

Curriculum Vitae for Dr. Vanessa Lucieer

PERSONAL DETAILS

Name: Vanessa Louise Lucieer (*nee* Halley)
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Date of Birth: 25th January 1977



EDUCATION & RESEARCH

PhD Research at the Tasmanian Aquaculture and Fisheries Institute-TAFI, University of Tasmania, Hobart, Tasmania, Australia

Title: *Spatial Uncertainty Estimation Techniques for Shallow Coastal Seabed Mapping*.
Supervisors: Prof. Richard Coleman, Dr. Alan Jordan, Dr. Eleanor Bruce
Period: July 2003 – Graduated August 2007
More information: <http://halley.lucieer.net/>

Honours Degree in Physical Geography (First Class Hons), Geographical Information Systems and Climatology, University of Tasmania, Hobart, Tasmania, Australia

Title: *A Microclimatic Survey of Frost Risk Assessment at Leura Vineyard, Pipers Brook*.
Supervisors: Ass. Prof. Manuel Nunez, Dr. Eleanor Bruce
Period: July 1998 –1999

PROFESSIONAL EXPERIENCE

2005- 2008 Research Group Leader Habitat Mapping and Assessment (Academic) Tasmanian Aquaculture and Fisheries Institute, Research Scientist.

Roles and Responsibilities:

Project leader of seabed habitat mapping research, Staff management, Grant application, Milestone reporting, Financial reporting, SeaMap spatial data manager, Consultancies, Project management, SeaMap Tasmania representation and promotion, Research progression, MRL/TAFI Website Manager, GIS Licensing and Cost Recovery, TAFI spatial data support and TAFI GIS support and training

2001- 2004 Research Assistant (Academic) SeaMap Tasmania Project, Tasmanian Aquaculture and Fisheries Institute, University of Tasmania.

Roles and Responsibilities:

Development of methodologies for marine habitat mapping, Innovation of novel GIS based methods for marine GIS models, SeaMap field work coordination and acoustic and video data collection, Report writing, GIS database development.

2000 Technical Officer SeaMap Tasmania Program Tasmanian Aquaculture and Fisheries Institute, University of Tasmania

2000 GIS Consultant: Tasmanian Offshore Islands surveyor and database developer. Department of Primary Industry Water and the Environment, Hobart Tasmania.

1999 Research Assistant Geological Mapping of China Survey. Department of Spatial Information Science University of Tasmania.

1999 GIS Consultant. Oil Spill Response Atlas (OSRA) database developer. Department of Primary Industry Water and the Environment, Hobart Tasmania.

REFEREED KEY PUBLICATIONS (PAPERS)

1. **Halley, V.**, Eriksson, M., & Nunez, M (2003) Frost prevention and prediction of temperature variations and cooling rates using GIS. *Australian Geographical Studies*. **41**, 287-303.
2. Jordan, A., Lawler, M., **Halley, V.** & Barrett, N (2005) Seabed habitat mapping in the Kent Group of islands and its role in marine protected area planning. *Aquatic Conservation: Marine and Freshwater Ecosystems*, **15**, 51-70.
3. **Halley, V** and Bruce, E (2007) Thematic accuracy assessment of acoustic seabed data for shallow benthic habitat mapping. *International Journal of Environmental Studies*, **64**, 93-107
4. **Lucieer, V** (2007) Characterisation of rocky reef using object oriented classification methods and fragmentation statistics. *Journal of Spatial Sciences*. **52**, 79-90.
5. **Lucieer, V** (2007) Object oriented classification of sidescan sonar data for mapping benthic marine habitats. *International Journal of Remote Sensing*. *In Press*.
6. **Lucieer, V** & Pederson, H (2007). Linking morphometric characterisation of rocky reef with fine scale lobster movement. *ISPRS Journal of Photogrammetry and Remote Sensing*. *Accepted September, 2007*.
7. **Lucieer, V** & Lucieer, A. *In Review*. Fuzzy c-Means for Seafloor Classification. *Estuarine, Coastal and Shelf Science*. *In review*.

