



SOCPacific

A Sea of Connections

**“A Sea of Connections: Contextualizing Fisheries in the South Pacific Region”
(SOCPacific)**

**Summary of main results
& Report on their sharing with local communities in Fiji**

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Foreword

This document was produced as part of the research project ‘A Sea of Connections: Contextualizing Fisheries in the South Pacific Region’ (SOCPacific; <https://socpacific.net/>), co-funded by the Agence Nationale de la Recherche (Grant Number ANR-17-FRAL-0001-01) and the Deutsche Forschungsgemeinschaft (Grant Number 389654580), and co-led by Dr Elodie Fache (from the French National Research Institute for Sustainable Development or IRD) and Dr Annette Breckwoldt (from the Leibniz Centre for Tropical Marine Research or ZMT). It is intended for the Ministry of iTaukei Affairs, the Lau Provincial Council Office, the Lomaiviti Provincial Council Office, the Kadavu Provincial Council Office, as well as for leaders and members of local communities, and all other interested stakeholders.

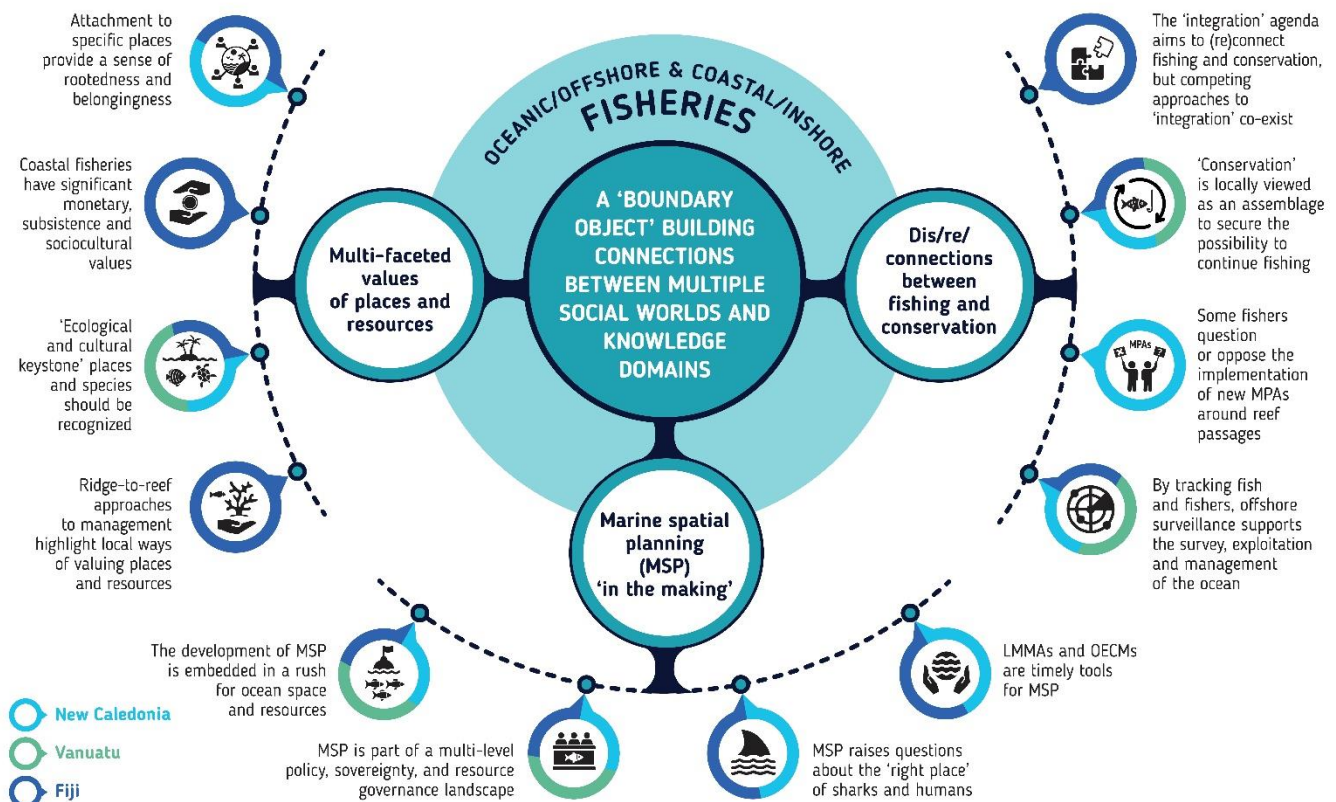
Overview of SOPacific

SOPacific (SOC for Sea Of Connections) was a research project funded between May 2018 and October 2022 by the French and German national research agencies (Agence Nationale de la Recherche or ANR and Deutsche Forschungsgemeinschaft or DFG). This research project was based on a partnership between three academic institutions across Europe and Oceania: Institut de Recherche pour le Développement (IRD); Leibniz Centre for Tropical Marine Research (ZMT); and The University of the South Pacific (USP). Its core geographical focus was Fiji, New Caledonia and Vanuatu.

SOPacific explored the large web of socio-cultural, policy and geopolitical connections within which fishing and fisheries management practices occur in the South Pacific region. Through interdisciplinary, multi-level and multi-stakeholder investigations, the team studied three main interrelated thematic areas:

- (1) the social values of places and resources in connection with inshore and offshore fisheries;
- (2) the connections and tensions between fishing and conservation interests and practices;
- (3) the ways fisheries and existing management tools are integrated into the Marine Spatial Planning schemes under development.

Overall, SOPacific proposed to superimpose on Epeli Hau'ofa's view of Oceania as 'a sea of islands', a conceptualisation of Oceanian fisheries as embedded in 'a sea of connections'. This notion highlights the multiple meanings, dimensions and expressions of ocean connectivity from/in Oceania. It also emphasizes that Oceanian knowledges, cosmologies, socialities, spiritualities, values, norms/forms of governance, and sovereignties are central to ensuring the health of the Pacific Ocean, considered all at once as the planet's largest ocean, a common heritage, the scene of an unequalled rush for space and resources, a four-dimension (including depth and time) 'oceanscape', and a more-than-human entity.



