

CURRICULUM VITAE

DR PAUL MARSHALL

SUMMARY BIOGRAPHY

Dr Paul Marshall has over 20 years of experience working with researchers, managers, businesses and communities to understand and address the big challenges facing coral reef systems. He has pioneered approaches to working at the interface between people and coral reef ecosystems, resulting in a wide network of partnerships and a long list of successful programs and projects totalling over \$37 million in value. He has authored over 80 peer-reviewed publications on applied reef ecology, conservation and practitioner guidance attracting nearly 8000 citations. These include milestone references such as *The Great Barrier Reef and Climate Change: A Vulnerability Assessment*, *A Reef Manager's Guide to Coral Bleaching* and the recently released *A Reef Manager's Guide to Fostering Community Stewardship*.

Dr Marshall is recognised internationally as a leading expert in assessing and responding to the environmental impacts of vessel groundings in sensitive marine environments. He has played central roles in every major vessel grounding response on the Great Barrier Reef since 2000, including leading impact assessments, designing remediation programs and supervising remediation works at Sudbury Reef, Piper Reef and Douglas Shoal. Additionally, he was the lead benthic ecologist in the international response to the grounding of the *MV Jessica* in the highly sensitive environment of the Galapagos Islands. The experience gained from these projects has been captured and shared in a series of peer-reviewed scientific publications (see publication list), laying the foundations for tactical and strategic responses to vessel groundings in the Great Barrier Reef Marine Park and internationally.

Dr Marshall is Director and Senior Scientist with Reef Ecologic, which was established in 2013 to provide expert advice, capacity building services and applied research support to leading marine resource management organisations. He is an expert advisor to IUCN, UNESCO, The Nature Conservancy, Great Barrier Reef Foundation and the Great Barrier Reef Marine Park Authority. Paul was the founding director of the Climate Change Program at the Great Barrier Reef Marine Park Authority, where he worked for 15 years as an advisor and expert on coral reef science & management. Reef Ecologic have quickly gained a reputation for delivering insightful, achievable, science-based solutions to the diverse challenges facing coral reefs. Reef Ecologic is unique in the skills and experience of its people and their commitment to partnerships with government agencies, conservation organisations, communities and private businesses for sustainable outcomes.

CAREER HIGHLIGHTS

Below is a brief list of recent highlights and career achievements.

- Technical lead in development of \$12 million Resilient Reefs Initiative
- Implemented the [International Coral Reef Management and Leadership program](#).
- Development of the \$1 million AusAID-funded [Australia-Caribbean Coral Reef Collaboration](#).

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- Led organisational and capacity needs analysis for Caribbean coral reef management, culminating in [a strategic plan for the region](#).
- Securing funding of more than \$10 million for climate change adaptation programs
- Initiating and co-editing the 25-chapter multi-authored review: [Climate Change and the Great Barrier Reef – A Vulnerability Assessment](#). This is the most comprehensive overview of climate change vulnerability of coral reefs in the world.
- Co-authoring [A Reef Manager’s Guide to Coral Bleaching](#), the most authoritative and widely adopted guidance for coral reef managers in dealing with climate change issues.
- Developing and implementing [rapid response and citizen participation scientific monitoring programs](#) for coral reef health and impacts for the Great Barrier Reef Marine Park Authority.
- Led scientific assessments of the impacts of major vessel groundings in the Great Barrier Reef and Galapagos Islands.
- Co-author of the Australian [Marine Climate Change Impacts and Adaptation Report Card](#).
- Led development of the coral bleaching detection and monitoring program for the Great Barrier Reef, which has now become a standard approach throughout the world.
- Co-founder of the [IUCN Working Group on Climate Change and Coral Reefs](#).
- Delivery of [training and capacity-building workshops](#) on monitoring, climate change, resilience and management to more than 300 coral reef managers from over 60 countries.
- Expert advisor in design and delivery of [Project REGENERATE](#), IUCN’s flagship project for coastal planning and resilience-building.

