

# PRIMARY RESOURCE

## Central Coast Council Multi-Touch Book: WETLANDS

Target: K–6 students and educators

A Multi-Touch book on wetlands has been developed by Central Coast Council to raise awareness of Australia's amazing wetlands and to encourage positive behaviours to care for them. The book contains beautiful photography, videos and interactive activities.

Course outlines / lesson programs have been written to meet the requirements of the K–6 Geography syllabus. A wetland study can range from a small pond in the school grounds or a larger wetland like Porters Creek Wetland or Avoca Lagoon on the Central Coast. The course outlines show how a study of a wetland can be incorporated into student investigations of places, environments and people from Kindergarten to Stage 3. Fieldwork is an integral component of the activities in the book and activities in the lesson outline.

A sample Stage 3 lesson outline has been included here. Others programs are on the Central Coast Council website information hub at <http://www.loveourlivinglakes.com.au/learn/resources/>

Or follow these links:

-  Early Stage 1 (348.96 KB)
-  Stage 1 (306.79 KB)
-  Stage 2 (433.75 KB)
-  Stage 3 (355.35 KB)

These outlines and the Multi-Touch book can be adapted to other wetlands in NSW.

The book is available for download with iBooks on a Mac or iOS device, however the interactive features may work best on an iOS device.

<https://itunes.apple.com/au/book/wetlands/id1244146259?mt=11>



**Animal Detectives**

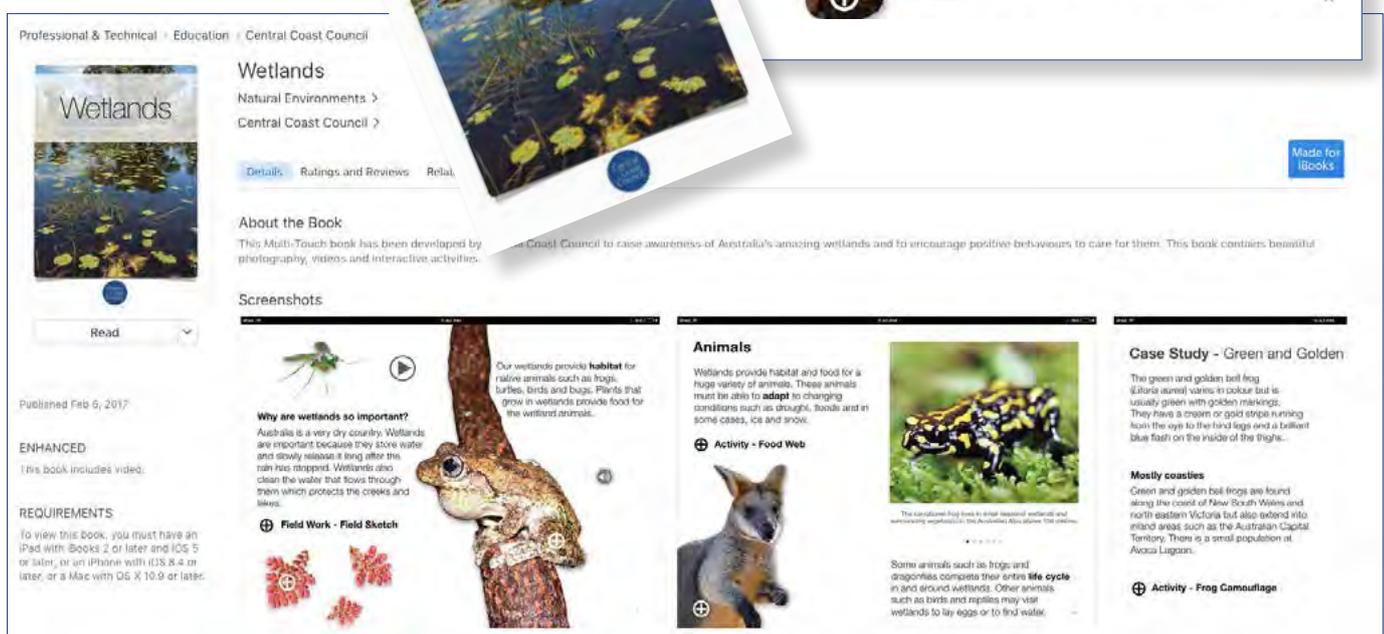
Many animals are **cryptic** and you may not be able to see them when you visit a wetland. However, look a little closer and you might notice tracks, droppings, animal remains, shells or even hear frogs and birds calling.

