

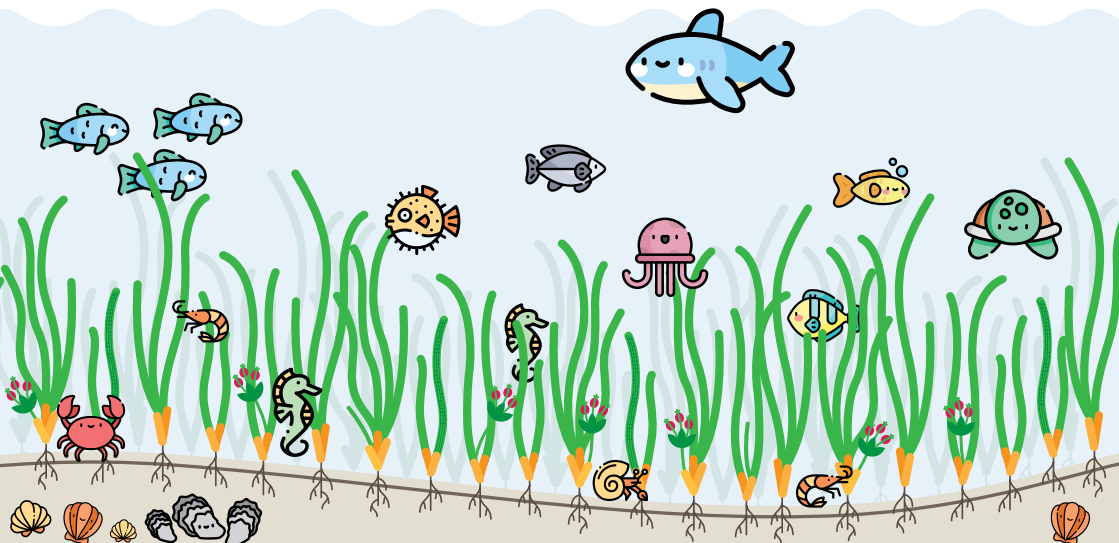
A THREATENED SPECIES OF SEAGRASS

POSIDONIA AUSTRALIS



**WHY IS IT SO IMPORTANT
TO THE WHOLE ECOSYSTEM?**

LET'S FIND OUT!



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HEY KIDS!

For more information including videos and fun activities, visit:
dpi.nsw.gov.au/fishing/threatened-species/school-resources

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More information

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Department of Primary Industries dpi.nsw.gov.au/fishing

Acknowledgments

This booklet was funded by the NSW Government under the Marine Estate Management Strategy. The ten-year Strategy was developed by the NSW Marine Estate Management Authority to coordinate the management of the marine estate.

At the Department of Regional New South Wales, we acknowledge we live and work on Country and Sea Country which always was and always will be Aboriginal land. We acknowledge the Traditional Custodians of the land and waters and we respect Aboriginal Elders, past, present and emerging. We celebrate the diversity of Aboriginal peoples and their ongoing cultures and connections to Country and Sea Country across NSW.

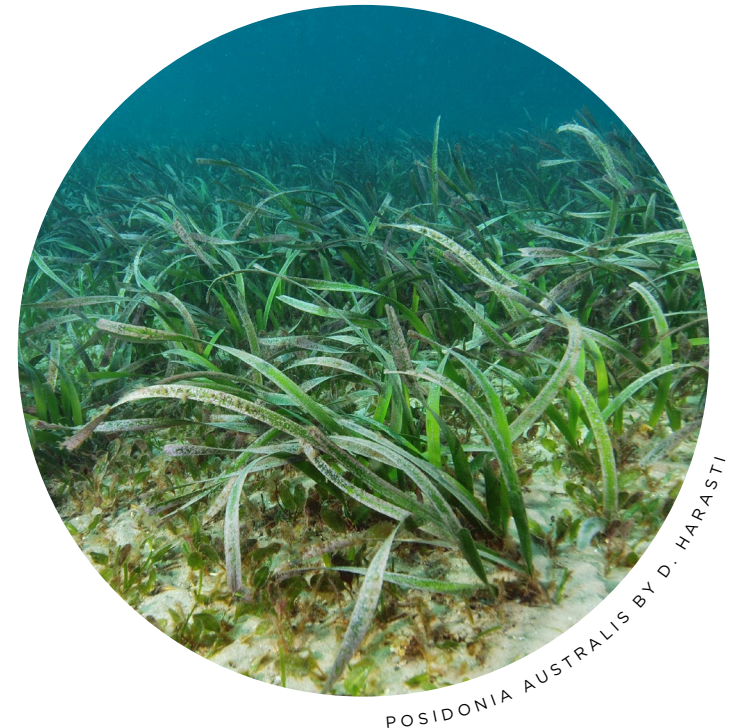
We acknowledge the Jerrinja Tribal people, who have always lived on and cared for the Country for the benefit of the environment and all future generations. MEMS and DPI Fisheries would like to thank the Jerrinja Elders and community for sharing their knowledge with us and for the important contribution they have made to the activity booklet.

