



**Institute of Fisheries
Management**



**Environment
Agency**

First International Fish Impingement and Entrainment Conference

An IFM Specialist Conference

Adelphi Hotel, Liverpool

11th – 13th July 2023

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PROGRAMME

Tuesday 09:30 – 17:50

Opening Session		
09:30	Andy Don & Paul Coulson Environment Agency and IFM (UK)	Welcome from the conference conveners
09:40	Lord Lieutenant of Merseyside	Official conference opening and welcome to Liverpool
09:50	Andrew Turnpenny Independent Consultant (UK)	<i>The Peter Spillett Lecture</i> Landmarks in Fish Impingement and Entrainment: Where Has 50 Years Got us? A Personal View
10.30	Break	
Session 1. Fish Stock Assessments & Behaviour		
Session Chair: Andy Don, Environment Agency (UK)		
11:00	John Young ASA Analysis & Communications Inc (USA)	Fish entrainment at power plant intakes in the United States
11:20	Nicola Teague Apem Ltd (UK)	The fish entrapment assessment cycle for the power industry from monitoring to modelling
11:40	Josh Norman University of Hull (UK)	Understanding the temporal dynamics of a lowland river fish community at a hazardous intake and floodgate to inform safe operation
12:00	Jeroen Huisman Van Hall Larenstein Applied Sciences University/Wageningen University (Netherlands)	Eel migratory behaviour and pumping station management
12:20	Panel Q&A	
12:30	Lunch	

Session 2. Fish Friendly Pump & Turbine Research 1

Session Chair: Jenna Rackovan, Alden Research (USA)

13:30	Chris Bell Environment Agency (UK)	Four steps to fish-friendly? An environmental regulator's view of fish entrainment risk at pump and turbine infrastructure.
13:50	Bart van Esch Eindhoven University of Technology (Netherlands)	Assessment of fish damage in pumps and turbines – a new standard
14:10	Sterling Watson Natel Energy (USA)	Turbine design for eel passage: minimizing delay and damage
14:30	Gary Leatherbarrow Bedford Pumps (UK)	Developments in 'Fish Friendly' pump technology
14:50	Jon Bolland University of Hull (UK)	Research and development of fish and Eel entrainment mitigation at pumping stations (REDEEM)
15:10	Panel Q&A	
15:25	Break	

Session 3. Exclusion Screening Technology

Session Chair: Steve Coates, Ricardo (UK)

15:55	Chris Grzesiok Environment Agency (UK)	Environment Agency mobile pump fish screening field trials – results and findings
16:15	Jonathan Carroll Snowy Hydro (Australia)	Selection of appropriate screen aperture for fish exclusion - balancing environment and operations
16:35	Liam Carter Natural England (UK)	The influence of passive wedge-wire screen aperture and flow velocity on juvenile European eel exclusion, impingement and passage
16:55	John Burnett Intake Screens Inc (USA)	A regulatory trend toward fine slot size (<1.75-mm) wedge wire screen systems in the USA
17:15	Joachim Bretzel Charles Sturt University (Australia)	Performance of Australia's first brushed conical fish protection screen at a large irrigation pump diversion
17:35	Panel Q&A	
17:50	Close	

Networking Event

19:00 – 21:00 British Music Experience, Cunard Building

Open to all delegates

Join us for a drink and some nibbles at the [British Music Experience](#) housed in the Cunard Building on Liverpool's historic docklands.



During the evening we will also be showing the new **Britains Hidden Fishes** Film by Jack Perks.

Britain's Hidden Fishes is a crowd-funded one hour documentary exploring the underwater world of the UK.

From our chalkstreams to open sea the film looks at the lives of some of the most underrated wildlife, fish. Narrated by Jeremy Wade (River Monsters) this film was shot over the course of two years to bring stories, behaviours and footage never seen before of British fish.

Wednesday 8:45 – 18:00

Session 4. Fish Recovery and Return (FRR) Systems 1		
Session Chair: Radhika DeSilva, ASA Analysis & Communication (USA)		
08:45	Jonathan Black EPRI (USA)	Keynote 2 Addressing Impingement and Entrainment Issues. Experiences from the USA
09:15	Stephen Roast EDF (UK)	Consultation, design evolution and approval of the Fish Recovery and Return System for New Nuclear Build in the UK
09:35	John Young ASA Analysis & Communications Inc (USA)	Discredited assumptions of fish impingement behaviour and mortality related to fish recovery and return systems in the United States.
09:55	TBC	US EPA CWA rule 316(b) implementation at a US Nuclear Power Plant
10:15	Panel Q&A	
10:30	Break	
Session 5. Regulation and Mitigation Techniques at Industrial Intakes		
Session Chair: Craig Boys, NSW Department of Primary Industries (Australia)		
11:00	Allison Atterbury Natural England (UK)	What is a fish worth? Challenges from a policy and environmental conservation perspective
11:20	Ayesha Taylor Environment Agency (UK)	The Big Screen Experience – the regulator’s view of protecting European eels
11:40	Richard Searby Pisces Conservation (UK)	The impact of mesh size on numbers of fish impinged or entrained in power station cooling water systems.
12:00	Timothy Hogan TWB Environmental Research & Consulting, Inc (USA)	California seawater desalination intake requirements
12:20	Adam Waugh Natural England (UK)	Can direct cooling still be considered the Best Available Technology for large estuarine and coastal applications in the U.K.?
12:40	Jenna Rackovan Alden Research (USA)	Uncertainty in determining the site-specific feasibility of fine-mesh technologies to reduce entrainment
13:00	Panel Q&A	