**Wetland sounds**

Fur and bones in this fox scat tell a story. What animals do you think it has eaten?

By identifying signs and **evidence** you will be able to work out which animals live in the wetland even if you can't see them.

**Field Work- Animal Evidence**



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### Wetlands

Natural Environments >  
Central Coast Council >

Details Ratings and Reviews Retail

**About the Book**

This Multi-Touch book has been developed by Central Coast Council to raise awareness of Australia's amazing wetlands and to encourage positive behaviours to care for them. This book contains beautiful photography, videos and interactive activities.

**Screenshots**

Published Feb 6, 2017

**ENHANCED**  
This book includes video.

**REQUIREMENTS**  
To view this book, you must have an iPad with Books 2 or later and iOS 5 or later, or an iPhone with iOS 8.4 or later, or a Mac with OS X 10.9 or later.

**Why are wetlands so important?**  
Australia is a very dry country. Wetlands are important because they store water and slowly release it long after the rain has stopped. Wetlands also clean the water that flows through them which protects the creeks and lakes.

**Field Work - Field Sketch**

**Animals**  
Wetlands provide habitat and food for a huge variety of animals. These animals must be able to **adapt** to changing conditions such as drought, floods and in some cases, ice and snow.

**Activity - Food Web**

**Case Study - Green and Golden**  
The green and golden bell frog (Litoria aurea) varies in colour but is usually green with golden markings. They have a cream or gold stripe running down the eye to the hind legs and a brilliant blue flash on the inside of the thighs...

**Mostly coasties**  
Green and golden bell frogs are found along the coast of New South Wales and north eastern Victoria but also extend into inland areas such as the Australian Capital Territory. There is a small population at Avoca Lagoon.

**Activity - Frog Camouflage**



## COUNCIL LEADING THE WAY IN WETLAND EDUCATION

21 June 2017

Central Coast Council is helping lead the way for the next generation to be involved in protecting the Coast's waterways by launching its first ever free Multi-Touch Books.

Two digital books have been developed for preschoolers, primary school students and educators. The books highlight the importance of wetlands, what lives in them and how everyone can play a role in looking after them.

Council Group Leader, Ms Julie Vaughan, said education was a key to helping protect the wetlands and Council is heading straight to the classroom with an innovative and interactive learning tool designed to appeal directly to kids.

"Working with educators and kids is nothing new for Council, we have been doing this for some time – but what is different is the way we are going about it which came directly from feedback from teachers across the Coast," Ms Vaughan said.

"The teachers wanted something that could be easily used in the classroom and out in the field – so we delivered the first iBooks for Council.

***"Now the resource is digital, teachers can easily link it up to the smartboards in the classroom for all the students to see.***

***"This exciting project is more than a book – being interactive the books contain songs, photos and videos as well as practical activities for the classroom and out in the field.***

"The books are full of generic information that can relate to wetlands across the country, but they also have localised case studies on Porters Creek Wetland and Avoca Lagoon."

***Using these Multi-Touch Books, students will be able to explore photos with interactive captions, complete field sketches, listen to wildlife calls, take photos, touch and drag images into the correct order or have the answer spring to life in a chapter review.*** Completed activities can be submitted to the teacher electronically only from an iPad or iPhone.

Council Administrator, Mr Ian Reynolds, said protecting our waterways and the environment was a key priority for Council and the community and this new technology would be crucial in getting the next generation involved as well.

"The books not only educate the students in class, but they also can help the wider community learn about the importance of wetlands and what they can do to protect them," Mr Reynolds said.

"If we can actively engage our younger generation now in the importance of protecting our waterways and environment they will become their champions now and help ensure their future. We all have a role to play and this project is a great example of Council working with the community to deliver an important resource that can be used for free and in return help educate our community on our local environment."

These books have been developed with local early childhood educators and primary school teachers to support the Commonwealth Government Early Years Learning Framework and the NSW Syllabus for the Australian Curriculum (Geography and Science & Technology K–6). Additional lesson outlines will be available on Council's estuary website [loveourlivinglakes.com.au](http://loveourlivinglakes.com.au)

