Attachment 1

State of the Environment Reporting

State of the Environment Reporting

Jurisdiction	Examples of recent reports	Scope	Prepared by	Frequency and Format	Legislative requirement?
Australian Government	Australia: State of the Environment Report , 1996 and 2001	Comprehensive: Seven broad environmental themes - Atmosphere, Biodiversity, Coasts & Oceans, Human Settlements, Inland Waters, Land, and Natural & Cultural Heritage. Refer: http://www.deh.gov.au/soe/index.html	Independent Advisory Council, reporting to Minister for the Environment and Heritage	4-5 years Hardcopy and Web	Yes, since 1999 Aust Govt legislation mandates the preparation and tabling of the national state of the environment report in Parliament. Refer Environment Protection and Biodiversity Conservation Act, 1999 (Section 516B).
New South Wales	New South Wales: State of the Environment Report, 1993, 1995, 1997, 2000 and 2003	Comprehensive structured around six major themes - Toward Environmental Sustainability, Human Settlement, Atmosphere, Land, Water and Biodiversity. Refer: http://www.epa.nsw.gov.au/soe/index.htm	Environmental Protection Authority	3 years Hardcopy and Web	Yes, Protection of the Environment Administration Act, 1991
Queensland	State of the Environment Report, 1999, 2003	Comprehensive structured around seven major themes – Atmosphere, Land, Inland Waters, Coastal Zone, Biodiversity, Human Settlements, and Natural & Cultural Heritage. Refer: http://www.env.qld.gov.au/environmental_management/state_of_the_environment/ EPA is currently reviewing its environmental reporting activities and information	Environmental Protection Agency	4 years Hardcopy and web. SoE Report for 2003 also available on CD.	Yes under Environmental Protection Act, 1994 and the Coastal Management and Protection Act, 1995.

Jurisdiction	Examples of recent reports	Scope	Prepared by	Frequency and Format	Legislative requirement?
		systems and is working towards an on-line system to enable delivery of information on a more regular basis.			
South Australia	State of the Environment Report, 1998, 2003	Comprehensive structured around seven major themes – Atmosphere, Inland Waters, Coasts & the Sea, Land Resources, Biodiversity, Human Settlements and Heritage. Refer: http://www.environment.sa.gov.au/reporting/index.html Supplementary report providing additional data and a greater depth of discussion on condition, trends along with recommendations.	Environmental Protection Authority	5 years Hardcopy and Web	Yes, Environmental Act, 1993
Tasmania	State of the Environment Report 1997, 2003	Comprehensive structured around eight major themes with recommendations – Atmosphere, Land, Inland Waters & Wetlands, Biodiversity, Settlements, Cultural Heritage, Coastal Estuarine & Marine, and Toward Sustainability. Refer: http://www.rpdc.tas.gov.au/soer/	Resource Planning and Development Commission	5 years Hardcopy and Web	Yes, State Policies and Projects Act, 1993
Victoria	No formal SoE	Reports on specific issues.	Various government Departments	Varies with issue	Varies with issue

Jurisdiction	Examples of recent reports	Scope	Prepared by	Frequency and Format	Legislative requirement?
			and Statutory Authorities with responsibilities in specific areas		
	Know your Catchments Victoria 1997	Broad environmental themes within Catchments	Department of Natural Resources and Environment, Victorian Catchment and Land Protection Council, Victorian Environmental Protection Authority		Not for the actual document, however fulfilled part of legislative requirements.
	The Health of Our Catchments: A Victorian Report Card 2002	Comprehensive structured around eight major themes reporting the health of ten catchment regions in Victoria.	Victorian Catchment Management Council	5 years	Victorian Catchment Management Council has a statutory requirement to report to the Government every five years on the condition and management of the State's land and water resources.
	Environmental Audit System	Assessment of the nature and extent of harm to the environment posed by industrial process or activity	Environmental Auditors	Unknown	Yes, Environmental Protection Act 1970

Jurisdiction	Examples of recent reports	Scope	Prepared by	Frequency and Format	Legislative requirement?
	Environmental Health of Streams in Western Port Catchment, 1998	Health of rivers and streams. For more recent information. Refer: http://www.epa.vic.gov.au/Water/Programs/rivers.asp	Victorian Environmental Protection Authority	On-going for each catchment	No.
Western Australia	State of the Environment Report, 1992 and 1998	Comprehensive structured around six major themes – Biodiversity, Atmosphere, Land, Inland Waters, and Marine. Refer: http://www.environ.wa.gov.au/	Various Government Agencies. Since 2002 Environmental Protection Agency responsible for coordination.	Varies. First report in 1992 then again in 1998. This was followed by a response document titled Environmental Action: Governments response to the SoE Report. Currently in process of developing 3rd SoE report for completion in 2006. Hardcopy and selected material on Web	No

Jurisdiction	Examples of recent reports	Scope	Prepared by	Frequency and Format	Legislative requirement?
Australia Capital Territory	State of the Environment Report, 1994, 1997, 2000 and 2003.	Comprehensive structured around six major themes with recommendations.	Reference groups coordinated by Commissioner for the Environment	3 years Hardcopy and Web	Yes, Commissioner for the Environment Act 1993.

Source: After Alexandra, J., J. Higgins and T. White (1998) Environmental indicators for national state of the environment reporting – Local and Community Uses, Australia: State of the Environment (Environment Indicator Reports). Department of the Environment, Canberra.
See http://www.deh.gov.au/soe/publications/pubs/community-ind.pdf with updates from downloaded from various state and national web sites in July 2004.

Attachment 2

NRM Resource Condition Reporting

NRM Resource Condition Reporting

Refer: http://nrm.gov.au/monitoring/indicators/index.html#list

For each 'Matter for Target' identified in the National Framework for Natural Resources Management Standards and Targets, an overall indicator called an 'Indicator Heading' is being developed. For each 'Matter for Target' there are also a number of dimensions related to resource condition issues. The 'Recommended Indicators' detail these dimensions and how to measure them. Information on the current status of Resource Condition Indicators is given below.

