Option B: Oceans and Coastal Margins

1. Ocean–atmosphere interactions

Suggested teaching time 6–8 hours

Geographic inquiry	Geographic knowledge and understanding
How physical processes link Earth's atmospheric and ocean systems	The operation of ocean currents, including their distribution, nutrient and energy transfers and the importance of oceanic conveyor belts Atmosphere–oceanic interactions associated with El Niño–Southern Oscillation (ENSO) and La Niña cycles and their climatic, environmental and economic effects ● *Detailed examples of the geographic impacts of El Niño and La Niña* The formation, distribution and physical impacts of hurricanes on coastal margins, including storm surges ● *Case study of one hurricane and its impacts on coastal places and people* The changing role of oceans as a store and source of carbon dioxide (CO_2) and the impacts of ocean acidification on coral reefs

2. Interactions between oceans and coastal places

Suggested teaching time 6–8 hours

Geographic inquiry	Geographic knowledge and understanding
How coastal places are shaped by their interactions with oceans	Physical influences on coastal landscapes, including waves, tides, sediment supply, lithology, vegetation, subaerial processes and wave processes (littoral drift, hydraulic action and abrasion) The characteristics and formation of coastal landforms of erosion and deposition, including wave cut platform, cliff, stack, spit and beaches Advancing and retreating coastlines, including the role of isostatic and eustatic processes, and the associated landforms (relict cliff, raised beach, fjord) The role of coastal processes, wind and vegetation in sand dune development

3. Managing coastal margins

Suggested teaching time 6–8 hours

Geographic inquiry	Geographic knowledge and understanding
The varying power of different stakeholders in relation to coastal margin management	Coastal erosion and flooding management strategies, including cliff line stabilization and managed retreat ● *One coastal management case study focused on the decision-making process and perspectives of different actors* Conflicting land-use pressures on coastlines, including commercial land uses (tourism, industry and housing) and conservation measures ● *One case study to illustrate the roles of, and outcomes for, coastal stakeholders* Management of coral reefs and mangrove swamps, including different stakeholder perspectives on their use and value ● *Detailed examples of both ecosystems and their issues* Sovereignty rights of nations in relation to territorial limits along coastal margins and exclusive economic zones (EEZs)

4. Ocean management futures

Suggested teaching time 6–8 hours

Geographic inquiry	Geographic knowledge and understanding
Future possibilities for managing the oceans as a global commons	Causes and consequences of increasing demand for the abiotic resources of oceans, including minerals, oil and gas Trends in biotic resource use (fish and mammals) and the viability of alternatives to overfishing, including aquaculture, conservation areas and quotas Strengths and weaknesses of initiatives to manage ocean pollution, including local and global strategies for radioactive materials, oil and plastic waste The strategic value of oceans and sources of international conflict/insecurity, including the contested ownership and control of islands, canals and transit choke points

	● *One contemporary geopolitical case study focusing on a contested ocean area*

Synthesis (Sy), Evaluation (Ev) and Skills (Sk) opportunities	
Geographic inquiry	**Geographic knowledge and understanding**
These suggestions can be integrated into the study of the above. No additional teaching time is required.	How changes in one part of an ocean or coastal margin may bring spatial interactions with other parts/places [Sy] How ocean exploitation and management take place at varying scales [Sy/Ev] Varying perspectives on the costs, benefits and effectiveness of management [Ev] How ocean and atmospheric systems, and their interactions, can be represented graphically [Sk]