2nd TAPAS Workshops 03-12-2019

ON IDENTIFIED BOTTLENECKS IN AQUACULTURE GOVERNANCE AND LICENSING:

Collected articles and presentations

TAPAS

Tools for Assessment and Planning of Aquaculture Sustainability

SANKT-PETERSBURG

2019

This project has received funding from the EU H2020
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2nd TAPAS Workshops 03-12-2019
ON IDENTIFIED BOTTLENECKS IN AQUACULTURE GOVERNANCE AND LICENSING:

Collected articles and presentations

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In the design of the book cover, a picture from a slide from T. Telfer's presentation was used.

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2ND TAPAS WORKSHOPS INTRODUCTION: HOW TO SOLVE THE AQUACULTURE MANAGEMENT PROBLEMS

Korolkova S.V., Head of Department of aquatic bioresources, Russian State Hydrometeorological University, Sankt-Petersburg, Russia
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2nd TAPAS Workshop on identified bottlenecks in aquaculture governance and licensing took place on December 03 2019 in Russian State Hydrometeorological University (RSHU), Saint-Petersburg, Russia.

One of the partners of the TAPAS program is NACEE - Network of Aquaculture Centers in Central-Eastern Europe. It is a non-governmental organization established in 2004 in cooperation with the UN FAO, which unites up to 40 members from 15 countries of Central and Eastern Europe and aims to establish working contacts and interaction in solving scientific and practical problems of fish farms, research institutes and educational institutions working in the field of fisheries. RSHU has been a member of NACEE since 2009. Through its membership in NACEE, it has also participated in the TAPAS program.

One of the" identified bottlenecks" in aquaculture management is the excessive bureaucratic burden on aquaculture enterprises. An important part of the TAPAS program implementation which resulted in 2 International TAPAS Workshops is as follows:

- Identification of these "bottlenecks" in aquaculture management,
- Overcoming of bureaucratic pressure on aquaculture enterprises and the industry in general,
- Facilitating of licensing in aquaculture, i.e. obtaining of permission to use water bodies for aquaculture, allowing the use of certain types of hydrobionts, etc.

Representatives of the participating States: Hungary, Sweden, Belarus, Moldova and Russia - assessed the management system of water bioresources and fisheries in their countries, the laws concerning fish farming, and the procedure and rules for licensing in aquaculture. They identified and pointed out "bottlenecks" in these issues.

As a rule, these were:

- The complexity of managing the industry as a whole,
- Multi-level management,
- The need to draw up a lot of documents in government agencies of different ministries and departments,
- Too long duration of procedure for documents obtaining,
- Relatively high cost of documents,
- The lack of sufficient information,
- Poor communication,

as well as the problems of the industry in general:

- personnel and technical problems,
- negative attitude to the industry,
- environmental risks,
- insufficiency of investment and support, etc.

The decision of how to deal with problems is to implement the Aquaculture Sustainability Toolbox, to follow the recommendations outlined and presented in reports of TAPAS program's

coordinators T.Telfer from University of Stirling, UK, and P.O'Donohoe, Marine Institute, Ireland.

The TAPAS Toobox includes among others the following innovative recommendations:

- Revision and harmonization of legislation in the EU to facilitate the process of obtaining;
- E- Licensing;
- One-stop-shop;
- Obtaining a license for activities in aquaculture;
- Publication of a step-by-step guide for the license applicant;
- Wide public access to information on licensing and discussion of its results.

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PRESENTATION OF THE TAPAS PROJECT

Telfer T., University of Stirling, UK

http://tapas-h2020.eu

TAPAS

Tools for Assessment and Planning of Aquaculture Sustainability

The TAPAS Project

University of Stirling (UK) (coordinator)

- **NIVA** (Norway)
- **DHI** (Denmark)
- **Water Insight BV** (Netherlands)
- **Alterra-Wageningen UR** (Netherlands)
- **Plymouth Marine Laboratory** (UK)
- **Universidad de Murcia** (Spain)
- **Université de Nantes** (France)
- **Hellenic Centre for Marine Research** (Greece)
- **Szent Istvan University** (Hungary)
- **AquaBioTech Group Ltd** (Malta)
- **Marine Institute** (Ireland)
- **NACEE – Eastern European** (Hungary)
- **Aquaculture Stewardship** Council (UK)
- **Fundacion Imdea Aqua** (Spain)
-

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The Challenges for Aquaculture

- Fragmented approaches to aquaculture licensing and regulation, together with limited availability of suitable areas, are a major barrier to future development and expansion of the aquaculture sector.
- There is a need to support member states to establish more efficient regulatory frameworks and to reduce cost and time of licensing aquaculture farms.
- There is a need to ensure there are appropriate tools, models and approaches available to predict and monitor environmental impacts and also quantity ecosystem services provided by aquaculture.
- There is a need to strengthen environmental sustainability of aquaculture and enhance its image.

Aims and objectives

- Identify sustainability requirements and licensing approaches, and **identify bottlenecks** hampering cost-efficient licensing and regulatory practices.
- Identify the gap between the availability of and needs for models, modelling and decision frameworks, and critically analyse and refine existing tools and technologies, developing new approaches if needed.
- Assess the environmental services provided by European aquaculture
- Strengthen management practices and develop an **Aquaculture Sustainability Toolbox** for timely and cost-efficient environmental assessment and regulation

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The TAPAS Project

Strengthened Approaches

- Fieldwork
- Real-time monitoring
- Lab-analysis
- Farm level and large scale modelling
- Policy reviews
- Stakeholder consultation
- Ecosystem services

→ Decisionsupport toolbox

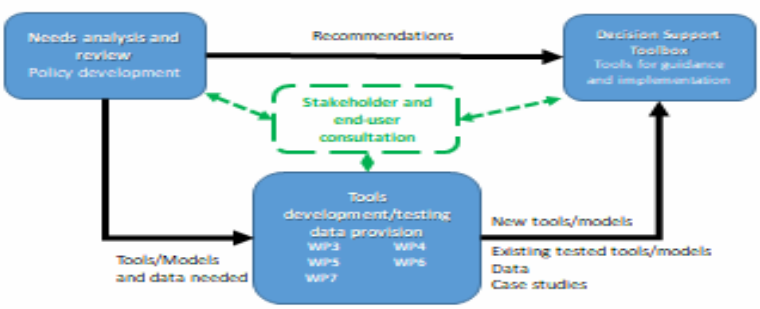
Case Studies

Include production systems throughout Europe:

- Coastal shellfish (France, UK)
- Marine cages (Ireland, Norway, Malta, Greece, Spain)
- Freshwater cages (UK)
- Freshwater ponds (Hungary)
- Recirculating systems (Denmark)
- Integrated multi-trophic aquaculture (IMTA) (Ireland, Malta)

- Feed into the WPs for data provision and validation

Aquaculture Sustainability Toolbox



- Spatial planning tools
- Screening tools for regulation
- Best practice/guidance
- Data repository
- Examples/demonstrations

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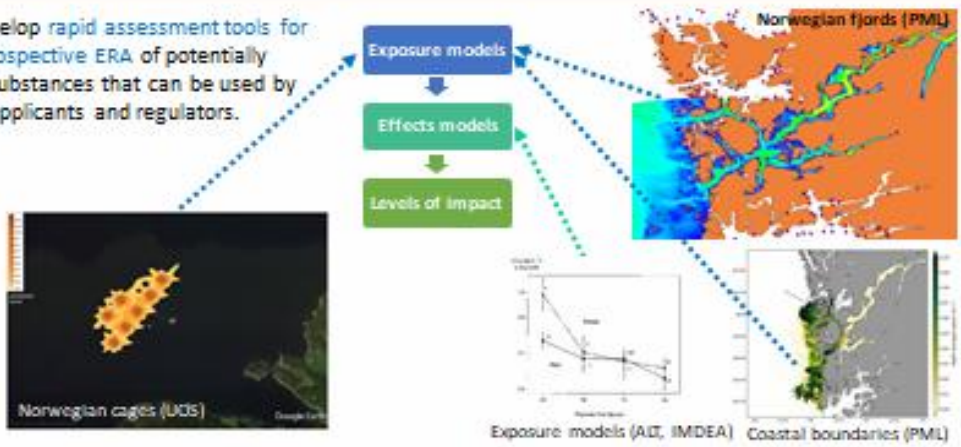
Stakeholder consultation process

Environmental Risk Assessment

To develop rapid assessment tools for the prospective ERA of potentially toxic substances that can be used by farm applicants and regulators.