13:20	Lunch
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Session 6. Fish Friendly Pump & Turbine Research 2

Session Chair: Ayesha Taylor, Environment Agency (UK)

14:20	Jeffrey Tuhtan Tallin University of Technology (Estonia)	How to compare passive sensor data with live fish outfitted with archival biologgers to assess the risk of injury and mortality
14:40	Peter Paul Schollema Regional Water Authority Hunze en Aa's (Netherlands)	Development of the NEN 8775, implementing internal "Fish-Friendliness" policy.
15:00	Oliver Evans University of Hull (UK)	Not just the pump; broader considerations for downstream migrating silver eels at a 'fish-friendly' pumping station
15:20	Martin van Nieuwenhuijzen ACE (UK)	Ensuring successful fish and eel passage through our land drainage pumping stations.
15:40	Panel Q&A	
15:55	Break	

Session 7. Avoidance Behaviours and Techniques at Damaging Intakes

Session Chair: Jeffrey Tuhtan, Tallin University of Technology (Estonia)

16:25	Guglielmo Sonnino Sorisio Cardiff University (UK)	Eel tile hydrodynamics: Mitigation at entraining Flows
16:45	Jonathan Black EPRI (USA)	Field investigation of American eel response to a light guidance array
17:05	David Lambert Fish Guidance Systems (UK)	The installation of a behaviour barrier for smolt migration, from initial design to final installation
17:25	Stuart Clough APEM (UK)	Invergarry Power Station: Optimising Salmon smolt escapement from the Garry Catchment – a win win win.
17:45	Panel Q&A	
18:00	Close	

Conference Dinner

19:30pm onwards, The Mersey Ferry

Must be booked in advance.

Join us for an evening afloat on the River Mersey. Guests will enjoy an evening meal and drinks whilst taking in the views of Liverpool and the Wirrals historic waterfront as the sun sets.



Thursday 9:00 – 15:45

Session 8. Evidence-Led Fish Protection		
Session Chair: Ian Wellby, IFM (UK)		
09:00	Craig Boys NSW Department of Primary Industries (Australia)	Keynote 3 Designing a safer future for native fish: The history, impact and future of innovative fish-protection screening in Australia
09:30	Sarah Walmsley Cefas (UK)	Developing methods to survey glass eels in a large and dynamic estuary.
09:50	Dave Clarke Swansea University (UK)	Empirical data versus expert opinion and environmental impact assessment– a case study of twaite shad (<i>Alosa fallax</i>) migration in the Bristol Channel
10:10	Nathan Griffiths University of Hull (UK)	Environmental DNA (eDNA) based decision-making – A framework to assign confidence in absence (CIADM)
10:30	Antonio Casalini University of Bologna (Italy)	Phone App for early discrimination of migrating female European eels to support and manage the wild population
10:50	Panel Q&A	
11:05	Break	
Session 9. Fish Recovery and Return (FRR) Systems II		
Session Chair: Jason Thiem, NSW Department of Primary Industries (Australia)		
11:35	Andy Turnpenny Independent Consultant (UK)	Power station Fish Recovery and Return Systems: Why they are only part of a best practice solution
11:55	Karl Bousfield & Gary Hebron Hydrolox & Northumbrian Water (UK)	Engineered polymer screen technology
12:15	Radhika DeSilva ASA Analysis & Communication (USA)	Engineering Considerations when Installing Band Screens and Fish Recovery and Return Systems

12:35	Richard Noble University of Hull (UK)	Efficacy and performance of Hydrolox™ Fine-Screening and Fish Recovery and Return (FRR) system at Blackwell raw water pumping station, River Tees.
12:55	Panel Q&A	
13:10	Lunch	
Session 10. Wider Considerations and Techniques		
Session Chair: Chris Bell, Environment Agency (UK)		
14:05	Nicola Teague Apem Ltd (UK)	Tidal power fish encounter and collision modelling
14:25	Bill Stephens JS Held (USA)	A holistic evaluation of impingement mortality and entrainment on the Lower Mississippi River
14:45	Jenna Rackovan Alden Research (USA)	How can we reduce stressors that influence fish impingement mortality?
15:05	Adam Comerford & Paul Gratton Canal and River Trust & Fishtek Consulting(UK)	Abstractions & Issues – Best practice from a charity's perspective
15:25	Panel Q&A	
15:35	Andy Don & Paul Coulson Environment Agency & IFM (UK)	Closing comments and thanks
15:45	Conference Close	

Closing De-Brief

17:15 pm onwards, The Bridewell Pub

Open to all

Join us for a final drink and fishy chat in a converted police station!

