

## Geography Y12 mock Revision List – Coasts

### Enquiry Question 1

#### 2B.1 The coast and wider littoral zone has distinctive features and landscapes

a) The littoral zone consists of backshore, nearshore and offshore zones
a) The Littoral zone includes a wide variety of coastal types and is a dynamic zone of rapid change.
b) Coasts can be classified by using longer term criteria such as geology and changes of sea level
b) Coasts can be classified by using or shorter term processes such as inputs from rivers, waves and tides.
c) Rocky coasts (high and low relief) result from resistant geology, often in a high energy environment.
c) Coastal plain landscapes (sandy and estuarine coasts) are found near areas of low relief and result from supply of sediment from different terrestrial and offshore sources, often in a low-energy environment

#### 2B.2 Geological structure influences the development of coastal landscapes at a variety of scales.

a) Geological structure is responsible for the formation of concordant and discordant coasts.
b) Geological structure influences coastal morphology: Dalmatian and Haff type concordant coasts
b) Geological structure influences coastal morphology: headlands and bays on discordant coasts.
c) Geological structure (jointing, dip, faulting, folding) is an important influence on coastal morphology and erosion rates.
c) Geological structure (jointing, dip, faulting, folding) is an important influence and also on the formation of cliff profiles and the occurrence of micro-features, e.g. caves.

#### 2B.3 Rates of coastal recession and stability depend on lithology and other factors.

a) Bedrock lithology (igneous, sedimentary, metamorphic) and unconsolidated material geology are important in understanding rates of coastal recession.
b) Differential erosion of alternating strata in cliffs (permeable/impermeable, resistant/less resistant) produces complex cliff profiles and influences recession rates.
c) Vegetation is important in stabilising sandy coastlines through dune successional development on sandy coastlines and salt marsh successional development in estuarine areas.

### Enquiry Question 2

#### 2B.4 Marine erosion creates distinctive coastal landforms and contributes to coastal landscapes.

a) Different wave types (constructive/destructive) influence beach morphology and beach sediment profiles
a) Beach morphology and sediment profiles vary at a variety of temporal scales from short term (daily) through to longer periods
b) The importance of erosion processes (hydraulic action, corrosion, abrasion, attrition) and how they are influenced by wave type, size and lithology.
c) Erosion creates distinctive coastal landforms (wave cut notches, wave cut platforms, cliffs, the cave-arch-stack-stump sequence).

#### 2B.5 Sediment transport and deposition create distinctive landforms and contribute to coastal landscapes.

a) Sediment transportation is influenced by the angle of wave attack
a) Sediment transportation is influenced by tides and currents
a) Sediment transportation is influenced by the process of longshore drift

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| b) Transportation and deposition processes produce distinctive coastal landforms (beaches, recurved and double spits, offshore bars, barrier beaches and bars, tombolos and cusped forelands), which can be stabilised by plant succession. |
| c) The Sediment Cell concept (sources, transfers and sinks) is important in understanding the coast as a system with both negative and positive feedback, it is an example of dynamic equilibrium.                                          |

2B.6 Subaerial processes of mass movement and weathering influence coastal landforms and contribute to coastal landscapes.

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| a) Weathering (mechanical, chemical, biological) is important in sediment production and influences rates of recession.     |
| b) Mass movement (blockfall, rotational slumping, landslides) is important on some coasts with weak and/or complex geology. |
| c) Mass movement creates distinctive landforms (rotational scars, talus scree slopes, terraced cliff profiles)              |

### Enquiry Question 3

2B.7 Sea level change influences coasts on different timescales.

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| a) Longer-term sea level changes result from a complex interplay of factors such as eustatic (ice formation/melting, thermal changes)                         |
| a) Longer-term sea level changes result from a complex interplay of factors such as isostatic (post glacial adjustment, subsidence, accretion) and tectonics. |
| b) Sea level change has produced emergent coastlines (raised beaches with fossil cliffs) and submergent coastlines (rias, fjords and Dalmatian).              |
| c) Contemporary sea level change from global warming or tectonic activity is a risk to some coastlines                                                        |

2B.8 Rapid coastal retreat causes threats to people at the coast.

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| a) Rapid coastal recession is caused by physical factors (geological and marine)                                                                                                            |
| a) Rapid coastal recession can be influenced by human actions (dredging or coastal management @ the Nile Delta, Guinea and Californian coastlines).                                         |
| b) Subaerial processes (weather and mass movement) work together to influence rates of coastal recession.                                                                                   |
| c) Rates of recession are not constant and are influenced by different factors both short- and longer term (wind direction/fetch, tides, seasons, weather systems and occurrence of storms) |

2B.9 Coastal flooding is a significant and increasing risk for some coastlines.

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| a) Local factors increase flood risk on some low-lying and estuarine coasts (height, degree of subsidence, vegetation removal); global sea level rise further increases risk (@ Bangladesh, the Maldives).                                              |
| b) Storm surge events can cause severe coastal flooding with dramatic short-term impacts (depressions, tropical cyclones) can cause severe coastal flooding (@ the Philippines, Bangladesh).                                                            |
| c) Climate change may increase coastal flood risk (frequency and magnitude of storms, sea level rise) but the pace and magnitude of this threat is uncertain. <b>(F: this risk is creating an uncertain future and needs mitigation and adaptation)</b> |

### Enquiry Question 4

2B.10 Increasing risks of coastal recession and coastal flooding have serious consequences for affected communities.

a) Economic losses (housing, businesses, agricultural land, infrastructure) and social losses (relocation, loss of livelihood, amenity value) from coastal recession can be significant, especially in areas of dense coastal developments (☒ Holderness, north Norfolk).
b) Coastal flooding and storm surge events can have serious economic and social consequences for coastal communities in both developing and developed countries (☒ the Philippines, Bangladesh and Netherlands).
c) Climate change may create environmental refugees in coastal areas (☒ Tuvalu Islands)

2B.11 There are different approaches to managing the risks associated with coastal recession and flooding.

a) Hard engineering approaches (groynes, sea walls, rip rap, revetments, offshore breakwaters) are economically costly and directly alter physical processes and systems.
b) Soft engineering approaches (beach nourishment, cliff regrading and drainage, dune stabilisation) attempt to work with physical systems and processes to protect coasts and manage changes in sea level.
c) Sustainable management is designed to cope with future threats (increased storm events, rising sea levels) but its implementation can lead to local conflicts in many countries (☒ Maldives, Namibia)

2B.12 Coastlines are now increasingly managed by holistic integrated coastal zone management (ICZM).

a) Coastal management increasingly uses the concept of littoral cells to manage extended areas of coastline.
a) Throughout the world, countries are developing schemes that are sustainable and use holistic ICZM strategies.
b) Policy decisions (No Active Intervention, Strategic Realignment and Hold The Line Advance The Line) are based on complex judgements (engineering feasibility, environmental sensitivity, land value, political and social reasons)
b) Cost Benefit Analysis (CBA) and Environmental Impact Assessment (EIA) are used as part of the decision making process
c) Policy decisions can lead to conflicts between different players (homeowners, local authorities, environmental pressure groups) with perceived winners and losers in countries at different levels of development (developed and developing or emerging countries) (☒ Hapisburgh and Chittagong).

### Skills

AO1 (showing knowledge) and AO2 (applying knowledge).

- Explain the formation of various features and how physical and human processes affect them.
- Evaluate the contribution of various factors to coastal landforms or phenomena.
- Explain various coastal processes and concepts and how they contribute to the understanding of the coastal zone.