Background to AS2 Ecology Coursework 2015-16

Title:
THE DISTRIBUTION OF SEAWEEDS ALONG AN INTERUPTED BELT TRANSECT BETWEEN LOW AND HIGH WATER MARK ON A ROCKY SHORE

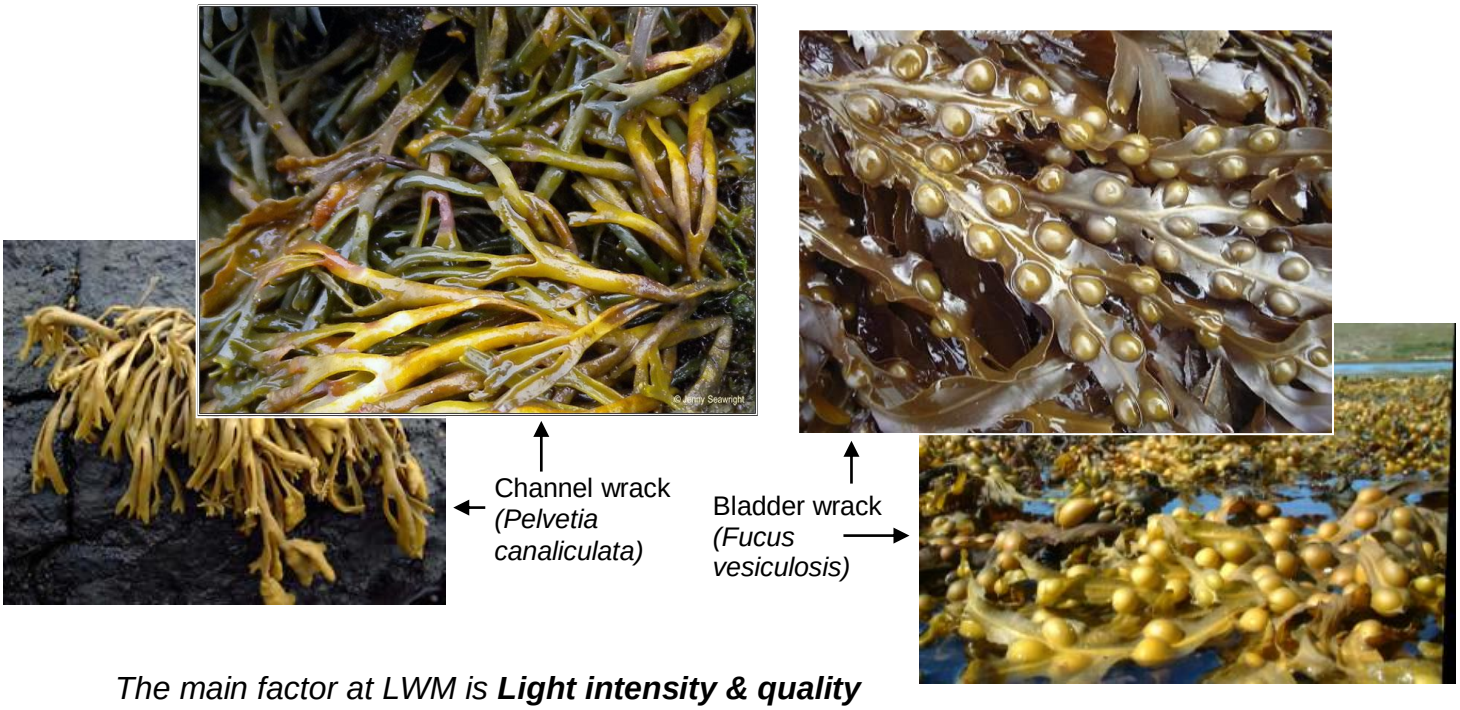
Highest place water goes on shore is the High Water Mark and the low tide zone is marked by the Low Tide Mark. There are **implications for the plants and animals** that live in the shore habitat who need to be adapted to survive in distinct zones where **abiotic and biotic factors** affect them. There is a high level of **competition** for organisms to fill their ecological niches to the best of their ability.

The main factor at HWM is Time exposed to air & desiccation

Adaptations of **channel wrack** to prevent desiccation:

- Channels in fronds to trap water
- Clumps together to increase humidity outside tissues & reduce evaporation
- Mucilage - secretes mucus onto its surface to reduce evaporation
- Fronds are rolled to reduce surface area
- Quickly rehydrates when placed in water
- Short fronds so as not to be broken off by rough wave action

Bladder wrack not adapted to upper shore: desiccates too easily and cells become plamolysed.



*The main factor at LWM is **Light intensity & quality***

Adaptations of Bladder wrack to absorb maximum light for photosynthesis

- The deeper the water, the less light can get through / the red light is absorbed in the top layers, then orange,yellow,green,blue,indigo,violet and most photosynthesise occurs in red wavelengths / the deeper water reduces the algae's ability to photosynthesise
- Bladder wrack has bladders along fronds to suspend / hold up & trap light
- Large fronds increase the surface area to trap light for photosynthesis

Channel wrack due to its very short fronds would be covered by too much water and the light would not be able to penetrate to depths for photosynthesis to occur.