

Original: English

Paper reference:	Working paper 1
Title:	Supporting the integration of e-data systems into coastal fisheries across the Pacific Island countries and territories
Author(s):	Andrew Halford, George Shedrawi, Pauline Bosserelle, Sebastian Gislard, Priya Rachna, Franck Magron, Bernard Vigga

Summary/short description/key points:

Following requests and support from Pacific Island Countries and Territories (PICTs), SPC's Coastal Fisheries Programme has developed a range of e-data tools for improving the process of data collection, analysis and reporting on coastal fisheries.

Because of Covid-19 driven travel bans, engaging member countries and territories in training and use of these tools has required a total shift to online learning as the primary tool for delivery of such programmes.

These training workshops are focussed not only on the e-data collection systems but also provide training and teaching on appropriate sampling protocols and analysis for reporting on coastal fisheries.

Outcomes and recommendations:

- SPC Coastal Fisheries and Aquaculture Programme (CFAP) Science and Information and Database teams have now started to run e-data training workshops with fisheries staff from individual member countries and territories that have requested such.
- We are asking members who are not already receiving training to indicate their level of support and interest in receiving this training and to reach out to SPC.
- We are asking members to indicate their willingness to continue development of their coastal fisheries science and monitoring capacity with the help and support of SPC.
- We are looking to members to provide feedback on other training options that will help improve the ability of coastal fisheries staff to better manage their coastal fisheries.

Supporting the integration of e-data systems into coastal fisheries across the Pacific Island countries and territories

Background

1. High quality fisheries data remains an essential need for effectively understanding and managing coastal fisheries resources. This has become increasingly important under the effects of the COVID-19 pandemic, which has forced many communities to increase their reliance on their coastal and marine resources to supplement lost livelihoods and income. These COVID-19-driven impacts on coastal and marine resources have the potential to accelerate the depletion of stocks and will need effective and pro-active management to remain viable in the long-term.
2. Use of technology, allied with simplified fisheries methodologies, provides the means for PICTs to ensure appropriate information and data for managing coastal fisheries can be collected in an efficient and timely manner, without major capital investment from already over-stretched national budgets.
3. SPC's Coastal Fisheries and Aquaculture Programme has been developing e-data systems over the past two years in response to countries' requests for improving fisheries management systems. SPC now have a suite of tools for vastly improving the collection and reporting of fisheries data. These tools are all located at a single location within FAME's web portal with access provided to individual members on a case-by-case basis.

Tools that have been developed include:

- a. Ikasavea – a tablet/phone-based app for the collection of market, creel survey, and socio-economic data in the field.
- b. Online Data Entry and Analysis for Field Surveys, Market Surveys, Landing Surveys, Socio-Economic Surveys.
- c. LearnFishID – a web-based app for learning all species of fishes and invertebrates commonly found in markets of the region.
- d. PacFishID – a tablet/phone app which provides instant access to fish species identification.

Further tools still under development include:

- a. Species Information – a web-app that provides the latest biological information on fish and invertebrate species from member countries and territories
- b. Artificial Intelligence for recognition and analysis of photographic data – use of advanced computing power to automatically analyse photos and identify parameters of interest. Ability to analyse thousands of images with >80 % accuracy and significant time savings.

4. The focus now is to accelerate the uptake, integration, and application of these e-data systems into PICT's coastal fisheries departments in support of evidence-based management. The challenge is to do this in an efficient and effective manner, despite the inability to travel and provide face-to-face training and support.

A process for regional implementation

5. Improving data collection in coastal fisheries has been a focal issue since the first Regional Technical Meeting on Coastal Fisheries (RTMCF) in 2017 and SPC has worked steadily to generate significant improvements in this area. At the 3rd RTMCF in 2019, the Outcomes and Action Plan, endorsed by all members, fully supported the continuation of these efforts and requested training programmes be implemented to ensure a clear understanding of the approach being taken and to encourage uptake on a regional scale.
6. COVID-19 travel restrictions have removed face-to-face interactions which are so pivotal to learning outcomes, however, this has also created opportunities to invest in on-line learning systems which will create a permanent online teaching and capacity building presence.
7. Prior to the COVID-19 related travel restrictions, the SPC coastal fisheries team worked with a limited number of countries, to introduce the e-data system to their coastal fisheries staff as part of the process to improve coastal fisheries market data collection systems across the region. We have continued to work with these countries to improve our systems and ensure they are providing appropriate outcomes. This period of introduction, testing, feedback and improvements has resulted in a better system more aligned to local capacity and requirements.

