

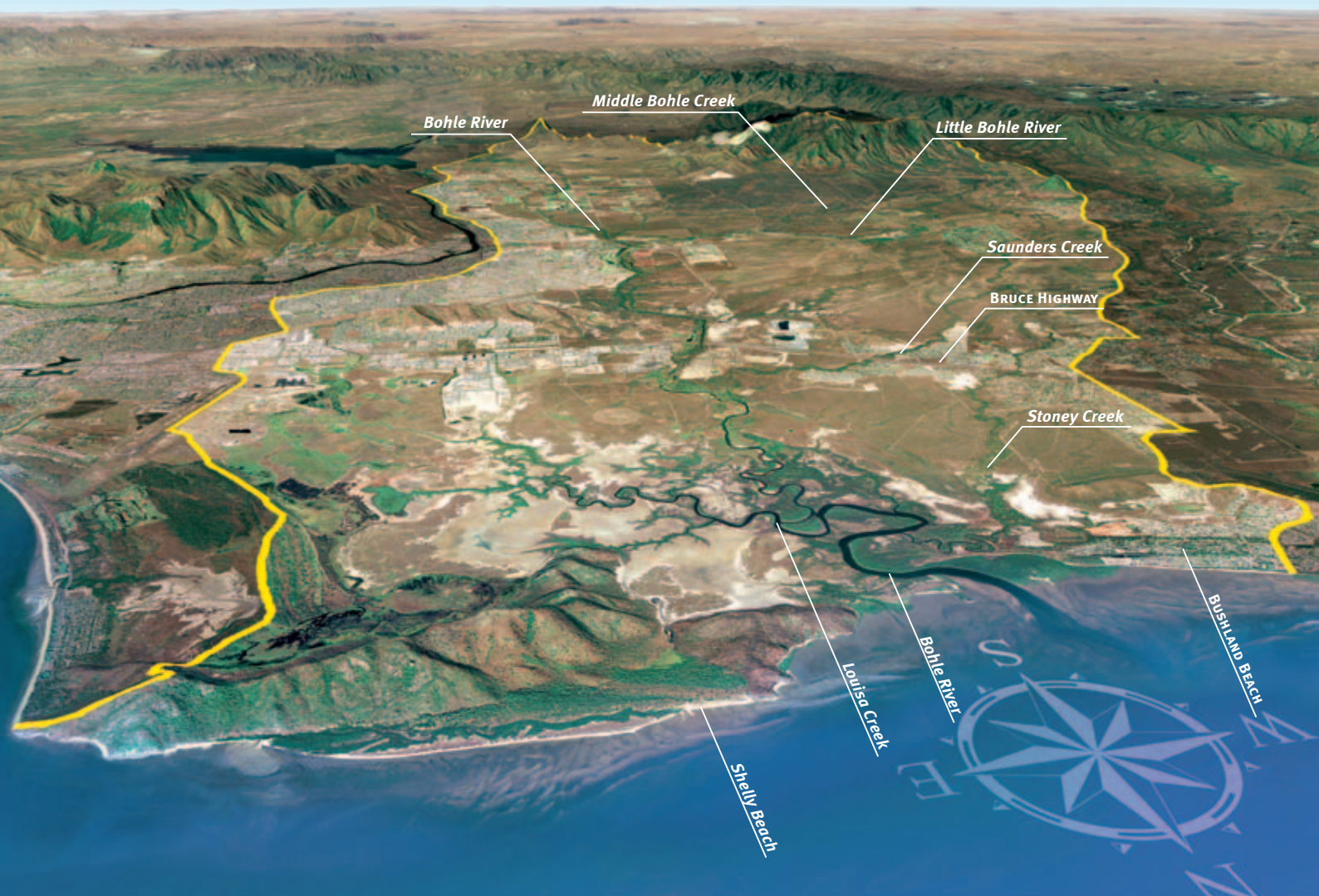


BOHLE RIVER

SUB BASIN FACTSHEET



The Bohle River Sub Basin is dominated by the Bohle River Catchment with the relatively small Shelly Beach Catchment located in the northeast corner of the sub basin. There are also a number of smaller waterways in the sub basin however most of the waterways are tributaries of the Bohle River system including the Little Bohle River, Middle Bohle Creek, Louisa Creek, Saunders Creek and Stoney Creek.