List of Indicator Headings and Indicators

Matter for Target	Indicator Heading	Recommended Indicators
Land Salinity	Area of land threatened by shallow or rising water tables	• Depth to groundwater (Indicator Status: Agreed) • Groundwater salinity (Indicator Status: Agreed) • Location and size of salt affected areas (Indicator Status: Agreed)
Soil Condition	Soil condition (Indicator Status: For Advice)	For regionally significant soil condition issues that are the subject of targets in regional plans: • Soil acidification (Indicator Status: For Advice) • Soil erosion - water (Indicator Status: For Advice) • Soil erosion - wind (Indicator Status: For Advice) • Soil carbon content (Indicator Status: For Advice)
Native Vegetation Communities' Integrity	Native vegetation extent and distribution (Indicator Status: For Advice)	For regionally significant native vegetation that is the subject of targets in regional plans: • The extent of each priority native vegetation type by IBRA subregion measured in hectares (Indicator Status: For Advice) • The extent of each present native vegetation type by IBRA subregion measured in hectares (Indicator Status: For Advice) • The proportion remaining of each native vegetation type by IBRA subregion measured as a percentage of the pre-European extent (Indicator Status: For Advice)

Matter for Target	Indicator Heading	Recommended Indicators
	Native vegetation condition (Indicator Status: For Advice)	For regionally significant native vegetation types that are the subject of targets in regional plans: • The proportion of each native vegetation type in each IBRA subregion that is estimated to be in specified condition classes based on a selected set of attributes. (Indicator Status: For Advice)
Inland Aquatic Ecosystems Integrity (Rivers and other Wetlands)	River Condition (Indicator Status: For Advice)	For regionally significant reach based issues that is the subject of targets in regional plans, the indicators are: • Benthic macroinvertebrate community assemblages • Fish community Assemblages • Benthic diatom community assemblages • Riparian vegetation community assemblages • Riverine physical structure and in-stream habitat • Water quality • Hydrology If all or most of these indicators are measured, it may be possible to use monitoring data to develop an index of river condition
	Wetland ecosystem extent and distribution	• Extent of regionally significant wetlands

Matter for Target	Indicator Heading	Recommended Indicators
	Wetland ecosystem condition (Indicator Status: For Advice)	• Condition of regionally significant wetlands based on: o Colour (Indicator Status: For Advice) o Dissolved oxygen and temperature (Indicator Status: For Advice) o Extent of inundation (Indicator Status: For Advice) o Macroinvertebrate diversity and community composition (Indicator Status: For Advice) o Macroinvertebrate index (Indicator Status: For Advice) o Macroinvertebrate indicator species (Indicator Status: For Advice) o Nutrients (Phosphorus and Nitrogen) (Indicator Status: For Advice) o Transparency (Indicator Status: For Advice) o Vegetation (Indicator Status: For Advice) o Phytoplankton (Indicator Status: For Advice)
Estuarine, coastal and marine habitat integrity	Estuarine, coastal and marine habitat extent and distribution	• Area of each estuarine, coastal and marine habitat type measured in hectares
	Estuarine, coastal and marine habitat condition	• Condition of habitat at significant sites of selected estuarine, coastal and marine habitats
Nutrients in Aquatic Environments	Nitrogen in aquatic environments	• Total Nitrogen + flow leaving sub-catchment or whole catchment (Indicator Status: Agreed)
	Phosphorus in aquatic environments	• Total Phosphorus + flow leaving sub-catchment or whole catchment (Indicator Status: Agreed)
Turbidity/suspended particulate matter in aquatic environments	Turbidity/suspended solids	• Turbidity OR (Indicator Status: Agreed) • Total Suspended Solids (TSS) + Flow (Indicator Status: Agreed)
Surface Water Salinity in freshwater aquatic environments	In-stream salinity	• Total dissolved solids (TDS) + Flow OR (Indicator Status: Agreed) • Electrical conductivity (EC) + Flow (Indicator Status: Agreed)

Matter for Target	Indicator Heading	Recommended Indicators
Significant native species and ecological communities	Selected significant native species and ecological communities extent and conservation status	For significant species that are the subject of targets in regional plans: • Range area and location of each species: area • Area, location and condition of key habitat of each species • Relative abundance of each species. For significant ecological communities that are the subject of targets in regional plans: • extent of each ecological community: estimated area (in hectares) • condition of each ecological community.
Ecologically significant invasive species	Selected ecologically significant vertebrate invasive species extent and impact	• Reduction in impact of regionally significant invasive vertebrate pests (excluding fish) (Indicator Status: For Advice)
	Selected ecologically significant invasive vegetation species extent and impact	• The areal extent and density of weeds under selected regulatory control that are being addressed by regional bodies or community projects

Source: Australian Government Natural Resources Management website
http://nrm.gov.au/monitoring/indicators/index.html#list

