Tuvalu Fisheries Department: Coastal Section: Trip Report

Metronome Trip 1 to Nanumea, Nanumaga and Niutao, 18 June - 4 July 2016

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The mission

After nearly a month of preparation, the mission to fulfil the first metronome trip under the NAPA II project was made to the three northern islands (Niutao, Nanumea & Nanumaga). The team mission includes several fisheries officers from both the coastal and the Operational and Development division, two NAPA II officers and three other staffs from other government departments. The full list of the team is provided on the appendix. Although, there were many target activities conducted during this mission, however, the focus of this report is to highlight specific activities that were undertaken specifically by the coastal division staffs during this trip. The overall objective of the mission is to implement fisheries related activities under component 1 of the NAPA II project. These are;

I. House hold surveys on socio-economic data
II. Collection of Ciguatera data
III. Run creel survey trials
IV. Canoe and boat survey
V. LMMA work
VI. Collection of fishery information and data

The mission departed Funafuti on 18th June, and return on 4th July. The first island to visit was Niutao, where we stayed for 9 days. The visit to Niutao was the longest out of the three islands due to the unexpected problem we encounter during our stay on the island which will be mention later on this report. We then continue our journey to Nanumea where we visited the island for 5 days and finally concluded the mission with a short 3 days visit to Nanumaga.

In addition to the above task, we also participated on providing assistance to the community on the following activities:

I. FAD Maintenance work(Number of FAD per island: Nanumea-1, Nanumaga-2, Niutao-1)
II. Awareness activities in school
III. GPS training with fishermen

The visit to the three northern islands was an exciting one for everyone and also provided the opportunity for new staffs to felt first-hand experience on conducting fisheries field work. This mission was made possible through chartering of the RV Tala Moana with funding through NAPA II project.

1 Introduction

The metronome trips were coordinated by the Fisheries Department and NAPA 2 Project in order for both departments to effectively achieve the proposed activities as planned. The trips were organized consequently,

- the first metronome trip which was to the Northern groups (Nanumea, Nanumaga & Niutao),
- the second metronome trip is scheduled on the last week of August 2016 to the Central Islands group (Vaitupu, Nui, Nukufetau)
- and the third and final metronome trip for 2016 is scheduled on the second week of November

This report will highlight the activities that the NAPA 2 coastal Fisheries officer was involved with throughout the First metronome trip which was to the Northern Group Niutao, Nanumea & Nanumaga.

The purpose of the trip was to accomplish primarily the activities that were planned for June 2016 which included the;

1. Socio economic survey consistent with Activity 1.2.2 of NAPA 2 AWP
2. introduction of creel survey in line with Activity 1.2.4 of NAPA 2 AWP
3. collate information on Ciguatera Fish Poisoning,
4. collate information for Island Profiles

2 Methods

The expedition was run between the dates of 18th June - 4th July 2016, using the new Fisheries / NAPA II research vessel, the RV Tala Moana. Ten days were planned for each island, allowing sufficient time for 12 people to carry out all parts of the survey, assessment, training and maintenance work. Although the Tala Moana is well fitted-out for expeditions, including cabins for researchers, a mess, storage for dive equipment, and a separate area for paperwork and computers for data entry, the vessel was not used as a work platform, with the research team basing themselves on the islands.

All parts of the work requiring data collections were facilitated by the use of SPC datasheets for the socio-economic, ciguatera and creel surveys. The datasheets provided a structure that ensured all questions could be answered for all surveys on all islands.

Data collected during the surveys were entered into the Coastal Fisheries Database on return to Funafuti. The database replaced those provided by SPC (SEMCOS and the Creel database) because the SPC server became unserviceable and could no longer be accessed for data entry. The Coastal Fisheries Database (CFD), built as a spilt database in Access 2010, was installed in the Coastal Fisheries temporary server.

