

# Hungry Fish

Subject matter: describe how fish, particularly herbivore populations, benefit coral reefs.

Recommended reading: *Coral Reefs and Climate Change - Fish tales* (p.96-99), *Hungry fish* (p.100-101), *Fish shapes* (p.102-103)

## Hungry fish - Classroom

There are estimated to be between 1,200 and 2,000 species of Great Barrier Reef fish, from 130 different families. The most common reef fish families are **damselfish, wrasses, butterflyfish, angelfish, rabbitfish, sweetlips, parrotfish, surgeonfish, trumpetfish, blennies, snappers, anthias.**

Identify the following fish families and find out what they eat. Are they herbivores, carnivores or omnivores?



Chris Roelfsema

.....



Chris Roelfsema

.....



Trevor Barringer

.....



Chris Roelfsema

.....



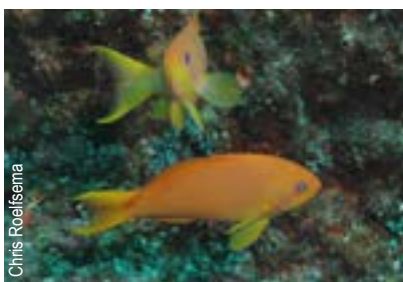
Max Eckes

.....



Chris Roelfsema

.....



Chris Roelfsema

.....



Chris Roelfsema

.....



Chris Roelfsema

.....



Cedric van den Berg

.....



Chris Roelfsema

.....



Trevor Barringer

.....