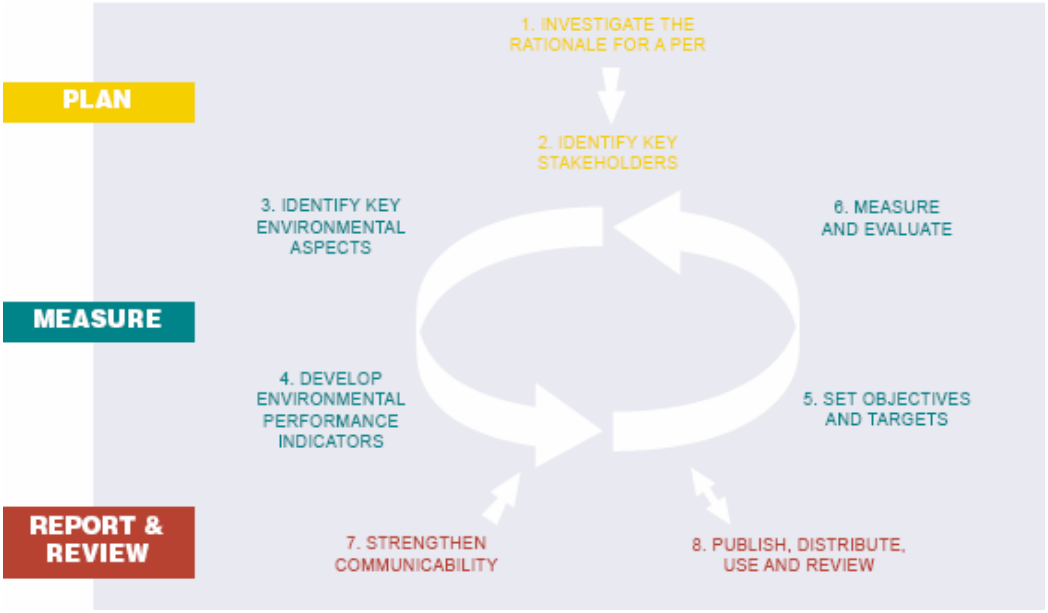
Attachment 3

Best Practice in NRM Resource Condition Reporting

Best Practise for NRM Resource Management Reporting

Material provided in the Department of the Environment and Heritage 2000 publication 'A Framework for Public Environmental Reporting: An Australian Approach' provides a useful model for Best Practice in natural resource condition Reporting. This method adopts a broad and generic approach based on eight steps grouped under three key phases – Plan, Measure, and Report and Review. A diagrammatic representation of the approach along with flowcharts is given below.

- Figure 1. Three Phase / Eight-step process to the preparation of Public Environmental Report (PER)



Source: Department of the Environment and Heritage, 2000. A Framework for Public Environmental Reporting: An Australian Approach.
See: http://www.deh.gov.au/industry/finance/publications/framework/about.html

• Figure 2. Elaboration of the Eight-Step Process

Source: Department of the Environment and Heritage, 2000. A Framework for Public Environmental Reporting: An Australian Approach.
See: http://www.deh.gov.au/industry/finance/publications/framework/about.html

Best practice for Publishing, Distribution, Use and Review of Reports includes:

Plan

In choosing a reporting Period

Give consideration to:

- Stakeholder requirements
- Financial reporting cycle
- Monitoring periods
- Any existing mandatory reporting requirements
- Resources required

In choosing a reporting format

Give consideration to:

- Stakeholder requirements
- Various reporting formats such as incorporation within the annual report, stand-alone hard copy, CD-ROM, electronic (by e-mail), newsletters, Internet, video and multi-media. Internet is a powerful and widely accessible reporting media
- Summary report versions for wider distribution and keeping printing costs down

Publish

When publishing a PER

Give consideration to:

- How your stakeholders will receive the publication
- Deadlines given to internal and external support personnel
- Management sign-off
- Number of copies
- Verification schedule (where the report is verified)
- Keeping operational personnel involved throughout the publishing process

Distribute

In distributing and using your PER

Give consideration to:

- How stakeholders will receive the publication
- Making reference to the PER in other reports by the organisation
- Releasing the report internally
- Ensure that staff who interact with external stakeholders are aware of the PER
- Making stakeholders aware (eg. through displays, presentations, web-site)
- Actively use the report in public relations, strengthening community relations, raising internal awareness, creating market opportunities, meeting mandatory and signatory reporting requirements and submitting for external awards

Review

Obtaining feedback and reviewing

Give consideration to:

- Cost-free and easy feedback possibilities
- Nominating appropriate contacts and contact details within the PER

- Evaluating, responding to and using feedback received
- Changing environmental performance indicators (OPIs, MPIs, ECIs), objectives, targets, and stakeholder needs for next reporting cycle

Attachment 4

South East Queensland Waterways Ecosystem Health Report Card 2002

South Eastern Queensland Ecosystem Health Report Card 2002

Ecosystem health
MONITORING PROGRAM

HEALTHY WATERWAYS

Ecosystem Health Report Card 2002
South East Queensland Waterways

SEQ supports one of the fastest growing populations in Australia and increasing human pressures are impacting on the health of our waterways. Since 1994, there has been increasing commitment by Federal and State Government agencies, local councils, industry and the community to improve and manage the waterways of SEQ. Significant activities to improve ecosystem health, such as sewage treatment plant upgrades, improved stormwater control devices, riparian protection and rehabilitation activities, are being undertaken by local councils, State agencies, industry and community.

The Ecosystem Health Monitoring Program (EHMP) aims to evaluate the effectiveness of these management actions in improving and protecting the health of SEQ waterways and Moreton Bay. Ecosystem health monitoring assesses the response of the ecosystem to natural and human inputs using a range of biological, physical and chemical indicators. These indicators reflect the environmental values that have been derived by the community.

This year's report card provides ecosystem health grades for the freshwater, estuarine and marine regions of our waterways. In addition, the report card highlights some of the management actions undertaken to help restore waterway health.

Freshwater

This is the second ecosystem health report produced for SEQ freshwater rivers and streams. The grades were largely derived using physical, chemical and biological indicators of ecosystem health (see back page) at more than 70 sites throughout the region. The scores for most freshwater catchments are the same as last year's. However, minor improvements, that may be due to year-to-year variability, were observed in the Logan-Albert, upper Brisbane and lower Brisbane waterways.

A healthy South East Queensland freshwater creek

Estuarine/Marine

Ecosystem health in Moreton Bay improved during 2001-02. This improvement is due to factors such as reduced sewage nitrogen plumes, less *Lyngbya majuscula* (toxic cyanobacterium) and the absence of a flood event. Because of the improved health of Moreton Bay, there are now no regions within the bay failing ecosystem health (i.e. no 'F' within the bay). Ecosystem health for most river-estuaries remained unchanged since the 2001 report card.

