



THE AQUARIUM OF WESTERN AUSTRALIA

Sea Creature Cards

The following pages have information about, and an image of, some of the amazing animals you can find at AQWA.

Science Learning Area: Understanding Concepts - Life and Living

“Students understand their own biology and that of other living things, and recognize the interdependence of life”

Activity Suggestion:

Marine Match Up:

- Photocopy at least two of each image.
- Use each picture as a discussion topic – Where does this animal live, what does it do, what colour is it...
- Have students colour in / decorate each card.
- Stick all cards face down on the blackboard (or place face down on a table).
- Divide your class into teams.
- Ask a student from each team to come up one at a time and turn over 2 cards, with the aim of finding a matching pair.
- If the cards don't match: Discuss the similarities and differences between each animal.
- If the cards match, the team needs to tell the rest of the class one thing that they have learnt about that animal.
- The team with the most points wins!

Links to other key learning areas:

English – Writing

Would you be a stonefish or a sea dragon? Why?

Tell of your adventures when you were a _____ for the day.

Society and Environment

How is each animal adapted to live within its environment?

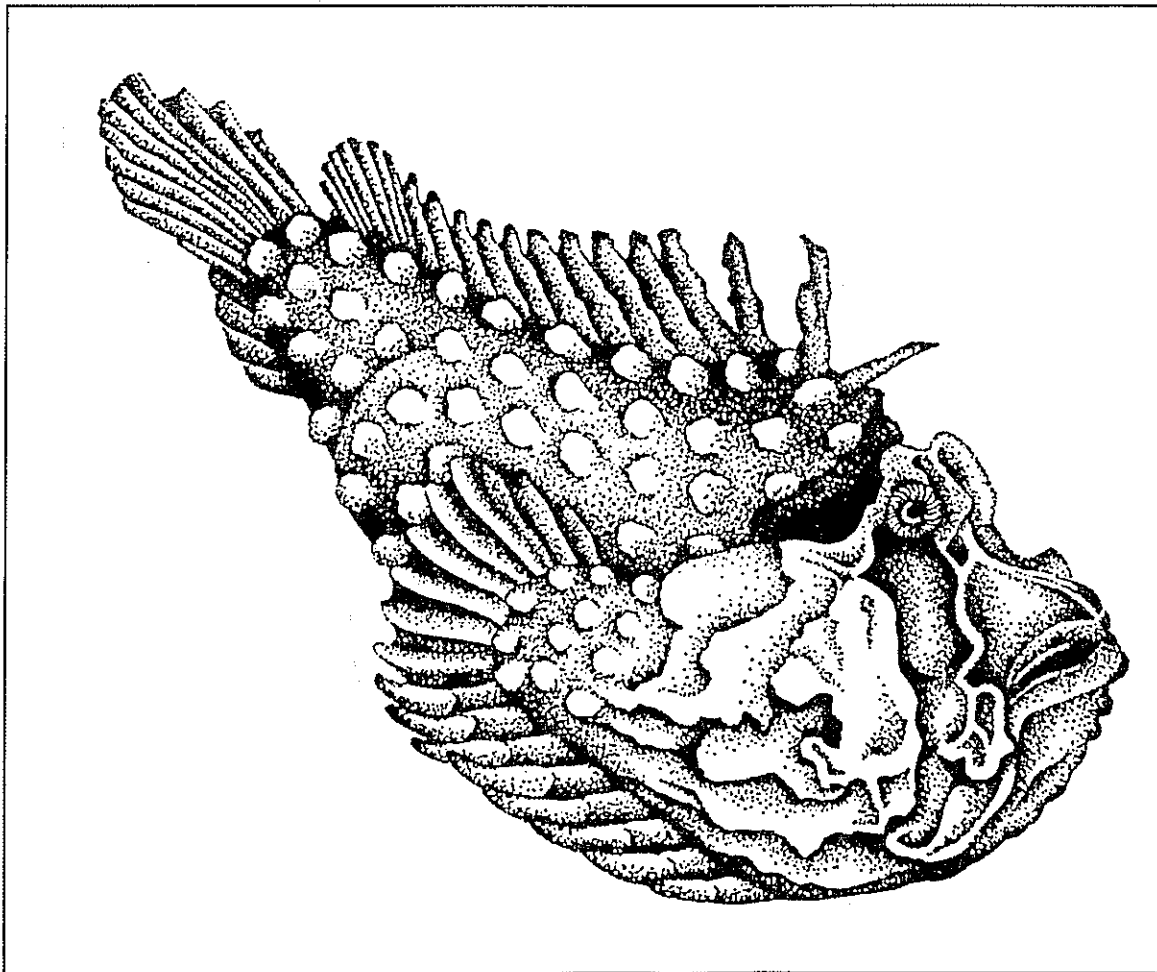
Art – Arts, skills and processes

Marine animals come in lots of shapes and sizes.