Overview of SOPacific's results across three thematic areas and three study sites
 © SOPacific, with graphic design by Stéphanie Hernandez (<http://www.s-com-science.com/>)

Summary of SOPacific’s main results

Thematic area #1: Social values of places and resources

- The multi-faceted values of coastal fisheries, as well as *iTaukei* women’s contributions to small-scale fisheries, are usually under-estimated, and should therefore be better assessed and acknowledged.
- It is necessary to assess the sociocultural values of marine resources alongside their monetary and subsistence values in order to better account for *iTaukei* communities’ ways of relating to and valuing marine life.

In particular, ‘ecological and cultural keystone species’ (marine animals that are of both ecological and cultural significance for *iTaukei* communities) should be systematically taken into account in future value assessments and (co-)management strategies for coastal fisheries.

Likewise, we identified a research and conservation gap requiring urgent attention: reef passages (breaks and channels in the barrier and fringing reefs), which can be described as ‘ecological and cultural keystone places’.

- Such ‘ecological and cultural keystone’ species and places are embedded in a land-sea continuum (known as *vanua* in Fiji), which is also self-evident for children (who view the sea and land as inextricably linked), and which is increasingly taken into account in fisheries management through ridge-to-reef(-to-ocean) approaches.

Thematic area #2: Connections and tensions between fishing and conservation

- Disconnections and reconnections between distinct social worlds and knowledge domains have been shaping fishing and fisheries management practices in Oceania. For example, at the national level in Fiji, the field of ‘coastal fisheries management’ has been progressively shaped by different coalitions of stakeholders, through different but partly overlapping regimes of practices (‘management-as-development’, ‘management-as-conservation’, ‘hybrid’), which were first articulated around tensions between development and conservation, then around efforts to weave together development and conservation.
- On Gau island, friction with new conservation ideas and regulations (on the one hand, community-based marine resource management initiatives, on the other, Fiji Government’s national species-specific bans) leads *iTaukei* women to adjust their fishing practices over time. These adjustments do not seem to question these women’s caring and coping attitude towards their marine environment, but could even contribute to reinforce it.
- Designing and implementing truly integrative coastal fisheries management & conservation measures requires to better involve women and the youth (including school-children) in decision-making processes.

Thematic area #3: Marine Spatial Planning schemes under development

- Exploring this third thematic area first required a better understanding of the existing policy landscape around regional fisheries management, which revealed that tuna fisheries have and need binding measures attempting to regulate multiple and powerful interests in this valuable resource, while establishing binding measures in coastal areas might neither be easily achieved nor deemed as beneficial by national authorities.
- It also required an analysis of the rush for space and resources that has been taking place in the Pacific Ocean in recent decades (involving Pacific Island countries and territories as well as external powers), with three interlinked motivations: exploitation of marine resources; protection of marine biodiversity; and control or sovereignty claims over marine spaces. Hence this rush combines ‘grabbing’ and ‘commoning’ dynamics.
- Two case studies focusing on the ‘right place’ of sharks and humans at sea, respectively in shark-oriented ecotourism in Fiji and in shark risk management in New Caledonia, revealed that sharks are increasingly incorporated into, but tend to resist, Marine Spatial Planning.

For a more detailed presentation of SOPacific’s main results, see: <https://journals.openedition.org/jso/14944>

Report on the sharing of SOPacific’s main results with local communities in Fiji

SOPacific ended in 2022. However, due to the pandemic of Covid-19, we had to postpone to 2023 the crucial final step of findings dissemination in Fiji. In September-November 2023, we aimed to share the main results of this research project as widely as possible, both with stakeholders based in Suva and in SOPacific’s study sites. For us and the rest of the team, it was indeed essential to facilitate local access to these results, which can potentially be used in discussion and decision-making processes related to current challenges and future pathways for ‘ridge-to-reef’ approaches to environmental management and conservation.

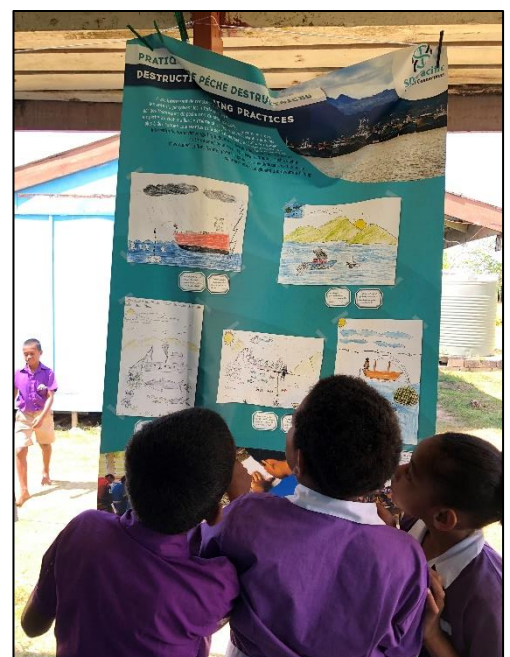
In this part, for each study site we will present: (1) our (planned and actual) dissemination strategy and schedule; (2) the main results we have highlighted; (3) the topics/questions that emerged from talanoa sessions and/or from our observations.

Cicia Island, Lau Province

As part of SOPacific, fieldwork was conducted on Cicia Island in 2019 by Dr Elodie Fache (a French social scientist, co-leader of SOPacific), Dr Simonne Pauwels (a French social scientist) and Mere Veitayaki (an *iTaukei* research assistant). The purpose was twofold. On the one hand, we aimed to understand the informal ridge-to-reef scheme that Cicia islanders progressively developed and implemented (several years before the launch of the Lau Seascape Strategy 2018-2030), as well as both its benefits and challenges they identified. On the other hand, based on school-children’s drawings and own descriptions of these artworks, we aimed to explore how children experience and understand relationships between the sea, people and marine life.

Dissemination strategy and schedule:

Dr Elodie Fache, Dr Simonne Pauwels and Ms Tui Cakacaka (a marine science student at USP) spent one month on Cicia, from the 19th of September until the 17th of October 2023. There, they shared the results of this work through a talanoa session with men and a talanoa session with women in each of the five villages, as well as the presentation of the “Draw the sea...” exhibition (made up of 11 posters) in each of the four primary schools and in Cicia High School.



