

## AMPLE: A “Shiny” new approach to capacity building for Pacific tuna harvest strategies

Capacity building is an important component of the work performed by SPC. The FAME division alone has delivered training to over 4000 people since 2016. However, there is no single best way of capacity building. It depends very much on the target audience, the subject matter, and of course on the individual, as people learn in different ways.

A common method of capacity building is the ever-present PowerPoint presentation. Although slideshow presentations can be informative, their static nature can make them unsuitable for technical subjects. While there are ways to make them more engaging, after two years of online workshops, many of us are experiencing PowerPoint fatigue!

A more interesting alternative is the use of interactive tools. By giving people the opportunity to be more hands-on in their learning using interactive tools, a subject can come alive allowing the audience to really get to grips with the subject matter. This has been the approach taken by members of the FAME Stock Assessment and Management (SAM) team; they have developed several applications, called AMPLE, to support capacity building for developing harvest strategies for the region’s tuna stocks.

The Western and Central Pacific Fisheries Commission (WCPFC) has agreed to a workplan for adopting a harvest strategy approach for the four main tuna stocks. A harvest strategy is a formalised framework for fisheries management that provides the best chance of achieving management objectives, both for the fishery and the fish stock. It represents a best-practice approach for fisheries management as well being an important consideration for Marine Stewardship Council certification.

The development of a harvest strategy is driven by fishery managers and stakeholders who are required to make a range of informed decisions during the development process. The WCPFC harvest strategy development work is being carried out by SPC along with the Pacific Islands Forum Fisheries Agency (FFA). Capacity building and stakeholder engagement has focused on the delivery of national workshops around the region. So far, 15 of these workshops have been conducted, including in Fiji, Kiribati, Palau, Papua New Guinea, Solomon Islands, and Tonga.

Central to a harvest strategy is a management procedure that sets fishing opportunities, such as effort or catch lim-



Participants at a workshop in Tonga using performance indicators to compare and select different harvest control rules. Image: © SPC



Getting to grips with uncertainty in the long-term performance of a harvest control rule. Image: © SPC

its, using an estimate of stock status, such as the current biomass. A management procedure has three components: data collection, a stock status estimation method, and a pre-agreed rule known as a harvest control rule (HCR). Agreeing the management procedure is a key step on the road to developing a harvest strategy.

Harvest strategies are new to the region, and they may be unfamiliar to many people. Many of the components of a harvest strategy present challenges for capacity building. In particular, HCRs can be difficult to explain. Yes, it is possible to describe them using PowerPoint presentations, but these do not capture their dynamic nature. As an alternative, SPC has developed three different interactive apps that explain how HCRs work.

These apps include several novel features that make them particularly suitable for participants with no pre-existing knowledge of HCRs. For example, they include a very gentle introduction to how HCRs work that allows users to go step-by-step through the HCR process. There is also a basic introduction to the impact of uncertainty on the performance of an HCR that allows users to run individual stochastic simulations that, taken together, can be used to measure performance.

The apps are intended solely for training purposes and for facilitating discussions around the decision-making process for Pacific tuna harvest strategies. They are not tools for developing the HCRs that will be adopted across the WCPO, but tools for capacity building and communication so that stakeholders can actively participate in the harvest strategy development process.

During the capacity building workshops, these apps have proved to be a popular and successful platform for learning. Using them for group activities and competitions helped to invigorate workshops and stimulated lively and constructive discussions. This was particularly the case during recent times, when travel was restricted by the COVID pandemic, and all workshops were conducted online. By sharing their screen showing the app, participants could be guided by the trainers, making the workshops more interactive.

The apps are hosted online which means that they are accessible to everyone. Instructions and short tutorials are available through the apps:

- Introduction to HCRs (<https://ofp-sam.shinyapps.io/AMPLE-intro-hcr/>)
- Measuring performance (<https://ofp-sam.shinyapps.io/AMPLE-measuring-performance/>)
- Comparing performance (<https://ofp-sam.shinyapps.io/AMPLE-comparing-performance/>)

If you are interested in the technical background, the apps were built using R and the Shiny package. They are available as a package (AMPLE) from the Comprehensive R Archive Network, or CRAN. The apps were also recently published in a peer-reviewed journal.<sup>1</sup>

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<sup>1</sup> <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0269543>