



**Basins, Catchments and
Receiving Waters of the
Black Ross Water Quality
Improvement Plan Area**

Appendix E

EPA Catchment Profiles

EPA Catchment Profiles

Background

The following information was prepared by Niall Connolly (EPA) as part of the process for determining the environmental values of the waterways of the Black Ross WQIP area. Reference material used included:

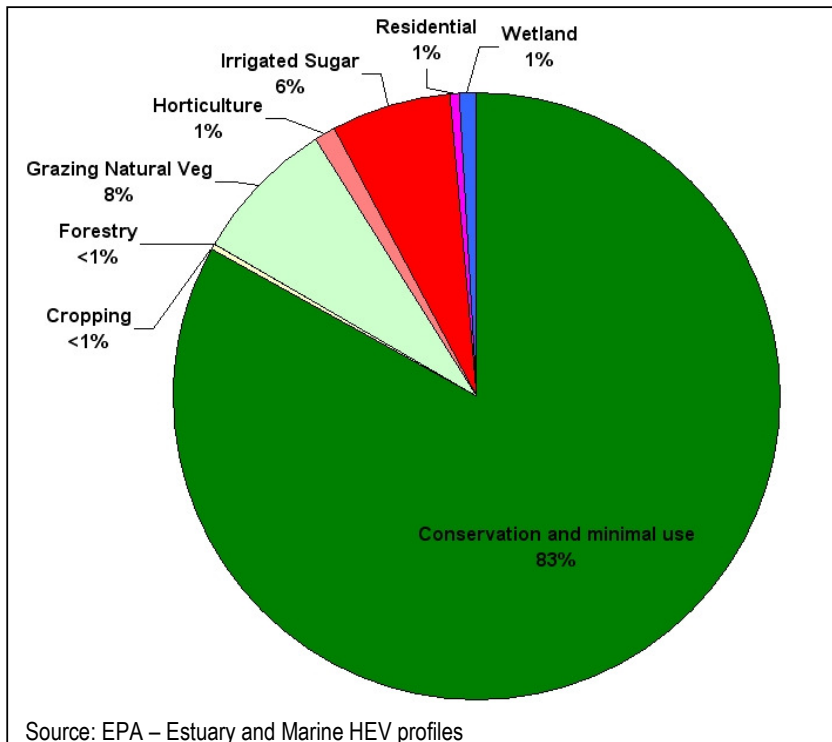
- OzEstuary 2000
- Page & Hoolihan 2002
- Maughan et al 2008;
- Bainbridge et al 2007;
- Liessman et al 2007 Vol. 1 & 2; Black Ross Event monitoring 2006/07 (for Creek to Coral CCI project)
- Lewis et al 2007;
- Moss et al (unpubl.)

Not all catchments in the Black Ross WQIP area have been profiled due to gaps in available information. Catchments profiled in Appendix F are:

Catchment	LUG	CC	OzEst	P&H	WQE	Sub basin
Crystal Creek	▲	▲	▲	▲	▲	Crystal Creek
Lorna Creek	▲	▲				Crystal Creek
Ollera Creek	▲	▲	▲	▲		Crystal Creek
Hencamp Creek	▲	▲			▲	CrystalCreek
Rollingstone Creek	▲	▲	▲	▲		Rollingstone Creek
Wild Boar Creek	▲	▲				Rollingstone Creek
Saltwater Creek	▲	▲				Rollingstone Creek
Leichhardt Creek	▲	▲	▲	▲		Rollingstone Creek
Sleeper Log Creek	▲	▲	▲	▲		Bluewater Creek
Bluewater Creek	▲	▲	▲	▲	▲	Bluewater Creek
Black River	▲	▲	▲	▲	▲	Black River
Bohle River	▲	▲	▲	▲	▲	Bohle River
Pallarenda	▲	▲				Lower Ross River
Ross Creek	▲	▲			▲	Lower Ross River
Lower Ross River	▲	▲	▲	▲	▲	Lower Ross River
Stuart Creek	▲	▲	▲	▲	▲	Stuart Creek
Alligator Creek	▲	▲	▲	▲	▲	Alligator Creek
Crocodile Creek	▲	▲	▲	▲	▲	Alligator Creek
Cape Cleveland		▲				Alligator Creek

Note: ▲ indicates information included for that catchment. LUG is land use graph (pie chart), CC is catchment characteristics, OzEst is Oz Estuary 2002 information, P&H is Page and Hoolihan 2002 and WQE is water quality exposure information.

Crystal Creek catchment – EPA initial profile information
 Crystal Creek Catchment Land Use



Crystal Creek catchment

Catchment Characteristic	Description
Average river flow	27.876 GI/Year
Flow modification	Yes
Number of fish barriers	4
Presence of EVR species or ecosystems	Not known
Presence of STP point source	No
Presence of other point source	No
Catchment cleared	14%
Estuarine vegetation cleared	1%
OzEstuary 2000	
Type	WDD
Bryce Heap	Tidal estuary
Condition	Largely unmodified
Page & Hoolihan 2002	
Naturalness Estuary	High
Naturalness Catchment	Moderate
Habitat Diversity	Low
International Significance	High
Level of protection	Low

Crystal Creek catchment - Water Quality Exposure

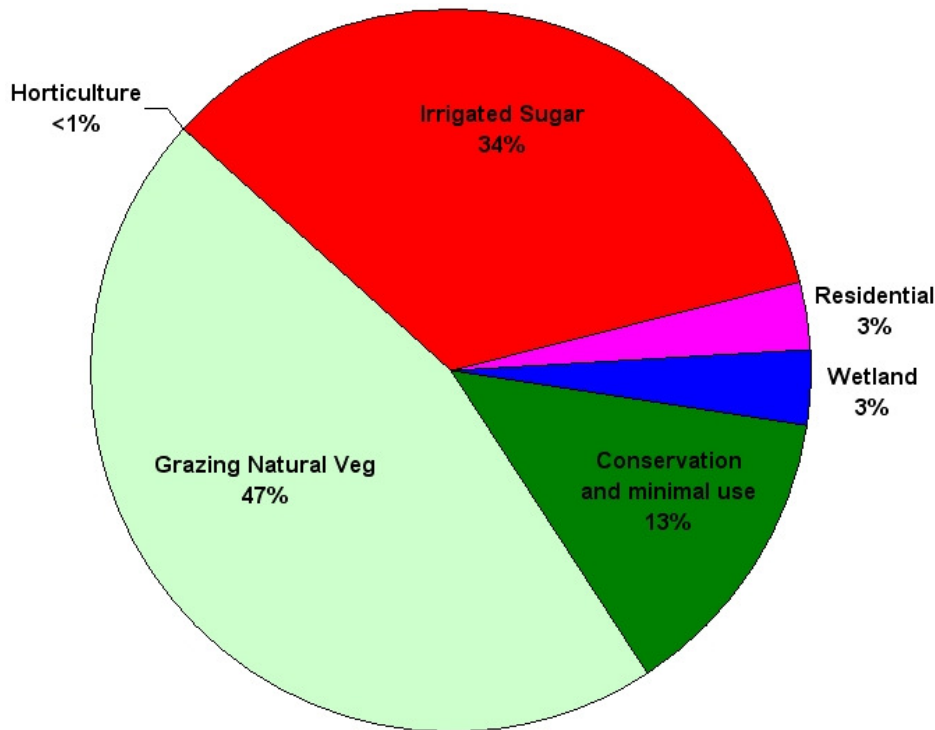
	Sediment	Nitrogen	Phosphorus	Pesticides
Contaminant Exposure Risk	Low	Low	Low	Low
Chronic or Storm	(Storm)	(Storm)	(Storm)	(Storm)

Derived from information in Maughan et al 2008; Bainbridge et al 2007; Liessman et al 2007 Vol. 1 & 2; Lewis et al 2007; Moss et al (unpubl.)

