Time	Sunday - 26 March	Time	Monday - 27 March	Session
16:00 to 19:00	Registration and Check-in	7:00	Registration and Check-in	Symposium
		9:00	Welcome	
		9:05	ICES Welcome	
		9:10	Conveners Welcome	
		9:25	Transition	
		9:30	Chair Overview	Models & Measures Session
		9:35	Wieczorek et al.: A comparison of acoustic, catch and video data to investigate and monitor grenadier abundance in the Ross Sea	
		9:50	Maslov et al.: North-west atlantic cetaceans detecting algorithm based on spectrogram classification using fastai machine learning model	
		10:05	Dunn et al.: Model-informed classification of broadband acoustic backscattering from zooplankton in an in situ mesocosm	
		10:20	Schaber et al.: The acoustic backscattering of spurdog / spiny dogfish (Squalus acanthias) – in situ, ex situ measurements and modelling	
		10:35	**Break**	
		11:00	Kashindye et al.: Identification of mesopelagic fish species using multi-frequency acoustic approaches – implications for biomass estimation	
		11:15	Loranger et al.: Acoustic species identification, length distribution and biomass estimation of a mixed species aggregation in an oceanographic frontal region	
		11:30	Grados et al.: Acoustic identification of the Northern Humboldt Current System's pelagic community using machine learning	
		11:45	Berges et al.: Modelled and measured broadband acoustic target strength comparison for fish with and without a swimbladder	
		12:00	Khodabandeloo et al.: Investigation of broadband acoustic to resolve and identify nearby targets using different pulse durations	
		12:15	**Lunch**	
		13:45	Matt et al.: Building a robust machine learning tool for discriminating between bottom schooling fish and the bottom echo	
		14:00	Lucca et al.: One size does not fit all: experimental target strength measurements of pteropods and shrimp emphasize the importance of scattering model inputs	

Time	Sunday - 26 March	Time	Monday - 27 March	Session
		14:15	Zytko et al.: Development of a hydroacoustic technique for determination of the orientation of aggregated Baltic herring	
		14:30	Kang et al.: Acoustic target strength with growth stage of fish: comparison of juvenile and adult Japanese anchovy (Engraulis japonicus)	
		14:45	Macaulay et al.: Target strength of mesopelagic organisms derived from computed tomography scans	
		15:00	Vohra et al.: Computer Vision-Based Echogram Annotation Methods for Acoustic Classification with Deep Learning Systems	
		15:15	**Break**	
		15:40	Barbin et al.: Micronekton repartition in western tropical Pacific from wideband profiler and hull-mounted narrowband acoustics	
		15:55	Gastauer et al.: Towards a better understanding of broadband scattering properties of single fish and zooplankton targets	
		16:10	Santivanez-Yuffra et al.: In situ target strength measurements of Peruvian anchovy (Engraulis ringens) from data collected with a commercial echosounder during fishing operations	
		16:25	Chacate et al.: A multifrequency acoustic algorithm to classify mesopelagic organisms within deep Sound Scattering Layers (SSL) in oligotrophic Indian Ocean	
		16:40	Whitman et al.: Utilization of a paired eDNA and acoustic survey for assessing assemblages in the Gulf of Maine	
		16:55	Lightning Talks Session 1: 15@2.5 minutes; Poster #s M1-M14 and A1	
		17:35	**Adjourn**	
		19:00	Welcome Reception	

