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► **To cite this version:**

Killian Chary, Anne-Jo van Riel, Ramon Filgueira, Aurélie Wilfart, Souhil Harchaoui, et al.. Translating circular economy principles to aquaculture. *Circularity@WUR*, Wageningen University and Research, Apr 2021, Wageningen, Netherlands. hal-04138731

**HAL Id: hal-04138731**

**<https://hal.inrae.fr/hal-04138731>**

Submitted on 23 Jun 2023

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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

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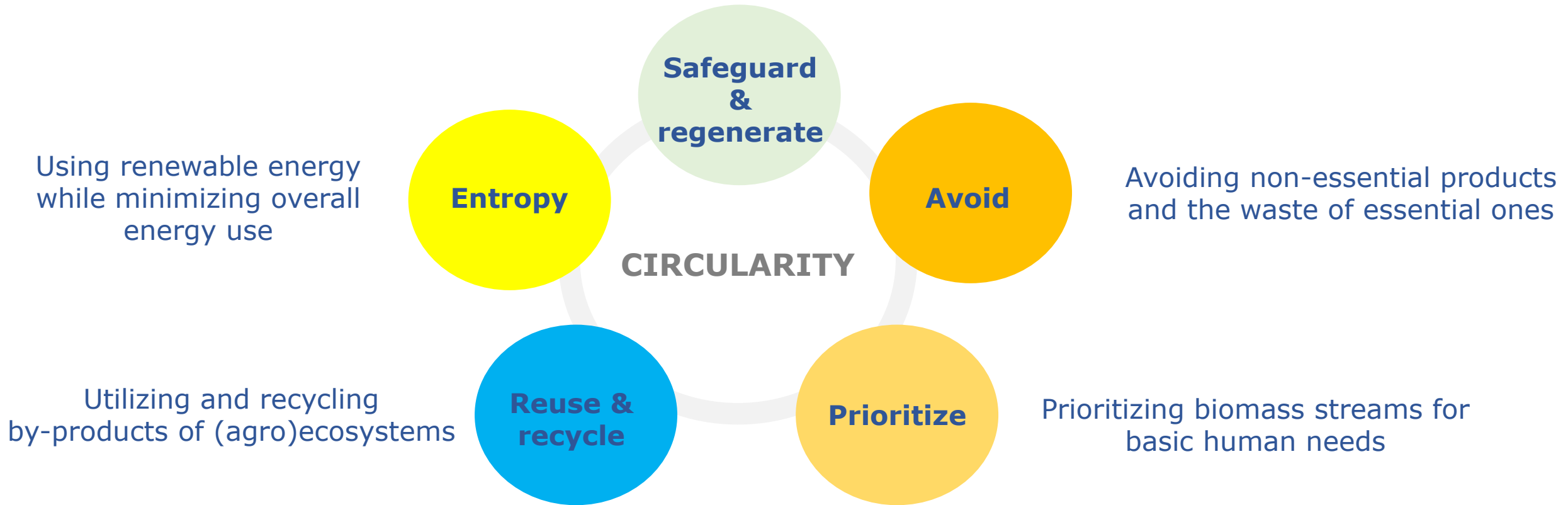
# Introduction and context

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- 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

