A small boat survey conducted by the Queensland Fisheries Service in 1978 showed Green Island reef to be the most heavily visited reef in the Cairns region, being visited by 35% of the boats operating out of Cairns. Average catch/boat was 4 fish (Australian Littoral Society, 1990). The Green Island Management Committee (1980) refer to depletion of large demersal carnivore stocks due to fishing. Average catch/boat was 4 fish (Australian Littoral Society, 1990). Economic Associates Australia (1983) considered the depletion in stocks of large individuals of some species to be the only major human impact on Green Island and its reef.

I have been unable to locate a published species list for the fish of Green Island reef. Cannon and Goeden (1983) provide a species list of the bottom-dwelling fish netted during their 1980 benthic survey of stations around Green Island, although these were taken from depths between 30m and 50m at considerable distances from the reef itself. A list of the 90 species recorded on Green Island by McCorkick and Choat (1989) is available from Mark McCormick (James Cook University), although this was not received in time to be included in this review.

Ayling's trout survey, 1983

A coral trout survey was conducted by Ayling (1983) in February 1983 at sites positioned randomly along the south-western edge of the reef (specific site locations are not given). Two survey techniques were employed - hectare counts (5 replicates) in which 150m x 67m areas were intensively searched, and 50m x 20m belt transects (10 replicates). The water depths at which the counts were made are not given.

The hectare counts yielded mean trout densities of 13/ha for Plectropomus leopardus (common coral trout) and 0.2/ha for Plectropomus melanoleucas (footballer trout). The latter species has since been recorded by Ayling and Ayling (1986) as 'Plectropomus laevis, footballer form'. The belt transect counts yielded trout densities of 19/ha for P. leopardus and 1/ha for P. laevis. Pooling the hectare counts and belt transect counts, P. leopardus recruits were found at a density of 1.7/ha.

In an analysis of the effect of fishing pressure on P. leopardus numbers, based on the hectare count data, Green Island reef was classified as a high-fishing reef. Within this classification, P. leopardus numbers were highest on Green Island reef (13/ha) and were very similar to the mean numbers recorded within the low-fishing classification (12.5 $\pm$ 1.24/ha) (Ayling, 1983).

Goeden's trolling survey, 1984-85

While the Marine National Park 'B' Zone at Green Island reef is closed to recreational and commercial fishing under the Great Barrier Reef Marine Park Authority's Zoning Plan, mackerel fishing is conducted within the Marine National Park Buffer Zone around the perimeter of the reef. Trolling is generally undertaken along the 10 fathom (18m) contour (Goeden, pers. comm.).

A project to assess the impact of trolling in Marine National Park Buffer Zones was conducted in the Green Island - Arlington Reef area by Goeden (1986) over the 1984 and 1985 commercial mackerel fishing seasons (October - December). Scomberomorus commerson (narrow-barred spanish mackerel) accounted for 92% of the catch, with the remainder Caranx and Carangoides species (both trevally), Sphyraena barracuda (barracuda) and Grammatocynus bicarinatus (shark mackerel). Size distributions, depth at capture (troll catches occurred only between 8 and 20m) and stomach contents of the catches were analysed. Stomach contents of the S. commerson caught were 93% fish, 4% crustacean and 3% mollusc remains, while the other species had either empty guts or unidentifiable stomach contents (Goeden, 1986).

McCormick and Choat's survey, 1988-89

Estimates of juvenile and adult fish abundances within and outside the Green Island seagrass meadows were made by McCormick and Choat (1989) in May 1988 and April 1989. The fish populations on each of five bommies within two seagrass meadow sites and two sites outside the meadows [Fig.3.1] were estimated using a visual strip transect technique.

The numbers of fish species recorded within (88 species) and outside (81 species) the seagrass meadows were similar, although a significantly higher number of juveniles were associated with the seagrass meadows. The abundance of adult fishes was greater at the Green Island reef sites than at sites on neighbouring Arlington Reef. While McCormick and Choat (1989) considered this may have been a function of the greater protection afforded to Green Island reef through the Great Barrier Reef Marine Park zoning, they felt greater recruitment of juveniles to Green Island suggested an effect of the seagrass meadows. A reviewer of the draft Green Island Information Review disputed this opinion and suggested that the seagrass meadows were merely a preferred habitat for juveniles within Green Island reef, with protection from fishing the main factor responsible for the greater numbers of adults and therefore of juveniles.

McKenzie's study, 1989-90

Since May 1989, L. McKenzie of the Queensland Department of Primary Industries Northern Fisheries Research Centre, Cairns, has been examining the diversity and abundance of the juvenile fish fauna associated with the Halodule uninervis/Cymodocea serrulata seagrass meadow on the north-west corner of the reef. Sampling has been on a 3-monthly basis using a beam trawl 1.5m wide and 0.5m high with 2mm mesh towed over 50m transects at approximately $0.5ms^{-1}$. Sampling is expected to continue until March 1992 (McKenzie, pers. comm.).