

Workshop on the Use of Predictive Habitat Models in ICES Advice (WKPHM)

2020/WK/HAPISG08 A Workshop on the Use of Predictive Habitat Models in ICES Advice

(WKPHM), chaired by Chris Rooper*, Canada, will be established and will meet by correspondence, 1–5 February 2021 to:

- a) Based on existing approaches, identify the methods for modelling vulnerable marine ecosystems (VMEs) that would be most appropriate for use within ICES advice, detailing ‘required’ and ‘desirable’ criteria, with emphasis on the deep-sea environment greater than 200m (considering bias of preferential sampling), PHM techniques (including spatial display of uncertainty) and required validation steps for the modelled outputs);
- b) Develop clear standards for recording the caveats and assumptions inherent in the modelling method, for future use;
- c) Conduct a trial run for a small number of existing models to ensure that both the approach and outputs are fit-for-purpose;
- d) Review and recommend a set of criteria, similar to the existing ICES benchmarking system for regional fish stock assessments¹, under which new and existing predictive habitat models can be used for ICES scientific advice related to the distribution of VMEs.

WKPHM will report by 15 March 2021 for the attention of ACOM.

Supporting information

Priority	WGMHM and WGDEC have strongly advocated for the inclusion of predictive habitat models in ICES advice related to the distribution of VMEs. In order for ICES to utilize such models in their advice an agreed set of standards is required. With recurring requests from NEAFC and the EU, regarding the best scientific advice on where VMEs are known or likely to occur, this workshop is of a high priority.
Scientific justification	<p>Term of Reference a)</p> <p>Predictive habitat models (PHMs, also known as habitat suitability models, species distribution models or environmental niche models) are models that predict the likely distribution of a species or habitat using environmental variables as predictors. WGMHM and WGDEC have identified that PHMs which meet specific quality thresholds, represent the best available evidence for estimating where VMEs are likely to occur at a broad scale. However there is no agreed upon standard for what those quality thresholds should be. This ToR is aimed at providing benchmark standards for the use of such models in ICES advice related to the distribution of VMEs. Science Plan code 6.2. Plans are in progress train to recommend to the Benchmark Oversight Group (BOG) in 2021 to undertake a benchmark of the VME advisory process in early 2022 and report in time for WGDEC 2022. BOG was established by ACOM in March 2020, see section 4.6 of the Minutes of the ACOM March 2020 meeting.</p> <p>Term of Reference b)</p> <p>WGMHM recommended in its 2019 report (ICES 2019) that guidance on the data sources, resolution and modelling approaches to be used would help to standardize ICES advice using PHMs and allow for direct comparison of outputs. This will render the data, methods and results from ICES assessments easy to find, explore</p>

¹<https://www.ices.dk/community/Documents/Advice/Introduction%20to%20Benchmarks%20at%20ICES.pdf>

and re-run and contribute to a [Transparent Assessment Framework](#) for PHM-related advice. [Science Plan code](#) 3.2

Term of Reference c)

Any modeling approach has associated caveats and assumptions. Standards on what should be reported will avoid misuse or misinterpretation of model outputs and will give greater credibility to PHM model-based advice. [Science Plan code](#) 6.2.

Term of Reference d)

Having agreed on a common set of standards it will be necessary to conduct trial runs, using existing VME models, to make sure that the anticipated model outputs are fit for purpose. This approach will also allow for testing of the impacts of the recommendations from ToRs a and b.

Resource requirements	None
Participants	The Group will likely be attended by some 20–25 members of WGMHM and WGDEC and guests.
Secretariat facilities	None.
Financial	No financial implications.
Linkages to advisory committees	ACOM
Linkages to other committee or groups	There is a very close working relationship with Working Groups on Benthic Ecology, Marine Planning and Coastal Zone Management and Spatial Fisheries Data. Data products will be used by WKEUVME in future.
Linkages to other organizations	FAO, NEAFC, EC, EMODnet.
