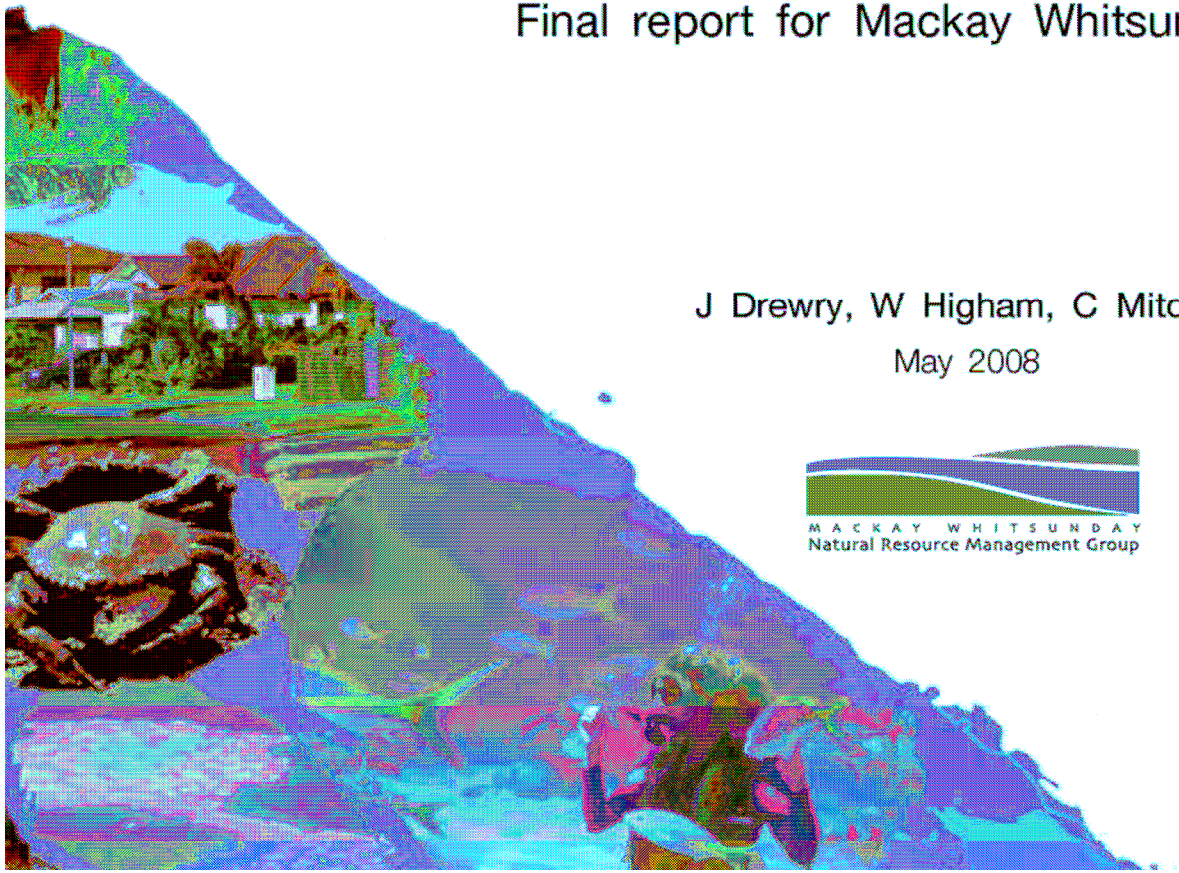
Healthy Waterways
MACKAY & WHITSUNDAY REGION

