



**Description of a suitable  
small-scale vessel registration system  
for Pacific Island Countries and Territories**

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Coasts | Climate | Oceans

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Cover: Local skiffs, Vanuatu. Photo: Johanna Johnson

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## Executive Summary

- Coastal fisheries assessment and management in the Pacific have been neglected for some decades and management frameworks are generally poorly developed, particularly when compared to the more lucrative industrial scale tuna fisheries so abundant in the region (Gillett et al, 2015). The need for coastal fisheries data is not limited to reef based fisheries and data from small-scale fishing vessels is also needed to improve the Western and Central Pacific Fisheries Commission's (WCPFC) stock assessments for tuna across their entire range, and to boost the information requirements for national policies on food security.
- One of the benefits of a small-scale vessel registration system is the capacity to more easily collect vessel-based fisheries data including vessel and fisher enumeration, fishing practices, locations and catches, and to uniquely identify each individual small-scale fishing vessel (including canoes), which are not normally captured under licensing systems for industrial fleets. Therefore, the purpose of this consultancy was to describe the main components of a strong, useable SSFV registration system that would meet all the requirements of Pacific Island Countries and Territories (PICTs) Fisheries Administrations.
- In achieving this, the objectives of this consultancy were to: review registrations systems for SSFVs among PICTs; describe the main small-scale vessel types; describe vessel registration system data elements and information needs, and; present a plan of action for implementing a SSFV registration system.
- Fourteen PICTs were reviewed of which 6 currently have a vessel registration system in place or being implemented that includes small-scale coastal vessels. Most of the PICTs reviewed (11 of 14) also have (or is under development) the necessary legislation to implement a SSV registration system, albeit that many would need to develop specific regulations to implement the system effectively. However, although several PICTs have a system in place for SSVs, or are moving towards one, their approaches are questionable and therefore the systems are less effective than they could be.
- Small-scale vessel types among PICTs are varied however there are two major common vessel types common to PICTs: canoes and 'skiffs'. A skiff generally describes a small powerboat, which go by a variety of local names, and can be of different construction. A SSV registration system that includes these two vessel types would include the vast majority of SSVs among PICTs, particularly those engaged in fishing. Inclusion of vessel types would need to consider logistical challenges associated with registering canoes, mostly found in less accessible rural areas. Further, all PICTs identified sea safety as a major motivating factor for a SSV registration system and the majority of incidents involve motorised skiffs. Therefore the inclusion of motorised SSVs in a registration system for PICTs should be prioritised.
- The minimum (essential) information needs for an effective SSV registration system are personal details of vessel owners, and basic characteristics of vessels. Other data requirements will be dependent on key objectives of the system, however sea safety and fisheries management were highlighted as the key objectives during consultations. Therefore information collected as part of a registration system that addresses these objectives will be 'desirable' however need to also ensure that data are robust and useable and that systems involving their collection are cost-effective.
- Data management systems for vessel registration in PICTs need to be electronic and will therefore require relevant expertise to assist in their development. Electronic databases will help to ensure consistency and compatibility to enable data sharing, similar to that used for oceanic fisheries among FFA member countries.
- To guide development of a 'plan of action' a flow chart is proposed that sets out the steps and associated tasks for the development and implementation of a SSV registration system suitable for PICTs. The flow chart draws heavily on the learning's from consultations during this consultancy and from reviews of working systems in developed countries. Despite some PICTs

already having a system in place, all current systems had some shortcomings and would benefit from a revision and re-development adopting the relevant steps outlined. The utility of this flow chart may also be timely given that several PICTs are currently in the process of developing their own SSV registration system.

- The benefits of a vessel registration system need to be weighed very carefully with the costs. This will be locally dependent and its applicability for each PICT will vary; it is possible that SSV registration may be impractical and not cost-effective for some PICTs.
- Given limiting resource issues and the desire to facilitate a consistent approach to SSV registration among PICTs, it is proposed that relevant SPC and FFA experts develop a system 'template' guided by the flow chart. This 'template' would comprise each of the components in the flow chart and outline the resources required by PICTs to customise the system to local requirements and issues. Even without the development of templates, it is recommended that the flow chart is used as a guide for the development and possible review of SSV registration systems in the Pacific, and potentially elsewhere.
- Finally, the current system being implemented in PNG is highlighted as a potential example of how to design and implement a SSV registration system in PICTs that overcomes many of the local challenges. Monitoring the success (or otherwise) of this system will be a useful guide as to the likely future potential of SSV registration systems in the Pacific.

# 1. Introduction

The Oceanic Fisheries Programme, Fishery Monitoring Section, of the Division of Fisheries, Aquaculture and Marine Ecosystems (FAME; The Secretariat of the Pacific Community – SPC), provides advice to member countries in monitoring their tuna and tuna-like species fisheries. Increasingly this includes supporting the collection of information from small-scale fishing vessels to improve the Western and Central Pacific Fisheries Commission's (WCPFC) stock assessments for tuna across their entire range, and to boost the information requirements for national policies on food security.

Small-scale fishing vessel registration allows national fisheries administrations to enumerate and uniquely identify each individual small-scale fishing vessel (including canoes), which are quintessentially non-commercial in their operations, and not normally captured under licensing systems for industrial fleets. Previously, small-scale fishing vessel (SSFV) registration systems, or components of, were developed and available to PICTs Fishery Administrations, however not all of these systems are currently functional, and local challenges often relating to fishers' resistance and the fee structure continue to hinder the successful registration of small-scale fishing vessels.

In 2014 the SPC Data Collection Committee posted a vessel identification format to allow PICTs to uniquely identify vessels when monitoring their artisanal tuna fishery (SPC/FFA Regional Standard Artisanal Vessel Identification Form: FORM ART-2; Appendix 1). This data format, while still in the early stages, has been adopted by a number of PICTs. However, it would be desirable to assess the requirements of a more comprehensive national SSFV national registration system, so complementary systems are not required, or if proposed their integration will be seamless and not put extra burden on Fisheries staff.

Therefore, the purpose of this consultancy was to describe the main components of a strong, useable SSFV registration system that would meet all the requirements of PICTs Fisheries Administrations. To ensure that any system proposed would be efficient and comprehensive, all small-scale vessels (SSVs) were considered, not just those used for fishing. To achieve this, as per the consultancy terms, this report:

1. Reviews the status of national SSV registration systems among PICTs, and describes current systems;
2. Describes the different types of vessels that could be described under a SSV registration system;
3. Describes the desirable data elements and information requirements that should be covered under an appropriate SSV registration system; and
4. Presents a plan of action for implementing a SSV registration system.



## 2. Consultation process

Availability of information about SSV registration systems in the Pacific region is highly variable. Therefore, consultations with as many PICTs were key to the success in obtaining the relevant information for this consultancy. Consultations were conducted using two main approaches: 1. In-country visits and associated meetings; and 2. Correspondence via email and/or telephone. Consultations were focused on FFA-member countries but where possible other PICTs were also consulted. For all consultations a list of key questions was compiled to help guide consultation meetings, to ensure the collection of key information required to meet the objectives, and to ensure consistency among country consultations.

Ultimately, a total of 13 PICTs were successfully consulted with for the purposes of this consultancy. This included in-country meetings conducted between October 6 and 30, 2015 in Solomon Islands (Honiara), Fiji (Suva and Nadi), Kiribati (Tarawa), and Samoa (Apia) (Table 1). In each PICT a number of different individuals from a variety of agencies and departments were consulted. These individuals and their affiliations are provided in Appendix 2.

**Table 1.** Summary of the PICTs for which relevant information could be obtained, including the type of consultation that took place. Meetings were both formal and informal.

Country	Type of consultation
Fiji	In-country meetings, email, phone
Papua New Guinea	Email
Solomon Islands	In-country meetings, email, phone
Vanuatu	Email
Kiribati	In-country meetings, email
Marshall Islands	Email
Nauru	Email
American Samoa	Email
Cook Islands	Email
Niue	Email
Samoa	In-country meetings, email
Tonga	Email, phone
Tuvalu	Email

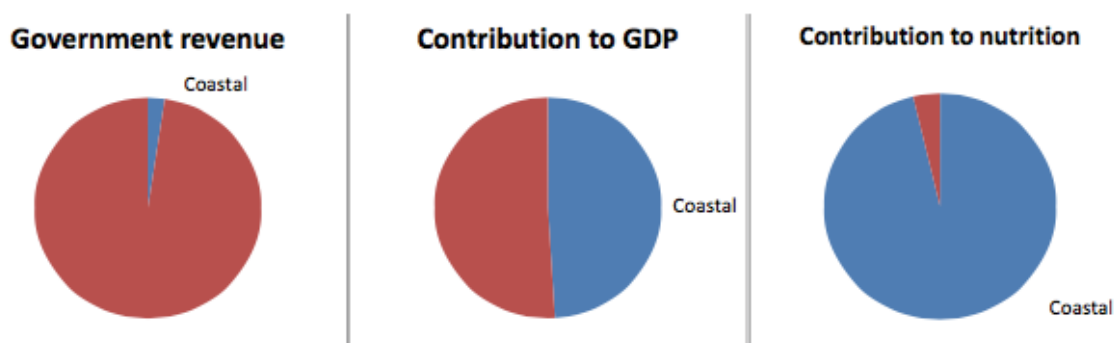
### 3. Review of small-scale vessel registration systems

#### General overview

Generally, vessel registration systems across the globe serve two main purposes: to enhance safety for vessel operators and crew while on the water, and to enhance fisheries management activities. The relative importance of these varies from system to system and location, however from an efficiency perspective, development of a system provides an opportunity to satisfy both purposes to some extent depending on local priorities.

Large-scale high seas vessels have been relatively well regulated with strict registration and permitting requirements dictated by International Law since vessels cross into international waters. However, it is generally only in developed nations where registration systems for SSVs, which mostly operate in coastal waters, are adopted. For developing countries this is usually due to the economy of scale with coastal fisheries and shipping of much lower *economic* value than oceanic counterparts. However, for fisheries in developing nations in particular, this is a false economy. For nations in the Pacific Ocean, which are generally characterised by low economic development, coastal fisheries are especially important for local food security as well as local income to supplement other food and household provisions, and yet are often neglected (Gillett, 2009). This concept is well demonstrated by Govan (2015) (Figure 1). This is now also an emerging health concern given the decline in coastal fish populations and growing human populations (Bell et al. 2011). Further, also due to generally low economic environments, safe boating practices has long been an issue in the Pacific (Gillett, 2003).

Slowly in the Pacific, more attention is being directed towards better management of coastal fisheries and in improving safety at sea. This has seen the development in some PICTs of SSV registration systems as a means to meet these objectives, however progress has been slow. This review assesses the current status of SSV registration systems in the Pacific as a means to provide recommendations on a suitable system and implementation approach that will: 1. Help guide all PICTs intending to introduce a SSV registration system, and 2. Help improve current systems in place in PICTs.



**Figure 1.** Relative importance of different types of benefits from offshore and coastal fisheries among Pacific Island Countries and Territories (Figure from Govan, 2015).

## Registration systems in the Pacific

This section provides a summary of the current status of SSV registration systems in 13 Pacific Island Countries and Territories (PICTs). For each PICT there is a brief summary of the local population estimates, vessel number estimates and the catch characteristics as a guide to the extent and relative importance of coastal commercial and subsistence fishing. For consistency and accuracy, catch characteristics are based on those given by Gillett (2009), unless otherwise indicated, as they are assumed to represent the best available estimates of coastal fisheries production for PICTs<sup>1</sup>. These estimates are derived from a number of previous studies; however, it is unsure of the approach used in deriving all of these estimates. Further, it is acknowledged that many of the previous studies used to estimate coastal fisheries catch in PICTs have had many shortcomings and therefore have produced estimates that are likely to be unreliable.

This section also provides for each PICT the current status of the development of legislation pertinent to implementing a SSV registration system. Where systems are in place, or under development, the system is described including how it is implemented, data management including types of data collected and how it is managed, and enforcement. For all PICTs the challenges relevant to the implementation of a SSV registration system are discussed. These sections are based on numerous consultations by telephone, email and several face-to-face meetings as well as online searches of information, particularly relevant legislation. It represents the best available information able to be obtained during the course of the consultancy, noting that some inconsistencies emerged between the information obtained from discussions with stakeholders and what was able to be determined from reading relevant legislation. Generally, this was due to the complexity of some systems and hence some of these inconsistencies were unresolved.

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<sup>1</sup> Estimates of coastal catch for PICTs is currently being reviewed and updated.

# MELANESIA

## Fiji

Population: ~ 880,000 (2013)

Vessel numbers: Currently there are **1529** vessels < 15 m registered in Fiji, of which 285 are listed as fishing vessels (Maritime Safety Authority of Fiji – MSAF). The number of fishing vessels is likely to represent a significant underestimate as registration only includes powered vessels and anecdotal and local media reports suggest that many fail to comply with registration requirements.

### Coastal fisheries catch

Coastal fisheries in the Fiji Islands comprise of commercial and subsistence harvest with both reef and pelagic species targeted. A portion of the commercial catch includes exported product, principally bêche de mer, but also trochus, deepwater snappers and live reef fish (Gillett, 2009). Submerged and surface floating inshore FADs have been present in Fiji for over 30 years which support the targeting of tuna, wahoo and dolphin fish. The peak season for coastal tuna is June-August.

Several studies during the 1990s and early 2000s provided estimates of commercial coastal fisheries catches in Fiji however these are variable in their estimates and how they were derived, and therefore their accuracy is questionable. Estimates of subsistence catch have been provided by the Department of Fisheries for some years in Fiji. These estimates are merely extrapolations based on a 1979 study, however these estimates are considered to be questionable due to the initial methods used (Gillett, 2009). Gillett (2009), based on these previous estimates, determined that the coastal commercial catch in 2007 was approximately 9,500 t while the coastal subsistence catch in 2008 was approximately 17,400 t.

### Legislative status

There is currently a vessel registration system in place in Fiji; however, there is some redundancy in systems used to register vessels. There is a functioning vessel registration system operating in Fiji since 2008 that has been implemented by the Maritime Safety Authority of Fiji (MSAF) as covered under the Ship Registration Decree 2013. This is complemented by two other separate regulations, The Fiji Small Craft Code 2014 and the Pleasure Craft Regulations 2014, which provide the legal basis for stringent survey and safety requirements for vessels in Fiji waters less than 15 m in registered length.

However, the Fisheries Department (Ministry of Fisheries and Forest - MFF) also implements a vessel registration system alongside their fishing licensing system under the Fisheries Act 1942. This Act is currently under review with the Offshore Fisheries Decree 2012 and the Aquaculture Decree 2014 recently legislated, and the Inshore Fisheries Decree under development but recently placed 'on hold'.

### Current SSFV registration system

Fisheries Department vessel registration

The SSFV registration system implemented by the Fisheries Department only applies to vessels engaged in commercial fishing. The Fisheries Act 1942 requires that all fishers selling their catch require a fishing license and that all licensed fishers who own or operate a vessel are required to register their vessel/s. Under the Act registration applies to *any* vessel type, however in practice for coastal vessels<sup>2</sup>, the Department only registers vessels <10 m whether they are powered by outboard motors, inboard motors or primarily by sail. They do not enforce registration of canoes.

According to the Fisheries Department the main objective of the system is for sea safety reasons however this doesn't appear to be documented and is not covered under the Fisheries Act or subsidiary legislation (Gillett, 2003). Further, the registration process collects very little information relating to safety and imposes little in the way of safety standards. It was not possible to obtain current estimates of the number of vessels registered under this system.

#### MSAF vessel registration

The regulations governing the SSV registration system implemented by MSAF is specifically covered in the Ship Registration Decree 2013. This system applies only to vessels powered by engines, whether they are used for fishing or not, and is divided into two parts: Part A for vessels >15 m; and Part B for vessels <15 m. The vast majority of coastal vessels are covered under Part B and there are currently 1529 vessels registered in Part B under this system.

The main objective of this system is for improved sea safety and this is reflected in the stringent requirements: i. Fishing vessels <15 m need to be surveyed annually (6 monthly for non-fishing commercial activities); ii. Vessels must have specified safety equipment on board; and iii. The vessels Master needs to hold the relevant qualification and be passed medically fit every 2 years to conduct commercial activities.

## Implementation

#### Fisheries Department vessel registration

The Fisheries vessel registration system runs on an annual calendar year cycle of registration requiring vessel owners and/or boat captains to fill out a form and submit this in hard copy to any regional fisheries office. However, although inquiries suggested that this form is accessible on the fisheries web pages, a search only found fishing license application forms and not vessel registration forms. Notification of registration renewals is facilitated by advertisements in the media, at provincial meetings, and by community liaison with the Fiji Navy, Fish Wardens and provincial fisheries officers. An annual registration fee is payable of FJ\$1.32 per power driven or sailing vessel, and FJ\$1.32 for each skiff or punt. Fisheries also manage the fishing licensing system that also requires submission of hard copies of a form available on the Department web pages. This is also renewable on an annual basis at a fee of FJ\$5.28 for the vessels captain and FJ\$1.32 for each crew member.

These trivial fees, currently under review, are apparently to cover administration costs but all goes into government revenue. Fees from vessel registrations across Fiji were estimated to be FJ\$5,961 in 2006, while in the same year approximately FJ\$9,109 was generated from fishing licenses (Gillett, 2009). Currently, Fisheries employs two staff members (Lami) to manage licensing and registration in the Central Division around Suva and for all other Divisions there are 6 other officers. Also, in return

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<sup>2</sup> The Act distinguishes between offshore and inshore fishing areas.

for having their vessels registered, owners qualified for government subsidies on vessel repairs (for which they needed to apply) and for ice.

Apart from providing certain information (see data management below), owners/captains are required to clearly show the unique vessel registration identification code on the port and starboard section of the vessel's bow. During port visits to Suva and Nadi on the main island of Viti Levu, no small vessels (<15 m) were observed to be marked with an apparent identification code, however many were marked with a vessel name (see MSAF system below). It is therefore unclear how the two separate systems reconcile their different requirements except perhaps that one gets precedence (MSAF) over the other.

According to the Fisheries Department, in the near future implementation and management of vessel registration will be the sole responsibility of MSAF and Fisheries will manage the commercial fishing licensing system.

### MSAF vessel registration

The MSAF vessel registration system is for vessels <15 m and involves filling out several forms that need to be signed by a Justice of the Peace, and several processes. These forms are available on-line however need to be submitted as hard copies at a regional office. MSAF is at present testing a full on-line registration system and hope to make it available soon.

The registration process involves several steps. Vessel owners need to get all necessary registrations with MSAF first before getting a fishing license, however, they need to show their expired (previous) fishing license. Without evidence of a previous fishing license fishers can only get a survey certificate that is valid for 6 months, otherwise it is for 12 months. To register a vessel, owners must fill in a number of forms: i. Application for registration, ii. Declaration of appointment of an agent to register the vessel (if necessary), iii. Declaration of ownership, iv. Notice of name proposed for a Fiji ship, and v. Application for survey.

Registration is valid for 5 years before it requires renewal (vessels >15 m register once until they decide to de-register), however an annual fee is still payable. MSAF sends out an invoice in the post each year to all registered vessels owners that can be paid online or at regional offices. As part of the registration process fishing vessels must also obtain a survey certificate on an annual basis. Survey certificates are valid for 6 months for vessels engaged in non-fishing commercial activities, 12 months for fishing vessels, and for pleasure craft they are valid for 3 years.

The regulated survey fee and registration fee is FJ\$230 and FJ\$143.75 respectively, however the government subsidises these fees to increase compliance. The registration fee payable is FJ\$28.75 annually (for vessels of <10 gross tonnage) and FJ\$92 for the survey. All fees go to government revenue.

Vessel owners must also obtain the relevant training qualifications to operate the vessel. For coastal waters around the islands they need a Boat Masters certificate however if they travel between islands they need a Class 6 driver's license. These qualifications last for 5 years however operators are also required to be passed medically fit every 2 years to conduct commercial activities. Evidence of these qualifications must be presented with the registration forms.

All registered vessels are required to have the vessel name clearly labeled on the port and starboard section of the vessel's bow and their homeport labeled on the stern. They are also required to have clearly labeled on the side of the vessel how many passengers the vessels survey certificate allows. There is also an extensive list of safety equipment required by law to be carried onboard vessels.

## Data management

### Fisheries Department vessel registration

#### *Data collected*

As part of the fishing vessel registration system Fisheries collect limited data currently. The main data collected are details of the vessel/s being registered. Limited data is collected even about the vessel owner, requiring only their name and their location. One question also asks for “Details of storage facilities for fish”. There are no questions relating to safety at sea which contradicts the main objective of the system that was conveyed by Fisheries.

The fishing license application also asks for basic personal details such as name, address and nationality of the applicant, as well as the fishing vessel number that they captain. They must also provide the number of crew and whether they have a permit to fish in an area of registered Native Customary Fishing Rights (Qoliqoli). The fishing license application however does require detailed information about fishing effort, fishing gears used, fishing capacity and catch to be provided by applicants.

#### *Management and training requirements*

The Fisheries department in Suva (Lami office) use Microsoft Access as their database for the vessel registration system and licensing systems. The technical training of relevant staff in the use of MS Access was provided by SPC, however, the use of this database has only been extended to a small proportion of Fiji’s regional fisheries divisions and the remaining divisions use MS Excel. Currently the MS Access database is incomplete (missing some data fields) and Fisheries indicated during field visits for this consultancy that they need help from SPC to finalise this.

#### *Use of data*

The detailed questionnaire about fishing activities required to be completed as part of obtaining a fishing license states that: “The purpose of this questionnaire is to allow the Fisheries Division to determine fishing activity over the whole of Fiji for the purpose of economic planning, deciding priorities for fishing gear development and fish stock assessment.” As part of the conditions of their fishing license, fishers also need to provide catch records on a monthly basis, however it is unclear how well this condition is met by license holders. These data are apparently entered into a database, however Fisheries report that they don’t have the staffing time or capacity for the analysis or even basic reporting of these data. This is also supported by the findings of Gillett et al. (2014).

