

Economic value of recreational fishing in Moreton Bay and the potential impact of the marine park rezoning



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HIGHLIGHTS

- Recreational fishing in Moreton Bay is valued at AUD\$20m/year.
- Higher catch rates following Marine Park rezoning were observed.
- Rezoning increased recreational benefits by 5–12%.

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ABSTRACT

In 2009, the area of the Moreton Bay Marine Park was increased from 0.5 per cent of the Bay area to 16 per cent. During the planning process, opposition by commercial and recreational fishers alike was raised, arguing that loss of fishing grounds would lead to substantial loss in economic benefits. The commercial sector was compensated through a buyback of fishing effort, but the recreational sector received no compensation. In this paper, we develop a travel cost model to estimate the potential economic impact on the recreational sector from the marine park rezoning. The results suggest that, counter to initial claims, non-market recreational fishing benefits may have increased by between \$1.3m and \$2.5m a year, with a current total annual value of around \$20m.

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1. Introduction

Although the primary focus of establishing marine reserves is usually conservation, marine parks can also attract tourism and recreational users (Gray, Canessa, Rollins, Keller, & Dearden, 2010; Stoeckl et al., 2010), and in cases where spill-over effects occur from the marine reserves, may also increase benefits to existing recreational users such as fishers. The designation of multiple use or recreational fishing-only zones within marine parks is an attempt to capture some of these benefits to offset costs imposed in other areas (e.g. through exclusion of fishing activity), and hence inclusion of such zones is common in the development of marine parks.

Such design principles were applied to the re-zoning of the Moreton Bay Marine Park in 2009. Moreton Bay (see Fig. 1) forms the main coastline of the city of Brisbane, the capital of Queensland and the third largest city in Australia. The marine park, like many marine reserves, contained a mixture of no-take zones, recreational fishing only zones, areas where commercial fishing other than

trawl is permitted and areas open to all fishing (commercial and recreational). A key objective of the re-zoning was to increase the protected area (previously 0.5% of the total Bay area) such that at least 10 per cent of each habitat in the Bay was in a protected area, with an even greater proportion of vulnerable habitats protected. A further objective was to achieving this increase at least cost to the commercial and recreational fishing sectors using the Bay. In total, an area of 16 per cent of the Bay was proposed for inclusion in no-take zones (Fig. 1).

Despite its proximity to Brisbane, relatively little economic information is collected on the fisheries in Moreton Bay. In 2001, the estimated gross value of production of commercial fisheries was approximately \$33.2 million,¹ representing 10.6 per cent of the total value of production of the Queensland commercial fishing industry (Fenton & Marshall, 2001). More recent estimates 'pre-rezoning' suggest that the value of production of the commercial fisheries were in the order of \$24m–\$30m (McPhee et al., 2008). In contrast, estimates of the value of recreational fishing in the Bay were

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¹ All figures in the paper are in Australian dollars. Currently, AUD\$1 = US\$0.92.

