Developing Australia’s national system of marine reserves
A statement of concern about the proposal for Australia’s South West Marine Region

Coordinator: Professor Hugh Possingham, The University of Queensland 8 August 2011

On 5th May 2011 the Australian Government released a draft proposal for a network of marine reserves in the Commonwealth waters of the South West bioregional marine planning region. Australia’s South West is of global significance for marine life because it is a temperate region with an exceptionally high proportion of endemic species – species found nowhere else in the world.

Important industries, such as tourism and fisheries, depend on healthy marine ecosystems and the services they provide. Networks of protected areas, with large fully protected core zones, are essential to maintain healthy ecosystems over the long-term – complemented by responsible fisheries management1.

The selection and establishment of marine reserves should rest on a strong scientific foundation. We are greatly concerned that what is currently proposed in the Draft South West Plan is not based on the three core science principles of reserve network design: comprehensiveness, adequacy and representation. These principles have been adopted by Australia for establishing our National Reserve System and are recognized internationally.2

Specifically, the draft plan fails on the most basic test of protecting a representative selection of habitats within the bioregions of the south-west. There are no highly protected areas proposed at all in three of the seven marine bioregions lying on the continental shelf.3 Overall less than 3.5% of the shelf, where resource use and biodiversity values are most intense, is highly protected. Further, six of the seven highly protected areas that are proposed on the shelf are small (< 20km in width)4 and all are separated by large distances (> 200km).5 The ability of such small isolated areas to maintain connectivity and fulfill the goal of protecting Australia’s marine biodiversity is limited.

The gaps are further exemplified by the very patchy protection of identified unique features. We are concerned that 160 of the 165 areas identified as biologically important and thirteen of the sixteen key ecological features mapped during the planning process have either low levels of protection proposed (< 15% in highly protected areas) or very limited protection proposed (0% in highly protected areas). It is well recognized that where the habitat of a threatened species is spatially restricted full protection may be required.6

We have grave concerns about the lack of protection caused by these gaps in the proposed system of marine reserves. To protect marine biodiversity all habitat types should be represented to an adequate level within highly protected areas.5 If implemented as proposed, the marine reserves would cover less than half of the mapped habitat types within the South-west planning region within highly protected areas. This would be a major failure for the whole marine planning process and send a poor signal internationally.

We urge the Australian Government to amend the proposed network of marine reserves to address these concerns, by significantly increasing the level of protection to adequately cover all the continental shelf bioregions, and providing a high level of protection for key features such as the Abrolhos region, the Rottnest Shelf, the Perth Canyon, Geographe Bay and the Capes, the Albany Canyons, the Recherche region, the Great Australian Bight, Kangaroo Islands Canyons, and the Kangaroo Island upwelling system—one of Australia’s most productive ocean areas.
Endorsements:
Endorsed by the AMSA Council on behalf of the Australian Marine Science Association.
Endorsed by the ACRS Council on behalf of the Australian Coral Reef Society.

