# Coastal Fisheries Creel Report Card
# 13th March 2020
# 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 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.

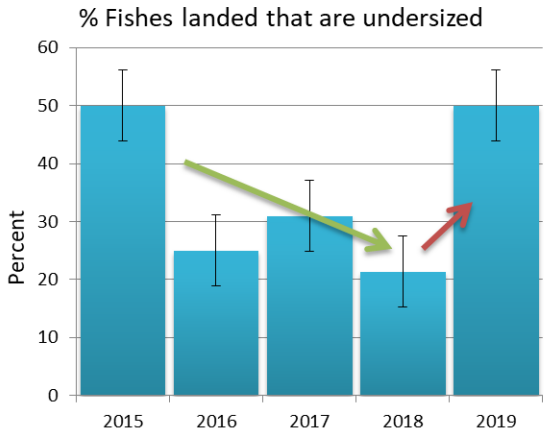
## Results

Overall status of the coastal resources is poor, with an average of 25% of the fishes caught overall 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.*

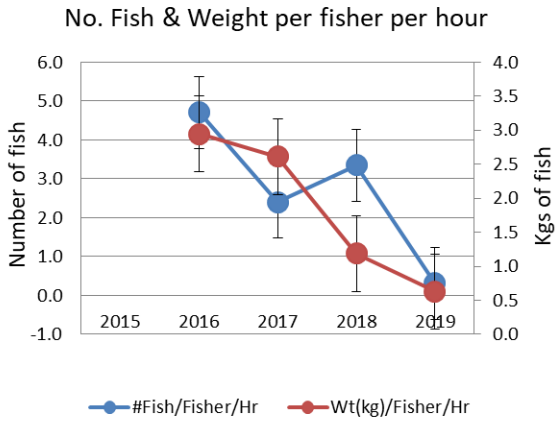



Overall in Nui there was a decreasing trend in Indicator 1 between 2015 and 2018. That is, the number of undersized fishes being landed decreased, a good sign. In 2019 this trend reversed and the percentage of undersized fishes being caught before they could reproduce increased to 50% (see Figure 1 and 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 strongly decreased between 2016 and 2019. The total weight of fishes landed per fisher per hour also declined over the same time period (Figure 2).

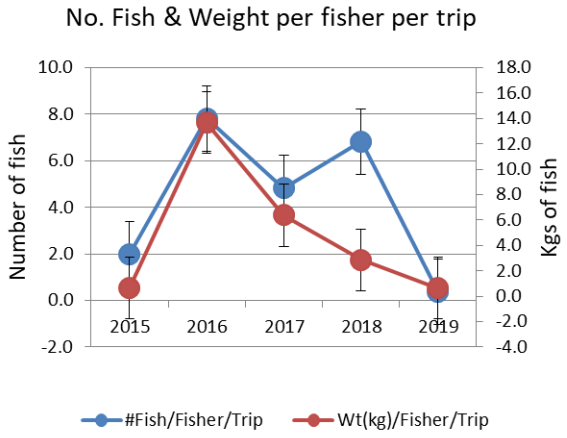
*Figure 2: Indicator 2a. Number and Weight (in kg) +/-SE of fishes landed per fishermen per hour spent fishing in Nui 2015-2019.*




The number and weight of fishes landed per fisher per entire fishing trip as Indicator 2b (i.e. not per hour) showed an initial increase between 2015 and 2016, but the data from 2015 were very limited and the pattern may not be representative (Figure 3). From 2016 there was a consistent decline.

These results show that the returns per fishing trip have declined over the period of the creel survey work in Nui.

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




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

## Conclusions

Overall there has been no improvement in the health of the coastal fisheries in Nui 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 Nui'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 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|---|
| Aseu Caranx melampygus | | | 87 | 94 | |
| Aseu uluuli Carangoides plagiotaenia | | | 0 | | |
| Fakamea, Fagamea Lutjanus bohar | | 100 | | 0 | |
| Gatala (one dot) Epinephelus polyphekadion | | | | 33 | |
| Gatala Epinephelus miliaris | | | 0 | | |
| Gatalaliki Epinephelus merra | | 0 | 0 | | |
| Gole Cheilinus fasciatus | | | 0 | | |
| inaing \| | | | | 0 | |
| Kaivete piniki Parupeneus cyclostomus | | | 100 | 100 | |
| Kami, Kamai Elagatis bipinnulata | | 36 | 0 | 0 | |
| Kanase Crenimugil crenilabis | 0 | | 28 | 6 | 0 |
| Loi Cephalopholis argus | | | 67 | | |
| Mago Carcharinus melanopterus | | | | | 100 |
| Makala Macolor niger | | | | 0 | |
| Malau Myripristis kuntee | | 0 | | | |
| Malau Myripristis violacea | | | | 0 | |
| Malau puku Myripristis pralinia? | | | 0 | 0 | |
| Malili, Kaivete Parupeneus barberinus | | | 0 | | |
| Manini, Koinava Acanthurus triostegus | | 1 | 3 | 0 | |
| Mataele Cephalopholis sexmaculata | | | | 100 | |
| Munua Epinephelus fuscoguttatus | | 0 | 0 | | |
| Muu, Mufala Monotaxis grandoculis | | 100 | 100 | 100 | |
| Nanue (Ff, Nm) Kyphosus vaigiensis | | 0 | 100 | 100 | |
| Noto Lethrinus miniatus | | | | 100 | |
| Pokapoka lanulanu Naso vlamingii | | | | 25 | |
| Ponelolo, Alogo, Pone hamoa Acanthurus lineatu | | | | 100 | |
| Savane Lutjanus kasmira | | | 75 | 100 | |
| Tagau Lutjanus argentimaculatus | 100 | | 100 | 100 | |
| Tagau,Takape Lutjanus fulvus | | 95 | 96 | 85 | |
| Taiva Lutjanus monostigma | | 57 | 100 | 88 | |
| Talakihi Neoniphon sammara | | | 0 | 0 | |
| Taotao Sphyraena forsteri | | | | 0 | |
| Teu Caranx sexfasciatus | | | 100 | 64 | |
| Tino ulua (lge), Lupo (small), Aseu (med); Mea tal | | | 100 | 97 | |