Coastal Fisheries Creel Report Card

2021

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, 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 Nukufetau's coastal resources is poor, with an average of 30% of the fishes caught being undersized (2016-2021). However, this is better than the national average of 35%.

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.

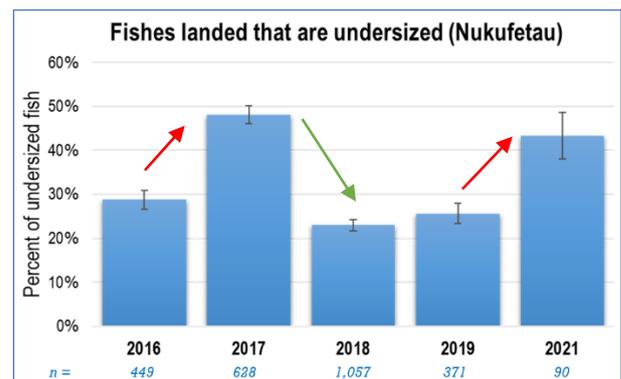> **IDEAL:** % UNDERSIZED should DECLINE over time and approach 0%

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 between 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. There is no data for 2020.

> 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).
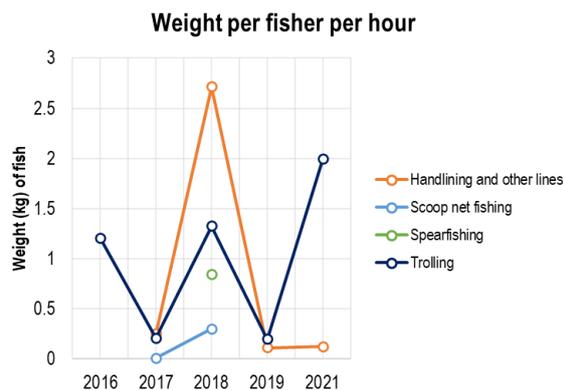

Figure 2: Indicator 2a. Weight (in kg) of fishes landed per fisher per hour spent fishing in Nukufetau. Fishing method data is not available for 2020.
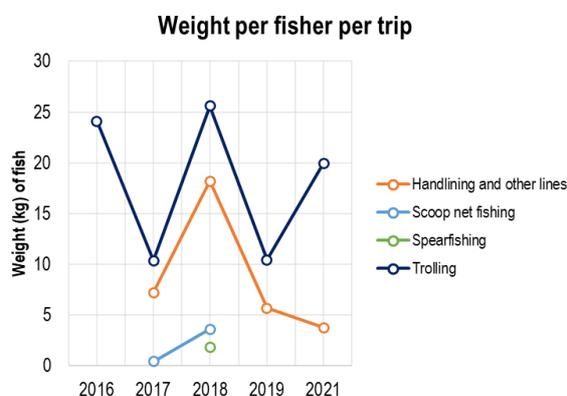

Figure 3: Indicator 2b. Weight (in kg) of fishes landed per fisher per fishing trip in Nukufetau. Fishing method data is not available for 2020.

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.

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 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.

Management plans need to be developed and implemented more efficiently to improve the health of Tuvalu'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 recorded in the creel surveys (2016-2021). There is no data for 2020.

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 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 50 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 (2016-2021)

	Scientific Name	Local Name	% in catch	2016	2017	2018	2019	2021
1	*Lutjanus gibbus*	Taea	16.8%	35	6	13	19	28
2	*Lethrinus obsoletus*	Tanutanu	4.1%	50	0	1	5	
3	*Lutjanus kasmira*	Savane	3.8%	24	33	67	48	
4	*Caranx sexfasciatus*	Teu	3.7%	94	58	50		
5	*Epinephelus fuscoguttatus*	Munua	3.5%		86	100		
6	*Crenimugil crenilabis*	Kanase	2.5%	0	0			
7	*Sargocentron spiniferum*	Tamalau	2.0%		20	27	53	
8	*Epinephelus polyphekadion*	Gatala (one dot)	1.9%	55	50	37	13	
9	*Lutjanus monostigma*	Taiva	1.5%	0		6	75	
10	*Lethrinus microdon*	Filoa, Kapatiko	1.3%				20	100
11	*Acanthurus triostegus*	Manini, Koinava	1.2%		0	30		0
12	*Lethrinus amboinensis*	Noto, Gutulo, Sapotu	1.1%	0			4	
13	*Hipposcarus longiceps*	Ulafi	1.0%	0	60			
14	*Caranx lugubris*	Tafauli, Tino tafauli (large), Aheu tafauli, Uluat	0.8%	17	0	29		0
15	*Selar crumenophthalmus*	Salala, Atule	0.7%				31	
16	*Epinephelus maculatus*	Fapuku	0.6%			88	62	
17	*Mugil cephalus*	Kanase	0.5%		86			
18	*Aprion virescens*	Utu	0.5%	67	0	50	56	
19	*Lethrinus olivaceus*		0.5%					100
20	*Caranx melampygus*	Aseu, Ulua, Fuaika	0.4%	0	0	0	0	
21	*Siganus argenteus*	Maiava	0.4%		0			
22	*Elagatis bipinnulata*	Kami, Kamai; Kamaa	0.3%	60	0	0		50
23	*Lutjanus bohar*	Fakamea, Fagamea	0.3%	100		44	0	100
24	*Myripristis berndti*	Malau	0.3%	29		0		
25	*Epinephelus macrospilos*	Gatala (Ff), fÄpuku (Nm)	0.3%		20	0		
26	*Naso lituratus*	Maninilakau	0.3%			0		
27	*Lutjanus argentimaculatus*	Tagau	0.3%			100		

28	*Lethrinus variegatus*	Noto, Tanutanu	0.3%		0		0
29	*Lethrinus erythracanthus*	Saputu	0.2%		0	30	0
30	*Monotaxis grandoculis*	Muu, Mufala	0.2%	50	0	50	0