

Future Pacific Ocean managers: Scoping skills and knowledge needs

William Abuinao,¹ Jacob Piturara¹ and Hugh Govan²

Summary

The importance of the Pacific Ocean for global geopolitics is being increasingly recognised, particularly with regards to resource extraction and the projected impacts of climate change. Pacific Islanders need a healthy ocean, and in response to increasing threats, several regionally appropriate and globally recognised approaches to the management of a sustainable ocean and coastal resources have been developed.

Formal education at the regional University of the South Pacific (USP) needs to continue to evolve in order to prepare students from Pacific Island countries (PICs) to meet future challenges as ocean managers. In this article we report on the findings of a scoping survey done with 30 USP students.

The survey found high levels of satisfaction among undergraduates admitted directly from high school, but among students who had prior work experience there was less satisfaction. Students highlighted their interest in the 'applicability' of learning, and called for a greater emphasis on group learning, face-to-face and practical approaches to learning as opposed to increasingly used online methods. The absence of any mention of using traditional knowledge for marine resource management suggests that further consideration in this area is needed. Analysis of the results suggest the following recommendations:

- Survey in-service professionals and employers in relevant fisheries and marine conservation sectors in individual PICs.
- Describe the different contexts and approaches to utilising and managing marine resources across the various PIC contexts.
- Develop and evaluate a more interdisciplinary skills list that may be appropriate to a variety of PIC contexts, including traditional knowledge, management and tenure.
- Explore and review potentially appropriate Pacific Island modes of learning based on experiences in the region, with particular attention to culturally appropriate ways of learning.
- Review prescribed and specialised classes in the context of Pacific Island fisheries and marine resource management strategies, culture and institutional capacities.

Introduction

Pacific Islanders depend heavily on marine resources, which provide many opportunities to contribute to not only their own livelihoods, but also to national economies. PICs face a unique set of challenges in the sustainable management of the vast ocean and coastal spaces populated by thousands of remote and diverse communities. The last few decades have seen what amounts to a revolution in the thinking and approaches to governing both offshore and coastal resources, a revolution that capitalises on traditional Pacific Island strengths, and adapts these to modern contexts (Govan 2017). Despite these promising advances, however, there is still significant concern that, faced with increasing local and global economic volatility and environmental

threats, PICs are far from achieving the vision of 'A secure future [...] based on sustainable development, management and conservation of our Ocean' (Govan 2017:16).

The need to address capacity constraints has been a constant call in regional ocean and fisheries-related policies for at least 20 years.³ The Framework for a Pacific Oceanscape calls for 'capacity building, including formal, tertiary and vocational training, and research [...] to be more carefully targeted at addressing our [Pacific Island] governance and management requirements' (Pratt and Govan 2010: Strategic Priority 4).

The question raised by new students and those who return from the work force (in-service students) is whether formal 'capacity building' has experienced anything like the

¹ Student, University of the South Pacific (USP), Marine Studies Program

² Senior adjunct fellow USP School of Government, Development & International Affairs (SGDIA) and Adviser LMMA Network. Suva, Fiji

³ See: Strategic Plan for Fisheries Management and Sustainable Coastal Fisheries in Pacific Islands (SPC 2003), Pacific Islands Regional Ocean Policy (SPC 2005)

‘revolution’ in fisheries and marine resource management and governance referred to above.

To help increase our understanding of this question, a scoping survey was conducted as a preliminary data-gathering exercise to canvas student opinion on current formal approaches at USP. The survey investigated informants’ motivations for coming to USP, what knowledge and skills these possible future Pacific Ocean managers are seeking, their assessment of the knowledge and skills they received at USP, and suggestions for additional topics or learning modalities. Informants comprised first year to third year students, post-graduate students, and students who were studying while currently or previously in-service.

Methods

At the outset, several meetings were held with Pacific Island fisheries officers, experienced regional diplomats, academics and consultants, all of whom concluded that training provided by the region’s academic institutions on ocean and coastal management should be reviewed. From these discussions, it was decided that a scoping survey should be carried out by students at USP, and that one of the objectives of the survey process should be to stimulate and encourage students to discuss training and education needs among their peers, with a view to participating in an ongoing process of consideration, reflection and development as to how to make any identified changes, and to move forward.

