

A small-scale vessel registration system

for Pacific Island countries and territories

David J. Welch



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Summary document

Artisanal fisheries in Pacific Island countries and territories (PICTs) provide critical food security and income for local communities. A large proportion of the fishing effort in these fisheries is conducted from small vessels that target reef fish and nearshore pelagic species such as tunas. Although large-scale oceanic fisheries tend to have established fishery data collection systems, small-scale fisheries data collections are generally lacking. These data are urgently needed for the development of appropriate management measures for Pacific artisanal fisheries.

One approach to help improve the collection of fisheries data is through a small-scale vessel (SSV) registration system. Such a system can provide valuable baseline information on vessels that is not captured through licensing systems, and encourage each vessel to be uniquely identifiable, thereby improving sea-safety and fishery monitoring initiatives. An SSV registration system would enable better collection of vessel-based fisheries data such as vessel and fisher numbers, vessel categories, mooring locations, post-disaster needs assessment, fishing methods, fishing locations, and whether vessels are actively fishing or not.

A Pacific Community (SPC) report¹ was commissioned to describe the main components of a strong, useable SSV registration system that would meet the requirements of fisheries administrations in PICTs. This document provides a summary of the report's key findings.

¹ http://www.spc.int/DigitalLibrary/Doc/FAME/Reports/Welch_2016_Registraton_System_for_SSFVs.pdf

Current status of small-scale vessel registration systems in PICTs

Generally, SSV registration systems serve two main purposes:

- 1) to enhance safety for vessel operators and crew while on the water, and
- 2) to support fisheries management activities through better data.

The relative importance of these varies between systems and locations, and it is possible for a system to achieve both purposes to some extent.

Among PICTs, more attention is being directed towards better management of coastal fisheries and improving safety at sea. This has resulted in the recent development of SSV registration systems in some PICTs. To inform progress, this review assessed the current status of SSV registration systems in 14 PICTs across the region.

Of the 14 PICTs reviewed, 7 currently have an SSV registration system either in place or in the process of being implemented. Thirteen of the PICTs reviewed also have (or are developing) the necessary legislation to implement an SSV registration system. However, most fisheries and/or maritime legislation only include the option for vessel registration without being specific to vessel size and/or type. In reviewing these current systems and policies, several issues were identified as impeding effective and efficient system implementation and management.



1. Poor agency coordination

In most PICTs, government departments stated that improved safety at sea for small vessels is the key reason for having an SSV registration system. In some PICTs, having better fisheries data to inform management is another key reason (Table 1). Depending on the registration system, this would likely involve either the local maritime department or fisheries department. The review found that in some PICTs, there was often a lack of consultation and coordination between the respective government departments in developing and implementing systems (e.g. Cook Islands, Fiji, Kiribati and Samoa).

2. Implementation issues: Resourcing and training

Despite apparent progress, many of the SSV registration systems that are currently in place or are being developed still require considerable work to function effectively (e.g. the development of specific regulations to implement the system) (Table 1). Also, some of the registration systems already implemented were not functioning well and had i) poor compliance; ii) onerous and confusing procedures for vessel owners; iii) poor data storage procedures; and iv) a lack of enforcement capability. These issues may be due to a number of factors but appear to be mainly due to a lack of staff to effectively develop, manage, implement and enforce SSV registration systems. Consultations with agencies in the 14 PICTs identified ongoing funding for staff and training as their biggest challenge.

3. Small-scale vessel definition consistency

Although the definition of a small-scale vessel differs among PICTs (Tables 1–3), this is not a major concern because any SSV registration system will need to be locally relevant. Therefore, having a consistent size definition for SSV systems may not be feasible.

4. Financial obligations

Payment of registration fees and other monetary obligations (the need for sea-safety equipment for instance) can deter fishers from registering, unless they have a clear idea of how the monies will be used to support them. Given fishers' contribution to national food security and local employment, these obligations should be kept to a reasonable level.



