

DUNCAN O'BRIEN

I am a quantitative ecologist interested in the resilience of ecosystems, and how effective management can ensure their functioning. I have explored this question both theoretically through my research and practically during my employment. This experience has allowed me to protect vulnerable ecosystems and successfully create new habitats.

EDUCATION

- 2024 | 2020**
PhD, Quantitative Ecology
 University of Bristol 📍 Bristol, UK
 • Designed and validated statistical indicators for the realtime monitoring of ecological systems.
- 2019 | 2018**
MSc, Tropical Marine Biology
 University of Essex 📍 Colchester, UK
 • Winner of the Marine Biology prize.
- 2018 | 2015**
BA, Biological Sciences
 University of Oxford 📍 Oxford, UK

RESEARCH EMPLOYMENT

- Current | 2024**
Research Associate
 University of Bristol 📍 Bristol, UK
 • Analysis of seabird populations using trait-based approaches.
 • Coordinated an international team of ecologists and theoreticians to generate peer reviewed publications and open-source software.
- 2018**
Research Technician
 Smithsonian Institute 📍 Eleuthera, The Bahamas
 • Maintained and monitored a seagrass experiment as a member of the Thalassia Experimental Network (<https://global.si.edu/projects/thalassia-experimental-network-ten>).

PEER-REVIEWED PUBLICATIONS

- 2024**
Herbivore effects increase with latitude across the extent of a foundational seagrass
 Nature Ecology & Evolution
 • Campbell, J. E., Rhoades, O. K., Munson, C. J., *et al.*, <https://doi.org/10.1038/s41559-024-02336-5>
- 2023**
Resilience metrics are robust across data qualities but sensitive to community size
 Under Review
 • O'Brien, D. A. & Clements, C.F., <https://doi.org/10.1101/2023.09.25.559298>

CONTACT

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- 🌐 linkedin.com/duncanobrien
- 📄 github.com/duncanobrien
- 🔍 scholar.google.com

PROGRAMMING SKILLS



Evidence: github.com/duncanobrien




RELEVANT SKILLS

- 📊 Biodiversity metrics
Expertise designing indicators and testing their reliability across data qualities
 Evidence: PhD
- 👥 Communication
Provided press releases, user guides, and public talks
 Evidence: OUTREACH & CONFERENCES
- 📄 Evidence & analysis
Delivered peer reviewed software and journal articles
 Evidence: PUBLICATIONS
- 🏠 Habitat assessment
Successfully protected vulnerable ecosystems
 Evidence: MSc & Research Technician
- 💻 Programming
Maintain a R package on CRAN with unit tests and documentation
 Evidence: EWSmethods
- 📊 Statistics
Delivered modelling analyses with reproducible workflows
 Evidence: O'Brien et al. 2023a; Besson et al. 2023



- 2023 ● **Early warning signals have limited applicability to empirical lake data.**
Nature Communications
• *O'Brien, D.A.*, Deb, S., Gal, G., Thackeray, S.J., Dutta, P.S., Matsuzaki, S-i.S., May, L. & Clements, C.F., <https://doi.org/10.1038/s41467-023-43744-8>
• Winner of a Poster Prize at the British Ecological Society Annual Meeting 2022.
- 2023 ● **Phenotypic response to different predator strategies can be mediated by temperature**
Ecology and Evolution
• Cerini, F., *O'Brien, D.A.*, Wolfe, E., Besson, M. & Clements, C.F., 13, e10474. <https://doi.org/10.1002/ece3.10474>
- 2023 ● **EWSmethods: an R package to forecast tipping points at the community level using early warning signals, resilience measures and machine learning models**
Ecography
• *O'Brien, D.A.*, Deb, S., Sidheekh, S., Krishnan, N.C., Dutta, P.S. & Clements, C.F., e06674. <https://doi.org/10.1111/ecog.06674>
• Tutorials available at <https://duncanobrien.github.io/EWSmethods/>.
- 2023 ● **Seagrass abundance predicts surficial soil organic carbon stocks across the range of *Thalassia testudinum* in the Western North Atlantic**
Estuaries and Coasts
• Fourquean, J. W., Rhoades, O. K., Munson, C. J., *et al.*, 46, 1280–1301. <https://doi.org/10.1007/s12237-023-01210-0>
- 2023 ● **Spatiotemporal thermal variation drives diversity trends in experimental landscapes**
Journal of Animal Ecology
• Wolfe, E., Cerini, F., Besson, M., *O'Brien, D.A.* & Clements, C.F., 92, 2, 430-441. <https://doi.org/10.1111/1365-2656.13867>
- 2023 ● **Anemone bleaching impacts the larval recruitment success of an anemone-associated fish**
Coral Reefs
• Besson, M., Feeney, W.E., Gache, C., *O'Brien, D.A.*, Berthe, C., Cowan, Z., Brooker, R.M, Laudet, V. & Lecchini, D., 42, 1, 195-203. <https://doi.org/10.1007/s00338-022-02323-x>
- 2023 ● **Planktonic functional diversity changes in synchrony with lake ecosystem state**
Global Change Biology
• *O'Brien, D.A.*, Gal, G., Thackeray, S.J., Matsuzaki, S-i.S., & Clements, C.F., 29, 3, 686–701. <https://doi.org/10.1111/gcb.16485>
- 2023 ● **Nocturnal surveys of lined seahorses reveal increased densities and seasonal recruitment patterns**
Ecology and Evolution
• Masonjones, H.D., Rose, E., Gonzalez, J.E. & *O'Brien, D.A.*, 13, 1, e9573. <https://doi.org/10.1002/ece3.9573>
- 2021 ● **Early warning signal reliability varies with COVID-19 waves**
Biology Letters
• *O'Brien, D.A.* & Clements, C.F., 17, 12, 20210487. <http://doi.org/10.1098/rsbl.2021.0487>
- 2021 ● **Nocturnal surveys reveal novel insights into the community dynamics of an anchialine ecosystem from The Bahamas**
Estuarine, Coastal and Shelf Science
• *O'Brien, D.A.*, Masonjones, H.D., Bethel, E. & O'Shea, O.R., 262, 107588. <http://doi.org/10.1016/j.ecss.2021.107588>

