

# Longshore Drift

Lesson Map: <http://esriaustralia.com.au/education/SpatialActivity94>

## Engage

*What is Longshore Drift? What is the process of longshore drift?*

- Click on the map URL above to open the StoryMap. The title page will be displayed. Scroll down to the section titled *What is longshore drift?* to begin.
- This StoryMap also has a navigation panel at the top of the page, which allows users to quickly jump to specific aspects of the Story Map.
- Read the information. Take notes if required and stop to discuss if necessary.
- Scroll down to the section titled *The process of longshore drift*. Read the information and take notes if required. Stop to discuss as necessary.
- ? In your own words, record a definition for **longshore drift**. *[Student answers will vary but will synthesise the information they have read in this first section.]*

## Explore

*What geomorphological processes are at work?*

- Scroll down to the major heading titled *Geomorphological processes*. Read the information and take notes if required. Stop to discuss as necessary.
- ? In your own words, explain how waves play a central role in the depositional or erosional processes on the coast. *[Small and weak waves contribute to the deposition of sand and other materials onto the coastline due to the benign way they break along the shoreline. Large and powerful waves can contribute to erosional processes on a beach as they often have a destructive effect when they break on the shoreline. This destructive effect can result in waves 'ripping' or 'tearing' sand and other materials away from the beach, and back into the ocean.]*

## Explain

*Longshore drift at North Stradbroke Island and the Gold Coast*

- Scroll down to the major heading titled *Longshore drift at North Stradbroke Island*.
- As you read the information, you will be prompted to click buttons. By clicking these

Download student worksheet [here](#).

Time

70 minutes

Activity

Investigate the process of longshore drift on Australia's beaches.

## Learning Outcome

Students will be able to:

- Understand the process of longshore drift
- Explain and annotate the process of longshore drift via written and cartographic modes of communication
- Use ICTs and geospatial technologies to explore geographic processes

## ACARA Curriculum Link

[Year 8 Geography: Landforms and landscapes](#)

[ACHGK048](#) | [ACHGK050](#) | [ACHGK052](#) | [ACHGS059](#) | [ACHGS061](#)

## Teacher Feedback:

To share your feedback on this, or any Spatial Activity, please contact [education@esriaustralia.com.au](mailto:education@esriaustralia.com.au)

buttons, the map will perform actions that will help you visualise the written information. As you read the information, take notes if required. Stop to discuss as necessary.

- Scroll down to the next heading titled *Cylinder Beach*. Click on the buttons to perform map actions. Read the information and take notes if required. Stop to discuss as necessary.
- Scroll down to the next major heading titled *Longshore drift at the Gold Coast*. Read the instructions for the student activity and respond to the questions below.
- ? Look carefully along the beach. What evidence of man-made structures are evident? *[There is evidence of three rock groynes along the beach. The northern-most groyne protects the mouth of Tallebudgera Creek from depositional processes of longshore drift.]*
- ? What appears to be the prevailing direction that waves make contact with the beach? *[Waves appear to approach the beach and contact the shore at a north-west angle.]*
- ? Is there evidence of greater sand build-up in some areas of the beach? If so, explain where this occurs. *[There appears to be greater sand build-up on the northern end of the beach on the southern side of the rock groyne protecting the Tallebudgera Creek mouth.]*
- ? Observe the mouth of Tallebudgera Creek. What do you notice about the pattern of sand deposition here? *[Sand deposition appears to occur on the southern side of the rock groyne, and on the northern side of the creek's mouth, against Burleigh Headland.]*
- ? **Paragraph response:** Using the observations you made in response to the questions above, write a paragraph response that explains the process of longshore drift on this section of the Gold Coast. *[Student answers will vary. Model response below.]*