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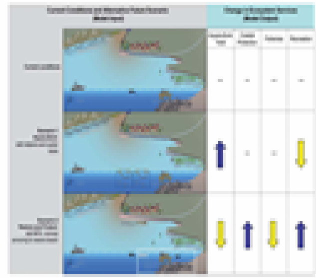
Ecosystem Services

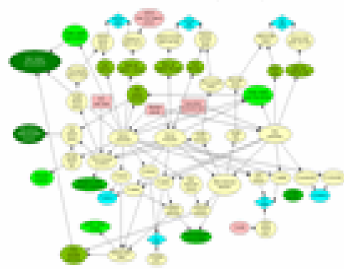
To build an analytical framework for the assessment of ecosystems services (ES) and benefits provided from European aquaculture based on the general concept of Ecosystems services cascades.

To identify what trade-offs and possible synergies that exists between aquaculture provisioning services and other ecosystem services and to be able to quantify these.

To assess how negative trade-offs can be minimized and sustainability improved through management and planning approaches (e.g. selection of adequate sites, species diversification and IMTA) and through adaptations in the farm operating practices .

To analyse how the knowledge gained from assessment of ES and ES trade-offs can be incorporated into current planning and licensing

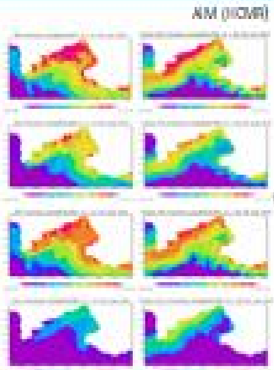


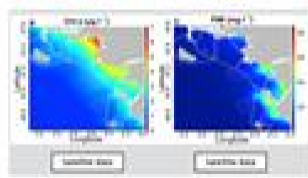


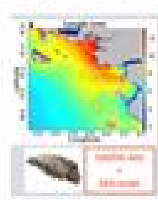
Near-field models

Evaluate capabilities and develop near-field models for the purposes of aquaculture development and regulation in the EU in different environments and for different culture organisms.

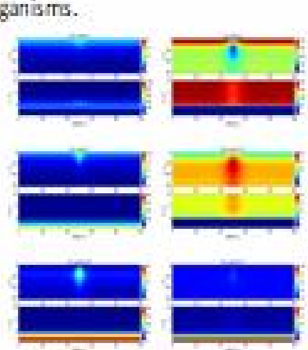
AIM (HCMR)



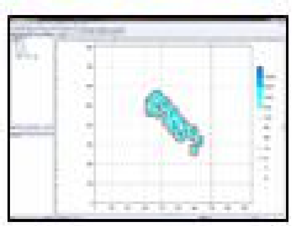




Example of simulation of individual Pacific oyster growth at the scale of a coastal area (UN)



BROM/2DBP (NIVA)



IMTAcages (UOS)

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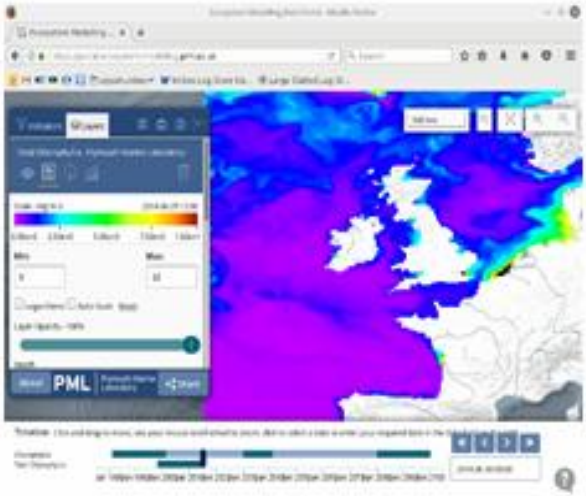
Far-field models

Improve existing approaches to combine Earth Observation and modelling

Develop additional indicators for operational use

Provide relevant far-field models and EO data to the other models and the toolbox



Monitoring and validation

Establish methods for quality control of the large data streams produced by the automated measurement stations

Develop methods to detect emerging problems with water and sediment quality

Develop methods for using the upcoming Copernicus Sentinel-2 MSI

HCMR - Autonomous Underwater Vehicle

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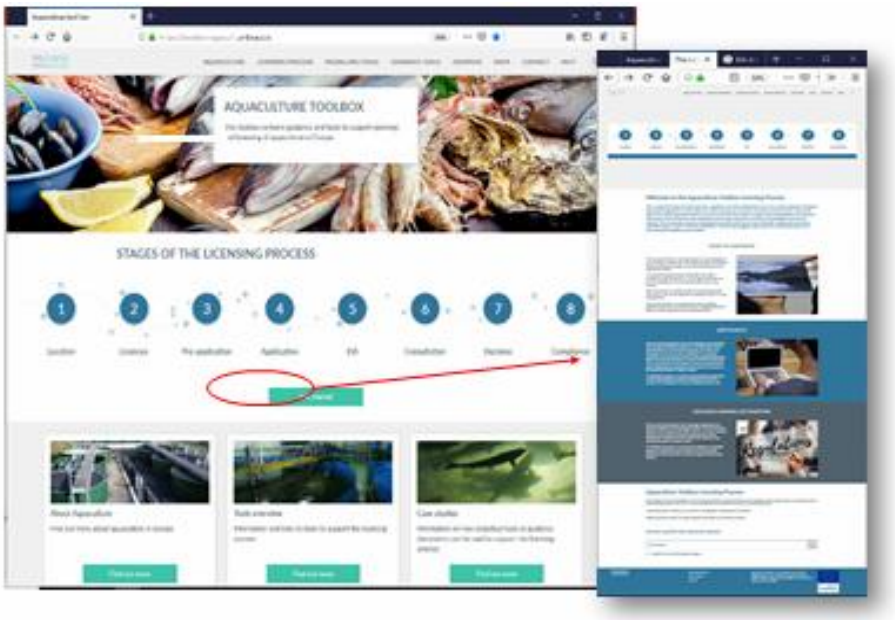
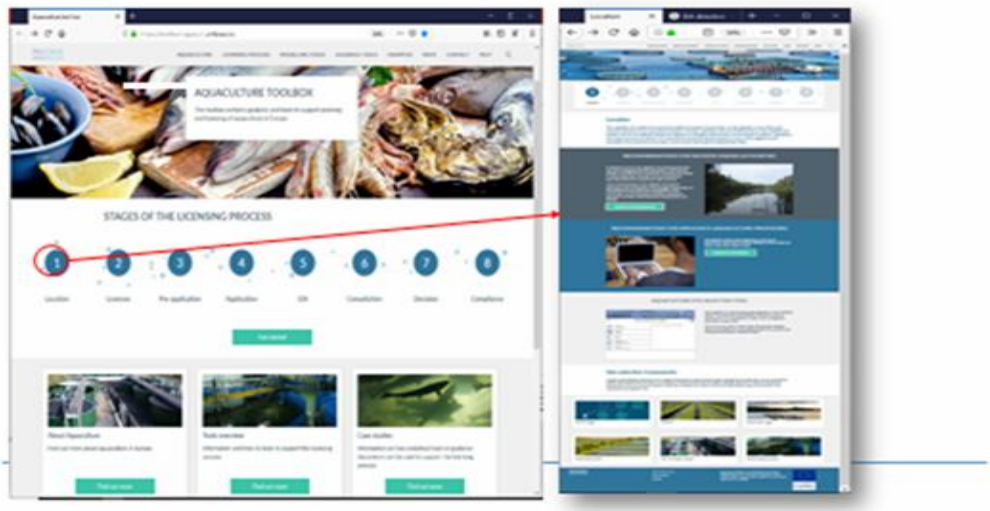
Aquaculture Sustainability Toolbox

Structure & content





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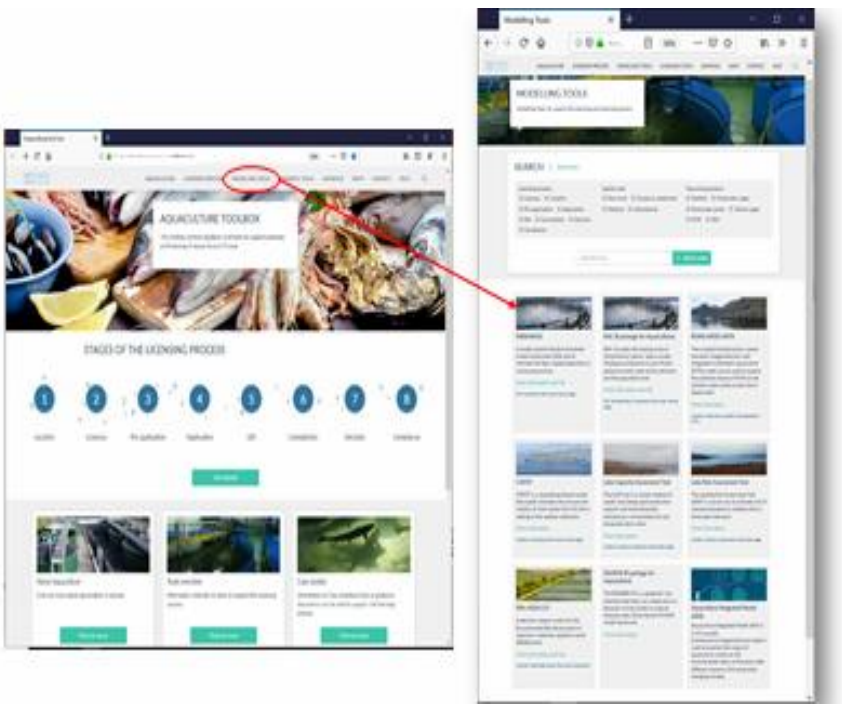