Exhibition in the primary schools of Mabula (left) and Natokatau (right) – © Elodie Fache

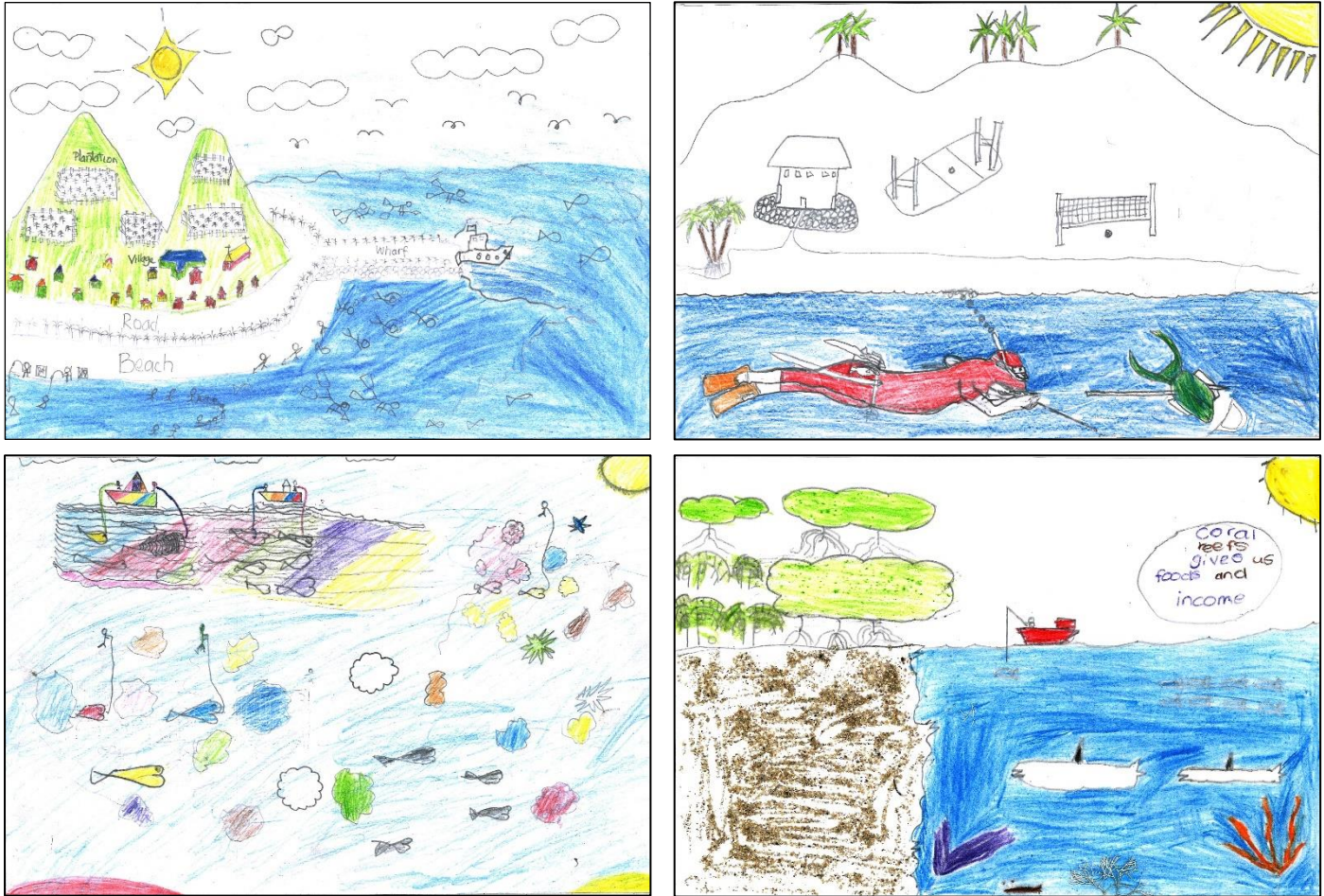
Highlights:

Cicia’s unique ridge-to-reef approach

- The inhabitants of Cicia developed their own ridge-to-reef scheme years before the launch of the Lau Seascape Strategy 2018-2030, which aims to implement integrated natural resource management “from ridge to reef to ocean” in the Lau Province and its surroundings waters. This local scheme is based on the certification of Cicia as an organic island, combined with a network of five (periodically harvested) tabu areas, one for each village, aiming at reducing fishing pressure within the island’s *iqoliqoli*.
- Benefits of this local ridge-to-reef scheme, as identified by Cicia islanders in 2019:
On the one hand, our interviewees all considered that their village’s tabu area had positive impacts on the island’s *iqoliqoli* (abundance of finfish, shellfish, seaweed, etc. and recovering of corals).
On the other hand, some of our interviewees reckoned that since the use of chemicals and bushfires were banned, the island was greener, corals were growing well, and more seafood was available near the villages.
- Remaining challenges faced by this local ridge-to-reef scheme, as identified by Cicia islanders in 2019:
Some interviewees reckoned that the giant clams reintroduced in their tabu area had disappeared due to tidal waves or poaching, while the overall fishing pressure remained high in the island’s *iqoliqoli*.
In addition, some interviewees reckoned that the ‘organic island’ concept was not yet fully understood or accepted by the entire population, and that the island was therefore not 100% organic. They observed for instance:
 - 1) that non-organic/processed food was still sold and bought in the local grocery stores;
 - 2) that the packaging of this food was accumulating in the waste dumps located at the land-sea interface;
 - 3) that sustainable connections to markets for the island’s organic products had yet to be firmly established;
 - 4) that the organic certification had not (and cannot) solve all environmental and health issues, with for instance coastal erosion and non-communicable diseases remaining of concern on the island.

