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Seaweed Stories

EXPLORING THE BLUE FIELDS OF ÖRESUND

INTRODUCTION

”The seaweed was in the sea. That’s how it was supposed to be. And in the autumn, they had a jetty where it could be caught.” My neighbour on Sweden’s south coast tells me about seaweed in the past — “the poor man’s fertilizer” — as it was called back then. He tells me that the farms further inland from the shore never used seaweed, they could afford to buy fertilizer instead. “The location for storing it was important”, he says. The seaweed had to be drained off before it could be taken home. Access to a marine resource was the main thing. These days, he hauls the seaweed up using his tractor. ”I just drive down to the pier and pick it up, no one else uses it.”

This is a story about the making of marine seaweed as a value-creating phenomenon, commodity and resource. How can we investigate the relationship between humans and seaweed? How do marine markets emerge during the performance of future consumption and production in the cultural economy of food (Wilk 2009)? In the flow between resources, processes, markets and everyday food consumption, there are different actors, practices, and systems. Here, there are societal structures which can be more or less open to change, thus working as barriers to new food resources (Falk, 1994; Mintz, 1996). This requires deeper insight into the various practices involved in the systems constituting the flow between food resource and consumer (Warde 2016).

The marine environment has an important part to play in the change-over to a green economy, where the blue fields of the sea can form new and expanded cultivation spaces (Doumeizel et al. 2021). Macro algae can be cultivated or harvested for food produc-

tion (Mouritsen et al. 2013; Birch et al. 2019) but also for reducing eutrophication and as a renewable source of energy (Monagail et al. 2017, Hasselström et al. 2018). In the agriculture and food sector, there are great expectations regarding this flourishing aquaculture, with algae often being described as a sustainable alternative and a successful example of green biotechnology (Hasselström et al. 2020).

The seas and oceans have always been a resource for food, containing complex ecosystems providing valuable biodiversity. In recent years, there has been increasing interest in using seaweed as food in Europe (Wendin et al. 2020). Seaweeds are recognized for their nutritional value and unique flavor, color and textural properties, and they have become a popular raw material among top chefs, as well as opinion shapers in the food retail segment (Mouritsen 2017). Aquaculture, and especially algae aquaculture, shows a potential significant enough to overcome the challenge of increasing food demand. Algae biomass can either be used directly as food or indirectly in food and non-food applications. An important basis for the extended use of seaweed as food is the availability of sustainably-farmed biomass.

The sustainable production of agricultural resources for food and food additives is facing significant challenges due to the increasing world population and limitations to cultivable land. There is a need to explore alternative markets, production sites and food sources of great capacity and consumer acceptance, as well as a low need for fertilization. Along with the need to increase the production of food in a sustainable way, the stages between producer and consumer have become more numerous, while the flow of goods has become more difficult to understand, manage and control. Increasing numbers of consumers are demanding ethical responsibility, sustainability and traceability in the goods they purchase (Connolly and Prothero 2008; Moisaner 2008; Jackson 2010; Miller 2012; Evans 2019). Water, energy, natural resources and waste are the dominant pressure areas in the discussion concerning sustainable consumption.

SEAWEED HABITATS

Down by the water, the seaweed is thick and fermenting. The rotting strip of brown bladderwrack sways in the water. The steam makes its mark against the cold February sun. Seagulls look for food among the warm sludge. The eel grass is still green and weaves the seaweed together into a winding belt.

Seaweed is an algae we can see with the naked eye. Today, we know that algae is important for biodiversity. We know that seaweed constitutes a protective habitat for many small animals. Seaweed lives in the gaps. Where sea meets land, seaweed has silently been swaying for 1.5 billion years. As one of the Earth's oldest living organisms, seaweed hugs our shores, clinging to our legs as it reaches toward the sunlight. Bladderwrack shimmers in endless shades of brown, green, yellow. Bubbles of air help it to stand firmly, even in restless waters. It has been called the savior of the Baltic Sea, and it can live for up to fifty years.



"There's no bottom to it," my neighbor says.

People sometimes sink into the pulsating mass. There are stories of people disappearing. But that was a long time ago. Now the municipality cleans up most of it, at least before the summer season, and the sea takes care of the rest.

