WGMLEARN – Working group on machine learning in marine science

2018/MA2/EOSG06   A **Working group on machine learning in marine science (WGMLEARN)**, chaired by Ketil Malde, Norway, and Jean-Olivier Irisson, France. The group will work on ToRs and generate deliverables as listed in the Table below.

	MEETING DATES	VENUE	REPORTING DETAILS	COMMENTS (CHANGE IN CHAIR, ETC.)
Year 2019	22-24 May	Ostend, Belgium	Interim report by 1 July, 2019	
Year 2020	2-3 December	Online meeting	E-evaluation	
Year 2021	25-26 and 28-29 October	Online meeting	Final report by 10 December, 2021	

ToR descriptors

TOR	DESCRIPTION	BACKGROUND	SCIENCE PLAN CODES	DURATION	EXPECTED DELIVERABLES
a	Review 1) new method developments in machine learning, 2) current applications of machine learning methods in marine science, and 3) their implementations and deployments in advisory and scientific processes.	Machine learning holds great potential, but it is necessary for practitioners to keep up with new developments and to gain an understanding of the opportunities and challenges with new methods.	4.1, 4.5, 3.2	1, 2, 3	On-line (live) report
b	Invite presentations (externally and internally) and review data or analysis challenges in order to discuss possible methods, approaches and technologies.	ML experts need to meet with stakeholders and data collection efforts for mutual understanding of data analysis challenges.	4.2, 4.3	1, 2, 3	On-line list of challenges
c	Communicate with DIG and the ICES Data Centre on data organization and requirements related to machine learning analysis.	For effective deployment, ML has to be integrated with data collection and data management efforts.	4.2	1, 2, 3	
d	Summarize current and future needs in marine science and identify how machine learning methods can provide solutions. Work actively to promote adoption of relevant technologies.	Future developments in the marine sciences, including project proposals, need to have an informed and up to date view of the state of the art, in order to make optimal use of the technology.	4.2, 4.3	3	

Summary of the Work Plan

Year 1	Produce the annual overview of recent developments
Year 2	Produce the annual overview of recent developments
Year 3	Produce the annual overview of recent developments

Supporting information

Priority	Machine learning is a prioritized topic by DIG, and was explored in the WKMLEARN workshop in April 2018, on an initiative by ACOM. The workshop highlighted a need for a centrally organized venue to share methods and best practices between researchers, to attract outside expertise, and to support publication and disemmination of results. Long term engagement is especially needed to support deployment and integration of the new methods.
Resource requirements	The research programmes which provide the main input to this group are already underway, and ressources are already committed. The additional resource required to undertake additional activities in the framework of this group is negligible.
Participants	Machine learning is a topic of considerable and broad interest, and is likely to attract participants from outside the traditioal ICES organization. We expect some 30 members, similar to the attendance of the WKMLEARN workshop.
Secretariat facilities	None.
Financial	No financial implications.
Linkages to ACOM and groups under ACOM	DIG (Julie could you check does DIG sit under ACOM?, certainly they go to the SCICOM meetings), ICES Data Centre (also I think this sits under the secretariat rather than ACOM), could just be moved to the section below if we are not sure
Linkages to other committee or groups	Close working relationships with other groups that target data collection or analysis. Relevant examples are: WGFTFB (targets non-destructive fisheries sampling) WGNEPS (video surveys to monitor nephrops populations) WGFAST (analysis of acoustics data) WGBIOP and WGSMART A planned WG for electronic monitoring of vessels
Linkages to other organizations	