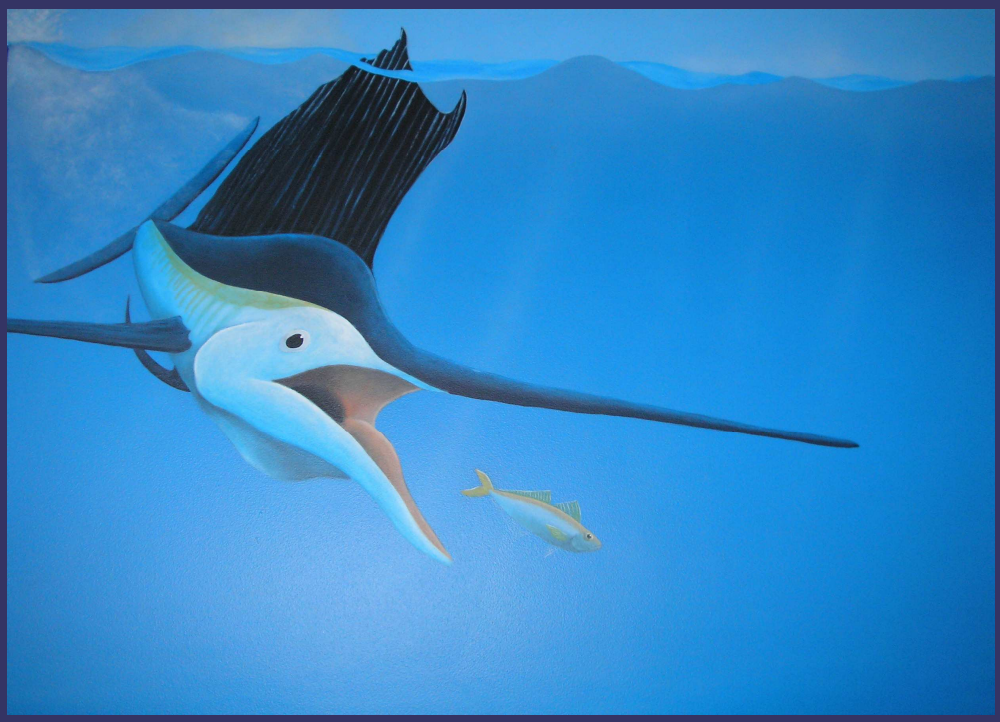
Sustainable Recreational Fishing



Name: _____

School: _____

Date: _____/_____/_____

National Marine Science Centre

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- **Activity zone 1 - Recreational Fishing Panel**

Fishing is a popular pastime for more millions Australians each year but is not the only way to enjoy our lakes and coastline. As such consideration must be given to keep the environment and its aquatic wildlife healthy and viable for all Australians to enjoy over the long term.

Fishing managed as a source of fun and as resource for the future.

1. Name the different marine habitats displayed on the various wall panels.
   ……..……
   ……
   .....

2. Name five species of fish contained within the wall panels.
   ……
   ……
   ……

3. Give two examples of an action that you and your family can do to make fishing sustainable for the future.
   ……
   ……
   ……

4. How might any failure to conserve local marine resources, such as water, plants, fish or marine mammals, affect you?
   ……
   ……
   ……

- **Activity zone 2 - Common species & lifecycle panels**

New South Wales has many diverse aquatic habitats within its rivers, lakes, wetlands and coastal environments. Consider just a few common examples.

1. Why are mangrove habitats so important to many native fish stocks?
   ……
   ……
2. Why do most fish larvae have a yolk sac?
   ……
   ……
3. Why do some fish spawn so many eggs into the water column?
   ……
   ……
4. What organisms form the base of the marine food web?
   ……
   ……
5. Define Phytoplankton
   ……
   ……
6. Define Zooplankton
   ……
   .....
7. Name and record the details of two commonly caught fish species below:
   Fish 1: Common name:
   Legal length:
   Best bait:
   Location caught:

   Fish 2: Common name:
   Legal length:
   Best bait:
   Location caught:

Extension
When back at school, research the difference between fish that are broadcast spawners, batch spawners and brooders?

- **Activity zone 3 - Marine mural & fishing game**

1. List the 3 protected marine species on the sea wall.
   ……
   ……

2. What type of crustacean is found on the marine mural?
   ……
   ……

3. List two adaptations that this crustacean has that help protect it from predators.
   ……
   ……

4. Name a species of fish which uses counter shading as a defense mechanism.
   ……
   ……

5. Catch a fish and record the following;
   Common name: ……..
   Legal length: ……...
   Bag limit: ……
   Can you keep your fish? .....Why or why not?.....
   .....

Did you know? Mahi Mahi (Dolphin fish) are one of the fastest fish in the ocean and one of only a few species that is fast enough to catch flying fish!