Source: EPA – Estuary and Marine HEV profiles

Lorna Creek catchment – EPA initial profile information

Lorna Creek Catchment Land Use



Source: EPA – Estuary and Marine HEV profiles

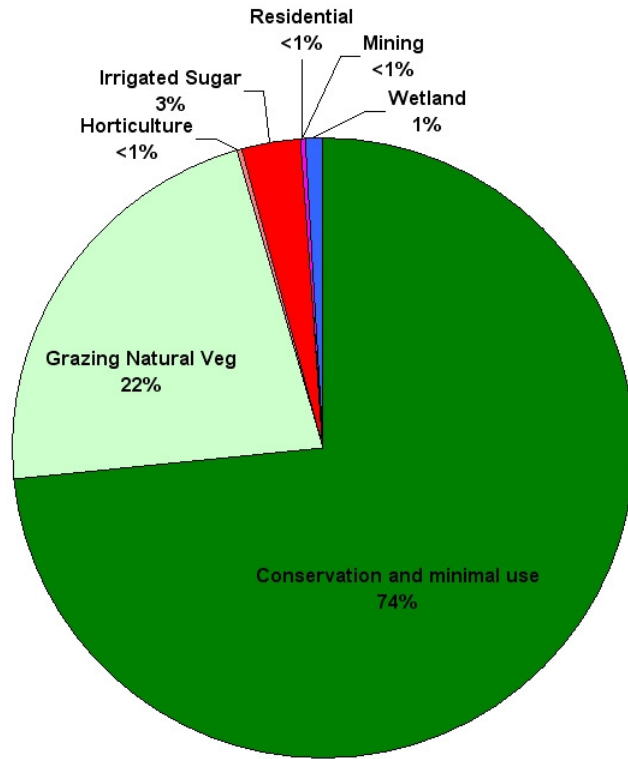
Lorna Creek catchment

Catchment Characteristic	Description
Average river flow	Not known
Flow modification	No
Number of fish barriers	0
Presence of EVR species or ecosystems	Not known
Presence of STP point source	No
Presence of other point source	No
Catchment cleared	50%
Estuarine vegetation cleared	0%

Source: EPA – Estuary and Marine HEV profiles

Ollera Creek catchment – EPA initial profile information

Ollera Creek Catchment Land Use



Source: EPA – Estuary and Marine HEV profiles

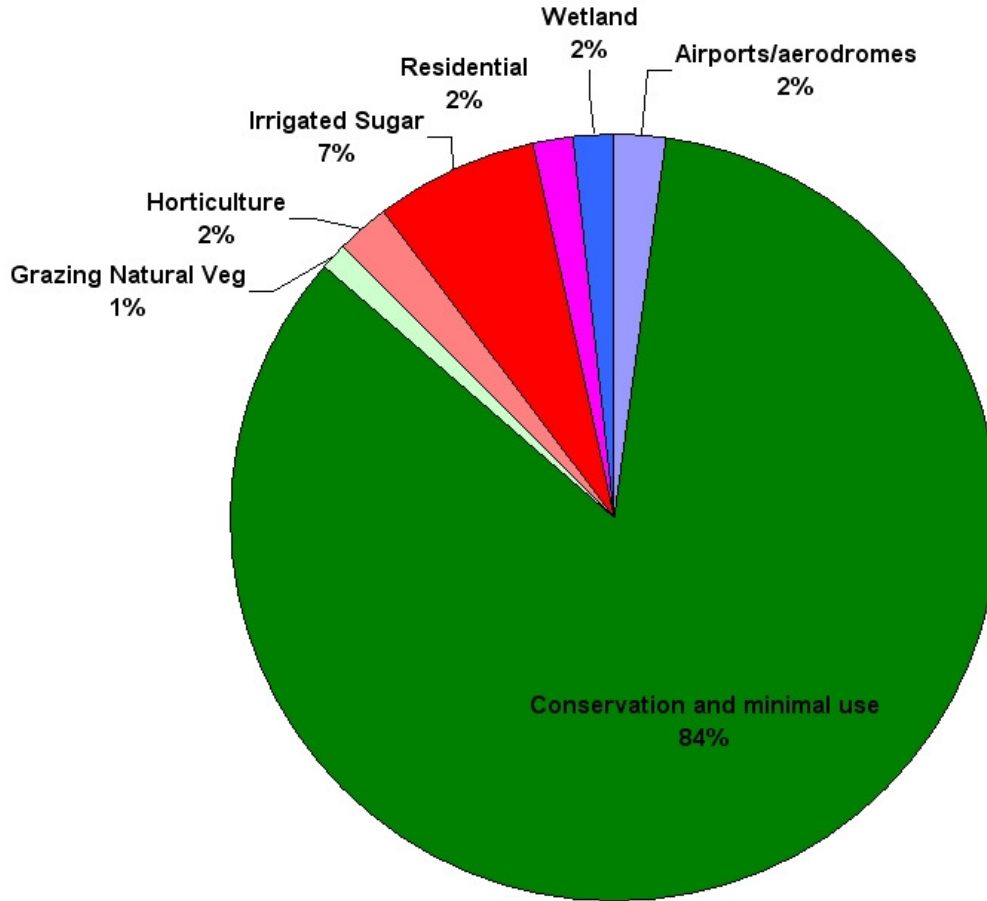
Ollera Creek catchment

Catchment Characteristic	Description
Average river flow	14.847 GI/Year
Flow modification	No
Number of fish barriers	0
Presence of EVR species or ecosystems	Not known
Presence of STP point source	No
Presence of other point source	No
Catchment cleared	11%
Estuarine vegetation cleared	0%
OzEstuary 2000	
Type	WDD
Bryce Heap	Tidal estuary
Condition	Largely unmodified
Page & Hoolihan 2002	
Naturalness Estuary	High
Naturalness Catchment	Moderate
Habitat Diversity	Moderate
International Significance	High
Level of protection	Low

Source: EPA – Estuary and Marine HEV profiles

Hencamp Creek catchment – EPA initial profile information

Hencamp Creek Catchment Land Use



Source: EPA – Estuary and Marine HEV profiles

Hencamp Creek catchment

Catchment Characteristic	Description
Average river flow	Not known
Flow modification	No
Number of fish barriers	0
Presence of EVR species or ecosystems	1
Presence of STP point source	No
Presence of other point source	No
Catchment cleared	19%
Estuarine vegetation cleared	7%

