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Translating circular economy principles to aquaculture

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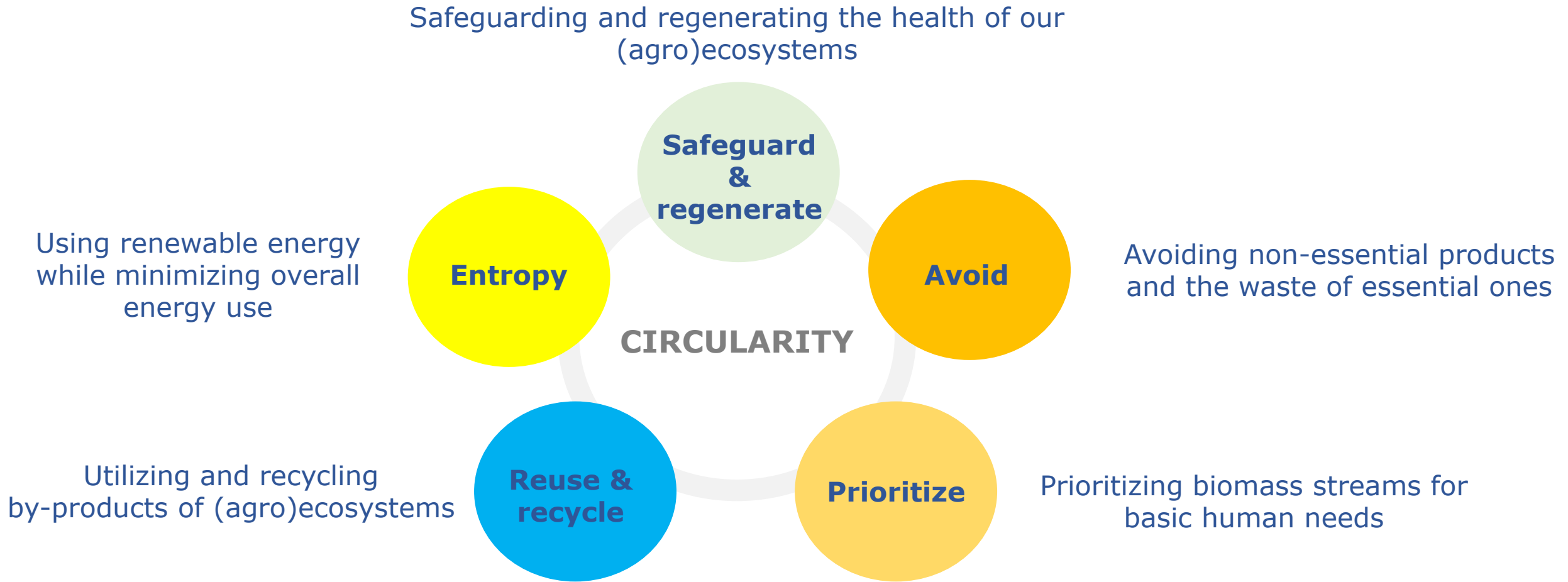
- Circularity@WUR 12/04/21 -

Session Biosphere - Towards circular marine food production | Sustainable mariculture

Introduction and context

- Food production is causing major global environmental burdens
- Circular economy (CE) as a tool for more sustainability
- CE research focused on terrestrial food productions
- What does circularity mean for aquaculture?