BOOKS AND BOOK CHAPTERS

8. **Lucieer, V.** & Jordan, A (2007) Addressing spatial uncertainty through hierarchical classification in mapping southern Australian coastal seabed habitats. Todd, B.J., and Greene, H.G., eds., *Mapping the Seafloor for Habitat Characterisation: Geological Association of Canada, Special Paper 47*, p. 157-170.
9. Brothers, N, Pemberton, D, Pryor, H, & **Halley, V** (2001). *Tasmania's Offshore Islands: seabirds and other natural features*, Tasmanian Museum and Art Gallery Publishers. Australia, pgs. 643.

COMPETITIVE RESEARCH GRANTS

Title	Year	Role ¹	Org.	\$
SeaMap Tasmania: Mapping the GAPS	2007	PI	NHT (Natural Heritage Trust)	\$467,000
2006-029 Using GPS Technology to Improve Fishery Dependent Data Collection in Abalone Fisheries	2006	CI	Fisheries Research and Development Corporation	\$450,862
Pilot study on the investigation of uncertainty analysis applied to Geoscience Australia seascapes data	2006	PI	GeoScience Australia	\$6,789
Marine Habitat Mapping	2006	PI	NHT (Natural Heritage Trust)	\$90,000
Mapping Key Habitat Types and Significant Marine Communities	2006	PI	NHT (Natural Heritage Trust)	\$129,769
Total				\$ 1,144,420

¹PI= Principle Investigator, CI = Co-Investigator

MAJOR RESEARCH REPORTS

10. **Lucieer, V.**, Lawler, M. Morffew, M & Pender, A (2007) *Estuarine Habitat Mapping in the Derwent- 2007 A Resurvey of Marine Habitats by SeaMap Tasmania*. Final Report to the Derwent Estuary Program, Department of Primary Industries and Water: pgs 88
11. Whiteway, T., Heap, A.D., **Lucieer, V.**, Hinde, A., Ruddick, R., Harris, P.T (2007) *Seascapes of the Australian Margin and Adjacent Seafloor: Methodology and Results*. Australian Government GeoScience Australia 2007/11.
12. **Lucieer, V.**, Lawler, M. Morffew, M & Pender, A (2007) *Mapping of inshore marine habitats from Schouten Island to Bicheno on the East Coast of Tasmania*,. Final Report to the Natural Heritage Trust. NHT/NAP Project No.L0015121: pgs 109
13. **Lucieer, V.**, Lawler, M. Morffew, M & Pender, A (2007) *Mapping of inshore marine habitats in the Cradle Coast Region; From West Head to Robbins Passage*. Final Report to the Natural Heritage Trust. NHT/NAP Project No.CEM22: pgs 70
14. **Lucieer, V** (2006) *A pilot study on the investigation of uncertainty analysis applied to the GeoScience Australia seascapes classification*. Consultancy number 1675, University of Tasmania: pgs 33
15. Jordan, AR, **Lucieer, V**, & Lawler, M (2005) *Linking habitat mapping with fisheries assessment in key commercial fishing grounds*. Final Report to the Fisheries Research and Development Council: pgs 85
16. Mount, RE, **Lucieer, V**, Lawler, MM, & Jordan, AR (2005) *Mapping of Estuarine and Marine Habitats in the Southern NRM Region*. Final Report to the Southern NRM Regional Council, NHT46397: pgs 96
17. Barrett, N., Edgar, G., Lawler, M & **Halley, V** (2004) *A quantitative video baseline survey of marine habitats within Bathurst Channel, SW Tasmania 2004*. Tasmanian Aquaculture Fisheries Institute, Internal Report: pgs 55
18. Jordan, A., Lawler, M., **Halley, V.**, & Barrett, N (2005) *Seabed habitat mapping in the Kent Group of islands and its role in marine protected area planning*. Tasmania Aquaculture and Fisheries Internal Report: pgs 41
19. Jordan, AR, Samson, C, Lawler, MM, & **Lucieer, V** (2003) *Assessment of seabed habitats and heavy metals in Cornelian Bay*. Final Report to the Department of Primary Industry Water and Environment: pgs 28
20. Jordan, AR, Doole, J, Archer, L, Lawler, MM, **Lucieer, V**, Sanderson, J.C (2002) *Assessment of nutrients and habitats in North West Bay - supporting sustainable management*. Final Report to the Natural Heritage Trust: pgs 93
21. Jordan, AR, Lawler, MM, **Lucieer, V**, (2001) *Estuarine Habitat Mapping in the Derwent - Integrating Science and Management*. Final Report to the Natural Heritage Trust: pgs 67
22. Barrett, NS, Sanderson, JC, Lawler, MM, **Lucieer, V**, Jordan, AR, (2000) *Mapping of inshore marine habitats in south-eastern Tasmania for marine protected area planning and marine management*. Final Report to the Department of Environment and Heritage, Canberra: pgs 74

