Coastal Fisheries Creel Report Card
13th March 2020
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 and which are on-going throughout Tuvalu (all islands except Niulakita).

The key indicators we are using to show the health of the resources 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 resources (Indicator 2).

Indicator 2: Catch of fishes per unit of effort (CPUE). For now we are using the number and 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. At a later date we will also present this as catch per dollar cost of fishing.

Results

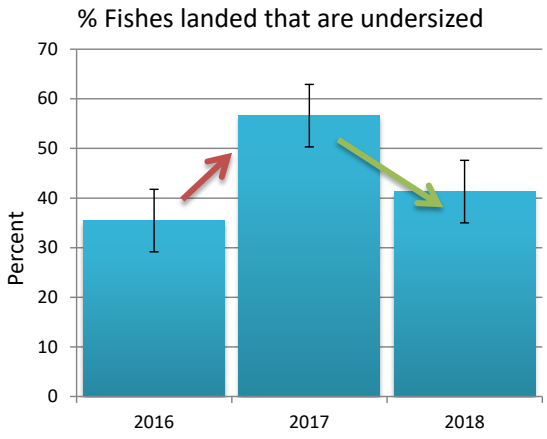
Data for Nukufetau are incomplete and were only collected for the period 2016-2018. This means that we do not have a recent status update for this island.

For the period 2016-2018 overall status of the coastal resources is poor, with an average of 45% of the fishes overall caught being undersized (the national average is 38%).

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. This includes better reproduction, better productivity and more fish.

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

Figure 1: Overall percentage of fishes being landed undersized by year +/-SE.



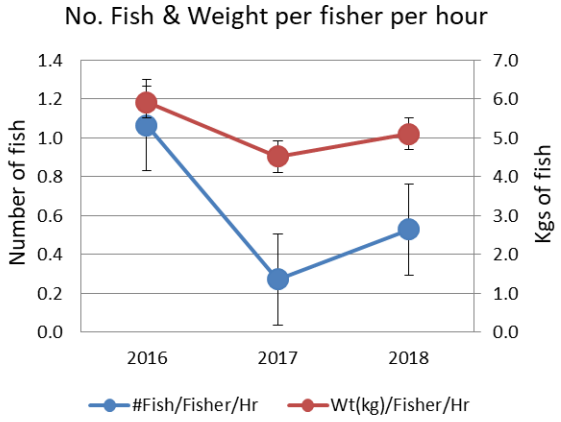
Overall in Nukufetau there was an increase in the percentage of undersized

fishes landed between 2016 and 2017, followed by a decrease between 2017 and 2018. That is, the number of undersized fishes being landed initially increased significantly, a bad sign, but then improved again back down to 2016 levels (see Figure 1 and Table 1). Overall, however, the percentage of fishes being landed undersized is very high and is likely to lead to declining resources (41% in 2018).

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

For Indicator 2a the weight of fish being landed per fisher per hour spent fishing (regardless of size of each fish) appears to have declined between 2016 and 2017, not changing significantly between 2017 and 2018 (Figure 2).

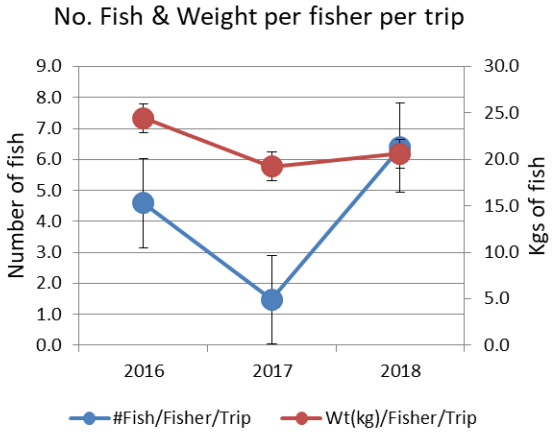
Figure 2: Indicator 2a. Number and Weight (in kg) +/-SE of fishes landed per fishermen per hour spent fishing across Tuvalu 2015-2019.



The number of fishes landed per fisher per entire fishing trip as Indicator 2b (i.e. not per hour) showed a decline over the between 2016 and 2017 (Figure 3), and like Indicator 2a did not change in 2018. The number of fish did change for this indicator, with a decline between 2016 and 2017, but then a significant reversal by 2018 when the numbers increased from 1.5 to 6.4 fish/fisher/trip.

This suggests that that the returns per fishing trip increased over that period. However it may be that fishing trips became longer, and/or the fishes smaller which would give the same result. This needs to be investigated further and data collections resumed for this island as soon as possible.

Figure 3: Indicator 2b. Number and Weight (in kg) +/-SE of fishes landed per fishermen per fishing trip across Tuvalu 2015-2019.



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

Conclusions

Overall there has been little improvement in the health of the coastal fisheries over the 3 years of survey on Nukufetau, and it is not possible to assess what may have happened over the past 2 years.

Surveys and management plans need to be improved and/or implemented more strongly to improve the health of Nukufetau's coastal fisheries.

This table (part of Indicator 1) shows the breakdown of species that have 50% or more fishes landed that are undersized, those that are OK because more than 50% are larger than the known size at maturity and blank cells show those with no catches recorded for that species in that year. This table shows that many of the species being monitored are being caught undersized, and that this varied by year in some cases.

Table 1: List of species for which size at maturity (Lm) is known, showing percentages landed which are undersized.

Row Labels	2016	2017	2018
Aseu Caranx melampygus	0	22	50
Fakamea, Fagamea Lutjanus bohar	100		100
Filoa Lethrinus elongatus	0	50	3
Gatala (one dot) Epinephelus polyphekadion	55	50	37
Gatala lautalo, Gatala lautala Anyperodon leuc	0		
Gatalaliki Epinephelus merra			0
Kalo Mulloidichthys vanicolensis			100
Kami, Kamai Elagatis bipinnulata	80	0	0
Kanase Crenimugil crenilabis	0	0	
Kanase Mugil cephalus		86	
Loi Cephalopholis argus	0		
Maiava Siganus argenteus		0	
Makala Macolor niger			50
Malau Myripristis berndti	36		0
Malau Myripristis kuntee			0
Malau puku Myripristis pralinia?		0	0
Manini, Koinava Acanthurus triostegus		0	0
Matapa Priacanthus hamrur			0
Munua Epinephelus fuscoguttatus		71	50
Muu, Mufala Monotaxis grandoculis	100	50	100
Nanue (Ff, Nm) Kyphosus vaigiensis			100
Pokapoka lanulanu Naso vlamingii			100
Savane Lutjanus kasmira	67	56	78
Tafauli, Tino tafauli (large), Aheu tafauli, Uluat	17	0	29
Tagau Lutjanus argentimaculatus			100
Tagau,Takape Lutjanus fulvus	100		
Taiva Lutjanus monostigma	100		72
Taotao Sphyraena forsteri		0	0
Teu Caranx sexfasciatus	94	58	50
Tuna (Ff) Conger macrocephalus Conger macrocep		0	
Utu Aprion virescens	0	0	33
Valu Gymnosarda unicolor	100		