ICES WGTC REPORT 2015

ACOM/SCICOM STEERING GROUP ON INTEGRATED ECOSYSTEM OBSERVATION AND MONITORING

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Second Interim Report of the Working Group on Target Classification (WGTC)

23–24 May 2015

Nantes, France

ICES International Council for the Exploration of the Sea
CIEM Conseil International pour l'Exploration de la Mer

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Conseil International pour l'Exploration de la Mer

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Executive summary

The Working Group on Target Classification (WGTC) met in Nantes 23–24 May 2015 in Nantes, France. Rolf J Korneliussen, Norway, served as Chair. The number of experts in the working group is currently 31, of which 23 met in Nantes. Ten presentations were prepared prior to the meeting, each followed by discussions. The working group meeting convened prior to the ICES Symposium on "Marine Ecosystem Acoustics – observing the ocean interior across scales in support of integrated management". The WGTC Chair reported results of the work from WGTC to the Working Group on Fisheries Acoustic Science and Technology (WGFAST) in Nantes, France, on 29 May 2015.

Acoustic data are currently being collected from a variety of acoustic systems in many countries to address a range of ecosystem monitoring and stock management objectives. There is no ICES CRR covering this topic, however, there are two CRR on adjacent topics: CRR 238, Editor: Dave Reid, Echo Trace Classification; and a CRR286, Edited by John Anderson on Acoustic Seabed Classification. Note that the CRR 238 focused mostly on single-frequency and school-based methods, and that at the time, work on multifrequency and wideband methods (while covered in that CRR) was more in a development stage, but is now much more mature.

The proposed CRR will avoid content of previous CRRs, e.g. on Echo trace classification (CRR 238, edited by Reid) and Acoustic Seabed Classification (CRR 286, edited by Anderson). Note that the CRR 238 focused mostly on single-frequency and school-based methods. The meaning of the term "Target Classification" was decided by WGTC to be regarded as essentially "species identification". This proposed CRR is suggested to contain broad advice of needs to classify targets as well as examples, but is not suggested to be a strict recipe on how to classify targets.

The 2015 Nantes meeting of WGTC concentrated on working on the proposed CRR itself. The work concentrated on ToR a: literature review and on methods for data collection and data preprocessing for optimal target classification, and on theoretical principles of target classification. The presentations focused on methods for target classification. Some of the presentations in WGTC referred to systems currently used for target classification, and in addition at least one system, during the acoustics conference. The draft CRR currently contains 40 pages in 11 chapters and 1 appendix.

The target audience for the proposed CRR was decided to be:

- Users: Those that provide abundance estimates and those that carry out the surveys. Scientists and technicians that need to understand what can be done, including possibilities and limitations, also being able to use existing processing tools and modifying existing tools within their framework. This includes knowledge of what can be done and what cannot be done, but not more than at best basic knowledge for why.
- Developers: Thorough knowledge of the theories and their limitations, with the purposes of using both existing tools/programs, and implementing own tools. The theories should be able to be implemented in own developed processing tools.

1 Administrative details

Working Group name

Working Group on Target Classification (WGTC)

Year of Appointment

2014

Reporting year within current cycle (1, 2 or 3)

2

Chair(s)

Rolf J Korneliussen, Norway

Meeting venue

Nantes, France

Meeting dates

23 – 24 May 2015

2 Terms of Reference a) – c)

ToR	Description	Background	Science Plan topics addressed	Dur.	Expected Deliverable
a	Review, summarize and report on the literature regarding (1). Acoustic systems currently used in fisheries research and surveys, (2) theoretical principles of target classification and (3) methods currently being practiced;	The ICES reference for acoustic target classification needs to be useful to practitioners of fisheries acoustics and ecosystem surveys that produce data for stock management. The first step in this process is to review, summarize and report on the literature regarding the methods that are currently used in fisheries research and surveys. The theoretical principles for target classification must be summarized, and the methods currently being practiced must be evaluated		2 year	Review document presented to WGFAST in 2015
b	Develop recommendations protocols for methods to be used for target classification during ecosystem surveys including (1) commonly used acoustic	There is a need for recommendations to the ICES community for methods to be used for acoustic target classification. These methods cover commonly used acoustic systems used in fisheries research and ecosystem surveys, and must be generic		Year 3	Recommendations document presented to WGFAST in 2016

	systems used in fisheries research and surveys (2) principles of classification, general and specific to these selected systems (3) standard protocols for classifying multifrequency data	enough for application in systems not specifically considered. The methods must be practical and based on solid theoretical principles.		
c	Based on ToR a) and b) a CRR proposal should be developed for SCICOM consideration.	There is a recognized need to comprehensively document the current theory and recommended practice of acoustic target classification for use in Fisheries Science and ecosystem surveys, and publish them in an easily accessible report.	Year 3	CRR proposal submitted for consideration by SCICOM in Septebmer 2016

3 Summary of Work plan

Year 1 (2014 – 2015) Initiate the work

Year 2 (2015 – 2016) Finalize the review (ToR a)

Year 3 (2016 – 2017) Finalize recommendations and prepare a CRR proposal (ToR b and c)

4 List of Outcomes and Achievements of the WG in this delivery period

- Work on CRR initiated
- Literature review almost finalized
- Proposed authors of several chapters CRR have delivered first draft
- First 40 pages of CRR draft has been completed.

5 Progress report on ToRs and workplan

- Progress by ToR: second year
- Changes/ Edits/ Additions to ToR: no changes
- Cooperation with other WG: WGFAST
- Cooperation with Advisory structures: none
- Science Highlights: none

6 Revisions to the work plan and justification

No revisions – using original work plan.

7 Next meetings (Interim reports only)

Vigo, Spain, May 2016 (dates to be confirmed)

May 2017 (to be confirmed) at unknown location

Annex 1: List of participants to Nantes meeting 2015

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Annex 2: Recommendations

ICES Working Group on Target Classification did not reach any recommendations within the 2015 meeting. There will be few or none presentations in the 2016 WGTC meeting since all participants are now expected to be up to speed on target classification methods.