There was a time when seaweed commanded a high value in the traditional coastal landscape economy. As a fertilizer and soil improver, as insulation material and filler. Seaweed has also been used as a sustainable building material. On the Danish island of Læsø, houses with seaweed roofs are still there, and they will last for centuries. Seaweed was livestock food, and infrequently also human food.

During Carolus Linnaeus' trip to the Swedish island of Gotland, he observed how farmers mixed cooked seaweed with flour before feeding it to pigs. For women, the seaweed blown ashore could supplement the meagre fishing, and perhaps also help to feed sheep and chickens. Seaweed made soup more nutritious, and could also serve as extra fuel. But above all, it was an important fertilizer for small potato fields. No money was needed to get seaweed. The kind of work that children and old people could do was enough.

Until 1869, farmers in Stora Hult in Scania were allowed to collect seaweed at any time of the day. When the flag was raised, you were allowed to pick it up. It was piled up on the beach, and made a desirable and highly-valued resource. Sometimes, farmers had

to take turns guarding “Bjäre gold” during long nights to prevent repeated thefts of it. The problem of theft grew during the latter part of the 19th century, and a special by-law order was established to regulate distribution. After that, no one was allowed to collect seaweed from the beach before sunrise. It was also decided that seaweed was not a commodity: Anyone who tried to sell it down on the beach would have to pay a fine. Collecting and using the seaweed that had been blown ashore was a valuable right to protect. The beaches were kept clean and no one had heard of algae blooming.



SEAWEED EXPERIENCES

Today, there is no infrastructure for seaweed as a domestic resource. Most often, it is considered a problem by the municipality and tourists when the visibility of seaweed suddenly increases for a few months every summer (Hultman et al. 2023). Seaweed rotting at the water's edge obscures the sandy beach and creates a haven for unwanted birds, flies and other insects. It becomes a threat to the hospitality industry and coastal life during the summer. The responsibility for maintaining and cleaning beaches shifts, sometimes falling between stools. Who takes care of the smell of seaweed when the beach is privately owned? The seaweed that washes up on beaches is mostly considered part of the natural cycle. Environmental legislation requires that there is a danger to human health before a municipality can force a landowner to remove seaweed.



Seaweed activates several of our senses. You can smell and feel it, you can experience it in different ways. Among the answers to a questionnaire sent out on the topic of seaweed and algae, sensory memories and experiences are a consistent theme. Many people say they love the sea, but few love the smell of rotten seaweed. But seaweed can also be perceived as something safe and familiar. A woman who grew up on Sweden's south coast says that the smell of seaweed is something she experiences positively:

When I think of seaweed, I think of my childhood in Trelleborg. I think of the sea where a lot of seaweed has floated up on to the shore. I think of algae in the sea that felt slimy. When I moved and then came back to visit, I could smell the seaweed even as we were driving into Trelleborg. It always put me at ease and made me feel comfortable.

Other memories concern how it felt to play with the seaweed, to break the blisters or make green "snowballs" from the smooth green algae. Or maybe to look for amber that was stuck in the seaweed after the autumn storms, or swimming with a childhood friend: "We wore seaweed garlands in our hair, us — old dears!" Someone remembers the nice and healthy seaweed baths thus:

It was just wonderful to step into the warm water in the old tubs and have seaweed covering your body like a blanket. After a while someone came in and scrubbed your back, arms and legs with bladderwrack. Afterwards, we drank tea and listened to the howling of the wind, and the waves crashing outside.

THE WOMEN OF THE SEA

Seaweed practices and experiences can be organized in different ways. Today, we often look towards geographically — or historically — distant practices to create a culinary heritage (Lysaght 2013). Future challenges require new visions and new narratives.

One such narrative is the story of the women of the sea. The Korean tradition of *haenyeo* is a female practice whereby women dive for food in the sea. The women, often in their seventies or older, are said to be able to free-dive down to a depth of twenty meters, supporting entire families with their catches. The women of the sea wear simple diving suits with colorful t-shirts on top, and have been portrayed by promoter Min Jeong Ko, whose own grandmother was a *haenyeo*. To be able to dive without tubes requires a special breathing technique and the visualization of these women's work defines a special state of symbiosis with the sea, the waves and the storms. To guarantee regrowth, there are also strict regulations regarding what may be caught or harvested from the sea. The number of practitioners, however, is decreasing every year and this female diving tradition has been listed as an intangible cultural heritage by UNESCO.

