planning and Watering WA programs funded:

- Farm Water Rebate Scheme payments of $1.2 million to 170 applicants
- Farm Water Supply Planning Scheme payments of $95 000 to 159 applicants
- Pastoral Water Grants of $87 339 to nine applicants
- Community Water Supply Program payments of $653 936 across 14 projects

Community Water Supply Program projects completed in 2017–18

Shire	Rural Water Planning grant	Result
Mt Marshall	$82 500	The shire improved stormwater runoff capture and storage for use at town facilities in Beacon.
Dumbleyung	$90 205	The shire improved stormwater capture and storage for it to be used as an emergency water supply, as well as for town sporting facilities and firefighting.
Jerramungup	$46 282	The shire improved storage and treatment of stormwater to ensure adequate water for town facilities and emergency supply if required.
Tambellup	$61 904	The shire installed stormwater harvesting infrastructure on shire buildings to provide a fit-for-purpose water source for shire use and for emergency community water supply.
Brookton	$100 000	The shire equipped an unused Water Corporation bore and installed seven kilometres of piping to supply the town with a non-potable supply for community facilities, emergency farm water and firefighting.

Outcome 1
Service 2

An additional nine funded projects will continue into the 2018–19 financial year, providing an important supply of water for emergency stock watering, firefighting and irrigated townscapes and ovals.

The Watering WA Clean Waterways program, which implements actions on the ground to improve the health of Avon waterways, will begin in 2018–19.

Protecting drinking water

In 2017–18, the department protected water quality in proclaimed public drinking water source areas to provide safe, reliable and good quality drinking water to consumers.

During 2017–18, we proclaimed or amended the West Mirrabooka, Perth Coastal and Gwelup, Nilgen and Paraburdoo sources. We also abolished the Dumbleyung and Four Mile Creek sources as they were no longer needed to supply drinking water.

In 2017–18, we completed drinking water source protection reports on new, or changing water quality contamination risks and how to address them for the Capel, Dardanup, Meekatharra, Samson and Mount Magnet sources, as well as Perth's artesian Yarragadee bores. We also supported and endorsed the Reserve Road (Chittering) and Moore River South reports that were prepared by third parties.

The department continued to manage and protect 130 public drinking water source areas, which involves:

- contributing to strategic state government projects like Perth and Peel @ 3.5 million, METRONET and review of state planning policies
- working with state and local government, water service providers and other stakeholders to implement the drinking water source protection program
- responding to development applications, mining or petroleum proposals, recreation and transient activities within these areas
- providing guidelines and advice on best-management practices to protect drinking water quality.

Outcome 1
Service 2

Flood risk assessment and management studies for Aboriginal communities in the Kimberley

To support management studies for Aboriginal communities, the department assessed the flood risk to four communities in the Kimberley region.

The work was undertaken for the Department of Planning, Lands and Heritage and builds on a successful collaboration that has delivered more than 15 flood risk assessments during the past five years.

The studies used the observations from past flood events and the latest modelling techniques to understand the flood behaviour of the waterways affecting the communities. A key outcome of the work is a recommended strategy to guide community layout planning and infrastructure design to increase resilience to future flood events. The work can be used to increase community awareness and inform flood emergency planning and response, which will further reduce flood risk to people and property.

Outcome 1
Service 2

Swan River flood study

The department provided technical guidance and support to the Eastern Metropolitan Regional Council to update the flood risk mapping for the Swan and Helena rivers. In June 2018, a consulting firm completed hydraulic modelling and a floodplain development strategy. The new information will guide risk management, planning, and decision-making for development, as well as support emergency response planning activities.

The project is supported by the Town of Bassendean, City of Bayswater, City of Belmont, City of Swan, City of South Perth and Town of Victoria Park.

Improved decision support in flood response: impact-based intelligence

In the aftermath of major flooding across WA in the summer of 2017, it was identified that better flood intelligence was needed to respond to flood predictions issued by the Bureau of Meteorology. The department provided scientific analysis to help emergency response personnel gain a better understanding of the flood risk and possible impacts relating to the bureau's predictions of flooding.

Western Australian rivers and estuaries

As the lead agency for water quality management in the state's rivers and estuaries, the department leads and coordinates management actions to improve water quality based on good science in rivers and regional estuaries. It also provides science support to the Department of Biodiversity, Conservation and Attractions for managing the Swan-Canning estuary. Systematic river health assessments are undertaken through the Healthy Rivers program to inform both water management and regulatory impact assessments.

More than 80 per cent of Western Australians live in or around estuaries – they are central to the Western Australian way of life, supporting businesses, recreation and tourism. These diverse ecosystems are under pressure from environmental factors, land uses, the growing population and reduced river flows.

Outcome 1
Service 2

Regional Estuaries Initiative

The Regional Estuaries Initiative is the state government's single biggest investment in managing Western Australia's regional estuaries, aiming to transform six key South West estuaries:

- Peel-Harvey estuary
- Leschenault estuary
- Vasse-Wonnerup estuary and Geographe Bay
- Hardy Inlet
- Wilson Inlet
- Oyster Harbour

Regional capacity building

The Regional Estuaries Initiative continues to build partnerships with industry bodies, government organisations and regional groups, including the Department of Primary Industries and Regional Development, Water Corporation, Western Dairy, the City of Albany, South Coast NRM, South West Catchment Council, Peel-Harvey Catchment Council, Leschenault Catchment Council, GeoCatch, Lower Blackwood Catchment Land Conservation District Committee, Wilson Inlet Catchment Committee and Oyster Harbour Catchment Group.

In 2017–18, the Regional Estuaries Initiative held a range of regional forums and one-on-one programs. For example, a constructed wetlands workshop was held with staff from the City of Albany, neighbouring local governments and departmental staff. A nutrient summit was held in Mandurah, bringing together 120 farming, land and water management experts, to focus on how to support productive agriculture while maintaining healthy estuaries.

Sustainable agriculture

The sustainable agriculture project is a collaboration of farmers, industry bodies, the Department of Primary Industries and Regional Development and catchment groups to help farmers optimise their fertiliser and dairy effluent management to reduce excess nutrients running off into rivers and estuaries. In 2017–18, the project mapped and tested soil on 154 farms and established several farm trials to demonstrate the benefits of optimised fertiliser application. Forty-nine farms engaged with the DairyCare project to implement better practices for dairy effluent management.

Moving water in the landscape

The $1 million Yakamia Creek remediation project was launched in January 2018. Working with the City of Albany and South Coast NRM, the project will rehabilitate the area into a working wetland, naturally reducing nutrients flowing into Oyster Harbour.

The sustainable garden projects Bay OK and Love the Leschenault were held in the Revitalising Geographe Bay and Leschenault catchments, and 481 households were engaged for changing fertiliser habits to make their gardens more estuary-friendly.

New technologies for remediation

Seven new soil amendment trials were set up in paddocks and drains across Regional Estuaries Initiative and Revitalising Geographe Waterways catchments using a method to bind phosphorus

Outcome 1
Service 2

in the soil in a form that plants can use. Soil amendments are a critical tool for stopping algae-fuelling nutrients washing from sandy catchments into rivers and estuaries.

A large-scale trial of a new phosphorus binding clay product was run in the Lower Vasse River and Peel drains, building on smaller trials in 2016–17. The product reversed algal blooms and trapped phosphorus in the sediments.

Science for management

Regular monitoring of water quality and algae (phytoplankton) is vital to understanding what influences the health of our estuaries. The department monitors 153 sites across six estuaries and 61 subcatchments. Data are used to report on estuary condition – through the dedicated website and published reports – and to inform catchment and estuary models. Ultimately the data will be used to determine management actions to improve water quality.

In 2017–18 the department completed catchment models for the Peel-Harvey and Vasse-Wonnerup systems, showing the relationship between land use and the flows of nutrients and water. These models will be used to guide future management actions. A hydrodynamic model of the Vasse-Wonnerup estuary was completed to model estuary response and help evaluate management actions. Estuary response models of the Wilson and Hardy inlets are also being developed. For the Peel-Harvey estuary, an estuary response model is being developed in collaboration with The University of Western Australia.

Seagrass is a vital component of estuary ecosystems and in 2017–18 the Regional Estuaries Initiative carried out comprehensive monitoring of seagrass in the Leschenault estuary and Wilson Inlet.

Drones used to capture new information at Wilson Inlet

The department used drones to capture vital information on water levels, land and water movement associated with the opening of the Wilson Inlet. The department routinely monitors the inlet to achieve a healthy ecosystem and good water quality, and removes the sandbar to enable the exchange of water between the ocean and the inlet.

For the first time, a drone was used to capture orthomosaic imagery and digital terrain elevation information. This was done:

- at the opening of the sandbar in August 2017
- after the opening of the sandbar in November 2017
- at the closing of the sandbar in April 2018.

The information captured by the drone was used with a hydrodynamic model to analyse changes in water and sandbar dynamics under different bar opening and river flow scenarios.

Outcome 1
Service 2

Peel-Harvey estuary protection plan

The department is working towards delivering the government's election commitment – a Peel-Harvey estuary protection plan that will focus on the actions and behaviours required to improve the estuary's water quality and biological functions. In turn, these improvements will support the natural values, community and commercial use of the estuary and the growing populations around it. Many of the catchment actions will be identified though development of the next-generation water quality improvement plan based on whole-of-catchment water balance and nutrient modelling.

The plan's development will be a highly consultative process and based on defensible science. The draft plan for public comment is expected to be completed during 2018–19.

Revitalising Geographe Waterways

Improving visual amenity, water quality and significantly reducing nutrients are vital to achieving long-term water quality improvements in locally important estuaries such as the Vasse-Wonnerup wetlands.

The four-year $15 million Revitalising Geographe Waterways program is supported by the state government to improve the health and management of Geographe waterways, while increasing community awareness. The program is overseen by the multi-agency Vasse Taskforce and chaired by the Hon. Dr Sally Talbot MLC, member for the South West region.

During the past year the program's major focus has been turning science into action. As a direct result of modelling investigations, the sandbar of the Toby Inlet was opened in summer, greatly improving water quality and increasing fish diversity. Similarly, knowledge gained from three years of scientific investigations in the Vasse estuary underpinned the manipulation of seawater inflows into the estuary (also during summer), greatly reducing toxic algal blooms and reducing the risk of fish kills.