Time	Tuesday - 28 March	Session
8:00	Registration and Check-in	Symposium
9:00	Daily Remarks	
9:05	Keynote - Andy Lipsky, A call to science—understanding fisheries, wildlife and ecosystem impacts in a new Era of Offshore Wind Development	
10:05	**Transition**	
10:10	Perez-Arjona et al.: Acoustical simulation of the target strength of Atlantic bluefin tuna using 3D computed tomographical images	Models & Measures Session
10:25	**Break**	
10:50	Hentati-Sundberg et al.: Target strength modelling of small pelagics in the Baltic Sea using the Kirchoff Ray Mode Model	
11:05	Yang et al.: Broadband acoustic scattering simulation and in-situ observation of dagaa (Rastrineobola argentea) in Lake Victoria, East Africa	
11:20	Mangeni et al.: Improving accuracy of dagaa acoustic biomass estimation in Lake Victoria using school analysis and geostatistics for Ecosystem based Fisheries Management	
11:35	Saavedra et al.: Do fish swim faster in the horizontal direction than up-down?. Study case: two small pelagic fish and two demersal fish	
11:50	**Lunch**	
13:20	Chair Overview	Analytics Session
13:25	Lee et al.: Building an open-source software toolbox for cloud-native processing of fisheries and plankton acoustic data	
13:40	Steig et al.: Using Artificial Intelligence for Identification of an Acoustic Signal	
13:55	Korneliussen et al.: Estimation and removal of noise in broadband echosounders	
14:10	Staneva et al.: Semantic Segmentation of Pacific Hake Aggregations in Water Column Echograms	
14:25	Annasawmy et al.: Micronekton multifrequency backscatter classification within an eddy dipole of the Mozambique Channel, South West Indian Ocean	
14:40	Wall et al.: Towards a cloud optimized data lake for archived water column sonar data	
14:55	**Break**	

Time	Tuesday - 28 March	Session
15:20	Lightning Talks Session 2: 15@2.5 minutes; Poster #s A2-A5 and E1-E11	
16:00	Duskey et al.: Spatial tug of war: kriging spline model residuals of fish abundance in a Bayesian framework	
16:15	Handegard et al.: A story about data extraction and deep learning applied to fishery acoustic data	
16:30	Berges et al.: Impact of echosounder calibration errors on an international acoustic survey (HERAS)	
16:45	Valdez et al.: Using mixture Gaussian models for characterization of ispi (*Orestias ispi*) in Lake Titicaca, Peru – Bolivia	
17:00	McReynolds et al.: Classification of acoustically-similar pelagic forage fishes: combining ecological knowledge with machine learning	
17:15	Kalkhoran et al.: Real-time underwater acoustic data acquisition and processing with a large aperture 160-element coherent hydrophone array	
17:30	Lightning Talks Session 3: 13@2.5 minutes; Poster #s E12-E13 and T1-T11	
18:00	**Adjourn**	
18:30	Posters	

Time	Wednesday - 29 March	Session
8:00	Registration and Check-in	Symposium
9:00	Daily Remarks	
9:05	Keynote - Mike Fogarty, The Systems Approach to Fisheries Management: Concepts, Data Needs, and Strategies for Implementation	
10:05	Transition	
10:10	Chair Overview	Technology Session
10:15	Dornan et al.: Temporal patterns in South Georgia zooplankton: insights from a moored echosounder	
10:30	**Break**	
10:55	Milne et al.: Integrating Split-beam, Multibeam and Bio-telemetric Surveys to Estimate Fish Abundance: A New Approach to an Old Problem	
11:10	Geoffroy et al.: Pelagic organisms avoid white, blue, green, and red artificial light from scientific instruments	
11:25	Godo et al.: Industry based autonomous acoustic systems in near real time monitoring of marine ecosystems	
11:40	Le Bouffant et al.: Using seafloor backscatter for single beam echosounder calibration	
11:55	**Alina Wieczorek: ICES Strategic Initiative on Integration of Early Career Scientists**	
12:00	**Lunch**	
13:25	Silva et al.: Target strength measurements of deep scattering mesopelagic layers	
13:40	Johnsen et al.: Towards a multi-platform armada strategy for ecosystem based marine surveys	
13:55	Scoulding et al.: Monitoring snapper aggregations using recreational fish finders and aerial drones	
14:10	De Robertis et al.: Use of uncrewed surface vehicles in tandem with NOAA vessels to increase survey efficiency	
14:25	Benoit-Bird et al.: Echo Sounding atop the Wave of Oceanography’s Robot Revolution	
14:40	Smith et al.: Shelf-based mooring reveals seasonally variable benthic behaviour of Antarctic krill	

