

Urban fishfarm using industrial residual heat

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Tilapia - *Oreochromis niloticus*.

Today

- Industrial symbiosis
- Production and sales
- End product and consumer perspective

Background

Bergsöe in Landskrona is the Nordic region's only secondary smelter for lead and one of Europe's biggest recyclers of used lead-acid batteries.

Residual heat

Can a smelter produce foodstuff without contaminating it?



30 GWh residual heat annually
(75 degrees)

Empty facilities

Staff and operations 24/7

Water treatment plant

Environmental competence





Linje
1

TA 021



14

Kvast

Skyffel

Grum
skrap



UV 031

CombiBio 15

ProfiDrum

TA 031

xclear

xclear

TA



UV 041

31

1000 L (26.4 US GAL) 1000 L (26.4 US GAL) 1000 L (26.4 US GAL)
1000 L (26.4 US GAL) 1000 L (26.4 US GAL) 1000 L (26.4 US GAL)
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Registered trademark (®)

100 % owned by Boliden Bergsöe

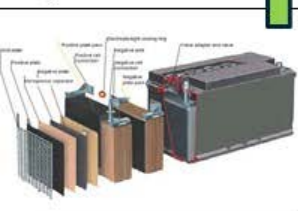
2 tons of tilapia (2017)

Greenlisted

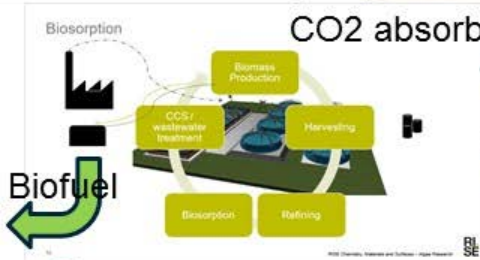
Contract with Bergendahls Food

Consumerprice 129 SEK/kg (13 €)

Recycling rate
99% of lead batteries
97,3% of lead
73,7% of batteries



20GWh/annually
2-3000 households



CO2 absorbtion

Biomass

Premises
Residual heat
Know how



KOLLOM

Fertilizer



Fishfeed



WWFs råd
ÄT GÄRNA
om den är ASC-certifierad
om den är colliad i slutna landförsädrade recirkulerande system (RAS)
LÅT BLI
om den är colliad i Sydamerika, Asien eller i Egypten



Fluegas



NSR Biogas



Project KOLLOM

Aquaponic system and
alternative protein



Challenges

Sweden

1. Discrepancy between authorities, and import, production and sales.
2. Increased knowledge and marked communication regarding local production (incl aquaculture products) **AND** consumption (consumers, grocery stores, restaurants, wholesales etc)
3. Increased profitability=increased production or/and price=increased amount of fishfeed (sustainable sources) =EIA (Environmental Impact Assessment).
4. Widen the perspective, knowledge and acceptance of alternative food production.
5. Pricing on local/national, sustainable, environmentally superior food production needs to be motivated and defended.
6. Food waste. Challenges in selling and cooking whole fish. Refined fish huge market share and higher price.
7. Cooperation within the industry and between fishfarmers.
8. The KRAV label is well known – aided awareness is 98%! Land based aquacultures can never earn this.



Expectations Farmers day, RAS Nordic

Feedback, input and contacts

Growing pains

- Increasing demand
- Production stability and balance

Market communication

Product development

Refining or not?

Suppliers

- Equipment and larvae

We are humble beginners (*with benefits*).

**Thank you for
listening!**

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