

## Curriculum Vitae

**Name:** Colin Malcolm **HARRIS**  
**Date of birth /:** 12 March 1960.  
**Nationality** New Zealand / United Kingdom  
**Present occupation:** Director, *Environmental Research & Assessment Ltd.*  
**Present work address:** ERA, 12 Silverdale Avenue, Coton, Cambridge, UK CB23 7PP  
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### Professional specialisation

Environmental management and policy, protected areas, environmental monitoring, impact assessment, indicators and state of the environment reporting, environmental information management and internet resource development. Mapping and environmental applications of Geographical Information Systems (GIS), Remote Sensing and Global Positioning Systems (GPS).

### Professional memberships

2010- Associate of the Institute of Environmental Management & Assessment (AIEMA)  
 2006- Member of the British Cartographic Society

### Academic qualifications

1988-93 Ph.D. University of Cambridge, United Kingdom.  
 1984-86 MA (Geography) University of Western Ontario, Canada  
 1979-84 BA Hons (First Class) (Geography) University of Otago, New Zealand

### Honours and awards

2011 US National Science Foundation Office of Polar Programs Environmental Award: outstanding environmental and GIS mapping contributions to USAP.  
 2006 Co-winner of British Cartographic Society Awards "Best Mapping Entry" & "Best Electronic Map" 2006.  
 1992 Cambridge Philosophical Society Studentship  
 1988-91 United Kingdom Overseas Research Student Award, Cambridge Commonwealth Trust Graduate Fellowship, CT Taylor Environmental Studentship, University of Cambridge, British Antarctic Survey Research Bursary  
 1984-86 University of Western Ontario Admission Scholarship, Fees Award and Overseas Student Scholarship

### Recent academic / educational responsibilities:

2001-06 Supervision of Ph.D. and MPhil students, Scott Polar Research Institute, University of Cambridge.  
 2002-06 Senior Associate, Scott Polar Research Institute, University of Cambridge.  
 2001-02 Coordinator and lecturer, Antarctic Environmental Management Strand of MPhil in Polar Studies, Scott Polar Research Institute, University of Cambridge.

### Recent projects:

Important Bird Areas in Antarctica (2014-15): Assessment of important bird areas in Antarctica, including spatial analysis using GIS and preparation of site descriptions, preparation of Working Paper and Information Paper for Antarctic Treaty Meeting / CCMALR. Clients: *BirdLife International, Pew Charitable Trusts, Governments of Australia, New Zealand, Norway, UK and US.*

Guidelines for Activities at Antarctic Geothermal Sites (2014-15): drafted guidelines in consultation with ASC, NSF, New Zealand, SCAR and a broad range of international science groups. Client: *Antarctic Support Contract* and the *National Science Foundation, Government of the United States of America.*

Revision of McMurdo Dry Valleys ASMA and other protected areas (2014-15): preparation revised management plans & maps, including preparation of Working Papers for Antarctic Treaty Meeting. Client: *Antarctic Support Contract* and the *National Science Foundation, Governments of New Zealand and of the United States of America.*

Wildlife Awareness Map Series Antarctic Peninsula (2014-15): Publication of map series showing wildlife locations on the Antarctic Peninsula to aid UK operations in Antarctica: *Polar Regions Unit, UK Foreign & Commonwealth Office.*

Ellsworth Mountains Map Series 1:100K (2012): publication of map series to support ALE expeditions in Antarctica. Client: *Antarctic Logistics & Expeditions, United States of America / UK.*

Environmental planning at South Pole (2012- ): evaluation of environmental planning issues at South Pole. Client: *Antarctic Support Contract* and the *National Science Foundation, Government of the United States of America.*

Nimba Mountains GIS & Atlas to support environmental planning in Liberia, Guinea & Cote d'Ivoire (2008- ): preparation of mapping using GIS to support environmental planning. In partnership with Fauna & Flora International.

GIS & Maps to support EIA in Uganda (2010- ): preparation of mapping using GIS to support Environmental Impact Assessments of large infrastructure projects. Various commercial clients.