On each island 30% of all households were surveyed (35 Niutao, 34 Nanumea, 0 on Nanumaga[1]) for socio-economic data. Several key informants among the Kaupule and Fishers were consulted to capture fisheries-related concerns among each group.

The Health staff were consulted to determine the number of cases of ciguatera or other types of seafood poisoning over the past few years. If the staff, previously given poisoning report forms, had not completed the form, the affected persons were contacted and interviewed by the team. No cases for the past 20+ years were noted in Nanumaga, and although several cases were noted by the Nurse in Nanumea, the Nurse did not supply the information to the team. In future trips, additional strategies are needed to ensure these data are fully collected. This may include consulting the Kaupule and community and following up by interviewing individuals affected.

Creel surveys were carried out around the islands wherever fishers were landing their catch. Many of these tended to be boat landings at the main channel for the island, but there were fishers who cast nets across the reef crest by walking there and other forms of fishing. For each catch landed, data were collected on the vessel (or no boat) used, costs of fishing (fuel, time, other costs), fishers perceptions and length and weight of all seafoods landed. This included any oceanic fishes, reef fishes, invertebrates or other types of seafood that might be targeted. A total of 20-50 creel surveys was the target for each island.

[1] No SE surveys in Nanumaga because these were completed at the end of 2015

The Locally Managed Marine Area (LMMA/MPA) on Nanumea was visited with a Kaupule official and its boundaries recorded using a GPS. Key information on the LMMA was collected and copies of any written rules or by-laws collected.

The independent boat survey was carried out on Nanumaga during a period when those on the island were unlikely to be fishing (during Sunday or a community event). At that time all of the Coastal Fisheries Team split up and combed the island to locate every boat they could. At that time, they measured the length of the boat and recorded its materials (but not power) along with a GPS reading.

A full condition and assets survey of the CFCs was carried out at Niutao, Nanumea and Nanumaga during this trip.

The workshops on sea safety, distribution of grab bags, inspection of and MOUs for FADs were carried out by the Operations and Development Section, with assistance from the Coastal Team.

3 Results & Data storage

3.1 Niutao

The first island to visit was Niutao. We landed on Niutao Island on a late Saturday afternoon. Upon arrival, an initial consultation meeting with Kaupule members was held that evening at the Falekaupule. The two leading senior fisheries officers undertook this activity as the rest of the team were preparing to settle down. Purpose of this meeting is to briefly outline members of the Kaupule with objectives, goals and scope of the trip. This meeting enabled a two-way dialogue with Kaupule members to exchange information and sharing thoughts on issues regarding those covered under component 1 of the NAPA II project. At the time of our visit, there were only four members (1 female, 3 males) of the Kaupule that we met. The president of the Kaupule and the secretary were both away on official visit to Niulakita Island which is also administrated under Niutao.

Summary of key outcome of discussion (see appendix 1.1 for details of meeting minutes)

- Briefing on objective and plans for the visit.
- Finalise program activities for the visit.
- Agreed on participants for trainings
- Confirmation on information on community based fisheries management and other fisheries related issues on the island (CFP, CFC, and Fishermen's Association).
- LMMAs in Niutao.

3.1.1 Socio-economic survey

The Socio-economic (S.E) survey was the first activity that the team carried out on the island. The work was undertaken in 3 days which targeted 30% of household on the island. In 2004, the first baseline survey was conduct on Niutao under the PROCFISH project. This trip, we repeated the same S.E survey method that was used in 2004. The idea was to see if there were changes over the period and identify what are causes of those changes. The survey consists of demographic information, household status and other fishery related data. 42 households were randomly selected for the survey on both villages on the island. The survey was conducted by seven fisheries staffs by interview using S.E forms that were design to target households. All data collected from the survey will be entered into a database set up at the fisheries office in Funafuti. Niutao has a total of (302) households, with a small population of less than

600 people. Life on Niutao constitutes mainly around its traditional customs, Christianity and geographical setting. The island is a small round coral raised atoll with average land height of just 4 meters. Sea birds is the second largest target species from fish for animal dietary protein.

