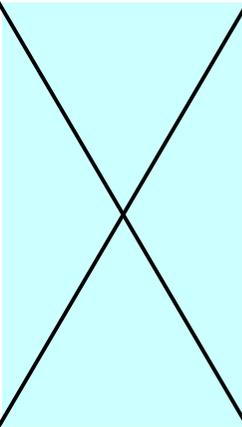


A2.3 PPM for Water Resources

WATER RESOURCES	Objectively Verifiable Indicators	Means of Verification	Assumptions
<p>Overall Outcome To contribute substantially to the conservation and management of targeted water resources in the South West NRM region to ensure that they remain healthy and productive.</p>	<p>Indicators for the Overall Outcome</p> <p>Wi-1 Maintain or improve the ecosystem functions of the region's targeted surface water resources in the period up to 2020.</p> <p>Wi-2 Maintain or improve the quantity and quality of the region's targeted ground water resources in the period up to 2020.</p> <p>Wi-3a Maintain or improve the quality, and decrease the quantity, of the region's urban water run-off in the period up to 2020.</p> <p>Wi-3b Maintain or improve the levels of use of the region's targeted water resources in the period up to 2020.</p> <p>Wi-4 The risks associated with climate variability on the region's targeted water resources are incorporated into water management in the period up to 2020.</p>	<ul style="list-style-type: none"> • State of Environment Report WA • Annual reports (SWCC) • Report cards or State of Environment reports (SWCC) 	
<p>Management Outcome WM-1 All targeted water resources in the SW are managed according to the best management practises available, specifically with regard to maintaining and/or improving water quality and productivity, reducing the impact of threats to that quality and restoring or enhancing their ecosystem services.</p>	<p>Management Outcome Indicators</p> <p>WMI-1a Progressive reduction in all water-related point-source pollution events in the region established in the period up to 2020.</p> <p>WMI-1b Salinity levels in the region's priority waterways and water bodies decreased in the period up to 2020.</p> <p>WMI-1c No net increase in the area of disturbed acid sulphate soils that are not managed by 2020, based on 2012 levels.</p> <p>WMI-1d Condition improved, and extent maintained or increased, of region's remnant vegetation along targeted riverbanks and around targeted estuaries and wetlands in the period up to 2020.</p> <p>WMI-1e Condition improved, and extent maintained or increased, of region's priority wetlands in the period up to 2020.</p> <p>WMI-2 Quality and quantity of the region's priority ground water resources maintained or increased in the period up to 2020.</p> <p>WMI-3a Percentage of local governments utilising best practice storm water management and water use efficiency designs and systems increased by 2020.</p> <p>WMI-3b Quantity and quantity of the region's surface water resources maintained or improved in the period up to 2020.</p> <p>WMI-4 The risks associated with a fluctuating climate on water resources are identified and incorporated into water management for at least one catchment in the period up to 2020.</p>	<ul style="list-style-type: none"> • Annual reports (SWCC) • Report cards or State of Environment reports (SWCC) • DoW (data and reports) 	<ul style="list-style-type: none"> • The effects of climate variability remain manageable. • Landholders remain personally committed and financially able to implement the proposed actions.

Appropriate Management Actions

WA-1 Title (what): Reinstate Natural Waterways.

Target (why): Increase the quality and quantity of available habitat and refugia for riparian and aquatic biota and increase water quality for ecosystem function and human use.

Appropriate actions (how):

- Continue development of river action plans, management plans and other relevant documents to ensure a holistic approach to managing aquatic systems
- Implementation of riparian management programs to fence and revegetate targeted waterways and associated wetlands, focusing on actions that will result in outcomes at the landscape scale.
- Support for ground cover management programs adjoining riparian areas.
- Support for projects that manage or reduce eutrophication and salinity in waterways, estuaries and wetlands.
- Support for programs and projects that reduce sedimentation in streams and rivers and/or reduce point source pollution.
- Support for programs that minimize or eliminate soil disturbance in acid sulphate areas and/or focus on surface water management in broadacre landscapes (landowners and industry).
- Advocate actions that support environmental water provisions.
- Support for reinstatement of natural hydrological regimes in targeted streams and wetlands.

Contributes significantly to WM-1. In addition, contributes significantly to objectives of BM-1 and AM-1.

WA-2 Title (what): Maintain and improve ground water within the region.

Target (why): Reduce the impacts on threats and degrading process on ground water assets in the region.

Appropriate actions (how):

- Support for projects or programs that promote perennial vegetation use in the agricultural areas.
- Support for Drainage Reform within the region (SWP).

Contributes significantly to WM-1. Does not contribute significantly to objectives of other programs.

