STRUCTURE & FUNCTIONING – CHARACTERIZATION AND IMPORTANCE FOR MANAGEMENT

HABITAT: Rocky shores

Grazing is an important factor in limiting abundance of algae on rocky shores. Ollaberry, Shetland. Image: Keith Hiscock.

Moderately exposed rocky shores with complex topography offer a wide range of habitats to plants and animals. Wembury Point. Image: Keith Hiscock.

Key: Very High ✓✓✓✓, High ✓✓✓ , Low ✓✓, Very Low ✓Not Relevant NR, Not possible to manage NP

	Importance to biological community	Likelihood of change	Management priority
PHYSICAL & CHEMICAL PROPERTIES & PROCESSES			
Wave action	✓✓✓✓	✓	✓✓
Tidal flow strength	✓✓	✓	✓
Immersion / emersion	✓✓✓✓	✓	✓
Salinity	✓✓ (open shore) ✓✓✓ (localized)	✓ (open shore) ✓✓✓ (localized)	✓ (open shore) ✓✓✓ (localized)
Supply of nutrients	✓✓✓	✓✓	✓✓
Supply of oxygen (availability in the water column)	✓✓✓✓	✓✓	✓✓
Availability of suitable substrata	✓✓✓✓	✓✓	✓✓
Light	✓✓✓✓	NR	✓✓
Contaminants	✓✓✓	✓✓✓	✓✓✓
Sedimentation	✓✓✓✓	✓✓✓	✓✓✓
STRUCTURE			
Physical (rock hardness, degree of fissuring, presence of damp places e.g. under boulders)	✓✓✓✓	✓✓	✓✓
Biological (canopy shelter, turf refuge, holdfast refuge, attachment surfaces)	✓✓✓✓	✓✓✓✓	✓✓✓✓
Biological - the presence / absence of particular species	✓✓✓✓	✓✓✓✓	✓✓✓✓

Citation: Hiscock, K. & Marshall, C. 2006. Dossier on Ecosystem Structure and Functioning – Characterization and Importance for Management: Rocky shores. In: Hiscock, K., Marshall, C., Sewell, J. & Hawkins, S.J., 2006. The structure and functioning of marine ecosystems: an environmental protection and management perspective. Report to English Nature from the Marine Life Information Network (MarLIN). Plymouth: Marine Biological Association of the UK. [English Nature Research Reports, ENRR No. 699.]

	Importance to biological community	Likelihood of change	Management priority
FUNCTIONING (AS PROCESSES)			
Food supply remote (suspension feeding)	✓✓	✓✓	✓✓
Food supply local (grazing, predation)	✓✓✓✓	✓✓✓✓	✓✓✓✓
Primary productivity	✓✓✓✓	✓✓	✓✓
Connectivity (larval dispersal & recruitment)	✓✓✓✓	✓	✓✓

- Rocky shore communities are dominated by physical factors (especially strength of wave action, degree of slope) and by biological interactions (domination of space, grazing and predation).
- Characterizing algae require light and nutrients. High nutrient levels (usually localized) may favour algal growth and result in the domination by green algae in places.
- Increased sediment loading can be detrimental to canopy species and may result in the domination by turf-forming algal species. The turf itself then traps sediment which becomes an important part of the turf structure.
- Many animals require localized food sources (obtained by grazing and predation) although barnacles and other suspension feeders feed from the water column.
- As a result of rainfall and evaporation, high fluctuations in salinity are a characteristic of shores but where freshwater lingers or dominates (upper shore pools, streams), green algae may dominate as grazers are displaced.
- Propagules (larvae/spores) of some rocky shore species (especially algae and some gastropod molluscs) may be distributed only a few kilometers, whilst others (for instance barnacles) may be capable of long-distance travel.

Rocky shore communities are likely to change in character if grazing species are lost (for instance after an oil spill) but recovery is rapid as life spans are relatively short (a few years) and recruitment occurs readily providing that similar unaffected shore types are nearby.

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