PROFESSIONAL HISTORY

The following section summarizes major responsibilities and key achievements in a range of [Previous roles](#)

2013-ONGOING DIRECTOR – REEF ECOLOGIC

Established a boutique consultancy that provides applied research services, capacity building and strategic advice to governments, intergovernmental organisations, private enterprise and communities who share our vision for improving the outlook for coral reefs worldwide. Since incorporation, Reef Ecologic has attracted a client list comprising the most respected and well-known organisations involved in coral reef conservation and management in the world, including IUCN World Conservation Union, International Coral Reef Initiative (ICRI), United Nations Environment Program (UNEP), Great Barrier Reef Foundation, Great Barrier Reef Marine Park Authority, Australian Department of Foreign Affairs and Trade, Queensland Department of Tourism and UNESCO Marine World Heritage Program.

Recent major projects in Australia and internationally led by Dr Marshall include:

- Strategic advice and preparation of the Great Barrier Reef Blueprint for Resilience for the Great Barrier Reef Marine Park Authority;
- Design and delivery of the International Coral Reef Management and Leadership program for the Department of Foreign Affairs and Trade.
- Assessment of antifoulant chemical contamination of trophic system at Douglas Shoal;
- Delivery of climate change and resilience workshop to World Heritage Marine Site Managers’ Conference for UNESCO;
- Development of Draft Guidelines for Design of Reef Restoration Projects in the Great Barrier Reef for the Great Barrier Reef Foundation and GBRMPA;

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- Design and planning of \$12 million project on Resilient Reefs for World Heritage Coral Reef Sites for the Great Barrier Reef Foundation;
- Development of the National Coral Bleaching Response Plan for the Maldives for IUCN;
- Expert advice and compilation of a Compendium of Coral Reef Resilience Projects for the International Coral Reef Initiative;
- Blue Carbon mapping for tropical African east coast for IUCN;

2012 – 2016

COORDINATOR – AUSTRALIA-CARIBBEAN CORAL REEF COLLABORATION

Established and led the Australia-Caribbean Coral Reef Collaboration as a joint venture between the Australian Department of Foreign Affairs and Trade and the Great Barrier Reef Marine Park Authority. Roles included:

- Led development and implementation of the \$1 million, 2 year Australia-Caribbean Coral Reef Collaboration which is providing coral reefs and climate change expertise to the Caribbean on behalf of Australia.
- Liaise with AusAID, office of the Australian High Commissioner to the Caribbean and collaborate with Caribbean regional organisations and Caribbean national governments to assist Caribbean coral reef managers with priority issues for building resilience of reefs to a changing climate.
- Work with Caribbean organisations and experts to identify priority issues and strategies and produce a Regional Plan of Action for Reducing Coral Reef Vulnerability to Climate Change.
- Implement five demonstration projects to deliver benefits to project host countries within lifetime of project, and to serve as demonstration and learning project for other Caribbean countries.
- Develop an online portal for strategic delivery of science, tools and other resources to support coral reef management in the Caribbean.

2007 – 2012

DIRECTOR – CLIMATE CHANGE GROUP GREAT BARRIER REEF MARINE PARK AUTHORITY

Dr Marshall founded and led the first dedicated climate change adaptation program in a coral reef management agency in the world. Key roles included:

- Lead development and implementation of the \$8.9 million, 5 year GBR Climate Change Action Plan.
- Provide coordination and liaison at the national and international levels with government and non-government organisations involved in research, information transfer or policy development related to coral bleaching and other climate change issues.
- Negotiate and liaise with the Australian and international scientific community to maximise relevance of research efforts to GBRMPA research priorities.
- Consulted and negotiated with Directors and other Managers to raise awareness of the relevance of climate change to other business areas and to identify potential response strategies.
- Lead expert on Impact Assessment for impact assessments and restoration activities in the GBR.

2003 – 2007

MANAGER – CLIMATE CHANGE RESPONSE PROGRAM GREAT BARRIER REEF MARINE PARK AUTHORITY

- Influenced strategic direction of GBRMPA in relation to climate change, helping ensure organisational relevance in a rapidly changing political climate.

