Coastal Fisheries Creel Report Card

2023

NIUTAO

Introduction

This Coastal Fisheries Creel Report Card summarises the results of monitoring key indicators during creel surveys being carried out by Tuvalu Fisheries Department.

The Key indicators we use to show the health of the resources and state of overfishing are:

Indicator 1: Percentage of fishes that are landed which are smaller than the size at which at least 50% of the fish can breed (called length at maturity, Lm). This value should decline and approach zero as management actions improve, followed by improvements in the fisheries resources. This is an indicator of **overfishing**.

Indicator 2: Catch of fishes per unit of effort (CPUE). We use the weight (kg) of fishes being landed: (a) per fisher per hour spent fishing and (b) per fishing trip. The values for Indicator 2 should increase as things improve. That is, fishers should be able to catch more fish in less time.

This is an indicator of **abundance** of the fishery as well as the **efficiency** of the fishing method.

Results

Overall status of Niutao's coastal resources is poor, with an average of 49% of the fishes caught being undersized between 2016 and 2019. This is well above the national average of 41%.

The ideal % of fishes being landed that are undersized is 0, so any actions that will reduce this to lower levels is a step in the right direction and is expected to lead to improvements in the resources.

IDEAL: % UNDERSIZED should DECLINE over time and approach 0%

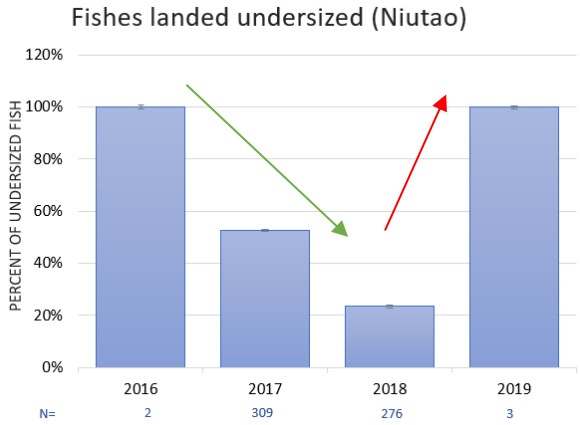

***Figure 1**: Percentage of fishes being landed undersized by year +/-SE. The sample size (n) is reported in blue.*

Green arrow = good trend
red arrow = bad trend

Indicator 1 decreased between 2017 and 2018, which is a good sign as the number of undersized fishes landed decreased. There are insufficient sample numbers in 2016 and 2019 to determine any meaningful long-term trends, one of the reason being is that majority of samples collected were focused on pelagic fish.

Every fish should have the chance to breed at least once to ensure the resources can be replenished.

For Indicator 2a, the total weight of fish being landed per fisher per hour spent fishing appears to have increased between 2016 and 2017 for trolling (Figure 2).

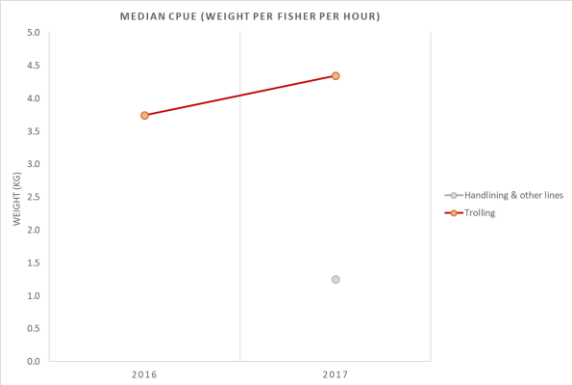

Figure 2: Indicator 2a. Weight (in kg) of fishes landed per fisher per hour spent fishing in Niutao. The number of hours spent fishing was not given for handlining and other lines. Fishing method data is only available for 2016 and 2017.

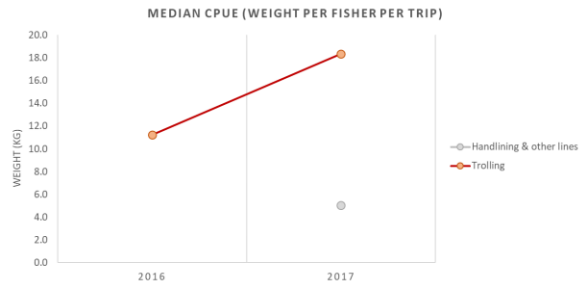

Figure 3: Indicator 2b. Weight (in kg) of fishes landed per fisher per fishing trip. Fishing method data is only available for 2016 and 2017.

Indicator 2b, the weight of fishes landed per fisher per entire fishing trip (i.e., not per hour) appears to have increased between 2016 and 2017 (Figure 3).

Catch per unit of effort (CPUE) should INCREASE over time in a well-managed fishery.

Note: The catch reported do not include offshore fish species such as Atu (skipjack tuna). These pelagic species accounted for 66.5% of the total catch recorded in the creel surveys (2016-2019). There is no data for 2020-2023.

