

ZOobyTES

Autumn 2022

Newsletter of the Department of Zoology
Trinity College Dublin

Thank you, Ian and welcome Paula!



Enormous gratitude to Prof Ian Donohue for 2 very successful years as Head of Discipline (he guided us through the worst of the pandemic) and our best wishes to Ian in his new role as Head of the School of Natural Sciences!

Welcome to Prof Paula Murphy as the new Head of Zoology!



Congratulations!

There have been multiple landmarks to celebrate recently that should not go without mention.

Congratulations

To Nessa on election to Fellowship
To Nick on passing the Merit Bar
To Ian on Promotion to Professor
To Pepijn on achieving tenure



OPEN POSITIONS

Research Assistant O'Connor Lab

We are looking for a research assistant to work on the Beyond Biofuel Project. This position supports marine ecological research in the field and lab, includes travel to field sites in West Cork and will be appointed at SFI Salary Scale level 1, point 13. Please contact **Nessa O'Connor** for more details: n.oconnor@tcd.ie

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NEW PEOPLE

Dr. Yu Mo
Postdoctoral Research Fellow
Donohue Group

I am enthusiastic about monitoring and modelling global ecosystem changes with emerging techniques in Earth and data sciences, focusing on coastal ecosystems. I started my Government of Ireland Postdoctoral Fellowship at Trinity in September, a program where I will investigate the resilience of global mangrove ecosystems to storms. Before joining Trinity, I completed a Marie Curie Postdoctoral Fellowship at the University of Oxford, UK, after gaining my PhD from the University of Maryland, College Park, US. I am generally interested in improving our understanding of coastal ecosystem changes in response to various climatic and anthropogenic stressors, while providing the much-needed scientific basis for sustainable coastal ecosystem management.



Aoife Robertson
Research Assistant
Piggott Group

My name is Aoife and I have started as a research assistant in the Piggott Lab. I recently finished my undergraduate degree in Environmental Science from TCD and I'm excited to be in the Zoology department once more! I will be assisting on projects relating to multiple stressors in freshwater systems as well as working to expand upon my undergraduate thesis looking at multi-stressor nonlinearities and interactions.





Amy Taggart AICBRN Manager

I joined recently as the All Island Climate & Biodiversity Research Network Manager. I will be organising and managing the Network's meetings, activities, communications and projects. The AICBRN brings together researchers from a wide range of disciplines across the island of Ireland who are undertaking research in climate and biodiversity topics. Before moving over to Trinity, I was working in UCD's Development office as the Stewardship and Communications Coordinator. For more information on the AICBRN, please visit the Network's [website](#) and follow us on [Twitter!](#)



Abby Gilson Postdoc O'Connor Group

Hello I'm Abby and I'm a new post-doc with Nessa O'Connor working on the BeyondBiofuel project. I'll be looking at the effects of warming and ocean acidification on dominant species of kelp found in Ireland and how we might use seaweed farming to mitigate climate change effects. I did my PhD at Queens University Belfast with Nessa O'Connor on the role of kelp in the food web and have just moved back from South Africa after a three-year post-doc in the Coastal Research Group at Rhodes University with Christopher McQuaid where I focused on algal-herbivore interactions in the rocky intertidal.

ZOOLOGY IN THE NEWS



Where have all the birds gone?

Professor Yvonne Buckley did an interview for an RTE Prime Time special on biodiversity and climate change (aired on Oct 20th). To watch the special, visit [RTE's website!](#)

Capture heats up sharks

Lucy Harding recently published a paper in Conservation Physiology called "[Capture heats up sharks](#)", and it was featured in an article on [Newsweek US](#). She also presented this work in an online talk at the [Sharks International Conference 2022](#).





Developmental biologists map multi-gene activity hotspots in developing embryos for the first time

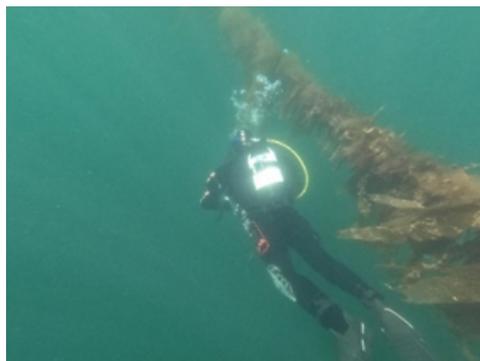
Cover featured publication in the journal *Development*. Covered in a [research highlights](#) article and on the [Trinity web page](#)

PROJECT FUNDING AND UPDATES

Beyond Biofuel Project Update

The Beyond Biofuel team has had a busy few months of field work, sampling natural kelp beds and kelp farms around the coast of Ireland. Data were successfully collected from kelp growth trials at Toormore Bay, West Cork. This involved the hand harvesting, sorting, weighing and measuring of over 100kg of biomass in one day, thanks to a team effort from the lab and staff from Bantry Marine Research Station.

