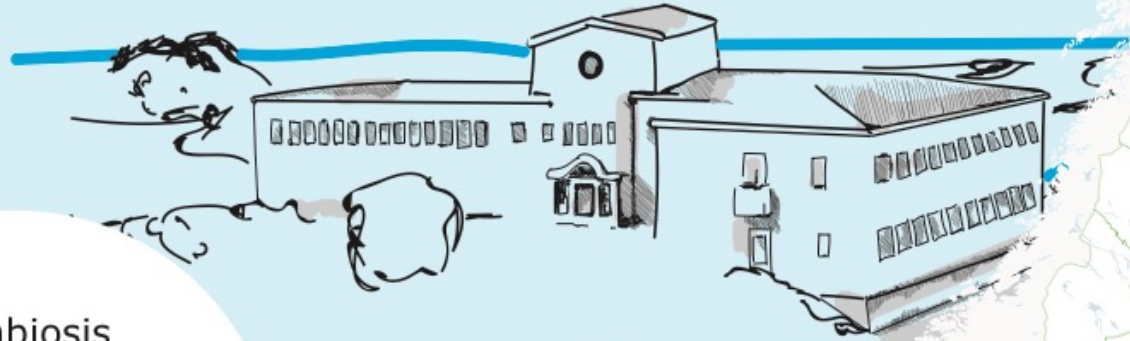




INDUSTRIAL AND SOCIAL SYMBIOSIS IN SOTENÄS

CENTER OF SYMBIOSIS




Symbiosis
Lifelong learning
University West
Sustainable development
Companies
Tourism
Public Health



SOTENÄS
MUNICIPALITY

- **9000 residents, 14000 part-time residents, up to 1 000 000 visitors every year**
- **Place for Sweden's leading marine food industry**

- 
- **Small municipality with complex challenges**
 - **Two important industries/fields of businesses that must co-exist**

Industrial symbiosis:

The science of leftovers!

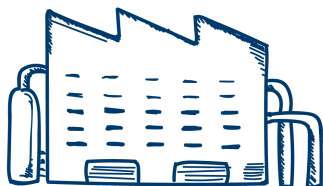
A path towards a
circular economy

Going from linear to
circular production



Symbiosis in Sotenäs

- In 2011 the municipality began to think in a new way
- 2012 the private company Renahav was founded
- After a study visit in 2013, to Kalundborg in Denmark, Sotenäs realized that they already had begun the work with symbiosis
- In 2015, the municipal platform "Sotenäs Centre of Symbiosis" was founded



Local challenges required new thinking!

