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State-of-play of innovative technologies in aquaculture in Lithuania

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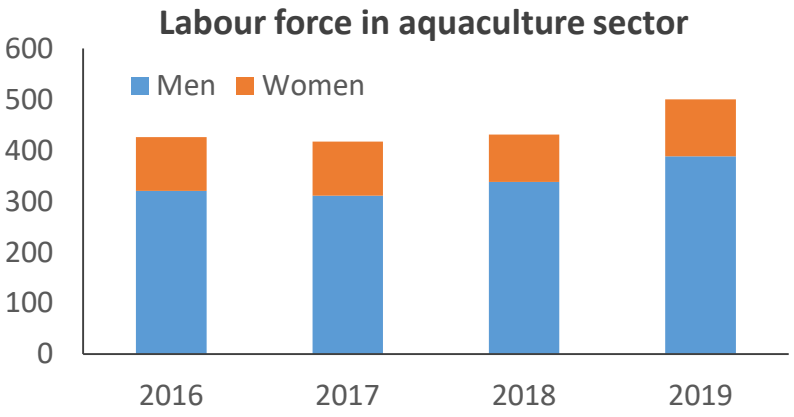
Lihtuanian aquaculture profile

- **Fish consumption in Lithuania is around 16-18 kg per capita (world average is 20 kg per capita, European average – 24 kg per capita**
- **22 traditional pond aquaculture companies, using 9891 ha of ponds**
- **~40 RAS farms, 6562 m^3 of volume in 2019 (3614 m^3 in 2017)**

