

Iliana Chollett

iliana.chollett@gmail.com

I am a marine scientist focussed on disturbance, spatial and seascape ecology. Experience in marine (soft-benthos, seagrass and coral reef) ecology, oceanography and remote sensing provides me with a strong foundation for the integrative assessment of scientific and management problems. I have expertise in handling, exploring and analysing large datasets, and possess a strong background in statistics and modelling. My research interests focus on the development of spatially-explicit tools for research and natural resource management.



C V • i n • n u m b e r s

(Last updated September 2019)

ACADEMIC QUALIFICATIONS

PhD in Biological Sciences (2011)

University of Exeter, Exeter, UK

Project: “Environmental regimes in the Caribbean and implications for the dynamics and distribution of its coral reefs”. Area: spatial and seascape ecology, remote sensing.

Advisor: Prof. Peter J. Mumby.

Thesis available [here](#)

Master in Biological Sciences (2007)

Simón Bolívar University, Caracas, Venezuela

Project: “Natural disturbances on coral reef communities in the southern Caribbean: a remote sensing perspective”. Area: disturbance ecology, remote sensing.

Advisor: Prof. Eduardo Klein.

Bachelor (honours) in Biology (2002)

Simón Bolívar University, Caracas, Venezuela

Project (one-year research project): “Changes in the biota of *Thalassia testudinum* meadows and their relationship with strong rainfall” Area: disturbance ecology.

Advisor: Prof. David Bone.

RELEVANT RESEARCH EXPERIENCE

- September 2017 – To date **Consultant in Marine Analytics and Management tools**
Main responsibilities: Developing of new science and analysis support to several NGOs in projects in marine ecology, spatial analysis and marine conservation planning.
- June 2014 – August 2017 **Research Fellow**
Research Project: “Comprehensive [marine spatial planning](#) in central America”, funded by NOAA and the Summit Foundation
Chief Investigator: Stephen J. Box (sbox@rare.org), Smithsonian Marine Station, Smithsonian Institution, USA.
Main responsibilities: Assessment of the system of coastal and marine protected areas in the Mesoamerican region, and development of new strategies for its sustainable management. Preparation of scientific papers, technical reports, workshops, brochures for a broader audience and conference presentations.
- May 2012 – May 2014 **Research Fellow**
Research Project: “Future of Reefs in a Changing Environment ([FORCE](#)): an ecosystem approach to managing Caribbean coral reefs in the face of climate change” for the European Union.
Chief Investigator: Peter J. Mumby (p.j.mumby@uq.edu.au), Marine Spatial Ecology Lab, University of Queensland, Australia.
Main responsibilities: Assess the spatial behaviour of artisanal and industrial fishers, climate influences and climate adaptation strategies and implement marine reserve areas in the Caribbean basin. Continue on providing advice on the analysis of environmental data to project partners and supervise webGIS implementation. Preparation of scientific papers, technical reports, blog posts, brochures for a broader audience and conference presentations.
- May 2010 – Apr 2012 **Associate Research Fellow**
Research Project: “Future of Reefs in a Changing Environment ([FORCE](#)): an ecosystem approach to managing Caribbean coral reefs in the face of climate change” for the European Union.
Chief Investigator: Peter J. Mumby (p.j.mumby@uq.edu.au), Marine Spatial Ecology Lab, University of Queensland, Australia.
Main responsibilities: Principal researcher of one of ten work packages. Collate Caribbean basin-wide satellite and in situ data to describe the physical environments of the region. Generate the first typology of environments in the Caribbean. Relate environmental data with social, political and ecological data for the basin collected by other project partners. Design of project’s webGIS and webGIS tools. Preparation of scientific papers, technical reports, blog posts, brochures for a broader audience and conference presentations.
- May 2009 - Oct 2009 **Project Manager**
Consultancy project: “Monitoring coral reefs in Belize using remote sensing” for the European Space Agency.
Employer: Willibald Croi (croi@luxspace.lu), Luxspace, Betzdorf, Luxemburg.

