

South Coast Sea Country Excursions

Education resource for upper primary



Australian Government
Parks Australia



Australian
Marine Parks

We would like to acknowledge the Traditional Owners, the Jerrinja tribe, and pay respect to their Elders both past and present. We thank them for sharing their knowledge to help the wider community learn about their culture.

We would also like to thank and acknowledge the support of the individuals, community groups, Elders, schools and committees who have contributed information or feedback to this resource.

Aboriginal people should be aware that this document may contain images or names of deceased persons. We will always remember them, and openly share their knowledge, so that future generations may learn and pass on their information in a traditional manner.

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Introduction

South Coast Sea Country Education Program

Background

NSW GOVERNMENT

The NSW Government's broad vision for the NSW marine estate is: **A healthy coast and sea, managed for the greatest wellbeing of the community, now and into the future.** The Marine Estate Management Strategy 2018-2028 (the Strategy) is a NSW response to the findings of the 2012 Independent Scientific Audit of Marine Parks in NSW and will provide the overarching framework for the marine estate over the next decade.

The Strategy outlines nine management initiatives to reduce and address the priority threats which were identified in the Marine Estate Community Survey Final Report and Statewide Threat and Risk Assessment (TARA). This project was established to correspond with Management Initiative 4: Protecting the Aboriginal cultural values of the marine estate.

THE AUSTRALIAN GOVERNMENT

The vision of the Australian Government for Australian Marine Parks is: Marine parks that are healthy, resilient and well-managed to enhance Australia's wellbeing. The Temperate East Marine Parks Network Management Plan 2018 (the plan) outlines seven management programs and actions to protect marine parks from threats and pressures, to minimise damage, and to rehabilitate and improve the resilience of marine parks. This project was established to correspond to with the Indigenous engagement program which outlines actions to recognise and respect the ongoing cultural responsibilities of Indigenous people to care for Sea Country and support multiple benefits for traditional owners.

Educating children is the responsibility of families, schools, communities and the government more broadly. Increasing understanding of Aboriginal traditional knowledge and cultural values of the marine parks throughout the earlier years of childhood will increase our future generations participation in the management of Sea Country.

Sea Country Connection

Aboriginal people on the South Coast of NSW have a strong connection with the marine environment and have expressed that the most important values of the marine environment are connected to its management as a sustainable source of food, mainly fish, crustaceans and shellfish.

Source: Batemans Marine Park
Aboriginal Values, 2016



Mystery Bay Sea Country excursion

(DPI)

Department of Primary Industries

Education program

This education program will be delivered to both Aboriginal and non-Aboriginal students and is designed to fit within the NSW Stage 3 syllabus and the Year 5 and 6 outcomes of the Australian curriculum, to assist with teacher endorsement. This resource is based on the cultural values in and adjacent to the NSW Batemans and Jervis Bay marine parks and the Commonwealth Jervis Marine Park located over 5.5 kilometres from the coast and can be used as a template for other areas.

This education program will concentrate on Marine Parks Cultural Heritage – Sea Country, with topics such as sea tucker, traditional harvesting methods, middens, artworks and values. This will be implemented through field-based excursions. Excursions will focus on three group activities that students are rotated through, spending about 30-40 minutes at each and set to a recommended itinerary, provided.

DPI staff, school Aboriginal Education Officers, community members and Sea Country Rangers will deliver the content of the activities. Excursions can be for up to three school groups; based on a large school combined with 1-2 smaller schools. The maximum number of students will be 60.

Schools will be responsible for excursion permission processes, organising transport and general safety of students as is the case with any excursion. All guidelines are set out in Section 1 of this resource.

Using this resource

This resource has been divided into three sections:

SECTION 1: SCHOOL EXCURSION ACTIVITIES

This section provides all the details teachers require for booking and delivering an excursion. It includes teachers notes, reference sheets and activity sheets. It also includes pre- and post-excursion activity suggestions and some extension activities to follow up with back in the classroom.

SECTION 2: WELCOME TO SEA COUNTRY

This section provides an in-depth background for teachers to help learn about Sea Country. Sea Country includes the water, tidal zone, beaches, dunes and coastal hinterland. Sea Country not only provides a physical connection for the First People's of the region, but also a spiritual one. This land has been the cornerstone of Aboriginal society for thousands of years and continues to do so today.

SECTION 3: MARINE PARKS BACKGROUND

Marine parks help to conserve marine biodiversity, while at the same time providing for many other recreational activities. There are both state and federally managed marine parks. This section takes a look at the marine parks of the NSW south coast, including the NSW Batemans and Jervis Bay marine parks, and the Commonwealth Jervis Marine Park.

ORGANISING AN EXCURSION

Bookings are required no less than 3 weeks prior to the event to give Sea Rangers suitable preparation time. Please select your preferred activity rotations when making your booking. See Section 1 for details.

Jervis Bay Marine Park Office

4 Woollamia Road,
Huskisson NSW 2540

(02) 4428 3000

Batemans Marine Park Office

Corner of Burrawang & Graham Streets,
NAROOMA NSW 2546

(02) 4476 0807

Our Key Messages

Kids should feel proud of their heritage and culture.

Kids should gain a better understanding of the strong connection between people and the environment, and the importance of looking after our environment and its resources.

Kids achieve a sense of belonging to something bigger than ourselves, we are all connected.

Kids respect and look after Sea Country and each other.

Kids gain an understanding of nature's calendar.

Kids understand the past history of a place.

Kids feel a connectedness to salt and freshwater country.

Kids learn the importance of leaving enough for tomorrow.



**Students on a Sea Country excursion at Billys Beach
(K.Coleman/PeeKdesigns)**



Visiting traditional sites

When visiting cultural sites, it is important to respect local traditions. To do this you should:

- Find out if an area you wish to visit contains Aboriginal places or cultural materials (contact your local marine park office or Local Aboriginal Land Council for information)
- Ensure you are accompanied by a local Aboriginal community representative
- Avoid entering known sacred sites
- Use only quiet voices
- Avoid spitting
- Leave all plants and animals where they are
- Look at middens but do not touch.

Students exploring Billys Beach (top), Mystery Bay Sea Country excursion with Lynne Thomas (below left) and Jervis Bay Sea Country excursion with Graham Connolly (Jnr) and Plaxy Rowe (below right)

(K.Coleman/PeeKdesigns and DPI)





Section 1: School excursion activities



Overview

This section provides all the details teachers require for booking and delivering an excursion. It includes teachers notes, reference sheets and activity sheets. It also includes pre- and post-excursion activity suggestions and some extension activities to follow up with back in the classroom.

Teacher's introduction

This education program will be delivered to both Aboriginal and non-Aboriginal students and is designed to fit within the **NSW Stage 3 syllabus** and the **Year 5 and 6 outcomes of the Australian curriculum**. The intent is to support students learning about Sea Country with hands-on experiences and excursions delivered by our Sea Rangers and other local Aboriginal educators.

This section includes: example excursion sites across the Batemans and Jervis Bay marine park regions, the excursion guidelines set by the NSW Department of Education, suggested excursion itinerary and excursion booking information.

For the best experiences it is recommended that the maximum number of students be 60 students, divided into three groups where they will be rotated through activities every 30-40 minutes. Schools will be responsible for excursion permission processes, organising transport and general safety of students.

Working through the activities

Included in this resource are some suggested classroom activities that can be completed before and after the excursion to help support student learning. It is encouraged to work with your school's Aboriginal Education Officer throughout this process.

Each activity includes the background teacher's notes that will be used by both teachers and Sea Rangers in the delivery of each activity. These Teacher's Notes include targeted curriculum outcomes, a list of teaching aides and referrals to the videos that have been prepared as a pre-excursion classroom activity.

Alternatively, if your school cannot access the coast, or an excursion was cancelled due to bad weather or other circumstances, these videos can provide a local insight into Sea Country and can be used with the prepared activities.

www.marine.nsw.gov.au/strategy-implementation/protecting-the-aboriginal-cultural-values-of-the-marine-estate

Activity sheets have been developed for students to complete during the excursion and some can be completed in the classroom (see Teacher's Notes for details). Copies of these **activity sheets will be provided** to students upon arrival. Please ensure **students bring their own clipboards and pen or pencil**.

Some activities include a reference sheet for use on the excursion. Laminated copies of these will be provided for use on the excursion. They can also be used in the classroom prior to the excursion.

Some activities have allergy warnings – please adhere to the advice provided.

Curriculum descriptions and the risk management plan can be viewed in the Appendix.

Excursion sites

There are a select number of sites that have been chosen for conducting Sea Country excursions along the South Coast of NSW. These sites have been chosen based on their proximity to regional towns, accessibility and cultural sites. If your school would like to visit another area, please contact us directly (see page 12). These include:

- Jervis Bay
- Cullendulla estuary, beach and nature reserve
- Sunshine Bay Beach
- Tomaga River
- Broulee Island
- Mystery Bay
- Bermagui wetlands
- Moorehead Beach - Flora and Fauna Nature Reserve

Excursion guidelines

The following guidelines are to assist teachers and the NSW Sea Rangers to conduct successful joint activities. The guidelines describe the working relationship, from a legal and insurance perspective in accordance with the NSW Department of Education's Excursions Policy (PD/2004/0010/V07).

Excursion policy

- Any field trip involving the Sea Rangers and a school group must be viewed as a school excursion under the full control of the school. Schools are to provide the appropriate student/teacher ratio in accordance with the Department of Education's Excursions Policy.
- Throughout the duration of the excursion, a teacher(s) should be present to take overall responsibility for student behaviour management and discipline. Sea Rangers are not trained teachers, and under section 5.1.1 of the Department of Education's Excursions Policy, "duty of care owed to students for the duration of an excursion cannot be delegated from the school to parents, caregivers, volunteers or individuals associated with external organisations".
- The role and duties of Sea Rangers and any other guest presenter that may be involved are to be determined, clearly defined and agreed upon prior to the commencement of the excursion.
- A minimum of two Sea Rangers are to attend any field trip. The presence of a second adult is always required when a Sea Ranger is engaged with a group of students. At no stage is a Sea Ranger to be left alone with an individual student, or group of students.

Risks and first aid

- **NSW Department of Primary Industries staff have conducted risk assessments for all recommended field site visits. A copy of the generic risk assessment is located in the Appendix. Site specific risk assessments are available upon booking.**
- Applying First Aid is not the primary responsibility of the Sea Rangers. Please be aware that Sea Rangers will be equipped with First Aid equipment, and will be willing to assist in the event of an emergency, however, it is expected that the school provide their own First Aid equipment, and that staff have current first aid qualifications.
- If an accident occurs while the excursion is being conducted, then the NSW Department of Education's Reporting School Accidents Policy (PD/2002/0064/V04) requires a school accident report to be prepared and submitted for review by the Department's Legal Services Directorate.

Photo consent

- If some students cannot be photographed please use a subtle way of identifying those students (such as a sticker on their shirt) so there is no confusion on the day.

What to wear and bring

- Students should wear uniform and have closed shoes, hats, sunscreen and a jacket.
- Students should bring recess, lunch and a drink.
- Schools should ensure students have a clipboard and pen or pencil. Activity sheets will be provided.

When visiting a cultural site

Use only quiet voices - be respectful.

Avoid spitting, running and disturbing the site.

Leave all plants and animals where they are.

Look at middens but do not touch.

