

## Wales Ecology and Evolution Network (WEEN)

### A conference for postgraduates part funded by the FSBI



The Welsh Evolutionary Ecology Network (WEEN) is a conference set up for students, mainly belonging to the four biggest Welsh universities, and at various levels within their postgraduate studies, to come together and present their current research plans and scientific findings. 2017 saw one of the largest intakes of attendees, with 50 delegates arriving at the Centre for Alternative Technology (CAT) in Powys, Wales on the

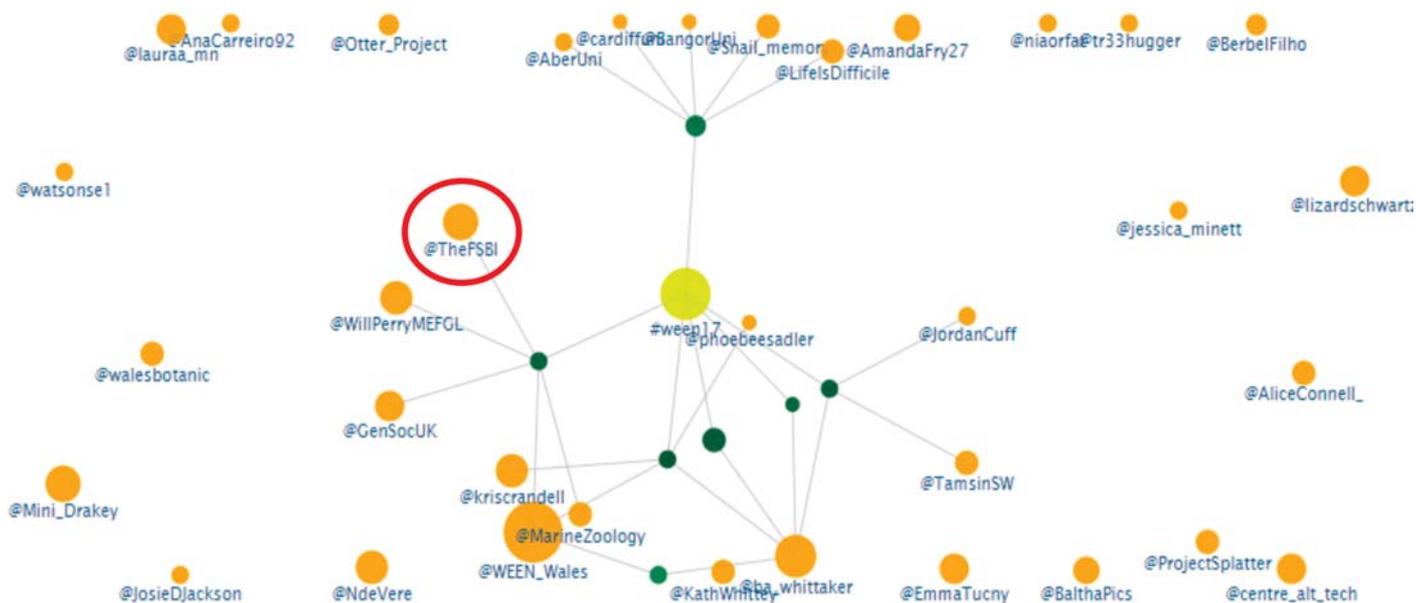
first weekend of November. The sessions included in this year's program were on the topics of 'Genetics and Evolution', 'Form and Function', 'Conservation' and thanks to the funding supplied by the FSBI, 'Fisheries Science'.

Although focused on Welsh research taking place in the universities of Aberystwyth, Bangor, Cardiff and Swansea, the reach of the conference extended well beyond these circles. The

greatest tool in promoting the reach of the research on display at the conference was Twitter. We were able to visualise the networks generated during the conference between delegates, institutions and wider world, the outcome of which highlighted the FSBI's central role in the conference (see the network diagram below).

As we enter a time of uncertainty regarding scientific funding due to Brexit, as well





◀ as the uncertainties caused by university level political change, funding from charitable scientific organisations is becoming increasingly vital; even in undertaking some of the most basic research driven tasks, such as conferences where early career researchers can come together and talk about their science. It is for this reason that the WEEN committee would like to sincerely thank the FSBI for making this event, and many others like it, possible. The FSBI's support for early career scientists is certainly not limited to this event, however. The plethora of opportunities in the form of bursaries, internships and grants show the society's efforts to support people starting in scientific research, of which I know many of our delegates have already benefited from. It is these efforts that we would also like to thank the FSBI for, in conjunction with the support given to our meeting, and the hope that the society, after recently celebrating its 50th anniversary, will be around to support researchers in another 50 years' time.

