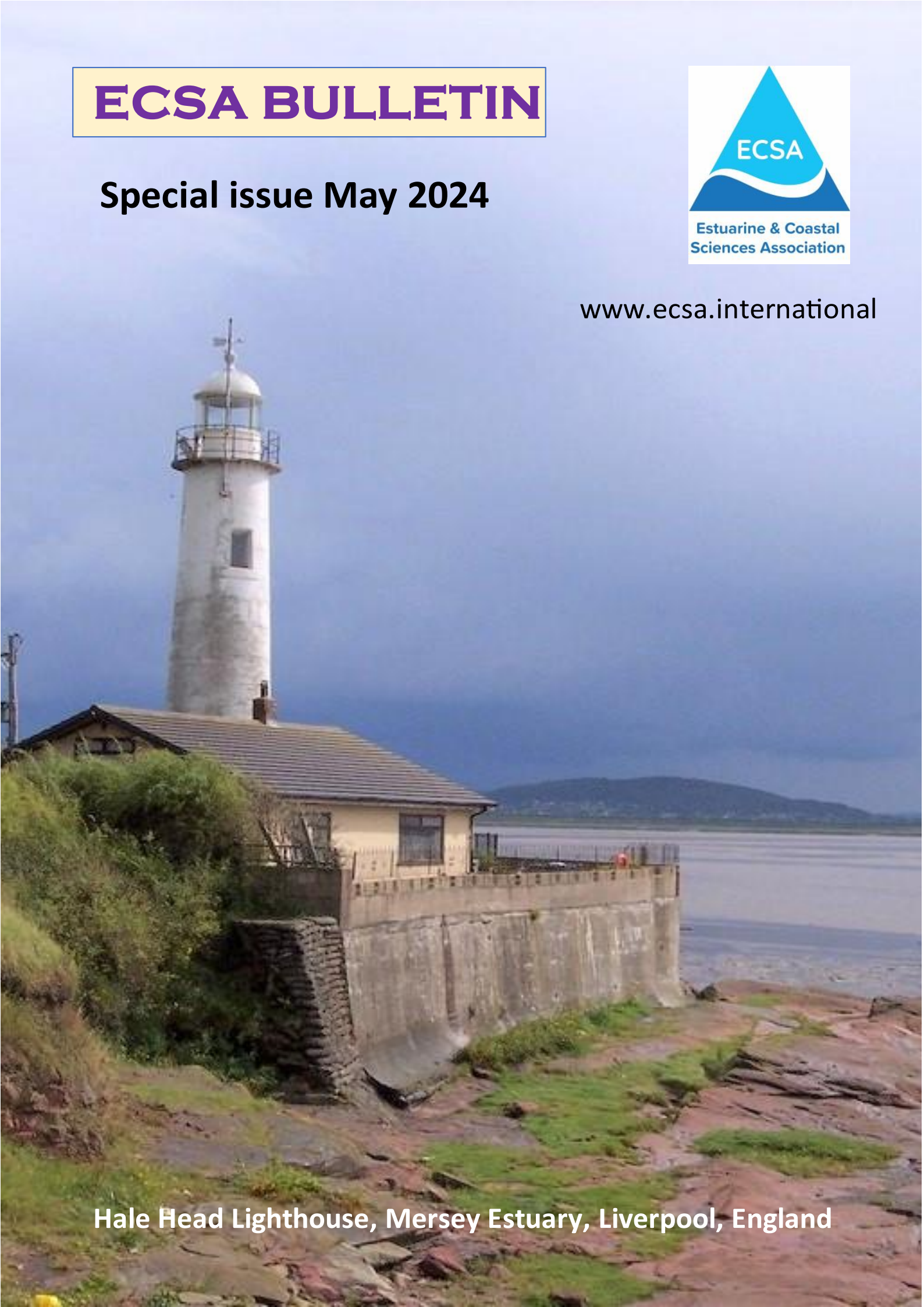
ECSA BULLETIN

Special issue May 2024

Estuarine & Coastal Sciences Association

www.ecsa.international



Hale Head Lighthouse, Mersey Estuary, Liverpool, England

ECSA Bulletin

It is several years since the ECSA Bulletin was last published. This is because we do not currently have an editor. The ECSA Council has discussed the role of the Bulletin in an increasingly electronic world where news is so quickly circulated online and we also now have an e-newsletter circulated to all members three times a year and social media pages. Do we still need a Bulletin? There is a feeling that the Bulletin is not there to quickly dispense short pieces of urgent news but to present longer articles and illustrations. This specific issue of the Bulletin is a special issue, not using the full artistic production methods of the past, but instead asking what you think about having an ECSA Bulletin.

ECSA Council believes that we should continue to produce a Bulletin and has made some suggestions of what should be in it. Here are their ideas:

The Bulletin should range across science and policy. It is not and should not be a peer reviewed publication. Content should be pitched at a level suitable for a scientifically competent, but multidisciplinary audience, so accessible and jargon-light. Content should not be restricted to members only. As such we include submitted and solicited material of a range of types using a greater diversity of sections. A standard new structure and layout should be designed with new defined sections:

- **Science Reports**. Wide range including: results and reports on any estuarine or coastal area; summaries of work-in-progress or published work; etc. Colour images encouraged**.**
- **Coastal Policy & Management.** Ranging across international, regional and local policy developments/updates/issues; news of local developments/issues of wider interest.
- **Opinion pieces**: ranging across personal perspectives/polemical contributions/regional perspectives etc. To include response pieces.
- **Early Career Section**. 300–1000-word contributions from: post gradustes; post-docs; first-post practitioners etc
- **ECSA Reports** Major ECSA activities: scientific and focus meetings, workshops. Grant reports/outcomes.
- **Adverts/ ECSA Promotional**: Publicity for future meetings, workshops, etc.; Free opportunities for sponsors and institutional members to advertise. Plus, paid advertising for non-member organisations when available.

All other content would be for the newsletter and/or social media. Consideration should be given to giving a DOI to substantive contributions in the first three sections above.

It's your Association and your Bulletin so we are now asking for your opinions. Please let us know if you can add to the list of topics above or simply if you agree with them all. Please answer with as short or as long an email as you wish, but do please answer. Please email Martin Wilkinson at m.wilkinson@hw.ac.uk

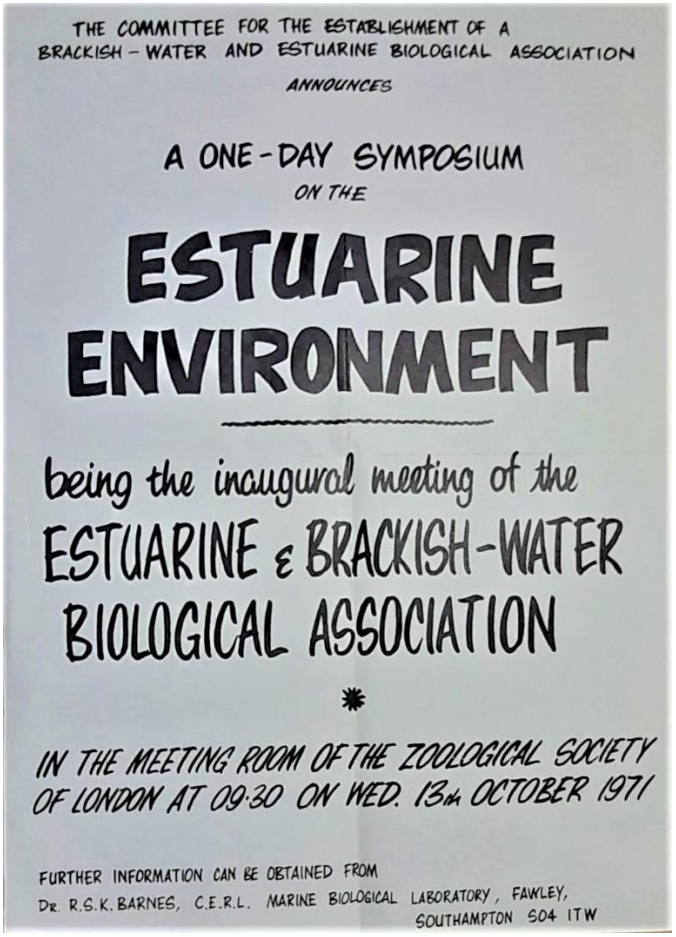
We would still need an editor but now we think that the Bulletin production needs more than one person. The editor should be able to rely on an editorial group who would assemble articles from different areas. This would not only increase the diversity of the articles but mean that there should not be too heavy a burden on the editor. Do let us know if you would like the experience of being the editor or simply being a member of an editorial committee that helps the editor. The ECSA Council needs to get some younger people involved in helping to run the Association. Here is your chance!