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- Successfully developed a dedicated and enthusiastic team of 4-6 people and led them to deliver products and outcomes that are of national and international significance.
- Reported and provided high level advice on climate change issues for the GBRMPA, Department of Environment and Water Resources, Australian Greenhouse Office, international organisations and local stakeholders.
- Transfer knowledge of coral bleaching and other climate change impacts through various channels such as Ministerial briefings, web site, public education campaigns and the media.
- Encourage congruence in policy, management activity and research between climate change issues and other critical issues for the GBR.
- Developed, implemented and reviewed the strategic work program for the Climate Change team.
- Acting Director for the recently established Climate Change Critical Issue Group.

2003 JUNE-SEPT. PROJECT LEADER – CORAL REEFS AND CLIMATE CHANGE WORKING GROUP, US CORAL REEF TASK FORCE/NOAA

During a four-month secondment to the US National Oceanic and Atmospheric Administration, Dr Marshall played a key role in designing and delivering strategic projects and collaboration, including:

- Coordinating editor and co-author of A Reef Manager's Guide to Coral Bleaching;
- Collaborate with international scientists, US federal government agencies, and international conservation groups.
- Develop long term strategies for an International Climate Change Strategy for reef management;
- Plan and develop proposals for a manager's learning network and a capacity building program.

2000 - 2003 PROJECT MANAGER, RESEARCH AND MONITORING CO-ORDINATION UNIT GREAT BARRIER REEF MARINE PARK AUTHORITY

- Develop and manage a major, multi-disciplinary marine monitoring program aimed at ensuring minimal environmental impacts from a major coastal development. This \$1.5 million program included long-term ecosystem monitoring as well as reactive monitoring of colony health for rapid response to environmental risks associated with the development.
- Develop and manage responses to major environmental incidents, including ship groundings, associated prosecutions and subsequent cleanup operations;
- Prepare and manage contracts with researchers and commercial consultants;
- Write and review policy relevant to environmental management;
- Prepare submission to government on various national environmental issues;
- Expert witness in various environmental court cases relating to a range of issues, including coastal development and vessel groundings.

1996 - 2000 DOCTOR OF PHILOSOPHY JAMES COOK UNIVERSITY, TOWNSVILLE

- Undertake advanced and innovative research in the ecological and management implications of physical disturbance on coral reefs
- Publish research results in peer-reviewed international journals, present results at seminars & conferences, write proposals and securing funding, manage complex field projects in remote locations.

ADDITIONAL ADVISORY AND EXPERT ASSISTANCE ROLES

- Development of concept and proposal for International Centre for Coral Reef Management and Leadership in Australia

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- Draft strategic plan for incorporating ecosystem services analysis into Great Barrier Reef management
- Climate change advisor and capacity building for UNESCO Marine World Heritage Program
- Coral reef management and coastal zone planning advisor to IUCN Global Marine Program
- Advisor to national and regional organisations in the Caribbean on coral reef and coastal zone management
- Organisational and capacity needs analysis for Caribbean coral reef management, leading to regional strategic plan
- Impact assessment and monitoring following vessel grounding and oil spill in Galapagos Islands (Charles Darwin Research Institute)
- Development and delivery of capacity building programs for coral reef managers in relation to climate change and coral bleaching (NOAA & TNC)
- Advising government agencies and local NGOs on climate adaptation planning in Egypt (IUCN)
- Advisor to government and non-government agencies on impact assessment and management responses to coral bleaching events (Indonesia, Palau, Florida Keys, Maldives, Seychelles, Egypt)
- Advisor to US government on coral bleaching response and climate change adaptation planning (NOAA, State of Florida)
- Organisational and capacity needs analysis to support Australian National Climate Change Adaptation Research Program
- Strategic planning advice for Cooperative Research Centre for the Great Barrier Reef.

