

DR RICHARD Kazimierz Frank UNSWORTH M.Sc B.Sc

Fisheries Biologist at *Northern Fisheries Centre*, Cairns, Australia

Chartered Marine Scientist (IMarEst)

Date of Birth	28 January 1978
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Current Projects

- Mitigation of dredge impacts on benthic primary producers
- Carbon productivity of sub-tidal tropical seagrass
- Seagrass fisheries and food security across the Indo-Pacific region
- Modelling climate impacts on seagrass meadows
- Development of Great Barrier Reef seagrass monitoring 'Report Card'
- Socio-economic value of tropical coastal systems
- Marine habitat connectivity of fish assemblages
- Carbonate balance in seagrass meadows and its interaction with ocean acidification

Esteem Indicators

- Editorial board member of the journals PLoS One and Marine Environmental Research
- Invited guest lecturer at James Cook University, Queensland
- Invited academic reviewer for NOAA National Marine Fisheries Service Grants
- Co-editor of a peer-reviewed book 'Marine conservation in the coral triangle'
- Academic reviewer for the journals Global Change Biology, Hydrobiologia, Marine Ecology Progress Series, Estuarine Coastal and Shelf Science, Marine Environmental Research, Aquatic Ecology, Journal of Fish Biology, Caribbean Journal of Science, and Marine Biology Research
- Contributor to Prof. Ove Hoegh-Guldberg's climate change blog: www.ClimateShifts.org
- Chartered Marine Scientist (IMarEST)
- Invited speaker on 'Tropical seagrasses in a changing climate' at the Association Tropical Biology and Conservation conference, Bali 2010

Funding

- Marine and Tropical Sciences Research Facility (MTRSF)
- Great Barrier Reef Marine Park Authority
- British Gas, Cape Alumina, and Ports Corporation Queensland (now North Queensland Bulk Ports)

Industrial Relevance

- *Current partnerships:* Wildlife Conservation Society (Indonesia and Papua New Guinea), Conservation International, Indonesia, Operation Wallacea, KAUST (King Abdullah University of Science and Technology, Saudi Arabia), Environmental Resource Management Consultants (ERM), GHD Consulting, Perth, Delphi Environmental Ltd, East Sussex, U.K.
- *Recent consultancy for:* Sinclair Knight Merz (SKM), GHD, Environmental Resource Management (ERM)

Current Roles and Responsibilities

- Leading marine research projects
- Project and financial management
- Research proposal development
- Staff supervision (two staff)
- Undergraduate Teaching (James Cook University)

Key skills and attributes

- Knowledge and research base in marine ecology, fisheries and natural resource management
- **Project management experience**
- Lecturing, research supervision and student marking experience
- **Habitat mapping (GIS)**, assessment and monitoring (use of aerial mapping, drop cameras, camera tows etc)
- Water and sediment quality assessment experience (including dredging assessment for ocean disposal)
- Extensive global and UK research network
- Financial planning, and health and safety experience
- Excellent computer literacy including web design, ArcGIS, and Access Databases
- **Highly experienced in field research, within a group and individually (particularly remote research).**
- High level of experimental design, data analysis and statistical skills

Current and Recent Employment

Fisheries Biologist (Sept 08 – Current): Marine and coastal ecological research work within the ‘Marine Ecology Group’ and ‘Seagrass-Watch HQ’, Northern Fisheries Centre, Cairns, Australia:

- Coordinating Seagrass-Watch Great Barrier Reef ‘reef-rescue’ program
- Leading research on the long-term climate induced dynamics of tropical Seagrasses
- Conducting research on the light requirements of benthic primary producers during dredging
- Staff supervision
- Provisions of technical advice on ecological statistics
- Technical review of reports and research

Marine Ecologist/Consultant (Sept 07 – Sept 08): Sinclair Knight Merz, Brisbane

Marine industrial and conservation orientated ecological and water quality assessments (EIA/EIS/EMP and routine monitoring). Role included extensive successful application for competitive tenders and technical review of marine ecological reports. Projects included:

- Cape Lambert port expansion coral monitoring and reactive management, Western Australia
- Water quality modelling and threshold development for EIA, Western Australia (Project Manager \$60K)
- Coal fired power station EIA in Java, Indonesia
- Sediment Analysis Plan, Port Dampier, Western Australia (Project Manager \$500K)
- Mangrove management and offset plan, Western Australia
- Dredge spoil ground stability study, Cape Lambert, Western Australia (Project Manager \$50K)

Attended internal SKM EH&S, report writing and project management courses
John Winton SKM 2008 Prize Winner for Scientific Writing

Fisheries Scientist (Aug 07 – Sept 07) (short-term contract work): Marine Ecology Group, Northern Fisheries Centre, Queensland, Cairns. Assisting with seagrass survey and assessment work.

