| **Project title** | **TORs** | **Essential** | **Priority / Rank** | **2019** | **2020** | **2021** |
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| **Project 83. Investigating the potential for a WCPFC tag vessel**  Co-funded to be sought | Annexed |  | High | 95,000 |  |  |

**Proposal for a study to assess the operational costs of a dedicated tuna research vessel for the Pacific Ocean**

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| **Investigating the potential for a WCPFC tag research vessel** | |
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| **Project 83** | **Investigating the potential for a WCPFC tag research vessel** |
| Objectives | To explore the costs and benefits of the permanent use of an adaptable research vessel dedicated to the collection of the data used in tuna stock assessment in the WCPO. |
| Rationale | 1. **Rationale for project** 2. **General**   More than 70% of the global tuna catch are fished in the Pacific Ocean for an estimated value of over US$6 billion. The harvesting level of tuna resources and the efficiency of the involved industrial fleet henceforth impose a very responsive management mode. The management measures need to be supported by strong evidence based on high quality data allowing stock assessment containing a minimum of uncertainty. The data obtained independently from the fishing fleets have become essential and the science based management bodies have the responsibility to support their analysis with the best scientific evidence available. This requires a continuous acquiring of mortality rates for the impacted species, a detailed knowledge of their biology, along with their behaviour in response to fishing gears and in response to the variations in their environment. Assessing the fishing impact on the whole ecosystem requires collecting data on all the species living in association with tuna and tuna-like species, data about their prey and the pelagic ecosystem. The collection of all this information requires the permanent use of an adaptable research vessel properly designed for the purpose. There are currently no suitable tuna research vessels available in the region (or beyond).  Concurrently the fleet of vessels available to charter for research, especially in pole and line fisheries, are becoming increasingly difficult to procure or no longer meet standards necessary for the conduct of research (PTTP Steering Committee, 2018).  Accordingly it is increasingly urgent to carefully explore the permanent use of an adaptable research vessel dedicated to the collection of the data used in tuna stock assessment.   1. **SC 13 and SC 14**   At SC13 the PTTP Steering Committee considered the issue of the availability of suitable tagging vessels, especially for pole and line based research, at its 11th meeting during SC13. The PTTP Steering Committee endorsed the proposal outlined in SC13-RP-P42-02 Appendix II and recommended that SC13 support an assessment of the cost-effectiveness of acquiring a dedicated tagging vessel (SC13-RP-P42-01). The 2018 report of the PTTP highlights the increased urgency of conducting this work (SPC-OFP 2018), especially given not only the increasing costs, but also the difficulty in securing a suitable vessel for charter in the region. At SC14 the PTTP Steering Committee recommended to SC14 that the priority of this work be increased to high.   1. **Current availability of suitable research platforms** 2. **For tagging experiments**   Tagging studies are commonly used in fisheries research to improve estimation of animal population size, mortality, movement (spatial stock structure) and growth. Until now, large scale tuna tagging campaigns for skipjack tuna have chartered medium-size commercial fishing boats around 200 GT tonnage (199 GT for last PTTP, 237 GT for IOTP) for cost reasons, and also due to size restrictions on bait ground access and restricted suitable anchorage in some areas. Releasing a large number of conventionally tagged tuna implies the use of a pole-and-line vessel, but suitable such tagging platforms are becoming increasingly scarce worldwide. In most countries, pole-and-line fleets have been replaced by purse-seine fleets.  Research cruises more orientated towards electronic tagging and targeting all size tuna and their associated species need a more polyvalent tagging platform that could deploy a large variety of fishing gears (e.g. horizontal and vertical longlines, troll lines, danglers, and rod and reel). Catching and handling large size fish requires a working deck with easy access to the sea and a boat with high manoeuvrability facilitated by steering commands located at the working deck level. For example, the design of a standard Japanese pole and line vessel is not suitable for the purpose.  In the Pacific, some longline type fishing boats have been used to target the tuna schools that are associated with floating objects, mainly the oceanographic buoys (TAOs) that are anchored along the equator and the drifting FADs used by the purse seine fleet. The distances involved between floating objects and from ports with appropriate facilities for deploying a research voyage require the use of long-range (> 6,000 nm) platforms which are not common in the region for the necessary size of fishing vessels for successful research.   