



Community Assessment & Management of Reef Fish for Food Security

Dr Jeremy Prince

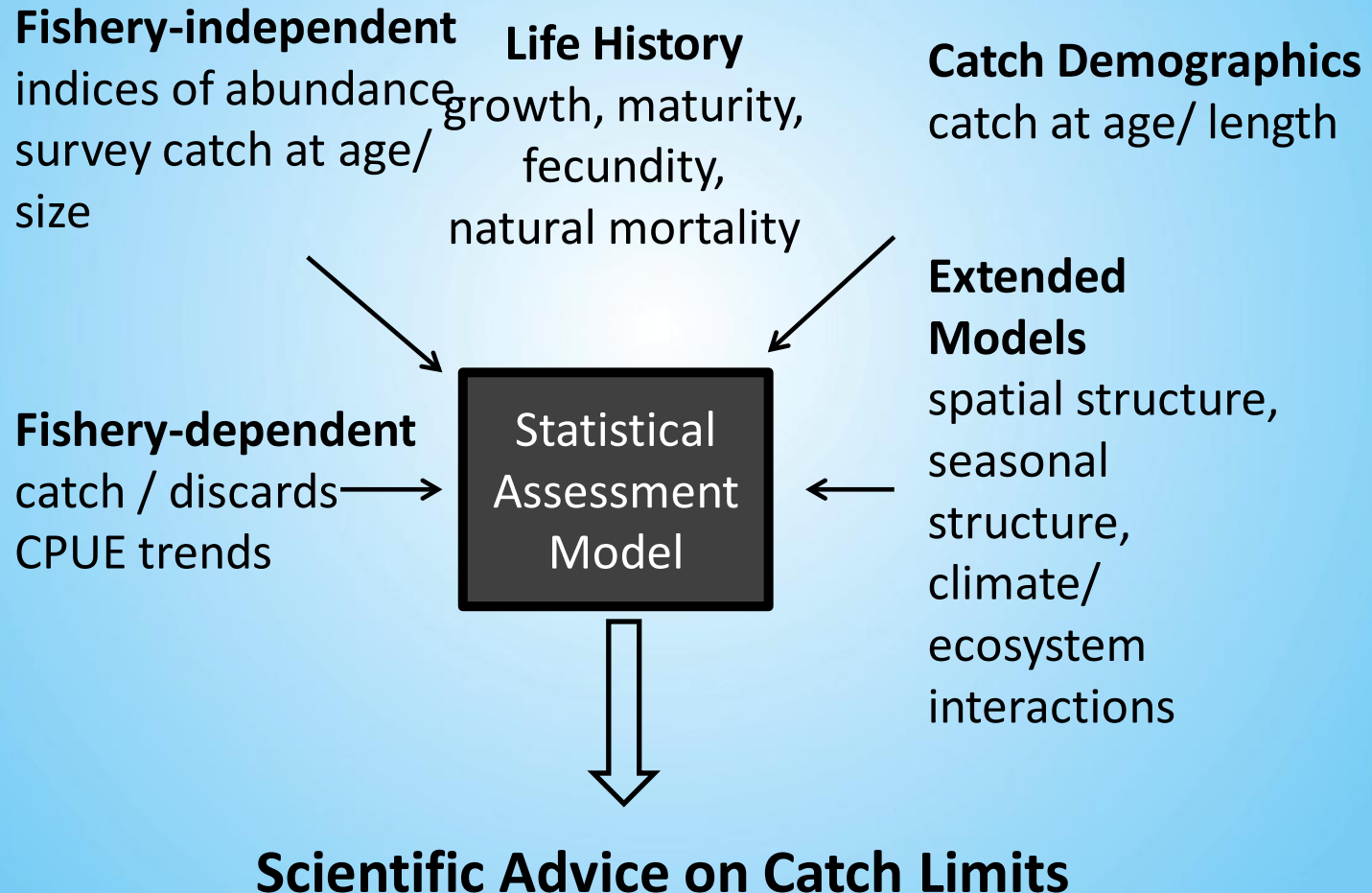
Biospherics P/L & Murdoch University
Western Australia

5 October 2017

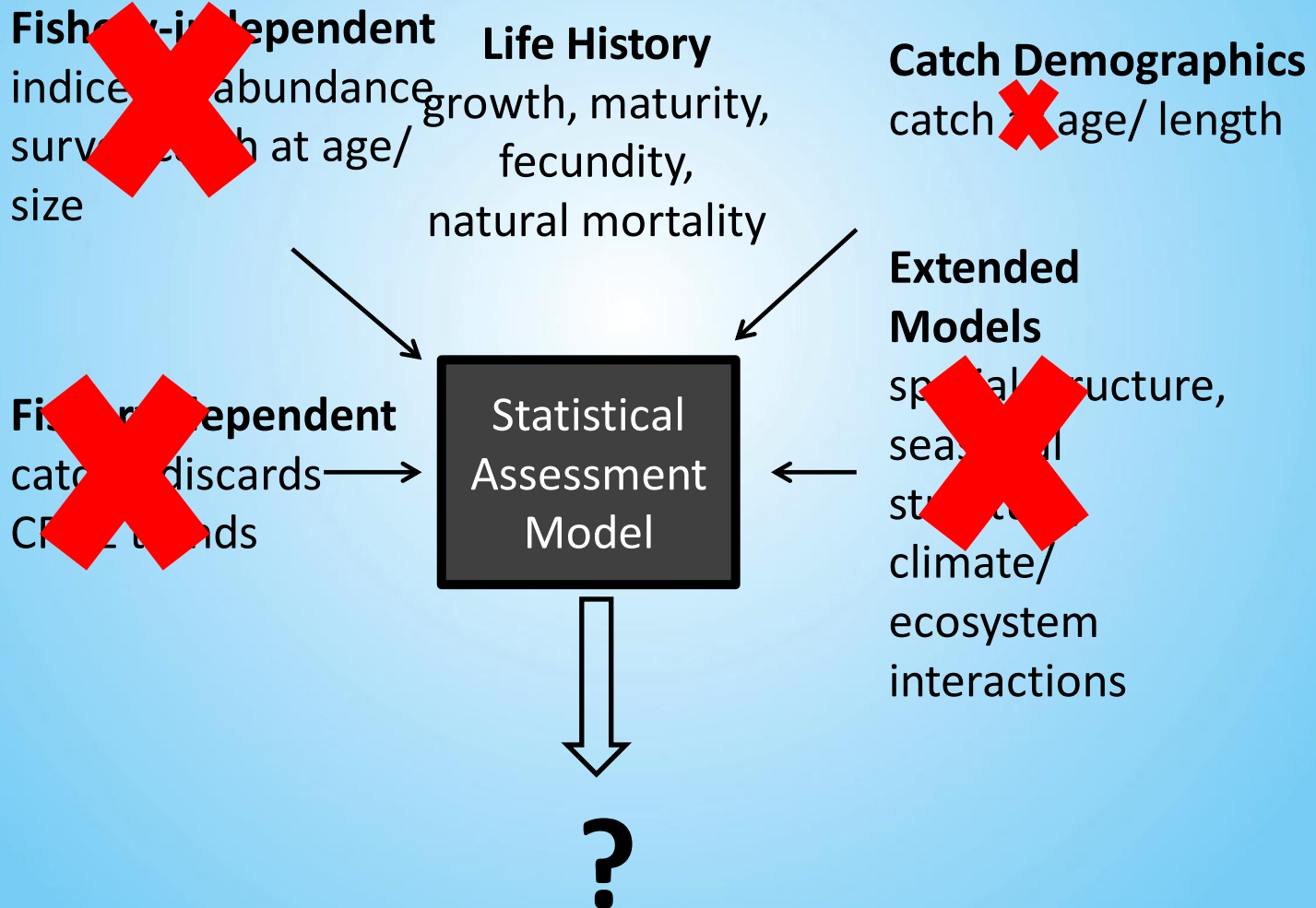
Acknowledgements:

