



*Beaches are always popular places, especially at weekends and public holidays, Buje, Puerto Rico.*

## **Chapter 7 Human activities on the beach**

### **Background**

Human activities include anything people do on the beach, from picnicking to swimming, and from mining sand to fishing. Any or all of these activities might impact the beach environment, e.g. picnickers may leave a lot of their garbage behind which might cause a bad smell and a lot of flies.



*Fisherman's Day at Long Bay, Beef Island, British Virgin Islands, brings a large number of people to the beach.*

Careful observation of the beach environment will likely yield a list of different activities taking place, often at different times of the day, e.g. fishers might take their boats out early in the morning, the sunbathers might not appear before noon, and the sand miners might only come at night when no one else is around.

Climate change will most likely impact many of these activities, e.g. if there is a coral reef that is popular with divers and snorkelers, then increased sea surface temperatures may impact the reef, bleaching it so that it is no longer an attractive place for them. Many people associate time

on the beach as fun-time when they are outdoors and exposed to the sun, however, increased exposure to ultra violet radiation, linked to climate change impacts (although not directly caused by climate change), may cause more serious skin and eye conditions for human beings.

### ACTIVITY 7.1 Observing different activities on the beach

**What to measure**→ Observe and record the different activities taking place at the beach and the time of day, and draw up a time line of activities – a sample is shown below. The more detailed the observations, the better. Taking this activity a little further, list all the different activities and the number of people involved in those activities to try and build up a picture of the use pattern of the particular beach. The table below provides an example.

#### SAMPLE TIMELINE OF BEACH ACTIVITIES

6–7 am	Fishers take their boats out to sea. Early morning bathers visit the beach to bathe and swim.
7–10 am	Walkers, people with dogs.
10 am–3 pm	Sunbathers, picnickers use the beach, people bathing in the sea, children playing, people walking. Fishing boats return around 3 pm, catch is unloaded into pick-up trucks and taken into town. Fishing boats left on mooring buoys, one boat is pulled up on to the beach.
3–6 pm	Other groups of picnickers arrive, one group has a barbecue. Hotel guests playing volleyball on the beach.
6–7 pm	Few people walking the beach and watching the sun go down.

	6 am	8 am	10 am	12	2 pm	4 pm	6 pm
Number of sea bathers	2	0	4	22	19	14	4
Number of sunbathers	0	0	12	18	23	15	0
Number of walkers	5	8	10	11	13	4	9
Number of picnic groups	0	0	0	5	6	8	0
Number of fishers	7	0	0	1	2	5	1
Number of children/people playing	0	0	9	27	19	44	2
Number of windsurfers	0	0	0	0	0	2	0
Number of horse-riders	0	0	0	11	0	0	0

**How to measure**→ This is simply a case of observing, counting and categorizing. It is best to prepare a data sheet first so that the numbers can be inserted in the appropriate column. While recording the different activities, further observations can be made such as how the different groups relate to each other, e.g. people having a party and playing loud music might disturb

people trying to relax and sleep; horse and dog droppings left on the beach are not pleasant for other users; and overflowing garbage bins are unsightly and unhealthy.



*Fishers may use the beach to launch and beach their boats early in the morning or late in the evening, Britannia Bay, Mustique, St Vincent and the Grenadines.*



*Sharing family moments as seen here at Male, in the Maldives, is another way people use the beach*

**When to measure**→ This will depend on the depth of the investigation; however, it is always important to realize that user patterns vary according to the time of day, and whether it is a weekday, weekend or public holiday.

**What will the measurements show**→ The measurements will show how many people use the beach on a particular day and the numbers involved in different activities.

Divide the activities into two lists:

- List A: activities that might harm the beach;
- List B: activities that do not harm the beach or may be good for the beach.

Have a classroom discussion about how some activities are good for the beach and do not harm it in anyway; and what can be done to stop or lessen the harmful activities.

You might also wish to compare use on a public holiday and use during a weekday, or alternatively do the same measurements on two different beaches and compare them.

### **ACTIVITY 7.2 Finding out the views of beach users**

**What to measure**→ Finding out what people think about their beach or a particular beach-related problem can be done by a questionnaire survey. The first step is to define your objective – what do you want to know? Try to be as specific as possible, e.g. do beach users think the beach is too crowded, or do they think the beach is clean.



*Tourists are another important group of beach users, as seen here at Pinney's Beach, Nevis.*

**How to measure**→Design your questionnaire and decide how many people you plan to survey (sample size). When deciding on sample size, also consider:

- selection – there are two main choices here: (1) select people at random, e.g. every fourth person who arrives at the beach, or (2) select persons of a certain age or gender to survey, e.g. adults only or children/youth under 18-years only;
- Introductions – consider your approach and the way you introduce yourself to interviewees.

Putting students in pairs for this activity allows one student to speak and one to record the answers. In designing the questions, go back to your objective and prepare questions that will provide information relating to your objective. A sample is provided below.