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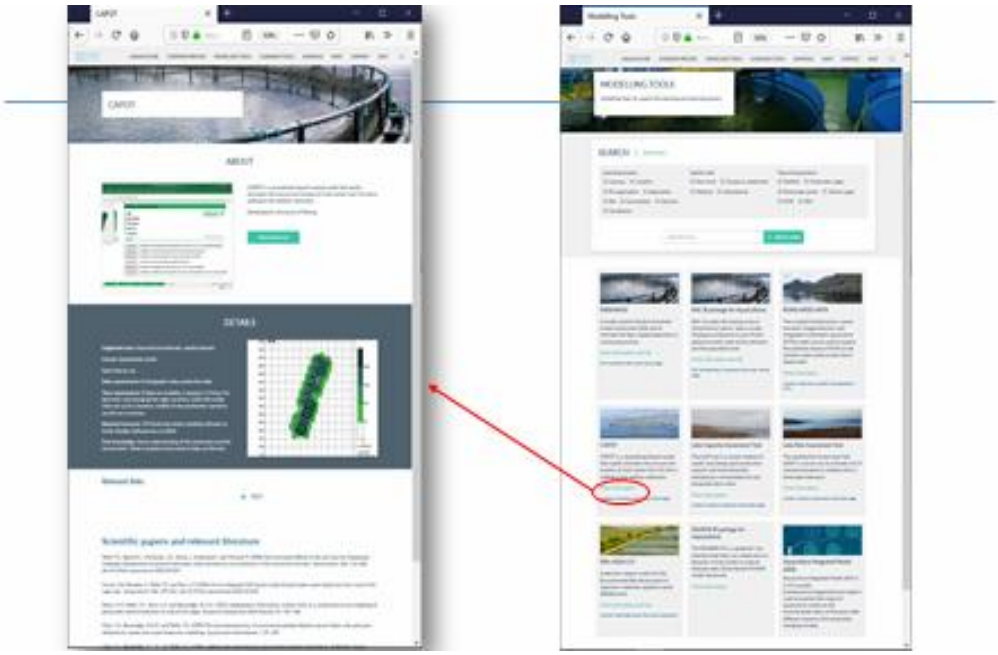

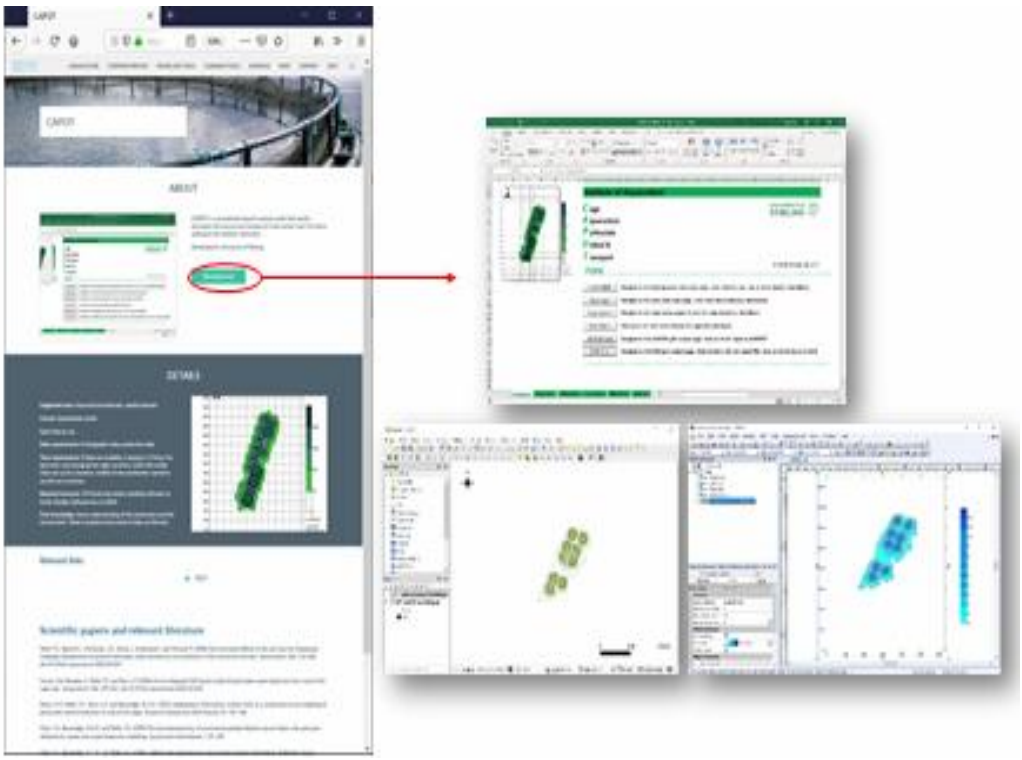

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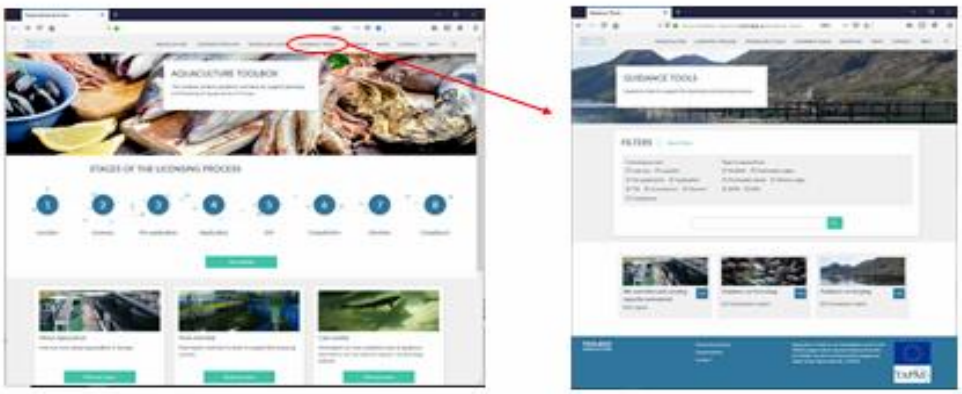

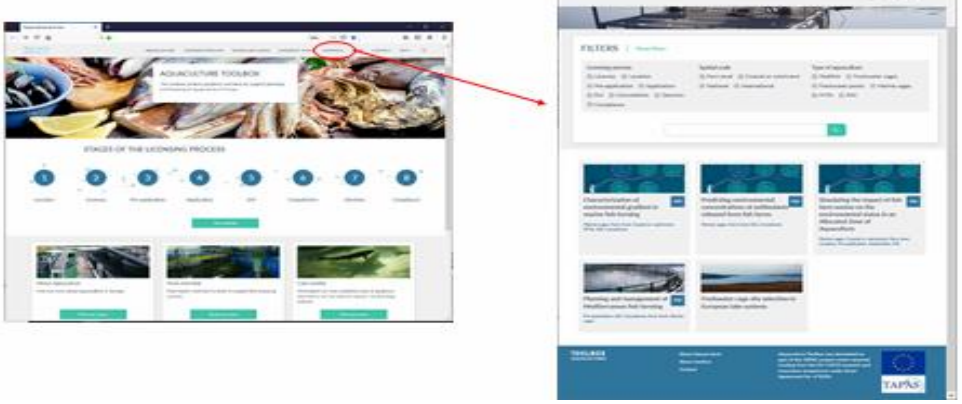

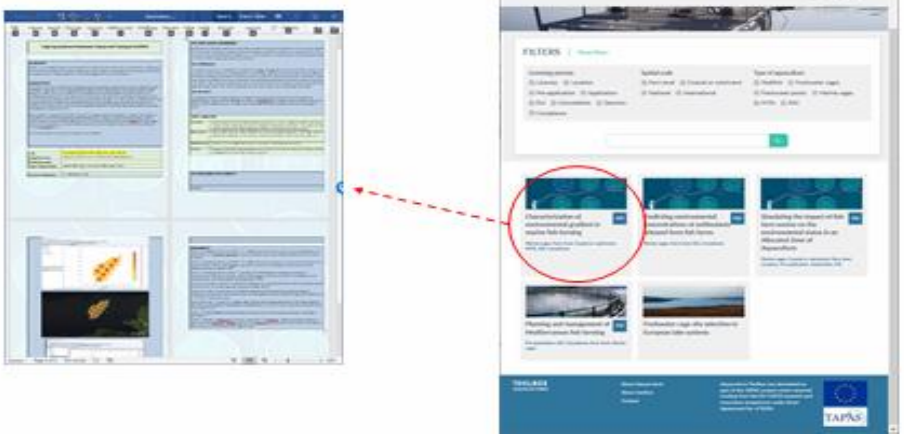

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The future?

