

4.3 SRFME State Linkages Projects Reports

4.3.1 Twelfth International Marine Biological Workshop: The Marine Flora and Fauna of Esperance, Western Australia

Investigators / Institutions

Dr Fred E Wells	Western Australian Museum
Prof Diana I Walker	The University of Western Australia
Dr Gary Kendrick	The University of Western Australia

Executive Summary

A marine biological workshop was undertaken in Esperance in February 2003 during which 28 scientists from Western Australia, South Australia, Victoria and six overseas countries each conducted 17 days of field oriented research in Esperance Bay and the Recherche Archipelago. There were 28 participants in the field program. In late 2005, the Western Australian Museum published the 2 volumes, 727 pages, *The Marine Flora and Fauna of Esperance, Western Australia*. The volumes contain 29 scientific papers discussing a wide range of ecological and taxonomic studies of the marine plants and animals of the southeastern part of Western Australia.

Background

Western Australia is a huge State, occupying the western third of the continent. Until relatively recently, this vast coastline had been largely unexplored by scientists. The presence of some groups of organisms in the marine environment of Western Australia is still totally unknown. In 1986 Dr Fred Wells of the Western Australian Museum proposed that a series of marine biological workshops be held in Western Australia to allow scientists from interstate and overseas the opportunity to work with Western Australian scientists to generate scientific information about the marine environment of Western Australia. The proposal was accepted by the Museum and the WA Branch of the Australian Marine Sciences Association. From the outset the workshop has been a cooperative venture which has also included organisers from CSIRO (Dr Hugh Kirkman), and Murdoch University (Assoc Prof Roger Lethbridge). While the workshop organisers have changed from time to time, Prof Di Walker of The University of Western Australia has been actively involved since the Albany workshop. The Western Australian workshops have attracted about 200 scientists from leading institutions throughout the world: about one-half have been from overseas; one-fourth from the eastern states; and one-fourth from Western Australia.

The workshops are modelled on workshops held at the University of Hong Kong since 1977, and are numbered as part of an international series. Two other workshops have been held in Australia: Darwin in 1993 and southeast Queensland in 2005. Other workshops, devoted specifically to molluscs, have been held in Hong Kong, California, Portuguese Azores, Florida Keys, and Thailand. A similar marine biological workshop is scheduled for Singapore in 2006.

Format

Established researchers were invited to participate in the workshop. The Australian Marine Sciences Association has provided funds to allow one or two graduate students to participate. Each participant was responsible for obtaining his/her own fare for travel to/from Perth, to the workshop locality and the cost of the workshop. Workshops are held in as inexpensive a manner as possible.

The local organisers provided basic accommodation, laboratory space, access to dive gear and boats. The workshops allow participants the opportunity to work on their own research projects with a minimum of hassle and organisational responsibilities. The presence of a number of other scientists at the workshop provides opportunities for joint research and a number of Western Australian scientists have taken advantage of the opportunities provided.

It takes two years to plan and organise a workshop, and for the participants to obtain funding for their participation. The field portion of the workshop is for 17 days. Each participant is expected to undertake one or more research projects in his/her area of expertise and publish the results in a workshop proceedings. Proceedings are published three years after completion of the field portion of the workshop. All papers are refereed.

To date eight workshops have been held in Australia (including Esperance), and a total of 10 volumes have been published. A substantial portion of the workshop output has been devoted to documenting the marine flora and fauna of Western Australia, the Northern Territory and Queensland. There has also been considerable work on the ecology, physiology, functional morphology, and other aspects of the biology of various organisms. Recent WA workshops have benefited considerably from the preparation of papers by Alan Pearce of CSIRO and others which have drawn together published and unpublished information on the physical oceanography of the Houtman Abrolhos and the Dampier Archipelago.

Much of the work has been of immediate practical advantage to managers of the marine environment, including the Environmental Protection Authority, Department of Conservation and Land Management and the Department of Fisheries Western Australia.