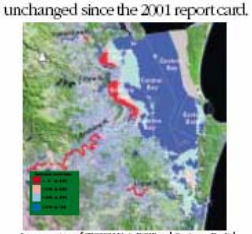
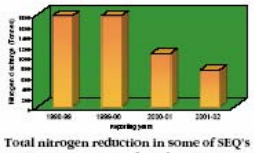


Image courtesy of SEQ2001 Unit, DGIP and Geomage Pty ltd TM Copyright AUSLIG/ACRES, Spot Copyright CNES 1998

Ecosystem health of Moreton Bay and estuaries

Management Responses

Numerous actions and initiatives have commenced to maintain or improve the health of our waterways. The 2001-02 year saw substantial reductions in nitrogen loads from some of our wastewater treatment plants. This is the result of substantial investment by Local and State Governments in wastewater treatment plant upgrades. Some of these upgrade works are still underway and a number of additional upgrades are expected to occur in the near future.

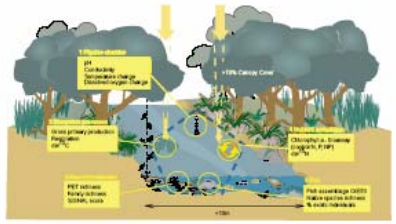


Total nitrogen reduction in some of SEQ's wastewater treatment plants (Luggage Point, Redcliffe, Ipswich, and Gold Coast)

EHMP Partners

Assessing Ecosystem Health

Freshwater



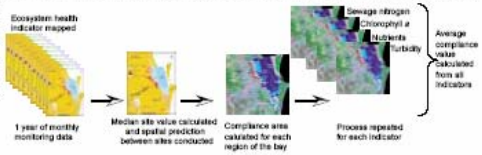
The indicators recommended for assessing the ecosystem health of freshwaters in SEQ fall into five categories. Each category is equally important and reflects different attributes of ecosystem health (see conceptual model). Within each category, there are two or three indices (or scores) that can be used for reporting. A site is considered to be in very good health when all five categories reveal scores indicative of a healthy ecosystem.

EHMP Monitoring Regions: freshwater, river estuary and marine

Estuarine/Marine

How grades are generated

Ecosystem health grades are primarily based on the area of the waterway that meets the management objectives; these areas are refered to as '**compliance zones**'. Compliance zones are determined by mapping the annual median value for each health indicator (e.g. turbidity). The spatial extent for which the indicator is below the management objective is calcualted as a proportion of the whole area. The results from each indicator are averaged to create an integrated ecosystem health measure, which is then converted into a report card grade (A to F).



Moreton Bay Report Card Regions

The seven regions of Moreton Bay are:

1. Deception Bay
2. Central Bay
3. Eastern Bay
4. Bramble Bay
5. Eastern Banks
6. Waterloo Bay
7. Southern Bay

These regions are differentiated by water depth and residence time (rate of water exchange).

Indicators used

Ecosystem health indicators include:

- Turbidity
- Chlorophyll *a* content
- Nutrient concentrations
- Sewage nitrogen distribution
- Dissolved oxygen
- *Lyngbya* cover (toxic cyanobacterium)
- Seagrass distribution and depth
- Coral cover
- Nutrient processing

www.healthywaterways.org

HEALTHY WATERWAYS
Because we're all in the same boat

For further information please contact:
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Newsletter compiled by: Ben Longstaff, Mick Smith and Badin Gibbes.
Layout by: Lynda Curtis

Freshwater report Card 2002

Noosa — A-
- Most rivers in very good condition
- Some major tributaries in fair condition due to increased sedimentation
- Excellent riparian vegetation in National Park
- 2001 grade: A-

Maroochy - Mooloolah — C+
- Most rivers in fair condition
- Excessive algal production in small streams cleared of vegetation
- Water weeds dominant in some sub-catchments
- 2001 grade: C+

Stanley - Kilcoy — B-
- Upland streams in excellent condition, lowland rivers in fair condition
- Major dams affect fish communities
- Sedimentation causes habitat loss in some systems
- 2001 grade: B-

Caboolture - Pumicestone — C
- Most streams in fair condition
- Excess sediment in some small coastal sub-catchments due to clearing
- Good riparian vegetation on upland streams, fair on lowland reaches
- 2001 grade: C

Upper Brisbane — D+
- Lowland streams in fair to poor condition
- Some smaller upland streams in good condition
- Loss of riparian vegetation has led to excessive algal growth
- 2001 grade: D

Pine — C
- Most streams in fair to good condition
- Fish communities in some streams dominated by introduced species
- High algal productivity in some streams
- 2001 grade: C

Mid Brisbane — C
- River in fair to poor condition
- Some changes to fish community
- Altered flow regime reduces opportunity for fish recruitment
- 2001 grade: C

Lower Brisbane (tributaries) — D
- Most creeks in fair to poor condition
- Fish communities dominated by introduced species
- Creeks often choked with introduced weeds
- 2001 grade: D-

Lockyer — F
- Major streams in very poor condition, some upland streams good
- Stream flow reduced by water extraction, particularly during dry years
- Channels lack suitable riparian vegetation and often choked with weeds
- 2001 grade: F

Logan - Albert — D+
- Rivers in fair to poor condition
- Some upland streams in very good condition
- Introduced fish species prevalent, especially carp
- 2001 grade: D

Bremer — F
- Major streams in very poor condition
- Stream flow reduced by water extraction, particularly during dry years
- Channel erosion in some areas
- 2001 grade: F

Gold Coast — B-
- River and stream condition varies from very good to poor
- Waterweeds choke channels in some sub-catchments
- Very high algal growth in small streams cleared of vegetation
- 2001 grade: B-

Catchments of SEQ

Ecosystem health
MONITORING PROGRAM

River Estuary Report Card 2002

Noosa River *A-
- Extensive seagrass meadows
- Low nutrient and sediment loads
- Very low sewage nitrogen signal
- 2001 grade: A-