*David and Lucile Packard Foundation
& WWF*

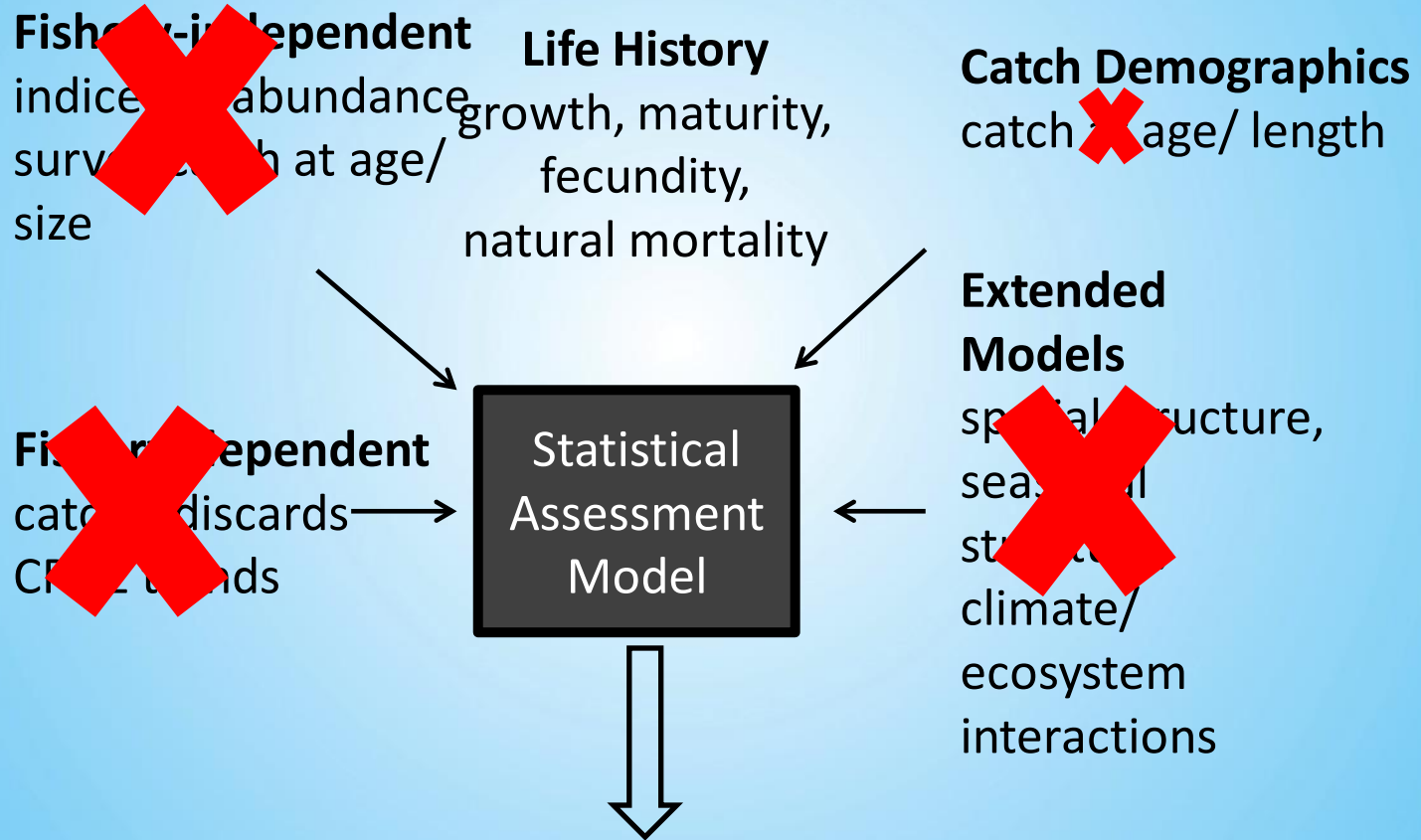
Standard Fisheries Assessment and Management



