Title: Revenue Enhancing Technology and Excess Capacity: A case study of the Great Barrier Reef reef-line fishery

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Abstract: Overcapacity in the form of excess fishing vessels or effort allocation often arises out of improved economic conditions and/or innovation in fishing methods and is generally associated with species overexploitation. With many fisheries fully or over-exploited, stakeholders are advocating product enhancement to add value to the fishery. A recent innovation in handling and husbandry techniques in the coral reef finfish fishery (CRFF) on the Great Barrier Reef has seen considerable value added to the main target species' whereby these species are sold alive as opposed to frozen. For operations adopting this technology, vessel profitability has been considerably enhanced. While bringing about improved economic conditions in the short-run, the emergence of the trade in live reef fish has coincided with an increase in fishing effort and catch, much of which has been attributed to mobilisation of latent effort, which threatens the biological and economic sustainability goals of the fishery.

The limited entry CRFF is used to explore the issue of reducing excess capacity where latent effort exists. Data collected from surveys has been used to develop a virtual fleet with heterogenous capital stocks and input utilisation. Data Envelopment Analysis (DEA) is used to estimate capacity where i) outputs are unregulated and latent effort prevails (input-oriented) and ii) under a TAC constraint where latency in the fleet has been partially addressed (output-oriented). This study differs from other previous studies in that it uses cost and revenue data as opposed to physical inputs and outputs and is applied to a low-technology capital non-intensive fishery. Moreover, fishing effort is heavily weather dependent. The effectiveness of effort and catch reduction goals will be discussed in the context of fleet heterogeneity and whether removal of latent licences has improved capacity utilisation.