In Sweden, seaweed is being harvested again and "seaweed diver" has been established as a new profession, often with reference to the female role models of Korea and Japan. Among green entrepreneurs on Sweden's west coast, marine resources have been gaining an important role during the transformation to more circular supply chains. Through guided seaweed safaris that include self-picking, species identification and cooking courses, a local economy is being created around a marine resource (Merkel et al. 2021, Fredriksson and Säwe, *forthcoming*). Harvesting below the surface has become a practice to learn, with wild seaweed best being picked in cold water. The hand-picked raw material is delivered to selected restaurants and retailers. The seaweed comes loaded with new value and future promises of useful and health-giving benefits.

SEAWEED CHALLENGES

Seaweed, as a natural resource, organizes parts of society and various practices (Appadurai 1986; Douglas 1975; Kaufman 2010). It is also a protective community for other living creatures. But what if we run out of seaweed in the future? Even though it seems like the visibility of seaweed has increased in recent years (wrong place, wrong time), there seems to have been even more seaweed before. Bladderwrack is said to have existed in significantly deeper waters in the Baltic Sea during the last century. More plankton, more nutrition and poorer visibility are some of the reasons why seaweed is now gravitating closer to the surface.

In various contexts, efforts are being made to increase knowledge of our threatened seaweed. Marine centers want to create a new "ocean consciousness", while ongoing research has invited the public to submit "bladderwrack everyday-observations". The aim here is to produce new knowledge of the number of small animals living among seaweed, and of how



these numbers vary with time and space. By shaking bladderwrack over a washbasin, and counting the small animals that tumble off it, each of us can contribute to this research. In order not to harm the ecosystem, both the bladderwrack and its inhabitants should preferably be returned to the sea after the survey. Other things we can do to make life easier for bladderwrack include: stop peeing in the sea and scrub stones and rocks clean of fine filamentous algae so that bladderwrack can more easily gain a foothold.

For those active in marine restoration work, new knowledge is constantly being gained regarding the regrowth of the blue forests of the Baltic Sea. A recurring perspective in many of the statements intended to increase our knowledge of threatened natural resources is the “empathic method”. With its roots in design and innovation theory, the empathic approach is an important tool for creating knowledge through understanding and participation. Attributing human characteristics to nature was an early utopian approach used in Rachel Carson’s pioneering texts about the sea. In giving seaweed its own agency, with a soul and a will, empathy and new insights can be created. What happens if we take the perspective of bladderwrack? How do we want to be treated?

SEAWEED MAGIC

Today we see a growing interest in the forgotten resource of seaweed. Seaweed can be an important part of a sustainable lifestyle, as well as a key metaphor for a sustainable future in harmony with nature. Seaweed recipes and their health benefits are being

shared on social media. But there are also doubts about what seaweed actually contains. Eating seaweed is still unfamiliar to many in the Nordic countries, although sushi and seaweed caviar have found their place in specific consumer contexts (Chapman et al. 2015; Wendin et al. 2020). Contemporary consumer culture is characterized by an increased interest in new foods, while many people are hanging on to traditional eating practices. Developments in gastronomy in Sweden have changed from the idea of a “New Nordic Cuisine” to a national food strategy, focusing more on sustainability and resilience of the food sector than on culinary experiences (Jönsson 2013; 2020; Neuman and Leer 2018).



Interest in growing or harvesting seaweed has also increased in Sweden, not least due to several research projects addressing its climate-smart benefits. Expectations regarding utopian aquaculture are high, with seaweed as a future protein source, and ecosystem services are frequently being emphasized as seaweed absorbs nitrogen and phosphorus from the sea. Seaweed is a contradictory phenomenon pointing into the future.

There are animals and there are plants, and then there is algae. Algae has its own kingdom. A magical phylum in the gap between plants and animals. Seaweed is a forest in the sea where water slaters graze, where crayfish crawl between clams and sea brush worms. The synchronized swarming of seaweed follows the tides and lunar gravity. This ancient ritual is still taking place and is a holdover from when seaweed only grew in the intertidal zone. Moonlight increases opportunities for female and male plants to reach each other. Who can resist a love story like that?

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ILLUSTRATIONS

All illustrations by Cecilia Fredriksson. The image on page 43 is a detail of the watercolour on page 46.