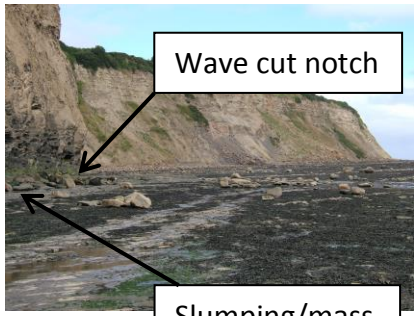
Coastal management strategies

Coastal Management And description/Labelled sketch	Benefits of the defence	Costs and disadvantages	Bi-polar evaluation Score							
			Neg. evaluation factor	-3	-2	-1	1	2	3	Positive evaluation factor
Undefended coastal cliffs  	• *No initial cost for defence, & no ongoing costs (other than the loss of property and infrastructure if eroded).* • *Provides sediment to protect other areas.* • *'Natural' Process, and looks natural which tourists may prefer.* • *Creates new rock exposures and reveals new fossils for visitors & geology students.*	• *Rates of erosion are likely to be high and so property is at serious risk.* • *Slumping and unstable cliffs can be very dangerous* • *Rights of way (such as the Cleveland way and roads are at risk of being lost.*	Vulnerable to erosion (unable to 'hold the line')							Effectively protects from erosion (able to 'hold the line')
			Vulnerable to overtopping (unable to control flooding)							Effective against overtopping (good flood defence)
			Ugly (poor aesthetic value)							Enhances natural environment (high aesthetic value)
			Poor access to beach							Good provision made for access to beach
			High safety risk to general public							No obvious safety risk to general public
			Short lifespan &/or high maintenance costs							Good life expectancy &/or low maintenance costs
			High levels of disturbance for people during construction							Low levels of disturbance for people during construction
			Disturbs natural coastal processes & habitats							Maintains natural coastal processes & habitats
2001 Rip-rap/Rock armour (Northern end of village)  	• *Fairly cheap to install compared to other defences (approx. £3500 per 1m, which is about half the cost of a wall)* • *Quick to install, so can be placed ahead of the next 'season' of storms* • *Absorbs the sea's energy, as the water moves arounds the rocks, through friction.*	• *Can be undermined be erosion overtime, and as the boulders collapse down the interlocked cohesive-ness of the defence is lost. Once boulders are loss they can be picked up by large storm waves.* • *Material transported from abroad.*	Vulnerable to erosion (unable to 'hold the line')							Effectively protects from erosion (able to 'hold the line')
			Vulnerable to overtopping (unable to control flooding)							Effective against overtopping (good flood defence)
			Ugly (poor aesthetic value)							Enhances natural environment (high aesthetic value)
			Poor access to beach							Good beach assess
			High safety risk to general public							No obvious safety risk to general public
			Short lifespan &/or high maintenance costs							Good life expectancy &/or low maintenance costs
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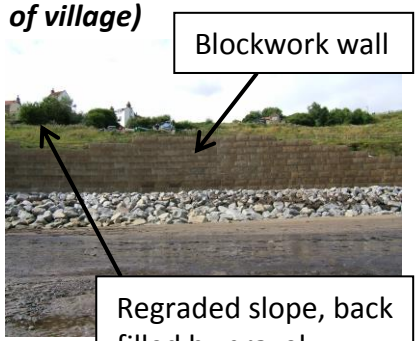
2000 Seawall (Northern end of village)  	• *Provides significant defence to the cliff and people often feel 'well protected' behind a large wall.* • *Helps to prevent Subaerial weathering as well as erosion from the sea*	• *Very expensive (£2million scheme when constructed in 2000/2001* • *The slope behind needs stabilising, and if it becomes saturated and slumps it could push the wall over from behind.*	Vulnerable to erosion (unable to 'hold the line')							Effectively protects from erosion (able to 'hold the line')
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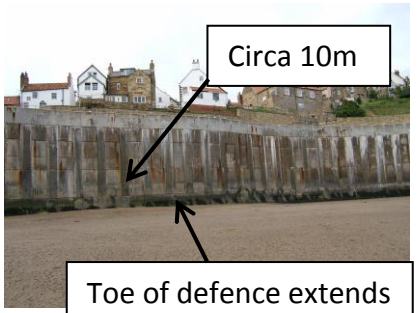
Coastal Management And description/Labelled sketch	Benefits of the defence	Costs and disadvantages	Bi-polar evaluation Score							
			Neg. evaluation factor	-3	-2	-1	1	2	3	Positive evaluation factor
1975 Large Concrete seawall  	• *People feel safe and secure behind this traditional type of hard engineering.* • *Seawalls stop erosion and send the wave energy back to sea.* • *The life expectancy of sea walls is usually significant (50-150 years).* • *The construction of the seawall has created a promenade for tourists.*	• *Erosion is often deflected along the defence, leading to higher rates of erosion at either end of the defence and erodes the beach in front of the defence.* • *Very expensive – would cost approx. £15,000 per m if built today).*	Vulnerable to erosion (unable to 'hold the line')							Effectively protects from erosion (able to 'hold the line')
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Pre 1890's old stone seawall  	• *These old walls blend in with the rest of the village, and their 'in keeping' look is important in this tourist honeypot where the local economy relies on visitor spend.* • *The defence has prevented any further houses falling into the sea at the slip.*	• *The stone work is susceptible to erosion, and over time the cement fails, meaning regular maintenance is needed.* • *Erosion at the toe of the defence is significant leading to regular repairs.*	Vulnerable to erosion (unable to 'hold the line')							Effectively protects from erosion (able to 'hold the line')
			Vulnerable to overtopping (unable to control flooding)							Effective against overtopping (good flood defence)
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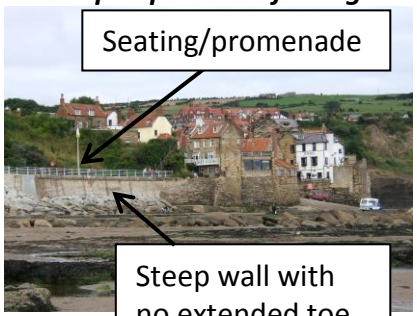
1950's Concrete seawall and 2001 rip-rap south of village  	• *This defence has created a large seating area and promenade which can be used by tourists when the tide is in and the beach is inaccessible.* • *The large seawall has prevented any further loss of land at this point.*	• *The vertical walls send water up, meaning a very high wall is needed.* • *Erosion at the toe of the defence is significant, so needs rock armour/rip-rap to protect it.* • *Significant cost, over £12,000 per m if built today.*	Vulnerable to erosion (unable to 'hold the line')							Effectively protects from erosion (able to 'hold the line')
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