Maroochy River *C
- Remnant seagrass meadows
- Poor biological nutrient processing
- Sewage nitrogen signal in middle reaches
- 2001 grade: C

Mooloolah River *B
- Extensive mangrove communities in mid/upper reaches
- No seagrass meadows
- Channel and river bank modifications in lower reaches
- 2001 grade: B-

Pumicestone Passage *A-
- Extensive seagrass, mangrove and saltmarsh areas
- Generally good water quality
- No sewage nitrogen signal
- 2001 grade: B

Caboolture River C
- High level of biological nutrient processing
- Elevated phytoplankton & total nitrogen
- High sewage nitrogen signal
- 2001 grade: C

Pine Rivers D+
- Some biological processing of nutrient
- Small increase in phytoplankton biomass
- Moderate sewage nitrogen signal
- 2001 grade: D+

Brisbane River D-
- High nutrient and sediment loads
- Biological processing of nutrients during winter
- Highest sewage nitrogen signal in the region
- 2001 grade: D-

Bremer River F
- Highest nutrient and sediment loads in region
- Elevated phytoplankton & low dissolved oxygen
- High sewage nitrogen signal
- 2001 grade: F

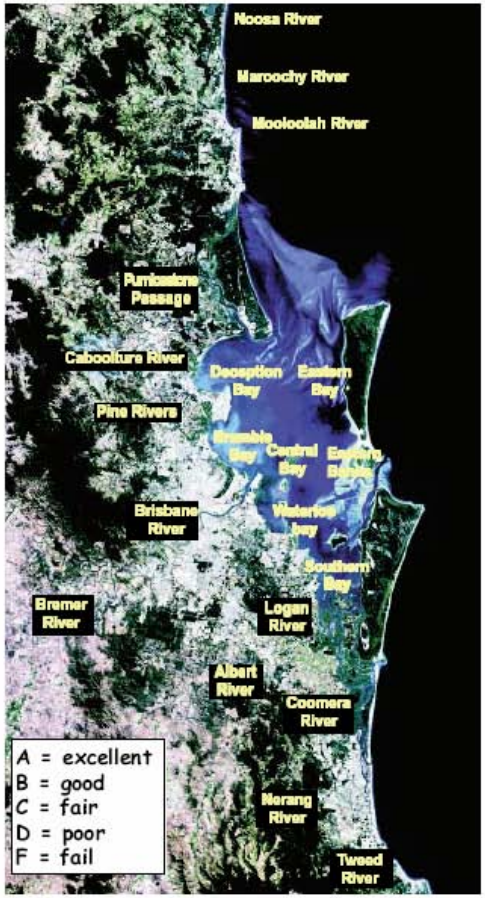
Logan River D-
- High nutrient and sediment loads
- Biological processing of nutrients during winter
- High sewage nitrogen signal
- 2001 grade: D

Albert River · 2001 grade: D #D

Coomera River · 2001grade: B *B

Nerang River · 2001grade: B #B

Ecosystem health MONITORING PROGRAM



* Grades based on limited data set (e.g. 9 months data in northern region)
\# Insufficient ecosystem health data, results based on water quality only

Moreton Bay Report Card 2002

Overall Rating B
- The health of Moreton Bay improved
- No flood event
- Reduced sewage nitrogen plume
- 2001 grade: C

Deception Bay C-
- Evidence of seagrass in southern bay
- *Lyngbya* blooms present in northern bay
- Poor water quality in southern bay
- 2001 grade: D (southern) D- (northern)

Bramble Bay D
- Highest nutrient and phytoplankton concentrations in Moreton Bay
- No seagrass recovery
- Sewage nitrogen plume decreased
- 2001 grade: F

Central Bay A-
- Relatively good water quality
- Corals present but have low coverage
- No sewage nitrogen signal
- 2001 grade: B

Eastern Banks B
- *Lyngbya* bloom present but less extensive than 2000-01
- Dense coral at Myora Springs
- 2001 grade: C

Eastern Bay A-
- Extensive seagrass beds
- Diverse & dense corals north of Peel Island
- Localised *Lyngbya* bloom south of Peel Island
- 2001 grade: A-

Waterloo Bay B-
- No sewage nitrogen signal
- Corals present but have low coverage
- Extensive but shallow seagrass meadows
- 2001 grade: B-

Southern Bay B-
- High phytoplankton biomass
- Lyngbya bloom near Victoria Point
- No sewage signal from Logan River
- 2001 grade: C-

#A- South Broadwater

Management Responses 2002

Actions to improve our waterways

In response to the challenges facing our waterways, cooperative actions involving all levels of government, the community and industry are being implemented to halt the current decline of our waterways and restore their ecological health. Many of these are outlined in the *South East Queensland Regional Water Quality Management Strategy* which was released in September 2001.

The following provides a summary of some of the work undertaken by Local and State Government, the community and industry to achieve the Healthy Waterways Vision for SouthEast Queensland's waterways and Moreton Bay by 2020).

The Healthy Waterways Vision

By 2020, our waterways and catchments will be healthy ecosystems supporting the livelihoods of people in South East Queensland, and will be managed through collaboration between community, government and industry.

Science and Research

The Moreton Bay Waterways and Catchments Partnership Science Program continues to provide a sound scientific basis for actions to address the problems facing our waterways and achieve the Healthy Waterways Vision.

In 2002-03 State and Local Government and industry stakeholders have invested in excess of $3.7 million to continue research into the causes of deterioration in ecosystem health in SouthEast Queensland. This builds upon the $15 million dollars that has been spent by Local, State and Commonwealth Governments on research in this area since 1996.

Scientists sampling our freshwater catchments as part of the Stage 3 Science Program. Source: Centre for Catchment and In-Stream Research

The findings of the science and research program are contained in the *1998 Moreton Bay Study* and *Crew Member's Guide*; the *2001 Discover the Waterways Guide* and the South East Queensland *Healthy Catchments Healthy Waterways* science report (soon to be released).

