



CRYSTAL CREEK

SUB BASIN FACTSHEET



The Crystal Creek Sub Basin includes the Crystal Creek, Lorna Creek, Ollera Creek, Scrubby Creek and Hencamp Creek catchments and waterways. There are also a number of smaller waterways that have been included in the catchments of these larger creeks.



Australian Government



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Government



Townsville



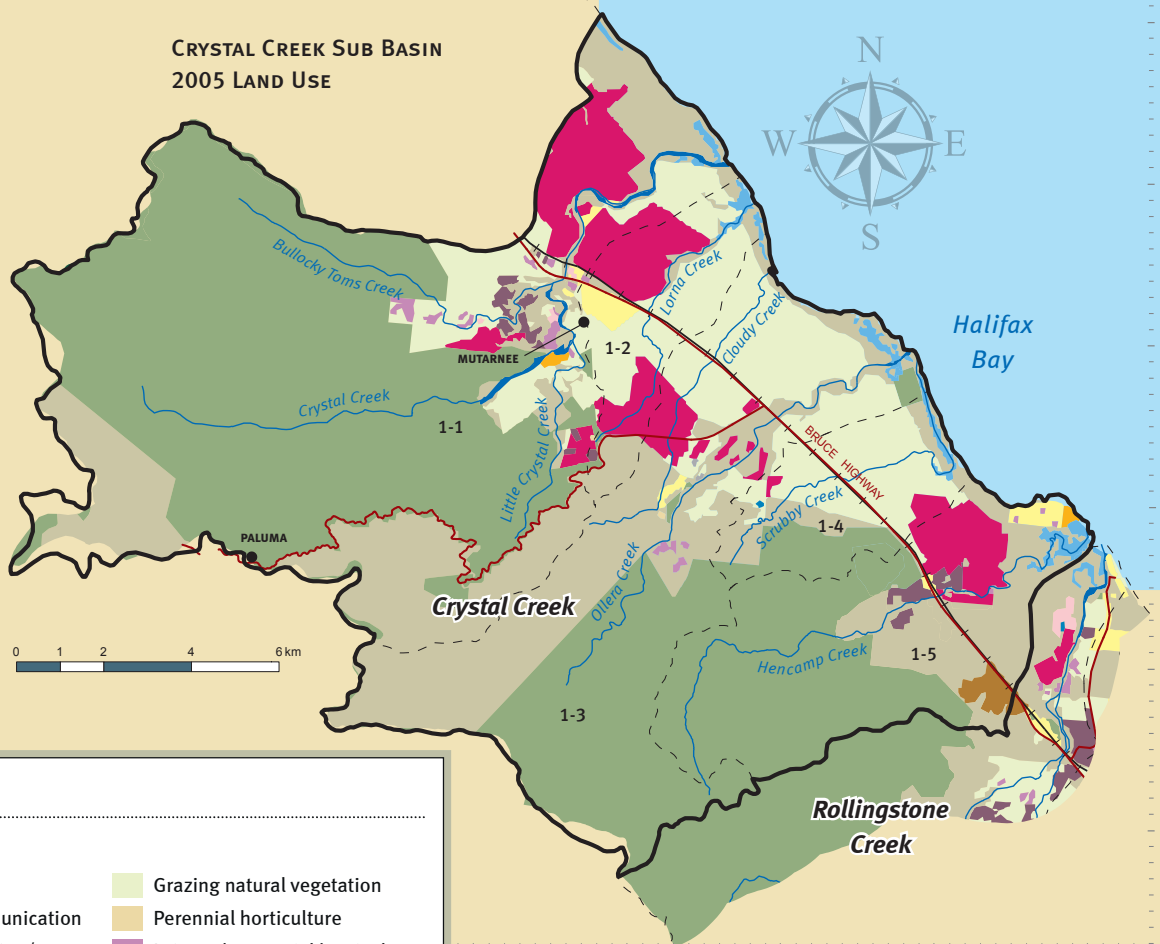
POPULATION

The 2006 Census counted 339 people resident within the Paluma and Crystal Creek Sub Basin areas. This includes the hamlet of Paluma (142 people), which is outside the Crystal Creek Sub Basin. From the available figures it is estimated that the population of the Crystal Creek Sub Basin is approximately 190 people.

Paluma and the Crystal Creek Sub Basin have a mature age population, particularly older couples. This is reflected in the high median age (47) and the average household size, which at 2.5 people is below the average occupancy of 2.8 people for the Townsville local government area.

LAND USE

The Crystal Creek Sub Basin is approximately 240 square kilometres in size (~24,000 hectares). Nature conservation and minimal use (natural areas) are the main land uses in the Crystal Creek Sub Basin accounting for approximately 80% of the land area. Grazing (10%) and irrigated cropping (sugar cane) (7%) are the most dominant of the agricultural land uses in the sub basin.



