RECOMMENDATIONS

1. The major recommendation from the Workshop was the need for a comprehensive study of the biology of coral trout specifically for age and growth, reproduction and recruitment information. Of lesser importance, but worthy of consideration, are movement and feeding studies. Although Goeden (1978a) has conducted a study of coral trout biology, insufficient sampling and analysis make it more of a preliminary study requiring further work for substantiation of conclusions.

In any fishery the factors resulting in increase in the fishable stock are growth and recruitment while those factors resulting in a reduction in the fishable stock are natural mortality and fishing mortality. Thus it is necessary for management to have accurate information on these factors. The following indicates the management uses of the various kinds of information.

Age and growth

- knowing longevity of species
- constructing age-length and weight-length curves since length and weight are much more readily determined for large samples than age
- identifying year-classes
- determining survival and whether size selective mortality exists (both natural and fishing)
- determining growth
- using growth parameters in yield equations
- determination of the effect of fishing on the age structure of the population determining age at recruitment
- in coral trout, age and sex reversal.

../42

Reproduction

The information is necessary particularly in this species which undergoes sex-reversal

- age at maturity
- spawning period
- age/size at which sex reversal occurs
- is this age lowered by fishing
- is fishing eliminating the males in the population

Recruitment

Since recruitment is one of two major inputs to the fishable stock the following information is necessary

- size/age at recruitment
- time of recruitment

Movements Other information which would be of value is data on the movement of these fish. A start can be made on this with the tagging program but more specific studies may be part of a comprehensive biological study.

Budget A budget for such a study of coral trout over three years is attached. In view of the importance of coral trout to both the commercial and amateur fishery (in 1976 coral trout made up 29% of total Queensland landings passing through the Queensland Fish Board), obtaining financial assistance from the Fishery Industry Research Trust Account is suggested. A proposal which involves FIRTA paying salaries and GBRMPA paying other costs (or vice versa) is suggested. Alternatively, since GBRMPA is not an established fisheries organisation, a request for funds might be more successful if GBRMPA funded the first year and applied for FIRTA assistance for subsequent years.

Budget for Coral Trout Study

(Based in Sydney, with field work out of Heron Island)

SALARIES	$
Principal Investigator - 3 yrs @ $16 000 p.a. (plus 10% p.a.)	53 000
Research Assistant 3 yrs @ $9 000 p.a. (+ 10% p.a.)	30 000
Payroll tax etc. 20%	16 600
	100 000
FIELD EXPENSES	
Bench fees ($100/week) 18 months in field P.I.	7 200
Bench fees (" " " " " " R.A.	7 200
	14 400
TRAVEL	
6 return airfares/yr (2½ years) P.I.	3 000
6 " " " " " R.A.	3 000
	6 000
+ Inflation (15%)	900
	6 900
EQUIPMENT	
Diving Gear x 2	2 000
Boat (14ft with 25hp motor)	3 000
Microscope & equipment accessories	5 000
Miscellaneous equipment	2 000
	12 000
+ Inflation (10%)	1 200
	13 200
MAINTENANCE	
Boat running costs & maintaining engines	3 000
General	2 000
	5 000
+ Inflation (10%)	500
	5 500
THREE YEAR TOTAL	$140 000

../44

2. The coral trout tagging program commencing later this year should be pursued and become part of a program aimed at obtaining catch records for all coral trout caught at Heron Island. Heron Island is one of the few places on the coast where a fairly 'closed' system exists i.e. most of the fish are landed on the island by relatively few people. With the co-operation of these people, length measurements and location of all fish landed could be recorded. This information will be of assistance to a study of coral trout biology.

As a further step it is recommended that a fishing competition be held at Heron Island in conjunction with one of the Fishing Expo's (possibly this November), in which after an intensive tagging survey program a limited area is opened for a week or two for intensive fishing where prizes are awarded and subsequnetly the area is surveyed and then regularly monitored to determine how rapid the recovery is.

3. The third recommendation which relates to coral trout surveys is that stocks of coral trout probably differ between areas, even if they belong to the same species. For these reasons it will be necessary to have an 'unfished' area as representative for each area. Thus assoon as the Authority can proceed with Declaration, representative areas in each general area should be closed to fishing as at Heron Island.

../45