Water Quality Improvement Plan

Final report for Mackay Whitsunday region



J Drewry, W Higham, C Mitchell

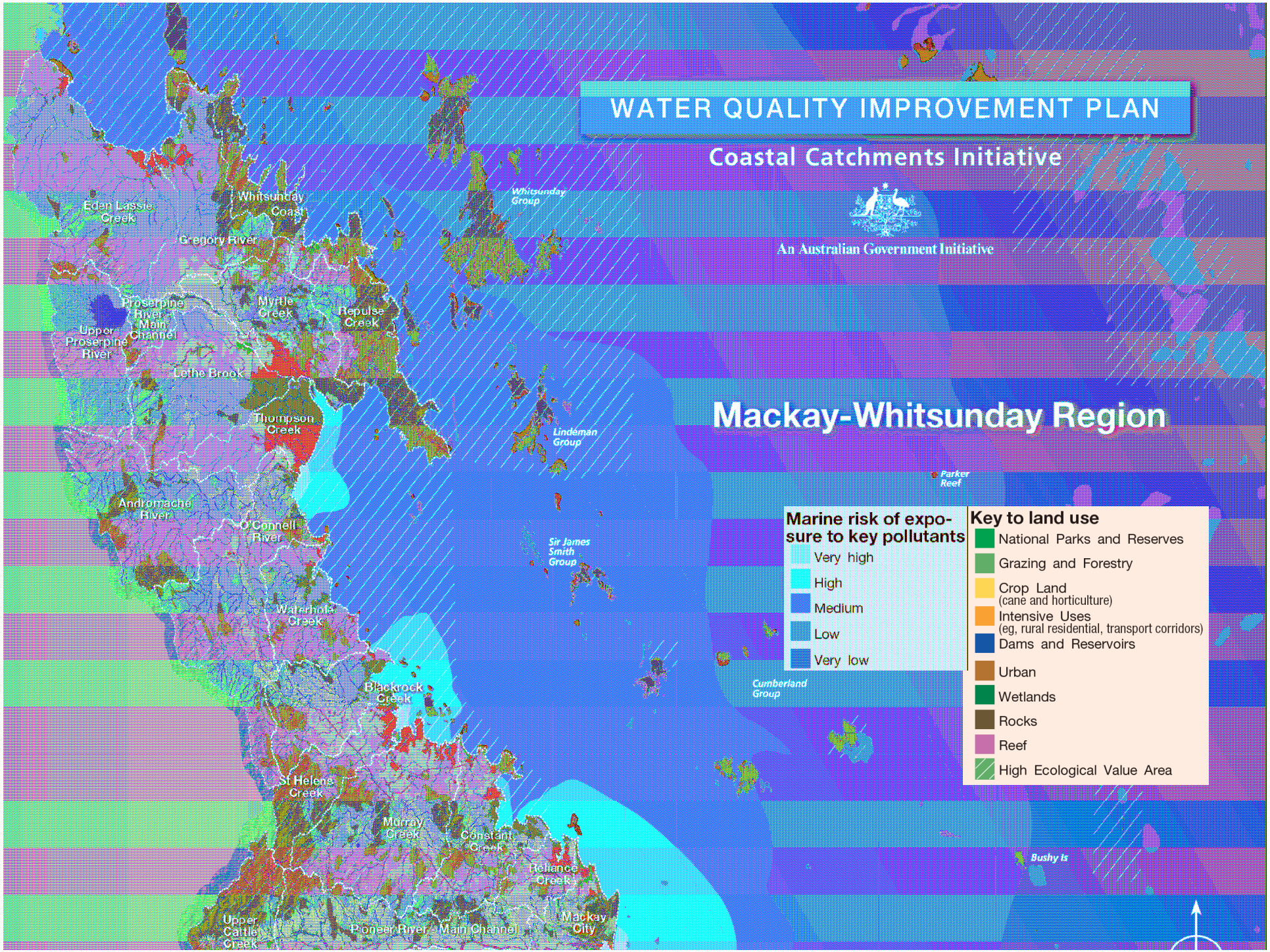
May 2008

MACKAY WHITSUNDAY
Natural Resource Management Group

Queensland Government

Australian Government

Class	Description of practice	Farm management plan	Community and industry standard	Effect on resource condition	Effect on profitability
A	Cutting-edge practices that require further validation of environmental, social and economic costs/benefits	Yes, develops and tests innovative technology	When validated is an acceptable practice for the long term (may not be universally endorsed as feasible by industry and community)	When validated, practice likely to achieve long term resource condition goals if widely adopted	When validated, improves profitability in the medium to long term. (May reduce profitability during the transition)
B	Currently promoted practices often referred to as "Best Management Practices"	Yes, and utilises common technology	Acceptable practice for the medium term	Practice likely to achieve medium term resource condition goals if widely adopted	Improves profitability in the short to medium term
C	Common practices. Often referred to as 'Code of Practice'	Basic	Acceptable practice today but may not be acceptable in medium term	Practice unlikely to achieve acceptable resource condition goals if widely adopted	Decline of profitability in the medium to long term
D	Old practices that are superseded or unacceptable by industry and community standards	None	Superseded or unacceptable practice today	Practice likely to degrade resource condition if widely adopted	Decline of profitability in the short to medium term


WATER QUALITY IMPROVEMENT PLAN
Coastal Catchments Initiative
An Australian Government Initiative
Mackay-Whitsunday Region
Eden Lassie Creek