We would like to thank Debbie Dates for sharing her artwork with us. Debbie's painting expresses the significance of the marine environment to the Worimi people.

A teachers resource has been created to assist in the teaching of this booklet.

It is available for download here:

dpi.nsw.gov.au/fishing/threatened-species/school-resources



WHAT IS POSIDONIA AUSTRALIS?

Pronounced	Pos-ee-doe-nee-ah Os-trah-lees
Other names	Posidonia or Strapweed
Distribution in Australia	Southern half of Australia
Locations in NSW	17 estuaries from Wallis Lake to Twofold Bay
Max depth	Found in up to 10 metres of water
Max length of leaves	80 centimetres
Growth	Leaves are continually growing. A new crop of leaves is produced every 3 months. Each shoot has 2-5 leaves.
Colour	Green/brown Leaves get darker with age
Status in NSW	Endangered in 6 estuaries



Six populations of *Posidonia australis* are listed as endangered in NSW. Which areas? Lake Macquarie, Brisbane Waters, Pittwater, Sydney Harbour, Botany Bay and Port Hacking. If people don't help, it's in danger of disappearing forever!



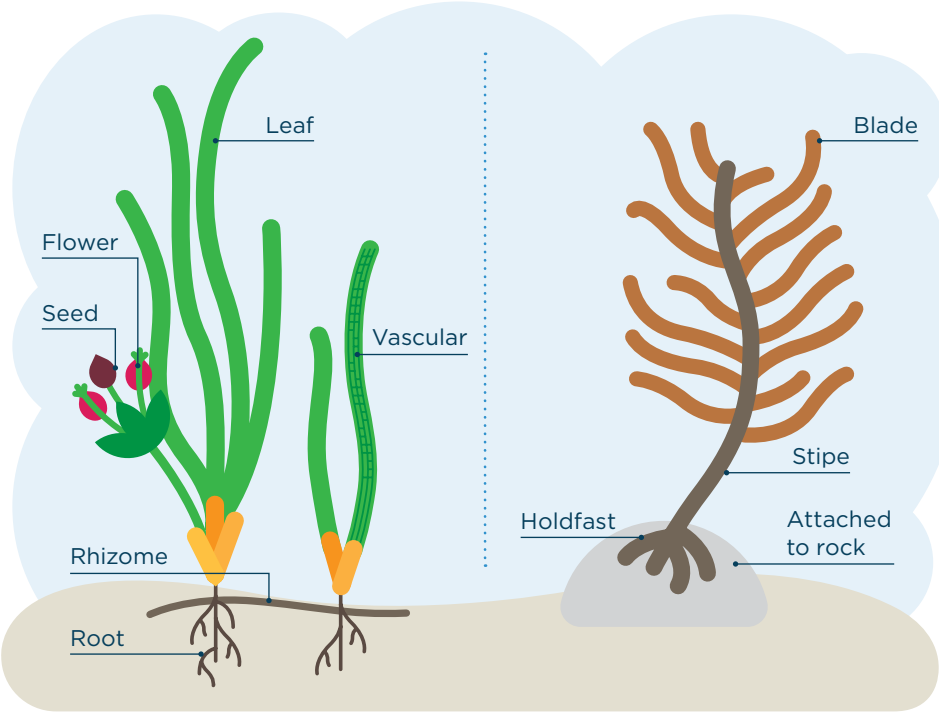
DID YOU KNOW?

Australia has the most seagrass species in the world with over half of the reported 60 species!