Main responsibilities: writing of the original proposal that was submitted to a competitive review process and was ultimately selected for funding by the European Space Agency (€50,000). General management of the project (centralization of information, preparation of reports, budgeting, management of personnel). Review state-of-the-art remote sensing capabilities that can help support the monitoring of reefs. Deliver maps of sea-state parameters that can help managers to quantify stress on reefs. Development of a web GIS for the visualization of the project outputs.

Oct 2008 - Nov 2008

Research assistant

Research Project: “Future of Reefs in a Changing Environment (FORCE): an ecosystem approach to managing Caribbean coral reefs in the face of climate change” for the European Union.

Employer: Peter Mumby (p.j.mumby@exeter.ac.uk), Marine Spatial Ecology Lab, University of Exeter, UK.

Main responsibilities: Writing of a successful multidisciplinary, international (10 countries) and multi-institutional (20 institutions) research proposal to the European Union (€6.7M). Centralization of information from the different partners. Outlining the main scientific objectives of the project, drafting and editing the proposal.

Feb 2003 - Aug 2007

Research assistant

Research Project: “Carbon retention in a colored ocean (CARIACO)” for the Venezuelan National Fund of Science, Technology and Innovation.

Chief Investigator: Eduardo Klein (eklein@usb.ve), Environmental Studies Department, Simón Bolívar University, Caracas, Venezuela.

Main responsibilities: Study of the spatio-temporal dynamic of the upwelling system in the southeast Caribbean Sea through the analysis of chlorophyll, sea surface temperature and wind satellite imagery. Develop of a web system for the analysis and visualization of satellite data. Preparation of scientific papers, technical reports, brochures for a broader audience and conference presentations. Assistance during the writing of a successful multidisciplinary and multi-institutional (6) research proposal to the Venezuelan National Fund of Science, Technology and Innovation (1.5M\$).

Mar 2002 - Dec 2002

Research assistant

Research Project: “Polychaete diversity in the Venezuelan Atlantic Front - The Venezuelan Atlantic Front: Geologic and environmental studies” for the main Venezuelan oil company (PDVSA).

Chief Investigator: David Bone (dbone@usb.ve), Marine Community Lab, Simón Bolívar University, Caracas, Venezuela

Main responsibilities: Species level identification of polychaetes from deep-sea samples. Research on the ecological drivers of their distribution. Preparation of technical reports and conference presentations.

Apr 2001-Jul 2001

Teaching Assistant

Subject: General Ecology Lab.

Employer: Eduardo Klein (eklein@usb.ve), Environmental Studies Department, Simón Bolívar University, Caracas, Venezuela.

Main responsibilities: Preparation of laboratory practices and field trips. Assisting professors and students during the practicals.

Jan 2000-Dec 2001

Laboratory technician

Research Project: “Morrocoy National Park seagrass beds and associated macroalgae - Morrocoy National Park Agenda” for the Venezuelan National Fund of Science, Technology and Innovation.

Chief Investigator: Daisy Pérez (dperez@usb.ve), Marine Community Lab, Simón Bolívar University, Caracas, Venezuela.

Main responsibilities: Processing of biomass and productivity samples of seagrass (*Thalassia testudinum*) and macroalgae.

PUBLICATIONS • Research articles (peer-reviewed)