SKILLS AND EXPERIENCE

CURRENT RESEARCH INTERESTS

- Multivariate analysis for benthic habitat characterisation and classification
- Development of multibeam processing methods for identifying morphometric surrogates
- Improving classification of sidescan sonar imagery using image processing methods

SPATIAL SCIENCE EXPERIENCE AND EXPERTISE

- Fuzzy modelling and spatial uncertainty modelling for marine habitat data
- Processing and analysing data recorded by instrumentation recording: bathymetric data, precision RTK GPS data and GPS
- Bathymetric (Acoustic data collection, processing of vertical datum and data cleaning and DEM creation to Hydrographic Special Issue Standard).
- Habitat mapping from Sidescan sonar (EdgeTech 373), Single Beam Acoustics (ES 60), Multibeam acoustics (Reson 8101 and Geoswath)
- Hydrography (CTD profiles, Temp Salinity profiling)
- Grain size (Particle size analysis, heavy metal contamination)
- Backscatter data (Sidescan; Analogue and Digital Edgetech image processing)
- Aerial photography (purpose flown imagery and archived data including rectification and image analysis, mission planning etc)
- Remote sensing image processing (using ENVI, ERDAS Imagine and e-Cognition) of Landsat TM, CASI, QuickBird, multibeam and sidescan imagery
- Map production for publications and web based servers using ArcIMS, webpage programming in JAVA.

FIELD WORK EXPERIENCE

- Single beam acoustic (ES 60) data collection
- Extensive small vessel (6 m) and large vessel (26 m) field experience
- Sidescan survey data collection (Edgetech)
- Deployment and analysis of ADV current meter, ADCP profiles, CTD and grain size analysis
- Piston and Crab corer sediment grabs
- Underwater video camera data collection
- Risk assessment planning and reviewing

PROFESSIONAL DEVELOPMENT

- Staff management and selection committee experience (2007)
 - Thinking on your feet; Developing Potential (2007)
 - Accountable Person OH&S Training, IPM (2006)
 - Time Management; Developing Potential (2006)
 - Surf Life Saving Tasmania Workplace 2 First Aid Certificate (2006)
 - 38th Ocean Mapping and Multibeam Sonar Training Course Sydney (2005)
 - Level 4 Dutch Language (TAFE 2003-2005)
 - Access Data Base Development and Design (NDA Computing 2004)
 - Level 2 French Language (TAFE 2001-2002)
 - Oxygen Provider and Diver First Aid (2003)
 - Web page Design and JAVA programming course (NDA Computing 2002)
 - Scientific Writing Course (UTAS, 2001)
 - Outboard Motor Maintenance Course (D.Gilespie 2001)
 - ESRI Arc 8 Training Course Level 2 Certificate (ESRI 2001)
 - Australian Institute of Advanced Motorists Defensive Driving Course Certificate (2000)
 - Current Drivers License (Passenger vehicle)
 - ESRI ArcINFO Trainer Course Level 1 Certificate (1998)
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RESEARCH COMMITTEE MEMBERSHIP

- Southern NRM Region Marine Environment Advisory Board (2007)
- National Habitat Classification Technical Working Group (2005-2007)
- Tasmanian Marine Environment Research Advisory Group (2005-2007)

ACTIVITIES & INTERESTS

Pottery, bushwalking, travelling, oil painting and fieldwork!