Please do reply to m.wilkinson@hw.ac.uk

Contents

ECSA CELEBRATES 50 YEARS

The inaugural symposium of the Estuarine and Coastal Sciences Association was held in London in late 1971 and in the subsequent year the proceedings of this meeting were published as *The Estuarine Environment* (Barnes and Green, 1972). In considering how to celebrate the 50th anniversary of the foundation of ECSA the Council decided to follow the lead of their antecedents by holding a wide ranging one-day conference and publishing a volume of proceedings on estuarine and coastal science based on it. Although the Covid pandemic interfered with our aspirations, we could not allow such an important milestone to go uncelebrated and so in 2022 three events marked our anniversary: a small celebratory conference in London; a volume of contributions from eminent specialists published as the book *Challenges in Estuarine and Coastal Science*; and a larger celebration at our international conference "ECSA59" in San Sebastian, Spain.


THE COMMITTEE FOR THE ESTABLISHMENT OF A
BRACKISH-WATER AND ESTUARINE BIOLOGICAL ASSOCIATION
ANNOUNCES

A ONE-DAY SYMPOSIUM
ON THE

ESTUARINE ENVIRONMENT

being the inaugural meeting of the
ESTUARINE & BRACKISH-WATER BIOLOGICAL ASSOCIATION

IN THE MEETING ROOM OF THE ZOOLOGICAL SOCIETY OF LONDON AT 09·30 ON WED. 13th OCTOBER 1971

FURTHER INFORMATION CAN BE OBTAINED FROM
DR. R.S.K. BARNES, C.E.R.L. MARINE BIOLOGICAL LABORATORY, FAWLEY, SOUTHAMPTON SO4 1TW

The meeting that started it all 50 years ago. In those pre-computer days producing posters was simpler!

The London 50th Anniversary Conference

Our one-day celebratory conference took place at the prestigious Fishmongers Hall on the bank of the Thames at London Bridge in the heart of London. Restricted to a capacity of 50 attendees, the conference programme featured many eminent speakers of note including Professor Robert Nicholls, Director of the Tyndall Centre for Climate Change Research at the University of East Anglia, and Professor Colin Moffatt recently Chief Scientific Advisor Marine to the Scottish Government.

Collectively the presentations encapsulated many of the issues and challenges facing estuarine and coastal environments today from plastics to climate change. As if to emphasise the impacts of climate change, on the day of the conference NW Europe and London suffered an intense cyclone (Storm Eunice) which set a new record for the strongest wind ever recorded in England at 196 km/h. Despite the UK government's advice against travel 32 people, including our keynote speakers, made it to London, (Figure 4), often setting off the previous day and subsequently getting stuck in London for an extra day. Thanks to Zoom, those who could not make it were able to participate via zoom, meaning that we had our full complement of attendees and an interesting and authoritative conference.

We owe particular thanks to our sponsor, The Fishmongers' Company, Fisheries Charitable Trust, and in particular Dr Eleanor Adamson. Also, to Dr Alice Hall, University of Plymouth and Dr Jonathan Dale, Coventry University (both also ECSA Council members) for essential organisational support.

Fishmongers' Hall on the banks of the Thames

Talks presented at the 50th anniversary meeting

50 years of ECSA	Martin Wilkinson
Trajectories & Challenges in Coastal Science	John Humphreys
Inshore Fisheries: News from the Front Line	Robert Clark
Future of Inshore Fisheries: Progressing collaborative management in our shellfish fisheries.	Aoife Martin
Keynote: A global analysis of subsidence, relative sea-level change and coastal flood exposure	Robert Nicholls
Living with rising seas	Svetlana Jevrejeva
Coastal Erosion and Management Challenges in the United Kingdom.	Kenneth Pye
Morphodynamics of Tropical Atlantic River Mouths and their Adjacent Shorelines	Helene Burningham
Defining Habitat Losses due to Coastal Squeeze	Nigel Pontee
Keynote: Reversing human impact on coastal seas.	Colin Moffatt
Marine Plastics: Emerging Challenges and Priorities for Estuaries and Coasts	Malcolm Hudson
Is anthropogenic nitrogen promoting or killing marine life in the 21st century?	Tim Jennerjahn
Carbon Storage in UK Intertidal Environments	William Austin
Towards seascape ecology with molecular accuracy.	Sebastian Mynott
Predicting the Effect of Environmental Change on Non-breeding Shorebirds with Individual-based Modelling.	John Goss-Custard
Legacy Waste in the Coastal Zone	Kate Spencer

The surroundings of the conference hall of the Worshipful Company of Fishmongers

Modern presentational technology in an opulent refined venue

ECSA 50th Anniversary Volume: *Challenges in Estuarine and Coastal Science*

Published to mark ECSA's 50th anniversary, this book (Figure 5) has been written and compiled for practitioners, academics and students in the field of coastal science and policy. Recognising estuarine and coastal waters as acknowledged epicentres for anthropogenic impacts, the book examines and exemplifies the range of current and future challenges. From upper estuaries to open coasts and adjacent seas; from tropical to temperate latitudes; and from Europe to Australia the chapters address:

- Coastal erosion and deposition; open shores to estuaries and deltas
- Marine plastics with special reference to estuaries and coasts
- Sea level rise, coastal squeeze and habitat loss
- Transitional waters, saline incursion and estuarine squeeze
- Restoration management using remote data collection.
- Carbon storage in coastal wetlands and intertidal areas
- Species distribution and the arrival of non-natives
- Shorebirds: Modelling environmental change
- Physical processes: Tidal dynamics, residence times; sediments.
- Estuaries as fish nurseries
- Policy versus reality in coastal conservation

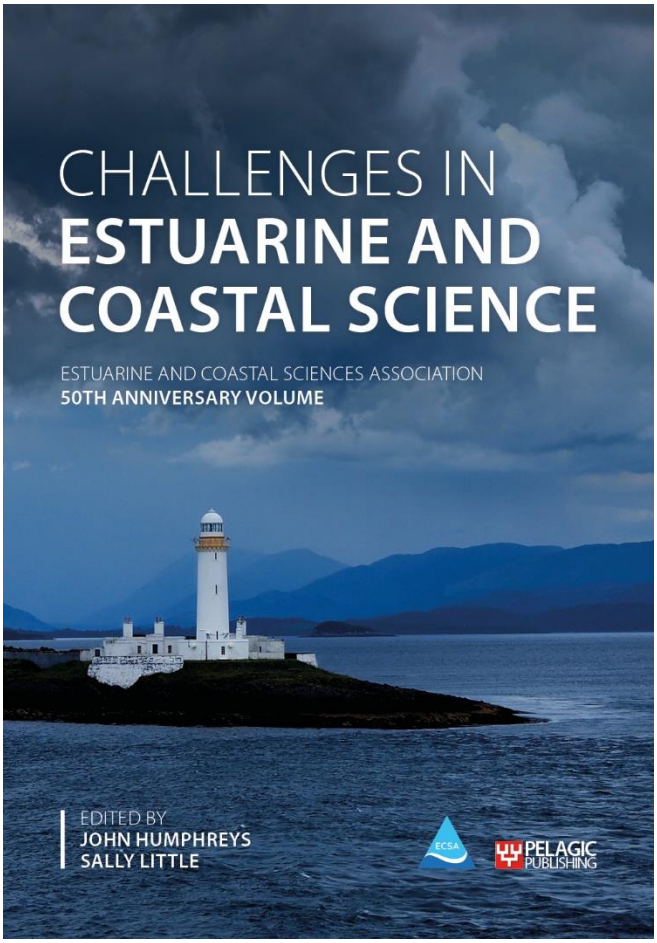
The book also contains a Prologue by founding member Professor Richard Barnes (who coedited ECSA's 1972 equivalent volume), and a short history of the Association including a list of the amazing total of 183 conferences (local and international) and workshops (Pracrical and discussive) held by the Association in its first 50 years. These, along with the other contributions provide the basis for an overarching examination of "Trajectories and Challenges" in a final concluding chapter.

Since publication, the book has been positively reviewed with comments including:

"…should be carefully considered by anyone whose career or livelihood is linked to these precious ecosystems… We can only hope that governments will take heed of the contents of this special volume". *The Biologist Vol 69(4)*

"…the authors provide an excellent summary of where we currently stand and in doing so provide a guide to the relevant reference material that will be of great benefit to both students and practitioners alike... well worth a careful read. *The Marine Biologist October 2022*

The book is currently available to ECSA members at a 30% discount. Purchase through *www.pelagicpublishing.com* using the ECSA30 discount code.