The survey involved a team of interested students with the third author on this paper serving as adviser. The team designed a survey (Annex 1) that was carried out in the second quarter of 2018, and administered to current and

former students of USP in the School of Marine Studies who studied in the Marine Management or Marine Science programmes. In total, 30 students were interviewed individually from four PICs: Solomon Islands (16), Fiji (6), Kiribati (4) and Vanuatu (4). Nearly one-third of respondents were women (9). The students surveyed included first year, second year, third year, post-graduate, and Master’s degree students, and included both pre-service students (those admitted to university straight from high school) and in-service students (those were or are currently working as fisheries officers). Three of the in-service respondents had recently graduated from USP.

Summary of findings

This section summarises the responses to the main survey questions.

What brought you to USP?

The 30 respondents gave 53 responses, with some giving multiple reasons (Table 1). One-quarter of respondents were motivated by learning about one or several topics in the marine field, mainly fisheries, resource management and conservation, and ocean environment and resources. Just over 20% expressed the desire to obtain a qualification. Other motivations expressed by less than 10% included the availability of scholarships, USP’s reputation, personal passion, and obtaining a job and helping their particular PIC.

The main feature was the variety of responses and the motivations given, with none strongly standing out. Knowledge seeking, passion and desire to help one’s country motivated

Table 1. Proportion of students at different stages of their education mentioning specific reasons for their choice to study marine management and fisheries at the University of the South Pacific. Number of students = 30, number of responses = 53 (some gave multiple responses).

	Year 1	Year 2	Year 3	Post-graduate	In-service	Total
Seeking knowledge in specific topics*	25%	26%	21%	20%	27%	25%
Obtain degree and/or qualification	50%	21%	14%		27%	21%
Scholarship availability		5%	14%	20%	9%	9%
USP’s reputation		11%	7%	20%	9%	9%
Passion and/or dream		11%	14%			8%
Getting a job		11%	7%	20%		8%
Help my country			7%	20%	9%	6%
USP School of Marine Studies and facilities			14%		9%	6%
Regional social interaction and experience	25%	5%				4%
Opportunity		5%			9%	4%
USP’s flexibility		5%				2%
Number of responses	4	19	14	5	11	53

* Topics were fisheries, resource management and conservation, ocean environment and resources, which comprised seven responses followed by single responses on ocean governance, marine science, aquaculture and climate.

just under 40%, while less altruistic motives such as the availability of scholarships and opportunities were mentioned by 13%. Getting a qualification or a job was mentioned as a motivation by 29% of respondents but it is impossible to say whether this was only for personal gain or as part of helping their family and country. Just over 20% mentioned opportunities and USP's reputation, particularly the School of Marine Studies.

What knowledge and skills were you looking for in particular, and for each of these, why?

All 30 informants responded to the survey question on the knowledge and skills originally sought at USP. In total, 73 different topics were broadly categorised (Table 2). Nearly one-third (33%) of the topics mentioned related to fisheries and marine resource management. Approximately 20%

related to specific skills, in particular research, while 15% related to sustainable development or marine resource use. A wide variety of interests comprised the remaining 32% of topics mentioned, and here it is notable that the topic of climate change only came up twice, and aquaculture and marine pollution were only mentioned once.

There are indications that post-graduate and in-service students are more focused on fewer topics. In contrast, first and second year students mentioned more skills-related topics.

Overall assessment of knowledge and skills received

Twenty-nine informants provided an overall assessment of knowledge and skills received from USP (Table 3). Just over a half rated the knowledge and skills they received as being 'very good', with a further 28% giving a rating of 'good', with

Table 2. Knowledge and skills sought by 30 students of the School of Marine Studies at the University of the South Pacific (Marine Management and Marine Science programmes). Students mentioned several topics each and the total number of topics raised was 73.