- Here is where we will be in Feb 2020
- Proof of concept (TRL 6)
- End-users and contributors
- But the Aquaculture Sustainability Toolbox operates in a constantly changing world
- Further exploitation

TAPAS conference

- The TAPAS conference will be held on **January 15th 2020** in Scotland House, Brussels
- All aquaculture stakeholders are invited
  - More information will be available soon
- TAPAS partners will present key outcomes from the project
  - Recommendations for policy
  - New and improved approaches to support planning, licensing and management of European aquaculture
- Hands-on demonstration of the Aquaculture Toolbox

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NEW AND FLEXIBLE APPROACHES TO AQUACULTURE LICENCING

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Pauline.odonohoe@marine.ie

Consultation

- Phase 1 → Licensing Regulators
- Phase 2 → Stakeholders
- Phase 3 → Consultation process was continuous engagement with Industry, Regulators and Stakeholders.

Bottlenecks

1. Time - The time taken to determine a licence decision
2. Communication - poor communication with, within and between decision makers
3. Public Perception - negative perception of the industry
4. Political Will - lack of political will to support or expand the aquaculture industry.
5. Costs -costs involved in submitting an application for a licence vary significantly across jurisdictions.
6. Legislation – National and EU - legislation and regulatory frameworks are complex, both on an EU and a national level.
7. Number of licences - varies between jurisdictions in terms of licences, permits, registrations, and other authorisations, which can be a significantly high number when totalled.
8. Term and Ownership of licence - too short which makes planning, investing and operating a business difficult.
9. Amending / Renewing licence - In many jurisdictions it is equivalent to a new application.
10. Policy - The need to implement national policies fully was highlighted.
11. Application Complexities - the number of licences required to operate is considered excessive. Simplification of the administrative process is needed.
12. Incomplete Applications - incomplete applications and request for further information and surveys during the process leads to time delays and increases the duration of the process.
14. Decision making - the process is complex
15. Multiple agencies / Multi-level governance

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Recommendations

1. Develop a modern **electronic licensing system** focused on the provision of:
    - Formal **timelines** with real-time tracking.
    - Accessible **guidance** and procedural information for all users.
    - Enhanced **communication**.
    - **Flexibility** to support new and emerging technologies.
2. Provide clear guidance for **quantifying impact and balancing risk**, with accessible and understandable tools to assist in quantification and risk assessment.
3. Develop and improve tools and environmental models, making them accessible to industry and planners, to assist with **site identification, site optimisation** and **carrying capacity** assessment.
4. Carry out **real time, inexpensive, risk focused monitoring** to assess the environmental impacts and monitor for potential impacts.
5. Level the playing field for costs of applying for, and fees applied to, aquaculture licences, particularly in regard to environmental impact statement preparation.
6. Streamline aquaculture legislation by condensing the number of licences required to operate (and synchronising validity perio ds); incorporating operational flexibility into the legal framework and appropriate licence terms to support industry investment and planning, facilitating research using trial licence models.
7. Harmonise the implementation of EU regulations by reducing the variation in implementation including harmonising of procedure and requirements for EIS and EIA incorporating reference to the benefits and costs of aquaculture within regulation.
8. Encourage the implementation of the National Plans and the amended EIA Dire ctive across jurisdictions to help simplify processes and administration
9. Designate **strategic national aquaculture zones** as part of spatial plans where risk assessments, capacity and impact studies are carried out on an 'area' approach in advance of issuing licences, balancing considerations of economic growth and environmental protection with cumulative impacts of development.
10. Develop local scale, producer lead, **communication platforms** to facilitate dispute resolution between resource users, enhancing coope ration and developing a forum to represent local producers on a broader regional scale to input into local planning.
11. Develop public communication platforms to make monitoring **information publically available**, providing context, and to provide explanatory factual information about aquaculture to the media and general public

The Toolbox

1. E-licensing
2. One-stop-shop

3. Guidance
4. Review of Legislation
5. The Aquaculture Licence
6. Communication Platform
7. Public Information Platform
8. Decision Support

These tools are relevant to applicants, decision makers and regulators.

The TAPAS Toolbox

E-licensing

Each jurisdiction provide an electronic licensing application system.
The advantages would include:

- To view the progress of an application in real time.
- Reduce the likelihood of 'incomplete' applications, or missing information.
- A one-stop-shop access point to all guidelines and guidance materials.
- Data required by decision makers in one accessible area.
- The facilitation of concurrent consultation periods.
- A defined workflow and tracking system that demonstrates the progression of the application.
- Tools to assist with mapping and site identification.

One-Stop-Shop

To assist with the coordination between the applicant and decision-making authorities, as well as between decision-support agencies.
The important tasks are to:

- Provide the Aquaculture Licence application forms.
- Act as the sole responsible agency to coordinate all the actors in the regulatory process.
- Centralise all elements of the application and coordinate the decision-making process.
- Facilitate communication with the applicant, liaising on their behalf with other agencies/actors.
- Provide appropriate guidance to the applicants, to ensure the completeness of the submission.
- Ensure formal timelines are adhered to.
- Process application fees.

Guidance

Provisions that should be available to the prospective applicant should include:

- Detail of the steps involved in application process.
- Detail of the consents required, expected timelines, expected costings, the regulatory agencies involved, and contact information for assistance through the process.
- Detail of the decision-making process; the steps, milestones and expected timelines.
- Provision of all documents centrally available in a single online portal.
- Direct stakeholders to information such as:

- Information on relevant regulation and legislation.
- Regulatory assistance/guidance information and requirements.
- Information on funding.
- Information on careers and training oppor tunities.
- Information on strategic projects and investments.
- Industry reports and production statistics.
- Contact details for aquaculture groups.

Review of Legislation

Member States should:

- Carry out a review of their aquaculture consenting process, with t he aim to identify the changes needed that will:
  - Ensure consenting decisions happen in a timely manner.
  - Create clarity and transparency in the consenting process.
  - Ensure it takes on board best practice and experience from other jurisdictions.
- Ensure the review provides clear, specific and actionable recommendations to allow for rational, streamlined, transparent, efficient legislative framework and licensing system.
- Produce a specific and timed implementation plan for the recommendations from the review.

The Aquaculture Licence

The aquaculture licence should:

- Define the activity and methodology that is permitted.
- Define the location within which the activity is permitted.
- Define the period for which an aquaculture activity can be conducted.
- Define the review, amendment and ownership processes regarding the licence.
- Define the parameters within which an activity is permitted, and the necessary monitoring to ensure compliance.
- Detail production quantities.
- Define terms and conditions of activities.
- Detail fees relating to holding the licence.

Communication Platform - Conflict avoidance and resolution methods

An effective forum for communication at a local level, within and between producers, and with other resource users, should be facilitated and supported to allow for the development and progression of common management plans. Providing a forum for communication between producers:

- Allows for effective resource planning and problem solving.
- Enhances local development in a structured way.
- Allows better management between users and better utilisation of shared space.
- Allows better exchange information on fish health and management practices between producers for better environmental management.

- Facilitates communication between aquaculture producers and other resource users locally.

Conflict avoidance and resolution methods (cont.)

- Provides for collective representation of the sector in broader scale planning and development.
- Provides an effective channel for financing and funding, assisting local industry and services.
- Facilitates a bottom-up and top-down communication with regulators, where the forum can act as an intermediary.
- Facilitates representation of aquaculture producers on an area and regional level.
- Allows for the effective dissemination of technology and information within local producers, from the research and the regulatory bodies.
- Informs the sectors on general issues.
- Provides engagement with other interested parties to discuss/encourage in integration of associated activities, e.g. fisheries & fishing, tourism, leisure users, etc.