LEGEND:

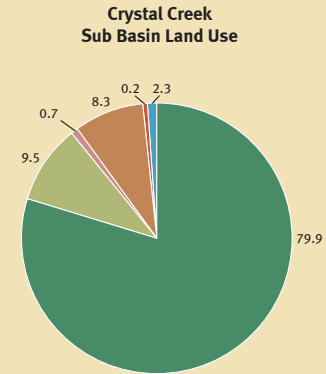
2005 LAND USE

Utilities	Grazing natural vegetation
Transport & communication	Perennial horticulture
Electricity generation/transmission	Irrigated perennial horticulture
Waste treatment & disposal	Irrigated seasonal horticulture
Manufacturing & industrial	Intensive animal production
Services	Irrigated cropping
Mining	Cropping
Residential	Channel/aqueduct
Production forestry	Marsh/wetland
Plantation forestry	Lake/dam/reservoir
Nature conservation	River
	Other minimal use

Localities	Sub basin boundary
Major roads	Catchment boundary & number
Major rail lines	

2005 LAND USE CRYSTAL CREEK SUB BASIN

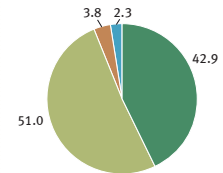
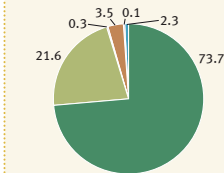
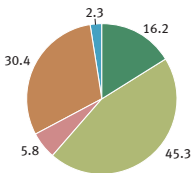
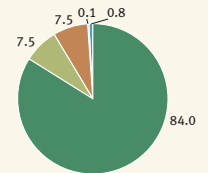
Land Use	Ha	%	Principal Land Use	Ha	%
Nature conservation	11,786	49.2	Conservation and natural areas	19,151	79.9
Other minimal use	7,365	30.7			
Grazing natural vegetation	2,288	9.5	Grazing	2,289	9.5
Production forestry	1	<0.1			
Residential	171	0.7	Rural residential	171	0.7
Cropping	10	<0.1	Intensive agriculture	1,978	8.3
Irrigated cropping	1,697	7.1			
Irrigated perennial horticulture	88	0.4			
Irrigated seasonal horticulture	178	0.7			
Perennial horticulture	4	<0.1			
Mining	4	<0.1	Urban	113	0.5
Services	25	0.10			
Transport and Communication	85	0.4	Water and wetlands	268	1.1
Reservoir/dam	2	<0.1			
River	61	0.3			
Marsh/wetland	205	0.9			
Totals	23,968	100		23,968	100



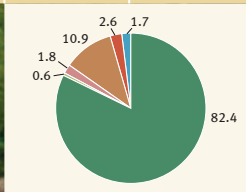
Note: Totals may not tally due to rounding of sub totals

LAND USE BY CATCHMENT

Land Use	Ha	%	Ha	%	Ha	%	Ha	%
	Crystal Creek (1-1)		Lorna Creek (1-2)		Ollera Creek (1-3)		Scrubby Creek (1-4)	
Conservation and natural areas	9,735	84.0	230	16.2	4,252	73.7	629	42.9
Grazing	870	7.5	645	45.3	1,245	21.6	749	51.0
Rural residential	22	0.2	82	5.8	18	0.3		
Intensive agriculture	864	7.5	432	30.4	202	3.5	55	3.8
Urban	13	0.1			4	0.1		
Water and wetlands	89	0.8	33	2.3	48	0.8	34	2.3
Totals	11,592		1,424		5,769		1,467	



Land Use	Ha	%
Conservation and natural areas	3,061	82.4
Grazing	24	0.6
Rural residential	67	1.8
Intensive agriculture	404	10.9
Urban	96	2.6
Water and wetlands	64	1.7
Totals	3,716	



The smaller catchments, with a higher proportion of lowland area (Lorna Creek and Scrubby Creek), have a correspondingly higher percentage of agricultural land uses. Conservation areas dominate the upland areas of the larger catchments, which is more representative of the overall sub basin land use ratios.

[More information about the basins, sub basins and catchments of the Black Ross WQIP can be found in; *Basins, Catchments and Receiving Waters of the Black Ross Water Quality Improvement Plan Area* (Gunn and Manning 2009)]

WATER RESOURCE CONDITION

The Black Ross WQIP area water quality condition assessment (Connell Wagner 2008) rated two of the catchments, Crystal Creek and Hencamp Creek, as healthy. There was generally insufficient information to assess the remaining waterways and catchments.