3.1.2 LMMA

The definition of LMMAs to the people of Niutao is still far unclear based on the mixture of their perception. Majority believe that an LMMA is not applicable to the island because it does not have the same physical ecological set up as the FCA e.g. lagoon with motus. However, Niutao for many years have effectively been practicing; ban on spearfishing (whole island), seasonal closer on bird hunting, size of nets mesh, number of catch, duration of fishing activity, etc. These were types of resource management practice that were applied for maintaining a sustainable livelihood on the island. All rules and local taboo are established based on decision agreed by the elders of the Falekaupule where everyone abides. Severe punishment are imposed on those that contravenes the community rules. These can be in many forms, e.g. feeding the whole island with taro or pigs, doing hard labour for the community, ban from participating on community social activities, etc.

In 2012, the ban on spearfishing on portion of island was used as a way to preserve marine livelihood on the island (see map above). When we visited the island, we were told that spearfishing was totally ban in all waters of Niutao. This was the only taboo that was impost by the Falekaupule.

3.1.3 Creel

Creel survey trials were run during the stay on the island. 1 canoe and 3 boats were interviewed. Tuna data collector on the island was also involved on running these trials…..

3.1.4 Boats and Canoes

Canoes on Niutao are mainly made of two types, aluminium or Wood. We counted 4 powered canoes on the island. These canoes were constructed out local materials from local trees powered by motor engine ranging from 2 to 5 horse-power. These powered canoes usually travels to distance further out from their normal range depending on the type of fishing activity involved. Sometimes they fish around the fads, trolling or flying fishing at night while un-powered ones usually fish around the edge of the outer reef. There were also 15 un-powered canoes on the island. Majority were made out of aluminium, which were cheaper to build and less maintenance work involve.

For boat, we counted 11 powered boats on the island. All were made out of aluminium. This is because of the rough solid reefs on both landing sites (Ava i Muli/Ava i Fakai). Trolling for tuna and flying fishing were the two main common fishing activities that involved using both canoes and boat that are powered by motor. Handling and deep bottom fishing are also favourite fishing practice which is very common by canoe fisher.



3.1.5 Ciguatera Fish Poisoning

Between 2014 and 2016, we found out that the number of people affected by ciguatera on the island was very low compare to early 90s. There were only 4 cases in this period and all were males, aged between 24 and 67. Lutjanus bohar was the main species involved. The information were collected from the local hospital on the island.

3.1.6 Community Fishing Centres (CFCs)

Very few data were found at CFC. CFC comprise of a manager, processor and a coordination committee which are mainly represented by fishermen's and member of the Kaupule. The Centre was transferred to Kaupule in 2005. Assets at the CFC are:

i. 3 Refrigerators
ii. Broken down ice maker
iii. 4 solar dryers
iv. 1 Scale
v. 4 x 2000ltrs water tanks

The local fishermen association 'Taivalu' sells their catch into the CFC at a buying price of $2 per KG. The selling price is $2.50 which is mainly control by the CFC manager and the Kaupule. Main species that were selling at that time at the CFC consist mainly of Tunas, Flying fish and Oil fish.

3.1.7 FADs

In October, 2013 two surface FADs were deployed in Niutao. One at 1000m depth (S $06^{O}07.894^{'}$, E $177^{O}21.241^{'}$) and the other at 500m depth(S 06^{O}937,E $177^{O}19.664^{'}$). In March 2014, we received a report from the Kaupule that the 500m FAD was gone. Plans to deploy a replacement for this FAD will be on the first quarter of next years. We replaced the upper part of the FAD with new ropes and new buoy.

3.1.8 Medical emergency

At mid night on our 4^{th} day on the island, a medical evacuation case was requested by the island nurse to transport to Funafuti using Tala Moana. The case involves a pregnant woman who was in labour and she requires further assistance to support her deliver her baby. The Tala Moana transported the case to Funafuti and return after 5 days. Therefore, we had to spend extra days on the island.