The reality in many places



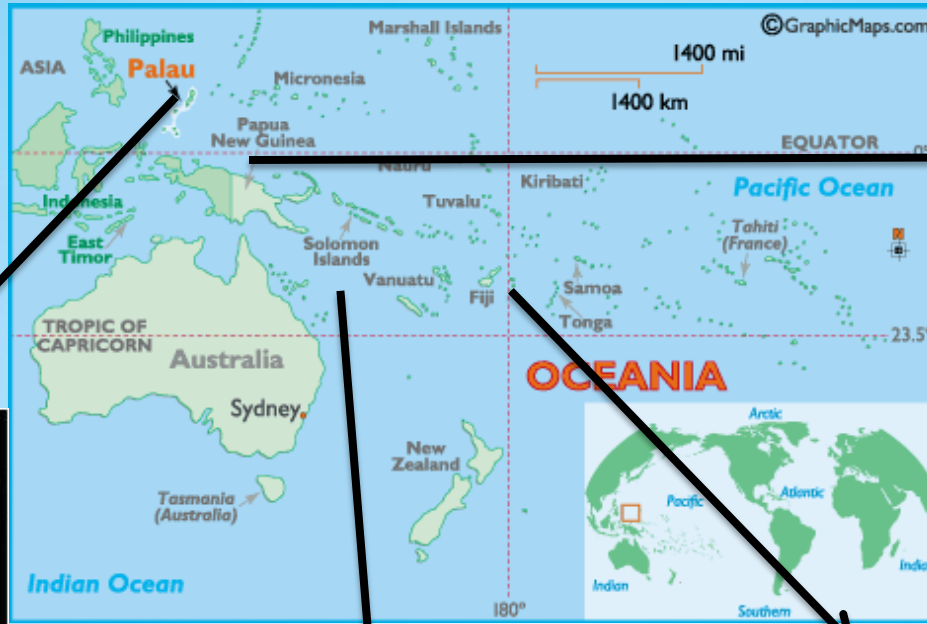
The reality in many places



Science based management advice impossible for 90% of global fisheries

**We need
simple, cost-effective, approaches
for community based fisheries
management.**

Palau, Solomon Islands, PNG & Fiji



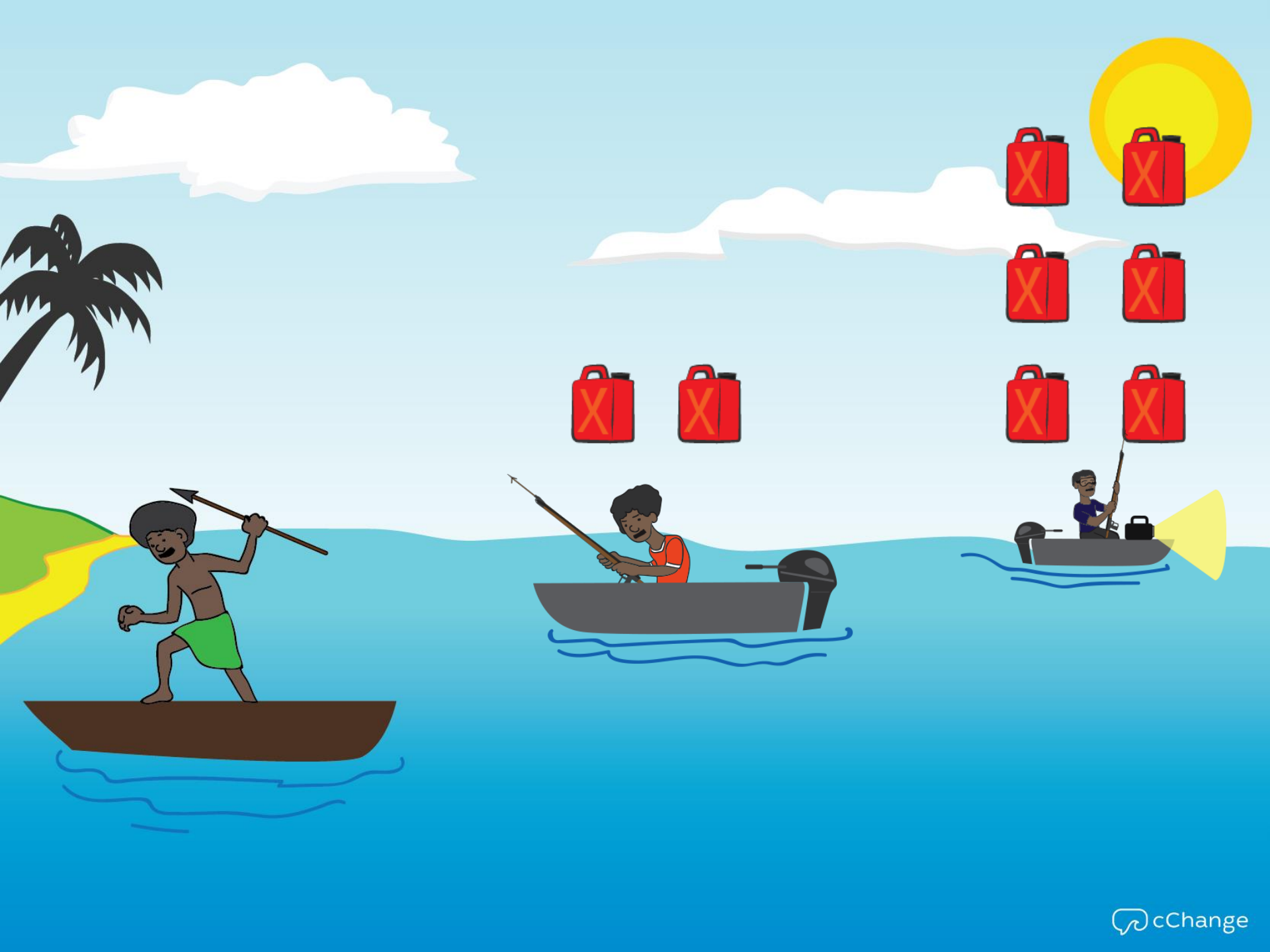
Madang

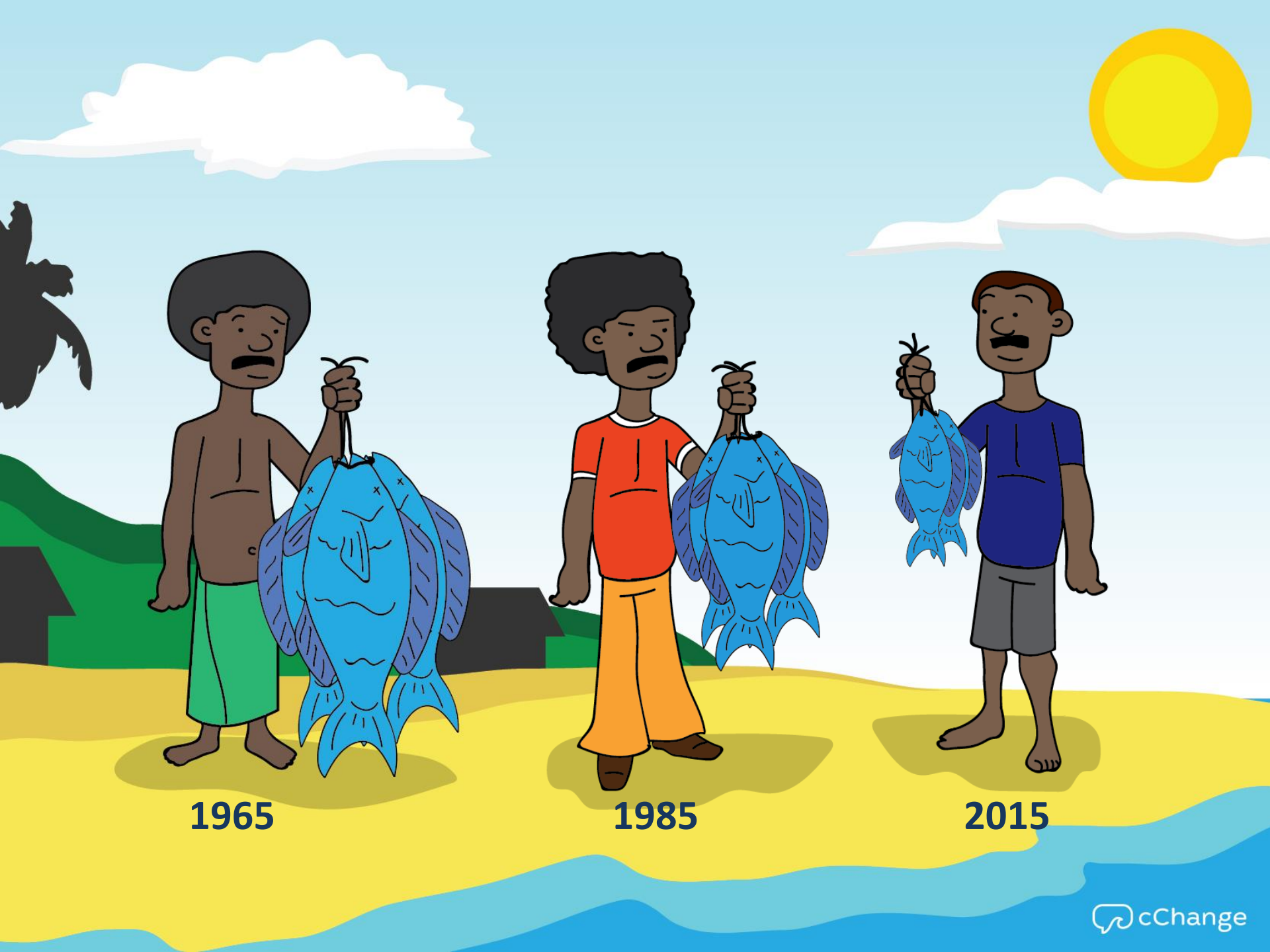




**A GUIDE FOR MORE
& BIGGER FISH**

The Overfishing Problem





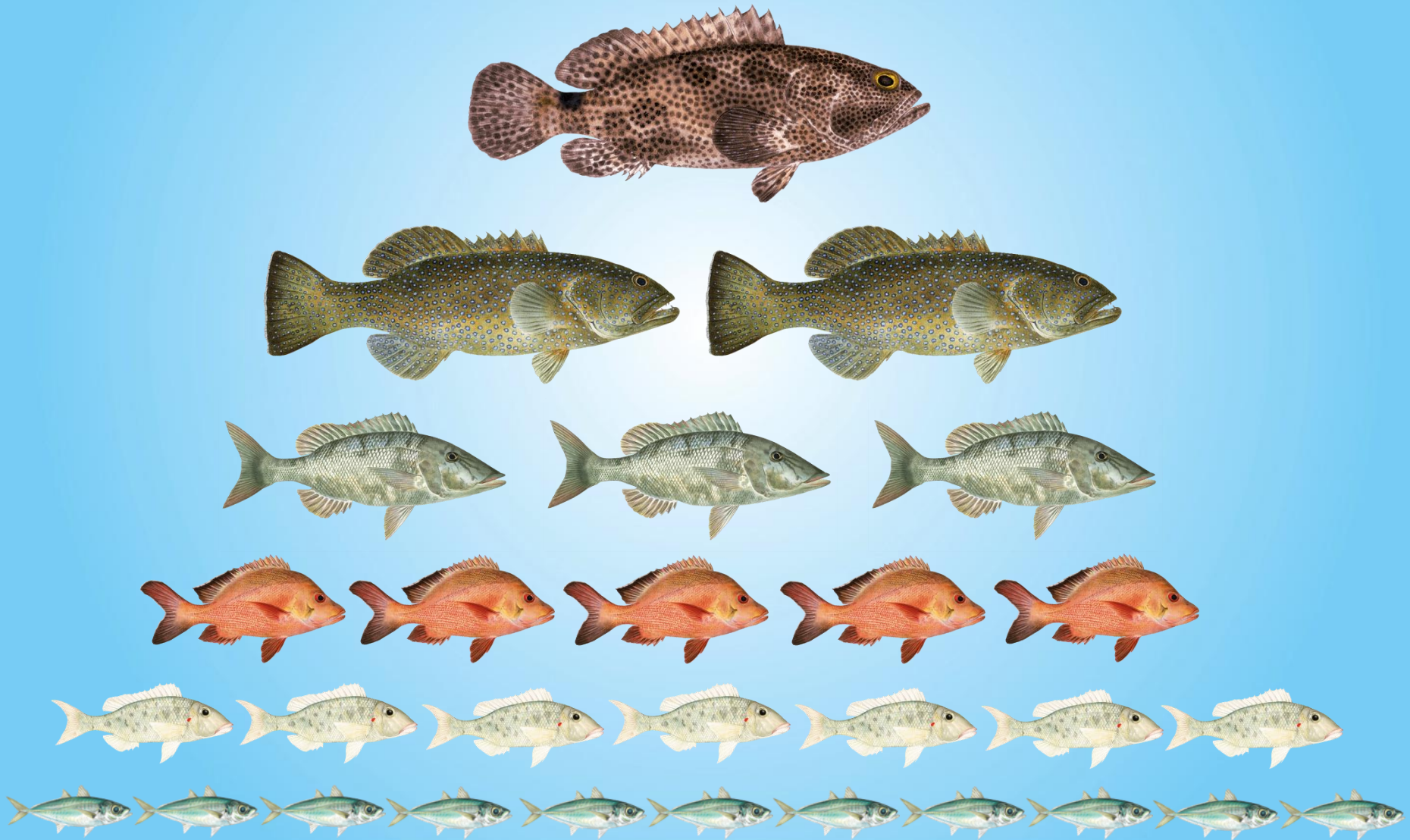
1965

1985

2015

Fishing Down the Food Web

Fishing Down the Food Web



Fishing Down the Food Web

Big is Best



Fishing Down the Food Web

Big is Best

High value – market & culture



Fishing Down the Food Web

Big is Best

High value – market & culture

Easy to Catch



Fishing Down the Food Web

Big is Best

High value – market & culture

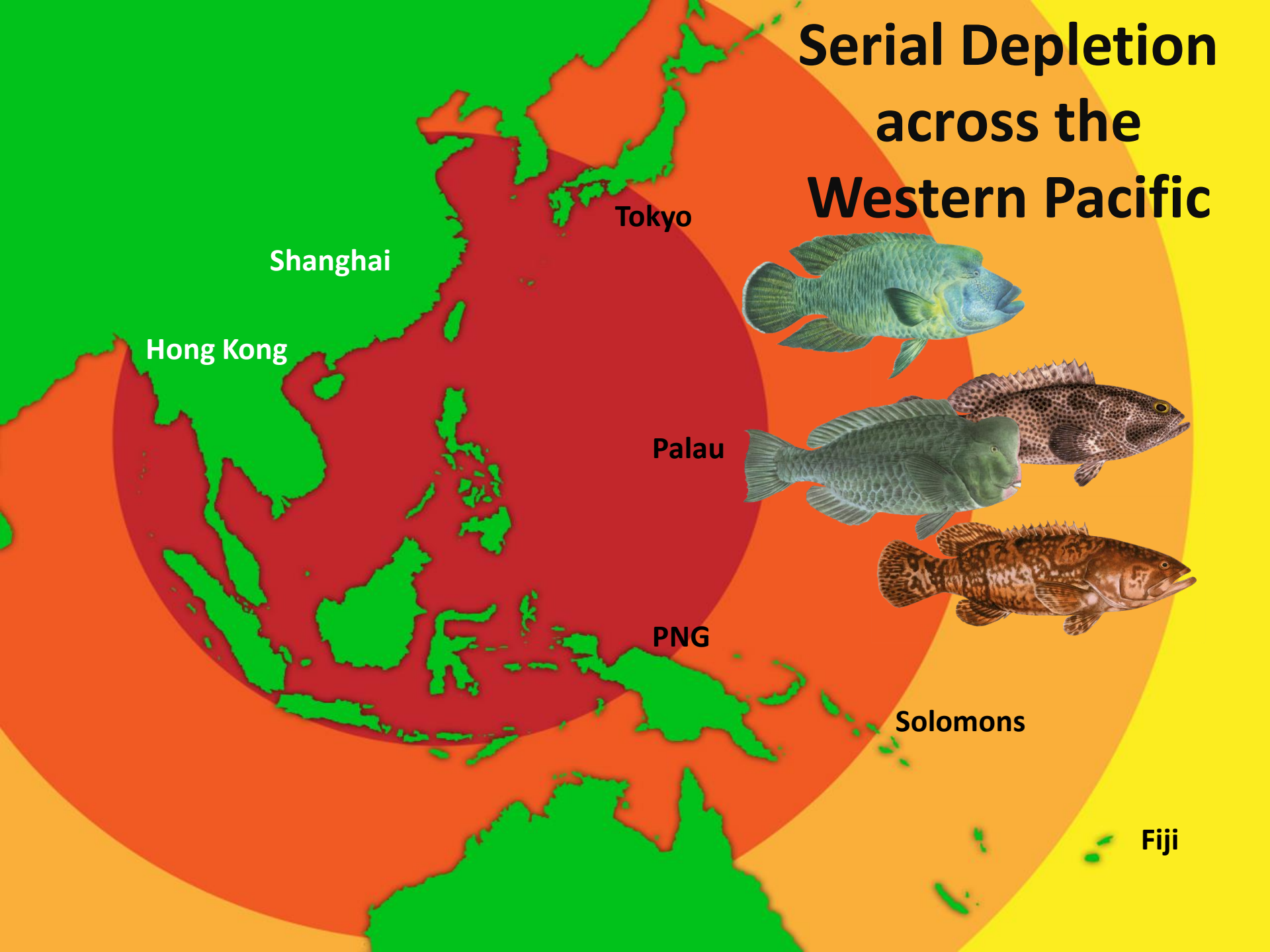
Easy to Catch

Eventually only fish no-one wants are left



Serial Depletion

Serial Depletion across the Western Pacific



Shanghai

Hong Kong

Tokyo

Palau

PNG

Solomons

Fiji



Palau 1970s -10 Species of Greatest Concern



