



# Coastal Fisheries Creel Report Card

## 13<sup>th</sup> March 2020

### ALL ISLANDS

#### 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,  $L_m$ ). 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.

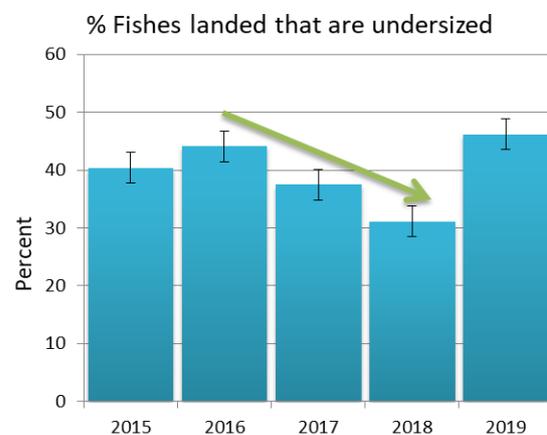
#### Results

Overall status of the coastal resources is poor, with an average of 38% of the fishes overall caught being undersized.

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.

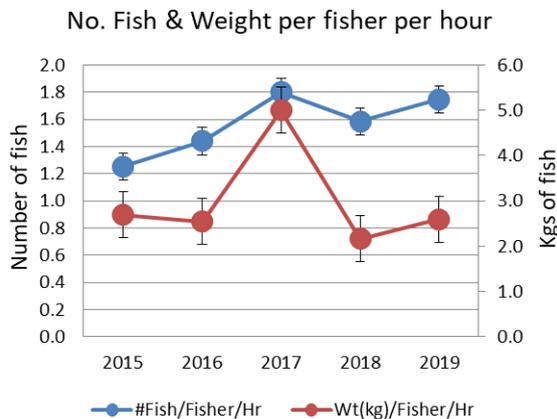


Overall in Tuvalu there was a decreasing trend in Indicator 1 between 2016 and 2018. That is, the number of undersized fishes being landed decreased, a good sign. In 2019 this trend reversed and the percentage of undersized fishes being caught before they could reproduce increased to 46% overall (see Figure 1 and Table 1).

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

For Indicator 2a the number of fish being landed per fisher per hour spent fishing (regardless of size of each fish) appears to have slowly increased between 2015 and 2017, becoming steady after that. The total weight of fishes has not changed much over the years except for a peak in 2017 (Figure 2).

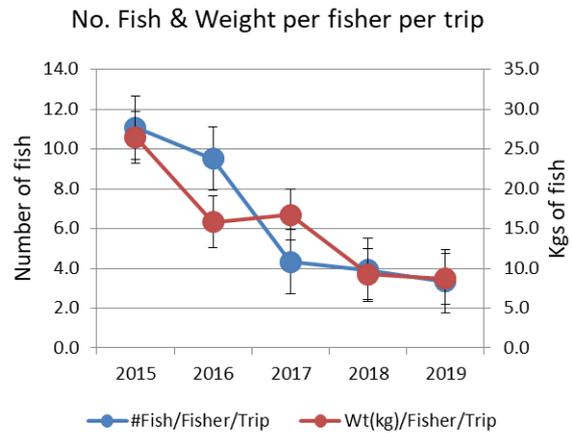
Figure 2: Indicator 2a. Number and Weight (in kg) +/-SE of fishes landed per fishermen per hour spent fishing across Tuvalu 2015-2019.



The number and weight of fishes landed per fisher per entire fishing trip as Indicator 2b (i.e. not per hour) showed a decline over the survey years (Figure 3). This shows that the returns per fishing trip have declined over that period. However it may be that fishing trips have become

shorter, which would give the same result. This needs to be investigated further.