### Some highlights

Delegates arrived at the Centre for Alternative Technology on Friday evening, taking the water-powered funicular to the main site. It was here that the conference

took place, with talks being held in the Wales Institute for Sustainable Education (WISE) building (see first picture); this part of the site was developed in 2010 and provided an open light environment for the focal point of the conference – not to mention boasting the largest earth constructed wall in Europe. William Perry opened the conference, thanking the delegates for their attendance, as well as thanking the FSBI, and other sponsors. After a brief introduction to CAT and on its sustainable ethics, a biology themed quiz took place in the bar, providing delegates with an opportunity to network with researchers from each of the participating universities.

Saturday began with a vegetarian breakfast, a theme carried on throughout all meals. This was followed by the seminar on Genetics and Evolution which started proceedings. In the afternoon delegates enjoyed a Bioblitz, in which they went out into the wet Welsh countryside surrounding CAT documenting any wildlife they came across. Saturday finished with a series of speed talks and a poster session. Many of the presentations were fisheries based, with a strong aquaculture theme.

Sunday's session began with conservation on a wide range of

species. After lunch FSBI member Ben Whittaker gave a talk on the imposter syndrome in academia, and the importance of valuing your research throughout your PhD, and not becoming demoralised after inevitable setbacks. The 'Fisheries Science' session, sponsored by the FSBI, closed the conference and demonstrated the broad range of techniques researchers are using to monitor fisheries, and the wider marine environment. Talks varied from the use of genetic tools in understanding microbial diversity within Atlantic salmon guts and epigenetic regulation in inbred fish species, to 3D modelling of coral reefs and the role of fish research in informing policy.

The quality of talks given at the meeting was at an exceptionally high standard, showcasing both the talent and innovative research going on in Wales. This was especially true of the Fisheries Science session, in which the best oral presentation of the conference was awarded to PhD student Waldir Filho, an active FSBI member, for his talk on epigenetic variation in the mangrove killifish (*Kryptolebias hermaphrodites* see picture). The award for the best poster presentation went to PhD student Josie Jackson from Cardiff University. Overall, fish and fisheries related presentations made up 25% of the conference ▶

◀ program, and was a hotbed for discussion and future collaboration.

Following the talks, delegates had their final lunch at the CAT, and Dr Thomas Brekke, a postgraduate researcher from Bangor University, made the closing remarks. A full summary of the conference via



delegate and committee tweets, including many photographs, is available at this link: <https://storify.com/JordanCuff/ween17>



## Editorial

The Council meeting held at the Institute of Mechanical Engineers on 13th December 2017 was well attended. At the AGM in Exeter the membership voted to support Council's proposal to change the rules so that the number of Council members could be increased. This is necessary to spread the increasing workload and to make sure that individual Council members are not burdened to the degree that they are minded to resign. As mentioned elsewhere there will be four vacancies to be filled at the AGM in July so if any member would like to contribute to the work of the Society, then please get in touch with the Secretary, Ian Winfield. The picture here shows some Council members listening to Iain Barber talking about Sidney Holt.

Working for the Society is not onerous. There are two Council meetings a year and the rest of the work is done by email. Having said that it was agreed at the December meeting that in future

Council would meet the day before the formal meeting to give time for more strategic discussion. At present the mornings are taken up with reports whilst the afternoon is devoted to discussion of new ideas. This time is often insufficient, so needs to be moved to it's own time.

The Exeter conference was an excellent event and was a wonderful celebration of the Society's history and present activities. One issue arose from the meeting and that relates to how the University of Exeter's publicity machine put the University above the Society in all outputs both in Exeter and in the press releases. At the Council meeting it was agreed that in future all conference organisers



would be urged to make sure that the Society, as principal sponsor, should always come first in any publicity material.

**Paul Hart**  
February 2018

**Next deadline: 1st May 2018**

# Presentations



If possible, medals are presented to recipients at the summer symposium. In Exeter, only a representative of Fishbase, Rainer Froese, was able to attend to receive the LeCren Medal. Sidney Holt (Beverton Medal) and Nick Graham (FSBI Medal) could not be in Exeter. As a result it was the intention that Sidney Holt would be presented with his medal in London at the December Council meeting, but unfortunately he was ill so he sent two sons, Tim and Graham, instead. Iain Barber made a short presentation speech and then presented the medal to the brothers.

Similarly, Ian Winfield presented the FSBI Medal to Nick Graham at a private ceremony in Lancaster. It is not so surprising that either medal recipient could make the Exeter meeting, but for rather different reasons. Sidney Holt is in his 90s so moving about is no longer so easy, and Nick Graham must be so busy (given his CV) that he must be very short of time.