Children’s views of the sea

- Children are not involved in decision-making processes, both globally and locally, yet their views of sustainable futures should be considered. Drawing is a research tool allowing children to express their perceptions on sustainable futures, including marine sustainability, which could potentially become a stepping stone to participation in decisions on the matter, at least at the local level. Therefore, in 2019, we asked 153 school-children in Fiji – including 44 school-children on Cicia (from Cicia District School and Mabula District School) – to “Draw the sea and what you and others do in the sea”. Then face-to-face interviews allowed all children to comment on what they had just drawn and to briefly describe their family context.
- Children depicted different types and aspects of land-sea interactions, which showed that they conceived the sea as inextricably tied to the land, just like adults and as reflected in the *iTaukei* concept of *vanua*.
- Children depicted various human uses of land-sea territories, such as beach games, swimming and bathing, picnicking and relaxing, or transport of people or goods by boat. But fishing was clearly the most common theme in their drawings, which showed that children were aware that fishing is an essential way of living with and from the sea, especially a vital source of food and income.
- Despite observations that Indigenous Fishing Knowledge (IFK) is increasingly threatened in the Pacific, our study showed that its transmission is still occurring and that children’s interest in learning is palpable. Some children of our target age group already knew a lot of fish names and had a high level of ecological knowledge thanks to their involvement in fishing activities.
- Based on information they got from various sources (including their relatives, teachers, books, television, and the internet), children also shared with us their concerns about unsustainable fishing and marine pollution issues, which threaten marine animals that are of both great ecological and cultural significance, such as sea turtles and sharks.



Drawings made by school-children on Cicia in 2019

For more information: See Fache and Pauwels, 2022, <https://doi.org/10.1007/s13280-021-01669-w>
 & Fache et al., 2022, <https://doi.org/10.1007/s13280-022-01777-1>

Topics/questions emerging from talanoa sessions and/or related observations:

- **Situation with regard to the challenges mentioned above, as presented by men and/or women during the talanoa sessions, as well as in the light of our observations on site:**

Poaching and high fishing pressure:

In Tarukua, the fishing pressure remains high, as the *iqoliqoli* is quite small, but the (periodically harvested) tabu area is seen as helping people and thus well respected. To reduce the fishing pressure, fishermen reckon they would need FADs as well as a fiberglass boat to access them, and/or long spearguns to enable them to dive during the day rather than at night.

In Tarukua, fishermen are required to record their catches and pass on this information to Cicia's fisheries officer, but they do not know what this data is used for ("we don't know what's going on") and are discouraged by the lack of benefits in return (for example, access to a fiberglass boat).

Although these aspects were not directly addressed in the other villages, they may well be relevant there too.

Non-organic/processed food:

The situation seems to have remained unchanged since 2019, except for the village of Naceva, which now has a shop and where the residents' consumption of non-organic/processed food might therefore have increased.

Interestingly, in one talanoa session, a man suggested that buying such non-organic/processed food could help reduce the fishing pressure and thus restore reef resources. He also commented that organic chicken farming and/or aquaculture could be a way forward for the island.

Waste management issues:

In talanoa sessions, in some villages, the women explained that they have improved the situation in recent years (although our observations revealed that there is still a long way to go, as there is a lot of litter on the coast).

In other villages, women seemed to be specifically concerned about waste management issues (in particular about plastics and diapers management) and willing to take action (which might be related to their caring orientation, in their households as well as at the village level, for example as *nasi ni koro*). Discussions thus emerged on the “3Rs” (Reduce, Reuse, Recycle), which are increasingly encouraged in Fiji (see Appendix 1).

The following question emerged from the discussions: Could Cicia, which is already an organic island, also become an island free of (macro)plastic waste? A related need was identified: a training in the identification of plastic materials, because while this is obvious in the case of plastic bags and containers, it is not necessarily the case for other items used in everyday life (such as food packaging, fabrics, etc.).

Based on our observations, some waste sorting initiatives are already in place on the island. For example, in the kindy and primary school of Natokalau, children learn how to sort out their rubbish: food scraps (to feed animals), tins (to be buried), waste papers (to be burnt), plastic bottles and containers (to be re-used as bins or for decorating the school). However, generally all the waste is burnt and/or placed together, without prior sorting, in dumping holes that are generally very close to beaches and rivers, which increases the risk of waste flying away or being washed away and ending up in the sea.

The team at Cicia Health Centre reminded us that litter is not only a source of (marine) pollution, but can also be “injurious to health” (see Public Health Act). For instance, litter (such as bottles and cans) can become breeding sites for mosquitoes, thus might increase the risk of diseases spread by mosquitoes (such as dengue fever).

Lack of sustainable markets:

In some talanoa sessions, women confirmed the lack of sustainable markets for their virgin coconut oil. Yet, in Mabula, women mentioned the recent help from a Suva-based NGO (Women’s Fund Fiji): will the latter also help the women of the four other villages?

In some talanoa sessions, men mentioned three interrelated issues related to the sale of their farm products: (1) the cost of freight (by air or sea) is too high; (2) they do not have access to markets where they can sell their products at a higher price than non-organic products; (3) at the same time, they are not 100% sure that their farm products can be officially labelled as organic.

The last point is related to two questions: Is everything produced on ‘the organic island’ automatically certified as organic? Where to get organic seeds and seedlings? (which is a tricky question, see Appendix 2)

Coastal erosion:

In talanoa sessions in different villages, both with men and with women, it was mentioned that the sea now frequently penetrates inland and/or that coastal erosion is particularly visible in certain places; therefore told us they needed the building of seawalls (but these can in fact be maladaptations, see Appendix 3).

In discussions about alternatives to seawalls, people wondered why mangroves do not grow (well) on the island. Experts and/or research on the matter would be needed to answer this question.

Non-communicable diseases (NCDs):

According to the team at Cicia Health Centre, cases of NCDs (including Rheumatic Heart Disease) have risen sharply again over the last five years.