Appendix

These research outputs can be validated via the University of Tasmania's online research portfolio at: http://rmdb.research.utas.edu.au/public/rmdb?indiv_detail_warp_trans+6831

RESEARCH OUTPUT

FULL REFEREED CONFERENCE PAPERS

23. **Lucieer, V** (2007) Morphometric characterisation of rocky reef using multibeam acoustic bathymetric data. IEEE International Geoscience and Remote Sensing Symposium. Barcelona, Spain, pp 315-330.
24. **Lucieer, V** (2006) The application of automated segmentation methods to characterise rocky reef habitat. Coast GIS 2006 Proceedings. Wollongong, July, 2006. Proceedings of Coast GIS 2006, 15pp. On CD ROM.
25. Boxshall, A. **Lucieer, V** (2006) Marine Mapping; New Findings and the Tasmanian and Victorian Experience. Coast to Coast 2006 Proceedings. Melbourne, May 2006. Online Publication.
26. **Lucieer, V** (2005) Applying discriminate analysis to characterise shallow rocky reef habitat. International Journal of Remote Sensing special issue. Spatial Data Quality International Conference, Beijing China August 2005. pgs 215-219
27. Jordan, A., Lawler, M., and **Halley, V** (2003) The application of seabed habitat mapping for multiple marine resource management in Tasmanian coastal waters. Coast GIS Wollongong 2003. pgs 157-175.

BOOKS AND BOOK CHAPTERS

28. **Lucieer, V** and Jordan, A (2007) Addressing spatial uncertainty in mapping southern Australian Coastal Seabed Habitats, in Todd, B.J., and Greene, H.G., eds., Mapping the Seafloor for Habitat Characterisation: Geological Association of Canada, Special Paper 47, p. 157-170.
29. Brothers, N., Pemberton, D., Pryor, H., **Halley, V** (2001) Tasmania's Offshore Islands: seabirds and other natural features. Tasmanian Museum and Art Gallery. Hobart, Tasmania.

CONFERENCE ABSTRACTS

30. Pederson, H., Semmens, J., **Lucieer, V.**, Frusher, S and Buxton, C (2007) Linking rock lobster behaviour and habitat utilisation to benthic complexity using radio acoustic telemetry. AMSA Conference, 9-13th July, Melbourne, 2007.
31. Heap, A.D., Harris, P.T., Whiteway, T and **Lucieer, V** (2007) Using 'seascapes' to help predict Australia's benthic marine habitat diversity. GeoHab; Marine Geological and Biological Habitat Mapping Conference. Noumea, New Caledonia 2-6th May 2007.

