

Sea urchins are key species in Arctic fjords

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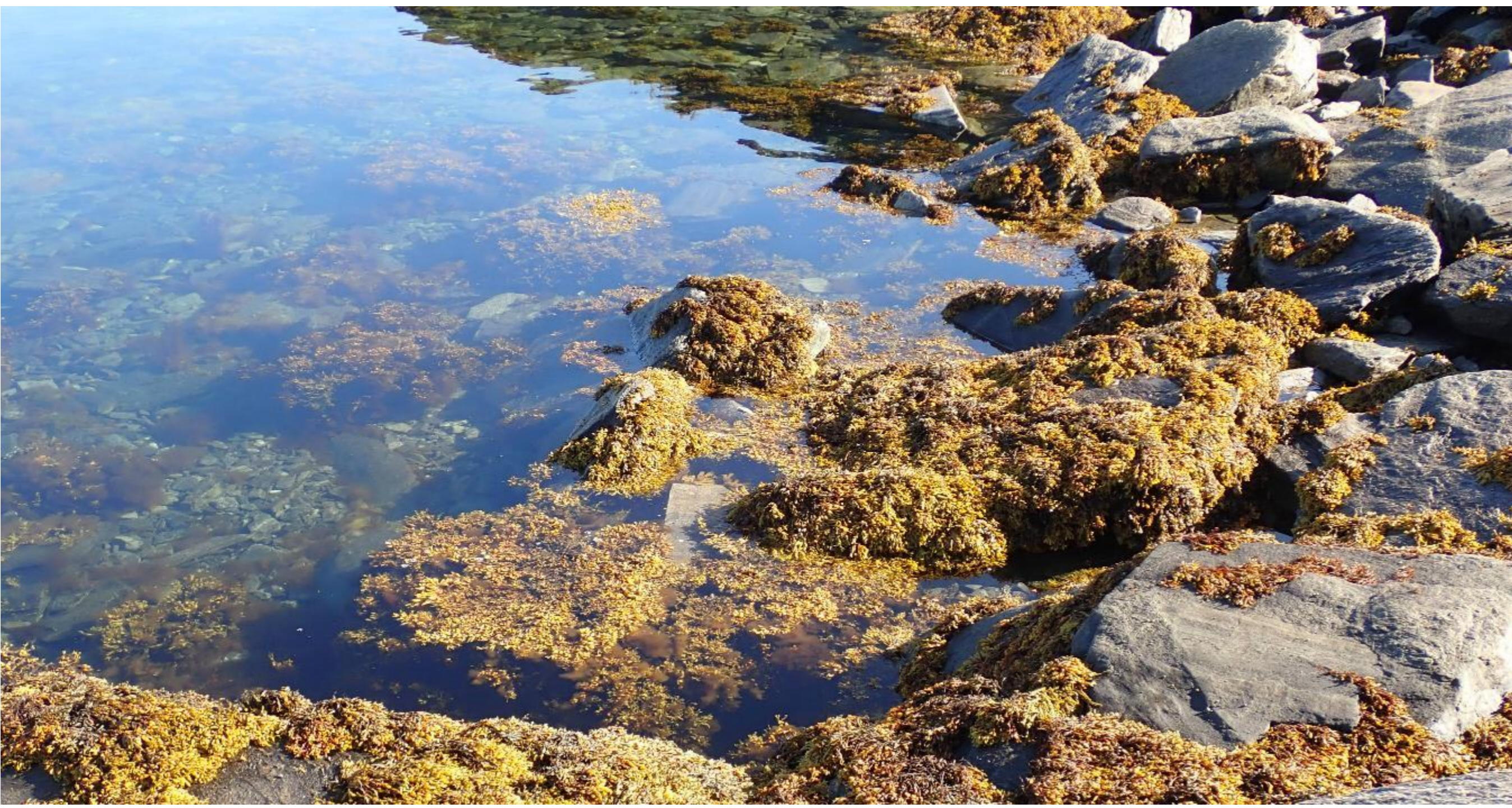
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Sea urchins are main grazers in many marine ecosystems. They are often part of a healthy kelp forest community. Kelps are large algae which offer so called ecosystem services such as shelter, food, and nursery grounds for many invertebrates and fish species. Arctic coasts possess rich kelp resources.

The kelp forest community



The shore of the Arctic Porsangerfjord, Northern Norway

Grazing shapes the environment

Dense sea urchin populations are able to graze down huge amounts of kelp. The remains of the former underwater forest are stony sea floors with sparse algae, called "barren". As a consequence the ecosystem services provided by the kelp forest are lost.