- What shapes can students find in the bodies of the sea creatures on the cards?
Example: Triangles in the 'wings' of a stingray.
- Give students a piece of paper with a circle, oval and triangle printed on it. What marine animals can students draw based on these shapes.

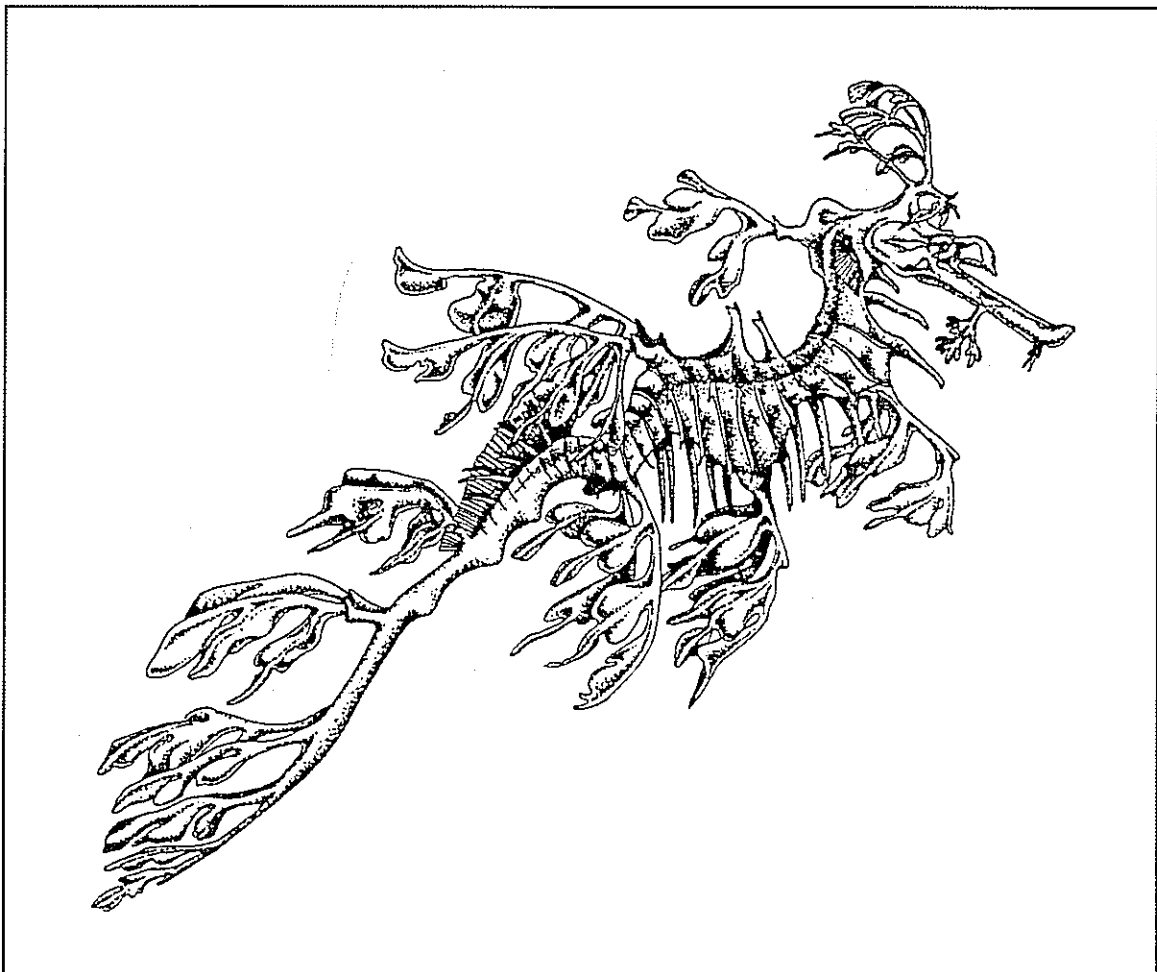
Estuarine Stonefish – *Synanceja horrida*