The collection of these data and requirements for regular data reporting by fishers presents an opportunity for the data to be used for fisheries management and would potentially provide the basis for possible future limits on fishing licenses. Instead fisheries have focused resources and training into doing socio-economic and biological surveys in all 410 qoliqolis around Fiji to provide baseline resource inventories, however this effort started in 2002 and only 212 qoliqolis<sup>3</sup> have been completed raising concerns that these efforts are now significantly outdated (Gillett et al. 2014).

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<sup>3</sup> The issues surrounding access to qoliqoli areas and maintaining traditional management and resource access alongside national fisheries management are sensitive and the reason that the draft Inshore Fisheries Decree has been put on hold (see Gillett et al. 2014; Sloan and Chand, 2015).

MSAF vessel registration*Data collected*

The information collected by MSAF for vessel registration focuses generally on key information to meet the objective of ensuring safety at sea as well as ensuring the integrity of the system. Information collected are basic personal details of the vessel owner, a statement of ownership (although it appears that no proof is required), details of the vessel to be registered (such as length, weight, passenger numbers and motor capacity), and the name of the vessel. This information is collected using multiple forms with at least 6 forms provided by MSAF during field visits. There appears to be redundancies and inefficiencies with the number of forms and the data collected and, along with the survey and qualification requirements and the high costs, the system overall is onerous and complex. This was supported by discussions with fishers and boat owners who felt that the registration system was expensive as well as onerous on boat captains and owners.

*Management and training requirements*

The MSAF system is managed using MS Access database. The current database manager received approximately two weeks training by SPC to develop the skills to manage the current system.

*Use of data*

Data from the MSAF vessel registration system are not routinely shared with fisheries for management purposes however the potential mechanism for this exists with a committee made up of MSAF, fisheries, border control, police, etc, who apparently meet regularly. It is not clear what the function of this committee is however. From time to time MSAF supply a list of registered vessels (numbers) to other government departments but they don't really know what the numbers are used for. Particulars of registered vessels and owners are also provided to customs or police as the need arises for prosecutions and insurance claims. Current numbers of registered vessels <15 m and by vessel category was readily provided by MSAF when requested.

**Enforcement**

Maritime and fisheries enforcement is a shared responsibility in Fiji and includes fish wardens, Fiji Navy, Fisheries, police and MSAF. Primarily vessels are checked for adhering to safety gear requirements and operators possessing relevant qualifications, as well as (in theory) enforcement of fisheries regulations). Apparently enforcement is far greater in Suva but likely to be poor elsewhere in Fiji. MSAF have surveyors in ports to conduct enforcement. Sometimes they have mobile teams out on the water going to outer islands (public notice is given when this occurs). Also police, customs, Navy and Fisheries have the power to report and apprehend non-compliers through an MOU.

In Fiji there is also a Fish Warden system that appoints individuals into voluntary honorary roles with legal enforcement powers under the Fisheries Act. Apparently there are many fish wardens appointed but regular management of this system is poor and many don't even reside in Fiji anymore. Fisheries noted that a lack of resourcing has historically made enforcement challenging. They recently requested a budget for MCS as it has been recognised that unlicensed fishing and poaching in MPAs is a problem. Much of local enforcement is through 'word of mouth'.

**Current challenges/Impediments**

The major issues facing the vessel registration system in Fiji are the very large and disconnected areas of islands coupled with a major lack of resourcing. This has long been the case with coastal fisheries management in Fiji with Gillett (2014) stating that "... it can be concluded that information



on overall coastal fisheries production in Fiji is inadequate for management purposes, with that for the subsistence fisheries being especially poor. Estimates of production by the Fisheries Department come from a statistical system that is no longer functional in terms of its practical use.”

The Fisheries Department in particular requires better resourcing and have requested funding for improved MCS activities, including the use of VMS, however according to Gillett et al. (2014) there is the greater need for a high level review of coastal fisheries management with clear departmental objectives required to be developed. Conversely, MSAF feel that their vessel registration system is currently functioning well. Despite this, feedback from some fishers/vessel owners is that there are often delays in receiving their certificates and licenses to allow them to operate after submitting the necessary forms. They also feel the costs are expensive with some using payment plans to cover registration costs, and that there are too many forms.

Clearly there are several changes that could be implemented to improve the current vessel registration system in Fiji. One of the major obvious improvements is the streamlining of the current system. This would mean combining vessel registrations currently implemented by both Fisheries and MSAF, something that is reported to be in progress. It could also mean combining the application processes for vessel registration, vessel survey and fishing licensing. This is what MSAF have recently tried to do but was unsuccessful. The registration system and its associated requirements could be further streamlined through amalgamation of the multiple forms and procedures, and a review of the fee structure is also needed. Feedback was also that in the past MSAF has changed forms a number of times creating confusion. Further, it also appeared that MSAF had poor access, or ability to access, historical and current registration records. Some vessel operators also reported that there is very little enforcement of registration of fishing vessels by the Fisheries Department.

The lack of resourcing for enforcement is noted and from observations of vessels in Fiji compliance with vessel markings at least appears to be poor. Fisheries have noted this as an issue and suggest that empowering fish wardens and communities would help but again this would require adequate resourcing to be successful. Separate to the licensing system there is a requirement to acquire a permit from local qoliqoli areas. This is an informal system of having to pay ‘goodwill’ fees (resource rent – customary fishing right area) for fishing in a local village area, however there is no formula for calculating these fees.

## Papua New Guinea

Population: ~7.3 million (2013)

Vessel numbers: There are no official estimates of SSV numbers in Papua New Guinea, however during this consultancy the National Maritime Safety Authority estimated that there were **~15,800** spread over a large coastal area.

### Coastal fisheries catch

Despite there being approximately 87 % of the population of Papua New Guinea residing in inland areas, coastal fisheries are still very important and comprise of commercial and subsistence harvest. Historically, important harvest species for coastal commercial fishing has been coastal reef fish, deep water snapper, bêche de mer, lobster, prawn, trochus, pearl shell and sharks for fins (Gillett, 2009). These fisheries have been variable however with recent declines in prawn catches and the bêche de mer fishery being closed in recent times.

Gillett (2009) derived estimates of coastal commercial catch in the mid-2000s to be approximately 5,700 t and the coastal subsistence catch for the same period to be approximately 30,000 t.

### Legislative status

There are provisions for the registration (licensing) of vessels in PNG through the Fisheries Management Act 1998 and the Fisheries Management (Amendment) Act 2015, and the subsidiary Fisheries Management Regulation 2000, however they do not apply to small-scale fishing activities.

Recently however, the PNG Small Craft Act 2010 was passed and came into force in February 2015. This enabling legislation provides a comprehensive basis for and implementation of, a SSV registration system in PNG coastal waters.

### Current SSV registration system

There is a dedicated vessel registration system for small vessels in PNG however the governing legislation only came into effect in February 2015 and so it is still in the process of being fully implemented. The Small Craft Act 2010 applies to all craft <10 m (except for non-motorised traditional craft used for subsistence), and pleasure craft greater than 3 m, and requires them to be registered if used for commercial purposes (including fishing, passenger, cargo, and multiple use) and to be licensed for the specific purpose.

The main purpose of the Act (and the registration/licencing system) is for safety at sea, however from consultations the fees are also intended to fund provincial maritime enforcement activities. As banana boats (fibreglass long boats) have become more commonplace so have maritime incidents in PNG with approximately 90 deaths reported each year, however the total is believed to be much higher. This prompted the development of the Act to improve safety and to be able to better identify vessels as needed (rescue, recovery, law enforcement, national security).

### Implementation

The Act governing the SSV registration system is the most comprehensive legislation and system implementation reviewed during this consultancy. The Act is detailed to inform how the system is to be implemented and its administrative procedures, as well as vessel registration, licensing and minimum safety requirements. The requirements of the Act are administered by the PNG National Maritime Safety Authority (NMSA) through a Provincial-based Small Craft Registry in each of the 15

maritime provinces. In each province there is required to be a Small Craft Registration Board established, a Small Craft Registrar for day-to-day administration of the Registry, and a Small Craft Inspector to assist with administration, vessel inspections and enforcement. Each role has reasonably clearly laid out functions and powers in the Act. At the time of writing 14 registries had been established in PNG with only the Milne Bay Provincial Registry being operational.

Small Craft are required to be registered in the province where they are usually located or where they operate. Application for registration is through the Vessel Registrar and requires that proof of ownership must be shown as must evidence that the vessel is compliant with specified construction and safety standards. Other required information focuses on personal details (owner name, address, etc.). Each vessel is allocated a registration number, which must be displayed on each side of the bow of the vessel, and registration is for 2 years and then must be renewed. Further, each vessel must obtain a license to operate according to the particular activity the vessel engages in (fishing, passenger, cargo, or multiple use). As part of the application for a license, the vessel must be inspected by the Small Craft Inspector for compliance with relevant Construction, Safety and Operational Standards specified under the Act. A license to operate the vessel is only valid for one year and must also be displayed on the vessel. The Act does not specify the fees for registration or licensing however all registration and licensing fees are to be retained within the respective provinces. There are very harsh penalties for non-compliance which are included in the Act (e.g. non-compliance with vessel licensing: "... not exceeding K10,000 or imprisonment not exceeding 1 year, or both a fine and imprisonment."). All fines are also to be retained within the respective provinces.

Although the registration (& licensing) system has begun to be rolled out in PNG, due to limited capacity and the many different provinces involved, there is still a lot of work required to achieve full implementation. Much of this work will require engaging with provinces, as many are yet to support the new Act, despite it being passed into law. NMSA have commenced capacity building activities, training, equipment procurement, and development of forms and procedures. NMSA are also providing assistance at the provincial level to help establish registries including documents and templates, training and training materials, and provision of incentives (e.g. free safety gear). Further, NMSA have also provided the opportunity for significant funding for provinces to implement the registry system.

During initial stages it was realised that the model for implementation, which required all small craft owners to travel to the physical location where the database was set up and operating to register their craft, would have required voyages of up to hundreds of kilometres across open sea potentially resulting in the loss of lives. To address this, a paper based field registration and inspection model was developed that complements the electronic database so that effectively the registration process comes to the dinghy not the other way around.

## Data management

The NMSA have developed an electronic registry system to be adopted by each Province for registration and licensing. This work is funded and NMSA have installed the registry IT equipment and training systems in 14 of the 15 Provinces. NMSA have also set up a national small craft database and will administer this; they have also developed a training manual for the use of this database to assist provinces. The database uses the Microsoft Dynamics CRM software, which is a customer relationship management application and allows different records to be linked (e.g. small craft details can be linked to safety inspections). Other activities ongoing as part of the initial implementation are the development of forms to be used by Provincial Registries, training manuals and programs, information and safety brochures and a public awareness and education program.

## *Data collected*

The Act specifies certain information requirements for registration and licensing which focus on personal details of the vessel owner. Through examination of parts of the database training manual it was possible to ascertain some of the data collected. These include: vessel name, vessel type (construction), year built, usual number of crew, vessel owner. As part of the vessel safety inspections data collected include: vessel name, location (Province), engine make and serial number, vessel registration number, vessel construction, license type and also records safety equipment. The database can also record payment receipt number, date of registration/licensing, etc. and also records incidents all within the one system.

## *Management and training requirements*

As stated above there are several activities that have been initiated relating to capacity building and training. This is an extensive process since the systems are to be implemented at the provincial level with training likely in data systems development and management, as well as registrar and inspector training. Due to limited resources this may take some time. Further, each province is required to allocate funding in their annual budgets for the continued operation of the registry.

## *Use of data*

The primary use of the data is to ensure coastal vessels meet safety standards and are also operated safely, but also to be able to identify particular vessels if an incident occurs. Identification is also used for recovery situations, law enforcement, national security and insurance claims. The database system appears to be very well set up and explained, and appears very comprehensive in its data recorded and ability to link data records. Interestingly the current system does not appear to record vessel size or engine power capacity. It is currently not set up to record fishing related data.

## **Enforcement**

Enforcement of the system is to be by Provincial Small Craft Inspectors and the local Provincial Constabulary, however there is currently very little capacity.

## **Current challenges/Impediments**

The major challenge is lack of funding, capacity and infrastructure at the provincial level to undertake the responsibilities required under the legislation.

## Solomon Islands

Population: ~560,000 (2013)

Vessel numbers: There are no estimates of vessel numbers in Solomon Islands, however there is likely to be a **HIGH** number spread across a large coastal area.

### Coastal fisheries catch

Coastal commercial fisheries production in Solomon Islands is concentrated predominantly around the main urban area of Honiara but also around the town of Auki on Malaita Island and Gizo in the Western Province (Gillett, 2009). This is largely due to demand and the availability of ice facilities. Most of the catch comprises of fish as well as crabs and shellfish for local consumption, but also has historically included export products from trochus shells, bêche de mer and shark fins. There is also a fishery targeting baitfish for the tuna pole and line fishery (Gillett, 2009). Recent estimates of coastal production are not available and the bêche de mer fishery has been closed in recent years. Based on a number of earlier studies, Gillett (2009) estimated that the coastal commercial production in Solomon Islands during the period 2005–07 was approximately 3,250 t which was comprised of ~1,500 t of fish, crabs and shellfish for local consumption, ~800 t of baitfish for tuna fisheries, and ~950 t of exports.

Similarly, there is very poor information on the level of coastal subsistence catch in Solomon Islands and no recent estimates. Based on the best available knowledge Gillett (2009) estimated the coastal subsistence catch in 2006 to be approximately 15,000 t.

### Legislative status

Legislation for a ‘small craft’ registration system has been developed in Solomon Islands and has been with the Attorney Generals Office for approximately 2 years waiting to be approved for gazettal (Capt. B. Aonima, pers. comm., 08/10/15). This was apparently developed by an external consultant with some consultation however all the fisheries stakeholders met during the current consultancy were not aware of this. The legislation has been developed for a system that would include all small vessels <10 m in Solomon Islands, including canoes, and its development was motivated from a sea safety perspective.

Development of the draft legislation was commissioned by the Solomon Islands Maritime Safety Administration (SIMSA) over a 6-month period and they have been “monitoring” its progress. Once gazetted the draft legislation would go out to provincial governments for consultation.

### Current SSFV registration system

There is currently no registration system in place for SSVs operating in Solomon Islands. Fisheries are in support of a system to be implemented.

### Implementation

Once the current draft legislation is approved it is intended that the ‘small craft’ registration system be implemented by SIMSA in a similar way to vehicle registrations and would use local provincial (Search and Rescue) officers to monitor annual registration renewals at the local level. Further development of the logistical elements of implementation has not progressed and it is likely that the draft legislation would detail implementation aspects to some extent (a copy of the draft legislation was not able to be obtained during consultations).

## Data management

Until the draft legislation is passed and made publicly available it is not clear what the data structure and management procedures will be. It is clear however that the responsible authority for implementing the system will be SIMSA.

### *Data collected*

The current move towards a SSV registration system in Solomon Islands driven by SIMSA is motivated by improved sea safety. Fisheries stakeholders also acknowledged the importance of ensuring safety at sea and a system could ensure and maintain data on vessel safety gear. However, fisheries stakeholders also identified the importance of collection of fisheries data including fishing capacity through knowledge of levels of fishing effort and storage capacity of catch. At a minimum, FFA noted that data on the vessels owner and vessel specifications are important, as well as having unique vessel identifiers (e.g. registration number). Once legislation is passed in Solomon Islands it will be important for SIMSA to consult with other potential stakeholders to optimise the benefits of a SSV registration system.

### *Management and training requirements*

Expertise in database systems for managing oceanic fisheries throughout the Pacific exists locally through FFA, making it far more feasible logistically for adopting oceanic data management systems to coastal vessels. This assumes collaboration between SIMSA and fisheries stakeholders in the implementation planning.

### *Use of data*

SIMSA have made it clear that the information a registration system would provide would centre around safety at sea and satisfying minimum safety standards. Fisheries agencies also see registration as an opportunity to better understand coastal catch per unit effort, fishing capacity through knowledge of fishing vessel numbers, and better identification for enforcement and compliance (e.g. illegal practices such as dynamite fishing or poaching).

Also, vessel registration was discussed after recent severe flooding and regional tsunamis after many boat owners came forward claiming compensation for lost vessels (mostly small motorised skiffs - OBM's). However, a major challenge was that there was no way to validate vessel ownership. A registration system would provide this mechanism and could be used as an incentive for boat owners to be registered.

## Enforcement

Enforcement activities would be a shared responsibility among multiple agencies consistent with current maritime activities (e.g. Maritime Search and Rescue, Police, MFMR).

## Current challenges/Impediments

The major challenges identified by stakeholders related to the large area and the remoteness of most rural areas, as well as the significant ongoing costs for implementation and management, particularly in ensuring compliance annually. Of particular concern were the challenges in registering the vast number of canoes whereby most were in rural areas and were all likely to be multi-purpose. Further, if a system were designed for fishing vessels only, a challenge would be identifying these vessels – there would be an incentive not to declare a fishing vessel. Also, a canoe owner may never use it for

fishing but relatives would. It was also acknowledged that many OBM's are only used for transport of people and goods, including fish catches being delivered to markets.

Effective implementation and compliance in outer islands would require provincial fisheries officers to be involved however many stakeholders felt that they were already ineffective. If provincial centre facilities were revived and local staff effectiveness improved, then implementation may be possible, however not without significant and ongoing investment.

Another major challenge identified was that boat owners would need incentives to register their vessels. Benefits such as better records for compensation claims in the event of vessel loss and/or damage may work given recent major flooding. However, it is likely that other incentives such as better boat ramp facilities, ice making facilities at key areas, more nearshore FAD's, or subsidies, would be required to maximise compliance. There was some doubt however, that given the small number of vessels likely to be registered successfully, there would be enough money for tangible benefits. Also, such incentives may be less likely to work in more rural village areas.

In terms of obtaining better knowledge of artisanal/commercial catch levels, fisheries have previously discussed the option of registering eskies in Solomon Islands but this has not progressed. Some stakeholders felt that the most effective approach to get a better handle on effort and catch was for a targeted approach by only approaching boats known to catch a lot of coastal fish and focusing on major market areas first e.g. Honiara, Gizo, and Auki (Malaita).

## Vanuatu

Population: ~250,000 (2013)

Vessel numbers: There are no estimates of vessel numbers in Vanuatu (see Gillett, 2003), however there is likely to be a **MODERATE** number spread across a moderate-large coastal area.

### Coastal fisheries catch

Coastal fisheries in the Vanuatu Islands comprise of commercial and subsistence harvest with both reef and pelagic species fish targeted, as well as numerous reef invertebrate species. A portion of the commercial catch includes exported product, principally trochus, aquarium fish and rock, bêche de mer, as well as smaller quantities of fish, giant clams, shark fins and other invertebrates (Gillett, 2009). Based on the HIES for 2006 species caught for local consumption are diverse and are known to include mostly reef fish, crabs, octopus and squids, crayfish, tunas, flying fish, other shellfish and small quantities of turtle. Other species not likely to be included in the survey but are known to be sold locally are deep-water snappers and other pelagic species (Gillett, 2009).

Considering all available sources of information Gillett (2009) estimated that the total annual coastal commercial catch during the mid 2000s was approximately 538 t, not including aquarium pieces. With no recent studies on subsistence catch in Vanuatu, Gillett (2009) approximated that the annual coastal subsistence catch in the mid 2000s was 2,830 t.

### Legislative status

Currently, under the Vanuatu Fisheries Regulations 2009, local coastal vessels engaged in charter or artisanal fishing activities are required to obtain a fishing vessel license. Under these regulations vessels cannot be used for commercial fishing (or related activities) without a current license however this does not apply to traditional canoes or outriggers.

Currently there is draft legislation for a SSV registration system (The Artisanal Licenses regulation) being reviewed that is aimed to better capture small open fibreglass vessels running on outboard motors and usually of length less than 6 meters. Licensing and registration of all other vessel categories (offshore) are provided for under the current Fisheries Act 10 of 2014.

### Current SSFV registration system

Currently, the Vanuatu Fisheries Regulations 2009 requires all fishing vessels engaged in commercial activities to be licensed. This system applies to vessels in categories of greater than 8 m and less than 8 m. Under the regulation there are a number of license conditions. According to the regulations the purpose of the system is to help ensure that the Department of Fisheries has information about the level of fishing activities in Vanuatu waters to facilitate improved management, and to better plan the distribution of resources (funding, fish storage and marketing facilities, FADs, etc.) in relation to the number of licensed fishermen in an area. Further, the system provides incentives to registered (licensed) operators through reduced taxes on fuel and other imports (fishing gear, etc.), the provision of training sessions organised by the Department of Fisheries, and improved fishing infrastructure such as FAD's.

The current draft legislation for a small-scale (< 6 m) vessel registration system under review is reportedly aimed at trying to better capture inshore fisheries catch and effort data through compulsory data reporting as a license (registration) condition (but see below). It is unclear from consultations how this system that would be implemented under the draft regulations or how it



would differ from and/or complement the current licensing regulations for local coastal fishing vessels.

## Implementation

The current fishing vessel licensing system is implemented by the Fisheries Department and is renewed annually through a prescribed form under the regulation. This form collects information about the type of fishing the vessel engages in as well as operator and vessel details (data details provided below) and must be submitted to the Fisheries Department head office in the capital Port Vila. The license is only required if fishing from the vessel. Attached to the license are a number of conditions including: markings on the vessel consistent with 1989 FAO standards (1989 FAO Standard Specifications for the Marking and Identification of Fishing Vessels); a logbook of fishing operations; and a requirement to maintain monthly catch reports (if directed). Annual fees are payable and range from VT10,000 – 20,000 (~US\$87 – 174) for vessels < 8 m, and from VT30,000 – 50,000 (~US\$262 – 437) for sportfishing vessels, depending on the island base.