- Revision of McMurdo Dry Valleys ASMA (2010-11): preparation revised management plan. Client: *Raytheon Polar Services* and the *National Science Foundation, Government of the United States of America*.
- Maps to support McMurdo Dry Valleys ASMA (2007-11): preparation of mapping using GIS to support management plan. Client: *Raytheon Polar Services* and the *National Science Foundation, Government of the United States of America*.
- Development of a Specially Managed Area in the Palmer Station region (2006-08): development of a management plan and maps for the region close to Palmer Station, Anvers Island, Antarctic Peninsula. Client: *Raytheon Polar Services* and the *National Science Foundation, Government of the United States of America*.
- Maps to support overland traverses to South Pole (2008): preparation of maps to support overland traverses to the South Pole by expeditions. Client: *Antarctic Logistics & Expeditions, United States of America / UK*.
- Nimba Iron Ore EIA (2005-2009): Environmental advice, remote sensing and GIS database and maps for an EIA of a large iron mine in Liberia. Client: *Atkins, United Kingdom*.
- Strategic Environmental Evaluation of a proposed iron ore mine in West Africa (2007): contributions to strategic environmental study for an iron ore mine in West Africa. Client: *Atkins, United Kingdom*.
- Southern Ocean Cruising (2005-07): update text, prepare maps, design layout, & publish second edition of this classic book by Sally & Jerome Poncet. Client: *Polar Regions Unit, UK Foreign & Commonwealth Office*.
- Wildlife Awareness Manual (2004-06): GIS database and published field manual mapping wildlife locations on the Antarctic Peninsula as an aid for helicopter operations: *Polar Regions Unit, UK Foreign & Commonwealth Office*.
- EuroArctic GIS and Map Series (2005-06): GIS database and maps developed on environmental issues in the European Arctic. Client: *Ocean Futures, Oslo, Norway*.
- Maps to support South Pole ASMA (2005-07): preparation of mapping using GIS to support management plan. Client: *Raytheon Polar Services* and the *National Science Foundation, Government of the United States of America*.
- Guidelines for aircraft operations, Antarctica (2000-03): Papers analysing scientific and operational needs for aircraft operations guidelines close to concentrations of birds in Antarctica. Client: *British Antarctic Territory, Foreign and Commonwealth Office, United Kingdom*.
- UK Antarctic Protected Areas Project (1998-2004): developing management plans for Antarctic protected areas. Analysis of environmental issues, preparation of papers for Antarctic Treaty, liaison with scientists and specialists, preparation of mapping using GIS, and provision of advice. Client: *British Antarctic Territory, FCO*.
- US Antarctic Protected Areas Project (1999-2005): as above for the National Science Foundation. Client: *Raytheon Polar Services* and the *National Science Foundation, Government of the United States of America*.
- Terra Nova Bay Protected Areas (2002-06): preparation of management plans for new protected areas in the Terra Nova Bay / Wood Bay region, Ross Sea. Client: *Government of Italy*.
- Antarctic Protected Areas Information Archive (2000-03): a web resource for Antarctic protected areas ([www.cep.aq/apa](http://www.cep.aq/apa)). Includes information on all types of Antarctic protected areas, including management plans and maps. Client: *British Antarctic Territory, Foreign and Commonwealth Office, United Kingdom*.
- Antarctic marine protected areas (2001-02). Client: *Ministry of Foreign Affairs and Trade, New Zealand*.
- Polar marine ecosystems: present state and future trends (2001-02): review paper jointly with Prof Andrew Clarke, British Antarctic Survey. *Environmental Conservation* and presented at the Conference on Aquatic Ecosystems in 2003. Client: *Foundation for Environmental Conservation, Switzerland*.
- State of the Environment of the Ross Sea Region (1999-2000): chapter on pressures from science / logistics in the Ross Sea. In *State of the Ross Sea Environment Report* (2001). Client: *New Zealand Antarctic Institute*.

### Previous relevant experience (1993–98)

Environmental Specialist at the International Centre for Antarctic Information and Research and UNEP/GRID-Christchurch. Project examples:

- Development of a environmental indicators for monitoring the state of New Zealand wetlands;
- Report of the UN Secretary General on the 'The state of the environment in Antarctica', 51<sup>st</sup> Session of the UN.
- Antarctic chapter of the UNEP *Global Environmental Outlook* (1997).
- Protected areas management plan and map development for sites throughout the Ross Sea region.

### Publication list: Colin M Harris

#### Books

- Poncet, S. & Poncet, J. 2007. *Southern Ocean Cruising*. 2<sup>nd</sup> Edn comprehensively revised and updated by Poncet, S., Harris, C.M. & Grant, S.M. *Environmental Research & Assessment*, Cambridge.
- Harris, C.M. (ed) 2006. *Wildlife Awareness Manual: Antarctic Peninsula, South Shetland Islands, South Orkney Islands*. 1<sup>st</sup> edn. Wildlife Information Publication No. 1. Prepared for UK Foreign & Commonwealth Office and HMS *Endurance*. *Environmental Research & Assessment*, Cambridge.
- Harris, C.M. & Stonehouse, B. (eds) 1991. *Antarctica and global climatic change*. Belhaven Press, London.