Potential success story

Despite numerous challenges for the Pacific Islands region, Papua New Guinea (PNG) is implementing an SSV registration system in 2016 that may provide a potentially invaluable blueprint for other PICTs. The legislation that governs the system is very prescriptive on all aspects, making it very clear how the system is to be implemented. Implementation of the system is being carried out at the subnational level (by provincial governments) to overcome the significant challenges presented by having vessels operating across vast areas separated by great distances and many islands (a common challenge identified by many PICTs).

Further, the PNG government has obtained sufficient funding to ensure that the system is adequately resourced for effective implementation.

This includes:

- an awareness raising and education programme for fishers
- development of education and training materials (including manuals) for provincial staff
- development of a national database with a provincial-level online interface
- local capacity building
- incentives for vessel owners
- provincial funding to promote local registry implementation as part of ongoing provincial obligations.

Although there are still challenges (e.g. provincial support and ongoing annual budgeting), the approach appears to be comprehensive and achievable.



Overview of the current status of an SSV registration system

Table 1a: Melanesia

Melanesia				
Pacific Island country or territory	Fiji	PNG	Solomon Islands	Vanuatu
SSV number estimate	> 1,500	~15,800	High	Moderate
Small-scale definition < 15 m		< 10 m	< 10 m	< 6 m
Legislative status	ative status Enacted◆		Draft	Draft
Ship Registration Decree 2013; Fiji Small Craft Code 2014; Pleasure Craft Regulations 2014; Fisheries Act, 1942		PNG Small Craft Act 2010	n.a.	Vanuatu Fisheries Regulations 2009; Artisanal Licenses Regulation (in draft)
System in place	ystem in place Yes		No^	Yes#
Reasons for system*	SS	SS	SS	FM

^{*} Hypothetical for PICTs where a system is not in place.

• Legislation requires modification.

PICTs with the highest readiness to implement an effective local SSV registration system are in dark green colour while those least ready have the lightest shading. Abbreviations used: SS = sea safety; FM = fisheries management; n.a. = not applicable; PNG = Papua New Guinea

Table 1b: Micronesia

Micronesia							
Pacific Island country or territory	FSM	Kiribati	Marshall Islands	Nauru			
SSV number estimate	Moderate	Moderate	Low	100–200			
Small-scale definition		< 7 m	none	< 10 m			
Legislative status	Enacted ² ◆	Draft³	No	Enacted			
Relevant legislation	Title 24 of the FSM Code; State Codes; Marine Resources Act	n.a.	n.a.	Nauru Fisheries Act 1997; Nauru Fisheries Regulations 1998			
System in place	Uncertain	No^	No	No#			
Reasons for system*	SS	SS, FM	SS	SS, FM			

^{*} Hypothetical for PICTs where a system is not in place.

PICTs with the highest readiness to implement an effective local SSV registration system are in dark green colour while those least ready have the lightest shading. Abbreviation used: SS = sea safety; FM = fisheries management; n.a. = not applicable; FSM = Federated States of Micronesia

^{*} Some PICTs have legislation that covers SSV registration; however, from consultations, it appears not to be enforced.

Have intentions to move towards an SSV registration system.

^{*} Some PICTs have legislation that covers SSV registration; however, from consultations, it appears not to be enforced.

Have intentions to move towards an SSV registration system.

 $[\]bullet$ Legislation requires modification.

The four states of FSM have different legislation, and the reference to SSV registration varies.
The During consultations in Kiribati it was apparent that the Maritime and Fishery Divisions were independently developing legislation for the implementation of an SSV registration system. This will be problematic unless a coordinated and unified approach is adopted.