The proposed small vessel registration (licensing) system is to be developed by the Fisheries Department with significant assistance from SPC and FFA.

## Data management

### *Data collected*

The current licensing system collects data through the annual license application form and includes the following: main types of fishing (artisanal, sportfishing/charter, other), vessel name, name and address of the vessel operator and of the vessel master, radio call sign or provincial code, a description of the nature of fishing undertaken, number of crew, fish storage capacity and specification details of the vessel (year and place built, length, main engine power, and fuel capacity). The current system appears to have very little emphasis on sea safety requirements.

Although not fully developed, the proposed draft system will use the SPC/FFA Regional Standard Artisanal vessel identification form and so will include data on vessel identification, owner details, vessel specifications details (i.e., make, length, power, etc.), vessel activity and sea safety information.

### *Management and training requirements*

Currently the Fisheries Department server is managed by a Government IT service provider (the OCGIO). It is anticipated that the proposed registration system database will be established within the existing Government INTRANET, with assistance from SPC and FFA.

## Enforcement

Enforcement responsibilities for coastal maritime and fisheries resides with Police and the Fisheries Department, however capacity is limited.

## Current challenges/Impediments

The major challenges are based around the geographic spread of communities around Vanuatu and adequate resourcing. In particular, the key challenges are:

- Establishment of a suitable database network to collect and analyse the data from provincial offices that will ease the burden of waiting to collect and enter the data from a single central location,

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- Establishment of a financial network system that can capture collection of license fees from a provincial location, and
- Establishment of a monitoring network to monitor the vessels in the remote locations.

# MICRONESIA

## Federated States of Micronesia

Population: ~ 103,000 (2013)

Vessel numbers: There are no estimates of vessel numbers in FSM however there is likely to be a **LOW-MODERATE** number spread across a moderate-large coastal area.

### Coastal fisheries catch

Coastal fisheries in Federated States of Micronesia (FSM) comprise of commercial and subsistence catch. Targeted species are predominantly reef fish but also pelagic species. The commercial catch during the mid 2000s was estimated to be 2,800 t and the subsistence catch was estimated to be 9,800 t based on a 2005 HIES study (Gillett, 2009).

### Legislative status

At the State level, we are still in the process of developing a vessel registration regulation which is required by law pursuant to Marine Resources Act Title 19 Section 19.311 of the Kosrae State Code.

### Current SSFV registration system

Currently there is not a SSV registration system in place in FSM. Under the National Maritime Act 1997 the Vessel Registration Regulation defines vessels that should not be considered in the Act include the following:

- a. a vessel less than 12 meters in length and not used for hire;
- b. a pleasure craft;
- c. an air-cushioned vehicle (hover craft);
- d. a naval vessel or vessel belonging to the defense force; or
- e. an outrigger canoe.

Therefore the current legislation only applies to commercial vessels greater than 12 m in length. There is capacity in FSM for the implementation of a SSV registration system and a need to improve safety of fishermen and fishing vessels given several past examples of search and rescue events.

### Implementation

Although there is currently not a SSV registration system in place, consultations suggested that the Fisheries Division is the most appropriate office to initiate and implement such a system. This is partly because they are respected by fishermen and others in the community. It was also acknowledged that consultations with the respective municipalities would be needed. Potential benefits for a SSV registration system in FSM include:

- a. Conservation, management & development of fisheries sector
- b. Safety of fishermen and fishing vessels
- c. Deter, prevent and eliminate all forms of illegal and/or destructive fishing practices that could have negative effects on marine and inland ecosystems.
- d. Contribute to minimizing costs on Search and Rescue (SAR) incidents, and
- e. Contribute to generating revenue for the State.

## Data management

The types of data considered important for collection as part of a SSV registration system in FSM include:

1. Type of Vessel and Make
2. Type of Engine and Horsepower
3. Name of Owner and Municipality
4. Registration Number and Code
5. License number
6. Call sign

## Enforcement

It is unclear from consultations who would be responsible for enforcement of a SSV registration system in FSM, however it was noted that capacity is limited.

## Current challenges/Impediments

Key challenges for a SSV registration system in FSM include in particular lack of enforcement and lack of funding.

## Kiribati

Population: ~ 102,000 (2013)

Vessel numbers: From household surveys in 2010 it was estimated that there were **1,351** vessels throughout the three main island groups of Kiribati. The majority of these vessels were in South Tarawa (457) and Betio (262), while North Tarawa (95) and North Tabiteuea (75) also had a reasonable number of vessels. Although the sizes of these vessels are not indicated the vast majority are likely to be small (<7m).

### Coastal fisheries catch

Coastal fisheries in Kiribati comprise of commercial and subsistence catch. Targeted species are predominantly reef fish as well as skipjack tuna taken by the relatively significant local commercial troll fishery. Yellowfin tuna and mahi mahi are also taken in the troll fishery. Flying fish are also targeted in ocean waters using nets, while reef fish are taken using hand lines, and bonefish, goatfish, mullet and trevallies, etc. are targeted in the lagoon by net fishing. At least up to the mid 2000s Kiribati also exported some coastal catch including fish, bêche de mer, lobster and aquarium reef fish, but generally in low quantities. Gillett (2009) estimated that in the mid 2000s the coastal commercial catch was approximately 7,400 t and the coastal subsistence catch was approximately 13,700 t. Further, a 2008 study estimated that the annual coastal harvest of tuna was 1,584 t (Sullivan and Ram-Bidesi, 2008). Most of the fishing from vessels <7m on outer islands is for subsistence while much of the coastal fishing from skiffs in Tarawa is for commercial fishing.

### Legislative status

In Kiribati the Ministry of Fisheries and Marine Resources Development (MFMRD) are responsible for fisheries management and the Ministry of Communications, Transport and Tourism Development (MCTTD) are responsible for maritime transport. The MCTTD Marine Division manages a vessel registration system for larger vessels and some smaller ones in Kiribati (see below) under the Shipping Act 1990. The Marine Division have been recently drafting a small boat regulation which includes requirements for *all* vessels <7m to be registered. Staff have been hampered by a lack of manpower to complete the draft legislation however it is near completion and they have been working with the Attorney General's office to get the regulations in place before 2017.

Similarly, the Fisheries Division of the MFMRD has developed a full draft of legislation to support a SSV registration system only for *fishing* vessels <7m. The legislation was presented to the House of Parliament in early 2015 but it was not passed due to the perception by members that the registration fees imposed on the fishermen were too high. The Fisheries Division is planning to persevere in trying to establish a vessel registration system for small boats, but without legislation thereby making it voluntary.

It was apparent during the in-country consultations in Kiribati that the respective Divisions were developing a similar system independent of one another. A key outcome from these discussions was that the Fisheries Division determined that it would be prudent to liaise with the MCTTD Marine Division in co-developing a vessel registration system, and the requisite legislation, that would meet the requirements of both Ministries.

### Current SSFV registration system

There is currently a vessel registration system in place in Kiribati however it does not cover all vessels but the intention is for one to be implemented that includes all SSVs with the introduction of relevant legislation (see above). Both the Fisheries Division and the Marine Division see the need for

a system however their primary motivations differ. The Marine Division's sole motivation to implement a registration system for small vessels is for improved safety at sea. The Fisheries Division see it as a way to be able to better understand boat numbers and control coastal fishing effort to ensure fisheries sustainability (this includes the use of FADs deployed by the Division), although safety at sea is a contributing motivating factor. Fishers in small vessels often travel far from islands chasing tuna and being lost at sea is a big problem in Kiribati, often due to mechanical failure. This results in costly searches and sometimes deaths so it is a serious social and economic issue.

Currently in Kiribati the MCTTD Marine Division requires all vessels >7m to be registered unless they are involved in passenger operations. However, small vessels involved in commercial operations but excluding fishing vessels (e.g. transport, passengers) are required to be surveyed for seaworthiness every six months. The new small boat regulations being drafted by the Marine Division are likely to require commercial fishing vessels to also be surveyed for seaworthiness every 6 months.

## Implementation

The only vessel registration system in force in Kiribati is for vessels >7m and non-fishing commercial vessels and is implemented by the Marine Division. This system registers these larger vessels under different categories based on the distance from shore that they generally operate, up to 50 nautical miles. Registration of large vessels, and commercial ones <7m, is annual and also requires a survey of the vessel for seaworthiness every six months. Consistent with its objective of improving safety at sea, vessel captains are provided with the opportunity to obtain a certificate in safety training/basic first aid/vessel operating/motor maintenance basics (troubleshooting), however this training is currently not mandatory.

The draft regulations under development by the Marine Division would require all "commercial small vessels" to be registered and all pleasure vessels to be registered also, but not including tenders (vessels less than four metres and used for transport in sheltered waters). The regulations have a strong focus on safety requirements such as vessel construction and seaworthiness, competency of vessel masters and crew and provision of requisite safety gear on board the vessel. The draft regulations also includes "power-driven vessels with less than 15 horsepower, sailing dinghies and non-power driven vessels under 7m" requiring to be registered but with more relaxed conditions than all other vessels. These draft regulations do not define 'commercial' in the context of fishing activities; vessels are defined as either commercial or pleasure only.

Part of the requirements are for vessels to be marked with the use of certain bright colours so they are more easily sighted at sea. Consultation with vessel owners has not been done and from consultations is not intended to be done, as it is believed that all fishers and their families are aware of the safety factor. The full details of implementation have not been developed however the Marine Division has existing systems, trained staff and infrastructure so the feeling is that transitioning to a broader system for all small vessels would be manageable.

The draft Fisheries regulation for a SSV registration system has not developed implementation details, and it is likely that there would need to be training and development of management systems. There is a current requirement by Fisheries for commercial fishers to acquire a license to sell their catch, however this has historically not been well enforced.

On the islands of Kiribati, Island Councils are a major focal point for governance. On Tarawa there are three Island councils, which operate separately, but each works with government (parliament). The Ministry of Internal Affairs oversee all Island Councils and therefore this Ministry and each Island Council are likely to be key stakeholders in the development and implementation of a vessel registration system. Currently there are local fisheries officers in each island group that could assist with a vessel registration system, however it may be that further resourcing is required.

## Data management

For the current system management by the Marine Division, hard files are maintained on each registered vessel, including copies of vessel inspection reports, and all data are stored in an established excel spreadsheet.

### *Data collected*

The current system maintained by the Fisheries Division collects data on: vessel owners' personal details, captain and # crew, usual fishing grounds and details about the vessel (year built, length, outboard motor size). The Fisheries Division would like to see any SSV registration system collect data on total catch and effort, species composition of the catch, and fishing gears used.

### *Management and training requirements*

Currently if the Fisheries Division were to manage a vessel registration system they would require at a minimum, the upskilling of staff to ensure familiarity with the new system including computing elements (servers, software, etc.). Fisheries acknowledged that training is required for fisheries survey methodologies, which can potentially be incorporated through a vessel registration system, however the major training need was in data analysis. This is directly relevant to the effective use of any data collected through a vessel registration system.

### *Use of data*

Fisheries see a vessel registration system as a means for obtaining better data on the number of vessels fishing (effort) and for deriving catch per unit effort data to help monitor fish populations.

## Enforcement

Through the current system in place the Marine Division has some capacity for enforcement and survey inspections of vessels, however these activities are predominantly focused on larger oceanic vessels. Fisheries also have very limited capacity for enforcement in coastal fisheries. A broader system would require more staffing resources and possibly vessels for patrols. The Fisheries Division felt there was a need for fisheries staff to be involved in enforcement activities that could help in educating fishers of the importance of data collection so that they "feel more responsible for managing the resource".

During consultations both the Fisheries and Marine Divisions acknowledged that there is a need for community awareness activities to assist successful enforcement and compliance. Fisheries also acknowledged that increased consultation with fishermen regarding vessel registration and other management related activities, including sharing data results, are important.

## Current challenges/Impediments

The development of the current draft regulations by the Marine Division is a priority however its progress is still hampered by limited staff resourcing in finishing the draft and the lengthy processes associated. Lack of staffing and technical expertise is a common challenge across the Fisheries and Marine Divisions. The geographic spread of different island groups (across 1,000s of kilometres), across different communities, and the multitude of landing sites in larger islands like Tarawa, presents major challenges for a coastal vessel registration system in Kiribati. This emphasises the importance of using local traditional systems of Island Councils as part of the development and implementation, however would also require increased funding support.

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Another challenge relates to the wide range of small (<7m) coastal vessels to be registered: paddling canoes, sailing canoes, wooden skiffs, aluminium skiffs, and fiberglass skiffs. Also, although some Kiribati coastal fishers accept a SSV registration system might be useful, they do not see it as critical and most are against it. All fishermen are strongly against paying a fee for vessel registration. Part of the issue for fishermen/boat owners is a lack of understanding of the purpose of having a system and how the information it provides is used for their benefit. The Fisheries Division suggested that there would need to be incentives for vessel owners, especially if vessel registration was voluntary.



## Marshall Islands

Population: ~52,000 (2013)

Vessel numbers: The vessel numbers are not known for the Marshall Islands and it is likely to be relatively **LOW**. Although there are many islands the vast majority of vessels are based on only a few of these.

### Coastal fisheries catch

Coastal fisheries in the Marshall Islands occur on several main island groups with both commercial and subsistence fishing occurring in each of these areas. Data on catches by species show that reef fish are the predominant species group targeted, with pelagic fish and shellfish the other groupings. Exports from coastal fisheries are reported to be significant, mostly from ornamental fish, corals and shells for the aquarium trade, but also trochus (Gillett, 2009). Fishing is mostly bottom handlining but trolling, dropstone, jigging and scoopnet fishing is also practiced.

Gillett (2009) estimated that the annual coastal commercial catch for the mid 2000s was 950 t with the coastal subsistence catch approximately 2,800 t.

### Legislative status

Currently the Ministry of Transportation and Communication are working on a draft legislation for a small-scale vessel registration system with the assistance from SPC's Transport Division in Suva, Fiji.

### Current SSFV registration system

There is currently not a vessel registration system in the Marshall Islands. Consultations with the Marshall Islands Marine Resources Authority (MIMRA) acknowledged the potential benefits of having a SSV registration system, particularly with respect to improving safety at sea. Over the years several fishermen have been lost at sea and a vessel registration system would help ensure vessels are seaworthy and that they carry appropriate safety gear on board. A registration system may also facilitate better awareness of sea safety.

### Implementation

Coastal waters fall under the jurisdiction of local governments so therefore they would be required to be actively involved in the implementation and management of a SSV registration scheme at a local level. However, the overall management of such a system would likely be through the Ministry of Transport who would need to be fully engaged with local governments (not MIMRA). This would require technical assistance from initial training to implementation and including monitoring of vessels.

### Data management

There is very little current capacity in the Marshall Islands for system management particularly with new data systems and so capacity building would be required. Consultations identified safety as a key motivating factor should a vessel registration system be implemented, so it can be assumed that data on aspects of vessel and crew safety would need to be collected.

### Enforcement

Currently in the Marshall Islands there is not adequate capacity for enforcement.

## Current challenges/Impediments

One of the biggest challenges is that there are many islands where vessels travel which are spread across a very large area. Initiation of a vessel registration system in the Marshall Islands would potentially be a lengthy process, as training would need to be conducted for all local governments in both urban and rural areas. The biggest challenge may “be to have the local government take responsibility for this type of system as it falls under their jurisdiction.” Clearly funding would be required for staff training at multiple levels as well as for system development and management.

## Nauru

Population: ~ 10,000 (2011)

Vessel numbers: The numbers of vessels in Nauru are not accurately known however it is currently thought to be between **100-200**, due largely to a very small coastal area. This is less than a study in 1992, which estimated there to be 218 powered skiffs and 128 paddling canoes.

### Coastal fisheries catch

Coastal fisheries in Nauru mostly catch reef fish, tuna, coastal pelagic species, lobsters and other invertebrates (CoFish, 2005; Gillett, 2009). Some of the fishing methods used from vessels includes trolling for pelagic species and drop-stone fishing for reef fish (Rodwell, 1998). Gillett (2009) estimated that the coastal commercial catch in 2007 was 200 t and that the coastal subsistence catch was 450 t.

### Legislative status

The Nauru Fisheries Act 1997 provides for the registration of vessels operating in Nauru waters but there is currently no legislation in Nauru specific for SSV registration.

### Current SSFV registration system

There is currently not a SSV registration system in place in Nauru. It is likely that such a system would be helpful in identifying vessels and owners in situations requiring search and rescue. It would also help in the enforcement of regulations (if imposed) and in the collection of fish landing data.

### Implementation

Implementation of a SSV registration system in Nauru would likely be administered by the Nauru Fisheries and Marine Resources Authority (NFMRA), and would require funding for staff and relevant training.

### Data management

The likely data requirements, although ultimately would be dependent on the purpose of a registration system, would include vessel details such as its size, type and method of propulsion, as well as owner details. Funding for staff and relevant computer data management training would also be required.

### Enforcement

Currently capacity for any enforcement is very limited and would require funding.

### Current challenges/Impediments

The major challenge in Nauru for the implementation of a vessel registration system is the complete lack of resources, including the lack of capacity.

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## American Samoa

Population: ~ 55,000 (2013)

Vessel numbers: There are no official estimates of the number of SSV in American Samoa however given the relatively small coastal area the number is likely to be **LOW**.

### Coastal fisheries catch

Fisheries in American Samoa have been monitored for many years providing relatively accurate estimates of commercial landings, however it includes catches made by large offshore tuna vessels. Gillett (2009) estimated coastal commercial catches using data from three assumed fishery components: pelagic fishery – comprised of the longline offshore tuna boats and the mostly smaller boats using trolling; bottom fish fishery; and the coral reef fishery (comprised of both commercial and subsistence). Using these sources he estimated the total coastal commercial catch in 2007 to be 34.6 t comprising of approximately 11.2 t for the coastal pelagic fishery, 16.6 t for the bottom fish fishery and 6.8 t for the coral reef fishery component.

### Legislative status

The current vessel registration system in American Samoa is legislated by Chapters 02 (Marine Inspection, Certification, License) and 03 (Boat operations) within Title 20 (Harbors and Navigation) of the American Samoa Code Annotated (ASCA)

([http://www.asbar.org/index.php?option=com\\_content&view=category&id=168&Itemid=172](http://www.asbar.org/index.php?option=com_content&view=category&id=168&Itemid=172); accessed 12/11/15).

### Current SSFV registration system

There is currently a well functioning vessel registration system in place in American Samoa governed by legislation first introduced in 1966. The purpose of this system appears to be to promote safety at sea. The system applies to all “watercraft” in American Samoan waters excluding Samoan fishing canoes or rowboats that are paddle powered. It also does not apply to foreign vessels, military vessels or government vessels.

### Implementation

This system is maintained by the American Samoa Department of Marine and Wildlife Resources (DMWR) in collaboration with the Department of Public Safety (Police). The Department of Public Safety manages the issuance of vessel registrations and the associated collection of relevant information. Registration is renewed annually based on a calendar year with a modest fee based on the size of the vessel. Initial registration costs for a vessel less than 20 feet (~6m) is US\$10 and for a vessel greater than 20 feet it is US\$20. Annual renewal thereafter costs US\$5 and US\$10 for the respective size categories. Upon registration a registration number is issued which must be displayed on each side of the vessels bow. Legislation also requires that vessels carry particular safety gear as prescribed by the Department of Public Safety.

### Data management

The current system uses an annual registration form to collect information about: vessel owner's personal details; previous registration number (if applicable); vessel details (manufacture year, manufacturer's hull identification number, length, vessel type, construction type, propulsion); and principal use of the vessel.

The systems data are entered into a Department of Public Safety database. Although it is unsure which database software is used searches on the Internet suggest that the database is comprehensive and robust with "historical capabilities to track owners over time if boats were sold, and permits as well". DMWR routinely obtain the vessel registration data and have their own database version. It is possible that the data is used for fisheries management and enforcement activities however consultations with American Samoa were limited and it was not ascertained how data collected under the vessel registration system are used.

## Enforcement

Local maritime enforcement is shared among government agencies and includes the NOAA Office of Law Enforcement and DMWR.

## Current challenges/Impediments

As consultations with American Samoa were limited it is assumed that local challenges would be similar to Samoa (see below).

## Cook Islands

Population: ~11,000 (2011)

Vessel numbers: There are no official estimates of the number of SSV in the Cook Islands. The number is likely to be **LOW-MODERATE**.

### Coastal fisheries catch

Coastal fisheries in the Cook Islands comprise of commercial (or semi-commercial) and subsistence catch. Fish and shellfish are the predominant catch and important species are tuna, parrotfish and trochus as well as live reef fish for the aquarium trade. The Cook Islands Household and Expenditure Survey conducted in 2006 indicated that the most important species groups caught included 'fresh and/or frozen fish' (which includes shellfish), tuna (due to the availability of local nearshore FADs), puaa, octopus and/or squids, and crabs (Gillett, 2009). While there are indications that catch has declined over recent years due to declining populations in outer islands, the total coastal catch from commercial fisheries in the mid-2000s was approximately 133 t while the subsistence catch was approximately 267 t (Gillett, 2009).

### Legislative status

The Cook Islands Ship Registration Act 2007 governs the registration of vessels owned by Cook Island residents, including charter vessels, yachts and cargo ships. This system appears to be applied to large ships only, especially with the recent development of the Maritime Transport (Small Motorised Vessels) Regulations 2014. This recent regulation requires formal registration of all small-scale powered vessels, which are defined as all motorised vessels less than 24m.

### Current SSFV registration system

The formal system for SSV registration in the Cook Islands has recently been legislated under the Maritime Transport (Small Motorised Vessels) Regulations 2014, however implementation has been delayed and is expected to occur during 2016. These regulations fall under the responsibility of the Ministry of Transport (MoT) and are focused on safety aspects of boating with requirements for minimum safety gear on board vessels, training requirements to operate a vessel, and vessel inspections for some vessel and operation types.