Supporting scientists:
Adam Pope, Research Academic, School of Life & Environmental Sciences, Deakin University, Victoria.
Adriana Verges, PhD, marine ecologist, Sydney Institute of Marine Science, University of NSW, Sydney.
Alastair Harborne, PhD, NERC Research Fellow, Spatial Ecology Lab, University of Queensland, St Lucia Brisbane.
Alex Petrie, BVMS(Hons) PostGradDip Conservation Medicine, 9/2 Davies Street Northbridge 6003.
Alex Wyatt, Fulbright Scholar, Scripps Institute of Oceanography, University of California, San Diego, USA.
Alexander Gillespie, Pro-Vice-Chancellor of Research and Professor of Law, University of Waikato, NZ.
Alicia Sutton, BScHons, Centre for Marine Futures, Oceans Institute, University of Western Australia.
Allyson O’Brien PhD, soft sediment ecology, The University of Melbourne, Victoria.
Alvin van Niekerk, PhD, ARC Centre of Excellence for Environmental Decisions, University of Queensland.
Andrew Baker, Assoc Professor, Pew Fellow in Marine Conservation, University of Miami, Florida USA.
Andrew Wright, MSc, FRGS, Aarhus University, Denmark.
Andy Davis, Assoc Prof, marine conservation biology, University of Wollongong, NSW.
Anna Scott, PhD, Lecturer, National Marine Science Centre, Southern Cross University, Coffs Harbour NSW.
Anne Hoggett, PhD, Director, Lizard Island Research Station, PMB 37, Cairns, Queensland.
Anthony Cheshire, PhD, Professor, Principal Scientist, Science to Manage Uncertainty, Belair, South Australia.
Anthony Richardson, Associate Professor, Centre for Applications in Natural Resource Mathematics, UQ, Qld.
Ayesha Tulloch, PhD candidate, The Ecology Centre, Biological Sciences, University of Queensland, Brisbane.
Barry Baker, Director, Latitude 42 Environmental Consultants, Kettering Tasmania 7155.
Barry Brook, Professor, Director of Climate Science, The Environment Institute, The University of Adelaide, SA.
Belinda Cannell, PhD, Biological Sciences and Biotechnology, Murdoch University, Murdoch, WA 6150.
Belinda Curley, PhD, Marine Ecology, Sydney Institute of Marine Science, New South Wales.
Benjamin Fitzpatrick, Grad Res Assist, Centre for Marine Futures, University of Western Australia, WA.
Benjamin Halpern, Director, Center for Marine Assessment and Planning; Research Scientist, UC Santa Barbara.
Benjamin Kahn, Director, APEX Env., Coral Triangle Oceanic Cetacean Program, Clifton Beach, Queensland.
Bette Willis, Professor, marine biology, ARC Centre of Excellence for Coral Reef Studies, JCU, Townsville, Qld.
Beverley Clarke, PhD, Director of Studies, Master of Environmental Management, Flinders University, Adelaide.
Bill Carter, Assoc Professor of Heritage Resource Management, University of the Sunshine Coast, Maroochydore.
Bill Gladstone, Professor, Head, School of the Environment, University of Technology, Sydney New South Wales.
Boris Worm, Associate Professor, Department of Biology, Dalhousie University Halifax, NS, Canada.
Brad Congdon, PhD, Reader, Dept Head, School of Marine and Tropical Biology, James Cook University, Cairns.
Brian Finlayson, Professor, aquatic environments & conservation planning, Melbourne University, Victoria.
Brigitte Sommer, PhD candidate, ARC Centre of Excellence for Coral Reef Studies, University of Queensland.
Britta Munkes PhD, marine ecology, Edith Cowan University, Perth, Western Australia.
Bronwyn Gillanders PhD, marine ecology, University of Adelaide, Adelaide SA.
Bruce Kendall, PhD, Professor of Environmental Science and Management, Univ of California, Santa Barbara.
Callum Roberts, Professor, Environment Department, University of York, York, United Kingdom.
Carissa Klein, PhD, ARC Postdoctoral Fellow, conservation science, University of Queensland, Brisbane Qld.
Carl Safina, PhD, Founding President, Blue Ocean Institute, Cold Spring Harbor, New York, USA.
Carmen Primo, PhD, Associate Lecturer, NCMCRS, University of Tasmania.
Chandra Salgado Kent, PhD, Research Fellow, Centre for Marine Science and Technology, Curtin University, WA.
Charles Sheppard, Professor, School of Life Sciences, University of Warwick, United Kingdom.
Chris Fulton PhD, coral reef fish ecophysiology, Coral Reef Studies, ANU, Canberra.
Chris Wilcox, PhD, marine ecology, Battery Point, Hobart, Tasmania.
Christine Schoenberg PhD, benthic ecology, Australian Institute of Marine Science, Perth WA.
