Coastal Fisheries Creel Report Card

2023

NUI

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 Nui's coastal resources is poor, with an average of 35% of the fishes caught being undersized from 2015-2023. This is below to 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%

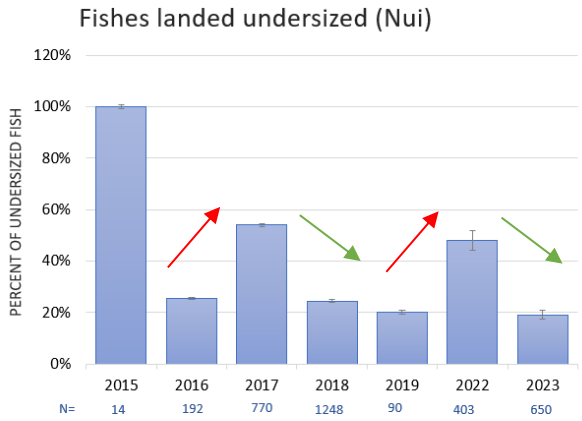

***Figure 1**: Percentage of fishes being landed undersized by year +/-SE. The sample size (n) is reported in blue.*

Green arrow = good trend
red arrow = bad trend

Indicator 1 increased between 2016 and 2017. The trend reversed from 2018 to 2019, which is a good sign as the number of undersized fishes being landed decreased. There are insufficient sample numbers in 2015 and 2019 to interpret the results further, there is also no available reef fish data for 2020 and 2021. However, favourable results in 2022 to 2023 where the

trend radically decreased showed less undersized fish caught were undersized.

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 slowly decreased over the survey years for all fishing methods. The exception was handlining, which increased between 2017 and 2018 (Figure 2).

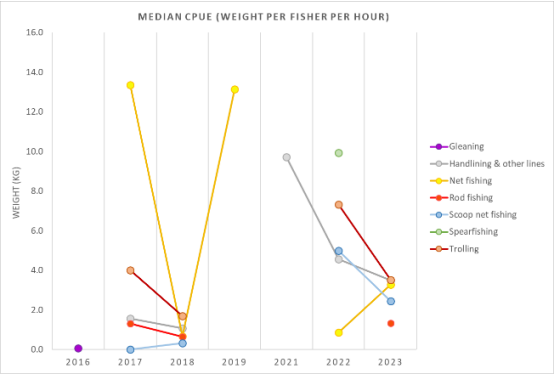

Figure 2: Indicator 2a. Weight (in kg) of fishes landed per fisher per hour spent fishing in Nui. Data is only available for 2016-2019.

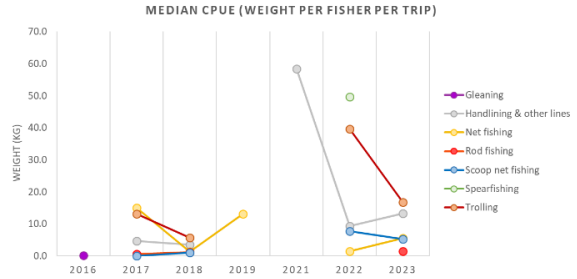

Figure 3: Indicator 2b. Weight (in kg) of fishes landed per fisher per fishing trip fishing in Nui. Data is only available for 2016-2019.

Indicator 2b, the weight of fishes landed per fisher per entire fishing trip (i.e., not per hour) also showed a decline over the survey years for all fishing methods. (Figure 3). This shows that the returns per fishing trip have declined over that period.

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 37% of the total catch numbers recorded in the creel surveys (2016-2019). There is no data for 2020-2021.

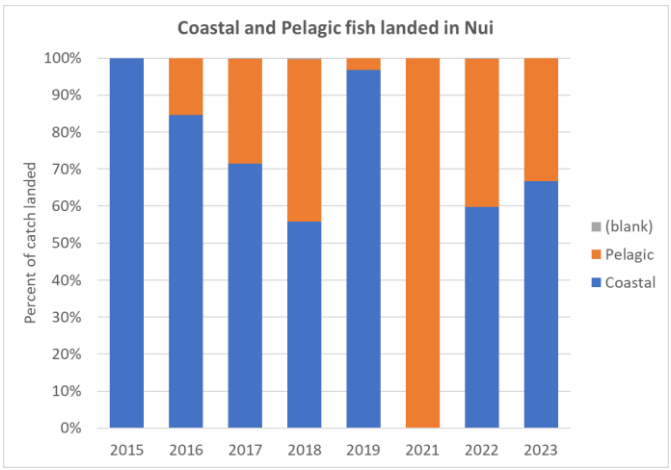

***Figure 4:** Table contrasting Coastal and Pelagic fish landed per Year in Nui.*

Conclusions

Overall, there has been minimal improvement to the health of coastal fisheries since surveys begun. 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

'Te Uma Ni Ika' – the Nui Coastal Fisheries Management Plan (CFMP) needs to be effectively implemented in order to improve Nui 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 the size of maturity data for 30 extra species
4. We have displayed CPUE by fishing method

Appendix I: Size of maturity (Lm) for top 25 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 (2015-2023)

