

**ASSESSMENT OF THE BASIC BIOLOGY OF
Ctenochaetus striatus, A COMMON CAUGHT
FINFISH SPECIES IN SILANA VILLAGE,
TAILEVU PROVINCE, FIJI**



**By David Piritasi Yeeting (Principal Researcher)
Principal Supervisor: Dr. Cara Miller**

Objectives

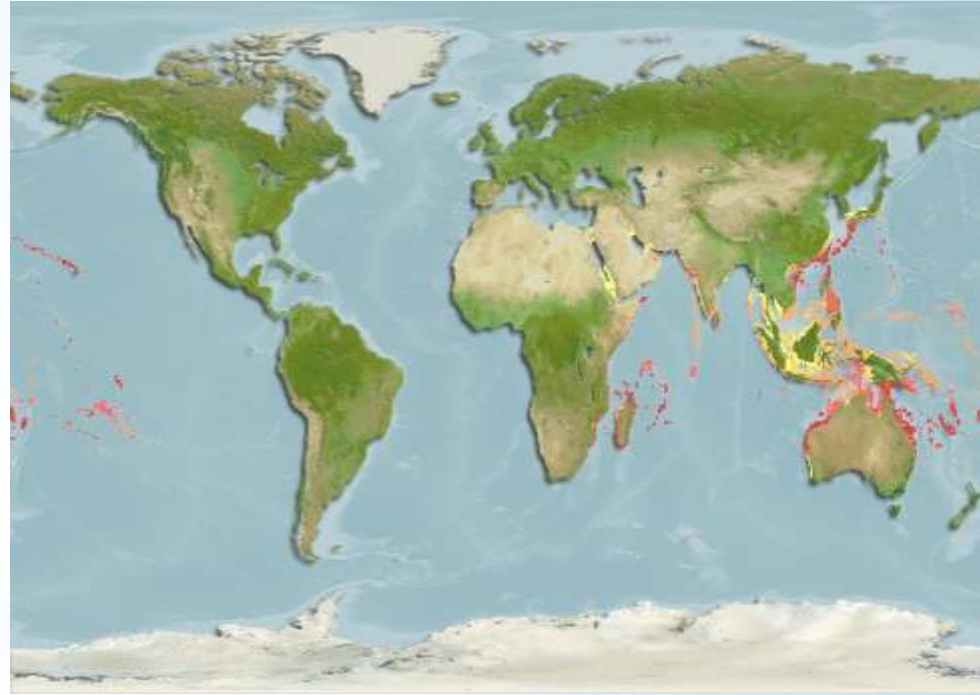
1. To identify the fish species of high commercial value for the fishers in Silana Village.
2. To analyze health and growth of the most common caught finfish species using length-weight relationship.
3. To assess the population structure of *Ctenochaetus striatus* exploited by small scale fisheries in Silana

Background

- Inhabit reef flats, lagoons and seaward reefs at depths of > 30 m
- Feeds – surface films of blue green algae and diatoms and small invertebrates (Detritus and sediment are main dietary components).
- Common length is 18cm and max. length is 26cm (TL for unsexed male)
- Max. age is 34 years