Australian Government



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Government



Townsville

POPULATION

The 2006 Census counted 62,026 people resident within the Bohle River Sub Basin area. The sub basin stretches from the Pinnacles to the coast and includes the bulk of the Bushland Beach suburb, established residential areas below the Ross River Dam, and Townsville's north-western suburbs including Mount Louisa, Heatley and Kirwan.

The median age of the Bohle River Sub Basin population at the 2006 Census was 31 years, slightly below the average for the Townsville region (33). Family characteristics vary throughout the sub basin, with a higher proportion of couples with children living in suburban areas, including the upper Ross River (below the dam) suburbs and Bushland Beach. Almost 15% of total households in the sub basin report only one person usually resident. This may reflect the presence of retirement style housing and unit development, in particular areas.

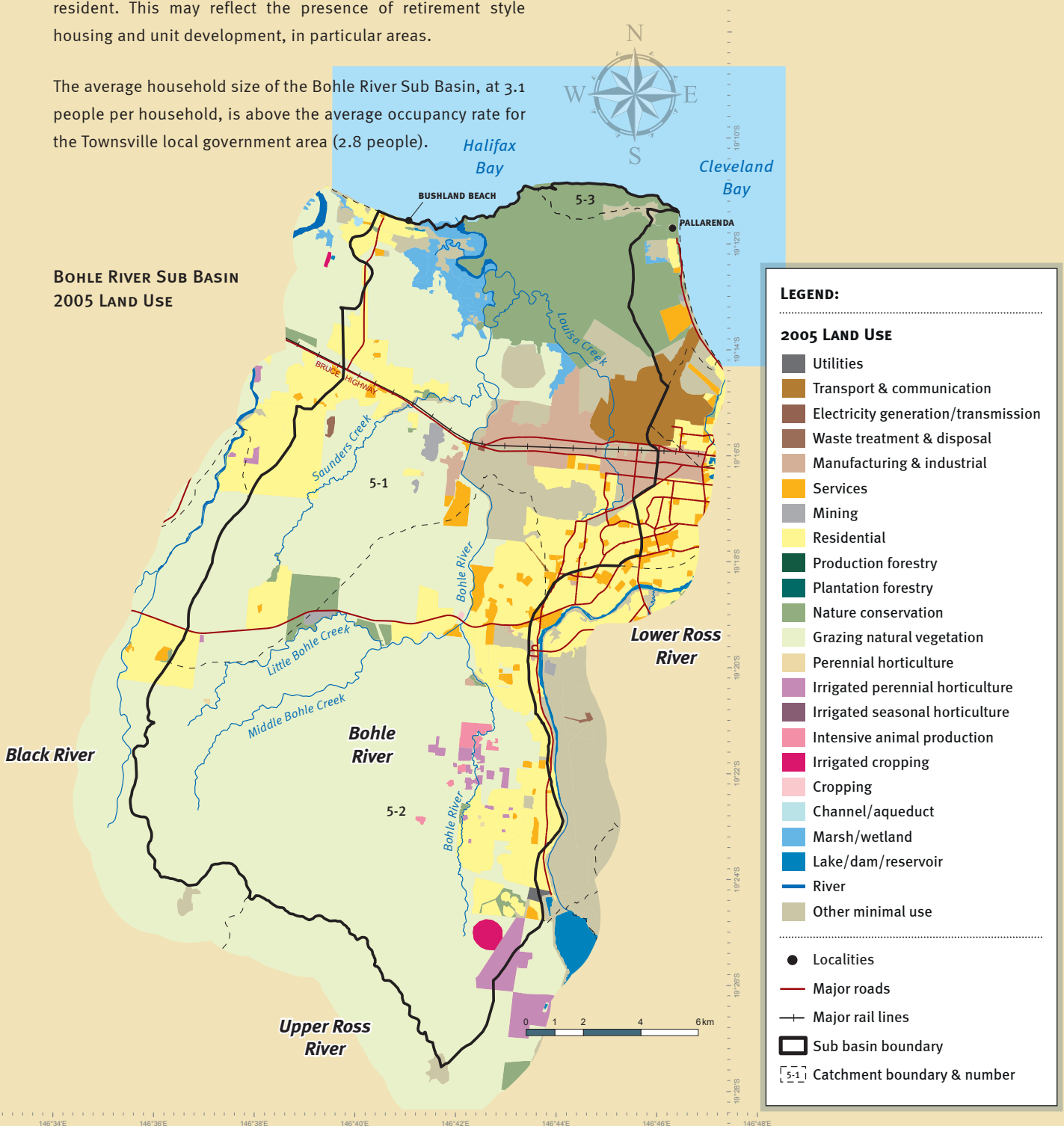
The average household size of the Bohle River Sub Basin, at 3.1 people per household, is above the average occupancy rate for the Townsville local government area (2.8 people).

