



# Coastal Fisheries Creel Report Card

2023

## NUKUFETAU

### 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.

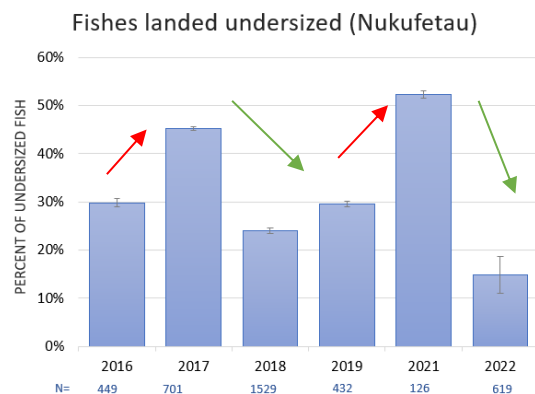
This is an indicator of **abundance** of the fishery as well as the **efficiency** of the fishing method.

### Results

Overall status of Nukufetau's coastal resources is poor, with an average of 29% of the fishes caught being undersized 2016-2022. However, this is better than 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**

The number of undersized fishes being landed in Nukufetau increased in 2017, a bad sign, but then improved in 2018 and 2019 (Figure 1). The percentage of fishes being landed undersized increased once again in 2021 but decreased in 2022. There is no coastal reef fisheries data for 2020 and 2023.

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

Indicator 2a, the total weight of fish being landed per fisher per hour spent fishing, appears to vary over the years. The CPUE was generally lowest in 2017 and 2019, with an improvement in 2018. For trolling fishers, 2016 and 2021 had good catch returns, whereas handlining fishers had less return per hour in 2021 (Figure 2). There is no data for 2023.

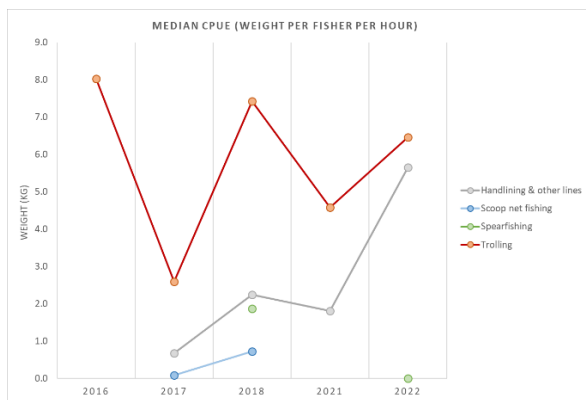


Figure 2: Indicator 2a. Weight (in kg) of fishes landed per fisher per hour spent fishing in Nukufetau. Fishing method data is not available for 2020.

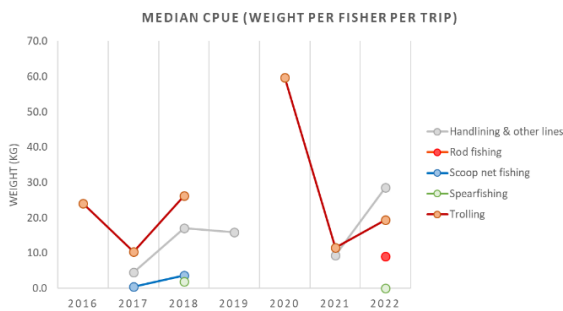


Figure 3: Indicator 2b. Weight (in kg) of fishes landed per fisher per fishing trip in Nukufetau. Fishing method data is not available for 2020.

The weight of fishes landed per fisher per entire fishing trip as Indicator 2b (Figure 3) generally showed a similar trend to Indicator 2a (weight per fisher per hour). More data is needed for this trend to be meaningfully interpreted. For example, the trolling data from 2016, 2017 and 2021 are each based on one fishing trip. There is insufficient data for 2023.

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 31% of the total catch numbers recorded in the creel surveys (2016-2023). Figure 4 compares the percentage of pelagic and coastal species in the survey years.

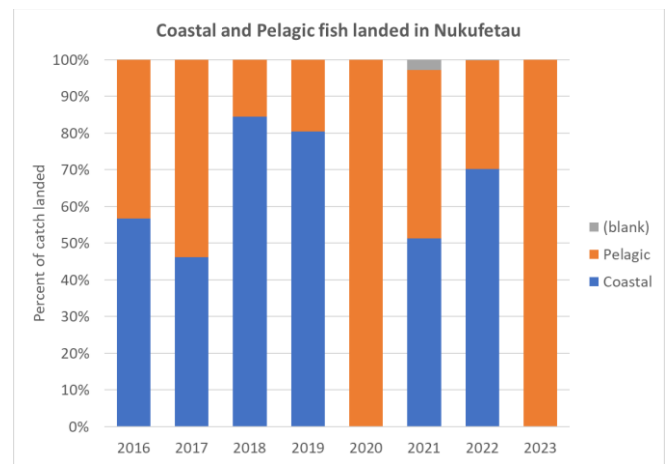


Figure 4: Graph contrasting Coastal and Pelagic fish landed per Year in Nukufetau.

## Conclusions

Overall, there has been a slight improvement to the health of coastal fisheries since surveys were begun. The percentage of fish landed undersize increased in 2021. This could reflect an increased reliance on coastal fisheries resources due to lack of affordable protein alternatives in the as a result of COVID-19 pandemic restrictions.