Overview of the 5 ecological principles

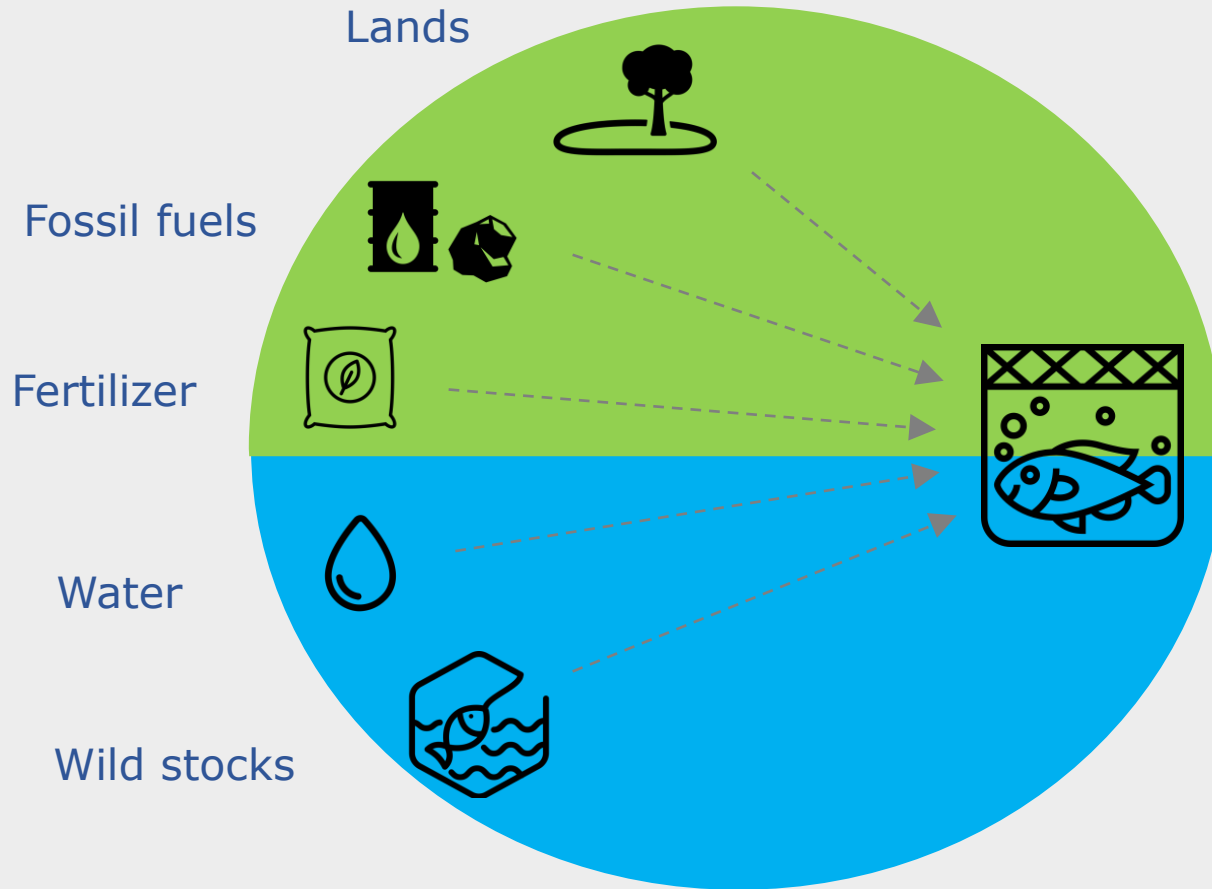


Principle 1: Safeguard and regenerate

Safeguard resource ecosystems

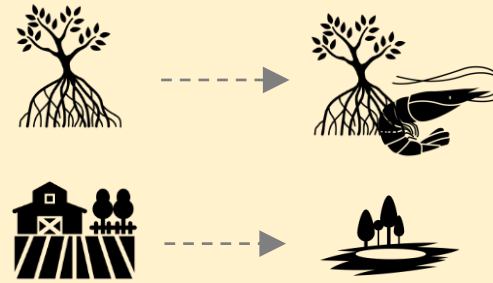
Safeguard
&
regenerate

Inputs



Issue

Habitat destruction due to land use change



Overfishing



Implications

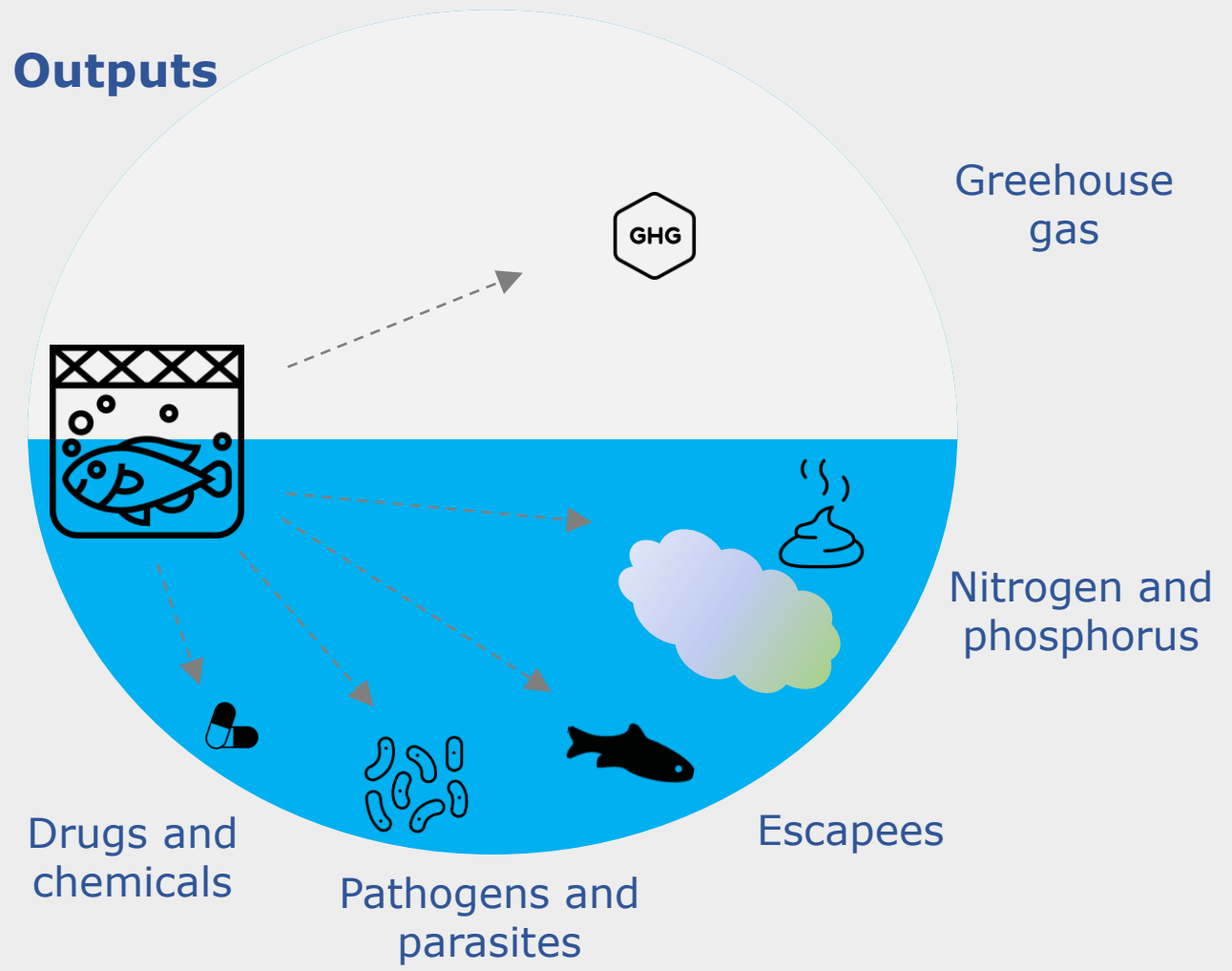
Avoid conversion of ecologically valuable ecosystems