1. **For collecting ecosystem biological and physical data**   This necessitates the use of gears that are usually not found on a commercial tuna fishing vessel, including : trawling nets to catch tuna prey and plankton size organisms, CTDs to collect sea water temp/depth profiles, and multi-beam echo-sounders that can manage continuous records of highly detailed bio-acoustic data.  Boats used in this type of research are typically from the oceanographic vessel category. They are usually linked to governmental scientific institutes. To operate the different types of gears used at an ocean wide scale, those vessels need to be large (>400 GT). To cover important operational and maintenance costs, their use is often shared between multidisciplinary research projects. Their availability is therefore limited, subjected to utilisation applications that need to be planned years in advance.   1. **Arguments for the construction of a new multipurpose platform dedicated to tuna research:** 2. **Practicality:**  * Tuna tagging data are likely to become increasingly important and need to be collected continuously rather than episodically. Other types of data need to be continuously collected to monitor the ecosystem changes. * The pole and line vessels that can currently still be chartered are disappearing along with the associated fisher knowledge on operations and bait grounds. These platforms cannot cover all the different data collection needs. * The global applicability of continuous data collection is likely to facilitate collaboration between the different tuna commissions (RFMOs). The cumulated needs at the Pacific scale could probably cover most parts of the yearly schedule of a single boat. * A crew specifically recruited and trained to the specific research methods and strategies will be more capable than a commercial fishing boat crew that often need a long training period before they become fully efficient.  1. **Cost:**  * Continuous research would avoid the substantial establishment costs needed each time a new programme is started. * Some examples:   + Previous recent charter costs, including fuel, for a long range tuna tagging platform (about 200GRT) were situated between 150,000 and 200,000 USD/month. The WP4 charter cost jumped to over 420,000 USD/month. Recent enquiries to utilise vessels from the north Pacific suggest considerably higher costs.   + The total tagging platform charter costs spent during each of the last large tagging projects (PTTP and IOTP) is over the current estimated cost for building a new boat of around 35 metres/200GRT (*Between 5 and 8 USD millions, IOTP vessels were built at about 4 USD millions in 2000*). Last estimation for the currently running (2017) AOPT total charter cost is 9.1 million Euro (ICCAT, SCRS/2014/092).   + A pre-assessment of some of the operational costs of an appropriate platform that could be built to address all the tuna research needs for the Pacific Ocean has been provided to SPC by F&S, a consultancy office specialized in the fisheries sector. That work would be available to this project. |
| Scope | The project would assess the full range of operational costs, including options on governance, inter-RFMO vessel sharing, multiple research modes, and future vessel replacement. These costs should be compared with the costs and benefits of the current approach. However, the current approach is not sustainable so the cost benefit analysis will need to consider alternate benchmarks in combination with the current approach.  The scope of work includes undertaking this assessment utilising suitable external experts. A report will be prepared and provided to SC15 for its consideration. |
| Timeframe | Start early 2019, completed by late 2019 |
| Budget | 2019 USD$95,000  \*Note that this covers, the cost of the external consultancy/consultancies (60 days) and reporting of the project outcomes to SC. It is also includes travel to the various locations that will be required to review some of the available vessels. The Scientific Services Providers input to the project will be provided as in-kind support. |
| References | PTTP Steering Committee. 2017. Report of the Pacific Tuna Tagging Programme Steering Committee. SC13-RP-PTTP-01. Thirteenth regular session of the Scientific Committee of the Western and Central Pacific Fisheries Commission. Rarotonga, Cook Islands, 9-17 August 2017.  PTTP Steering Committee. 2018. Report of the Pacific Tuna Tagging Programme Steering Committee. SC14-RP-PTTP-01. Fourteenth regular session of the Scientific Committee of the Western and Central Pacific Fisheries Commission. Busan, Korea, 8-17 August 2018.  SPC-OFP. 2017. Project 42: Pacific Tuna Tagging Project Report and Workplan for 2017-2020. SC13-RP-PTTP-02. Thirteenth regular session of the Scientific Committee of the Western and Central Pacific Fisheries Commission. Rarotonga, Cook Islands, 9-17 August 2017.  SPC-OFP. 2018. Project 42: Pacific Tuna Tagging Project Report and Workplan for 2018-2021. SC14-RP-PTTP-02. Fourteenth regular session of the Scientific Committee of the Western and Central Pacific Fisheries Commission. Busan, Korea, 8-17 August 2018. |