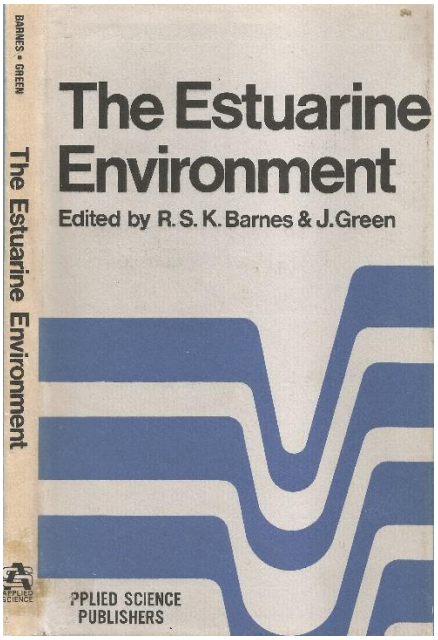


The 50-year celebration volume with thoughts for the next 50 years

ECSA 59, San Sebastien, Spain

Our final celebrations took place at our September 2022 international conference ECSA59 in San Sebastian, Spain, attended by over 400 delegates from over 40 countries. In addition to a fantastic programme of presentations, our founder member Professor Richard Barnes spoke about his recollections on the conception and birth of the Association. On the next page a photo shows a conference tea break with Professor Barnes front, centre wearing cap, tee-shirt and shorts, standing next to John Humphreys, the incoming president of ECSA – a 50 year span.

Special thanks to: Angel Borja of AZTI our host and conference chair in San Sebastian, Tim Jennerjahn, ECSA Council member for conferences and Marie-Claire Morley and colleagues from Elsevier, our publishing and conference partners.



The proceedings of the founding meeting 50 years ago

The delegates at ECSA59 in San Sebastian

The presenters and invited delegates at the 50th anniversary in the opulent Fishmongers' Hall in London

Following the account of ECSA59 as part of our 50th birthday celebrations we now have a young person's view of the event from Emma Ward who was a prizewinner at the meeting

A STUDENT'S VIEW OF ECSA59

By Emma Alice Ward, PhD student
(tw: @EmmaAlice_W)
Dr Joanne Preston's Lab group, Institute of Marine Sciences, University of Portsmouth

On September 5th delegates from around the world flocked to the Kursaal, in San Sebastian, Spain to meet for ECSA 59. There was a fantastic buzz around the building as we were all able to relax and meet in person after the disruptions from covid-19 restrictions across the last two years. The conference got started with opening remarks and traditional Basque region dancing, which increased the anticipation that we were finally about to attend an international conference in person. In the evening this was followed by a fantastic speech by Prof Richard SK Barnes during the ECSA 50th Anniversary Celebration reception, and with the excitement of delegates this meant there was constant chatter to be heard through the evening.

Day two was perhaps my highlight as alongside watching other fantastic talks, such as Prof Laura Airoldi's keynote, I was able to present a proportion of my PhD work on coastal connectivity and carbon provenance in the blue carbon session chaired by Prof Simonetta Fraschetti. Given I was presenting the meta-analysis that I completed when working from home during the second UK covid-19 lockdown, it felt even more poignant that we were all able to meet in person to share our research.

My meta-analysis collates an updated global synthesis of δ13C analyses from seagrass sediments and leaves, enabling its categorisation into seagrass bioregions, alongside grouping by seagrass species size. This updated global database demonstrates that a meadow's seagrass species

composition and placement within the seascape influences its carbon sequestration capacity. It was with the fantastic support of the Estuarine and Coastal Sciences Association (ECSA) through one of their student travel grants that I was able to attend this meeting and have this opportunity to present at an international conference.

ECSA 59 was a friendly and welcoming environment which meant I meant walked away from the conference with lots of connections and thoughts about my research areas of interest. It seemed that there was also a high proportion of ECR's in attendance and I think many relished that we were able to meet in person to network and present after the limited opportunities over these past two years. In fact a large student cohort from my own institution the University of Portsmouth had utilised this well-timed post summer fieldwork ECSA conference to showcase their postgraduate research in person before many of their upcoming completions, ranging from temperate marine habitat restoration projects encompassing oysters, saltmarsh and seagrass (Charlie Mountain, Fiona Woods, Bronwen Paxton, Hannah Stead) to experimental work on microplastic uptake (Monica Fabra) and biodegradation by marine wood borers (Lucy Martin). We also had ECR's from project RaNTrans showcasing research they have been working on regarding algal mat removal and nutrient reduction techniques applied in intertidal mudflats (Andrew van der Schatte Olivier, Zoe Morrall and Eric Harris-Scott).

ECSA 59 encompassed long days filled to the brim with scientific research, but it was also well balanced with more relaxed events such as the conference meal. Overall, the conference was a fantastic experience and one I would highly recommend to other research students. It both incorporated a broad range of research from around the world and gave a fantastic insight into specific research themes. The closing day of the conference was accented during the awards ceremony when I alongside another University of Portsmouth PhD student Lucy Martin, were fortunate to be awarded with the best student presentation award and a highly commended poster. I would again like to take the opportunity to thank ECSA whose financial support through a student travel grant made my attendance possible and without whom I would not have had the chance to present and network at such an engaging international conference.

Figure 1. Emma Ward presenting her global meta-analysis at ECSA59's carbon ecosystem services session

Fig 2. University of Portsmouth PhD students Lucy Martin and Emma Ward outside Kursaal conference centre after receiving our awards; Best student oral presentation & highly commended student poster.

ReMeMaRe

Restoring Meadow, Marsh and Reef

Estuarine and coastal (E&C) habitats, in the UK and globally, are under threat from the legacy effects of historic activities, current pressures, and there is an increasingly urgent need to tackle the crises of climate change, loss of biodiversity and the future health of a growing human population.

As we progress through the UN decade on 'Ecosystem Restoration' and 'Ocean Science for Sustainable Development', 2021 – 2030, we also recognise humanity's dependence on healthy, resilient and functioning marine ecosystems.

Environmental protection, recovery and restoration is now critical and over recent decades, the field of restoration has grown substantially to address the future challenges we face.

ReMeMaRe Overview

The "Restoring Meadow, Marsh and Reef (ReMeMaRe)" initiative, pronounced 're-memory', aims to develop, enable and deliver an ambitious national, E&C restoration programme for England.

ReMeMaRe aims to achieve this by supporting seascape restoration, applying the Lawton Principles of bigger, better and more connected, with an initial focus on the three priority habitats that make up the acronym: seagrass (*Zostera* sp.) meadows, saltmarshes, and European native oyster (*Ostrea edulis*) beds and reefs.

The strategy for the programme considers both active restoration and passive recovery:

- Active Restoration: interventions, needed because passive recovery isn't possible (e.g. due to historic losses), or, where action could expedite environmental recovery (e.g. planting seagrass, managed realignment, providing cultch for native oyster spat to settle on)
- Passive Recovery: the removal of pressures to help provide the environmental conditions to enable nature to recover on its own and to improve.

ReMeMaRe is so called, because it is *remembering* how much of these habitats have been lost over the centuries and keeping this in mind when setting restoration targets. In doing so, ReMeMaRe goes beyond previous conservation and protection efforts and actively address baseline shift.

With habitat restoration and wider environmental recovery, we also restore the many benefits that we as humans gain from a healthy environment (i.e. ecosystem services and enhanced natural capital).

The shared ReMeMaRe Vision is for "*restored estuarine and coastal habitats that benefit both people and nature*", with a Mission to **"***restore at least 15% of our priority habitats along the English coast by 2043*", in line with the timeframe of the UK Government's 25 Year Environmental Plan (25YEP).

The Vision and Mission are 'shared', as ReMeMaRe is a collaboration, comprised of over 35+ partner organisations (and growing…) representing Government, arm's length bodies (ALBs), local authorities, research and academia, eNGOs, community partnerships and industry, from across the UK.

ReMeMaRe Partnership

The Partnership works broadly across 5 themed areas: an overarching 'National Estuarine and Coastal Strategy', supported by, 'Communications and Engagement', 'Research, Evidence and Data', 'Legislation, Regulation, Policy and Planning', and 'Finance and Funding'.

ReMeMaRe operates at the national level, with the partnership identifying key projects that both individually and combined, will best enable the accelerated and upscaled delivery of place-based E&C restoration at the local level, working collaboratively with coastal partners and stakeholders. Actions include the development of tools and guidance, embedding these in policy and planning frameworks, filling evidence gaps, addressing known barriers and advocating for the importance of E&C generally.

Projects identified are listed and maintained in ReMeMaRe's co-developed Delivery Plan. Hosted on the website, this live document sets the direction of future work for ReMeMaRe.

To help ensure this work is evidence based, ReMeMaRe has also established the "Connectivity in Estuarine, Coastal and Transitional Ecosystem Restoration (ConnECTER) Special Interest Group (SIG)". The SIG supports research, networking and collaboration between academics and research organisations (nationally and internationally), whilst helping to connect this community more widely to other stakeholders involved in practical restoration across the UK, so that we can all learn by doing.

Looking forward

Some examples of ReMeMaRe's completed, ongoing and future work are described below.

A suite of four **Habitat Restoration Handbooks**, provide practical guidance on **how** to restore the priority habitats, as well as an additional handbook that focusses on the beneficial use of dredged sediment. These handbooks are supported by the co-developed and newly published **Marine and Coastal Restoration Principles**. The ten overarching restoration principles are applicable both inside and outside of designated nature conservation sites, they aim to help applicants consider basic ecological and legal requirements to avoid costly complications during the application and construction.

