Innovative Approaches in Support of Stock Assessment Fisheries Management Systems by the Food and Agriculture Organization of the UN

Enfoques Innovadores en Apoyo a los Sistemas de Manejo de Pesquerías y Evaluación de Stocks de la Organización de Naciones Unidas para la Alimentación y Agricultura

Approches Innovantes en Appui aux Systèmes de Gestion et D'évaluation des Stocks par l'Organisation des Nations Unies pour l'Alimentation et l'Agriculture

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EXTENDED ABSTRACT

The Food and Agriculture Organization of the United Nations (FAO) has the mandate to collect fisheries statistics to feed the largest global database on fisheries statistics. FAO has been involved in the recent years in the design and development of innovative tools in support to the fisheries statistics supply chain.

As part of its mandate to collate national statistics, FAO has been leading the development of standards for the definition of information to be collected, with the objective to address the need for sound statistics in support to evidence based policy making. Standard classifications such as the ASFIS list (list of species of interest for fisheries) are maintained and shared with different fisheries stakeholders; a new step is being taken now to define standard formats for the key fishery indicators that will facilitate data sharing and exchange from national through to regional and international level. The Coordinating Working Party on fishery statistics (CWP) is currently developing a global standard for data structure definitions which will constitute a global reference for publishing fishery datasets which can be easily exchanged. To support capacity building on these standard concepts, definitions and classifications, FAO has developed a number of technical guidelines and training materials including an International training course in fishery statistics and data collection (DeGraaf et al. 2014).

These definitions are meant to be used as standard inputs/outputs for the FAO corporate Scalable Software Framework (SSFK). This initiative led by the Fisheries and Aquaculture department of FAO and financially supported by the Japan Fisheries Agency aims to streamline support to Member states requesting assistance in fisheries statistics. This framework is built on years of experiences in developing methodologies and tools for national fisheries statistics supply chain. It will also benefit from newly developed systems that increase quantity and quality of data collected from developing countries fishers such as Automatic Identification System (AIS); it includes the gathering of more precise information on fishing vessels location to improve computation of the fishing effort indicator.

FAO has in the meantime developed an additional framework for smartphone application development, SmartForms, that is being used in different contexts to multiply source of information and data flow into the SSFK. This modern tool provides an innovative approach to data collection in contexts where data are poorly available. This is the case for recreational fisheries with a pilot being implemented in the Caribbean to collect catch information from billfish sport fishers.

IT partnerships have been fruitfully developed between FAO and other major actors in the IT world such as Google Earth Engine and Global Fishing Watch to provide a platform exploiting AIS data that enables to better estimate fishing effort, especially for the Small Scale Fisheries.

Data collected at national level feed development of fisheries policies to ensure sustainable exploitation of marine resources. One key component of these sources of information for policy making is stock assessment. It is a complex science because fish are complex to monitor. Scientists have developed along the years different models which emphasize different aspects of the biological characteristics of species and are tailored to the availability of different levels of data and information. Countries don't always have the resource to access these types of analysis. FAO has been working actively with NOAA (USA) and CNR (Italy) to develop innovative solutions to facilitate access to these models, run computation on-line, and be interactively trained. With support and collaboration from the European funded iMarine e-infrastructure, a Virtual Research Environment (VRE) has been developed to implement user friendly toolbox to support training of national fisheries specialists or officers on different models (including Data limited Model for instance). Series of webinars to promote the use of the different services have been created under the iMarine / BlueBRIDGE project.

Lessons learnt from past experiences are mainstreamed into FAO current initiatives: training and capacity building are key as no sound statistics can be produced on the long term without skilled fisheries statisticians in the different institutions. In the frequent absence in the Caribbean of modern legal framework to support Ecosystem Approach to Fisheries, involvement and commitment of all stakeholders including national authorities are instrumental to sustainable fisheries management.

In the WECAFC region, FAO is working on building a large project with a key component of supporting reinforcement of national fisheries statistics and management information systems with innovative approaches. On a longer term, such

systems should benefit from global initiatives and global partnerships to better integrate external and alternate source of data (Big Data), offering opportunities to enrich national data.

KEYWORDS: Data collection framework, software, SmartForms, Automatic Identification System, FAO

LITERATURE CITED

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