Potential Management Action Indicators

WA-1a Number of river action plans and other management plans completed.

WA-1b Satellite imagery of vegetation extent.

WA-1c Water Quality data.

WA-1d Area of riparian zone fenced off.

WA-1e Area of riparian areas revegetated or restored.

WA-1f Priority waterways, wetlands and estuaries identified, condition and values identified and threats quantified; catchment plans updated and implemented; and monitoring program for waterways, wetlands and estuaries developed.

WA-1g State and local governments have adopted consistent approach to monitoring, analysing and quantifying waterways, including standardised water quality limits and data sets.

WA-1h Network of demonstration sites set up promoting waterways management best practice techniques, including drainage.

WAI-2a Area of perennial vegetation established for water management

WAI-2b Number of landowners or land managers that utilise perennial vegetation as a water management tool

WAI-2c Documented support for changes to Drainage Reform from SWCC.

- SWCC (annual and quarterly reports, other reports)
- Government agencies (DAFWA, DEC, DoW, BOM).
- WALGA
- Landgate.
- Lot feeders association
- Western Dairy
- Veg WA
- Landcare and other community groups.
- Landcare Centre surveys
- Landholders.

- Enhancing riparian vegetation leads to water quality outcomes.
- Restoration of degraded waterways to a functional level is possible in a changing climate.
- Former drainage regimes are irrelevant under today's farming systems.
- Perennial vegetation systems fit with current farming practices and systems (particular over the larger area that would be required for any impact).

Appropriate Management Actions contd.)

WA-3 Title (what): Improve urban stormwater management and water use efficiency

Target (why): Support local government and other authorities in effective and efficient uses of urban stormwater design and systems.

Appropriate actions (how):

- Support for local governments with WUSD actions
- Support for projects that provide training and information on WUSD planning including the development of municipal or townsite stormwater management plans.
- Support for actions that enhance the use/reuse of water within the region.
- Development of programs or projects that increase the awareness of how to increase water efficiency as well as actions that directly contribute to water use efficiency, especially community-driven initiatives that address the issues at a catchment scale.

Contributes significantly to WM-1. Does not contribute significantly to objectives of other programs.

WA-4 Title (what): Managing the effects of climate variability on water resources.

Target (why): Contribute to improving the resilience of the region's water resources to climate variability.

Appropriate actions (how):

- Identify areas of potential inundation as a result of changing hydrology and sea level that will lead to loss of reserves with fringing ecosystem function.
- Provide support for inclusion of adaptive responses to the effects of climate variability based on best available knowledge into the implementation of current WQIPs and for the development of further WQIPs, particularly with regards to the links between the Carbon Farming Initiative and wetlands.
- Identify and incorporate risk management strategies for the effects of climate variability into all projects and programs, utilising "best management practice".

Contributes significantly to WM-1. In addition, contributes significantly to objectives of BM-2 and AM-2.

WAI-3a Number of local governments that utilise WUSD actions for surface water management.

WAI-3b Number of training courses or information fact sheets on WUSD produced and documented outcomes from them.

WAI-3c Number of water use efficiency programs/actions supported.

WAI-3d Decrease in the amount of water wasted.

WAI-4a Reserve areas subject to flooding identified.

WAI-4b Strategies to deal with the effects of climate variability on water resources.

WAI-4c Risk management strategies for incorporating climate variability into water management.

Priority Assets for Management Action

- Lakes, wetlands and estuaries in the South West:
 - Broadwater;
 - Hardy Inlet;
 - Lake Jasper / Gingilup-Jasper wetland system;
 - Leschenault Estuary;
 - Muir-Byenup system; and
 - Vasse-Wonnerup Estuary.
- Capel, Deep, Lower Blackwood (river and estuary), Lower Scott, Preston, Shannon and Warren rivers, and all streams of the Leeuwin Ridge.
- All waterways for which management actions have been developed as part of a Water Quality Improvement Plan.
- All waterways leading into the wetlands and estuaries listed above (based on the need to address the causes not symptoms of major threats to systems).

Priority threats:

- Climate change;
- Changes to hydrology and environmental flows through excessive damming and extraction;
- Erosion;
- Sedimentation;
- Eutrophication;
- Salinity;
- Acid sulphate soils;
- Pollution from point sources (abattoirs, sewerage treatment plants etc.);
- Ecosystem fragmentation; and
- Land development (residential, rural residential, intensive agriculture, broad acre farming, pastoral, aquaculture and boating facilities).

Secondary threats include feral animals and weed infestations; recreational and commercial fishing; industrial discharge; water abstraction; other recreational pressures; and agricultural drainage (e.g. coastal plain and saline land drainage).