



# Coast Study

Version 2.1

## Objectives

1. To study the wave characteristics of the field site.
2. To study the coastal features of the field site.
3. To study the relationship between the water quality and the human activities at the field site.

## Equipment List

Items	Quantity	Checked	Returned
1. Abney level	x2	<input type="checkbox"/>	<input type="checkbox"/>
2. Base map (Individual)	x1	<input type="checkbox"/>	<input type="checkbox"/>
3. Clipboard (Individual)	x1	<input type="checkbox"/>	<input type="checkbox"/>
4. Compass (Individual)	x1	<input type="checkbox"/>	<input type="checkbox"/>
5. Anemometer	x1	<input type="checkbox"/>	<input type="checkbox"/>
6. Ruler	x1	<input type="checkbox"/>	<input type="checkbox"/>
7. Measuring tap - 30m	x1	<input type="checkbox"/>	<input type="checkbox"/>
8. Ranging pole	x2	<input type="checkbox"/>	<input type="checkbox"/>
9. Trowel	x1	<input type="checkbox"/>	<input type="checkbox"/>
10. Sampling bottle	x1	<input type="checkbox"/>	<input type="checkbox"/>
11. Small plastic bottle	x1	<input type="checkbox"/>	<input type="checkbox"/>
12. Nylon rope	x1	<input type="checkbox"/>	<input type="checkbox"/>
13. Plastic bucket	x1	<input type="checkbox"/>	<input type="checkbox"/>
14. Plastic bag	x2	<input type="checkbox"/>	<input type="checkbox"/>

## Field Work

### A1 Basic Information

1. Browse the web site of Hong Kong Observatory, and record the tidal information of the selected field site.

a) High tide: Time \_\_\_\_\_ Height \_\_\_\_\_ m

b) Low tide: Time \_\_\_\_\_ Height \_\_\_\_\_ m

2. By using anemometer and compass, measure the wind speed and wind direction of the field site.

Wind Speed: \_\_\_\_\_ m/s Wind Direction: \_\_\_\_\_

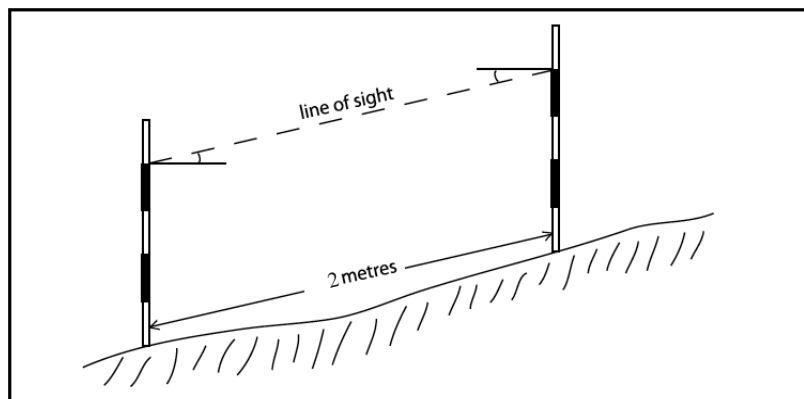
### A2 Setting Transect

1. Set up a 12 m long transect perpendicular to the shore, which best represents the beach profile.
2. Run 3 m of the transect into the sea and the rest along the profile to the backshore.

### A3 Profile Gradient

1. By using the ranging poles and abney level, measure the gradient along the transect at every 1 m intervals (see Figure 1.1).
2. Record the data in Table 1.3 and draw the profile in Figure 1.2.

**Figure 1.1 - Long Profile View**



### A4 Sediment Size and Shape

1. Select a site according to the instruction, collect about 100 g surface sediment with trowel and a labelled plastic bag.
2. Analysis of the sediment size and shape will be carried out in the laboratory.

### A5 Longshore Drift

1. Throw the bottle/ float provided into the sea near the shore.
2. Observe the route of the bottle/ float carefully and record it in Figure 1.4.