Suggested itinerary

9:00 am	Site set-up
10:00	Schools arrive
10:10	Introductory Sea Country presentation
10:40	Recess / Morning tea
11:00	Arrange groups and inform rotation rules etc
11:10	Activity rotation 1
11:50	Activity rotation 2
12:30 pm	Activity rotation 3
1:10	Lunch
1:40	Beach clean up
1:50	Yarning circle – what have we learnt
2:00	Schools leave and Sea Rangers pack-up

Activity rotation timing

5 mins	Introductions and overview
30 mins	Activity
5 mins	Reflection (or rotate to the next activity)

Booking an excursion

Bookings required

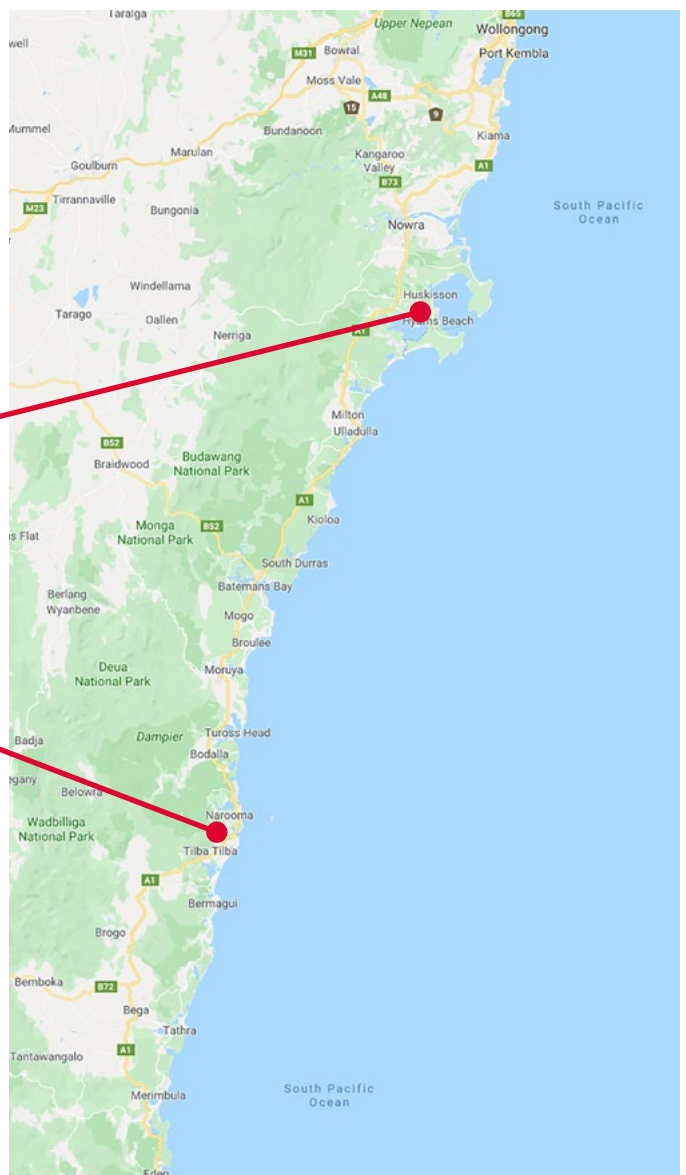
Bookings are required **no less than 3 weeks prior to the event** to give Sea Rangers suitable preparation time. Please select your preferred activity rotations when making your booking.

Jervis Bay Marine Park Office

4 Woollamia Road,
HUSKISSON NSW 2540
(02) 4428 3000

Batemans Marine Park Office

Corner of Burrawang & Graham Streets,
NAROOMA NSW 2546
(02) 4476 0807



Booking request

If you're interested in booking a Sea Ranger Excursion, please fill out this request form.

Bookings must be made no less than 3 weeks prior to your preferred date/s.

Contact Details

Name of School/Organisation:

Contact Person:

Telephone:

Email Address:

Have you already spoken to a Marine Parks staff member? YES NO

Who did you speak to?

Event Details

(Please provide all relevant information to the best of your knowledge.)

Preferred date of excursion:

1st preference

2nd preference

3rd preference

.....

Preferred location (if known)

Location:

Choose three core activities from the following:

- | | |
|---|--|
| <input type="checkbox"/> Survival on the coast | <input type="checkbox"/> Working in nature |
| <input type="checkbox"/> Abalone | <input type="checkbox"/> Middens |
| <input type="checkbox"/> Fishing techniques | <input type="checkbox"/> Weaving a story |
| <input type="checkbox"/> Animal tracks, signs, dance and song | |

Group Details

School Year level

Number of Students: Number of Supervisors (e.g. teachers):

Special requirements (e.g. disabilities)

School Representative (please print name)

By signing this booking sheet I acknowledge that I have read and understood the Excursion Guidelines provided within this publication.

Signature Date

Activities

Before the excursion

Classroom activity suggestions

ADAPTING TO THE COAST

Introduce students to the term ‘adaptations’. Plants and animals have had to adapt to find enough food, water and shelter to survive. They adapt to spread to new areas with different conditions and climates. Those animals and plants that have made successful adaptations are more likely to flourish and survive. Adaptations can be anything that helps a living thing to stay alive and prosper.

- **Plant Adaptations:** different colours and smells to attract pollinators or warn off herbivores, shapes and sizes, textures and root systems.
- **Animal Adaptations:** claws, teeth, tails, well developed senses, smells, fur or hair, scales, feathers, different sizes and the ability to eat a range of foods.

Take a look at the adaptations of three key plants or animals that students are likely to come across while on the excursion, such as pigface or samphire, native spinach, mangrove tree, crab, abalone, sea-eagle and oyster catcher.

YARNING WITH SEA RANGERS

As a class, talk about what you hope to learn while on the excursion. Inform the students that they will have the opportunity to ask one of the Sea Rangers, or DPI staff, questions about the culture of Aboriginal people of the south coast, what the site means to them and how they connect to country. Students can also ask DPI staff about marine parks and what they mean. Students need to write down at least two questions to ask in the excursion yarning circle.

TALKING TOOLS

Sea Country excursions involve looking at some of the tools that are used to harvest food and/or make things, such as fishing line and hooks, woven fish/eel traps, fishing spears, clothes, shelter or carrying devices. Before the excursion, discuss or research some of the tools that you might use, what they are made of and what they are used for.

RESPECT THE KNOWLEDGE

Exchanging gifts is a tradition in Aboriginal culture to thank the elders or community for being on their land and for passing on knowledge. Students can create a present that can be passed on to the Sea Rangers to thank them for their time and knowledge. This can be handed out during the yarning circle segment at the end of the excursion. A present should be hand-made, perhaps a drawing, big card or other form of artwork, and showcase the students and school. Before going on the excursion, ask how many Sea Rangers are likely to be attending and make sure there is a present for each.

Adaptations identify features or characteristics that animals develop to help them survive.

Yarning involves listening, sharing, talking and learning.

After the excursion

Classroom activity suggestions

SEA TUCKER SUPERMARKET INVESTIGATION

Students investigate sea tucker plants and animals to learn more about the sea tucker supermarket and describe the following in their workbooks:

- Adaptations that have helped those plants or animals survive – e.g. how pigface plants survive the tough, salty beach conditions.
- Physical characteristics of the plant or animal e.g. leaf structure, fruit, flower or shell, exoskeleton, fur, etc.
- How the plant or animal reproduces.
- How Aboriginal people have ‘worked’ the local environment to help harvest sea tucker, such as using fire and knowing when to harvest.

Students create their own ‘Sea Tucker Supermarket Menu’ from the plants and animals that they identified on the excursion.

CONNECTION TO COUNTRY

It is important for students to respect how Aboriginal people connect with their Country, even if they have left their Country for a period of time. Ask students to think about a special place, something that they would regard as being important to them. Have them record their connection to a special place or their Country - this could be achieved through art, writing, video or photography. This does not have to be shared with the rest of the class as some students may find this very personal.

RECOUNTING MY EXPERIENCES ON SEA COUNTRY

Students can be creative in preparing a recount presentation on ‘My experiences on Sea Country’ using photos, videos, drawings and comments recorded on the day. Students can create interactive reports using a variety of digital storytelling apps such as Adobe Slate, Adobe Voice, Book Creator for iPad, Creative Book Builder and StoryKit.

Once created, it might be nice to share your digital storybook with the Sea Rangers or your local Aboriginal Elders or representatives. Arrangements could be made through the Marine Park offices.

Sea Tucker
includes all the
food, and tools
for harvesting
food, that can
be found in the
coastal zone.

Survival on the coast – foods and medicines

Overview

Survival on the coast includes knowing where to find food, freshwater, shelter and understanding how to take care of others with bush medicines.

Watch the video '[Where to find bush tucker?](#)' before the excursion to find out more about some of the bush/sea tucker that can be found along the coast. Refer to the sea tucker lingo reference sheet.

On the excursion, the Sea Ranger asks students the following questions before introducing them to a range of tools and knowledge to help them survive.

- How would you survive without modern tools, equipment, food, houses or technology?
- Where would you go?
- What would you eat?
- How would you find freshwater and shelter?

Students will gain a greater understanding about some of the south coast sea tucker, where to find them, what is good to eat (always reference safety issues with sea tucker) and how to look after the stocks for the future. The Sea Ranger takes students for a short walk to find sea tucker, or they provide students with a pre-prepared selection of sea tucker and/or shows photos of different foods.

Depending on the location, students are shown local features that supported traditional fishing – such as ancient fish traps. The Sea Ranger instructs students on how the fish traps work. Discuss briefly how observing and understanding natural occurrences in nature can help determine when best to fish for mullet, eels etc.

Using pre-collected abalone or other shells and some grinding stones, the Sea Ranger instructs students on how to make their own fishhooks. This could take half the available time and students can continue to work on their fishhooks at home or back at school. Sea Ranger informs students about how we know all this today – passing on knowledge from generation to generation, and how long ago, Aboriginal people observed nature and tested methods again and again to see what worked and what didn't. They were the first scientists.

Equipment/teaching aides available

- Flash cards of sea tucker (in case none can easily be found)
- Example artefacts such as stone tools (axe, knife, scraper) furs and skins (kangaroo, possum, fish, shark), coolamons, dilly bags, digging sticks

Curriculum outcomes

Science

Year 6: ACSSU094

Stage 3: ST3-5LW-T

Technologies

Year 5 and 6: ACTDEK021

Aboriginal Languages

Stage 3: 3.UL.1 (Listening)

Stage 3: 3.UL.4 (Writing)

Cross-curriculum priorities

Aboriginal and Torres Strait Islander Histories and Cultures

OI.2, OI.3, OI.4, OI.5

Sustainability

OI.1, OI.2

General capabilities

Intercultural understanding

Recognising culture and developing respect

Additional notes

Watch the video 'Where to find bush tucker?' before the excursion.

<https://youtu.be/ZBF4x5z9kho>

WARNING!

Students with allergies are not to participate in this activity – only observe. Allergies could include: honey or nectar, shellfish, nuts. Schools must carry an EpiPen® as per the Risk Assessment (Appendix 1).

Sea tucker lingo

MULLET

maara or
jeebaraay



FLATHEAD

dhagalang



OYSTER

bidhingga



ABALONE

muttonfish



PIPI



MUSSEL



PIGFACE

eat the fruit in
summer,
rub juice on
bluebottle
stings



MANGROVE

eat the fruit



LILLY PILLY

eat the fruit



NATIVE SPINACH

warrigul
greens

eat the leaves



LOMANDRA

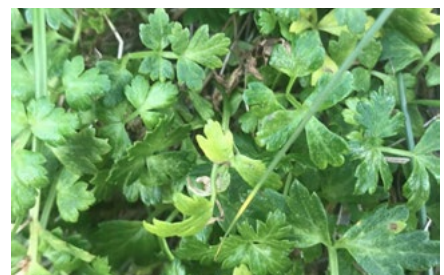
matt rush

eat the base of
fresh leaves,
weave leaves



SEA PARSLEY

eat the leaves



Abalone

Overview

Fishing, and the cultural values of fishing, is extremely important to the Aboriginal people of the south coast. These values include the benefits that people get from fishing, such as getting a feed, spending time with family and passing down cultural knowledge. They also include people's beliefs about fishing and how they think it should be done.

A staple sea tucker food is the abalone, or muttonfish. Not only is abalone a good meal that is highly nutritious, the shell also has multiple uses in traditional Aboriginal lifestyle. This includes the following uses:

- fishhooks,
- bowls for eating from,
- bowls for cooking in, and
- adornments for ceremony.

Watch the video '[Abalone: the perfect sea tucker](#)' before the excursion to find out more about how abalone are important to the local community. Students can use this video to fill in the answers on 'All about abalone' activity sheet.

During the excursion, the Sea Ranger introduces students to the tools used to harvest, collect and cook abalone. Students are also informed of current legislation around the collection of abalone, such as size limits, bag limits and restricted zones where abalone are protected.

If the excursion takes place on a rock platform, abalone would be collected beforehand and placed into a rockpool, then the Sea Ranger can demonstrate how abalone are removed from the rocks using an abalone iron. Students are shown how abalone is prepared for cooking and a cooking demonstration is conducted.

Please note: In NSW, Aboriginal people have special rights to continue cultural fishing practises.