The continuation of on-ground works to reduce nutrients in the catchment was also a major focus of the program. Delivery partner GeoCatch worked with more than 50 farmers to optimise fertiliser use, improve dairy effluent management and protect waterways through a fencing and revegetation initiative. A further 200 community members participated in gardening workshops and demonstrations. This built on GeoCatch's previous work with the community across the catchment, and has contributed to an overall reduction in nutrients entering Geographe Bay. These local actions, combined with innovative soil amendment trials being rolled out at a landscape scale, are providing evidence that improvements in water quality can be made despite increasing urbanisation and agricultural intensification.

The Revitalising Geographe Waterways program is a working example of water stewardship with a collaborative approach across all levels of government, industry and the community to deliver catchment-scale water quality outcomes. Extending collaboration opportunities to the community has greatly enhanced awareness, improved relationships and is building confidence in achieving long-term water quality improvements.

Outcome 1
Service 2

Estuary science in the Swan-Canning

Long-term science programs continued in the Swan-Canning estuary in partnership with the Department of Biodiversity, Conservation and Attractions. This includes weekly monitoring and reporting of water quality and algal activity in the estuaries, and fortnightly sampling and reporting of water quality in the 30 sub-catchments draining into the estuaries. The department operates the Phytoplankton Ecology Unit to identify and report on microalgae that cause algal blooms, and works with other government agencies to issue health alerts and respond to algal blooms as required.

The department operates two oxygenation plants on the Swan River – at Guildford and Caversham – and two on the Canning River. Major upgrades in the Canning are complete and the two plants can now more efficiently deliver oxygen 4.8 kilometres upstream of Kent Street Weir. Oxygen release from the plants is triggered by in-river sensors when oxygen levels are low. The plants have been able to respond to all low-oxygen events, such as those triggered by organic matter washed in by the rain.

Healthy Rivers program

The department assessed the ecological health of 73 river sites in 2017–18, examining the status of aquatic biodiversity, aquatic habitat, water quality, fringing vegetation, hydrology and physical form.

These assessments were conducted as part of the department's Healthy Rivers program, which includes monitoring of a network of priority river sites to inform critical management decisions.

Information from these assessments supports land use planning, licensing, management of environmental water releases, water allocation planning, and advice on impact assessment and waterways management activities.

Fish kill response coordination

The department, in partnership with the Department of Health and Department of Primary Industries and Regional Development, is responsible for coordinating the response to fish kills in the state's inland waters (including estuaries) outside of the Swan-Canning system.

In 2017–18, the department responded to 11 reported fish kill events, investigating causes, communicating the status and risks to the community, and supporting management. Information on fish kills is important to improve our understanding of how land use and climate change affects the state's waterways, which in turn helps to improve management.

Service 3

Water regulation, licensing and industry governance

The department's responsible, proportional regulation ensures investment, growth and development is supported by sustainable management of the state's water resources. This service includes management of water licensing and permits. It also includes management of the legislation governing the operations of water service providers.

Western Australia's water use has almost doubled in the past three decades and projections show demand will double again by around 2050.

The mining, agriculture and public water supply sectors are the biggest consumers, accounting for more than two-thirds of all licensed water use, with associated benefits to the state's employment and economy.

Water is essential to the future of Western Australia. The state's public water supply is delivered by six primary water service providers including the Water Corporation, Aqwest and Busselton Water. Water is also essential for the green parks and recreation spaces that support the state's liveability.

Rising demand is increasing competition for water in many parts of the state. This, coupled with the challenges presented by climate change impacts in the south-west, is increasing the number of fully-allocated resources and the complexity of water resource management.

Water Online enhancements for licences and permits

The Water Online portal continued to make water-related transactions easier and faster. The portal, launched in July 2015, now serves as the department's key customer interface, and has transformed our interactions with customers and external stakeholders. Since the initial rollout, the department has received more than 3000 registrations for online services relating to water licensing and requests for planning advice, and 65 per cent of licence applications are now received online.

The Water Online experience was enhanced in June 2017: an integrated licence, compliance and water resource management system was implemented to support licence assessment and compliance management. Additional benefits include the ability for licensees to track the progress of water licence applications and submit additional information online.

Outcome 1
Service 3

In 2017–18, as part of delivering a one-stop shop for water and environment regulatory services, the department prepared to expand the current Water Online services to include online capability for environmental regulatory services.

Feature

Streamlining water and environmental assessments

One-stop shop launched

Early in 2018 we launched our new one-stop shop single entry point on our website, as well as an enquiries hotline, bringing together all environment and water assessment, approval applications and enquiries under a single contact point.

The creation of the one-stop shop service is consistent with the state government's public sector reforms, which are designed to improve customer access to government services online and reduce response times. The department's improvements demonstrate how agencies can contribute to and support the government's drive for digital transformation across the public sector.

Diversifying agriculture in the Kimberley and Pilbara under a one-stop shop

In line with the one-stop shop framework, the department established a team of senior specialists tasked to deliver efficient assessments of environmental and water approvals relating to northern irrigated agriculture proposals in the Pilbara and Kimberley regions.

The department received a large number of applications for native vegetation clearing and groundwater abstraction in these regions.

The Kimberley and Pilbara regions retain high conservation values. Limited existing information about these conservation values generally results in applicants being required to conduct their own surveys.

The department engaged with proponents early in the development phase through our water licensing, vegetation clearing and environmental impact assessment processes to enable early recognition of the issues to be addressed, which in turn allowed the timely assessment of their applications.

The department collaborated with other state government agencies to improve coordination and support the scientific and policy work being undertaken. We partnered with the Department of Primary Industries and Regional Development to streamline applications related to irrigated agriculture by establishing an inter-agency working group.

We also collaborated with the Department of Biodiversity, Conservation and Attractions to support scientific and policy work on native flora, fauna and coastal wetlands in the rangelands, providing information to support the assessment of applications.

During the 2017–18 financial year, the department was able to finalise the assessment of 14 clearing permit applications and 20 water licences relating to irrigated agriculture in the Pilbara and Kimberley regions. A further four clearing applications relating to the Carlton Plains proposal were referred to the EPA under Part IV of the *Environmental Protection Act 1986,* culminating in the release of the EPA assessment report for Stage 1 of the Carlton Plains proposal in March.

Jump to the webpage!

Outcome 1
Service 3

Regulating for the sustainable, productive use of water

Western Australia's growth and development depends on secure and sustainable water supplies. The department licenses self-supply water users to access water for purposes including mining, agriculture, horticulture, and irrigation of public parks and recreation spaces, each of which benefit the state's economy and the community.

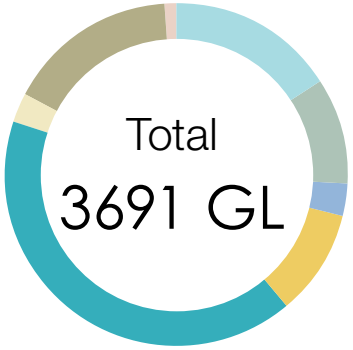
More than 83 per cent of the state's licensed water supports industry and development, while about 17 per cent is used in homes. Mining and agriculture are the biggest consumers.

At 30 June 2018, the department administered 13 390 licences and permits across the state, and managed 744 and 415 groundwater and surface water resources respectively.

In 2017–18, a total of 3691 gigalitres was licensed for use: 2754 gigalitres from groundwater and 937 gigalitres from surface water resources. Surface water figures include licensed dam storage volumes that are not always available for use due to variable rainfall and inflows.

A total of 64 private water entitlement trades between licensed water users occurred during the year: 41 permanent trades and 23 temporary trades.

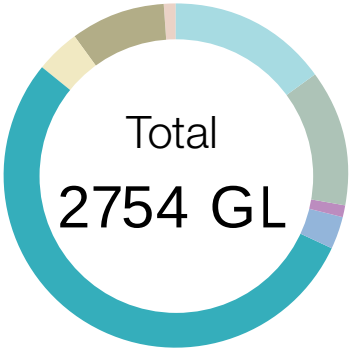
Western Australia's water users by sector



Total licensed volume by sector

- **Agriculture** 594 GL (16%)
- **Commercial and institutional** 356 GL (10%)
- **Industry and power generation** 102 GL (3%)
- **Irrigation scheme supply** 391 GL (10%)
- **Mining** 1 504 GL (41%)
- **Parks, gardens and recreation** 102 GL (3%)
- **Public water scheme supply** 585 GL (16%)
- **Other** 57 GL (1%)

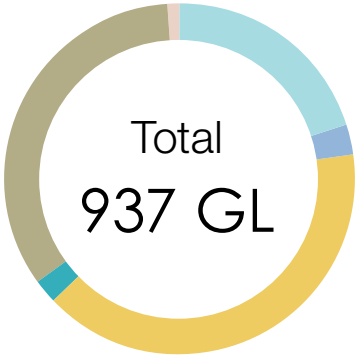
* Other includes environment and conservation, and stock and domestic sectors.



Groundwater licensed volume by sector

- **Agriculture** 411 GL (15%)
- **Commercial and institutional** 354 GL (13%)
- **Environment and conservation** 27 GL (1%)
- **Industry and power generation** 71 GL (2%)
- **Mining** 1 485 GL (54%)
- **Parks, gardens and recreation** 101 GL (4%)
- **Public water scheme supply** 264 GL (10%)
- **Other** 41 GL (1%)

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



Surface water licensed volume by sector (allocated volume)

- **Agriculture** 182 GL (20%)
- **Industry and power generation** 31 GL (3%)
- **Irrigation scheme supply** 377 GL (40%)
- **Mining** 19 GL (2%)
- **Public water scheme supply** 321 GL (34%)
- **Other** 6 GL (1%)

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

Outcome 1
Service 3

Cutting red tape

The department issues class exemptions from licensing under the *Water Services Act 2012*. These exemptions reduce regulatory costs and encourage efficient sewerage services and recycling for local governments and non-potable water service providers.

Integrated Water Supply Scheme

The Water Corporation's Integrated Water Supply Scheme supplies public drinking water to Perth, Mandurah, the Goldfields, agricultural areas and some South West towns. The water is sourced from a combination of groundwater, surface water and desalinated seawater produced from two desalination plants.

In 2017–18, the department issued groundwater licences to the Water Corporation authorising the taking of 141 billion litres per year from the Gnangara and Jandakot groundwater systems for the scheme, comprising 123.95 billion litres and 17.05 billion litres per year respectively. This total also includes licences authorising the recovery of 14 billion litres as part of the Water Corporation's groundwater replenishment scheme.