EDUCATIONAL QUALIFICATIONS

- 2013** Adjunct Associate Professor, Centre for Biodiversity and Conservation Science, University of Queensland
- 2001** Global Fellowship in Marine Conservation Biology and Policy, Duke University, USA
- 2000** Doctor of Philosophy, James Cook University.
Thesis entitled, “Physical disturbance in coral reefs: biology, ecology & management implications”
- 1991** Bachelor of Science (Honours), University of Melbourne

MEMBERSHIPS

- Expert advisory panel to Working Group II of the Intergovernmental Panel on Climate Change
- IUCN Working Group on Climate Change and Coral Reefs
- International Society for Reef Studies
- Australian Coral Reef Society
- Steering committee for the Florida Reef Resilience Program
- Board member – Museum of Underwater Art (Great Barrier Reef).

OTHER QUALIFICATIONS & AWARDS

Training: Executive Leadership Course; Media training; Coaching and Mentoring course

Scientific journalism: Winner, CRC Science Journalism Prize, 1998

Diving: ADAS Commercial Diver Level 1;> 2000 dives

Boating: Recreational ShipMaster’s License

First Aid: Senior First Aid, Advanced Oxygen Resuscitation

OVERVIEW OF SIGNIFICANT FUNDRAISING AND GRANTS

Source	Date	Amount
BHP Foundation/Great Barrier Reef Foundation Resilient Reefs	2018	\$12,000,000
AusAID Caribbean Program	2013	\$1,100,00
COAG National Climate Change Adaptation Framework funding for GBR Climate Change Action Plan	2007	\$8,900,000
MacArthur foundation funding for IUCN Working Group on Tropical Marine Ecosystems	2006	\$300,000
WWF funding for development of Resilience Monitoring Protocols	2005	\$35,000
Australian Greenhouse Office funding for GBR Climate Change Response Programme	2004	\$1,400,000
Lumpkin Fellowship, Duke University, NC, USA	2000	\$6,500
CRC Research Funding	1996	\$120,000
CRC Postgraduate Award	1996	\$9,000

Australian Post Graduate Award	1995	\$45,000
Total funding		\$10,827,000.00

REVIEWED PUBLICATIONS

- L Thiault, P Marshall, S Gelcich, A Collin, F Chlous, J Claudet. Space and time matter in social-ecological vulnerability assessments. *Marine Policy* 88, 213-221(2018).
- NA Marshall, MI Curnock, J Goldberg, M Gooch, PA Marshall, PL Pert. The Dependency of People on the Great Barrier Reef, *Australia Coastal Management* 45 (6), 505-518 (2018).
- L Thiault, P Marshall, S Gelcich, A Collin, F Chlous, J Claudet. Mapping social-ecological vulnerability to inform local decision making. *Conservation Biology* (2017).
- SF Heron, CM Eakin, F Douvère, KL Anderson, JC Day, E Geiger, PA Marshall. Impacts of climate change on World Heritage coral reefs: a first global scientific assessment, UNESCO. (2017).
- Anthony, K. et al. Operationalizing resilience for adaptive coral reef management under global environmental change. *Glob Chang Biol* 21, 48–61 (2015).
- Beeden, R. et al. Impacts and recovery from severe tropical cyclone Yasi on the Great Barrier Reef. *PLoS ONE* 10, e0121272 (2015).
- Marshall, P. A. Value of ecosystem service benefits from the marine environment and the importance of MPAs. *Valuing Nature: Protected Areas and Ecosystem Services* 84 (2015).
- Maynard, J. A. et al. Great Barrier Reef no-take areas include a range of disturbance regimes. *Conservation Letters* (2015).
- Marshall, N. A. et al. Transformational capacity in Australian peanut farmers for better climate adaptation. *Agron. Sustain. Dev.* 34, 583–591 (2014).
- Marshall, N. A., Stokes, C. J., Webb, N. P., Marshall, P. A. & Lankester, A. J. Social vulnerability to climate change in primary producers: A typology approach. *'Agriculture, Ecosystems and Environment'* 186, 86–93 (2014).
- Beeden, R. et al. No-anchoring areas reduce coral damage in an effort to build resilience in Keppel Bay, southern Great Barrier Reef. *Australasian Journal of Environmental Management* 21, 311–319 (2014).
- Beeden, R. J. et al. Rapid survey protocol that provides dynamic information on reef condition to managers of the Great Barrier Reef. *Environmental monitoring and assessment* 186, 8527–8540 (2014).
- Marshall, N. A., Tobin, R. C., Marshall, P. A., Gooch, M. & Hobday, A. J. Social vulnerability of marine resource users to extreme weather events. *Ecosystems* 16, 797–809 (2013).