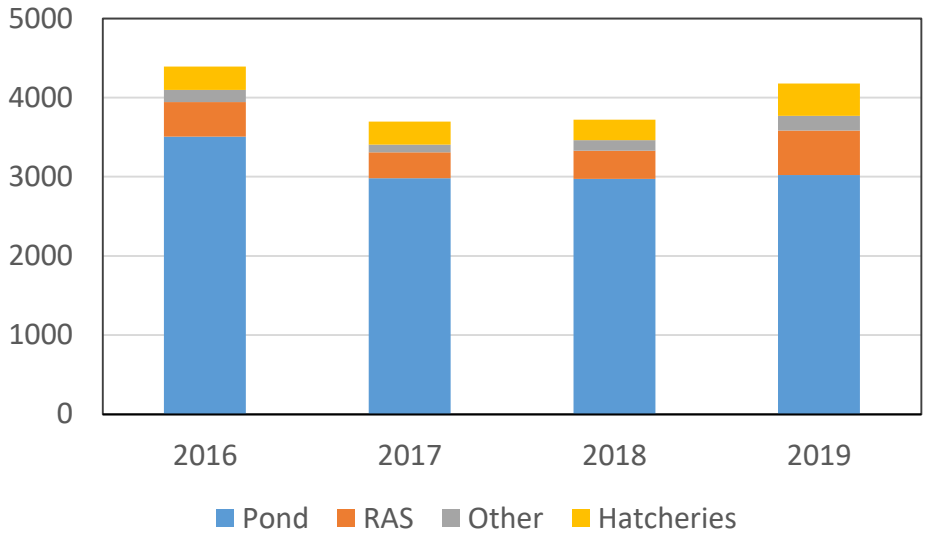


Data from Official Statistics Portal https://osp.stat.gov.lt/web/

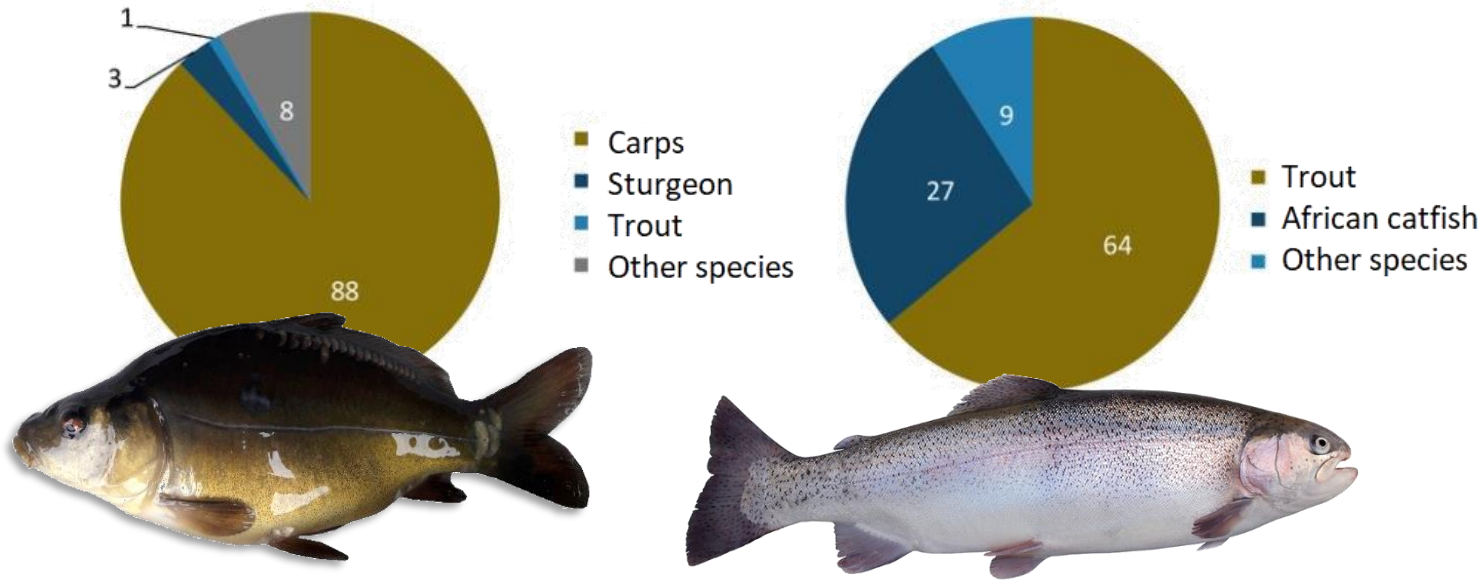
Lihtuanian aquaculture profile

- **Pond aquaculture**
- Species: carp, grass carp, silver carp, tench, catfish, pike, sturgeon, rainbow trout, pikeperch,

- **RAS aquaculture**
- Species: rainbow trout, African catfish, Arctic charr, whiteleg shrimp, pikeperch, eel, sturgeon, tilapia

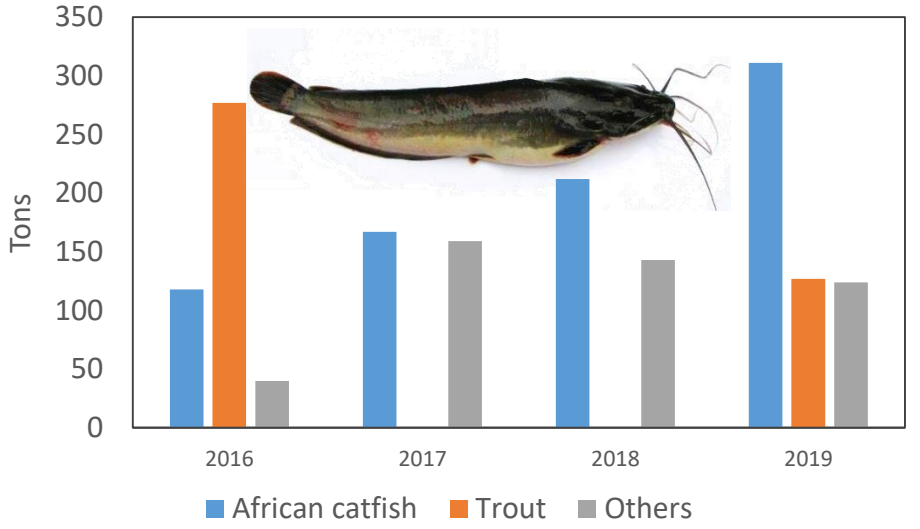


Pond aquaculture 2016



RAS aquaculture 2016

Significant growth in African catfish production



Data from Official Statistics Portal https://osp.stat.gov.lt/web/

Developement of the sector

- **National aquaculture sector development plan 2014-2020**
- Development is supported from Fisheries and Maritime Fund
- Potential of the sector directly depends on skilled personal
  - Šilutė Professional Training Centre
  - Vytautas Magnus University
  - Klaipeda University
- Other scientific facilities:
  - Hatcheries of Fisheries Service
  - Nature Research Center