The team also conducted several underwater dive surveys to explore the population connectivity and evolutionary history of Irish kelps, and to understand the habitat value of cultivated kelp long-lines for local fish and epibiont assemblages. Little is currently known about the genetic diversity and ecological value of Ireland's natural and cultivated kelp, so the team look forward to using this data to expand this area of research.



Green Labs Update

Dr. Nessa O'Connor's marine ecology lab group have been working hard to enhance lab sustainability and are making progress to become Green Lab certified by the end of the year. Some of the initiatives being implemented include water-use and waste reduction, enhancing cold storage practices, sustainable procurement, audits of the footprint of lab and fieldwork, and encouraging behavioral change. The lab group looks forward to creating collective change and encourages other labs to get involved!





Estuarine and Coastal Science Association (ECSA) Conference 59

Katrin Schertenleib, a final year PhD student in the O'Connor lab, had a great experience presenting – for the first time – some of her PhD work in person at an international conference. Her poster with the title “Linking environmental monitoring data and the effects of climate change to inform management of an urban coastal system using a Bayesian Belief Network” was met with a lot of interest, particularly regarding the modeling methodology. Katrin is grateful to the Trinity Trust Travel Grant Scheme for supporting her attendance at ECSA 59 in San Sebastian, Spain.



Society for Experimental Biology Animal Biology Early Career Symposium

PhD candidates **Niamh McCartan** and **Floriane O’Keeffe** (Luijckx lab) presented their research on parasite infection dynamics in *Daphnia* water fleas at the Society for Experimental Biology Animal Biology Early Career Symposium held at Tvärminne Zoological Station, Finland 3rd – 5th October. The symposium was organised by **Dr Jacinta Kong** (Payne lab) and colleagues with funding from the Society for Experimental Biology. Jacinta presented her research on the macrophysiology of ectotherm thermal tolerances. Fun fact: Niamh and Floriane’s *Daphnia* and their parasite were originally collected from Tvärminne!

Small islands and large biogeographic barriers have driven contrasting speciation patterns in Indo-Pacific sunbirds (Aves: Nectariniidae)

Fionn Ó Marcaigh, **David Kelly**, and **Nicola Marples**, along with co-authors from Universitas Halu Oleo and others formerly of this Department, have published a paper in the Zoological Journal of the Linnean Society titled "Small islands and large biogeographic barriers have driven contrasting speciation patterns in Indo-Pacific sunbirds (Aves: Nectariniidae)". The paper makes several taxonomic and biogeographic findings in a family of colourful tropical birds, including an endemic species the Wakatobi Sunbird (*Cinnyris infrenatus*) from the tiny Wakatobi archipelago off Sulawesi. It is available at <https://doi.org/10.1093/zoolinnean/zlac081>

PUBLICATIONS

Duffy, J.E., O’Connor, N.E. et al. (2022). A Pleistocene legacy structures variation in modern seagrass ecosystems. *Proceedings of the National Academy of Sciences of the United States of America*. 119 (32) e2121425119. <https://doi.org/10.1073/pnas.2121425119>

Dolliver, J.P. & O’Connor, N.E. (2022). Estimating growth, loss and potential carbon sequestration of farmed kelp: a case study of *Saccharina latissima* at Strangford Lough, Northern Ireland. *Applied Phycology*. 3: 324-339. <https://doi.org/10.1080/26388081.2022.2081934>





PUBLICATIONS

Gorman, C.E., Torsney, A., Gaughran, A., McKeon, C., Farrell, C., White, C., **Donohue, I.**, Stout, J.C. & **Buckley, Y.M.** (2023) Reconciling climate action with the need for biodiversity protection, restoration and rehabilitation. *Science of the Total Environment* 857: 159316. <https://doi.org/10.1016/j.scitotenv.2022.159316>

- This work was a group effort of several TCD researchers. It originally arose from conversations in the All-Island Climate and Biodiversity Research Network (AICBRN) and was commissioned by EPA Ireland as input into Climate Change Advisory Council carbon budget deliberations. The take home message is that we can, and must, take synergistic action against both climate change and biodiversity loss.

Harding, L., Gallagher, A., **Jackson, A.**, Bortoluzzi, J., Dolton, H.R., Shea, B., Harman, L., Edwards, D. and **Payne, N.** (2022). Capture heats up sharks. *Conservation Physiology* 10(1), <https://doi.org/10.1093/conphys/coac065>

Iosilevskii G+, **Kong JD+**, Meyer CG, Watanabe YY, Papastamatiou YP, Royer MA, Nakamura I, Sato K, Doyle TK, Harman L, Houghton JDR, Barnett A, Semmens JM, Maoiléidigh NÓ, Drumm A, O'Neill R, Coffey DM, **Payne NL.** (2022) A general swimming response in exhausted obligate swimming fish. *Royal Society Open Science*. 9: 211869. DOI: [10.1098/rsos.211869](https://doi.org/10.1098/rsos.211869). +Joint first author.