Catchment Planning and Management

Catchment and waterways plans provide the strategies, actions and milestones for the journey towards the Healthy Waterways Vision. These Management plans assist in setting priorities for catchment and waterways protection or rehabilitation works. Environmental values and water quality objectives for local catchment areas are contained in these plans and provide the long-term targets that we are working towards.

Integrated Catchment Management

Local Governments and Catchment Associations (networks of community, industry, Local and State Government stakeholders) are leading the way in the development of catchment and waterways management plans in South East Queensland.

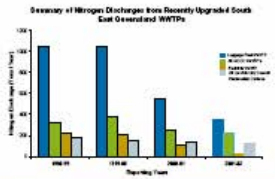
Across the region 13 major catchment areas have been defined . To date Catchment Associations, Local Government and State Government have developed catchment or waterways management plans for seven of these catchment areas. Two of these plans have been reviewed and updated in the last 12 months. The development of management plans for the remaining six catchment areas has commenced, with plans to be developed and implemented by 2010.

In excess of $3.3 million has been allocated by community groups, industry organisations and Commonwealth, State and Local Governments for the development of catchment or waterway management plans in South East Queensland. Within some of the 13 major catchments, the development and implementation of local scale (sub-catchment specific) plans has already commenced. A number of regional plans and/or studies have also been completed.

Sewage Management

Recent Wastewater Treatment Plant Upgrades

Nitrogen has been identified as a limiting nutrient in tidal and some fresh waterways. During dry times the major source of nitrogen is treated sewage effluent discharges which, for example, contribute 90% of point source nitrogen loads to Moreton Bay. Local Governments in South East Queensland have commenced a major program of wastewater treatment plant upgrades which aim to reduce the amount of nitrogen entering our waterways from these treatment plants. Over $300 million has been allocated by Local Government and State Government to these plant upgrades in recent years.



Wastewater treatment plant upgrades across the region have reduced the total nitrogen discharge to our waterways by more than 1100 tonnes per year. This is equivalent to more than 120 truck loads per year. Nitrogen load reductions of 35-90% have been achieved from these plants. Many of these upgrades have also resulted in substantial reductions in phosphorous loads.

Water Recycling

The appropriate recycling of treated effluent is a cost-effective way of significantly reducing nitrogen (and other contaminant) loads to the waterways. Many Local Governments in South East Queensland are investing in water recycling schemes to reduce treated effluent flows to our waterways. This is consistent with the Queensland Water Recycling Strategy which was released in December 2001.

Advanced Water Recycling Demonstration Plant - Part of the Queensland Water Recycling Strategy Initiatives

Through these water recycling schemes Local Governement prevent more than 12,600 ML of treated effluent from directly entering the waterways of South-East Queensland. This equates to more than 6700 Olympic sized swimming pools per year. Many of the Local Governments in the western areas of our catchments have achieved 100% recycling of effluent from their wastewater treatment plants. These recycling schemes have appropriate management plans in place as determined through licencing procedures under the *Environmental Protection Act 1994*. Many additional water recycling initiatives are planned for the future.

Protecting and Restoring Riparian Areas

Intact riparian zones are vital in maintaining or improving water quality and ecosystem health, particularly in headwater streams. Recently completed science has indicated that one of the most effective actions for improving water quality is to protect and rehabilitate riparian areas, particularly in headwater streams, so that degradation and erosion is minimised during flood events.

Community groups and Local Government have started the process of protecting and restoring the estimated 16,000 km of streams in south-east Queensland. Thi includes projects that aim to revegetate and restore degraded riparian areas, stabilise banks and projects to remove or control environmental weeds and allow native vegetation to re-establish.

Overview of Riparian Management Projects in South East QLD

Number of sites	Area Restored (ha)	No. of Plans Installed	Length of waterways restored or protected (km)
279	390	130,000	284

More than 280 km of riparian area has been protected or managed in south-east Queensland (the majority of which was carried out between 1999 and 2002). This is equivalent to a distance greater than the return trip between Brisbane and Toowoomba.

The majority of these projects have been undertaken over the past three years by landholders, catchment groups and/or landcare groups. The groups located in the western catchments of the Bremer River, Lockyer Creek, Stanley River and Upper Brisbane Catchment are currently leading the way by restoring or protecting over 200 km of riparian area.

However, the long-term nature of these projects means that often their benefits will not be seen immediately. Community groups, individual landholders, industry organisations and Commonwealth, State and Local Governments have allocated more than $5.8 million to riparian management projects in south east Queensland since 1995. The majority of this funding was allocated between 1999 and 2002. This funding does not include the ongoing contributions that are required to maintain the riparian areas until plants are established or weed control is no longer required.

Stormwater Quality Improvement

Stormwater management has been identified as a priority action in the south-east Queensland Region. In the urban areas of our catchments Local Governments have been installing a range of stormwater quality improvement devices (SQIDs) which aim to reduce the amount of sediment and litter entering our waterways. Some initiatives, such as constructed wetlands, may also remove nutrients and other contaminants from stormwater, preventing them from entering our waterways.

Overview of SQIDs Installed in South East Queensland

Type of system	Number Installed	Estimated Sediment Capture Efficiency	Estimated Litter Capture Efficiency
End of Line SQID	153	75% (coarse sediment) 25% (fine sediemnt	60% - 90%
Stormwater Wetland	8	60%-65% (fine sediment)	-
Gully Pit Baskets	158	-	80% - 90%

Note: These figures do not include SQIDS installed by the development industry.

Local Government's have expended close to $15 million installing SQIDs across South East Queensland. This funding does not include the significant ongoing maintenance costs associated with these SQID's Erosion and sediment control programs that are being undertaken by Local Government and the building/development industry are complenting these projects. They aim to address problems at the source by preventing sediment leaving construction sites both during construction and once the words have been completed.

Local Governments, community groups and catchment groups have also been active in undertaking educationsl activities to support improvements in stormwater quality. For example children's entertainment programs, school based activities and stencilling of stormwater infrastructure.