Safeguarding and regenerating the health of our (agro)ecosystems

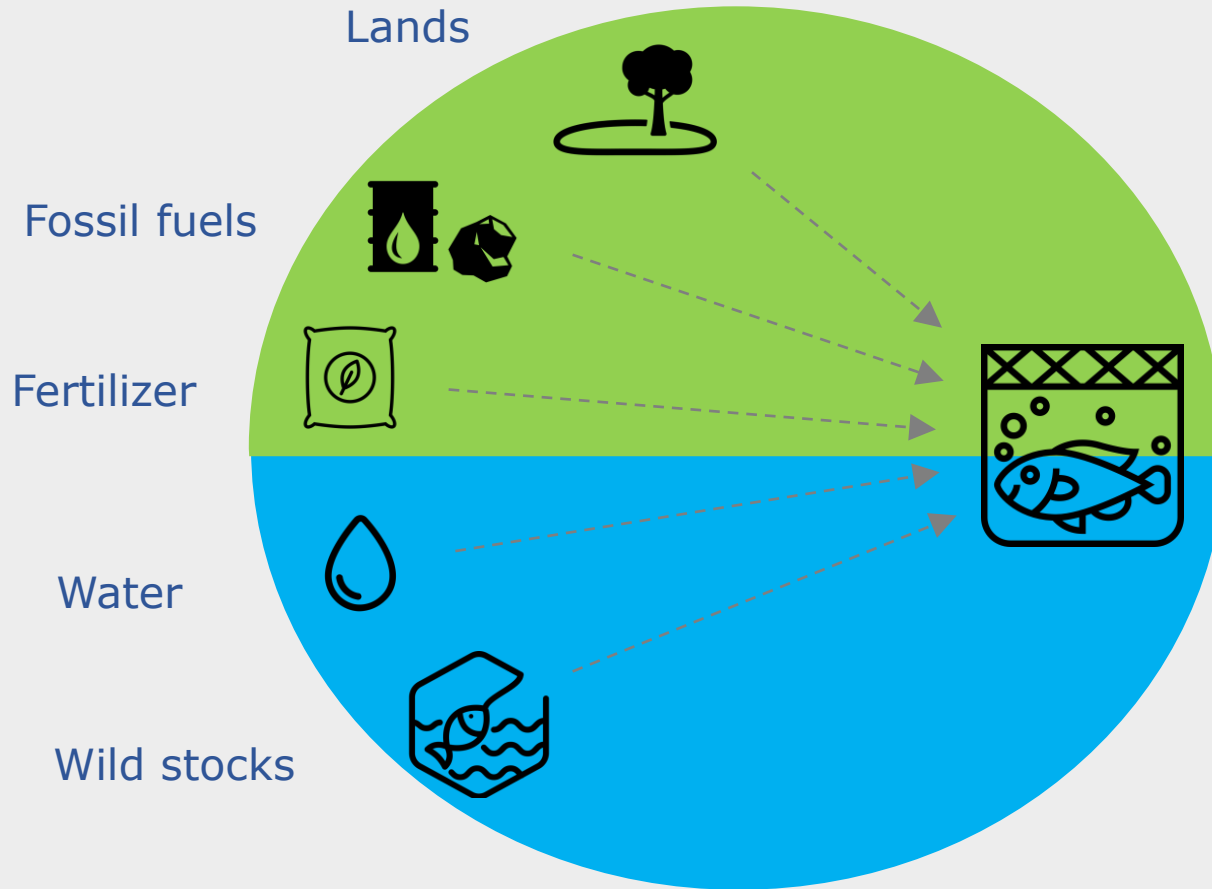


# Principle 1: Safeguard and regenerate

# Safeguard resource ecosystems