## SAMPLE QUESTIONNAIRE

**Objective:**To find out why people use a particular beach

- |    |                                              |     |    |           |
|----|----------------------------------------------|-----|----|-----------|
| 1. | Is the bay safe for swimming?                | Yes | No | Sometimes |
| 2. | Is the water clean?                          | Yes | No | Sometimes |
| 3. | Is the beach clean?                          | Yes | No | Sometimes |
| 4. | Is there good access to the beach?           | Yes | No |           |
| 5. | Are the parking facilities adequate?         | Yes | No | Sometimes |
| 6. | Are the bathroom facilities well maintained? | Yes | No | Sometimes |
| 7. | Is the beach crowded?                        | Yes | No | Sometimes |
| 8. | Is there sufficient shade on the beach?      | Yes | No | Sometimes |
| 9. | How would you like to improve the beach?     |     |    |           |

Note that in this sample questionnaire, questions 1–8 are very simple and direct and can be answered with a ‘yes,’ ‘no’ or ‘sometimes’ response. Question 9 has been inserted as an ‘open-ended’ question and it is expected that respondents will provide various suggestions which can be written down.

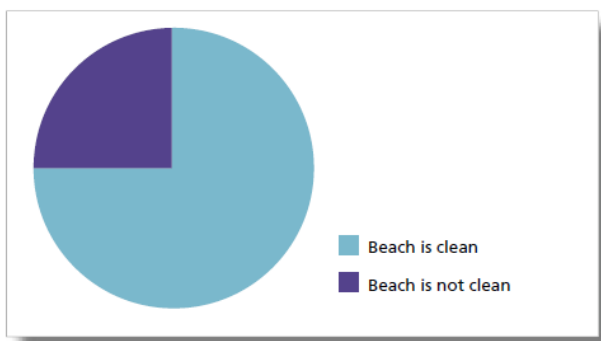
**What will the measurements show**→ After the results of the survey are tabulated, you should be able to answer the question underlying your objective.

For example, tabulating the results of the questionnaire above might show the following:

*Number of people sampled = 20*

Question	Yes	No	Sometimes
Bay is safe for swimming	19	0	1
Water is clean	18	1	1
Beach is clean	15	5	0
Good access	20	0	0
Adequate parking facilities	18	0	2
Bathroom facilities well maintained	9	7	4
Beach is crowded	13	3	4
There is adequate shade	10	7	3
Improvements required: More bathrooms Fewer people Less noise Plant more shade trees			

Thus, in this case the results showed quite clearly that people used this beach because they thought the water was safe and clean, that the beach itself was clean, and that there was good access and parking facilities. However, there was a need to keep the bathrooms cleaner and to provide more shade, and some people felt the beach was too crowded. Finally there were requests for improvements to the beach.



Graphs can be prepared to illustrate the answers to the different questions (see example in Figure 13 left).

**Figure 13** Pie graph showing users' views on beach cleanliness.

### Activity 7.3 Finding out how climate change will affect beach users

**What to measure**→Brainstorm with the students how they think climate change will affect their beach. Some suggestions include:

- beach will erode and get smaller as a result of rising sea levels;
- rising temperatures will cause coral bleaching and the corals may die;
- high waves from increased storms and cyclones will undermine the trees and as a result they will fall down and die providing less shade for the beach;
- a more acidic ocean will result in fewer shells and marine animals;
- there will be no space or vegetation for the sea turtles to nest;
- rising air temperatures will make the beach too hot to visit.

This list contains mainly negative changes likely to affect tropical beaches, but in some parts of the world there may be positive changes, e.g. in temperate climates, the warmer temperatures may make the beach a more attractive environment for visitors and residents.

Categorise the users of the beach:

- are users residents or tourists or both?
- what type of groups use the beach: families, couples, party-goers, fishermen?
- are the beach users ecologically conscious or not?

**How to measure**→Design a questionnaire to find out how the beach users at your beach will respond to one or two of the most relevant climate change impacts. An example is given below. Your questions will depend on the particular climate change impacts that are most important at your beach and the type of beach users.

#### Sample Questionnaire

The most significant climate change impact at the sample beach is beach erosion.

1. Are you a resident or a tourist?
2. (If you are a tourist) is this your first time to this island (country)? Yes    No
3. Climate change is going to erode this beach and it will get smaller:
  - would you still come to this beach if it were 50% smaller? Yes    No
  - would you look for a different beach? Yes    No
  - would you select a different holiday destination? Yes    No
  - would you stop going to the beach altogether? Yes    No
4. If there were no trees at this beach:
  - would you still come to this beach? Yes    No
  - would you look for a different beach with shade? Yes    No
5. When you visit this beach do you go: 

swimming	Yes	No
snorkelling	Yes	No
diving	Yes	No

walking  
other (please specify)

Yes No

6. Where do you live?

7. Is climate change a big issue in your country?

**What will the measurements show** → Tabulate the results of your survey using a similar method as for Activity 7.2. Discuss the responses with the students and ask them whether they expected these results. You might like to share the results of your survey with a government environmental department or a tourism agency since this might sensitise officials as to how beach users value the beach resources under threat from climate change.



*Many beach users like to shelter from the hot sun under the shade of a tree, climate change may result in fewer trees (Johnny Cay, San Andres, Colombia).*