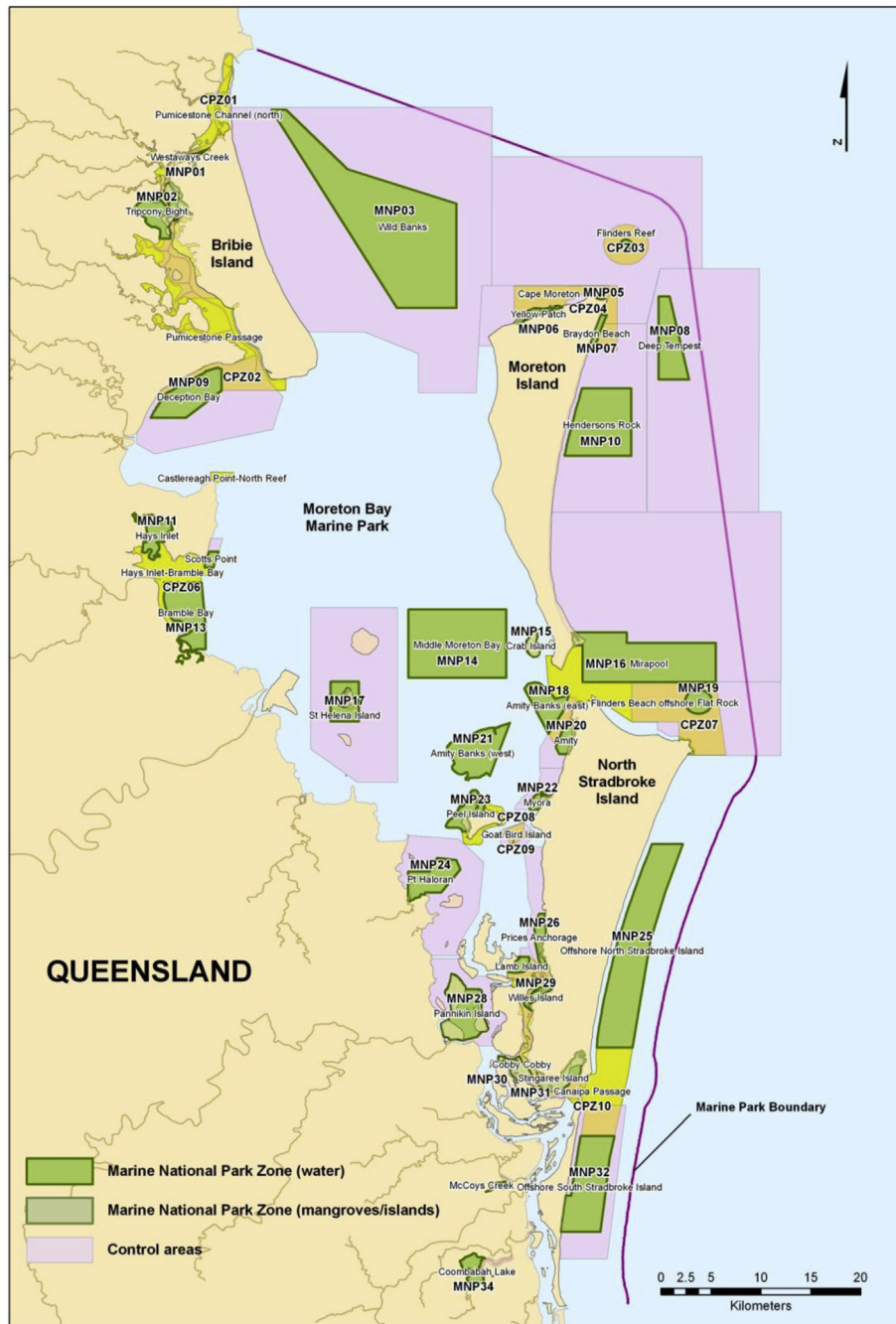


Fig. 1. The study area.

considerably greater. These ranged from \$194m (Henry & Lyle, 2003) to \$156m (McPhee et al., 2008) in terms of direct expenditure by fishers in Moreton Bay. Expenditure, however, is not always a good measure of economic value.

During the re-zoning planning phase, there was considerable opposition by both commercial and recreational fishers to the potential increase in no-take zones and the loss of commercial fishing grounds (van de Geer, Mills, Adams, Pressey, & MCPhee, 2013). As part of the plan, the commercial sector was compensated through a buyback of fishing effort (Sen, 2010), although the effectiveness of this program in terms of offsetting the loss of commercial fishing grounds is questionable (van de Geer et al., 2013). In contrast, the recreational sector received no compensation. One study of the

response of recreational fishers to the increased amount of closed areas suggested that a greater than proportional decrease in fishing effort (and hence fishing expenditure) may occur, resulting in a substantial loss to the local economy (McPhee et al., 2008).

A series of studies were undertaken to determine the effects of the marine park rezoning on biodiversity and human activity – particularly recreational fishing use – although an economic analysis was not funded as part of this mix. However, a number of questions were included in one study from which travel costs and socioeconomic characteristics of the fishers could be derived (see Kenyon et al., 2011).

The purpose in our study was to estimate the economic value of recreational fishing in Moreton Bay using a travel cost model, and

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