Esperance Workshop

SRFME generously supported part of the costs of the field and publication components of the Esperance workshop, which was undertaken in February 2003. There were 28 participants in the field program. In addition to participants from WA, there were scientists from South Australia and Victoria. Overseas participants were from China, Germany, Singapore, Thailand, United Kingdom, and United States.

The goal of the marine biological workshops is to substantially increase the rate of exploration of the marine biology of Western Australia by attracting interstate and international colleagues to the State to work in a particular geographic area for a short period of intensive fieldwork. As the participants pay their own fares, etc, no attempt is made to specify what research they should undertake. However, as with previous workshops, the research can be divided into several components:

Documentation. There is considerable need in the State for basic documentation of the biota which inhabits our waters. Many groups have never been examined by specialists. In conjunction with examination of specimens at the WA Museum, the workshops offered a unique opportunity for systematic research. New species were found at Esperance of marine mites, oligochaetes, molluscs, mysids, tanaids, and pycnogonids. Range extensions, often on the scale of hundreds of kilometres, were made in many taxa.

Animal biology. A number of studies were made of the biology of animals, including reproductive biology of coralliophilid snails, feeding of the snail *Lepsiella* on limpets, ecology of trochid snails, infauna of Bandy Creek, bivalve ecology and morphology, and epiphytic grazers on seagrasses.

Plant biology. There is a rich diversity of marine algae and seagrasses in the Recherche Archipelago. Considerable work was undertaken in documenting this biota and exploring the roles the plants play in the ecosystems, both algae and seagrasses. Studies included the distribution of rhodoliths, growth rates of seagrasses, nutrient status of inshore and offshore plants, and experimental work with the plants.

Plant-animal interactions. Two studies integrated relationships between plants and animals.

One was on the diverse fauna inhabiting the algal rhodoliths. The other was on an intriguing sponge-algal association found during the workshop.

Benthic mapping project. A group led by Dr Gary Kendrick of the University of Western Australia conducted a major program of benthic habitat mapping in the Recherche Archipelago, funded by the Fisheries Research and Development Corporation and the Strategic Fund for Research in the Marine Environment. Many of the WA scientists at the workshop were also involved in the habitat mapping project, allowing considerable synergies between the two programs which will benefit both.

Publicity. One important aspect in furthering marine science in Western Australia is to make the findings available to the public. This was done in the following ways: newspaper articles in the *The Age (Melbourne)*, *The West Australian*, *Esperance Express*, and *Kalgoorlie Miner*; radio interviews on ABC regional radio, ABC Perth and ABC Melbourne; and a television interview on GWN News. In addition, Sarah Coote and Corey Whisson visited local primary schools to talk to students about the workshop and what was happening.

A formal launch of the volumes was held at the WA Fisheries and Marine Research Laboratory at Hillarys in February 2006.

Publications and/or outcomes to date

Wells, F.E., Walker, D.I., A. Kendrick, G. (2005). *The Marine Flora and Fauna of Esperance, Western Australia*. Western Australian Museum, Perth. 727 pages.

4.3.2 Assistance for the Publication of The Marine Flora and Fauna of Esperance, Western Australia

Principal Investigator / Institution

Dr Fred E Wells	Western Australian Museum (currently on secondment to the WA Dept of Fisheries)
-----------------	--

Collaborating Personnel and Agencies

Prof Diana I Walker	Department of Plant Science (Botany) University of Western Australia
Dr Gary Kendrick	Department of Plant Science (Botany) University of Western Australia

Introduction

Since 1988, the Western Australian Museum, University of Western Australia, WA Branch of the Australian Marine Sciences Association and other agencies have combined to conduct a series of marine biological workshops in Western Australia. The State covers a huge area with a coastline of over 12,000 km and three marine biogeographic regions. The WA coast has impressive sections which have been established as marine parks, and marine ecosystems support productive fisheries which underpin the economies of many coastal towns. The short European history, large distances, inaccessible coastline, few marine biologists, and other factors combined to make the marine ecosystems of Western Australia poorly known, and the rate of discovery was low. In recognition of this, the marine biological workshop series was established to encourage interstate and overseas scientists to come to Western Australia to work in a single area for about 17 days on one or more research projects of their choosing,