Source from well managed stocks

Safeguard receiving ecosystems

Safeguard
&
regenerate

Outputs



Issues

Eutrophication



Genetic pollution and
invasive species



Implications

Amount of aquaculture
limited by the ecosystem
assimilative capacity

Use only native
species/strains

Principle 2: Avoid

Avoid non essential production

Avoid

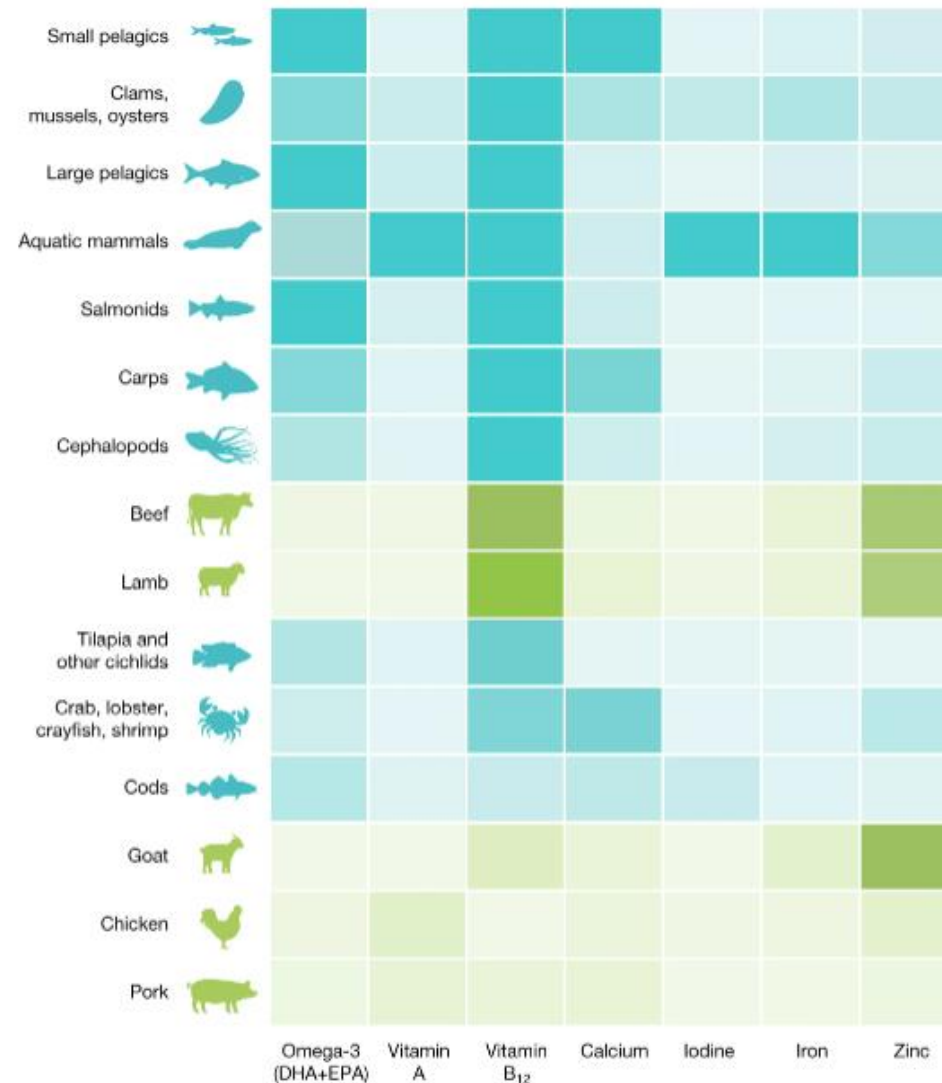
What makes aquatic foods essential?

