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# Opportunities and threats for macroalgae production in the Baltic Sea Region

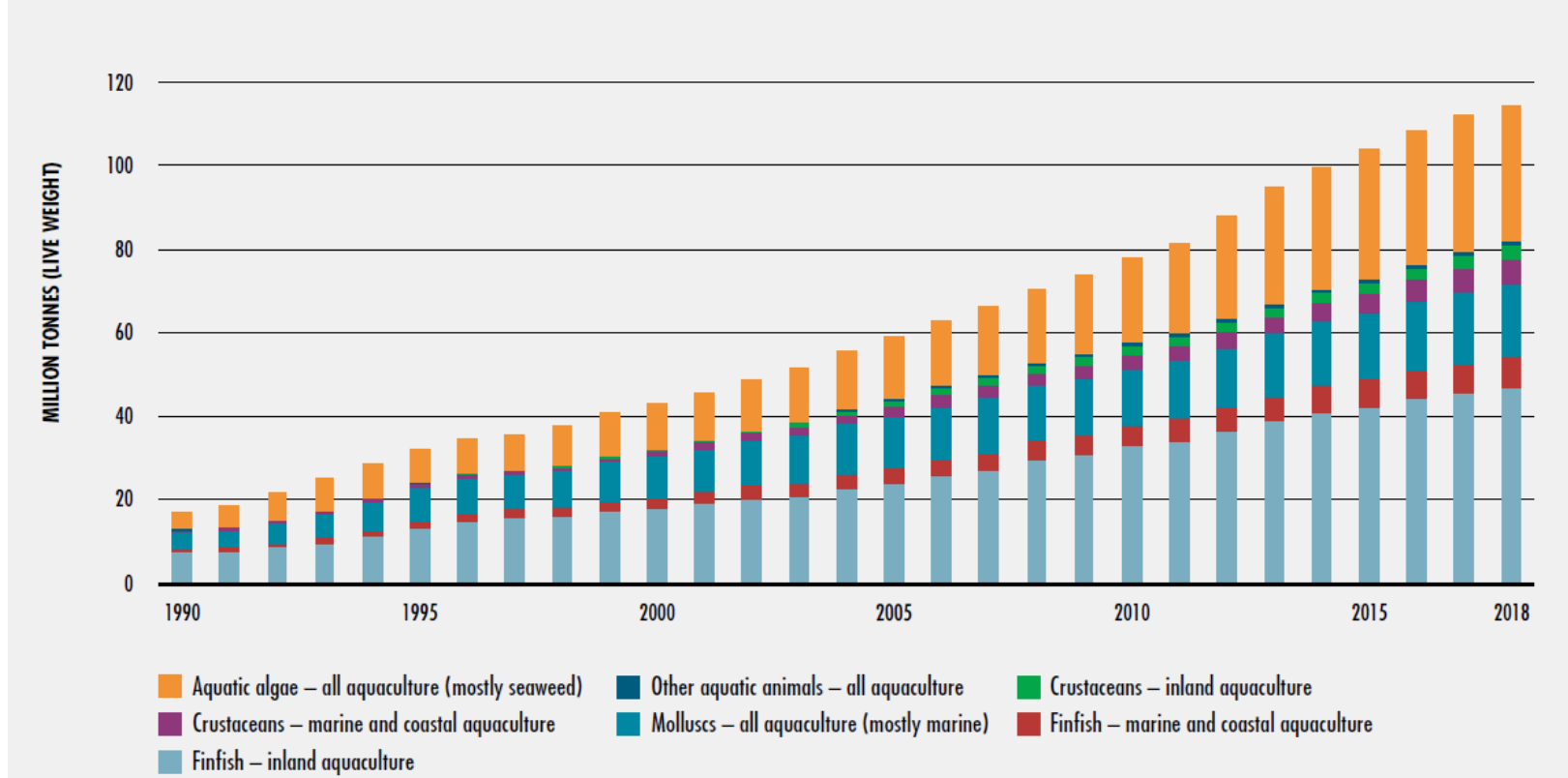
GRASS project

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# Macroalgae in global aquaculture