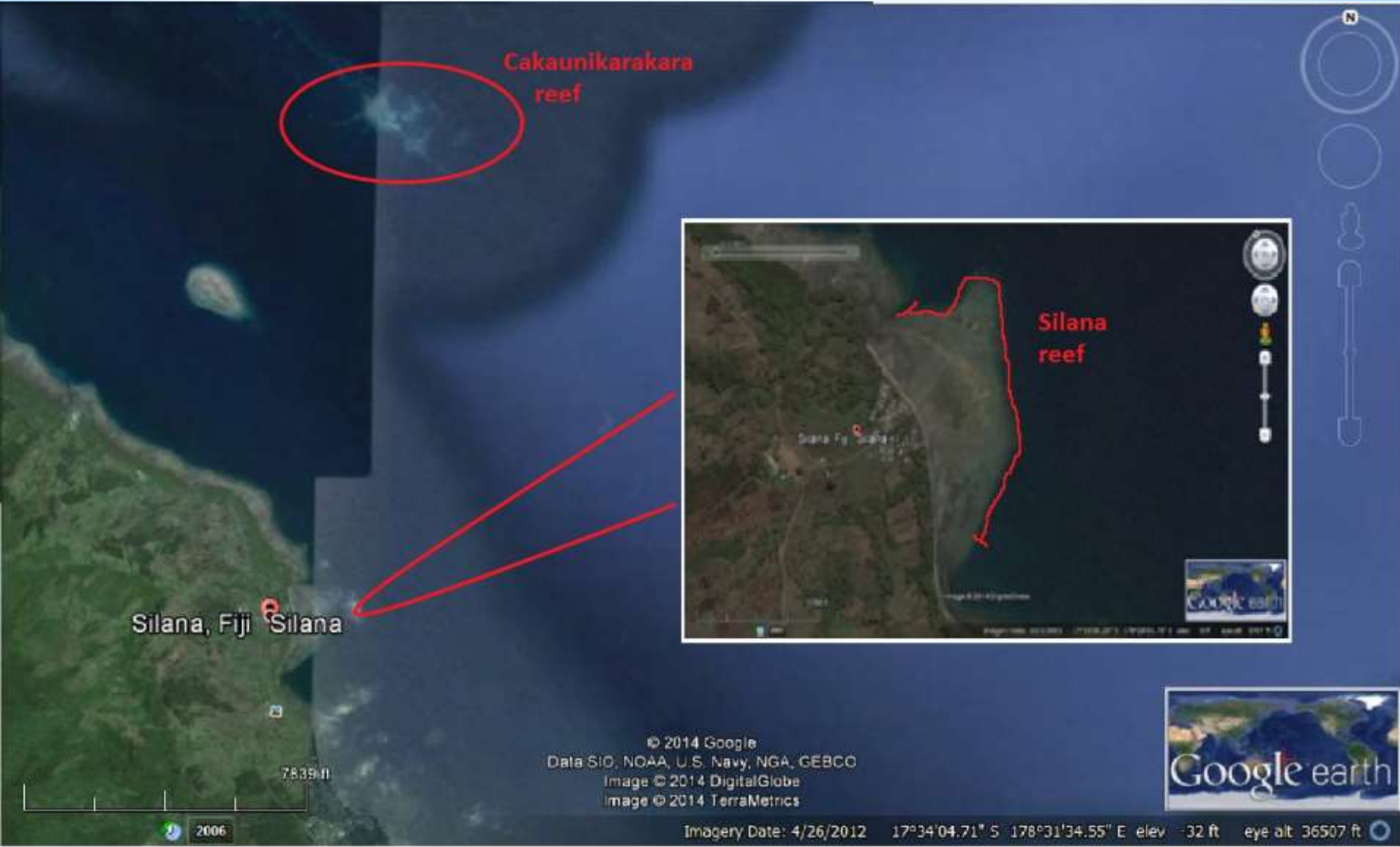
Introduction

- Most Common and dominant reef fish species through out the Indo-Pacific.
- Listed as one of the least concerned species towards any major threats to fishery.
- A study in A.Samoa on this species failed to identify a decline in its population through harvesting and **NO** evidence of decline in global scale. 100% & 22% of total biomass in v.u.s (Sabater & Tofaeono, 2007).
- Therefore, also one of the highly common caught fish species in the Pacific region.



