

# OVERVIEW



## Port of Brisbane Studies Land cover transformations

## Year 11 & 12 Program

### Geography - Unit 3 (Topic 2): Responding to local land cover transformations

*Land Cover Transformations - Port of Brisbane Studies* is a day program (five hours) immersing students in a geographic inquiry to investigate local land cover transformations in a mangrove forest at the Port of Brisbane and the challenge of maintaining healthy mangrove forests in order to support biodiversity and coastal protection.

This program supports the mandatory practical from Unit 3 Topic 2, Responding to local land cover transformations.

During pre-program activities, students adopt the role of Geographer tasked with gathering vital data needed to manage the mangrove forests at the Port of Brisbane sustainably. Students become familiar with scientific equipment and data collection methodology and are challenged to identify issues of concern and formulate questions to focus research during the program.

On the program day students spend the majority of their time in a mangrove ecosystem to collect data to support understanding of biodiversity, where and how land cover has changed and natural areas adjacent to the Port, why they must be protected, and some of the management issues. The field study is primarily focused on around the river and on Whyte Island, Port of Brisbane and may include:

- Use of transects and quadrats to collect both biotic and abiotic data within different mangrove forest zones and Whyte Island boat ramp
- Data collection for comparative analysis using conceptual models (Mangrove Succession Model) and to support biodiversity studies (Simpson's diversity index)
- Environmental management of Port impacts on mangroves and saltmarsh

To deeply understand interconnections between the Port of Brisbane and its place on the edge of Moreton Bay, students tour port operations (either by bus or our vessel, *Inspiration*) focusing on shipping operations, on-shore infrastructure, quarantine and reclamation areas.

A presentation by Port of Brisbane Environmental Officers highlights natural area management challenges and solutions and utilises satellite imagery to illustrate land cover change over time.

Post program, students analyse and extrapolate data using ICTs. They use these results, together with geographic knowledge, to propose mitigation of impacts of land cover change in mangrove forests at the Port of Brisbane.

### Curriculum Intent

#### Geography

Unit 3 (Topic 2): Responding to land cover transformations – Students investigate a local land or water management challenge and explain the geographical processes involved, how these shape the identity of places and impacts of land cover for the biophysical environments and challenges of sustainable responses.

Assessment: Investigation – Field report (IA2)