Equipment/teaching aides available

- Tools for harvesting, collecting and cooking abalone
- Freshly harvested abalone

Curriculum outcomes

Science

Year 6: ACSSU094

Stage 3: ST3-5LW-T

Technologies

Year 5 and 6: ACTDEK021

Cross-curriculum priorities

Aboriginal and Torres Strait Islander Histories and Cultures

OI.2, OI.3, OI.4, OI.5

Sustainability

OI.1, OI.2

General capabilities

Intercultural understanding

Recognising culture and developing respect

Additional notes

Watch the video 'Abalone: the perfect sea tucker' before the excursion.

https://youtu.be/lozdzmSE9_0

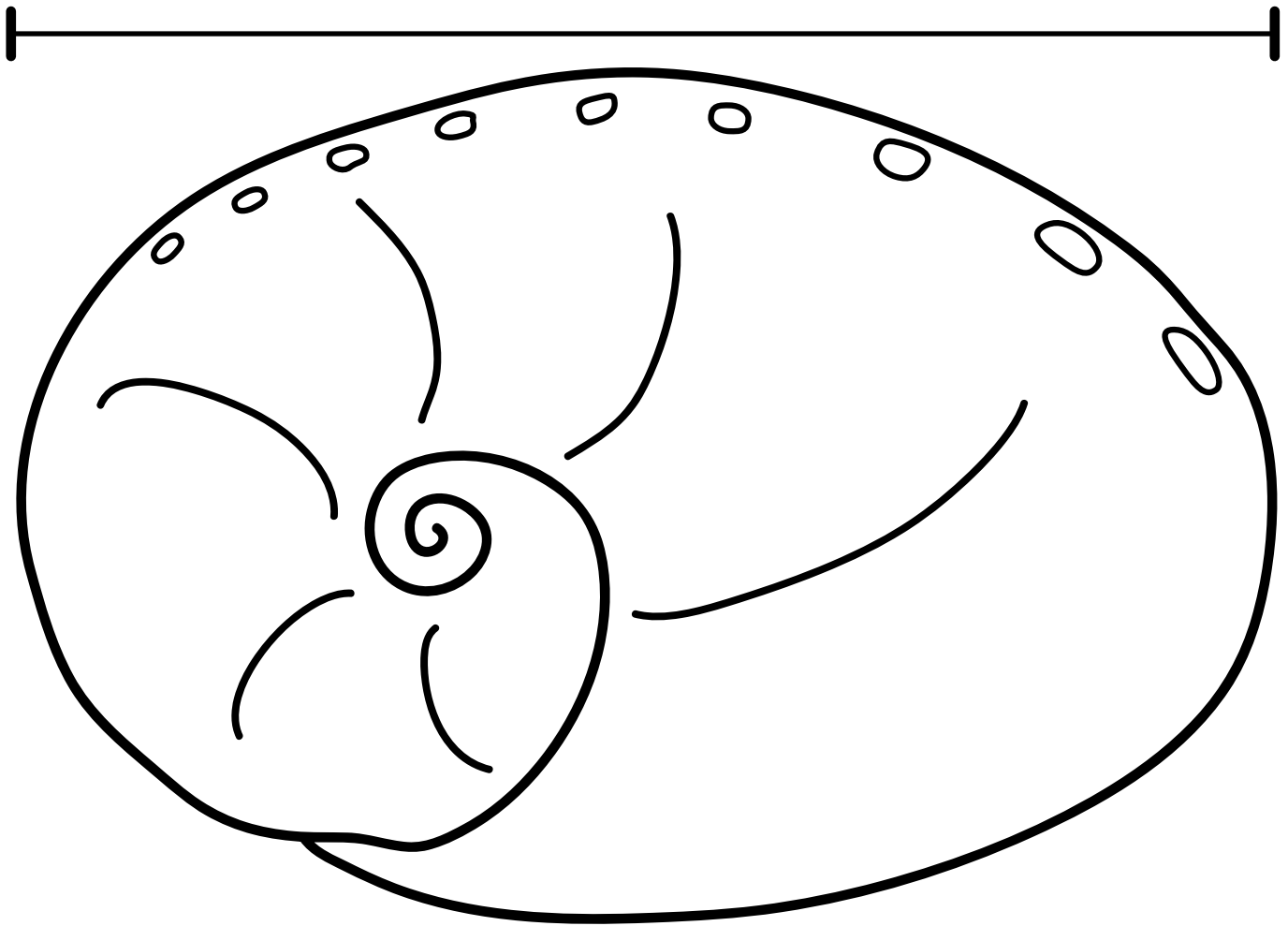
WARNING!

Students with shellfish allergies are not to participate in this activity – only observe. Schools must carry an EpiPen® as per the Risk Assessment (Appendix 1).

All about abalone

What's another name for abalone?

Mark on the diagram the size limit for harvesting abalone.



What are the holes in the abalone shell used for?

.....

How does harvesting abalone help connect Aboriginal people to country?

.....

Fishing techniques

Overview

Students are introduced to traditional fishing methods and the scientific methods (observation, testing, design) used to determine when and how to catch fish. Tools that can be made available to show students include fishing hooks made from shells, traditional fishing lines made from bark or other plant fibres, fishing spears and woomeras, eel traps, nets, fish traps and plants, such as Native Indigo (*Indigofera australis*), that are used on the south coast to stun fish and eels for easy capture.

Watch the video '[Abalone: the perfect sea tucker](#)' before the excursion to find out how abalone shell is used for making fishhooks.

Watch the video '[How to catch sea tucker](#)' before the excursion and watch Wayne, Ronnie and Bruce talk about how to harvest sea tucker, the materials they use to make tools and the importance of not taking too much from the sea – take only what you need.

Make a fishing spear

On the excursion, your Sea Ranger will demonstrate how to make a fishing spear and then the students can have a turn at using it.

The Sea Ranger will provide background information and knowledge on materials that are used for the spear and why different materials are used for different parts of the spear. A mock fish can be put in the water/rock pool and kids can take turns at trying to hit it. For safety, you should do this activity where there is still water and/or there is a sandy bottom.

Equipment/teaching aides available

- Fishing spears – Garrara forest for timber and flash cards used to show picture of trees and where they are found. Sea Ranger will provide the timber and keep that in the trailer they will need time to go and collect various materials prior.
- Twine for spear prongs – need to be collected
- Bone for spear prongs – need to be collected
- Natural twine – pre-made from bark or grasses
- Grinding rocks (help make abalone fishhooks)
- Mock fish, or pre-caught fish, for spearing practice

Curriculum outcomes

Science

Year 5: ACSSU043, ACSSU080

Stage 3: ST3-5LW-T

Geography

Year 5: ACHASSK112

Stage 3: GE3-2, GE3-3

Technologies

Year 5 and 6: ACTDEK021

Cross-curriculum priorities

Aboriginal and Torres Strait Islander Histories and Cultures

OI.2, OI.3, OI.5

Sustainability

OI.2, OI.3

General capabilities

Critical and creative thinking

Reflecting on thinking and processes

Intercultural understanding

Recognising culture and developing respect

Additional notes

Watch the video 'Abalone: the perfect sea tucker' and 'How to catch sea tucker' before the excursion.

https://youtu.be/lozdzmSE9_0

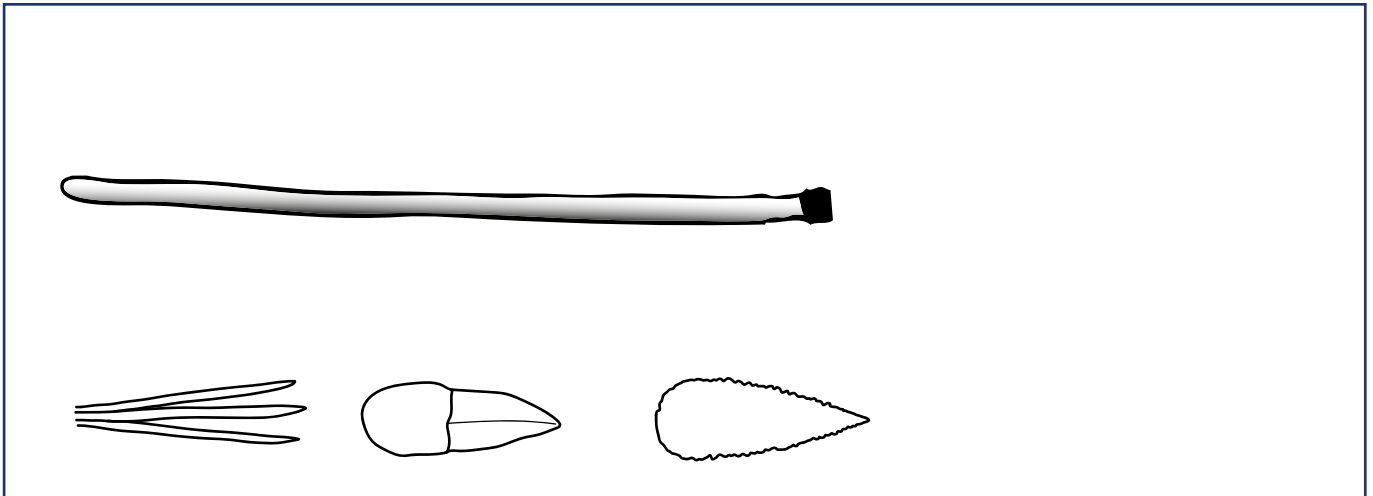
The 'Gone fishin' activity sheet could be completed in the classroom as a post-excursion activity.

<https://youtu.be/IGB6hngAI44>

Gone fishin'

Spears can be used for hunting on both land and in the water. What type of spear head should it have to catch fish? What makes this a good spear head?

.....
Complete the fishing spear diagram. Record on the diagram the materials you would use for the spear, the spear head and binding.



Name four other traditional fishing techniques.

- A.
- B.
- C.
- D.

List the steps used to make a fishing spear.

Who taught you this technique (to acknowledge your elders/teachers)?

Animal tracks, signs, dance and song

Overview

Students learn about survival techniques by knowing how to track animals from the signs they leave behind – footprints, scats, scratches, hollows, fur, feathers or scales etc.

Watch the video '[Animal Dreaming](#)' before the excursion to learn about some of the signs to watch out for when tracking animals. Understanding animal tracking is also often used in traditional songs and dance and these are passed down during family gatherings and ceremonies. Use the 'Animal tracks and signs' reference sheet to give students an idea of what they could look for when on the excursion.

The Sea Ranger introduces students to a variety of tracks that can be found on or near the beach by drawing tracks in the sand. Talk about what the animal can be a sign for, such as kangaroo is sea tucker, a small wader bird might be a sign that another sea tucker is ready to harvest.

Go for a short walk to see what can be found on the beach and in the dunes/tree line. Discuss why the animal track/sign is located where it is and what it can tell us about how that animal lives. Students record four tracks/signs they find along the way and the Sea Ranger will help with local language names for the animals.

Animals are important for food, clothing, warmth and even for making tools, such as using bone to make needles. Animals are also important in Aboriginal spirituality and many traditional dances and songs are about animals and teaching us lessons from the Dreaming.

If time permits, Sea Rangers teach the students a song and/or some dance moves about a Sea Country animal. It could be related to a Dreaming story, or it could just be for fun. Such as a slithering eel, flying sea-eagle, bouncing wallaby, or a sideways walking crab.

Equipment/teaching aides available

- Flash cards of animal tracks and signs (in case they can't easily be found)
- Student worksheet – boxes of animal tracks and signs they can tick off seeing as well as drawing other tracks and signs they find
- Language worksheet - plants, animals and landscape features

Curriculum outcomes

Science

Year 5: ACSSU043

Geography

Year 5: ACHASSK112

Stage 3: GE3-2

The Arts

Year 5 and 6: ACADAR012

Year 5 and 6: ACADRR038

Aboriginal Languages

Stage 3: 3.UL.1 (Listening)

Stage 3: 3.UL.4 (Writing)

Cross-curriculum priorities

Aboriginal and Torres Strait Islander Histories and Cultures

OI.2, OI.3, OI.4, OI.5

Sustainability

OI.2

General capabilities

Intercultural understanding

Recognising culture and developing respect

Personal and social capability

Social management

Additional notes

Watch the video 'Animal Dreaming' before the excursion.

<https://youtu.be/imQ9d24s6tE>

Animal tracks and signs

Footprints and trails

Look along the sides of dusty roads, waterholes and on the beach.



Kangaroo



Bird



Dog

Animal parts

The most commonly found animal parts include skeletons, insect exoskeletons, eggs, feathers and shells.



Masked lapwing eggs



Feathers and shells



Cuttlefish bone

Scats (animal poo) and pellets

Always use a stick to examine scats and pellets.



Kangaroo scat



Bird poo



Bird pellet

Scratches and holes

Scratches on smooth tree trunks or on the ground. Shredded branches. Excavations around burrows.



Possum scratches



Lyrebird scratch



Crab hole

Sounds

Listen for bird and insect sounds. Is there a particular time of day or night that they are loudest?



Cicada



Seagull



Kookaburra

Munch and crunch

Many animals are messy eaters leaving a mess of food waste behind or other signs they have been there.



Insect munching



Oyster remains



Crab remains

What did I find?

Listen and watch your Sea Ranger talk about animal tracks and signs. Draw four tracks or signs of animals used in the boxes below and name them - include the local Aboriginal name if known. Identify if these animals are sea tucker, or signs that nature's calendar is changing.



Name of animal:
Local name:
What does it mean?



Name of animal:
Local name:
What does it mean?



Name of animal:
Local name:
What does it mean?



Name of animal:
Local name:
What does it mean?

Middens – a connection to history

Overview

Students are introduced to the importance of middens in the cultural landscape – how they represent communal gathering sites, showcase the available food sources and indicate the time of occupation in an area. For local Aboriginal people today, middens represent a connection to country, to Dreaming and their ancestors.

Before the excursion, watch the video '[What's in my midden?](#)' to learn how important middens are to our hosts, Wayne and Lynne.