Whitespot Rabbitfish



Groupers



Square Tail Coral Groupers



Longnose Emperor



Lined Rabbitfish



Gold spot herring



Fringelip Mullet

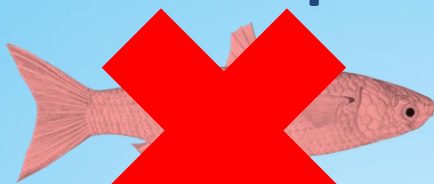


Blue-lined or sail fin sea bream

Palau 2015 -10 Main Species Caught in Recent Surveys



Blue-lined or sail fin sea bream



Fringelip Mullet



Gold spot herring



Blacksaddle Coral Grouper



Whitespot Rabbitfish



Groupers



Lined Rabbitfish



Bumphead parrot Fish



Bluespine Unicorn Fish



Hump-head Wrasse



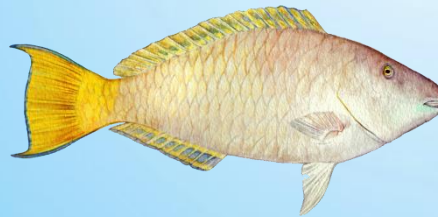
Paddle tail Snapper



Yellowlip Emperor



Orange Stripe Emperor



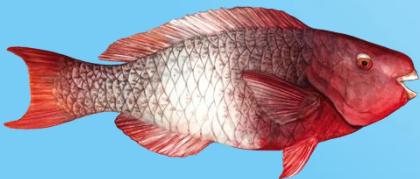
Pacific Longnose Parrotfish



Longnose Emperor



Square Tail Coral Groupers



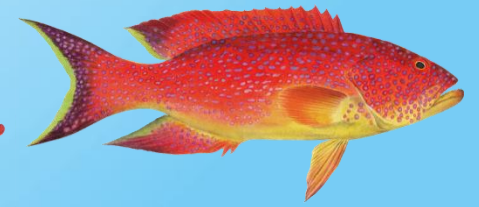
Redlip Parrot Fish



Redspot Emperor

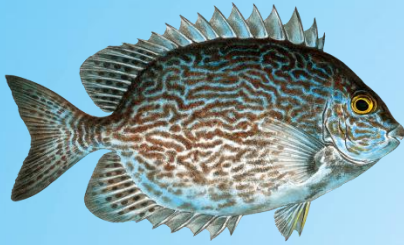


Leopard Coral Grouper



Yellow-edge Lyretail Grouper

Macuata, Fiji -10 Species of Greatest Concern



Vermiculate Rabbit Fish



Humphead Wrasse



Bumphead Parrot Fish



Camouflage Grouper



Blacksaddle Coral Grouper



Squaretail Coral Grouper