PHOTOGRAPHY BY D. HARASTI

SEAGRASS VS SEAWEED



	SEAGRASS	SEAWEED
Definition	Seagrass is a marine flowering plant with vascular tissues. The tissues transport fluid and nutrients	Seaweed is not a plant, but algae (like kelp). It lives in marine environments and attaches to hard surfaces like rocks
Kingdom	Kingdom Plantae	Kingdom Protista
Vascular tissue	Seagrass is a vascular plant	Seaweed is a non-vascular alga
Vascular plants have tissues that distribute resources through the plant		
Stem, root and leaves	Has a stem, roots and leaves	Does not have a stem, roots or leaves
Flowers	Produces flowers	Does not produce flowers
Seeds	Produces seeds	Does not produce seeds
Fruits	Produces fruits	Does not produce fruits

CULTURAL CONNECTIONS

Australia's First Nation Peoples have been living on the Australian continent for millennia. They care for the land, waterways and the sea.

Each group, clan or tribe has their own unique connection to Country. Sea Country has particular significance for coastal Aboriginal communities.

Connection to the environment is part of the identity, traditions and cultures of Aboriginal people. It's also part of their physical, spiritual and emotional wellbeing.

Seagrass is important to coastal Aboriginal communities and has had many uses over time. It's been used to make clothing and woven into baskets, and for medicinal purposes and in cultural ceremonies.

Research project

Identify the traditional place name where you live. Then find the traditional names for some local animals.

DID YOU KNOW?

NSW is made up of many different and distinct Aboriginal groups, each with their own culture, customs, language and laws. To see a map of Aboriginal Australia, visit the AIATSIS website: aiatsis.gov.au/explore/map-indigenous-australia

Languages from the NSW Coast

Found on the South Coast of NSW, Jerrinja Country includes the land, waterways and sea from the Crooked River to Bhundoo (the Clyde River). Coastal shell middens, sacred sites, and ancient artefacts are found along the coast of Jerrinja Country, reminding us of the significant ties the Jerrinja tribe have always had with Sea Country.

Posidonia is sacred to Jerrinjan people. They know that animals rely on it for food and shelter, and without healthy seagrass meadows, these animals will disappear. They worry for the seagrass when they see it being damaged by people.

The Jerrinja tribe and some of their neighbouring communities speak the Dhurga language.

Examples of Dhurga words are:

Marra	Fish
Dhagala	Flathead
Djungga	Octopus
Barra Barra	Sea
Djaadjawan	Sand
Bidhanga	Oyster
Dhuril	Crab



WHAT'S FOR DINNER?

An ecosystem is made up of many species living together and all the physical things they interact with.

Plants are producers; they make their own food. They include seaweeds, phytoplankton, seagrasses, saltmarsh plants and mangroves.

All animals, including humans, are consumers. They eat other animals and plants as food.

Decomposers are mostly bacteria and fungi. They feed on decaying plant and animal matter (called detritus).

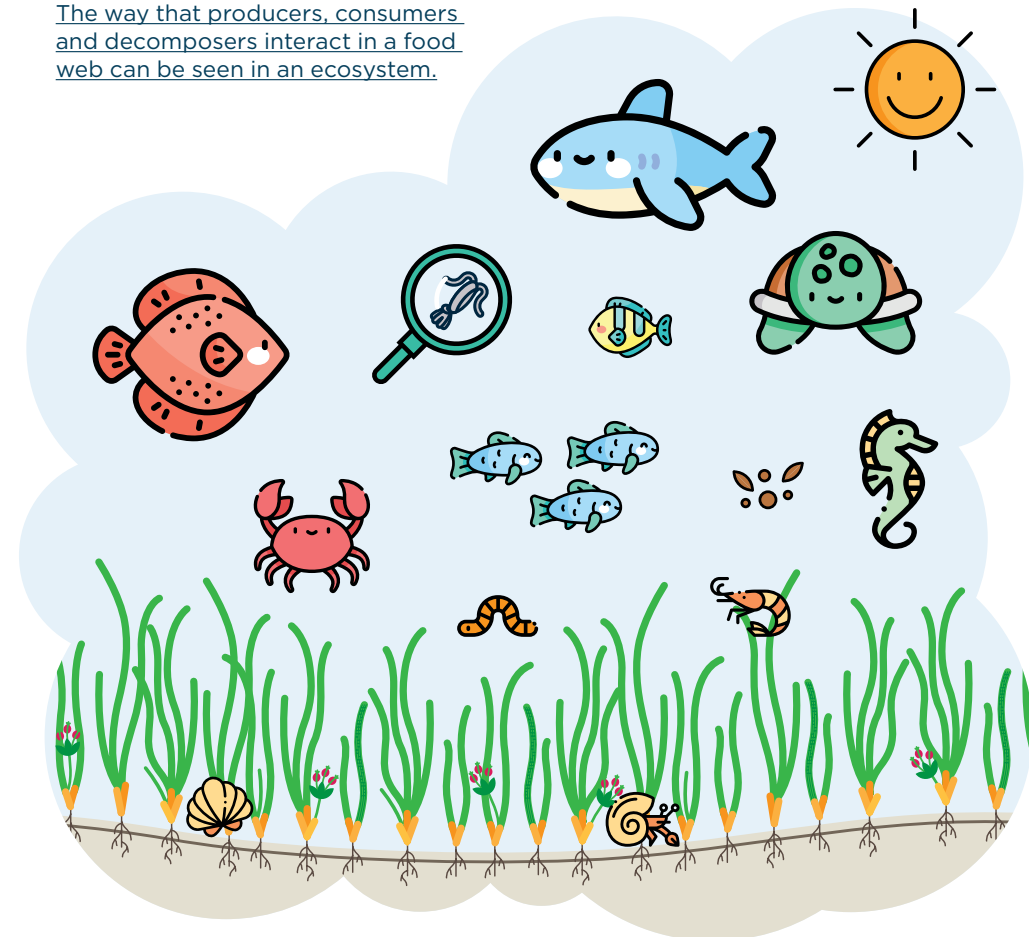
The way that producers, consumers and decomposers interact in a food web can be seen in an ecosystem.