In the meantime, the Ministry of Marine Resources (MMR) has also recently begun 'informally' registering small-scale artisanal fishing vessels (only) as part of their Artisanal Fisheries Data Collection Program database. This system has been utilising the SPC/FFA 'Vessel Identification Forms' (Appendix 1) and accompanying these with photos of the vessel.

There is no legislation to support the provision of artisanal fisheries catch and effort data, and so the SPC 'Vessel ID Forms' are not mandatory but with awareness raising and communication, the local fishers have been very obliging in helping to develop this database to accompany the catch and effort data collected by MMR.

The main purposes of MMR having their own system include safety aspects (e.g. better identification details of vessel in the case of emergencies) and enforcement, but also for fisheries monitoring purposes (e.g. obtaining catch and effort data, linking data with vessels, enforcement of fisheries regulations, etc).

## Implementation

The Maritime Cook Islands implement the current vessel registration system under the Ship Registration Act 2007, on behalf of the MoT. Maritime Cook Islands is a locally owned and operated company that performs the Flag State responsibilities for the Cook Islands MoT. Vessels can be registered in a web-based online service.

The legislated system to be implemented next year (presumably by Maritime Cook Islands on behalf of the MoT) collects relevant vessel and owner information via a registration form and there is no fee to register. These regulations only apply to *motorised vessels*. The regulations do not specify the period of registration, only that changes in ownership or registration details require notification, implying that the usual registration process is done once. This is consistent with the large ship registration system under the Ship Registration Act 2007. Registration requires that all operators of motorised vessels must have a Motorised Vessel Drivers License that incurs a small fee between NZ\$5 and NZ\$50 depending on the license type. Further, each registered vessel must carry specified safety equipment with commercial vessels having more stringent requirements than recreational vessels, and fishing vessels having a more stringent list of safety equipment again. Further, fishing vessels (and those operating more than 25 nm from nearest land) must also have a valid General Safety Certificate for their vessel. The period for follow-up vessel inspections are not indicated in the Regulations. Each registered vessel is provided with a unique identifying number that must be clearly displayed on each side of the hull.

The recent small-scale fishing vessel registration system implemented by the MMR is tied in with their Artisanal Catch Database (Turf Art) whereby vessel information is used as a reference that links vessels with fisheries data. The SPC/FFA Vessel Identification Form is used as, apart from vessel and owner information, it gathers more detailed and specific information about fishing patterns compared with the forms of the Ministry of Transport. Currently, the MMR intends to continue with their current 'informal' system but link in with the intended MoT system that will be formally responsible for issuing registration numbers to each vessel upon registration. The MMR intends to use the MoT registration numbers as the 'Unique Vessel ID Number' for the SPC Artisanal Fisheries Database purposes. SPC has recently provided assistance to MMR (in 2015) to continue and extend this program in to the Southern Group islands.

MMR has apparently met with MoT to try to work how they are able to align the information collection processes. It is acknowledged (by MMR at least) that it makes logical sense for MoT and MMR to combine resources in achieving the respective departments information needs (fisheries data and safety at sea requirements). This includes sharing of information, conducting awareness and training programs together, and collecting data from outer islands. Despite this, although not clear, it appears that the intention remains for each department to continue with separate, albeit linked, systems. MMR has also raised the option of incentives (e.g. free fishing/safety gear) although this may only be relevant to their current system since it is voluntary.

A logical step going forward would be for MMR to work with MoT for a single SSV registration system in the Cook Islands, thereby minimizing duplication of efforts and avoiding making the system unnecessarily onerous for vessel owners. Data collected as part of registration would then need to be altered to ensure it includes the information needs of both MoT and MMR (i.e. safety/enforcement and fisheries). The recently passed legislation provides a simple and logical basis for a unified single system, especially as it already has regulations specific to fishing vessels. Also, it is presumed that the new system for SSVs will link with the current system for large vessels in its implementation going forward, although this has not been able to be established with Cook Islands MoT.

## Data management

As the MoT system is not yet implemented and there has not been a response from MoT during consultations, there is no information about data management. Presumably the new registration system for SSVs will link with the existing data collection processes of online registration and data collection. MMR have their own database for storing fisheries related data from their vessel registration system, along with vessel details, which as mentioned earlier would likely be much more cost-effective and resource efficient if it were linked better with the intended MoT system.

### *Data collected*

The data intended to be collected as part of the MoT SSV registration system is fairly basic and focuses on owner details and vessel information. The owner details include: name, island where they live and contact numbers. The vessel details include: boat radio call sign, boat description, construction, vessel colours, length, breadth, engine type and horsepower. Registration also asks for the vessels EPIRB type and serial number. Data of interest and currently collected by MMR includes predominantly fisheries catch and effort data.

### *Management and training requirements*

Maritime Cook Islands appear to have the capacity to manage the data maintenance for a SSV registration system since they currently manage the large ship system. It is likely that the major effort involved with a new system would be ensuring they are either integrated or at least compatible as much as possible, and possibly extra staffing required. This will need to be confirmed with MoT. MMR currently have the capacity for collection and maintenance of their fisheries data collection, and the associated extension and communication with fishermen, through the SPC/FFA Vessel Identification Form. With the right database structures, better linking with the new MoT system may actually free up some MMR staff time. The MMR have fisheries officers in each inhabited island and so there is potential to bring these people to Rarotonga for relevant trainings to build the necessary capacity in their respective islands.

### *Use of data*

Although not confirmed it appears that the current and new MoT systems are used to ensure safe operations of motorised vessels at sea and the enforcement of this, while MMR use their current system to be able to better collect fisheries catch and effort data and link this to individual fishing vessels.

## Enforcement

Enforcement is primarily by the Cook Islands MoT and the local Police.

## Current challenges/Impediments

During consultations several challenges involved in a SSV registration system were identified, however the major challenges related to the huge area to cover in the Cook Islands and the cost involved. Many areas are highly isolated with 15 islands spread across two million square kilometres of ocean area. This presents logistical challenges (cost and frequency of transport) associated with travelling to each island to physically inspect/survey vessels or to help with compliance given that islands are great distances apart with expensive and limited transport options (some islands can only be reached by boat, others by infrequent or chartered flights only). MMR has already travelled to a number of islands as part of their current data collection processes and have discussed possible collaborations with MoT to better achieve this, however funding is the most significant barrier.



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Other challenges identified were the potential for some people to refuse to give accurate information possibly out of fear that registration would mean more taxes by government. Registration also means safety gear requirements for vessel owners, which is an extra cost to them.

## Niue

Population: ~1,200<sup>4</sup>.

Vessel numbers: No official estimates of vessel numbers in Niue could be ascertained however the total number of vessels in Niue is known to be **LOW**, simply because of the very small coastline, the relatively small number of landing areas and the low population size.

### Coastal fisheries catch

Coastal fisheries catches in Niue are made on the reef, a narrow fringing habitat encompassing the relatively small atoll island, and “beyond the reef” in adjacent oceanic waters. Gillett (2009) estimated that the coastal commercial catch in 2007 was 10 t, while acknowledging that local commercial fishing from skiffs declined during the period 2005-2007 due to increased local sales from offshore longliners. Coastal subsistence catch in 2007 was estimated to be 140 t. It is likely that these catch estimates are lower now due to a continuing decline in the Niue population (Nosa, 2009).

Pelagic fisheries are a significant component of coastal fishing in Niue with albacore, bigeye, skipjack and yellowfin tuna, wahoo, mahi mahi and marlin taken. Demersal fisheries are also important with deepwater snappers, cods, trevally, crustaceans, clams, sea cucumber and shellfish taken (<http://www.tevakamoana.org/member/the-department-of-agriculture-forestry-and-fisheries-of-niue>).

### Legislative status

Under the Niue Domestic Fishing Act 1995 all local based vessels cannot put to sea unless they have a valid license (registered). This applies to all boats whether motor or paddle powered, except for canoes. The Act also requires licensed vessels to be in a “seaworthy condition” and must satisfy minimum safety gear requirements, depending on the vessel type and size, as prescribed by the Niue Domestic Fishing Regulations 1996. As with other PICTs Niue has a requirement for all foreign vessels operating in Niue waters (EEZ) to be registered and this is governed by the Niue Merchant Shipping (Registration of foreign vessels) Act 2012.

### Current SSFV registration system

There is currently a vessel registration system in place in Niue (although it is referred to as vessel licensing) governed by the Domestic Fishing Act 1995. The main purposes of the system are to ensure safety at sea with requirements for all licensed vessels to be assessed for seaworthiness and to have specified safety gear on board as governed by the Domestic Fishing Regulations 1996. Another purpose of the system stated by Fisheries is for revenue from fishing activities and use of resources to help fund costs of Monitoring, Control and Surveillance (MCS).

### Implementation

The vessel licensing system is implemented by the Niue Fisheries Division of the Department of Agriculture, Forestry and Fisheries (DAFF). All local vessels operating in Niue Territorial Seas are required to apply for a vessel license to the Fisheries Officer on an annual basis with licensing running on the financial year calendar. Licensing attracts a small annual fee based on vessel weight with NZ\$10 for vessels less than 750 kg tare weight, NZ\$110 for vessels greater than 750 kg tare

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<sup>4</sup> There are estimated to be 24,000 Niueans living in New Zealand.

weight, and NZ\$60 for all vessels that carry people for hire. As part of licensing vessels must be approved as being seaworthy by an inspection and must also carry specified safety gear. The safety gear required is specified under the regulations and is different for vessels less than 16 ft (4.8m) in length with fewer requirements, than for vessels greater than 16 ft and all tourist/charter vessels. The Fisheries Officer conducts these inspections.

## Data management

### *Data collected*

Fisheries informed that the specific data collected under the vessel licensing system relate to vessel owner details, vessel size, paddle or motor powered, engine size and number, and the safety equipment on board each vessel. Currently no information about fishing activities are collected under the licensing system, e.g. gear, areas fished, target species, etc. This information, along with fisheries economic data, is acknowledged by the Fisheries Division as an information gap.

### *Management and training requirements*

The limited staffing in the Fisheries Division make it challenging to implement the current system. The Division had a data management staff member however they were recently deployed to SPC for a 12-month period. This has further reduced staff capacity and so they are currently trying to recruit a new staff member.

### *Use of data*

Currently the data collected is primarily used for compliance to ensure that vessels are safe to go to sea and to track that vessels have a valid (current) license.

## Enforcement

Enforcement is primarily by fisheries officers, which is a challenge in itself due to there being only 2 staff members. When possible the officers have the power to do spot checks and serve notices of fines when warranted.

## Current challenges/Impediments

The main challenge of the current system is inadequate staff time to check for compliance with licensing each year as well as ensuring up to date training accreditation for the person responsible for vessel checks for seaworthiness. Currently fisheries have only two staff members, which is the biggest challenge in Niue.

## Samoa

Population: ~190,000 (2013)

Vessel numbers: Although Gillett (2003) provided an estimate of the number of fishing vessels in Samoa these are now outdated and there are no recent estimates. The Ministry of Works, Transport and Infrastructure Annual Report 2011-2012 provide details of registered vessels however the numbers of vessels listed appear to only include large (> 15m) vessels and the few listed suggest that not all vessels are registered. There is likely to be a **MODERATE** number of SSVs in Samoa.

### Coastal fisheries catch

Local SSVs called “alia” catamarans that are unique to Samoa, take much of the nearshore tuna catch using trolling and longlining. In the most recent estimates of Samoa’s coastal catch Gillett (2009) included the catches of these vessels in the offshore catch component. In providing estimates of coastal fisheries production in Samoa, Gillett (2009) considered that these estimates for coastal fisheries were likely to be the most accurate for any Pacific Island country.

Coastal fisheries also target reef fishes by line and spear. Deep-water snapper were once a very important target species however declines have meant that there is now increased targeting of skipjack and yellowfin tuna around local FADs (Gillett, 2003). In estimating annual coastal commercial catch Gillett (2009) used recent HIES data to derive an estimate for 2007 of 4,129 t. He also estimated subsistence catch to be 4,495 t for the same year. A separate study published in 2007 found that total coastal fisheries production was substantially higher (Mulipola et al. 2007) however it is not clear why this estimate was not used by Gillett (2009).

### Legislative status

Registration of SSVs in Samoa is covered under two major pieces of legislation: the Fisheries Amendment Act 1999 and the Small Vessels Regulation 1998, which is subsidiary to the Shipping Act 1998. The Fisheries Amendment Act 1999 states that: “The Director shall maintain a register of local fishing vessels engaged, at any time, in commercial fishing activities.” It also states that registration: “...shall not apply to any local fishing vessel used solely for sport fishing, pleasure, recreation or for subsistence fishing.” Therefore the fisheries-based system only applies to local fishing vessels fishing to sell their catch (or part thereof) and does not discriminate by length of the vessel. This is implemented by the Fisheries Division of the Ministry of Agriculture and Fisheries (MAF).

The Small Vessels Regulation 1998<sup>5</sup> however, apparently stipulates that *all* vessels in Samoan waters less than 15m in length must be registered and must have a Small Vessel Safety Certificate and a Seaworthy Certificate. These SSVs are exempted from registration unless the owner requests otherwise. This system is administered by the Maritime Division of the Ministry of Works, Transport and Infrastructure (MWTI).

### Current SSFV registration system

There are currently effectively two SSV registration systems in operation in Samoa. The two systems appear to have the potential for duplication with the MAF system only registering commercial fishing vessels, and the MWTI system potentially applying to all (other) vessels). This system appears

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<sup>5</sup> The exact wording and content of the Small Vessel Regulation 1998 could not be confirmed as despite numerous searches and requests a copy of the legislation was not able to be obtained.

confusing and unnecessarily complex, with consultations unable to resolve exactly what was in practice in Samoa. The MWTI state that, with regards to fishing vessels, only the MAF is responsible for registration subject to the vessels being in compliance with relevant safety requirements stipulated in the Small Vessel Regulations 1998.

The system implemented by MAF is mainly to keep track of the number of vessels since there is a limit on how many vessels can be licensed to fish commercially in Samoa. Although not clearly documented, this system applies to all commercial fishing vessels of which alias, which tend to be quite large, are likely to be spending a significant proportion of their fishing time in offshore waters.

The objectives of the system implemented by MWTI is to ensure that all small-scale coastal vessels are safely operated and the owners are aware of their obligations in ensuring their vessels have met all applicable requirements of the Small Vessels Regulations 1998 and relevant fisheries legislation. Essentially it is to help ensure safety at sea and compliance with relevant regulations including fisheries.

## Implementation

The two SSV registration systems currently in operation in Samoa differ in their implementation. As mentioned above the MAF system only applies to commercial fishing vessels with fees based on length categories. According to the fisheries legislation all local commercial fishing vessels must be registered and those >8 m in length must also obtain a commercial fishing license. Also, the vessel must obtain a safety certificate as prescribed under the Shipping Act 1998 and includes vessels being equipped with safety gear, although the type of safety gear required varies according to the purpose of the vessel. Under the MAF system vessel registration and fishing licenses are to be renewed annually with the license number to be linked to a vessel. Apparently this system has lapsed for the smaller alia category only because they do not have mobile transceivers for the vessel monitoring system, however the intention is to better enforce this in the future.

There is no online facility with forms, etc. for registration under the MAF system and therefore forms must be filled in and submitted in person. Annual registrations incur a fee, which is higher for larger vessels. Currently it appears that registration fees go into government revenue however the Fisheries Division are negotiating that some is redirected towards fisheries responsibilities, such as observers on vessels. Annual fees for licensing of alias are ST\$200. The Fisheries Division also intend to extend their registration/licensing system to sportfishers in the future, of which there are estimated to be 30 in Samoa, however it is uncertain that this will eventuate.

According to the Maritime Division, their system registers all non-fishing vessels and pleasure vessels. Registration fees are paid each August directly at the office in Apia once all safety requirements have been met and relevant certificates issued. Applications go to the CEO of MWTI for small vessel safety and seaworthiness certificates, following which vessel owners can then apply to the MAF Fisheries Division to get a fishing license and have the vessel registered. There is a complicated fee structure for registering vessels under this system; the MWTI fee is about \$250 per safety certificate and can be up to ST\$3000 for the initial registration of all other non fishing vessels. Vessels are required to be marked with a vessel name, port of registry, and a unique number as well as having minimum safety gear requirements (again this is prescribed under the Shipping Act 1998). The responsibility to ensure the vessel is up to date (registered, safe, etc.) is on the vessel owner and/or the boats Master.

According to the MWTI, they continue to work closely with MAF (including the Police) in ensuring that all fishing vessels are safely operated and certified in accordance with legislation. The Fisheries Division manages a Commercial Fisheries Management Advisory Committee (CFMAC) of major stakeholders, which is responsible for coordination of operational activities including enforcement.

This includes data sharing via email where the Fisheries Division supplies members of the committee with updated registry/licensing lists.

The current system for registration of SSVs in Samoa could be improved by consolidating the current Fisheries Division and Maritime Divisions systems into a single national system that collects the relevant information required by each department thereby satisfying their respective obligations. This would also include a revision of relevant legislation governing vessel registration, namely the Small Vessels Regulation 1998 (and the overarching Shipping Act 1998) and the Fisheries Amendment Act 1999. It would also make better use of limiting resources and capacity between the two departments that would improve efficiencies, and at the same time would make it simpler and less onerous for vessel owners thereby helping improve compliance. This would require a partnership approach to ensure requirements are met and that appropriate data systems are developed that allow the sharing of relevant data.

## Data management

The Fisheries system stores all their vessel registration and licensing details electronically in an excel spreadsheet however they are currently incorporating these data into a database supplied by SPC (front end using MS Access and the back end using an sql server). This database links catches and other activities to vessels. There is also a hard copy of these data stored in filing cabinets. The Maritime Division's vessel registration system has no electronic storage capabilities, apparently due to the lack of capacity (training, expertise, time, etc.). Therefore, data recording is done manually with all the details recorded in the Registration Log Book and every vessel has its own file stored as a hard copy in filing cabinets.

### *Data collected*

Registration forms are only available from the Fisheries Division; however, I was unable to obtain a copy. As an indication of data collected, the standard form used by the Maritime Division for the survey of vessels less than 15 m requires the following information: owners name, vessel name and registration number, hull type, length, breadth, displacement, propulsion type, engine power capacity, vessel type/purpose, deployment area and the number of crew. There are also requirements for specific safety equipment, which are listed and recorded as part of the vessel survey.

### *Management and training requirements*

The Fisheries Division has expertise with electronic data storage and the relevant software and has been receiving capacity building assistance from SPC. This is continuing with data management currently moving towards more sophisticated and powerful software (see above). Fisheries are also currently trying to move away from a limited license (effort-based) fisheries management system towards the use of quotas (catch-based). This may involve further training requirements which are currently being planned with SPC and FFA.

Also, currently the Fisheries Division are developing an Information Management System (IMS) that will be online with licensing/registration of vessels as one component which is planned to be made available to the MWTI (as in a data sharing portal). This portal is in draft stage at the time of writing and is anticipated to be fully operational sometime in 2016.

As is currently managed the Maritime vessel registration system has no electronic data storage capabilities which means a requirement for database development and management training and significant time required to enter back-dated information. However, as mentioned above, such training and systems development would be more efficiently conducted in the short and long term

by a move towards a single SSV registration system developed in partnership between Fisheries and Maritime.

#### *Use of data*

For Maritime the priority of having a vessel registration system is to ensure all vessels meet minimum safety standards. Data can also be used in the event of an incident involving a particular vessel by sharing information (e.g. vessel owner contact details). Due to a history of safety incidents, often due to modified alias being of poor design and poor construction, the Small Vessels Regulation 1998 included requirements that all vessels be built to minimum design and construction specifications. Compliance with this and other regulations need to be included in vessel registration database systems to be able to monitor compliance. However, given that currently there is no electronic storage of vessel data it is unlikely that information can be used to effectively meet these needs. MWTI acknowledged that assistance from SPC in establishing an Electronic Registration Database for Samoa under Maritime Division of MWTI would be hugely beneficial. Clearly, given the progress by the Fisheries Division in data management structures (as well as the current duplication), any move by MWTI towards an electronic system should be coordinated with Fisheries.

The Fisheries system, although having requirements to ensure safety at sea that are essentially met through the Maritime Division's system (but see above), uses information on vessel registrations to monitor compliance with fishing licensing requirements. Although this is an enforcement need it is to meet fisheries management regulations of limited entry (effort controls).

## Enforcement

Enforcement of maritime regulations in Samoa is a joint responsibility between the Police, the Maritime Division of the MWTI, and the Fisheries Division of the MAF. Gillett (2003) noted that the main challenges relating to enforcement activities in Samoa related to inadequate enforcement capabilities in rural areas, lack of coordination among enforcement agencies during specific operations, and poor administrative procedures during prosecutions. Although there was the suggestion during consultations that capacity for adequate enforcement even in urban areas was limited, the Fisheries Division reported that currently co-ordination of enforcement efforts was adequate.

## Current challenges/Impediments

Compared to many PICTs, Samoa has a smaller populated area to consider in the implementation and management of a small vessel registration system, but there are still over 230 coastal villages. Therefore, significant resources (funding and manpower) would still be needed to reach all vessel owners if all sizes and categories of SSVs were included, particularly in rural areas and on the island of Savai'i. Therefore, the resources required and associated costs of staff and transport to visit rural areas for enforcement of valid safety certificates, safety equipment and registration is a significant ongoing challenge.

There are also ongoing challenges with the accessibility of vessel data and with the integration of licensing information with vessel safety certificates and registration; development of a single fully automated online system with electronic data sharing capabilities would help significantly improve this issue.

Other challenges are that fishers and vessel owners are not happy with the newer regulations requiring safety mainly due to the extra costs involved. They are also unhappy with all registration costs and processes, which they find onerous (registration, vessel surveys, training, etc.) The Maritime Division acknowledges the need for awareness raising programs, especially in rural areas,

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to inform vessel owners and the general public about obligations regarding vessel registration as well as the consequences for not complying, however there is no funding allocated to this.