32. **Lucieer, V** and Jordan, A (2007) Morphometric characterisation of rocky reefs using swath acoustic bathymetry. GeoHab; Marine Geological and Biological Habitat Mapping Conference. Noumea, New Caledonia 2-6th May 2007.
33. **Lucieer, V** (2006) Characterisation of rocky reef using object oriented classification methods and fragmentation statistics. Australian Society for Fish Biology 2006 Conference and Workshop on Cutting Edge Technologies in Fish and Fisheries Science. 28 August - 1 September 2006. pg 88.
34. **Lucieer, V.** Mundy, C (2005) Linking abalone fishery dependent data to fine scale habitat mapping. International Conference on GIS in Fisheries and Aquatic Sciences, Shanghai China August 2005. pg 19.
35. **Halley, V** (2004) Addressing Spatial Uncertainty in Marine Habitat Mapping. Fifth Australasian Postgraduate Workshop on GISc, Social and Environmental Modelling, Kioloa, NSW, Australia 1-6th June 2004.
36. Lawler, M., Jordan, A and **Halley, V** (2004) Acoustic classification of nearshore seabed habitats based on echo-integration and visualisation. GEOHAB 2004 Conference, Galway Ireland.
37. Jordan, A., **Halley, V**, Lawler, M and Mount, M (2004) Mapping of coastal seabed habitats in Tasmania : development and integration of remote sensing techniques within a hierarchical framework. GEOHAB 2004 Conference, Galway Ireland.
38. Jordan, AR, **Lucieer, V**, Lawler, MM, Mount, RE, 'Seabed habitat mapping in the Kent Group of islands and its role in Marine Protection Area Planning', Coast to Coast 2004, Hobart, Tasmania (2004).
39. **Halley, V** (2004) The Development of Spatial Error Estimation Techniques for Seabed Habitat mapping. School of Geography and Environmental Studies. PhD Seminar. University of Tasmania.
40. Lawler, M., Jordan, A and **Halley, V** (2003) SEAMAP Tasmania- the application of seabed habitat mapping for multiple marine resource management. GEOHAB 2003 Conference, Hobart Tasmania.
41. **Halley, V** (2003) Addressing Spatial Uncertainty in Marine Habitat Mapping. GEOHAB 2003 Conference, Hobart Tasmania

CONFERENCE PRESENTATIONS

42. **Lucieer, V** (2007) Morphometric characterisation of rocky reef using multibeam acoustic bathymetric data. IEEE International Geoscience and Remote Sensing Symposium. Barcelona, Spain, July 2007.
43. **Lucieer, V** (2006) Characterisation of Rocky Reef Using Object Oriented Classification Methods and Fragmentation Statistics. Australian Society of Fish Biology Workshop and Conference. Hobart, August 2006.
44. **Lucieer, V** (2006) The application of automated segmentation methods to characterise rocky reef habitat. Coast GIS 2006 Proceedings. Wollongong, NSW, July 2006.
45. Boxshall, A. **Lucieer, V** (2006) Marine Mapping; New Findings and the Tasmanian and Victorian Experience. Coast to Coast 2006 Proceedings. Melbourne, May 2006. Online Publication.
46. **Lucieer, V** (2005) Applying Discriminate analysis to characterize shallow rocky reef habitat. International Symposium on Spatio-temporal Modeling Spatial Reasoning, Spatial Analysis, Data Mining and Data Fusion. Peking University, Beijing, China
47. **Lucieer, V** and Mundy, C (2005) Linking abalone fishery dependent data to fine scale habitat mapping. Third International Symposium on GIS/Spatial Analyses in Fishery and Aquatic Sciences. Shanghai Fisheries University, China.
48. **Halley, V** (2003) Addressing Spatial Uncertainty in Marine Habitat Mapping. GEOHAB 2003 Conference, Hobart Tasmania

CONSULTANCY REPORTS

49. **Lucieer, V** (2006) *A pilot study on the investigation of uncertainty analysis applied to the GeoScience Australia seascapes classification*. Consultancy number 1675, University of Tasmania: pgs 33
50. 2000-2007- Oil Spill Response Atlas (Commonwealth Government) Department of Primary Industries and Water.

