

Title: **Expected Catch Rate and Recreational Fishing Effort: Implications for Management in the Western Australian West Coast Demersal Fishery**

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Abstract: The West Coast Demersal fishery in Western Australia includes some highly prized recreational fish: dhufish, pink snapper and baldchin groper. Following a recent assessment that found these stocks are under threat from overfishing, a range of new regulations designed to restrict effort have been introduced with the objective to facilitate stock recovery. Recently adopted measures include commercial fishing bans, restricted and closed recreational fishing seasons and dramatically reduced bag limits, although the recreational fishery remains open access. Proposals for higher licence fees were rejected. This paper uses a model of recreational fishing behaviour in which effort is determined by key variables such as trip cost, number of fish caught, catch rate, and size of fish caught, to analyse how fishers might react to these management changes. The particular focus is on how fishers might respond to catch rates. If fishers respond to catch rate improvement by increasing effort, then stock enhancement gains won via closed seasons and other policies might be dissipated. A survey of 380 individual fishers in the West Coast Demersal fishery carried out prior to the most recent management changes is analysed to investigate this issue. The survey collected information on catch (kept and released) by species, fishing costs, satisfaction with catch, and the broader fishing experience, socio economic descriptors and willingness to pay. Poisson and negative binomial regression models are used to estimate the relationship between annual trips and catch rate by targeted and other species. The model is used to derive and estimate the catch rate trip elasticity. This estimate is then used in the model to simulate the change in trip cost needed to neutralize any effort response to an increase in expected catch rates.