Hencamp Creek catchment - Water Quality Exposure

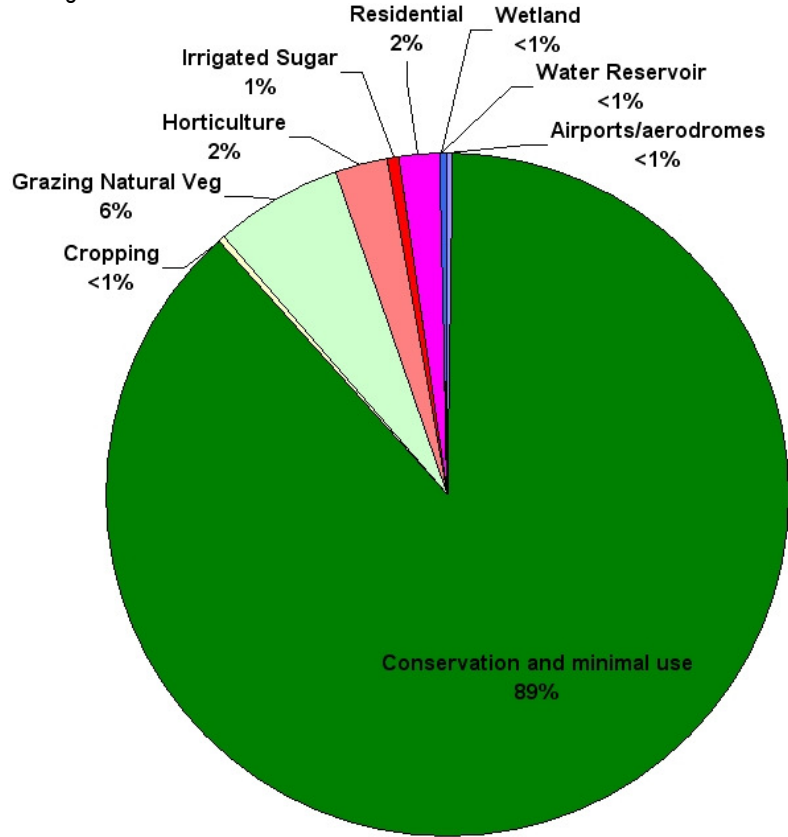
	Sediment	Nitrogen	Phosphorus	Pesticides
Contaminant Exposure Risk	V. Low	V. Low	V. Low	Low
Chronic or Storm	(Storm)	(Storm)	(Storm)	(Storm)

Derived from information in Maughan et al 2008; Bainbridge et al 2007; Liessman et al 2007 Vol. 1 & 2; Lewis et al 2007; Moss et al (unpubl.)

Source: EPA – Estuary and Marine HEV profiles

Rollingstone Creek catchment – EPA initial profile information

Rollingstone Creek Catchment Land Use



Source: EPA – Estuary and Marine HEV profiles

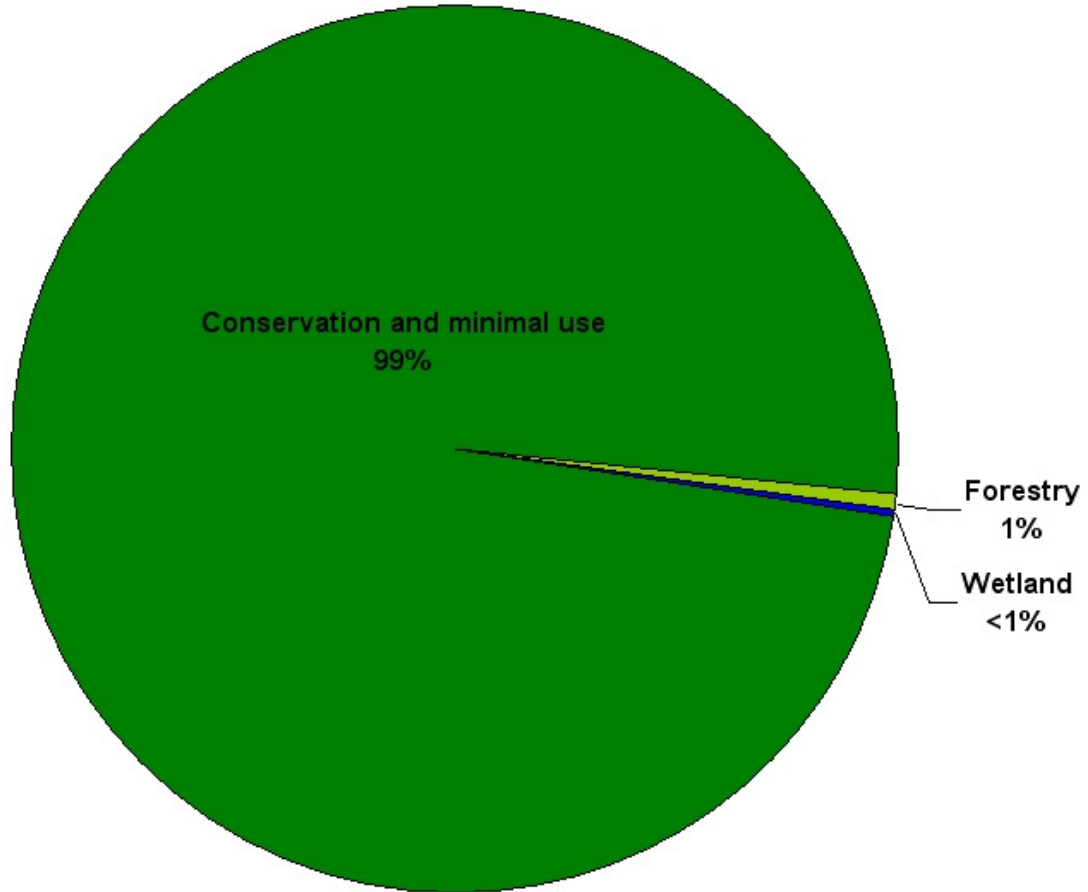
Rollingstone Creek catchment

Catchment Characteristic	Description
Average river flow	35.572 GI/Year
Flow modification	No
Number of fish barriers	1
Presence of EVR species or ecosystems	7
Presence of STP point source	No
Presence of other point source	No
Catchment cleared	10%
Estuarine vegetation cleared	0%
OzEstuary 2000	
Type	WDD
Bryce Heap	Tidal Estuary
Condition	Largely unmodified
Page & Hoolihan 2002	
Naturalness Estuary	High
Naturalness Catchment	Moderate
Habitat Diversity	Moderate
International Significance	High
Level of protection	Low

