



# Coastal Fisheries Creel Report Card

2022

**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,  $L_m$ ). 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.

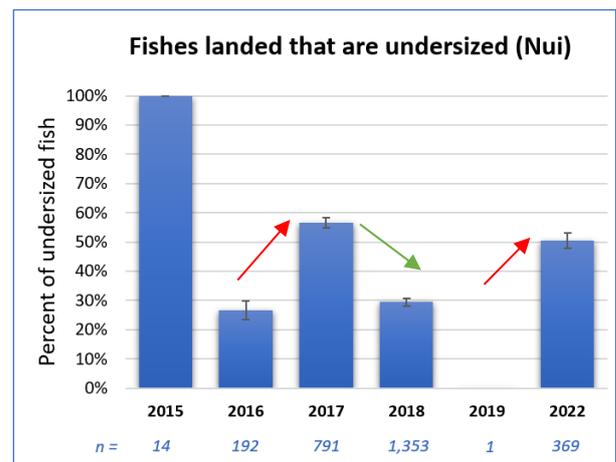
This is an indicator of **abundance** of the fishery as well as the **efficiency** of the fishing method.

## Results

Overall status of Nui's coastal resources is poor, with an average of 40% of the fishes caught being undersized. This is similar to the national average of 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%



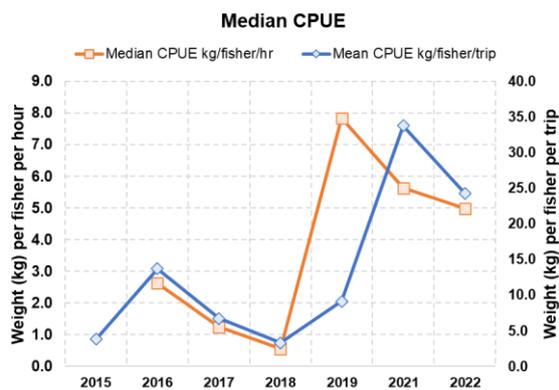
**Figure 1:** Percentage of fishes being landed undersized by year +/-SE. The sample size (n) is reported in blue.

**Green arrow = good trend**  
**Red arrow = bad trend**

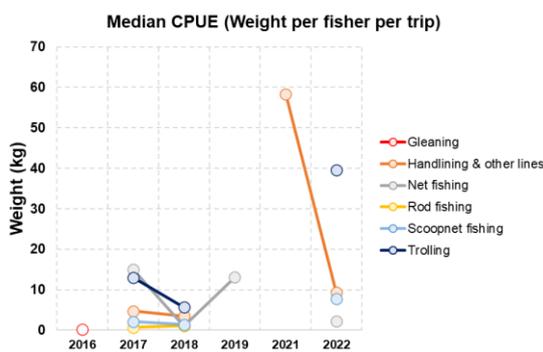
Indicator 1 increased between 2016 and 2017. In 2018 this trend reversed, which is a good sign as the number of undersized fish being landed decreased. However, in 2022, 50% of the fish were landed undersize, which is above the average for Nui.

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

For Indicator 2, the total weight of fish being landed per fisher per hour spent fishing and weight of fisher landed per fisher per trip followed similar trends between 2015 and 2022 (see Figure 2). The lowest CPUE was in 2018, and the highest CPUE was in 2018 (weight per fisher per hour) and 2019 (weight per fisher per trip). CPUE decreased in 2022.



**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 Nui from 2016-2022.



**Figure 3:** Indicator 2b. Weight (in kg) of fishes landed per fisher per fishing trip fishing in Nui. Data is only available for 2016-2022.

The weight of fishes landed per fisher per entire fishing trip as Indicator 2b (i.e., not per hour) is different depending on the fishing method (see Figure 3). For all fishing methods it generally declined between 2017 and 2018. More data is needed before these results can be interpreted. For example, handlining in 2021 had the highest CPUE (58.4kg per fisher per trip), but this is only based on 1 trip.

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

## Conclusions

Overall, there has been minimal improvement to the health of coastal fisheries since surveys begun. More consistent data collection is needed to better understand the status of Nui's coastal resources. A coastal fisheries management plans is being developed and will be implemented in 2024, to more efficiently to improve the health of Nui's coastal fisheries.

**Note:** The catch reported do not include offshore fish species such as Atu (skipjack tuna). These pelagic species accounted for 28% of the total catch numbers and 63% of the biomass recorded in the creel surveys (2015-2022).

### Why are some figures different from the previous report card?

This is due to the following 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<sub>m</sub>) 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<sub>m</sub>) is known, showing percentages landed which are undersized (2015-2022)