- Stonefish live on shallow mudflats and reefs of the Far North region of Western Australia.
- They can grow to around 50 cm long.
- They are amongst the most venomous of all fishes. Their venom is delivered through 13 sharp spines on its back and can kill large predators very quickly.
- Each spine is hollow and has a venom sac at the base
- Stonefish do not have any scales. They are covered with lumpy protuberances and a sticky slime that other marine organisms (such as seaweed) adhere to – further aiding their disguise.
- Stonefish use their large pectoral fins to dig into a hiding place. Once hidden Stonefish lie motionless and ambush small fish and animals as they swim past.
- The speed at which a Stonefish engulfs passing prey in it's enormous upturned mouth has been timed photographically at: 0.015seconds
- Stings from Stonefish cause extreme pain, swelling, muscle weakness and temporary paralysis. There have been no deaths from Stonefish since anti-venom was developed in the 1950s.
- The best way to avoid being stung is to wear reef shoes and to tread carefully



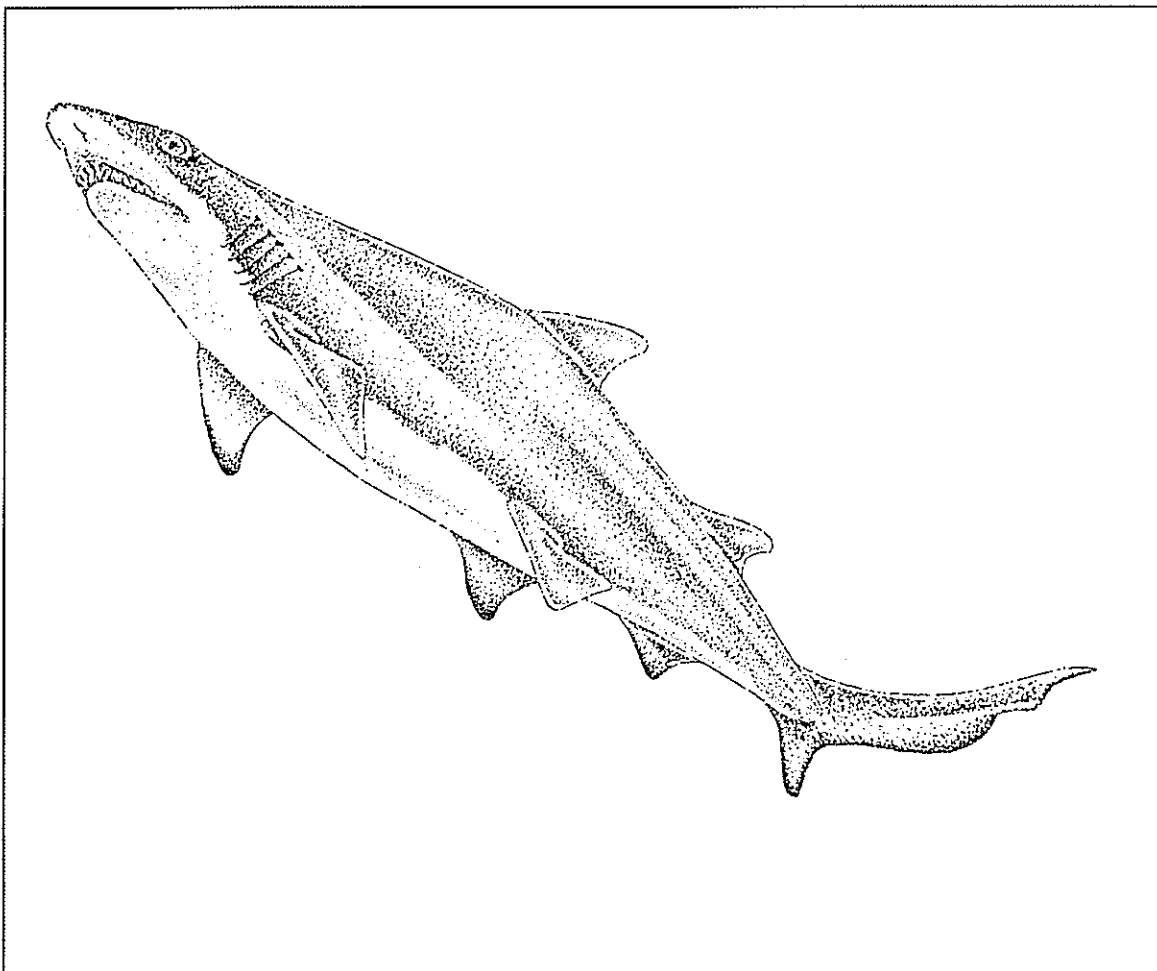
Leafy Sea Dragon - *Phycodurus eques*

- Sea Dragons are true fish
- Found only in the clear, icy waters off Australia's southern coast
- Sea Dragons are slow swimmers relying on their mastery of camouflage.
- Adorned with plant-like appendages, Sea Dragons can drift unnoticed among a group of their favoured food – mysid shrimps. With a rapid snap of the head, these tiny shrimps are sucked into the long toothless snout before being swallowed whole.
- Related to Seahorses and Pipefish, Sea Dragons have hard body plates instead of scales.
- Most of the propulsion of Sea Dragons comes from the tiny dorsal fin, although undulations of the tail also help in forward movement.
- The small pectoral fins on either side of the head control direction.
- A Sea Dragons eyes can move independently of each other!
- Leafy Sea Dragons can grow to around 50 centimetres.
- One of the most fascinating aspects of Sea Dragons (and Seahorses and Pipefish) is their reproduction – males have the babies! Female Sea Dragons glue eggs into little pockets on the underside of the male's tail, where they are fertilised with sperm. The eggs develop into embryos, which are provided with nutrition and oxygen by the male before hatching into miniature replicas of the parents. Once born, the young Sea Dragons must fend for themselves.
- Sea Dragons are a protected species.