Activity

Complete the food web. Draw an arrow from each animal to what it eats for dinner.

DID YOU KNOW?

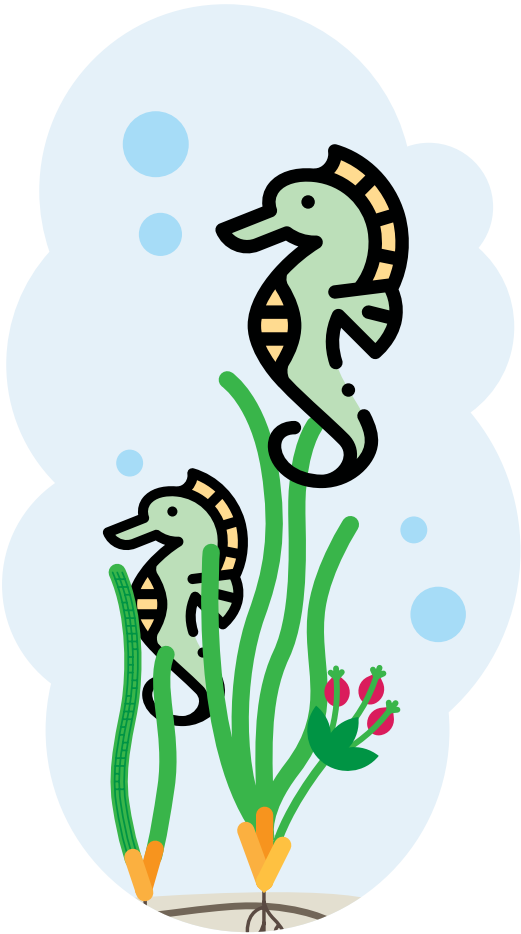
Seahorses eat small crustaceans such as Mysis Shrimp. An adult eats 30-50 times a day. Seahorse fry (baby seahorses) eat a staggering 3000 pieces of food per day!



WHAT ELSE ARE WE SAVING?

Posidonia seagrass is part of a thriving ecosystem. It plays an important role by providing nursery areas, feeding grounds and shelter for many aquatic animals, including:

- Bristle worms, ghost shrimps and Sydney cockles nestle in the seagrass. They feed on fallen fragments of dead and decaying leaves.
- Juvenile fish, crabs and prawns rely on the protection of the seagrass until they grow large enough to move to adult life in the open sea.
- The endangered White’s Seahorse can spend its entire life in Posidonia, using its tail to hold fast to individual seagrass leaves.
- Leatherjackets, garfish and some crabs feast on the Posidonia leaves.
- Herrings, trumpeters, gobies, mullets, drummers and sweeps may use the meadows to forage and to hide in.
- Some marine animals eat the algae growing on the surface of the seagrass leaves, while others actively hunt or wait to ambush their prey.



Activity

Choose an animal from the seagrass ecosystem and create a diorama to show its habitat. Be sure to include everything your animal needs to survive, like food and shelter.

AN UNDERWATER NURSERY

Baby fish, crabs and prawns know that Posidonia meadows are a safe place to live while they are small.

Posidonia is a great place to hide from predators, and it protects them from the big waves and currents in the ocean.

The young fish, crabs and prawns can find all the food they need in Posidonia so they can grow to adulthood.