### A6 Swash and Backwash

1. Count the number of swash and backwash in one minute and mark them down in Table 1.5.

## B1 Sediment Size and Shape

1. Weigh 100 g of dried sediment by using electronic balance.
2. Pour the dried sediment onto a nested column of sieves provided. (The sieves should be placed in order with the openings diameter decreasing from top to bottom.)
3. Put the lid back on the column of sieves and hold them firmly with both hands. Shake the column horizontally and softly for 5 minutes.
4. Pour the sediment of each sieve onto a paper and weigh them with the electronic balance.
5. Record the data in Table 1.6 and calculate the percentages of each sediment size.
6. Use a 10 times magnifier to observe the shape of sediment.

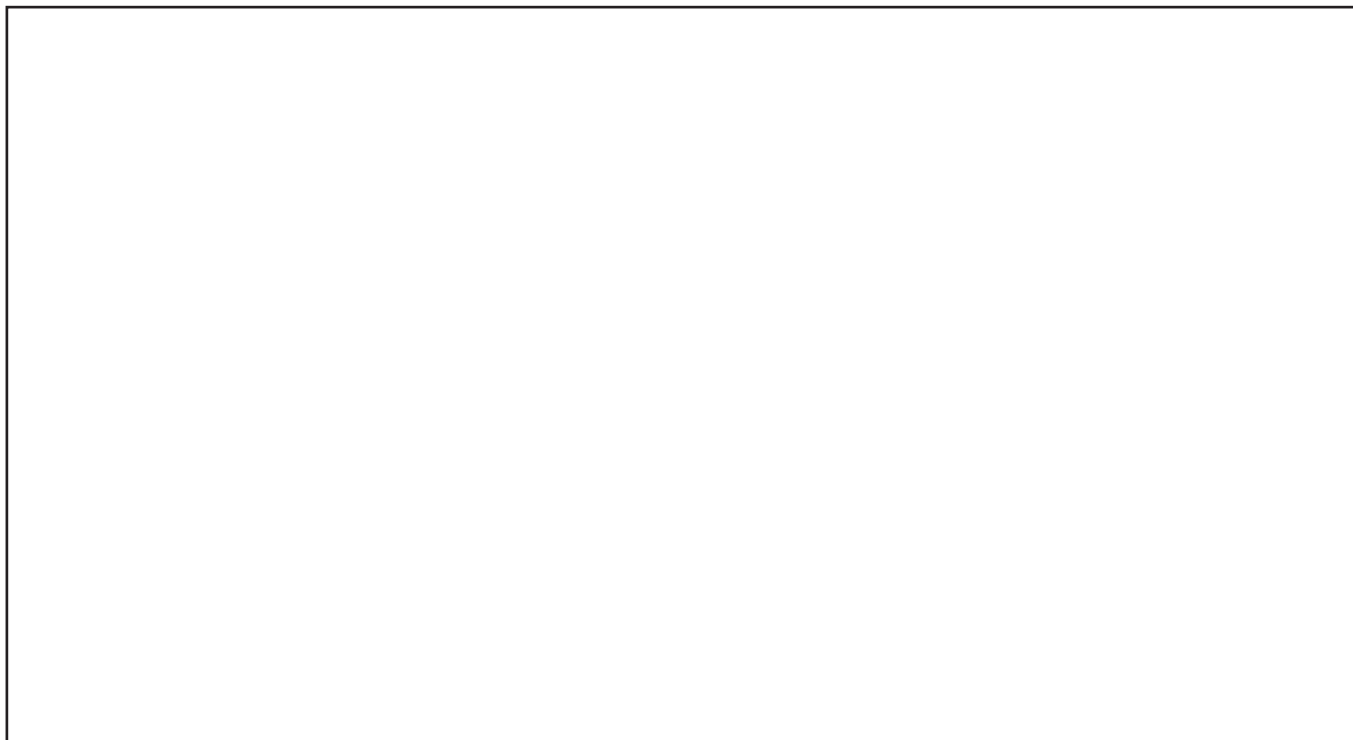
## B2 Dissolved Oxygen Test

1. Pour the water sample into a conical flask.
2. Put the probe of the Dissolved Oxygen meter into the conical flask.
3. Turn on the switch and wait for the reading.
4. Record the reading in Table 1.7.