## Tonga

Population: ~105,000 (2013)

Vessel numbers: Estimates from 2003 suggested there were “several hundred” boats <8.5m and that there were between 20 and 50 vessels <6m around the main island of Tongatapu, most operating in inshore areas (Gillett, 2003). There are no recent estimates of the number of SSVs in Tonga. There are likely to be a **MODERATE** number of SSVs operating in the coastal waters.

### Coastal fisheries catch

Coastal commercial fisheries in Tonga for 2007 was estimated to be 3,700 t with about 700 t exported, and about 2,800 t from coastal subsistence fisheries (Gillett, 2009).

### Legislative status

According to the Fisheries Management Act 2002 all fishing vessels in Tongan waters must be registered but may be exempted if used for sport fishing (other than for profit, i.e. pleasure) or only for subsistence. Essentially, registration applies to all commercial vessels. The details of the registration system are described in the Tonga Fisheries (Local fishing) Regulations 2009 which stipulate the prescribed forms and that registration applies to “local fishing vessels” and “commercial sport fishing vessels”. Each piece of legislation also mandates minimum safety standards as a condition of registration.

There is also separate legislation that governs the registration of all Tongan ships greater than 15m in length (Shipping (Registration) Regulations 2002 under the Shipping Act 1988).

### Current SSFV registration system

There is currently a vessel registration system operating in Tonga that applies to small-scale coastal vessels and based on the wording of legislation in place applies to any Tongan vessel fishing commercially. The system is managed concurrently with a fishing license system. The vessel registration system appears to be in place to help ensure safety at sea with requirements for vessels to be inspected for seaworthiness and for minimum safety gear, but also collects detailed information about fishing capacity and practices. Therefore, there appears to be a dual purpose of safety at sea and to facilitate fisheries management tasks.

### Implementation

The current system is implemented by the Tonga Fisheries Department, which is part of the Ministry of Agriculture & Food, Forests and Fisheries (MAFFF). According to the relevant legislation this system applies to “local fishing vessels” and “commercial sport fishing vessels” and all vessels registered must be seaworthy and comply with safety standards under shipping laws. Part of the registration requirements is that vessels must display identification markings.

There is a form in the regulations that prescribes the information required to be submitted and this is quite detailed. As a requirement of commercial fishing, vessel owners must also obtain a fishing license that puts conditions on fishing operations in the form of catch and effort controls. This also requires an application process and the license is linked to vessel registration numbers.

The current application process involves filling in a form available online or from local offices which can be submitted electronically or as a hard copy in person. There is an application fee of TOP\$10 and once registration is approved there is a cost for the certificate of TOP\$5 for the first 6m of vessel

length, and TOP\$2 for each additional metre of length. Fishing licenses have a similar system with a fee of TOP\$10 for the initial application, then fees for the actual license dependent on vessel size. For vessels up to 10m the license fee is TOP\$200 for the first 6m of vessel length and then TOP\$5 for each additional metre.

From consultations it was suggested that vessel registration in Tonga only applies to commercial vessels greater than 6m in length and that there is currently no legislation mandating registration of small-scale (<6m) coastal vessels. This contradicts the system that was able to be determined based on current documented legislation (documented above) and it is possible that the current system, in practice at least, applies to vessels more than 6m as suggested. This is further supported by comments from the Fisheries Department suggesting that to extend the current registration system to vessels <6m would require more funding and extra staff. From consultations with a local commercial sport fishing operation, the local SSV registration system currently in place is generally thorough and relatively simple to comply with.

## Data management

### *Data collected*

Online application forms or hard copies are available for both vessel registrations and fishing licenses. The information collected as part of the vessel registration system includes the vessel owner name and address, vessel details (vessel name, make and type, size – weight and length, hull material, where and when built, radio type, call sign, engine type – make, hp), and details of fishing capacity (gear type and amount of that gear, fish storage capacity and type (chilled, freezer, blast freezer, ice machine, insulated box).

### *Management and training requirements*

The Fisheries Department has the SPC artisanal database TUF-ART installed on their computing system however they are not actively using it due to a lack of relevant staff and funding.

## Enforcement

From consultations it was felt that to properly enforce the current system, and a system that also includes vessels <6m, would require amendments to the Fisheries Management Act 2002 and relevant Regulations and policies. It would also require further funding and the recruitment of new staff, the development of a good data management system, and also the development of close working relationships with other relevant Ministries and stakeholders. Current enforcement capacity is likely to be limited and a local commercial sportfisher reported that his vessel has not been inspected on the water in the past 3 years.

## Current challenges/Impediments

One of the major challenges faced by the current system in Tonga is the large area with many islands and many landing sites, many of them remote. The other major and related challenge is the lack funding and lack of staff to adequately manage the current system, including enforcement. It was also felt that the current legislation was inadequate in relation to artisanal fishing vessels.

## Tuvalu

Population: ~10,000 (2013)

Vessel numbers: There are few estimates of SSVs in Tuvalu with the most recent being from 2000. In that instance the Fisheries Department estimated that there were **125 (powered) boats and 104 canoes in Funafuti**, the main urban island of Tuvalu (Gillett, 2003). This study also commented that almost all privately owned vessels were less than 7 metres in length. Assuming that the number of SSVs on Funafuti has increased in line with population, there is likely to be ~5% more vessels than in 2000. Estimates of vessel numbers on other outer islands are scant.

### Coastal fisheries catch

Tuna represent a significant component of coastal fisheries catches in Tuvalu, with reef fish also important and small quantities of shellfish (Gillett, 2009). As with other PICTS studies to estimate coastal fisheries production are scant and of dubious quality. Using the best available information, predominantly the 2004/05 HIES, Gillett (2009) estimated the coastal commercial catch in Tuvalu for the mid 2000s to be 226 t and the coastal subsistence catch for the same period to be approximately 989 t.

### Legislative status

Under the Tuvalu Marine Resources Act 2006 there is a *provision* for the registration of fishers and/or fishing vessels if ordered by the Minister, although it does not explicitly refer to SSVs. The Act however states that *all* vessels engaged in commercial fishing in Tuvalu must obtain an applicable permit to do so. Local fishing vessels are exempt from this if engaged only in subsistence fishing.

### Current SSFV registration system

The legislative option for a small-scale fishing vessel registration system in Tuvalu is not currently enforced. There is currently no standard definition of a SSV in Tuvalu, however as mentioned above, historically all local coastal vessels are <7m.

If a registration system for SSVs were to be introduced in Tuvalu it would be to assist with fishery surveys and provide baseline information in the case of losses due to disasters. However, from consultations it was generally felt that this information could be obtained using voluntary approaches. Therefore, feedback suggested that a registration system would likely be an unnecessary burden on Tuvalu given the low level of economic development, the lack of markets, costs of fuel and maintenance of boats, and the need for food security.

### Implementation

Although a registration system can be applied to all commercial fishing vessels, currently it appears to be implemented only for larger vessels, mainly for management of foreign fishing in offshore Tuvalu waters. This system is implemented by the Fisheries Department in the Ministry of Natural Resources, and these vessels are required to obtain a permit to fish for an annual fee and with conditions associated with fishing activities and catch/effort reporting.

The application of a vessel registration system to small-scale coastal commercial fishing vessels is not part of the medium-term work plan for the Tuvalu Fisheries Department. Given the limited resources available, priority is directed towards fisheries data collection using creel surveys and market surveys, management plan development, and staff capacity building.

For a vessel registration system to work in Tuvalu, would likely involve an annual fee paid to Island Councils (Kaupules) however existing economic and food security challenges suggest that it may not be feasible. Consultations with stakeholders suggested that a better system for ensuring relevant vessel and fishery data collection would be a voluntary one in conjunction with creel surveys with fishers, possibly with some incentives (e.g. a monthly draw for a cool t-shirt, etc.) and with better information exchange services between the Fisheries Department and fishers (e.g. on ciguatera hotspots). Creel surveys have already been supported for 2016 so there is capacity for the above approach to also occur.

## Data management

Under the Tuvalu Marine Resources Act 2006 applications for a permit for fishing require specific information relating to: the vessel name, vessel call sign, country of registration, registration number, regional register number, name and address of the operator, name of master, fish storage capacity, and fishing gear type. As discussed above this system currently only applies to larger offshore vessels.

Data that would be useful to collect on coastal fisheries that a registration system could be used for are data on fishing catch and effort (and associated costs) as both income and food sources. However, as mentioned above, some local stakeholders feel that dedicated data collection methods such as creel surveys are likely to be a more cost-effective approach in Tuvalu.

## Enforcement

For coastal fisheries in Tuvalu there is no enforcement and incentives are used where possible.

## Current challenges/Impediments

During consultations several key challenges were identified with respect to a small-scale coastal vessel registration system including: current poor communication systems, poor data organisation, the extra (likely) financial burden on fishers who are already struggling, and the potential for the process to be overtaken by Island Councils just for the revenue but providing no service.

## Summary across the Pacific

### Current status

Six out of the 14 PICTs reviewed currently have a vessel registration system that includes small-scale coastal vessels in place or being implemented. Most of the PICTs reviewed (11 of 14) also have (or under development) the necessary legislation to implement a SSV registration system, albeit that many would need to develop specific regulations to implement the system effectively (Table 2). This is because most fisheries and or maritime Acts include the option for vessel registration without being specific to vessel sizes and/or types. However, although several PICTs have a system in place for SSVs, or are moving towards one, notwithstanding a lack of resources, their approaches are questionable and therefore the systems are less effective than they could be.

Some current systems are being implemented inefficiently due to duplication based on differing objectives (e.g. Fiji, Samoa and Cook Islands). Fiji has had a long history of registering coastal fishing vessels through the Fisheries Department however this is reported to have a very high level of non-compliance, particularly in recent years. This may be due to a number of reasons but appears to be mainly due to a lack of staff to effectively manage, implement and enforce the system. Further, since 2008 there has been a second system for registering SSVs in Fiji through MSAF. This system is for all commercial vessels <15m and although it appears to be a better managed system with what seems to be higher staffing levels, a well set up database and trained personnel to manage it, clear powers and capacity for enforcement and online capabilities being implemented soon, it is difficult to understand how the overall system works with the current overlap with Fisheries. This also has the capacity to be a source of confusion and angst among vessel owners, which may in part explain recent suspected non-compliance levels. According to the Fisheries Department, in the near future implementation and management of vessel registration will be the sole responsibility of MSAF and Fisheries will focus on managing the commercial fishing licensing system. This will require amendments to current legislation since there is legislative duplication.

Similarly in Samoa there are concurrent and overlapping SSV registration systems in place. This overlap comes about by there being two separate pieces of legislation for vessel registration: the Fisheries Amendment Act 1999 and the Small Vessels Regulation 1998 (under the Shipping Act 1998). Further, each department manages their systems separately with their own independent data management and implementation processes. This is again very inefficient where resources are already limiting and also confusing to vessel owners.

Another example is in Kiribati where the Fisheries Division and the Marine Division have recently been independently developing draft legislation for a SSV registration system. Prior to consultations during this consultancy each Division appeared to be unaware of this duplication. Despite now being aware however, it is apparent that the Fisheries Division are intent on proceeding independently to pass a voluntary system of vessel registration (after the House of Parliament failed to pass it earlier this year due to concerns fishers may have about paying fees).

These examples highlight how the lack of co-ordination and communication among relevant stakeholders in the development and implementation of SSV registration systems can compromise their effectiveness. Ensuring cost-effective and efficient systems is especially important in PICTs where funding for staff is a major limiting factor. In each of these examples the respective stakeholders are Fisheries and Maritime Departments and not surprisingly, these are the departments responsible for the major motivating factors behind the development of a SSV registration system in the first place across all PICTs reviewed: sea safety and fisheries management. This was also very apparent from consultations and literature searches (Table 2).

**Table 2.** Summary overview of the current status of a SSV registration system for PICTs reviewed. \* Hypothetical for PICTs where a system is not in place; # Some PICTs have legislation that covers SSV registration however from consultations it appears not to be enforced; ^This is by default as it is reported that all coastal vessels were <7m in length; @ For Funafuti only; n.a. – not applicable.

	Legislation	SSV registration system	Moving to registration	SSV number estimate	Small-scale definition	Main reasons for SSV registration system*
<b>MELANESIA</b>						
FIJI	Yes	Yes	n.a.	> 1,500	<15m	Sea safety
PNG	Yes	In progress	Yes	~15,800	<10m	Sea safety
SOLOMON ISLANDS	Draft	No	Yes	High	<10m	Sea safety
VANUATU	Draft	No #	Yes	Moderate	<6m	Fisheries management
<b>MICRONESIA</b>						
FSM	Yes	Uncertain	Uncertain	Moderate		Sea safety
KIRIBATI	Draft	No	Yes	Moderate	<7m	Sea safety, Fisheries management
MARSHALL ISLANDS	No	No	No	Low	none	Sea safety
NAURU	No	No	No	100-200	<10m	Sea safety, Fisheries management
<b>POLYNESIA</b>						
<b>AMERICAN SAMOA</b>						
	Yes	Yes	n.a.	Low	<~6m	Sea safety
<b>COOK ISLANDS</b>						
	Yes	In progress#	Yes	Moderate	<24m	Sea safety
<b>NIUE</b>						
	Yes	Yes	n.a.	Low	<4.8m and >4.8m	Sea safety
<b>SAMOA</b>						
	Yes	Yes	n.a.	Moderate	<15m	Sea safety, Fisheries management
<b>TONGA</b>						
	Yes	Yes	n.a.	Moderate	none	Sea safety, Fisheries management
<b>TUVALU</b>						
	Yes	No	No	~240@	<7m^	Sea safety, Fisheries management

Generally, the very small PICTs with low numbers of coastal vessels see less value in investing in a registration system for SSVs, and at this stage have no intention to implement one in the future (Table 2). For some PICTs it is unlikely to be cost-effective (e.g. Marshall Islands, Tuvalu).

Across all the PICTs reviewed most had SSVs defined either somewhere in their legislation or else through local convention. Unfortunately, the definition varied significantly among the PICTs ranging from vessels less than 24m (Cook Islands) to vessels less than 6m (Niue actually split their SSVs into two size categories; Table 2). Having consistent systems across all PICTs is desirable however there also needs to be compatibility with local situations built in so some flexibility is needed. Having a consistent size definition for small-scale systems may not be achievable.

One of the current SSV registration systems really stood out as potentially a leading example. Although PNG are currently implementing their system and are likely to be continuing to for quite some time, they have taken what appears to be a very thorough approach. Firstly, the legislation that governs the system is very prescriptive on all aspects of the system and makes it very clear how the system is to function. Secondly, implementation of the system is to be carried out regionally (by Provinces) to overcome the significant challenges presented by having vessels spread across vast areas separated by great distances and many islands. This is a common challenge identified by many PICTs. Thirdly, the PNG Government (possibly with external funding) has provided the sufficient funding to ensure that the system is implemented effectively with all the necessary measures for each of the 15 Provinces. These include: an awareness raising and education program, development of education and training materials (including manuals), national database development but with a provincial-level online interface, local capacity building, incentives for vessel owners and Provincial funding availability to promote Provinces to progress local registry implementation as part of their ongoing obligations. This still requires each Province to accept and support the legislation and accept the obligations associated with that into the future (e.g. factor management/enforcement into their annual budgets), so there will be ongoing challenges of continued funding to overcome. Despite this, the PNG system provides a potentially invaluable blueprint for SSV registration system development in PICTs.

## Major challenges

During consultations all stakeholders were also asked about the challenges their country faces in implementing and managing their current SSF registration system, or what the challenges would be if they implemented one. There was a range of challenges identified across all the different PICTs but the biggest factor identified was the need for adequate funding. Gillett et al. (2014) highlighted the inadequate prioritisation of funding for coastal resource management in Fiji, also noting that it was a common theme among all PICTs. The challenge of ongoing funding for staff and for training represented close to 50 % or more of all the challenges identified in all PICTs, however it was identified as a bigger challenge in Micronesia compared with Polynesia or Melanesia (Figure 2).

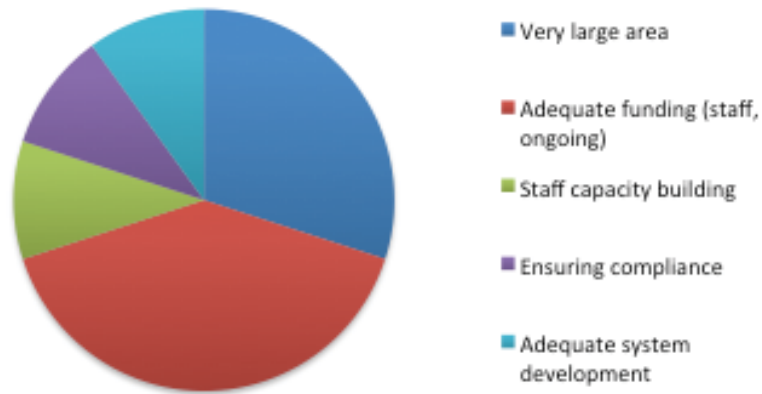
Overall, the vast areas covered by many island nations were another major challenge. PNG have this same challenge and have adopted a regional system approach to overcome this challenge. However, the challenges highlighted varied among the different cultural island groups. For example, the challenge of increased costs to fishers in a SSV registration system was more prominent in Polynesia than in other areas. Although there are likely to be several different types of challenges for any new system, and a focus on the local context will be important, to ensure an effective long-term system it will be critical for a commitment from Government of adequate resources to the system development, implementation and ongoing management. Innovative solutions may also help achieve better financial frameworks that help sustain the necessary funding; however, ensuring administrative efficiencies may be all that is required.

## Key messages

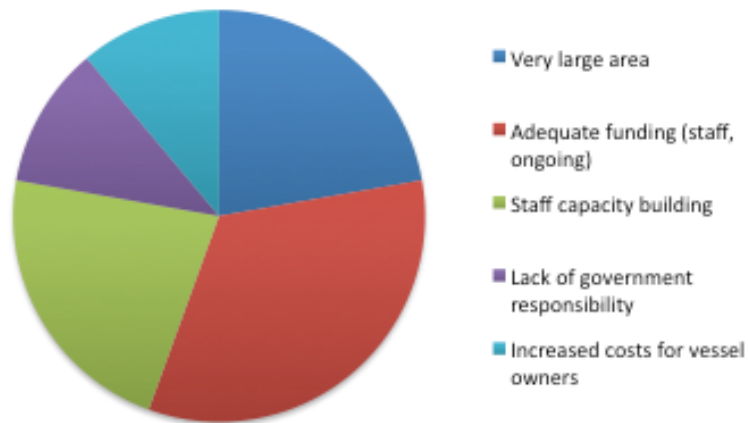
- Before any PICT embarks on a SSV registration system they must first assess whether it fulfills country priority needs (including an assessment of alternative approaches, e.g. creel and market surveys). This will inform the development of clearly defined objectives of the system, which in turn will determine the key elements of the system.
- The above step should involve consultation among relevant stakeholders, e.g. Maritime/Transport and fisheries departments) to ensure that all relevant needs are met as part of the system.
- Development of robust and adequate legislation to support the system is also required. Voluntary systems are unlikely to be effective even when highly incentivised.
- Once committed to a SSV system, Governments need to ensure they provide and/or source adequate funding to develop the system components, provide staff and fill training needs, ensure effective implementation and develop ongoing funding mechanisms to manage the system.
- Assess the challenges to an effective system and develop the system that addresses these challenges as far as possible. For example, very large areas may work best with a regional approach.
- Ensure that the system is cost-effective to mitigate funding issues over time. This can include ensuring fees offset administrative costs, ensure the system is streamlined to minimise staff time in unnecessary administrative functions, and ensure staff have the necessary training to carry out their roles.
- Ensure the system is realistic about what is achievable given resources. For example, is it feasible to include all canoes in the registration system? Should subsistence fishers be included?
- Draw on positive examples when developing/adopting a system. For example, the current system being implemented in PNG is comprehensive and well funded thereby maximising the likelihood of success. Also, registration systems for oceanic fisheries systems work well (possibly due to adequate funding) and provide potential templates for coastal systems.



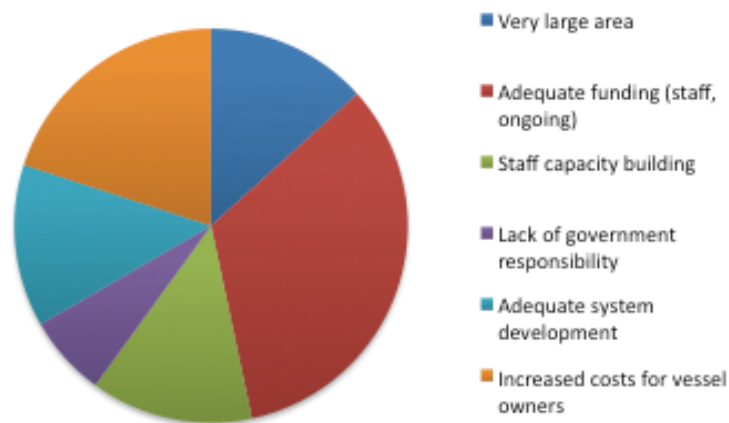
### Melanesia



### Micronesia



### Polynesia



**Figure 2.** Summary of the different types of challenges identified to the implementation and management of a SSV registration system from consultations with PICTs, and grouped for three main Pacific Island cultural groups.

## 4. Vessel types for registration

### Different vessel types across the Pacific

Across the PICTs reviewed during this consultancy several different SSV types were identified. Although the focus of this consultancy was on vessels used for fishing, for completeness it was considered important that all small-scale coastal vessel types be considered. This was especially relevant since, of the systems currently in place in PICTs, not all of them are confined to fishing vessels. Despite this, it is highly likely that the vast majority of small vessels in PICTs are used for fishing at least part-time.

Descriptions of the vessel types in each of the PICT where consultations took place are below and summarized in Table 3. As far as possible the local name provided is used in the descriptions.