# Hungry Fish

## Answer key



**Omnivore: angelfish**  
Emperor angelfish - *Pomacanthus imperator*



**Herbivore: damselfish**  
Buffalo damselfish - *Parma microlepis*



**Carnivore: sweetlips**  
Dotted sweetlip - *Plectorhinchus picus*



**Herbivore: wrasses**  
Green moon wrasse - *Thalassoma lutescens*



**Herbivore: rabbitfish**



**Carnivore: sharks**  
Grey nurse shark - *Carcharias taurus*



**Carnivores: moray eels**  
Lyretail anthias female - *Pseudanthias squamipinnis*



**Herbivore: butterflyfish**  
Goldbarred butterflyfish - *Chaetodon rainfordi*



**Herbivore: surgeonfish**  
Palette surgeonfish - *Paracanthurus hepatus*



**Carnivore: trumpetfish**  
Yellow trumpetfish - *Aulostomus chinensis*



**Herbivore: blennies**  
Piano fangblenny - *Plagiotremus tapeinosoma*

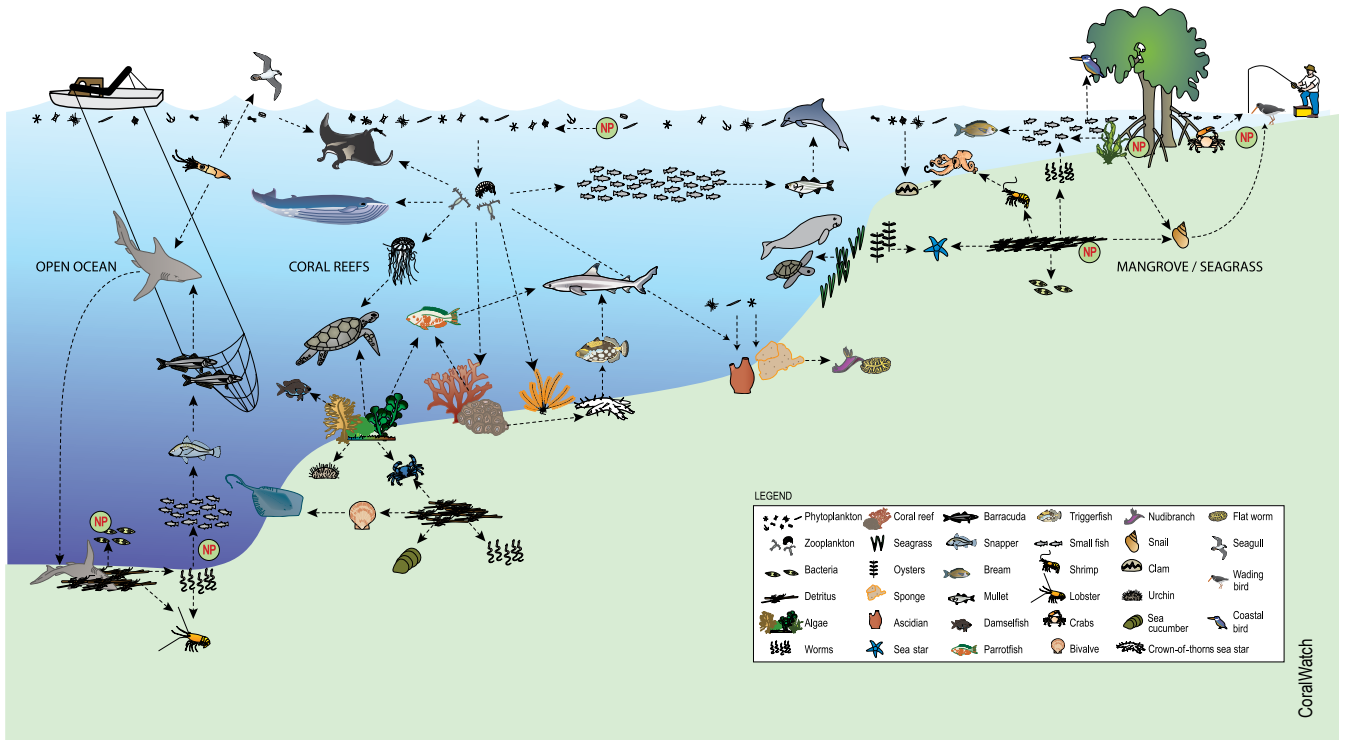


**Herbivore: parrotfish**  
Sixband parrotfish - *Scarus frenatus*

And check out the drawings of common reef families on page 102 Coral Reefs and Climate Change



# Hungry Fish



## Foodwebs - Classroom

Every living thing is eaten by something in marine ecosystems. Smaller prey is consumed by larger predators, until they, in turn succumb to injury or disease, and are recycled on the sea floor. Removal of any link in these chains will affect the pattern of the entire food web.

**Describe what would happen if the parrotfish, the damselfish, the crab and urchin would disappear from the reef.**



## Spot the differences - Classroom

Describe what you can see in the the two photos.

If these photos were taken in the same location, what could have caused the change?

Include the likelihood of the effects of 1. overfishing 2. reduced sunlight 3. temperature.

