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Title:	How technology is supporting the delivery of better data for informed management of coastal fisheries
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Summary/short description/key points:

The e-data systems being developed by SPC are underpinning a renewed approach by Pacific Island country and territory (PICT) fisheries agencies, to improve their data collection on coastal fisheries catches.

Successive RTMCFA and HoF meetings have positively endorsed this approach, with 11 members currently accessing the system for data collection. Training and ongoing support continues to be provided to current and new users on request.

Key to improving the quality of the data collected is harnessing the power of modern computing and software to generate “artificial intelligence” (AI) which can interpret photo-based data collections with accuracy and speed.

SPC FAME’s CFAP Database Management and Science teams have collaborated to develop cutting edge AI for analysing photos of fish and invertebrate species. Development is ongoing with the objective of increasing power to analyse photo-based data as effectively as possible. We will be providing an update to members on progress and achievements.

Another key aspect of the e-data system is to provide on-line portals for entering and reporting on data within required frameworks. For example, the requirement for Non-Detriment Findings (NDF) when seeking export permits for trade in CITES listed products, such as sea cucumbers. SPC is developing an online system for the NDF process which will guide and support members to produce NDFs. We will provide a demonstration of the system and guidance on its use once online.

Recommendations:

Members are invited to ask questions and seek feedback about the systems that SPC FAME has developed or is developing for SPC PICTs.

How technology is supporting the delivery of better data for informed management of coastal fisheries

Background

1. As previously reported in RTMCFA4, SPC FAME's CFAP Coastal Fisheries Science and Database teams have been developing a suite of e-data tools in response to member requests for improving fisheries data collection systems and now have a suite of tools for vastly improving the collection and reporting of fisheries data.
2. Use of technology allied with simplified fisheries data collection methodologies provides the means for Pacific Island Countries and Territories (PICTs) to ensure appropriate information for managing coastal fisheries can be collected in an efficient and timely manner and without major capital investment from already overextended national budgets.
3. After a number of years of remote collaboration and development work with member countries, and later in-country training and support, it is appropriate to review the progress of this programme of capacity and capability building. We will present:
 - Summary outcomes from the use of SPC's e-data systems, notably market and creel survey data collections using the Ikasavea application.
 - Highlights of the ongoing development of the AI component of the programme, especially its capacity to deal with invertebrates (more information can be found in Information paper 13 *Boosting data collection in Pacific Island's coastal fisheries using artificial intelligence technologies*).
 - Demonstrate the use of an online portal for supporting members needing to undertake NDF assessments as part of permitting requirements for trading in CITES listed products such as Sea Cucumbers (more information can be found in Information paper 12 *Facilitating the Non-Detriment Finding process via an online eNDF tool: A follow-up from RTMCFA5 Working Paper 2, "What is needed for trade in CITES-listed sea cucumber species"?*)

Use of Ikasavea to collect market and creel data

4. Use of the e-data system and its associated application, Ikasavea, continues to be embraced by member PICTs, with eleven members currently using the system and others having requested training and support. Early adopters have helped to improve the stability and practicality of the system through heavy use in the field. For those members' programmes that have now been using the system for several years, these are now working to turn data collection into effective reporting for making evidence-based management decisions.
5. SPC is looking to build partnerships to create a set of relevant software tools to analyse size-based data collected through SPC's e-data systems that can produce outputs suitable for evidence-based management decision making.
6. A workflow from data collection to analysis and interpretation will be demonstrated.

Development of AI for processing of photo-based data collections

7. AI-aided photo-based data collection was integrated into IkaSavea's functionality when used for either creel or market surveys. The AI-powered transformation lies in its ability to autonomously recognise species and accurately measure lengths and weights, marking a significant departure from conventional methods and freeing-up invaluable resources. The use of AI also enables community driven approaches to data-collection (e.g. Pathways). The use of AI to facilitate simultaneous traditional fisheries and community-driven data collection programmes will benefit evidence-based decision-making efforts for sustainable fisheries management.
8. The continued development of the AI functionality of SPC's e-data system will be demonstrated for several fisheries species (crabs, lobsters and finfish). Data outputs using AI-aided measurements will also be demonstrated.

Online portal for development of NDF documentation for trading in CITES listed products

9. Three teatfish species¹ were listed on Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) on 28 August 2020. In August 2022, CITES Parties also voted to include the genus *Thelenota* on Appendix II, which includes three species *Thelenota ananas*, *T. anax* and *T. rubralineata*. The proposal to list the three *Thelenota* species will come into effect on 25 May 2024². With the CITES Appendix II listing, countries are now obligated to carry out a population-based risk assessment to continue exports of these species. This risk assessment entails a Legal Acquisition Finding (LAF) and a Non-Detriment Finding (NDF).
10. SPC teamed up with Blue Resources Trust and developed an eNDF tool to clarify some of the complexities of the NDF process. The tool supports information gathering and facilitates an assessment of the effect of trade on sea cucumber species' populations. The tool uses information on the status of the fishery and the management regime to create an automated risk-based assessment for each species to determine how harvesting under a country or territory's fisheries management structure could impact the population of sea cucumbers within their jurisdiction.
11. The development and functionality of the online NDF will be demonstrated.

¹ White teatfish (*Holothuria fuscogilva*) and black teatfish (*H. whitmaei* – Pacific Ocean species, and *H. nobilis* – Indian Ocean species)

² <https://cites.org/eng/app/appendices.php>