Coastal Fisheries Creel Report Card

2022

FUNAFUTI

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 status 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 Funafuti's coastal resources is poor. On average, 32% of the fishes landed caught undersized between 2015 and 2022. This is similar to the national average, 36%.

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%

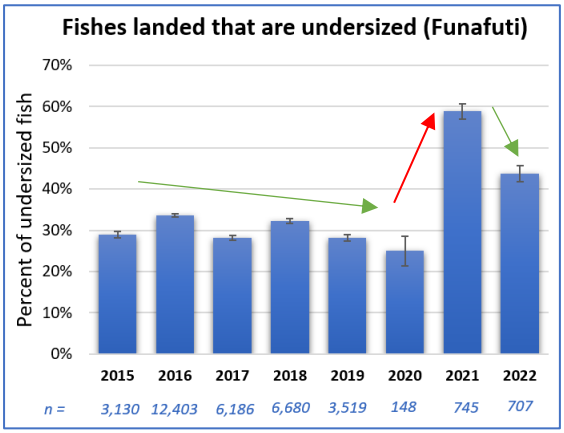

***Figure 1**: Percentage of fishes being landed undersized by year +/-SE. The sample size (n) is reported in blue.*

Green arrow = good trend
red arrow = bad trend

There was a slightly decreasing trend in Indicator 1 between 2015 and 2020, with an average of 30% of the fishes landed caught undersized. In 2021, this doubled to 59% undersized (see Figure 1). However, this decreased to 44% in 2022.

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

For Indicator 2, the weight of fish being landed per fisher per hour spent fishing and the total weight landed per fisher per fishing trip decreased from 2015 to 2021, when it reached its lowest value. In 2022, the CPUE increased, a good sign (see Figure 2).

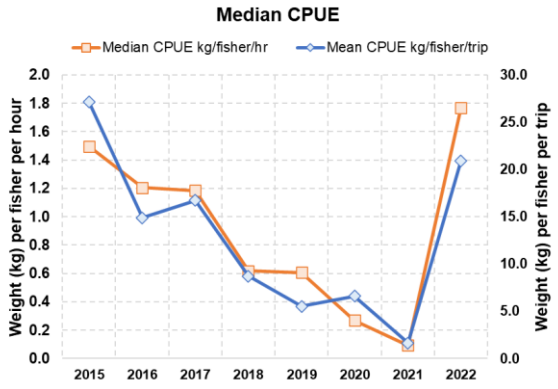

Figure 2: *Indicator 2. (a) Weight (in kg) of fishes landed per fisher per hour spent fishing and (b) Weight of fishes landed per fisher per trip in Funafuti from 2015-2022.*

When looking at the different fishing methods, median CPUE (weight landed per fisher per fishing trip) generally showed a decline between 2015 and 2021 (see Figure 3). Most (95%) of the data collected in did not have any fishing method data. Only 1% of the data collect was recorded as trolling and handling and other lines in 2021, and more information is needed to determine whether this positive trend is real. In 2022, CPUE for trolling seemed to decrease, but increase for spearfishing, and handlining and other lines.

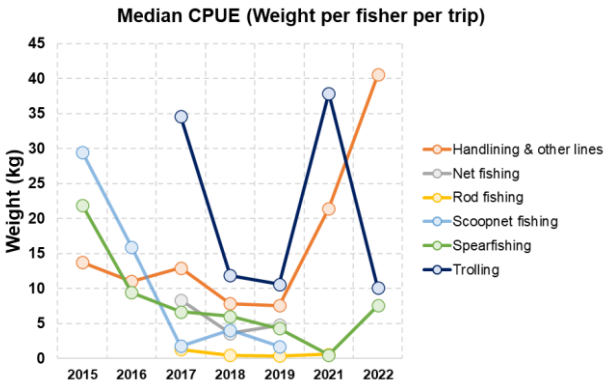

Figure 3*: Indicator 2b. Weight (in kg) of fishes landed per fisher per fishing trip in Funafuti 2015-2022. There was no data on fishing method for 2020.*

In general, CPUE trends show that the returns per fishing trip and per hour have declined over the years. However, it seems that this trend reversed in 2022.

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

Conclusions

Overall, there has been little improvement to the health of coastal fisheries in Funafuti surveys begun in 2015. Small improvements in sizes of fishes being landed took place between 2016 and 2020 but these were reversed by 2021. However, in 2022, the fishery seems to be improving. This is also supported by a reversal of the decreasing trend in CPUE in 2022.

The management measures in the Funafuti Reef Fisheries Stewardship Plan (FRFSP) need to be improved and better implemented in order to improve the health of Funafuti's coastal fisheries.

Note: The catch reported do not include offshore fish species such as Atu (skipjack tuna). These pelagic species accounted for 22% of the total catch numbers and 40% of the biomass recorded in the creel surveys (2015-2022).

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 2015-2021
2. Instead of using the average CPUE, which can be influenced by really low or really high numbers, we report median CPUE

Appendix I: Size of maturity (L_m) for top 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 – 2022).