<https://www.centralcoast.nsw.gov.au/council-leading-way-wetland-education/>



## Stage 3 Geography: Contemporary land use – Porters Creek Wetland

<b>Focus area: Factors that shape places</b>	
<b>Factors that change environments</b>	<b>Humans shape places</b>
<p><b>Key inquiry questions</b></p> <ul style="list-style-type: none"> <li>• How do people and environments influence one another?</li> <li>• How do people influence places and the management of spaces within them?</li> </ul>	
<p><b>Content focus</b></p> <p>Students:</p> <ul style="list-style-type: none"> <li>– investigate how people change the natural environment in Australia</li> <li>– examine ways people influence the characteristics of places, including the management of spaces</li> </ul>	
<p><b>Outcomes</b></p> <p>A student:</p> <ul style="list-style-type: none"> <li>– describes the diverse features and characteristics of places and environments <b>GE3-1</b></li> <li>– explains interactions and connections between people, places and environments <b>GE3-2</b></li> <li>– compares and contrasts influences on the management of places and environments <b>GE3-3</b></li> <li>– acquires, processes and communicates geographical information using geographical tools for inquiry <b>GE3-4</b></li> </ul>	
<p><b>Overview</b></p> <p>The geographical inquiry process will investigate a contemporary geographical land use or planning issue as a case study at a local or regional scale. Through investigation of the issue, students will examine the geographical characteristics of the site, the interconnections between the place and a range of people with varying points of view, the role of government in the issue, and sustainability considerations. Students will also develop understanding of the decision-making processes and roles and responsibilities of the different levels of government.</p> <p>Note: The capacity of students to engage with the inquiry will be much greater in Year 6 than early in Year 5. Teachers will need to adjust and scaffold learning activities as appropriate. Teachers can choose whether the case study is undertaken by groups or as a whole class.</p>	
<p><b>Assessment</b></p> <p>Many of the activities require students to demonstrate their learning. These activities can be used to assess student learning at various stages throughout the inquiry process.</p>	

<p><b>Factors that change environments</b></p> <p>Students:</p> <ul style="list-style-type: none"> <li>investigate the ways people change the natural environment in Australia and another country, for example:             <ul style="list-style-type: none"> <li>examination of how people, including Aboriginal and Torres Strait Islander Peoples, have influenced each country's environmental characteristics eg land clearing, use of fire</li> </ul> </li> </ul> <p><b>Humans shape places</b></p> <p>Students:</p> <ul style="list-style-type: none"> <li>investigate how people influence places, for example:             <ul style="list-style-type: none"> <li>description of who organises and manages places eg local and state governments</li> <li>identification of ways people influence places and contribute to sustainability eg roads and services, fire management strategies</li> <li>examination of a local planning issue; the different views about it and a possible action in response to it</li> </ul> </li> </ul>	<p><b>Student-centred inquiry into Porters Creek Wetland</b></p> <p>Students work in small groups to investigate Porters Creek Wetland. They create a short presentation, providing a balanced view that discusses the positive and negative outcomes identified in the investigation.</p> <p><b>Acquiring geographical information</b></p> <p>Question:</p> <p>What is the impact of increasing urban development on Porters Creek Wetland?</p> <p>Geographical questions:</p> <ul style="list-style-type: none"> <li>Where is Porters Creek Wetland located?</li> <li>What was the 'country' like when the Darkinjung people lived in and around Porters Creek Wetland?</li> <li>What are the geographical features of the place today?</li> <li>Why is the Porters Creek Wetland environment important?</li> <li>How are the places surrounding Porters Creek Wetland organised and used?</li> <li>What are the impacts of land use change?</li> <li>Who will be advantaged and who will be disadvantaged by land use change?</li> <li>What actions are required to ensure the sustainability of Porters Creek Wetland?</li> </ul> <p>Resources:</p> <p>Use the Porters Creek Wetland case study in Central Coast Council's Wetlands Multi-Touch Book available on the iBookstore</p> <p><b>Acquire data and information</b></p> <p>Examples of data and information sources:</p> <ul style="list-style-type: none"> <li>Use a range of maps to describe Porters Creek Wetland. Use appropriate spatial technologies and visual representations.</li> <li>Research the Darkinjung people: how they managed the land, the fresh water sources, what they planted, harvested and hunted to meet their needs. Consider whether Porters Creek Wetland had seasonal or ceremonial significance?</li> <li>Study current photographs of Porters Creek Wetland and identify the main geographical features.</li> <li>Fieldwork: visit Porters Creek Wetland. Draw and label the geographical features in a field sketch. Use other fieldwork techniques such as recording human uses through photographs, conducting biodiversity surveys, assessing vegetation distribution, water quality testing, mapping land uses and observing impacts. For assistance contact Central Coast Council or Rumbalara Environmental Education Centre.</li> <li>Source appropriate data and other statistical information relating to the issue, e.g. population growth forecasts. See <a href="http://profile.id.com.au/wyong/home">http://profile.id.com.au/wyong/home</a></li> <li>Develop a role play activity to represent the perceptions of different community members on the impact of urban development around Porters Creek Wetland on people, flora and fauna and water quality (developer, neighbour, environmentalist)</li> <li>Determine the role of government in planning, developing or managing the place. Use the Porters Creek Wetland Case Study in Central Coast Council's Wetlands Multi-Touch Book.</li> </ul>
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## Processing geographical information