Time	Wednesday - 29 March	Session
14:55	**Break**	
15:20	T. Ryan et al.: Long range acoustic detection of gas seeps in a shallow water coastal environment	
15:35	Imaizumi et al.: Estimating splendid alfonsino (Beryx splendens) abundance using a low-frequency broadband quantitative echo sounder	
15:50	M. Pena et al.: Recording acoustic data from the surface to 4500 m depth with an AZFP attached to the rosette	
16:05	Campanella et al.: Plankton dynamics observed using fisheries acoustics from an autonomous vehicle	
16:20	Diachok et al.: Derivation of lengths and depths of anchovies and observations of schooling behavior from Bio-acoustic Attenuation Spectroscopy (BAS) measurements	
16:35	Sunnarborg et al.: Pairing environmental DNA with acoustic monitoring of anadromous fish in the Penobscot River, Maine	
16:50	Horne et al.: IoT Acoustic Monitoring of Tonle Sap River Fish Migration and Mortality for Cambodian Fisheries Management	
17:05	Doray et al.: Uncrewed Surface Vehicle (USV) for acoustic mapping of common dolphin and their small pelagic preys	
17:20	Chair Overview	Ecosystem Session
17:25	Zwolinski et al: The school trap hypothesis predicts the spatial distribution and environmental preferences of the collapsed Pacific Sardine	
17:40	Hemed et al.: Biomass and geographical distribution of seven small pelagic fish species in relation to environmental condition in Mauritanian waters	
17:55	Thorvaldson et al.: They move in mysterious ways: Spatial behaviour of individual Calanus finmarchicus quantified by using broad-band target tracking	
18:10	**Adjourn**	
19:00	Banquet	

Time	Thursday - 30 March	Session
8:00	Registration and Check-in	Symposium
9:00	Daily Remarks	
9:05	Keynote - Kathy Mills, Advancing resilient marine ecosystems and fisheries in changing oceans	
10:05	Transition	
10:10	Ens et al.: Geographic variability in the seasonality of euphausiid diel vertical migrations among three locations in coastal British Columbia, Canada	Ecosystem Session
10:25	**Break**	
10:50	Ongore et al.: Acoustic estimation of haplochromine biomass in Lake Victoria: A novel approach to the estimation of pelagic biomass with precision	
11:05	Blanluet et al.: Fishing for answers: are there more tuna inside a blue-water marine reserve?	
11:20	Receveur et al.: Mesoscale oceanic eddies are not oases for mesopelagic organisms at global scale	
11:35	Klevjer et al.: The Mesopelagic and Beyond: High-Latitude Boundaries and Global Patterns in Vertical Connectivity of the Deep Ocean	
11:50	**Lunch**	
13:20	Copeland et al.: Linking Organisms from the Surface to the Seafloor Through Acoustic Analysis	
13:35	Diogoul et al.: Pelagic Sound Scattering Layer distribution and behavior across North Est Atlantic and Equatorial Pacific	
13:50	Priou et al.: Using autonomous surface vehicles for long-term environmental monitoring for the offshore industry	
14:05	Urmy et al.: Estimating uncertainty in acoustic-trawl surveys with a semi-parametric spatial bootstrapping procedure	
14:20	Fernandes et al.: Fish density around decommissioned oil and gas platforms: evidence for “rigs to reefs”?	
14:35	Salvetat et al.: Combining video and acoustics to describe fish assemblages distribution in coastal and oceanic tropical ecosystems	
14:50	Kloser et al.: Sounding the twilight zone life and its changes	
15:05	**Break**	

Time	Thursday - 30 March	Session
15:30	Renfree et al.: Relationships between mesopelagic assemblages and the surrounding ecosystem derived from long-term deployments of autonomous echosounders on stationary platforms off California	
15:45	Ariza et al.: Acoustics for global pelagic fauna assessments: advances and challenges	
16:00	Dudeck et al.: Distribution of Deep-Scattering Layers and Vertical Migration along transects crossing the central and southeastern Atlantic	
16:15	Demer et al.: Foresight, in hindsight: a retrospective analysis of a unique sardine-stock forecast	
16:30	Sibley et al.: Seeing with sound: the potential of imaging sonar for quantifying reef fish abundance and diversity	
16:45	Eager et al.: Fish responses to regional and sub-mesoscale flow-topographic interactions over a tropical seamount	
17:00	Robinson et al.: Hydroacoustic surveys evidenced decline of biological backscattering layers during 2013–2018 anomalous low Chl-a concentration and warm temperatures at the east coast of the Gulf of California	
17:15	Ramasco et al.: Using acoustics from a USV to monitor behavioural effects of fish during an industrial seismic survey	
17:30	Menkes et al.: Tuna ecosystems in the tropical Pacific. An interdisciplinary approach from physics to micronekton using sea experiments and ecosystem modelling	
17:45	**Adjourn**	