In 2017–18, as in previous years, the department and the Water Corporation adjusted the pattern of the Integrated Water Supply Scheme's borefield abstractions using the latest environmental data to limit impacts on ecologically important sites. The pumping adjustments are enforced through licence conditions.

During 2017, the department continued to work with the Water Corporation to determine how to adapt to the reductions in groundwater abstraction needed to maintain a sustainable groundwater supply for the scheme. Given the scheme's customers draw on Gnangara system groundwater more than any other user group, this ongoing work is an important part of the next Gnangara groundwater allocation plan.

Compliance and enforcement for water resource management

Compliance monitoring and enforcement is necessary for effective water resource management. It helps to ensure that the state's precious water resources are being used lawfully and sustainably, and that individual licensees are complying with the terms, conditions and restrictions of their licences.

In 2017–18, the on-ground compliance monitoring effort targeted at-risk management areas across Western Australia, with an increased emphasis on off-site monitoring activities where the risk to water resources, the environment and other water users was considered to be low.

Investigative and enforcement activities were prioritised based on the risk posed to water resources and other water users, scale, culpability and public interest, and focused on alleged offences that were most likely to significantly impact the resource or undermine public confidence in effective water resource management. Examples include the unauthorised taking of water, exceeding a licensed water entitlement or interfering with a water meter.

Outcome 1
Service 3

Response to non-compliance

Category	2015–16	2016–17	2017–18
Water licence compliance checks	2569	1726	2450
Incidents of suspected non-compliance identified	653	452	1335
Incidents of suspected non-compliance resolved	563	652	878
Education letters	197	51	109
Licence amendments	18	5	0
Warning notices	135	126	128
Infringement notices	44	59	54
Direction notices	27	20	14
Prosecutions	2	2	0

Improved metering regulations

Following the release of the department's *Measuring the taking of water* policy in 2016, the requirement for licensees to meter their water use and to report meter readings has been enacted in legislation.

The amendment to the Rights in Water and Irrigation Regulations 2000 in February 2018 requires certain licensees to install meters and provide the details to the department within 30 days of the installation. Licensees must then maintain meter accuracy, record monthly meter readings and submit the data annually.

The regulations do not apply where it is considered to be impractical to measure water take using a meter. For example, alternative measurement methods may be more effective for some on-stream dams. In very limited circumstances, a licensee may be exempt from all forms of measurement. The department will administer the exemptions on behalf of the Minister for Water.

Reflecting the staged implementation under the policy, the regulations come into effect for different licensees at different times, starting on 31 March 2018 for licences with large annual water entitlements of 500 000 kilolitres or more. The regulations will apply to licensees in the high-risk *Gnangara groundwater allocation plan* area earlier than licences outside the area with the same entitlement. All licences with entitlements of 10 000 kilolitres or more will be required to be metered in accordance with the regulations by the end of 2020.

Until now, metering requirements have been imposed on licensees using individual licence conditions. The complexity of measuring and enforcing water entitlements has meant that licences could contain more than 10 individual conditions relating to metering. Replacing these conditions with regulations allows for more consistency across all licences and streamlines the department's licensing operations. Without the regulations, full implementation of the measurement policy would have required amendments to thousands of individual licences. The regulations will override any pre-existing metering conditions on licences.

outcome

2

Emissions, discharges and clearing of native vegetation are effectively regulated to avoid unacceptable risks to public health and the environment

Service 4

Environmental regulation

The department seeks to prevent, control and abate activities that have the potential to cause pollution or environmental harm. It has adopted a risk-based approach to delivering its regulatory role, which broadly fits into three main functions:

- approvals and licensing
- monitoring, audit and compliance inspections
- enforcement, including complaint and incident investigation.

Licensing and approvals

The department assesses, determines and/or advises on environmental licences and approvals in the areas of:

- industry regulation
- contaminated sites regulation
- native vegetation clearing regulation
- noise regulation.

Core regulatory instruments include works approvals, licences, classifications and native vegetation clearing permits. These are assessed and determined in accordance with statutory and target timeframes. Performance against timeframes is reported quarterly on the department's website.

Compliance and enforcement

The department investigated environmental complaints and incidents, while also undertaking a wide range of proactive compliance programs and initiatives to ensure emissions and discharges met acceptable criteria.

The department's environmental compliance and enforcement activities foster a balance of proactive engagement and the application of sanctions, as appropriate, to ensure the risks associated with environmental breaches are addressed and instruments contain robust regulatory controls.

Compliance and enforcement outcomes range from licence amendment, suspension or revocation, statutory notices, and orders to modified penalty fines and prosecution.

Our compliance and enforcement activities and outcomes are reported quarterly on the department's website.

Outcome 2
Service 4

Environmental regulation

Improved cost recovery model for environmental regulation services

In May 2018, the state government introduced an improved cost recovery model for environmental regulation that better reflects the true cost to industry. This initiative is part of the government's response to the increasing demand for environmental assessments and approvals associated with economic growth. The cost recovery model will help to address the downturn in performance in recent years, which resulted from staffing reductions and a lack of approvals process reforms.

This additional revenue will be used to employ more staff in environmental regulation and compliance functions, as well as create a streamlined online application process to reduce red tape and improve the timeliness of decision-making for environmental approvals. There will be a staged introduction of the cost recovery model, starting on 1 July 2018 for industry regulation, followed by clearing regulation later in 2019, following consultation.

Clearing regulation

During 2017–18, the department received 409 clearing permit applications, granted 303 applications and refused 13 applications. Of these, 61 were applications to amend an existing clearing permit. The average time for determining these applications (excluding stop clocks) was 75 days. Forty-three per cent of clearing permit applications were determined within the 60-day target timeframe. 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.

The department also:

- continued to engage with key stakeholders, such as the Western Australian Local Government Association (WALGA) and Main Roads Western Australia, to identify opportunities – through the clearing permit process – to balance the retention of native vegetation and road safety.
- eliminated a backlog of more than 80 offset obligations related to conditions on clearing permits and Ministerial Statements, which had not previously been published in the online Environmental Offsets Register.
- expended more than $3 million from the Environmental Offsets Fund, contributing to the acquisition of three properties as offsets to approved clearing.

Industry regulation

During 2017–18, the department received 170 applications for new works approvals and licences, granted 137 applications and refused no applications. The average time for determining these applications (excluding stop clocks) was 72 days. More than 54 per cent of new works approvals and licence applications were determined within the 60-day target timeframe.

The department also received 323 applications to amend works approvals and licences, and granted 278 amendments, during the 2017–18 year. The average time for determining these amendment applications (excluding stop clocks) was 62 days. More than 65 per cent of amendment applications were determined within the 60-day target timeframe.

During 2017–18, the department also completed 12 reviews of existing licences consistent with its *Guidance statement: licence duration*. These reviews ensure that the licences remain effective for controlling risks to the environment and public health at the licensed premises.

Outcome 2
Service 4

The department is committed to providing clear, publicly available, reliable and relevant information on regulatory processes and requirements. In this regard, we relaunched the *Industry regulation guide to licensing,* publishing the first in a series of fact sheets for the prescribed premises category.

The department also started working with port authorities around the state to develop guidance and operational requirements to facilitate sea trade in natural resources and new commodities. The guidance will allow for trials to occur while maintaining valid and effective licences for prescribed premises that protect the environment and public health.

Air quality services

During 2017–18, the department continued the maintenance and operation of a network of fixed air quality monitoring stations. The network consists of seven metropolitan sites and an expanded network of six regional sites, with a new station commissioned at Kalgoorlie in December 2017.

The monitoring network measures the concentrations of National Environment Protection (Ambient Air Quality) Measure (Air NEPM) criteria pollutants, including carbon monoxide, nitrogen dioxide, ozone, sulfur dioxide and particles. All the department's air quality monitoring sites operating for the full 2017–18 year achieved greater than 90 per cent data recovery. We also continued the progressive upgrade of criteria pollutant monitoring equipment at the monitoring stations.

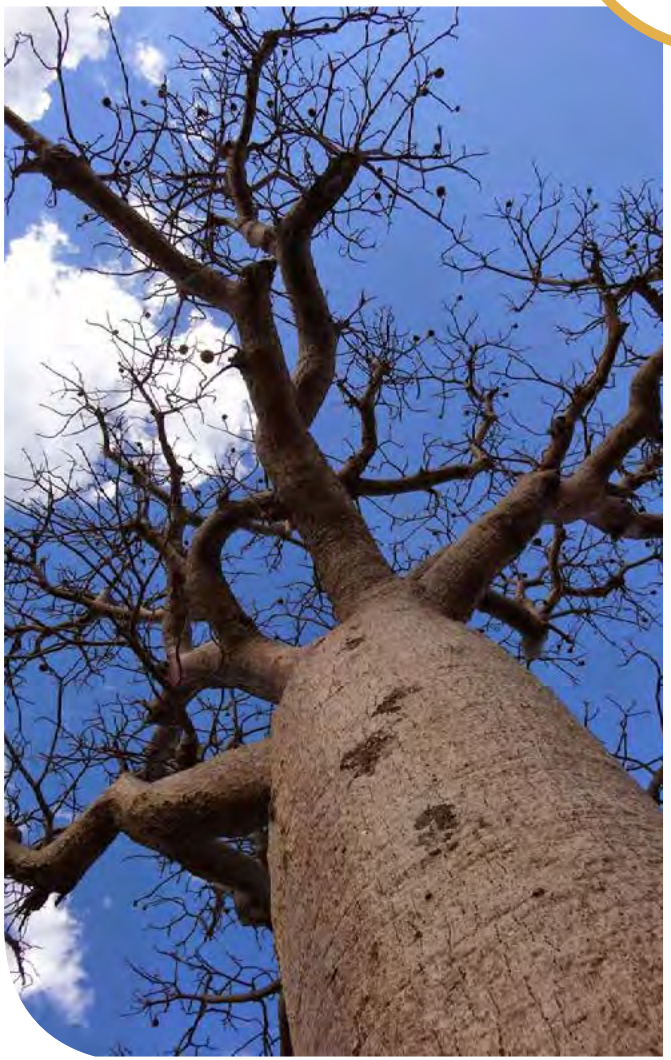
The department also undertook:

- In collaboration with the Shire of East Pilbara, installation of a total suspended particulate high-volume sampler at Newman in June 2018. This was to prepare for a 12-month study on lead and asbestos levels in the town. Shire officers assisting with this project are being trained by department staff to perform on-site sample filter exchanges.
- Installation of two total suspended particulate high-volume samplers at Collie in April 2018. These are for a 12-month preliminary study to assess total suspended particles and heavy metals including chromium concentrations.
- Preparation of specialist technical advice in response to about 120 separate requests. More than 95 per cent of this advice was delivered within specified timeframes. Technical advice is provided in the form of memoranda, expert reports, policy guidance, air quality data and correspondence.
- Continued participation in the Collie airshed study, funded by industry. This study is seeking to develop a consistent, rigorous assessment and air quality management regime for the Collie basin. During 2017–18, the department was again successful in a competitive grants program for access to the Pawsey Supercomputer Centre, and is running additional scenarios for advanced three-dimensional weather models to simulate meteorology for the region. Associated data analytics to assess model performance against real-world monitoring are being developed.
- Publishing for public consultation our draft odour guideline for prescribed premises. Community concern about odour is a leading cause of complaints about air quality made to the department. The department is one of the leading agencies in Australia for the assessment and management of odour, and has specialist staff who are recognised nationally and internationally for their expertise. The guideline sets out information requirements for the analysis of odour impact risk for prescribed premises.
- A redetermination of maximum permissible quantities of sulfur dioxide emissions for industry in the Kwinana industrial area in accordance with the Environmental Protection (Kwinana) (Atmospheric Wastes) Policy 1992. The need for the redetermination has arisen due to planned changes in emission profiles for existing industry, as well as new industrial facilities coming into the area. The redetermination involves emission data assessment and air quality dispersion modelling using advanced statistical methods.

Outcome 2
Service 4

Feature

Air quality services



A new LiDAR (Light Detecting and Ranging) study at Mandogalup.

The previous Point Samson and Port Hedland LiDAR studies were published on the department's website and demonstrated the valuable contribution of the technology in determining dust sources and pathways. The LiDAR technology completes a circular scan every few minutes, over a distance of up to six kilometres, and generates a map of particles in the air at the time.

A 12-month field trial of a vehicle-mounted Remote Air Pollution Infrared Detector (RAPID) completed in October 2017.

This technology was subsequently deployed throughout the metropolitan region in several investigations of emissions. The RAPID is able to detect 87 air toxics, through the use of an infrared detector that can automatically monitor and identify industrial chemicals – from a distance of up to five kilometres away – providing reliable identification of gas plumes. The technology has proved invaluable in detecting emissions from industrial facilities from a distance in real-time, allowing department staff to immediately investigate the issue and sources of pollution.

Jump to the webpage!

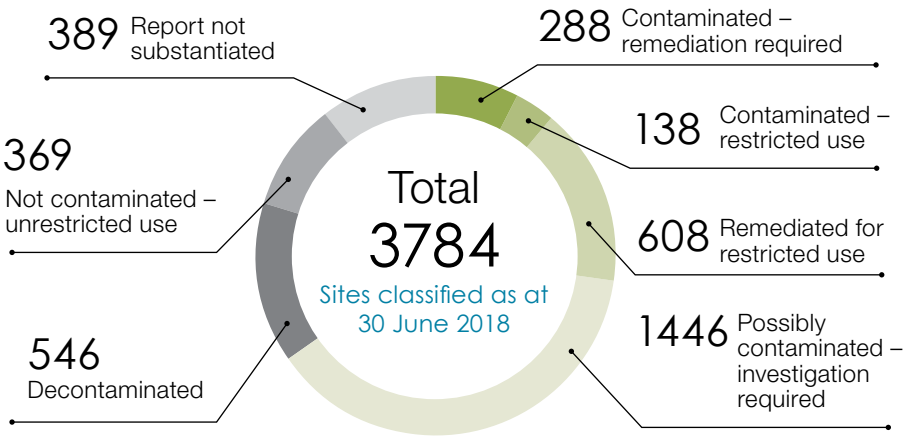
Outcome 2
Service 4

Contaminated sites

There were 188 known or suspected contaminated sites reported to the department under the *Contaminated Sites Act 2003* between 1 July 2017 and 30 June 2018, and 452 sites were classified during the period. Each site typically is classified more than once to reflect new information. By 30 June 2018, a total 3784 sites had been classified under the Act.

In addition, the department reviewed more than 170 acid sulfate soil reports and responded to approximately 620 requests for technical advice.

Classification of contaminated sites



In late 2017 the department coordinated preparation of the WA Government Statement on Per- and poly-fluoroalkyl substances (PFAS), setting out how government agencies are working collectively to respond to this emerging contamination challenge. The department also contributed technical expertise to the development of the first PFAS national environmental management plan, which was endorsed by Australia's Environment Ministers in February 2018. The plan provides a consistent, practical, risk-based framework for the environmental regulation of PFAS-contaminated materials and sites. The department continues to contribute to the second version of the plan, expected to be released in early 2019.

In April 2018 the department released an updated draft guideline on the use of monitored natural attenuation (MNA) for groundwater clean-up for eight weeks' public comment. The department expects to publish the final guideline in 2018–19.

Number of sites reported and classified

	Form 1 reports	Sites classified
2015–16	136	390
2016–17	371	448
2017–18	188	452

Outcome 2
Service 4

Environmental noise

The department provides specialist environmental noise advice to several key stakeholders including the Minister, the Environmental Protection Authority, local and state government agencies, and the community. Environmental noise expertise also supports the department's policy, regulatory, compliance and enforcement functions.

In its role of supporting Western Australian local governments to administer the Environmental Protection (Noise) Regulations 1997, the department reviewed 56 acoustic reports, and responded to 28 requests for assistance with noise data analysis and 19 requests for general environmental noise support.

Specialist environment noise advice was provided on 23 occasions that related to matters under Environmental Protection Authority consideration, and in response to 24 requests from other Western Australian government agencies.

In total, the department responded to 264 requests for specialist noise advice.

Further support is provided to local government in the form of noise regulation training, with 24 local government officers being trained since July 2017.

Environmental compliance and enforcement

Compliance

The department undertakes its environmental compliance activities through a structured annual program.

The 2017–18 compliance priorities and targets program outlined the framework for our compliance activities during the year. The 139 planned proactive prescribed premises inspections undertaken were lower than the 200 planned due to compliance inspection resources being moved to areas of greater risk to the environment and public health. An additional 59 reactive inspections were undertaken across both prescribed premises and for waste levy compliance. The high-risk matters were addressed using the legislative powers of the *Environmental Protection Act 1986*, in particular environmental protection notices, closure notices and vegetation conservation notices.

In 2017–18, the amount of statutory notices issued significantly increased – demonstrating that the structured compliance program is identifying and addressing significant environmental issues for the benefit of the environment and the community.

Environmental protection notices were issued to a range of industries including liquid waste facilities, intensive agricultural activities, and the construction and demolition industry. These notices require actions to be taken within specified timeframes and have resulted in improved environmental and amenity outcomes. All notices are publicly available on the department's website.

The department continues to monitor significant proposals authorised under Ministerial Statements and has completed targeted audits of high-risk proposals, including iron ore mining activities, oil and gas facilities, and large infrastructure projects.

Enforcement

During the 2017–18 financial year, the department received and assessed more than 1900 reports of alleged breaches of environmental legislation.

During the period 48 formal warning letters and 18 infringements were issued.

Outcome 2
Service 4

In addition, eight vegetation conservation notices were issued, requiring the re-vegetation of areas that were assessed to have had native vegetation cleared without appropriate approvals or exemptions.

Two prosecutions were also initiated for the unauthorised clearing of approximately 44 hectares of native vegetation on properties located in Walebing and Waddington north of Perth.

A $50 000 modified penalty notice was issued to a mining company for hypersaline water released into the environment that caused material environmental harm.

Three convictions were recorded during 2017–18:

- A Mirrabooka drycleaner was fined $22 500 after being convicted in Perth Magistrates Court for failing to investigate contamination under the drycleaning business.
- A commercial gardener from Hocking was fined $22 000 after being convicted in Joondalup Magistrates Court for illegally clearing approximately 7500 square metres of native vegetation at a property in Carabooda.
- A Balcatta company was fined $40 000 after being convicted in Perth Magistrates Court for illegally clearing approximately 38 hectares of native vegetation in the Shire of Ashburton.

Waste operations

On 28 February 2018, the department's waste levy compliance and controlled waste tracking functions were added to the illegal dumping program to create a dedicated waste operations function.

Through targeted compliance and enforcement activities, the department investigates illegal dumping and littering complaints. The function also seeks to maximise waste avoidance, resource recovery and the diversion of waste from landfill, and regulates the safe transport of controlled waste on the state road network.

Waste operation highlights in 2017–18 included:

- department representatives becoming part of the WALGA's newly formed Reduce Illegal Dumping Working Group
- a compliance program targeting quarterly levy returns and Waste Avoidance and Resource Recovery (WARR) Levy Regulation 5(1) exemptions for landfill premises
- amending of the approved manner document for estimating the volume or weight of waste received at and disposed of to landfills
- fixing shortfalls in levy return/exemption calculations, resulting in increased or additional levy return payments
- targeting record keeping requirements for non-metropolitan landfills
- increasing the number of investigations undertaken of potentially unauthorised/unlicensed waste sites resulting from complaints or intelligence obtained from other sources
- improving engagement with local government agencies regarding potential waste storage/burial sites
- continuing to manage Environmental Protection Notice (EPN) CEO2953/17 relating to lead contamination at the Cityscore Pty Ltd, Maddington site.
- supporting the waste taskforce, established to provide advice to the Minister for Environment on developing a sustainable and productive recycling sector in Western Australia.

Outcome 2
Service 4

Illegal dumping and litter

The department is responsible for investigating and prosecuting illegal dumping under the *Environmental Protection Act 1986*. Upon conviction, this offence carries a maximum fine of $125 000 for corporations and $62 500 for individuals.

In 2017–18, 13 prosecutions involving 32 charges were instigated for illegal dumping of waste. Also during 2017–18, nine illegal dumping prosecutions were finalised with convictions before the courts.