Source: www.aquamaps.org

Study Site



Source: Google earth

Methodology

- **Sampling dates (19th March to 23rd March). Sample size $n > 30$.**
- **15 m fibre boat powered by 20 horse power outboard motor**
- **Data collected directly from fishers catch (TL in cm and weight in grams) for L-W relationship analysis.**
- **Equation utilized $W = a \cdot L^b$, W (weight), a (a.v/c.f varies between species), L is the length of the fish and b (beta value, usually closer to 3 for most species). $b > 3$, girth increase as grows longer. $b < 3$, more streamlined**
- **100cm measuring ruler and a 10kg traditional weighing kitchen scale bowl.**
- **Catch separated according to individual's catch**



Source: Kelepi, 2014



Source: amazon.co.uk

Results

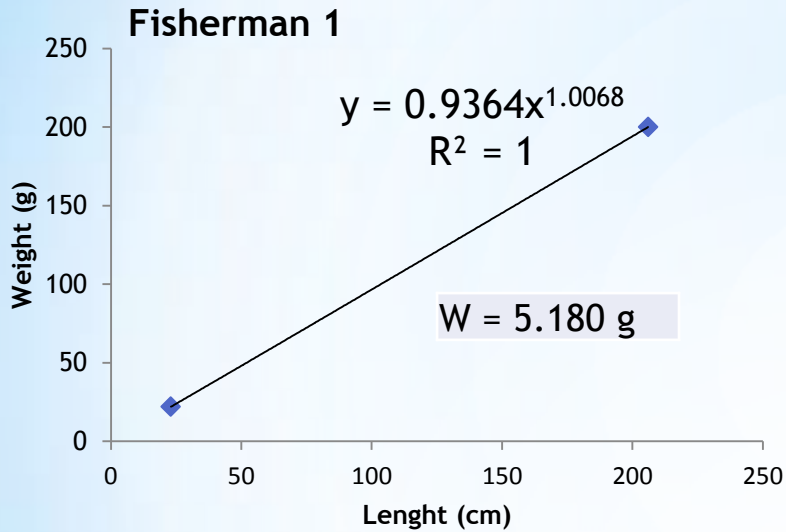
Table 1. Fish size range of *C. striatus* from Cakaunikarakara by 5 fishermen

Fishermen	Sample size(n)	Length range(cm)	Average Length	Weight range (g)	Average Weight
Fisherman 1	2	22-23	22.500	200-206	203
Fisherman 2	8	19-22	20.625	100-106	103.25
Fisherman 3	9	18-23	21.222	100-107	104.333
Fisherman 4	11	15-22	18.091	0.20-200	64.518
Fisherman 5	21	17-25	21.286	100-104	125.190

Table 2. Length-Weight relationship parameters of *C.striatus* caught from Cakaunikarakara by 4 fishermen.

Fishermen	Sample Size (n)	Average Weight	Average Length	Alpha(α)	Beta(β)
Fisherman 1	2	203	22.500	0.936	1.007
Fisherman 2	8	103.25	20.625	34.129	0.366
Fisherman 3	9	104.333	21.222	56.740	0.200
Fisherman 5	21	125.190	21.286	15.273	0.674

Cont.