Source: EPA – Estuary and Marine HEV profiles

Wild Boar Creek catchment – EPA initial profile information

Wild Boar Creek catchment land Use



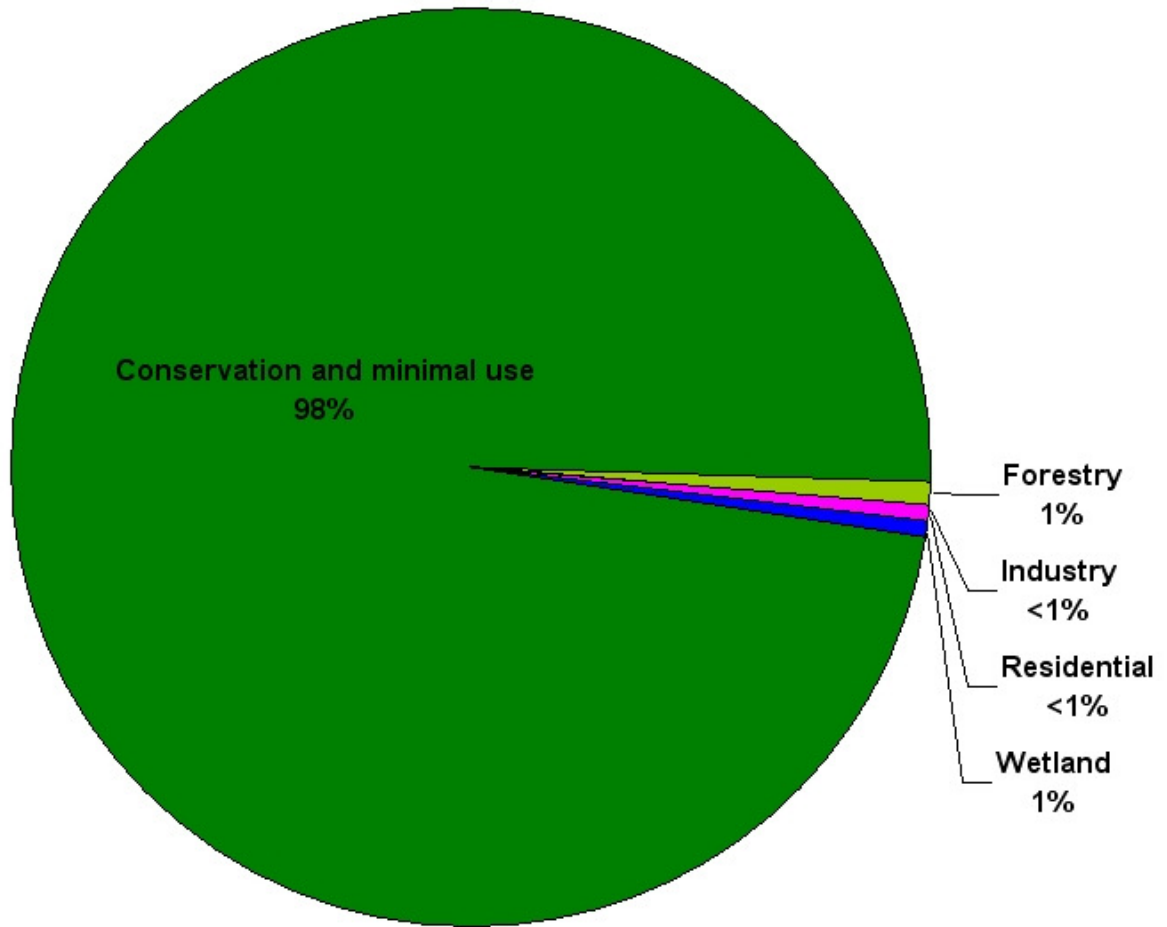
Source: EPA – Estuary and Marine HEV profiles

Wild Boar Creek catchment

Catchment Characteristic	Description
Average river flow	Not known
Flow modification	No
Number of fish barriers	0
Presence of EVR species or ecosystems	2
Presence of STP point source	No
Presence of other point source	No
Catchment cleared	3%
Estuarine vegetation cleared	0%

Source: EPA – Estuary and Marine HEV profiles

Saltwater Creek catchment – EPA initial profile information
 Saltwater Creek Catchment Land Use



Source: EPA – Estuary and Marine HEV profiles

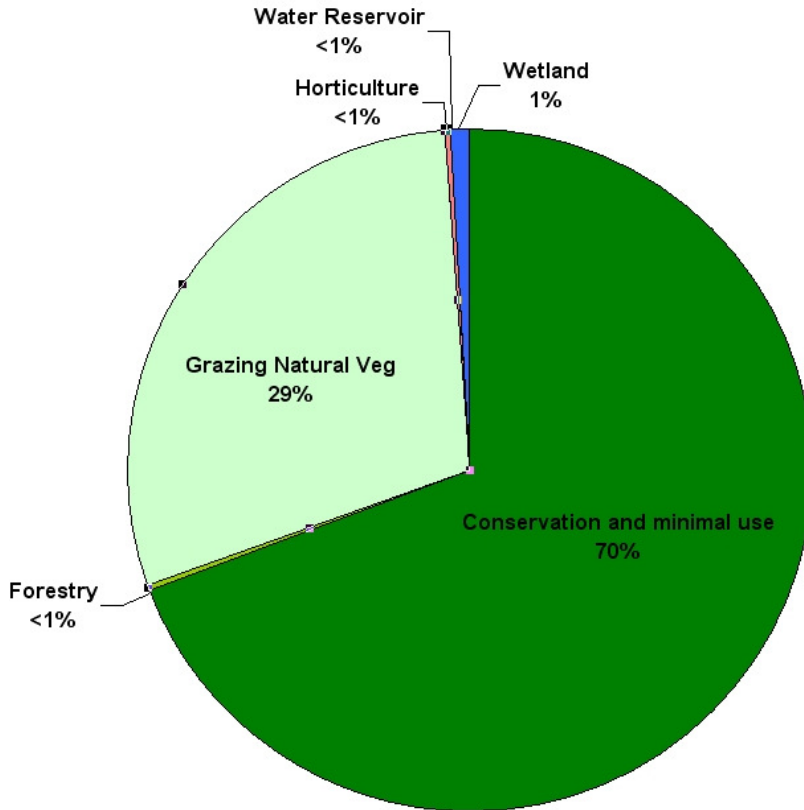
Saltwater Creek catchment

Catchment Characteristic	Description
Average river flow	Not known
Flow modification	No
Number of fish barriers	0
Presence of EVR species or ecosystems	19
Presence of STP point source	No
Presence of other point source	No
Catchment cleared	4%
Estuarine vegetation cleared	4%