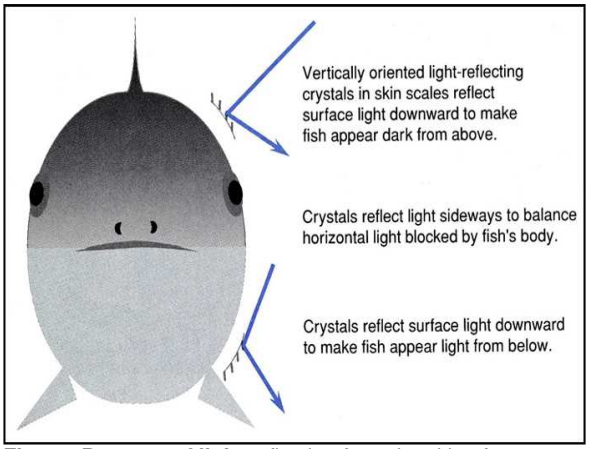


Figure: Patterns of light reflection from the skin of a countershaded fish. Copied from Sumich, J.L., 1996. An introduction to the biology of marine life.

Why are many finfish are dark across the back and lighter on their belly? This colour distribution makes them hard to see by predators as when looking down on a fish their backs blend into the depths of the waters. When looking up at a fish their underbellies blend in with the sky.

- **<u>Activity zone 4 - The good, the bad and the ugly display</u>**

Today we are looking for ways to help safe the environment in our daily activities, groups such as NSW Recreational Fishers' groups, are also working to find solutions to help local fisheries.

1. What is something you can do next time you go fishing to help out the environment?
   ……

   ……

2. What family of fishes does the Red Rock Cod belong to?
   ……

   ……

3. How can fishers reduce the likelihood of birds becoming tangled in fishing gear?
   ……

   ……

4. How many people go on fishing trips in Australia each year?
   ……

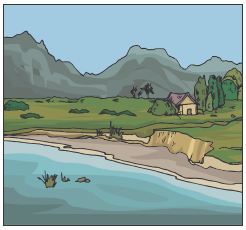
   ……

5. List two ways that you can help preserve local fish stocks?
   a)……

   b) ……

7. The catchment area that collects the waters supporting your favourite fishing spots needs to be protected too. Name two things that can be done to maintain or improve your local streams and river areas?
   a)……

   b) ……



- **<u>Activity zone 5 - Safety display</u>**

As a fun and popular leisure time activity it remains important for each of us to consider and understand the safety aspects of fishing local waterways.

1. What is the most important thing to consider when going fishing?
   ……

   ……

2. Why is it good to fish with friends?
   ……

   ……

3. Name two internet sites were you can find up to date weather information for the Coffs Coast area? Give two of the weather conditions you need to check?
   1) …… 2)……..

   Conditions: ……

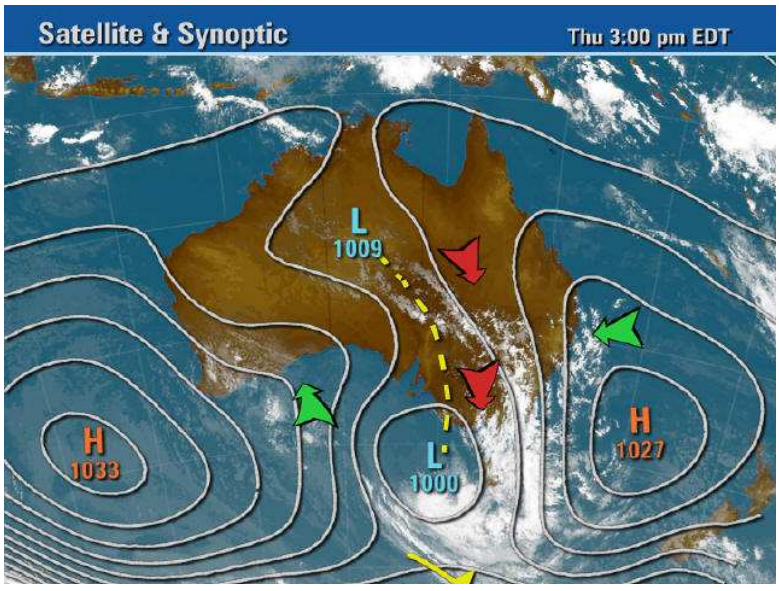
4. List five things you should always do before going rock fishing.
   1) ……..

   2) ……..

   3) ……..

   4) ……..

   5) ……..



- **Activity zone 6 - Sustainable knowledge for recreational fishers**

1. List a type of the following fishing gear;

   Fishing rod hook sinker

   a)…… b)…… c)……

2. List 3 types of fish friendly tackle;

   a)…….. b)……..

   c)……..

3. List three projects that are supported by your fishing license fees;

   a)…….. b)……..

   c)……..

4. What are 3 actions you can undertake to increase the survival chances of a Catch and Release capture?

   a)…….. b)……..

   c)……..