# Hungry Fish

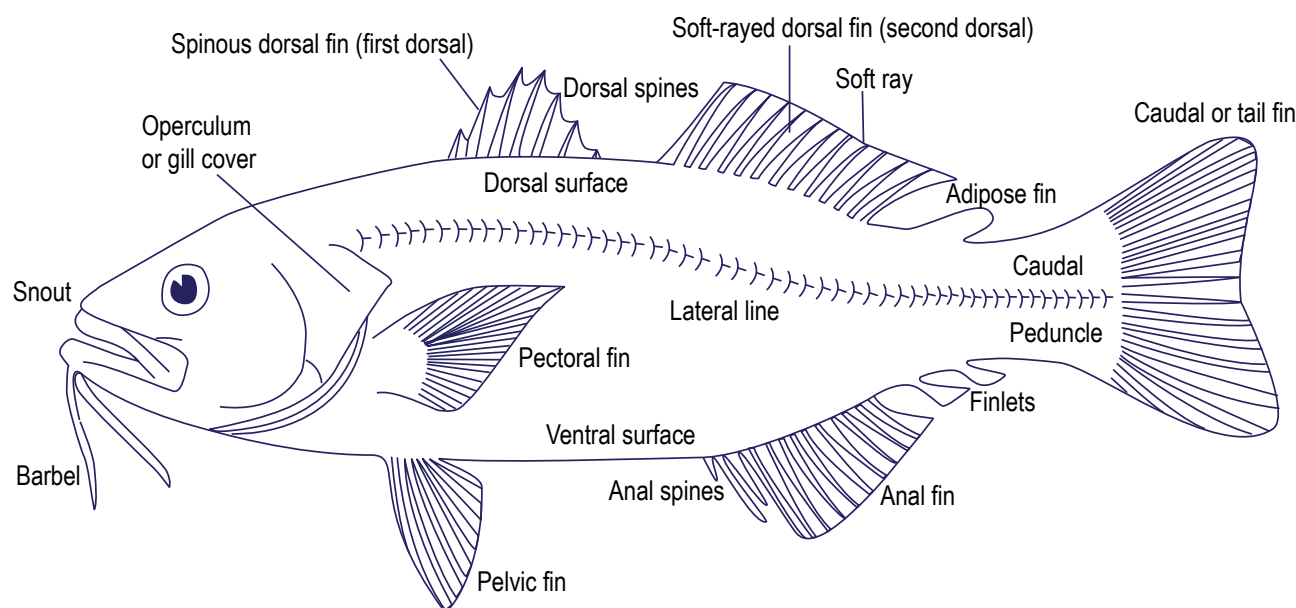
## Hungry fish - Field

During this activity you will estimate the amount of plant material being eaten by select grazers on the reef.

1. Choose an herbivorous fish, such as a parrotfish or rabbitfish, or a crab to observe (it is easy to find crabs feeding on top of coral colonies on a reef flat at low tide if you stand still and it is not too windy).
2. Wait until the animal is no longer disturbed by your presence and tally the number of bites or claw scrapes it takes in the space of one minute.
3. Repeat this three more times to calculate average bites per minute.
4. Assuming it eats at the same rate for the whole day, calculate the total number of bites the organism would take in 12 hours.

## Fish identification - Field

1. Go snorkelling and look for as many fish as you can.
2. Draw the basic shape of the fish on a waterproof slate and make notes about colour, size and specific features.
3. Take note of where they occur - near a particular coral type, on the sand, in the water column, etc.
4. Estimate the approximate numbers of fish of each species you observed (e.g. 1, 2-10, 50+).
5. Use field guides and your field notes when you are back on shore and write down the scientific and common name of each species you have identified.



Source: Cailliet G, Love M, Ebeling A (1986) Fishes: A field and laboratory manual on their structure, identification and natural history. Waveland Press

## Common groups of reef fish

### Disk-shaped/colourful Butterflyfish, Angelfish, Spadefish



Chris Roelfsema

*Pygoplites diacanthus* (Regal Angelfish)



Chris Roelfsema

*Chaetodon mertensii* (Merten's Butterflyfish)

### Ovals Butterflyfish, Angelfish, Spadefish



Maxi Eckles

*Acanthurus nigricans* (Goldrim Surgeonfish)



Karen Cheney

*Chromis flavapicis* (Yellowtipped Damselfish)

### Sloping heads/Tapered bodies Snappers, Coral Breams, Emperors



Ove Hoegh-Guldberg

*Lethrinus miniatus* (Redthroat or trumpet Emperor)



Chris Roelfsema

*Lutjanus russellii* (Russell's Snapper)

### Silvery Jacks, Barracudas, Tunas, Needlefish, Mulletts, Flagtails, Grunters



Chris Roelfsema

*Sphyræna jello* (Pickhandle Barracuda)



Chris Roelfsema

*Haemulon sciurus* (Bluestriped Grunt)

## Common groups of reef fish

### Slender schools/Colourful Fusiliers, Anthias



*Caesio Teres* (Blue and Yellow Fusilier)



*Pseudanthias dispar* (Peach Fairy Basslet)