Source: EPA – Estuary and Marine HEV profiles

Leichhardt Creek catchment – EPA initial profile information

Leichhardt Creek Catchment Land Use



Source: EPA – Estuary and Marine HEV profiles

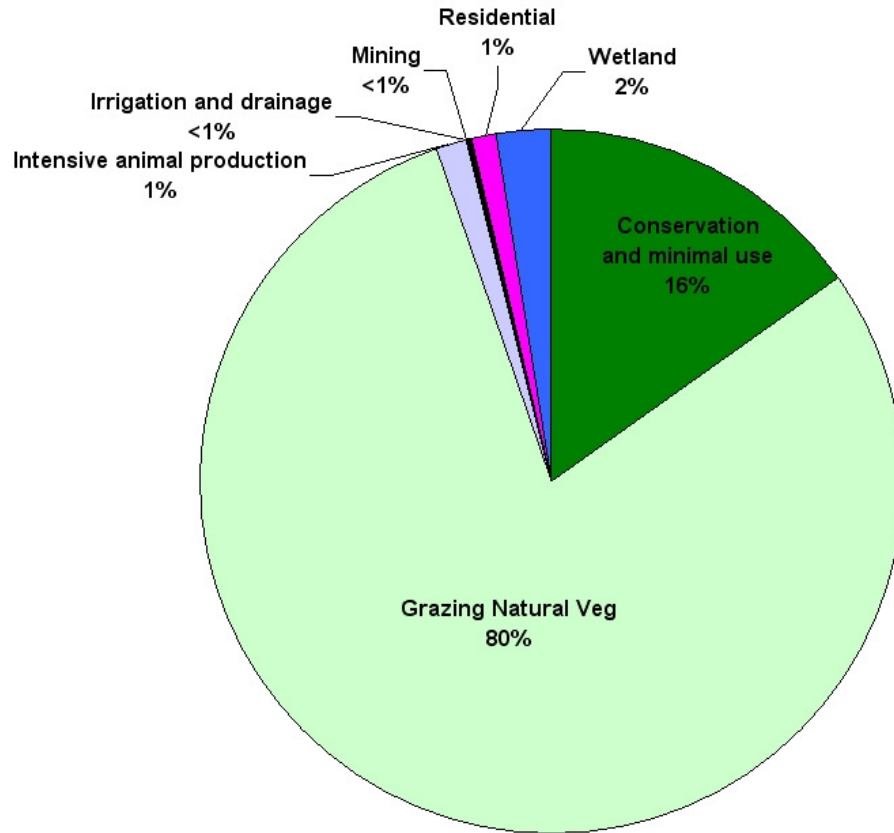
Leichhardt Creek catchment

Catchment Characteristic	Description
Average river flow	25.933 GI/Year
Flow modification	No
Number of fish barriers	2
Presence of EVR species or ecosystems	10
Presence of STP point source	No
Presence of other point source	No
Catchment cleared	9%
Estuarine vegetation cleared	0%
OzEstuary 2000	
Type	WDD
Bryce Heap	Tidal Estuary
Condition	Near Pristine
Page & Hoolihan 2002	
Naturalness Estuary	High
Naturalness Catchment	Moderate
Habitat Diversity	High
International Significance	High
Level of protection	Low

Source: EPA – Estuary and Marine HEV profiles

Sleeper Log Creek catchment – EPA initial profile information

Sleeper Log Creek Catchment Land Use



Source: EPA – Estuary and Marine HEV profiles

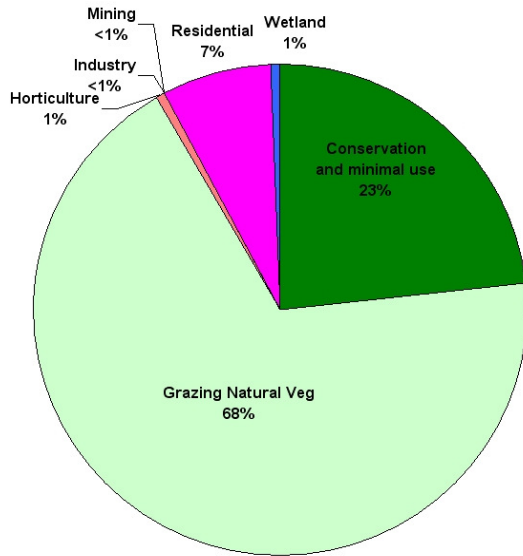
Sleeper Log Creek catchment

Catchment Characteristic	Description
Average river flow	29.473 GI/Year
Flow modification	No
Number of fish barriers	0
Presence of EVR species or ecosystems	No
Presence of STP point source	No
Presence of other point source	No
Catchment cleared	8%
Estuarine vegetation cleared	6%
OzEstuary 2000	
Type	WDD
Bryce Heap	Tidal Estuary
Condition	Largely unmodified
Page & Hoolihan 2002	
Naturalness Estuary	High
Naturalness Catchment	Moderate
Habitat Diversity	High
International Significance	High
Level of protection	Low

Source: EPA – Estuary and Marine HEV profiles

Bluewater Creek catchment – EPA initial profile information

Bluewater Creek Catchment Land Use



Source: EPA – Estuary and Marine HEV profiles

Bluewater Creek catchment

Catchment Characteristic	Description
Average river flow	72.474 GI/Year
Flow modification	No
Number of fish barriers	1
Presence of EVR species or ecosystems	No
Presence of STP point source	No
Presence of other point source	No
Catchment cleared	11%
Estuarine vegetation cleared	<1%
OzEstuary 2000	
Type	WDD
Bryce Heap	Tidal Estuary
Condition	Largely unmodified
Page & Hoolihan 2002	
Naturalness Estuary	High
Naturalness Catchment	Moderate
Habitat Diversity	Moderate
International Significance	High
Level of protection	Low

Bluewater Creek catchment - Water Quality Exposure

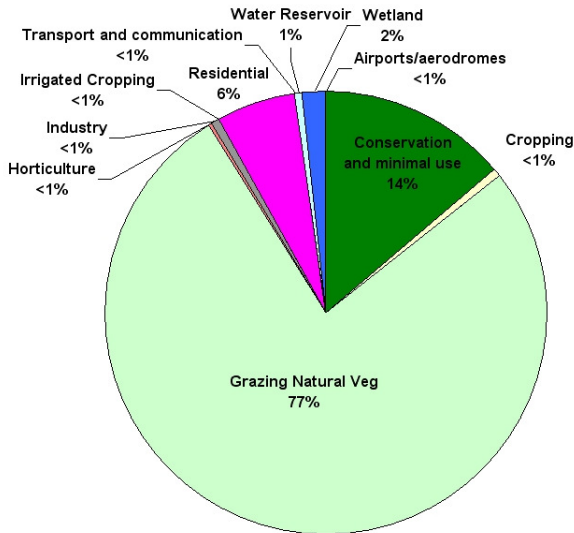
	Sediment	Nitrogen	Phosphorus	Pesticides
Contaminant Exposure Risk	Low	Low	V. Low	Low
Chronic or Storm	(Storm)	(Storm)	(Storm)	(Storm)

Derived from information in Maughan et al 2008; Bainbridge et al 2007; Liessman et al 2007 Vol. 1 & 2; Lewis et al 2007; Moss et al (unpubl.)

Source: EPA – Estuary and Marine HEV profiles

Black River catchment – EPA initial profile information

Black River Catchment Land Use



Source: EPA – Estuary and Marine HEV profiles

Black River catchment

Catchment Characteristic	Description
Average river flow	141.566 GI/Year
Flow modification	No
Number of fish barriers	0
Presence of EVR species or ecosystems	3
Presence of STP point source	Yes
Presence of other point source	Yes
Catchment cleared	23%
Estuarine vegetation cleared	1%
OzEstuary 2000	
Type	WDD
Bryce Heap	Tidal Estuary
Condition	Modified
Page & Hoolihan 2002	
Naturalness Estuary	Moderate
Naturalness Catchment	Moderate
Habitat Diversity	High
International Significance	High
Level of protection	Low

Note: Groundwater extraction is a significant factor that modify flow. Not enough information to determine impacts.