Restoration Potential Maps are in development for the three ReMeMaRe priority habitats, as well as sand dunes and vegetated shingle ridges, to help identify **where** restoration could be targeted to provide the greatest benefits and to focus resource and effort in the short term (5 – 10 years).

The partnership continues to collect, collate and make **data and evidence** accessible to support restoration planning, design and practical delivery, such as reviewing evidence of historic native oyster extents, to support restoration plans that may help address baseline shift.

Establishing a centralised **Restoration Project Platform**, to maintain oversight and record all restoration projects completed in the UK marine environment out to 200 nm, playing a strategic role in managing, supporting, delivering and communicating the UK's decade of restoration.

ReMeMaRe's annual conference, bringing together Government, arm's length bodies (ALBs), local authorities, research and academia, eNGOs, community partnerships and industry. The conference is ever growing and a hugely inspirational event. The next conference is planned for 10-11th July 2024, in Scarborough, North Yorkshire.

The success of ReMeMaRe hinges on our ability to scale up practical action. ReMeMaRe is developing the next 5 year phase of the programme and will explore its evolution and continue to offer guidance, advice, and support to restoration pioneers. It will will also continue to explore funding avenues to encourage further investment and aid the creation of local restoration action plans, in collaboration with partners.

Emerging opportunities for restoration are on the horizon, thanks to initiatives like Net Gain and Landscape Recovery. Additional benefits, such as carbon sequestration by blue carbon habitats, are now within reach and could even be marketed.

Through ReMeMaRe the restoration generation has grown in strength, and together over the next 5 years, the aim is to scale up restoration to support a resilient future for our coastal communities and wildlife.

Authors – Will Manning and Hannah Westoby, contact details: hannah.westoby@environment-

agency.gov.uk/ rememare@environment-agency.gov.uk

The first ReMeMaRe conference in Scarborough Spa in 2023 was a great success with nearly 300 attendees. Don't miss the follow-up meeting of ReMeMaRe in this excellent conference centre in July this year. See the meeting details below.

ReMeMaRe Conference 2024

Restoring Estuarine and Coastal Habitats

July 10-11th 2024, Scarborough Spa, Scarborough

Day 1: 10:00 – 17:00 | Day 2: 09:00 –13:00

The 2024 programme will include five sessions across two days, highlighting current and future opportunities and challenges, illustrating progress and evolving practice and discussing how we achieve our restoration targets. Bringing together restoration practitioners, Government bodies, environmental Non-Government Organisations (eNGOs), industry and businesses, from across the United Kingdom, with a shared vision to restore our estuaries and coasts. Providing a welcoming space for knowledge exchange and discussion on the latest developments in coastal restoration science, practice, and policy.

ReMeMaRe Session themes

1. **Restoration in Action**

We want restoration projects across the UK to share their experiences – good and bad, to help us all develop best practice. This session will showcase pioneering examples of restoration on the ground.

2. **Investing in Restoration**

We know that securing funding is one of the main challenges to restoration, therefore this session will discuss business needs and what we need to boost investor confidence in estuarine and coastal restoration.

3. Restoration through collaboration.

Exploring how working in partnership brings multiple benefits to restoration. Whether through working with communities and using citizen science approaches, with the additional societal well-being this participation provides, or between organisations and sharing resources to achieve common goals.

4. Science

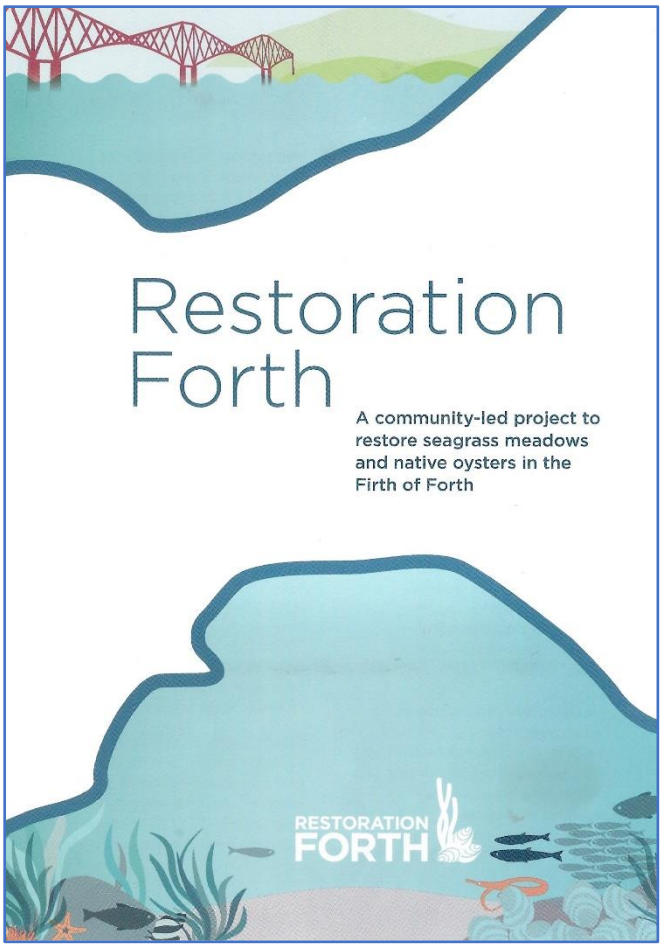
During this session we will host talks that present the most recent scientific findings relating to the ReMeMaRe focus habitats (oyster reefs, seagrass, saltmarsh/es, kelp), that are of relevance to informing and delivering restoration at scale.

5. Evolving policy and regulation

This session will focus on what evolution is necessary in policy and regulation to enable projects to accelerate their delivery, so we achieve our ambitious restoration targets.

To find out more about the conference and to register for attendance go to the Ocean & Coastal Futures website:
https://coastal-futures.net/rememare

ECSA is proud to be a sponsor at this conference. Please visit us at the ECSA stall in the main room.



RESTORATION OF COASTAL HABITATS AROUND THE WORLD – RESTORATION FORTH AS AN EXAMPLE

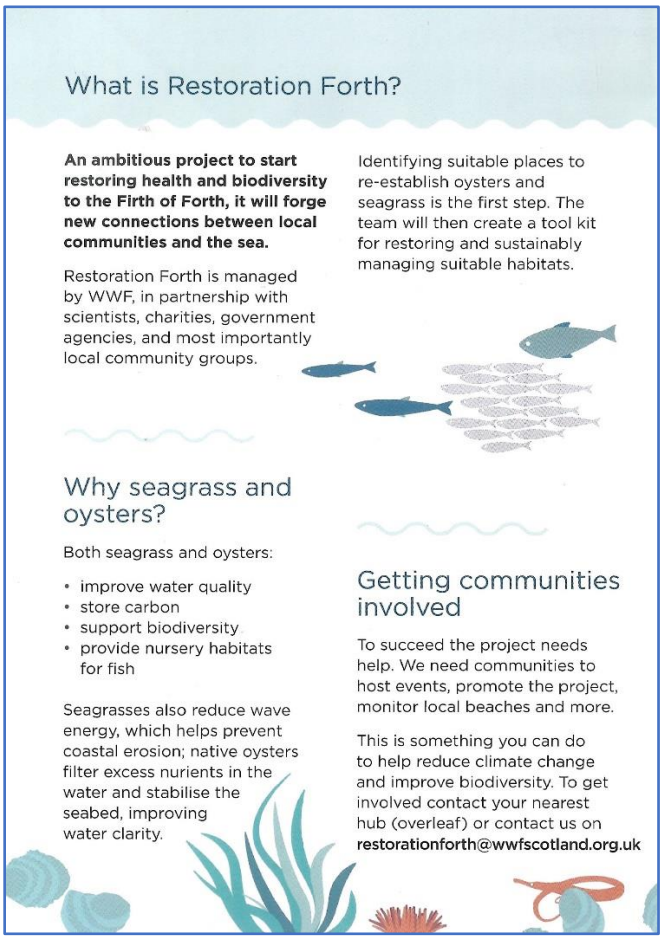
You may have just read about the nationwide plans for coastal restoration in England from ReMeMaRe.

On a different scale on this page you can see some details of local restoration efforts which reach out to volunteer helpers in one area of the British coast – the Firth of Forth – an arm of the North Sea on which the capital city of Scotland, Edinburgh is located.

With the recent large growth in restoration activities there must be many local projects, like this one, starting up around the world.