Diamond Scale Mullet



Gray Drummer



Chinaman Fish



Giant Sweetlip

Madang, Papua New Guinea

A Good Catch for One Day of Fishing!



Madang, Papua New Guinea

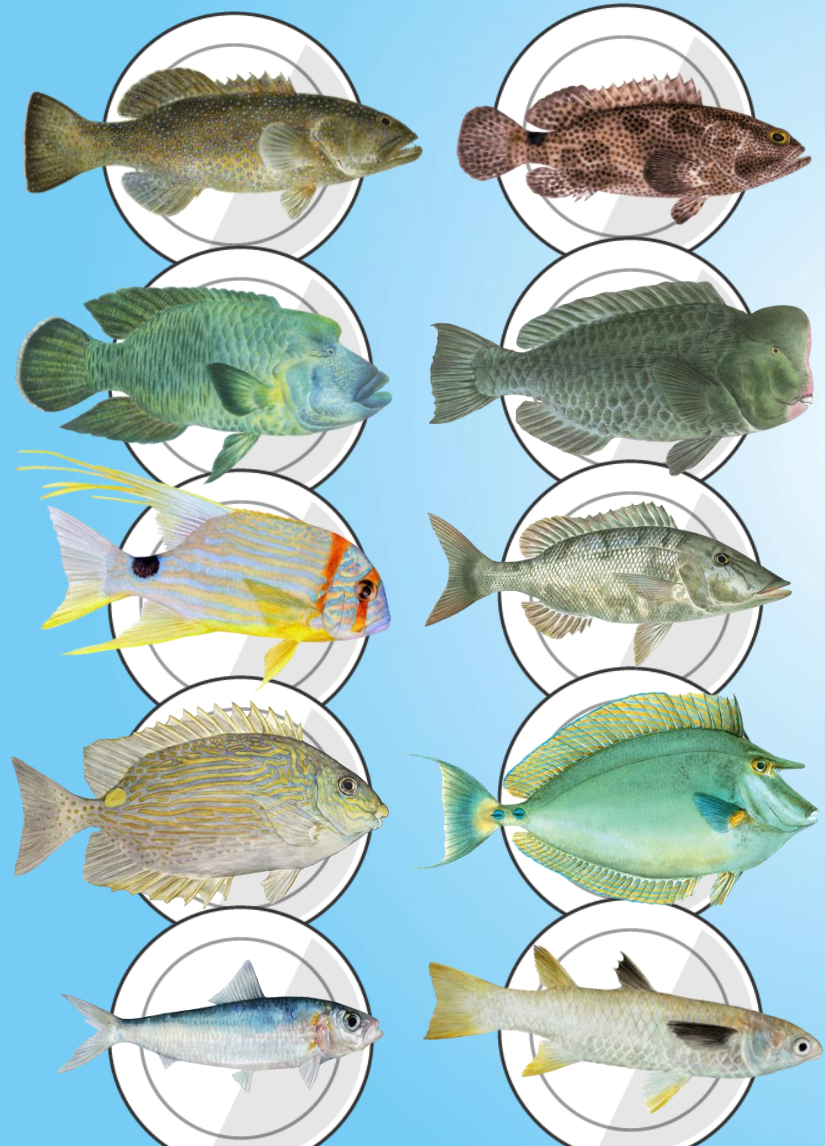
A Good catch for One Day of Fishing!



Where Are we Going?

Where are we going?

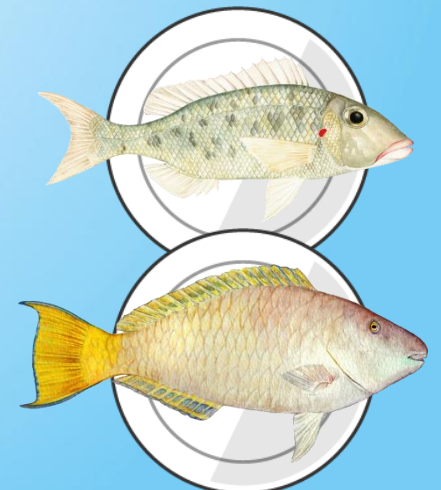
From this?



To this?



To this?



Where are we going?

To this?



The Solution to Overfishing

Change Old Thinking

Wasting Food

The Small fish are sweetest



Suppose you want to farm pigs.
You buy piglets





Feed them and
they grow.

You do not kill and eat all the young pigs.



Instead you look after them so they
give a first litter of piglets.



Two litters.



Three litters.



Four litters.



Then you eat
your pig.



And the Pighouse is Full



But this is what we do to the Reef!



But this is what we do to the Reef!

We eat the fish before they breed



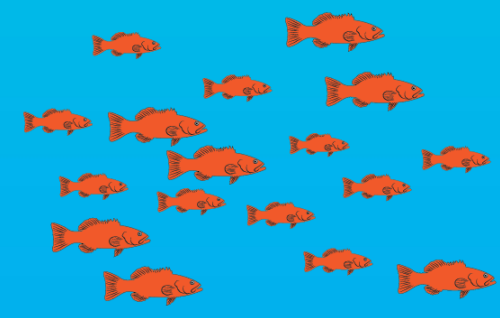
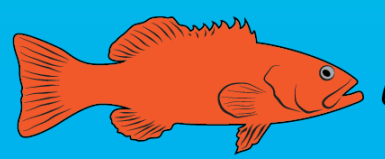
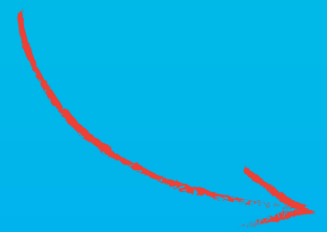
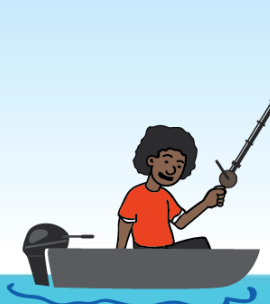
The reef is just like the gardens.