- 2021 ● **An experimental assessment of social tolerance and den ecology in a high-density octopus population**
Marine Biology
· *O'Brien, D.A.*, Taylor, M.L., Masonjones, H.D., Boersch-Supan, P.H. & O'Shea, O.R., 168, 61. <https://doi.org/10.1007/s00227-021-03865-4>
- 2021 ● **Evidence and description of a nursery habitat for the recently reclassified stingray *Styracura schmardae* from The Bahamas**
Marine Ecology Progress Series
· O'Shea, O.R., Van Leeuwen, T.E., *O'Brien, D.A.*, Arrowsmith, L., McCalman, R., Griffiths, M. & Exton, D.A., 660, 141-151. <https://doi.org/10.3354/meps13589>
- 2020 ● **Drivers of octopus abundance and density in an anchialine lake: A 30 year comparison**
Journal of Experimental Marine Biology
· *O'Brien, D.A.*, Taylor, M.L., Masonjones, H.D., Boersch-Supan, P.H. & O'Shea, O.R., 528, 151377. <https://doi.org/10.1016/j.jembe.2020.151377>

OUTREACH

- 2022 ● **Research Without Borders - working together to tackle the climate crisis**
Cabot Institute  Bristol, UK
· With an interdisciplinary team of Bristol PhD students, I hosted a public event on the current research Bristol is facilitating to tackle the climate crisis <https://www.bristol.ac.uk/doctoral-college/>.
- 2019 ● **Consultation on the fate of Seahorse National Park**
CORE Sciences  Eleuthera, The Bahamas
· Presented evidence to the Bahamas National Trust with the local Eleutheran community regarding the ecological importance of a large anchialine lake and surrounding mangrove.
· This environmental impact assessment contributed to the protection of this system under the title Seahorse National Park <https://bnt.bs/news2>.
- 2019 | 2018 ● **Marine Science Summer Program**
CORE Sciences  Eleuthera, The Bahamas
· Designed and taught week long introductions to marine habitats for local Bahamian children (8 -15 years old).

TEACHING EXPERIENCE

- Current | 2020 ● **Demonstrator**
University of Bristol  Bristol, UK
· Taught and assessed undergraduate learning across multiple subjects including: statistics, bioinformatics, behavioural ecology, and evolution.
- 2020 | 2012 ● **Swimming teacher**
Saturday Seals  Sherborne, UK
· Employed on a part time basis to teach beginner through competitive swimming.
· Honed targeted and educational communication/terminology whilst working with both young and older swimmers.

2019
|
2018



Instructor

CORE Sciences

📍 Eleuthera, The Bahamas

- Devised and taught a two-week introductory field course for university undergraduates focussing on marine sampling techniques and preliminary data analysis in R and Excel.



CONFERENCES

2023



Cabot Institute World Water Day

Poster

📍 Bristol, UK

- Identifying regime shifts using early warning signals: the univariate and multivariate options.

2022



British Ecological Society annual meeting

Poster

📍 Edinburgh, UK

- Identifying regime shifts using early warning signals: the univariate and multivariate options.
- Prize winner.

2022



International Center for Theoretical Sciences

Poster

📍 Bangalore, India

- Planktonic functional diversity changes in synchrony with ecosystem state.

2021



British Ecological Society annual meeting

Presentation

📍 Liverpool, UK

- Planktonic functional diversity changes in synchrony with ecosystem state.

2020



Bahamas National History conference

Presentation

📍 Nassau, The Bahamas

- Octopus abundance in an anchialine lake from The Bahamas.