Fisherman 2

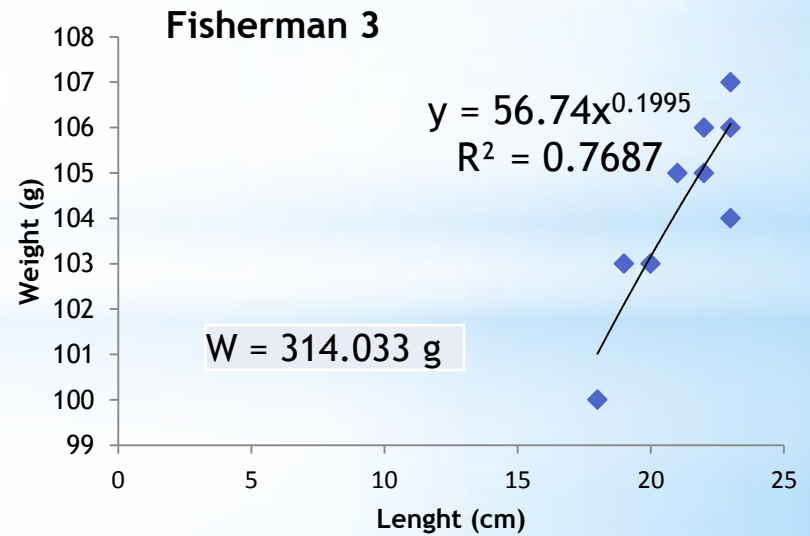
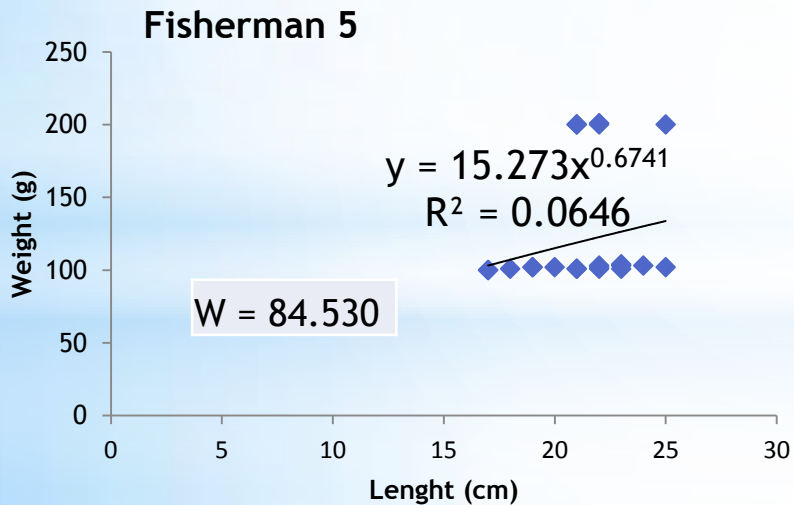
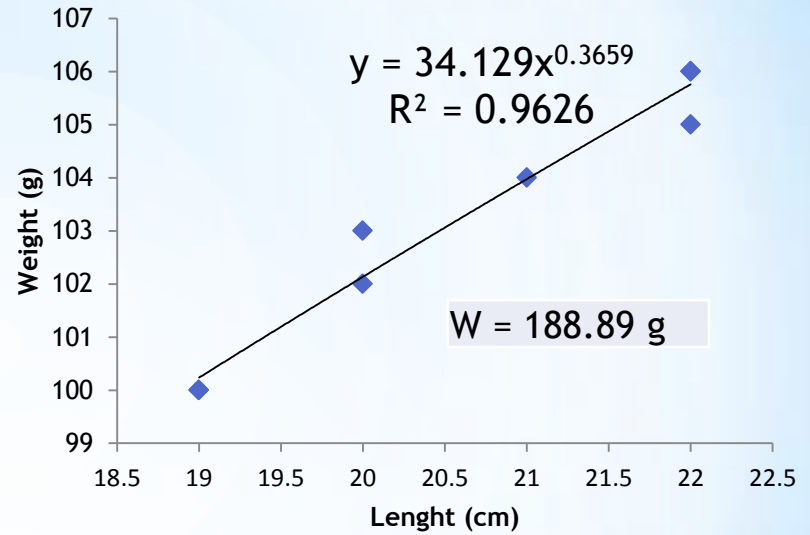


Figure 1. Power curve for *C.striatus* caught by 4 fishermen at Cakaunikarakara.

Cont.