Nutrition

- Source of protein
- Source of essential fatty acids (PUFA)
- Iron, zinc, Vit. A, B12

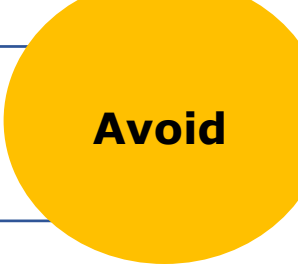
Food security

- Source of affordable and accessible food and nutrients
- Source of jobs and income



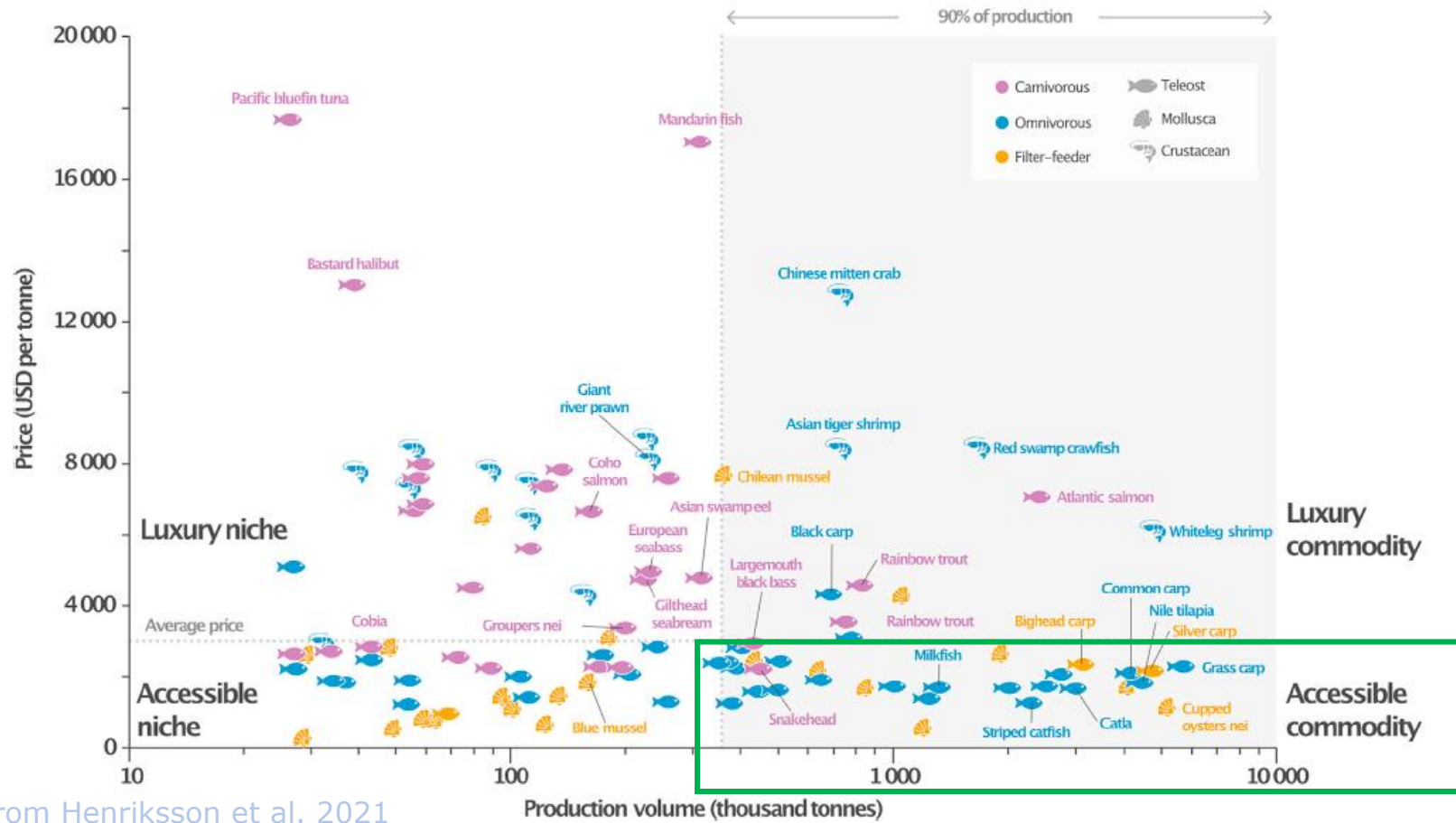
Nutrient richness

Avoid non essential production



Avoid

Are all aquaculture products equally essential?



Implications

