HABITAT MONITORING WORKING GROUP

Galway, Ireland, 30 April 2019

Report of the SPRFMO Habitat Monitoring Working Group (HMWG) Session
Annual Meeting of the ICES's Fisheries Acoustics Science and Technology
Working Group (WG-FAST)

The use of fishers' acoustic data as a source of environmental information has been considered in the South Pacific Regional Fisheries Management Organization (SPRFMO) since 2009 after an initiative leaded by ICES-FAST members. In 2014 a task group on "fishing vessels as scientific platforms" was created by SPRFMO for a duration of 3 years. It produced reports on calibration procedure for acoustic equipment aboard fishing vessels and on target strength (TS) standard measurements for Chilean jack mackerel (CJM). The task group recommended to create a working group on the theme of Habitat monitoring. Then, during a workshop held in Chile during May 2018 a specific proposal was agreed and sent to the SPRFMO Scientific Committee (SC). The proposal for the creation of the Habitat Monitoring Working Group (HMWG) was approved by the SC during September 2018, assigning the CJM as first study case.

The HMWG must accomplish a series of terms of reference (ToR) that specify its role. The HMWG will act as a management tool and provider of indicators obtained from the monitoring of the environment. The pieces of information required for such work come from diverse sources: the fishery, the acoustic surveys (scientific and from the fishery), oceanographic and biological surveys, remote sensing data etc. Some examples showed that this series of data allows to elaborate descriptive models on the dynamics of the CJM habitat. The contribution of the fishing industry at various levels was acknowledged as essential during the session.

The habitat is mostly leaded by the trophic interactions within the ecosystem. The species that contribute the most to this level as far as pelagic environment is concerned are the macrozooplankton (e.g. krill), and mesopelagic fish, among which lantern fish (*Vinciguerria lucetia*) is the most important specie. In the case of the northern Humboldt Current System some studies exist on its distribution, behaviour patterns and biology exist.

As a case example a rather complete description of habitat design and analysis was given for the Peruvian anchovy. Apart the expected relationships between the fish and the environment, the plasticity and tolerance of anchovy to changing conditions have been evaluated. Some of the used methods and models could be applied to the CJM.

This important amount of data sources and data flow requires techniques and methods to collect, process and analyse data automatically. Some pieces of equipment have been designed and are installed aboard European pelagic trawlers. A device has been developed (Oceanbox) to allow an automation of the different steps involved, from the calibration procedure until data analysis and calculation and results.

The discussion allowed concluding that the conditions for developing research on "habitat monitoring" were present (at least for the CJM), e.g. the techniques of data collection, the sources of information, the existence of oceanographic and climatic models, the knowledge on the biology of CJM, until the habitat modelling. Then, most of the data and knowledge needed for accomplishing the objectives of the ToR are already available. The next challenge will be to define and extract the pertinent indicators for achieving the main goals (stock management and habitat monitoring) defined in the ToR.

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LIST OF PARTICIPANTS

HMWG CHAIRPERSON

Mariano Gutiérrez (IHMA, Peru)

MEMBERS

Chile

Aquiles Sepúlveda (INPESCA, Chile)

European Union

Francois Gerlotto (France)

Aurore Receveur (IRD, France)

Martin Pastoors (FTA, The Netherlands)

New Zealand

Pablo Escobar-Flores (NIWA, New Zealand)

Yoann Landroit (NIWA, New Zealand)

Peru

Salvador Peraltilla (TASA, Peru)

Ramiro Castillo (IMARPE, Peru)

Anibal Aliaga (Diamante, Peru)

José Luis Rojas (Austral, Peru)

Martin Santivañez (CFG, Peru)

John Robles (Exalmar, Peru)

Daniel Grados (IMARPE, Peru)