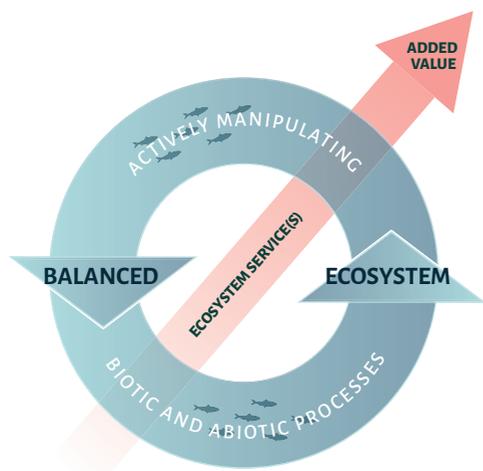


# WORKING WITH NATURE

Working with nature is defined as “a human activity with the aim of making desired change(s) to the scale and intensity with which biotic and abiotic processes take place and are expressed in the ecosystem”. Desired changes are changes that have a positive effect on one or more ecosystem services compared to a balanced ecosystem. A balanced ecosystem provides ecosystem services as can be expected from a robust and resilient natural ecosystem. Actions in the context of Working with Nature can include both

the active restoration of a negative value and the creation of added value for at least one ecosystem service. Countering or limiting undesirable effects caused by human activity with the aim of maintaining a balanced ecosystem (i.e. mitigation) does not fall within the scope of Working with Nature, nor does discontinuing locally harmful activities with the aim of restoring a balanced ecosystem (i.e. passive recovery). Of course, this in no way means that passive recovery and mitigation would be less valuable.



In order to be considered Working with Nature, it must be possible to answer positively to each of the following questions:

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- 1** WHICH ECOSYSTEM SERVICE IS PROMOTED?
  - 2** WHICH ECOLOGICAL (BIOTIC OR ABIOTIC) PROCESS IS MANIPULATED?
  - 3** WHAT ACTION IS TAKEN TO THIS END?
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Promoting an ecosystem service can undesirably be detrimental to other ecosystem services. For comparison: the introduction of the Harlequin ladybird in 1990 as a predator of aphids proved to be effective in greenhouses but at the same time had a negative effect due to

the predation on native ladybirds outside the greenhouses with many undesirable harmful effects on biodiversity. Therefore, actions in the context of Working with Nature must promote at least one ecosystem service without damaging other ecosystem services.

The possibilities of Working with Nature are many. From no less than 14 identified themes, three topics were selected for further elaboration:

- 1** Natural coastal defence linked to coastal safety as a regulating ecosystem service
- 2** Integrated multi-trophic aquaculture linked to the ecosystem service of food production
- 3** Offshore nature-inclusive design and construction linked to biodiversity as a cultural and optional value

These examples were selected mainly on basis of interest and available expertise within the working group and as such should not necessarily be considered

as priority themes. They do, however, provide an insight into the width of the possibilities within Working with Nature.

# 1

Under the heading of natural coastal defense are the possible efforts to move away from « grey » infrastructure in coastal defense and to focus on the opportunities offered by nature to achieve sustainable, self-sustaining coastal protection. To this end, an effort is made to manipulate both aeolian and hydrodynamic sand transport (as well as abiotic processes) through stabilising dunes in front of dykes and artificial (bio)reefs.



