

**WORKING GROUP ON FISHERIES, ACOUSTICS, SCIENCE AND TECHNOLOGY (WGFAST)**

Videoconference via Institute of Marine Research, Bergen, Norway, 19 - 23 April 2021

**Microsoft Teams** will be the platform and connection will be sent to registrants only.

AGENDA – all times are CEST (GMT+2).

**Presentations will be 12 minutes, with 2 minutes for questions and 1 minute to transition to the next speaker.**

	<b>Monday, 19 April</b>	<b>Session</b>
15:00	Opening Remarks	WGFAST business
15:20	Next meeting <i>Mike Jech and Patrice Brehmer</i> WGFAST has a long and rich history of collaborating with our West African partners, and hosting a meeting in Senegal will facilitate the participation of scientists from Africa (particularly West Africa and the south Mediterranean area), improve the exchange of science and communication on Fisheries Acoustics, Science and Technology between European and African colleagues, and promote the UN Ocean decade initiative. We expect to recruit several new members to WGFAST and even at higher levels, gain new "observatory" countries for ICES in Africa.	
15:25	TORs <i>Mike Jech</i> A) Collate information on acoustic related research and surveys (2022) B) Review presented recent work on three topics ( <i>The presentations</i> ). Provide guidance by identifying 1) where training opportunities could be developed, and 2) gaps in knowledge and challenges that should be prioritized by the community C) Organize a session at ASC (2021 or 2022) D) Develop and maintain acoustic metadata and data format conventions and coordinate with acoustic survey groups ( <i>TGMETA update</i> ) E) Develop and recommend procedures for collecting and processing quality acoustic data in inclement weather ( <i>TGQUAD update</i> )	
15:30	<i>Mike Jech</i> ASC session: Dublin, Ireland, 12-15 September 2022. Deadline for session submission is <b>14 June 2021</b> .	
15:35	<i>Mike Jech</i> Symposium 2023	
15:40	New WGIPS request <i>Mike Jech</i> WGIPS acknowledges that acoustic backscatter values collected during surveys coordinated by the group and used to calculate biomass estimates for stock assessments, may be affected by acoustic shadowing when very dense schools are encountered, thereby potentially adversely impacting the quality of the stock assessment. While a handful of papers report on shadowing, to the best of our knowledge, there are currently no standardised guidelines in the peer review literature on how to robustly test for the occurrence of shadowing, to quantify it, or to correct for these biases. The group seeks advice from	

	WGFAST on standardised methods to identify, measure and correct for acoustic shadowing.	
15:45	Development of a Pelagic Zooplankton and Nekton Acoustic Survey in the New York Bight <i>Joseph D. Warren, Brandyn M. Lucca, Hannah B. Blair</i>	Acoustic methods to characterize populations, ecosystems, habitat, and behaviour. Session Chairs: Fabio Campanella and Babak Khodabandeloo
16:00	Seamount fish distribution investigated by acoustics in remote areas of the South Atlantic Ocean. <i>Campanella, Fabio, Collins Martin, A., Young, Emma, Laptikhovsky, Vladimir, van der Kooij, Jeroen, Whomersley, Paul</i>	
16:15	Acoustic seascape partitioning through Functional Data Analysis <i>Alejandro Ariza, Anne Lebourges-Dhaussy, David Nerini, Etienne Pauthenet, Gildas Roudaut, Ramilla Assunção and Arnaud Bertrand</i>	
16:30	Recent Advances in Instantaneous Wide-Area Sensing of Fish Population Density and Behaviour with Ocean Acoustic Waveguide Remote Sensing <i>Nicholas Makris, Olav Rune Godø, Josef Michael Jech, Gavin J. Macaulay, Purnima Ratilal, Ankita D. Jain, D. H. Yi, Shourav Pednekar, Byunggu Cho</i>	
16:45	Fish distribution from acoustic and video data around a tropical Archipelago <i>Julie Salvetat, Nicolas Bez, Jeremie Habasque, Anne Lebourges-Dhaussy, Gildas Roudaut, Monique Simier, Paulo Travassos, Gary Vargas and Arnaud Bertrand</i>	
17:00	Break	
17:15	A multiplatform acoustic-based approach to classifying abundance, distribution, and transport of age-0 gadids on the Chukchi Sea shelf <i>Robert Levine, Alex De Robertis, Daniel Grunbaum, Chris Wilson, Ed Farley, Calvin Mordy, Phyllis Stabeno</i>	Acoustic methods to characterize populations, ecosystems, habitat, and behaviour. Session Chairs: Fabio Campanella and Babak Khodabandeloo
17:30	Improving the accuracy of krill target strength using a shape catalogue <i>Fiona Bairstow, Sven Gastauer, Luke Finley, Tom Edwards, C.Tom A. Brown, So Kawaguchi and Martin J. Cox</i>	
17:45	On the development of active acoustic methods for a Measurement, Monitoring and Verification (MM&V) program at a proposed shallow water Carbon Capture and Storage site. <i>Tim Ryan, Rudy Kloser, Ryan Downie, Ben Scoulding, Haris Kunnath, Andreas Marouchos, David Hughes, Andy Ross</i>	
18:00	Acoustic detection of shallow-water seagrass <i>Naig Le Bouffant, Céline Cordier, Laurent Berger</i>	
18:15	Why monitor the pulse of naturally occurring acoustic signals as part of a shallow water subsea CCS MMV program? <i>Ryan Downie, Tim Ryan, Ben Scoulding, Rudy Kloser</i>	
18:30	Antarctic krill aggregation structures and predator-prey interactions at Deception and Nelson Islands, Antarctica <i>Pavaneé Angelee Annasawmy, John Kenneth Horne, Christian Sam Reiss, George Randy Cutter, Gavin John Macaulay</i>	
18:45	Using acoustic data to study the pelagic ecosystem: impact of climate change on forage fauna and predator-prey relationships. <i>Aurore Receveur, Valerie Allain, Frederic Menard, Anne Lebourges-Dhaussy, Christophe Menkes</i>	