Christopher Brown, PhD candidate, Marine Ecology & Fisheries. School of Biological Sciences, UQ, Brisbane.
Christopher Burton, Director, Western Whale Research, Dunsborough, Western Australia.
Clive Wilkinson, PhD, Coordinator of the Global Coral Reef Monitoring Network, Townsville
Corey Bradshaw, Professor, Ecological Modeling, University of Adelaide, South Australia.
Craig Johnson, Professor of Zoology, Director of Marine & Antarctic Futures Centre, IMAS, University of Tasmania
Curt Jenner, Managing Director, Centre for Whale Research (WA) Inc, Fremantle, Western Australia.
Cynthia Riginos PhD, marine genetics, School of Biological Sciences, UQ Brisbane Qld.
Dan Laffoley, Professor, Marine Vice Chair, IUCN World Commission on Protected Areas.
Daniel Pauly, Professor of Fisheries, Fisheries Centre, The University of British Columbia, Canada.
Daniel Smale, PhD, Research Fellow, Oceans Institute, University of Western Australia, Perth Western Australia.
Daniela Ceccarelli, PhD, Marine Ecology Consultant, PO Box 215, Magnetic Island QLD 4819.
David Booth, Professor, Marine Ecology, University of Technology, Sydney New South Wales.
David Sutton, Assoc Prof, Microbiology and Immunology, Oceans Institute, University of Western Australia.
David Williamson, PhD, Research Fellow, ARC Centre of Excellence for Coral Reef Studies, James Cook Univ., Qld.
Debora De Freitas, PhD, Research Fellow, Aust. National Centre for Ocean Resources & Security, UniWollongong.
Deborah Milham-Scott, PhD, Faculty of Science, Health & Education, University of the Sunshine Coast, Qld.
Dirk Zeller, Senior Research Fellow & Project Manager, Sea Around Us Project, University of British Columbia.
Edward Game, PhD, Adjunct Fellow, School of Biological Sciences, University of Queensland, Brisbane Qld.
Eleanor Bruce, PhD, Senior Lecturer, coastal management, School of Geosciences, University of Sydney, NSW.
Elliott Norse, PhD, President, Marine Conservation Institute, Bellevue Washington USA.
Eric Treml, PhD, marine ecology and conservation, University of Queensland, Brisbane, Queensland.
Erich Hoyt, Research Fellow, Whale & Dolphin Conservation Society, IUCN SSC WCPA & CSG, United Kingdom.
Fiona Scott, PhD candidate, marine algae, University of Tasmania, Hobart Tasmania.
Florencia Micheli, PhD, Hopkins Marine Station, Stanford University, California, USA.
Francis Pantus, PhD, Assoc Prof, Australian Rivers Institute, Griffith University, Nathan, Queensland.
Gabriel Vianna, PhD candidate, Centre for Marine Futures, University of Western Australia, Crawley WA.
Gabrielle Cummins, BSc(Hons), Graduate Research Assistant, Centre for Marine Futures, Univ of WA.
Gary Davis, US National Park Service Chief Ocean Scientist, Westlake Village, California, USA.
Gary Luck, Assoc Prof, Environmental Sciences, Charles Sturt University, Albury NSW.
Geoffrey Wescott, Assoc Prof, marine ecology and conservation, Deakin University, Geelong Victoria.
George Shillinger, PhD, Stanford University, Marine Biologist, Monterey, California.
Giuseppe Notartortolo di Sciara, PhD, President, Tethys Research Institute, Milano, Italy.
Graeme Kelleher, AO, FTSE, FIEAust, FEIANZ, former director Great Barrier Reef Marine Park Authority, Canberra.
Graham Edgar, Assoc Prof, marine ecology, University of Tasmania, Hobart Tasmania.
Greg Skilleter, PhD, Marine and Estuarine Ecology Unit, University of Queensland, Brisbane, Australia.
Gretchen Daily, Professor of Environmental Science, Department of Biology, Stanford University, Stanford, USA.
Hedley Grantham, PhD, Science and Knowledge, Conservation International, NSW, Australia.
Hugh Finn, PhD, School of Biological Sciences and Biotechnology, Murdoch University, Western Australia.
Hugh Possingham, Professor, spatial ecology, Ecology Centre, University of Queensland, Queensland.
Ian Dutton PhD, President and CEO, Alaska Sealife Center, Seward, Alaska USA.
Inke Falkner, PhD, invertebrate biology, Institute of Marine Science, University of Sydney, Sydney, NSW.
Jacqui Shels, MAppSc, benthic ecologist, Fantasea Cruises Whitsunday Islands, Queensland.
James Brook, BSc (Ma), M.Env.St, marine ecologist, Normanville, South Australia 5204.
James Watson, DPhil, Climate Adaptation, Wildlife Conservation Society, Bronx, New York, USA.
Jan Barton, Research Academic, School of Life & Environmental Sciences, Deakin University, Victoria.