### Heavy Bodies, large lips Groupers, Soapfish, Hawkfish, Sweetlips



*Plectorhinchus lineatus* (Diagonal Banded Sweetlip)

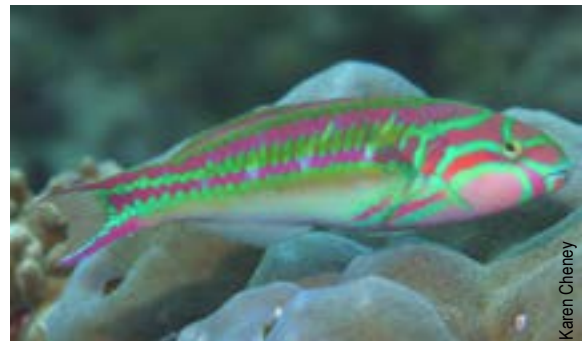


*Parupeneus crassilabris* (Thicklipped Goatfish)

### Swim with pectoral fins Parrotfish, Wrasses



*Scarus ghobban* (Blue Barred Parrotfish)



*Thalassoma quinquevittatum* (Fivestripe Wrasse)

### Reddish/Big Eyes Soldierfish, Squirrelfish, Bigeyes



*Myripristis kuntzei* (Blackbar Soldierfish)



*Priacanthus hamrur* (Moontail Bigeye)

## Common groups of reef fish

### Elongate sand and bottom dwellers Dartfish, Lizardfish, Jawfish, Dragonets



*Synodus variegatus* (Reef Lizardfish)



*Nemateleotris magnifica* (Fire Dartfish)

### Odd shaped bottom dwellers Frogfish, Batfish, Gurnards, Scorpionfish, Stonefish, Flounders



*Pterois volitans* (Common Lionfish)



*Scorpaenopsis venosa* (Raggy Scorpionfish)

### Small, elongate bottom dwellers Gobies, Blennies



*Ecsenius fourmanoiri* (Fourmanoir's Blenny)



*Salaria fasciatus* (Jewelled Blenny)

### Odd shaped swimmers Boxfish, Goatfish, Trumpetfish, Sweepers, Puffers, Molas, Filefish, Remoras



*Aulostomus chinensis* (Trumpetfish)



*Ostracion meleagris* (Spotted Boxfish)

## Common groups of reef fish

### Eels Morays, Snake Eels, Conger eels, Garden Eels

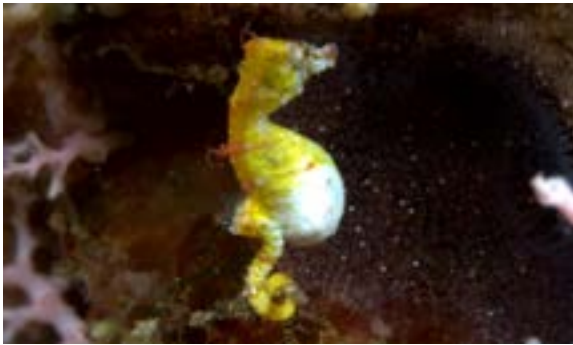


*Rhinomuraena quaesita* (Ribbon Moray)



*Gymnothorax fimbriatus* (Darkspotted Moray)

### Pipefish and Seahorses Ghost Pipefish, Seahorse, Pipefish



*Hippocampus bargibanti* (Pygmy Seahorse)



*Doryrhamphus pessuliferus* (Orange-banded Pipefish)

### Sharks, Rays Wobbegongs, Bamboo Sharks, Cat Sharks, Whale Sharks, Zebra Sharks, Hammerhead Sharks, Guitarfish, Coffin Rays, Stingrays, Eagle Rays, Cownose Rays, Manta Rays



*Manta birostris* (Manta Ray)



*Triaenodon obesus* (White Tip Reef Shark)



*Pastinachus sephen* (Cowtail Stingray)



*Orectolobus maculatus* (Spotted Wobbegong)

photos Chris Roelfsema