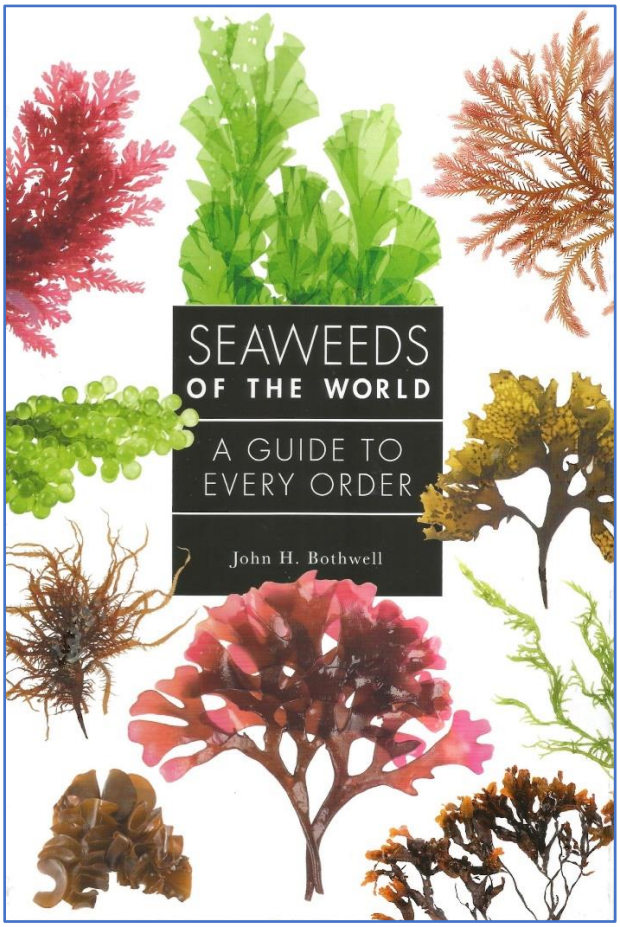
We would like to hear about such schemes from ECSA members. Do consider writing an article about your local initiatives for the ECSA Bulletin.

To learn more about the Forth project: https://www.wwf.org.uk/Scotland/restoration-forth



Book Review

Seaweeds of the World. A Guide to Every Order
by John Bothwell, 2023. Princeton University Press, 240pp. Hardback, price £25.00
ISBN 978-0-691-22854-9



Don't be put off reading this review thinking that this book must be a seaweed identification manual only for experienced marine botanists. It isn't. It is a very readable, but competent, general book which can introduce seaweeds to other specialists in other disciplines, written by an active seaweed researcher from the University of Durham in England. It has 151 pages of beautiful macro and micro photographs, with distribution maps and useful, very readable, descriptive notes for one specimen genus in each taxonomic order of seaweeds. Before this there are 73 pages of explanation of many aspects of seaweeds, again beautifully illustrated, covering such topics as what seaweeds are, their structure, evolution, life-cycles, geographical distribution, ecological roles and industrial utilization. In a world where there is fast advancing increases in exploitation of seaweeds and in their importance on the carbon cycle of a warming sea, this book can give many scientists a pleasurable introduction to this group of organisms. The price is remarkably low for such an excellent collection of images of the world's seaweed diversity.

ECSA GIVES GRANTS TO STUDENTS AND EARLY CAREER WORKERS

ECSA gives some grants each year to our younger members to support research projects and enable attendance at relevant conferences that may help the development of student members. We also give grants to help such members attend and present at our numbered international meetings. Occasionally we may also give meeting attendance grants for other ECSA meetings, such as some local Focus meetings. For ECSA meeting grants we also can give some assistance with childcare costs to enable eligible members with children to participate in meetings that they might not otherwise be able to attend.

Please note that you must already be an ECSA member before you can apply for a grant from us. Our funding is limited so they are not huge grants. Please look at our website to see all the terms and conditions for ECSA grants and to get an application form if you decide to apply.

Grants are paid in arrears on presentation of receipts after the event has taken place. For some of the grants there is also a requirement to submit a suitable report before your claim can be paid. To give you an idea of the sorts of things for which grants may be given there now follow reports from a variety of successful grant holders in the last three years.

Microplastic pollution in a hypersaline Mediterranean coastal lagoon: Abundance, chemical composition, and influence of environmental parameters

Nikolaos Simantiris, Ionian University

I studied Marine Sciences at the University of the Aegean, Mytilene, Greece for BSc and obtained a MSc in Oceanography at the University of British Columbia, Vancouver, Canada. I am currently a Ph.D. candidate at the Department of Informatics of the Ionian University, Corfu, Greece. My research interests lie in the field of coastal oceanography, and in my Ph.D. I am studying microplastic pollution in the NE Ionian Sea.

I have investigated microplastic pollution sources, transport and fate in the NE Ionian Sea by incorporating oceanographic data into a Lagrangian particle-tracking model that simulates the transport of particles for 2.5 years[1]. A study I conducted in the Antinioti lagoon (Corfu, Greece) included field measurements, lab analysis and Raman spectroscopy, providing thorough understanding of the microplastic pollution levels and sources in a lagoon of great regional economic importance[2]. Although Antinioti lagoon presented a high abundance of floating microplastic particles, the particle-tracking model showed that another coastal lagoon, Korissia (Corfu, Greece), that is located within a short distance of Antinioti lagoon, may be subjected to higher levels of microplastic pollution.

Supported by ECSA's Charles Boyden Award, I conducted an investigation of the microplastic pollution of Korissia lagoon, that included field measurements and lab analysis of the microplastic samples. The importance of studying Korissia lagoon is threefold: (i) to determine the pollution levels of a coastal lagoon that is exploited for its fish stocks, (ii) to evaluate the model's results for the transport of particles in the NE Ionian Sea, and (iii) to study the influence of environmental parameters on the distribution of microplastics in a coastal lagoon that exhibits rare hypersaline conditions.

This study aimed to evaluate the abundance of floating microplastic particles in Korissia lagoon, the effect of environmental parameters on their spatial distribution, the origin of polymers associated with the sampled particles, as well as evaluate the model's outcome. The findings supported the initial particle-tracking model's finding that Korissia lagoon is receiving higher amounts of particles than Antinioti lagoon,

originating from known sources (WWTPs, harbours, etc.). Furthermore, the study revealed high abundances of floating microplastic particles (averaging 63 particles/L), and a significant correlation between their distribution and density, temperature, and pH. This work is currently under preparation for publication.

- Simantiris, Nikolaos, et al. " Simulation of the transport of marine microplastic particles in the Ionian Archipelago (NE Ionian Sea) using a Lagrangian model and the control mechanisms affecting their transport." *Journal of Hazardous Materials* (2022): 129349.

- Simantiris, Nikolaos, et al. Seasonal evaluation of floating microplastics in a shallow Mediterranean coastal lagoon: Abundance, distribution, chemical composition, and influence of environmental factors." *Estuarine, Coastal and Shelf Science* (2022): 107859.

Spatial distribution of coral rubble beds

Michelle Taylor, Aberdeen University, Scotland

About me and my project: My name is Michelle Taylor, and I am a second year Ph.D. student at the University of Aberdeen. My thesis is entitled “The biodiversity and function of Caribbean coral rubble beds”. One focus of the project is to determine the diversity of organisms found in coral rubble beds in Turks and Caicos Islands, using specimen collection and genetic analysis, stationary videos, and environmental DNA. This will give other researchers in the region a baseline to use to monitor changes as coral rubble beds increase in size and abundance as a result of climate change. Using the collected data, it is hoped we can begin to understand the function of these ecosystems and establish their importance in the wider marine setting. I have just returned from my second field season in the Turks and Caicos Islands collecting coral rubble and its cryptofauna and I am excited to make a start on the analysis in the coming months.

Thanks to support from the ECSA Charles Boyden Award I was able to attend the 6th World Conference on Marine Biodiversity that was held in Penang, Malaysia in July 2023, where I gave an oral presentation on the first chapter of my Ph.D. This section of my research is focused on the spatial distribution of coral rubble beds and marine protected areas, looking specifically at areas where they overlap. The global distribution of coral rubble is not well studied, but with

anthropogenic impacts accelerating the rate of rubble production understanding the current distribution is paramount to help us recognise changes in the future and understand how the changes might affect the entire tropical marine habitat. It is hoped that by using present and historical data on the distribution of coral rubble beds we might be able to predict changes in the habitat size and location in the future, especially when combined with previous storm frequency patterns and future estimates of frequency and intensity of storms using IPCC data. Understanding how and where coral reefs will become coral rubble will be invaluable information for researchers of tropical marine ecosystems around the globe.

An example of the coral rubble sites that I survey

The conference was a fantastic networking event (with great food!). It was the first international conference of my Ph.D., and since COVID. There were around 400 delegates in attendance from all over the world. There was over a dozen themes ranging from marine debris to deep sea to phylogenetics, and eight keynote speeches including the very inspirational plenary from Dr. Nicole Yamase, the first Pacific Islander (and fourth woman) to go to Challenger Deep! Her story-telling skill was fantastic and to learn a little about the culture of the Pacific Islands and their connection to the ocean was fascinating! The conference also ran half a dozen special sessions including one on WoRMS (World Register of Marine Species) which was very insightful and highly relevant to my Ph.D. project. It is always so inspiring to hear about other research and I left the conference ready to tackle my project with a renewed enthusiasm (and with contacts for taxonomy experts who were happy to help me identify the assortment of specimens I have collected as part of my research!).