Tuesday, 20 April 2021		Session
15:00	Opening Remarks	WGFAST business

15:05	Who's who in the zoo? Sampling micronekton in the Southern Ocean <i>Ben Scouling, Rudy Kloser, and Caroline Sutton</i>	Acoustic methods to characterize populations, ecosystems, habitat, and behaviour. Session Chairs: Fabio Campanella and Babak Khodabandelloo	
15:20	Mapping spatiotemporal changes in acoustic abundance of lesser sandeel with autonomous surface vehicles <i>Geir Pedersen, Arne Johannes Holmin, Sakura Komiyama, Espen Johnsen</i>		
15:35	CRIMAC - Center for Research-based Innovation in Marine Acoustic Abundance Estimation and Backscatter Classification. <i>Nils Olav Handegard, Tonje Nesse Forland, Espen Johnsen, Geir Pedersen, Maria Tenningen, Egil Ona</i>		
15:50	Sensitivity of HERAS index calculation <i>Serdar Sakinan, Benoit Berges</i>		
16:05	Effects of Survey Speed on Herring Biomass Estimates <i>Laurent Berger, Benoit Berges, Dezhang Chu, David Demer, Mike Jech and Naig Le Bouffant</i>		
16:20	Impact of an increasing ping rate on acoustic-based abundance <i>Guillermo Boyra, Iosu Paradinas, Iñaki Rico, and Udane Martinez</i>		
16:35	Discussion		
16:55	Break		
17:10	Sizing fish with broadband acoustics <i>Paul Fernandes, James Dunning, Phil Copland, Alan Fenwick, Dezhang Chu</i>		Acoustic characterization of marine organisms. Session Chairs: Mette Agersted and Alejandro Ariza
17:25	Broadband acoustic data identifies different mesopelagic gas-bearing organisms and reveal their spatial and vertical distribution patterns <i>Mette Dalgaard Agersted, Thor A. Klevjer, Babak Khodabandelloo, Yi Liu, Webjørn Melle</i>		
17:40	Unsupervised clustering of wideband acoustic probe measurements reveals the vertical structure of a mesopelagic fish community <i>Julek Chawarski, David Coté, Maxime Geoffroy</i>		
17:55	First approach to unsupervised classification of broadband fisheries acoustic data for ecosystem monitoring <i>Alicia Maurice, Laurent Berger, Mathieu Doray</i>		
18:10	Identifying Atlantic herring schools from decades of multifrequency echosounder data using unsupervised machine learning <i>Yawen Zhang, Michael Jech, Qin Lv, and Carrie Wall</i>		
18:25	Sizing of vertically migrant mesopelagic fish species using low-frequency broadband acoustics <i>Escobar-Flores, P.C., Ladroit, Y., O'Driscoll, R.L.</i>		
18:40	On the development of acoustic descriptors for semi-demersal fish identification to support monitoring stocks <i>Réka Domokos</i>		