- Wooldridge, S. A. et al. Safeguarding coastal coral communities on the central Great Barrier Reef (Australia) against climate change: realizable local and global actions. *Climatic Change* 112, 945–961 (2012).
- Thomas, C. R., Gordon, I. J., Wooldridge, S. & Marshall, P. Balancing the tradeoffs between ecological and economic risks for the Great Barrier Reef: a pragmatic conceptual framework. *Human and Ecological Risk Assessment: An International Journal* 18, 69–91 (2012).
- Beeden, R., Maynard, J. A., Marshall, P. A., Heron, S. F. & Willis, B. L. A framework for responding to coral disease outbreaks that facilitates adaptive management. *Environmental Management* 49, 1–13 (2012).
- Anthony, K. et al. Ocean acidification and warming will lower coral reef resilience. *Glob Chang Biol* 17, 1798–1808 (2011).
- Marshall, N. A., Marshall, P. A., Abdulla, A., Roupael, T. & Ali, A. Preparing for climate change: recognising its early impacts through the perceptions of dive tourists and dive operators in the Egyptian Red Sea. *Current Issues in Tourism* 14, 507–518 (2011).
- Hoegh-Guldberg, O. et al. Vulnerability of coral reefs in the tropical Pacific to climate change. Vulnerability of tropical Pacific fisheries and aquaculture to climate change. Secretariat of the Pacific Community, Noumea 251–296 (2011).
- Press, A. J., Hoegh-Guldberg, O., Marshall, P. & Roberts, D. The ‘evil twin’ of climate change: Ocean acidification. (2011).
- Marshall, N. A. et al. A Framework for Social Adaptation to Climate Change: Sustaining Tropical Coastal Communities [sic] and Industries. (IUCN, 2010).
- Maynard, J. A., Marshall, P. A., Johnson, J. E. & Harman, S. Building resilience into practical conservation: identifying local management responses to global climate change in the southern Great Barrier Reef. *Coral Reefs* 29, 381–391 (2010).
- Marshall, N. A., Marshall, P. A., Abdulla, A. & Roupael, T. The links between resource dependency and attitude of commercial fishers to coral reef conservation in the Red Sea. *Ambio* 39, 305–313 (2010).
- Tobin, A. et al. Adapting to change: minimising uncertainty about the effects of rapidly-changing environmental conditions on the Queensland Coral Reef Fin Fish Fishery. (2010).
- Mapstone, B. et al. National climate change adaptation research plan for marine biodiversity and resources. (2010).
- Maynard, J. A. et al. A strategic framework for responding to coral bleaching events in a changing climate. *Environmental Management* 44, 1–11 (2009).
- Marshall, N., Marshall, P. & Abdulla, A. Using social resilience and resource dependency to increase the effectiveness of marine conservation initiatives in Salum, Egypt. *Journal of Environmental Planning and Management* 52, 901–918 (2009).
- Thomas, C. R., Gordon, I. J., Wooldridge, S., Van Grieken, M. & Marshall, P. The development of an integrated systems model for balancing coral reef health, land management and tourism risks on the Great Barrier Reef. *Proceedings of 18th World IMACS Congress and MODSIM09 International Congress on Modelling and Simulation* 13–17 (2009).

