

# Opinion Piece

Input to the COP28 meeting, held in Dubai 30 November-12 December 2023.

## Time to highlight the ocean's role for climate mitigation

The ocean has a major impact on the development of the climate, and the upcoming climate summit is the time to highlight this until now undervalued resource. By reducing eutrophication and protecting important ecosystems, greenhouse gas emissions from the coasts can be reduced and the ocean's function as a carbon sink can be strengthened.

During the COP 28 it will again be discussed who will do what to limit greenhouse gas emissions. There is no time to waste. Too little has been done, and too slowly, on both carbon dioxide and methane emissions. In recent years, ocean issues have crept into the climate debate and COP meetings now have dedicated 'ocean pavilions'. However, the ocean is still not fully utilised in climate work.

About a quarter of human carbon dioxide emissions are absorbed by the world's oceans. Some of this is captured and stored in coastal ecosystems. When organic matter dies and sinks to the bottom, some will be buried and can be stored for a very long time, known as blue carbon. Some marine environments are particularly effective at absorbing and sequestering carbon, such as mangrove swamps and seagrass beds, but macroalgae – such as bladderwrack, common in the Baltic Sea – can also be effective carbon sequestrators.

Unfortunately, coastal environments, both in the Baltic Sea and globally, have been disastrously mismanaged for several decades. This includes for example allowing bottom trawling, dredging and deforestation of mangroves. In the Baltic Sea in particular, pollution in form of excessive nutrient inputs that cause eutrophication is a severe pressure. Reducing pressures and restoring environments that sequester blue carbon can be important nature-based measures to mitigate climate change.

Depending on ocean conditions, some of the organic material decomposing in the ocean may be released into the atmosphere in the form of methane. Methane is a more short-lived, but much more potent, greenhouse gas than carbon dioxide. These emis-

sions are therefore particularly important to consider in the shorter time perspective, given the acute climate crisis. Methane is mostly discussed in connection with ruminating cattle, but new research shows that eutrophied coastal areas can be an important, previously partly overlooked, source of methane. This is because methane emissions are more intense from oxygen-poor seabeds, which can occur in eutrophied marine environments.

According to preliminary calculations by researchers at Stockholm University's Baltic Sea Centre, methane emissions from Swedish territorial waters could amount to as much as 30 000 tonnes of methane annually. This corresponds to 2.5 million tonnes of carbon dioxide equivalent on a 20-year scale (where 1 tonne of methane is estimated to be equivalent to 84 tonnes of carbon dioxide). This can be compared with Sweden's total reported territorial emissions of greenhouse gases (excluding land use and forestry), which amount to just over 54 million tonnes of carbon dioxide equivalent on the same scale. The situation could be similar in other countries with eutrophied coasts. Global warming, which is particularly noticeable in the Baltic Sea region, means that methane production on the coasts can also be expected to increase.

To safeguard the oceans' ability to mitigate climate change, coastal ecosystems must be protected and restored. For the Baltic Sea, however, reducing eutrophication is probably the most important issue, which not only benefits biodiversity but can also limit methane emissions. Healthy ecosystems are a prerequisite not only for societal values such as fishing and recreation, but also for our future climate.

Climate negotiations at COP meetings have so far not included the role of the coast as a carbon sink or as methane emitter. Nor is this considered in national or international climate accounting. This must change. We call on the member states to work to ensure that the role of the oceans in climate work is highlighted in this and future COP talks, and that the work to reduce eutrophication and strengthen biodiversity is prioritised as part of the climate work.

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*CoastClim evaluates the links between coastal biodiversity, carbon cycling, and climate feedbacks. Read more at [www.coastclim.org](http://www.coastclim.org).*