Janine Baker, PhD, marine ecologist, Hove, South Australia 5048.
Janine Baker, PhD, marine biology, Institute of Marine Science, University of Sydney, Sydney, NSW.
James Brook, BSc (Ma), M.Env.St, marine ecologist, Normanville, South Australia 5204.
James Watson, DPhil, Climate Adaptation, Wildlife Conservation Society, Bronx, New York, USA.
Jamie Kirkpatrick, Professor, conservation ecology and planning, University of Tasmania, Hobart Tasmania.
John Barton, Research Academic, School of Life & Environmental Sciences, Deakin University, Victoria.
Janine Baker, PhD, marine ecologist, Hove, South Australia 5048.
Jeff Wright, PhD, marine ecology, NCMMRS, University of Tasmania, Hobart Tasmania.
Jessica Melbourne-Thomas, PhD, ecological statistician, Antarctic Climate & Ecosystems Coop. Res. Centre, UTAS.
Jill Stiohn, PhD, Marine Coordinator, The Wilderness Society, West Perth, Western Australia.
Jim Underwood, PhD, Adjunct Fellow, University of Western Australia, Perth Western Australia.
Jochen Kaempf, Associate Professor, Physical Oceanography, Flinders University, Adelaide South Australia.
John Beardall, Professor, phytoplankton ecophysiology, Monash University, Victoria, Australia.
John Fitzgerald, JD, Policy Director, Society for Conservation Biology, Washington DC, USA.
John Hooper, PhD, Head Biodiversity & Geosciences Programs, Queensland Museum, Brisbane, Queensland.
John Ogden, Emeritus Professor of Integrative Biology, University of South Florida, St. Petersburg, FL USA.
John Pandolfi, Professor, coral reef paleoecology, ARC Centre of Excellence for Coral Reef Studies, UQ, Brisbane.
John Sherwood, Hon. Associate Professor, Life and Environmental Sciences, Deakin University, Warrnambool.
John Tanze, Adjunct Professor, Global Change Institute, University of Queensland, Brisbane Australia.
Jon Nevill, PhD, Director, OnlyOnePlanet Consulting, PO Box 106 Hampton Victoria 3188.
Jonathan Gardner, PhD, Professor of Marine Biology, Victoria University of Wellington, New Zealand.
Judit Szabo, PhD, conservation biologist, Research Fellow, Charles Darwin University, Darwin, Northern Territory.
Judy Clarke, PhD, Wildlife Biologist, Department of Primary Industries, Parks, Water & Environment, Tasmania.
Justin Marshall. Professor, neuroscience & marine Biology, Queensland Brain Institute, The Univ. of Queensland.
Karen Edyvane, PhD, Professor, Marine Conservation & Management, Charles Darwin University, Northern Territory.
Karen Miller, PhD, Senior Research Fellow, Institute of Marine and Antarctic Studies, University of Tasmania.
Kate Sprogis, PhD, Centre for Fish and Aquatic Ecosystems Research, Murdoch University, Murdoch WA.
Keren Raifer, PhD candidate, Ecological Restoration and Intervention Ecology, University of Western Australia.
Kerstin Bilgmann, PhD, Postdoctoral Research Fellow, School of Biological Sciences, Flinders University, Adelaide.
Kimberley Millers, PhD candidate, School of Botany, University of Melbourne, Victoria.
Kris Waddington, PhD, Senior Research Fellow, Centre for Marine Futures, University of Western Australia.
Larry Crowder Professor of Biology, Hopkins Marine Station, Stanford University, Pacific Grove, California.
Lars Bejder, PhD Head, Cetacean Research Unit, Murdoch University, Murdoch WA 6150.
Laurie Lawrenson, Assoc Prof, Life and Environmental Sciences, Deakin University, Warrnambool Victoria.
Leah Gerber, Assoc. Prof, Ecology evolution & environmental science, School of Life Sciences, Arizona State Univ.
Leslie Cornick, Associate Professor, Alaska Pacific University, Anchorage, AK, USA
Lindy Weilgart, PhD, Research Associate, Dept. of Biology, Dalhousie University, Halifax, NS Canada.
Lissa Bar, PhD candidate, marine conservation, The Ecology Centre, University of Queensland, Brisbane Qld.
Lorena Machado, MappSc, Estuary and Tidal Wetland Ecosystems Research Group, JCU, Townsville, Qld.
Louise Duxbury, PhD, Green Skills Inc, Adjunct Fellow, University of Western Australia, Perth Western Australia.
Luciana Moller, PhD, Senior Lecturer in Marine Biology, Flinders University, Adelaide South Australia.
Luciano Beherregaray, Professor, Molecular Ecology, Flinders University, South Australia.
Luke Parry, PhD, Postdoctoral researcher, Lancaster University, Lancaster, UK.
Lyle Vail, PhD, Director, Lizard Island Research Station, Cairns, Queensland.
