



Assessment of Sub-tidal Habitats at Cawarral Creek, Calliope River and Balaclava Island - Final Report

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<p>Synopsis: A field assessment of sub-tidal habitats at Cawarral Creek FHA, Calliope River and Balaclava Island, central Queensland.</p>		

REVISION/CHECKING HISTORY

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Executive Summary

The Department of National Parks, Recreation, Sport and Racing (DNPRSR) has commenced the Declared Fish Habitat Area Investigations Program - Central Queensland, which is an initiative funded by Gladstone Ports Corporation as part of their Biodiversity Offset Strategy. DNPRSR identified significant gaps in the knowledge base regarding the habitat characteristics of subtidal environments within the existing/potential FHAs. BMT WBM was therefore engaged by DNPRSR to undertake this subtidal habitat mapping investigation at three of the areas, namely Cawarral Creek declared FHA, the proposed Calliope River FHA, and an extension to the existing Fitzroy River declared FHA at Balaclava Island.

This report presents the findings of all sampling and analysis, and includes a series of maps of the results of this investigation, including habitat types within the three study areas, focusing on the definition of sub-tidal habitat areas. In accordance with the study brief, the scope of the investigations varied among the three locations. The project involved the following:

- Comprehensive field-based and desktop assessment to map and describe sub-tidal habitat characteristics within the Cawarral Creek declared FHA. A combination of methods were used to map subtidal habitats, including sonar methods (single-beam sonar), grab sampling of sediments, and underwater video (where water clarity permitted).
- Predominantly desktop assessment to map and describe the sub-tidal habitats of the Calliope River and the Balaclava Island investigation areas. Brief site inspections were undertaken at each of these investigation areas to confirm desktop study findings.

The three investigation areas are estuaries vary in their morphological character, and therefore their bio-physical habitat characteristics. Cawarral Creek and the estuaries within Balaclava Island investigation area are “tidal creek” type estuaries, whereas Calliope River estuary in a type of “tide dominated delta” estuary.

Physical processes operating at geological time scales ultimately control the configuration and extent of habitat types within the three investigation areas.

The three investigation areas support a range of aquatic habitat types that are importance to the maintenance of the regions fisheries, including:

- Rock bars/reefs, particularly in the Calliope River and Cawarral Creek investigation areas
- Submerged shoals, which are well developed Calliope River and Cawarral Creek investigation areas, and to a lesser extent Balaclava Island
- Soft sediment channel environments, which was the dominant habitat type in all three investigation areas.

Seagrass meadows are not represented in the three investigation areas due to high turbidity and current velocities. High turbidity is also limit benthic microalgae productivity with the three areas.

The three investigation areas support a range of functional fisheries habitat values, including feeding areas, nursery habitats and spawning areas. The three investigation areas have low levels of hydrological disturbance and fragmentation (i.e. lack of instream barriers). Balaclava Island is located in an area that is pristine, and marine, estuarine and adjacent terrestrial habitats are in a largely unmodified condition. For these reasons the investigation areas are considered to contain high value habitats that provide a fundamental role in supporting the region’s fisheries resources.