GCSE Lesson 3

Coastal management: sand dune regeneration

Sand dune regeneration is a coastal management strategy that rebuilds and stabilises sand dunes.

1. Look at the photo below. It shows volunteers involved in sand dune regeneration at Mawgan Porth.



https://www.cornwallwildlifetrust.org.uk/what-we-do/our-conservation-work/on-land/making-space-sand

(a) What is the evidence that these sand dunes are old, fixed sand dunes no longer actively being formed?

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(b) Suggest what the volunteers might be doing to help regenerate the sand dunes.

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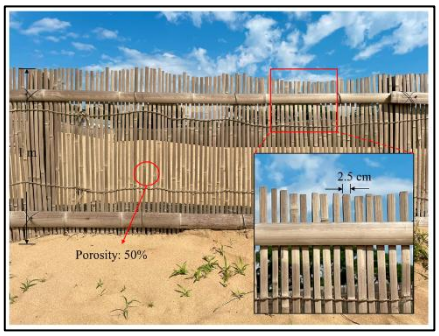
2. Marram grass is described as a sand dune miracle grass because it can stabilise sand dunes in hostile environmental conditions. On the photo below, use annotated labels to describe some of the main characteristics of marram grass.



3. Once planted, marram grass needs to be protected to prevent being trampled by people.
   (a) Look at the photo. Describe the fencing being used to protect the sand dunes.

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   (b) Suggest why the fencing has gaps between the vertical stakes.

_____

_____

   (c) Why is it important to install information boards to inform the public about sand dune regeneration.

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4. The photos below show the creation of sand dune notches.





   (a) On the left-hand photo, use a label to locate the sand dune notch.
   (b) Using evidence from the photos, describe how sand dune notches are created.

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   (c) Explain how sand dune notches support sand dune regeneration.

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5. Using the map, describe the location of Porthtowan.



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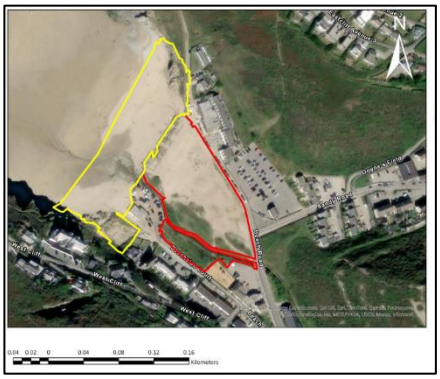
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6. The photos below show the beach at Porthtowan.





Mobile dunes shown yellow. Fixed dunes shown red

(a) Were the photos taken at high tide or low tide? _____

Look at the photo on the left-hand side.

(b) In what direction is the photo looking? _____

(c) Using located labels, identify the mobile dunes and the fixed dunes. Use the photo on the right-hand side to help you.

(d) Apart from the sand dunes, are there any other coastal defences at Porthtowan? _____

(e) The management approach at Porthtowan is 'managed retreat'. Explain how this approach will enable the sand dunes to develop naturally to provide protection from climate change and sea level rise.

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7. The Porthtowan Dunes Community Group is a community-led project focusing on managing coastal change. The project aims to make the dunes more resilient to erosion and sea-level rise, and to improve the natural habitat for wildlife. The poster below has been used to advertise for volunteers.

(a) What activity is being advertised by the poster?

_____

(b) Describe how the rope fencing is being used to protect the dunes.

_____

(c) Suggest two advantages of using volunteers in projects such as this.

1: _____

2: _____



8. Describe how planting Christmas trees has been used to promote sand dune regeneration at Widemouth Bay.

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