Public Information Platforms

As a minimum provision, an effective public information platform should provide:

- Clear, correct and reliable information and reference materials.
- Better the understanding of the processes of aquaculture and its contributes to food security and ecosystem services.
- Inform regarding the methods involved in aquaculture.
- Inform regarding the environmental footprint of the industry.
- Provide information on food safety, nutritional benefits, responsible sourcing and environmental effects.
- Address current questions or concerns regarding issues relating to the sector, providing the latest scientific thinking.
- Act as a focal point for stakeholders.
- Exchange information on fish health.
- Inform regarding organic production and origins of the food produced in the sector.
- Encourage and facilitate public aquaculture engagement.
- Provide guidance to industry on approaches to being open to public engagement.

Decision Support

The Regulator is the primary arbitrator when it comes deciding on the consent to allow the operation of an aquaculture facility.

To reduce administrative burden and improve decision-making capacity, jurisdictions should review their decision-making processes to:

- Have clearly defined timelines, laid out in the process, for reaching decisions.
- Enhance efficiency in facilitating timely decision making.
- Clearly define the actors involved in the decision making process, and their roles.
- Have a clearly defined frameworks detailing the processes and individual steps.
- Deliver a transparent approach.

- Ensure direct access to in-house technical expertise to facilitate informed scientific judgement.
- Integrate changes to alleviate the bottlenecks using best practice and technical expertise from other systems.
- Ensure decision making bodies are adequately resourced.
- Facilitate knowledge exchange with regulators, researchers and stakeholders.

TAPAS
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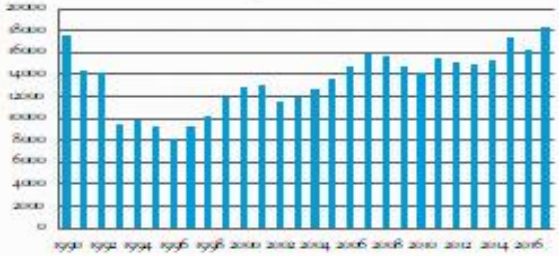
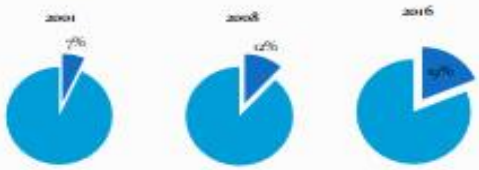
AQUACULTURE GOVERNANCE AND LICENCING OF AQUACULTURE FARMS IN HUNGARY

Peter Lengyel, Ministry of Agriculture, Hungary

Aquaculture production





Changes 2013-2018:

- Food fish production volume: +20%
- Food fish production value: +58%
- Herbivorous fishes: -18%
- Predatory fishes: +17%
- Common carp:+19%
- African catfish: +63%
- Trout: +39%
- Tench: +100%
- Sturgeons: +116%
- Fish consumption: +30%

Pond surface

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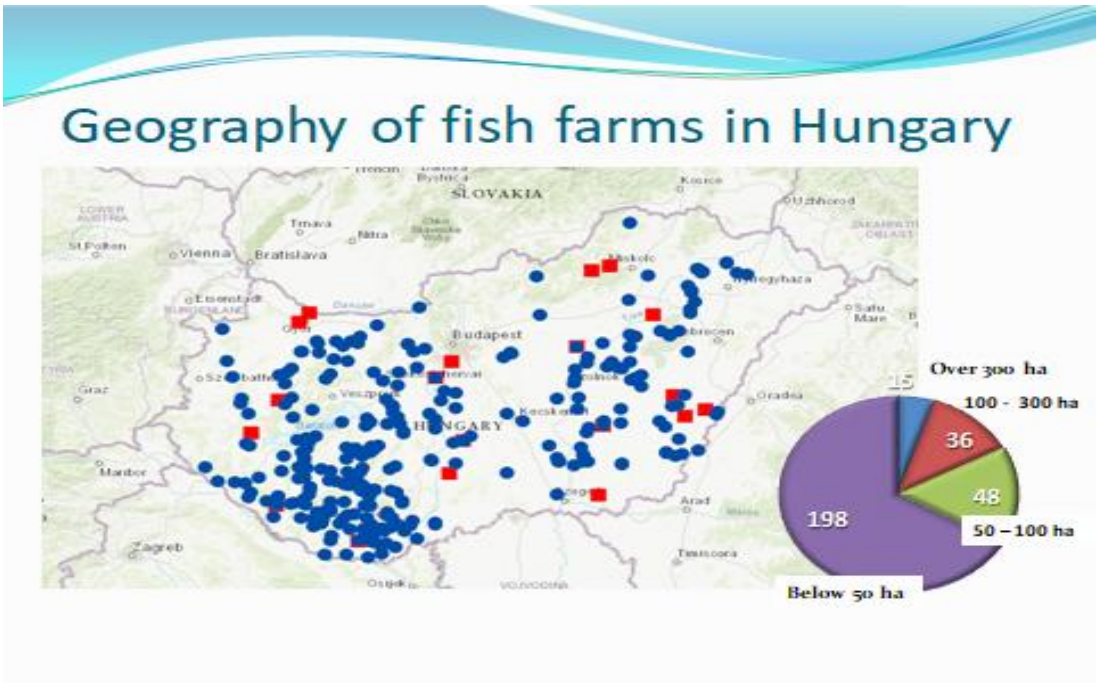
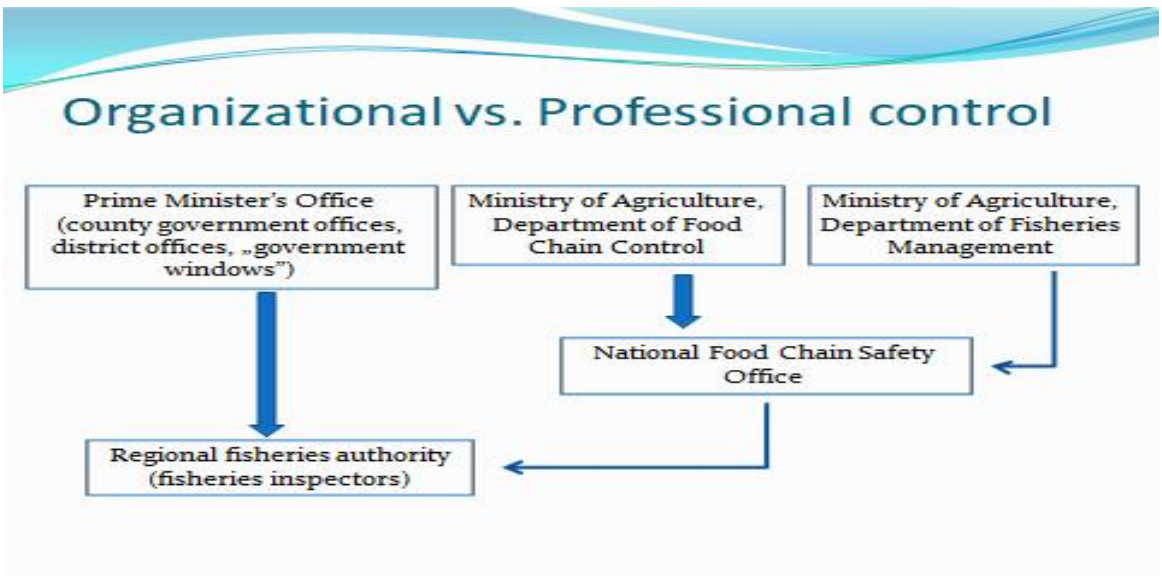


Central governance for fisheries:

- Ministry of Agriculture
  - State Secretariat of Lands
    - Department of Fisheries Management
    -



Aquaculture legislation:

- No specific aquaculture law
- Basic sectoral law: Act CII of 2013 on fisheries and the protection of fish
- Implementing regulations:
    - Ministerial Decree 133/2013 laying down some rules of fisheries and fish protection;
    - Government Decree 314/2014 on fisheries management and fish protection fines
    - Ministerial Decree 111/2009 on the rules of using alien and locally absent species in aquaculture (implementing Council Regulation (EC) No 708/2007 concerning use of alien and locally absent species in aquaculture)
    - In preparation: Ministerial Decree on rules of aquaculture production

Aquaculture licencing:

- No specific legal provision on aquaculture licencing
- No licencing specific to aquaculture – general rules on construction, water use, EIA, etc. apply
- Several licences and permissions to be obtained separately
- No one-stop shop

Water rights licences:

- Issued by the Water Authority
- Required for all water use and waterworks (defined as works changing the course, flow, quantity, quality, bed or banks of a water).
- Issued in 45 days
- Multi-level system:
    - Preliminary permission for water rights licence
    - Water rights licence for construction
    - Water rights licence for operation
    - Water rights licence for legalising construction
    - Water rights licence for abolishment
- **Preliminary permission for water rights licence**
    - 200 EUR

