|  |
| --- |
| Shipping carousel sheet |

# Station 1: Green Ports, Duqm

# Read the information in the article and create a mind map below summarising how Duqm is becoming a green port.

# Station 2: Wind powered ships

Read the information about the wind powered ships and use that information to annotate the image below. Make sure you focus on how these help reduce emissions.

A large ship with four towers

AI-generated content may be incorrect.

Image: Computer generated image of bulk carrier Sohar Max fitted with rotor sails. Credit: RGS

# Station 3: Fuel saving shipping

Complete the table below using the information on the different methods to use in shipping which reduce fuel consumption. Include a brief description on how it works, a sentence on positives and one on negatives of each method. Challenge: which one do you think works most effectively and why?

|  |  |  |  |
| --- | --- | --- | --- |
| Method | How it works | Positives/Pros/Benefits | Negatives/Cons/Costs |
| Weather routing |  |  |  |
| Constant velocity |  |  |  |
| Route optimisation software |  |  |  |

# Station 4: Alternative fuel

Watch the [video](https://www.youtube.com/watch?v=otRQuSREn8U) then fill in the gaps in the text below to look at alternative fuel for shipping to reduce carbon emissions.

There is a textbox at the bottom of the page with the missing words/numbers. NOTE: some are repeated.

New studies released have identified the potential for two alternative fuels from the traditional diesel in shipping: \_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_.

\_\_\_\_\_\_\_\_\_\_\_\_\_ are work in a similar way to traditional fuels but come from the production of \_\_\_\_\_\_\_\_ rather than the extraction of oil. However, as the demand for \_\_\_\_\_\_\_\_ increases, more land is needed for this which may have an impact on food production. Therefore, looking at alternatives such as \_\_\_\_\_\_\_\_ or burning \_\_\_\_\_\_\_\_\_\_ might be a more sustainable solution.

Ammonia is a naturally \_\_\_\_\_\_\_\_\_\_\_\_ free fuel. Current production of ammonia however, accounts for around \_\_\_\_\_\_% of global carbon dioxide emissions[[1]](#footnote-1). If produced sustainably, it could greatly cut \_\_\_\_\_\_\_\_\_\_\_\_\_\_ emissions in shipping.

waste Ammonia greenhouse algae carbon 1.8 Biofuels crops

# Station 5: Shipping policies

Read the information about different policies that aim to help minimise the impact of shipping on marine life. Draw an annotated diagram or a series of diagrams to summarise this information.

1. [Ammonia: Zero-carbon fertiliser, fuel and energy store. The Royal Society](https://royalsociety.org/-/media/policy/projects/green-ammonia/green-ammonia-policy-briefing.pdf) [↑](#footnote-ref-1)