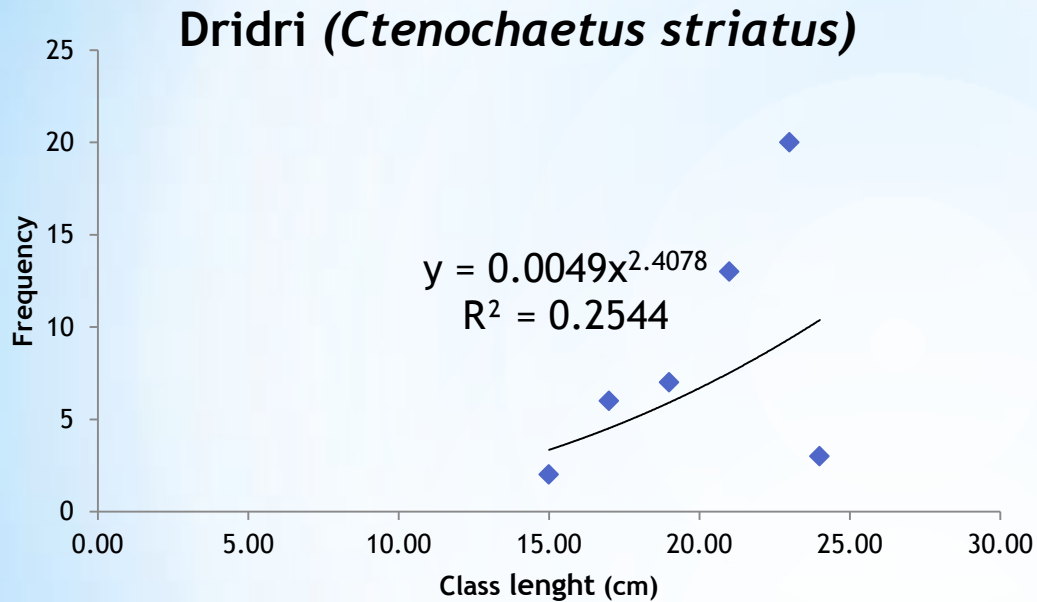


Figure 2. Length weight relationship for 51 species of *C.striatus* caught from Cakaunikarakara reef.

Fisherman 1

$$W = 0.9364 * 21^{0.562}$$

$$W = 5.180 \text{ g}$$

Fisherman 2

$$W = 34.129 * 21^{0.562}$$

$$W = 188.89 \text{ g}$$

Fisherman 3

$$W = 56.74 * 21^{0.562}$$

$$W = 314.033 \text{ g}$$

Fisherman 5

$$W = 15.273 * 21^{0.562}$$

$$W = 84.530 \text{ g}$$

L-W Parameters; $W = a * L^b$

Therefore, a = value of (y) and b = average beta values of the 4 fishermen (i.e. 0.562).

L = average length value of all Dridri (*C.striatus*) i.e. 21cm.



Source: Kelepi, 2014

Discussion

- Results from this study showed that status of Dridri, *C.striatus* caught from Cakaunikarakara reef is not the same (Shown from their weight analysis).
- Vary in Sizes due to (availability of food, environmental effects, etc). Fish with more weights indicate good health and fish with less weights indicate poor health.
- Proved by the L-W relationship analysis from the 4 fisherman. Dridri caught by fisherman 3 indicate that they have a very good health followed by fisherman 2, 5 and 1.
- Size range of *C.straitus* in terms of weight and length again indicate how well they perform and distributed on the different fishing spots at Cakaunikarakara reef.
- Beta value (2.4078) in overall (i.e. for the whole 51 specimens of *C.striatus*) indicate good sign of health status and probably an asymptotic growth from the max length (25cm) at infinity.

Conclusion

- This study will serve as a pilot study towards any major research that will be done in the future to assess the status of fishery in the Dawasamu District.
- Data collected will be very useful towards the major development of bigger projects to help the people of the District to set up Management Plans in the years to come.

References

- Froese, R. and D. Pauly. Editors. 2011. FishBase. World Wide Web electronic publication. www.fishbase.org, (04/2014)
- Choat, J.H., Clements, K.D., McIlwain, J., Abesamis, R., Myers, R., Nanola, C., Rocha, L.A., Russell, B. & Stockwell, B. 2012. *Ctenochaetus striatus*. In: IUCN 2013. IUCN Red List of Threatened Species. Version 2013.2. <www.iucnredlist.org>. Downloaded on 26 May 2014.



Source: Kelepi, 2014

Thank You