Hon Colin Barnett
Premier; Minister for State Development; Science
1 Parliament Place
WEST PERTH WA 6005

Cc: Hon Albert Jacob, Minister for the Environment

16/06/2014

Re: Roebuck Bay Marine Park and Marine Sanctuary Zone

Dear Premier,

We, the undersigned Australian scientists, welcome the State Government's decision to create a marine park at Roebuck Bay.

The protection of Roebuck Bay will be an important addition to the State's marine park estate. Roebuck Bay's red sandy beaches, mangroves and tidal creeks are of high conservation value[1]. Its relatively shallow, warm waters serve as a critical nursery, breeding and feeding ground for Australia's iconic and endemic snubfin dolphins, dugongs and several species of turtle; as well as economically, recreationally and culturally important species including blue and king threadfin salmon and mud crabs[1,2]. With a large tidal range, the Bay contains extensive mudflats that are internationally recognised for their productivity and diversity[1]. These mudflats not only support marine species which inhabit the bay, they also provide critical foraging habitat for as many as 150,000 migratory birds; for this reason Roebuck Bay was declared a Ramsar site in 1990[1,3,4].

Imperative to delivering outcomes for this outstanding biodiversity is the inclusion of a significant area of highly protected no-take marine reserve within the marine park[5]. There is clear scientific evidence that no-take reserves are important for biodiversity conservation, generating greater biodiversity outcomes than partially protected general use zones where fishing remains permitted[6].

There is now extensive evidence that the size, density and numbers of fish and a range of other species increase within marine sanctuaries[5-12]. Whilst these benefits would likely accrue across a range of species, there are also particular species within Roebuck Bay that could be expected to benefit. These include culturally and recreationally important species such as mud crabs and threadfin salmon[1,2]. Data on fish parasites and genetics have shown that threadfin salmon have relatively limited movements and it is therefore likely that numbers and size will accumulate within a marine sanctuary[13-17]. Adult mud crabs have also shown limited alongshore movement (< 2km), with further evidence of recovery of population numbers and size within existing marine sanctuaries in Northern Australia that could be replicated in Roebuck Bay[18-24].

A marine sanctuary could also contribute to sustainable recreational and cultural fishing, with larger breeding fish within the sanctuary producing recruitment and spill-over into surrounding waters[6-8, 14-15, 25]. Marine sanctuaries have also been shown to provide fisheries benefits for mud crabs in Northern Australia[24].

At < 200 individuals, the population of snubfin dolphins within Roebuck Bay is small by conservation standards, and vulnerable to anthropogenic threats and environmental change[26]. Furthermore, recent research suggests a degree of genetic isolation of Roebuck Bay snubfin dolphins, with very low levels of movement between Roebuck Bay and an adjacent population[27].

Persistence of the Roebuck Bay snubfin dolphins depends on adequately protecting them within the Bay, therefore, the planning of a marine protected area should seek to minimise anthropogenic threats to this vulnerable population(26). Entanglement in gillnets represents one of the greatest threats to small cetaceans, contributing to the decline of several species of inshore dolphins(28-30), and represents a considerable threat to snubfin dolphins(29). Research from the Banks Peninsula marine protected areas in NZ shows that MPAs can be used to effectively manage the risks posed by gillnets to small coastal dolphins (29). In addition, studies within marine sanctuaries in coastal tropical environments have suggested an increase in population size of fish from families recorded to be a part of snubfin diets(32-34). Research has also indicated larval dispersal extends beyond sanctuary limits for these species(35-37), meaning a sanctuary could contribute to the resilience of populations of small fish that make up the snubfin diet. Thus, a marine park with appropriate and permanent restrictions on fishing gear types and a marine sanctuary would increase the resilience of the Roebuck Bay snubfin population.

Marine sanctuaries with minimal human impacts are also an important tool for managers and researchers to understand changes over time(38,39). There is a paucity of marine sanctuary zones within dynamic, tidally-driven systems, and the Roebuck Bay marine park represents a unique opportunity to study the effects and potential benefits of no-take management zones in such an environment. Highly protected sanctuary zones help us understand the ecological impacts of fishing and help us interpret long-term changes, such as those driven by ocean warming and coastal development(40,41).

There are clear benefits provided by marine sanctuaries for the protection of biodiversity which are not produced by other marine park zonings. Increasingly, benefits are also being documented for fisheries in surrounding waters(42). A well designed marine sanctuary of adequate size within the Roebuck Bay marine park, accompanied by a suitable monitoring program, can be expected to provide significant benefits to the protection of biodiversity, and also make a contribution to the preservation of species important to tourism, such as snubfin dolphins, and to recreational fishing in the long term.

Yours Sincerely,

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