No.	Species Names	Local Names	Sum of Weight (km)	Column1	2015	2016	2017	2018	2019	2022	2023	Grand Total
1	Acanthurus lineatus	Ponelolo, Alogo, Pone hamoa	0.1%	0%				100%			100%	100%
2	Acanthurus triostegus	Manini, Koinava	16.7%	0%		18%	59%	18%		49%	12%	30%
3	Aphareus furca	Palusega, Kotua, Taelepe, Takuoga	0.2%	0%		100%		100%				100%
4	Carangoides plagiotaenia	Aseu ululi	0.1%	0%			0%					0%
5	Caranx ignobilis	Tino ulua (lge), Lupo (small), Aseu (med); Mea tal	3.1%	0%			100%	97%		100%		98%
6	Caranx melampygus	Aseu	7.0%	0%			62%	60%		44%	67%	63%
7	Caranx sexfasciatus	Teu	2.6%	0%			100%	46%			100%	64%
8	Cephalopholis argus	Loi	0.2%	0%			67%			0%		40%
9	Cephalopholis sexmaculata	Mataele	0.0%	0%				100%				100%
10	Cephalopholis urodeta	Mataele	0.0%	0%				0%				0%
11	Cheilinus fasciatus	Gole	0.0%	0%			0%					0%
12	Chlorurus (Scarus) microrhino	Laea	0.4%	0%			89%					89%
13	Crenimugil crenilabis	Kanase	8.1%	0%			76%	15%	20%	0%	12%	26%
14	Decapterus macarellus	Atule	0.3%	0%			25%	0%				7%
15	Elagatis bipinnulata	Kami, Kamai	6.8%	0%		36%	0%	0%		25%		23%
16	Epinephelus fuscoguttatus	Munua	0.9%	0%		0%	0%					0%
17	Epinephelus macrospilos	Gatala (Ff), fÄ□puku (Nm)	5.1%	0%			100%	84%				87%
18	Epinephelus maculatus	Fapuku	0.1%	0%			100%	100%				100%
19	Epinephelus merra	Gatalaliki	0.1%	0%		0%	0%	0%		0%		0%
20	Epinephelus miliaris	Gatala	0.1%	0%			0%					0%

21	Epinephelus polyphekadion	Gatala (one dot)	0.2%	0%			33%				33%
22	Hipposcarus longiceps	Ulafi	7.6%	0%		33%	38%	48%		18%	9%	31%
23	Kyphosus cinerascens	Nanue	4.6%	0%			60%	0%			0%	4%
24	Kyphosus vaigiensis	Nanue (Ff, Nm)	0.7%	0%		0%	100%	82%				79%
25	Lethrinus erythracanthus	Saputu	0.4%	0%		0%	75%	25%				44%
26	Lethrinus microdon	Filoa, Kapatiko	0.0%	0%							100%	100%
27	Lethrinus miniatus	Noto	0.0%	0%				100%				100%
28	Lethrinus obsoletus	Tanutanu	2.6%	0%		13%	11%	59%			0%	45%
29	Lethrinus olivaceus		0.2%	0%				0%		100%		50%
30	Lethrinus variegatus	Noto, Tanutanu	0.2%	0%			0%					0%
31	Lethrinus xanthochilus	Tanutanu	0.2%	0%		0%						0%
32	Liza vaigiensis	Kafakafa	4.7%	0%		100%	70%	29%		100%	7%	50%
33	Lutjanus argentimaculatus	Tagau	0.7%	0%	100%		100%	100%				100%
34	Lutjanus bohar	Fakamea, Fagamea	0.3%	0%		50%		50%				50%
35	Lutjanus fulvus	Tagau,Takape	4.1%	0%		29%	42%	10%		0%	26%	29%
36	Lutjanus gibbus	Taea	1.7%	0%		46%		10%		100%	100%	59%
37	Lutjanus kasmira	Savane	0.5%	0%			63%	100%				70%
38	Lutjanus monostigma	Taiva	2.5%	0%		14%	100%	43%		36%	0%	38%
39	Macolor niger	Makala	0.2%	0%				0%				0%
40	Monotaxis grandoculis	Muu, Mufala	0.6%	0%		0%	86%	100%			100%	86%
41	Mugil cephalus	Kanase	6.1%	0%						100%		100%
42	Myripristis berndti	Malau	0.3%	0%							52%	52%
43	Myripristis kuntee	Malau	0.0%	0%		33%						33%
44	Myripristis pralinia?	Malau puku	2.3%	0%			0%	0%			3%	0%
45	Myripristis violacea	Malau	0.2%	0%				0%			0%	0%
46	Naso brevirostris	Pokapoka, Kosotu	0.1%	0%				0%				0%
47	Naso lituratus	Maninilakau	0.2%	0%			33%	100%		0%		29%
48	Naso unicornis	Ume, Pokapoka	0.6%	0%						78%		78%
49	Naso vlamingii	Pokapoka lanulanu	0.2%	0%				0%				0%
50	Neoniphon sammara	Talakihi	0.1%	0%			0%	0%				0%
	Grand Total				100%	26%	55%	29%	20%	48%	19%	35%