When they are ready, they will move into the ocean where they will spend their adult lives. Some of these animals are popular for fishing.

Activity

Colour the marine life and list the names of all the species in the seagrass habitat.

01

02

03

04

05

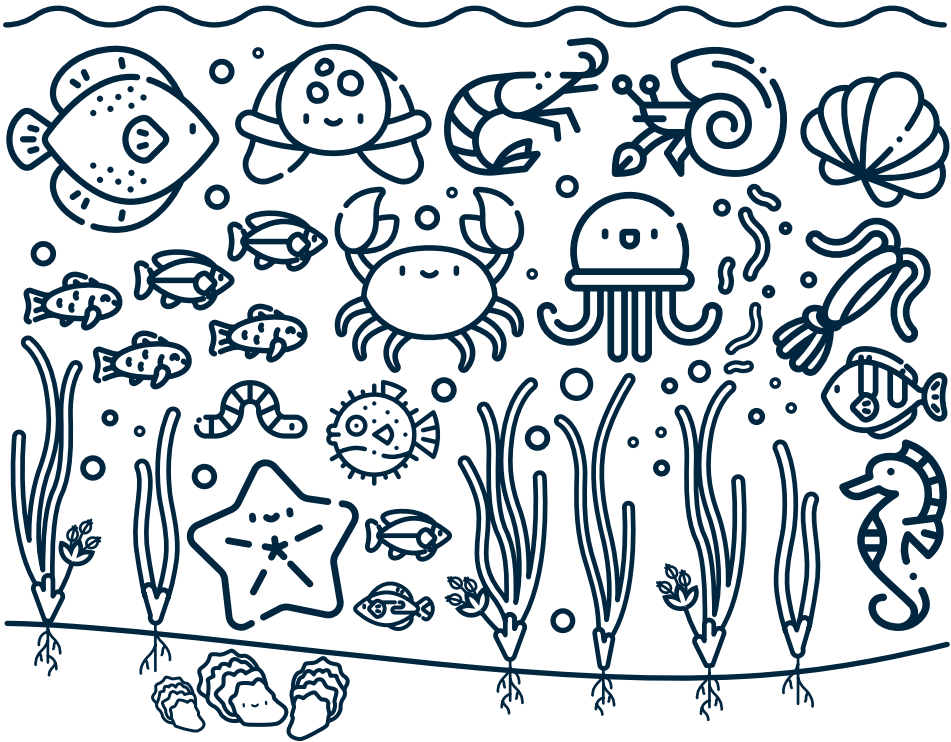
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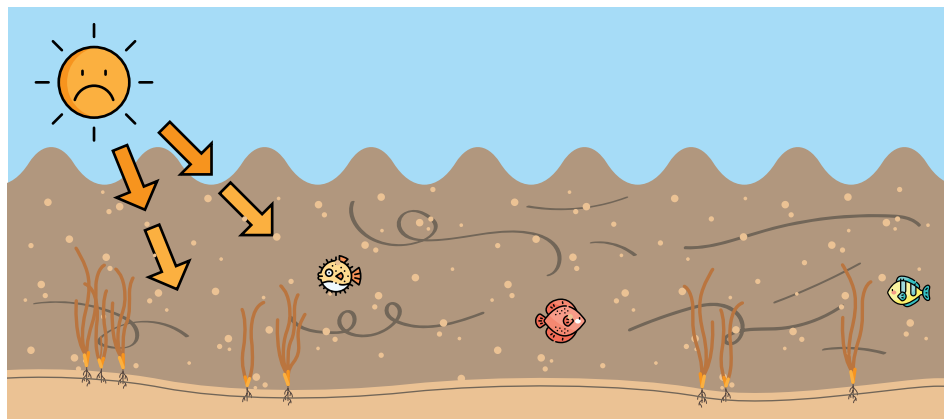
KEEPING OUR OCEANS CLEAR

Did you know that seagrasses like Posidonia help reduce wave action and keep our waterways clear?

