Interreg Baltic Sea Region

EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND

Blue Platform

SYKE

SUB MARINER NETWORK

Blue biotechnology and aquaculture in Finland

Anne-Mari Luhtanen
Finnish Environment Institute

27th BSSC Annual Conference 2019, Klaipeda

Blue bioeconomy in Finland

- National development plan for the blue bioeconomy 2025 (2016)
  - Wellbeing and services (recreational use, tourism)
  - Bioproducts and production (energy, food)
  - Water know-how and technology (water saving technology, purification, ecology, nutrient cycling)
  - Energy, nutrients, industrial symbiosis (wave energy, nutrient take-up with organisms, combined industial processes)

- Out of Blue - Research and competence building agenda on the blue bioeconomy (2018)
- Blue bioeconomy defined to be important, value still low

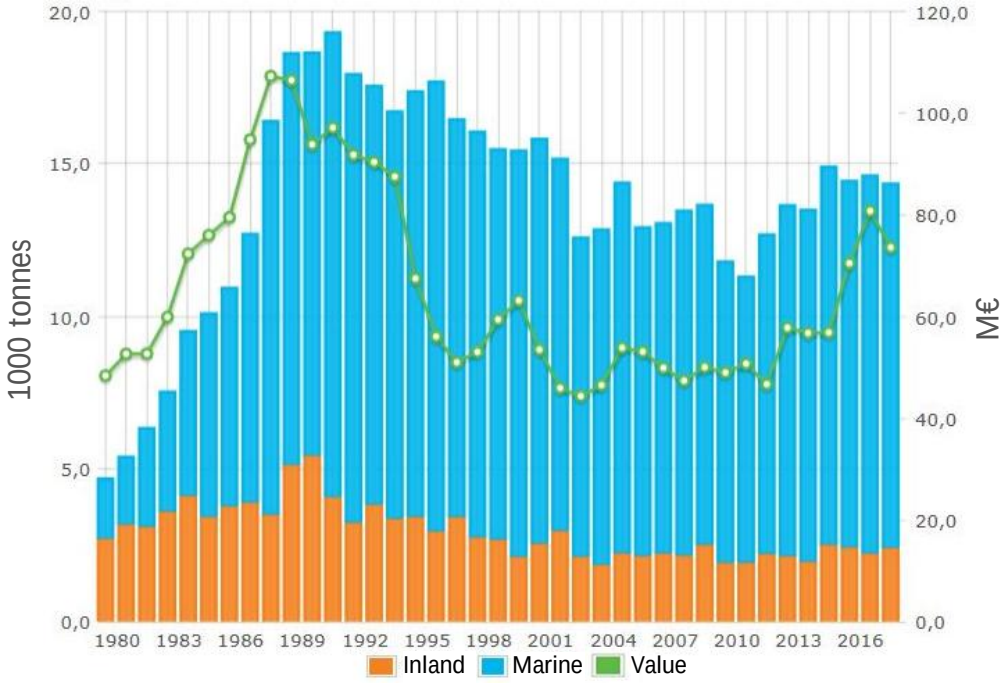
Finland: Research and competence building agenda in blue bioeconomy

Priority areas (UN Sustainable Development Goals)

2 ZERO HUNGER	6 CLEAN WATER AND SANITATION	7 AFFORDABLE AND CLEAN ENERGY	14 LIFE BELOW WATER	13 CLIMATE ACTION	3 GOOD HEALTH AND WELL-BEING
Sustainable fishing and aquaculture	Technology for water purification and water saving processes	Wind, wave and heat energy, bioenergy	Reducing nutrient releases, nutrient uptake	Controlling nutrient runoff, production of new species	Wellbeing products and services, sustainable nature tourism

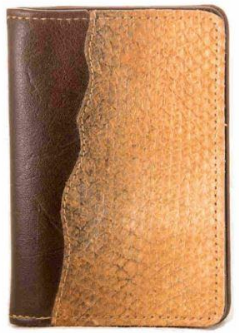
Fish aquaculture in Finland

- Production 2018 14,000 tonnes
- Selective breeding
- Development of more sustainable feed and feeding techniques
- Spatial planning
- Development of Recirculating Aquaculture Systems (RAS)
- Usage of side products



Fish aquaculture side products

- Collagen: cosmetics
- Gelatin: food additives
- Chitosan: for biomedicine
- Bones: fertilizers
- Oil: dietary suppliments
- Proteins and peptides: nutritional supplements
- Fish waste: bioenergy
- Skin: leather products



Blue biotechnology

Sustainable innovations/development of:

- New food and feed products
- New antibiotics and pharmaceuticals
- New biomaterials

From marine organisms

Blue biotechnology in Finland

Agenda in Finland:

- Education and research: innovations
- Customer orientated solutions
- Strategic collaboration (interdisciplinary, transnational)
- Enabling administration

Blue biotechnology in Finland, examples

Micro algae research
- Bioenergy
- Water purification

Macro algae for food
- GRASS project
- Cultivation, harvesting, legislation

Research on bioplastics as new material

Also the technology to enable processes
- (SFTec Oy: biomass dryer, EHP Environment Ltd: monitoring systems)

Why to cooperate? What is the benefit?

- Blue bioeconomy still in early stage

  ➡ more know-how and expertice can be found from a transnational network
- Possibility to find and share good ideas and practices
- Larger area to collect or harvest biomass or organisms
- Saving public money by sharing the infrastucture (laboratories, pilot plants, research ships, equipment)
- Helps to discuss and align regulation and legislation of e.g. aquaculture

Contact

Anne-Mari Luhtanen
Researcher
Finnish Environment Institute (SYKE)
Phone: +358 400 148 816
e-mail: anne-mari.luhtanen@ymparisto.fi