If a midden is located at the excursion site, the Sea Ranger takes students to investigate the edge of a midden. Alternatively, show enlarged photos of a midden and how the shells, charcoal and food debris is built up in layers.

Complete 'What's in my midden?' activity sheet.

Locations are important for this activity and why middens are in certain places, such as a meeting site or an abundant food source site (nature's supermarket). The Sea Ranger teaches students how to identify a midden site.

Sea Rangers take students for a walk along the beach and collect a number of shells and other small marine debris (making sure they contain no living animals). In small groups, students create their own 'midden in a jar' – layering up sand, shell materials and other debris along the outer edge of a glass or clear plastic jar so that the layers can be visible.

If a midden is not accessible on the excursion, students complete 'What's in my midden?' activity sheet using their jar middens.

Check beforehand whether shell collecting is allowed at the site you are going to as rules vary depending on location – see notes below.

Take photos of the jar middens. All jar middens will be emptied on the beach. It is encouraged that teachers support the creation of jar middens back in the classroom.

“Collecting shells and shell grit is prohibited in national parks, nature reserves and Aboriginal areas. Unoccupied shells and shell grit may be collected in other habitat protection and general use zones for non-commercial purposes.

Collecting is not allowed in sanctuary zones, which provide the highest level of protection to biodiversity and natural and cultural features.”

Equipment/teaching aides available

- Up to 6 large glass or clear plastic jars
- Enlarged photographs of middens from the local region

Curriculum outcomes

Geography

Year 5: ACHASSK112

Stage 3: GE3-1, GE3-2, GE3-3

Cross-curriculum priorities

Aboriginal and Torres Strait Islander Histories and Cultures

01.2

Sustainability

01.2, 01.3

General capabilities

Intercultural understanding

Recognising culture and developing respect

Additional notes

Watch the video 'What's in my midden?' before the excursion.

<https://youtu.be/nw-soOkYs3A>

The 'Life on the coast' activity sheet could be completed in the classroom as a post-excursion activity.

What's in my midden?



Imagine you are inspecting a midden. It is important to know what you are looking at, so you record as much detail as possible by drawing what you see in the box below. Label your drawing with details, such as changing colour of the sand, large shells, small whole shells, charcoal (black bits).

Life on the coast

Choose one of the following Sea Country themes. Using the three elements from your theme, create a simple story about traditional Aboriginal life on the south coast. Draft your ideas in the box below.

Hunter • Fish • Sea urchin

Gatherer • Oysters • Pigface

River • Flood • Camp

Camp fire • Turban snails • Rocky shore

Children • Berries • Basket-weaving

Ceremony • Pipis • Fish

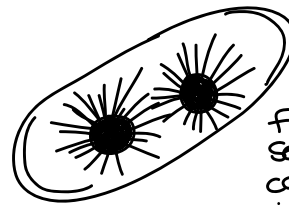
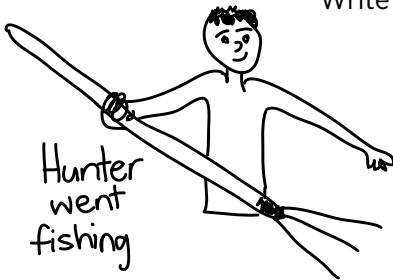
Spear • Octopus • Shark

Stingray • Cave • Elder

Nets • Dolphins • Fish traps

Hunter • Nets • Mullet

Write or draw your story ideas here. For example.



Working with nature

Overview

A key message about Aboriginal culture is respect for country and by respecting country we ensure that the landscape is managed sustainably for the future – always leave something behind for a new generation of plant or animal to thrive so that it can support future human generations.

Watch the video '[Working with nature](#)' before the excursion. Students should develop a greater understanding of the importance of understanding the landscape, how stories were passed down to help this understanding, that place names can relate to a key element in nature's calendar and the role of Dreaming stories in helping survival on country. Discuss the messages in this video before going on country.

Students are encouraged to pay attention to their surrounding landscape and identify landscape features that would help traditional survival in pre-European days. Features could include middens, estuaries, freshwater, fish traps, rock platforms, exposed headlands, protected coves/bays, rainforest/forest, lakes, etc.

Using a large aerial image (either photograph or painting), students place symbols of these features on the map. Discuss why these landscape features were important for survival and how they were looked after for thousands of years.

Complete the 'Understand the landscape' activity sheet using the map and group discussion of the landscape before European colonisation.

When gathering food for the family, stories that had been handed down told about when to collect certain foods. Such as when the wattles are in flower then the mullet travelling up the coast are ready to be harvested. Students are told a number of nature's calendar stories.

Students use the map they've created to help discover where the best sites are for identifying nature's triggers and where it is best to harvest food. For example, the wattles are found above the dunes in the forest, the mullet are heading up the coast and could be harvested using the fish traps or netted after travelling around a headland into a sheltered cove.

Equipment/teaching aides available

- Large aerial photo or painting
- Laminated cut-outs of pre-European and landscape features

Curriculum outcomes

Science

Year 5: ACSHE083

Year 6: ACSSU094

Stage 3: ST3-5LW-T

Geography

Year 5: ACHASSK112

Stage 3: GE3-2, GE3-3

Cross-curriculum priorities

Aboriginal and Torres Strait Islander Histories and Cultures

OI.2, OI.3, OI.5

Sustainability

OI.2, OI.3

General capabilities

Intercultural understanding

Recognising culture and developing respect

Additional notes

Watch the video 'Working with nature' before the excursion.

<https://youtu.be/S4IW5Gm6HjI>

The 'Nature's calendar' activity sheet should be completed in the classroom as a post-excursion activity.

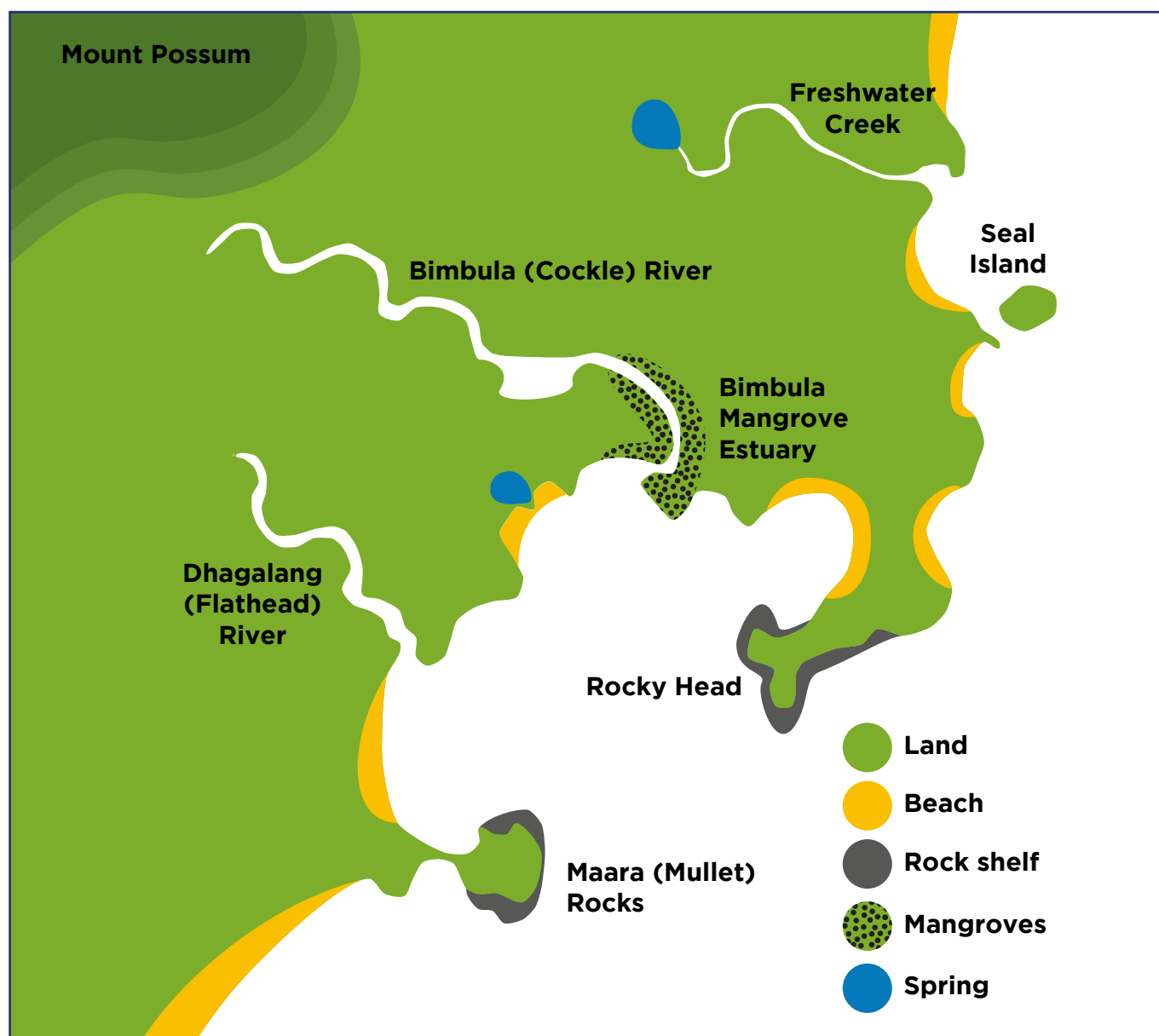
Understand the landscape

Imagine that you have been living with your people inland. Your mob have read the signs in nature: the wattle is flowering, which means the mullet are ready to be harvested so it is time to move to the coast.

Looking around the landscape, imagine that you have just arrived in the area and have decided to stay for a few weeks. You will need to decide where to set up camp.

On the map, draw in the following items. Use the questions to help you figure out where this would be.

Camps	Where would be a good place to set up camp? Could you shelter from the wind? Are there other families camping nearby? Where would they be?
Drinking water	Where is the nearest freshwater supply? It would be best to set up a camp that is not too far from drinking water.
Bush / Sea Tucker	What is available at the moment? Where can it be found (in the water, on the beach, behind the dunes, along the estuary or creeks)? Hint: The place names might help with the tucker that can be found. What else could be there?



Nature's calendar

Using stories you have heard on the excursion, record some of Nature's Calendar events that help the traditional owners know when to move camp, what food to harvest, when to gather for celebrations etc. Write these in the box below.

Back in the classroom, create your own calendar from these stories. Think about:

- Will you base your nature calendar on a standard 12-month calendar?
- Will you use seasons? If so, how many will there be?
A lot of Indigenous groups around Australia have many seasons, such as 6-8.
- Weather (temperature and rainfall)
- Availability of freshwater / river levels
- Availability of food (flowering plants, fruits, animal movements, fish)

Talk to your school Aboriginal Education Officer and see if they can help you investigate more about nature's calendar events and traditional movements of the local people.

Weaving a story

Overview

Students are informed about the important role oral storytelling plays within Aboriginal culture. Through storytelling, which includes Dreaming stories, lessons are learnt about nature, personal interactions, rules and consequences from breaking the rules, local Aboriginal laws.

Stories are often told while conducting an activity. Weaving is a good example. While women and girls sit around in a circle and weave or undertake other chores, the Elders or Aunties, tell stories. Watch the video '[Weaving time](#)' before the excursion to gain a greater understanding of the role weaving plays in connecting to country.

A local traditional weaver is invited to the excursion to teach the students how to weave, and while they weave, a story is told. Students are asked to listen carefully to both the weaving instructions and to the story. Students should be able to re-tell the story back in the classroom if they listened carefully.

Core activity: Students learn how to make a bracelet from natural materials while listening to local stories. This is also a good opportunity for students to ask questions about the story, weaving and cultural practices.

If time is available, students re-tell a story back to one-another to see how much they retained.

Alternate activity A: If weaving is not an available option on the day, then students pair up and listen to the story being told. Student A repeats the story while Student B listens to see if they left anything out.

Discuss as a group how a story told many times would help you remember the story. Let the group know that storytelling doesn't only involve listening to someone speak – it can also involve images, hand gestures, or using props, music and dance.

Student B retells the story to Student A using other physical cues to help tell the story.

Alternate activity B: Students will work with the Sea Ranger, or a local invited Elder, to learn some key symbols (painted on arms or faces), create a song and present the story through dance or role-playing. Students determine what method of storytelling worked best for them – talking, singing/music, dancing or role playing.

