

Nitrogen retained through loss

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The nitrogen cycle plays a major role in seagrass fields. Dutch researcher Arie Vonk studied the nitrogen dynamics of seagrasses in Indonesia. He discovered that the interaction between seagrasses, animals and microorganisms results in an efficient nitrogen cycle in tropical seagrass fields. Consequently the nitrogen lost from seagrasses is still retained.

Seagrass fields are coastal ecosystems with important functions for coastal stability and fish populations. The collection and grazing of seagrass leaves is the most important nitrogen flow in these fields. Nitrogen is an important nutrient for organisms and the production of seagrass leaves requires large quantities of nitrogen. However, the leaf has a short lifespan and as it dies off, little of the nitrogen is retained by the plant. Leaf loss therefore also means considerable nitrogen loss for the plant.

Animal species that live amongst the seagrass can influence the export and dynamics of seagrass leaves. The most important grazers of seagrass fields are sea urchins, shrimps and fish. Shrimps, for example, retain nutrients by collecting the leaf material. Their holes can therefore form an important source of nutrients that can once again become available for uptake by seagrasses.

Coastal floors can be stabilised by the extensive root systems of the seagrass fields. Seagrass fields also function as a hiding place and breeding ground for many vertebrate and invertebrate animal species. Due to an increasing human pressure on the coastal system, many

seagrass fields are disappearing worldwide. The increasing pressure is noticeable by the increase in nutrients and sediment in the water and the widespread exploitation of the ecosystems.

The research results are interesting for managers and conservationists of tropical coastal areas. Seagrass fields are important ecosystems for the fishing industry and therefore for food supplies. In addition to this, seagrass fields ensure stabilisation of the coast, an important characteristic in view of rising sea levels and coastal erosion.

Source: Netherlands Organization for Scientific Research

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