On another note the Society is sad to see John Craig ending his long tenure as Chief Editor's

of the Journal of Fish Biology. The Council meeting in December, held at the Institute of Mechanical Engineers, situated a few hundred metres from 10 Downing Street, was John's last as Editor. Iain Barber thanked John for his hugely significant contribution which has seen the Journal go from strength to strength. During his tenure his wife Hilary, as mentioned in the last Newsletter, has assisted John and she will be continuing

as Managing Editor under the new Chief Editor Tony Farrell. John was presented with two paintings of perch, the species he is most associated with, having worked on them during his time at the Freshwater Biological Association on Windermere. The Society wishes John the best for his retirement although he will still be very much in touch given that Hilary is still working on the Journal.



# Ecology of Salmonids in Estuaries around the World

By C. D. Levings. 371 pp. Published UBC Press, Vancouver, Canada, 2016.

Price £71.00. ISBN: 978-0-7748-3173-4

This book fills a significant gap in the salmonid scientific literature. It is both an informed, thoughtful start at synthesising a general model of the role that estuaries play in salmonid ecology and a compendium of information on the subject. Estuaries present a problem for salmonid ecologists because as habitats they are hard to characterise and, due to transient occupancy by the fish and their physical nature, they are difficult places to sample. They are the transitional zone between freshwater and saltwater, where migrating juveniles and adults make major adaptations to their physiology, behaviour, feeding and morphology. These adaptations vary with species which display a wide range of estuarine dependency and are further modified by the varied dynamic structural, hydrographical, productivity and physico-chemical gradients in estuarine habitats. All anadromous species are dependent upon estuaries to some degree for some part of their life cycles. From Atlantic salmon (*Salmo salar*) smolts, exiting a small coastal stream by traversing a narrow pebble foreshore in a matter of minutes, to Chinook salmon (*Oncorhynchus tshawytscha*) spending months of their early juvenile phase in a British Columbian estuary to the brown trout (*Salmo trutta*) dipping in and out of Scottish sea lochs or Norwegian fjords, the importance of the estuarine zone will vary enormously.

Such contextual diversity makes it difficult to develop a unifying conceptual framework. Indeed on one is left initially with impression that there may not be one or, if there is, it is too broad to be useful. However Dr Levings introduces structure by a three way 'ecological triangle' of physiological adaptation (osmoregulation), growth and habitat (including biotic interactions); and this works well

to bring some order to the dynamic, functional complexity of estuaries. This model leads to a focus on the fitness implications of estuary living, which is a running theme through the book. A life history approach is a good way to integrate pressures on animals because its outcomes are expressed through evolutionary biology and population dynamics and thus provides much of the information needed for practical management and conservation.

The book refers to 196 named estuaries worldwide and covers the genera *Hucho* (1 sp.), *Oncorhynchus* (9 spp.), *Salmo* (2 spp.) and *Salvelinus* (6 spp.). It has 254 main text pages, 19 chapters, 30 figures, including some black and white photographs (colour versions available online) and 8 tables. There is a glossary, a comprehensive reference list of about 1,100 entries (up to 2015) and 5 Appendices in an on-line archive of supplementary material. Chapters 1 to 3 explain the book's aims and outline the structure, physical, hydrographical and ecological features of estuaries and their habitats occupied by salmonids. Chapters 5 and 6 consider the global variation in salmonid abundance in estuaries around the world, including the informative cases of recent introductions to southern hemisphere rivers, and how they are sampled. Chapters 7 to 11 discuss respectively salmonid behaviours, growth, smolting and osmoregulation, food webs and biotic interactions. The remaining chapters work through the multitude of environmental and biological pressures facing salmonids in estuaries and develop management and monitoring recommendations in an adaptive management framework. The chapters mostly work well, limited to varying degrees by the information and data available, which turn out to be often sparse; but the gaps are

clearly identified. The dominant recommendation is for management based on an ecosystem approach that is so evidently necessary in this zone of multiple, cumulative effects, conflicting stakeholder interests and regulating agencies.

The author has worked mainly on Pacific salmonids and this is reflected in the balance and depth of species coverage. The Atlantic salmon and anadromous brown trout are less comprehensively covered and there are some literature omissions and minor inaccuracies for these species. The style is discursive and reflective; but that feels appropriate in a book that is expressly aimed both at the professional and citizen scientist. There are some residual editorial matters including some inconsistencies in the referencing style, some repetition and some minor typographical errors, but nothing that detracts from the book's aim.