Equipment/teaching aids available

- Materials for bracelet (shells, twine and/or weaving materials)
- Ochre or face paint
- Clap sticks
- Headbands

Curriculum outcomes

Science

Year 6: ACSSU094

Geography

Year 5: ACHASSK112

Stage 3: GE3-2

The Arts

Year 5 and 6: ACADAR012

Year 5 and 6: ACADRR038

Aboriginal Languages

Stage 3: 3.UL.1 (Listening)

Stage 3: 3.UL.4 (Writing)

Cross-curriculum priorities

Aboriginal and Torres Strait Islander Histories and Cultures

OI.2, OI.3

General capabilities

Intercultural understanding

Recognising culture and developing respect

Personal and social capability

Social management

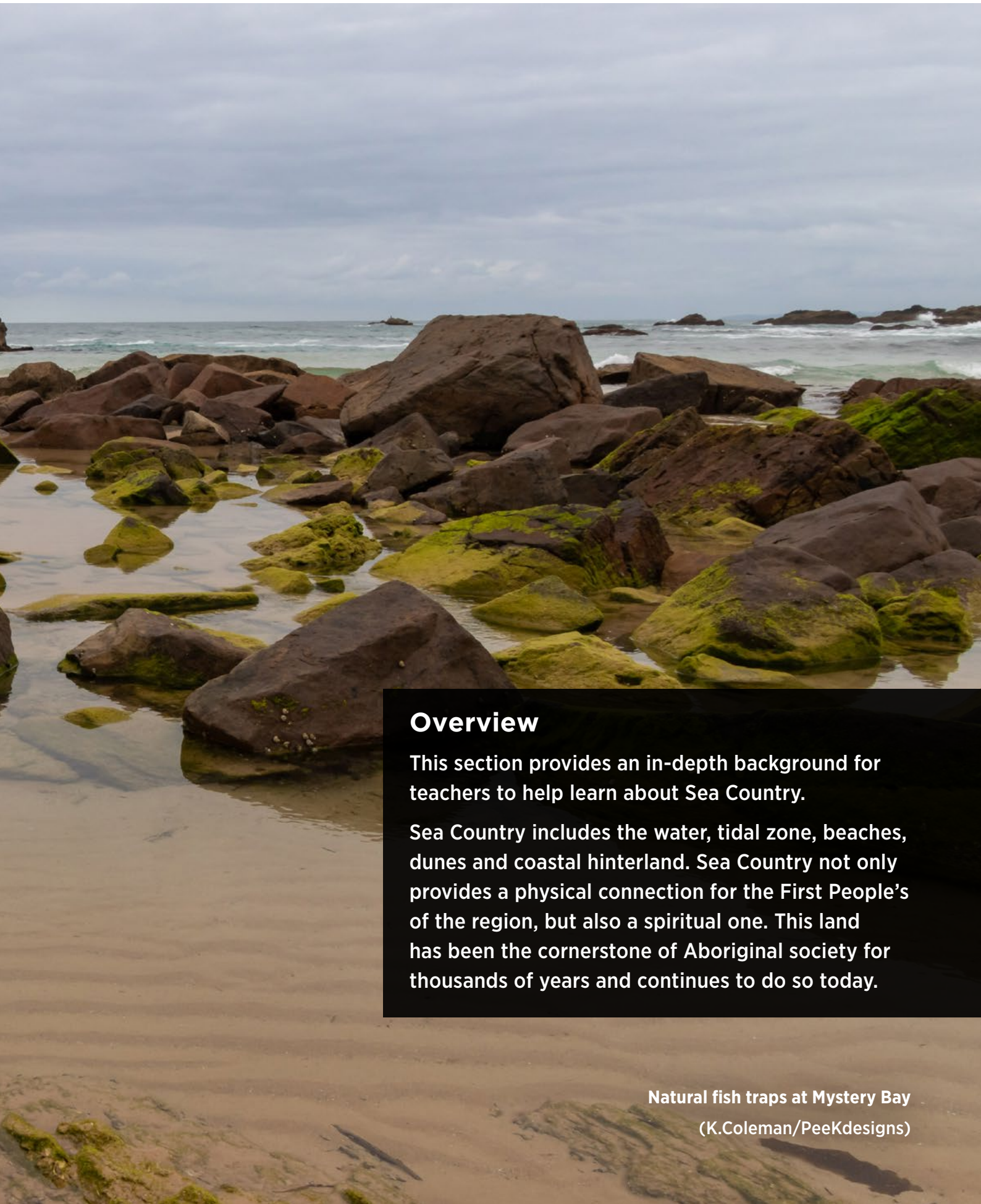
Additional notes

Watch the video 'Weaving time' before the excursion.

<https://youtu.be/EUiDa96lowU>



Section 2: Welcome to Sea Country



Overview

This section provides an in-depth background for teachers to help learn about Sea Country.

Sea Country includes the water, tidal zone, beaches, dunes and coastal hinterland. Sea Country not only provides a physical connection for the First People's of the region, but also a spiritual one. This land has been the cornerstone of Aboriginal society for thousands of years and continues to do so today.

An introduction to Sea Country

The Sea Country of New South Wales has strong significance for Aboriginal people living along the coast. For thousands of years, Aboriginal people have relied on the natural resources provided by the sea. The Sea Country, including islands, beaches, headlands, rocky shores, the ocean and estuaries, holds spiritual significance, and is central to their cultural practices and activities. Evidence of Aboriginal use of these coastal and sea environments can be found in many places, and includes large stone fish traps, such as those found at Mystery Bay, Buckenbowra River, Clyde River, marine parks, middens adjacent to beaches and estuaries, and tool-making sites on rocky headlands.

The importance of Sea Country to Aboriginal people is reflected in their languages, use of cultural totems, artworks, music and dances, stories and Dreaming. Many coastal Aboriginal communities continue to collect sea tucker and plants, animals, shells and stones important for traditional medicine and healing, conducting ceremonies, and for passing this knowledge on to the next generations. All Aboriginal objects, places and areas in NSW are protected under the *National Parks and Wildlife Act 1974*.

NSW Marine Parks and Parks Australia is continuing to work with Aboriginal communities in the management of Sea Country to recognise and respect the ongoing cultural responsibilities of Aboriginal people to care for Sea Country and increase understanding of traditional knowledge and cultural values.

Sea tucker

Aboriginal communities in NSW still collect traditional foods from the sea, resources which they have relied upon for thousands of years. These foods come from all the different coastal habitats. Mangrove worms, yabbies, crabs and certain fish species are found in estuaries. Pipsis and cockles are found on beaches. Turban snails, mussels, and oysters are found on rocky shores. Fishes and octopuses are found in the ocean. Aboriginal peoples' deep connections with and experience of nature allows them to know exactly when each food source is at its best for collection. This is known as a seasonal calendar.



A good day's catch of flathead (left), Abalone or muttonfish (middle) and Warrigul greens (right)

(W.Stewart, K.Coleman/PeeKdesigns and S.Brown/DPI)

Traditional harvesting methods

Always resourceful, Aboriginal people have developed many different methods for harvesting sea tucker, including, but not limited to, spears, nets, small traps, lines with hooks and stone fish traps. Canoes made from the bark of trees such as eucalypts, mahogany and turpentine were often used to go fishing in.

Spears are the most widespread and common harvesting tool among Indigenous Australians. They can be made either from lightweight materials, such as the grass tree and kurrajong, and heavyweight materials, such as eucalypts. When making a spear, Aboriginal men would often use fire to help straighten or harden the wood. The spearhead was often made from stone, which was sharpened to tear through flesh and skin, and fastened to the spear using animal sinew or twine and sap made from plants.

Nets and traps are generally made of natural fibres, and fishing line from the inner bark or shredded leaves of various plants which, when twisted, can be very strong. Hooks can be fashioned from sharpened shells.



Students learn about traditional methods of fishing with Ron Carberry (DPI)

Fish traps are large structures built from rocks in the tidal zone of rocky shores. The traps are baited on the outgoing tide, and the smell attracts fishes into the traps on the incoming high tide. Once in the fish trap, the fishes are either collected in smaller traps or speared. Stone fish traps are generally used at certain times, such as when large quantities of fish are required for ceremonies or gatherings, and the men net, spear or trap the fishes. In some places, the poisonous sap or leaves of particular plants can be used to stun the fishes temporarily, making them easier to catch.

Dolphins are known to assist in the fish harvest at many coastal locations. When dolphins are seen, a gifted community member will sing to them. The dolphins circle the fishes and drive them onto the shore where they are netted. Sometimes fishes will be left stranded if the tide is outgoing at the time, and then they are simply collected from the beach.

Middens

A midden is a mound made up of the remains of shells, fish bones, charcoal, the bones of mammals and sometimes tools. Middens are generally found at important sites where people from the area, or even neighbouring areas, have gathered. On the coast, they are found near places of good fishing or abundant shellfish, such as in estuaries, on beaches and dunes, and near rocky headlands. Middens vary in size, which reflects how they are used. Large middens may show they are used for large gatherings and ceremonies at particular times, while smaller middens may be regularly used by a family group. Due to the accumulation of debris, a midden that has been used over a long period of time can become very large. Excavation and carbon-dating have established that some middens are more than 4,000 years old.

Shell middens reveal a lot about Aboriginal peoples' activities, both in the past and the present. The types of shells in a midden point to the kind of marine environment they were sourced from, and the time of year it is used. Each midden will have a different assortment of bones and shells, depending on what was abundant at that location. For example, estuarine middens may contain whelks, oysters, mussels, crabs and estuarine fish species, such as bream and flathead, whereas beach middens will mostly contain shellfish and fish bones from the rocky shore and beach. Middens range from thin scatters of shell to deep, layered deposits which have built up over time.

Middens may contain evidence of stone working and stone artefacts. Stone occasionally came from a very different area, showing that it was traded or transported. Records show that shell or bone artefacts, such as fish hooks or barbs, can be found in the upper layers of shell middens.



Ron Carberry showing students a midden
Huskisson Beach (DPI)



Drawing in sand is the original canvas or blackboard
(K.Coleman/PeeKdesigns)

Artworks

Aboriginal art is part of a living tradition, perhaps the oldest and most continuous in the world. Like all forms of cultural expression, Aboriginal art is constantly adapting and changing with time. Even the traditional arts that express spirituality, land and Dreaming reveal the individuality of each artist and their ancestral footprint. The entire continent of Australia is covered by an intricate web of Dreaming. These Dreamings provide the framework by which Indigenous people live, and the powers which permit life to continue. Each tribe has its own Dreaming, spirituality and creation that permeates through art, dance and story. Contemporary art forms also tell new stories that reflect a range of subjects, including politics, traditional tales, cultural awareness and the identity of Aboriginal people today.

“Each year, when the mullet were running, one of the tribal Elders would go to a point overlooking the ocean. They would call out in Gumbaynggirr lingo for the dolphins to help round up all the fish and bring them in so the tribal people could feast.”

As told to Tony Hart, Gumbaynggirr artist, by his grandfather.

Many Australians are familiar with Aboriginal rock art and paintings. Some drawings are pictures chalked onto rock surfaces using dry pigments. Paintings use wet pigments are made by stencilling, finger painting, or by using makeshift brushes such as chewed sticks. The pigments or paints used in rock art are usually naturally occurring minerals (like ochre), which are often found on rocky headlands. Ochre paints can last a very long time. Rock artworks are an important part of Aboriginal peoples’ songs, stories and customs as they connect them to the land.

Paintings and drawings can still be found where they are protected from direct rain and sun, such as rock caves, rock shelters and cliff faces. These sites are protected and sacred to the local people. If you visit rock art sites, please be careful not to touch or damage the art, and to show respect for the sites and surrounding areas.

Sand painting is a common art form in coastal areas, where coloured sands are used to create a temporary picture which is then washed away by the next high tide.



Garidj (3 Canoes) by Leanne Barford

Garidja is a dhurga work for canoe and *waraga* means three or more. The artwork highlights the spirit of many men and youth coming together to build traditional stringybark canoes.

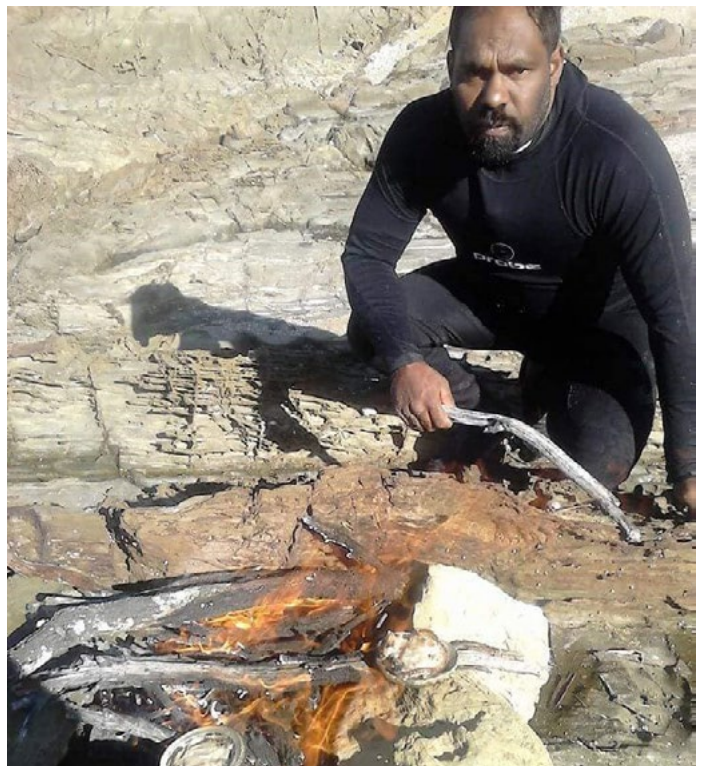
Gatherings and ceremonies

Aboriginal people celebrate times when food is plentiful, often inviting neighbouring groups to join the feast, or holding gatherings and ceremonies for births, deaths and initiations into adulthood. Depending on the occasion, some gatherings and celebrations occur at particular sites, which may be for men only or women only, or only at a specific place and time of the year. These gatherings and ceremonies typically involve music, song and dance. They are important today for networking and meeting up with neighbouring groups and communities. Aboriginal people often decorate themselves for ceremonies and celebrations using ochre and adornments.

