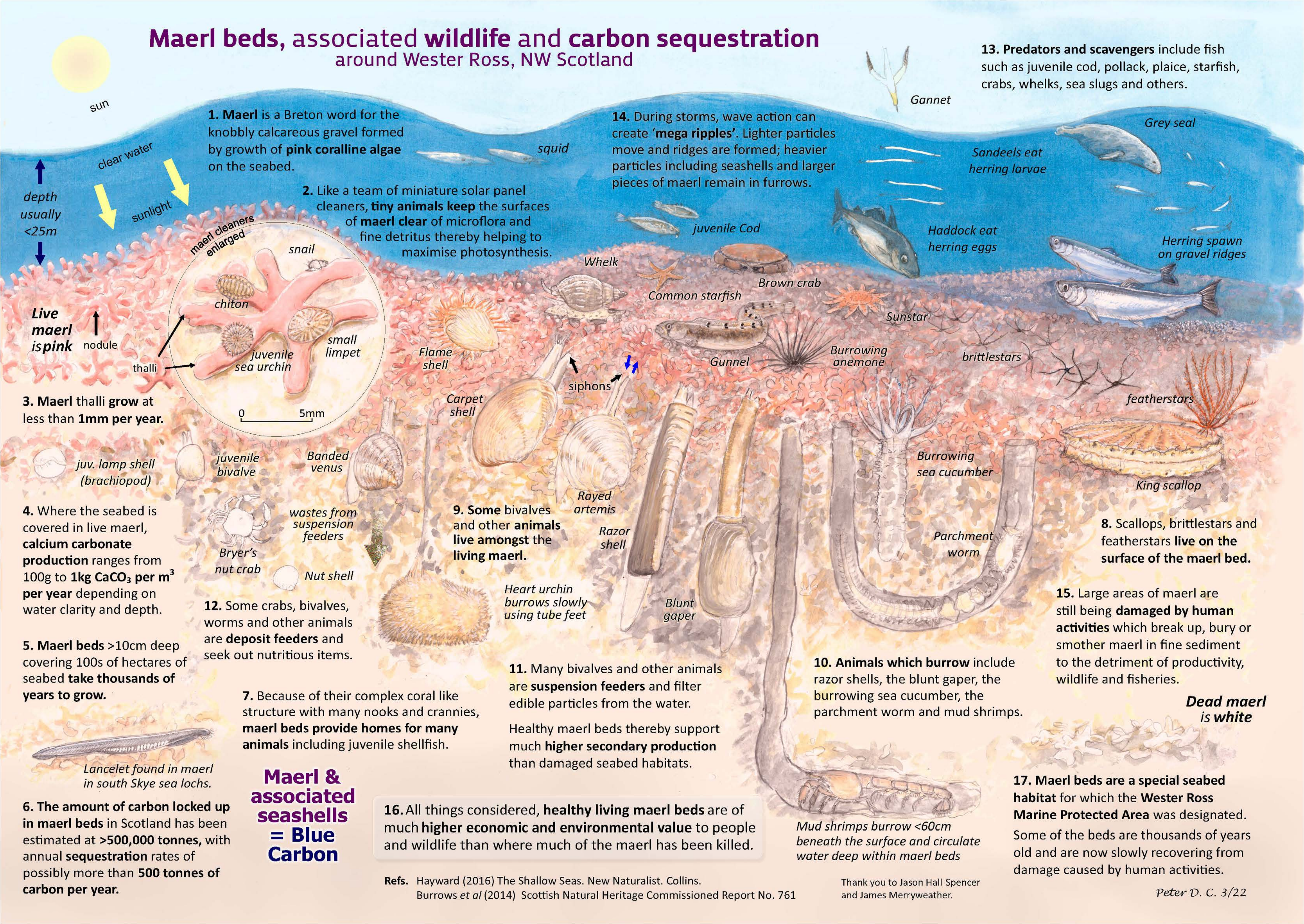


# Maerl beds, associated wildlife and carbon sequestration around Wester Ross, NW Scotland



sun  
clear water  
depth usually <25m  
sunlight

Live maerl is pink  
nodule  
thalli

3. Maerl thalli grow at less than 1mm per year.

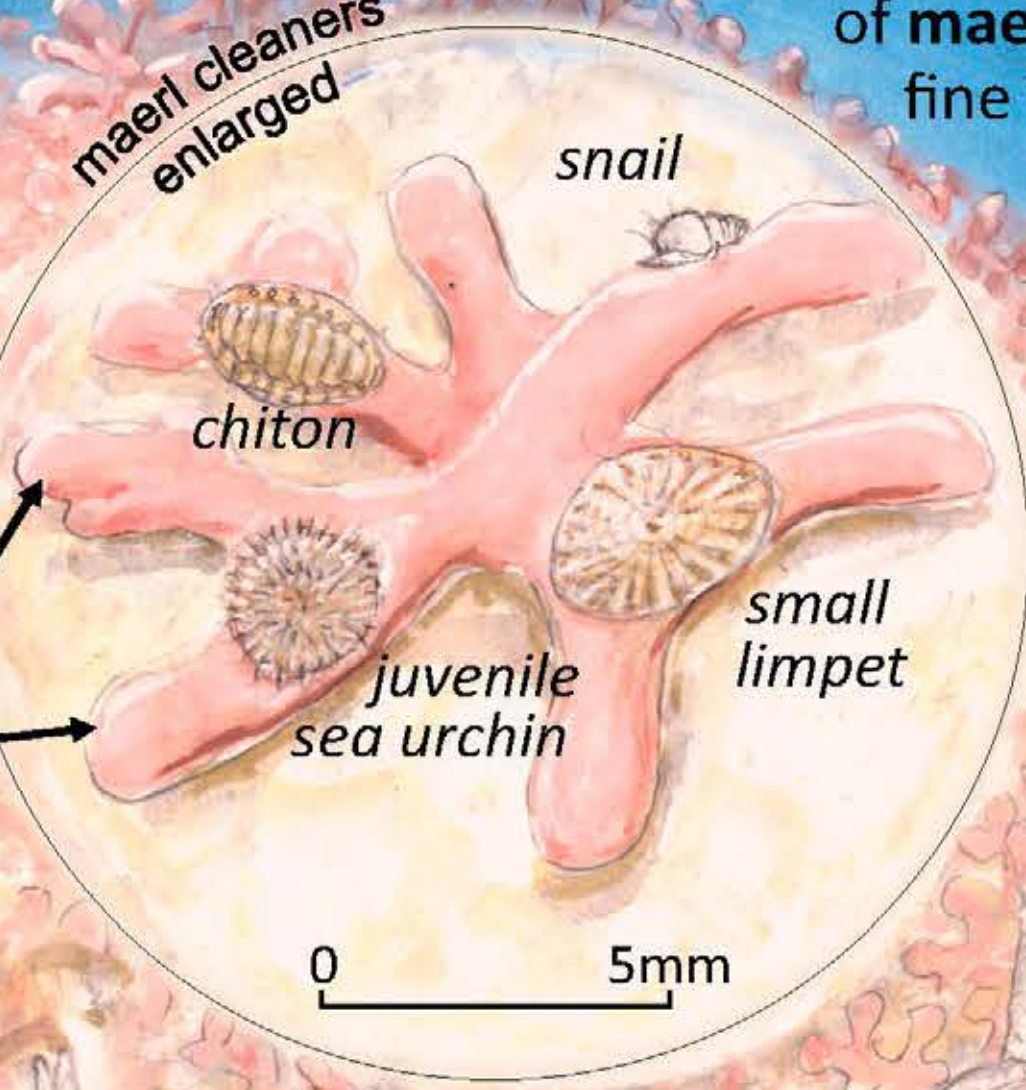
4. Where the seabed is covered in live maerl, calcium carbonate production ranges from 100g to 1kg CaCO<sub>3</sub> per m<sup>3</sup> per year depending on water clarity and depth.

5. Maerl beds >10cm deep covering 100s of hectares of seabed take thousands of years to grow.

6. The amount of carbon locked up in maerl beds in Scotland has been estimated at >500,000 tonnes, with annual sequestration rates of possibly more than 500 tonnes of carbon per year.

1. Maerl is a Breton word for the knobby calcareous gravel formed by growth of pink coralline algae on the seabed.

2. Like a team of miniature solar panel cleaners, tiny animals keep the surfaces of maerl clear of microflora and fine detritus thereby helping to maximise photosynthesis.



12. Some crabs, bivalves, worms and other animals are deposit feeders and seek out nutritious items.

7. Because of their complex coral like structure with many nooks and crannies, maerl beds provide homes for many animals including juvenile shellfish.

**Maerl & associated seashells = Blue Carbon**

16. All things considered, healthy living maerl beds are of much higher economic and environmental value to people and wildlife than where much of the maerl has been killed.

