

## INTERDISCIPLINARY SENIOR SCIENCE

*Edited by: Steve Ritchie  
Brisbane C.A.E.  
Kelvin Grove, Qld. 4059*

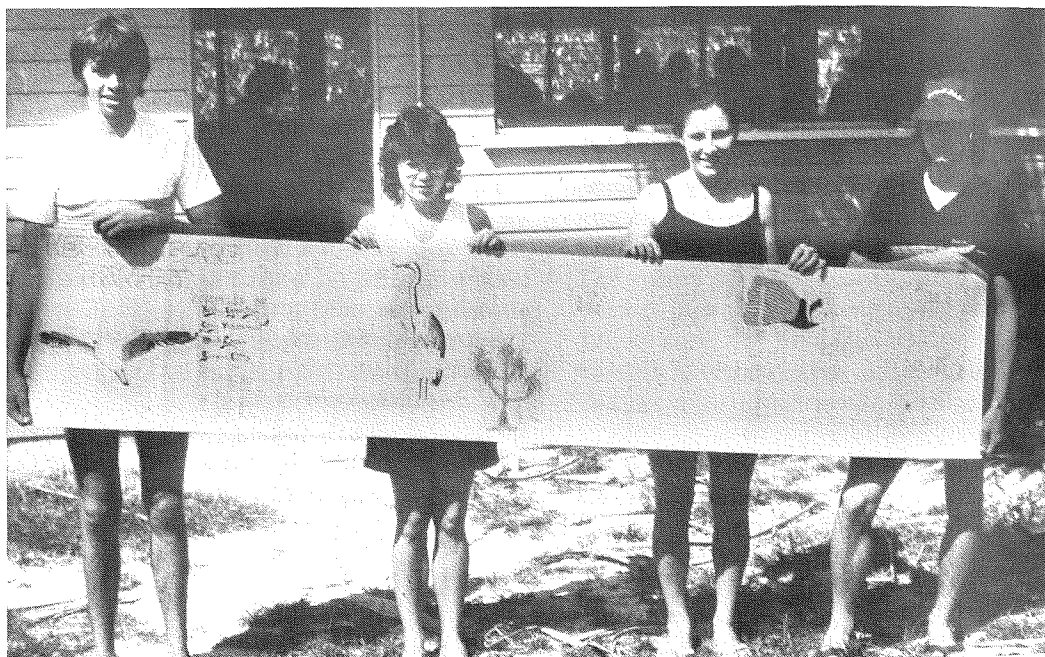
### THE REEF TRANSECT: A FRAMEWORK FOR REEF STUDIES

*S.M. Ritchie  
Brisbane C.A.E.  
Kelvin Grove, Qld. 4059*

In Queensland, the Senior Multistrand Science syllabus requires school programs to include not only a field studies component, but also a recreational component. A well planned excursion to one of the coral cays (e.g. Heron

Island) on the Great Barrier Reef provides an ideal learning environment for students to develop field techniques and skills in science related recreational activities (e.g. snorkelling). The purpose of this paper is to describe how the reef transect can be used as a framework for planning an extended reef studies program (5-7 days) at Heron Island Research Station.

The major goal for the excursions I have conducted on Heron Island has been for students to complete (and present) a transect of the coral cay and reefs (Figure 1). This project is not as



**Figure 1: The finished product - Heron Island transect**

tedious and uninteresting as at first it might appear. Daily tasks are varied and students are "rewarded" with snorkelling at a different location at the completion of each task (Figure 2). The students organize their own project groups prior to the excursion. Inter-group cooperation is also essential as groups share data to reduce the number of quadrats (the sampling method used) undertaken by each group.

Whilst the reef transect is the major focus for the excursion, a number of biological/ecological topics (e.g. symbiosis) and STS issues (e.g. drilling for oil on the reef) can be discussed during debriefing sessions held after each day's work — especially when students make related observations in the field.