1. Chollett I*, S O'Farrell*, JN Sanchirico, L Perruso. (2019) Classifying fishing behavioral diversity using high-frequency movement data. *Proceedings of the National Academy of Sciences*. 116:16811-6. doi: 10.1073/pnas.1906766116
**Shared first authorship*
2. Muñoz-Castillo AI, A Rivera-Sosa, I Chollett, CM Eakin, L Andrade-Gómez, M McField, JE Arias-González (2019). Three decades of heat stress exposure in Caribbean coral reefs: a new regional delineation to enhance conservation. *Scientific reports*. 9: 11013. doi: 10.1038/s41598-019-47307-0
3. Roff G, S Bejarano, M Priest, A Marshall, I Chollett, RS Steneck, C Doropoulos, Y Golbuu, PJ Mumby (2018) Seascales as drivers of herbivore assemblages in coral reefs. *Ecological Monographs*. 89: e01336. doi: 10.1002/ecm.1336
4. Garavelli L, W White, I Chollett, L Cherubin (2018) Population models reveal unexpected patterns of local persistence despite widespread larval dispersal in a highly exploited species. *Conservation Letters*. 11: e12567. doi: 10.1111/conl.12567
5. Guest JR, P Edmonds, R Gates, I Kuffner, A Andersson, B Barnes, I Chollett, T Courtney, R Elahi, K Gross, B Lenz, S Mitarai, P Mumby, H Nelson, B Parker, H Putnam, C Rogers, L Toth (2018) A framework for identifying and characterising coral-reef “oases” against a backdrop of degradation. *Journal of Applied Ecology*. 55: 2865-2875. doi: 10.1111/1365-2664.13179
6. Chollett I, R Collin, C Bastidas, A Cróquer, PMH Gayle, E Jordán-Dahlgren, K Koltés, H Oxenford, A Rodriguez-Ramirez, E Weil, J Alemu, D Bone, KC Buchan, M Creary-Ford, E Escalante-Mancera, J Garzón-Ferreira, HM Guzmán, B Kjerfve, E Klein, C McCoy, AC Potts, F Ruíz-Rentería, SR Smith, J Tschirky, J Cortés (2017) Widespread local chronic stressors in Caribbean coastal habitats. *PLoS ONE*. 12: e0188564. doi: 10.1371/journal.pone.0188564.g002
7. Chollett I, L Garavelli, D Holstein, L Cherubin, S Fulton, SJ Box (2017) A case for redefining the boundaries of the Mesoamerican Reef Ecoregion. *Coral Reefs*. 36: 1039-1046. doi: 10.1007/s00338-017-1595-4
8. Bejarano S, JB Jouffray, I Chollett, R Allen, G Roff, A Marshall, R Steneck, SC Ferse, PJ Mumby (2017) The shape of success in a turbulent world: wave exposure filtering of coral reef herbivory. *Functional Ecology*. 31: 1313-1324. doi: 10.1111/1365-2435.12828
9. O'Farrell S, JN Sanchirico, I Chollett, M Cockrell, S Murawski, JT Watson, A Hayne, A Strelcheck, L Perruso (2017) Improving detection of short-duration behaviour in fishing vessel tracks by feature engineering of training data. *ICES Journal of Marine Science*. 74: 1428-1436. doi: 10.1093/icesjms/fsw244
10. Flower J, JC Ortiz, I Chollett, S Abdullah, C Castro-Sanguino, K Hock, V Lam, PJ Mumby (2017) Interpreting coral reef monitoring data: A guide for improved management decisions. *Ecological Indicators*. 72: 848-869. doi: 10.1016/j.ecolind.2016.09.003
11. Chollett I, L Garavelli, S O'Farrell, L Cherubin, TR Matthews, PJ Mumby, SJ Box (2016) A genuine win-win: resolving the “conserve or catch” conflict in marine reserve network design. *Conservation Letters*. 10: 555-563. doi: 10.1111/conl.12318
12. Kennedy E, L Tonk, N Foster, I Chollett, J Ortiz, S Dove, O Hoegh-Guldberg, PJ Mumby, J Stevens (2016) *Symbiodinium* biogeography tracks environmental patterns rather than host genetics