## B3 Salinity Test

1. By using a dropper, add a couple drops of water sample onto the prism of refractometer.
2. Look through the refractometer to see the salinity reading and record it in Table 1.7.

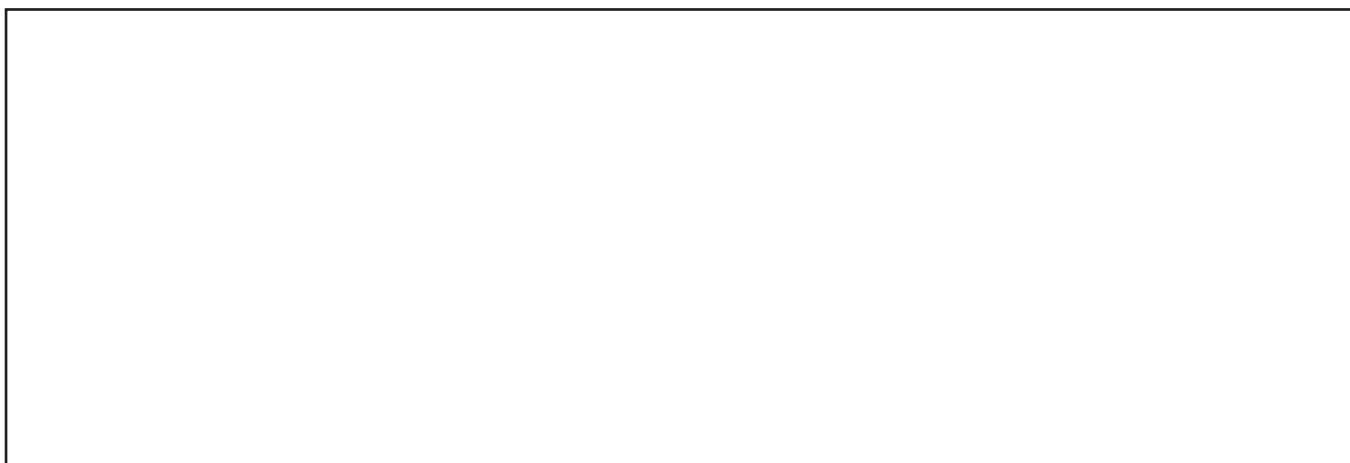
**Figure 1.2 - Beach Profile**



**Table 1.3 - Profile Gradient**

1	2	3	4	5	6	7	8	9	10	11	12

**Figure 1.4 - Route of Longshore Drift (Annotated Diagram)**



**Table 1.5 - Number of Swash and Backwash**

Number of Swash: _____/min	Number of Backwash: _____/min
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**Table 1.6 - Sediment Size**

Diameter: > 2mm	Weight= _____	Percentage= _____
Diameter: 2mm ~ >0.063mm	Weight= _____	Percentage= _____
Diameter: <= 0.063mm	Weight= _____	Percentage= _____

**Table 1.7 - Water Quality**

Dissolved Oxygen: _____ mg/L	Salinity: _____ g/100g
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**Data Processing**

1. Complete all the tables.
2. Use appropriate graphs and diagrams to present the data collected.

1. Describe the surrounding environment of the selected field site.

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2. Explain how the geographical location and landform in the field site affecting the wave energy there.

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3. With reference to all findings, analyse how the wave energy affecting the beach characteristics of the field site.

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4. Describe the human activities found in the field site and explain how they affect the water qualities there.

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