Assessing the absolute environmental sustainability of products and systems

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Background
Despite an increasing focus on sustainable development, society is far from solving the global environmental sustainability challenge. We need operational methods to evaluate the environmental achievements of current efforts in relation to absolute boundaries, and not solely relative to references such as past performance. Such assessment methods are referred to as Absolute Environmental Sustainability Assessment (AESA) and they allow the comparison of the environmental footprint of an entity with its assigned share of the safe operating space (SOS), delimited by an environmental boundary. However, further development and validation is required before AESA methods can be considered operational.

Main objectives
This project aims to advance the field of AESA, specifically focusing on (i) defining and adopting environmental boundaries in environmental assessments, (ii) expressing marine eutrophication impacts in relation to environmental boundaries at suitable metrics and spatial resolution.

Method
• Review existing environmental boundary approaches and elaborate a framework for defining, communicating and adopting them in environmental assessments
• Develop a regionalized AESA model of marine eutrophication impacts
• Apply the developed model to a case study and allocate the safe operating space to an appropriate scale

Expected results
• A comprehensive overview of current environmental boundary setting approaches
• A framework for defining, communicating and adopting environmental boundaries in environmental assessments
• A model for calculating regional absolute environmental sustainability indicators for marine eutrophication.

New value in relation to existing knowledge
AESA is a new field, and as of today, there are no guidelines on how to select and adopt environmental boundaries in assessments. Moreover, existing AESA indicators for marine eutrophication are based on global averages or coarse scale, risking to hide exceedance of SOS at a more refined scale. This project is expected to develop a framework for selecting and adopting boundaries and an AESA indicator model for marine eutrophication impacts at a suitable scale.