	Year 1	Year 2	Year 3	Post-grad.	In-service	Total
Resource and fisheries management	2	5	12	1	4	24
Resource management and conservation		2	6		2	10
Fisheries management	2	1	2	1	1	7
Fisheries policy and national law		1	2			3
Governance (government and communities)			2			2
Monitoring, control and surveillance		1				1
Career in fisheries management					1	1
Skills	2	8	1	2	2	15
Research skills		4	1	1	2	8
Computer skills	1	1				2
Report/writing skills		2				2
Communication skills	1					1
Public speaking and presentations		1				1
Time management				1		1
Fisheries development (sustainable)		3	5		3	11
Sustainable development and use of marine resources		3	5		2	10
Post-harvest					1	1
Others / various	2	7	8	1	5	23
General marine studies related		2	2	1		5
Applied and/or functional knowledge (in home country)		2			2	4
Law of the Sea, international law, ocean policy	1		2			3
Climate change		1	1			2
Other (unique topics)	1	2	3		3	9
Total topics	6	23	26	4	14	73
Students	2	10	8	3	7	30

* Single mentions were made of the following topics: Disaster management, shoreline erosion, aquaculture, regional institutions, ocean environment, marine pollution, ports services, marine ecology and assessments, restocking corals.

only 20% scoring it as fair or worse. The lowest scores were provided by in-service students.

Which courses and other experiences exceeded expectations?

When students were asked which USP courses or other experiences best delivered what the student had hoped for, informants frequently listed specific courses that delivered on their expectations and others that did not. At the USP Bachelor's degree level, students generally regarded all marine study courses as delivering on expectations. Nearly half (49%) of the students responded that all marine science and marine management courses were relevant and contributed towards their expectations. Conversely, the courses most frequently mentioned as less useful, irrelevant or 'making up the numbers' were introductory courses from other fields such as Statistics, Earth Sciences, Chemistry and Biology. The compulsory foundation courses taken in the first year of full-time study were particularly criticised. In-service students provided a rich variety of feedback that would benefit from further investigation.

Activities such as field trips, laboratory sessions, practical experience, and research projects were highlighted as being important, along with other social activities, and student and staff interactions. Two notable comments and suggestions from some students were that: 1) some of the courses offered were very brief and that there were too few courses

covering areas of interest in ocean affairs, such as in the maritime sector and the shipping sector; and 2) the mode in which courses were delivered could be improved on. Both of these are discussed below.

Knowledge and skills that would be useful

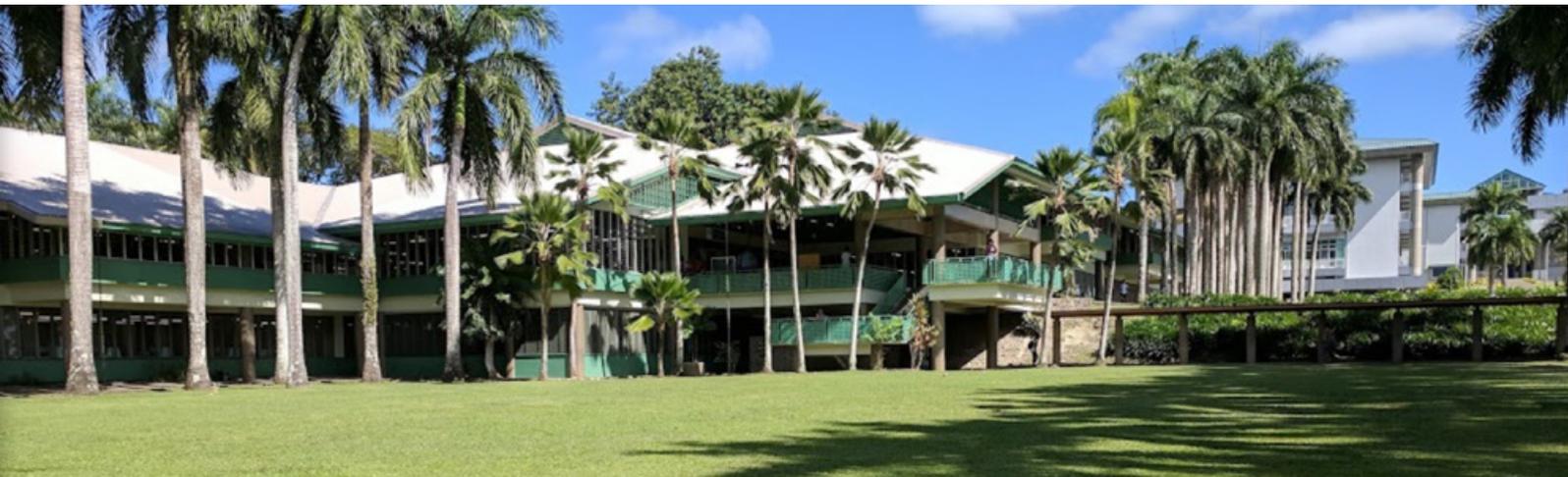
In response to the question 'What knowledge and skills do you think would have been more useful?', many respondents did not have specific suggestions, although topics that were suggested focused on more practical experience and field work. These included a stronger focus, in order of priority on knowledge application, research and data analysis, aquaculture, writing, and policy development. Other topics that were mentioned were: conservation and management actions; coral reef survey methods; ocean governance, including Law of the Sea; sea transport; and monitoring, control and surveillance. A survey of potential non-governmental organisations and government employers was also suggested by one respondent.