Place where, according to the men of Mabula, coastal erosion is particularly worrying – © Elodie Fache

- **Other challenges:**

- Huge gap between, on the one hand, the Lau Seascape Strategy as presented by non-governmental and provincial agencies in Suva, and on the other hand, the Lau Seascape Strategy as understood and assessed on the ground, where people do not feel involved (especially in decision-making processes) and do not see any benefits for local communities (including resources/equipment to take part in conservation efforts).
- Lack of transport within the island, for the inhabitants (with possible impacts on their ability to get to the health centre and therefore on their health) as well as for government officials (such as the new fisheries officer who, in the absence of a truck or boat, was unable to visit the villages as required by his duties).
- Benzine or glue sniffing among school-children since the pandemic of Covid-19.
- Increase in bushfires (and difficulty to fight them and to identify the people who start them).
- In Lomaji, the water level in the river has dropped significantly: the residents would like to know why and whether there are any solutions to reverse this phenomenon.

- **Specific needs expressed by Cicia islanders (>>> to be addressed by the Lau Seascape Strategy?):**

- Fishing gear:

For men: long spearguns, masks, snorkels, fins.

For women: fishing nets (2,5 inch), fishing lines (N°10, 15, 30), fishing hooks (N°10 to 20), masks, snorkels, reef shoes.

- Need for coral restoration (especially outside the tabu areas) & for coral planting (especially in the tabu areas).
- Training on these and various other topics (to be defined by Cicia islanders themselves, to best meet their needs).

The villagers consider it essential for the trainers to come to Cicia, to spend time in each village, and to allow anyone interested to take part in the workshops. They also consider it important that these workshops include well thought-out practical work, which they can replicate after the training.

Lakeba Island, Lau Province

Even if Lakeba was not a study site of SOPacific, the study of social relationship and chieftainship on this island carried out by Dr Simonne Pauwels since the early 2000s has fed into the thinking behind this research project, in particular regarding governance issues. From the 26th of October until the 9th of November 2023, Dr Simonne Pauwels spent two weeks in Tubou on Lakeba, where her observations were very useful to better understand some of the challenges encountered on Cicia as well as in SOPacific’s other (non-Lauan) study sites.

Dissemination strategy and schedule:

As Lakeba was not a SOPacific study site, the dissemination of the main results of this project was limited to conversations with specific women and men.

Highlights:

Same as on Cicia (see above, p.6).

Topics/questions emerging from talanoa sessions and/or related observations:

- **Governance**

It is clear that after nearly 20 years of the absence of a high chief, the Lau group, but even more Lakeba island, has suffered from a lack of overall local governance. After having appreciated a period of freedom, the complaints began to surface. Among them, a lack of mutual respect, growing chaos (with bushfires or fights for example), and the fact that “everybody thinks he is a chief”, in other words, growing individualism. However, the common agreement about the preparation of the installation of a high chief looks promising.

- **Migration**

National or international migration, which seems to be very important on Lakeba, is seen as a chance for both those who migrate and those who stay on the island, because the former will be able to provide financial assistance to the latter. However, the government’s decisions to move local civil servants (teachers, nurses, officers), who serve their own community, to another island is seen as unjustified and as draining the island of the staff and services it needs.

- **Waste management**

Tubou village has a designated and used area for waste management, close to the airport, but without waste sorting: plants and things made of plant matter, tins and plastics are dumped and buried together. But for a while, the pit was not dug due to a lack of money and digger. Two days after a Facebook post highlighting this issue, a team decided to burn and bury a huge heap of rubbish without the help of a machine. Besides that, waste (including plastics) is regularly burnt, at dusk, in the village, producing fumes that are not only pestilential but also toxic.

- **Fisheries**

Tubou village has a large ‘vanua tabu’ on both sides of the jetty, in front of the village. Consequently, women hardly ever fish any more, while men fish outside the reef or at Bukatatanoa reef, which entails significant expenses (linked to fuel costs). Due to irregular shipping between Lakeba and Suva, catches are usually not sold, yet fish is sometimes sent to kin in Suva in exchange for processed food products. Lobsters are caught at high risk (very close to the breakers) by young men looking for “good money” paid by a middleman “from Denarau”.

- **Lau Seascape Strategy**

This initiative is known by name, but most interlocutors do not know what is expected from them and what they could expect from it. On the one hand, this initiative focuses on the protection of offshore MPAs, which is not a local matter of concern, and villagers do not see how they could be involved or help. On the other hand, in their view, the local development they were promised has not yet begun to materialize.

Gau Island, Lomaiviti Province

As part of SOPacific, fieldwork was conducted on Gau Island in 2018 by Dr Elodie Fache, who had already spent several months there in 2016. The aim was to highlight *iTaukei* women’s role in Fiji’s small-scale coastal fisheries, and its potential adjustments over time in the face of new conservation ideas and regulations.

Dissemination strategy and schedule:

Dr Elodie Fache spent two weeks on Gau, from the 24th of October until the 7th of November 2023. There, she shared the results of this work through a talanoa session with the women of Malawai, several follow-up conversations with women as well as with men (especially about the changes that have happened since 2018 and present-day projects and challenges at the village level), a discussion with the Mata ni Tikina for Tikina Vanuaso, and a meeting with the DO. She also presented the “Draw the sea...” exhibition (see above) in Lamiti-Malawai School.

Highlights:

- Fiji’s *iTaukei* women contribute significantly to household food security and livelihoods through their small-scale fishing activities (including the harvesting of seafood such as seashells and seaweeds). However, there is a persisting need to ensure that these women and their contributions are made visible and better acknowledged, in particular in decision-making processes and policies. To do so, in addition to counting the volume and size of their catches, it is important to account for these women’s active engagement with the sea through fishing: for them, beyond a simple economic activity, fishing is a way of interacting with, and caring for, the sea.
- On Gau, and more specifically in Malawai within Tikina Vanuaso, women’s fishing practices are very diversified. Through their diverse fishing practices, these women fishers have a bodily, sensuous, cognitive, emotional and spiritual experience of the saltwater itself, specific coastal/marine places, and all living things therein. This experience is inseparable from both space (*vā*) and time (*tā*).
- These women have to adjust their fishing practices over time in the face of, on the one hand, community-based marine resource management initiatives (mainly articulated around a tabu area, but spanning across the land-sea continuum), and on the other, Fiji Government’s fishing regulations (especially national species-specific bans). These adjustments do not seem to question women’s caring and coping attitude towards their marine environment. Yet, women are not uncritical, especially regarding the extent of the impact of these initiatives and regulations on them compared to men.