## WORLD AQUACULTURE PRODUCTION OF AQUATIC ANIMALS AND ALGAE, 1990–2018



Source: SOFIA, 2020, FAO Rome

## Macroalgae production in the Europe

- Europa:
  - **279 000 tons** - harvesting (25% world harvesting), mainly: Norway, Ireland, France, Iceland, Spain.
  - **3 000 tons** - aquaculture (<1% world aquaculture production)
- Baltic Sea Region:
  - **600 tons** – harvesting / beach-casting (Estonia – up to 500 ton, Dania - 100 ton) – less than 1% of European harvested biomass
  - **70-110 tons** - aquaculture (Denmark, Sweden, Germany) – ca. 2-3% of European aquaculture production



Fot. Estagar  
Furcellaria harvesting in Estonia



# Seaweed are trendy



Fot. Jonathan Wong

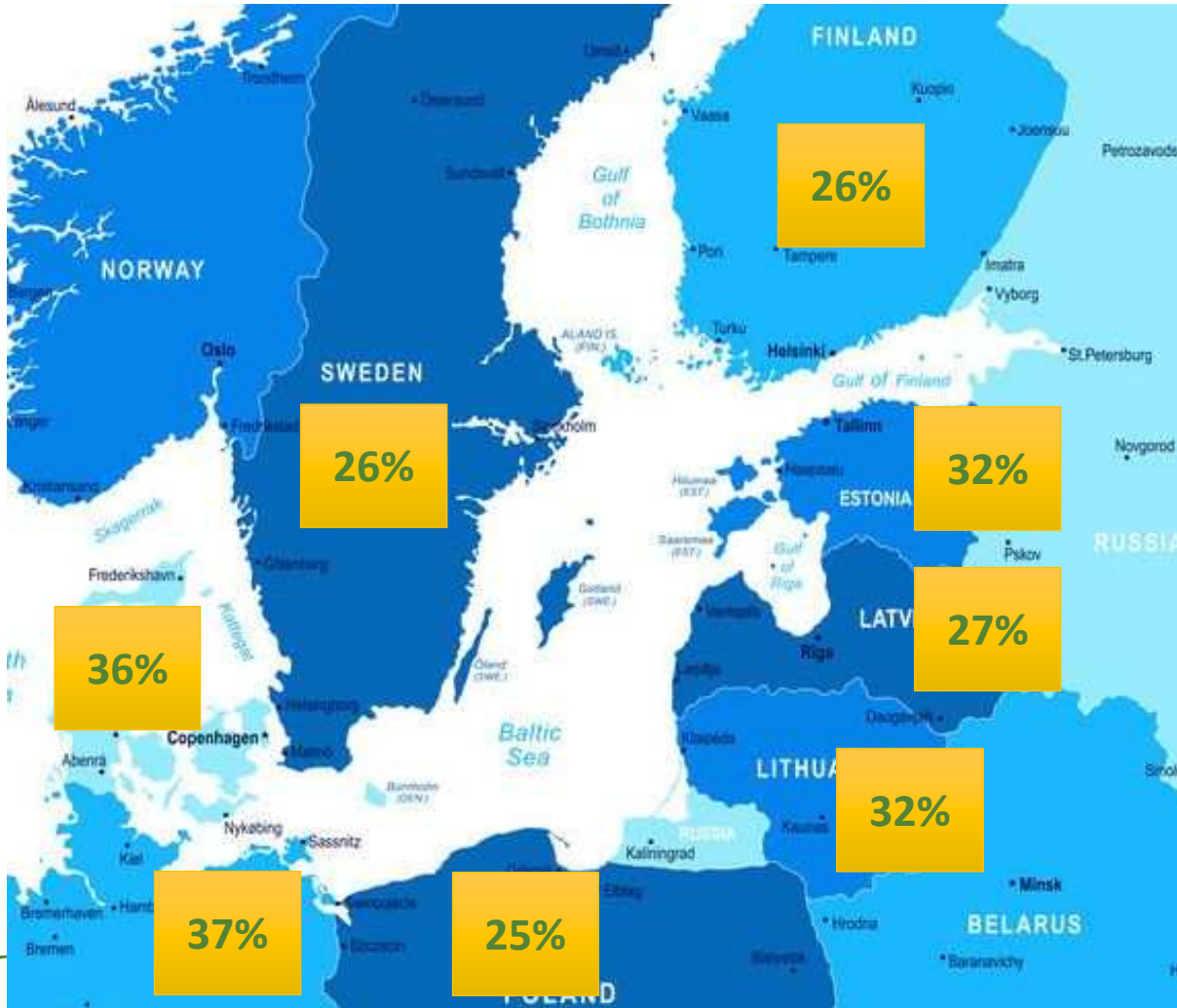


<https://veganworld.de/algen-sind-das-nahrungsmittel-der-zukunft/>



Fot. T. Kulikowski

# Seaweeds are trendy



Seaweed (as food) is very healthy

26%

Source: CAWI consumer research (n=2040), 2019, IMAS International for NMFRI, GRASS project

