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Macroalgae market in the Baltic Sea Region, with special focus on Denmark from GRASS project findings

18th August 2021

Supply of macroalgae industrial products in the BSR (EU)

Seaweed not fit to human consumption import to EU Baltic Sea Region countries, estimated on the base of Eurostat data amounted to **10 358 tons**. Additionally **817 tons** of agar-agar and **3196 tons** of alginates.

The total value of above mentioned raw materials amounted to **47 million euro**.

Two-digit % decrease for non-food seaweed raw material in last 5 years was observed.



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Macroalgae cosmetics



More than 40 producers in the Baltic Sea Region produce cosmetics based on seaweed or with the addition of seaweed.

Seaweed cosmetics are already recognised by **29% consumers in Denmark**, as „something that are **very healthy for my body/skin**”.*

Another **43% Danish consumers** declare it is something they **could try to use**.*

For now, in the marketing of cosmetics producers, informing about the origin of the raw material plays a small role. Manufacturers are also reluctant to declare actual seaweed content.

* source: CAWI consumer panel, n = 2040, provided by IMAS International for NMFRI, October 2019

Supply of macroalgae to food market in the BSR (EU)

Edible seaweed import to EU Baltic Sea Region countries, estimated on the base of Eurostat data amounted to **2 400 tons** or **17 million euro** in 2020.

In the last 5 years, **44% increase in import** of edible (fresh, frozen, dried, processed) seaweed in terms of value were observed. Anyhow this import size is **underestimated** – hundreds of tonnes of products are declared as e.g. „other plant products...” (e.g. CN 20 08 99 99 90 *products manufactured on the basis of seaweed and other algae prepared or preserved by processes not provided for in Chapter 12*).

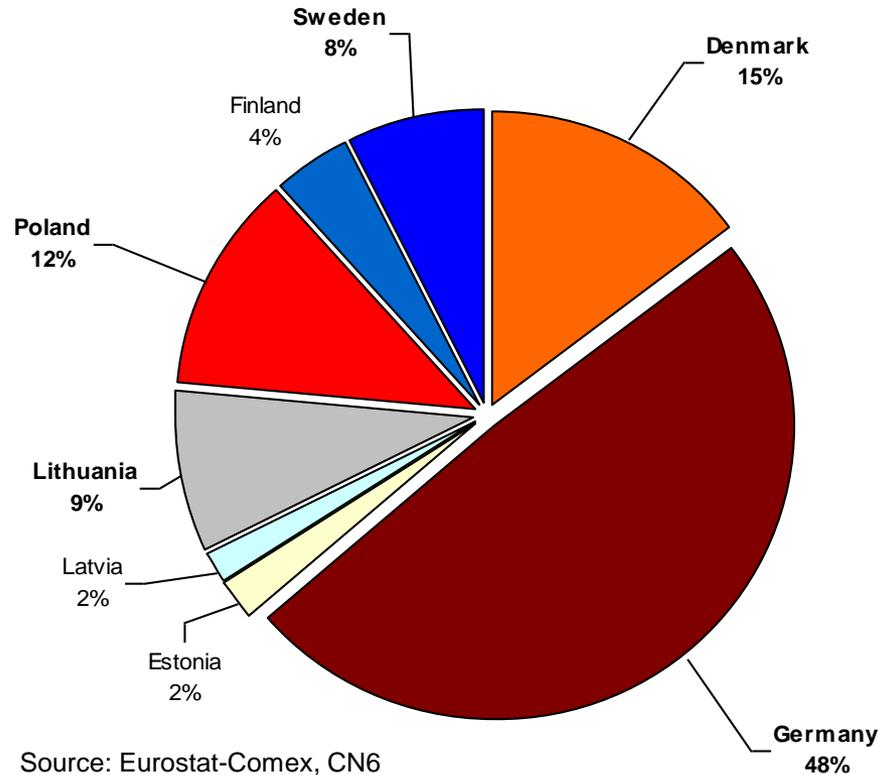
Moreover market is underestimated because of import to the Netherlands (Rotterdam) and further distribution from the Netherlands to different BSR countries.