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- Anthony, K. R. & Marshall, P. Coral reefs and climate change. A marine climate change impacts and adaptation report card for Australia (2009).
- Marshall, N. A., Marshall, P. A., Abdulla, A., Roupheal, A. & Ali, A. Preparing for Climate Change in the Red Sea: Recognising early impacts through perceptions of dive tourists and dive operators in Egypt. (IUCN, 2009).
- Hobday, A. et al. Enhancing species adaptation to climate change. (2009).
- Howard, W. et al. Marine Climate Change in Australia: impacts and adaptation responses: 2009 report card. (2009).
- Mapstone, B. et al. Marine Biodiversity and Resources: National Climate Change Adaptation Research Plan. (2009).
- Hale, L. Z. et al. Ecosystem-based adaptation in marine and coastal ecosystems. *Renewable Resources Journal* 25, 21–28 (2009).
- Negri, A. & Marshall, P. TBT contamination of remote marine environments: Ship groundings and ice-breakers as sources of organotins in the Great Barrier Reef and Antarctica. *J. Environ. Manage.* 90, S31–S40 (2009).
- Marshall, P. A. & Edgar, G. J. The effect of the Jessica grounding on subtidal invertebrate and plant communities at the Galapagos wreck site. *Marine Pollution Bulletin* 47, 284–295 (2003).
- Edgar, G. J., Marshall, P. A. & Mooney, P. The effect of the Jessica grounding on Galápagos reef fish communities adjacent to the wreck site. *Marine Pollution Bulletin* 47, 296–302 (2003).
- Haynes, D., Christie, C., Marshall, P. & Dobbs, K. Antifoulant concentrations at the site of the Bunga Teratai Satu grounding, great barrier reef, Australia. *Marine Pollution Bulletin* 44, 968–972 (2002).
- Marshall, P. et al. Grounded ship leaves TBT-based antifoulant on the Great Barrier Reef: an overview of the environmental response. *Spill Science & Technology Bulletin* 7, 215–221 (2002).
- Marshall, P., Mooney, P. & Edgar, G. The effect of the Jessica oil spill on reef communities: Initial wreck site assessment and monitoring baseline for benthic invertebrates, plants and fishes. *Biological Impacts of the Jessica Oil Spill on the Galápagos Environment* 69 (2002).
- Maynard, J. A., Anthony, K., Marshall, P. A. & Masiri, I. Major bleaching events can lead to increased thermal tolerance in corals. *Marine Biology* 155, 173–182 (2008).
- Maynard, J. A. et al. ReefTemp: An interactive monitoring system for coral bleaching using high-resolution SST and improved stress predictors. *Geophys. Res. Lett.* 35, (2008).
- McLeod, E. et al. The Honolulu declaration on ocean acidification and reef management. The Nature Conservancy, USA, and IUCN, Gland, Switzerland (2008).
- Assessment, A. V. Climate change and the great barrier reef. (2007).
- Marshall, N. A. & Marshall, P. A. Conceptualizing and operationalizing social resilience within commercial fisheries in northern Australia. *Ecology and society* 12, 1 (2007).