Black River catchment - Water Quality Exposure

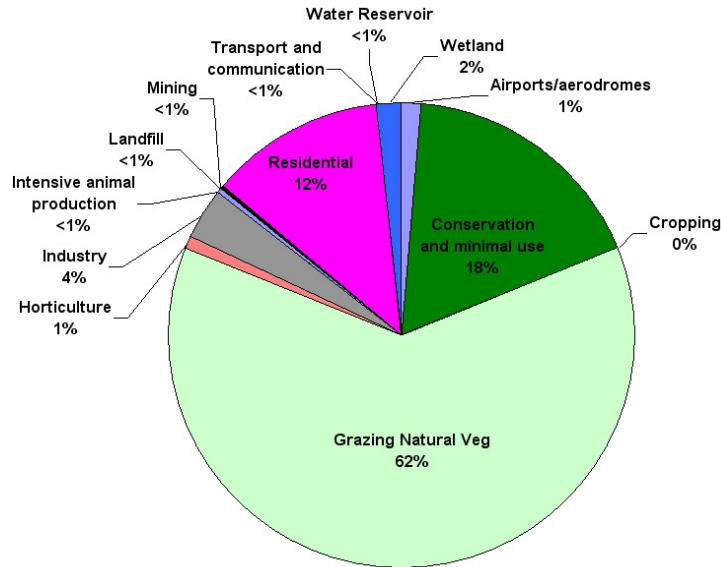
	Sediment	Nitrogen	Phosphorus	Pesticides
Contaminant Exposure Risk	High	Moderate	Moderate/High	V. Low
Chronic or Storm	(Storm)	(Storm/Chronic)	(Storm/Chronic)	(Storm)

Derived from information in Maughan et al 2008; Bainbridge et al 2007; Liessman et al 2007 Vol. 1 & 2; Lewis et al 2007; Moss et al (unpubl.)

Source: EPA – Estuary and Marine HEV profiles

Bohle River catchment – EPA initial profile information

Bohle River Catchment Land Use



Source: EPA – Estuary and Marine HEV profiles

Bohle River catchment

Catchment Characteristic	Description
Average river flow	72.114 GI/Year
Flow modification	Yes
Number of fish barriers	6
Presence of EVR species or ecosystems	416
Presence of STP point source	Yes
Presence of other point source	Yes
Catchment cleared	34%
Estuarine vegetation cleared	10%
OzEstuary 2000	
Type	TDD
Bryce Heap	Strand plain
Condition	Modified
Page & Hoolihan 2002	
Naturalness Estuary	Moderate
Naturalness Catchment	Low
Habitat Diversity	Moderate
International Significance	High
Level of protection	High

Note: STP discharge supplements stream flow

Bohle River catchment - Water Quality Exposure

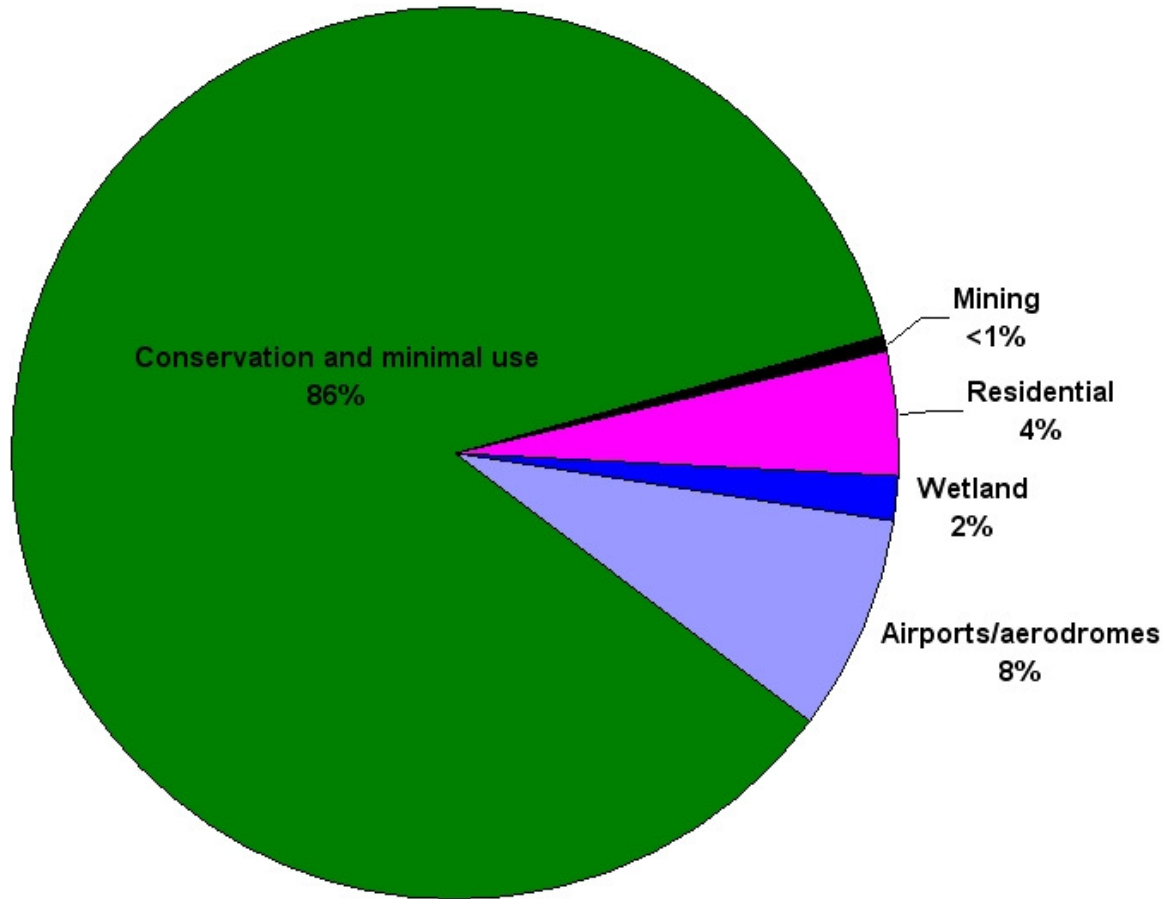
	Sediment	Nitrogen	Phosphorus	Pesticides
Contaminant Exposure Risk	High/V.High	Moderate/High	High/V.High	V. Low
Chronic or Storm	(Storm)	(Storm/Chronic)	(Storm/Chronic)	(Storm)

Derived from information in Maughan et al 2008; Bainbridge et al 2007; Liessman et al 2007 Vol. 1 & 2; Lewis et al 2007; Moss et al (unpubl.)