Table 1c: Polynesia

Polynesia						
Pacific Island country or territory	American Samoa	Cook Islands	Niue	Samoa	Tonga	Tuvalu
SSV number estimate	Low	Moderate	Low	Moderate	Moderate	~240@
Small-scale definition	< ~6 m	< 24 m	< 4.8 m and > 4.8 m	< 15 m	none	< 7 m
Legislative status	Enacted	Enacted⁴	Enacted	Enacted◆	Enacted	Enacted
Relevant legislation	American Samoa Code Annotated	Maritime Transport (small moto- rised vessels) Regulations 2014	Domestic Fishing Act 1995; Domestic Fishing Regulations 1996	Fisheries Amend- ment Act 1999; Small Vessels Reg- ulation 1998	Fisheries Management Act 2002; Tonga Fisheries (Local fishing) Regulations 2009	Marine Resources Act 2006
System in place	Yes	In progress#	Yes	Yes	Yes	No
Reasons for system*	SS	SS	SS	SS, FM	SS, FM	SS, FM

Funafuti only
 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.
 Have intentions to move towards an SSV registration system.
 Legislation requires modification.
 PICTs with the highest readiness to implement an effective local SSV registration system are in dark green colour while those least ready have the lightest shading.
 Abbreviations used: SS = sea safety; FM = fisheries management; n.a. = not applicable

Like Kiribati, the Cook Islands appears to be proceeding with two independent SSV registration systems; one focused on sea safety and the other (non-legislated) dually focused on sea safety and fisheries data collection. This is likely to be inefficient in the longer term.



Canoe (Andra Island, Papua New Guinea)



Skiffs (Pohnpei, Federated States of Micronesia)

Small-scale vessel types in the Pacific

Across the 14 PICTs reviewed there are a variety of SSV types that can be grouped into three major categories: canoes, skiffs, and other (Table 2).

Canoes are the most common vessel type in rural areas and, depending on location, generally range in size from 3–8 m up to 15 m. They are mostly a traditional design 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 locations. Canoes are almost exclusively paddle-powered although some have sails and a few have small outboard motors. Canoes are used to some extent in a range of coastal activities, but are particularly important for subsistence fishing.

Skiffs are defined simply as 'small boats', and although there are a variety of local names used to describe this vessel type, they are generally very similar. Skiffs are generally open deck boats (sometimes with a half cabin), powered by outboard motors, and used in urban and rural areas. They can be fibreglass, timber or aluminium construction, range in size from 3–10 m, and are one of the most common vessel types used throughout the Pacific Islands region. Skiffs are predominantly used for commercial fishing, both reef and nearshore pelagic, and for transportation between islands.

Other SSVs are a range of different vessel types that tend to be less common in most PICTs, although this is variable (e.g. due to its large tourism industry, Fiji has a lot of vessels that are likely to fall under this category. The vessel types included here are predominantly those used as charter vessels for diving or sport fishing, or for transport, often associated with the tourism industry. Other vessel types include sailing boats, government vessels, small tenders, and privately owned vessels. The exception are *alias*, which are unique to the Samoan islands. These tend to be larger aluminium vessels ranging in size from 8–15 m and are predominantly used as offshore commercial fishing vessels targeting deep-water species and/or pelagic species (mostly tunas).



Skiffs (Futuna, Wallis and Futuna)



Alia catamaran (Samoa)

Vessels for inclusion

The types of vessels that an SSV registration system could include will depend mainly on two key factors. The first is the local definition of a 'small-scale vessel'. Most PICTs already have a local distinction, either in legislation or by convention, of what size constitutes an SSV. This is variable so any national registration system would need to be tailored to the local definition.

The second factor relates to the purpose of the registration system. Generally, this will be for either sea-safety or fisheries management purposes but can include both as objectives. In PICTs where the local priority is to minimise incidents at sea, improved safety will be the main objective of a local SSV system. Although this could potentially include all skiffs, canoes, *alias*, and 'other' vessels, historically, incidents at sea mostly involve small motorised vessels because they tend to travel greater distances and can experience mechanical break downs. Therefore, from a safety perspective, an SSV registration system would need to include all small motorised vessels as a minimum.