Suggestions on best ways of learning

The students were asked to suggest 'What are the best ways of learning?' In total, 53 suggestions were made, and these are tabulated by category in Table 4. Over one-third (38%) of suggestions related to practical experience, field trips and field work; essentially 'learning by doing' or 'seeing'. A quarter of the suggestions related to group work discussions and

Table 3. Students' overall assessment of knowledge and skills received during their experience with the School of Marine Studies at the University of the South Pacific. Number of students rating on a five-point scale from 'very good' to 'very bad'.

Assessment	Year 1	Year 2	Year 3	Post-graduate	In-service	Total	%
Very good	2	5	5	2	1	15	51.7%
Good		4	1	1	2	8	27.6%
Fair		1			3	4	13.8%
Poor			1			1	3.4%
Very bad					1	1	3.4%



USP campus, Fiji (Image: Zainal Rahiman)

Table 4. Suggestions from 30 students from the University of the South Pacific's School of Marine Studies (Marine Management Programme and Marine Science Programme) on how to improve ways of learning.

	Year 1	Year 2	Year 3	Post-grad.	In-service	Total	%
Practical experiences		5	4	1	3	13	24.5%
Field trips and field work	1	4	1		1	7	13.2%
Group discussions	1	2	1	1	1	6	11.3%
Work attachments and/or internships	1	1	1	1	2	6	11.3%
Small group work for practical experiences	2	1			2	5	9.4%
Face-to-face (increase)		3	1			4	7.5%
Group work across cultures		2				2	3.8%
Others	1	6		1	2	10	18.9%

activities, with two students highlighting the value of having people from various cultures involved in group work. A number of responses related to suggestions for internship opportunities and a preference for face-to-face teaching as opposed to online learning. Individual suggestions included topics such as the application of critical thinking, having targeted research projects, media production, opportunities to get involved in teaching, conducting a training needs analysis, and better selection of teachers.

Discussion and recommendations

The pursuit of knowledge and having a passion for the topics and a desire to help one's country were prime motivations for attending USP, and were suggested by just under half of all students surveyed. This is somewhat counterbalanced by the more practical motivations of getting a job or a qualification. Features relating to USP's perceived niche or reputation played some role but perhaps not as large of one as might be expected. The variety of motivations expressed by this small sample of students indicates that there is no particular student profile, and that USP's School of Marine Studies is not clearly marketing potential job possibilities in the region.

Despite the above, it appears that the skills and knowledge most commonly sought by students relate to fisheries and marine resource management, rather than (sustainable) resource exploitation. This reflects a shift over the last two decades in regional and national policies, and a move from natural resource development to natural resource management. It will be important, however, to assess whether a generation of sustainable livelihoods and national revenue is becoming increasingly neglected as this area will be an integral part of future Pacific 'blue economies'.