Gatherings and ceremonies are also important for teaching and transferring knowledge from one generation to the next, and thus they continue to be held and practised today. This knowledge may include how to read nature's signs to know when certain foods are abundant, how to determine the best tides, or how to use plants and animals for medicinal purposes.

Music and dance are a very important part of ceremonies and are often used to tell traditional stories and songlines, which always have an educational purpose. Dreaming songs and song-lines tend to have a series of verses that tell the story of an ancestor spirit, a particular event or place, or may link a series of places or experiences. Often a ceremonial dance will be performed with the song. If you listen carefully, the song-lines will tell you what you would see if you made the same journey.

Dance is a unique aspect of ceremonies which is learnt and passed down from one generation to another. To dance is to be knowledgeable about the stories of the ancestral heroes, although dancing, unlike painting and singing, is learnt at an early age.



Jundi or periwinkles (top left), Community net fishing day at Barlings Beach (bottom left), Wayne Carberry cooks his abalone in its shell on an open fire (right)

(Department of Primary Industries, AIATSIS - NSW Fishing Rights Group)

Sources: Arrawarra Sharing Culture <www.arrawarraculture.com.au>; Yarrowarra Aboriginal Cultural Centre; the Department of Environment, Climate Change and Water; the Garby Elders; Uncle Milton Duroux; Tim Cowan; Dee Murphy; and Alison Williams.

South coast Sea Country

The Jerrinja tribe is made up of thirteen clan groups. The Jerrinja tribe has strong cultural and spiritual ties to land and sea. The coast has provided food, shelter and resources for Jerrinjan people for thousands of years. The land, waterways and the habitats that support the plants and animals are important features in traditional culture. They not only provide a source of food medicine, but also include ceremonial areas, meeting places, sacred sites and spiritual areas.

Jerrinja tribe Dreamtime story

When Bundoola and the spirits become restless in the Dreaming, Marigar, the creator of the universe, took the dust from two stars and made the south coast for them. They come out to Cullunghutti Mountain. Bundoola was given 13 wives and those wives were the creators of the 13 clans of the south coast.

Bundoola is the Jerrinja tribes god of thunder and rain. The creator of life for the Jerrinja people. Bundoola feeds the south coast with his rain and brings life to our lands. Bundoola clears the land with the fire he creates by this lighting.

Bundoola has been connected to the south coast forever and his special place is on the Beecroft Peninsula, but is only know to the Jerrinjan people.



Ron Carberry with students – Beecroft Peninsula in the background
Jervis Bay (DPI)

Nature's calendar

Aboriginal people have a deep connection with nature and the changes through the seasons. The natural environment provides foods and medicines at different times of the year. Not only are these foods harvested when in abundance, but they also give an indication as to what else is happening in the natural environment. For example, when the coastal wattle is flowering, schools of mullet are travelling along the coast and are ready to be harvested. When white berries develop on the coastal bearded heath in the Jervis Bay region, it is a sign that the bream are ready to be harvested. With these indicators, people are able to move around the coastline, knowing that areas will be able to sustain a group of them at a particular time of year.

Neptune's necklace, or nunuma, a common seaweed found along the coast is another important seasonal indicator. When the segments or individual beads of the plant swell, the local people know that rain is coming. The coastal town of Narooma takes its name from this seaweed.

Today, these signs are less reliable as climate change, more frequent droughts and falling water levels in coastal lakes and lagoons contribute to changes in some of these patterns.



Above (L-R): Coastal wattle, Bream, Neptune's necklace. Below (L-R): Mystery Bay, Octopus.

(M.Fagg/ANBG, D.Harasti/DPI, D.Marks/DPI, K.Coleman/PeeKdesigns, J.Natoli/DPI)



Fish traps

Barlings Island and Mystery Bay are very important sites as they are home to ancient stone fish traps that were used for thousands of years. The traps were baited using fish heads, scraps of shellfish, or cunjevoi (sea squirts). The traps were generally fished when there were two high tides over one night. On the first high tide, just before dark, the fish would move into the trap. As the tide fell around midnight,

the fish would be caught in the shallow waters and then captured. Any remaining fish could then escape the trap on the second high tide, just on daylight. The fish traps were made up of a ring of larger rocks and stones with an opening for the smaller fish to escape. This practice was used to sustain the fish populations. The rocky shores of Barlings Island and Mystery Bay were also good collection sites; animals harvested here include conk (triton shells), walkamurra (abalone), bhittinga (oysters) and joongar (octopus).

Middens

Middens are found all along the coast, often in areas adjacent to good fishing and collection sites near rocky headlands and estuaries. Here, remnants of old shells and fish bones that were eaten by Aboriginal people of ages past have been dated to thousands of years old.

There are many significant Aboriginal sites along the coast, such as men-only sites, women-only sites, burial sites and areas where many stone artefacts are found. The coastline is an area that has been used for thousands of years by Australia's First People, and so it is an area that should be treated with respect.

One of the earliest coastal middens in Jervis Bay was located at Wreck Bay and is known to have been in use up to 1200 years ago. It contained mussels and very little else. The most recent middens found in Jervis Bay, however, contain a variety of shellfish, including mussels, turban snails, cockles and pipis, as well as a range of tools made from bone and shell, including spearheads and fishhooks.

Around 27 midden sites have been recorded on the Beecroft Peninsula, and 23 on the Bhowerre Peninsula. It is difficult to tell where a midden begins and ends; however, one at Green Point has been found to be over 250 metres long.

Modern times

Since European colonisation, the introduction of laws has impacted upon traditional hunting and gathering practices. Furthermore, modern fishing technologies, such as large-scale trawling, setlining and longlining, have also impacted upon the distribution and abundance of many fish species that were once commonly harvested by Aboriginal people. This has also had an impact on the well-being of Indigenous groups along the coast.



Natural fish trap, Broulee Island

(K.Coleman/PeeKdesigns)



Midden at Wallaga Lake

(S.Eichmann/DPI)



Section 3: Marine Parks Background



Overview

Marine parks help to conserve marine biodiversity, while at the same time providing for many other recreational activities. There are both state and federally managed marine parks. This section takes a look at the marine parks of the NSW south coast.

Sea cliffs within Jervis Bay Marine Park
(J.Forbes/DPI)

Marine parks in NSW

What are marine parks?

Marine parks help to conserve marine biodiversity, while at the same time providing for many other activities, such as diving, boating, fishing and tourism.

There are six marine parks in NSW and they provide a platform to showcase our distinctive sea life and iconic natural features. Marine parks also provide opportunities for scientists, students and educators to improve our understanding of the marine environment.

Marine parks include a variety of habitats stretching from the estuaries, beaches and headlands of our coastline and further out to sea.

Marine parks are also declared at national and international levels in Australian and there are global systems of marine protected areas.



Batemans Marine Park

Far south coast of NSW

Established in 2007, the Batemans Marine Park features vast expanses of rocky reefs that support a diverse array of fish, invertebrates and seaweeds. The marine park stretches from the northern end of Murramarang Beach, near Bawley Point, to the southern shore of Wallaga Lake at Murunna Point. The marine park extends from the three nautical mile offshore limit of NSW waters to the mean high-water mark within all rivers, estuaries, bays, lagoons, inlets, and saline and brackish coastal lakes (excluding Nargal Lake).

Situated on the Far South Coast, the marine park falls within the southernmost range of the East Australian Current (EAC) and is bathed by both the subtropical waters of the EAC from the north, as well as cooler currents from the south. The result is a unique “mixing zone” where subtropical and temperate marine species can coexist.

Mystery Bay (top) and Wallaga Lake with Mount Gulaga in the background (bottom)

(DPI and K.Coleman/PeeKdesigns)



Uniqueness

Protected species occurring in the marine park include sharks, fish, birds, whales and dolphins. The numerous islands within the park provide breeding areas for rare and threatened seabirds, such as sooty oystercatchers and little penguins. The endangered grey nurse shark is known to aggregate at sites at Tollgate and Montague Island to feed and mate. The threatened great white shark also occurs in this area, and individuals are occasionally sighted. Both common and bottlenose dolphins are regularly seen throughout the marine park, as well as humpback, southern right and killer whales.

Montague Island is home to a large population of Australian fur seals, with New Zealand fur seals also visiting the island. Large aggregations of morwong, trevally and snapper are also found in abundance off Montague Island, along with pelagic species like kingfish, albacore and yellowfin tuna that follow the warmer currents.

The park also contains highly significant coastal lakes and lagoons, including Durras, Brunderee, Tarourga and Brou lakes, many of which have been recommended for protection. These smaller lakes, which are common along the south coast of NSW, are intermittently closed and open to the sea and provide unique estuarine environments.

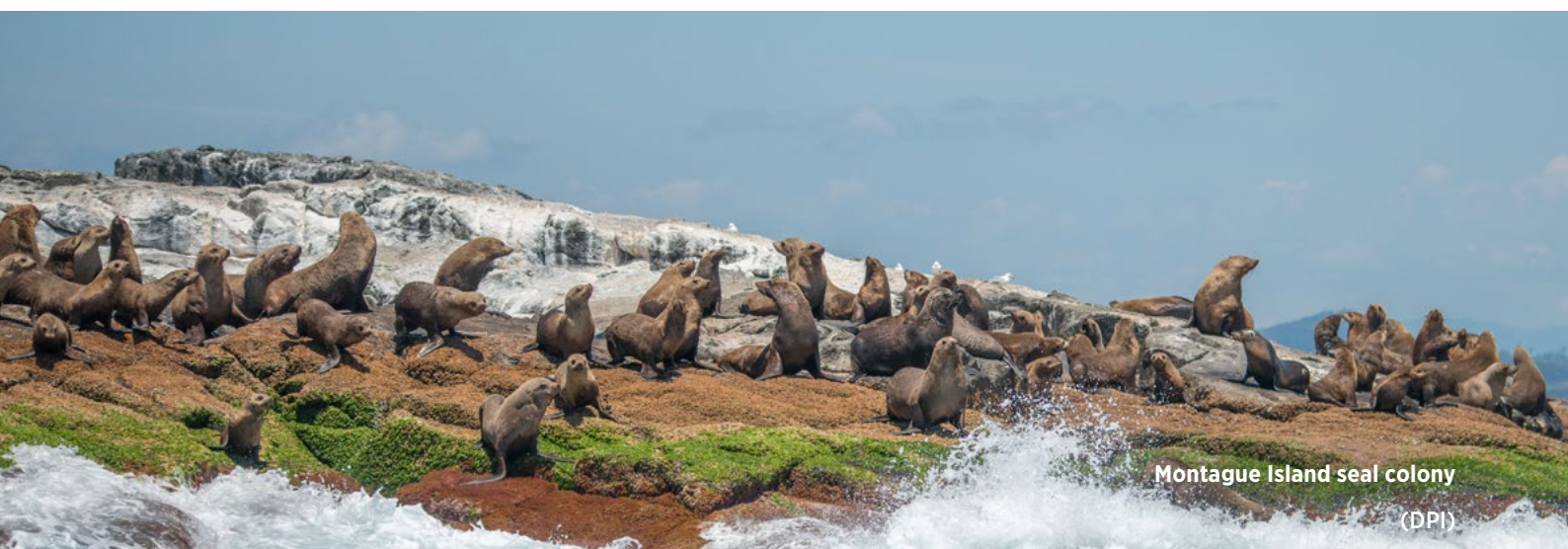
Larger rivers, such as the Clyde and Moruya, also have significant estuarine habitats, including mangrove, seagrass and saltmarsh. The Clyde River is one of the most pristine in NSW. This is primarily because the majority of the adjacent land lies within a national park or State forest. The clear blue waters of Wagonga Inlet are caused by the white sands found throughout its entrance and its deep permanent opening to the sea. The inlet is unique as it has one of the healthiest populations of the seagrass *Posidonia australis* within NSW, an important habitat for juvenile fish and invertebrates. The protected black cod has also been seen within the Inlet.