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- Marshall, N. A., Fenton, D. M., Marshall, P. A. & Sutton, S. G. How Resource Dependency Can Influence Social Resilience within a Primary Resource Industry*. *Rural Sociology* 72, 359–390 (2007).
- Negri, A. P., Marshall, P. A. & Heyward, A. J. Differing effects of thermal stress on coral fertilization and early embryogenesis in four Indo Pacific species. *Coral Reefs* 26, 759–763 (2007).
- Wachenfeld, D. et al. Introduction to the Great Barrier Reef and climate change. *Climate change and the Great Barrier Reef: a vulnerability assessment* 1–13 (2007).
- Hoegh-Guldberg, O. et al. Vulnerability of reef-building corals on the Great Barrier Reef to climate change. (2007).
- Johnson, J. E., Skeat, A., Kenchington, R. A., Marshall, P. A. & Innes, J. Introduction to the Great Barrier Reef and climate change. (2007).
- Maynard, J. A. et al. Biophysical assessment of reefs in Keppel Bay: a baseline study (April 2007).
- Johnson, J. E. & Marshall, P. A. The Great Barrier Reef and climate change: vulnerability and management implications. (2007).
- Marshall, P. A. & Johnson, J. E. The Great Barrier Reef and climate change: vulnerability and management implications. *Climate change and the Great Barrier Reef*. Great Barrier Reef Marine Park Authority and the Australian Greenhouse Office, Australia 774–801 (2007).
- Marshall, P. A. & Schuttenberg, H. A reef manager's guide to coral bleaching. (2006).
- Marshall, P. & Schuttenberg, H. Adapting coral reef management in the face of climate change. *Coral reefs and climate change: Science and management* 223–241 (2006).
- Schuttenberg, H. et al. Building resilience into coral reef management: Key findings and recommendations. summary prepared for the conference proceedings of the International Tropical Marine Ecosystem Management Symposium (2006).
- Wooldridge, S., Done, T., Berkelmans, R., Jones, R. & Marshall, P. Precursors for resilience in coral communities in a warming climate: a belief network approach. *Mar. Ecol. Prog. Ser.* 295, 157 (2005).
- Schuttenberg, H. & Marshall, P. 10. MANAGING FOR MASS CORAL BLEACHING: STRATEGIES FOR SUPPORTING SOCIO-ECOLOGICAL RESILIENCE. (2005).
- McClanahan, T. R., Baird, A. H., Marshall, P. A. & Toscano, M. A. Comparing bleaching and mortality responses of hard corals between southern Kenya and the Great Barrier Reef, Australia. *Marine Pollution Bulletin* 48, 327–335 (2004).
- Orpin, A. R. et al. Natural turbidity variability and weather forecasts in risk management of anthropogenic sediment discharge near sensitive environments. *Marine Pollution Bulletin* 49, 602–612 (2004).
- Schaffelke, B., Heimann, K., Marshall, P. A. & Ayling, A. M. Blooms of *Chrysocystis fragilis* on the Great Barrier Reef. *Coral Reefs* 23, 514–514 (2004).
- Oliver, J., Setiasih, N., Marshall, P. & Hansen, L. A global protocol for monitoring of coral bleaching. *Naga, Worldfish Center Quarterly* 27, 49–53 (2004).

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- Baird, A. H., McClanahan, T. R., Marshall, P. A. & Toscano, M. A. Comparing bleaching and mortality responses of hard corals between southern Kenya and the Great Barrier Reef, Australia. (2004).
- Hughes, T. P. et al. Climate change, human impacts, and the resilience of coral reefs. *Science* 301, 929–933 (2003).
- Hughes, T. P. et al. Response to Causes of coral reef degradation [Aronson et al.(2003) Causes of coral reef degradation]. *Science* 302, 1503–1504 (2003).
- Hoegh-Guldberg, O., Furnas, M., Williams, D. M., Wilkinson, C. & Marshall, P. Reef is in danger. *New Scientist* 177, 24–24 (2003).
- Baird, A. H. & Marshall, P. A. Mortality, growth and reproduction in scleractinian corals following bleaching on the Great Barrier Reef. *Mar. Ecol. Prog. Ser.* 237, 133–141 (2002).
- Baird, A. H., Marshall, P. A. & Wolstenholme, J. Latitudinal variation in the reproduction of *Acropora* in the Coral Sea. *Proc 9th Int Coral Reef Symp* 1, 385–389 (2002).
- Berkelmans, R. et al. Automatic weather stations: tools for managing and monitoring potential impacts to coral reefs. *Marine Technology Society Journal* 36, 29–38 (2002).
- Marshall, P. A. & Baird, A. H. Bleaching of corals on the Great Barrier Reef: differential susceptibilities among taxa. *Coral Reefs* 19, 155–163 (2000).
- Marshall, P. A. Skeletal damage in reef corals: relating resistance to colony morphology. *Mar. Ecol. Prog. Ser.* 200, 177–189 (2000).
- Maniwavie, T. T., Sweatman, H. H., Marshall, P. P., Munday, P. P. & Rei, V. V. Status of coral reefs of Australasia: Australia and Papua New Guinea. *Status of Coral Reefs of the World: 2000-*pages: 141-158 (2000).
- Marshall, P. A. Physical disturbance in reef corals: biology, ecology and management implications. (James Cook University, 2000).
- Baird, A. H. & Marshall, P. A. Mass bleaching of corals on the Great Barrier Reef. *Coral Reefs* 17, 376–376 (1998).
- Marshall, P. Research Policy, Practice and Ethics Guidelines: The Post-graduate Student Perspective. *Australian Journal of Environmental Management* 5, 60–62 (1998).

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