

OVERVIEW



Moreton Bay Studies

Year 11 Program

Marine Science - Unit 2 Marine biology

Moreton Bay Studies is a day program immersing students in a directed data collection process on board our vessel *Inspiration*. It supports completion of the mandatory practical from Unit 2, Marine biology. Students, in the role of marine scientists, use a stratified sampling process to conduct an ecological survey of sites in Moreton Bay.

Studies, primarily focused on the marine ecosystems around Green and St Helena Islands, include:

- Determination of species diversity using Simpson's diversity index across two spatially variant sites
- Investigation of environmental factors limiting the distribution and abundance of species in an ecosystem
- Evaluation of strengths and limitations of data collection methodologies to appraise the ecological survey techniques used
- Applying data analysis techniques to identify relationships in the data and test for statistical significance of the effects
- Communication of experimental findings about ecosystem dynamics using graphical techniques including standard error bars

This fieldwork requires students to utilise:

- Techniques for identifying organisms (e.g. keys and field guides)
- Sampling techniques e.g. BRUV, underwater video glider (transect)
- Methods to measure abiotic data (including salinity, temperature and availability of light)

Pre-program resources introduce students to the study context and methodologies.

Post-program support includes exemplars to continue data analysis. Data collected is added to our longitudinal data set and shared with agencies managing Moreton Bay.

Curriculum Intent

Marine Science

Unit 2 Marine Biology - students will collect data using sampling methodology to support completion of the mandatory practical from Unit 2.

- Conduct an investigation to determine factors of population dynamics and assess abiotic components of a local ecosystem. Emphasis is placed on assessing the processes and limitations of the chosen technique. Students use field guides and identification keys to identify and describe marine species.
- Calculate the biodiversity of a marine ecosystem using Simpson's diversity index (SDI).

