TEACHER OUTLINE:

MARINE HABITAT (2.4)

OVERVIEW

The Marine Stewardship Council has certified fisheries in many different habitats. A habitat is a place where a group [community] of living things [organisms] live and breed. Different habitats have different characteristics: temperature, current, tide, seafloor [substrate], and light. Significant types of marine habitats include deep water, open water [pelagic] and coastal water.

Activities provided here develop understanding of the different types of habitat and how overfishing can impact marine habitats.

See accompanying slide set Marine habitat

FOCUS QUESTIONS

- *How do marine habitats differ from one another?*
- *What new words and concepts have we learnt?*

LEARNING OBJECTIVES

- Describe the concept of 'habitat' and identify differences amongst three marine habitats
- Use scientific and fisheries related vocabulary

LOCATION

Indoors

DURATION

45 mins +

LEVEL

Level 3 - 5

CURRICULUM

Science

Pūtaiao

NEXT STEPS

This topic:

- Marine food webs (2.5)
- Sustainable fishing: Orange Roughy (2.6)
- Reviewing key concepts (2.7)

MATERIALS

- Slide set Marine habitat
- This Teacher Outline
- Copies of Marine habitat cards (one per group) (see page 6)
- Scissors
- Something to write with
- White board and Blue-tack
- Access to the internet (film clips)

PROCEDURE

1. INVESTIGATE the idea of 'habitat' and BRAINSTORM existing knowledge of marine habitat using the prior knowledge chart [slide 30]
2. DISCUSS what creates a habitat and consider that there are different habitat types [slides 31 & 32]
3. EXPLORE the deep ocean via a link at the National Aquarium of New Zealand [1:30] and just for fun go for a deep dive to see what animals hang out where in The Deep Sea [slide 33]
4. Use the habitat cards to PLAY the true false card game to test knowledge of habitat and fish adaptations [slide 33] (see pages 6-7). Complete the following:
    a. Print a copy of the true false cards and hand out one copy per group
    b. Learners work in groups to classify cards as true or false
    c. Review and discuss as a class: What did we learn? What do we want to know more about? How might we find out this information? Identify and discuss new words
5. MATCH marine species to their correct habitat using the habitat cards (page 8)

    Easy version:

    a. Print a copy of habitat and ten marine creature cards on to card, cut and hand out one copy per group
    b. Start by looking just at the fish. Which one of these ten cards shows a creature that is not classified as a fish?
    c. Discuss: Why not (warm blooded v cold blooded; breathes air using lungs v gills…). What do fish and this creature have in common? (Vertebrates, live in water, fins, eyes, mouth…)

d. As a class look at the fish one by one. Identify characteristics about the fish that might be adaptations to live in a particular habitat

e. Look at habitats one by one. Discuss the different qualities of each habitat and what adaptations a fish might need to live in each one

f. In groups have learners match fish to the habitat based on their observation of adaptations

g. Reflect: What did we learn? What do we want to know more about? How might we find out this information? Identify and discuss any new words and any words that learners don't know

6. Harder version (page 11):

   a. Print a copy of (harder) habitat and creature cards on to card, cut and hand out one copy of fish (only for starters) and habitats per group

   b. In groups learners figure out names for each habitat picture and match fish to each habitat based on their observation of fish adaptations

   c. Then match the other Aotearoa New Zealand sea creatures to the correct habitat

   d. As a fun exercise see if learners can figure out which of the other Aotearoa New Zealand creatures match with which habitat? Share answers as a class

   e. Discuss similarities and differences between the dolphin and fish

   f. Discuss why the dolphin isn't classified as a fish (warm blooded v cold blooded; breathes air using lungs v gills…). What do fish and dolphins have in common? (Vertebrates, live in water, fins, eyes, mouth…)

   g. Reflect: What did we learn? What do we want to know more about? How might we find out this information? Identify and discuss any new words and any words that learners don't know

7. Have a closer look at some Deep Sea Exploration via the National Aquarium of New Zealand website and give their activities a go! [slide 33]

8. EXPLORE the impact overfishing can have on habitats using the example of snapper and kina barrens [slide 33 & 34]. WATCH the short VR underwater film clips and OBSERVE the characteristics of kina barrens [see slide 33 & 34]

EXTENSION / Homework

1. Learners research a habitat and the community of creatures that live there and create their own set of cards for a specific habitat

2. Apply knowledge to an imaginary habitat! Create a creature with features adapted to your imaginary habitat! Label key features of your creature and/or write a paragraph explaining the features of your habitat and the adaptations of your creature!

KEY WORDS

Habitat

Invertebrate

Vertebrate

Adaptation

Pelagic

CURRICULUM LINKS

Nature of Science (Level 3-5)

- Investigating in science
- Communicating in science
- Participating and contributing

Living World (Level 3-5)

- Ecology
- Life processes

Science (Level 6+)

- Participating and Contributing
- Ecology
- Life processes

Pūtaiao

- *The Natural World: The Organism:* Recognise that there are biological processes common to all organisms, which occur in different ways in different species. *The Biological Environment*: Recognise and explain the changes undergone by species (especially those of Aotearoa) over long periods of time (Level 4+)
- The Natural World: The Biological Environment: Investigate the effect of human actions, and natural processes, on an Aotearoa ecosystem (Level 6+)

TRUE FALSE CARDS (FALSE)

FISH ARE INVERTEBRATES (HAVE NO BACKBONE)