Education and Awards Obtained

Higher Education

University of Essex, 2004-2007: PhD Marine Ecology

Operation Wallacea Studentship (£30K) utilised at University of Essex

University of Wales, Bangor, 00-01: M.Sc Marine Environmental Protection

ESF Masters Studentship (£10K) and Buckley-Jones Memorial Trust Scholarship (£2K)

University of Essex, 1996-99: BSc (Hons) Biological Science (2nd Class, 2nd Division)

Tertiary Education 1994-96 (Coleg Ial, Grove Park Road, Wrecsam)

A Levels: Biology, Chemistry, Mathematics

Secondary Education 1989-90 (Ysgol Bryn Offa, Ruthin Road, Wrecsam)

GCSE's: Mathematics, English (Lang and Lit), Double Science, French, History, Geography, CDT, Music

Employment History

Marine Research Coordinator, Project Supervisor, And Phd Scholar (June 03 – Aug 07): Operation Wallacea and University of Essex. Conducting marine research and monitoring and supervising undergraduate and postgraduate research students. Duties included: Marine research coordinator: Onsite responsibility (Indonesian Field Station) for all research activities (~10-20 staff)
Management of reef monitoring team and fisheries assessment program
Project Supervisor to over 60 MSc and BSc students (in last four years)
Lecturer for 3rd yr BSc University of Essex module on seagrass ecology
Undergraduate and foundation year laboratory and field demonstrator (and coursework marking)

Laboratory Analyst (May 02 – May 03): Alcontrol Geochem, Saltney, Chester. Extraction and analysis of organic contaminants using GC-MS and HPLC

Benthic Ecologist/Environmental Consultant (Oct 01 – Apr 02): Hebog Environmental, Bangor. Aquaculture Environmental Impacts Assessments

Masters Student (Sept 00 – Sept 01): University of Wales, Bangor

Research Assistant (Sept 99 – Sept 00): Heriot-Watt University, Orkney Campus. Orkney Biodiversity Project; fisheries monitoring; and assistance Scottish Natural Heritage conservation initiatives

Environmental Consultant (Sept 99 – Sept 00): Part-time work (weekends) for Aurora Environmental, Orkney conducting survey and monitoring work for Salmon farm EIAs

Activity Manager (Summer 1999): International Quest Language School – Glamorgan

Research Assistant (Summer 1998): Coral Cay Conservation, Philippines

Activity Leader (Summer 1998): International Quest Language School – Glamorgan

Professional Qualifications, Skills and Memberships

Member of the MBA UK, British Ecological Society and World Seagrass Association
PADI Divemaster (>400 dives in UK and tropical waters),
Full Clean UK, Australian and European Driving Licence
RYA Boat Handler level 2, RYA Outboard Motor Maintenance, Queensland Recreational Boat Licence
AMC Marine Radio Operator Certificate of Proficiency (MROCP)
Basic Welsh, French and Indonesian language skills
Current 1st Aid and O₂ administration certificate

Peer Reviewed Articles and Book Chapters

1. **Unsworth RKF**, Wylie E, Bell JJ, Smith DJ, (2007) Diel trophic structuring of Seagrass bed fish assemblages in the Wakatobi Marine National Park, Indonesia. *Estuarine, Coastal and Shelf Science*. 72: 81-88
2. **Unsworth RKF**, Smith DJ, Powell A, Hukon F (2007) The ecology of Indo-Pacific grouper (Serranidae) species and the effects of a small scale no take area on grouper assemblage, abundance and size frequency distribution. *Marine Biology* 1152: 243-254
3. **Unsworth RKF**, Taylor JD, Powell A, Bell JJ Smith DJ (2007) The contribution of parrotfish (scarid) herbivory to ecosystem dynamics in the Indo-Pacific. *Estuarine, Coastal and Shelf Science* 74: 53-62
4. **Unsworth RKF**, Bell JJ, Smith DJ (2007) Tidal fish connectivity of reef and seagrass habitats in the Indo-Pacific. *Journal of the Marine biological Association UK* 87: 1287-1296
5. **Unsworth RKF**, DeGrave S, Jompa J, Smith DJ, Bell JJ (2007) Faunal relationships with seagrass habitat structure: an example using shrimp from the Indo-Pacific. *Marine and Freshwater Research* 58: 1008-1018
6. **Unsworth RKF**, Salinas De Leon P, Garrard S, Jompa J, Smith DJ, Bell JJ, (2008) High connectivity of Indo-Pacific seagrass fish assemblages with mangrove and coral reef habitats. *Marine Ecology Progress Series* 353: 213-224,