Whitsunday Coast
Gregory River
Whitsunday Group
Proserpine River Main Channel
Upper Proserpine River
Myrtle Creek
Repulse Creek
Lethe Brook
Thompson Creek
Lindeman Group
Parker Reef
Andromache River
O'Connell River
Sir James Smith Group
Waterholes Creek
Blackrock Creek
Cumberland Group
St Helens Creek
Murray Creek
Constant Creek
Reliance Creek
Bushy Is
Upper Cattle Creek
Pioneer River Main Channel
Mackay City
Marine risk of exposure to key pollutants
Very high
High
Medium
Low
Very low
Key to land use
National Parks and Reserves
Grazing and Forestry
Crop Land (cane and horticulture)
Intensive Uses (eg, rural residential, transport corridors)
Dams and Reservoirs
Urban
Wetlands
Rocks
Reef
High Ecological Value Area

Key Pollutant	Event Load Freshwater Quality Values					Pollutant Source
	Objective 2050	Current Condition 2007	Target 2014	% reduction CC to Target	Action	
DIN Dissolved Inorganic Nitrogen Tonnes/yr	1310	2100	1550	27	L H	C I U
PN Particulate Nitrogen Tonnes/yr	1210	1770	1410	20	L H	C I U G
FRP Filterable Reactive Phosphorus Tonnes/yr	130	350	250	30	L H	C I U
PP Particulate Phosphorus Tonnes/yr	280	650	500	23	L H	C I U G

Key Pollutant	Ambient Marine Water Quality Values			Event Plume Marine Water Quality Values		
	Objective 2050	Current Condition 2007	Target 2014	Objective 2050	Current Condition 2007	Target 2014
DIN Dissolved Inorganic Nitrogen µg/L	1.5	2.4	1.7	32	51	37
PN Particulate Nitrogen µg/L	16	17.3	14.1	49	54	44
FRP Filterable Reactive Phosphorus µg/L	1.5	2.2	1.5	3	8.1	5.6
PP Particulate Phosphorus µg/L	1.9	2.3	1.9	4	8.2	6.5

Land Use	Management Practices	Key Pollutant	2000 % Adoption	2007 % Adoption	2014 % Adoption	Effort Required	Total Cost $ '000s
Cane & Horticulture	Soil	PN PP	D C B	D C B A	D C B A	L H	15000
	Nutrient	DIN FRP	D C B	D C B A	D C B A	L H	32500
	Pesticide		D C B	D C B A	D C B A	L H	32500