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 past 5 years since surveys were begun. Some improvements in sizes of fishes being landed took place between 2015 and 2018 but were reversed by 2019. Management plans need to be improved and/or implemented more strongly to improve the health of Tuvalu'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.*

Fish Name	2015	2016	2017	2018	2019
Afulu Parupeneus multifasciatus	0		0		
Aseu Caranx melampygus	0	58	77	54	86
Aseu uluuli Carangoides plagiotaenia			76	100	100
Fakamea, Fagamea Lutjanus bohar	88	94	84	94	83
Filoa Lethrinus elongatus	21	13	9	6	33
Gatala (one dot) Epinephelus polyphekadion	55	42	26	26	0
Gatala Epinephelus fasciatus		0	0		
Gatala Epinephelus miliaris	0	0	0		0
Gatala lautalo, Gatala lautala Anyperodon leuc	56	37	88	33	
Gatalaliki Epinephelus merra	2	0	5	19	0
Gole (Ff) Oxycheilinus digrammus				20	
Gole Cheilinus fasciatus		0	0	0	
Kaivete piniki Parupeneus cyclostomus		82	84	82	
Kalo Mulloidichthys vanicolensis			26	100	
Kami, Kamai Elagatis bipinnulata	100	80	89	54	100
Kanase Crenimugil crenilabis	0	0	20	9	9
Kanase Mugil cephalus			86		
Kapalagi, Maa Acanthurus xanthopterus	0		0	0	
Lau laufau Platax orbicularis				0	
Lau laufau Platax teira		0			
Laulaufao, Matapa, Ika fa la ulu Alectis cilia		100	100		
Loi Cephalopholis argus	0	11	19	56	
Mago Carcharinus amblyrhynchos			0		
Mago Carcharinus melanopterus			0	100	100
MagoTriaenodonobesus			0		
Maiava Siganus argenteus	11	35	36	37	0
Maiava Siganus fuscescens		0			
Maiava fiiti Siganus punctatus	36	29	18	10	
Makala Macolor niger	89	87	73	63	
Malau Myripristis berndti	48	50	43	89	
Malau Myripristis kuntee	2	1	0	0	
Malau Myripristis violacea				50	
Malau Sargocentron caudimaculatum		0	0	0	
Malau puku Myripristis pralinia?	0	1	1	1	
Malili, Kaivete Parupeneus barberinus		0	0		
Manini, Koinava Acanthurus triostegus	0	1	2	1	2
Mataele Cephalopholis sexmaculata			100	100	
Mataele Cephalopholis urodeta	75	52	43		

Fish Name	2015	2016	2017	2018	2019
Matapa Priacanthus hamrur	0	2	0	4	
Munua Epinephelus fuscoguttatus	47	38	66	45	67
Muu, Mufala Monotaxis grandoculis	95	96	82	95	100
Nanue (Ff, Nm) Kyphosus vaigiensis		84	92	84	100
Noto Lethrinus miniatus	90	67	90	82	0
Paala Scomberomorus commersoni			100	0	
Pokapoka lanulanu Naso vlamingii	31	63	50	55	
Pokapoka, Ume tinae sega Naso hexacanthus		66	64	55	
Ponelolo, Alogo, Pone hamoa Acanthurus lineatu	5	25	23	19	6
Pula Variola louti		81	90	75	
Salala Rastrelliger kanagurta		0		100	
Savane Lutjanus kasmira	82	79	83	68	60
SavaneLutjanuskasmira					54
Taufauli, Tino tafauli (large), Aheu tafauli, Uluat		3	37	51	
Tagau Lutjanus argentimaculatus	100	100	100	98	
Tagau, Takape Lutjanus fulvus	100	85	94	92	100
Taiva Lutjanus monostigma	53	54	72	77	83
Talakihi Neoniphon sammara	0		0	0	
TanutanuLethrinusobsoletus					100
Taona Scarus psittacus			17		
Taotao Sphyaena forsteri	0	0	0	0	0
Teu Caranx sexfasciatus	38	85	63	73	86
TeuCaranxsexfasciatus					100
Tino ulua (lge), Lupo (small), Aseu (med); Mea tal		100	96	98	
Tonu Macolor macularis	78	50	9	16	
Tonu Plectropomus leopardus		100	0		
Tonu gatala Plectropomus areolatus			89	50	
Tuna (Ff) Conger macrocephalus Conger macrocep			0	22	
Ume, Pokapoka Naso unicornis	50	43	22	43	60
Utu Aprion virescens	50	54	30	21	
Valu Gymnosarda unicolor		50	71	88	