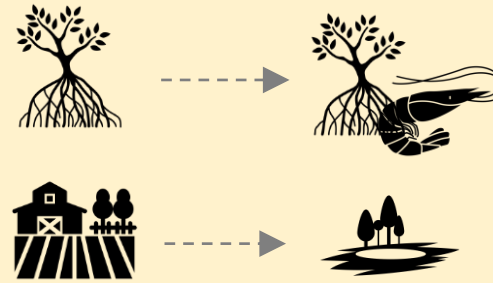
Safeguard  
&  
regenerate

## Inputs



## Issue

Habitat destruction due to land use change



Overfishing



## Implications

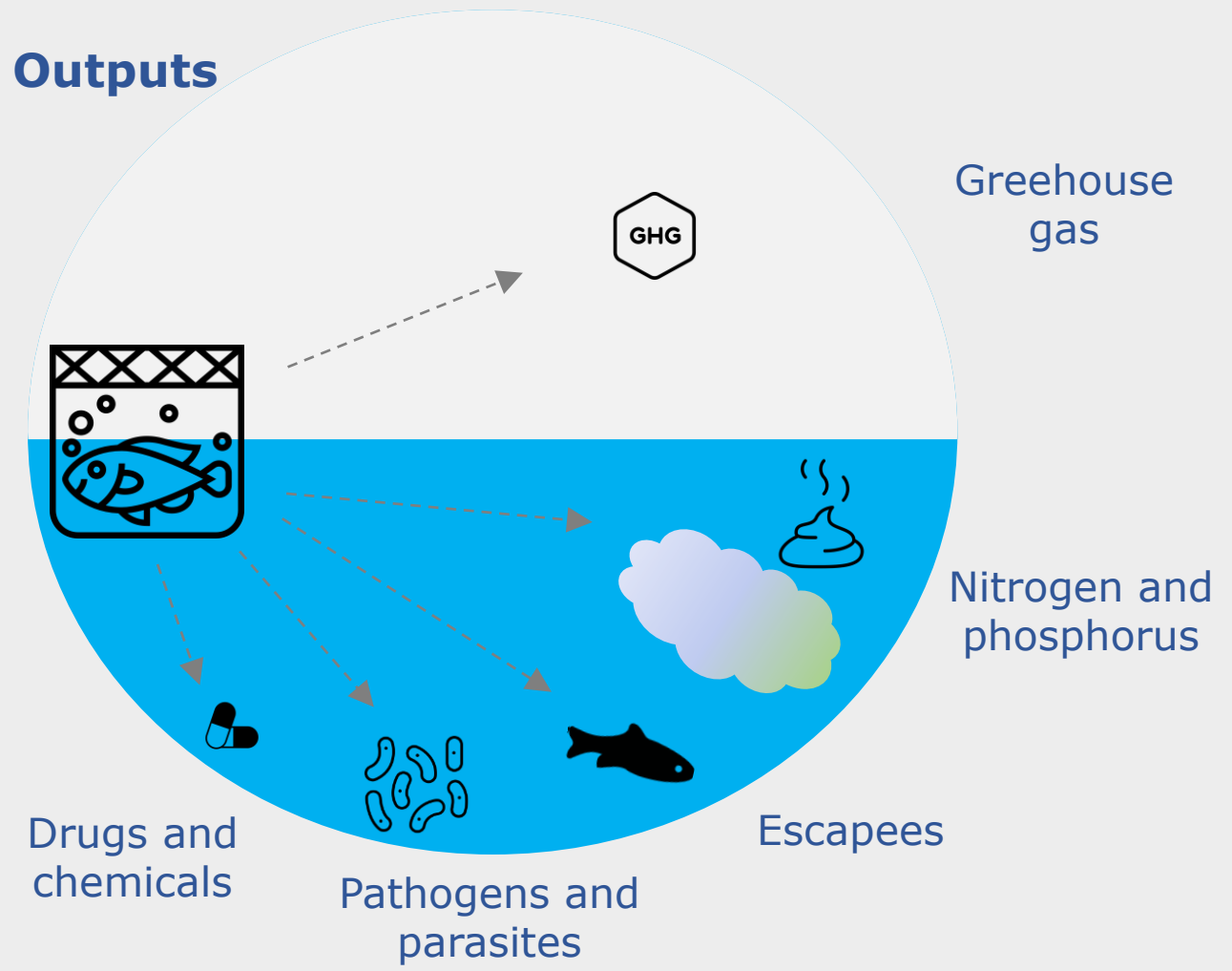