Collecting rubble to bring to the surface for analysis.

A huge thank you to ECSA for the opportunity to present my first Ph.D. chapter and listen to so many innovative and inspiring presentations from other marine researchers.

IRG54 conference in Cairns, Australia - "Assessing changes in hardness of wood on a nanoscale to mimic levels experienced by the marine wood-boring crustacean, *Limnoria*"

Lucy Martin, University of Portsmouth, England

My name is Lucy Martin, and I am a final year PhD student at the University of Portsmouth, researching marine wood-boring invertebrates and wood protection in the marine environment. Some marine invertebrates, including Teredinid bivalves (shipworms) and isopod crustaceans, *Limnoria* (gribbles), are capable of processing wood and play a role in carbon cycling, allowing carbon derived from trees to transfer into the marine food-web. Enzymatic breakdown of the complex lignocellulose is rare in nature though these animals, with enzymes secreted from symbiotic bacteria and with their own endogenous enzymes, are able to do so. It is also important to study and understand marine wood-borer digestion in order to inform novel methods of wood protection, as the damage they cause to wooden coastal structures (like piers, wharves and groynes) costs millions of pounds every year.

Chemical wood modifications are able to use bio-based compounds such as citric acid, furfural alcohol or sorbitol (derived from citrus fruit, sugar cane/corn, and berries) can increase properties such as hardness and resistance against biological decay. This offers an alternative to treating wood with traditional broad-spectrum biocides (e.g. creosote or chromated copper arsenate), many of which are now banned or restricted and have an issue of leaching into surrounding water when used in marine applications. In addition, standardised testing of novel preservation methods and an understanding the mode of action of how these treatments reduce wood-borer attack is needed to inform industry so they can adjust their modification processes to obtain the best results.

In June 2023, I attended the International Research Group on Wood Protection's 54th (IRG54) Annual conference in Cairns, Australia. It was an incredible opportunity not only to network with new colleagues and meet old friends, but also to visit tropical Queensland and the Great Barrier Reef. This was made possible through the travel grant received from the Charles Boyden fund from ECSA, along with other society grants.

At IRG54, I presented my PhD research on using a non-biocidal chemical modification, called furfurylation, to protect wood against biodegradation by marine borers. My presentation was titled "Assessing changes in hardness of wood on a nanoscale to mimic levels experienced by the marine wood-boring crustacean, *Limnoria*". Mostly, chemical modifications disrupt the enzymatic breakdown of lignocellulose during digestion, but I was also interested to find out if there were any co-occurring affects from the changes in mechanical properties that could also be reducing *Limnoria* attack. Later in the conference, I also gave a 3-minute poster pitch and presented my poster "Reducing successful shipworm larval settlement on wood that has been modified using furfurylation" which won the Rick Ziobro Award along with a prize of A$1000. This research group is a society comprised of international experts bringing together industry, academia and research on all aspects of wood protection, with the sessions ranging from topics like fire retardancy to durability in the marine environment.

An example of some wood pilings found in Cairns marina that are subject to attack by marine wood boring invertebrates.

The Potential Effects of *Arcuatula senhousia* in the United Kingdom

Kate Dey, Portsmouth University, England

I am a final year PhD student at the Univ. of Portsmouth studying the non-native Asian date mussel (*Arcuatula senhousia*).

Before my PhD, I did an MSc in Conservation and Biodiversity at the University of Exeter and studied the impacts of the non-native Pacific oyster (*Crassostrea gigas*) on biodiversity in Cornwall. I'm particularly interested in bivalve ecology and the risk and impact assessment of invasive non-native species.

The focus of my PhD project is to understand the potential ecological and economic impacts of *A.senhousia* in the UK. Of all the non-native species introduced to the UK, only a small percentage are problematic (i.e., invasive), however *A.senhousia s* introduction is concerning due to it being reported as invasive in other parts of its introduced range.

The earliest record of the *A.senhousia* in the UK is from 2011, but it was not until 2017 that its presence in the UK was recorded in scientific literature, so very little research and monitoring of this species has been carried out so far. In the UK, *A.senhousia* has not been recorded outside of the Solent region, and most records are of relatively low densities of 1-2 per m^2, so current impacts may be minimal. However, *A.senhousia*'s environmental tolerances are broad and non-native species can adapt to the conditions in their introduced range. To help us understand the potential risks *A.senhousia* poses, I have assessed its population dynamics and reproductive cycle in the Solent, its current and future habitat suitability across the globe, and ultimately its potential impact on ecosystem goods and services

The research I presented at the ECSA meeting was focused on determining the likelihood of *A.senhousia* competing for food with other filter-feeding bivalves in the UK, and by proxy, its potential impact on the ecosystem services that

Figure 2. Arcuatula senhousia extracted from sediment, attached to *Cerastoderma edule* via byssal threads. © Kate Dey 2020

bivalves provide. To determine this, I compared the feeding rate of *A.senhousia* to those of filter-feeding bivalves it occurs with, which were the flat oyster (*Ostrea edulis*), Pacific oyster (*Crassostrea gigas*), Manila clam (*Ruditapes philippinarum*) blue mussel (*Mytilus edulis*) and the common cockle (*Cerastoderma edule*). Feeding rate was assessed using the indirect clearance rate (CR) method i.e. by determining the volume of water cleared of food particles per hour. When standardised per gram (g) of tissue, we found that *A.senhousia s* CR was 2-26 times higher than that of all other species apart from *C.edule*, which did not have a significantly different CR. When CR per g was scaled up to CR per m^2, considering current mean densities of each species on the south coast of the UK, *A.senhousia s* clearance rate was lower than that of all species apart from *O.edulis*. However, if A.senhousia's densities reach >1,000 per m^2 in the future (as reported in other parts of its introduced range) its CR would be much higher than that of all other species. This suggests that A.senhousia could compete for food with these other bivalves in the future if densities increase.

With support from ECSA I was able to attend the ECSA focus meeting for Kent, Sussex and Hampshire on 17-19th April 2023 to share my findings with ECSA members by giving an oral presentation. This allowed me to raise awareness of this potential invasive species in the UK, but also learn from others about how my research feeds into the wider context of estuarine and coastal sciences. More specifically, my research generated interesting discussion surrounding how *A.senhousia* could impact ecological restoration efforts and aquaculture, and how we could mitigate the risks it poses.

Report on grant to present at ECSA Focus meeting in Portsmouth April 2023.

The Effectiveness of Managed Realignment as a Coastal Flood Defence

Kai Rahman, University of Brighton, England

Studying for my BEng and MSc in Civil Engineering broadened my knowledge of diverse disciplines, including geotechnical engineering, bridge design, and construction methods. However, the hydrological aspects were most impactful due to their direct relevance to the pressing environmental concerns from climate change. The practical significance of this field, both at the local and global level, piqued my interest and inspired me to delve deeper through further research. Consequently, I started my PhD in Civil Engineering in February 2023, specifically focusing on managed realignment (MR).

MR is a nature-based adaptation strategy for low-lying coastal areas which involves realigning coastlines inland, creating new intertidal areas that have the potential to buffer against storm surges. However, the extent to which wave energy and high water levels are reduced by MR is not well established. I will combine multispectral and RGB drone surveys of active sites with ground-truth wave and vegetation data to generate a predictive wave attenuation map for the entire saltmarsh. Additionally, I will analyse the impact of channel morphology and site topography on high water levels, and assess the spatial and temporal development of these influences to predict the change in flood risk over time. Ultimately, the aim of my research is to develop a framework for assessing the suitability of potential realignment sites for flood defence purposes.

With the support from ECSA, attending this meeting during the early stages of my research provided me with the valuable opportunity to develop a deeper understanding of the functioning and nature of the coastal systems located in Sussex and Hampshire, which are the areas where my study sites are situated. Attending the meeting also enabled me to network with established academics, industry practitioners, and other early career researchers working in these systems, developing contacts and connections that will help me for the duration of my research and future career. As part of the meeting there were talks from specialists within my field, helping me to improve my understanding of these coastlines and enhancing my knowledge of the methods used to study managed realignment sites and coastal wetlands more widely.

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

Hannah Lee, Heriot-Watt University. Scotland

As a final year PhD student at Heriot-Watt university, I received a Charles Boyden Award to support ongoing work towards a better understanding on the European flat oyster (*Ostrea edulis*) carbon budget. My 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 my PhD I have 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. I'm 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).

To date, I have published one PhD chapter (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. Further work, supported by the award, looks to provide further insight towards considering the overall carbon budget of the European native oyster. My 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 or 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_ZLLee 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.

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). (photo credit: Daniel Graves)

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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.

