Progress Report SP 2009-009

Taxonomic review and floristic studies of the benthic marine algae of north-western Australian and floristic surveys of Western Australian marine benthic algae

Plant Science and Herbarium

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Project status as of July 4, 2016, 4:16 p.m.

Approved and active

Document endorsements and approvals as of July 4, 2016, 4:16 p.m.

Project Team	granted
Program Leader	granted
Directorate	granted

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Context

This project involves systematic research into a poorly known group of Western Australian plants and is directly relevant to the Department's nature conservation strategy. It includes floristic studies of the marine plants of several existing/proposed marine parks and also areas of commercial interest (Shoalwater, Marmion, Ningaloo, Dampier Archipelago, Barrow Island, Montebello Islands, Rowley Shoals, Scott Reef, Maret Islands, etc.) to provide baseline information that will enable a more comprehensive assessment of the Western Australian marine biodiversity.

Aims

- Collect, curate and establish a collection of marine plants representative of the Western Australian marine flora, supplementing the existing Western Australian Herbarium collection.
- Assess the biodiversity of the marine flora of Western Australia, concentrating initially on the poorly-known flora of the tropics.
- Prepare a marine Flora for north-western Australia, documenting this biodiversity.

Progress

- Substantial progress has been made towards finalising the second book in the series, *Algae of Australia: Marine Benthic Flora of North-western Australia, 2. The Red Algae*. The majority of the text and illustrations have been prepared and edited/formatted by Australian Biological Resources Study in readiness for submission/publication in 2016. This book will include descriptions of several hundred species, over 70 of which are new to science.
- Participation in a field survey to Coral Bay by John Huisman, resulting in numerous new collections that have added several hundred specimens to the herbarium holdings. These collections include new species of the red algae *Aphanta* (also representing a new generic record for Australia) and *Kallymenia*, which will be described in the abovementioned book.
- Several additional major papers have been published concerning aspects of the north-western Australian marine flora, including the description of a new genus *Rhytimenia*, based on a species collected from Indonesia in 1899 but not recollected until recent surveys of Ashmore Reef by John Huisman.
- Publication of a paper describing the presence of *Codium tenue*, a rare South African species, in Walpole/Nornalup Inlet.
- 450 new specimens of marine benthic algae have been added to the Herbarium collection.

Management implications

- Easier identification of marine plant species leads to a more comprehensive understanding of their conservation status, recognition of regions with high biodiversity and/or rare species, recognition of rare species, recognition of potentially introduced species, and discrimination of closely-related native species
- Enhanced knowledge of marine plant species allows a more accurate assessment of management needs and potential impacts of environmental change, including change conferred by resource developments.

Future directions

- Further surveys in 2016-17 of the marine algae of Western Australian including at Coral Bay, the Capes region in the south-west of Western Australia, and sites in the Perth region including Cape Peron.
- Publication of papers describing new and existing genera, species and other categories; contributions to FloraBase.
- Finalise production of *Algae of Australia:* The *Marine Benthic Flora of North-western Australia, 2. The Red Algae*, to be published by the Australian Biological Resources Study in 2016.
- Prepare a paper describing a new species of the brown alga *Rosenvingea*, collected in early 2016 from Cape Peron.
- Finalise a paper (in collaboration with international colleagues) describing several new genera in the family Kallymeniaceae.