For more information: See Fache and Breckwoldt, 2023, <https://doi.org/10.1080/00664677.2023.2258452>

Topics/questions emerging from the talanoa session with women & several follow-up conversations with both women and men in Malawai and/or from related observations:

• **Tabu or tara?**

The jointly managed Lamiti/Malawai tabu area (the first on Gau), established in the early 2000s as part of Tikina Vanuaso’s locally-managed marine area (LMMA), then became two contiguous and interlinked closures, each with its own governance and management arrangements, creating ongoing tensions. Feeling that the fishing practices of the neighbouring village did not allow them to properly protect their tabu area, and to prepare for an upcoming *solu*, in August 2023 some people in Malawai requested to open their (periodically harvested) tabu area. While previous openings usually lasted from one day up to one week, this time this area remained ‘*tara*’ (open) for an indefinite period of time.

Three options were considered for the future: (1) no more tabu area; (2) re-establishment of the tabu area in the same place as before; (3) creation of a new tabu area elsewhere (not adjacent to Lamiti's tabu area, for example on the other side of the reef passage).

An important question emerges here: Will the women be involved in the decision-making process? Indeed, women's involvement in the decisions about the location and size of the previous closure was very limited, but times have changes since the early 2000s, with several studies having documented that women are integral to successful coastal fisheries management, and with the women's empowerment movement now well underway in Fiji.

This question arises in a context where the women observe that, in the *iqoligoli* (especially in their fishing places), the fish are getting smaller and smaller, the sea cucumbers are almost depleted, there are a lot of “empty *vasua*” (the shells are still there but their flesh has been removed) and dead corals, and so on. Women also observe that the land is not healthy because of bushfires, the cutting of trees, the use of chemicals, etc. which have a negative impact on reef health.

- **Need for cash!**

This situation is clearly connected to the fact that people need cash, whereas the sources of income are very limited. In particular, over the course of a year, people have to take part in numerous *solu*: for their Church, for the primary and secondary schools, for the village, for the island (for example to maintain the road), for the province... This creates a certain amount of pressure, particularly for women, who are expected to contribute to (more and more?) women-specific *solu* (a local interpretation of women's empowerment?), even though their main (or even only) sources of income are the mats they weave and the sea cucumbers they harvest.

Regarding sea cucumbers, since the five-year national ban on their harvesting, trade and consumption was lifted in mid-2023, these species have represented a relatively easy and quick source of money for women, selling them to a middleman. As a consequence, in early November 2023, it seemed that only a few small sea cucumbers were left in Malawai's waters. Yet, the objectives of the *solu* had not yet been achieved, which led some women to go and collect sea cucumbers elsewhere in Gau's waters (after customary request and approval), even though they knew that these species are threatened and need to be saved.

It is worth noting that *yasi* seedlings is becoming, for both men and women, a new source of income in the short term (payment for the production and plantation of seedlings) and in the longer term (carbon offsetting and/or sale of timber when the tree is mature).

- **Priority needs that the villagers are trying to meet**

- Implementation of a series of initiatives to improve their daily living conditions, such as creating new footpaths, building new houses (to replace those built by the fathers and grandfathers, now in poor conditions); raising the seawall (which could in fact be a maladaptation – see Appendix 3); negotiating support from relevant bodies for the installation of solar power and network access.

- Construction of an evacuation centre.

- Creation of a collective/cooperative piggery.

- **Another challenge: lack of transport within the island**

In recent years, there have been major improvements to transport between Gau and Suva, with a more suitable and regular ferry, as well as an efficient cargo service (Terry Trucks).

However, for the inhabitants of Malawai, getting around the island is complicated (you need to find a working vehicle or boat, with an available driver, and fuel) and very expensive. This hampers access to services available only in Qarani (such as the health centre and post office), to Gau Secondary School (for parents wishing to take part in Sunday visits or support their children during exams, for example), to the airport, etc. Would it be possible to introduce regular public transport, at a moderate cost?

Kadavu Island, Kadavu Province

Fieldwork was jointly conducted in the Nakasaleka district by members of SOPacific and of the “Western Pacific Coastal Fisheries Project” (WPCFP, USP, Institute of Marine Resources) between October and December 2019. The aim was to explore the importance of the economic and sociocultural values of selected living marine resources (finfish and invertebrates) harvested in this district, based on household surveys and complementary semi-structured interviews.

Dissemination strategy and schedule:

Dr Elodie Fache and Ms Ulamila Matairakula (who was involved in SOPacific as a USP student and now works for Pacific Blue Foundation) initially planned to go to Kadavu in November 2023 to share the results of this work with the team of Kadavu Provincial Council Office and the communities of Nakasaleka district. However, they had to cancel their visit due to a combination of unforeseen work commitments, unexpected personal circumstances, and weather conditions (tropical cyclone Mal).

As an alternative, Dr Elodie Fache met the Conservation Officer for Kadavu, Ms Raijeli Kolinisau, on the 10th of November in Suva. She provided the Conservation Officer with soft copies of the documents produced as part of SOPacific (publications, posters, factsheets, etc.) and hard copies of those most directly related to Kadavu, to be shared in due time with the team of Kadavu Provincial Council Office and the communities of Nakasaleka district.

Highlights:

- The estimated monetary value of marine resources harvested by coastal fishers and gleaners in Nakasaleka district was \$16.6 million FJD in 2019 (for subsistence and commercial combined). If we tentatively extrapolate these estimates to cover Kadavu province (nine districts), based on household numbers, the gross value for inshore fisheries rises to \$125 million FJD (which is higher than previous estimates in Fiji).
- The importance of reef fish as a key source of income and food in Nakasaleka district was clearly shown, making up 74% of the catch by weight, 86% of the commercial value, and 70% of the total value. However, pelagic fish are also an important resource, especially seasonally for tuna and some small pelagics, while invertebrates (such as crabs, sea urchins and molluscan shells) are mainly retained for local consumption. The sharing of harvested finfish and invertebrates was indeed a common practice for many fishers and most gleaners, providing socio-ecological systems resilience.
- Household surveys also revealed the importance of women in terms of both fishing and gleaning to provide marine resources for local consumption. For reef fish, women provided 22% of the annual catch, 40% of the subsistence catch, and 7% of the commercial catch. For gleaned invertebrates, women provided all of the catch for octopus, sea urchins, and mixed shells, none of which were sold.
- ‘Totem fish’ – such as *saqa* (trevally, *Caranx* spp.) and *vaya* (e.g., little priest, *Thrissina baelama*) – should be recognized as ‘keystone species’ in coastal fisheries value assessments and (co-)management strategies. This recognition could result in an increased effectiveness in maintaining or restoring both ecosystem and human health, while acknowledging the values, practices, rights and interests of their customary stewards.

