



Estuarine & Coastal  
Sciences Association

## ECSA Newsletter, September 2022 (No. 39)

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## MESSAGES FROM ECSA / ECSA EVENTS

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### 'Blue carbon' and the European flat oyster (*Ostrea edulis*): Balancing the equation

A report by Hannah Lee, recipient of the ECSA Charles Boyden Small Grant.

Hannah Lee, a final year PhD student at Heriot-Watt university, received a Charles Boyden Award to support her ongoing work towards a better understanding on the European flat oyster (*Ostrea edulis*) carbon budget. Hannah's PhD focuses on roles of two bivalve shellfish, the European flat oyster and the blue mussel (*Mytilus edulis*), in the accretion of carbon on the seafloor. Throughout her PhD Hannah has been a member of the Dornoch Environmental Enhancement Project (DEEP) field team, supporting the restoration of 4,000,000 oysters in the Dornoch Firth in North East Scotland. DEEP is a partnership between the Glenmorangie Whisky Company, Heriot-Watt University and the Marine Conservation Society. Hannah is also a member of the Scottish Blue Carbon Forum.

European flat oyster beds have undergone extensive degradation across their range, primarily due to historic overfishing (Thurstan et al., 2013; zu Ermgassen et al., 2021) and in many locations, historic presence of the native oyster is indicated by shells cast up on the shoreline such as those from the Firth of Forth pictured in the adjacent image. The European oyster is a species at the focus of international restoration efforts with a key goal of restoration being the recovery and enhancement of ecosystem services provided by this key stone species (zu Ermgassen et al., 2021). Quantification of ecosystem service provision is a powerful tool for unlocking funding for habitat recovery. However extensive knowledge gaps remain regarding the provisioning of ecosystem services by a species which was once abundant throughout European waters (zu Ermgassen et al., 2020).



*Beachcombing along the Granton coastline, Firth of Forth reveals the bivalve species present locally, both currently (i.e. the blue mussel) and historically (i.e. the European flat oyster). Image credit: Daniel Graves Photography.*

To date, Hannah has published one of her PhD chapters (Lee et al., 2020) which quantified the role of European flat oysters in enhancing the deposition of carbon to the sea floor and enhancing benthopelagic coupling. Her further work, supported by the award, looks to provide further insight towards considering the overall carbon budget of the European native oyster. Hannah's recent work builds on that presented in Lee et al. (2020), by accounting for the carbon sequestered during the growth of shell by the oyster, while also accounting for carbon released during the process of calcification (Macreadie et al., 2017). The Charles Boyden Award was used to cover the cost of resources (including equipment, sample acquisition and chemicals) to support the quantification of shell growth rates through sclerochronology studies.

The data acquired as a result of the support of this grant will contribute to a more complete understanding of the oyster carbon cycle.

Hannah is currently writing up her thesis – to hear news of her work and upcoming publications you can follow her on twitter at @H\_ZLee or Instagram @how\_shell\_arious or get in touch with Prof. Bill Sanderson to hear more about the progress of DEEP and the Restoration forth project. Hannah is also the co-host of the podcast Wild About Conservation at @have\_a\_wild\_day on twitter and Instagram, a show focused on exploring the world of conservation, the people who work in the sector and how people can get involved.

#### References

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Macreadie, P.I., Serrano, O., Maher, D.T., Duarte, C.M. and Beardall, J. (2017). Addressing calcium carbonate cycling in blue carbon accounting. *Limnology and Oceanography Letters*, 2(6), 195–201.

Thurstan, R.H., Hawkins, J.P., Raby, L. and Roberts, C.M. (2013). Oyster (*Ostrea edulis*) extirpation and ecosystem transformation in the Firth of Forth, Scotland. *Journal for nature conservation*, 21(5), pp.253-261.

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## 2023 Focus meeting – Save the date!

### The Coast and Estuaries of Kent, Sussex and Hampshire

17 -19 April 2023

Portland Building, University of Portsmouth, Hampshire UK

In April 2023 the *Estuarine and Coastal Sciences Association* will once again be running one of its popular Focus Meetings. The 2023 meeting will focus on the **Coast and Estuaries of Kent, Sussex and Hampshire**. These meetings cover a wide range of topics ranging from novel science to nature conservation, recreation and the activities of local special interest groups. The informal atmosphere provides an ideal opportunity for students and early career scientists to present their work.

If are interested in contributing a paper or poster, or just attending the meeting, please contact us for further information.