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Supply of macroalgae to food market in BSR (EU)

Seaweed fit for human consumption import by country (% value), 2020



Source: Eurostat-Comex, CN6

	Change in import value [2020/2016]
Estonia	+453%
Lithuania	+389%
Germany	+70%
Denmark	+60%
Finland	+6%
Sweden	+1%
Latvia	-8%
Poland	-22%

Food market segments

LAST 20 Y

NEXT 20 Y

„Traditional” products in EBSR



influence of Korean diaspora cuisine in Soviet time

Eastern Asian products



influence of sushi consumption



growing consumer needs for convenience, RTE, pro-healthy, vegetarian



Super-food

Snacks, fusion products, VAP



Consumer acceptance & market penetration

Consumers contact with seaweed food products and their willingness to try

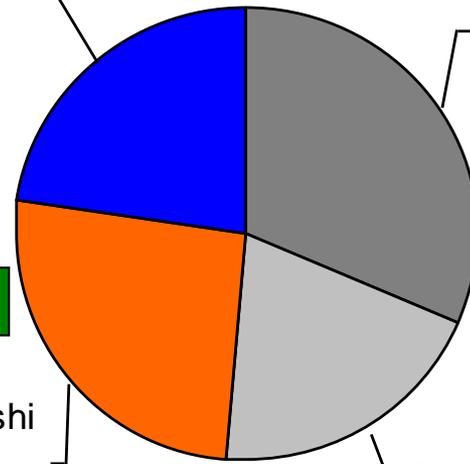


yes I have already eaten different seaweed (macroalgae) products 23%

18% ...something I (really) like to eat



yes but only as sushi ingredient (nori) 26%



never 31%

34% ...is something I could try to eat



I am not sure 20%

source: CAWI consumer panel, n = 2040, provided by IMAS International for NMFRI, October 2019

Consumer acceptance & market penetration

Seaweed acceptance (Denmark ver. BSR results)

		BSR	Denmark
Seaweed (macroalgae) as food products are...	something I like to eat (current customers)	17,9%	19,4%
	something I could try to eat (potential customers)	34,0%	35,3%

source: CAWI consumer panel, n = 2040, provided by IMAS International for NMFRI, October 2019

Consumer acceptance & market penetration

Motivators to eat seaweed (Denmark ver. BSR results)

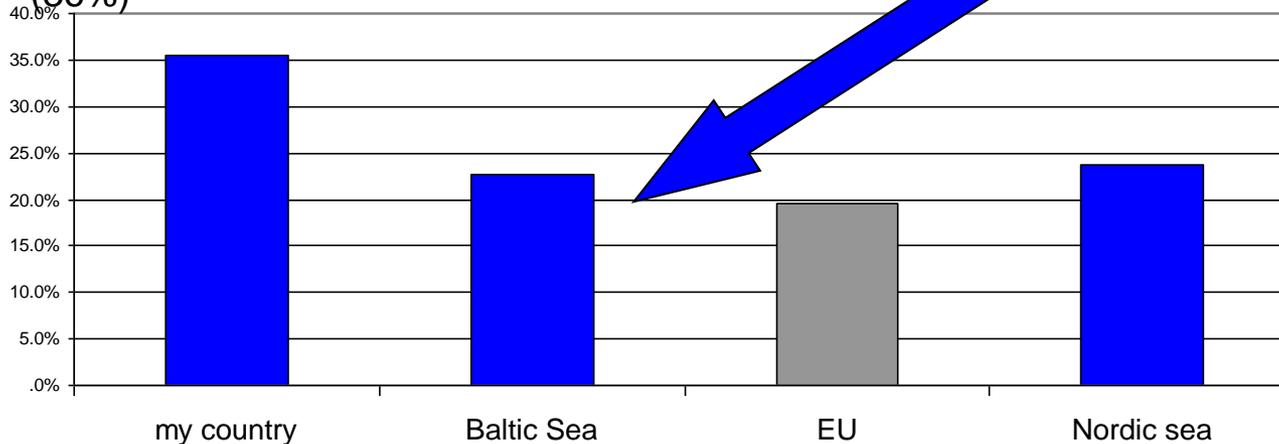
		BSR	Denmark
Seaweed (macroalgae) as food products are...	good alternative for vegetables	21,0%	27,9%
	good alternative for fish products/seafood	16,9%	22,9%
	something that are very healthy	30,1%	36,0%

source: CAWI consumer panel, n = 2040, provided by IMAS International for NMFRI, October 2019

