12 Integrated Marine and Coastal Assessment and Management (IMCAM)

Leader: Dr Campbell Davies

12.1 Overview

The IMCAM Program provides integrated assessments and risk-informed advice for management of human use of marine and coastal resources and ecosystems. We address directly a number of national challenges, including food security, conservation of marine biodiversity, and integrated oceans and coastal planning and management. IMCAM Program scientists are recognised nationally and internationally for their roles in innovative research leading to implementation of ecosystem-based fisheries management and the precautionary approach and multiple-use management of marine and coastal activities. A number of program staff have received formal recognition for their contributions to science and the sustainable use and conservation of marine ecosystems (e.g. Dr Keith Sainsbury, Japan Prize, [50] Dr Tony Smith, Centenary of Federation Medal for contributions to Fisheries Science, ICES Service Award, Dr Beth Fulton, Science Minister's Prize for Life Scientist of the Year and Pew Fellowship for Marine Conservation).

Defining aspects of the Program include: a focus on applied solutions for issues of a national and international scale; multi-disciplinary teams including disciplines from population dynamics and operations research to resource economics and social network analysis; the use of a range of formal methods for incorporating uncertainty in the state, dynamics, and response of ecological and human systems and assessing risk; and, increasingly, whole of system approaches to marine and coastal management issues. The IMCAM Program is unique in the Australian context for its depth and breadth of capability in marine resource assessment and management advice and experience across a range of national and international applications.

The Program plays a substantial national role as the primary provider of scientific advice for Commonwealth fisheries and Australia's participation in Regional Fisheries Management Organisations. IMCAM is a major contributor of ecosystem and socio-economic modelling expertise to major research partnerships with universities, other Australian, and state government research agencies. Examples include the Western Australian Marine Science Institute (WAMSI), the Marine and Tropical Sciences Research Facility (MTSRF), and the Prediction and Management of Marine Biodiversity Research Hub of the Commonwealth Environmental Research Facilities (CERF) Program.

IMCAM has international leaders in the fields of population dynamics, resource assessment, and management strategy evaluation (MSE) (Drs' Tony Smith, Bill De la Mare, Tom Polacheck, Andre Punt, Cathy Dichmont, and Marinelle Basson), ecosystem modelling (Drs' Beth Fulton, Eva Plagyani-Lloyd), resource economics (Drs' Sean Pascoe, Oliver Thebaud), spatial modelling (Drs' Scott Condie, Vincent Lyne) and participatory and social sciences (Dr Pascal Perez). There are active capability development activities in progress, including succession planning and targeted recruitment to maintain and enhance the breadth and depth of expertise in the short and long-term. The modelling, analysis and synthesis strengths of the Program mean that staff participate in project teams with other CMAR programs, other CSIRO Divisions, and a range of external collaborators as well as being widely sought for international collaborative initiatives.

Primary areas of impact for the Program include: international peer reviewed literature (Journals) on methods for assessing, understanding and providing management advice on marine and coastal systems (average of 34.4 Journal publications per year 2005-09); primary provider of fisheries assessment and management advice for Commonwealth fisheries and Australia's involvement in international fisheries; tactical and strategic advice on multiple use management and potential climate impacts in the coastal zone to government, industry and community; and approaches and advice on marine biodiversity conservation at a national and international level.