Department staff also investigate litter complaints under the *Litter Act 1979* and, where there is evidence to substantiate the complaint, issue infringement notices. During 2017–18, 76 litter infringement notices were issued, eight contested litter infringements were referred to the courts for prosecution, and four contested litter infringements resulted in convictions.

Waste levy compliance

Under the *Waste Avoidance and Resource Recovery Levy Act 2007*, Perth metropolitan landfill operators, and non-metropolitan landfill operators receiving metropolitan waste, are required to report and pay a quarterly waste levy on the amount of waste received for burial. The department monitors and enforces compliance with these requirements and those set out under the Waste Avoidance and Resource Recovery Levy Regulations 2008.

In 2017–18, the department carried out 129 planned inspections targeting waste levy compliance in addition to reactive inspections undertaken as part of the Annual Compliance Program (see Compliance). This included waste levy compliance inspections, audits of levy return forms and compliance monitoring inspections of associated industries.

Controlled waste tracking

The department is responsible for administering the Environmental Protection (Controlled Waste) Regulations 2004. The regulations require a person or business that transports controlled waste as part of a commercial activity to be licensed as a controlled waste carrier. The purpose of the regulations is to enable the safe and authorised transportation of controlled waste on the state's public roads.

During 2017–18, 2348 controlled waste licences were issued, with approximately 700 package driver and 500 package vehicle profiles being added to the department's controlled waste tracking system. A total volume of 1 413 465 tonnes of controlled waste was tracked during 2017–18, compared with 1 214 772 tonnes in 2016–17 – an increase of 16 per cent.

Outcome 2
Service 4

Pollution response

The department's pollution response function operates around-the-clock for pollution incidents and emergencies across Western Australia. Our staff triage incoming incidents and emergency notifications through the Pollution Watch telephone or email system, as well as through direct contact from emergency services. Our team responds immediately to minimise risks to the environment and public health. We dealt with 3571 reports to the Pollution Watch service in 2017–18.

The pollution response team also attends hazardous materials emergencies to provide support to the emergency services.

The objectives of incident and emergency response are to protect public health and the environment, ensure that appropriate actions are taken to prevent further pollution occurring, arrange clean-up, and secure evidence for any future investigation. The team responded to 415 incidents last year, which included fuel and chemical spills, tanker rollovers, industrial fires and the dumping of chemicals in environmentally sensitive areas.

Regulatory Services Stakeholder Reference Group

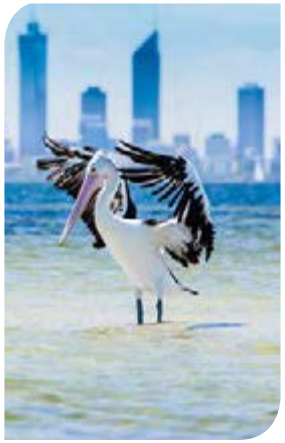
As part of department's commitment to a consultative and cooperative approach including engaging early and frequently with its stakeholders, we established the Regulatory Services Stakeholder Reference Group. The reference group will foster an effective consultation approach and a collaborative effort to address issues and further form constructive working relationships with key stakeholders. The group will also provide high level strategic advice on policies, guidelines, procedures, strategies and processes that frame the department's regulatory functions for water and environmental regulation.

The group's inaugural meeting was held on 15 June 2018 and will continue to meet regularly into the future. The core membership of the reference group are from the conservation, resources, industry, and government sectors.

Outcome 2
Service 4

Programs

Light Industry Program



The Light Industry Program aims to reduce contaminants from light industrial activities entering the Swan and Canning rivers through stormwater drainage systems. The program educates both proprietors and the wider community about how they can play their part in reducing their environmental impact.

Since the program's inception, 1033 joint audits have been conducted across 597 individual light industrial premises. Between 1 July 2017 and 30 June 2018, 223 joint audits were conducted across 118 individual light industrial premises.

Approximately 74 per cent of premises audited did not comply with environmental laws when first inspected. As of July 2018, this non-compliance rate has dropped significantly – to around 15 per cent.

► Light Industry Program awards 2017–18

The Light Industry Program was successful in receiving a number of awards in 2017–18. These included:

- Winner, Building the Regulatory Craft, National Australasian Environmental Law Enforcement and Regulators neTwork (AELERT) Achievement Awards
- Winner, Excellence in Policy and Education, Stormwater WA Awards for Excellence
- Special Commendation, Best Practice in Collaboration Across Government Agencies, Institute of Public Administration Australia WA Achievement Awards

National Pollutant Inventory

The department coordinated the provision of data to the National Pollutant Inventory, a publicly accessible national internet database <www.npi.gov.au> that provides the community, industry and government with information on the emissions of 93 substances from industry, transport and commercial premises to air, land and water.

The department worked with industry to collect, validate and publicly report available emissions and transfer data from 813 industrial facilities in Western Australia.

The department conducted 10 audits on companies submitting National Pollutant Inventory reports. Facilities audited included gold mines, quarries, power stations, oil refineries and fertiliser manufacturers. Audits enable onsite assessment of emission values reported to the National Pollutant Inventory and assist in developing an understanding of facility operations and possible issues associated with reporting.

Outcome 2
Service 4

Household Hazardous Waste program

The Household Hazardous Waste program provides local governments with Waste Avoidance and Resource Recovery Account funding to help with the collection, storage and recovery, as well as disposal, of hazardous waste generated by households. The program is delivered by local governments with policy and project management support provided by the department.

Since the program's inception, thousands of tonnes of hazardous materials have been collected from 13 permanent facilities throughout the state, and through temporary collection events. In 2017–18, about 550 tonnes of materials including acids, batteries, flammable liquids, paint and cleaning products were collected for safe recovery or disposal.

Following a review process, a new five-year program for 2018 to 2023 was approved by the Minister for Environment in February 2018. The new program has a budget of $9 million and provides local governments with funding support for the collection of household hazardous waste.

Container deposit scheme

The department is developing the Western Australian container deposit scheme, which is expected to start in 2020. Under the scheme, consumers will be able to receive a 10 cent refund on all eligible beverage containers including; soft drink, juice, beer, and cider in plastic and glass bottles, paper-board cartons, and steel and aluminium cans between 150 millilitres and three litres.

The scheme will reduce litter, increase recycling and protect the environment. It will complement the *Litter prevention strategy for Western Australia 2015–20* and the *Western Australian waste strategy: creating the right environment*. A cost-benefit analysis concluded that the scheme would return $1.37 for every dollar spent.

In August 2017, the department published the *Western Australian container deposit scheme discussion paper*. A total of 160 written submissions were received during the eight-week public consultation period and 3256 people completed an online survey. More than 97 per cent of respondents supported the scheme.

The department continues to engage with a range of stakeholders, including through an advisory group comprising of beverage manufacturers, retailers, waste, recycling and logistics service providers; environmental and community groups; social enterprises; and a government interagency working group. Technical working groups have been established to inform technical design and the department is visiting key sites to inform our understanding of industry concerns.

Modelling of refund point locations, consumer preferences, infrastructure requirements and opportunities for social enterprise participation are being investigated to ensure the scheme is successfully implemented throughout Western Australia.

Amendments to the *Waste Avoidance and Resource Recovery Act 2007* and new regulations to implement the scheme are being developed.

WHAT'S YOUR BAGPLAN?

Feature

Working with the community to create a plastic bag free WA

Countdown to the plastic bag ban

On 12 September 2017, the state government announced its intention to implement a lightweight plastic bag ban.

The government took this action in response to growing national and international evidence of the negative environmental impacts of lightweight plastic bags. A ban was considered the most effective option to reduce the number of plastic bags entering our environment.

Community support for the ban has been very strong. A community survey, commissioned by the department in November 2017, found that 95 per cent of respondents were concerned about the impacts of plastics on our waterways, oceans, wildlife and landfill sites, and 84 per cent supported a ban on lightweight plastic bags.

The department, in partnership with the Boomerang Alliance, engaged the community and key stakeholders in discussions about how to reduce the use of lightweight plastic bags and their impacts on the environment from November 2017 to March 2018.

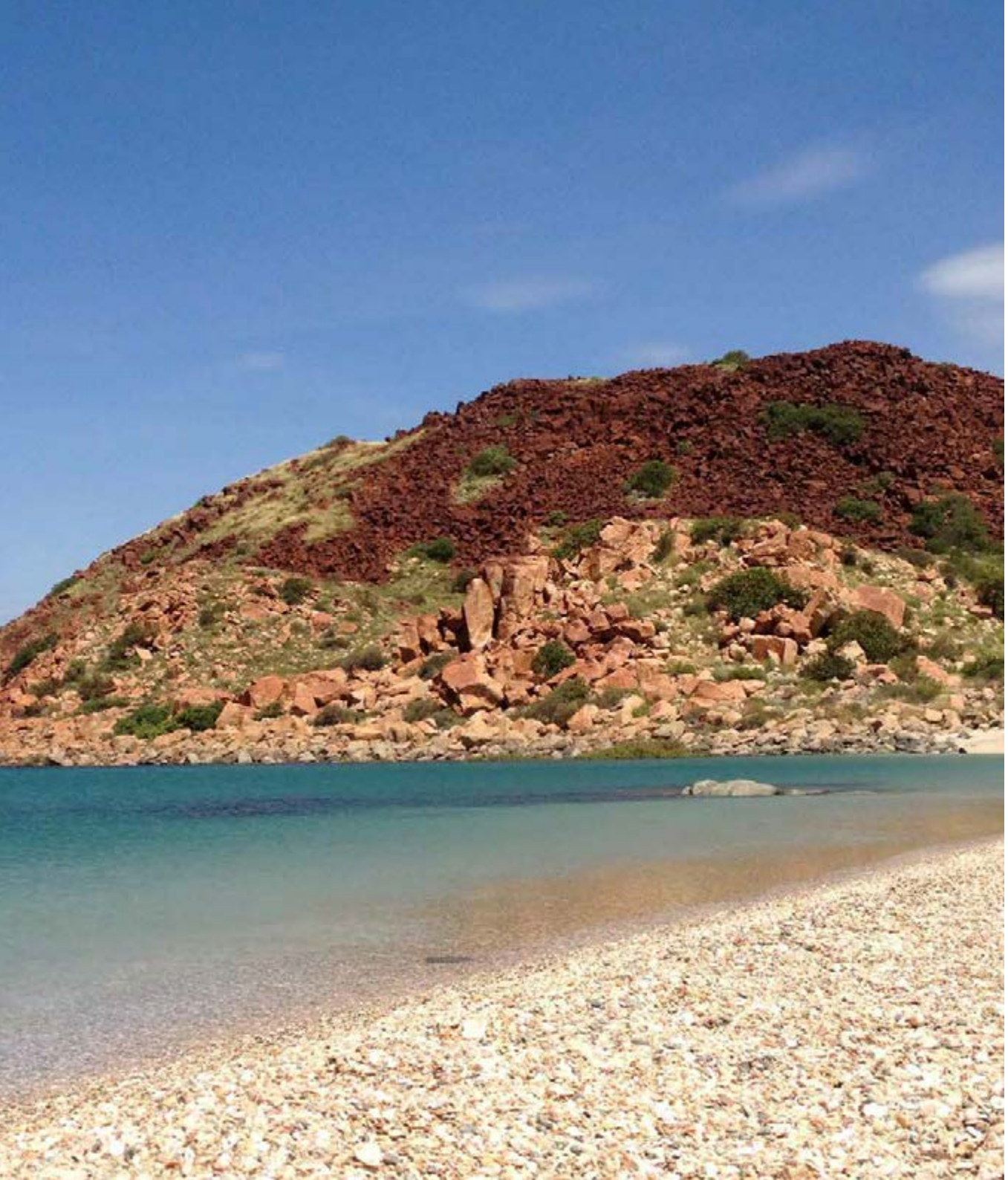
A total of 4441 responses were received during the comment period, with more than 94 per cent support for a ban on lightweight plastic bags.