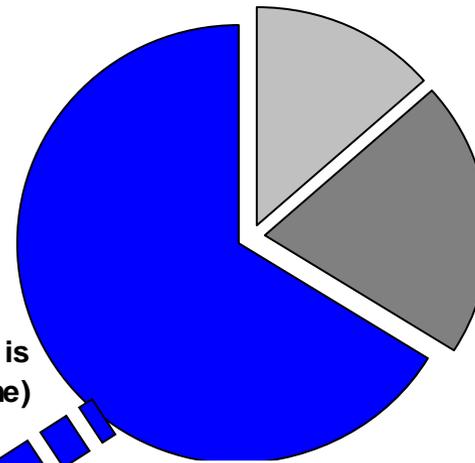
Importance of seafood origin

Importance of the origin of seafood products for consumers

The most **ethnocentric** („my country”) consumers: Finland (48%), **Denmark (40%)**, Estonia (37%), Poland (37%), Latvia (36%)



(seafood origin is important for me) 66%



I do not buy any seafood products 14%

seafood origin is not very important for me 20%

The most **„pro-Baltic”** orientated consumers: Northern Germany (31%), Poland (31%), Latvia (26%).

The most **„pro-Nordic”** consumers: Finland (35%), Sweden (34%)

Conclusions (for general macroalgae food market)

Taking into account the above factors, the development potential of the macroalgae consumer market in the Baltic Sea Region should be assessed **as high** with continuing single-digit annual growth rates in the next decade.

Main drivers of the market possibly will be:

- Health
- Replacing food sources of animal origin - with plants (vegan products, products for flexitarians)
- Convenience (new alternative RTE products – incl. snacks)

Environment-friendly products (low carbon imprint?) – maybe, if better communication strategy will be introduced.

Conclusions (for law-salinity species)

Once production (farming) of macroalgae in the **Baltic law-salinity waters** will start, the biggest challenge will be to introduce products from **macroalgal species (*Ulva, Fucus, Furcellaria*)** that consumers **practically do not know** and to obtain **a price level** of these products, adequate to the anticipated, at the beginning high, production costs.

The barrier is the distribution channels that are not very sensitive to the values of seaweed products (environmental values, local origin) - the HoReCa market and the retail market of ethnic Far East food.

It is also worth emphasizing that the value of locality is easier to communicate in the case of ultra-fresh products, while we identified the demand mainly for convenience products.

Conclusions (for law-salinity species)

"The Trap of a Small Market Niche" For each, even a very expensive product, with appropriate marketing, you can find a niche recipient, especially in rich countries, where there are many consumers with sophisticated needs. Internet trade - makes it easier to reach specific consumers. So – it is possible.

Unfortunately, it is difficult to move from very expensive production to a niche market to production to the mass market. We cannot expect that with niche production we will achieve the appropriate scale of environmental effects.

Conclusions (for all species)

An opportunity for the food market may be the production of seaweed for alginates / pharmaceuticals / cosmetic industry – which will give additional availability of the raw material for the food industry.

One alternative, and perhaps the most appropriate one, is to undertake large-scale production in low-salt waters with the main use for non-food purposes (bio-refining and production of substrates for the pharmaceutical, cosmetic and other industries). At the same time, such production will generate the right amount of raw materials to be offered on the food market - both in the form of convenience and ultra-fresh.

Based on available calculations - such production can only be profitable with public support - in return for invaluable environmental services (reduction of eutrophication, accumulation of CO₂).

GRASS

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