Use geographical tools to collate and review the data and information collected and evaluate for its usefulness, for example:

- On a **topographic map** or **satellite image** as a base map, use **mapping overlays** to describe geographical features of Porters Creek Wetland and its surroundings. Analyse changes, spatial distributions and patterns. Use aerial photos in the Porters Creek Wetland Case Study in Central Coast Council's Wetlands Multi-Touch Book.
- Use photographs and research information to construct a **table** representing past, present and future uses of Porters Creek Wetland. Analyse the changes over time and make predictions for the future.
- Assemble and annotate **photographs** to provide a visual representation of Porters Creek Wetland. Analyse and label interconnections.
- Develop **consequences charts** to explain predicted impacts (positive and negative).
- Construct **graphs** to represent diversity of flora and fauna (biodiversity), and a **précis map** showing vegetation type and land use. Analyse and interpret the data.
- Use a **T-chart** to represent data on perceived positive and negative impacts gathered through surveys. Interpret patterns and trends.
- Construct a **flow chart** or **concept map** to explain the role of government, and other major stakeholders, in the role of wetland management and urban development.
- Ensure students have developed their understanding of ways humans influence Porters Creek Wetland and the different perceptions about its management.

Discussion questions:

- o Does the information relate to the inquiry questions used to shape the investigation?
- o Has the investigation examined the perspectives of different people?
- o Can conclusions be drawn about positive and negative aspects related to the investigation?
- o Has sustainability been considered?

## Communicating geographical information

Communicate:

Students work in small groups to develop a short **presentation** to convey their knowledge and understanding resulting from the investigation. Students may put forward arguments and opinions, support a specific course of action and explain the impact of this action on the environment.

The presentation should include:

- A clear description of the investigation and some of the consequences for the environment;
- Tools such as maps, satellite images, graphs, statistics, flowcharts, labelled photographs, diagrams, illustrations and other labelled visual representations;
- Information on the traditional use of Porters Creek Wetland by the Darkinjung people;

## Communicating geographical information (continued)

- A description of the role of government in organising or managing Porters Creek Wetland; and,
- A description and justification of a specific point of view and/or course of action in response to the investigation.

## Resources

NSW Planning and Environment websites, e.g. Sydney's Growth Centres; A Plan for Growing Sydney – <http://www.planning.nsw.gov.au/Plans-for-Your-Area/Regional-Plans#>

Central Coast population forecasts: <http://forecast.id.com.au/wyong/home> & <http://forecast.id.com.au/gosford/home>

Tuggerah Lakes animated film: [www.loveourlivinglakes.com.au](http://www.loveourlivinglakes.com.au)

SIX Maps: Satellite images and maps – <https://maps.six.nsw.gov.au/#>



Above and below: Fieldwork at Porter's Creek Wetland



Porters Creek Wetland images sourced from <http://www.blueplanet.nsw.edu.au/porters-creek-case-study/.aspx>



Below: Porter's Creek Wetland in flood

Wyong Shire Council population forecast

population forecast

Home

Drivers of population change

Population summary

**Area forecasts**

About the forecast areas

Assumptions

Forecast results

Forecast mapping

**Downloads**

Reports

Data exporter

**Supporting information**

About the forecasts

Forecast methodology

Site map

Sign in

Training videos

**Other resources**

Nat1 Demographic Indicators

Nat1 Economic Indicators

Resource centre

Blog

Share Export

Welcome to Wyong Shire population forecasts

The Wyong Shire population forecast for 2017 is 162,679, and is forecast to grow to 215,554 by 2036.

The Wyong Shire population and household forecasts present what is driving population change in the community and how the population, age structure and household types will change each year between 2011 and 2036.

The forecasts are designed to provide community groups, Council, investors, business, students and the general public with knowledge to make confident decisions about the future.

These forecasts were last updated in March 2015 by i.d. the population experts, on behalf of Wyong Shire. Forecasts are available for each year from 2011 to 2036.

Important Statistics	Population 2017	Population 2036	Change 2017-36
	162,679 forecast.id	215,554 forecast.id	32.50% forecast.id