- in a key Caribbean reef-builder, *Orbicella annularis*. Proceedings of the Royal Society B. 283: 20161938. doi: 10.1098/rspb.2016.1938
13. Hedley JD, CM Roelfsema, I Chollett, AR Harborne, SF Heron, S Weeks, WJ Skirving, AE Strong, CM Eakin, T Christensen, V Ticzon, S Bejarano, PJ Mumby (2016) Remote sensing of coral reefs for monitoring and management: a review. Remote Sensing 8:118. doi: 10.3390/rs8020118
 14. Chollett I, SJ Box, PJ Mumby (2016). Quantifying the squeezing or stretching of fisheries as they adapt to displacement by marine reserves. Conservation Biology. 30:166-175. doi: 10.1111/cobi.12573
 15. González-Rivero M, YM Bozec, I Chollett, R Ferrari, CHL Schönberg, PJ Mumby (2016). Asymmetric competition prevents the outbreak of an opportunistic species after coral reef degradation. Oecologia. 181: 161-173. doi: 10.1007/s00442-015-3541-x
 16. Roff G, I Chollett, C Doropolous, Y Golbuu, RS Steneck & PJ. Mumby (2015) Exposure-driven macroalgal phase shift following catastrophic disturbance on coral reefs. Coral Reefs. 34:715-725. doi: 10.1007/s00338-015-1305-z
 17. Williams SM, PJ Mumby, I Chollett, & J Cortés (2015) Importance of differentiating *Orbicella* reefs from gorgonian plains for ecological assessments of Caribbean reefs. Marine Ecology Progress Series. 530:93-101. doi: 10.3354/meps11333
 18. Chollett I*, SM Williams, G Roff, J Cortés, CS Dryden & PJ Mumby (2015) Hierarchical spatial patterns in Caribbean reef benthic assemblages. Journal of Biogeography. 42(7): 1327-1335. doi: 10.1111/jbi.12509 *Shared first authorship
 19. Wang M, G Ahmadi, I Chollett, C Huang, H Fox, A Wijonarno & M Madden (2015) Delineating biophysical environments of the Sunda Banda Seascape, Indonesia. International Journal of Environmental Research and Public Health. 12: 1069-1082. doi: 10.3390/ijerph120201069
 20. Rogers A, AR Harborne, CJ Brown, Y-M Bozec, C Castro, I Chollett, K Hock, CA Knowland, A Marshall, JC Ortiz, T Razak, G Roff, J Samper-Villarreal, MI Saunders, NH Wolff & PJ Mumby (2015) Anticipative management for coral reef ecosystem services in the 21st century. Global Change Biology. 21: 504-514. doi: 10.1111/gcb.12725
 21. Chollett I, S Enríquez & PJ Mumby (2014) Redefining thermal regimes to design reserves for coral reefs in the face of climate change. PLoS ONE, 9, e110634. doi: 10.1371/journal.pone.0110634
 22. Mumby PJ, NH Wolff, YM Bozec, I Chollett & P Halloran (2014) Operationalising the resilience of coral reefs in an era of climate change. Conservation Letters. 7: 176-187. doi: 10.1111/conl.12047
 23. Chollett I, S Canty, S Box & PJ Mumby (2014) Adapting to the impacts of global change on an artisanal coral reef fishery. Ecological Economics. 102:118-125. doi: 10.1016/j.ecolecon.2014.03.010
 24. Mumby PJ, I Chollett, NH Wolff & YM Bozec (2014) Ecological resilience, robustness and vulnerability: how do these concepts benefit ecosystem management? Current Opinion in Environmental Sustainability. 7:22-27. doi: 10.1016/j.cosust.2013.11.021
 25. Chollett I, G Stoye & S Box (2014) Honduran Miskito Cays: among the last unexplored reef systems in the Caribbean. Coral Reefs. 33:155. doi: 10.1007/s00338-013-1084-3