Before this book, salmonid ecologists faced with problems in estuaries have had to go to separate sources on the processes in freshwater, marine or estuarine environments and extract information relevant to their situation and species. This book offers an integrated primer on these subjects set in the salmonid context and is a valuable source, although some detail will need to be sought elsewhere. Dr Levings should be congratulated for taking on this daunting task and bringing to a wider readership an important topic that has been underrepresented in the literature. His book provides an innovative and useful reference for postgraduate students, researchers, conservationists, environmental managers and anyone concerned with salmonids in estuaries.

Nigel Milner  
APEM Ltd, Bangor University,  
Bangor, U.K.

# Travel grant reports



**Isla Keesje Davidson, a Masters by Research student at Exeter University, working on**

**alarm calling behaviour in coral reef fish, used a travel grant to attend and present at the Indo-Pacific Fish Conference in Tahiti, French Polynesia, September 2017.**

At the conference I presented my current Masters research on alarm calling behaviour in the clownfish



*Amphiprion chrysopterus*. The conference was held on, the neighbouring island to where I conducted my fieldwork. I was delighted to return to see the same ocean and some familiar faces amongst the many new ones that made it one of the largest gatherings of fish biologists of the year! The conference hosted talks in sessions covering conservation physiology, the roles of fishes on coral reefs and the acoustic ecology of Indo-Pacific fishes. I particularly enjoyed a talk by John Montgomery on the sense of self in sharks and the presentation by Sophie Nedelec on the impact of motorboat noise on cheating in inter-specific interactions.

The conference created a fascinating hub of people and ideas, and as a result of some of the interesting discussions, I had the opportunity to go on to work

as a field assistant at the Lizard Island Research Centre in Australia for 3 months. This is a few ocean waves down the latitudinal gradient, and I worked there on exploring fish larval recruitment in response to reef soundscapes and fish reproduction, survivorship and parental care in response to boat noise. Those three months have also allowed me to explore ideas with different researchers and conduct some pilot studies for potential PhD projects.

I am hugely grateful for the support of the FSBI as this has

enabled me to actively take part in the broader scientific community, learn from new connections, exchange ideas and simply enjoy science and discovery!



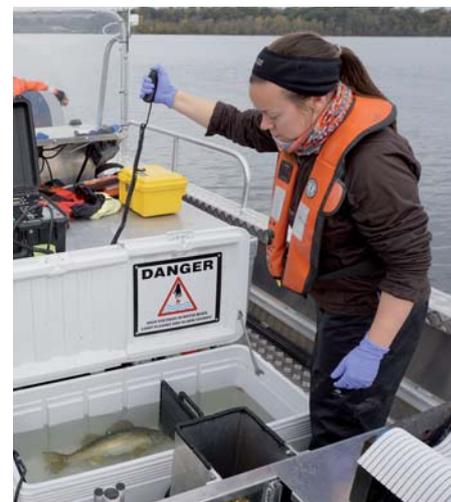
**Jill Brooks from Steve Cooke's lab at Carlton University, Canada, used a travel grant to attend the International**

**Fish Telemetry (ICFT), in Cairns Australia in June 2017.**

Jill reports that she is currently researching the movement ecology of several species of fish in one of the most polluted and degraded freshwater habitats in the Great Lakes. There have been decades of rehabilitation efforts by Canadian governments and organizations and we are now using tracking technology to monitor the success of these efforts on the fish and wildlife populations. Hypoxia is an issue affecting many aquatic ecosystems around the globe and

the unique shape and size of my study site allows me to study how dynamic, hypoxic conditions are influencing wild fish movements. I was fortunate to have the opportunity to present some of my MSc thesis research and my proposed PhD thesis ideas to an audience of the most-qualified fish spatial ecologists in the world. This conference provided me with a chance to 'pitch' my thesis ideas to a room full of experts, my first unofficial committee meeting! This was an invaluable opportunity for me at this early stage of my PhD and I have already incorporated suggestions into my methodology.

In addition to the multiple talks I enjoyed and the new technologies and analyses I learned about, this conference provided me with the opportunity to network and discuss research ideas with scientists from the marine realm (and fuelled my hobby side-projects). This has resulted in a new and recently-funded tracking project with collaborators from Chicago and Florida. We will be tagging and tracking recreationally caught great hammerheads from Florida coastlines to determine the post-release behaviours and survival rates. There have been several instances of dead sharks washing up on beaches and this survival data is severely lacking in fisheries management.



# Notices

## Membership of Council

Members are reminded that they can nominate either themselves or other members for Council. There will be four vacancies at the next AGM in Norwich, so please get nominating. Duties are not onerous. As a Council Member you will be attending two meetings a year in London, the AGM and you will be a member of a committee

dealing with either travel grants, research grants, PhD studentships or publications. The business of these is mostly done by email.