Malcolm McCulloch, Professor, Centre of Excellence in Coral Reef Studies, University of Western Australia.
Marcus Sheaves, Assoc. Prof, Estuary and Tidal Wetland Ecosystems Research Group, James Cook University.
Margaret Platell PhD, fish ecology, Centre for Sustainable Use of Coasts & Catchments, Ourimbah, NSW.
Margi Prideaux, PhD, Policy and Negotiations Director, Migratory Wildlife Network, Australia.
Maria Beger, PhD, Postdoc Research Fellow, Marine Conservation Planning, University of Queensland, Brisbane.
Mark Carey, PhD, marine ornithologist, Department of Environmental Management and Ecology, La Trobe Univ.
Mark Hixon, Professor, Dept Zoology, Oregon State Uni, Oregon, USA & past chair US MPA Federal Advisory Com.
Mark Simmonds, International Director of Science, Whale & Dolphin Conservation Society, United Kingdom.
Matt Edmunds PhD, marine ecology, Australian Marine Ecology, Melbourne, Victoria.
Meg Lowman, Director, Nature Research Center, North Carolina Museum of Natural Sciences, Raleigh NC USA.
Megan Barnes, PhD candidate, Conservation Science, University of Queensland, St Lucia, Queensland.
Megan Evans, BScHon, Research Assistant, Conservation Planning, Ecology Centre, University of Queensland.
Megan Saunders, PhD, Postdoc Research Fellow, Global Change Institute, University of Queensland, Brisbane.
Sarah Dolman, BEng, MRes, Whale and Dolphin Conservation Society, United Kingdom.
Sarah Pausina, PhD candidate, marine ecology, School of Biological Sciences, University of Queensland, Brisbane.
Scoresby Shepherd, PhD, AO, Research Associate, Museum of South Australia, Adelaide South Australia
Scott Burgess, PhD, marine ecologist, University of Queensland, Brisbane, Queensland.
Sean Connolly, PhD, ARC Australian Professorial Fellow, School of Marine & Tropical Biology, JCU, Townsville.
Sebastian Mynott, Ecologist, Computational Biologist and Managing Director, Symbiont Ecology Group, NSW.
Shannon Donahoe, DVM, Associate Veterinary Pathologist, Australian Registry of Wildlife Health, NSW.
Shaun Collin, PhD, Professor and WA Premiers Fellow, Neuroecology Group, UWA Oceans Institute, Univ WA.
Sian Prior, PhD, Marine Science and Policy Specialist, Emsworth, PO10 8HA, United Kingdom.
Sidney Holt, DSc, marine policy and science expert, Italy.
Sophie Petit, PhD, wildlife ecologist, University of South Australia, Adelaide, South Australia.
Stephen Hubbell, Distinguished Professor, Dept of Ecology & Evolutionary Biology, UCLA, Los Angeles, USA.
Steve Gaines, Dean, Bren School of Environmental Science and Management, UCSB, Santa Barbara, CA 93106
Stuart Pimm, Doris Duke Chair of Conservation, Duke University, Durham, NC, USA.
Sue Murray-Jones, PhD, 9 Cudmore Terrace, Henley Beach, South Australia
Tara Martin, Adjunct Lecturer, conservation planning, University of Queensland, Queensland.
Terry Hughes, Professor, coral reef studies, ARC Centre of Excellence for Coral Reef Studies, JCU Queensland.
Tim Flannery, Professor, Macquarie University, North Ryde, New South Wales.
Tom Trnski, PhD, Research Manager, Auckland Museum, Auckland New Zealand.
Trish Franklin, Director, The Oceania Project. PhD candidate, Southern Cross University, Coffs Harbour NSW.
Viv Tulloch, marine conservation, Centre of Excellence for Environmental Decisions, University of Queensland.
Wally Franklin, Director, The Oceania Project. PhD Candidate, Southern Cross University, Coffs Harbour NSW.
William Cheung, Lecturer, School of Environmental Sciences, University of East Anglia, Norwich, U.K.
William Figueira, PhD, Centre for Research on Ecological Impacts of Coastal Cities, University of Sydney, NSW.
Winston Ponder DSc, Senior Research Fellow, Australian Museum, Sydney New South Wales.

Endnotes:

1 Effective biodiversity conservation involves high levels of protection within reserve networks, complemented by general strategies across the entire seascape – as set out in the UN FAO Code of Conduct for Responsible Fisheries 1995. Although all Australian Governments endorse this approach, in some cases implementation of these general strategies needs considerable improvement: Nevill, J, 2009 Overfishing, uncertainty and ocean governance. PhD Thesis, University of Tasmania.
4 GBRMPA. 2001. Biophysical operating principles as recommended by the scientific steering committee, Great Barrier Reef Marine Park Authority, Townsville, Australia.