26. Chollett I & PJ Mumby (2013) Reefs of last resort: locating and assessing thermal refugia in the wider Caribbean. *Biological Conservation*. 167: 179-186. doi: 10.1016/j.biocon.2013.08.010
27. Foster NL, IB Baums, JA Sanchez, CB Paris, I Chollett, CL Agudelo, MJA Vermeij & PJ Mumby (2013) Hurricane-driven patterns of clonality in an ecosystem engineer: the Caribbean coral *Montastraea annularis*. *PLoS ONE* 8:e53283. doi: 10.1371/journal.pone.0053283
28. Chollett I, PJ Mumby, F Müller-Karger & C Hu (2012) Physical environments of the Caribbean Sea. *Limnology and Oceanography*. 57:1233-1244. doi: 10.4319/lo.2012.57.4.1233
29. Chollett I & PJ Mumby (2012) Predicting the distribution of *Montastraea* reefs using wave exposure. *Coral Reefs*. 31:493-503. doi: 10.1007/s00338-011-0867-7
30. Chollett I, FE Müller-Karger, SF Heron, W Skirving, & PJ Mumby (2012) Seasonal and spatial heterogeneity of recent sea surface temperature trends in the Caribbean Sea and southeast Gulf of Mexico. *Marine Pollution Bulletin*. 64:956-965. doi: 10.1016/j.marpolbul.2012.02.016
31. Chollett I, PJ Mumby PJ & J Cortes (2010) Upwelling areas do not guarantee refuge for coral reefs in a warming ocean. *Marine Ecology Progress Series* 416:47-56. doi: 10.3354/meps08775
32. Castillo C, I Chollett & E Klein (2008) Enhanced duckweed detection using bootstrapped SVM classification on medium resolution RGB MODIS imagery. *International Journal of Remote Sensing*. 29(19):5595-5604. doi: 10.1080/01431160801961375
33. Bone D, I Chollett & C Rodríguez (2007) Macrobenthos from deep waters in the Venezuelan Atlantic Coast. *Interciencia*. 32(7): 477-481
34. Chollett I, D Bone & D Perez (2007) Effects of heavy rainfall on *Thalassia testudinum* beds. *Aquatic Botany*. 87(3): 189-195. doi: 10.1016/j.aquabot.2007.05.003
35. Chollett I, D Bone (2007) Effects of heavy rainfall on polychaetes: differential spatial patterns generated by a large-scale disturbance. *Journal of Experimental Marine Biology and Ecology*. 340: 113-125. doi: 10.1016/j.jembe.2006.07.009

PUBLICATIONS · Outreach

A Green, I Chollett, A Suárez, C Dahlgren, S Cruz, C Zepeda, J Andino, J Robinson, M McField, S Fulton, A Giro, H Reyes and J Bezaury 2017. *Biophysical Principles for Designing a Network of Replenishment Zones for the Mesoamerican Reef System*. Technical report produced by The Nature Conservancy, Comunidad y Biodiversidad, A.C., Smithsonian Institution, Perry Institute for Marine Science, Centro de Estudios Marinos, Healthy Reefs Initiative and Universidad Autónoma de Baja California Sur, 64 pp.

PJ Mumby, J Flower, I Chollett, SJ Box, Y-M Bozec, C Fitzsimmons, J Foster, D Gill, R Griffith-Mumby, H Oxenford, A Peterson, S Stead, R Turner, P Townsley, P van Beukering, F Booker, H Brocke, N Cabañillas-Terán, S Canty, J Carricart-Ganivet, J Charlery, C Dryden, F van Duyl, S Enríquez, J Haan, R Iglesias-Prieto, E Kennedy, R Mahon, B Mueller, S Newman, M Nugues, J Núñez, L Nurse, R Osinga, C Paris, D Petersen, N Polunin, C Sánchez, S Schep, J Stevens, H Vallès, M Vermeij, P Visser, E Whittingham, S Williams (2014) [Towards Reef Resilience and Sustainable Livelihoods: a handbook for Caribbean reef managers](#). 176 pp. University of Exeter. ISBN: 978-0-902746-31-2