Feedback from the consultation process resulted in the gazettal of the Environmental Protection (Plastic Bags) Regulations 2018 on 12 June 2018.

The consultation and work of the Boomerang Alliance also guided the 'What's your bag plan?' community education campaign, which was launched in June 2018 and was run in the lead-up to the ban. This was supported by the <www.whatsyourbagplan.wa.gov.au> website, with resources for the community and retailers.

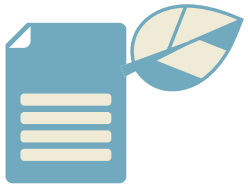
The department partnered with the National Retail Association (NRA) to help retailers understand and comply with the ban and find alternatives for their customers. The NRA's retailer-focused education campaign includes retail precinct tours and a dedicated website, <www.bagbanwa.com.au>.

Jump to the webpage!



outcome 3

Development and implementation of strategic policy and legislation that promoted sustainable environmental outcomes



Service 5

Environmental policy

The department develops and implements strategic policy and legislation that promote environmentally sustainable outcomes.

In 2017–18, the department:

- Participated in the implementation of the National Clean Air Agreement, which began on 11 January 2018. This included reviewing national reporting standards for sulfur dioxide, nitrogen dioxide and ozone, and finalising the introduction of product emissions standards for new outdoor power equipment and marine engines, non-road ignition engines and equipment.
- Provided climate change advice to state government agencies, local government and other stakeholders on climate change risk and vulnerability assessments and adaptation planning.
- Began a review of the Environmental Protection (Controlled Waste) Regulations 2004 to streamline processes for the regulation of the transportation of controlled wastes. This review complements amendments made in 2014 to provide greater clarity for industry.

Environmental Protection Amendment Regulations 2018

In April 2018, these regulations were amended to ensure sites that accept and have only ever accepted clean fill and uncontaminated fill – which meet environmental and health thresholds after testing – are not licensed as landfill premises or liable for the waste levy.

The use of clean fill and uncontaminated fill in these circumstances promotes recycling, and increases diversion from landfill, providing certainty for development and reducing costs.

The department consulted with experts, industry and the community to make amendments to the Environmental Protection Amendment Regulations 2018 and the Landfill Waste Classification and Waste Definitions 1996.

The Landfill Waste Classification and Waste Definitions 1996 contain an amended definition of clean fill and a new definition for uncontaminated fill (including threshold limits for physical and chemical contaminants).

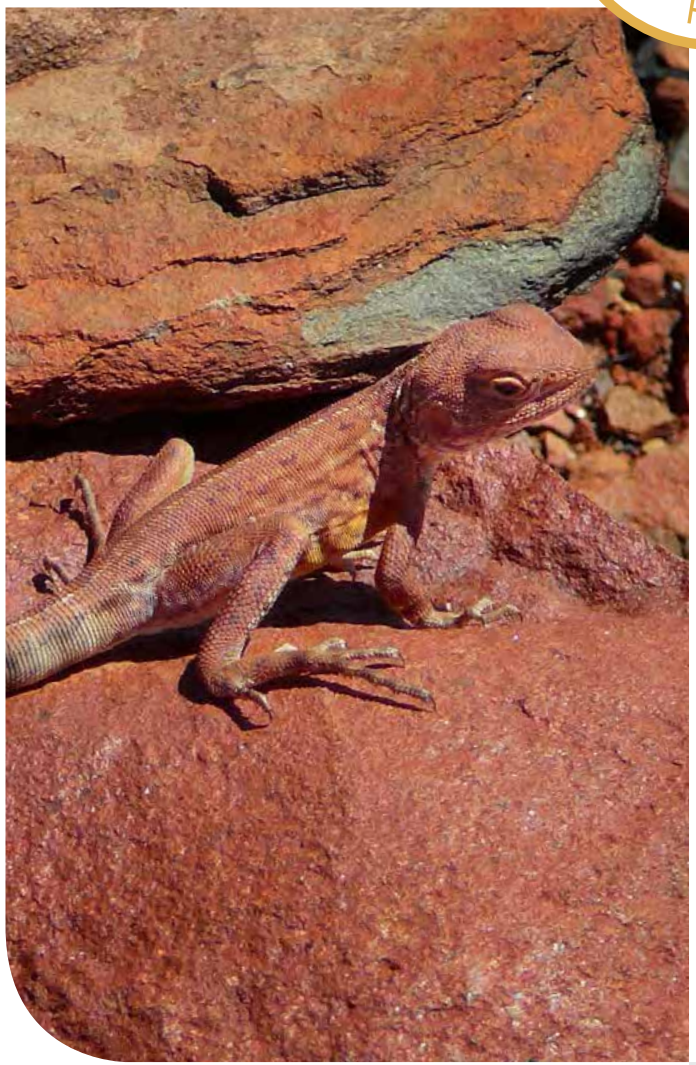
The amendments were required following the decision of Justice Beech in Eclipse Resources Pty Ltd v The State of Western Australia [No 4] (2016) WASC 62 on 9 March 2016, which clarified the application of the waste levy and the definition of waste. It had unintended consequences, particularly for the use of fill in development, including waste levy liability under the *Waste Avoidance and Resource Recovery Levy Act 2007* and licensing under the *Environmental Protection Act 1986*.

Outcome 3
Service 5

Feature

Protecting cultural and spiritual values to Aboriginal people

Ancient rock art on the Burrup Peninsula (Murujuga)



The Burrup Peninsula and surrounding Dampier Archipelago contain the largest concentration of engraved rock art (petroglyphs) in the world, with up to one million petroglyphs in the area.

The rock art is exceptionally diverse, comprising images of birds, marine life and land animals, human figures, figures with mixed human and animal characteristics, and geometric designs. The rock art is of immense cultural and spiritual significance to Aboriginal people and is of national and international heritage value.

In response to stakeholder and public concerns that industrial emissions are affecting the rock art, a range of scientific studies have been conducted during the past 15 years. The conclusions of some of these studies have been contested; as a result, the department commissioned independent reviews which identified a range of improvements for providing more robust, reliable results about emissions and their impacts on the rock art.

The department is developing the Burrup Rock Art Monitoring Strategy in partnership with the Murujuga Aboriginal Corporation. The strategy will provide a long-term framework to guide the protection of the rock art and improve its governance. The strategy builds on the previous studies and establishes a scientifically rigorous, world's best-practice monitoring program and a risk-based approach to the management of impacts to the rock art that is consistent with the government's responsibilities under the *Environmental Protection Act 1986*.

A stakeholder reference group will be established to help finalise and implement the strategy. The reference group includes representatives from the Murujuga Aboriginal Corporation; the Western Australian Museum; research organisations with expertise in rock art; local, state and Australian government departments; industry; and the community.

Jump to the webpage!

Outcome 3
Service 5

National chemical standards

The department continues to work with the Australian Government and state and territory jurisdictions on important national chemical reform projects to protect public health and the environment.

The department is participating in developing the National Standard for Environmental Risk Management of Industrial Chemicals. This standard will streamline regulation of industrial chemicals, enabling a more consistent, efficient and effective approach to environmental risk management of industrial chemicals across all jurisdictions. The standard will be established in Commonwealth legislation and be implemented in Western Australia.

The department is also consulting with the Australian Government as it considers ratifying the Minamata Convention on Mercury. If ratified, the convention will require the implementation of measures across Australia to protect public health and the environment from anthropogenic emissions and releases of mercury and its compounds.

The department is also assisting the Australian Government with its obligations under the Stockholm Convention on Persistent Organic Pollutants, and provided input as part of the public consultation process on the ratification of the Stockholm Convention amendment on perfluorooctane sulfonate-related chemicals (PFOS).

Certification of environmental practitioners

The department has been leading work for the Heads of Environmental Protection Agencies in Australia and New Zealand to improve assurance in the quality and reliability of reports prepared by environmental consultants.

The department researched standards and personnel certification schemes across Australia and internationally to understand best practice for schemes that certify environmental practitioners.

As a result of this work, the department, in collaboration with the Heads of Environmental Protection Agencies Certification of Environmental Practitioners Working Group, developed a set of principles to guide the certification of environmental practitioners in Australia and New Zealand.

The principles cover the requirements for a practitioner to be certified, re-certification associated with continued professional development, ethical and professional conduct, and general conformity to the Australian and New Zealand standard for bodies operating certification of persons.

These principles have been endorsed by the Heads of Environmental Protection Agencies and are now being adopted by environmental practitioner certification organisations across the country. The principles are publicly available, and can also be found on the department's website: <www.der.wa.gov.au/our-work/national-policy>.

It is anticipated that the adoption of these principles will improve the level of confidence of the public and government in the quality of work and reports produced by certified environmental practitioners in both countries.

outcome 4

Waste avoided and the recovery of materials from landfill maximised

Serice 6

Waste strategies

The department provides support for waste avoidance and to maximise the recovery of materials from landfill.

