

# Aaron O'Dea

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## RESEARCH THEMES

Paleobiology and historical ecology of tropical seas

## EDUCATION

- 2000 Ph.D. Biological Sciences, Environmental inferences from Recent and fossil bryozoans  
University of Bristol, UK
- 1996 B.Sc (Hons.) Joint major Ecology & Earth Science Liverpool John Moores University, UK

## PROFESSIONAL APPOINTMENTS

- 2015– Staff Scientist Smithsonian Tropical Research Institute
- 2012– Distinguished Researcher, National System of Investigators, Panama
- 2012–2015 Associate Scientist Smithsonian Tropical Research Institute
- 2007–2012 Earl S. Tupper postdoctoral fellow Smithsonian Tropical Research Institute
- 2004–2007 Post-doctoral fellow Scripps Institution of Oceanography, University of California
- 2002–2003 Post-doctoral fellow Smithsonian Tropical Research Institute

## PEER REVIEWED ARTICLES \* = student in my lab

- 51. Graniero LE\*, Morales J, Thompson R, Grossman E, Robbins J, O'Dea A. 2017. *Conus* shell  $\delta^{13}\text{C}$  values can be used as a proxy for  $\delta^{13}\text{C}_{\text{dic}}$  in tropical waters. *Palaeogeography, Palaeoclimatology, Palaeoecology*. In press
- 50. Dillon EM\*, Norris RD and O'Dea A. 2017. Dermal denticles as a tool to reconstruct shark communities. *Marine Ecology Progress Series*. In press
- 49. Cramer K, O'Dea A, Clark TR, Zhao J-X, Norris R. 2017. Prehistorical and historical declines in Caribbean coral reef accretion rates driven by loss of parrotfish. *Nature Communications*, doi:10.1038/ncomms14160
- 48. O'Dea A, Aguilera O, Aubry M-P, Berggren WA, Budd AF, Cione AL, Coates AG, Collins LS, Coppard SE, Cozzuol MA, de Queiroz A, Duque-Caro H, Eytan RI, Farris DW, Finnegan S, Gasparini GM, Grossman EL, Johnson KG, Keigwin LD, Knowlton N, Leigh EG, Leonard-Pingel JS, Lessios HA, Marko PB, Norris RD, Rachello-Dolmen PG, Restrepo-Moreno SA, Soibelzon E, Soibelzon L, Stallard RF, Todd JA, Vermeij GJ, Woodburne MO, Jackson JBC. 2016. Formation of the Isthmus of Panama. *Science Advances*. 10.1126/sciadv.1600883.
- 47. Graniero LE, Grossman EL, O'Dea A. 2016. Stable isotopes in bivalves as indicators of nutrient source in coastal waters in the Bocas del Toro Archipelago, Panama. *PeerJ*. 4:e2278 <https://doi.org/10.7717/peerj.2278>.
- 46. Pyenson ND, Velez-Juarbe J, Gutstein CS, Little H, Vigil D\*, O'Dea A. 2015. *Isthminia*