In PICTs where fisheries management is a priority, an SSV registration system that facilitates the collection of fisheries data will be a major part of the objective. This system would potentially include all vessels defined as 'small-scale' that participate in fishing activities.

Other local factors will also need to be considered in determining vessel types to be included in the registration system, regardless of the objectives of the system. These include: the number of vessels likely to be registered; the size and accessibility of local marine areas; available resources to implement and manage the system; and local priorities. For example, motorised vessels are more likely to engage in commercial fishing, whereas canoes are more likely to engage in subsistence fishing.



Table 2: Summary of small-scale vessel types used in the Pacific Island countries and territories consulted and, where possible, their lengths and main uses.

Region			SSV types ar	nd their main	uses	
and PICT	Canoes	Use	Skiffs#	Use	Other	Use
MELANESIA						
Fiji	4.5–6.1m	Fishing	Fibreglass boats 5.8–7.6m	Fishing, transport (tourism)	Charter boats, ferries, punts	Transport, sportfishing, diving
PNG	3–15m	Fishing	Open dinghies 5.8-7.0m	Fishing, transport	Larger outboard motor boats	Sportfishing, diving, leisure
Solomon Islands	4.5–5.5m	Fishing, transport	Outboard motor boats 5.5–6.1m	Fishing, transport	Larger out- board motor boats	Sportfishing, diving, leisure
Vanuatu	4.5–5.5m	Fishing, transport	Fibreglass boats 5.2–6.1m	Fishing, transport	Charter boats	Transport, sportfishing, diving
MICRONESIA						
FSM		Fishing	Skiffs	Fishing	Speed boats, fibreglass catamarans	
Kiribati	Te Waa 5–8m	Fishing, transport	Skiffs 5–6m	Fishing	Dive, passen- ger, pleasure, sailing, tender vessels	Diving, sailing, fishing, transport
Marshall Islands	3–6m	Fishing	Motorboats 3–10m	Fishing		
Nauru		Fishing		Fishing		
POLYNESIA						
American Samoa		Fishing	Skiffs 4–6m	Fishing, transport	<i>alia</i> 9–15m	Fishing
Cook Islands	2–4 m	Fishing	Skiffs	Fishing	Larger out- board motor boats	Fishing
Niue	3.7–7.6m	Fishing	Skiffs 3.7–5.5m	Fishing		
Samoa	4–6m	Fishing	Skiffs 4–6m	Fishing, transport	Pleasure craft, passenger ves- sels, <i>alia</i> 9–15m	Fishing, leisure, transport
Tonga		Fishing	Skiffs 3–8m	Fishing	Charter boats 5–10m	Fishing, leisure, transport
Tuvalu		Fishing	Outboard skiffs <6m	Fishing		

[#] The term 'skiff' is defined as a 'small boat' and is used to describe small runabout boats with outboard motors. Among PICTs they have a variety of local names as indicated in the table.

Information requirements for a small-scale vessel registration system

Main data users

The major stakeholders that will use data from an SSV registration system are national governments, particularly maritime and fisheries departments. An SSV registration system provides better identification of vessels for other purposes such as search and rescue, vessel recovery, post-cyclone assessment, fish aggregation device deployments, law enforcement, ownership disputes and national security. Other key stakeholders are vessel owners who need to understand why they should register their vessel and how the system works. This will create greater levels of support and compliance, thereby reducing costs otherwise necessary for enforcement.

Key data

At the most basic level, a vessel registration system is for recording and potentially tracing vessels; therefore, the most essential data to gather are vessel and owner details (Fig. 1). Even the most basic of data facilitates more efficient and effective enforcement and rescue of vessels by sight alone. This will be particularly true with real-time electronic data access, which is likely to increase among PICTs in the future. Other desirable data can be collected as part of an SSV registration system but will be dictated by the objectives of the system (Fig. 1).