The reef is just like the gardens.

**Eventually you (cannot) reap
what you (did not) sow.**

What can we do?





Community Science

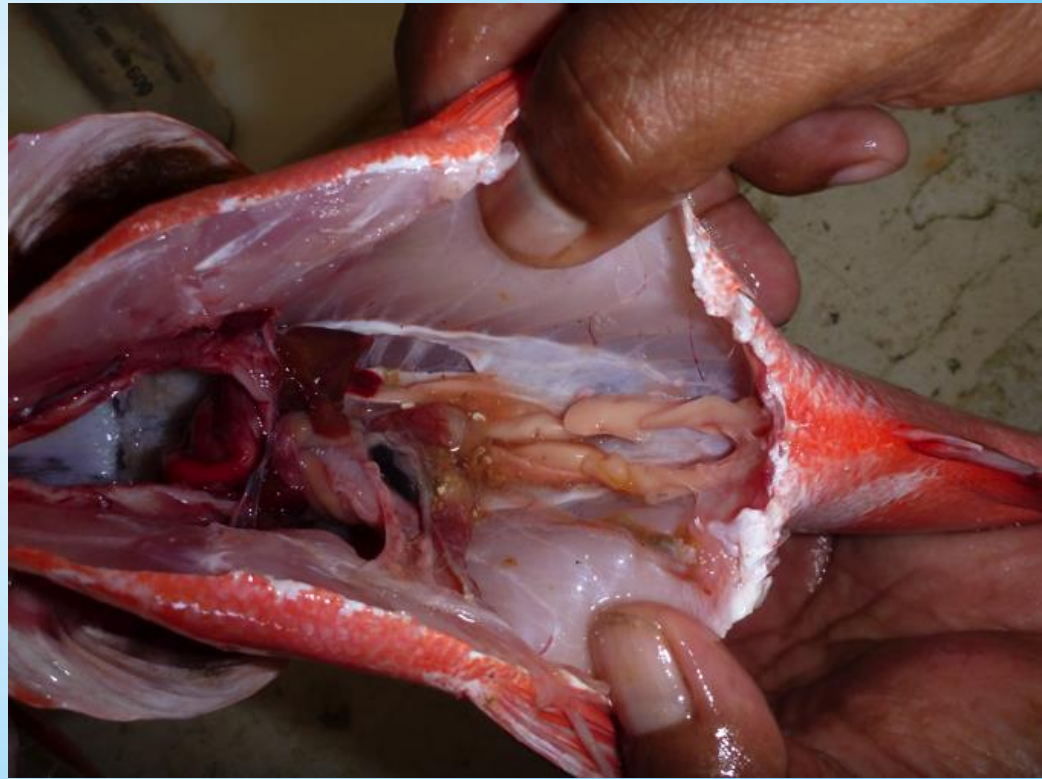
Education & Data Gathering

Set Size data: What we need to know

Catch lengths



Size of Maturity



The Steps to Set Size

1



2



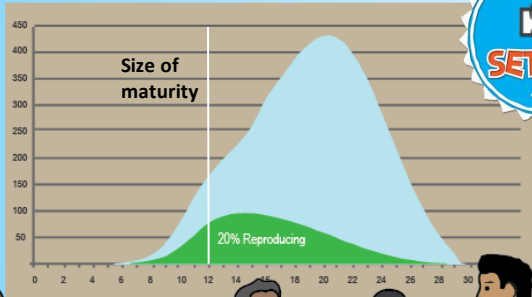
3



4



5



Ghizo, Western Districts Solomon Islands



Initial Training in Gizo February 2014







Initial Training in Gizo February 2014

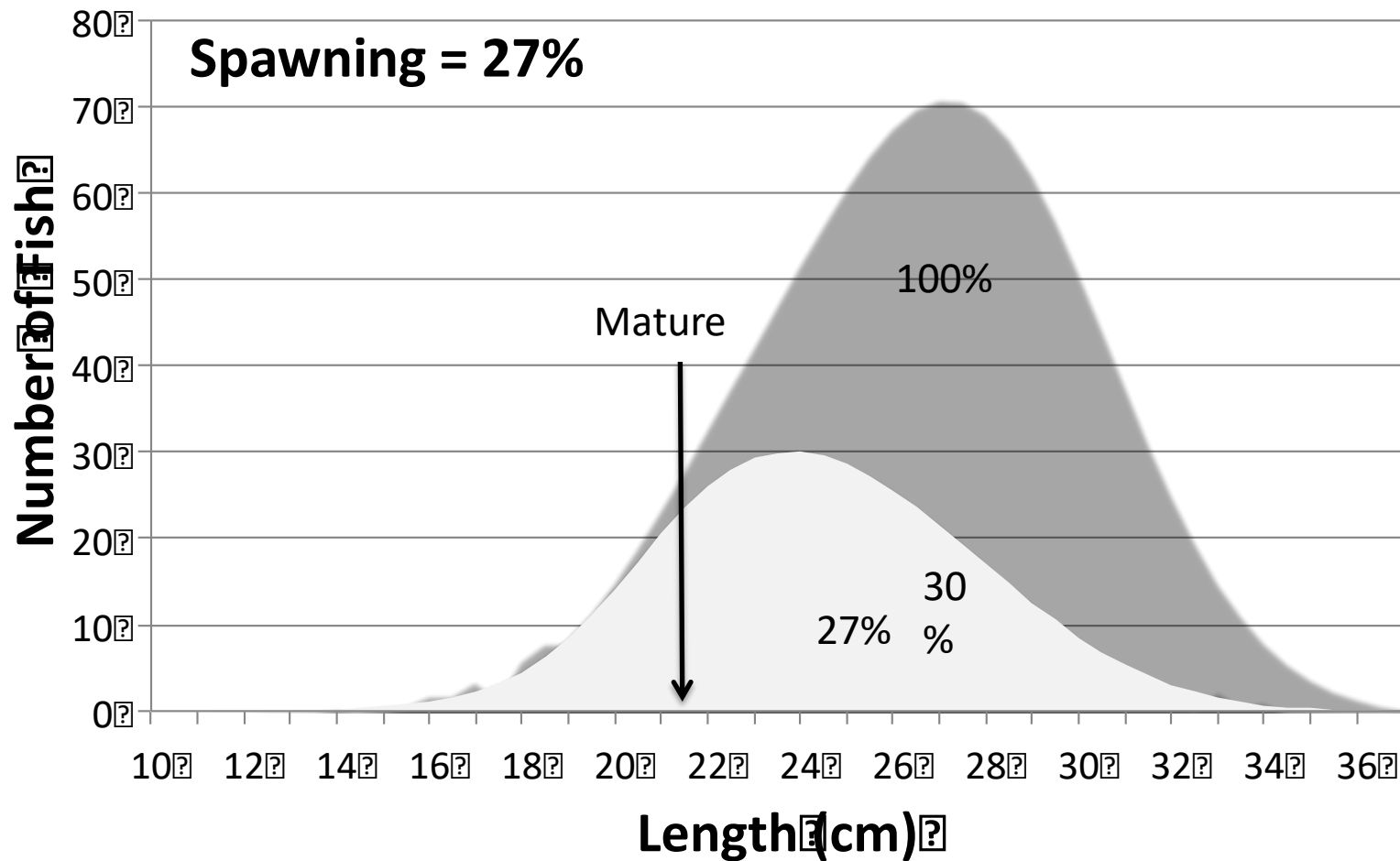


By October 2016:

