

Western blue groper research – state of the art

Cutting edge acoustic technology is currently being used to secure the future of the iconic Western blue groper (“blue groper”), *Achoerodus gouldii*.

The enchanting blue groper is a true “gem of the sea”, inhabiting shallow reefs from south-western Western Australia (WA) to eastern South Australia (SA). The brilliant blue of the males, with lengths of up to 1.7m, plus their inquisitive nature, makes them a hit with divers.



Western Blue Groper (*Achoerodus gouldii*) being released after tagging

In SA, blue groper is of conservation concern, with repeated calls by community groups for their greater protection.

As it stands, they have been partially protected since 1980 under the South Australian Fisheries Act 1982 (now the Fisheries Management Act 2007), but they are still vulnerable to commercial, charter and recreational fishers due to specific life history characteristics that include sex-change, slow growth, extended time to maturity (~15 years), and exceptional longevity of 70 years.

Like many other reef fish, blue groper are susceptible to barotrauma, which is an expansion of body gases due to pressure changes when pulled up rapidly from depth on fishing lines. Despite fishers often trying to release blue groper soon after capture, the physical symptoms of barotrauma can result in their subsequent death.

Researchers from the Department

of Environment and Heritage South Australia, South Australian Research and Development Institute (SARDI), Flinders University SA, the University of Adelaide and Zoos SA are monitoring blue groper at a site off Kangaroo Island, South Australia, using the latest acoustic technology, to better understand the size of the home ranges; site fidelity and habitat use of this iconic species.

Initially, this project involved the deployment of several acoustic receivers fixed to moorings on the seabed in an area where there was a large aggregation of blue groper.

A total of 15 blue groper were fitted with miniature acoustic tags within the acoustic array during the summer of 2009. Signature ‘pings’ from the acoustically tagged fish can be heard by the acoustic receivers within a 3km coastal reef strip off Kangaroo Island.

Results from the study will assist in the planning of sanctuary zones within multiple use Marine Protected Areas.

The large number of detections recorded to October 2009 show blue groper have a high degree of residency within the acoustic array, and a high affinity for a relatively small, thin strip of inshore reef habitat.

Data from pressure tags placed on two fish also show that blue groper shelter in caves within the array between dusk and dawn and rarely leave their home reef, as has been confirmed by divers.

Further data is being collected during summer 2009/10 and the project is set to be completed by April 2010.

Similar research is being undertaken by SARDI researchers, in collaboration with Macquarie University, to investigate Eastern blue groper, *Acheorodus viridus* in the Bronte-Coogee Aquatic Reserve off Sydney.

Marine Innovation SA (MISA), an initiative of the South Australian Government, is a partnership between the South Australian Research and Development Institute (SARDI), Flinders University, University of Adelaide, South Australian Museum, Primary Industries and Resources SA and the SA seafood industry.

Key Points

Western blue groper (“blue groper”) are partially protected but specific life history characteristics continue to make them vulnerable to commercial, charter and recreational fishers.

Research is using the latest acoustic technology to better understand the movements of blue groper.

Results from the study will assist in the planning of sanctuary zones within multiple use Marine Protected Areas, securing the future of blue groper in South Australian waters.

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