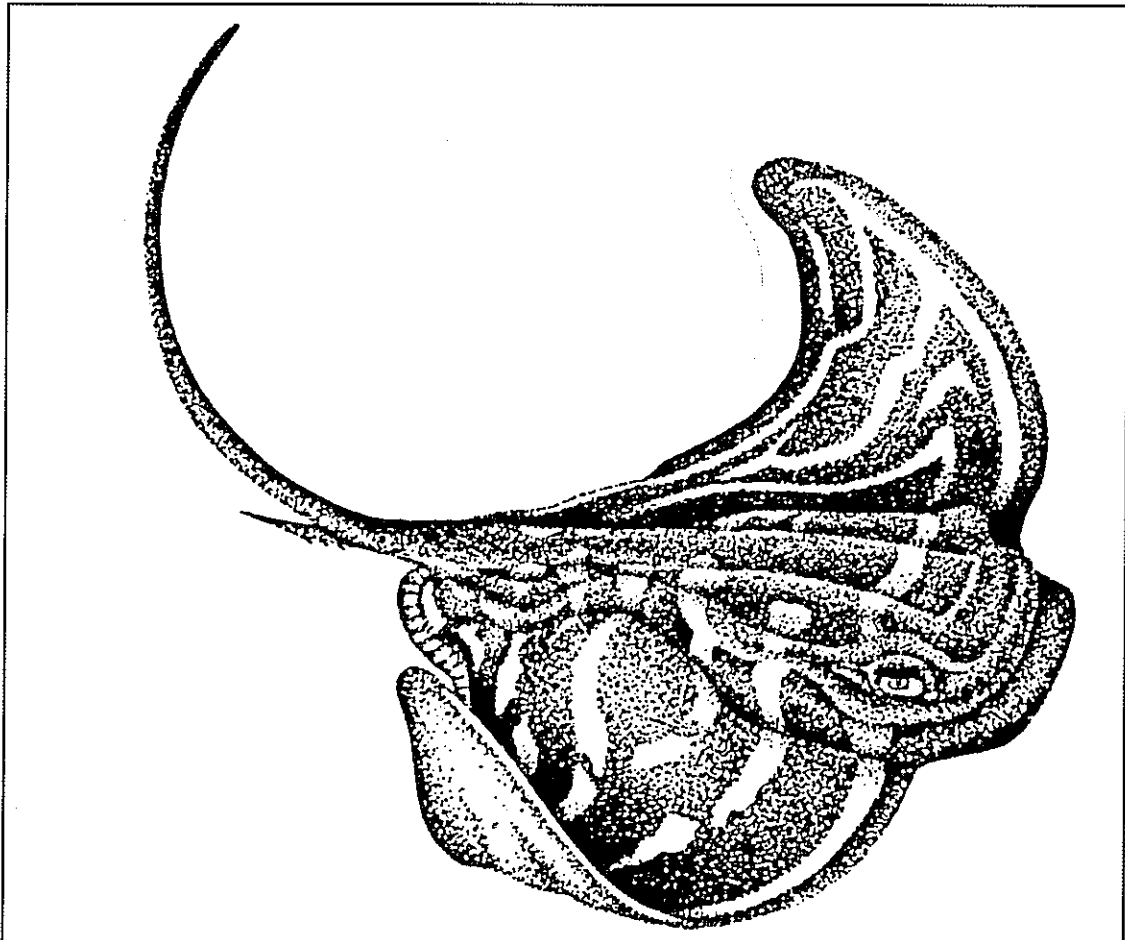
Grey Nurse Shark - *Carcharius taurus*

- Found all around Australia (except Tas) and throughout much of the world.
- Grows to 360 cm, and is 100 cm at birth!
- While other sharks need to swim constantly to stay afloat the Grey Nurse Shark is able to swallow air to become neutrally buoyant and can therefore hang motionless above the sea floor.
- The jaws can be extended and are filled with many dagger-like teeth designed for catching prey such as fishes and sharks.
- The Grey Nurse Shark does not rip its prey, it swallows it whole!
- It takes 2 days for a Grey Nurse to regrow a tooth!
- The skin of a shark is rough like sandpaper, it is made of overlapping plates called 'dermal denticles'.
- Reproduction is oviparous, where embryos cannibalise each other inside the egg case and uterus. The result is a litter of only two pups every 2 years – The slowest birth rate of all sharks and rays.
- The Grey Nurse Shark has an undeserved reputation for being dangerous to man, It is not considered dangerous unless provoked.
- Protected species: Endangered. There are only 300 individuals left on the East Coast of Australia



Southern Eagle Ray – *Myliobatis australis*

- Stingrays are a close relative of the Shark; both their skeletons are made of cartilage.
- Their body is flattened, and their pectoral fins have evolved to form broad, oval shaped discs.
- There are more than 500 species of rays in the world
- The Eagle Rays eyes are on top of their bodies. Their mouth and gills are underneath.
- Stingrays are bottom dwellers. They search the sea floor for shellfish and small prey.
- Stingrays have plate like teeth, which they use to grind their food with.