- Valid for 1 year
- Defines conditions of applying for „Water rights licence for construction”
- Confirms acceptability of chosen technical solution and water need

- **Water rights licence for construction**:
  - Request must contain : plans of construction and permissions from various authorities (public utilities, police, fire department, protection of plant and soil, archaeology etc.)
  - Validity: 2 (in case of major construction, 3) years
  - EIA (when required by law or deemed necessary by environmental protection authority).
  - Construction can be started only after obtaining the licence.
- **Fees of water rights licence for construction**:
  - construction of water abstraction facilities modifying the water flow, e.g. barrages (depending on the construction value): 640 -2300 EUR
  - water use (depending on the volume): 130 -1120 EUR
  - geothermal water extraction(depending on the volume): 260 -2240 EUR
  - reinjection of used geothermal water as an independent process (depending on the volume): 65 -575 EUR
  - reinjection of used geothermal water linked to geothermal water extraction (depending on the volume): 33-290 EUR
  - water supply and drainage facilities (depending on the construction value): 320-3455 EUR
  - water treatment facilities:
    - facilities having the permission of the construction authority or a CE certificate: 115 EUR
    - individually planned facilities (depending on the construction value): 385-2600 EUR
  - permit for pre-treatment facilities:
    - facilities having the permission of the construction authority or a CE certificate: 80 EUR
    - individually planned facilities (depending on the construction value): 160-575 EUR
  - monitoring wells:
    - establishment of a monitoring well: 22 EUR/well
    - establishment of a water quantity monitoring well: 15 EUR/well

- closing of a monitoring well: 50% of the above

- **Water rights licence for legalising construction**:
  - In case of constructions built without (or not according to) WRL for construction
  - Fee: same as WRL for construction + penalty (up to 20% of construction value) + administrative fee
  - Does not allow operation in itself but possibility to apply for WRL for legalising and WRL for operation in one process
- **Water rights licence for operation:**
  - Permission to start operation
  - Upon acceptance by the relevant authorities
  - Fee: 80% of WRL for construction
  - Validity: for determined time, set by water authority (normally 5 years)
- **Water rights licence for abolishment** :
  - Fee: same as WRL for construction
  - Valid for 2 years

Other licences and permits:

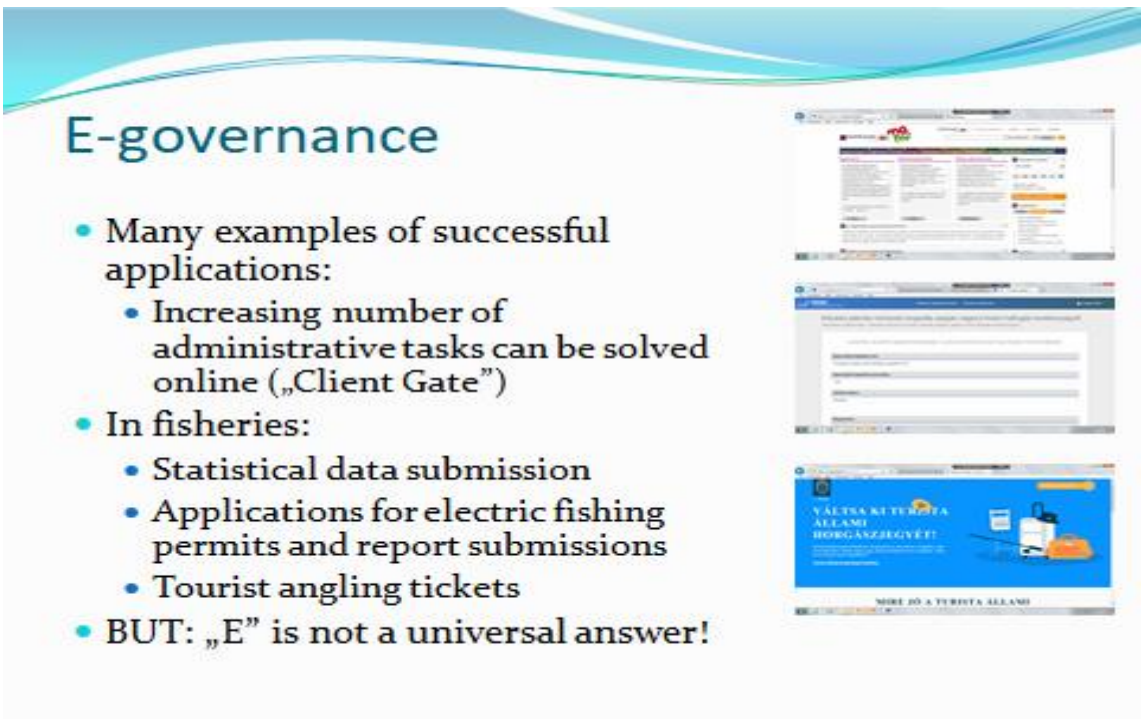
- Generally must be attached to application for water rights licence for construction:
  - Environmental impact assessment, when required (environmental authority)
  - Construction permit (construction authority)
  - Hatchery licence (breeding authority)
  - Veterinary licence (veterinary authority)
  - Permission to use alien species (fisheries authority)
  - plus: permissions from various other authorities, as needed (public utilities, police, fire department, plant and soil protection, archaeology etc.)
- Data available in an official database cannot be requested from the customer

How to improve?

- Administrative simplification is a priority (included in National Aquaculture Strategy)
- Development of the „one-stop shop" concept: County Government Offices, District Offices
- Improvement of e-governance
- Informing the public: Brochure on rules of aquacultu re licensing published by the Ministry of Agriculture and available online
- Still: too much time, too much administration
- More simplified procedures would be needed
- Main obstacles: different authorities, different ministries
- General procedures for all secto rs
- Economic weight of aquaculture insufficient

Improving public opinion:

- Pond systems have good chances to win public support – „multifunctional aquaculture"
- Public information platforms



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AQUACULTURE LICENSING AND ADMINISTRATIVE/LEGISLATIVE SIMPLIFICATIONS IN SWEDEN

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The technical development of environmentally sustainable forms of production is progressing rapidly in the field of aquaculture, in terms of both the more traditional open systems and the more recent, semiclosed and cl osed production systems.

Different techniques are appropriate in different habitat types, but a number of techniques may also be appropriate for one and the same habitat. Furthermore, the most appropriate technique also varies depending on the species and size of the fish that are farmed.

A number of production systems with potential are still merely at the prototype stage, but many others are undergoing constant development and are being operated on a lesser commercial scale as they undergo technical development.

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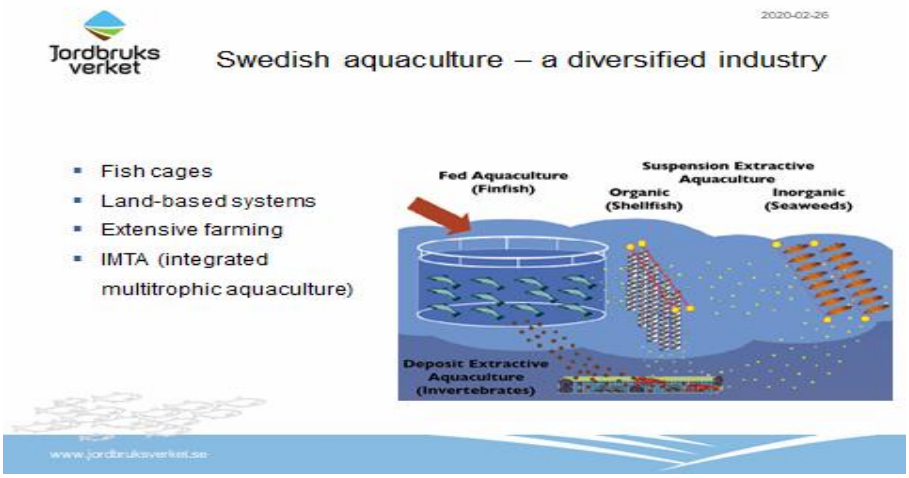
The farming techniques are undergoing constant, rapid development in terms of water treatment systems, facility types, water consumption, diversification of species, integration between species, and so forth.

These new techniques may need to be developed through continued research and technical innovations.



The majority of Swedish aquaculture production currently takes place in open systems, using a tried and tested farming technique w here the farm is in direct contact with the environment around it.

Land-based open facilities with flow-through systems are used primarily for producing fish for consumption.

Open, extensive farming also takes place in marine and brackish water environme nts. Blue mussels are farmed on a commercial scale (~1500 tonnes), mainly on the west coast.