Avoid/Reduce the production of species which contribute little to food and nutrition security

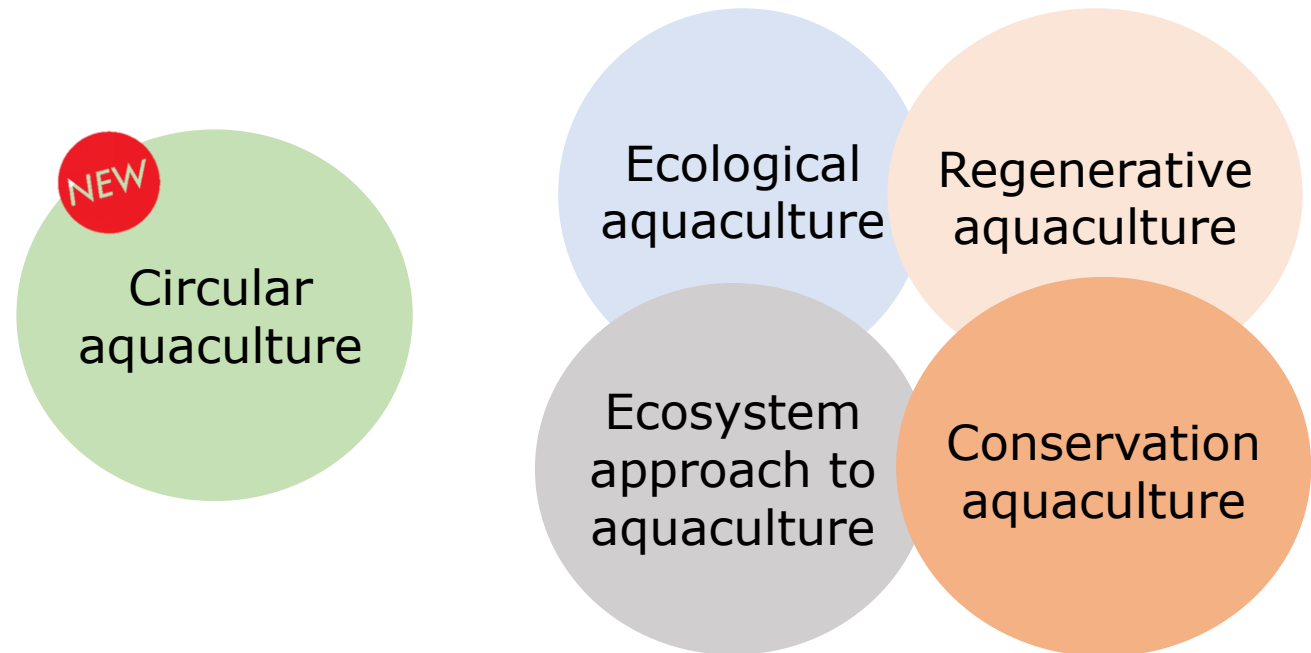


Species that contribute to food security

Adapted from Henriksson et al. 2021

Next steps

- Build narratives to promote circularity in aquaculture
- Check coherence and novelty with sustainability schemes used in aquaculture



Thank you !

Contact information



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