- panamensis*, a new fossil inioid (Mammalia, Cetacea) from the Chagres Formation of Panama and the evolution of 'river dolphins' in the Americas. *Peer J.* 3:e1227  
<https://dx.doi.org/10.7717/peerj.1227>
45. Orzechowski EA, Lockwood R, Byrnes JE, Anderson SC, Finnegan S, Finkel ZV, Harnik PG, Lindberg DR, Liow LH, Lotze HK, McClain CR, McGuire JL, O'Dea A, Pandolfi JM, Simpson C, Tittensor DP. 2015. Determinants of extinction selectivity over the last 500 million years: a meta-analysis of marine bivalves and gastropods. *Global Change Biology*. doi: 10.1111/gcb.12963
  44. Finnegan S, Anderson SC, Harnik PG, Simpson C, Tittensor DP, Byrnes JE, Finkel ZF, Lindberg DR, Liow LH, Lockwood R, Lotze HK, McClain CM, McGuire JL, O'Dea A, Pandolfi JM. 2015. Paleontological baselines for evaluating extinction risk in the modern oceans. *Science* 348: 567-570. DOI: 10.1126/science.aaa6635
  43. O'Dea A, Leigh EG, Vermeij GJ. 2015. Natural history of Panama's seas (*in Spanish*). In: Rodriguez F & O'Dea A (eds). *Historia Natural del Istmo de Panamá*. SENACYT/Smithsonian, Panama. 170pp.
  42. McClelland HLO, Taylor PD, O'Dea A, Okamura B. 2014. Revising and refining the bryozoan zs-MART seasonality proxy. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 410, 412.
  41. O'Dea A, Schafer M\*, Wake TA, Doughty D, Rodriguez F. 2014. Evidence of size-selective evolution in the Fighting Conch from prehistoric subsistence harvesting. *Proceedings of the Royal Society B*. doi:10.1098/rspb.2014.0159
  40. Leigh EG, O'Dea A, Vermeij GJ. 2014. Historical Biogeography of the Isthmus of Panama. *Biological Reviews* 89:148-72.
  39. O'Dea A, Collins LS. 2013. Environmental, ecological and evolutionary change in seas across the Isthmus of Panama. *Bulletin of Marine Science*. 89(4):769–777.
  38. Schlöder C, O'Dea A, Guzman H. 2013. Benthic community recovery from small-scale physical disturbance on marginal Caribbean reefs: An example from Panama. *Bulletin of Marine Science*. 89(4):1003–1014.
  37. Jackson JBC & O'Dea A. 2013. Timing of the oceanographic and biological isolation of the Caribbean Sea from the Tropical Eastern Pacific. 89(4):779–800. *Bulletin of Marine Science*.
  36. Łukowiak M\*, Pisera A, O'Dea A. 2013. Do spicules in sediments reflect the living sponge community? A test in a Caribbean shallow water lagoon. *Palaeos* 28:373–385
  35. Okamura B, O'Dea A, Taylor PD, Taylor A. 2013. Evidence of el Niño/la Niña–Southern Oscillation variability in the Neogene- Pleistocene of Panama revealed by a new bryozoan assemblage-based proxy. *Bulletin of Marine Science*. 89(4):857–876.
  34. Key, MM Jr., Hollenbeck PM, O'Dea A & Patterson WP. 2013. Stable isotope profiling in modern marine bryozoans across the Isthmus of Panama. *Bulletin of Marine Science*. 89(4):837–856.
  33. Fredston-Hermann A\*, O'Dea A, Rodriguez F, Thompson WG, Todd JA. 2013. Marked ecological shifts in seagrass and reef molluscan communities since the mid-Holocene in the southwestern Caribbean. *Bulletin of Marine Science*. 89(4):983–1002.
  32. Tao K\*, Robbins JA, Grossman EL, O'Dea A. 2013. Quantifying upwelling and freshening in nearshore tropical environments using stable isotopes in modern Tropical American mollusks. *Bulletin of Marine Science*. 89(4):815–836.
  31. O'Dea A, Hoyos N, Rodriguez F, Degracia B, De Gracia C\*. 2012. History of upwelling in the