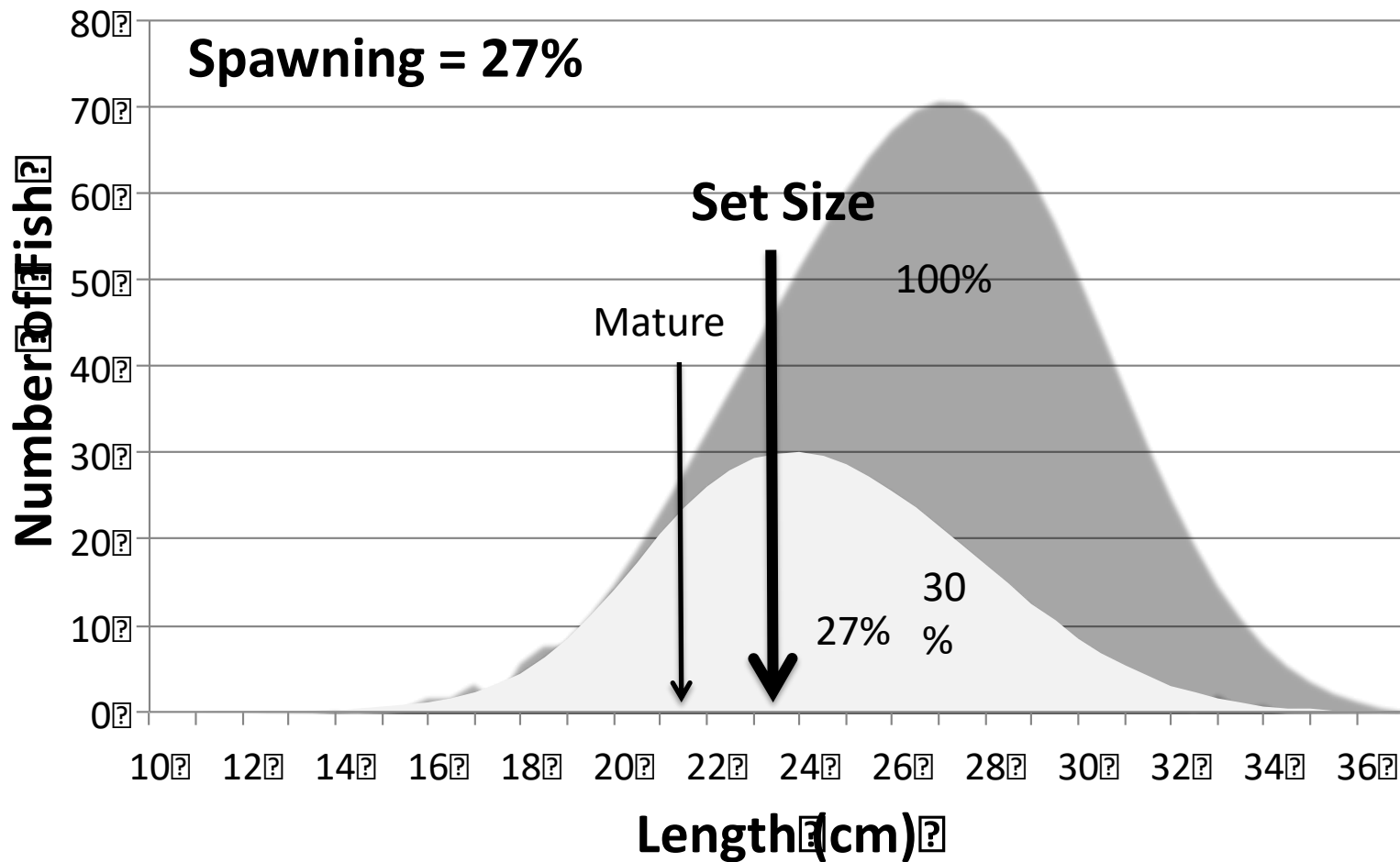
Number Sampled = 5,962

Number of Species ~ 224

Lutjanus gibbus Taea Solomon Islands

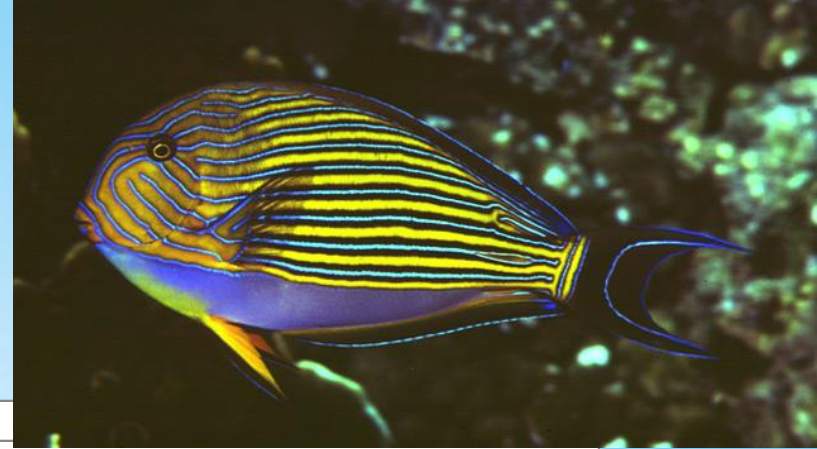


Lutjanus gibbus Taea Solomon Islands

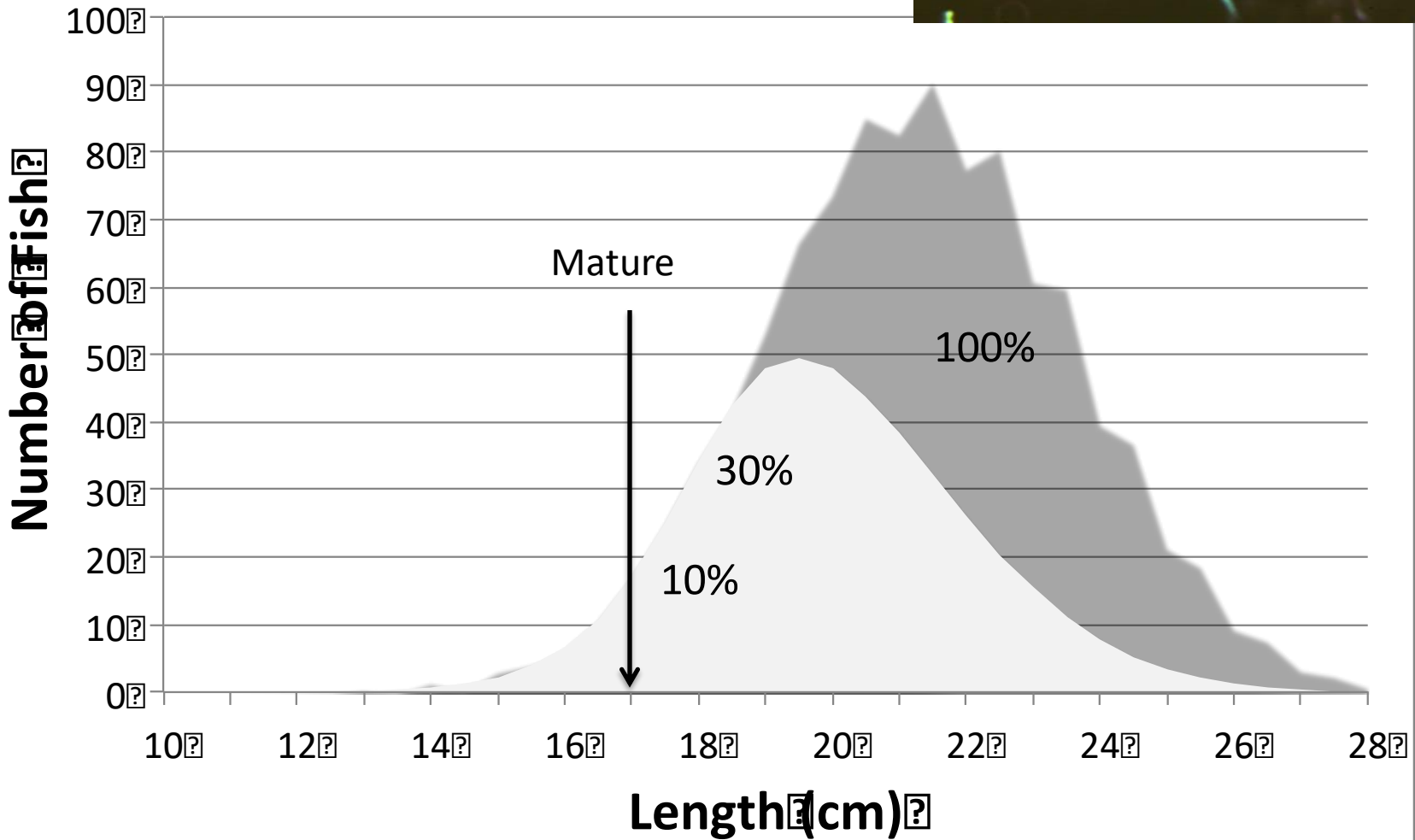


Blue Striped surgeon fish

Acanthurus lineatus

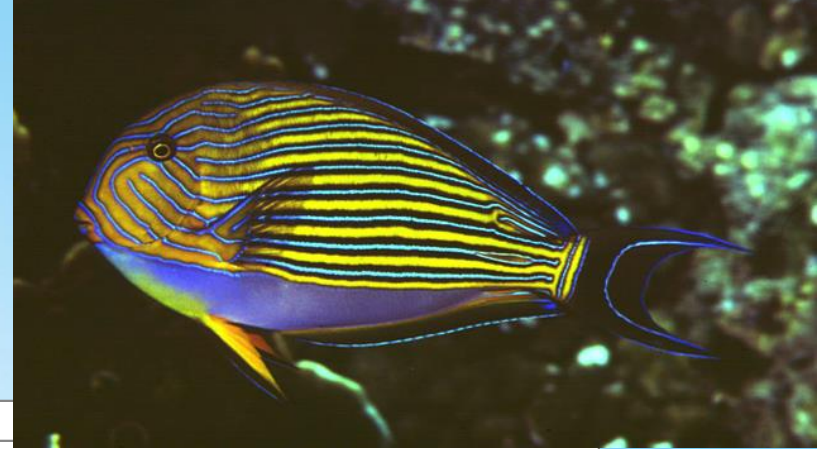


Spawning = 10 %

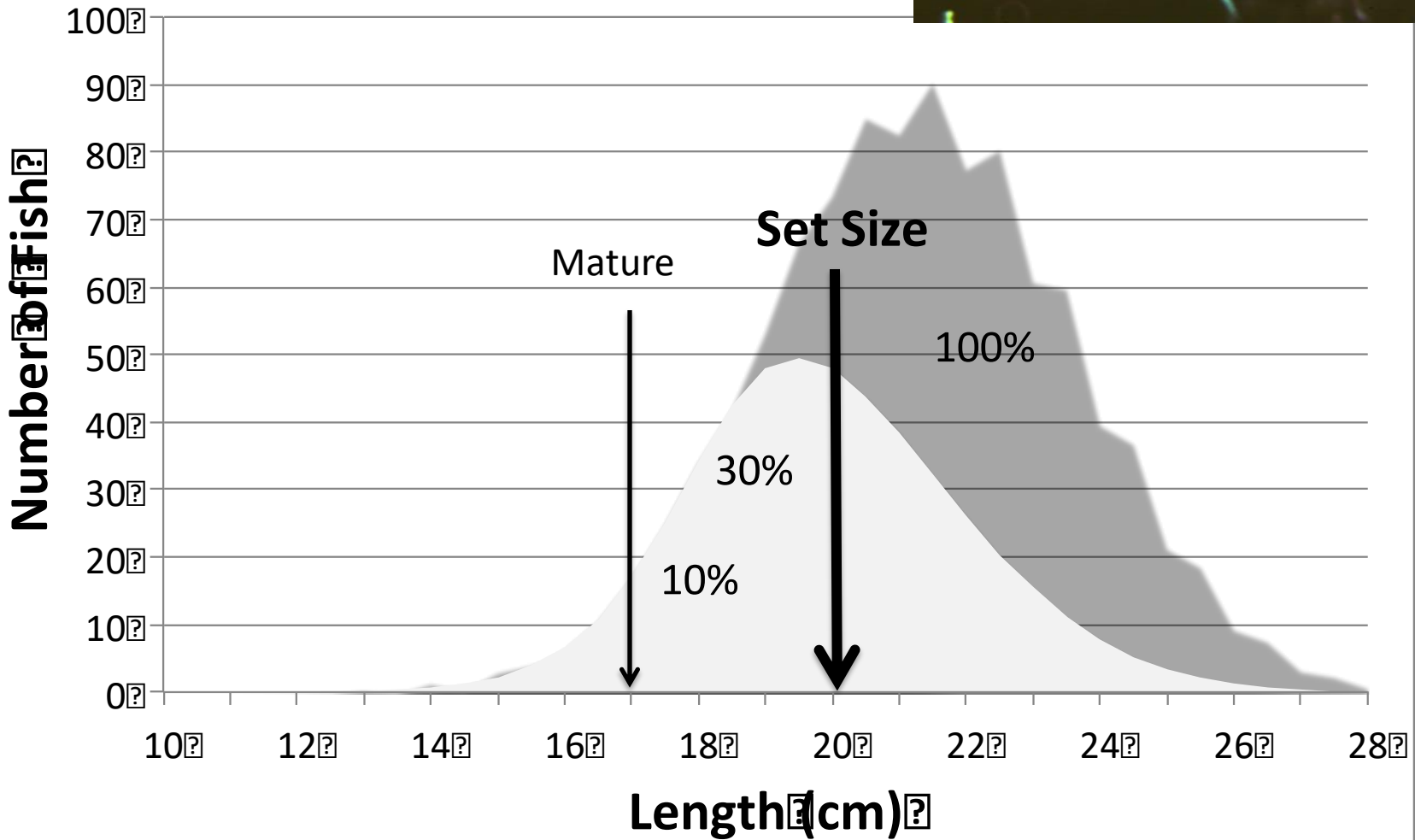


Blue Striped surgeon fish

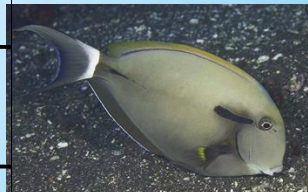
Acanthurus lineatus



Spawning = 10 %



Species	Local Names	Spawning	Set? Size? (cm)
<i>Lethrinus xanthurus</i>	Yellow lip Mitsu or Mihu or Osanga	0.60	40
<i>Lutjanus bohar</i>	Ringo	0.37	35
<i>Hipposcarus</i>	Laburu or Longnose	0.37	35
<i>Lutjanus gibbus</i>	Bakese or Heheuku	0.27	25
<i>Lethrinus lentjans</i>	Sidau - red ear	0.26	30
<i>Lethrinus obsoletus</i>	Sidau - orange stripe or Osanga onoeone	0.17	30
<i>Acanthurus nigricaudus</i>	Waliri - black streak surgeon fish	0.14	25
<i>Lethrinus olivaceus</i>	Longnose Mitsu or Mihu or Osanga meihu	0.12	55
<i>Acanthurus lineatus</i>	Bere bera or Seki or Quere	0.10	20





A sunset over a body of water. The sky is filled with soft, golden clouds, and the sun is low on the horizon, creating a bright reflection on the water. In the foreground, there are two small boats on the water. The boat on the right has several people in it, silhouetted against the bright light. The boat on the left is smaller and appears to be a simple raft or basket. The overall mood is peaceful and serene.

The End

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