

Shellish Monitoring Unit Plan

Aim

To enable students and their communities to effectively participate in the Hauraki Gulf Forum Community Shellfish Monitoring Project.

Timing: Minimum 3 Days - Potential 4 Weeks

Specific Learning Outcomes

Pre-trip: Background Information

- define shellfish, survey and monitoring
- explain why shellfish are being monitored
 - a) to collect sufficient data over a period of years to determine trends
 - b) to determine areas of concern for further investigation
 - c) ensure sustainable harvest, conserve resource for future generations
- detail reasons why shellfish are important
 - a) have intrinsic value, are part of marine ecosystem
 - b) kaimoana, food resource
 - c) Maori cultural significance
 - d) are used as an environmental 'indicator' to measure wider ecosystem health
- explain potential threats to shellfish populations
 - a) over-harvesting
 - b) land-use impact, especially sediment run-off
 - c) pollution (e.g. stormwater contaminants, detergent, oil, rubbish, sewage)
 - d) foreign marine species
 - e) climate change

Pre-trip: Survey Preparation

- investigate and classify shellfish by observing physical features
 - a) bivalves: cockle, pipi, wedgeshell, troughshell, nutshell
 - b) gastropods: hornshell, topshell, whelk
- use a simple food chain to explain the feeding relationships of shellfish
- list the data that will be collected in shellfish survey
- describe and demonstrate surveying methods & equipment used: transects, quadrats, sieves, measuring device
- explain why accuracy in measuring and recording data is important

Field Trip: Carry out Survey

- locate survey site, use quadrat and sieves to collect sample
- use a tally chart to record types and numbers of shellfish, use a measuring device to measure shellfish
- describe human impacts on area being surveyed

Post-trip: Analyse and Interpret Results

- analyse results of shellfish surveying using appropriate data display (e.g. bar graph, pie graph) to report on
 - a) what species are present, and where on beach they live
 - b) where the biggest/smallest shellfish are located
 - c) whether shellfish numbers and sizes are changing from year to year
- interpret and evaluate data displays using concepts of abundance, density, natural variation, trends

Unit Plan continued...

Take Action - Suggested Follow-on Learning Outcomes

Attitudes and Values

- design and use a qualitative survey to find out people's knowledge, attitudes and values about shellfish harvesting
- explain the Maori concept of 'kaitiakitanga' and how this relates to shellfish and the wider marine environment
- identify and justify own values position on shellfish management and use

Further Investigation of Estuary/Beach Surveyed

- define catchment area
- research land-use changes in catchment area and explain consequences of these

Compare Results

- use previous years results (if available) to compare and describe any changes
- compare results at your location with results from other locations (if available)

Take Action

- identify further potential strategies/actions that could be taken to protect shellfish and/or marine biodiversity e.g. marine reserves, rahui, rubbish clean up, community education about quotas, stormwater pollution
- make decision and carry out action to improve the health of the marine environment e.g. collect rubbish, join WaiCare, inform school and/or wider community about harvesting limits/preventing pollution