The coastal land surrounding the marine park is the traditional country of the Jerrinja tribe and contains many sites of historic, cultural and spiritual significance. Jerrinja tribe have been connected to the south coast and a tradition of cultural resource use since the dream time.

The Marine Park area is of social, cultural, spiritual and economic importance to the region and caters for a wide range of user groups. It is a particularly popular area for holidaying, recreational and charter fishing, diving and boating. There is also a wide range of commercial fishing activities and aquaculture (principally oyster farming) within several of the rivers and lakes.

For more information:

www.dpi.nsw.gov.au/fishing/marine-protected-areas/marine-parks/batemans-marine-park



Montague Island seal colony

(DPI)

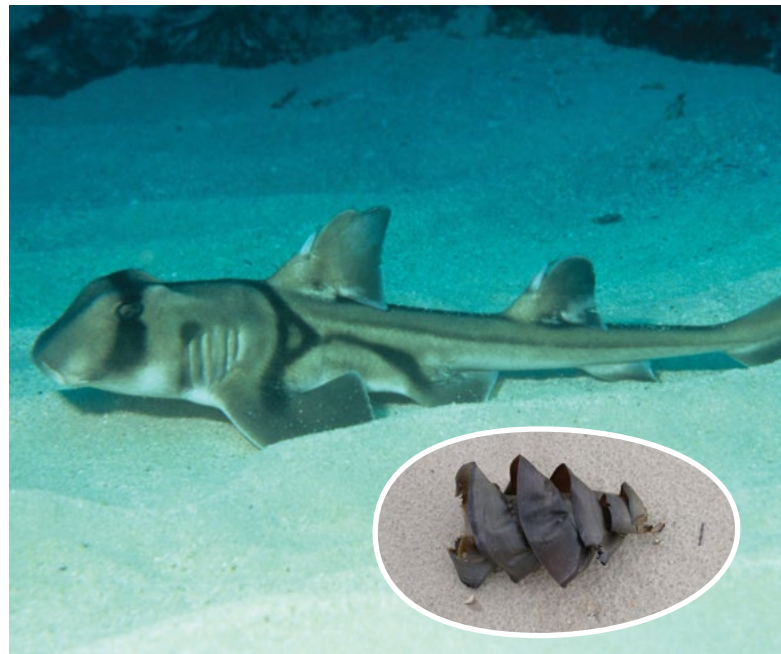
Jervis Bay Marine Park

Established in 1998, the Jervis Bay Marine Park is one of the oldest marine parks in NSW. It covers an area of approximately 22,000 hectares, including the semi-enclosed waters of Jervis Bay, and over 100 kilometres of coastline and adjacent ocean, extending from Kinghorn Point in the north to Sussex Inlet in the south. The tidal waters of Currambene Creek, Moona Moona Creek, Carama Inlet, Wowly Gully, Callala Creek and Currarong Creek are also included in the park.

The waters inside Jervis Bay are influenced by the warm water flowing south in the East Australian Current and cooler waters flowing north from the Bass Strait, as well as periodic upwellings of cold, nutrient-rich waters from the nearby continental shelf. These currents enter Jervis Bay near Bowen Island and flow in a clockwise direction around the bay before exiting near Point Perpendicular. It takes an average of 24 days to completely flush Jervis Bay, but sometimes this can happen in as little as seven days.

The dramatic range of landforms within the marine park provide the framework for a variety of habitats, including deep water cliffs, exposed and sheltered sandy beaches, rock platforms, rocky reefs, soft-sediment bottoms, kelp forests, small estuaries, expansive seagrass meadows and mangrove forests.

The area supports more than 230 species of marine plants and hundreds of species of invertebrates. Over 216 species of reef fishes, sharks and rays occur around the shallow reefs of the marine park; eastern blue groper, leatherjacket, wrasse, snapper and morwong are just a few. Endangered grey nurse sharks can be found in several locations and are a popular attraction for SCUBA divers. The harmless Port Jackson shark (right), one of the oldest known living sharks, form large breeding aggregations among the shallow reefs and seagrass beds, and their empty egg cases can sometimes be found washed up on the shores of the bay in their hundreds.



Port Jackson shark and egg casing (right - inset) and Blenheim Beach (bottom)

(A.Cookson, S.Brown and I.Charles/DPI)



The Hare Bay Sanctuary Zone contains one of the largest intact seagrass beds in NSW. These areas are commonly called “nursery areas” and provide food and shelter for many recreationally and commercially important fish species, such as bream, mullet, snapper and flathead, as well as squid. Seagrass helps to stabilise the sediment and is one of the reasons for Jervis Bay’s crystal-clear water.

Several threatened shorebirds use habitat within the marine park for foraging, roosting or nesting. Sooty and pied oystercatchers (right) can be found feeding on rock platforms, and hooded plovers nesting in sand dunes. Royal spoonbills, egrets and swans are protected waterbirds that forage among the mudflats, and white-bellied sea eagles will nest in the tallest trees, plunging on fish from the sky.



Marine mammals are a common sight in the marine park. Humpback and southern right whales attract many spectators during their seasonal migrations, and often enter the bay with young calves to rest. The northernmost colony of Australian and New Zealand fur seals can be found at Drum and Drumsticks, with over 100 animals hauling-out there. A resident population in Jervis Bay of around 60 bottlenose dolphins, which can be seen swimming and feeding around the shallow perimeter of the bay, is also popular with tourists. Common dolphins are also often observed in the ocean waters of both Batemans and Jervis Bay marine parks.

A zoning plan is in place which protects this valuable community asset and biologically important area, while still allowing for a wide range of recreational and commercial activities, including fishing, diving and snorkelling, swimming, kayaking and marine mammal watching.

For more information:

www.dpi.nsw.gov.au/fishing/marine-protected-areas/marine-parks/jervis-bay-marine-park

Pied oyster catchers (above) and Blenheim Beach (bottom)
(S.Brown and I.Charles/DPI)



Australian Marine Parks

Australia is surrounded by magnificent oceans and a marine environment that's the envy of the world.

Marine parks help conserve marine habitats and the marine species that live within and rely on these habitats.

Marine parks also provide places for people to watch wildlife, dive, and go boating, snorkelling and fishing. Importantly, they create jobs in industries like fishing and tourism, and provide us with food and energy.

That's why the Australian Government has established 60 marine parks around the country located within Commonwealth waters – those over 5.5 kilometres from the coast.

Parks Australia manages 58 Australian Marine Parks located across five marine park networks (the North, North-west, South-west, South-east and Temperate East networks) and one for the Coral Sea. The Great Barrier Reef Marine Park is managed by the Great Barrier Reef Marine Park Authority and the Heard Island and McDonald Islands Marine Park is managed by the Australian Antarctic Division.

Management plans set out our approach to managing our marine parks.



Jervis Marine Park (Commonwealth Waters)

Offshore protection

Established in 2013, Jervis Marine Park is in an area famous for its clear waters and abundant marine life. The marine park is about 20 kilometres offshore, adjacent to the New South Wales Jervis Marine Park and close to the Commonwealth Booderee National Park. Jervis Marine Park covers 2473 square kilometres. Together these parks protect a wealth of naturally and culturally important places including land and Sea Country of the Jerrinja tribe.

Beneath the surface, Jervis Marine Park links shallow continental shelf to the deep ocean with depths from 120 metres to 5000 metres.



The marine park includes examples of ecosystems representative of:

- Central Eastern Province – includes canyons along the edge of the continental shelf that interact with ocean currents and gyres resulting in plankton blooms associated with upwelling's
- Southeast Shelf Transition – includes upwelling's caused by the East Australian Current crossing the continental shelf and river sediments that influence biological productivity in this region.



Diver (top) and Humpback whale (bottom)

(D.Harasti and B.Vercoe/DPI)

Key features

Key ecological features of the Jervis Marine Park are canyons on the eastern continental slope and shelf rocky reefs. The canyons on the eastern continental slope enhance diversity and abundance of species, driven by the combined effects of steep and rugged topography, ocean currents, seafloor types and nutrient availability. Canyons also create localised changes in productivity in the water column above them, providing feeding opportunities for a range of species. The shelf rocky reefs extend along the continental shelf south of the Great Barrier Reef, and support a range of complex benthic habitats that provide food and shelter to a diverse array of fish and invertebrate assemblages.

The marine park supports a range of species, including species listed as threatened, migratory, marine or cetacean under the *Environment Protection and Biodiversity Conservation Act 1999*. The marine park provides biologically important areas including foraging habitat for seabirds such as the white-faced storm-petrels, foraging habitat for grey nurse sharks, and a foraging habitat for humpback whales.

The marine park contains one known shipwreck. The HMAS Tattoo (wrecked in 1939) listed in the *Underwater Cultural Heritage Act 2018*.

Tourism, commercial fishing, and recreation are important activities in the marine park. These activities contribute to the wellbeing of regional communities and the prosperity of the nation.

For more information:

atlas.parksaustralia.gov.au/amps?featureId=AMP_TE_JER

South Coast Sea Country Excursions



Wedged tail shearwater (top) and Black-browed albatross (bottom)

(G.Kelly/DPI and E.Dunens/Flickr)



Appendices



- 1. Curriculum descriptions**
- 2. Risk management plan**

Crested terns
(K.Coleman/PeeKdesigns)

Curriculum descriptions

Australian curriculum

SCIENCE

Year	Code	Outcome	Elaboration/s
5	ACSSU043	Living things have structural features and adaptations that help them to survive in their environment	<ul style="list-style-type: none"> investigating Aboriginal and Torres Strait Islander Peoples' knowledge of the adaptations of certain species and how those adaptations can be exploited
	ACSSU080	Light from a source forms shadows and can be absorbed, reflected and refracted	<ul style="list-style-type: none"> recognising Aboriginal and Torres Strait Islander Peoples' understanding of refraction as experienced in spear fishing and in shimmering body paint, and of absorption and reflection as evidenced by material selected for construction of housing
	ACSHE083	Scientific knowledge is used to solve problems and inform personal and community decisions	<ul style="list-style-type: none"> investigating how Aboriginal and Torres Strait Islander Peoples' traditional ecological and zoological knowledge informs sustainable harvesting practices of certain species, such as dugongs and turtles
6	ACSSU094	The growth and survival of living things are affected by physical conditions of their environment	<ul style="list-style-type: none"> investigating Aboriginal and Torres Strait Islander Peoples' knowledge and understanding of the physical conditions necessary for the survival of certain plants and animals in the environment researching Aboriginal and Torres Strait Islander peoples' cultural stories that provide evidence of geological events
	ACSHE098	Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena and reflects historical and cultural contributions	<ul style="list-style-type: none"> investigating how Aboriginal and Torres Strait Islander Peoples test predictions and gather data in the development of technologies and processes
	ACSSU096	Sudden geological changes and extreme weather events can affect Earth's surface	<ul style="list-style-type: none"> learning how Aboriginal and Torres Strait Islander Peoples' knowledge, such as the medicinal and nutritional properties of Australian plants, is being used as part of the evidence base for scientific advances
	ACSHE100	Scientific knowledge is used to solve problems and inform personal and community decisions	<ul style="list-style-type: none"> discussing how modern approaches to fire ecology in Australia are being informed by Aboriginal and Torres Strait Islander Peoples' traditional ecological knowledge and fire management practices

GEOGRAPHY

Year	Code	Outcome	Elaboration/s
5	ACHASSK112	The influence of people, including Aboriginal and Torres Strait Islander Peoples, on the environmental characteristics of Australian places	<ul style="list-style-type: none"> identifying how Aboriginal and Torres Strait Islander communities altered the environment and sustained ways of living through their methods of land and resource management

TECHNOLOGIES

Year	Code	Outcome	Elaboration/s
5 & 6	ACTDEK021	Investigate how and why food and fibre are produced in managed environments and prepared to enable people to grow and be healthy	<ul style="list-style-type: none"> considering traditional and contemporary methods of food preparation used in a variety of cultures, including Aboriginal and Torres Strait Islander methods

THE ARTS

Year	Code	Outcome	Elaboration/s
5 & 6	ACADAR012	Explain how the elements of dance and production elements communicate meaning by comparing dances from different social, cultural and historical contexts, including Aboriginal and Torres Strait Islander dance	<ul style="list-style-type: none"> discussing social and cultural influences to recognise the role of dance and dancers in societies, cultures, environments and times, for example, conventions of a Kecak dance from Bali, or the protocols for performing Aboriginal and Torres Strait Islander dance, including when it is not able to be viewed
	ACADRR038	Explain how the elements of drama and production elements communicate meaning by comparing drama from different social, cultural and historical contexts, including Aboriginal and Torres Strait Islander drama	<ul style="list-style-type: none"> understanding that the drama of Aboriginal and Torres Strait Islander Peoples is unique to the Country and/or Place of a particular group or groups, while also considering the protocols for particular performance styles and traditions such as Aboriginal and Torres Strait Islander customary practices
5 & 6	ACAVAM114	Explore ideas and practices used by artists, including practices of Aboriginal and Torres Strait Islander artists, to represent different views, beliefs and opinions	<ul style="list-style-type: none"> exploring cross-media effects and characteristics of representation when making artworks inspired by observation or imagination, for example, Aboriginal and Torres Strait Islander art from the local community