MOST FISH ARE WARM BLOODED

FISH COME TO THE SURFACE TO BREATHE AIR USING LUNGS

FISH WITH FORKED TAILS ARE SLOW SWIMMERS

BOXY SHAPED FISH ARE USUALLY VERY FAST SWIMMERS

FISH HOLD THEIR BREATHE SO THEY DON'T SINK

THE COLOUR OF A FISH HAS NOTHING TO DO WITH WHERE IT LIVES

DEEP SEA FISH OFTEN HAVE SMALL RATHER THAN BIG EYES

TRUE FALSE CARDS (TRUE)

THERE ARE OVER 30,000 SPECIES OF FISH

SHARKS & RAYS ARE ALSO CALLED CARTILAGINOUS FISH

FISH BREATHE USING GILLS

MOST TORPEDO SHAPED FISH ARE FAST SWIMMERS

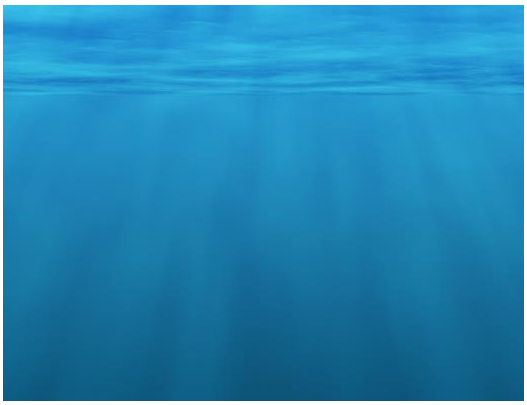
MOST FISH THAT WE EAT (LIKE TĀMURE OR SNAPPER) ARE BONY (RATHER THAN CARTILAGINOUS) FISH

MOST BONY FISH HAVE A GAS FILLED SWIM BLADDER FOR BUOYANCY (SO THEY DON'T SINK OR FLOAT)

CAMOUFLAGE [ABILITY TO BLEND IN] IS USUALLY THE REASON FOR THE COLOUR OF A FISH

HABITAT CARDS [EASIER]

Soft /Sandy



Open Water

Hard / Rocky

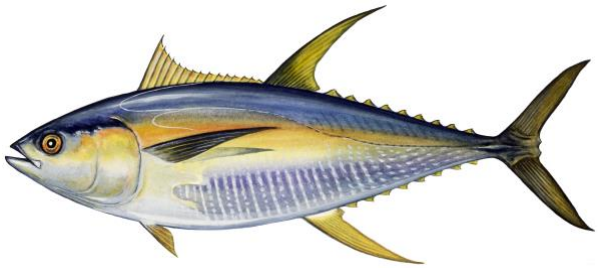
Deep Ocean

Ling

Tāmure / Snapper

Pāpahu / Dolphin

Spotty

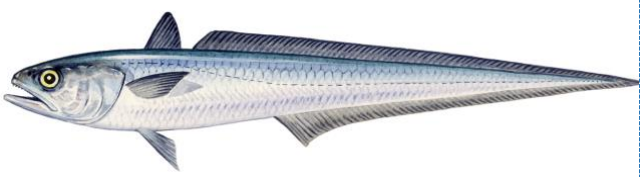


Yellow Fin Tuna

Orange Roughy

Whai / Sting ray

Mangō / Shark

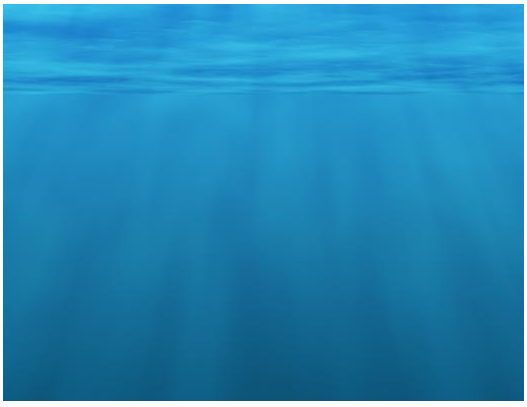


Hoki

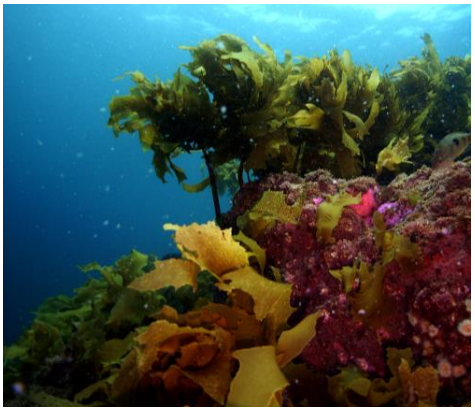
Butterfly fish

HABITAT CARDS [HARDER]

Soft /Sandy



Open Water



Hard / Rocky

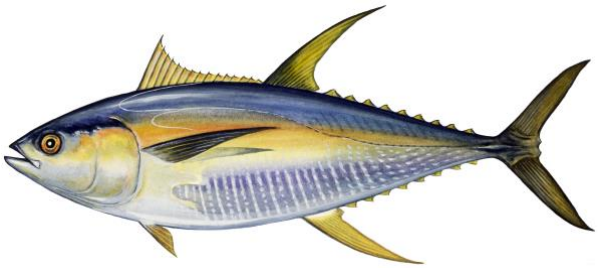
Deep Ocean

Ling

Tuangi / Cockle

Tio / Oyster

Spotty



Yellow Fin Tuna

Orange Roughy

Tāmure / Snapper

Tipa / Tupa / Scallop

Pāpahu / Dolphin

Mangō / Shark

Pāpaka / Crab

Pātangatanga / Pātanga / Pekapeka / Starfish

Whai / Sting ray

Whēke / Octopus

Hoki

Karorā / Little Blue Penguin

Kina / Sea urchin

Butterfly fish