## Articles

- Lorenz, K. & Harris, C.M. 2013. Cartographic challenges in Antarctica: Mapping in support of environmental management for the US Antarctic Program. 26th International Cartographic Conference Proceedings, Dresden, Germany.
- Jungblut, A.D., Wood, S.A., Hawes, I., Webster-Brown, J. & Harris, C.M. 2012. The Pyramid Trough Wetland: environmental and biological diversity in a newly created Antarctic protected area. *FEMS Microbiology Ecology* **82**(2): 356–66.
- Clarke, A., Brierley, A., Harris, C.M., Lubin, D. & Smith, R.C. 2008. Polar and ice-edge marine systems. In Polunin, N. (ed) *Aquatic ecosystems*. Cambridge University Press, Cambridge: 319–33.
- Harris, C.M. 2007. Protected Areas within the Antarctic Treaty Area. In Riffenburg, B. (ed) *Antarctic Encyclopaedia (Vol II)*. Routledge, New York: 769–81.
- Grant, S.M. & Harris, C.M. 2007. King George Island. In Riffenburg, B. (ed) *Antarctic Encyclopaedia (Vol I)*. Routledge, New York: 572–78.
- Harris, C.M. 2005. Aircraft operations near concentrations of birds in Antarctica: The development of practical guidelines. *Biological Conservation* **125**: 309–22
- Clarke, A. & Harris, C.M. 2003. Polar marine ecosystems: major threats and future change. *Environmental Conservation* **30**(1): 1–25.
- Harris, C.M. 2001. Key pressures on the Ross Sea region environment: science. In Waterhouse, E (ed) *Ross Sea Region 2001: a State of the Environment Report for the Ross Sea Region of Antarctica*. New Zealand Antarctic Institute, Christchurch.
- Harris, C.M. 1998. Science and environmental management in the McMurdo Dry Valleys, Antarctica. In Prisco, J. (ed) *Ecosystem Processes in a Polar Desert: the McMurdo Dry Valleys, Antarctica*. Antarctic Research Series, Vol. 72. American Geophysical Union, Washington.
- Harris, C.M. & Croteau, K. 1996. Prototype system to support helicopter tracking operations. *GIS World* 9(8): 42–44.
- Harris, C.M. 1994. Standardisation of zones within specially protected and managed areas under the Antarctic Environmental Protocol. *Polar Record* 30(175): 283–86.
- Harris, C.M. 1994. Protected areas review, McMurdo Sound, Ross Sea. *Polar Record* 30(174): 189–92.
- Harris, C.M. 1993. Pole to pole: GIS out in the cold? (Editorial) *GIS Europe* 2(6): 20–21.
- Harris, C.M. & Meadows, J. 1992. Environmental management in Antarctica: instruments and institutions. *Marine Pollution Bulletin* 25(9–12): 239–49.
- Harris, C.M. 1991. Environmental management on King George Island, South Shetland Islands, Antarctica. *Polar Record* 27(163): 313–24.
- Harris, C.M. 1991. Environmental effects of human activities on King George Island, South Shetland Islands, Antarctica. *Polar Record* 27(162): 193–204.
- Harris, C.M. (Editor and co-author with UNEP). 1997. *Regional perspective: the Antarctic*. In UNEP (eds) *Global environment outlook*. Oxford University Press, Oxford.
- Harris, C.M. & Orams, M.B. 1990. Summer weekend visitors to Auckland's regional parks: characteristics, motivations, sources of information and activities. *New Zealand Geographer* 46(2): 60–74.

## Theses

- Harris, C.M. 1993. Environmental management in Antarctica using Geographical Information Systems. Ph.D., University of Cambridge.
- Harris, C.M. 1986. The effects of national parks on local populations. MA, University of Western Ontario, Canada.
- Harris, C.M. 1983. Recreation on the Routeburn Track: image and experience. BA Hons, University of Otago, NZ.

## Recent consultancy reports prepared: CM Harris sole author

2003. Wildlife Sensitivity Manual: Scoping Report. Prepared for the Government of the British Antarctic Territory. *Environmental Research & Assessment*, Cambridge.
2002. Guidelines for the operation of aircraft near concentrations of birds in Antarctica. Working Paper prepared for the UK Government for the September 2002 Antarctic Treaty Consultative Meeting, Warsaw, Poland. *Environmental Research & Assessment*, Cambridge.
2002. Antarctic Protected Areas System: Information Archive for Antarctic Protected Areas. Working Paper prepared for the UK Government for the September 2002 Antarctic Treaty Consultative Meeting, Warsaw, Poland. *Environmental Research & Assessment*, Cambridge.
2002. Antarctic Protected Areas System: naming and numbering system for Antarctic Specially Protected Areas. Contribution to a Working Paper prepared by the UK Government for the September 2002 Antarctic Treaty Consultative Meeting, Warsaw, Poland. *Environmental Research & Assessment*, Cambridge.
2001. ASMA Plan for the McMurdo Dry Valleys: comments on the draft plan. Report prepared December 2001 for US National Science Foundation. *Environmental Research & Assessment*, Cambridge.
2001. Strategy for appraisal and development of marine protection in the Ross Sea. Report prepared for the Ministry of Foreign Affairs and Trade, Wellington, New Zealand. *Environmental Research & Assessment*, Cambridge.