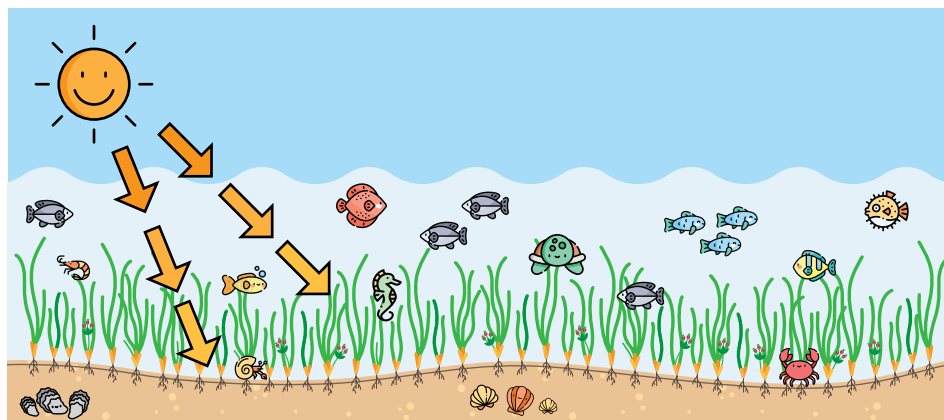
When moving water hits the seagrass leaves, it slows down and allows suspended sediment to fall to the seafloor.

When the sediment is on the seafloor, instead of suspended in the water column, the water is clearer and more sunlight can come through.

This is important for all plants and animals living underwater which rely on sunlight to grow.



Water with lots of suspended sediment blocks sunlight



Clear water is critical to the growth of Posidonia and other marine animals

WHAT MAKES SEAGRASSES SO GREAT?

VOL. 01

THE MARINE TIMES

\$FREE

SENSATIONAL SEAGRASS!



PHOTO BY D. HARASTI

COASTLINE PROTECTORS

Seagrasses help protect our coastlines from storms and rising tides. This is because their leaves take energy out of the waves hitting the coast, and their roots act as an anchor in the underwater sand.

IT'S A (SEDIMENT) TRAP!

Planting trees and shrubs on land can prevent erosion. Seagrass serves a similar function underwater.

It has a complex root system that includes a rhizome — a thick horizontal-growing structure that resembles a root. The rhizome extends into the sand and anchors the seagrass into place. This helps reduce the risk of sand erosion.

KEEPING OUR WATER CLEAN!

Seagrasses soak up nutrients and bacteria, helping keep our seawater clean.

THE ULTIMATE CLIMATE CHANGE BATTLER!

Seagrasses absorb large amounts of carbon dioxide from the surrounding seawater. This helps to reduce the speed of climate change. Nearly all of the carbon in a seagrass meadow is stored in the sediment surrounding it. This is an example of "blue carbon", a captive of the seabed and no longer a greenhouse gas in the atmosphere!

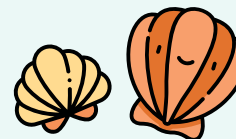
BETTER AIR? YES PLEASE!

Seagrasses improve air quality by taking carbon dioxide gas out of the water and releasing oxygen.

Seagrasses can take carbon out of the atmosphere at a rate 35 times faster than tropical rainforests!

A STAR RECYCLER!

Seagrasses protect water quality by filtering the water and recycling nutrients.



FIND A WORD

Search for all the words you’ve learnt about in this book.
Mark them off in either a vertical or horizontal direction.

F O R A G E P E S T U A R I E S
O E C O S Y S T E M S I D O C T
S E A H O R S E P R E Y N S O R
T I A A P R O D U C E R S E N A
U A U B M E A D O W S A S A S P
R T R I A M B U S H A L S G U W
T D E T R I T U S L I G L R M E
L S M A C H A N G E Y A O A E E
E S C T I L I F E E N E W S R D
P H O T O S Y N T H E S I S S T
I F I C E N D A N G E R E D N A
S P E C I E S M C L I M A T E E

Seagrass	Photosynthesis	Forage	Slow	Climate
Endangered	Detritus	Habitat	Algae	Change
Ecosystem	Seahorse	Meadows	Ambush	
Producers	Turtle	Estuaries	Prey	
Consumers	Strapweed	Life	Species	

Circle the 34 letters remaining and copy them into the spaces below in order from left to right to find the hidden phrase.

Activity

Congratulations!
Now you know about *Posidonia australis* in NSW and the importance of seagrasses worldwide. Your next task is to design an advertisement. It should show the community the reasons why seagrasses need to be protected.

Credits

The Dhurga Dictionary and Learner’s Grammar
A south-east coast NSW Aboriginal language.
By Patricia Ellis, Kerry Boyenga and Waine Donovan. Aboriginal Studies Press. 2020.
Icons made by Freepik from [flaticon.com](https://www.flaticon.com)

*A teachers resource has been created to assist in the teaching of this booklet.
This resource also contains the answers to each activity.*

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