Challenges connected to the marine food industries

*Joel will tell you
more about this soon*



Orkla



Lerøy

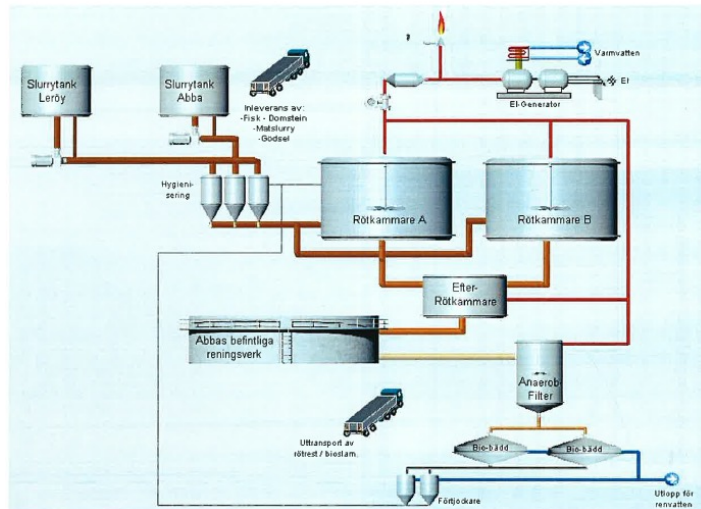


Marenor

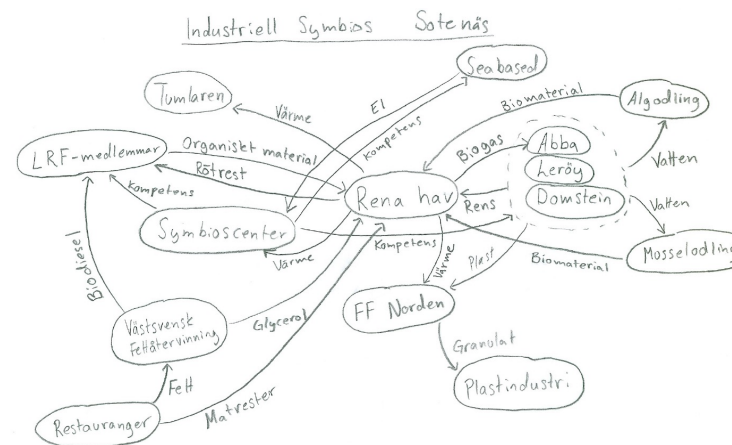


Symbiosis is dynamic and constantly evolves

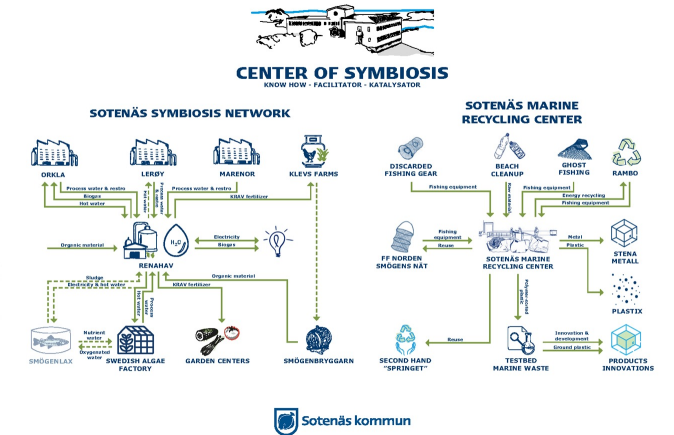
Sketch by industries 2012

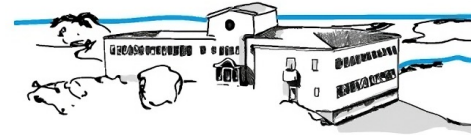


Sketch by municipality 2013



Sketch by municipality 2022



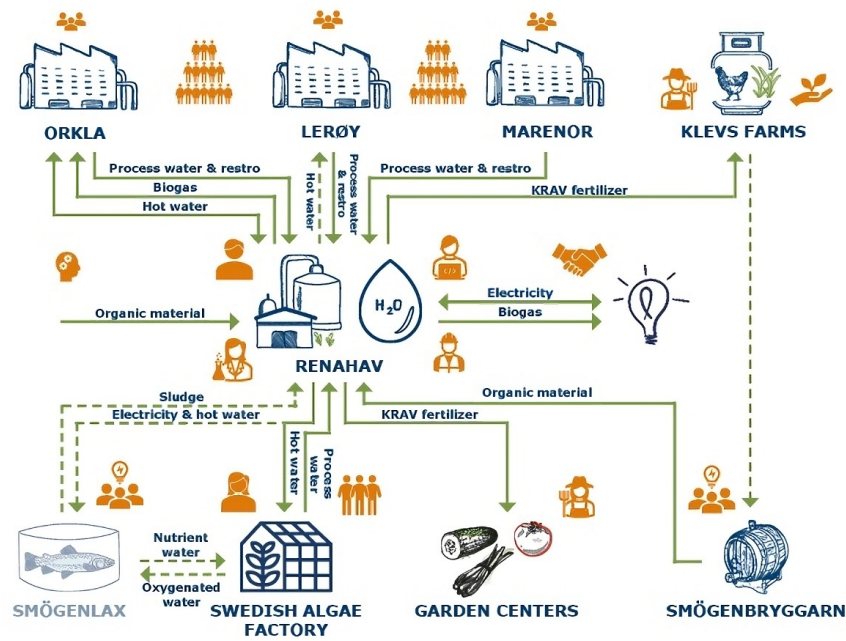


CENTER OF SYMBIOSIS

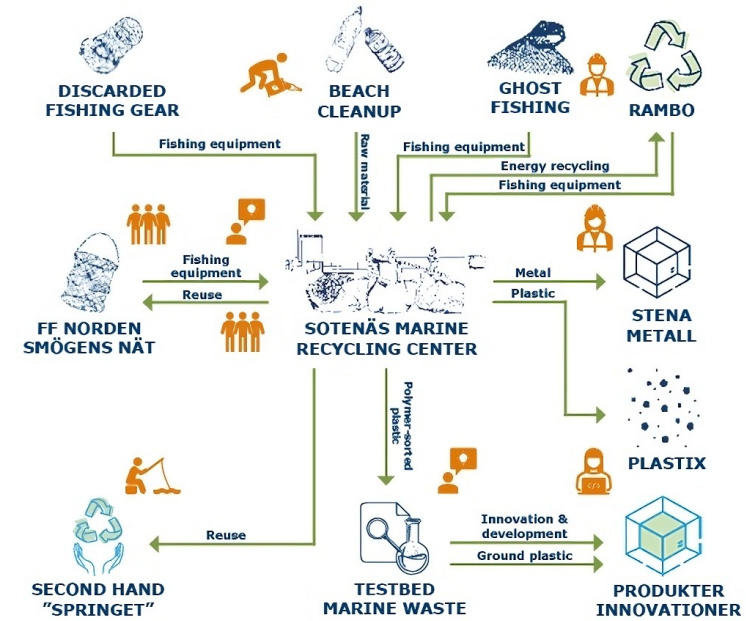
KNOW HOW - FACILITATOR - KATALYSATOR



SOTENÄS SYMBIOSIS NETWORK

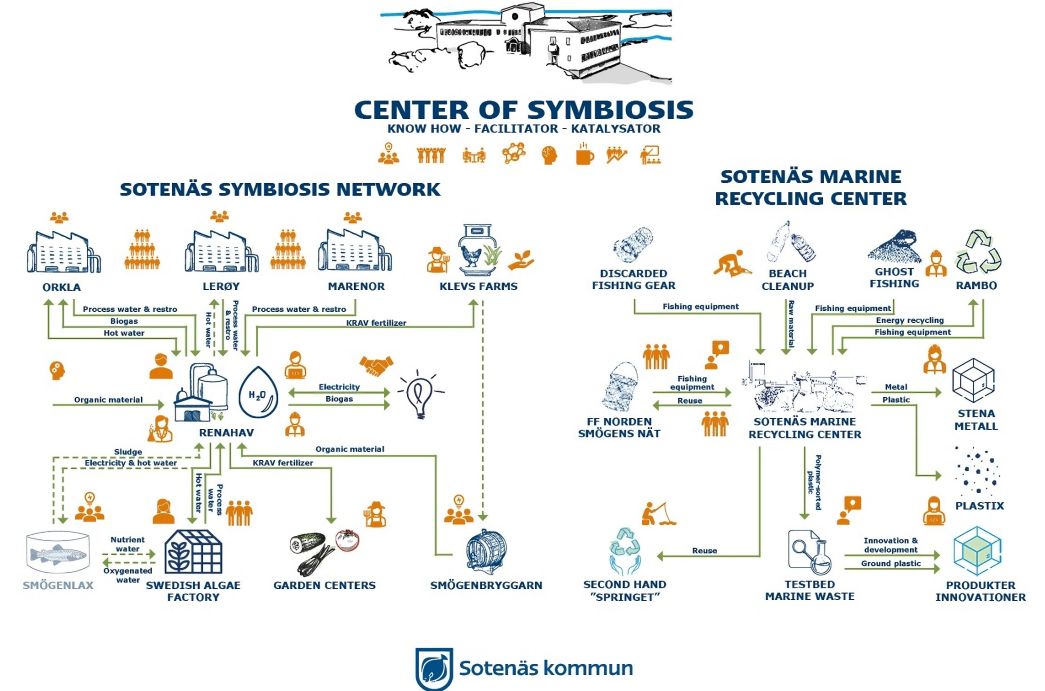


SOTENÄS MARINE RECYCLING CENTER



Symbiosis creates opportunities!

- People, people, people
- Solve obstacles by finding the opportunities
- Innovation fosters more innovation
- Connects marine food industry to farming
- Creates local resilience
 - Energy, fertilizers, food
- Achieves the Green deal!



10 years of symbiosis –remember the challenge?

“Swedens most sustainable industrial cluster” –*University of Linköping, 2022*



Så skapades Sveriges mest hållbara industrikluster

08 februari 2022

John Marthinson

 Skriv ut

Sotenäs kommun vände den lokala industrins negativa miljöpåverkan till strategi för lokal och hållbar utveckling med hjälp av ett gäng lokala entreprenörer, entusiastiska tjänstemän och forskningsbaserade metoder. Idag är symbiosen i Sotenäs Sveriges kanske bästa exempel på cirkulär ekonomi.