LEGEND:

DRAINAGE - ECOLOGICAL IMPACT

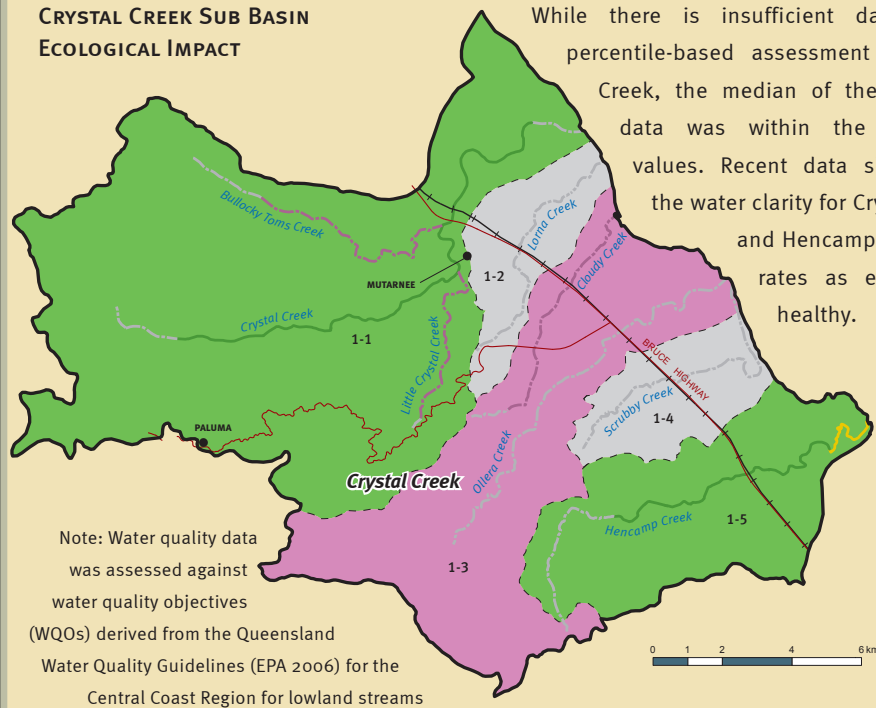
- No data
- Insufficient data
- Healthy/Slightly impacted
- Slightly/Moderately impacted
- Moderately/Heavily impacted

CATCHMENTS - ECOLOGICAL IMPACT

- No data
- Insufficient data
- Healthy/Slightly impacted
- Slightly/Moderately impacted
- Moderately/Heavily impacted

- Localities
- Major roads
- Major rail lines
- ▭ Sub basin boundary
- ▭ Catchment boundary & number

CRYSTAL CREEK SUB BASIN ECOLOGICAL IMPACT



While there is insufficient data for a percentile-based assessment of Ollera Creek, the median of the available data was within the guideline values. Recent data shows that the water clarity for Crystal Creek and Hencamp Creek still rates as ecologically healthy.

WATER QUALITY AND WATER QUALITY OBJECTIVES (WQOs)

When the water quality data was assessed against the water quality objectives (WQOs) derived from the Queensland Water Quality Guidelines (EPA 2006) for the Central Coast Region for lowland streams, the water quality condition of the streams of the Crystal Creek Sub Basin met nearly all the corresponding WQOs. The only exception was for total suspended solids (TSS) in Hencamp Creek.

Notes: Tick/cross denotes if the WQO is met (✓) or not (✗) for the waterway based on the median value for the water quality indicator. The percentage indicates the amount by which the WQO is met or not met (the difference between the WQO and water quality condition median as a percentage of the WQO). No % is listed if the water quality condition is the same as the WQO. ND is no data. DIN is dissolved inorganic nitrogen, Org N is organic nitrogen, TN is total nitrogen, FRP is filterable reactive phosphorus, TP is total phosphorus and TSS is total suspended solids (sediment).

* indicates inconsistency or a wide variation in the data, or insufficient data to calculate percentiles.

1 indicates data is dated and may not reflect current condition.

COMPARING WQOs (CENTRAL COAST VALUES) WITH WATER QUALITY

Crystal Creek Sub Basin	DIN	Org N	TN	FRP	TP	TSS
Crystal Creek 1-1	✓ 83%	✓ 77%	✓ 78%	✓ 90%	✓ 92%	✓ 80%
Hencamp Creek 1-5	✓ 56%	✓ 29%	✓ 32%	✓ 75%	✓ 60%	✗ 10%

When comparing water quality condition to the WQOs derived from the Queensland Water Quality Guidelines (EPA 2006) based on the values for the Wet Tropics Region lowland streams (adopted in the Black Ross WQIP for the two northern sub basins), again Crystal Creek meets all the WQOs. Hencamp Creek however only meets one WQO out of the six water quality indicators i.e. dissolved inorganic nitrogen (DIN).

COMPARING WQOs (WET TROPICS VALUES) WITH WATER QUALITY

Crystal Creek Sub Basin	DIN	Org N	TN	FRP	TP	TSS
Crystal Creek 1-1	✓ 65%	✓ 53%	✓ 55%	✓ 50%	✓ 60%	✓ 80%
Hencamp Creek 1-5	✓ 13%	✗ 50%	✗ 52%	✗ 25%	✗ 100%	✗ 10%

DISCLAIMER: Townsville City Council advises that the information in this document is derived from a number of different sources. The information may not be accurate or up to date and should not be solely relied upon for decision-making purposes.

[More information about water quality conditions and WQOs can be found in; *Environmental Values, Water Quality Objectives and Targets for the Black Ross Water Quality Improvement Plan* (Gunn, Manning, and McHarg 2009), and *Water Quality Condition of the Black and Ross River Basins* (Connell Wagner 2008)]