MEDIA RELEASES

51. **Lucieer, V** (2006) An update of SeaMap Tasmania. *Fishing Today* 19:(6).
52. **Lucieer, V** (2006) Sea Mapping Tasmania. ABC Radio National; Perspective 3rd March 5.55pm. 585AM
53. **Lucieer, V** (2006) Planet Ocean. ABC Radio National; Country Hour; Bush Telegraph. 9th March 11:55am. 585AM
54. **Lucieer, V** (2005) Good progress on Seabed Mapping. *Fishing Today* 18:(6)
55. Jordan, AR. **Lucieer, V** (2005) Mapping of seabed habitat in south-east and north-east abalone fishing blocks - an update on SEAMAP Tasmania, *Fishing Today*, Turtle Press P/L, Rosny, Tasmania, 18, 1 (2005)
56. **Halley, V** and Lawler, M (2002) Exposing the Sea Floor with GIS. *ArcNews*. Vol 24. No2 ESRI. Redlands California.

OTHER WRITTEN MEDIA

57. **Lucieer, V** (2007) Addressing Spatial Uncertainty in Shallow Coastal Seabed Mapping. PhD Thesis. University of Tasmania. Hobart, Australia, 295p.
58. **Halley, V** (1999) A Microclimatic Survey of Frost Risk at Leura Vineyard. Honours Thesis. University of Tasmania. Hobart, Australia, 100p.
59. Webpage: www.halley.lucieer.net Homepage of Vanessa.Lucieer
60. Webpage: www.utas.edu.au/tafi/seamap SeaMap Tasmania website.

INVITED PRESENTATIONS

61. **Lucieer, V** (2007) Habitat Mapping and Assessment in Tasmania. Natural Resource Management Program Research Overview. 4th April 2007. TAFI MRL.
62. **Lucieer, V** (2007) Linking Maps to Fisheries. TAFI Sustainable Fisheries Program Research Overview. 8th May 2007. Mecure Hotel, Hobart.
63. **Lucieer, V** (2007) Habitat Mapping and Assessment. Exploring Marine ICT Opportunities in Aquaculture and Fisheries Workshop. 21st May 2007. TAFI MRL.
64. **Lucieer, V** (2006) How Technology is Used to Help Manage Our Oceans. Tasmanian Marine Naturalists Association. University of Tasmania. 9th August, 2006
65. **Lucieer, V** (2006) A Multiscale Segmentation Approach to Mapping Reef Habitat and Other Interesting Techniques. SonarData Friday Forum Series. 4th August, 2006
66. **Lucieer, V** (2006) Ground truthing, Classification Accuracy, Uncertainty and Validation. Coast GIS Technical Workshop. Telstra Stadium. Sydney Olympic Park. 12th July, 2006
67. **Lucieer, V** (2006) Object-oriented classification of sonar imagery for benthic marine habitat mapping. Spatial Sciences Institute. Professional Development Series. Remote Sensing and Photogrammetry Seminar. April 21st, 2006

68. **Lucieer, V** (2006) Estuarine and Marine Habitat Mapping in the Southern NRM Region. NRM Coastal and Marine Community Forum. Woodbridge Marine Discovery Centre. April 2nd, 2006
69. **Lucieer, V** (2006) SeaMap Tasmania- Progress Update 2005/2006. Marine Environment Research Review. Tasmanian Aquaculture and Fisheries Institute. May 2nd, 2006
70. **Lucieer, V** (2005) Reef pattern and its implications for abalone fisheries management. Wild fisheries Research Review. Marine Research Laboratories. Elizabeth St Pier Convention Centre
71. **Lucieer, V** (2005) Habitat Mapping; Becoming Spatially Quantitative. Marine Environment Research Review . Marine Research Laboratories Elizabeth St Pier Convention Centre
72. **Halley, V** (2004) The Development of Spatial Error Estimation Techniques for Seabed Habitat Mapping. TAFI MRL Seminar Series, 18th Nov 2004
73. **Halley, V** (2004) Addressing Spatial Uncertainty in Marine Habitat Mapping. Fifth Australasian Postgraduate Workshop on GISc, Social and Environmental Modelling, Kioloa, NSW, Australia 1-6th June 2004.
74. **Halley, V** (2004) The Development of Spatial Error Estimation Techniques for Seabed Habitat mapping. School of Geography and Environmental Studies. PhD Seminar. University of Tasmania.
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