Jackson JBC, MK Donovan, KL Cramer, VYY Lam, RPM Bak, I Chollett, SR Connolly, J Cortés, P Dustan, CM Eakin, AM Friedlander, BJ Greenstein, SF Heron, T Hughes, J Miller, PJ Mumby, JM Pandolfi, CS Rogers, R Steneck, E Weil, JB Alemu I, WS Alevizon, JE Arias-González, A Atkinson, DL Ballantine, C Bastidas, C Bouchon, Y Bouchon-Navaro, S Box, A Brathwaite, JF Bruno, C Caldwell, RC Carpenter, BH Charpentier, B Causey, M Chiappone, R Claro, A Cróquer, AO Debrot, P Edmunds, D Fenner, A Fonseca, MC Ford, K Forman, GE Forrester, JR Garza-Pérez, PMH Gayle, GD Grimsditch, HM Guzmán, AR Harborne, MJ Hardt, M Hixon, J Idjadi, W Jaap, CFG Jeffrey, AE Johnson, E Jordán-Dahlgren, K Koltes, JC Lang, Y Loya, I Majil, C Manfrino, J-P Maréchal, CMR McCoy, MD McField, T Murdoch, I Nagelkerken, R Nemeth, MM Nugues, HA Oxenford, G Paredes, JM Pitt, NVC Polunin, P Portillo, H Bonilla-Reyes, RE Rodríguez-Martínez, A Rodríguez-Ramírez, BI Ruttenberg, R Ruzicka, S Sandin, MJ Shulman, SR Smith, TB Smith, B Sommer, C Stallings, RE Torres, JW Tunnell, Jr., MJA Vermeij, ID Williams, JD Witman (2014) [Part I: Overview and synthesis for the wider Caribbean region](#). Pp. 55-114 In: Jackson JBC, MK Donovan, KL Cramer, VV Lam (editors) *Status and Trends of Caribbean Coral Reefs: 1970-2012*. Global Coral Reef Monitoring Network, IUCN, Gland, Switzerland.

Christensen T, PJ Mumby, I Chollett, J Hedley, S Bejarano, W Skirving & A Strong (2010) [Directory of Remote Sensing Applications for Coral Reef Management](#). Compiled by the CRTR Remote Sensing Working Group. Currie Communications, Melbourne, 34 pp. ISBN: 978-1-9213-17-06-4

Varela R, E Klein & I Chollett (2007) [Características oceanográficas de la fosa de Cariaco y su relación con los cambios climáticos](#). Gráficas ACEA. Caracas, 26 pp. ISBN: 978-980-12-2637-6

CONFERENCES

16 INTERNATIONAL CONFERENCES

Subjects: Spatial and marine Ecology, Marine resource use, Remote Sensing, Oceanography.

Most recent:

- Chollett I, L Garavelli, S O'Farrell, L Cherubin, T Matthews, PJ Mumby, SJ Box. 2016. (oral). Reserve network design to deliver real-world conservation and fisheries benefits. 13th International Coral Reef Symposium. Honolulu. 19-24 Jun 2016
- Chollett I, S Box, PJ Mumby. 2014. Displacement of fishing effort by an imminent MPA closure: when is it an issue? (oral). 67th Gulf and Caribbean Fisheries Institute Conference. Barbados. 3-7 Nov 2014
- Chollett I, S Box, PJ Mumby. 2013. Mapping the cost of an artisanal fishery (oral). 66th Gulf and Caribbean Fisheries Institute Conference. Corpus Christi, USA. 4-8 Nov 2013
- Chollett I, S Canty, S Box, PJ Mumby. 2012. Modelling fishers' activity as a response to weather: towards building adaptive capacity under a changing climate (oral). 65th Gulf and Caribbean Fisheries Institute Conference. Santa Marta, Colombia. 5-9 Nov 2012
- Chollett I, PJ Mumby. 2012. Reefs of last resort: locating and assessing thermal refugia in the wider Caribbean (oral). 12th International Coral Reef Symposium. Cairns, Australia. 9-13 Jul 2012

17 NATIONAL CONFERENCES

Subjects: Marine Ecology, Remote Sensing, Oceanography, Taxonomy.

GRANTS

Planet Action, Miskito Cays, 2013, High resolution satellite data valued in about \$25,000

European Union, Future of Reefs in a Changing Environment, 2010-2015 €6.7M

European Space Agency, Monitoring coral reefs in Belize using remotes sensing, 2009, €50,000

FONACIT (Venezuelan National Fund of Science), 2007 Carbon Retention in a Colored Ocean \$1.5M