For integrated multitrophic aquaculture there are more potential extractive species in the marine environment (such as ascidians, oysters, the brown alga sugar kel p and detritivores) than in brackish water and freshwater environments.

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2020-02-26

Jordbruks verket

Swedish aquaculture – a diversified industry

Land-based systems are available in many forms:

- flow-through systems with or without treatment of the outgoing water,
- partial or fully recirculating systems:
  - RAS,
  - Biofloc,
  - Aquaponics

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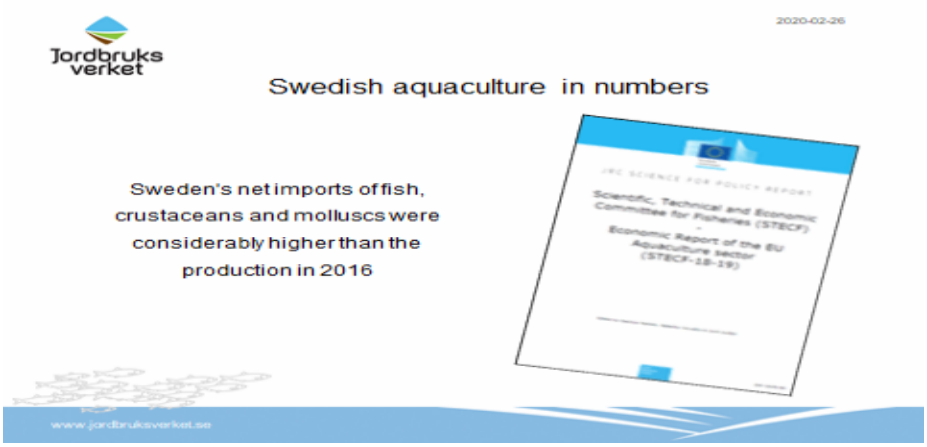
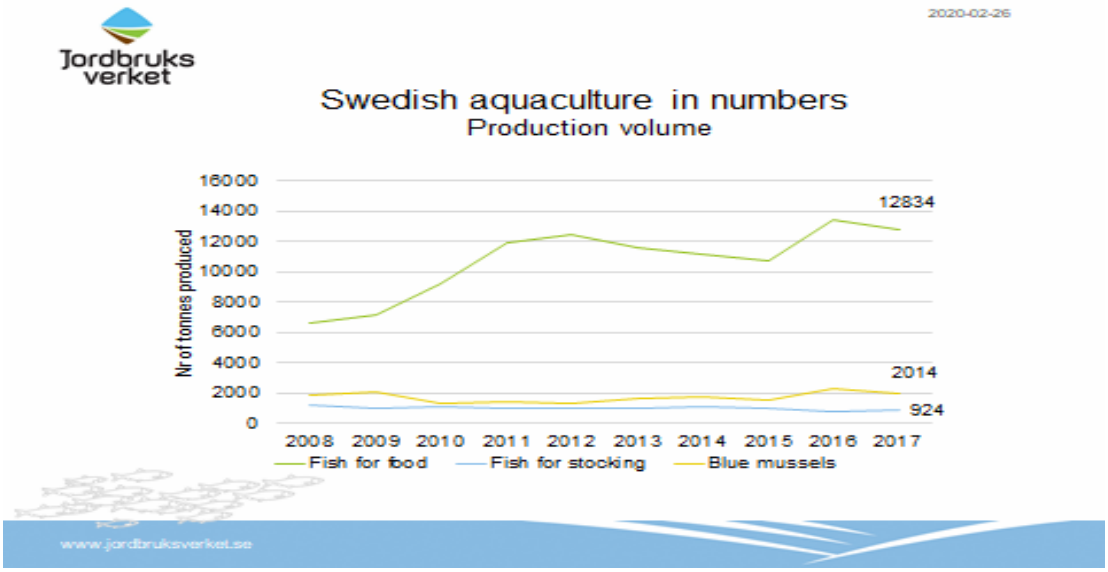
New types of semiclosed or closed production systems provide alternatives for greater control and optimisation of the environment for the f ish, reduced exchange and hence less impact on the environment in the form of escapes and nutrient load, for example.

Land-based systems are available in many forms: flow -through systems with or without treatment of the outgoing water, partial or fully re circulating systems (e.g. RAS, biofloc and aquaponics).

Semiclosed systems are still relatively new on the market and experience is limited.



Sweden's net imports of fish, crustaceans and molluscs were considerably higher than the production in 2016. Swedish aquaculture could gain a larger share of the domestic market, where demand for cultivated fish products is high.



The Swedish aquaculture sector has experienced an increase in the volume of production over time. The growth of Swedish aquaculture has been positive in the 2000s. However, the growth in the sector stalled in 2012, and production decreased in 2014 and 2015 but recovered in 2016 with a 25% increase.

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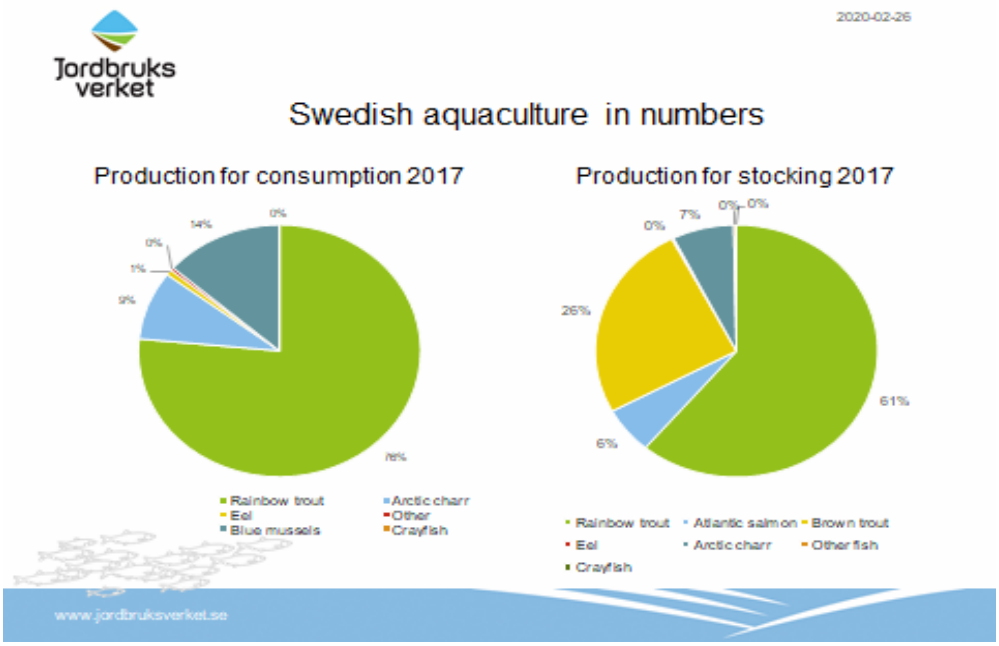
In 2016, Swedish aquaculture yielded 14 100 metric tonnes of fish (in fresh weight) of which 13 450 tonnes were produced for human consumption.

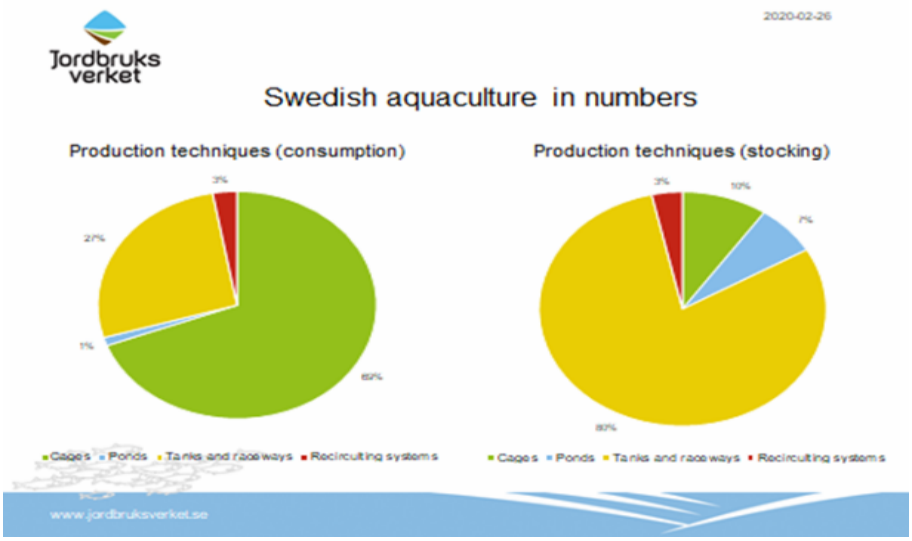
The largest segment in Swedish aquaculture, in terms of both value and volume of production, is freshwater fish grown in cages. The second most important segment is freshwater fish on growing. The third segment consists of shellfish (blue mussels and oysters).