The main use of an SSV registration system, as identified through consultations with fisheries departments, is assessing the number of fishing vessels (fishing capacity) to better manage coastal fishing effort. In PICTs where SSV registration systems are currently in operation, only Samoa appears to be effectively using the number of fishing vessels for the purpose of better managing fishing effort in coastal areas. Samoa monitors vessel numbers against limits on the number of fishing vessels (*alias*) per size category. For fisheries management purposes, the ability to uniquely identify each fishing vessel will greatly enhance a monitoring programme, and other data could include basic effort and catch information while acknowledging the limited utility of such qualitative data collected annually.

From a safety perspective, an SSV registration system also helps to ensure that SSVs are equipped to operate safely at sea, and provide the necessary information to assist in a search and rescue situations. However, careful planning is required to obtain a balance between the amount of information collected and the complexity of the system. Particularly in PICTs where human and financial resourcing are significant limiting factors, collecting enough information to fulfil the purpose of the system while being realistic about the effective use of the information is important.

Data management

Integral to an effective SSV registration system is a robust data management system. Data management systems currently used for SSV registration systems among PICTs range from a simple hard copy (paper) filing system to the use of electronic databases. Regardless of the system, it was apparent from consultations with PICTs that data management processes are not currently efficient or effective and there is a significant need for improvement. This is not surprising because data management requires technical expertise, ongoing funding, and personnel and staff time, all of which can be limited in PICTs.

Oceanic fisheries vessel registration systems have relatively sophisticated data management systems in place, managed by the necessary expertise of the Pacific Islands Forum Fisheries Agency (FFA) and SPC. To ensure that PICTs have robust data management of SSV registration systems, an ideal approach would be the development of a system 'template' that can be shared and applied throughout the Pacific. This would require local technical training with the expertise of FFA and SPC, and applying the knowledge and ongoing improvements in oceanic fisheries.

ESSENTIAL

- Vessel ID
- Owner's name
- Owner's address
- Owner's contact (email/phone)
- Vessel make/model
- Vessel length
- Hull construction
- Mode of power
- Motor type and size

DESIRABLE

- Vessel in survey*
- Vessel appearance (colour/design)
- Vessel name
- Engine serial number
- Hull identification number
- Usual crew number
- Usual activity
- Fish storage capacity
- Target species
- Fishing gear/methods
- Usual fishing grounds
- Vessel radio type
- Vessel radio call sign
- Captain's name
- Captain's contact details
- Usual vessel location

OTHER

- Captain's qualifications
- Year vessel built
- Vessel breadth
- Vessel weight
- Vessel fuel capacity
- Vessel displacement
- EPIRB type and serial #
- Amount of fishing gear
- Fish storage type
- Fishing effort level
- Fishing catch levels

Figure 1: Types of data 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 likely to be dependent on the balance between information and resource limitations. These data elements are not exhaustive although they take into account other vessel registration systems and consultations.

Developing a small-scale vessel registration system

Considering there are few effective SSV registration systems currently operating in PICTs, and the possible implementation of new ones in the future, a framework has been developed that documents the necessary steps in designing and implementing a robust system. This framework is useful for the review of current systems and was developed based on the strengths and weaknesses of working systems, incorporating the feedback collected during consultations and with PICTs. Although each system will need to meet local requirements, using this framework will also enable the standardisation of processes and system elements, such as database structures and forms. This process will need facilitation among PICTs but provides the most cost-effective and efficient approach.

