



National Environmental  
Research Program

**TROPICAL ECOSYSTEMS** *hub*

## **NERP Tropical Ecosystems Hub Conference 2013**

**Wednesday 8 May 0830-1000  
Forum Synopsis**

### **Effectiveness of spatial zoning for biodiversity and fish populations**

Convener: Dr Laurence McCook  
Acting Director, Climate Change and Science  
Great Barrier Reef Marine Park Authority



**Australian Government**

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**Department of Sustainability, Environment,  
Water, Population and Communities**

# Forum Synopsis Wednesday 8 May 0830-1000

## Forum: Effectiveness of spatial zoning for biodiversity and fish populations

Convener: Dr Laurence McCook, Acting Director, Climate Change and Science, Great Barrier Reef Marine Park Authority

Spatial zoning, including networks of marine reserves, is a key tool in marine management and conservation, although it must be seen as only one of a portfolio of complementary approaches needed for effective management. The zoning of the Great Barrier Reef provides a globally significant scientific opportunity to test and understand the potential effects of spatial zoning, due to its unique combination of: regional scale replication; the use of a transparent and accountable set of design principles; relatively effective compliance and enforcement regimes; and the wealth of monitoring and background scientific information available, including some before-after comparisons.

Recent syntheses have covered a broad range of evidence on the outcomes of the zoning of the Great Barrier Reef, from effects on fish populations, through seabed biodiversity to social and economic perspectives. It is critical that we keep in mind that the primary objective of zoning is to enhance protection of the full-range of Reef biodiversity across the entire Marine Park. Thus, we are interested in the effects across the ecosystem, not just within the reserves, and we are interested in the effects on biodiversity generally, and not just the effects on fish populations within reserve zones. However, this presents some real challenges for the underlying logic of research and monitoring programs.

The three presentations in this session will provide key updates to the information available on the direct effects on zoning on target fish populations, and apex fish predators.

- Dr David Williamson will describe the work monitoring the effects of the GBR network of marine reserves ("Green Zones") on fish populations. He will outline the latest data from the monitoring program on the effects of marine reserves, integrating work from a range of inshore and offshore reefs.
- Prof. Geoff Jones will outline spillover benefits from marine reserves and larval dispersal within and between zones. He will describe his team's ground-breaking research providing the first empirical evidence for larval spillover from marine reserves to other reserve areas, and to non-reserve reefs. This is critical research because it not only suggests benefits to fished populations, but also that the reserve network is functioning as a network, providing greater resilience to the entire ecosystem.
- Dr Andrew Tobin will discuss movements of apex fish predators, describing research on movement and behaviour of larger sharks and other predators, and how zoning and reserves contribute to the protection of these species. Unlike many of the target fish, which are relatively site-attached and hence effectively protected by reserves, more mobile species present different challenges, and illustrate the need for complementary spatial and other management approaches.

Joining the speakers in a Q and A panel session following the presentations will be representatives of the research user community and related experts.

### Potential focus questions for the discussion include:

- How are the benefits within reserves transferred to the wider ecosystem, including groups other than fish...?
- How do the ecological effects translate into benefits for the wider community?
- How can we better share emerging knowledge of these effects with the wider population, including outside Queensland?