Figure 1: Session with local Primary School Niutao

3.1.9 Other work

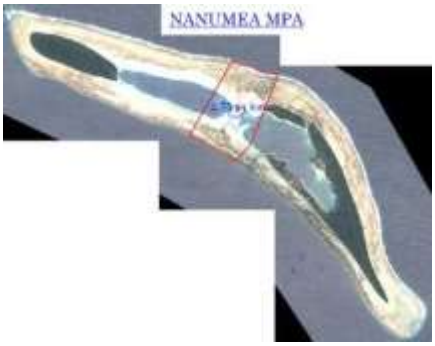
In Niutao the team visited the local primary school where they presented to students information on the role of NAPA II and the purpose of the Metronome trips.

3.2 Nanumea

Nanumea, is known to many as the furthermost island to the north from the main centre Funafuti, but also famous for its history especially between 1942-1944, where it was used as a support Air force base for the US military during the peak of the battle of Tarawa. There are abundant related stories from WWII, even evident of other relics remains on the island where you would find them either on the reef or in nearby areas of the main two village(Lolua and Haumaefa). The most interesting remains to my taste was the main passage into the lagoon from sea which is through the American channel. This is a long narrow passage that stretches into the lagoon from the edge of the outer reef. Average depth of the channel at low tide is around 3m. The American channel was built by the US marines during the war to allow safe landing of their boats bringing heavy equipment to construct the runway on the island.

Upon arrival to Nanumea, usual brief consultation was held immediately with Kaupule members after team members were settled down. After this consultation, the team instantly had to revise our schedule due to the shorter period given for us to undertake activities on the island. S.E house hold surveys were carried out during the first two days on the island. This was followed by other research activities such as ciguatera and LMMA activities (see also Table 1).

3.2.1 Status of LMMA



LMMA area includes the whole lagoon areas(both Namo o Lakena & Nano o Nanumea) and the community conservation area (Momea Tapu). The use of Nets and spearing has been prohibited in all parts of the lagoon area since the early 90's. In 2006, the Momea Tapu was established after several correspondence and site visit to the island by supporting agencies such as TFD and TANGO. A management plan was develop by the community to provide guidance on improving core issues that were identified by the community in 2006. This management plan needs to be reviewed and only few people were aware of it. The area is fairly small(2.75 Square Km) encompassing 20% of the total atoll reef area. No fishing activities is allowed inside this area. A formal by-law(see appendix) was made by Kaupule in April 2014 to enforce the area. A spot fine of $100 per person is issued to those poaching in the area. Confiscations of gears are also applied on the spot and return after fines are paid to the Kaupule. Anyone is allowed to report any incident to the Kaupule through the 2 community wardens or the secretary of the Kaupule. In 2015, Cyclone PAM caused significant damages to trees and beach on the two small motus (Teafua taepoa & Lafogaki) inside the area.

3.2.2 FADs

In 2013, two FADs were deployed, one in water depth over 1000m and another at 500m. These two FADS were deployed by TFD with financial assistance through FAO project for Tuvalu. Currently, there is only one FAD remaining. This is the near shore FAD sitting at 500m depth, location(S 05°40.051', E 176°05.193') which is situated on the western part of the island. The other FAD was sabotage by MV Komaiwai in May, 2014. No replacement has been undertaken ever since this incident. Good numbers of rainbows and scads were noticed beneath the FAD during maintenance work. We also suspected that few fishermen have repeatedly been using the FAD as a mooring when fishing outside the lagoon, and this is evident on the ropes, lines and fishing hooks that we found on the upper part of the FAD. However, FAD was regarded as a successful food security project by many locals and an effective fishing tool for most fishermen.