Avoid conversion of ecologically valuable ecosystems

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

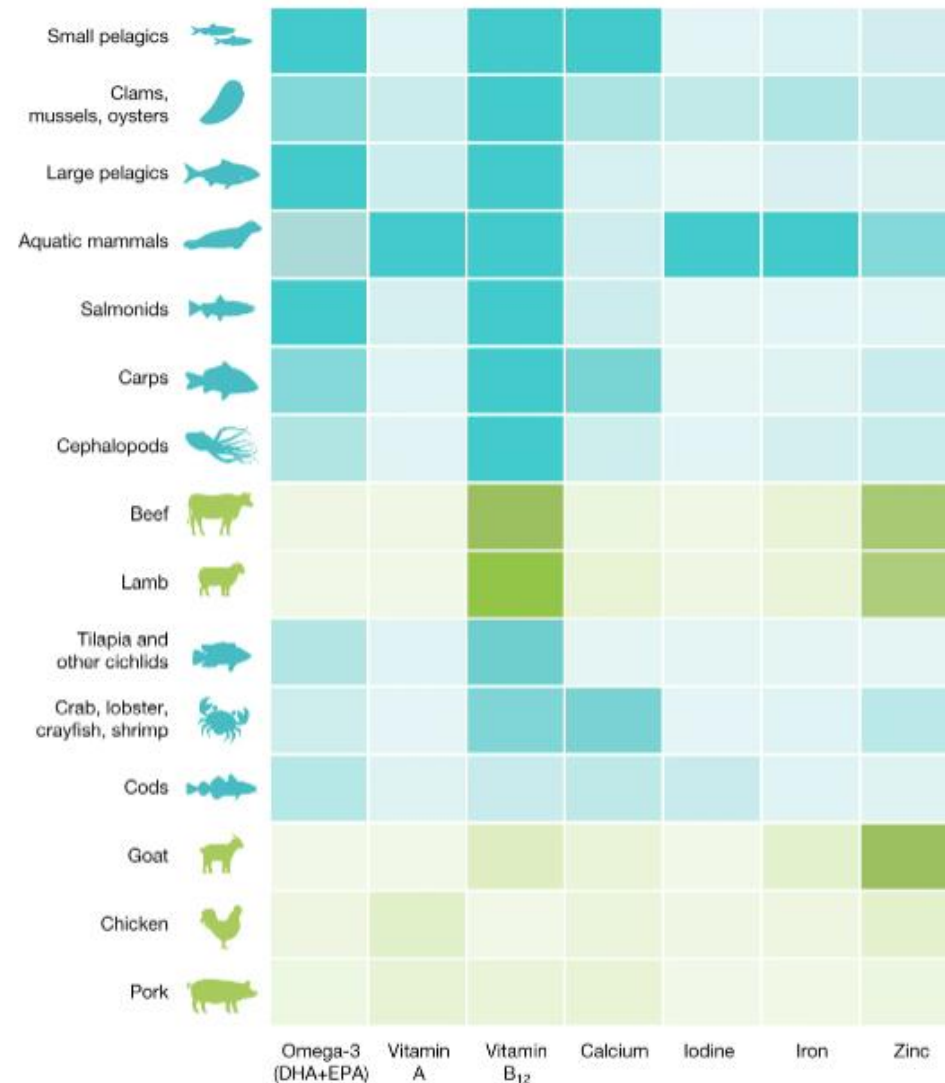
## What makes aquatic foods essential?