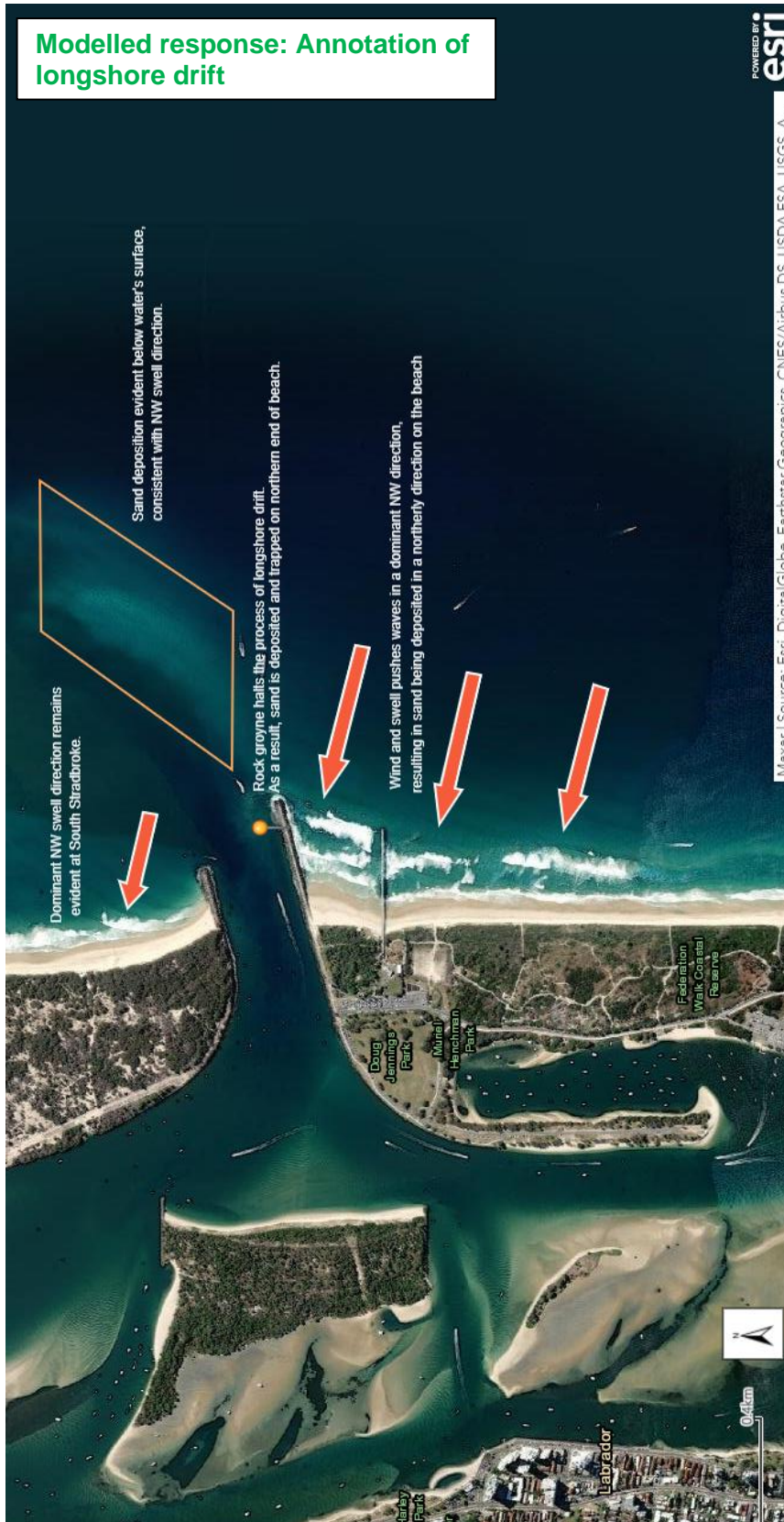
The process of longshore drift occurs in a north-westerly direction at Palm Beach, Pacific Beach and Tallebudgera Beach on the Gold Coast. This is evident as the prevailing pattern for wave direction along this section of the coastline appears to be at a north-west angle along the shoreline. As a result of this angle, longshore drift deposits sand north, up the beach, which is evident by the sand build up at the rock groyne on the northern-most end of Tallebudgera Beach. The northerly direction of longshore drift is further evident by the sand deposition that occurs in the mouth of Tallebudgera Creek; sand deposition occurs on the northern edge of the creek, next to Burleigh Headland, rather than the southern edge.

## Extend

*Closing task: Annotate the process of longshore drift at your local beach*

- Scroll down to the major heading titled *Closing task*.
- ? Demonstrate your knowledge and understanding of longshore drift by annotating a map of your own chosen beach. Click the [button](#) on the Story Map to open up the mapping activity and more detailed instructions. *[Student locations and map annotations will vary according to the process of longshore drift at their chosen beach site. Modelled annotated response provided in appendix on next page.]*
- **Important note:** The process of longshore drift will not be evident at all beaches as the satellite imagery only provides a 'snapshot' from the date in which the imagery was captured. Longshore drift is evident at all **bookmarked** beaches. If you choose to search for your own beach, ensure that you can observe the process before beginning.

## Appendix:



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## Next Steps:

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### *Request a free ArcGIS Online Account for your school:*

Australian schools can request a free ArcGIS Online account as part of Esri Australia's Classroom GIS Initiative. A school subscription provides additional map layers, content, features and privacy.

Learn more about ArcGIS Online, and apply for your ArcGIS Online School subscription at <http://esriaustralia.com.au/education>