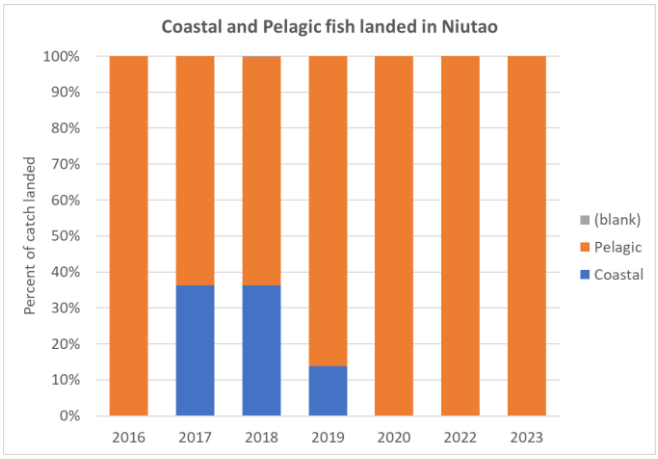

***Figure 4:** Table contrasting Coastal and Pelagic fish landed per Year in Niutao.*

Conclusions

Overall, there is not enough data to assess trends effectively/accurately. There was some improvement in the fishery between 2018 and 2019. However, more data is needed to better understand the status of resources.

Management plans need to be developed and implemented more efficiently to improve the health of Tuvalu's coastal fisheries.

'Makaia Laa' – the Niutao Coastal Fisheries Management Plan (CFMP) needs to be effectively implemented in order to improve Niutao coastal resources.

Why are some figures different from the previous report card?

This is due to a number of reasons:

1. We have received more data from the years 2015-2019
2. We have more accurate information on size of maturity from recently published studies
3. We have now included size of maturity data for 30 extra species
4. We have displayed CPUE by fishing method

Appendix I: Size of maturity (L_m) for top 15 species

Table 1 is part of indicator 1. It shows the breakdown of species that have 50% or more fishes landed that are undersized. A value of 100 means that all fishes landed are undersized. The ideal value for a well-managed fishery is 0. Blank cells indicate that no catch has been recorded for that species in that year. This table shows that many of the species being monitored are being caught undersized, and this varies by year.

The species are listed in order of their abundance in the catch landed (% of total catch).

Table 1: List of species for which size at maturity (L_m) is known, showing percentages landed which are undersized (2016-2019)

No.	Row Labels	Local Name	Sum of Weight (km)	2016	2017	2018	2019	Grand Total
1	Acanthurus lineatus	Ponelolo, Alogo, Pone hamoa	5.0%		88%	75%		83%
2	Acanthurus triostegus	Manini, Koinava	17.2%		62%	6%		37%
3	Anyperodon leucogrammicus	Gatala lautalo, Gatala lautala	3.1%		100%			100%
4	Aphareus furca	Palusega, Kotua, Taelepe, Takuoga	2.2%			100%		100%
5	Aprion virescens	Utu	2.7%		0%			0%
6	Caranx ignobilis	Tino ulua (lge), Lupo (small), Aseu (med); Mea tal	0.2%		100%			100%
7	Caranx lugubris	Tafauli, Tino tafauli (large), Aheu tafauli, Uluat	4.6%			100%		100%
8	Caranx melampygus	Aseu	1.2%			75%	100%	86%
9	Caranx sexfasciatus	Teu	2.4%		100%	0%		67%
10	Chlorurus (Scarus) microrhino	Laea	0.3%		100%			100%
11	Ctenochaetus binotatus	Pone uli	0.3%		33%			33%
12	Elagatis bipinnulata	Kami, Kamai	16.9%	100%	40%	50%		56%
13	Epinephelus macrospilos	Gatala (Ff), fÄpuku (Nm)	3.3%			100%		100%
14	Epinephelus merra	Gatalaliki	5.3%		14%	0%		9%
15	Kyphosus vaigiensis	Nanue (Ff, Nm)	26.6%		10%	0%		6%
16	Liza vaigiensis	Kafakafa	2.4%		100%			100%
17	Lutjanus bohar	Fakamea, Fagamea	0.2%			100%		100%
18	Lutjanus kasmira	Savane	0.1%			0%		0%
19	Mulloidichthys vanicolensis	Kalo	0.2%		100%			100%
20	Myripristis berndti	Malau	0.1%		100%			100%

21	Myripristis pralinia?	Malau puku	2.7%		0%	3%	3%
22	Naso lituratus	Maninilakau	0.2%		100%		100%
23	Oxycheilinus digrammus	Gole (Ff)	0.8%			20%	20%
24	Parupeneus barberinus	Malili, Kaivete	0.1%		50%		50%
25	Priacanthus hamrur	Matapa	0.2%			100%	100%
26	Rastrelliger kanagurta	Salala	1.3%			100%	100%
27	Sargocentron spiniferum	Tamalau	0.0%		100%		100%
28	Sargocentron tiere	Malau gutu loa, Malua mata loa	0.3%			25%	25%
	Grand Total			100%	53%	45%	100% 49%