Keith et al. [including **I. Donohue**] (2022) A function-based typology of Earth's ecosystems. *Nature* 610: 513-518. <https://doi.org/10.1038/s41586-022-05318-4>

Kelly-Quinn M, Bruen M, Bullock C, Christie M, Feld C, Kenter J, **Penk M** & **Piggott JJ** (2022) *ESDecide: from ecosystem services framework to application for integrated freshwater resources management*. Research Report 424. Environmental Protection Agency, Wexford, Ireland.

Mack, L., de la Hoz, C.F., **Penk, M.**, **Piggott, J.**, Crowe, T., Hering, D., Kaijser, W., Aroviita, J., Baer, J., Borja, A., Clark, D.E., Fernández-Torquemada, Y., Kotta, J., Matthaei, C.D., O'Beirn, F., Paerl, H.W., Sokolowski, A., Vilmi, A. and Birk, S., 2022. Perceived multiple stressor effects depend on sample size and stressor gradient length. *Water Research* 226: 119260. <https://doi.org/10.1016/j.watres.2022.119260>

Murphy P., Armit C., Hill B., Venkataraman S., Frankel P., Baldock R. and Davidson D. (2022) Integrated analysis of Wnt signalling system component gene expression, *Development*, 149, 16, 2022, <https://doi.org/10.1242/dev.200312>.

Morris, O.F., Loewen, C.J., Woodward, G., Schäfer, R.B., **Piggott, J.J.**, Vinebrooke, R.D. and Jackson, M.C., 2022. Local stressors mask the effects of warming in freshwater ecosystems. *Ecology Letters*. <https://doi.org/10.1111/ele.14108>

- In this paper, we explored how warming interacts with other stressors in freshwater systems by synthesising data from experiments. We compared the ability of three null models to predict the joint impacts of warming and a second stressor: additive, multiplicative, and dominance. Overall, we found that the dominance model was the best across all levels of biological organisation. We also found that stressors associated with local human land use (e.g., habitat alteration, pollution) often overshadow the impacts of warming, especially if their independent effects are large. This suggests the effects of warming may be masked in already degraded ecosystems.





Penk MR, Bruen M, Feld CK, Piggott JJ, Christie M, Bullock C & Kelly-Quinn M (2022) Using weighted expert judgement and nonlinear data analysis to improve Bayesian belief network models for riverine ecosystem services. *Science of the Total Environment* 851: 158065. <https://doi.org/10.1016/j.scitotenv.2022.158065>

Penk MR & Perrin PM (2022) Variability of plant and surface soil carbon concentration among saltmarsh habitats in Ireland. *Estuaries and Coasts*, 45: 1631-1645. <https://doi.org/10.1007/s12237-021-01042-w>

OTHER ACTIVITIES

4th Ecology and Evolution Ireland Conference

Do not forget to register for the 4th Ecology and Evolution Ireland Conference taking place in Trinity College from 5-6th January 2023. Note that registration will end on November 21st!. <https://www.irishecologicalassociation.org/events/coevo2021/>



School of Natural Sciences Equality Diversity and Inclusion committee

EDI committee - contact us!

We are currently in the process of updating the SNS EDI/Athena SWAN team page to reflect the current committee. Here you will find a little bit about who we are, our position on the committee, and how you can contact us! We are currently working on the Athena SWAN Silver Application, but as always, we are available to discuss any matters regarding EDI you may have. Updates will be available on the following page shortly: <https://naturalscience.tcd.ie/equality/athenaswanteam.php>

FREE DONUTS!

The postgraduate EDI survey will be circulated shortly and as a bit of good ol' fashioned bribery, for all those who complete the survey, you are entitled to a free donut (details will be provided at the end of the survey). Regardless of the donut, this is a really important survey for PG students to interact with as it is a great way to have your voices heard and highlight areas of EDI success in the department, and others that may need working on. Please keep your eyes peeled for updates!

Resources

Check out the following Higher Education Authority webpage for lots of useful information on EDI in Irish Higher Education Institutes (<https://hea.ie/policy/gender/>). There are several sections and resources available on gender, race, and ending sexual violence and harassment. A reminder to also share any useful resources you might come across!

If you would like more information on EDI in the SNS specifically please view our website at <https://naturalscience.tcd.ie/equality/>





Edited by Whitney Parker ([@whitneyk127](https://twitter.com/whitneyk127))

Do you have news to share in the next issue of ZooBytes? Whether staff or student, if you have news (big or small!) get in touch with me at parkerw@tcd.ie using the email subject "ZooBytes."

Are you a Zoology Alumnus doing something interesting? We'd love to hear what you're up to and include you in the next issue's "Where are they now?" section.

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happy
halloween 🎃