B Class New Urban Development	A Class New Urban Development
Description: 1. WSUD for all development 2. <10% directly connected impervious surfaces to stormwater 3. ESCP implemented during land development and construction 4. Maintenance as per ESCP 5. SBSMP implemented 6. Loads reduced by (i.e. meets the WQ targets for WQIPs etc) TN-45%, TP-60%, TSS-80% 7. Maintenance as per SBSMP	Description: 1. WSUD incorporated in all developments 2. Mimicking natural flows through capture, treatment and release of water over time 3. Effectively 0% directly connected impervious surfaces 4. Implementation of Erosion and Sediment Control Plan (ESCP) measures precedes development 5. ESCP maintenance schedule adhered to and adjusted as required 6. Site Based Stormwater Management Plan (SBSMP) meets and surpasses targets 7. SBSMP maintenance schedule adhered to 9. SBSMP incorporates adaptive management strategy and is amended as required 8. Non-compliance is infrequent and only minor
Resource condition indicators (one or more indicators at this level): (to be determined)	Resource condition indicators (all indicators at this level): (to be determined)
Planning and reporting: 1. Integration of development with USQMP and other Council processes/programs 2. Erosion and Sediment Control Plan (ESCP) prepared by accredited provider 3. Site Based Stormwater Management Plan (SBSMP) developed by accredited provider (>1 ha sites) 4. Active transition planning for ongoing maintenance of stormwater management measures 5. Voluntary reporting on non-compliance 6. Staged development to reduce risk of erosion by avoiding exposed soil during 'wet season'	Planning and reporting: 1. Effective integration of development with USQMP and other Council processes/programs 2. Site Based Stormwater Management Plan (SBSMP) prepared for all sites 3. Functional and effective transition planning for ongoing maintenance of stormwater management measures 4. Good contingency planning incorporated in ESCP 5. Reporting on achievements and non-compliance
Education: 1. Industry as a partner in education program targeting water management 2. Industry as a partner in education program targeting nutrient and pesticides 3. Industry as a partner in education program targeting soil erosion prevention	Education: 1. Industry driven engagement in water management (quality and quantity) 2. Industry driven engagement in soil management including revegetation activities 3. Industry driven engagement in nutrient and pesticide management
Infrastructure: (to be determined)	Infrastructure: (to be determined)

D Class Existing Urban Management	C Class Existing Urban Management
Description: 1. Infill development as for New Urban 2. No mitigated flows 3. >20% directly connected impervious surfaces to stormwater 4. Infill development as for New Urban	Description: 1. Infill development as for New Urban 2. 10-20% directly connected impervious surfaces to stormwater 3. Infill development as for New Urban
Resource condition indicators (to be determined):	Resource condition indicators (to be determined):
Planning and reporting: 1. Urban Stormwater Quality Management Plan (USQMP) not developed	Planning and reporting: 1. USQMP being developed
Education: 1. None	Education: 1. Some educational resources available
Infrastructure: (to be determined)	Infrastructure: (to be determined)
B Class Existing Urban Management	**A Class Existing Urban Management**
Description: 1. Infill development as for New Urban 2. WSUD for redevelopment at micro scale/property scale 3. <10% directly connected impervious surfaces to stormwater	Description: 1. Infill development as for New Urban 2. WSUD incorporated in all redevelopment 3. Mimicking natural flows through capture, treatment and release of water over time 4. Effectively 0% directly connected impervious surfaces 5. Nutrient and pesticide levels entering waterways mimic natural levels
Resource condition indicators (to be determined):	Resource condition indicators (to be determined):
Planning and reporting: 1. USQMP developed and being implemented	Planning and reporting: 1. Effective USQMP being implemented in conjunction with industry and community 2. Presence of a strategic program for retrofitting of devices (in USQMP)
Education: 1. Community total water cycle water management education program developed and operating	Education: 1. Active community engagement in total water cycle water management
Infrastructure: (to be determined)	Infrastructure: (to be determined)

ESCP: Erosion sediment control plan
SBSMP: Site based stormwater management plan in accordance with EPA guidelines
USQMP: Urban stormwater quality management plan in accordance with Council and EPA guidelines
WSUD: Water Sensitive Urban Design