LAND USE

The Bohle River Sub Basin is approximately 322 square kilometres in size (~32,200 hectares). The dominant land use in the Bohle River Sub Basin is grazing covering 59% of the land area. Nature conservation and minimal use (natural areas) (16%) occupy a significant area of the sub basin while residential and associated urban land uses dominate a number of the Bohle River sub catchments and account for approximately 18% of the total sub basin land area.

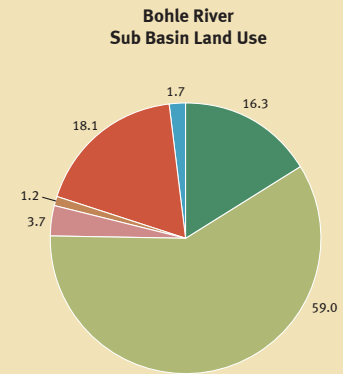
The lower reaches of the sub basin are dominated by industrial and commercial land uses including Defence lands and the Townsville Airport and RAAF base.

**BOHLE RIVER SUB BASIN
2005 LAND USE**



2005 LAND USE BOHLE RIVER SUB BASIN

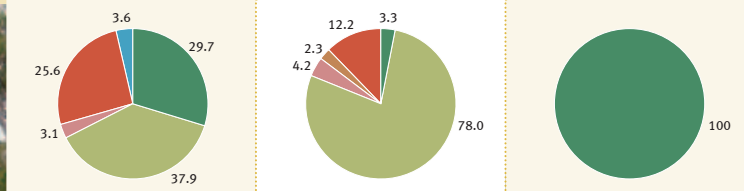
Land Use	Ha	%	Principal Land Use	Ha	%
Nature conservation	3,197	9.9	Conservation and natural areas	5,250	16.3
Other minimal use	2,053	6.4			
Grazing natural vegetation	19,019	59	Grazing	19,018	59.0
Residential	4,755	14.8	Rural residential	1,190	3.7
Cropping	4.3	<0.1	Intensive agriculture	402	1.2
Intensive animal production	101	0.3			
Irrigated cropping	88	0.3			
Irrigated perennial horticulture	299	0.9			
Perennial horticulture	10	<0.1			
Manufacturing and industrial	1,007	3.1	Urban	5,837	18.1
Mining	110	0.3			
Services	532	1.7			
Transport and communication	485	1.5			
Utilities	21	<0.1			
Waste treatment and disposal	17	<0.1			
Reservoir/dam	3	<0.1			
River	16	<0.1			
Marsh/wetland	514	1.6	Water and wetlands	532	1.7
Totals	32,229	100		32,229	100