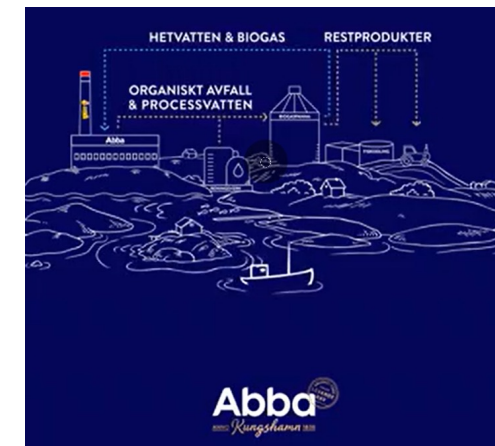
Renahav visar upp sina lokaler under Biogasresan 2021. Foto: John Marthinson.

Industriell symbios
minskar miljöpåverkan

Prognos

Under en femårsperiod uppskattas de årliga utsläppen av CO₂-ekv minska med 60 000 ton, övergödning med 388 ton fosfater och transporter med 19 miljoner tonkm.

10 years after the first symbiosis sketches – local growth, new companies and new ideas



Havet ger oss mat, energi och växtkraft

Symbios i Sotenäs

Sotenäs kommun är centrum för fisk och skaldjur i Sverige, med de största producenterna av förädlad mat från havet. Men vi omvandlar även restprodukten till en rik resurs, som visas i denna process. Sotenäs Symbios är ett konkret exempel på cirkulär ekonomi.

Resursnyttjande

av organiska rester:

21 529

ton, senaste 365 dagarna.

Näringsämnen

utvunna ur processvattnet:

0

ton av kväve, fosfor och TOC senaste 365 dagarna.

Energiproduktion

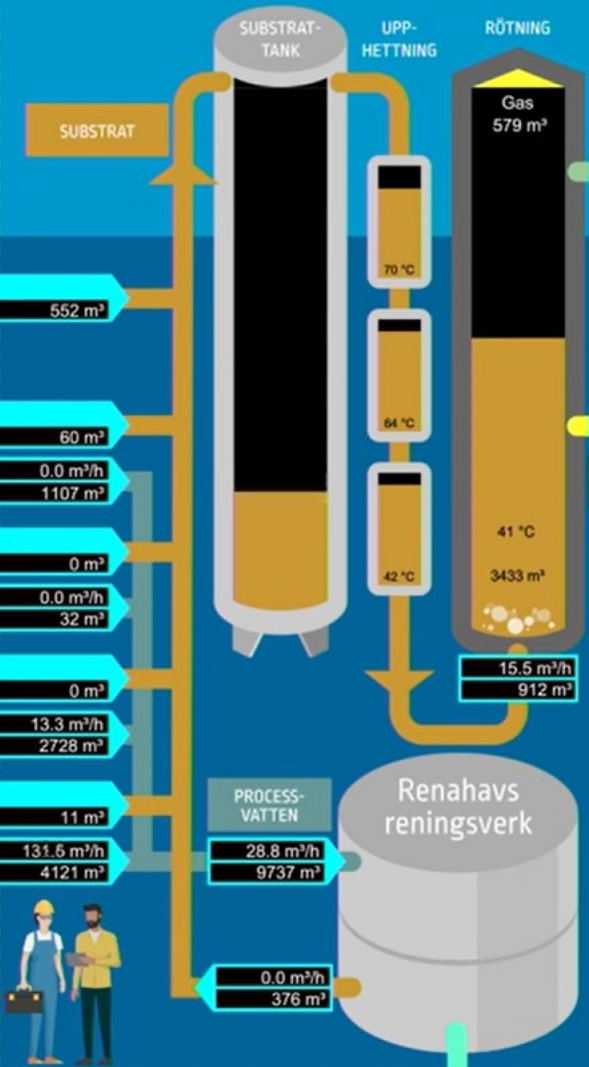
motsvarande:

2119

villors förbrukning just nu.

Realtid

30 senaste dagarna



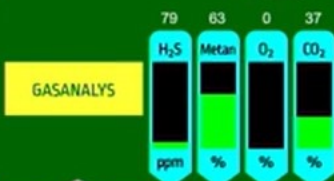
Renahav

MÄSTER Bengts VÄXTNÄRING

GODKÄND FÖR EKOLOGISK ODLING

KRAV

BIOGÖDSSEL

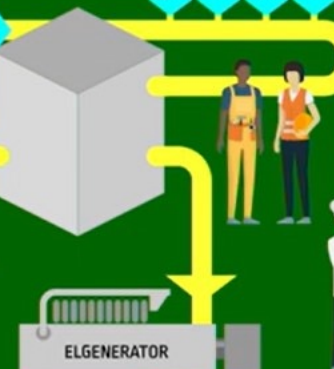


795 m³

474.7 m³/h

97223 m³

BIOGAS



KLEVS GÅRD

Lokalt lantbruk som på sina 500 hektar årligen använder cirka 17000 m³ av Renahavs biogödsel. Det ger följande skörd:

Vete

motsvarande:

16 970 668

kanelbullar per år.