# MELANESIA

## Fiji

### Vessel types

There are several different types of fishing vessels used in Fiji. According to MSAF database records of registered vessels <15m there are currently 18 different vessel categories recorded however the majority of these vessels are listed as passenger, tourist or fishing vessel types. The major vessel types in Fiji are:

#### Fibreglass (FRB) boats

These vessels range from 19-25 feet (5.8-7.6m) in length and are usually powered by 25-40 hp outboard motors (Figures 3 and 4). These vessels are most commonly used for commercial fishing however are also used for transportation, particularly by tourist resorts.



**Figure 3.** Typical fibreglass longboat (FRB) used by coastal fishermen in Fiji.  
Photo: D. Welch.

#### Small skiffs or punts

These small vessels are usually 9-11 feet (2.7-3.4m) in length and are often used as tenders to the larger FRB vessels, usually for transporting people and/or fish. They are mostly of wooden construction. Resorts also operate some of these smaller vessels predominantly as transport.

#### Canoes

Canoes are not used much anymore in Fiji and are mostly used in rural areas for subsistence fishing. They tend to be 15-20 feet (4.5-6.1m) in length and are paddle powered.

#### Larger vessels

With the many resorts throughout Fiji and several sportfishing and dive charter businesses, there are many larger vessels operating (Figure 4). These tend to have large outboard or inboard motors and are often just used for transportation however many are also for fishing.



**Figure 4.** With a large tourism industry Fiji has a larger number of passenger and larger charter and/or leisure vessels than most other PICTs. Photo: D. Welch.

## Papua New Guinea

### Vessel types

There are two main types of small-scale coastal vessels used in Papua New Guinea:

#### Open dinghies

These are mainly Yamaha 19 and 23 ft (5.8m and 7.0m respectively) fibreglass open dinghies (“banana boats”) powered by outboard motors of which there are approximately 15,000, which represents about 95% of the domestic small craft fleet. There are concerns about their suitability for use in PNG. The National Maritime Safety Authority (NMSA) is currently working with the manufacturer to address issues including: safety equipment, visibility, load lines, stability and swamped flotation.

#### Canoes

Traditional canoes are timber dugout with a single outrigger and are mostly paddle-powered while some are sail-powered and they range in size from three metres to around 15m in places like Milne Bay and the Sepik.

## MELANESIA



**Figure 5.** Typical longboat very common in PNG waters showing the all too frequent unsafe practice of overcrowding. Photo: PNG National Maritime Safety Authority.

## Solomon Islands

### Vessel types

Small coastal fishing vessels in Solomon Islands are almost exclusively made up of two types:

#### Outboard Motor Vessels (OBMs)

One of the most common vessels around Guadalcanal and the major fish market areas are fibreglass boats generally 18-20 feet (5.5-6.1m) in length and powered by 25-40hp outboard motors (Figure 6). These are the vessels mostly involved with commercial fishing as they need money to buy fuel and service their motors. They are used to target reef fish and pelagic species, especially bonito and skipjack tuna. These vessels are usually multi-purpose often transporting people and items, including fish catches, among locations and islands. These are the same design as the small coastal fibreglass boats used in Vanuatu.



**Figure 6.** Typical fibreglass outboard motor vessel (OBM) used by coastal fishermen in Solomon Islands. Photo: J. Johnson.

## Canoes

This is the most common vessel type in rural communities and most are paddle-powered dugouts around 15-18 feet (4.5-5.5m) long. Some dugout canoes, but not many, are powered by outboard motors and are mostly found in the Western province; these are generally larger at ~21 feet (6.4m). Motor powered canoes are more likely to sell their catch because they need money to buy fuel and service their motors. There are also some fiberglass canoes however these are not very common.

Canoes are primarily used for subsistence fishing targeting reef fish but also increasingly targeting nearshore pelagic species with the recent introduction of inshore fish aggregating devices (FADs) in Solomon Islands (Albert et al, 2014). Canoe fishing around FADs uses predominantly horizontal trolling but also 'vertical' trolling whereby a lure or bait is dropped down deep and hauled to the surface quickly. Both techniques take tuna species, particularly bonito and skipjacks, while the latter technique takes mostly deepwater snappers (Albert et al, 2014).

## Larger vessels

Some larger vessels exist with large 100-150 hp motors, however there are only a few and are generally owned by ex-pats and/or the rich locals. There is possibly one charter sportfishing boat in Honiara and a couple of larger dive boats.



## Vanuatu

### Vessel types

There are two main types of coastal fishing vessels used in Vanuatu:

#### Fibreglass boats

These boats are generally 17-20 feet (5.2-6.1m) in length and powered by 25-40hp outboard motors. They are common around all the islands, especially the main island of Efate, and are used to target reef fish and pelagic species. These vessels are usually multi-purpose often transporting people and items, including fish catch. These are the same design as the small coastal fibreglass boats (OBMs) used in Solomon Islands.



**Figure 7.** Typical fibreglass boat used by coastal fishermen in Vanuatu.  
Photo: J. Johnson.

#### Canoes

Traditional canoes and outriggers are used throughout Vanuatu waters and is the most common vessel type particularly in rural communities. These are timber dugouts that are paddle-powered and around 15-18 feet (4.5-5.5m) long.



## MELANESIA

**Figure 8.** A local traditional canoe in Vanuatu. Photo: D. Welch.



# MICRONESIA

## Federated States of Micronesia

### Vessel types

There are several different types of small vessels used in FSM which participate in a variety of fishing methods and gears: trolling, bottom fishing, vertical longline, scoop netting.

#### Skiffs

These are small motorized vessels of Fiberglass Reinforcement Plastic (FRP), aluminum or wooden construction.

#### Outrigger canoes

These are traditional canoes generally made of timber.

#### Other

Generally includes small speed boats and FRP catamarans.

## Kiribati

### Vessel types

There are several different types of small vessels used in Kiribati. At the time of writing Kiribati were drafting regulations for small boats (National Small Vessel Safety Regulations) under the Shipping Act 1990. This regulation includes requirements for vessel registrations and lists different vessel types. For consistency with these regulations I have adopted these draft descriptions here as much as possible. The standard definition of a “small-scale” vessel in Kiribati is vessels under 7m in length.



## MICRONESIA

**Figure 9.** Skiffs used by coastal fishermen in Kiribati are mostly wooden or aluminium construction. While not in the water outboard motors are removed and stored at home for safekeeping. Photo: D. Welch.

### Skiffs

These are commonly used for fishing and include aluminium, wooden and fiberglass construction. These are powered by outboard motors generally 25-40hp, and are approximately 5-6m in length.

### Dive boat

Vessel that is used in the support of SCUBA diving activities.

### Passenger vessel

A vessel that carries more than 12 passengers.

### Pleasure vessel

A vessel that is only used for sport or recreation (which could include fishing).

### Sailing vessel

“A vessel provided with sufficient sail area for navigation under sail alone whether or not fitted with mechanical means of propulsion.”

### Tender

Small vessel not exceeding four metres in length used only for transport of people or stores.

### Te Waa

A traditional timber built outrigger canoe that can be sail and/or paddle powered.

## Marshall Islands

### Vessel types

The different types of vessels in the Marshall Islands participate in all fishing methods targeting a variety of species, which is generally dictated by vessel size but mainly by weather and ocean conditions. This means that on very calm days even 3m motorboats and/or canoes venture to the ocean side of the atoll and use trolling for tuna or bottom fishing for deepwater species. The two main types of SSVs used in Marshall Islands are:

### Canoes

These are traditional wooden dugout outrigger canoes powered mostly by sail and ranging from as small as 2 m up to approximately 6m in length. Traditionally they were hand crafted with pandanus sails and are now mostly only found in outer islands as they have replaced by powerboats. Modern versions, although similar in design, are now crafted using modern tools and cloth sails.

### Motorboats

# MICRONESIA

Motorboats are of fibreglass, wooden or aluminium construction from 3-10m in length and are powered by outboard motors. Motorboats >5m in length concentrate mainly on trolling.

## Nauru

### Vessel types

All vessels in Nauru are used for fishing and are considered small-scale due to their size and that they tend to not have decks. The Nauru Fisheries Act defines a “small boat” as being less than 10m in length and operates solely in coastal or internal waters. The two main types of vessels are:

#### Canoes

These are traditional wooden outrigger canoes that are paddle powered. Canoes tend to operate close to shore but will venture offshore in good conditions.

#### Skiffs

These are outboard powered vessels of aluminium, wooden or fibreglass construction and are used mainly for trolling and tend to operate away from the shoreline, though not always.

# POLYNESIA

## American Samoa

### Vessel types

There are three main types of coastal fishing vessels used in American Samoa:

#### Alia

This is a powered catamaran design unique to the Samoan Islands. These were originally designed by FAO in the mid-1970s and were initially of plywood design however the majority are now aluminium construction. The conventional alia design was 9-10m in length, however there have been modifications over time with some now as long as 15m. These are the most common vessel engaged in commercial fisheries, and although many historically targeted nearshore tuna using longlines, the number using these gears and targeting tuna has declined from historical periods.

#### Canoes

Traditional timber canoes are still used mostly in nearshore areas as they are paddle powered.

#### Skiffs

These tend to be fibreglass, wooden or aluminium construction and are 4-6m in length although these are less common than alias.

## Cook Islands

### Vessel types

There are three main types of small-scale fishing vessels used in Cook Islands:

#### Canoes

Traditional canoes used in the Cook Islands are powered by paddle mostly in the outer islands, but also by sail and some by small outboard motors.

#### Skiffs

These are small vessels powered by outboard motors and are the most common vessel types used in the Cook Islands. They are generally used for fishing in coastal areas by trolling or handlining on reefs and deepwater areas.

#### Sport fish boats

These tend to be larger and higher powered vessels than skiffs and are used in sport/game fishing for tuna and tuna-like species as well as bottom fish on occasions.

## Niue

### Vessel types

All coastal vessels in Niue are domestic and operate within the Territorial Sea (within 12 nm of land), apart from one Samoan alia currently operating in Niue waters, which is involved in horizontal longlining. There is also a couple of vessels used as tourist charters for whale watching and spearfishing. Otherwise, there are two main types of coastal fishing vessels used in Niue:

#### Skiffs

These are generally from 12-18 feet (3.7-5.5m) in length and are powered by outboard motors. Their construction can be aluminium, fibreglass or timber. These vessels mostly fish by trolling, vertical longlining and drop lining.

#### Canoes

Traditional outrigger canoes are carved out of trees and are still commonly used as coastal fishing platforms, including trolling around local FADs. Traditional canoes sit high out of the water and can be between 12 and 25 feet (3.7-7.6m) in length (Smith and Pulekula, 1993).

## Samoa

### Vessel types

There are three main groupings for coastal fishing vessels used in Samoa:

#### Alia

This is a powered catamaran design unique to the Samoan Islands, although at the time of writing there is one reported to be operating in Niue. These were originally designed by FAO in the mid-1970s and were initially of plywood design however the majority are now aluminium construction. The conventional alia design was 9-10m in length, however there have been modifications over time with some as long as 15m (Figure 10). These are the most common vessel engaged in commercial fisheries, many targeting nearshore tuna using longlines, and are predominantly based in the urban area around Apia (Gillett, 2003). Those based in rural areas are mostly the conventional smaller design. Alia fishermen use a combination of trolling, longline, and bottom fishing.

#### Canoes

Traditional dugout timber outrigger canoes are still widely used throughout Samoa in coastal areas, particularly in rural areas. These tend to be 4-6m in length and are used in all types of coastal nearshore fishing particularly reef-based (Figure 11).

#### Skiffs

These tend to be fibreglass, wooden or aluminium construction and are 4-6m in length although these are less common than alias.

## Special Purpose Vessels

A third vessel category can be grouped as 'special purpose' and includes pleasure craft, police patrol boats, and passenger vessels which run between the two main islands. These vessels are not as common as the other two types and range in sizes.



**Figure 10.** An aluminium Alia vessel, unique to the Samoan Islands, which are mostly used for targeting tuna and deepwater snapper farther offshore but many also fish in coastal waters. Photo: D. Welch.

## POLYNESIA



**Figure 11.** A typical Samoan outrigger canoe.  
Photo: D. Welch.

## Tonga

### Vessel types

There are numerous charter vessels in Tonga that cater to fishers and whale watching, particularly in the capital Nuku'alofa. These can be larger than the skiffs mentioned below, however by comparison there are fewer. Therefore, there are two main types of SSVs used in Tonga:

#### Skiffs

These are the most common SSV in Tonga and are generally powered by outboard motors and are from 3-8m in length. They can be of aluminium, fibreglass or wooden construction.

#### Canoes

These are traditional timber canoes powered by paddles.

## Tuvalu

### Vessel types

There are two main types of fishing vessels used in Tuvalu:

#### Canoes:

## POLYNESIA

These are wooden canoes generally with one outrigger attached. Canoes are often used by older fishers who are men, mainly to catch coastal reef and pelagic fishes, and in outer islands are also used for tuna. Most canoes are paddle-powered, while some use outboards, and a very few use sails.

### Small powered boats:

These tend to be outboard powered skiffs <6m in length and are often used to catch tuna for local markets in Funafuti. Some are also used in outer islands.



**Table 3.** Summary of SSV types among the PICTs consulted and, where possible, their lengths and main uses. # Skiffs are defined as “small boats” and is a generic term used to describe small runabout boats with outboard motors in many PICTs. All PICTs have a similar vessel type however there are a variety of local names for these. These types of vessel are all grouped here as skiffs with local names indicated.

REGION and PICT	SSV TYPES and THEIR MAIN USES					
	Canoes	Use	Skiffs <sup>#</sup>	Use	Other	Use
<b>MELANESIA</b>						
<b>FUJI</b>	4.5-6.1m	Fishing	Fibreglass boats (FRB) 5.8-7.6m	Fishing, transport (tourism)	Charter boats	Transport, sportfishing, diving
<b>PNG</b>	3-15m	Fishing	Open dinghies 5.8-7.0m	Fishing, transport	Larger outboard motor boats	Sportfishing, diving, leisure
<b>SOLOMON ISLANDS</b>	4.5-5.5m	Fishing, transport	Outboard motor boats (OBMs) 5.5-6.1m	Fishing, transport	Larger outboard motor boats	Sportfishing, diving, leisure
<b>VANUATU</b>	4.5-5.5m	Fishing, transport	Fibreglass boats 5.2-6.1m	Fishing, transport	Charter boats	Transport, sportfishing, diving
<b>MICRONESIA</b>						
<b>FSM</b>		Fishing	Skiffs	Fishing	Speed boats, fibreglass catamarans	
<b>KIRIBATI</b>	Te Waa 5-8m	Fishing, transport	Skiffs 5-6m	Fishing	Dive, passenger, pleasure, sailing, tender vessels	Diving, sailing, fishing, transport
<b>MARSHALL ISLANDS</b>	3-6m	Fishing	Motorboats 3-10m	Fishing		
<b>NAURU</b>		Fishing		Fishing		
<b>POLYNESIA</b>						
<b>AMERICAN SAMOA</b>		Fishing	Skiffs 4-6m	Fishing, transport	Alla 9-15m	Fishing
<b>COOK ISLANDS</b>		Fishing	Skiffs	Fishing	Larger outboard motor boats	Fishing
<b>NIUE</b>	3.7-7.6m	Fishing	Skiffs 3.7-5.5m	Fishing		
<b>SAMOA</b>	4-6m	Fishing	Skiffs 4-6m	Fishing, transport	Pleasure craft, passenger vessels, Alla 9-15m	Fishing, leisure, transport
<b>TONGA</b>		Fishing	Skiffs 3-8m	Fishing	Charter boats 5-10m	Fishing, leisure, transport
<b>TUVALU</b>		Fishing	Outboard skiffs <6m	Fishing		



## Summary

Across PICTs, although there are a variety of SSV types, for the purpose of a SSV registration system I have placed them in three major categories: Canoes, “Skiffs”, and “Other” (Table 3). In all PICTs, canoes are used to some extent in coastal activities, but particularly for subsistence fishing. They are mostly traditional design and of timber construction, often carved out of tree trunks and with a single outrigger, however there are also small numbers of fibreglass canoes in some places. They are almost exclusively paddle-powered however some have sails and a few have small outboard motors fitted. Canoes are often the most common SSV type in rural areas. Depending on location canoes generally range in size from 3-8m however can be up to 15m in parts of PNG (Table 3).

“Skiffs” are defined simply as ‘small boats’ and here is used as a term to describe similar vessel types. Although among the different PICTs consulted there were a variety of local names used to describe this vessel type (all Polynesian PICTs used the term “skiff”), they are generally very similar vessels. Skiffs are generally open deck boats, sometimes with a half cabin, are usually powered by outboard motors and are used in urban and rural areas. They are predominantly used for commercial fishing, both reef and pelagic, but also for transportation among islands. They can be fibreglass, timber or aluminium construction and the local name for these vessels vary among PICTs. They tend to range in size between 3-10m and are one of the most common vessel types found throughout the Pacific region (Table 3).

The “Other” category of SSV covers a range of different vessel types that tend to be less common among most of the PICTs, although this can be variable, e.g. due to a large tourism industry Fiji have a lot of vessels likely to fall under this category whereas Kiribati may have only a few. The vessel types included here are predominantly those used as charter vessels for diving or sportfishing, or those used for transport, often associated with the tourism industry. Other vessel types include sailing boats, government vessels, small tenders, and privately owned vessels. The exception is alias which are unique to the Samoan Islands but are grouped here as they tend to be larger aluminium vessels ranging from 8-15 m in length and, as far as could be ascertained during consultations, are predominantly used as offshore commercial fishing vessels targeting deep-water species and/or pelagic species, mostly tuna.

Under a national SSV registration system for PICTs the types of vessels to be included will depend on the purpose of the system. This may vary among PICTs however from the consultations during this consultancy, as well as web searches of systems elsewhere, the two major objectives for SSV registration systems are: 1. Sea safety, and 2. Fisheries data collection. All PICTs identified sea safety as an objective of their local system (or potential system) indicating that this is the primary driver. This is not surprising given the remoteness of fishing locations in the Pacific, the generally low standard of maintenance of vessels and outboards, and unsafe practices (e.g. overloading) resulting in a history of incidents at sea (Gillett 2003).

Not all, but many PICTs also identified data collection to inform fisheries management as an important purpose for a SSV registration system. Again, this is also not surprising given the reliance on coastal fisheries for food security and local incomes across the Pacific (Gillett, 2009; Gillett et al. 2014; Govan, 2015) meaning that in virtually all PICTs the vast majority of SSVs are used, at least sometimes, in fishing activities.

Given the likely drivers for a SSV registration system, development and/or implementation and management of the system will require local inter-agency co-operation. In particular, departments responsible for sea safety and departments responsible for fisheries management should be the major players involved. Given that the primary purpose is likely to involve sea safety for many PICTs not all vessels included in a local system will be fishing vessels.

For the purpose of a SSV registration system it would be necessary to clearly define what is meant by “small-scale”, particularly from a legal perspective. Across all the PICTs consulted this definition is generally based on the size of the vessel. This is a logical distinction however unfortunately there is a high degree of variability across PICTs in the vessel size used for this distinction ranging from <6 m to <15 m (Table 2).

Therefore, identification of the vessel types for inclusion in a national SSV registration system will need to consider a number of local factors and decisions:

### **1. Define SSV**

Most PICTs already have a local distinction, either in legislation or by convention, of what size constitutes a SSV. Unfortunately this is variable and so it is likely that any national registration system would need to be tailored to the local definition.

### **2. Sea safety objectives**

Where the local priority is to minimise incidents at sea then safety will be the main objective for a local system. Such a system would therefore potentially include all skiffs, canoes, alia, and “other” vessels that meet the local size definition for SSVs. However, historically incidents at sea tend to mostly involve small motorised vessels as they tend to travel greater distances and motors often break down. Therefore, from a safety perspective, the greatest benefit of a SSV registration system would be to include all small motorised vessels.

### **3. Fisheries management objectives**

Where the local priority is for improved coastal fisheries management then a system that facilitates the collection of fisheries data will be the main objective. Such a system would therefore potentially include all skiffs, canoes, alia, and “other” vessels that meet the local size definition for SSVs AND that participate in fishing activities (even if the vessel is multi-purpose). However, distinctions between the types of fishing conducted could present a logical way to ensure any SSV registration system is manageable, practical and locally accepted (e.g. include commercial fishing vessels only, not subsistence).

Decisions about vessels to include in a local SSV registration system needs to also consider other factors such as: logistical issues (e.g. very large remote areas), resources required for management, and necessity based on risk factors and local priorities. Obviously the more vessels included and the larger the area the system covers then the more resources (funding, staff, training) are required to implement and manage the system on an ongoing basis. For example, most of the safety incidents at sea have tended to involve powered vessels either through motor breakdown or practices such as overloading (Gillett, 2003). Therefore a system that aims to maximise safety at sea may involve inclusion of all motorised SSVs. A system that aims to facilitate collection of fisheries data may selectively focus on either commercial or subsistence fishery sectors, or both. A key local factor in using such a distinction may be that the inclusion of canoes, which tend to be the primary vessels engaged in subsistence fishing, would require extensive rural outreach efforts to implement and manage registration on an ongoing basis, often covering very large areas. Including subsistence fishers/vessels may also be culturally unacceptable.

From a fisheries perspective, a registration system for SSVs would facilitate data collection from several, but not all, coastal fisheries. Vessel registration would capture the majority of coastal pelagic fisheries effort, including tuna, and a majority of effort targeting reef fish (line and spear fishing). However, many fishery types are not conducted from vessels: reef gleaning, land based line fishing, and gill netting from shore, therefore a vessel registration system would not capture these activities.

A more appropriate system to manage across different fisheries (fisher rather than vessel) may be a fisher licensing system. That is, registration at the fisher level rather than the vessel.