The Minister for Environment is responsible for ensuring the Waste Authority is provided with services to fulfil its functions. The department's staff provided services including those for programs and projects outlined in the annual business plan in 2017–18.

Waste reform projects

The department continued to progress its legislative and regulatory reform agenda during 2017–18.

The department also sought feedback on proposed reforms to address indefinite stockpiling of waste and associated financial and environmental risks and stimulate the recycling industry in Western Australia. The reforms are also intended to strengthen the relationship between the waste framework and the environmental protection regime and improve the quality and reliability of data on waste.

The department is also progressing legislative and regulatory amendments to allow for the reuse of waste-derived materials which meet environmental and health standards.

The department will continue to work closely with stakeholders on its legislative and regulatory reform agenda.

Waste Strategy

The Western Australian Waste Strategy outlines the state's objectives and targets for waste and recycling.

During 2017–18, the department supported the Waste Authority's review of the current waste strategy, which is to make Western Australia a sustainable low-waste society in which public health and the environment are valued and protected. Key themes of the review included:

- the introduction of circular economy principles
- new objectives to minimise environmental impact, reduce waste generation and increase recovery
- revised targets
- clear priorities that relate to the objectives and targets
- an increased focus on collaboration and shared responsibility.

Outcome 4
Service 6

A consultation process was conducted between October 2017 and March 2018. Ten workshops were held across the state, attended by nearly 400 people. Ninety-seven written submissions were received, as well as 419 responses to an online survey.

Western Australia's new waste strategy, expected to be released in late 2018, will set a new direction to improve the state's waste and recycling performance, protect the environment and deliver economic benefits.

Better Bins

The $20 million Better Bins Kerbside Collection Program (Better Bins) is a flagship Waste Authority initiative that has continued to improve local government kerbside waste systems in 2017–18. The program supports the state government's 2020 municipal solid waste recovery targets by funding local governments to use better waste bin collection systems with consistent Australian standard lid colours.

The department administers the program on behalf of the Waste Authority. The program has been promoted to all local governments and a review of performance data provided by participating local governments has been overseen.

During 2017–18, six additional local governments signed up to the program and entered into funding agreements. On 28 June 2018, the Minister for Environment announced the funding agreements for the City of Joondalup and the Town of Mosman Park. The cities of Melville and Subiaco, the Town of East Fremantle and the Shire of Gingin also received funding during the year. As a result, some 114 000 extra homes will gain improved kerbside collection services.

To date, local governments have been awarded more than $9.3 million to provide Better Bins kerbside collection services to more than 363 729 households, through a combination of two- and three-bin systems.

Year	Number of local governments receiving Better Bins funding	Number of households
2017–18	6	114 209

outcome

5

Quality advice to the Environmental Protection Authority (EPA) and Minister for Environment on significant proposals and environmental issues

Service 7

Environmental impact assessment services to the EPA

The Environmental Protection Authority (EPA) is an independent board that provides advice to the Minister for Environment (The Minister). The department provided services to the EPA to conduct environmental impact assessment of significant development proposals, strategic proposals and planning schemes.

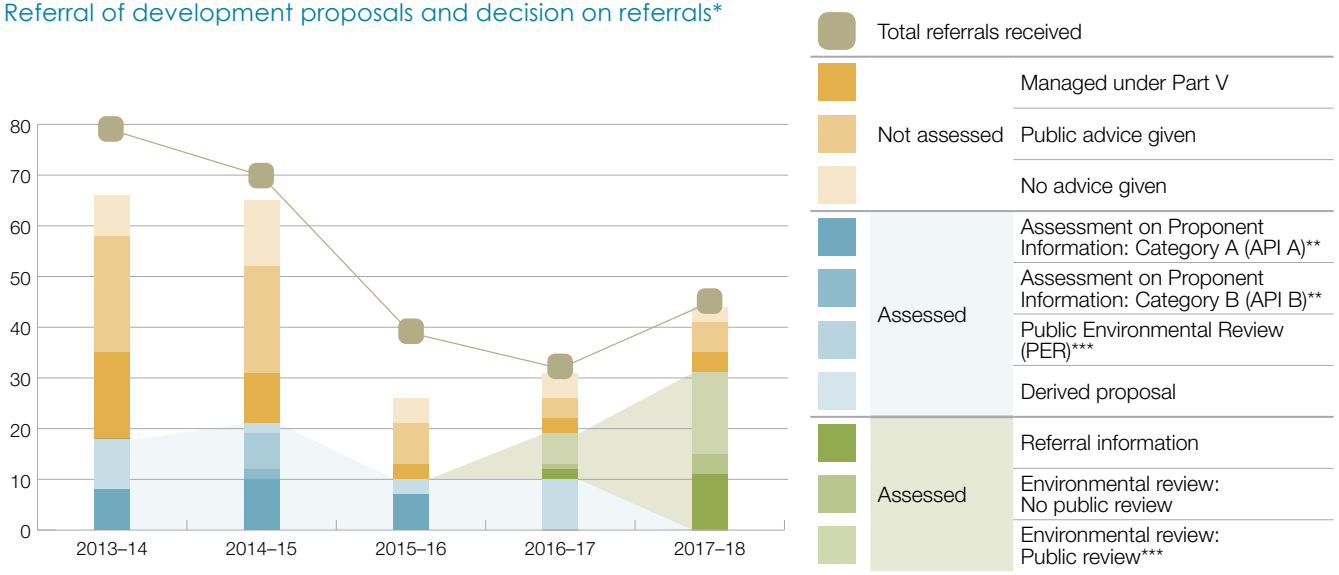
Environmental impact assessment of development proposals

Department staff dealt with 45 development proposals that were referred to the EPA for environmental impact assessment in 2017–18. Of these, the EPA determined that 31 proposals required formal assessment. A further six proposals did not require assessment, but specific advice was provided to proponents.

The number of development proposals referred during 2017–18 was higher than the previous two years. The number of proposals referred requiring formal assessment in 2017–18 was the highest since 2010–11. Our staff will support the EPA as it considers this increase in proposals requiring assessment.

The EPA also received the referral of two proposals for METRONET during 2017–18 (Yanchep Rail Extension Part 1 – Butler to Eglinton, and Cockburn-Thornlie).

Referral of development proposals and decision on referrals*



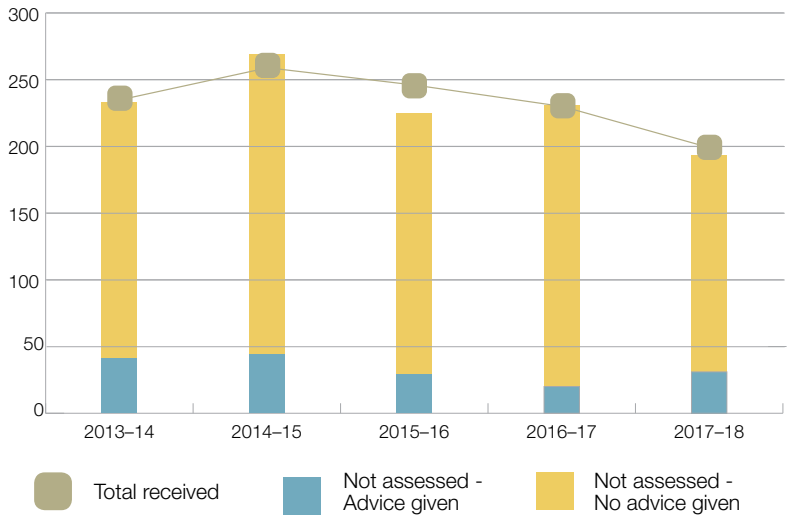
* During the year some referrals may have been withdrawn, deemed invalid or been a replicate of a third party referral for the same proposal.
** Level of assessment is no longer used.
*** The former Public Environmental Review is equivalent to Environmental review: Public review.

Outcome 5
Service 7

Environmental impact assessment of schemes and scheme amendments

Department staff dealt with 203 schemes and amendments to schemes referred to the EPA for environmental impact assessment during 2017–18. This was a decrease of 16 per cent from the previous year, most likely due to administrative improvements in the planning system. Notably there were fewer amendments to local government planning schemes (174 compared with 215 in the previous year) and an increase in the referral of complete new local planning schemes (10 compared with three in the previous year).

Referral of schemes and not assessed decision on referrals



The EPA made 194 determinations on schemes and amendments to schemes during 2017–18. This was also a 16 per cent reduction on the previous year, predominantly for the 'not assessed' category (162 compared with 210). The percentage of schemes the EPA determined not to assess but provided advice regarding environmental factors increased by 50 per cent (31 compared with 20). The EPA determined that one local planning scheme was incapable of being made environmentally acceptable, and following consultation between the Ministers for the Environment and Planning, the scheme amendment was withdrawn.

The average number of days it takes the EPA to make its determinations on planning schemes, once sufficient information has been received, has changed marginally to 19 days, compared with 17 for 2016–17 and 19 for 2015–16.

Outcome 5
Service 7

Environmental impact assessments completed

During 2017–18, department staff provided support to the EPA to complete 19 assessment reports.

Assessments completed

Type of assessment	2015–16	2016–17	2017–18
Formal assessments			
Public environmental review	6	11	5
Assessment on proponent information – Category A*	6	5	-
Assessment on referral information	-	1	6
Strategic proposal			1
Changes to conditions			
Section 46 changes to conditions	6	14	7
Total	**18**	**31**	**19**

* Level of assessment is no longer used.

The department provided advice to the EPA to help it complete the formal assessment of 12 mining, industrial and infrastructure proposals during 2017–18. This included the completion of a strategic proposal after six years of assessment and a lithium hydroxide product manufacturing plant located near Bunbury. The department is receiving many enquiries from proponents into the development of lithium mines in response to the high global demand for lithium.

Stakeholder engagement

The environmental impact assessment process continued to provide opportunities for input from the public before decisions were taken by the EPA. These opportunities included the seven-day public comment period on referrals received and the public review period on environmental review documents. The public was encouraged to participate in consultation by offering advice, identifying omitted relevant data/information, providing local knowledge and proposing alternatives.

Feature

Increase in proposals received a good sign for WA

EPA assessments on the rise

A leading indicator of a recovering economy is the number of significant proposals requiring assessment by the EPA, which has markedly increased since the last financial year.