The generally high level of satisfaction of students with the knowledge and skills received at USP is very positive but is mitigated by the lower scores received from those students who already had experience in the job market. It is

possible that students graduating from high school in Solomon Islands and Kiribati at least may disproportionately be impressed by the contrast with the relatively well-endowed USP and the technically more impressive courses.

Concerns raised about the applicability of learning in students' own contexts and countries – along with calls for more practical experience – may relate to suggestions that many teachers do not have sufficient practical knowledge of their students' countries. For students nearing graduation, the realisation of the differences between what is taught at USP, with a special emphasis on Fiji, and their home situations may cause concern about the applicability of ideas and theoretical approaches that they have been taught while at USP compared with the practical realities of their home countries. Traditional ecological knowledge and traditional practices were conspicuous by their absence in student responses, yet these are vital to natural resource management in most PICs. This suggests that a training needs analysis needs to be conducted to better describe the differing actual and potential contexts of traditional knowledge in PICs, and how traditional knowledge can be constructively brought into teaching as a valid field of knowledge and practical application.

Criticism of some of the introductory or general undergraduate courses may relate to these being generic and tailored to the general first year student body and, therefore, not meeting the expectations of more focused marine studies students. These courses should, however, also deliver some of the skills that are considered vital by students as they progress their studies, particularly in the areas of general research skills, communication and computing. This needs further investigation.

The topics being sought or taught do not seem to reflect the revolutions in oceanic and coastal fisheries management noted earlier or the forthcoming challenges posed by increased market pressure and climate change. However, the suggestions for improvement do indicate some pathways for more Pacific-appropriate topics and learning modes that

need to be further explored and developed. Discussions with students failed to show a discernible impact of the burgeoning literature on preferred Pacific ways of learning and skills considered vital to supporting and sustaining Pacific ways of life (cf. Thaman 1992, 2009; Nabobo-Baba 2013)

Students demonstrated a strong desire for more interactive learning opportunities that linked their acquired knowledge with practical application in the Pacific Island context. Without surveying graduates currently in-service in their home countries it will be hard to ascertain whether this represents a normal disconnect between academic training and the realities of working on the ground, or is a true mismatch between theory and country needs and realities.

Strong preferences for group work and face-to-face opportunities are likewise understandable in many PIC contexts, and is well-known to increase the effectiveness of learning. The mismatch between Western systems of teaching and appropriate Pacific ways using cooperative and participatory styles that simultaneously recognise the diversity of Pacific Island cultures has been highlighted (Thaman 2009). Recent moves by USP towards online teaching seem to contradict this, and the question therefore needs to be answered as to whether in the particular context of the Pacific these forms of learning are more appropriate.

The context of marine resource exploitation and management in the Pacific is substantially different from that elsewhere due to the high dependence on marine resources for food security, livelihoods and income generation. In oceanic fisheries there is a strong element of international collaboration and negotiation with distant-water fishing nations, while in coastal areas, balancing diverse livelihoods with sustainable use, traditional tenure and other access arrangements, culture and communities are cornerstones. This suggests that skills in areas not explicit in either the curriculum or in students' expectations may need to be explored to include areas such as international diplomacy and negotiations, trade issues, donor management, anthropology, sociology, Pacific cultures, traditional tenure arrangements, and participatory and facilitation processes.

Tailoring a curriculum suitable to PIC specificities is further complicated by the great diversity of national contexts. The cultural diversity of the Pacific is well known but there are also large differences in institutional capacity across PICs, which have varying levels of human development indices and pressing governance issues (Govan 2015).

The specificities and variety detailed above has implications in terms of the selection of lecturers and trainers; those without in-depth PIC experience may struggle to deliver appropriate and applicable learning experiences to PIC students. In addition, it is not clear if USP has considered the requirements of different PICs with regards to fisheries and marine resource management so as to design and tailor better courses.