	Species	Local Name	% in catch	2015	2016	2017	2018	2019	2022	Grand Total
1	<i>Acanthurus lineatus</i>	Ponelolo, Alogo, Pone hamao	0.2%				100%			100%
2	<i>Acanthurus triostegus</i>	Manini, Koinava	43.0%		18%	59%	18%		51%	36%
3	<i>Aphareus furca</i>	Palusega, Kotua, Taelepe, Takuoga	0.3%		100%		100%			100%
4	<i>Carangoides plagiotaenia</i>	Aseu uluuli	0.1%			0%				50%
5	<i>Caranx ignobilis</i>	Tino ulua (lge), Lupo (small), Aseu (med); Mea tal	1.9%			100%	97%		100%	98%
6	<i>Caranx melampygus</i>	Aseu, Ulua, Fuaika	3.1%			62%	60%		44%	59%
7	<i>Caranx sexfasciatus</i>	Teu	1.1%			100%	46%			59%
8	<i>Cephalopholis argus</i>	Loi	0.2%			67%			0%	40%
9	<i>Cephalopholis sexmaculata</i>	Mataele	0.0%				100%			100%
10	<i>Cephalopholis urodeta</i>	Mataele	0.0%				0%			0%
11	<i>Cheilinus fasciatus</i>	Gole	0.0%			0%				0%
12	<i>Chlorurus (Scarus) microrhino</i>	Laea	0.3%			89%				89%
13	<i>Crenimugil crenilabis</i>	Kanase	4.4%			76%	15%	0%	0%	32%
14	<i>Decapterus macarellus</i>	Atule	0.3%			25%	0%			10%
15	<i>Elagatis bipinnulata</i>	Kamai, Kamaa, Kami	0.7%		36%	0%	0%		25%	23%
16	<i>Epinephelus fuscoguttatus</i>	Munua	0.1%		0%	0%				0%
17	<i>Epinephelus macrospilos</i>	Gatala (Ff), fapuku (Nm)	4.5%			100%	83%			86%
18	<i>Epinephelus maculatus</i>	Fapuku	0.1%			100%	100%			100%
19	<i>Epinephelus merra</i>	Gatalaliki	0.5%		0%	0%	0%		0%	0%
20	<i>Epinephelus miliaris</i>	Gatala	0.0%			0%				0%
21	<i>Epinephelus polyphkadion</i>	Gatala (one dot)	0.1%				33%			33%
22	<i>Hipposcarus longiceps</i>	Ulafi	4.0%		100%	62%	58%		41%	58%
23	<i>Kyphosus cinerascens</i>	Nanue	1.4%			60%	0%			7%
24	<i>Kyphosus vaigiensis</i>	Nanue (Ff, Nm)	0.6%		0%	100%	82%			79%
25	<i>Lethrinus erythracanthus</i>	Saputu	0.3%		0%	75%	25%			44%
26	<i>Lethrinus miniatus</i>	Noto	0.0%				100%			100%

27	<i>Lethrinus obsoletus</i>	Tanutanu	3.3%		13%	11%	59%			47%
28	<i>Lethrinus olivaceus</i>		0.1%				0%		100%	50%
29	<i>Lethrinus variegatus</i>	Noto, Tanutanu	0.2%			0%				0%
30	<i>Lethrinus xanthochilus</i>	Tanutanu	0.1%		0%					0%
31	<i>Liza vaigiensis</i>	Kafakafa	3.7%		100%	69%	29%		100%	67%
32	<i>Lutjanus argentimaculatus</i>	Tagau	1.7%	100%		100%	100%			100%
33	<i>Lutjanus bohar</i>	Fakamea, Fagamea	0.1%		50%		50%			50%
34	<i>Lutjanus fulvus</i>	Tagau, Takape	3.3%		29%	42%	10%		0%	29%
35	<i>Lutjanus gibbus</i>	Taea	1.0%		46%		10%		100%	47%
36	<i>Lutjanus kasmira</i>	Savane	0.3%			63%	100%			70%
37	<i>Lutjanus monostigma</i>	Taiva	2.6%		14%	100%	43%		18%	41%
38	<i>Macolor niger</i>	Tilapia	0.0%				0%			0%
39	<i>Monotaxis grandoculis</i>	Muu, Mufala	0.5%		0%	86%	100%			83%
40	<i>Myripristis kuntee</i>	Malau	0.1%		33%					33%
41	<i>Myripristis pralinia?</i>	Malau puku	7.2%			0%	0%			0%
42	<i>Myripristis violacea</i>	Malau	0.0%				0%			0%
43	<i>Naso brevirostris</i>	Pokapoka, Kosotu	0.1%				0%			0%
44	<i>Naso lituratus</i>	Maninilakau	0.2%			33%	100%		0%	29%
45	<i>Naso unicornis</i>	Ume, Pokapoka	0.3%						78%	78%
46	<i>Naso vlamingii</i>	Pokapoka lanulanu	0.1%				0%			0%
47	<i>Neoniphon sammara</i>	Talakihi	0.3%			0%	0%			0%
48	<i>Parupeneus barberinus</i>	Malili, Kaivete	2.5%			3%			0%	3%
49	<i>Parupeneus cyclostomus</i>	Kaivete piniki	2.5%			41%	19%			28%
50	<i>Parupeneus multifasciatus</i>	Afulu	0.1%						0%	0%
51	<i>Sargocentron spiniferum</i>	Tamalau	0.4%		63%	100%				77%
52	<i>Sargocentron tiere</i>	Malau gutu loa, Malua mata loa	0.1%			100%	0%			33%
53	<i>Scarus oviceps</i>	Laea	0.1%			0%				0%
54	<i>Siganus argenteus</i>	Maiava	0.5%						0%	0%
55	<i>Sphyaena forsteri</i>	Taotao	0.2%				0%			0%
	<b>Grand Total</b>		<b>100.0%</b>	<b>100%</b>	<b>27%</b>	<b>57%</b>	<b>29%</b>	<b>0%</b>	<b>50%</b>	<b>40%</b>