	Species	Local Name	% in catch	2015	2016	2017	2018	2019	2020	2021	2022	Grand Total
1	*Acanthurus lineatus*	Ponelolo, Alogo, Pone hamoa	5.8%	7%	47%	20%	19%	8%	100%	17%	20%	30%
2	*Acanthurus triostegus*	Manini, Koinava	3.4%	0%	9%	61%	29%	32%	43%			34%
3	*Anyperodon leucogrammicus*	Gatala lautalo, Gatala lautala	0.3%	8%	5%	21%	0%					8%
4	*Aphareus furca*	Palusega, Kotua, Taelepe, Takuoga	0.7%	78%	96%	89%	100%	100%		100%		94%
5	*Aprion virescens*	Utu	0.6%	50%	71%	51%	34%			0%		58%
6	*Caesio caerulaurea*	Ulia, Ulihega	1.4%	0%	9%		0%			0%		8%
7	*Caranx lugubris*	Tafauli, Tino tafauli (large), Aheu tafauli, Uluat	0.5%		0%	23%	18%					18%
8	*Caranx sexfasciatus*	Teu	1.1%	33%	78%	46%	49%	62%				56%
9	*Chlorurus (Scarus) microrhino*	Laea	0.8%	0%	46%	47%	0%					45%
10	*Crenimugil crenilabis*	Kanase	1.2%			20%	50%	66%				64%
11	*Ctenochaetus binotatus*	Pone uli	0.5%	0%	2%	0%	50%					2%
12	*Decapterus macarellus*	Atule	5.1%	31%	29%	12%	57%	44%				43%
13	*Epinephelus macrospilos*	Gatala (Ff), fÄpuku (Nm)	0.6%	13%	0%	68%	33%	41%	8%	50%		35%
14	*Epinephelus merra*	Gatalaliki	0.6%	4%	0%	0%	0%	0%	0%		17%	1%
15	*Epinephelus polyphekadion*	Gatala (one dot)	1.6%	54%	41%	26%	24%	44%		82%	50%	36%
16	*Fistularia petimba*	Taotaoama (NB, Tvd)	0.5%	100%	100%	100%						100%
17	*Hipposcarus longiceps*	Ulafi	0.6%	24%	28%	19%	14%	100%				26%
18	*Lethrinus amboinensis*	Noto, Gutulo, Sapotu	3.2%	0%	7%	10%	11%	0%				9%
19	*Lethrinus erythracanthus*	Saputu	1.0%	61%	52%	35%	47%			40%		48%
20	*Lethrinus microdon*	Filoa, Kapatiko	0.4%				20%	0%		50%	60%	55%
21	*Lethrinus miniatus*	Noto	0.7%	91%	75%	88%	84%	0%	0%	88%		83%

22	*Lethrinus obsoletus*	Tanutanu	3.5%	10%	42%	9%	13%	3%		0%	100%	23%
23	*Lethrinus variegatus*	Noto, Tanutanu	0.8%		0%	2%		0%				2%
24	*Lethrinus xanthochilus*	Tanutanu	0.7%		73%	84%						75%
25	*Liza vaigiensis*	Kafakafa	0.6%			71%	100%	65%				67%
26	*Lutjanus argentimaculatus*	Tagau	0.5%	100%		100%	100%					100%
27	*Lutjanus bohar*	Fakamea, Fagamea	1.2%	66%	81%	64%	82%	55%			100%	73%
28	*Lutjanus fulvus*	Tagau,Takape	1.2%	0%	6%	0%	8%	10%		0%	100%	7%
29	*Lutjanus gibbus*	Taea	24.0%	20%	23%	20%	25%	6%	0%	19%	47%	22%
30	*Lutjanus kasmira*	Savane	6.3%	59%	56%	61%	37%	42%	100%	92%	100%	53%
31	*Lutjanus monostigma*	Taiva	0.9%	3%	8%	9%	23%	50%	0%	0%	100%	12%
32	*Monotaxis grandoculis*	Muu, Mufala	1.9%	74%	71%	41%	59%	27%		71%		50%
33	*Myripristis adusta*	Malau fagamea, Malau matakelkele	0.4%	60%	60%	17%	82%					53%
34	*Myripristis berndti*	Malau	2.6%	29%	26%	13%	42%					23%
35	*Myripristis kuntee*	Malau	1.0%	6%	6%	50%						6%
36	*Myripristis pralinia?*	Malau puku	2.4%	0%	4%	1%	2%	0%	0%	0%	100%	3%
37	*Naso brevirostris*	Pokapoka, Kosotu	1.5%	6%	27%	3%	2%	9%	0%	13%	17%	14%
38	*Naso caesius*	Ume (Ff?), pokapoka (Nm?)	0.5%		9%	23%	57%	40%		38%		26%
39	*Naso hexacanthus*	Pokapoka, Ume tinae sega	0.4%		66%	64%	55%	100%	100%	100%		72%
40	*Naso lituratus*	Maninilakau	4.2%	49%	27%	15%	6%	4%	0%	1%	42%	17%
41	*Naso unicornis*	Ume, Pokapoka	1.8%	60%	49%	29%	71%	75%		33%	7%	48%
42	*Naso vlamingii*	Pokapoka lanulanu	1.5%	0%	33%	18%	15%	0%		40%		24%
43	*Priacanthus hamrur*	Matapa	0.7%	33%	14%	2%	4%					11%
44	*Rastrelliger kanagurta*	Salala	0.4%		0%					100%		93%
45	*Sargocentron spiniferum*	Tamalau	2.2%	66%	62%	46%	42%			35%	100%	56%
46	*Sargocentron tiere*	Malau gutu loa, Malua mata loa	0.9%	50%	48%	77%	32%	38%	0%			45%
47	*Selar boops*	Salala, Atule	0.4%				1%			100%		34%
48	*Selar crumenophthalmus*	Salala, Atule	2.1%	4%	8%					100%		29%
49	*Siganus argenteus*	Maiava	0.9%	0%	30%	37%	39%	0%		5%		18%
50	*Sphyraena forsteri*	Taotao	0.6%	19%	6%	4%	19%	13%				14%
	Grand Total		**100.0%**	**29%**	**34%**	**28%**	**32%**	**28%**	**25%**	**59%**	**44%**	**32%**