Steve Mitchell [steve.mitchell@port.ac.uk](mailto:steve.mitchell@port.ac.uk) or Andrew Wither [awith@noc.ac.uk](mailto:awith@noc.ac.uk).

<https://ecsa.international/conferences-and-meetings>

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## OTHER FEATURES/EVENTS OF INTEREST

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### Upcoming Events

**CCORE 2022, The 1st International Conference on Climate Change and Ocean Renewable Energy: 4-7 November 2022 | Online.**

This event offers a platform in bringing together a forum for students, postdocs and established scientists to exchange their ideas and contribute to an integrative approach to climate change and ocean renewable energy. The conference will be held online, via MS-Teams. For more information please visit the [conference website](#).

**ZSL Symposium 'Ecological connectivity across temperate coastal habitats – moving towards seascape scale restoration': 22-23 November 2022 | London, UK.**

This two-day symposium is organised by the Zoological Society of London. It will provide a comprehensive review of the current state of science surrounding habitat connectivity in temperate coastal systems and provide a firm basis for discussion and networking relating to the policy and practical importance of this understanding. It will bring

together a varied audience of scientists, policy makers, restoration practitioners and interested parties looking to provide evidence and delivery of seascape restoration. More information about the symposium programme, registration, poster submission, etc is available at the [event website](#). Note that there are a limited number of bursary tickets available for this symposium, with deadline for application by 1 November.

#### **International Society for Ecological Modelling Global Conference 2023: 2 – 6 May 2023 | Toronto, Canada.**

The International Society for Ecological Modelling Global Conference 2023: Ecological Models for Tomorrow's Solutions will take place from 2-6 May 2023 at the University of Scarborough, Toronto, Canada. Participants are invited to organize symposiums at the conference (deadline: 16 September 2022). For more information please visit the [conference website](#).

#### **EcoSummit 2023 'Building a sustainable and desirable future: Adapting to a changing land and sea-scape': 13-17 June 2023 | Gold Coast, Australia.**

EcoSummit 2023 will have a focus on coastal and marine ecosystems including adjacent terrestrial ecosystems and all habitats that are integrated within those ecosystems, including river networks, wetlands and catchments. We expect all aspects of environmental modelling, engineering, science, and policy to be covered under the focus of climate adaptation and the need for developing socio-economic and environmental resilience and sustainable prosperity around the world. Further focus will be placed on fragile systems that are more likely to suffer the consequences of climate change and anthropogenic pressure such as islands, coastal communities and arid landscapes. Abstract submission closes on 16 December 2022. For more information please visit the [conference website](#).

#### **Coastal Futures (CF) and Restoring Estuarine and Coastal Habitats (REACH) 2023: 11-12 July 2023 | Scarborough, UK.**

Save the date! Details coming soon in the [ECSA website](#).

#### **ASLO Aquatic Sciences Meeting 2023 'Resilience and Recovery in Aquatic Systems': 4-9 June 2023 | Palma de Mallorca, Spain.**

A conference organized by the Association for the Sciences of Limnology and Oceanography. Calls for special sessions is open until 30 September 2022, and call for abstracts will open in January 2023. For more information see [conference website](#).

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## **FELLOWSHIPS/JOB POSITIONS/OPPORTUNITIES**

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### **PhD scholarships on coastal wetlands, James Cook University, Australia**



Applications are invited for two fully funded PhD scholarships (one on eco-hydrology of coastal wetlands and one on blue carbon restoration of coastal wetlands; 3.5 years each) to join the tropical floodplains research group at James Cook University, Australia. **Closing date for both applications is on 1 October 2022.** Details are given below.

### **Modelling the efficacy of constructed wetlands for hydrology and water quality outcomes in tropical catchments**

We are offering a PhD candidature in the field of floodplain hydrology and coastal water quality modelling based in the Centre for Tropical Water and Aquatic Ecosystem Research (TropWATER) at James Cook University in Townsville. The Centre completes world class scientific research that best solves tropical water challenges, and collaborates and communicates the results on a local, regional and global stage.

The successful PhD candidate will be involved in an outstanding research group that is focused on delivering coastal wetland restoration outcomes in the areas of blue carbon, water quality and biodiversity. The focus of the project is to establish and conduct hydrology and water quality modelling for engineered tropical wetlands built to maximize outcomes for water quality, and in doing so assist government advance towards Great Barrier Reef water quality targets. This research project will also provide important and necessary data in the development of water nutrient trading markets and ecosystem services.