Source: EPA – Estuary and Marine HEV profiles

Pallarenda catchment – EPA initial profile information

Pallarenda Catchment Land Use



Source: EPA – Estuary and Marine HEV profiles

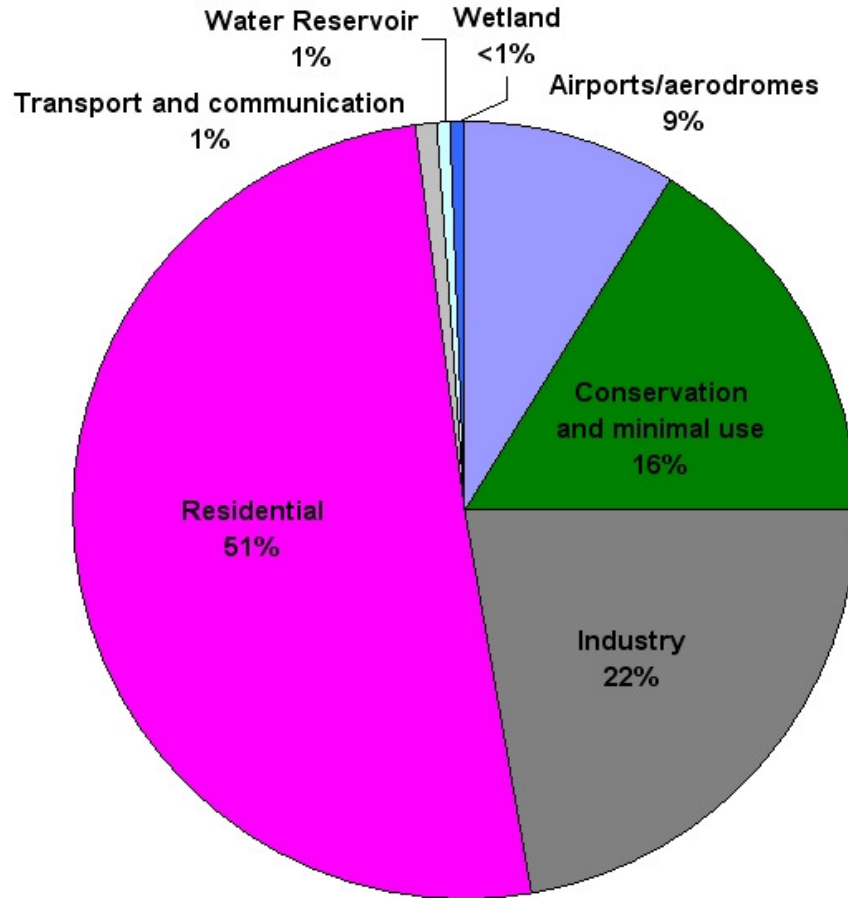
Pallarenda catchment

Catchment Characteristic	Description
Average river flow	
Flow modification	No
Number of fish barriers	0
Presence of EVR species or ecosystems	55
Presence of STP point source	No
Presence of other point source	No
Catchment cleared	30%
Estuarine vegetation cleared	35%

Source: EPA – Estuary and Marine HEV profiles

Ross Creek catchment – EPA initial profile information

Ross Creek Catchment Land Use



Source: EPA – Estuary and Marine HEV profiles

Ross Creek catchment

Catchment Characteristic	Description
Average river flow	
Flow modification	Yes (stormwater network)
Number of fish barriers	1
Presence of EVR species or ecosystems	17
Presence of STP point source	No
Presence of other point source	No (but urban stormwater)
Catchment cleared	92%
Estuarine vegetation cleared	95%

Ross Creek catchment - Water Quality Exposure

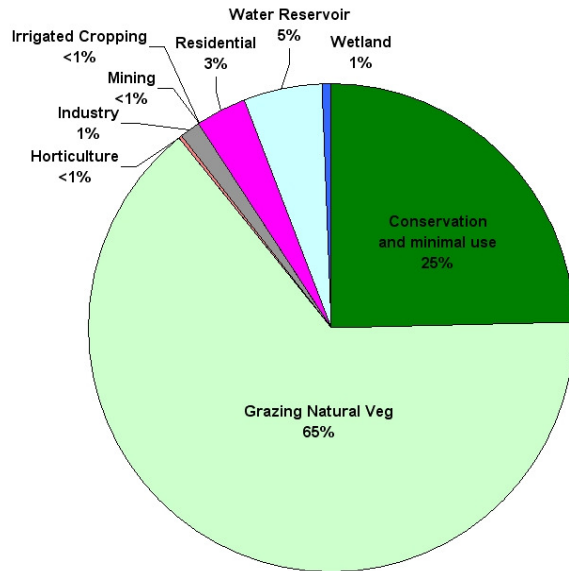
	Sediment	Nitrogen	Phosphorus	Pesticides
Contaminant Exposure Risk	Low	Moderate	V.High	Moderate
Chronic or Storm	(Storm/Chronic)	(Storm/Chronic)	(Storm/Chronic)	(Storm)

Derived from information in Maughan et al 2008; Bainbridge et al 2007; Liessman et al 2007 Vol. 1 & 2; Lewis et al 2007; Moss et al (unpubl.)

Source: EPA – Estuary and Marine HEV profiles

Lower Ross River catchment – EPA initial profile information

Lower Ross River Catchment Land Use



Source: EPA – Estuary and Marine HEV profiles

Lower Ross River catchment

Catchment Characteristic	Description
Average river flow	307.927 GI/Year
Flow modification	Yes (Ross Dam and Weirs)
Number of fish barriers	19
Presence of EVR species or ecosystems	253
Presence of STP point source	No
Presence of other point source	No (but urban stormwater)
Catchment cleared	18%
Estuarine vegetation cleared	30%
OzEstuary 2000	
Type	TFC
Bryce Heap	Tidal Flat
Condition	Modified
Page & Hoolihan 2002	
Naturalness Estuary	Low
Naturalness Catchment	Low
Habitat Diversity	Moderate
International Significance	High
Level of protection	Low

Lower Ross River catchment - Water Quality Exposure

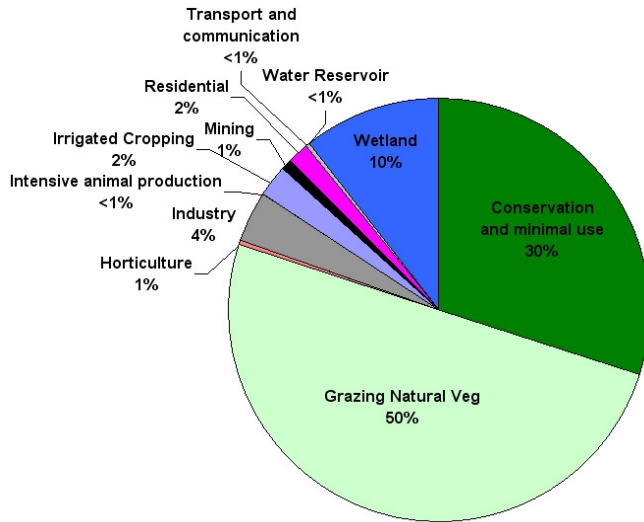
	Sediment	Nitrogen	Phosphorus	Pesticides
Contaminant Exposure Risk	Moderate/High	Low/Moderate	Low/Moderate	Low
Chronic or Storm	(Storm)	(Storm)	(Storm)	(Storm)

Derived from information in Maughan et al 2008; Bainbridge et al 2007; Liessman et al 2007 Vol. 1 & 2; Lewis et al 2007; Moss et al (unpubl.)