## Key messages

If adopting a SSV registration system PICTs should:

- Adopt a definition of small-scale based on the size of the vessels relevant to local legislation and/or convention.
- Establish interagency co-operation to determine the key objectives of the system, which will help to determine the SSVs appropriate for inclusion.
- Include vessel types that meet the objectives of the system. Based on reviews of current systems in PICTs, as well as the chronic issues of limited resources across the Pacific, and the history of incidents at sea, systems should focus on motorised vessels and exclude canoes, at least initially. This is because motorised vessels are far more likely to be involved in incidents at sea. They are also the main vessel type involved in commercial fishing.
- Coastal fisheries management needs should not solely rely on a local SSV registration system but should complement the system with other data collection strategies.

## 5. Information requirements for a SSV registration system

### Main data users and information needs

As identified during consultations and documented in the review section (above), the major stakeholder who are likely to use data from a SSV registration system are national governments— in particular, government departments responsible for safety at sea (often Maritime) and fisheries departments.

As a major issue throughout the Pacific historically, safety at sea is a high priority for PICTs. Despite not widespread in the Pacific region (as documented above), many PICTs view vessel registration systems as a key potential strategy for ensuring standards that will minimise safety incidents at sea. From a safety perspective, the information needs of a SSV registration system usually, but not always, include the following: basic vessel characteristics, seaworthiness of the vessel, safety gear on board the vessel, and the levels of training for vessel operators and crew to ensure safe boating practices.

From a fisheries perspective, consultation with PICTs fisheries departments determined that they see a SSV registration system useful mainly in assessing the number of fishing vessels (fishing capacity) to better control coastal fishing effort. Where there are systems currently in operation, only Samoa appears to be effectively using this information for that purpose, whereby they monitor vessel numbers against limits on the number of fishing vessels (alia) per size category. It is possible to collect other fisheries-related information in the process of vessel registration (i.e. at registration/renewal), however, many PICTs consulted recognised that this may be limited given the quality of data likely to be collected. One of the obvious limitations of a SSV registration system is that by definition, it only applies to vessels, and therefore would not cover non-vessel based fisheries (e.g. shells, sea cucumbers, gillnetting from shore, etc.). Also, there is the question of including motorized versus non-motorized vessels (canoe), or both. This is an important consideration as canoes significantly contribute to reef fishing effort, especially for subsistence, however the practical aspects would need serious consideration. The collection of fisheries data will be limited to general information provided at the time of registrations and/or renewal — often annual. This approach would not provide robust data on trip (effort) and catch details to inform fisheries management, and further survey approaches would still be required for robust fisheries data collection. A separate licensing system linked directly to fishing activities (and linked to a registration system) appears favoured as a more suitable and potentially more cost-effective system for fisheries (e.g. Fiji).

Despite these limitations, a SSV registration system does have the potential to improve current fisheries data collection approaches in the Pacific. Firstly, fishing capacity can be interpreted with better knowledge of fishing vessel numbers, especially if information on the fishery/species the vessel operates in/targets is also recorded. With the use of a system that assigns vessel ID numbers that are required to be displayed on vessels, surveys that independently estimate vessel trip numbers can better extrapolate catch without the need to also collect more detailed catch data. Current creel surveys are enabled for all fishery types, however for vessels with a vessel ID under a SSV registration system, surveys could skip recurring questions relating to the vessel (e.g. size, motor, etc.). Therefore, a SSV registration system could complement current surveys used to collect fisheries information and also make them more efficient.

Another potential additional benefit of a SSV registration system is that with an annual (or other period) requirement for renewal, they can contribute to improvements in communication with vessel

owners/fishers. Renewal periods provide the opportunity for face-to-face contacts for one-off data collection surveys, (e.g. catch levels, species targeted, fishing methods, safety practices/equipment, economic, social, etc.) to complement vessel registration data, or for exchanging information (e.g. new fisheries rules, fisheries reports, fisher feedback, etc.).

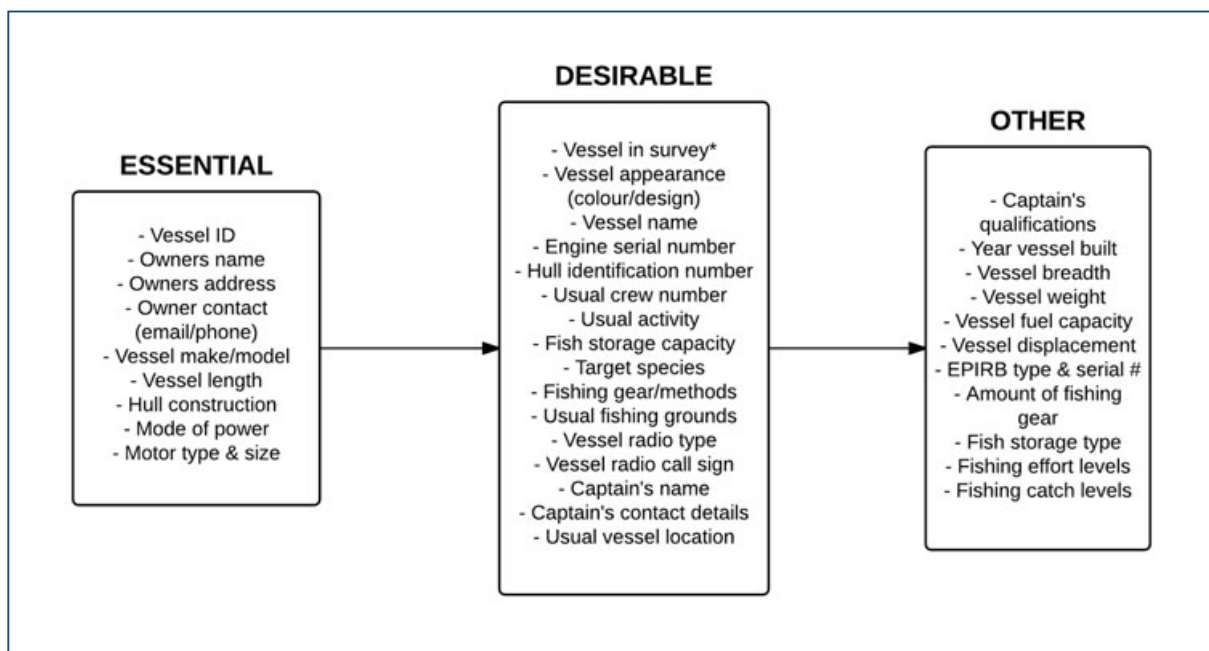
A SSV registration system also enables better identification of vessels for other purposes such as search and rescue, vessel recovery, law enforcement, ownership disputes and national security. Therefore other potential stakeholders of a SSV registration system are search and rescue, enforcement agencies and insurance companies. Electronic capabilities in developed countries enable compliance officers in the field to access vessel and owner details, and their history, in real time based on the vessel registration number thereby making enforcement more effective and efficient. Real time data access is likely to be something in the future for PICTs maritime enforcement, however with the use of a vessel registration number compliance workers are still able to compile comprehensive data on vessels/owners by entering data following field trips.

Finally, all vessel owners/fishers are also key stakeholders. In terms of the needs of vessel owners, they require transparency in a registration system, particularly if fees are to be charged. Adequate consultation and feedback to vessel owners will create greater levels of support and compliance, thereby reducing costs otherwise necessary for enforcement. Further, knowing that the system is working as designed (e.g. effective search and rescue efforts), also creates greater confidence and support of vessel owners/fishers. This would require regular communication with vessel owners/fishers that promote activities undertaken, possibly via newsletters, e-newsletters (e.g. <https://www.coastguard.nz/get-involved/e-newsletter/>), emails or social media (e.g. <https://twitter.com/CGMelb>).

## Key data

For a vessel registration system to be effective there will be certain critical data elements, however these will be determined based on the purpose of the system. The basic purpose of any vessel registration system is for recording and potentially tracing vessels for which the 'essential' data elements are: vessel owner personal details and basic vessel information (Figure 12). However, there are likely to be specific objectives for a system, notably sea safety and fisheries, thereby requiring further information to meet these objectives. Sea safety for example, could potentially require information relating to vessel seaworthiness, training of vessel operators, and safety equipment on board the vessel. The data elements to meet these objectives are described as 'desirable' as they are dependent on these specific objectives (Figure 12).

All other information collected under the system will essentially be value-adding and dependent on other objectives of the system. However, the right balance between the amount of information collected and complexity of the system must be carefully planned. Particularly among PICTs where human and financial resourcing are significant limiting factors, collecting enough information while being realistic about their effective use is important. Some potential data elements of a SSV registration system that could also be collected (based on current PICT systems and consultations) are listed as 'other' (Figure 12); the list presented here is not exhaustive.



**Figure 12.** Diagram showing data elements required for a SSV registration system. ‘Essential’ data are the minimum data for an effective system; ‘Desirable’ data are dependent on the objective/s for the system — specifically safety at sea and fisheries objectives; ‘Other’ data are also dependent on system objectives and are also likely to be dependent on the balance between information and resource limitations. These data elements are not exhaustive however they take into account other vessel registration systems and consultations. \*The requirement for vessels to be in survey would include data about the vessels seaworthiness (e.g. buoyancy, integrity of the hull, etc.) and could also include a list of required safety equipment on board.

## SPC/FFA Artisanal vessel identification form

The Regional Standard Artisanal Vessel Identification (Form ART-2) was developed by SPC and FFA to assist PICTs in SSV registration and is being used by at least two PICTs to some extent. The form design does well to maximize the collection of relevant information with the use of a single form, thereby maximizing efficiencies. During consultations, at least two current vessel registration systems in the Pacific were comprised of multiple forms to collect information with duplication within and among different departments involved. Further improvement to the form could be achieved with re-formatting to minimize wasted space and allow more focus on ‘essential’ and ‘desirable’ data elements (see below).

The information collected on the form basically includes all the ‘essential’ data elements as well as information about safety gear on the vessel and vessel activity, with a focus on fishing (Appendix 1). Fishing information related to fishing effort may be of limited use due to fisher recall bias and as part of vessel registration it is unlikely the data field ‘repairs required’ will be useful. Data on required repairs is more relevant for a survey assessment process to ensure vessels are seaworthy, which could be an important component of vessel registration for sea safety purposes.

Other information collected about sea safety specifically is for vessel owners to list the safety equipment that the vessel “normally has on-board”, including EPIRB and navigation aids. These are useful data however this may not help ensure safe boating due to inaccuracy in reporting and/or poorly maintained equipment. Safety at sea was a consistent factor for the justification of a SSV



registration system in PICTs and as such, relevant information gathering may be best achieved through a separate process (e.g. vessel inspection) that also ensures safety standards are met.

Finally, concise but descriptive instructions for completing each data field on the form is a good strategy to help to minimize confusion. For any SSV registration system this is important to help ensure consistency and accuracy in data reporting.

## Data management

Technical capacity and resourcing for management of data in PICTs is currently very limited. Generally, a good data management system will have an appropriate relational database established, the necessary processes for data collection, data entry, ongoing management of the database and associated processes of the system. Ideally it will also have the necessary tools to use the data effectively (e.g. in-built data queries, reporting templates, etc.). This all requires technical expertise, funding, staff and staff time; all of these are limited in PICTs.

Data management systems amongst PICTs that currently use SSV registration systems vary widely. Some systems only use hard copy files of all data, some use MS Excel spreadsheets and some use MS Access database software that has been established with assistance from FFA and/or SPC. For the few examples of the latter, however, data management systems appear to be not fully functional at the time of consultations.

For a SSV registration system suitable for PICTs that is to be consistent, effective and readily able to share data as necessary, a consistent template for all system elements (including data management systems) should be first established using the relevant expertise of SPC and/or FFA. Although not an insignificant task this is possible through FFA as they have the infrastructure and necessary technical capacity. They also have a current system for oceanic fisheries that could be used as a 'template'. The tuna fisheries data management system among FFA member countries requires vessels to submit 'logsheets' relating to trip catch and effort information (which records vessel ID). These regional data are collated and stored through Information Management System portals and are shared with SPC through web services for analysis and reporting obligations associated with fisheries management requirements. This system is still undergoing improvements however, and is currently moving towards a single data portal and trialing electronic data recording to replace logsheets. A part of this includes the trial of a satellite linked, e-log system reporting real-time data to a central database. FFA member countries also record and share compliance and enforcement data through this system.

FFA has received requests from some member countries (Vanuatu and Tonga fisheries departments) for assistance with developing a local SSV registration system (fishing vessels). However, as there are several PICTs considering and/or in varying stages of developing a SSV registration system, as well as the observation that some current systems are sub-optimal, it would be more cost-effective to develop a shared system 'template'. This could be developed by current experts and potentially based on the current oceanic data system, and would provide a consistent set of data management 'tools' PICTs could adopt with the relevant assistance from SPC and/or FFA.

## 6. Developing a SSV registration system: plan of action

To guide development of a ‘plan of action’, in this section I describe a proposed flow chart that sets out the steps and associated tasks for the development and implementation of a SSV registration system suitable for PICTs. The flow chart draws heavily on the learning’s from consultations during this consultancy and from reviews of working systems in developed countries (e.g. Australia). Despite some PICTs already having a system in place, all these systems had some shortcomings and would benefit from a revision and re-development adopting the relevant steps outlined. The utility of this flow chart may also be timely given that several PICTs are currently in the process of developing their own SSV registration system.

It is important to note that the benefits of a vessel registration system need to be weighed very carefully with the costs (initial and ongoing). This will be locally dependent and its applicability for each PICT is not assessed here — although from observations made during this consultancy, SSV registration may be impractical and not cost-effective for some PICTs (e.g. the atoll countries spread over huge geographical areas: FSM, Marshall Islands, Tuvalu, Kiribati, etc.). It may also be easier to implement and manage in small island countries (e.g. Nauru, Niue, Samoa) compared to large countries (e.g. PNG, Solomon Islands, Fiji).

For the development of a SSV registration system suitable for PICTs, there firstly needs to be a distinction and agreement on terminology. A vessel registration system should apply to the registration of the vessel itself, and aspects relevant to that vessel. Conversely, a licensing system should apply to a person, or a combination of a person and vessel, that permits the person/vessel to carry out certain activities (e.g. fishing using longlines, etc.). This distinction should be made common across PICTs. Licensing is therefore a separate topic that may better fulfil fisheries management needs, and should be complementary to a vessel registration system.

There are several key elements required for a robust SSV registration system that should be standardised as much as possible across PICTs, however there are several important processes and elements that may need to be PICT-specific. Development of data systems (database structure, forms, etc.) is one area where standardisation can be achieved (e.g. SPC/FFA regional Standard Artisanal Vessel Identification Form). As stated previously, this should be done with the assistance of SPC/FFA to at least create the option for standardised data management systems across PICTs (a ‘template’), and potentially integration of data systems for information sharing among PICTs. Training in system management and implementation, including enforcement, potentially with the assistance of SPC/FFA, will also be necessary. The key elements and processes for development of a system are outlined below and summarised in the flow chart diagram (Figure 13):

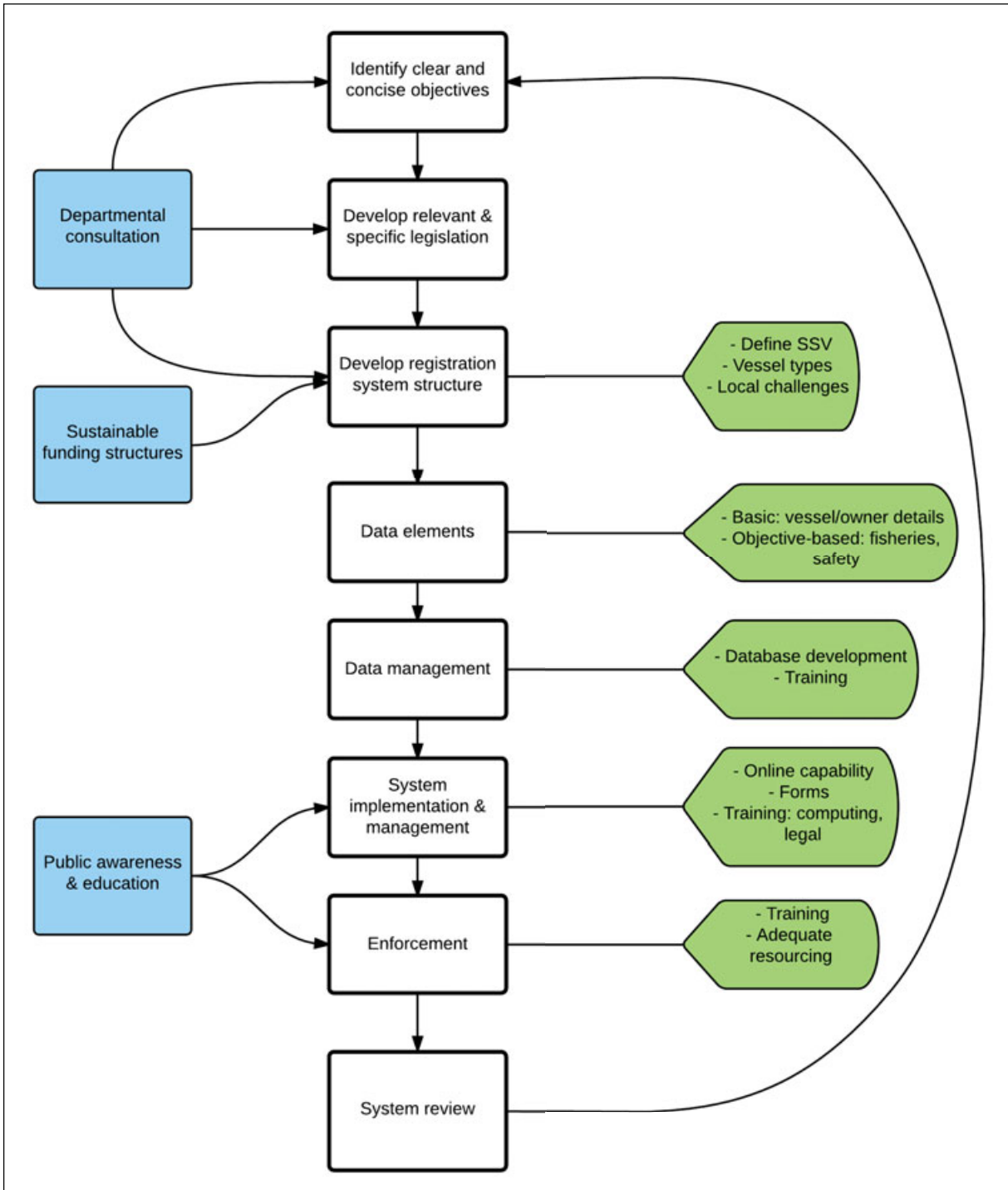
1. Consultation among relevant stakeholders – Relevant stakeholders should not be “told” about the system, but rather they should be collaborators in the process of developing and implementing the system. This should include relevant government departments which will inform key information requirements, thereby informing objectives of the system and who will manage the system. This would also help avoid duplication in any system. Consultation should be ongoing during the development phase at least.
2. Clear and concise objectives – Why is the system in place and what is it aiming to achieve? Clearly stated objectives will inform all the following steps in system development, including the drafting of legislation.
3. Relevant and specific legislation – This will be informed by the objectives and will provide the necessary legal basis for a system. Legislation should be written specifically for SSV registration and should include the system scope and relevant definitions (e.g. definition of a

SSV), which will minimise any potential ambiguity. Voluntary registration systems are unlikely to achieve objectives.