In addition, our research program provides the opportunity to be involved in a broad range of activities relating to water quality modelling, nutrient processes and fluxes, sediment dynamics and carbon processing in coastal natural and engineered wetlands. This research project has the potential, provided an easing of Covid-19 restrictions, to be involved in research travel overseas as part of the research groups vision.

**Methodologies:**

- Computer hydrology and water quality modelling platforms;
- Field work to deploy and maintain loggers and sensors;
- Working with broad range of end users;
- Communication of results to government and scientist colleagues.

**Eligibility:**

*Essential*

- BSc Honours Class I or M.Sc. (or equivalent via outstanding record of professional or research achievements)
- Excellent computer programming, communication, and organisational skills
- Forward thinking, innovation and creativity are encouraged
- Extensive field work experience with deployment and management of water loggers and autosamplers

*Desirable*

- experience with nutrient cycling and processes in tropical locations
- field work experience and ability to maintain and calibrate scientific equipment
- demonstrated publication record in the field in high impact journals
- basic skills and experience with presentations and workshops with end users.

**Scholarship:**

JCU-level stipend of \$28,597 (AUD) per annum for three years, full-time study.

**Application:**

Please send your Curriculum Vitae, a copy of your academic record, and a 2-page cover letter outlining your research goals and experience relevant to the research topic (as per contact details below).

**Contact details:**

Assoc Prof Nathan Waltham, [Nathan.waltham@jcu.edu.au](mailto:Nathan.waltham@jcu.edu.au), +61411 161 161

<https://research.jcu.edu.au/portfolio/nathan.waltham/>

**Conditions of Scholarship:**

The award of an scholarship is conditional upon:

- Successful enrolment as a James Cook University PhD candidate. Applicants can familiarise themselves with entry requirements at: <https://www.jcu.edu.au/graduate-research-school/candidates/prospective-students>
- Application for alternative scholarship funding, including the JCU Postgraduate Research Scholarship, in each year of candidature. Should such an application be successful and that scholarship is of lesser value to the AITHM Scholarship, the scholarship holder will receive the balance of the AITHM Scholarship.

**Coastal restoration for blue carbon and co-benefit outcomes on tropical agriculture floodplains**

We are offering a PhD scholarship in the field of coastal restoration for blue carbon and co-benefit outcomes on tropical agriculture floodplains in the Centre for Tropical Water and Aquatic Ecosystem Research (TropWATER) at James Cook University in Townsville. The Centre completes world class scientific research that best solves tropical water challenges, and collaborates and communicates the results on a local, regional and global stage.

The successful PhD candidate will join an outstanding research group focused on delivering coastal wetland restoration outcomes in the areas of blue carbon, water quality and biodiversity. The student will conduct field and

laboratory manipulative experiments to evaluate the blue carbon potential in coastal restoration projects occurring on tropical agricultural floodplains. This research project has the potential, provided an easing of Covid-19 restrictions, to be involved in research travel overseas as part of the research groups expanding program.

**Methodologies:**

- Measuring soil and vegetation carbon stocks using standard techniques;
- Field work and laboratory manipulative experiments;
- Working with a broad range of end users;
- Communication of results to government and scientist colleagues.

**Eligibility:**

*Essential*

- BSc Honours Class I or M.Sc. (or equivalent via outstanding record of professional or research achievements)
- Excellent computer programming, communication, and organisational skills
- Forward thinking, innovation and creativity are encouraged
- Extensive field work and laboratory experimentation

*Desirable*

- Experience with carbon stock and cycling in coastal wetland ecosystems
- Field work experience and ability to maintain and calibrate scientific equipment
- Demonstrated publication record in the field in high impact journals
- Basic skills and experience with presentations and workshops with end users.

**Scholarship:**

JCU-level stipend of : \$28,597 (AUD) per annum for 3.5 years, full-time study.