# GRASS

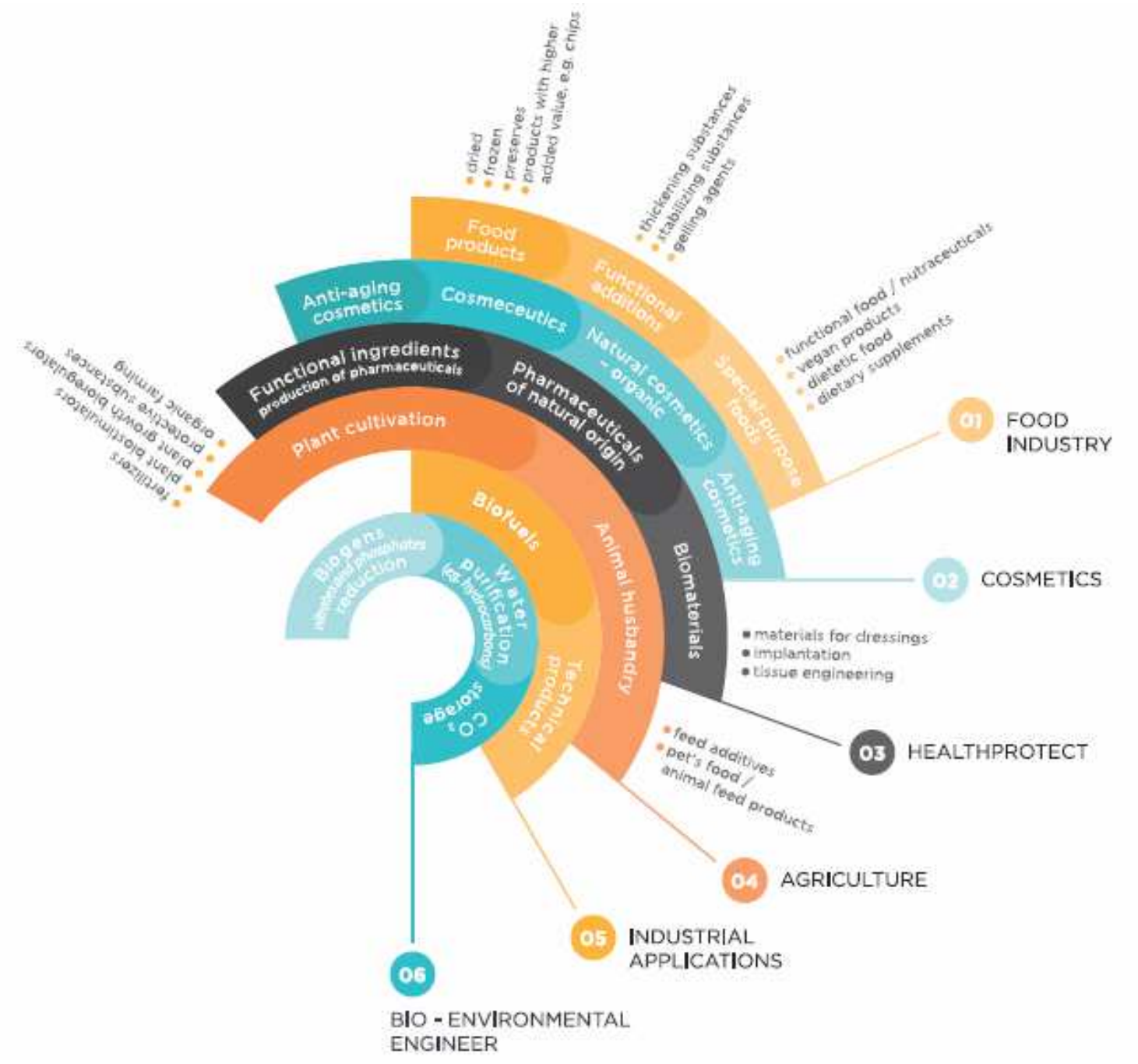


Fig. © NMFRI


## Seaweed production threats in the BSR

**Legislation?** No clear licencing system, detailed MSPs under construction - *challenge, but not the main obstacle*

**Market?** We have market for certain species and products. Limited (current) demand for species which could be farmed in Baltic Proper (*Ulva intestinalis*, *Furcellaria lumbricalis*, *Fucus vesiculosus*) - *challenge, but not the main obstacle*

**Production economics?** Based on Swedish experiences, small-scale production, even of macroalgae species with high commercial value, is not profitable. No reliable data for Baltic Proper - *important obstacle*

**Technology?** Macroalgae farming technics are not very complicated, but „*the devil is in the details*” – no proved technology for „Baltic” species - *important obstacle*





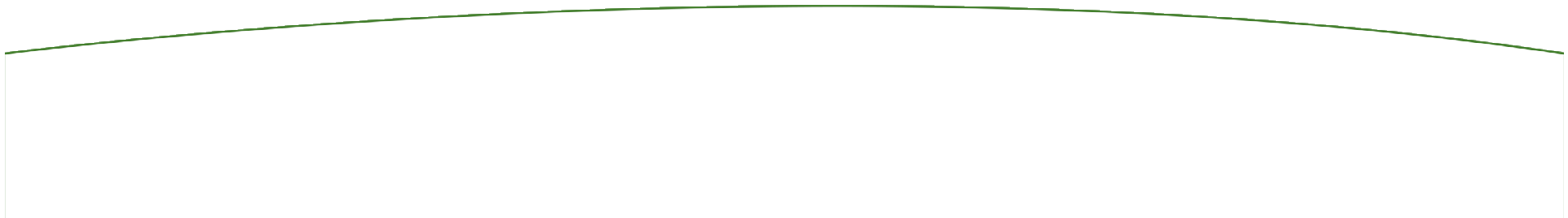
## Mini-roadmap for the Baltic Sea Region

**Public administration capacity building & legislation readiness**  
for macroalgae business

**Experimental farms** to prove technology

**Public compensations for water-environmental services\***  
**of macroalge farming**

*\* reduction of biogens, CO2 accumulation, biodiversity increase*



# Thank you for your attention

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Ministerstwo Nauki  
i Szkolnictwa Wyższego

Praca naukowa opublikowana w ramach  
projektu międzynarodowego  
współfinansowanego  
ze środków programu Ministra Nauki  
i Szkolnictwa Wyższego pn. „PMW”  
w latach 2019-2021; umowa  
nr 5046/INTERREG BSR/2019/2



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