Wednesday, 21 April 2021		Session
15:00	Joint session begins	JFATB
19:00	Joint session ends	

Thursday, 22 April 2021		Session
15:00	Opening Remarks	WGFAST

		business
15:05	E-Score: A new approach to improve multifrequency classification <i>Gary Vargas, Gildas Roudaut, Anne Lebourges-Dhaussy, Jérémie Habasque, Alejandro Ariza, Lucena Frédou Flávia, Arnaud Bertrand</i>	Acoustic characterization of marine organisms Session Chairs: Mette Agersted and Alejandro Ariza
15:20	AZKABAN: An <i>ex situ</i> experiment for informing the inverse method <i>Muriel Dunn, Geir Pedersen, Sünnje Basedow, Malin Daase, Lionel Camus, Stig Falk-Petersen, and Maxime Geoffroy</i>	
15:35	Viscous-Elastic fluid filled sphere for target strength model of swimbladdered mesopelagic fish <i>Babak Khodabandelo*, Mette Dalgaard Agersted, Thor A. Klevjer, Gavin J. Macaulay, and Webjørn Melle</i>	
15:50	Discussion	
16:10	Break	
16:25	ISO Liaison <i>Mike Jech</i>	WGFAST business
16:40	WGIPS response <i>Mike Jech</i>	
16:55	WKCOLIAS response <i>Mike Jech</i>	
17:10	TGQUAD update <i>Mike Jech</i>	
17:25	TGMeta update <i>Tim Ryan</i>	
17:40	Open Data Format <i>Gavin Macaulay</i>	
17:55	Next meeting: Dakar, Senegal <i>Mike Jech and Patrice Brehmer</i>	
18:10	New WGIPS request <i>Mike Jech</i>	
18:25	WKABM update <i>Sven Gastauer</i>	

	Friday, 23 April 2021	Session
15:00	Opening Remarks	WGFAST business
15:05	An acoustic approach to estimate the Mixed Layer Depth <i>Fabio Campanella, Jeroen van der Kooij, Liam Fernand</i>	Emerging technologies, methodologies, and protocols Session Chair: Joe Warren and Muriel Dunn
15:20	Zooglider: an autonomous underwater glider for concurrent physical, optical and acoustic sensing of marine ecosystems <i>Sven Gastauer, Jeffrey S. Ellen, Mark D. Ohman</i>	
15:35	Uncrewed surface vehicle (USV) survey of walleye pollock, <i>Gadus chalcogrammus</i> , in response to the cancellation of ship-based surveys <i>Alex De Robertis, Mike Levine, Nathan Lauffenburger, Taina Honkalehto, James Ianelli, Cole C. Monnahan, Rick Towler, Darin Jones, Sarah Stienessen, Denise McKelvey</i>	
15:50	Comparison of abundance and biomass estimates from an acoustic survey conducted by a NOAA Fisheries Survey Vessel and Uncrewed Surface Vehicles <i>Dezhang Chu, Julia Clemons, Steve de Blois, Stéphane Gauthier, Lawrence C.</i>	

	<b><i>Hufnagle, John Pohl, Sandra Parker-Stetter, Chelsea Stanley, Rebecca Thomas</i></b>	
16:05	Species composition for acoustic biomass estimation: could environmental DNA be used? <b><i>V. Trenkel, P. Calvy, L. Berger, and P. Lorance</i></b>	
16:20	Direct measurements of the migration speed of spawning herring <b><i>Egil Ona, Guosong Zhang, Nils Olav Handegard, Sverre Berg, and Lars N. Andersen</i></b>	
16:35	Nonlinear higher harmonics and crosstalk in broadband multi-channels echosounders <b><i>Babak Khodabandelloo, Egil Ona, Gavin J. Macaulay, and Rolf Korneliussen</i></b>	
16:50	SPAAMS: Solar-Powered, Autonomous, Acoustic Monitoring Systems on the Tonle Sap River, Cambodia <b><i>J.K. Horne, J.A. Swan, T.J. Tracy II, and G.W. Holtgrieve</i></b>	
17:05	Break	
17:20	A new <i>In-situ</i> method to estimate fish target strength <b><i>James Dunning, Teunis Jansen, Alan J. Fenwick, and Paul G. Fernandes</i></b>	
17:35	Discussion	
17:55	Big Data <i>Mike Jech</i>	WGFAST business
18:15	ASC Session <i>Mike Jech</i>	
18:35	Symposium 2023 <i>Mike Jech</i>	
18:45	Next Chair - 2023-2025 <i>Mike Jech</i>	