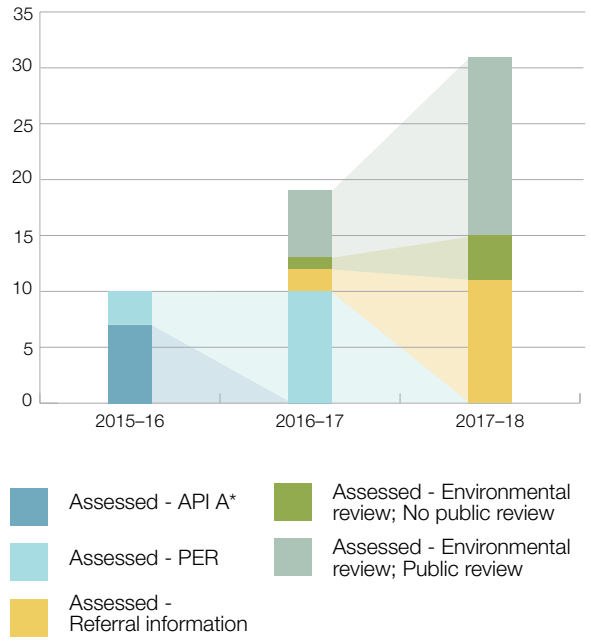
Not only has 2017–18 seen a rise in the number of referrals requiring formal assessment, but also an increase in the complexity and diversity of the proposals requiring assessment.

The increase in complexity and variety reflects the current diversity and innovation in the Western Australian economy. The map shows the location of the proposals where a formal level of assessment was set during 2017–18.

► Location of referrals given a formal level of assessment

During 2017–18, applications to change Ministerial-approved proposals and conditions increased 20 per cent compared with 2016–17. The overall active assessment workload has increased from approximately 140 assessments in 2015–16 to more than 220 assessments in 2017–18.

Referrals given a formal level of assessment



* Level of assessment is no longer used.

Jump to the webpage!

Service 8

Environmental management services to the EPA

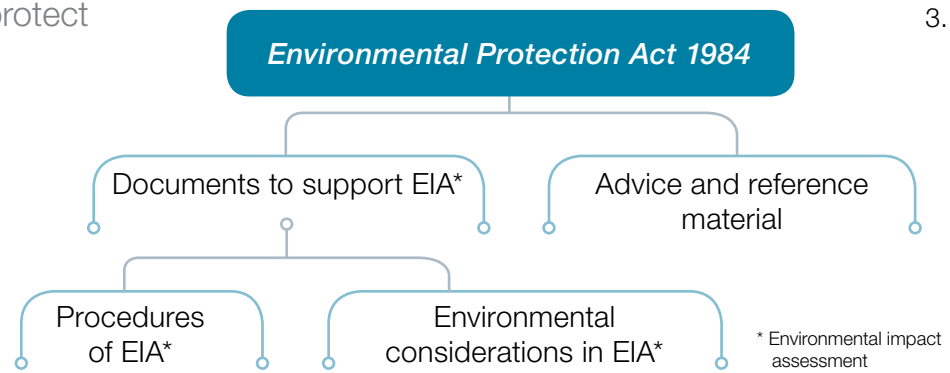
The department develops statutory policies, guidelines and strategic advice for the EPA to manage environmental impacts and protect the environment.

EPA policy and guidance overview

Role of EPA policy and guidance

The EPA has an established policy framework that relates to its objectives and functions as established under section 15 and 16 of the *Environmental Protection Act 1986*. The policy framework sets out a systematic and considered process for the development and review of the EPA's guidelines and procedures.

EPA policy hierarchy



Documents within the EPA's policy framework fall into one of three categories:

1. Processes and procedures for environmental impact assessment under Part IV of the *Environmental Protection Act 1986*. This section provides information for proponents to navigate the assessment process.
2. Environmental considerations in environmental impact assessment, dealing with the substantive aspects of assessment. This section of the framework is hierarchical, with the *Statement of environmental principles, factors and objectives* setting out the environmental factors related to assessment, environmental factor guidelines for each factor, and technical guidance.
3. Policies, advice and reference material related to the EPA's business outside of the formal assessment process. This information includes state government policies endorsed or administered by the EPA, the EPA's strategic advice to the Minister for Environment, and advice published by the EPA on environmental matters generally.

Outcome 5
Service 8

EPA policy framework review

The EPA completed a review of its policy framework in February 2018. Overall, the review found stakeholders were supportive of the new policy framework released in December 2016, particularly noting the EPA's procedures and guidelines were more informative, easier to navigate and linked more clearly to the *Environmental Protection Act 1986*. Stakeholders were also supportive of the improved opportunity for engagement in the review process.

The review identified several improvements for the policy framework. The improvements are being progressively implemented and the EPA continues to work closely with its stakeholder reference group to address the substantive issues raised.

The following amendments to EPA procedures and guidance were made in 2017–18:

- Minor update of the *Environmental impact assessment (Part IV Divisions 1 and 2) procedures manual*
- Revised *Environmental factor guideline – Landforms*
- New *Environmental factor guideline – Inland Waters*
- Revised *Statement of environmental principles, factors and objectives*

Future updates and changes as part of the review will be published on the EPA website.

Outcome 5
Service 8

Strategic activities

Perth and Peel @3.5 million and Strategic Assessment of the Perth and Peel regions

The department provided significant input to the Western Australian Planning Commission's *Perth and Peel @3.5 million sub regional planning frameworks,* which were released by the Minister for Planning in March 2018. The framework documents defined the development footprint in Perth and Peel for a population of 3.5 million to be assessed in the Strategic Assessment of Perth and Peel Regions (SAPPR).

In April 2018, the state government announced its decision to suspend work on SAPPR, pending a review. Environmental agencies undertook significant work through the SAPPR process to improve our understanding of the current levels of cumulative environmental impacts within the Perth and Peel regions. This work will help our new amalgamated agency to inform regulatory assessments.

The department reviewed the geomorphic wetlands of the Swan Coastal Plain dataset to identify wetlands of high conservation value. This information will be used across government to inform various priority projects including METRONET and Westport.

Pilbara Environmental Offsets Fund

The Pilbara Environmental Offsets Fund is a strategic conservation fund established to offset the significant residual impacts of development assessed under Part IV of the *Environmental Protection Act 1986* and, potentially, Parts 9 and 10 of the *Environment Protection and Biodiversity Conservation Act 1999.* In April 2018 the department received approval from Treasury to establish the special purpose account to receive offset contributions.

The fund will provide positive outcomes for the Pilbara by funding landscape-scale projects from combined offset contributions. It will also provide a greater opportunity to leverage investment in conservation efforts from Commonwealth programs, ranger groups, state government and natural resource management organisations.

Projects delivered through the fund will have an on-ground focus to improve native vegetation and habitat for species such as the greater bilby, Pilbara olive python, Pilbara leaf-nosed bat and ghost bat by undertaking weed and feral animal control and erosion and fire management.

The fund will be managed by government with advice from a stakeholder advisory group with local, on-ground and specialist experience. Members of this group have completed a preliminary meeting to scope the five-year implementation plan and recommend projects for 2018–19.

Projects to address gaps

In the 2017–18 financial year, the department allocated resources to the following projects to address gaps identified by the EPA:

- Information and gap analysis on mine site rehabilitation
- Subterranean fauna research projects
- Summary of current information available to assess extent and condition of native vegetation
- Opportunities for remote sensing technologies to map and monitor native vegetation

Feature

Partnering with government and industry to deliver better environmental outcomes

Improving biodiversity data sharing

IBSA

Index of Biodiversity Surveys for Assessments

Index of Biodiversity Surveys for Assessments (IBSA) was launched by the department in May 2018. IBSA is a new whole-of-government initiative led by the department, in collaboration with the Western Australian Biodiversity Science Institute, EPA and the Department of Mines, Industry Regulation and Safety.

IBSA's objective is to capture and consolidate data contained in biodiversity survey reports to support assessments and compliance under the *Environmental Protection Act 1986* and to provide a platform to make the information publicly available.

Once data has been used for assessment purposes, the department will make basic information for each dataset available online via IBSA. Full participation in IBSA will deliver better environmental outcomes and improved efficiency of assessments for proponents.

Before the implementation of IBSA, an estimated $38 million was spent each year collecting biodiversity data to support environmental assessments under the EP Act, yet the information was not centralised or easily discoverable.

Proponents will now have improved access to information through IBSA, reducing costs and delays associated with poor availability of biodiversity data. IBSA will also enable government, industry and the community to obtain maximum value from existing data, while supporting ongoing strategic planning, decision-making and management.

Improving the availability of information for proponents

Reducing costs and delays associated with poor availability of biodiversity data

Allowing government, industry and the community to get maximum value from existing data

Supporting ongoing strategic planning, decision making and management

Jump to the webpage!

outcome 6

Compliance with Ministerial statement implementation conditions are monitored effectively

Service 9

Compliance monitoring services to the Minister for Environment

The department audits the compliance with conditions set under Ministerial approvals and undertakes enforcement action as appropriate.

Compliance with Part IV of the Environmental Protection Act 1986

In accordance with section 48(1) of the *Environmental Protection Act 1986*, the department may monitor proposals approved by the Minister, for the purpose of determining whether the implementation conditions set out in the Ministerial Statement are being complied with.

If a proponent does not ensure that implementation of the proposal is in accordance with the implementation conditions, the proponent commits an offence.

When non-compliance with an implementation condition or proponent commitment in a Ministerial Statement is identified, the proponent is issued with a 'notice of non-compliance', detailing actions required to rectify the issue and regain compliance. The Minister for Environment is informed of each non-compliance.

As outlined in Service 4: Environmental regulation – compliance, the department undertakes its environmental compliance activities through a structured annual program. The program incorporates a variety of proactive and reactive methods to monitor compliance including audits of proposals, reviews of compliance assessment reports, on-site inspections, and stakeholder engagement. The annual program enables resources to be effectively managed to achieve the best environmental outcome. The results from the compliance audits identify areas for improving proponents' compliance, and inform future annual programs and the environmental impact assessment process.

Compliance and audit activity

Under the 2017–18 program, 60 audits of Ministerial Statements were conducted on a range of proposals including port and rail infrastructure; oil and gas facilities; chemical processing and manufacturing facilities; waste to energy plants; gold, iron ore and mineral sands mines; and significant infrastructure projects.