Experimental approaches revealed that warming of Arctic fjords increases the feeding activity of sea urchins.



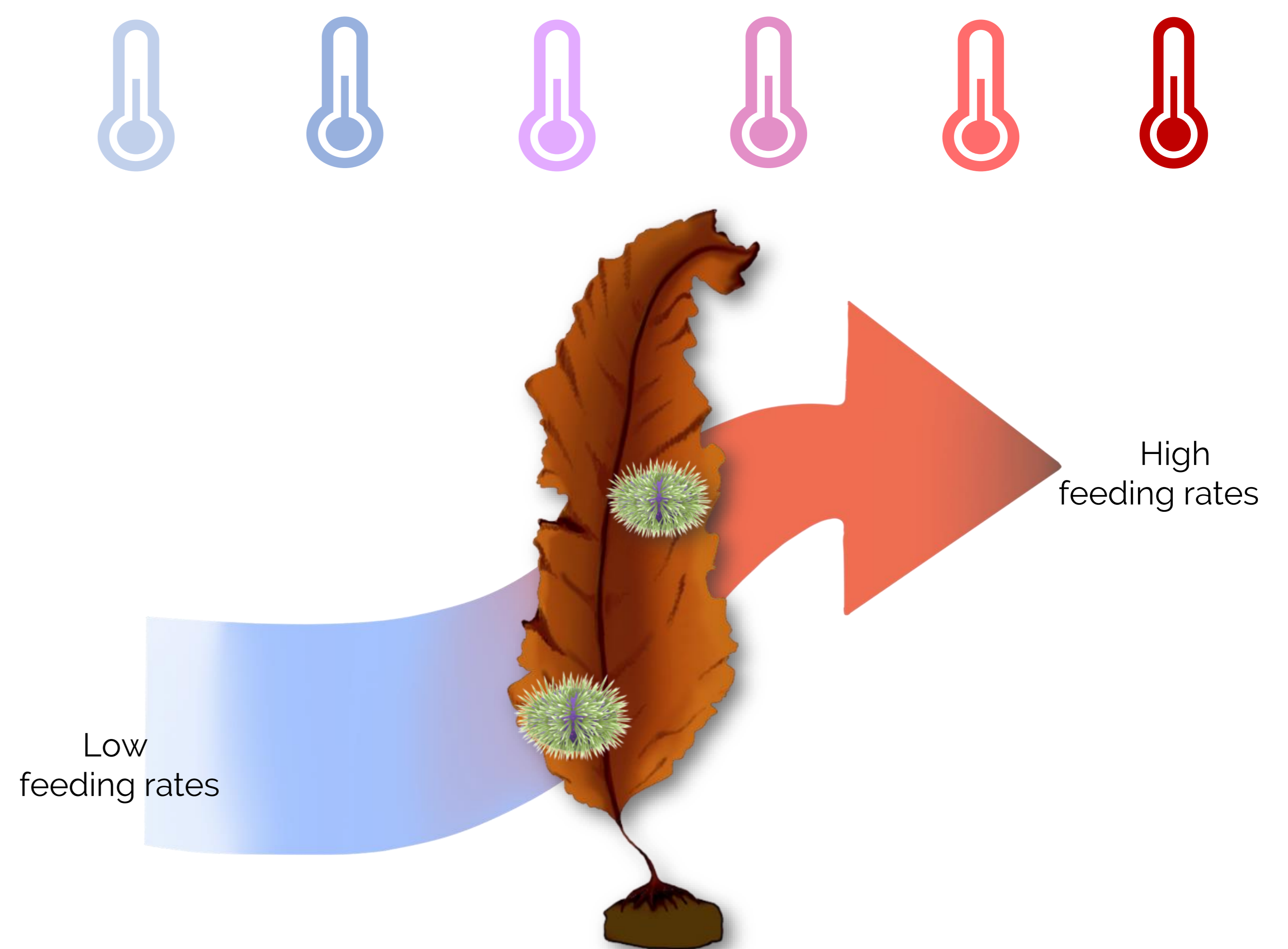
Strongylocentrotus sp.: typical Arctic sea urchins, often found in northern fjords



Temperature-treated sea urchins were fed with sugar kelp in 24 h intervals.



Sea urchins grazing on algae



Due to global change, the Arctic is the most rapidly warming region on our planet. Feeding activities of sea urchins are likely to increase in the kelp forests if spring and summer become longer and warmer. The consequences for the kelp forests are diverse and depend on a multitude of factors. However, grazing of sea urchins will increase and, therefore, the risk of reduction of this habitat will increase along with the provided ecosystem services.