- Tropical Eastern Pacific and the paleogeography of the Isthmus of Panama. *Palaeogeography, Palaeoclimatology, Palaeoecology* 348–349: 59–66
30. Sosdian SM, Lear CH, Tao K\*, Grossman EL, Rosenthal Y, O’Dea A. 2012. Cenozoic Seawater Sr/Ca Evolution. *Geochemistry, Geophysics, Geosystems*. DOI:10.1029/2012GC004240
  29. Harnik PG, Lotze HK, Anderson SC, Finkel ZV, Finnegan S, Lindberg DR, Liow L, Lockwood R, McClain CM, McGuire JL, O’Dea A, Pandolfi JM, Simpson C, Tittensor DP. 2012. Extinctions in ancient and modern seas. *Trends in Ecology and Evolution*. 27:608-617. DOI: <http://dx.doi.org/10.1016/j.tree.2012.07.010>
  28. Leonard-Pingel JS\*, Jackson JBC, O’Dea A. 2012. Featured Article: Changes in bivalve functional and community ecology in response to environmental change in the Caribbean Neogene. *Paleobiology* 38(4): 509–524.
  27. DeGracia C\*, O’Dea A, Rodríguez F, D’Croz L. 2012. Environmental response to the subduction of the aseismic Cocos ridge (Panama and Costa Rica). *International Journal of Tropical Biology*. 60(2): 893-908.
  26. Jagadeeshan S & O’Dea A. 2012. Integrating fossils and molecules to study cupuladriid evolution in an emerging Isthmus. *Evolutionary Ecology*. 26(2): 337-355.
  25. O’Dea A, Håkansson E, Taylor, P. Okamura B. 2011. Environmental change prior to the K-T boundary inferred from temporal variation in the morphology of cheilostome bryozoans. *Palaeogeography, Palaeoclimatology, Palaeoecology*. 308: 502–512.
  24. Okamura B, O’Dea A, Knowles T\*. 2011. Bryozoan modular growth and the retrospective analysis of environments. *Marine Ecology Progress Series* 430: 133-146.
  23. Anlauf H\*, D’Croz L, O’Dea A. 2011. A corrosive concoction: the combined effects of ocean warming and acidification on the early growth of a stony coral are multiplicative. *Journal of Experimental Marine Biology*. 397(1): 13-20.
  22. O’Dea A, Ostrovsky AN & Rodriguez F. 2010. Embryonic brooding and clonal propagation in tropical eastern Pacific cupuladriid bryozoans. *Journal of the Marine Biological Association of the United Kingdom*. 90(2): 291-9.
  21. O’Dea A & Jackson JBC. 2009. Environmental change drove macroevolution in cupuladriid bryozoans. *Proceedings of the Royal Society B*. 276: 3629-3634.
  20. O’Dea A. 2009. Feature Article: Relation of form to life habit in free-living cupuladriid bryozoans. *Aquatic Biology* 7: 1-18.
  19. Ostrovsky AN, O’Dea A & Rodríguez F. 2009. Comparative anatomy of the internal incubational sacs in the genera *Discoporella* and *Cupuladria* (Bryozoa, Gymnolaemata), and evolution of brooding in the free-living Cheilostomata. *Journal of Morphology*. 270, 12: 1413-1430.
  18. Robertson DR, Christy J, Collin R, Cooke R, D’Croz L, Kaufmann K, Heckadon S, Mate J, O’Dea A, Torchin M. 2009. The Smithsonian Tropical Research Institute: Marine research, education and conservation in Panama. *Smithsonian Contributions to the Marine Sciences*. 38: 73-93.
  17. D’Croz L & O’Dea A. 2009. Nutrient and Chlorophyll Dynamics in Pacific Central America. *Smithsonian Contributions to the Marine Sciences*. 38: 335-344.
  16. Robertson DR, Christy J, Collin R, Cooke R, D’Croz L, Kaufmann K, Heckadon S, Mate J, O’Dea A, Torchin M. 2009. The Smithsonian Tropical Research Institute: Marine research,