For more information: See Harding et al., 2022, <https://doi.org/10.1007/s13280-022-01794-0>

Topics/questions emerging from the meeting with the Conservation Officer for Kadavu:

- Where (and how) should ‘tabu areas’ be revitalized in Kadavu Province?
- Are local associations a viable way forward for fishers and gleaners in Kadavu Province?
- How to stop bushfires, which have a negative impact on coral reefs?

Cross-cutting considerations

It seems that our sharing of SOPacific’s main results for/in each study site was appreciated, by the women and men with whom we had talanoa sessions and specific conversations, as well as by the children to whom we presented the “Draw the sea...” exhibition. However, it remains uncertain to what extent these results (and related discussions) will contribute to local decision-making processes, which remain in the hands of the communities and their leaders. It also remains unclear to what extent women and youth – including school-children – will be involved in these processes in the near and more distant future, even though it is essential for integrative and sustainable futures.

A number of challenges are common to SOPacific’s study sites, although it appears above that some of them have been more highlighted in some contexts than in others:

- Feeling that outside bodies and initiatives (such as the Ministry of Fisheries or the Lau Seascape Strategy) ask for unclear local contributions, and in return do not really help the communities to implement their management, conservation and adaptation efforts. This appears connected to both governance and communication issues (among others).
- Tensions between short-term financial obligations/pressures (for example *solu*) and longer-term ridge-to-reef schemes/objectives. These tensions are (at least partly) linked to the lack of sources of income, therefore to the lack of sustainable markets for local products, itself linked to inter-island transport issues (irregularity and/or cost of freight).
- Issues of transport within the island, for both people and goods. It would be worth considering the introduction of regular public transport, at a moderate cost (with a view to well-being rather than economic viability or profitability).
- Waste management – and most of all plastic management (with plastics being currently often burnt, in/around dumping pits, elsewhere in the villages, or even in the cooking fires) – and bushfire management are two significant matters of local concern, with consequences for both reef and human health. It therefore appears necessary to make them priorities in initiatives such as the Lau Seascape Strategy or Blue Prosperity Fiji.
- Need for training on various topics. It is worth reminding here that the villagers consider it essential for the trainers to come to their island, to spend time in each village, and to allow anyone interested to take part in the workshops. They also consider it important that these workshops include well thought-out practical work, which they can replicate after the training.

Appendices

Appendix 1 – Practical suggestions related to the 3Rs... or even 5Rs!

Fiji has promoted the 3Rs (Reduce, Reuse, Recycle) for more than 10 years.¹

Other voices promote the 5Rs to prevent plastic pollution: Refuse, Reduce, Reuse, Repair, Recycle.²

How might these 5Rs be applied in practice in a Fijian island?

Here are some suggestions that were discussed during talanoa sessions on Cicia in September-October 2023...

Refuse: When ferries arrive on the island, refuse the deposit on the jetty of the plastic wrapping that protects what they carry (instead, these ferries should take this plastic wrapping back) – *See Photo 1 below.*

Reduce: When they are empty of fuel, the 20L yellow containers could be refilled, if their shipping back to Suva was free (for example, transported free of charge by the shipping company, or with their transport paid for by another company, the government, or a NGO) – *See Photo 2 below.*

+ Alternative to diapers: <https://www.wikihow.com/Make-Cloth-Diapers>

Reuse: When they are no longer usable as such (with holes or cracks, for example), these 20L yellow containers can be cleaned and reused to plant flowers or vegetables – *See Photo 3 below.*

Repair: When damaged, everyday objects made of hard plastic, such as buckets or basins, can be repaired; such a repair activity could also be a source of income for a skilled person – *See Photo 4 below (from Madagascar!).*

Recycle: When they cannot be reused or repaired, plastics could be put in big bags (instead of being dumped or burnt with other waste) to be sent to Suva, if their shipping back to Suva was free (for example, transported free of charge by the shipping company, or with their transport paid for by another company, the government, or a NGO). Financial incentives for villagers would also be welcome.

Photo 1



Photo 2



Photo 3



¹ See: Waste Minimization and Recycling Promotion Project In the Republic of the Fiji Island - 3R Guideline - November 11, https://www.sprep.org/attachments/j-prism/3r_guideline.pdf

² See for example: <https://preventingplasticpollution.com/resources/the-5rs-to-preventing-plastic-pollution-refuse-reduce-re-use-repair-recycle/>

Photo 4



Appendix 2 – Organic seeds and seedlings

Information on organic seeds in Fiji was shared during a workshop held in 2022 in Nadi.

Here are some extracts from the workshop report³:

p.13: “Fuatino Fatiaki (SPC), Organic and Agroecology Production Systems Officer: The Pacific Organic & Ethical Trade Community (POETCom) is the leading body for the organic movement in the Pacific with regional membership spanning 60 members from 17 countries. The POETCom secretariat is based in Fiji, as a focal point for the Pacific. The organization works to provide training and technical support to make organic agriculture produce as attractive and a rewarding alternative for farmers and consumers. The move towards organic certification is important because of new markets opening, people are becoming more health conscious, and to support and strengthen the growing organic farming and markets around PICTs and the world. **Due to the absence and lack of available organic seeds, farmers or other relevant stakeholders may use any seeds (other than GMO – for the region) converted to organic depending on the type of seed treatment used. The conversion of organic seeds is guided by the Pacific Organic Standard (POS) which is currently under review** and will be updated from the findings and support of the NZ funded Pacific Seeds for Life (PS4L) programme implemented by SPC. POETCom works closely with the programme in sourcing organic seeds, conversion and multiplication of organic seeds and the establishment of certification system. **Fiji has two organic seed production pilot sites (Rotuma island and Cicia in the Lau Group).**”

p.14: “Q: Why is it important to have organic seed?