'Lafitaga Savave' - Nukufetau Coastal Fisheries Management Plan needs to be effectively implemented in order to improve Nukufetau 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 2016 – 2019
2. We have more accurate information on size of maturity from recently published studies
3. We have included size of maturity data from 30 extra species
4. We have displayed CPUE by fishing method

## Appendix I: Size of maturity ( $L_m$ ) for top 30 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 was recorded for that species 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 (2016-2022)

No.	Nukufetau	Local Name	% of Total Weight Caught	2016	2017	2018	2019	2021	2022	Grand Total
1	Lutjanus gibbus	Taea	18.5%	35%	6%	18%	18%	27%	4%	15%
2	Epinephelus merra	Gatalaliki	13.2%			0%	0%		0%	0%
3	Caranx sexfasciatus	Teu	11.9%	94%	58%	63%			67%	68%
4	Epinephelus fuscoguttatus	Munua	11.4%		86%	100%			0%	85%
5	Lethrinus obsoletus	Tanutanu	4.7%	50%	0%	1%	5%	100%	3%	2%
6	Caranx lugubris	Taufauli, Tino tafauli (large), Aheu tafauli, Ulua	4.2%	100%	100%	100%	75%	100%	100%	97%
7	Epinephelus polyphekadion	Gatala (one dot)	3.1%	55%	50%	40%	13%		43%	38%
8	Siganus argenteus	Maiava	2.9%		0%					0%
9	Epinephelus maculatus	Fapuku	2.7%			78%	63%	0%	74%	68%
10	Lethrinus microdon	Filoa, Kapatiko	2.6%			0%	26%	100%	4%	14%
11	Sargocentron spiniferum	Tamalau	2.1%		20%	27%	55%		29%	31%
12	Caranx melampygus	Aseu	1.9%	0%	0%	0%	0%	44%	100%	28%
13	Crenimugil crenilabis	Kanase	1.8%	0%	0%					0%
14	Decapterus macarellus	Atule	1.7%		7%		44%		60%	17%
15	Lutjanus monostigma	Taiva	1.7%	0%		6%	75%	0%	8%	11%
16	Elagatis bipinnulata	Kami, Kamai	1.7%	60%	0%	0%		50%		41%
17	Aprion virescens	Utu	1.5%	67%	0%	63%	56%	75%	50%	59%
18	Lutjanus kasmira	Savane	1.5%	24%	33%	51%	53%	100%	58%	49%
19	Lethrinus microdon	Kapatiko	1.5%	0%	0%	0%	0%		0%	0%
20	Epinephelus fasciatus	Gatala	1.2%				0%			0%

21	<i>Monotaxis grandoculis</i>	Muu, Mufala	1.0%	50%	0%	50%	0%	46%	33%	
22	<i>Hipposcarus longiceps</i>	Ulafi	1.0%		60%				60%	
23	<i>Lethrinus amboinensis</i>	Noto, Gutulo, Sapotu	0.8%	0%			4%	0%	2%	
24	<i>Epinephelus macrospilus</i>	Gatala (Ff), fÄpuku (Nm)	0.6%		53%	0%			50%	
25	<i>Acanthurus triostegus</i>	Manini, Koinava	0.6%		0%	30%		0%	11%	
26	<i>Lethrinus olivaceus</i>		0.5%					100%	100%	
27	<i>Lutjanus bohar</i>	Fakamea, Fagamea	0.5%	100%		44%	0%	100%	40%	
28	<i>Lethrinus erythracanthus</i>	Saputu	0.4%		0%	25%	0%	100%	27%	
29	<i>Sphyraena forsteri</i>	Taotao	0.4%		0%	17%		0%	14%	
30	<i>Mugil cephalus</i>	Kanase	0.3%		86%				86%	
31	<i>Lethrinus variegatus</i>	Noto, Tanutanu	0.3%		0%		0%		0%	
32	<i>Aphareus furca</i>	Palusega, Kotua, Taelepe, Takuoga	0.3%		100%	100%	100%	100%	100%	
33	<i>Selar crumenophthalmus</i>	Salala, Atule	0.2%				31%		31%	
34	<i>Naso lituratus</i>	Maninilakau	0.2%			0%			0%	
35	<i>Lethrinus miniatus</i>	Noto	0.2%				71%	100%	0%	
36	<i>Anyperodon leucogrammicus</i>	Gatala lautalo, Gatala lautala	0.2%	0%				0%	0%	
37	<i>Lutjanus fulvus</i>	Tagau, Takape	0.1%	0%		10%	0%	0%	4%	
38	<i>Macolor niger</i>	Makala	0.1%			50%		100%	67%	
39	<i>Myripristis berndti</i>	Malau	0.1%	29%		0%		100%	36%	
40	<i>Myripristis pralinia?</i>	Malau puku	0.1%		0%	0%		0%	0%	
41	<i>Lutjanus argentimaculatus</i>	Tagau	0.1%			100%			100%	
42	<i>Kyphosus vaigiensis</i>	Nanue (Ff, Nm)	0.1%			75%			75%	
43	<i>Myripristis violacea</i>	Malau	0.0%				0%	0%	0%	
44	<i>Myripristis adusta</i>	Malau fagamea, Malau matakkelkele	0.0%	0%	0%				0%	
45	<i>Liza vaigiensis</i>	Kafakafa	0.0%	100%					100%	
46	<i>Variola louti</i>	Pula	0.0%					100%	100%	
47	<i>Cephalopholis argus</i>	Loi	0.0%	0%					0%	
48	<i>Chlorurus (Scarus) microrhino</i>	Laea	0.0%		100%				100%	
49	<i>Naso brevirostris</i>	Pokapoka, Kosotu	0.0%	0%					0%	
50	<i>Sargocentron tie</i>	Malau gutu loa, Malua mata loa	0.0%					75%	75%	
<b>Grand Total</b>				30%	45%	24%	30%	52%	15%	29%