Cross-curriculum priorities

Aboriginal and Torres Strait Islanders Histories and Cultures	Sustainability
<p>OI.2 Aboriginal and Torres Strait Islander communities maintain a special connection to and responsibility for Country/Place.</p> <p>OI.3 Aboriginal and Torres Strait Islander Peoples have holistic belief systems and are spiritually and intellectually connected to the land, sea, sky and waterways.</p> <p>OI.4 Aboriginal and Torres Strait Islander societies have many Language Groups.</p> <p>OI.5 Aboriginal and Torres Strait Islander Peoples' ways of life are uniquely expressed through ways of being, knowing, thinking and doing.</p>	<p>OI.1 The biosphere is a dynamic system providing conditions that sustain life on Earth.</p> <p>OI.2 All life forms, including human life, are connected through ecosystems on which they depend for their wellbeing and survival.</p> <p>OI.3 Sustainable patterns of living rely on the interdependence of healthy social, economic and ecological systems.</p>

NSW syllabus outcomes - Stage 3

SCIENCE

Code	Outcome	Content
ST3-4LW-S	Examines how the environment affects the growth, survival and adaptation of living things	<ul style="list-style-type: none"> Explore plants and animals, tools and techniques used to prepare food to enable people to grow and be healthy. Plan, design and produce a healthy meal, for example a bush tucker meal. Explain a sustainable practice used by Aboriginal and/or Torres Strait Islander communities to manage food and fibre resources.
ST3-5LW-T	Explains how food and fibre are produced sustainably in managed environments for health and nutrition	
ST3-10ES-S	Explains regular events in the solar system and geological events on the Earth's surface	<ul style="list-style-type: none"> Research and communicate how Aboriginal and/or Torres Strait Islander Peoples use observations of the night sky to inform decisions about resources and significant cultural events, for example: gathering food, ceremonies, song lines and navigation.

GEOGRAPHY

Code	Outcome	Content
GE3-1	Describes the diverse features and characteristics of places and environments	<ul style="list-style-type: none"> Investigate the ways people change the natural environment in Australia and another country, for example: examination of how people, including Aboriginal and Torres Strait Islander Peoples, have influenced each country's environmental characteristics e.g. land clearing.

Code	Outcome	Content
GE3-2	Explains interactions and connections between people, places and environments	<ul style="list-style-type: none"> Investigate how the natural environment influences people and places, such as discussing how landforms influence where and how people live.
GE3-3	Compares and contrasts influences on the management of places and environments	<ul style="list-style-type: none"> investigate how people influence places, for example: identification of ways people influence places and contribute to sustainability

ABORIGINAL LANGUAGES

Code	Outcome
3.UL.1 (Listening and Responding)	Organises and responds to key ideas from spoken texts in familiar contexts
3.UL.2 (Reading and Responding)	Organises and responds to key ideas from written texts in familiar contexts
3.UL.3 (Speaking)	Interacts with others by sharing key points of information in Aboriginal languages
3.UL.4 (Writing)	Writes texts to present key points of information in Aboriginal languages

Risk management plan

Please note:

- This risk management plan is intended as a guide only and no liability is accepted for its use. Please refer to your school's safety and risk management policies prior to undertaking field trips.
- There can be limited mobile phone reception in some locations.

Risk levels (as modelled from the Department of Education's Excursions Policy):

- 1 and 2 Extreme risk; deal with the hazard immediately
- 3 and 4 Moderate risk; deal with the hazard as soon possible
- 5 and 6 Low risk; deal with the hazard when able.

Task/Activity	Hazard & Associated Risk	Risk Level	Elimination or Control Measures	Who	When
Walking to and from transport and on public roads	Struck by vehicle on road	4	Teachers and parent/carer volunteers attending to supervise excursion.	Coordinating teacher	Before
		6	Brief participants on rules and behaviour.		
	Uneven footpath	6	Remain on pedestrian pathways and use pedestrian crossings at all times.	All	During
		6	Teachers and parent/carer volunteers "ferry" students along the road.		
Coach transport to excursion venue	Boarding transport	6	Ensure vehicle operators hold appropriate licence(s) and insurance.	Coordinating teacher	Before
		5	Check availability of seat belts.		
		6	Vehicle to be appropriate for the needs of the group (e.g. wheelchair access).		
	Vehicle accidents	5	Enforce rules and monitor behaviour.	Teachers	During
		5	Ensure seat belts are worn.		
Diet and food during excursions	Student food allergies	3	Be aware of the possibility that a student who has previously been undiagnosed with anaphylaxis might have an allergic reaction. Use the general use adrenaline auto injector, such as EpiPen®, and contact an Ambulance immediately if a student shows symptoms of anaphylaxis. These symptoms are listed on the ASCIA action plan (general use) for autoinjector which should also be located in the first aid kit.	Teachers	Before & During
		3	Confirm appropriate food with parents/carers for student with allergies		
		3	Liaise with venue managers about provision of appropriate food for students with food allergies in liaison with parents/carers		

Task/ Activity	Hazard & Associated Risk	Risk Level	Elimination or Control Measures	Who	When
Diet and food during excursions	Student food allergies	3	Food brought by student should be provided by student's parent/carer.	Teachers	Before & During
		3	Discuss with students the importance of only eating your own food.		
		3	Ensure a responsible adult is with each group of students.		
		3	Ensure all staff attending have anaphylaxis training (use of adrenaline autoinjector) and E-emergency care training.		
		3	Arrange for staff attending to practice the emergency response for anaphylaxis with the school's practice EpiPen® and to be familiar with the ASCIA Action Plan for Anaphylaxis.		
		3	Communicate special requirements to all staff and volunteers especially emergency response procedures and equipment.		
		3	For students with allergies to bee/insect bites and stings, be aware of bees/insects attracted by soft drinks cans and food in garbage bins.		
Observing animals and plants	Bites and stings from insects, spiders, ticks and snakes (including allergies) Exposure to sun	4	Ensure participation of students with known allergies has been considered, implement appropriate risk controls, e.g. a trained staff member is available to provide appropriate first aid and emergency response (e.g. adrenalin auto injector, such as EpiPen®, for student with anaphylaxis).	Teachers	Before
		5	Ensure staff and students are aware of emergency response procedures.		
		5	Ensure students are wearing enclosed footwear, long pants and avoid walking through long grass.	All	Before & During
		4	Ensure student wear hats, shirts with sleeves and 30+ sunscreen.		
		4	Ensure students are provided with insect repellent on the day.		
		6	Don't touch animals or hazardous plants.	Teachers	During
		6	Carry a first aid kit which includes general use adrenaline auto injector such as EpiPen®.		

Task/ Activity	Hazard & Associated Risk	Risk Level	Elimination or Control Measures	Who	When	
Walking in a marine park or other protected area	Uneven ground surfaces, bites and stings, exposure to sun, wind, rain and dehydration	4	Notify Sea Rangers of expected arrival and departure times, number of participants and students with medical conditions.	Coordinating Teacher	Before	
		3	Identify participants with known medical conditions and ensure appropriate medication/treatment is available.			
	Allergies to insects, reptiles and plants	3	Ensure participation of students with known allergies has been considered, implement appropriate risk controls (e.g. trained staff member can apply first aid such as EpiPen® for anaphylaxis).	Teachers		
		4	Ensure staff and students are aware of emergency procedures, including knowing the symptoms of heat exhaustion/stroke.			
	Becoming lost or isolated from the group	4	Ensure staff and students are aware of emergency procedures, including knowing the symptoms of heat exhaustion/stroke.			
		6	Check weather forecast on day of excursion. Do not undertake physical activity in hot weather			
	Change in weather conditions	5	Emergency plans communicated for dealing with potential incidents.			
		5	Carry first aid kit.			
		5	Sea Ranger staff to the lead walk. Adult supervision at front and back to keep the group together.			During
		5	Inform excursion participants of Aboriginal Area safety instructions.			
		3	Ensure all participants carry water bottles. Take extra water to refill water bottles.			
		4	Staff carry insect repellent, additional sunscreen and ensure rest breaks are taken in the shade.			
		5	Wear enclosed footwear suitable for walking, clothing to protect arms and legs and suitable for changing weather conditions.	All		
		5	Wear hats, shirts with sleeves and sunscreen while outdoors. Seek out shade wherever possible to avoid heat exhaustion.			

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Photography

Front cover – Jervis Bay sea country excursion (DPI)

Back cover – Australian fur seal at Narooma (K.Coleman/PeeKdesigns)

Prepared by PeeKdesigns in partnership with the NSW Department of Primary Industries. Supported by Parks Australia – Australian Marine Parks.

Published by:

Department of Primary Industries

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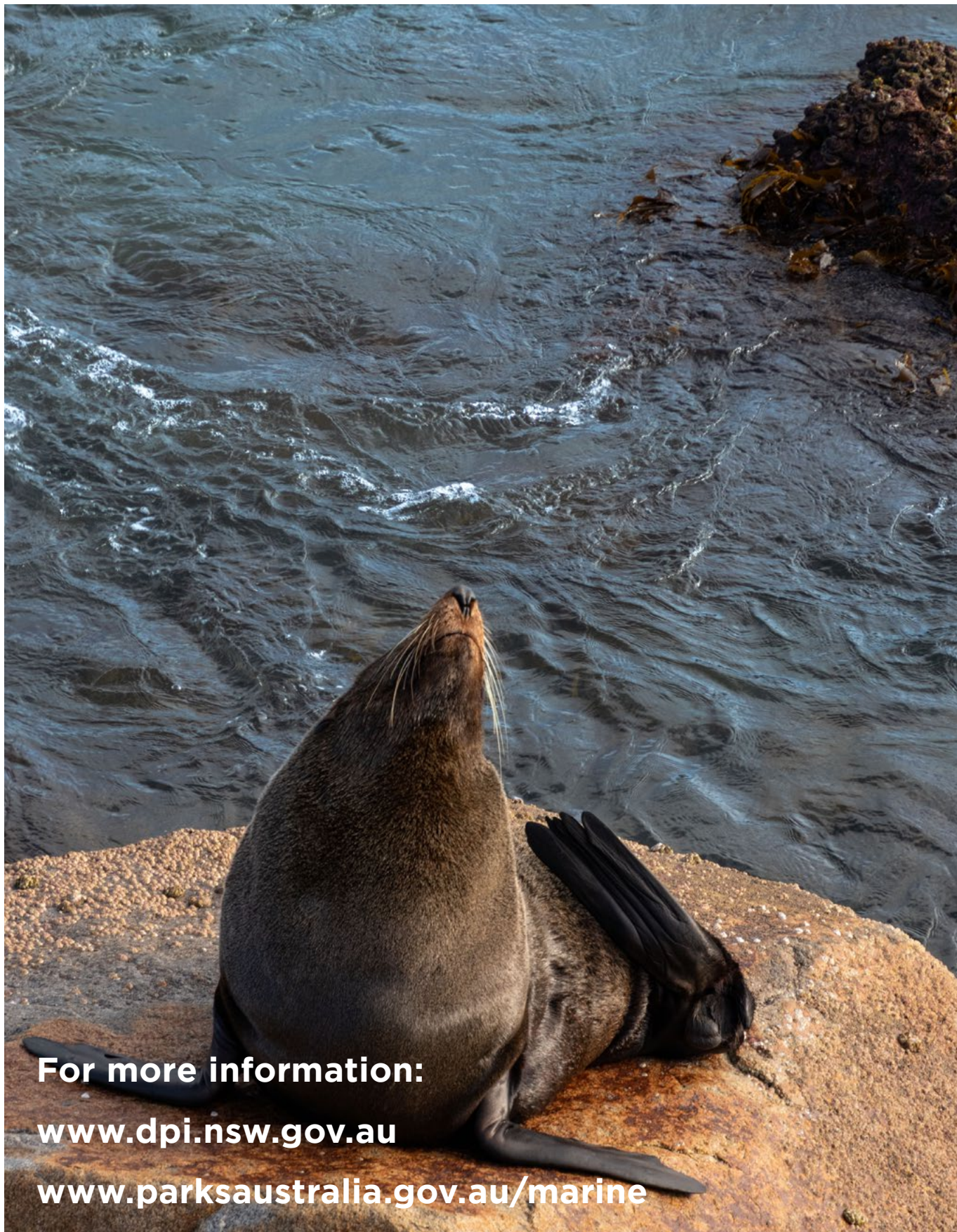
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Printed on environmentally sustainable paper



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