Theme session example

Session title (suggested length: <100 characters (including spaces).	Stock assessment methods, model complexity, and uncertainty
Session type:	Theme session
Session convener 1 (principal contact person) – Name *	First name Last name
Session convener 1 – Email *	xx@xx.xx
Session convener 2 (required) - Name *	First name Last name
Session convener 2 - Email *	xx@xx.xx
Session convener 3 (optional) – Name	First name Last name
Session convener 3 – Email	xx@xx.xx
Session convener 4 (ONLY for co-sponsored sessions) – Name	First name Last name
Session convener 4 - Email	xx@xx.xx
Suggested session format	For each topic there will be an invited introductory keynote presentation (15 mins). Submitted contributions can be oral presentations or posters. To close the theme session, overviews of the topics addressed will be presented by the convenors. Posters will be displayed in the corresponding poster session
Session teaser (For use in social media campaigns)	Stock assessments help to quantify how fishing has affected stocks in the past and how different management decisions will affect stock sizes and yields in future. Methods of stock assessment are evolving rapidly. This theme session provides an opportunity to take stock of the latest advances in assessment, to consider the choice and implications of different levels of model complexity, and to review methods for quantifying and communicating uncertainties.
Description	Outputs from stock assessments make a fundamental contribution to fishery management advice. Recent advances in stock assessment methods include integrated models with time-varying processes, spatially explicit approaches, state-space algorithms, inclusion of multispecies and environmental processes as well as economic factors, techniques for data-limited situations, and rigorous evaluations of management strategies.
	Choice of model structure and assumptions will affect the management advice. Model structure may depend on data collected, findings from simulation analyses, and available expertise. Conversely, the choice of model structure may guide investments in data collection and analytical capacity. Thus, determining appropriate model complexity is an important decision in the fishery management process. Model ensembles offer a way to base management advice on a spectrum of model structures and assumptions.
	The final step in a stock assessment is effective communication of the main results, along with the corresponding uncertainties. Quantifying the uncertainty about stock status and catch forecasts is a challenge given the accumulating sources of uncertainty in the observed data and analytical assumptions, as well as the intrinsic variability in the biological and human components. Scientific advice should help stakeholders and managers to understand uncertainty, trade-offs, and risks, so management policies for each stock can incorporate the desired precaution.
	This theme session provides an opportunity to review the latest advances in stock assessment, to consider the choice and implications of different levels of model complexity, and to review methods for quantifying and communicating uncertainties. Three topics will be addressed during the theme session:

Description (continued)	a) State of the art in stock assessment methods: to address improvements in stock assessment methods, implementation of random effects in time and space, analytical methods for data-limited situations; performance evaluation (e.g. MSE) of assessment methods and harvest policies; and multispecies and environmental processes in stock assessment, ecosystem and economic factors in harvest policy evaluation.

b) Stock assessment model complexity and model ensemble techniques: to address appropriate complexity of an assessment model for a given stock, basis of choosing a model, implications for data collection; application of model ensemble techniques in stock assessment; and performance of model ensemble, when applied to historical datasets and simulated data.

c) Quantifying and communicating uncertainties in stock assessment: to address quantifying uncertainties in fisheries catch statistics and survey data, assessment model choices and assumptions; developing harvest control rules, evaluating management strategies; quantifying overall uncertainty at the advice level, communication of uncertainties, interpretation of advice.

[from/ based on a theme session held at ASC 2017] |
Expected participation (which research interests or categor[ies] of professionals are expected to attend?)	Scientists internationally and members of ICES working groups with interests in stock assessment, fisheries management and collection and processing of data for stock assessment. Scientists participating in the "stock assessment" research project (2019- 2022, 8 countries participating) and the "ensemble modelling" research project (2018- 2023, 6 countries participating). Science advisers focusing on stock assessment, including members of the ICES Advisory Committee.
Primary link to ICES themes (select ONE only)	Food from the Sea
Other links to ICES themes (select any of relevance)	Conservation and restoration science
Links to ICES groups (if relevant)	Advisory Committee; Science Committee