Klaipeda University
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MCMXXII

ŠILUTĖS PROFESINIO MOKYMO CENTRAS

NACIONALINĖ AKVAKULTŪROS IR ŽUVŲ PRODUKTŲ GAMINTOJŲ ASOCIACIJA

alternatyvios akvakultūros asociacija

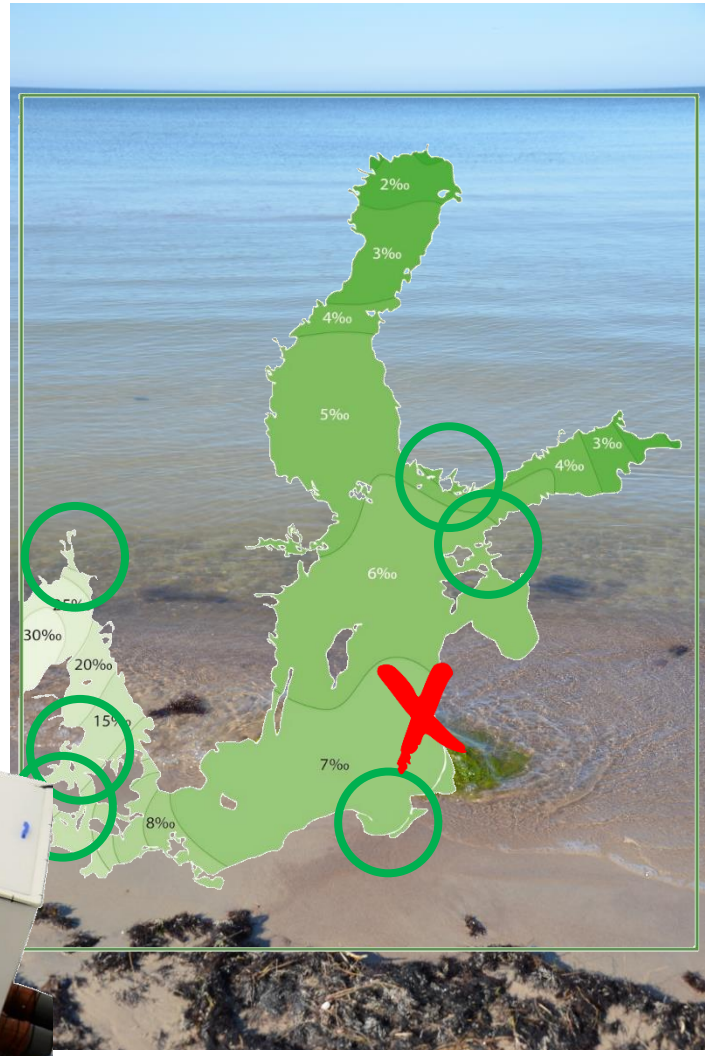
Marine aquaculture in Lithuania?

- **Low salinity for the algae and mussel farming**

- **Challenges for fish mariculture in Lithuanian marine waters:**
  - **Exposed coast - rough hydrological conditions and short wave period**
  - **Low salinity**
  - **Other environmental constraints**
    - **High eutrophication and commitments to Helcom**
    - **Bioinvasions**

2.3.1 pav. Žuvininkystės ūkio vizualizacija virš vandens ir po vandeniu.

Pedersen Line (DK) plans for off-shore farming of rainbow trouts



Solution – land-based marine aquaculture!

Aquaculture in Klaipeda University

- Innovative, blue biotechnology based aquaculture – one of priorities in **Klaipeda blue economy development Strategy 2030**;
- **Fisheries and Aquaculture Laboratory** in MRI – new infrastructure for aquaculture experiments, developement of unique competences and student training
- **Aquaculture Competence Center** established in collaboration with Klaipeda Science and Technology Park
- **Aquaculture Research Programme** based on KU high competences in aquatic ecology, hydrobiology, chemistry, fish biology, also on close collaboration with scientific institutions, aquaculture and biotechnology business.

  - **Marine Recirculating Aquaculture**
  - **Probiotics**
  - **Aquaponics**

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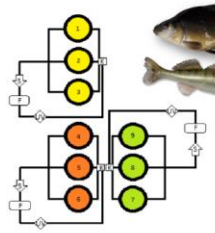
Probiotic application in aquaculture

- **Effects on fish and functioning of aquaculture systems**
- **Patogenic microorganisms control efficiency**
- **Application methodologies and recomendations for partners about product developement**



*Within **Interreg BSR Alliance** after surveys in recirculating and pond aquaculture systems project partner Baltic Probiotics developed and released to the market new probiotic product for sustainable aquaculture **„Smart Fishery"***

Noras LT - Arctic char innovative RAS farm

- Lithuanian-Norwegian JSC Noras LT operates one of the most innovative cold-water RAS farms for Arctic char production
- The company uses state-of-art RAS technology to grow fish from eyed eggs to market size, up to 1.5 kg
- Arctic char is the newest aquacultured species in Lithuania
- Close collaboration with Norwegians, constantly increasing their production capacity and developing new technological solution in expanding farm
- The capacity of farm is increased from initial 75 tons to presently developing infrastructure for 1500 tons of production per year.

NORAS LT

Šamūkis – leaders in catfish production

- African catfish is produced using warm-water recirculating technology and automated water control systems for low environmental impact and sustainable production.
- The African catfish is still mostly cultivated species in RAS aquaculture in Lithuania, however most of the producers face the lack of knowledge in sustainable marketing and creation of high-value products.
- Šamūkis were praised several times for its innovations and success in marketing of their catfish production.

Local Ocean - Whiteleg shrimp bio-floc technology

- Modern, so far the only in Lithuania commercial shrimp farm
- Operates 24 tanks of various sizes (from 3 to 54 cubic meters)
- Farm is running an intensive biofloc-based process
- Farm is also partially using RAS technology for rearing of post-larvae
- Plans for further developement

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Thank You!