Source: EPA – Estuary and Marine HEV profiles

Stuart Creek catchment – EPA initial profile information

Stuart Creek Catchment Land Use



Source: EPA – Estuary and Marine HEV profiles

Stuart Creek catchment

Catchment Characteristic	Description
Average river flow	60.557 GI/Year
Flow modification	No
Number of fish barriers	1
Presence of EVR species or ecosystems	42
Presence of STP point source	Yes
Presence of other point source	No (but urban stormwater)
Catchment cleared	23%
Estuarine vegetation cleared	5%
OzEstuary 2000	
Type	TFC
Bryce Heap	Tidal Flat
Condition	Modified
Page & Hoolihan 2002	
Naturalness Estuary	Moderate
Naturalness Catchment	Low
Habitat Diversity	Moderate
International Significance	High
Level of protection	Low

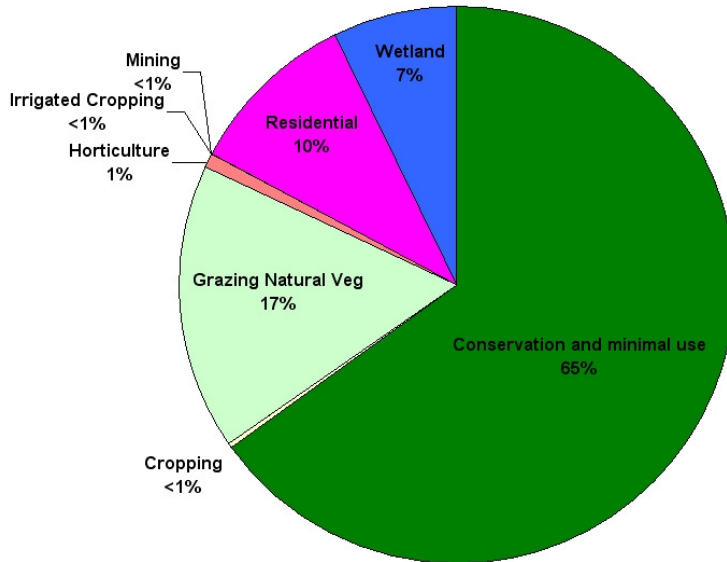
Stuart Creek catchment - Water Quality Exposure

	Sediment	Nitrogen	Phosphorus	Pesticides
Contaminant Exposure Risk	High	Moderate	High	Low
Chronic or Storm	(Storm)	(Storm)	(Storm)	(Storm)

Derived from information in Maughan et al 2008; Bainbridge et al 2007; Liessman et al 2007 Vol. 1 & 2; Lewis et al 2007; Moss et al (unpubl.)

Source: EPA – Estuary and Marine HEV profiles

Alligator Creek catchment – EPA initial profile information



Source: EPA – Estuary and Marine HEV profiles

Alligator Creek catchment

Catchment Characteristic	Description
Average river flow	
Flow modification	No
Number of fish barriers	8
Presence of EVR species or ecosystems	15
Presence of STP point source	No
Presence of other point source	No
Catchment cleared	14%
Estuarine vegetation cleared	1%
OzEstuary 2000	
Type	TDD
Bryce Heap	Strand plain
Condition	Largely unmodified
Page & Hoolihan 2002	
Naturalness Estuary	High
Naturalness Catchment	Low
Habitat Diversity	Moderate
International Significance	Very High
Level of protection	Moderate

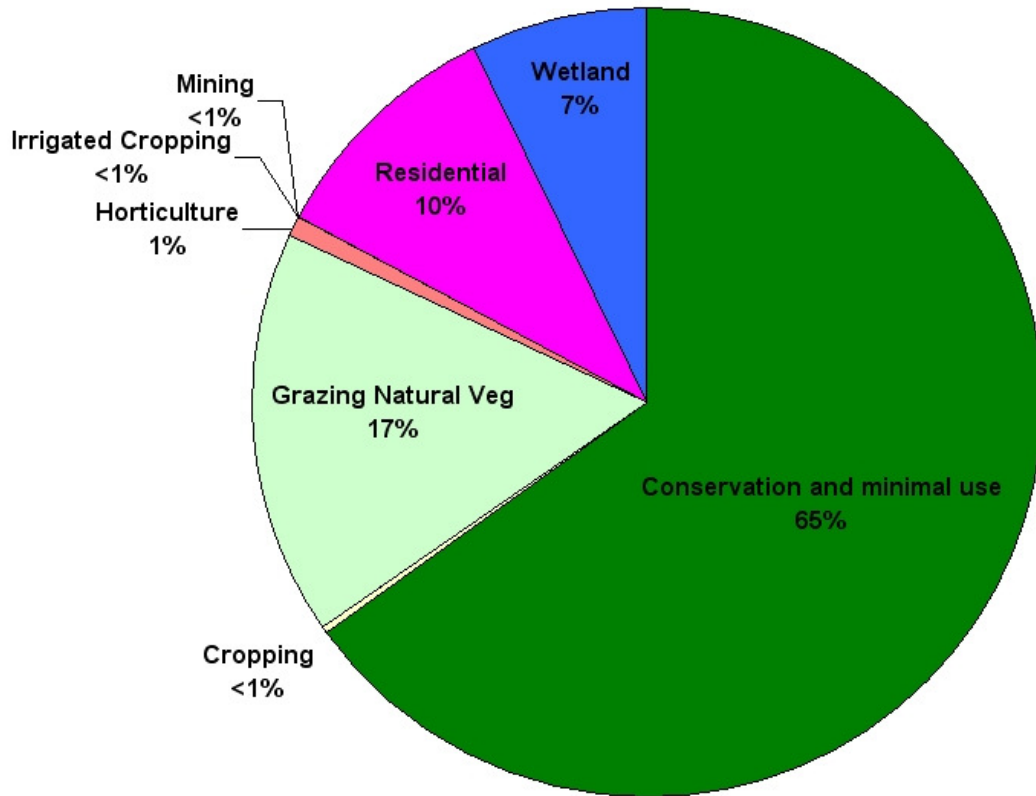
Alligator Creek catchment - Water Quality Exposure

	Sediment	Nitrogen	Phosphorus	Pesticides
Contaminant Exposure Risk	Low	Low	Low/Moderate	Low
Chronic or Storm	(Storm)	(Storm)	(Storm)	(Storm)

Derived from information in Maughan et al 2008; Bainbridge et al 2007; Liessman et al 2007 Vol. 1 & 2; Lewis et al 2007; Moss et al (unpubl.)

Source: EPA – Estuary and Marine HEV profiles

Crocodile Creek catchment – EPA initial profile information



Source: EPA – Estuary and Marine HEV profiles

Crocodile Creek catchment

Catchment Characteristic	Description
Average river flow	
Flow modification	No
Number of fish barriers	8
Presence of EVR species or ecosystems	15
Presence of STP point source	No
Presence of other point source	No
Catchment cleared	14%
Estuarine vegetation cleared	1%
OzEstuary 2000	
Type	TDD
Bryce Heap	Strand plain
Condition	Near Pristine
Page & Hoolihan 2002	
Naturalness Estuary	V. High
Naturalness Catchment	Low
Habitat Diversity	Moderate
International Significance	V. High
Level of protection	Moderate

Crocodile Creek catchment - Water Quality Exposure

	Sediment	Nitrogen	Phosphorus	Pesticides
Contaminant Exposure Risk	Low	Low	Low/Moderate	Low
Chronic or Storm	(Storm)	(Storm)	(Storm)	(Storm)

Derived from information in Maughan et al 2008; Bainbridge et al 2007; Liessman et al 2007 Vol. 1 & 2; Lewis et al 2007; Moss et al (unpubl.)

Source: EPA – Estuary and Marine HEV profiles

Cape Cleveland catchment – EPA initial profile information

Catchment Characteristic	Description
Average river flow	
Flow modification	No
Number of fish barriers	0
Presence of EVR species or ecosystems	No
Presence of STP point source	No
Presence of other point source	No
Catchment cleared	0%
Estuarine vegetation cleared	0%

Source: EPA – Estuary and Marine HEV profiles