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

LAND USE BY CATCHMENT

Land Use	Lower Bohle River (5-1)		Upper Bohle River (5-2)		Shelly Beach (5-3)	
	Ha	%	Ha	%	Ha	%
Conservation and natural areas	4,328	29.7	565	3.3	357	100.0
Grazing	5,529	37.9	13,489	78.0	0	
Rural residential	455	3.1	734	4.2	0	
Intensive agriculture	6	0.0	396	2.3	0	
Urban	3,733	25.6	2,105	12.2	0	
Water and wetlands	532	3.6	0		0	
Totals	14,583		17,289		357	



While the sub basin as a whole is still dominated by grazing this sub basin is the hub of urban development in the Townsville region with the eastern side and central and lower reaches of the Bohle River Catchment being under intense development pressure. This can be seen to some extent when comparing the urban land use ratios of the Upper Bohle River Catchment (12%) and the Lower Bohle River catchments (26%).

[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) indicated that the water quality of the Bohle River Sub Basin was heavily impacted.

Data indicates that nutrients, in particular filterable reactive (dissolved inorganic) phosphorus (FRP) is at very high levels. This trend is consistent across all of the lowland stream reaches where monitoring occurred while phosphorus levels were much lower in the mid-estuarine reaches.

Recent data for water clarity and pH confirm this assessment however there is no recent data for nutrients in this sub basin.

BOHLE RIVER SUB BASIN ECOLOGICAL IMPACT

Note: Water quality data was assessed against water quality objectives (WQOs) derived from the Queensland Water Quality Guidelines (EPA 2006) for the Central Coast Region for lowland streams

LEGEND:

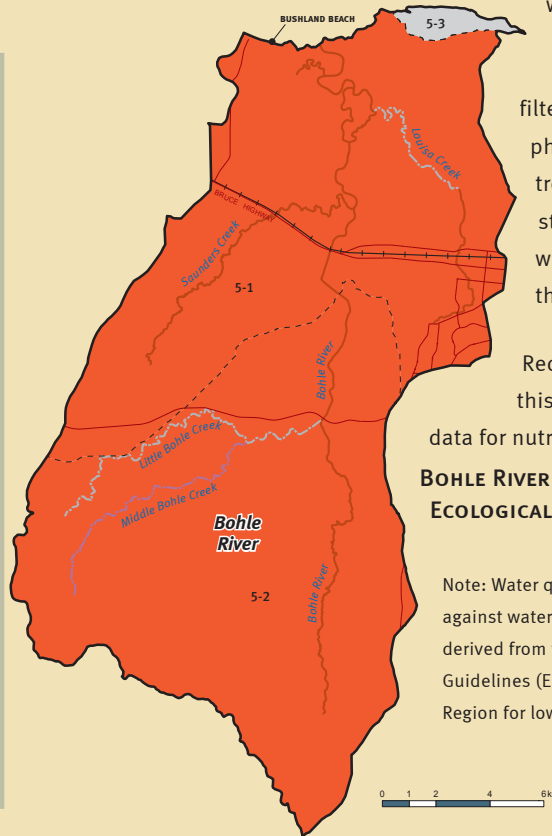
DRAINAGE - ECOLOGICAL IMPACT

- 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



WATER QUALITY AND WATER QUALITY OBJECTIVES (WQOs)

When we compare water quality condition data with the WQOs for the Bohle River Sub Basin we are confronted with the most degraded waterways in the Black Ross WQIP area. The only WQO that is met in the Bohle River is dissolved inorganic nitrogen (DIN) (below the Bruce Highway).

Soluble forms of nutrients are particularly high in the middle and lower freshwater reaches of the Bohle River suggesting a significant impact from the discharge from the wastewater treatment plants in the sub basin.



COMPARING WQOs WITH WATER QUALITY

Bohle River Sub Basin	DIN	Org N	TN	FRP	TP	TSS
Bohle R (below Highway) 5-1	✓ *14%	✗ 16%	✗ 24%	✗ 330%	✗ 160%	✗ 110%
Bohle R (above Highway) 5-2	✗ 1,064%	✗ 138%	✗ 264%	✗ 19,900%	✗ 4,900%	✗ 140%

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.

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)]