## The Society for Experimental Biology (SEB)

The Society will be holding a meeting from 3rd – 6th July 2018 in Florence Italy. The meeting will

be in the Firenze Fiera Congress and Exhibition Centre. There will be many different sessions on all aspects of plant and animal biology. See SEBIOLOGY.ORG and



SCAN FOR MORE INFORMATION



ICES  
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### Genomics in support of fisheries and aquaculture management

**ICES Training Courses:** Each year, the International Council for Exploration of the Sea (ICES), an intergovernmental organization that aims to enhance scientific knowledge of the marine environment and its living resources, offers training courses. For the first time, the 2018 ICES portfolio offers a 3-day course on the design and application of genomics in management and conservation of fisheries and aquaculture.

**Aim of course:** The training course will introduce participants to relevant evolutionary, quantitative ecology and population theory, the range of tools that can underpin management schemes of aquatic natural resources, and how such approaches complement other management approaches, together with a critical valuation of costs and benefits. Moreover it will illustrate how genomics can help to address existing management and policy needs through judicious consideration of insightful case studies from capture and aquaculture fisheries. Emphasis on the practical implication of technologies and theory will underpin course design and delivery.

**Who is the course for?** The course is designed to target a broad community, but primarily those who do not have genetics/genomics as their main line of work. We aim at people with a keen interest in genomics, but with little or no expertise in genomic theory or methodology, and with limited experience of how and when to apply such principles and tools to management issues. We target students, fisheries/aquaculture scientists, fisheries/aquaculture managers and stakeholders involved in fisheries and aquaculture management and policy decision-making.

**When and Where?** The course will take place in Northern Italy, at the Joint Research Centre, European Commission, Ispra, from 26-28<sup>th</sup> of June 2018.

**Course content and format:** the course will comprise a mix of informal seminars, discussion groups and hands on analysis and interpretation of data sets. Activities will be based on a series of topical policy-driven questions, encompassing a consideration of, but not restricted to, introductory concepts in fisheries and aquaculture genomics, a consideration of stock structure identification and dynamics, the genetics of farmed seafood to enhance aquaculture, population abundance estimates, integration of genomics with established quantitative fisheries science and modelling, traceability, genomics for monitoring control and enforcement, and an introduction to population genomic analysis. Strategies of for promoting integration of approaches, including the role of reference data bases, standardisation, maximising cost-effectiveness and accessibility to outputs, the deployment of devices in the field, and setting clear relevant targets, through illustrative case studies, will enhance understanding and relevance.

**Course instructors:** Gary Carvalho, Bangor University, UK; Jann Martinsohn, Joint Research Centre (JRC), European Commission; Ernesto Jardim, JRC, European Commission; Einar Eg Nielsen, DTU Aqua, Technical University of Denmark; Kerry Naish, School of Aquatic and Fishery Sciences, University of Washington, USA.

**Further details and fees:** <http://www.ices.dk/news-and-events/Training/Pages/genomics-in-support-of-fisheries-and-aquaculture-management.aspx>.



# Conference announcements

## Sustaining iconic diadromous fishes: The potential and pitfalls of cultivation

Arendal, Norway. 17-19 June, 2018

The IMPRESS network is pleased to announce an international conference devoted to the topic of fish cultivation for conservation and sustainable use of wild diadromous species. The conference will take place in the city of Arendal on the Southern coast of Norway.

Conference website: [www.nmbu.no/go/impress2018](http://www.nmbu.no/go/impress2018)  
Registration deadline:  
15 April, 2018



## UEA July 9th – 13th 2018. FSBI Symposium “The Sustainable Use and Exploitation of Fishes”



We welcome contributions for oral or poster presentations on the conference topic. Please take account of the symposium sub-themes when submitting your abstract. Potential contributors should submit abstracts for oral, poster presentation or 3 minute speed-talk by **1st March 2018** following the template shown below. The scientific steering committee will review all abstracts for relevance to the symposium and scientific merit before compiling the programme.

## Information Desk

For all membership enquires (except subscription payments), including grant application submissions, please contact the FSBI office at:

FSBI, c/o Charity & Social Enterprise Department, Brabners, Horton House, Exchange Flags, Liverpool L2 3YL, UK

Contact: Shirley Robinson

Phone: +44 (0) 151 600 3362

Email Enquiries: [grants@fsbi.org.uk](mailto:grants@fsbi.org.uk)

In the UK and Europe subscription enquiries should be addressed to:

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See <http://www.fsbi.org.uk/membership/joining-the-fsbi/> for further information.

Secretary: Dr Ian Winfield

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