5. What is a F.A.D. short for?

   F…… A…… D……

6. What type of fish does FAD's target?

   ……

- **Activity zone 7 - Indigenous panel**

1. What was the Arrawarra fish trap made of?
   ……
   ……..……..
2. Draw a diagram on your worksheet showing where the fish trap is located on the headland and how the fish entered the trap.
   ……
   ……
3. What species of fish were commonly caught within the trap?
   ……....
   ……
4. What time of year were mullet commonly caught in the fish trap?
   ……
   ……
5. Explain what a midden is?
   ……
   ……
6. Draw a tow row and explain how it was used?
   ……
   ……
7. Did both men and women go fishing? If so did they have the same roles? Explain.
   ……
   ……
8. Did aborigines catch more than they needed?
   ……
   ……

- **<u>Activity zone 8 - Commercial fishing display</u>**

We local fishers share the resources of the area with the commercial fishers of NSW. What are some of the actions being taken by this the commercial fishers to improve long term sustainability of these shared fish stocks?

1. What is a method of preventing accidental bycatch of significant pelagic species, such as seals or turtles, being applied by the commercial trawl fishery?
   ……

   ……

   ……

2. What is the main benefit given by the use of square mesh rather that standard knotted mesh in a trawl net cod end?
   ……

   ……

   ……

3. In longline fishing, name a type of marine life that can be endangered as accidental bycatch. Can you give an example of an alternative gear type which is helping to lower the risk to this wildlife?
   ……

   ……

   ……..

4. What initiative has the NSW Fisheries taken to help support the long term potential of sustainable fisheries share for NSW recreational fishers?
   ……

   ……

   ……..

- **<u>Activity zone 9 - River to sea connections / microscope table</u>**

There are many groups involved in the management of NSW's local fish stocks and they are investing in ways to maintain and improve our fish stocks. Looking at the microscope samples here will again show the range of aquatic species. Consider the difficulties of managing not only all the biodiversity but the requirements for each age class of each species.

One of the tools enabling the support of the management actions is through the payment of the Recreational Fishing License fees by Australian fishers.

1. How are estuary areas crucial to the health of both the plant and aquactic organisms of live not only in the rivers but also our oceans?

……..

……..

2. How is the NSW Fisheries initiative of creating 'ladders' and 'stairs'around structures such as road crossings and damns helping to re-establishing the native aquatic organisms in the states waterways?

…….

…….

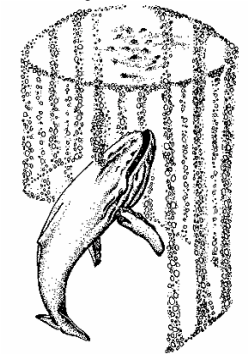
3. It is important to the management of fish stocks to know the recruitment levels occurring each year. To do this management groups need to gather information how many fish of a certain size group/ or year class are in local waters. So, how are scientists aging fish?

…….

…….

Did you know? Humpback whales can use a method called "bubble net feeding" to round up and catch schools of herrings. This is when a pod of humpback whales will circle the school of fish and blow a continuous wall of bubbles to concentrate the herrings allowing them to capture large numbers of fish quickly.

Diagram courtesy of cetacean.org.



- **Activity Zone 10 - Marine habitat tanks**

The characteristics of fish are defined by their habitats, knowing your target species will help you to successfully catch the fish you want.

1. Name two of the three local marine habitats shown in these tanks.
   ……
   ……

2. Group the organisms in the tank by phylum.
   i.e. crab = CRUSTACEA (ask your teacher if you need help doing this)
   ……
   ……

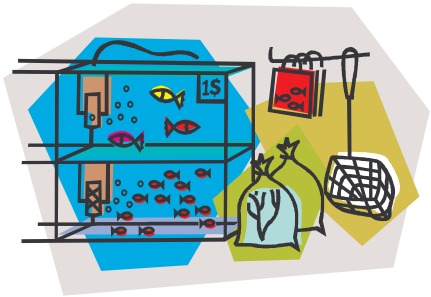
3. Are there any recreational fish species in the tank if so which ones?
   ……
   ……

4. Are there any dangerous species in the tank if so which ones and why are they dangerous?
   ……
   ……

5. Choose one habitat tank to consider the environmental conditions that occur in this habitat. Can you identify an adaptation that is common to many of the marine species in this habitat?
   ……
   ……

6. Choose one animal from within the tank and record the following details;

Organism type:…….
Body shape:……..
Body covering (circle): Scales, Spines, Hard shell, Other……...
Number of legs:…….
Length:…….
Colour:……..



- **<u>Activity Zone 11 - Rubbish display / wall projection / whale mural</u>**

The film will show some of the habitats along with examples of the marine species supported by these environments that occur along Coffs Harbour's coastline. Coffs Coast has a wondrous biodiversity, which is now protected under the Solitary Islands Marine Park.

To help protect this biodiversity and future recreational fishing we must consider our effects on our oceans on a daily basis. Our land based waste is the major source of rubbish accumulating in our oceans, with the slow breakdown rate it will threaten ocean life for decades.

1. What can you do to help keep marine ecosystems clean?

   ……
   ……

2. Using a diagram below explain how litter ends up in the oceans.

3. In your diagram draw and label ways people can prevent rubbish entering streams and waterways. i.e. Storm water drain rakes.

4. Why are polystyrene and plastic bags particularly bad polluting items?
   .....……
   ……

5. Whales and dolphins are not fish, they are mammals. Explain the difference?
   ……
   ……

NOTES