9. Some bivalves and other animals live amongst the living maerl.

11. Many bivalves and other animals are suspension feeders and filter edible particles from the water.

Healthy maerl beds thereby support much higher secondary production than damaged seabed habitats.

14. During storms, wave action can create 'mega ripples'. Lighter particles move and ridges are formed; heavier particles including seashells and larger pieces of maerl remain in furrows.

10. Animals which burrow include razor shells, the blunt gaper, the burrowing sea cucumber, the parchment worm and mud shrimps.

Mud shrimps burrow <60cm beneath the surface and circulate water deep within maerl beds

8. Scallops, brittlestars and featherstars live on the surface of the maerl bed.

15. Large areas of maerl are still being damaged by human activities which break up, bury or smother maerl in fine sediment to the detriment of productivity, wildlife and fisheries.

Dead maerl is white

17. Maerl beds are a special seabed habitat for which the Wester Ross Marine Protected Area was designated. Some of the beds are thousands of years old and are now slowly recovering from damage caused by human activities.

13. Predators and scavengers include fish such as juvenile cod, pollack, plaice, starfish, crabs, whelks, sea slugs and others.

Refs. Hayward (2016) The Shallow Seas. New Naturalist. Collins.  
Burrows et al (2014) Scottish Natural Heritage Commissioned Report No. 761

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