Framework

There are eight key elements in the framework, and these are summarised below and in Figure 2. Further details of these elements are available in the full report. The eight key elements for developing and implementing an SSV registration system for PICTs are:

- 1. Consultation identify *all* relevant stakeholders and include them as collaborators in all stages of the process.
- 2. System objectives set clear and concise objectives for the system that are identified upfront.
- 3. Legislation draft legislation that is specific to SSV registration and is informed by the objectives. This will provide the necessary legal basis for a system.
- 4. System structure identify and document several components specific to local conditions, including defining an SSV; identify the vessel types to be included; consider the necessary requirements, depending on the objectives (e.g. sea safety or fisheries management), including necessary staffing, funding, training and information requirements; and, address local challenges (e.g. a regional approach for a large geographic area, funding issues and strategies to overcome this, technical capacity and documenting necessary training).
- 5. Data collection and management identify the data that need to be collected to meet the system's objectives. Careful consideration is especially needed in the design and development of a database that works effectively for storing and retrieving data.
- 6. Implementation and system management this critical element requires careful planning, and needs to be clearly documented. It is the operational aspects of the system that guides relevant staff in its effective implementation and also informs vessel owners of their responsibilities. Components include: development of relevant forms being careful to avoid duplication; online facility development that links to an electronic database; operational details of the system such as registration cycles (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); appropriate public awareness raising and education materials need to be developed to foster support and compliance. In this planning stage, strategies for initial and ongoing funding need to be identified and negotiated as much as possible.

- 7. Enforcement develop an awareness raising and education programme. This will increase compliance although some level of enforcement is required to ensure the integrity of the system. This element is often overlooked and will require adequate staffing, ongoing training of staff, and adequate resourcing to conduct regular enforcement activities (e.g. patrols).
- 8. System review ensure that a regular schedule is developed to ensure the system is operating effectively. This would also require resources to follow up on aspects of the system not working well.

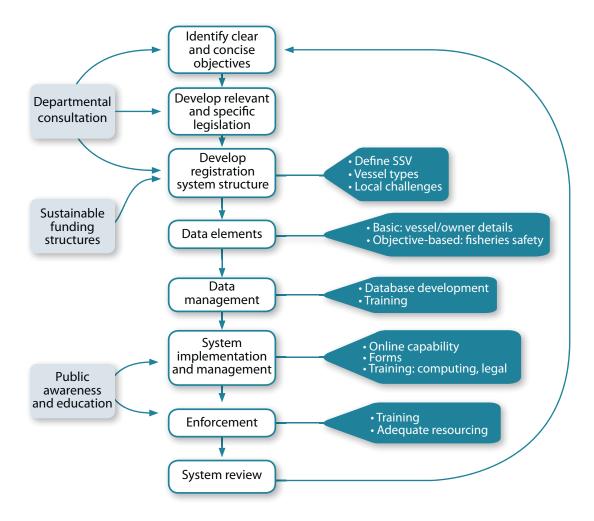


Figure 2: Flowchart of the elements and processes for developing, implementing and managing a robust small-scale registration system for Pacific Island countries and territories. A more detailed description is given in the text and in the final consultancy report.

Conclusions

One of the responsibilities of PICT fisheries departments is the collection of coastal fisheries data to inform management, including coastal vessel catches of tuna and other nearshore pelagic species. An SSV registration system is the first step in achieving this. However, on its own, it will not meet all fisheries data requirements and complementary monitoring approaches are still required.

An SSV registration system for PICTs is more likely to be used effectively as a means for ensuring safety at sea. 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 that safety standards are met, such as vessel survey inspections and boat handling courses.

There are other benefits to SSV registration systems, including better vessel identification during search and rescue operations, validation of vessel ownership during disputes or theft, for insurance claims, or for general enforcement activities.

Despite there being potential benefits of SSV registration, there are also challenges to its implementation and limitations to its effectiveness. Therefore, the commitment of PICTs to implement such a system needs to be considered carefully against the resources available. Further, most of the current systems operating in the PICTs that were reviewed have significant issues and require a review and restructure. All PICTs face the ongoing issues of limited funding, lack of staffing, and lack of technical capacity, and so it is important to address these challenges to ensure an effective SSV registration system.

Before the implementation of an SSV registration system, proponents should identify a clear need for the system, develop administrative and management functions that are cost-effective, establish a sustainable funding framework, and facilitate ongoing training. This review and the accompanying framework will assist PICTs in developing and/or restructuring an SSV vessel registration system.

