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## Introduction

Welcome to the Tweed Sand Bypassing Schools Package. This curriculum resource for secondary teachers has been developed collaboratively by Tweed Sand Bypassing and the Geography Teachers Association of NSW & ACT (and reviewed by Queensland Geography Teachers Association). The package provides a complete unit of study for the Australian Curriculum Geography Stage 5 NSW (Year 9 & 10) topic *Environmental Change and Management*, with a focus on geographical inquiry and 21st-century skills such as collaboration and creativity.

## The resource

The unit of work uses contemporary real-world coastal management examples to develop a student's geographical knowledge and understanding of coastal environments. Students will also investigate the natural and human processes that form and transform the coast, and how these environments are managed in different places. The geographical concepts of place, space, environment, change, scale and sustainability are embedded into the resource.

The primary case study for the resource is Tweed Sand Bypassing, a coastal management project located on the border of NSW and Queensland. Waikiki Beach in Hawaii, U.S.A., is presented as a comparative global case study. These real-life examples allow students to apply their knowledge and understanding about coastal systems to make judgements about coastal processes and stakeholder needs for effective and sustainable coastal management.

There is a focus on inquiry and the application of knowledge and understanding,

rather than comprehension. Student activities are embedded within the content areas and are designed to develop general capabilities, such as critical and creative thinking, and skills relevant to 21st-century living and employment. In Parts 2 and 3 the focus is on developing knowledge and understanding about environmental processes, change and management. In Parts 4, 5 and 6 the focus shifts to application, analysis, evaluation and creation. Field work options and a geographical stimulus make up Parts 7 and 8.

## Educational aims and background of the resource

Tweed Sand Bypassing is a well-used case study in coastal management and a schools package was initially published in 2012. Several years on, and with a curriculum change, there was a need to develop a resource with a fresh approach. Changes to the package have included updated content and student activities that reflect contemporary pedagogical practice, including inquiry learning.

At the end of this unit students should be able to answer inquiry questions such as:

- › How do coastal environments function?
- › How do natural and human processes influence the functioning and environmental values of the Tweed and southern Gold Coast?
- › What are the causes, impacts of, and responses to, environmental change in different coastal environments?
- › Are coastal management strategies transferable between different places?

## About the resource

The resource includes:

- › a **checklist** demonstrating coverage of NSW and Queensland geography curriculum content, including outcomes for NSW teachers
- › a **PDF document** format for viewing online and printing. A **Copy Shop PDF document** is also provided for teachers wishing to print a mini textbook
- › **student activities** integrated throughout (coded to levels of thinking)
- › **further reading and references section**
- › **graphic organisers** for specific student activities
- › a printable **stimulus booklet** with student activities
- › a suggested **fieldwork** activity, adaptable to other locations
- › a suggested **assessment task**.

There is a focus on the use of inquiry questions, geographical skills, and interpretation of photographs, maps, graphs and statistics, spatial technologies and fieldwork. Students will develop a glossary of concepts and terminology used throughout the resource.

Student activities are mapped to one of these 6 levels of thinking or learning objectives:



## Using the resource

This resource was developed for teachers and students investigating the Stage 5 (Year 9 & 10) topic *Environmental Change and Management*. The sequencing of content and activities aims to build conceptual knowledge and understanding about coastal environments before developing critical thinking skills when applied to Tweed Sand Bypassing and Waikiki Beach case studies.

However, the use of the resources and student activities is flexible, with opportunities for independent, group or whole-class engagement with the content. For example, students could investigate Tweed Sand Bypassing (Part 4) and refer to Part 2 when environmental processes need to be understood and applied.

Teachers are encouraged to select and adapt materials to complement and support their teaching and learning programs and to suit the needs and interests of students.

The resource can also be adapted by experienced geography teachers for *Landforms and Landscapes* (NSW Stage 4 Years 7 & 8) and Queensland (Year 8); and *Biophysical Interactions* (NSW Stage 6 – Year 11).

# NEW SOUTH WALES STAGE 5 GEOGRAPHY SYLLABUS (NESA)

## Environmental Change and Management

### Content

Students investigate:

- › the role and importance of natural environments ✓
- › human-induced environmental changes across a range of scales ✓
- › environmental management, including different worldviews and the management approaches of Aboriginal and Torres Strait Islander Peoples ✓

**Select ONE type of environment in Australia as the context for a comparative study with at least ONE other country in which students:**

- › investigate the biophysical processes essential to the functioning of the selected environment ✓
- › investigate the causes, extent and consequences of the environmental change ✓
- › investigate the management of the environmental change ✓

### Outcomes

A student:

- › GE5-2 explains processes and influences that form and transform places and environments ✓

- › GE5-3 analyses the effect of interactions and connections between people, places and environments ✓
- › GE5-4 accounts for perspectives of people and organisations on a range of geographical issues ✓
- › GE5-5 assesses management strategies for places and environments for their sustainability ✓
- › GE5-7 acquires and processes geographical information by selecting and using appropriate and relevant geographical tools for inquiry ✓
- › GE5-8 communicates geographical information to a range of audiences using a variety of strategies ✓

**Related life skills outcomes:** GELS-2, GELS-3, GELS-4, GELS-5, GELS-7, GELS-8 ✓

### Key inquiry questions

(adapted for coastal environments)

- › How does a coastal environment function? ✓
- › How do people's worldviews affect their attitudes to and use of coastal environments? ✓
- › What are the causes and consequences of change to coastal environments and how can this change be managed? ✓
- › Why is an understanding of environmental processes and interconnections essential for sustainable management of coastal environments? ✓

*New South Wales Education Standards  
Authority Geography K-10 Syllabus*

# QUEENSLAND YEAR 10 AUSTRALIAN CURRICULUM GEOGRAPHY

## Year 10: Environmental Change and Management

### Content

- › Human-induced environmental changes that challenge sustainability ✓
- › Environmental world views of people and their implications for environmental management ✓
- › The Aboriginal and Torres Strait Islander Peoples' approaches to custodial responsibility and environmental management in different regions of Australia ✓

**Select ONE type of environment as the context for study:**

- › The application of systems thinking to understanding the causes and likely consequences of the environmental change being investigated ✓
- › The application of geographical concepts and methods to the management of the environmental change being investigated ✓
- › The application of environmental economic and social criteria in evaluating management responses to the change ✓

### Key inquiry questions

(adapted for coastal environments)

- › How can the spatial variation between places and changes in coastal environments be explained? ✓
- › What management options exist for sustaining human and natural systems in coastal environments into the future? ✓
- › How do worldviews influence decisions on how to manage environmental, economic and social change in coastal environments? ✓

*Queensland Curriculum an Assessment  
Authority: Australian Curriculum Geography  
Year 10*





## Further resources

The [MyCoast NSW Study Guide](#) (NSW Government and UNSW) was designed to assist teachers to engage students in the complex task of defining coastal communities and understanding social aspects relating to coastal hazards and management. The linked student activities address themes of 'personal and social capability' and 'intercultural understanding', while also developing student skills in numeracy, literacy and ICT, critical and creative thinking and ethical thinking.

[The Coastal Management Study Guide](#) (NSW Government and UNSW WRL) presents a broad range of fully developed independent and guided student activities for years 7–10 science and geography. The guide is provided for use inside and outside the classroom, including hands-on experiments, analysis of media reporting, and role-playing.