Future Actions

The above summary provides a snapshot of some of the actions that have been taken to maintain or enhance the Report Card ratings. There are significant challenges ahead if we are to achieve the Healthy Waterways vision. Some of the actions that will need to be addressed in the immediate future include:

- An increased focus on riparian areas and stormwater management, particularly on sources of funding to assist the community and rural landholders with waterways protection or restoration projects.
- Improvements in design and form of our urban areas, such as the use of water sensitive design philosophy to better manage our use of water at different points in the water cycle.
- Raising the awareness of all members of the community about the consequences of our everyday actions and how our lifestyle choices impact on our waterways.

Whether the problems are in our urban areas, rural catchments or Moreton Bay, the answers require our collective efforts. Only through working together can we halt the decline in our waterways and catchments and restore their health - *because we're all in the same boat.*

Attachment 5

Performance Assessment Reporting System - PARS

South Australian Murray-Darling Basin 'State of the Catchment 2002' Performance Assessment Reporting System - PARS

The following provides a sample Indicator report for 2002.

HOW TO READ THE RESULTS SECTION

INDICATOR 1: Percentage of irrigated area managed consistent with each LWMP

Example only

4

Definition: The proportion of irrigators managing their enterprise consistent with Land and Water Management Plans (LWMPs).

RATING

Is based on the available data and individual rating tables in Appendix 1.

Rating: 3

INTENT

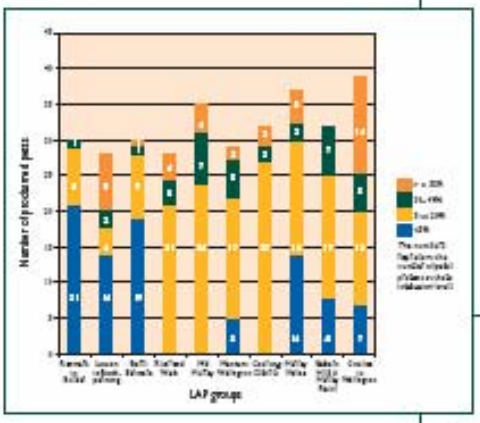
Gives an expanded definition and include some background as to what the indicator is intending to record.

Intent

Irrigated areas managed consistently with a LWMP will have greater productivity and fewer negative environmental impacts.

The criterion that has been used to measure consistency with LWMPs is average annual water balance index (AAWBI). Properties that are operating with an AAWBI of above 75% are treated as being compliant with LWMP.

The intention is to make use of data generated from Water Allocation Plans (WAPs). These plans have in-built reporting requirements for irrigators. The WAP reporting will be available from mid-2003 for all irrigation areas.



GRAPHS OF RESULTS

Enables visual presentation of the results and a display of any trends where relevant.

2002 RESULTS AND DISCUSSION

Outlines the available data. Comments on what the data implies or shows as a trend. Highlights any difficulties associated with the data or its availability.

2002 Results and Discussion

No new data is available or will be presented for this indicator at present. The data suppliers pointed out that the data supplied in 1999 for 1997 was a one off, non-repeatable exercise. It involved a significant amount of contracted work, numerous value judgments and was attempting to derive figures from a far from complete or totally accurate data set.

It should be possible to extract enough data from the Water Action Plan reporting due in July 2003 to derive a percentage irrigated area managed consistent with LWMP in time for the next rating period.

LOCATION DIAGRAM

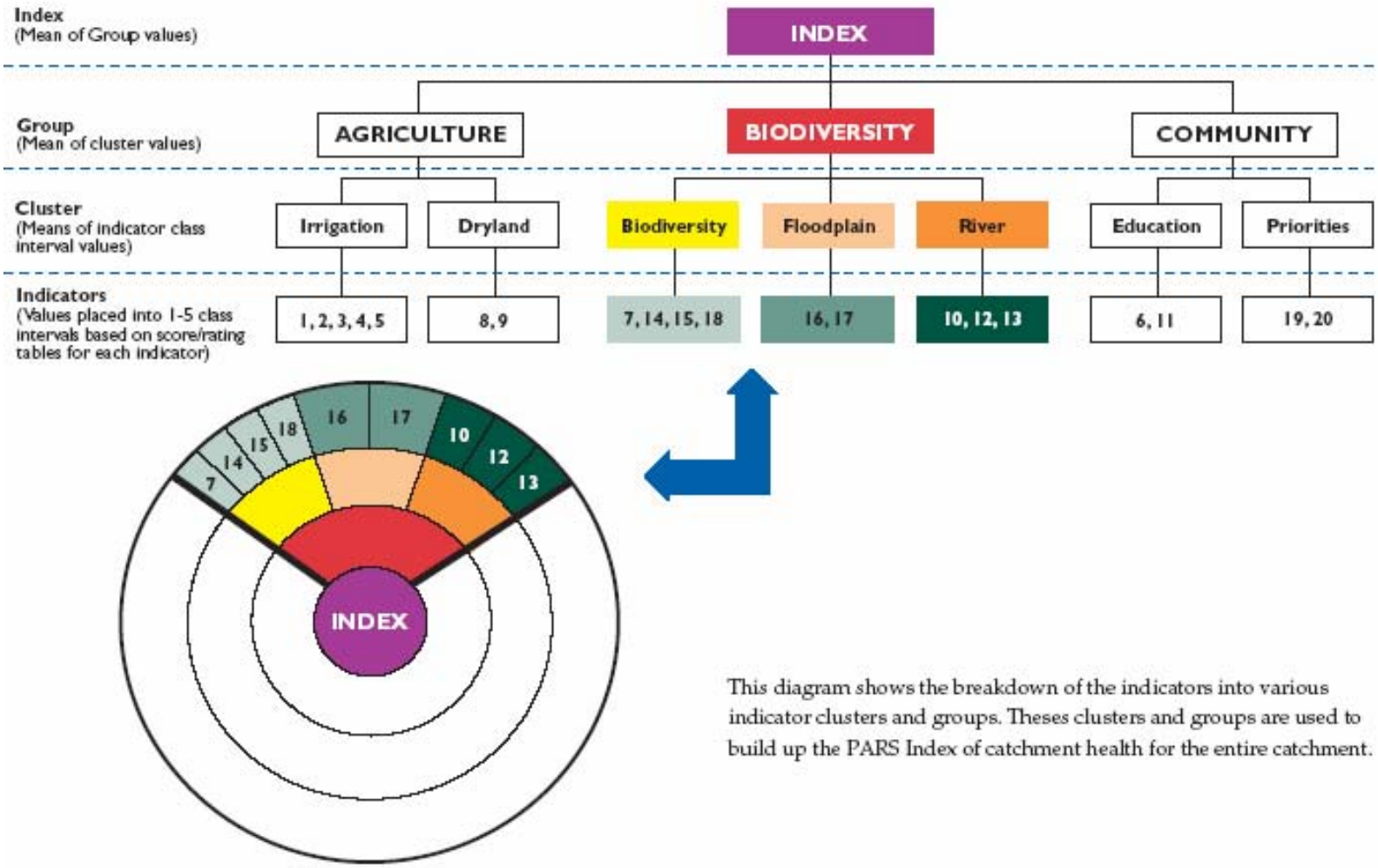
LAP groups highlighted in the table have 2002 information.