- The Southern Eagle Ray has 7 rows of teeth in each jaw.
- Stingrays have between 5 and 7 gill openings under their body, as their mouth sits close to the sand and mud of the ocean floor they have two openings behind their eyes (spiracles) so they can take in clean water when buried under the sand.
- Stingrays bear live young who emerge from the mother scrolled up like a pancake!



Loggerhead Turtle – *Caretta caretta*

- There are seven species of turtle in the world
- Turtles are marine reptiles. They breathe air and their surfacing interval is governed by activity level and other factors such as water temperature
- It is not known how long turtles live for. It is thought that they do not reach sexual maturity until 35-50 years.
- Female turtles come ashore to lay eggs, usually on moonless nights during high tide. Females can store sperm after mating, and several hundred eggs may be laid during nesting season.
- Eggs are about the size of a ping-pong ball. The temperature of the sand determines the sex of the hatchlings. Warmer sand female, cooler sand male.
- Eight – Twelve weeks later hatchlings use a special 'egg tooth' to rip out of their egg. They then use their flippers to dig to the surface. This may take 3 days!
- Hatchlings emerge from the nest together. They weigh 20g and are 5-10cm long. Their shell (or *carapace*) may still be curved from being inside the egg.
- Juvenile Loggerhead Turtles may cross the whole of the Pacific Ocean, following floating masses of seaweed.
- Once turtles are ready to mate, they return to the exact beach on which they were born
- The chance of an egg surviving to maturity is 1/1000!