4. Carefully developed system structure appropriate for the objectives:
  - a. Clear (local) definition of a SSV – This should be stated in the legislation.
  - b. Identification of vessel types for inclusion – This should also be stated in the legislation and should consider meeting system objectives while being cost-effective. A ‘template’ system should categorise vessel types (e.g. structured by size of the vessel/canoe, motorised/non-motorised, etc.), which would also allow local systems to be customized while balancing local needs and cost minimisation.
  - c. Identify system components – A registration system designed to ensure sea safety will need to identify safety requirements and develop strategies that ensure these are met. These strategies should also be linked to the main system (e.g. by vessel ID). These may include: i. vessel seaworthiness (What is the required process for vessel inspections? What training do inspectors require? How are inspection outcomes linked to registrations?), ii. vessel safety gear (What safety gear are required? Does it vary for different vessel types? How are vessels assessed for compliance?), iii. Safe operating practices (What are considered safe vessel operating practices? How are these enforced? Do vessel operators require training/qualifications? How are qualifications obtained and linked to vessel registration?). A system designed to maximise fisheries data collection will need to identify what fisheries data are desired, what data collection is feasible under a SSV registration system, and how best to collect the data. To fully maximise fisheries data collection a licensing system may need to be developed that can be linked to the SSV registration system.
  - d. Overcome local challenges (e.g. system management across very large isolated areas, funding limitations, lack of expertise) – This is key to ensuring the system will be effective and feasible given local circumstances. Very large areas are common to PICTs and may be best overcome through a within country regional approach for implementation and management. This would result in a more complex and expensive system. The currently implemented system in PNG will be a valuable test case for the regional approach across a very large area. Funding limitations are also very common and introducing a SSV registration system will only increase this burden. Governments need to make realistic ongoing financial commitments if a SSV registration system is to work. This may include fees to partially self-fund local systems however will likely need ongoing government funding for system management. Technical capacity is lacking across PICTs and resources will also need to be sourced/committed to ongoing training in relevant aspects of the registration system. Incentives for vessel owners may be necessary which may also increase costs, however this could potentially be offset by ensuring the public are aware of the benefits through regular communication.
5. Critical data elements and data management systems – There will be minimum data requirements to effectively manage the system and achieve system objectives (see Figure 12).
  - a. Data to facilitate implementation (e.g. basic vessel details and owner details)
  - b. Data to meet objectives (e.g. vessel safety standards; fisheries data – holding capacity, gear, target species)
  - c. Develop appropriate database – This will involve training and need assistance from external agencies, e.g. SPC, FFA. Ideally SPC/FFA experts would establish a standardised database ‘template’ for sharing among PICTs that will be set up to meet data needs identified in this report (and therefore likely to meet all PICTs needs) and structures to allow standardised training materials (see current PNG system implementation for an example) and facilitate data linking.
6. Development of implementation and management frameworks

- a. Training (e.g. data management software, data entry, project management, legislative obligations, enforcement, qualified inspectors) – This will be particularly relevant for database management but will also be required for efficient management of the system. Budgeting for ongoing training will also be necessary.
  - b. Develop applications forms (avoid duplication) – templates developed in conjunction with SPC/FFA would help ensure standardisation and free up local resources. The Form ART-2 provides a useful form template (but see Section 5 above)
  - c. Establish automated online facilities (e.g. online applications available) - Ideally SPC/FFA experts would develop a standardised template that can be shared among PICTs with online capabilities for forms, otherwise relevant local training is required. It is also important for PICTs to have readily available hard copy forms as most vessel owners in many PICTs will not have internet access, etc.
  - d. Develop system operational framework – This could be done as a standardised template that documents key elements such as: the registration cycle (e.g. annual), application and renewal procedures (e.g. online and hard copy options), fee structure, and vessel identification requirements (e.g. unique number marked on the vessel). A review of current systems was unable to assess alternatives of these options for PICTs, however, based on systems working well in developed countries it is recommended that registration is renewed annually and that all registered vessels are required to clearly mark their vessels with the official ‘vessel ID’. Fees and fee structuring will likely require local input with relevant consultation (e.g. are incentives being offered).
  - e. Public awareness and education – It is very important that vessel owners themselves understand how the registration system works to make it as simple as possible for them to comply, and more importantly to ensure they understand the reason/s why the system is introduced. They also need to understand what they get out of having the system and registering their vessels, as well as what (if any) penalties apply for non-compliance. This element is often overlooked but if done with adequate resources will be critical to the success of the system by garnering public support. Ideally this would also occur earlier in the process however could be resource intensive.
  - f. Ensure sustainable funding – Identifying sources of funding that are ongoing is necessary for system success and is a particular challenge for PICTs (see 4d.). This will likely require an ongoing budget from government sources and may be offset by a registration fee. External funding should also be explored, particularly for implementation.
7. Adequate enforcement is implemented – This element is also often lacking but is necessary to ensure the integrity of the system. An effective awareness raising/education program will increase compliance thereby reducing the need for enforcement.
- a. Training (e.g. legal powers and procedures) – Officers responsible need to understand the relevant legislation and regulatory procedures for field-based vessel inspections.
  - b. Adequately resourced (e.g. dedicated vessels, staffing and operating budget) – Although efforts to maximise compliance are important (e.g. through communication) there will be the need for ongoing enforcement if the integrity of the registration system is to be maintained. A separate budgetary component is needed to ensure enforcement activities are implemented and maintained.
8. Schedule for system review (e.g. ensure objectives met, address issues) – This is particularly important after first implementation (e.g. after 12 months) to identify and address any issues and ensure that the objectives are being achieved. This should be an ongoing process also (e.g. every 5 years).





**Figure 13.** Flowchart of the elements and processes for setting up a robust SSV registration system for PICTs. A more detailed description is given in the text (above).

## 7. Conclusions

This report addresses the two key objectives of this consultancy project:

1. Provide a description of the main components and processes required to develop a robust SSV registration system for use in PICTs.
2. Ensure that any SSV registration system meets the requirements of fisheries administrations across the Pacific region.

The requirements of fisheries departments in PICTs revolve around the facilitation of better data collection capabilities for all coastal fisheries, including coastal vessel catch of tuna and other pelagic species. A SSV registration system can achieve this, however, on its own it will not meet all fisheries requirements and complementary approaches will still be required. The ongoing registration of a fishing vessel is likely to occur annually, which provides the opportunity for relevant data collection, including specific fisheries data. Fisheries data collection on an infrequent basis like this limits the utility of data and what can be collected. For example, catch data is unlikely to be useful, as it will be based on fisher recall that introduces serious biases. What will be useful is fisheries related information that can be linked to a particular vessel, such as species targeted and gear used. The use of a vessel ID number (registration number) can further be traced back to the vessel and its particulars during fisheries surveys conducted at any time. For example, catch data collected during creel surveys can record the registration number of the vessel thereby building more robust and useful fisheries catch data over time. Along with the ability to better enumerate vessel numbers, vessel-based catch from creel surveys has the capacity to generate information that will better inform management, such as species-based catch quantities.

A SSV registration system for PICTs is more likely to be used effectively as a means for ensuring sea safety. Safety incidents in the Pacific have historically been a serious issue due to the poor maintenance of vessels and motor breakdowns, coupled with remote fishing locations and poor boating practices (e.g. vessel overcrowding). Vessel registration can readily incorporate safety standards for vessels and vessel operators and the necessary processes to ensure safety standards are met, such as vessel survey inspections and boat handling courses.

There are other benefits to a SSV registration system, including better vessel identification during search and rescue operations, validation of vessel ownership during disputes or theft, or for insurance claims during natural disasters such as the recent flooding in Solomon Islands, or for other enforcement activities.

Despite there being potential benefits (and limitations) of SSV registration, the commitment by PICTs to implement such a system needs to be considered carefully against the resources likely to be required. All PICTs face an ongoing issue of limited funding, lack of staffing, and a lack of technical capacity and so a new administrative system may be rendered ineffective if these challenges aren't addressed. Therefore, before the implementation of a SSV registration system a clear need should be identified, administrative and management functions need to be cost-effective, a sustainable funding framework needs to be established, and ongoing training should be facilitated.

Given these issues, and the desire to facilitate a consistent approach to SSV registration among PICTs, it is proposed that relevant SPC and FFA experts develop a system template. As guidance to development of a system suitable for PICTs, the flow chart presented in Figure 13 (and accompanying text) provides the recommended key elements and processes based on consultations and research undertaken during this consultancy. This 'template' would comprise each of the components in the flow chart and outline the resources required by PICTs to customise the system to local requirements and issues. An integral part of the template should be the requirement for further training and assistance by FFA and/or SPC, including the development of training materials similar to what PNG

have developed for their data management systems. Even without the development of templates, it is recommended that the flow chart is used as a guide for the development and possible review of SSV registration systems in the Pacific, and potentially elsewhere.

Finally, the current system being implemented in PNG is highlighted as a potential example of how to design and implement a SSV registration system in PICTs that overcomes many of the local challenges. Monitoring the success (or otherwise) of this system will be a useful guide as to the likely future potential of SSV registration systems in the Pacific.



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# Appendix 1 – Copy of the SPC/FFA Vessel ID Form ART-2

<b>SPC / FFA REGIONAL STANDARD ARTISANAL</b>	<b>FORM ART-2</b>
<b>VESSEL IDENTIFICATION FORM</b>	

REVISED MARCH 2014

<b>VESSEL IDENTIFICATION</b>	VESSEL'S NAME:
	ISLAND CODE: <i>(fisheries to allocate)</i>
	UNIQUE VESSEL ID: <i>(fisheries to allocate)</i>
	IDENTIFICATION DATE: <i>(enter the date the vessel was allocated its ID)</i>
	MOORING / DOCKING: <i>(type and location)</i>

<b>OWNER'S DETAILS</b>	OWNER'S NAME:
	OWNER'S POSTAL ADDRESS:
	OWNER'S ISLAND NAME, REGION, COUNTRY:
	ELECTRONIC CONTACT DETAILS: <i>(phone, mobile, email)</i>
	NUMBER OF OTHER SMALL-SCALE VESSELS THE OWNER HAS <i>(if any)</i>

<b>VESSEL SPECIFICATIONS</b>	VESSEL MAKE: <i>(name of the manufacturer if any)</i>				
	HULL MATERIALS: <i>(circle 1) →</i>	FIBREGLASS	WOOD	STEEL / ALUMINIUM	OTHER
	VESSEL'S LENGTH: <i>(vessel length overall in meters)</i>				
	VESSEL'S APPEARANCE →	MONO-HULL or CATAMARAN	CABIN Y / N	COLOUR	
	VESSEL'S MAIN MODE OF POWER: <i>(circle 1)</i>	SAIL	PADDLE	MOTOR TYPE: <i>circle one</i> INBOARD or OUTBOARD	
	IS THIS A SPORT FISHING VESSEL?	Y / N			
	MAIN MOTOR SIZE <i>(enter horse-power of main engine)</i>	NUMBER OF OUTBOARDS		FUEL TYPE: <i>(circle one)</i> (2-stroke 4-stroke diesel)	

<b>VESSEL ACTIVITY</b>	VESSEL ACTIVITY: <i>(circle all that apply)</i>	CURRENTLY NOT SEA-WORTHY	FISHED LAST YEAR	EXPECTED TO FISH THIS YEAR	
	REPAIRS REQUIRED:				
	HOW OFTEN IS THE VESSEL USED FOR FISHING? <i>(circle 1)</i>	MOST DAYS	WEEKLY	MONTHLY	RARELY OR NEVER
	IF MOST DAYS, HOW MANY TRIPS A DAY NORMALLY?	ONE	TWO	THREE	MORE THAN THREE
	WHERE DOES THE VESSEL USUALLY FISH? <i>(circle 1) →</i>	INSIDE LAGOON	OUTSIDE LAGOON	INSIDE AND OUTSIDE	OTHER
	WHAT FISH DOES THE VESSEL USUALLY TARGET? <i>(circle 1) →</i>	REEF	TUNA	OTHER PELAGIC	REEF AND PELAGIC

<b>SEA SAFETY</b>	WHAT SAFETY EQUIPMENT DOES THE VESSEL HAVE? <i>(circle all safety equipment that are normally on the vessel, and state the expiration date where appropriate) →</i>	LIFEJACKET	LIFE RAFT	FIRST AID KIT	WATER CONTAINER
		ENGINE TOOLS AND SPARES	BAILING DEVICE	ANCHOR AND ROPE	SPARE FUEL
		AUXILIARY MOTOR	PADDLE	SAIL	SHADE CLOTH OR TARPULIN
		FLARES	MIRROR	LASER	TORCH / FLASHLIGHT
		EPIRB (radio beacon)	GPS	ECHO SOUNDER	RADIO
DATE OF EXPIRATION <i>(i.e. for the life raft, flares or EPIRBs).</i>					

<b>FORM</b>	DATE COMPLETED (YY/MM/DD)	FORM FILLED BY:	OTHER COMMENTS <i>(More area on page 2)</i>

**SPC / FFA REGIONAL STANDARD ARTISANAL  
VESSEL IDENTIFICATION FORM**

**FORM ART-2i  
(page 1)**

<b>VESSEL IDENTIFICATION</b>	VESSEL NAME: <i>(enter vessel name)</i>	Record the vessel name. Include any numbers (i.e. Tamara 3). The vessel name <u>will be recorded on the logsheet form and it must be exactly the same as is recorded here</u> . Keep the logsheet form in mind when recording the vessel name on this form.
	ISLAND CODE: <i>(fisheries to allocate)</i>	Record the 3-letter island or province 'vessel registration code'. SPC can provide this code if necessary. For instance the island code for Funafuti is 'FUN'.
	UNIQUE VESSEL ID: <i>(fisheries to allocate)</i>	Record a unique 4-digit vessel identification number for the vessel. (i.e. 0002)
	IDENTIFICATION DATE: <i>(enter the date of vessel ID)</i>	Record the date this form was filled in or completed. Use this format (year/month/day)
	MOORING LOCATION <i>(normal mooring type and location)</i>	Record the location (address or known area name) where the vessel is normally docked or moored. State whether it is usually moored to a sea-buoy, docked on a beach, or kept on a trailer. <u>Where ever possible record a GPS position for the main mooring location of the vessel. Record the position to three decimal minutes. (not seconds)</u> i.e XXXX.XXX N/S XXXX.XXX E/W. Record the name of the GPS unit also.

<b>OWNER'S DETAILS</b>	OWNER NAME:	Record the full name of the vessel owner as it would appear on his/her passport. The Christian name or the given name should be written first and then the surname. Avoid the use of initials. The owner's name will be recorded on the logsheets, so it is important that the name is recorded exactly the same on both forms. If the vessel owner is not a person, but a group of persons or a fishing company, record the most relevant family name or the company name here.
	OWNER'S POSTAL ADDRESS:	Write in the full postal address where the vessel owner can be contacted by regular mail.
	ISLAND NAME, COUNTRY:	Write the name of the island/outer island where the owner lives and the name of the country.
	ELECTRONIC CONTACT DETAILS: <i>(phone, mobile,</i>	Ask the owner for their phone number, mobile phone number and email address. This may be used by Fisheries to contact them in the future.
	NUMBER OF OTHER SMALL-SCALE VESSELS OWNED: <i>(if any)</i>	If the owner has any other small-scale vessels mark the number here, and fill in a form for each vessel.

<b>VESSEL SPECIFICATIONS</b>	VESSEL MAKE: <i>(name of the manufacturer if any)</i>	Record the name of the manufacturer / boat builder, if the vessel was commercially made. Example - Quintrex, Hustler etc. If the vessel was not commercially made i.e. a canoe, just dash this data field.
	HULL MATERIALS: <i>(circle 1)</i>	Simply circle one type of material to indicate the main hull material.
	VESSEL LENGTH: <i>(enter vessel length in meters)</i>	Record the 'length overall (LOA)' of the vessel in meters. Length overall is maximum length of a vessel's hull when measured parallel to the waterline. If an actual 'LOA - length' is not available, then simply state this on the form.
	VESSEL APPEARANCE: <i>(circle 1)</i>	Circle to indicate if there are one (mono-hull) or two hulls (catamaran). Circle Y if the vessel has any type of cabin (regular - a fisher can stand up inside, cuddy cabin - smaller no space to stand, or bimin (open on sides with poles holding tarpaulin over head). Record the main hull colour and any secondary colours, if necessary.
	VESSEL'S MAIN MODE OF POWER: <i>(circle 1)</i>	Simply circle to indicate the main type of power that is used to move the boat. If two types of power are used i.e. a paddle and a sail then circle the most common method used to propel the boat during fishing.
	OUTBOARD MOTOR SIZE (HP): <i>(enter HP of main engine)</i>	Record the horse-power of the main engine.
	NUMBER OF OUTBOARDS	Record the total no of outboards that are usually used when fishing.

<b>VESSEL ACTIVITY</b>	VESSEL ACTIVITY <i>(circle all that apply)</i>	Circle <b>all</b> choices to show if the registered vessel was sea-worthy on the day the form was filled. Then indicate if the vessel was generally used for fishing in the previous 12-months. Do not circle this choice if the vessel was rarely used for fishing in the previous 12-months. Then indicate, by circling, if the owner intends to use the vessel for fishing in the following 12-months. When answering this question be conscious of whether the vessel is currently sea-worthy, and the type repairs that are required (see below).
	REPAIRS REQUIRED	Ask the owner if there are any major or minor repairs to be made on the boat. Record what type of repairs are required and note, if possible, the approximate date the owner hope to complete the repairs.
	HOW OFTEN DO YOU FISH? <i>(circle 1)</i>	Show by circling one option how often the vessel usually fishes. Circle 'most days' if the vessel fishes at least 3-4 times a week. Circle monthly if the vessel only fishes 3-4 times a month.
	WHERE DO YOU USUALLY FISH? <i>(circle 1)</i>	Circle one choice to indicate where the vessel usually fishes. This should relate to the vessel's fishing practices in the previous three-months, while also considering the owner's intentions for the vessel for the following year.
	WHAT FISH DOES THE VESSEL USUALLY TARGET? <i>(circle 1)</i>	Circle to indicate the main type of fish the vessel generally targets. This should consider the type of fish the vessel targetted over the last few months, while also considering the owner's intentions for the vessel for the following year. Use the comments below to explain any mixed fishing or extended periods of mixed use like transport and fishing.
	IS THIS A SPORTS FISHING BOAT ?	Circle Y if the vessel is <u>only</u> used as a sports fishing boats. That is a vessel that is used in sports fishing competitions and used to carry paying customers.

<b>SEA SAFETY</b>	WHAT SAFETY EQUIPMENT DOES THE VESSEL HAVE? <i>(circle all safety equipment )</i>	Circle each safety equipment that the vessel <u>normally has on-board</u> .
	DATE OF EXPIRATION	If possible record the date of expiration for any of the relevant safety equipment. This may be difficult to do without inspecting the equipment, but the information is helpful when available.

**OTHER COMMENTS:** Use this area to record extra notes on the vessel. Include comments that will help identify the boat. Describe the vessel cabin if any. Include more on the vessel's design. Record the actual boat design name and attach a photo of the boat. Explain more on the vessel's fishing practices like how often it usually fishes, and what type of fish it targets. Does it switch the type of fish it targets during some months etc etc.

## Appendix 2 – Individuals consulted and their affiliations

NB. This list represents only the people who responded to inquiries and requests for information.

Name	Affiliation	Location
Georgia Langdon	Ministry of Marine Resources	Cook Islands
Koroa Raumea	Ministry of Marine Resources	Cook Islands
Bob Gillett	Gillett, Preston and Associates	Suva, Fiji
Hugh Govan	Independent consultant	Suva, Fiji
George Madden	Ministry of Fisheries and Forests	Suva, Fiji
Surendra Prakash	Maritime Safety Authority of Fiji	Suva, Fiji
Esiteri Loiti	Maritime Safety Authority of Fiji	Suva, Fiji
Heather Crossingham	Freedive Fiji Charters	Pacific Harbour, Fiji
Jaga Crossingham	Freedive Fiji Charters	Pacific Harbour, Fiji
Leanne Fernandes	IUCN	Suva, Fiji
Jone Amoe	Ministry of Fisheries and Forests	Suva, Fiji
Tekata Toaisi	Ministry of Fisheries and Forests	Lautoka, Fiji
Kairaoi Ientumoa	Ministry of Fisheries and Marine Resources Development	Tarawa, Kiribati
Eritaia Tauro	Ministry of Fisheries and Marine Resources Development	Tarawa, Kiribati
Riria Iloaniba	Ministry of Fisheries and Marine Resources Development	Tarawa, Kiribati
Rakera Arataake	Ministry of Fisheries and Marine Resources Development	Tarawa, Kiribati
Tuake Teema	Ministry of Fisheries and Marine Resources Development	Tarawa, Kiribati
Maruiak Kamiatie	Ministry of Fisheries and Marine Resources Development	Tarawa, Kiribati
Kobure Norman	Ministry of Fisheries and Marine Resources Development	Tarawa, Kiribati
Tooreka Teemari	Ministry of Fisheries and Marine Resources Development	Tarawa, Kiribati
Taatie Eria	Ministry of Fisheries and Marine Resources Development	Tarawa, Kiribati
Ben Nainakin	Secretariat for the Pacific Community	Tarawa, Kiribati
Auria Kitina	Ministry of Fisheries and Marine Resources Development	Tarawa, Kiribati
Candice M. Guavis	Marshall Islands Marine Resources Authority	Marshall Islands
Berry Muller	Marshall Islands Marine Resources Authority	Marshall Islands
Being Yeeting	Nauru Fisheries and Marine Resources Authority	Nauru
Monte Depaune	Nauru Fisheries and Marine Resources Authority	Nauru

Name	Affiliation	Location
Deirdre Brogan	Oceanic fisheries Division, Secretariat for the Pacific Community	Noumea, New Caledonia
Lindsay Chapman	Coastal fisheries Division, Secretariat for the Pacific Community	Noumea, New Caledonia
Michel Blanc	Fisheries Development, Secretariat for the Pacific Community	Noumea, New Caledonia
Franck Magron	Coastal fisheries Division, Secretariat for the Pacific Community	Noumea, New Caledonia
Brendon Pasisi	Department of Agriculture, Fisheries and Forestry	Niue
James Tafatu	Department of Agriculture, Fisheries and Forestry	Niue
Jeff Kinch	National Fisheries College	Kavieng, PNG
Peter Bell	National Maritime Safety Authority	Port Moresby, PNG
Dimary Stowers	Ministry of Agriculture and Fisheries	Apia, Western Samoa
Maria Sapatu	Ministry of Agriculture and Fisheries	Apia, Western Samoa
Autalavou Taua	Ministry of Agriculture and Fisheries	Apia, Western Samoa
Makerita Atonio	Ministry of Works, Transport and Infrastructure	Apia, Western Samoa
Miraneta Williams-Hazelman	SPREP	Apia, Western Samoa
Kenneth Katafono	Forum Fisheries Agency	Honiara, Solomon Islands
Mike Batty	Forum Fisheries Agency	Honiara, Solomon Islands
Leonard Rodwell	Forum Fisheries Agency	Honiara, Solomon Islands
Rosalie Masu	Ministry for Fisheries and Marine Resources	Honiara, Solomon Islands
Francis Tofuakalo	Ministry for Fisheries and Marine Resources	Honiara, Solomon Islands
Reuben Sulu	Worldfish	Honiara, Solomon Islands
Senoveva Mauli	Solomon Islands Community Conservation Partnership	Honiara, Solomon Islands
Capt. Brian Aonima	Solomon Islands Maritime Safety Authority	Honiara, Solomon Islands

Name	Affiliation	Location
Alex Makini	Solomon Islands National University	Honiara, Solomon Islands
Lavinia Vaipuna	Ministry of Agriculture, Food, Forests and Fisheries	Nuku'alofa, Tonga
Martin Finau	Ministry of Agriculture, Food, Forests and Fisheries	Nuku'alofa, Tonga
Tuikolongahau Halafihi	Ministry of Agriculture, Food, Forests and Fisheries	Nuku'alofa, Tonga
Rob Torelli	Bluewater Explorer	Nuku'alofa, Tonga
Garry Preston	Gillett, Preston and Associates	Tuvalu
Ursula Kaly	Independent consultant	Tuvalu
Wesley Obed	Department of Fisheries	Port Vila, Vanuatu
Lucy Joy	Department of Fisheries	Port Vila, Vanuatu