This scoping study makes the following recommendations:

- Survey in-service professionals in the relevant fisheries and marine sectors in PICs, including those working in non-governmental organisations and government to explore gaps and topics that might need emphasis as well as potential graduate profiles.
- Describe the different contexts and approaches in fisheries, and marine resource management and development in a variety of PIC contexts, with a view to highlighting different skills needed.
- Develop and evaluate a more interdisciplinary list of potential topics and skills that may be appropriate to the variety of PIC contexts and, in particular, the incorporation of traditional knowledge, management and tenure.
- Explore and describe potentially appropriate modes of learning based on experiences in the Pacific and student feedback. Particular attention should be placed on culturally appropriate ways of learning.
- Review the appropriateness of currently prescribed courses in the context of natural resource management strategies, culture and institutional capacities in the Pacific Islands region. Approaches to covering the diversity of situations across PICs and cultures needs greater consideration.

References

- Govan H. 2015. Preliminary review of public expenditure of the Fisheries Agencies of Pacific Island Countries and Territories: Policy, operational budget and staffing support for coastal fisheries. Report for the Secretariat of the Pacific Community, FAME Division. Noumea, New Caledonia. DOI: 10.13140/RG.2.1.4949.9363. Available at: <http://bit.ly/budgetstudy2015>]
- Govan H. 2017. Ocean Governance – Our Sea of Islands. P. 163–234. In: Katafono R. (ed). A sustainable future for small states: Pacific 2050. London: Commonwealth Secretariat. Available at: <http://bit.ly/Govan2017-OG>
- Thaman H.K. 1992. Towards a culture-sensitive model of curriculum development for Pacific Island Countries. *Directions* 13(1):1–11.
- Thaman H.K. 2009. Towards cultural democracy in teaching and learning with specific references to Pacific Island nations (PINs). *International Journal for the Scholarship of Teaching and Learning*: Vol. 3: No. 2, Article 6. Available at: <http://digitalcommons.georgiasouthern.edu/ij-sotl/vol3/iss2/6>

Nabobo-Baba U. 2013. Transformations from within: Rethinking Pacific Education Initiative. The Development of a Movement for Social Justice and Equity. *International Education Journal: Comparative Perspectives* 12(1):82–97.

Pratt C. and Govan H. 2010. Our sea of islands, our livelihoods, our oceania. framework for a pacific oceanscape: A catalyst for implementation of ocean policy. (Includes the policy). Secretariat of the Pacific Regional Environment Programme: Apia, Samoa. Available at: <http://bit.ly/FrPacOc>

SPC 2003 Strategic plan for fisheries management and sustainable coastal fisheries in Pacific islands. Secretariat of the Pacific Community, Noumea, New Caledonia.

SPC 2005. Pacific Islands Regional Ocean Policy and Framework for Integrated Strategic Action. Secretariat of the Pacific Community, Noumea, New Caledonia. Annex 1

Annex 1

Interview format: Skills and knowledge useful for Pacific Ocean managers

Introduce the interviewer and explain reasons for the study. It is anonymous unless they want otherwise.

- ◆ Identify the skills and knowledge that are most useful for Pacific Ocean managers
- ◆ Discuss and develop options on appropriate ways to provide skills and knowledge

Informant details

1. Approximate age:
2. Gender:
3. Home country:
4. Scholarship?:
5. Work or study history (jobs and schooling):
6. Current year of study (of how many):

Motivation and interests

7. What brought you to USP?
8. What knowledge and skills were you looking for in particular and for each one why?

Do you want to be part of this study and work?

- ◆ How (informed of result, participate in meetings, carry out interviews)?
- ◆ If so, please give your name and email contact.

Assessment of experiences

9. What is your overall assessment of skills and knowledge you have received so far? (1 = very good, 5 = very bad)
10. What is your overall assessment of skills and knowledge you have received so far? (1 = very good, 5 = very bad)
11. What courses or other experiences delivered what you hoped for and which ones did not. Why?
12. What knowledge and skills do you think would have been more useful?
13. What are the best ways of learning in your opinion (including non-formal)?
14. Other suggestions