7. **Unsworth RKF**, Salinas De León P, Garrard SL, Smith DJ, Bell JJ (2009) Habitat usage of *Lethrinus harak* (Forsskål, 1775) in an Indo-Pacific coastal seascape. *The Open Journal of Marine Biology* 2: 59-63
8. **Unsworth RKF**, Garrard S, Salinas De Leon P, Sloman KA, Smith DJ, Bell JJ (2009) Structuring of Indo-Pacific fish assemblages along the mangrove-seagrass continuum. *Aquatic Biology* 5: 85-95
9. Sofonia JJ, **Unsworth RKF** (2009) Development of water quality thresholds for the protection of benthic primary producers. *Journal of Environmental Monitoring* 12: 159-63
10. Haapkyla J, **Unsworth RKF**, Seymour AS, Melbourne-Thomas J, Flavell M, Smith DJ, Willis (2009) Inter-annual coral disease dynamics and impact of disease in the Wakatobi Marine National Park, South-East Sulawesi, Indonesia. *Diseases of Aquatic Organisms* 87: 105-111
11. **Unsworth RKF**, Cullen LC (2010) Recognising the necessity for Indo-Pacific seagrass conservation. *Conservation Letters* DOI: 10.1111/j.1755-263X.2010.00101.x
12. Clifton J, **Unsworth RKF** (2010) Introduction to the Wakatobi National Park. Chapter 1 In: Clifton J, **Unsworth RKF**, Smith DJ (Eds) (2010) Marine Conservation and Research in the Coral Triangle: The Wakatobi National Park. Nova Publishers, New York (ISBN 978-1-61668-473-0) (Peer reviewed)
13. **Unsworth RKF** (2010) Seagrass meadows of the Wakatobi National Park. Chapter 4 In: Clifton J, **Unsworth RKF**, Smith DJ (Eds) (2010) Marine Conservation and Research in the Coral Triangle: The Wakatobi National Park. Nova Publishers, New York (ISBN 978-1-61668-473-0) (Peer reviewed)
14. Salinas de León P, **Unsworth RKF**, Bell JJ (2010) Marine habitat connectivity in the Wakatobi National Park. Chapter 8 In: Clifton J, **Unsworth RKF**, Smith DJ (Eds) (2010) Marine Conservation and Research in the Coral Triangle: The Wakatobi National Park. Nova Publishers, New York (ISBN 978-1-61668-473-0) (Peer reviewed)
15. Clifton J, **Unsworth RKF** (2010) Future directions for marine conservation in the Coral Triangle. Chapter 15 In: Clifton J, **Unsworth RKF**, Smith DJ (Eds) (2010) Marine Conservation and Research in the Coral Triangle: The Wakatobi National Park. Nova Publishers, New York (ISBN 978-1-61668-473-0) (Peer reviewed)
16. **Unsworth RKF**, Cullen LC, Bell JJ, Smith DJ, Pretty J (2010) Economic and subsistence values of the standing stocks of seagrass fisheries: benefits of no-fishing marine protected area management. *Ocean and Coastal Management* In Press (accepted Feb 2010).
17. **Unsworth RKF**, De Grave S, Goulding L. (2010) Influence of environmental cycles upon tropical seagrass Caridean shrimp *Raffles Bulletin of Zoology* In Press (accepted March 2010).