Ärtor

motsvarande:

1 455 817

portioner ärtsoppa per år.

Raps

motsvarande:

35 356

liter pressad rapsolja per år.

Havre

motsvarande:

7 183 352

portioner havregrynsgrot per år.

Gräs

motsvarande:

165

antal fotbollsplaner per år.

Symbioscentrum



Sotenäs kommun

174 kW

35 MWh

ALLMÄNNA KRAFTNÄTET

Why symbiosis is important for a municipality

- Innovation occurs in a small rural municipality
- Symbiosis attracts external companies
- Attracts research and development

- Our companies are front runners in the green transition

- **Show that Sotenäs is a dynamic municipality to live and work in**
 - The countryside is fighting for the sustainable companies and creative residents
 - Municipalities must be able to offer something that stands out

The municipality's role

- Social symbiosis
- Neutral platform for the symbiosis network
- Land, building permits and detail plans
- Can function as link to the innovation system
- Can coordinate development projects
- Link to strategic actors and networks
- Offer coffee!

The company's role

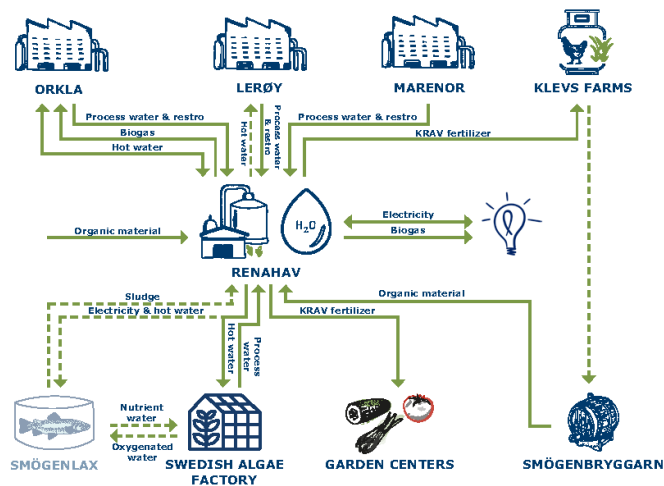
- Industrial symbiosis
- The companies support & own the symbiosis flows
- Stable deals/agreements regarding resource flows
 - The forerunners and those who take the risks
- Break the linear mindset
 - Go from waste costs to resource thinking
 - Find new business opportunities
 - Build smart and sustainable businesses
 - Branding that enables future resilience
 - Answers to the consumers and employees new demands

SOTENÄS CENTER OF SYMBIOSIS

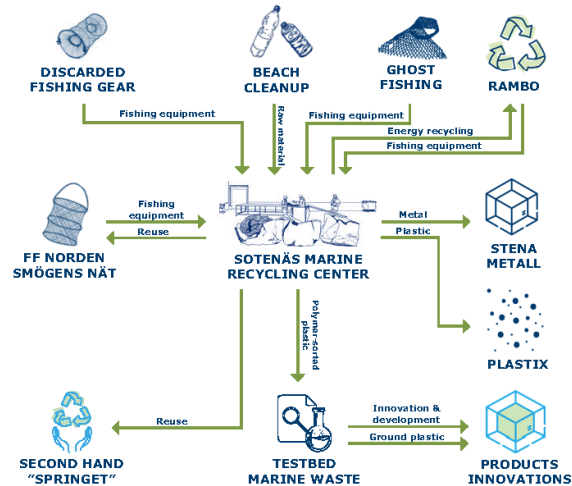


CENTER OF SYMBIOSIS
KNOW HOW - FACILITATOR - KATALYSATOR

SOTENÄS SYMBIOSIS NETWORK



SOTENÄS MARINE RECYCLING CENTER



CENTER OF SYMBIOSIS

FACILITATOR & SUPPORT

EDUCATION & COMPETENS BROKER

FYSICAL PLACE FOR COLLABORATION

SYMBIOSIS DEVELOPMENT & NETWORKING

A SYMBIOSIS NETWORK BASED ON COLLABORATION

BUSINESSES - ACADEMIA - INSTITUTIONS -

LOCAL AUTHORITIES - NEIGHBOURING

MUNICIPALITIES - REGION - ETC.

Want to learn more?

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www.symbioscentrum.se