- education and conservation in Panama. In: Lang MA, MacIntyre IG, Ruetzler K (Eds.), *Proceedings of the Smithsonian Marine Science Symposium: 73-93*. Washington DC: Smithsonian Institution Scholarly Press.
15. O'Dea A, Jackson JBC, Taylor PD & Rodriguez F. 2008. Modes of reproduction in Recent and fossil cupuladriid bryozoans. *Palaeontology* 51: 847-864.
  14. Renema W, Bellwood D, Braga JC, Bromfield K, Hall R, Johnson KG, Lunt P, Meyer CP, McMonagle L, Morley RJ, O'Dea A, Todd JA, Wesselingh FP, Wilson MEJ, Pandolfi, JM. 2008. Hopping Hotspots: global shifts in marine biodiversity. *Science* 321: 654-657.
  13. O'Dea A, Jackson JBC, Fortunato H, Smith T, D'Croz L, Johnson KG & Todd J. 2007. From the cover: Environmental change preceded Caribbean mass extinction by 2 million years. *Proceedings of the National Academy of Sciences* 104: 5501-5506.
  12. D'Croz L & O'Dea A. 2007. Variability in upwelling along the Pacific shelf of Panama and implications for the distribution of nutrients and chlorophyll. *Estuarine, Coastal and Shelf Science* 73: 325-340.
  11. O'Dea A, Rodríguez F & Romero T\*. 2007. Response of zooid size in *Cupuladria exfragminis* (Bryozoa) to simulated upwelling temperature. *Marine Ecology* 28: 1-9.
  10. O'Dea A, Rodríguez F, DeGracia C\*, Coates, AG. 2007. Marine paleontology on the Isthmus of Panama. *Canto Rodado* 2: 149-179.
  9. O'Dea A. 2006. Asexual propagation in the marine bryozoan *Cupuladria exfragminis*. *Journal of Experimental Marine Biology and Ecology*. 335: 312-322.
  8. O'Dea A. 2005. Zooid size parallels contemporaneous oxygen isotopes in a large colony of *Pentapora foliacea* (Bryozoa). *Marine Biology*. 146: 1075-1081.
  7. O'Dea A, Herrera-Cubilla A, Fortunato H & Jackson JBC. 2004. Life history variation in cupuladriid bryozoans from either side of the Isthmus of Panama. *Marine Ecology Progress Series* 280: 145-161.
  6. O'Dea A. 2003. Seasonality and variation in zooid size in Panamanian encrusting bryozoans. *Journal of the Marine Biological Association* 83: 1107-1108.
  5. O'Dea A & Jackson JBC. 2002. Bryozoan growth mirrors contrasting seasonal regimes across the Isthmus of Panama. *Palaeogeography, Palaeoclimatology, Palaeoecology* 185: 77-94.
  4. O'Dea A & Okamura B. 2000. Life history and environmental inferences through retrospective morphometric analysis of bryozoans: a preliminary study. *Journal of the Marine Biological Association*. 80: 3596-3599.
  3. O'Dea A & Okamura B. 2000. Intracolony variation in zooid size in cheilostome bryozoans as a new technique for investigating palaeoseasonality. *Palaeogeography, Palaeoclimatology, Palaeoecology* 162: 319-332.
  2. O'Dea A & Okamura B. 2000. Cheilostome bryozoans as indicators of seasonality in the Neogene epicontinental seas of Western Europe. In: *Proceedings of the 11th International Bryozoology Association Conference: 74-86*.
  1. O'Dea A & Okamura B. 1999. Influence of seasonal variation in temperature, salinity, and food availability on module size and colony growth in the estuarine bryozoan, *Conopeum seurati*. *Marine Biology* 135: 581-588.

## BOOKS

Taylor PD & O'Dea A. 2016. 化石知道生命的旅程. 出版社: 电子工业出版社 (Electronic Industry Press); 1st edition

Taylor PD & O'Dea A. 2015. *La vie sur Terre racontée en 100 fossiles*. Biotope Editions; 1st edition

Taylor PD & O'Dea A. 2015. *Die Geschichte des Lebens in 100 Fossilien*. Theiss, Konrad; 1st edition.

Taylor PD & O'Dea A. 2014. *A History of Life in 100 Fossils*. Natural History Museum/Smithsonian Books.

## EDITED VOLUMES

Rodriguez F & O'Dea A. 2015. *Historia Natural del Istmo de Panamá*. SENACYT/Smithsonian. 170pp.

O'Dea A, Collins LS. 2013. Environmental, ecological and evolutionary change in seas across the Isthmus of Panama. Special edition of the *Bulletin of Marine Science* originating from colloquium in Bocas del Toro, 2011.

## REPORTS AND OTHER PUBLICATIONS

Collins LS, O'Dea A, 2013. Dedication to Anthony G. Coates. *Bulletin of Marine Science*. 89(4):767–768.

O'Dea A. 2006. Salvage paleontology of the Panama Canal Basin: Extending the fossil record of the Isthmus of Panama.

O'Dea A. 2002. Conservation of the freshwater bryozoan *Lophopus crystallinus*. Prepared for the Royal Society for the Protection of Birds, UK.

O'Dea A. 1998. *A Student's Guide to Palynology*. Prepared for the Department of Geology, Royal Holloway University of London.