Zu Ermgassen, P.S., Thurstan, R.H., Corrales, J., Alleway, H., Carranza, A., Dankers, N., DeAngelis, B., Hancock, B., Kent, F., McLeod, I. and Pogoda, B. (2020). 'The benefits of bivalve reef restoration: A global synthesis of underrepresented species'. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 30(11), pp.2050-2065.

Zu Ermgassen, P.S.E., Bos, O., Debney, A., Gamble, C., Glover, A., Pogoda, B., Pouvreau, S., Sanderson, W., Smyth, D. and Preston, J. (eds) (2021). 'European Native Oyster Habitat Restoration Monitoring Handbook'. The Zoological Society of London, UK., London, UK

Understanding cumulative impacts to marine mammals

Emily Hague, Heriot-Watt University, Scotland

I am Emily Hague, a PhD researcher based at Heriot-Watt University, primarily supervised by Dr Lauren McWhinnie. My research focuses on better understanding cumulative impacts to marine mammals, with a focus on UK seas, and I have a special research interest in the impacts of vessels (check out the project I lead: The Scottish Vessel Project).

In February 2023, with help from the Charles Boyden Small Grants Scheme, I travelled almost 5000 miles from Scotland over to Vancouver Canada, to attend the Fifth International Marine Protected Areas Congress (IMPAC5), a global forum that brought together ocean conservation professionals and high-level officials to inform, inspire and act on marine protected areas. During the 6-day congress, I was inspired by a variety of incredible keynote speakers, including talks from marine biologists, photographers, videographers, academics and representatives of the indigenous First Nation communities. I also really enjoyed attending the variety of sessions scheduled each day, which included talks and workshops focusing on various themes and topics important to collectively working together to improve ocean protection. Throughout the conference, I took full advantage of the networking opportunities that arose from having 3000 ocean professionals within the same space – and met and connected with many scientists, practitioners and interested parties from a variety of backgrounds and disciplines, who are all working tirelessly towards a common goal of improved ocean protection. During the 'Managing Marine Protected Areas and Human Activity' session, I was delighted to have the opportunity to present some of my own PhD research relevant to the congress topic, and presented a talk titled 'Same species, same space, different practice: reviewing the non-uniformity in assessment of cumulative impacts to marine mammals'. I received great feedback and questions following my talk and am really pleased to have been able to present my UK-based

research to an international platform. If you're interested in this work, you can check out the published paper in Frontiers in Marine Science here https://doi.org/10.3389/fmars.2022.822467

Following the conference, I then remained in British Columbia (BC) for a further three weeks, to fully utilise the opportunity of being able to meet in-person with like-minded marine researchers based in BC who are working on similar and complementary topics to my own PhD research. I travelled around Vancouver itself to meet with representatives from Ocean Wise, the Port of Vancouver, and SMRU Consulting North America, and then spent the remaining time on Vancouver Island attending preorganised meetings with over 20 researchers across a variety of organisations, including the University of Victoria (UVic), Transport Canada, Ocean Wise, the Department of Fisheries and Oceans, Marine Education Research Society, the Institute of Ocean Sciences, Simon Fraser University and Environment and Climate Change Canada. Alongside some really productive one-on-one meetings where we discussed common research interests and identified future collaborative opportunities, I also gave further talks on my research, providing a 1-hr seminar on my research as part of the Institute of Ocean Sciences seminar series, and also gave a 30-min talk on my current studies to a research lab at UVic. Meeting with such a multitude of organisations and researchers allowed me to simultaneously expand my network of research contacts whilst also introducing them to my own research interests. This allowed for rich discussions on the potential for building future UK-Canada collaborations, and will be invaluable to my career progression post-PhD. I have now returned to my studies in Scotland feeling reinvigorated, and excited and energised to proceed with developing a strong Fellowship application founded on the ideas

and new collaborations developed during my time at IMPAC5 and whilst travelling around BC.

Checking out the Digital Orca, by Douglas Coupland, which is situated right outside the Vancouver Convention Centre.

Presenting my talk 'Same species, same space, different practice: reviewing the non-uniformity in assessment of cumulative impacts to marine mammals' at the IMPAC5 congress.

Seagrass resilience to grazing
Caitlyn O'Dea – Centre for Marine Ecosystems Research, Edith Cowan University

I'm a marine ecologist and environmental scientist working towards understanding the resilience of seagrass ecosystems. I have recently completed my Masters thesis where I studied the recovery of seagrasses from grazing. I also work for the state government in Western Australia, where we focus on monitoring seagrasses as an indicator for estuary health. This forms part of a coordinated effort in estuaries and their catchments to protect the values that depend on healthy estuaries: thriving ecosystems, liveable communities, and economic development. Check out Healthy Estuaries WA for more information.

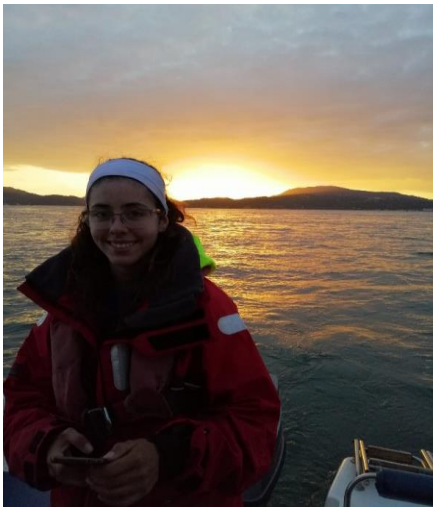
My project was "Plant-herbivore interactions in a changing climate and implications for seagrass resilience"
Herbivore distributions and abundance are already shifting because of climate change, leading to intensified grazing pressure on foundation species such as seagrasses. Other observations include rapidly increasing magnitudes of change in estuary ecosystems, which is also affecting seagrass resilience. While the resilience of seagrasses is well-studied, the timeframes of recovery has received comparatively little attention, particularly in temperate estuaries.

The black swan is iconic to Western Australia and is one of the most prolific grazers of seagrass in temperate estuaries in Australia and New Zealand. In a field experiment that excluded swans from the study area, this project has experimentally investigated the impact of increased magnitude of simulated black swan grazing on the recovery of colonising species of seagrasses; *Halophila ovalis* (or paddleweed) and *Ruppia megacarpa* (or widgeon grass). Increased grazing intensity not only led to longer recovery times, but also greater variability in the recovery time among experiment locations.

This research aims to provide valuable insight into the recovery time of seagrasses. If recovery is going to occur, then it can be useful to know how long before the meadows, along with the ecological and socioeconomic services, will return. This will inform seagrass ecosystem management and facilitate realistic management timelines. My thesis was recently completed, and I will be graduating in September 2023. One of the chapters is published in Frontiers in Plant Science: 10.3389/fpls.2022.947109.
The funding received from ECSA contributed towards attending the Aquatic Sciences Meeting 2023 held by the Association for the Sciences of Limnology and Oceanography (ASLO). I was one of over 2,000 delegates to travel to Palma de Mallorca in Spain in June 2023. The theme of the conference was resilience and recovery in aquatic systems and I presented a poster sharing the story of recovery from my recently published article on seagrass resilience to grazing. Attending an international conference for the first time is an important milestone in the research journey and it was fantastic opportunity as a Masters student. I attended the conference as I was nearing completion of my studies and took the opportunity to explore the possibilities of a PhD in the future. The conference was a great platform to meet with some of the best minds in aquatic sciences and I felt warmly welcomed by the student sessions and events.

The Sado Estuary (Portugal) in the context of climate change

Beatriz Biguino, University of Lisbon



I am a Portuguese PhD student in Lisbon University. I started my PhD in 2021 with a project entitled "*Climate change in the Western Iberian Coast: from the sea to estuaries*", that is funded by FCT under the MIT Portugal Program. The main aim of my PhD is to assess if the water properties of the estuaries of the Western Iberian Coast (WIC) have been changing due to climate change in comparison with the adjacent coastal ocean and propose a set of measures to help manage possible effects of climate change in the region.

Currently, I am working on the Sado Estuary in Portugal, a system that, to our knowledge, has never been studied regarding long-term changes in the water column and the influence of climate change on its properties. This a relevant knowledge gap, as this estuary is a natural reserve area that encompasses a big population center, highly dependent on the estuary ecosystem services and where is also settled one of the most important Portuguese ports. The main aim of this research is therefore to answer the question: Have the physicochemical and biological properties of the Sado Estuary changed over the past four decades?