**Application:**

Please send your Curriculum Vitae, a copy of your academic record, and a 2-page cover letter outlining your research goals and experience relevant to the research topic (as per contact details below). Applicants must meet the JCU's HDR admission requirements if not already enrolled

**Contact details:**

Assoc Prof Nathan Waltham, [Nathan.waltham@jcu.edu.au](mailto:Nathan.waltham@jcu.edu.au), +61411 161 161  
<https://research.jcu.edu.au/portfolio/nathan.waltham/>

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**Post-Doc Fellowship – Fish physiology and ecology,  
Universidade Federal de São Carlos, Brazil**

**UFSCar** Universidade Federal de São Carlos

**Plasticity, distribution, and dynamics of gill ionocytes and cardiomyocytes in fish: physiological mechanisms of adjustment to contamination by metals and metallic nanoparticles in different aquatic environments**

The project will be developed in the Dept. of Physiological Sciences of the Federal University of São Carlos (São Paulo state, Brazil), under the supervision of Dr. Marisa N. Fernandes and Dr. Diana A. Monteiro. The post-doctoral student will work to understand osmoregulation in the robalo (*Centropomus parallelus*) through experiments in laboratory and field, should develop protocols involving immunohistochemistry techniques, western blot, among others, conduct physiological and biochemical interpretations and support the guidance of students.

This is a full time position for 12 months (with possibility of renewal for other 12 months). The **deadline for applications is 14 October 2022**.

Find more information [here](#) (in English) or [here](#) (in Portuguese)

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## Job Vacancies



**Marine  
Management  
Organisation**

### **Marine Planner HEO (x3) & Offshore Wind Advisor HEO (x4) | MMO**

Location: UK (East Midlands (England), East of England, London (region), North East England, North West England, South East England, South West England, West Midlands (England), Yorkshire and the Humber)

Closing date for applications: **23 September 2022 at 11:55 pm** for Marine Planner HEO; **25 September 2022 at 11:55 pm** for Offshore Wind Advisor HEO

Contract details: Permanent. Full-time, Job share, Part-time.

Link:

- [Marine Planner HEO \(National\) - Ref : 4478 - Civil Service Jobs - GOV.UK](#)
- [Offshore Wind Advisor HEO, Strategic Renewables Unit \(SRU\) - Ref 4470 - Civil Service Jobs - GOV.UK](#)



*Oil Spill Response*

### **Geomatics Specialist | Oil Spill Response Ltd (OSRL)**

Location: Southampton, UK

Closing date for applications: **30 September 2022**

Contract details: -

Link: click [here](#)



### **Hydrographic Surveyor | Ecospan Environmental Limited (EEL)**

Location: Gloucester, Oban, Orkney or Plymouth, UK

Closing date for applications: **23 September 2022**

Contract details: Full time.

Link: click [here](#)



**NatureScot**

Scotland's Nature Agency  
Buidheann Nàdair na h-Alba

### **Marine Sustainability Adviser – Inshore Fisheries | NatureScot**

Location: NatureScot, Perth, PH1 3EW, GB

Closing date for applications: **26 September 2022 at 12:01**

Contract details: Full time

Link: click [here](#)



**Total Quality. Assured.**

### **Offshore Renewables EIA Lead - Ireland | Intertek**

Location: Ireland (Cork, Dublin)

Closing date for applications: **30 September 2022**

Contract details: flexible, hybrid working options are available

Link: click [here](#)

**MarineSpace**

an ERM Group Company



### **Senior Marine Consultant, 3 vacancies: Marine Mammals; Ornithology; Ecology & HRA | MarineSpace Ltd**

Location: UK wide / remote working

Closing date for applications: **30 September 2022**

Contract details: Full time

Link: click [here](#)



**Senior and Junior Consultants – Ornithology | NIRAS**

Location: one of NIRAS UK offices

Closing date for applications: **2 October 2022**

Contract details: Permanent

Link:

- [Senior Consultant - Ornithology](#)
- [Consultant - Ornithology](#)



**Marine Licencing Officer | Natural Resources Wales**

Location: Flexible

Closing date for applications: **11 October 2022**

Contract details: Permanent. Grade 5. 37 hours/flexible working pattern.

Link: click [here](#)



**Senior Project Manager (Environmental Services) | Seiche**

Location: Norwich or Devon, UK

Closing date for applications: not specified

Contract details: Full time.

Link: click [here](#)



**3 vacancies: Senior Environmental Consultant (offshore renewables), Senior Environmental Consultant (ports and marine development) & Senior Environmental Consultant (Marine) | Royal HaskoningDHV**

Location: UK

Closing date for applications: not specified

Contract details: Full time.

Link:

- [Senior Environmental Consultant \(offshore renewables\)](#)
- [Senior Environmental Consultant \(ports and marine development\)](#)
- [Senior Environmental Consultant \(Marine\)](#)

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Website: <https://ecsa.international/>

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Compiled by: Anita Franco ([anitafranco@gmail.com](mailto:anitafranco@gmail.com))

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