DEVELOPMENT AND IMPROVEMENT OF A MARKET SAMPLING PROGRAMME

OBJECTIVE

IMPROVE SAMPLING METHODOLOGY, DATA COLLECTION AND REPORTING

PROCESS

DESIGN APPROPRIATE SAMPLING METHODOLOGY FOR FISH MARKET SURVEYS.

INTRODUCE APP-BASED MARKET SURVEY FORM FOR COLLECTION OF DATA — CONDUCT TRAINING SESSIONS.

INTRODUCE WEB-BASED DATA INPUT AND STORAGE SYSTEM TO COMPLEMENT APP-BASED FORM.

COMPLEMENTARY TRAINING IN IDENTIFICATION OF FISH SPECIES COMMONLY FOUND IN MARKETS — LEARNING AND TESTING MODULES TO TRACK PROGRESS.

BEGIN DATA COLLECTION USING APP AND/OR WEB — CONTINUE TRAINING AND FEEDBACK.

ANALYSE DATA COLLECTED USING IN-BUILT TOOLS WITHIN WEB-BASED DATA STORAGE SYSTEM. CUSTOMISE OUTPUT AS NEEDED TO PRODUCE REPORTS.

REGULAR FEEDBACK SESSIONS TO IDENTIFY ISSUES, PROVIDE FURTHER SUPPORT, IMPROVE APPS WHEN NECESSARY.

EXTRA TRAINING IN ANALYSIS AND INTERPRETATION OF FISHERIES DATA.

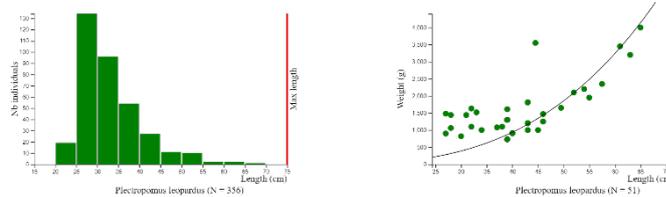


Figure 1. An example of how a training programme is implemented to develop and or improve collection and reporting of market catches.

8. Having completed a period of testing and improvement of the e-data system through collaboration with members, SPC's Coastal Fisheries and Aquaculture Programme Science team has started delivering a series of training and learning modules to several member countries that have formally requested help with their coastal fisheries data collection programmes. These will provide a comprehensive 'starter kit' for coastal fisheries staff to build the confidence and skills needed to improve and modernise their coastal fisheries data collection programmes.
9. While training workshops will focus on market and creel survey methods using the e-data systems, SPC's Coastal Fisheries Science and Information and Database teams are seeking input from member countries on the development of other complementary training modules they may require.
10. Training will be complemented by continual support from CFAP Science and Information and Database staff to ensure the learning process continues. When travel resumes, the CFAP team will organise to visit all interested countries and territories to help further establish and support the implementation of coastal fisheries monitoring programmes which have the capacity to deliver timely, accurate information on the state of coastal fisheries.

Questions for breakout groups

- a. How is information currently being collected from markets and fishers and how has it been impacted by COVID-19 restrictions?
- b. Are you familiar with using apps and the internet?
- c. Is there a lack of technical equipment and information technology support structure that will hinder your ability to use e-tool data collection systems?
- d. The e-data training programme has been developed through a collaborative process of feedback from member countries and territories on coastal fisheries issues, and the response and application of SPC's scientific and technical expertise. What other science-driven training programmes would you like to see, especially as we remain constrained by the COVID-19 pandemic?