### Nutrition

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

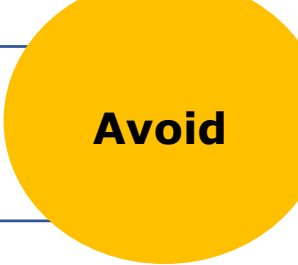
### Food security

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



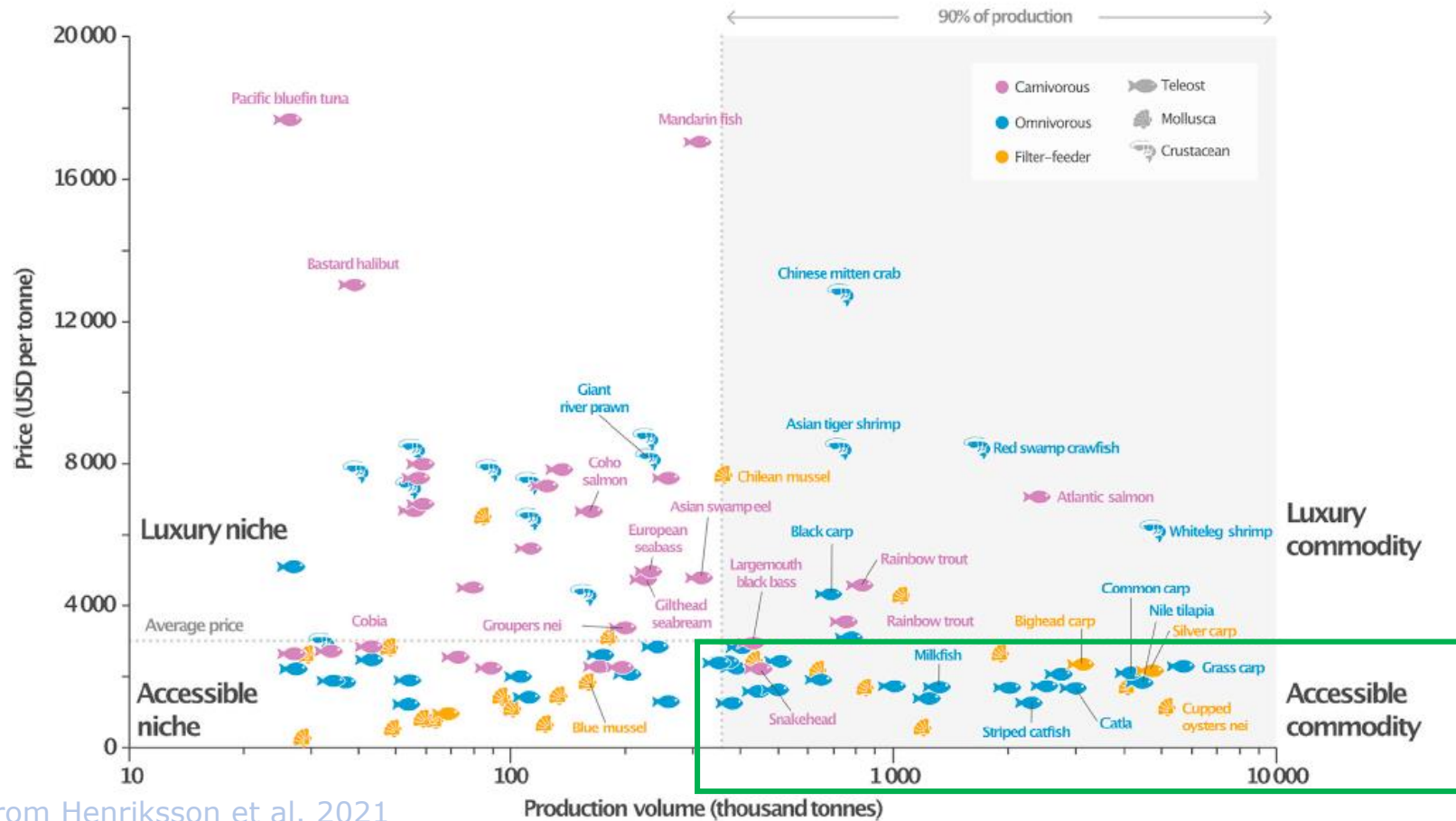
Nutrient richness

# 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

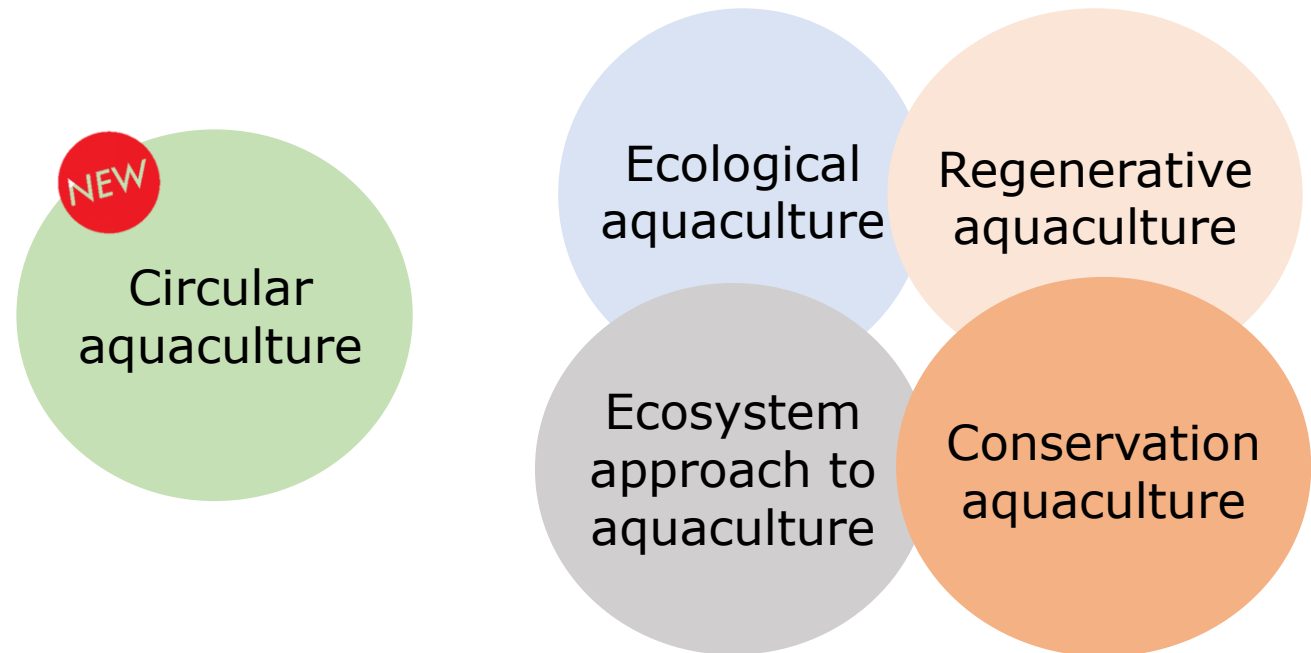


Species that contribute to food security

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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