Figure 1: Location of LAP Groups

No	LAP Group
1	Renmark to the Border
2	Loxton to Bookpurnong
3	Berri – Barmera
4	Riverland West
5	Mid Murray
6	Mannum to Wellington
7	Coorong District
8	Murray Mallee
9	Eastern Hills and Murray Rains
10	Goolwa to Wellington
11	Unlea Users Region
12	Area not represented by a LAP Group

Additional information on the breakdown of indicators into various indicator clusters follows.

Relationships that build the PARS Index.



This diagram shows the breakdown of the indicators into various indicator clusters and groups. Theses clusters and groups are used to build up the PARS Index of catchment health for the entire catchment.

Ratings for each indicator leading to the 2002 PARS Index.

Group	Cluster	Indicator	Rating Score	Cluster Score	Group Score	PARS INDEX
AGRICULTURE	Irrigation	1 Percentage of irrigated area managed consistent with each LWMP	na	3	3.25	2.78
		2 Average annual water balance index	1			
		3 Net $ return per ML	na			
		4 Percentage of irrigation area with salt load <1.5	na			
		5 $ per 1 ML of irrigation water	5			
	Dryland	8 Trends in depth of groundwater salt	4	3.5		
		9 Water use efficiency of dryland farms	3			
BIODIVERSITY	Biodiversity	7 Area and location of new perennial revegetation	2	1.75	2.08	
		14 Number and location of threatened species	2			
		15 Distribution and location of key pest plants/animals	1			
		18 Percentage of remnant vegetation under heritage agreements	2			
	Floodplain	16 Floodplain bores with watertable <2m	2	1.5		
		17 Ratio permanent: intermittent floodplain	1			
	River	10 Frequency of blue green algae alerts	4	3		
		12 River salt load by reach (ratio of entering/leaving)	1			
		13 Salt intercepted	4			
COMMUNITY	Education	6 Percentage of landholders attending dryland course	2	2.5	3	
		11 Participation in water monitoring programs	3			
	Priorities	19 Do plans identify priorities for investment?	4	3.5		
		20 Percentage of total investment used for overheads	3			

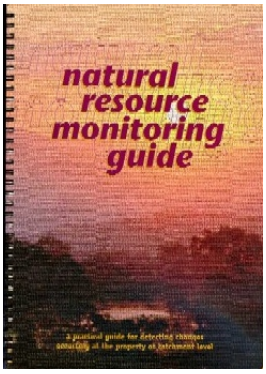
The catchment health of the SA MDB is rated as 2.78 in 2002. Source: Obtained from the internet in July, 2004.

Attachment 6

Queensland Natural Resource and Landholder's Monitoring Guides

Queensland Natural Resource and Landholder's Monitoring Guides

The following provides a brief outline on the status Landholder Monitoring in Queensland.



To help enure that Queensland's natural resources are managed sustainably, it is essential that individuals, community groups and organisations monitor the rate and extent of change in land, vegetation and water condition.

The Natural Resource Monitoring Guide (1999) was designed for basic monitoring of all natural resource issues by landholders at the individual property level, or by Landcare and catchment groups on a district basis. It can help to evaluate management practices or determine whether resource condition is improving, stable or declining.

The guide covers six natural resource issues, viz. soils, native vegetation and wildlife, pest plants and animals, pasture, rainfall and climate, and state of watercourses and water quality.

The guide was developed jointly by NR&M, Environmental Protection Agency and Queensland University of Technology with funds being contributed under the National Landcare Program. The publication is a first in providing a comprehensive guide for monitoring all natural resources issues at the local farm or sub-catchment level.

Note: It is understood that the guide will be replaced in August 2004 by the '**Landholder's Monitoring Guide**'. The Landholder's Monitoring Guide aims to provide a reference tool for landholders who have identified a need to monitor as part of their overall farm management. This need may have arisen as a result of a number of activities, e.g.

- Conducting an environmental review for their Environmental Management System (ISO 14001), Farm Management System, Australian Landcare Management System
- Enabling credible demonstration of environmental performance for industry initiatives (Best Management Practices, Codes of Practice, Duty of Care etc)
- Recording progress and achieving environmental performance for licence, permit requirements
- Demonstrating active support for regional priorities and initiatives (Regional NRM Plans etc)
- Providing supporting evidence for financial organizations or international institutions (e.g. EUREGAP) and specific market (e.g. ecolabelling) requirements.
- Participating in local or catchment projects (e.g. Envirofund project, catchment strategy priorities)
- Participation in industry programs