Other Book Chapters and Theses

18. **Unsworth RKF** (2007) Aspects of the ecology of Indo-Pacific seagrass systems. PhD thesis, University of Essex
19. **Unsworth RKF** (2001) The use of biomarkers in tracing coastal environmental contamination. MSc thesis, University of Wales
20. Side J, **Unsworth, RKF** (eds.) (2000) The marine biodiversity of Orkney. Part II: Marine species diversity. Kirkwall Press, Orkney

Non-Peer Reviewed Articles

21. **Unsworth RKF** (2007) Over exploitation of seagrass meadows in Indonesia: what can research tell us? *Seagrass Watch News* 28: 10-11
22. **Unsworth RKF** (2009) Seagrass exploitation in the Indo-Pacific: A call for action. *Pacific Ecologist* In Press
23. **Unsworth RKF** (2009) Marine Dredging in an Ever Changing World. *The Marine Scientist* 25: 26-29

24. McKenzie LJ, **Unsworth RKF** (2009) Carbon, carbon everywhere **SeagrassWatch News** 36: 2-3
25. **Unsworth RKF** (2008) Fishing at sunset: are we missing the full story? **Inside Reef Magazine** 4: 4-5
26. **Unsworth RKF** (2009) Connectivity: Should we really care? **SeagrassWatch News** 38: 5-7

Articles In Review (Complete Manuscripts Can Be Provided Upon Request)

27. Rasheed MA, **Unsworth RKF**, (resubmitted to *Marine Ecology Progress Series* for revisions 15th Feb 2010) Climate driven dynamics of seagrass meadows in tropical north Australia: implications for the future
28. Rasheed MA, Chartrand K, Roelofs A, **Unsworth RKF** (submitted to *Aquatic Botany* Sept 10th 2009) Tidal exposure explains the long-term dynamic of *Enhalus acoroides* meadow in tropical Australia

Recent Conference Presentations/Proceedings

Unsworth RKF, Rasheed MA (2009) Long-term climate driven dynamics of seagrass meadows in tropical north Australia (*Oral Presentation at IntEcol10 August 2009*)

Unsworth RKF (2008) Monitoring the fisheries health of Indo-Pacific seagrass systems. (*Oral Presentation at International Seagrass Biology Workshop 8, Vancouver, August 2008*)

Unsworth RKF, Huber ME, Hanley RJ (2008) Developing water quality thresholds for modelling the impact of marine dredging. (*Oral Presentation at Coast 2 Coast Conference, Darwin, August 2008*)

Unsworth RKF, Cullen LC, Bell JJ, Smith DJ, Pretty J (2007) Local and national application of fisheries resource economic valuation: a case study from Indonesia (*Poster at 36th Annual session of the SOPAC Council, Tonga, Oct 2007*)

Unsworth RKF, Salinas P, Garrard S, Smith DJ, Bell JJ (2006) The influence of mangroves on trophic interactions in Indo-Pacific seagrass fish assemblages (*Oral Presentation at Reef Conservation UK conference in December 2006*)

Unsworth RKF, Cullen LC, Pretty, Bell JJ, Smith DJ (2006) The biological and economic value of 'No-take areas' as tools in conservation management (*Oral Presentation at ISRS European Meeting, Bremen, Sept 2006*)

Unsworth RKF, Bell JJ, Smith DJ (2005) Connectivity between shallow water coastal habitats in Wakatobi MNP, Indonesia (*Oral Presentation at Reef Conservation UK conference in November 2005*)

Example Consultancy Reports (>20 Major Reports)

Unsworth RKF, Taylor HA, Rasheed MA (2009) Port of Townsville long-term seagrass monitoring: October 2008 QPI&F Publication PR09-4330 (QPI&F, Cairns), 30 pp.

McKenna SA, Rasheed MA, **Unsworth RKF**, Chartrand C (2009) Seasonal baseline seagrass mapping for the Port of Abbot Point. DPI&F Report for Ports Cooperation Queensland.

Unsworth RKF, Wallace R (2008) Mangrove management and offset plan – Port Hedland Expansion Rapid Growth Program 5, Western Australia. Sinclair Knight Merz Consultants report for BHP Billiton

Harriden T, **Unsworth RKF**, Peat K (2008) Long-term coral monitoring for the dredging program of the Cape Lambert Port Upgrade, Western Australia. Sinclair Knight Merz Consultants report for Rio Tinto Iron Ore

Unsworth RKF, Huber ME (2008) Marine Environmental Impact Assessment of the Proposed Cirebon Coal fired Power Station, Java. Sinclair Knight Merz Consultants

Unsworth RKF (2005) Issues to be addressed in the zonation of the Wakatobi MNP. *Operation Wallacea Technical Report*.

Cullen LC, **Unsworth, RKF** (2003) EU joint MSc degrees: Water and coastal management. European University Association.