Fuatino Fatiaki (SPC): **Under organic farming certification, everything on your farm and every practice and production that you do has to be certified organically to guarantee that it is 100 percent organic.** It is guided by the Pacific Organic Standards (POS) which clarifies what needs to be organically certified.”

p.15: “Satendra (Bula Agro): I believe Cicia and Rotuma are organically certified, what are the requirements to get an island organically certified? (...)

Fuatino (POETCom): From my knowledge, the organic certification for Cicia Island was conducted a couple of years ago with funding support from IFAT (International Fund for Agricultural Development) (...) Third party certification will allow you to access markets in Europe and US markets, whereas **the PGS system will allow you access to unregulated markets as well as Australia and New Zealand.**”

³ Enhancing Seed Systems for Resilience, Livelihoods and Food and Nutritional Security in Fiji. Fiji Seed systems Forum, 22-25 March 2022, Nadi, Fiji Islands

https://spccfpstore1.blob.core.windows.net/digitallibrary-docs/files/f2/f2ebf51642a978abd08cd14cf668add2.pdf?sv=2015-12-11&sr=b&sig=jxaSibLooI9HOIQcuVzYKVaQK7pTYWIKKNrOImPNEEK%3D&se=2024-04-05T01%3A59%3A37Z&sp=r&rsc=public%2C%20max-age%3D864000%2C%20max-stale%3D86400&rsc=application%2Fpdf&rscd=inline%3B%20filename%3D%22PS4L_Report_Fiji.pdf%22

Appendix 3 – Seawalls as maladaptations

Seawalls (hard impermeable structures) are often built to reduce risks linked to sea-level rise and flooding.

However, these **seawalls are often “maladaptations”** (rather than “adaptations”), which further increase processes of erosion elsewhere:

“Seawalls have been a popular coastal protection measure on islands. [...] in many Pacific SIDS, seawalls have collapsed without additional funding available for repairs [...]. On small islands, another widespread issue with seawalls and other hard shoreline structures is that they invariably **shift problems of shoreline erosion and lowland inundation elsewhere.**” (Mycoo et al. 2022, p.2075)⁴

“Protection from erosion commonly takes the form of **seawalls** which this research shows are likely to be **effective and sustainable options only in urban settings** (when appropriately designed) **but not in rural ones**, where seawall design, positioning, materials and construction may see seawalls provide only short-lived respite to shoreline erosion. In fact, **they invariably exacerbate this and associated problems (of coastal flooding and erosion along unprotected shorelines).**” (Nunn et al. 2021, p.9)⁵

Other options are available. See for instance the Coastal Ecosystem-Based Rehabilitation Guide, which explains that **good beach vegetation** can help reduce vulnerability of beaches to erosion by impacts of sea-level rise: https://pacific-data.sprep.org/system/files/Coastal_Ecosystem-based_Rehabilitation_Guide.pdf

Over the past two decades, **replanting of mangroves** has proved successful to protect endangered coastal roads and housing:

“Good examples come from the island of Ovalau (Fiji) where during the early-mid 20th century colonial medical officers demanded that mangroves be cleared from the front of all 16 villages. Two failed to comply as mangroves were culturally taboo. Today, shoreline erosion and associated flooding is a major problem for all coastal villages on Ovalau except the two from which mangroves were never cleared.” (Nunn et al. 2021, p.8)



Mangroves near Lovu, Gau Island – © Elodie Fache

⁴ Mycoo, M., M. Wairiu, D. Campbell, V. Duvat, Y. Golbuu, S. Maharaj, J. Nalau, P. Nunn, J. Pinnegar, and O. Warrick, 2022: Small Islands. In: *Climate Change 2022: Impacts, Adaptation and Vulnerability*. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 2043–2121. <https://doi.org/10.1017/9781009325844.017>

⁵ Nunn, Patrick D., Carola Klöck, and Virginie Duvat. 2021. Seawalls as maladaptations along island coasts. *Ocean & Coastal Management* 205: 105554. <https://doi.org/10.1016/j.ocecoaman.2021.105554>

Attachment – Letter of support from the Ministry of iTaukei Affairs



MINISTRY OF ITAUKEI AFFAIRS

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Reference: MTA – 42/2-8

6 September 2023

Dr Elodie FACHE
Dr Simonne PAUWELS
Ms Tui Cakacaka
Institute de Recherche pour le Development
FRANCE.

Dear Messrs & Mesdames,

Re: Ministry of iTaukei Affairs Research Support

1. Thank you for your letter dated 1 September 2023 on the above.
2. Approval is granted for you to visit Tarukua village, Tubou village in Lau province, Matasawalevu village, Waisomo village, Bulia village and Dravuni village in Kadavu province, Malawai village (Gau) in Lomaiviti province.
3. It is noted that the purpose of your teams visit is to develop a research programmes that can directly contribute to the improved management of coastal fisheries in Fiji through a combination of economic, biological and capacity needs assessments.
4. Please liaise with the following Provincial Council Officials who will facilitate your visit;

Lau Provincial Council Office

Roko Tui Lau, Mr Joji Kalounivalu on mobile no. 9904159 or Senior Assistant Roko Tui Lau, Mr Panapasa Raceva on mobile no. 9387153.

Kadavu Provincial Council Office

Roko Tui Kadavu, Mr Arne Baleitamavua on mobile no. 9904164 or Senior Assistant Roko Tui Kadavu, Mr Filimoni Taka on mobile no. 7323257.

Lomaiviti Provincial Council Office

Roko Tui Lomaiviti, Mr Sakiusa Navakaroko on mobile no. 9904160 or Senior Assistant Roko Tui Lomaiviti, Mr Levi Nayacalevu on mobile no. 8313383.

I wish you all the best.

Yours sincerely,

Pita Tagiakirewa

Permanent Secretary for iTaukei Affairs, Culture, Heritage and Arts