The results obtained so far prove the importance of having regional analysis to enhance a knowledgeable climate change mitigation, as they contrast with the warming patterns typically associated with climate change, and that is of international interest. In fact, it seems that the system is moving away from scenarios of increased warming, eutrophication or increased nutrient retention, as the water temperature, chlorophyll *a* and nutrient concentrations have been decreasing in the estuary for the past four decades. The combined effect of a decrease in river flow and a possible intensification of upwelling events in the region in recent decades could in part justify these results. However, further studies are needed to conclude on this topic. This study will be a valuable asset to support regional adaptation plans and the elaboration of climate change mitigation measures. Ultimately, it will contribute to the well-being and resilience of the local populations and the proper functioning of their commercial and ludic activities.

eceiving the ECSA gtant was an extremely important contribution towards being able to present the results of this study at the ASLO Aquatic Sciences Meeting 2023, in Palma de Mallorca. It was the first time that I orally presented the results of my work at an international conference, and it was the perfect opportunity to participate in novel discussions on emerging topics, namely in the field of estuarine resilience and adaptation to climate change, and their latest scientific developments, within a panel of renowned scientists, which helped my scientific career

Coastal vegetation response to sea level decrease caused by coastal uplift in North Andaman Islands, India

Anoop Raj Singh, Gurukula Kangri University

I am Anoop Raj Singh, a final year PhD candidate at Gurukula Kangri University, India, in partnership with Wildlife Institute of India, India. My overarching research goal is to study the impact of disturbances — both natural and man-made — on the coastal vegetation and vegetation responses to such disturbances. My broad PhD objective is to understand the long-term impacts of the coastal uplift caused by the 2004 Sumatra-Andaman earthquake on the mangroves of the Andaman Islands. The earthquake of 9.3 M_w resulted in coastal uplift (up to 1.4 m) and subsidence (up to 3 m) that permanently altered the tidal regime of the island. The altered tidal regime led to severe degradation (70-100%) of mangrove forest across the island. However, the subsidence and uplift has created a new intertidal area, which is spatially located towards the seaward zone in the uplifted sites, and landwards zone in the subsided sites. The new intertidal areas are extensively colonized by mangrove forests. Also, Andaman has many marginalized families who reside in the vicinity of mangrove forests for direct and indirect sources of income and livelihood in the form of woods, logs, fish, crabs, shrimps, etc. But, due to the severe degradation of mangroves, it may offer reduced ecosystem services across the island. Therefore, another PhD objective is to document and quantify the change in ecosystem services offered by mangrove pre and post uplift events. Along with adaptive steps/measures taken by the residents to cope with this adversity.

The 59th annual meeting of the Association for Tropical Biology and Conservation (ATBC) held between 2–6 July 2023 in Coimbatore, India was a fitting gathering where my research objectives perfectly align with the conference theme “Balancing Science, Conservation, and Society”. I gave a talk on the “Coastal vegetation response to sea level decrease caused by coastal uplift in North Andaman Islands, India”, and fulfilled PhD mandatory criteria to attend an international conference. The talk was exclusively focused on the recovery and colonization of coastal vegetation on the uplift site at three novel habitat categories: (i) new mangrove forest – the sub-tidal zone (i.e. coral reef beds and sea floor) that was permanently exposed out of water and become inter-tidal, (ii) new terrestrial forest – the inter-tidal mangrove zone that was degraded due to the retreat of tidal line and become suitable for colonization by terrestrial plants; and, (iii) old mangrove forest - mangrove forest that undergone change in tidal regime but remained as mangrove forest (Figure 1). The talk was well received by renowned professionals and early career tropical researchers, while few of them provided critical and constructive comments to further strengthen my research. Additionally, the gathering exposed me to contemporary research, new field techniques, and tools applied in ongoing tropical research. It has allowed me to interact with researchers and collaborate, especially with social scientists to gain their insights, and experiences to be implied on my PhD social science study. I firmly believe that the financial support from The Charles Boyden Fund (ECSA) to participate in ATBC will be a stepping-stone in my research career.

I thank you for your support.

Figure 1: Spatial representation of coastal vegetation where three distinct habitats were formed due to coastal uplift in North Andaman Island.

ECSA's History and Photographs

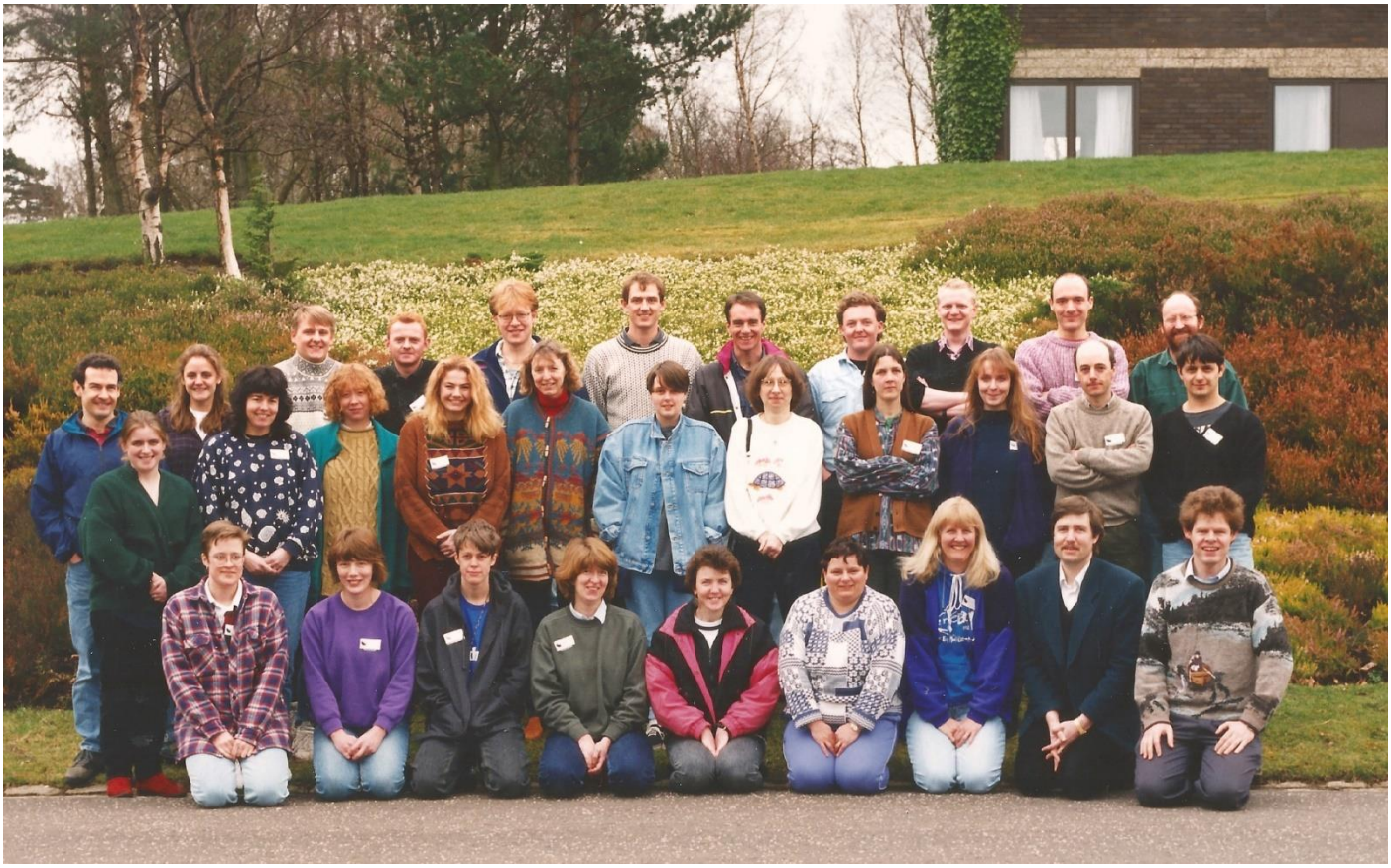
An ECSA Archive is being formed as a permanent record of the Association's history. This has lots of formal material such as council and AGM minutes, correspondence, past issues of the Bulletin, account books and the like. What we are extremely short of are personal records such as photographs taken during events, such as workshops and conferences, and also circulars advertising our many past events.

Have a look at the three examples of group photos given on these two pages. We really would like to get copies of photographs taken at our past conferences and workshops and, particularly on field trips and outings associated with these. Group photos like these are good, but also photos of people actually sampling or working on shores or in boats at ECSA events. Don't forget the social side. There may be dinners, pub visits, barbecues or picnics at workshops or conferences.

If you have any such material that you would be happy to donate to ECSA, or to have scanned, please contact the ECSA Treasurer, Martin Wilkinson, at m.wilkinson@hw.ac.uk

ECSA Seaweed Workshop - Heriot-Watt University, Edinburgh - March 2007
Participants on field visit to Skateraw, East Lothian, (Torness nuclear power station in right background) where pairs of participants compared their expertise at carrying out WFD seaweed surveys after a few days introduction at the workshop

An EBSA (predecessor of ECSA) scientific meeting 40+ years ago. How young the participants look. Some of them are still helping ECSA though they are now retired. Fourth from left on the front row is Richard Barnes, one of our founders, who is also shown in this Bulletin on the photo of ECSA59 delegates. Does anyone know where this was taken?



Participants at ECSA Mollusc workshop at Heriot-Watt University, Edinburgh, March 1994