Assuming that students are exposed to a number of preparatory lessons (e.g. dangerous marine

## OUTLINE OF DAILY ACTIVITIES

### DAY 1: Orientation and Preparation for Transect.

- (a) Lesson: Identification of major corals (e.g. Acropora, Pocillopora, Porites)
- (b) Reef Walk: Practice in identifying corals etc.
- (c) Lesson: Field techniques — sampling (quadrats), taking bearings, recording procedures
- (d) Snorkelling Practice: Shallow water off Research Station
- (e) Island Walk: Identification of major plant/bird species

### DAY 2: REEF TRANSECT — N.E. Aspect

- (a) Briefing: Clarification of tasks (e.g. measuring water depth, locating transect stations)
- (b) Fieldwork: N.E. Aspect
- (c) Snorkelling: Blue Hole (or Blue Pools)
- (d) Debriefing: Discussion of fish and other animals observed during snorkelling activity

### DAY 3: Land Transect

- (a) Lesson: Plant Identification (e.g. Pisonia, Pandanus, Casuarina)
- (b) Briefing: Clarification of tasks (e.g. measuring height above sea level)
- (c) Fieldwork: Land transect
- (d) Debriefing: Identification of less common species
- (e) Briefing: Community study in Shark Bay
- (f) Fieldwork: Shark Bay snorkelling
- (g) Debriefing: Discussion of observations at Shark Bay

### DAY 4: Reef Transect — S.W. Aspect

- (a) Briefing: As for Day 2
- (b) Fieldwork: S.W. Aspect
- (c) Snorkelling: Over reef edge
- (d) Debriefing: Discussion including ecological issues (e.g. Reef damage by tourist reef walks, sewerage and garbage disposal procedures)

### DAY 5: Transect Preparation and Presentation

- (a) Compilation of data
- (b) Determining appropriate scales and presentation details
- (c) Other preparations including illustrations of a selection of observed species
- (d) Group presentations
- (e) Debriefing: Discussion of patterns of distribution of reef and cay organisms

animals) prior to the excursion, each group should be capable of presenting their transect after 5 days of work. Students usually take more care with their work when they know that their transects will be displayed in the halls of the science building and/or library on their return to school. The outline of daily activities does not take into account seasonal and tidal variations.

## OTHER ACTIVITIES

Other interesting activities which can be integrated easily in the 5 day program or used in an expanded 7 day excursion could include the following:

Snorkelling at the "Bommie"/Wistari Reef  
— boats are required

Detailed observation studies of animals in marine aquarium — a collection permit is required

Individual study projects

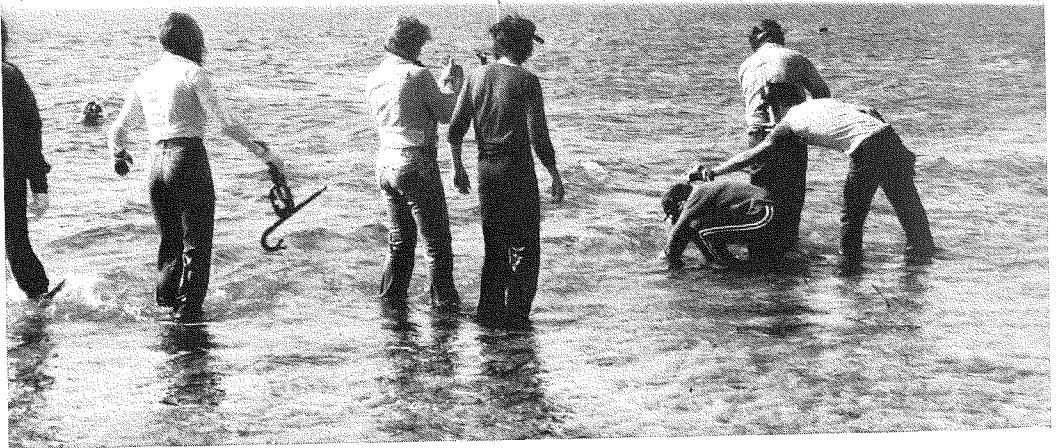
Bird studies

Turtle observations

Photographic/Art sessions

## CONCLUSION

Even though some students and staff (including myself) suffered from sea sickness travelling to Heron Island, all students were prepared to recommend the trip to younger students. In fact, former students with whom I have met years later, admit that their excursion to Heron Island was one of their most significant learning experiences.



**Figure 2: Students about to take the plunge over the edge after a hard day in the field**

## FOOTNOTE

Many of the activities used on the excursions I conducted were adopted/adapted from the innovative work of Athol Rose — former Science Subject Master of Corinda High School.