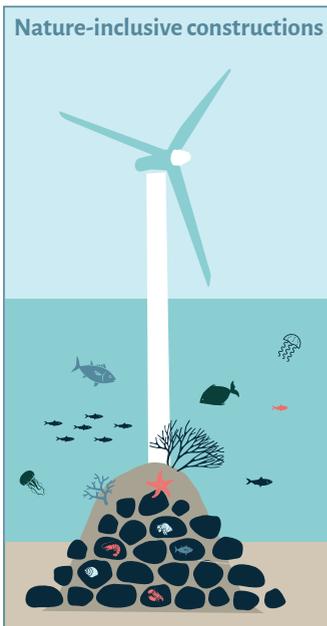
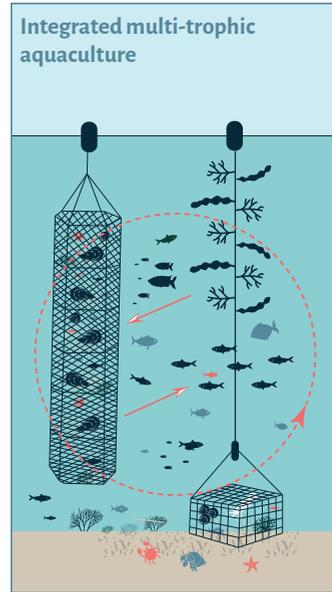
- **By 2050, we aim to have taken the necessary steps at all levels to maximize the use of stabilizing measures through natural mechanisms in favour of natural coastal defense.**

# 2

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Integrated multi-trophic aquaculture is a method of growing food, combining conventional aquaculture of, for example, different species of molluscs, algae and crustaceans in a symbiotic way. The aim is to increase food production from the sea. To this end, both primary and secondary production can be stimulated by providing habitat for the species to be cultivated and by making maximum use of positive, facilitating interactions between the species (= integrated).

- By 2050, we aim for marine aquaculture to be both integrated and multi-trophic.

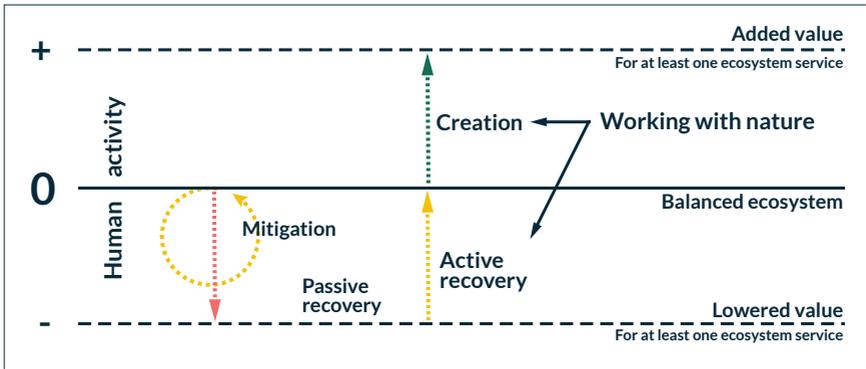


# 3

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Nature-inclusive design and construction includes efforts to create added value in relation to biodiversity during the design, installation, use and decommissioning of offshore structures. Think, for example, of fish hotels and nature-stimulating erosion protection layers. The added value to biodiversity - in support of various ecosystem services - is realised by manipulating the range of colonisation possibilities, through the creation of habitat for various marine organisms.

- We aim to make the entire life cycle of all structures at sea nature-inclusive by 2050.



Achieving these objectives requires action at the level of the general public, industry, science and policy. Putting forward an unambiguous step-by-step plan that considers what needs to be done now and in the coming decades in the light of the desired future image is not straightforward. Overarching all the themes that can be linked to Working with Nature, however, it can be said that a clear commitment is needed from all four players. New projects must stimulate integration of the social, economic and ecological system from the very beginning, in order to gain social support. There is a need for process-oriented fundamental and applied research and monitoring. Industry and science are incubators for new solutions and providing solid foundations, with sup-

port from the government and the wider public. To this end, there is a need for a clear framework, space and support for carrying out scaled-up pilot studies. The government plays an important role, not only by creating the necessary legal frameworks, but also through the leverage function that public contracts can perform and the incorporation of obligations regarding the application of Working with Nature. Because Working with Nature does not stop at national borders, both the national and European legal and policy frameworks, as well as the international cooperation, must be further developed to create clarity for all parties involved, particularly regarding certification, incentivisation and valorisation of added value for society.

- **In conclusion, Working with Nature offers interesting opportunities for the future exploitation of marine ecosystem services. Subject to focus and good planning at all levels, Working with Nature can form an integral part of the business plan for all human activities at sea by 2050.**