3.2.3 Fishermen's Association

There were two types, group A (Akiaki)- made up of a mixture of people (fisher/non-fisher)with different fishing interest. Group B- artisanal tuna fishermen that have powered boats (Aluminium/wood). Grab bags, assistance on GPS trainings,

3.2.4 CFC

The CFC is administered as an affiliate of the Nanumea Kaupule. It is located close to the hospital on the western tip of the main island of Nanumea. It has a fence that surrounds its compound and a storage building within which most of the daily activities of the CFC operate. The CFC is operated by 3 staff, these are: the fish processor, manager and assistant.

3.2.5 Canoes/Boats

There are 19 powered boats on the island. 7 wooden while the rest were aluminium. There are also 11 aluminium canoes, and 22 wooden ones. 5 of these canoes are powered by small out board engines

Figure 2: Early morning waiting for fishing boats to conduct creel survey

3.2.6 Other findings

Upon arrival, as we come into the mouth of the lagoon, a good number of adult milkfish (paneava) or bonefish (kiokio, ikali) were noticed swimming on the surface – there is a need to confirm the identification of these fish. Through discussion and group interviews, we discovered several interesting stories that we didn't expect on the island. A small scale solar drier project initiated by the Lolua village was already running in the community. These are locally built driers, constructed out of imported materials from abroad and assembled at the Kaupule workshop. We also noticed that very few people have fair knowledge about the VDS and how it has been utilized in the community. Fair amount of youths are involved in traditional canoe building. There were 5 traditional canoe building clubs that we counted on the island. Canoe fishing is still strongly practiced both inside and outside the reef. Turtle hunting using powered boats is common during high tide. But no recent record of any nesting on beaches during our interview.

3.3 Nanumaga

The last island on the mission was Nanumaga. We spent 3 days on the island on collecting fisheries-relevant information. An initial consultation with Kaupule was held at the office to brief Kaupule members with mission objectives. S.E survey and under water visual census was done in 2015, therefore the focus of the team was to collect any important fishery for developing the island fisheries profile.

3.3.1 LMMA

The LMMA in Nanumaga involves the whole island both on the eastern and western part of the island. No fishing activities allow on the reef on western part of the island, except handlining. Spearfishing is also totally ban on the island. Te Namo o Hapai(see above picture) is 0.02 km^2 and is famous on the island as the island swimming area for everyone. The area is for which managed locally by the people of the community. The pond consist of a mangrove swamp that preserves many types of reef fish species including Tilapia which the most dominant species in the pond. These fishes were introduced into the pond by the community from the reef with the thought that they would be able to use it during stormy weather or to meet any needs for community feasts. Those imposing rules set forth by the community for managing these two areas will have to penalise by feeding the whole community with any food that he and his family can provide.

Table 1: Summary of the surveys undertaken on each island

Island	Days spent	SE surveys	Creel	Ciguatera
Niutao	9	35	4	5
Nanumea	4	34	1	No information
Nanumaga	3	0	1	0
Data storage	-		Coastal database	

4 Lesson learned

The unexpected emergency evacuation from Niutao resulted in the vessel being diverted to Funafuti, leaving the team in Niutao till its return 3 days later. This was unavoidable and may happen on any field trip. This delay ended up being of benefit to the team and resulted in better data collections on this island.

The team failed to collect ciguatera case data from Nanumea. The nurse on duty acknowledged the presence of some cases, but failed to supply the data. In future trips, the team will need to pursue the information more.

Also on Nanumea, the creel datasheets were lost, indication a serious need to improve data handling methods for future surveys.

The number of days allocated to each island was too low for meaningful data collections. It is likely that about 10 days per island will be needed in future surveys. At the same time there was poor coordination among the team, with unclear roles to be played by each member.

5 Conclusions & Recommendations

It is recommended that clear terms of reference and roles for team members be established for future Metronome trips. It will also be necessary to improve data collection systems, take the database on the trip, ensure data sheets are handled well and that all data planned are collected as needed. The total number of days needed per island is around 10.

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