2001. Revision of management plans for Antarctic protected areas originally proposed by the United Kingdom and the United States of America: 2001 Field Visit Report. Report prepared September 2001 for US National Science Foundation, UK Foreign and Commonwealth Office, British Antarctic Survey and Raytheon Polar Services. *Environmental Research & Assessment* Cambridge.
2001. Guidelines for the operation of aircraft near concentrations of birds in Antarctica. Report prepared for the July 2001 Antarctic Treaty Consultative Meeting, St Petersburg, Russia. *Environmental Research & Assessment*, Cambridge.
1999. Revision of management plans for Antarctic protected areas originally proposed by the United Kingdom. Paper submitted by the United Kingdom to the XXIII ATCM, Lima, Peru, May 1999.
1999. Issues in the development and management of Antarctic protected areas. Discussion paper for the Protected Areas Workshop, XXIII ATCM, Lima, Peru, May 1999.
1997. Project plan for development of standard environmental indicators for coordinated monitoring of New Zealand wetlands. UNEP/GRID-Christchurch.
1996. On the need for a State of the Antarctic Environment Report. ICAIR report, submitted to the Ministry of Foreign Affairs and Trade, New Zealand, GOSEAC and SCAR.
1995. International Database on Antarctic Tourism: Report 2 (June): Post-XIX ATCM summary of status. International Centre for Antarctic Information and Research, Christchurch.

***Consultancy reports prepared: Co-authored, CM Harris principal or contributing author and/or editor***

- 2015 Harris, C.M., Lorenz, K., Fishpool, L.D.C., Lascelles, B., Cooper, J., Coria, N.R., Croxall, J.P., Emmerson, L.M., Fijn, R.C., Fraser, W.L., Jouventin, P., LaRue, M.A., Le Maho, Y., Lynch, H.J., Naveen, R., Patterson-Fraser, D.L., Peter, H.-U., Poncet, S., Phillips, R.A., Southwell, C.J., van Franeker, J.A., Weimerskirch, H., Wienecke, B., & Woehler, E.J.. *Important Bird Areas in Antarctica 2015*. BirdLife International and Environmental Research & Assessment Ltd., Cambridge.
2007. Strategic Environmental Evaluation of a proposed iron ore mine in West Africa. Contributing author with Atkins, United Kingdom.
2007. Environmental management plan and maps for SW Anvers Island and Palmer Basin, Antarctica: prepared for submission to the 2007 Antarctic Treaty Consultative Meeting. Jointly prepared with US National Science Foundation / US Antarctic Program.
2005. Environmental Study of a proposed iron ore mine in Liberia, West Africa. Contributing author with Atkins, United Kingdom.
2003. Science and management at Edmonson Point, Wood Bay, Victoria Land, Ross Sea: Report of the Workshop held in Siena. Harris, C.M. & Grant, S.M. 8 June 2003. *Environmental Research & Assessment*, Cambridge.
2003. External review of environmental monitoring guidelines for Antarctica. Golombok, R., Harris, C.M. and Kennicutt, M.C. *Environmental Research & Assessment*, Cambridge.
2002. Final management plans for seven Antarctic protected areas. Paper submitted by the United Kingdom to CEP V, Warsaw, Poland, September 2002.
2001. Revised management plans for seven Antarctic protected areas. Paper submitted by the United Kingdom to the ATCM, St Petersburg, Russia, July 2001.
2000. Revised management plans for Lynch Island (SPA 14) and Lagotellerie Island (SPA 19). Paper submitted by the United Kingdom to the Special ATCM, The Hague, The Netherlands, September 2000.
1997. Information plan for the National Environmental Indicators Programme of the Ministry for the Environment of New Zealand. Final Report to Ministry for the Environment, New Zealand. UNEP/GRID-Christchurch.
1997. Key data management issues for the proposed Sarawak Biodiversity Institute. UNEP/GRID-Christchurch sub-contract report to Given and Associates, Christchurch.
1996. *Question of Antarctica: State of the environment in Antarctica. The Report of the Secretary General of the United Nations. Agenda Item 62, 51st Session of the United Nations November 1996*. UNEP/GRID-Christchurch report prepared for the United Nations Environment Programme, Nairobi.
1988. *Outdoor recreation in Auckland's regional parks*. Regional Parks Department, Auckland Regional Authority.