There are six main species produced in Sweden, rainbow trout, blue mussel, arctic char, Atlantic salmon, European eel and noble crayfish as well as a group of other freshwater fish.

The production of Swedish aquaculture in 2016 was dominated by Rainbow trout which represented 76% of the total production. The production of Arctic char represented 9%, production of cultivated Blue mussels 14%.

The production of marine shellfish products is currently small in relation to freshwater production, although Sweden has significant production of organic mussels (KRAV).



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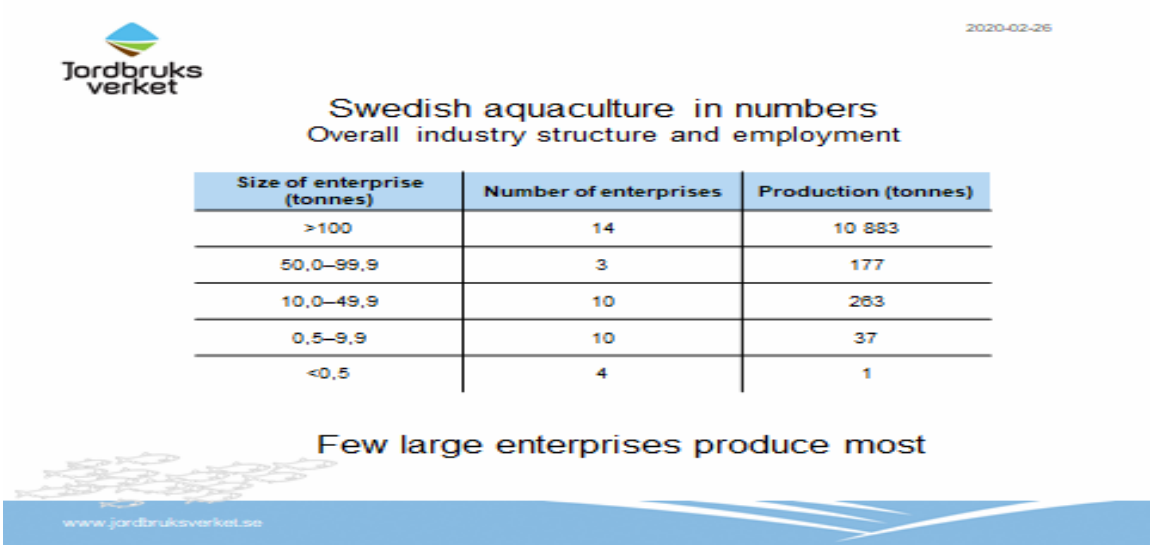
Rainbow trout is the most important specie with respect to both weight and value. Fi sh produced in cages are common both in freshwater and in coastal waters, although fish in freshwater are dominating. The average size of a cage is 1 400 m3. Other production methods, such as ponds and raceways are mainly used for producing fish for stocki ng.

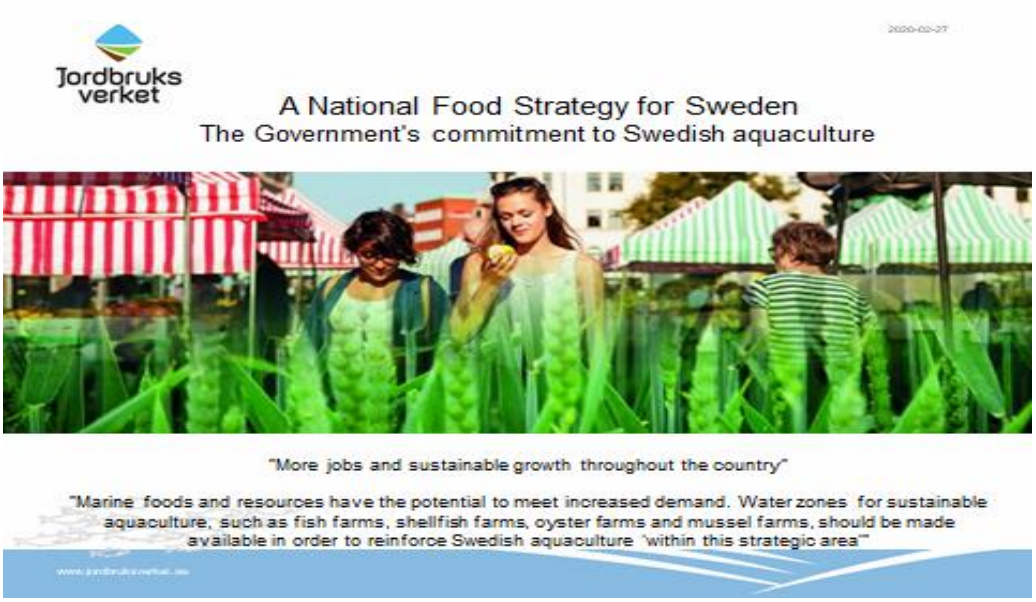
Aquaculture farms in freshwater have a huge dominance in Sweden – both in production and value. Other methods for aquaculture in Sweden are ponds and pools. Rarer are recirculating systems. Cages are the most common farming technique.



Size of enterprise (tonnes)	Number of enterprises	Production (tonnes)
>100	14	10 883
50,0–99,9	3	177
10,0–49,9	10	263
0,5–9,9	10	37
<0,5	4	1

Sweden has a small number of large-scale fish farmers who work with open cages and produce hundreds or thousands of tonnes of fish annually.

In 2016, the total population of aquaculture farms was around 300, which was distributed on 136 enterprises. The Swedish aquaculture sector is dominated by small enterprises, and in 2016 85% of the Swedish enterprises had less than 5 employees.



There is an increasing demand for sustainably produced sea food from the public in Sweden. There are also political initiatives that aims at developing and increasing the Swedish aquaculture production.

In 2017 the Government put forward an action plan stemming from "A National Food Strategy for Sweden – more jobs and sustainable growth throughout the country". The strategy lifts the potential of future aquaculture and concludes that "Marine foods and resources have the potential to meet increased demand. Water zones for sustainable aquaculture, such as fish f arms, shellfish farms, oyster farms and mussel farms, should be made available in order to reinforce Swedish aquaculture 'within this strategic area'.

The Swedish Board of Agriculture's vision is that "Swedish aqu aculture is a growing, profitable and sustainable industry, with ethical production".

The Swedish Board of Agriculture's strategy, entitled "Swedish aquaculture – a green industry on blue fields" highlights aquaculture as a future industry offering major potential for growth.

In the associated action plan, the Swedish Board of Agriculture has identified for each action a convening organisation responsible for commencing cooperation with regard to the action by communicating with other designated implement ers.

This is in line with the EU's objective, whereby every member state will have its own aquaculture strategy.

The Swedish aquaculture sector also face difficul ties related to regulations and implementing new production techniques at a commercial scale. There is an ambition to increase aquaculture production using new sustainable production techniques, however, most of this work is still on project levels and has not reached commercial scales.

However, in the last years several farms have been denied new or increased environmental licenses due to new interpretations of the environmental legislation. These forces the industry to change to more environmentally frien dly methods in the future. Another difficulty facing the

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Swedish aquaculture sector is related to regulations and administration. An analysis of the impact of administrative burdens and governance has been made, and it has been pointed out as high.

It has been questioned whether the current regulations are designed in an optimal way in order to be able to handle the technical developments that have taken place and if the regulatory framework sufficiently encourages the industry to make available environmen tal investments.

In an attempt to alleviate these difficulties, in August 2018 The Swedish Board of Agriculture has got a task from the Ministry to investigate how to a dapt regulations and simplify administration in the aquaculture licensing/permission giving process. We have started to work on that in March 2019, at the same time I started my new position.

In the spring and autumn time we organised workshops and project group meetings in order to involve adequate specialists and experts in respective areas. Representatives from relevant organisations, producers, almost all agencies involved in aquaculture an d researchers have been involved in the project.

The report from this work will be presented to Ministry in april 2020 (after public consultation February – March 2020). The work is performing within the framework of the Swedish National Food Strategy

The governmental mandate

The assignment includes:

- To map the national and EU - legislative regulations regarding permits that can be valid for aquaculture operations
- Analyze, and if necessary propose changes regarding how the permission giving processes can be simplified while maintaining environmental protection
- Analyze whether existing requirements for permits, trials, registrations or notifications could be simplified/coordinated and, if so, propose such coordination

We are looking through, juridical, envir onmental and practical implications of the process. Within the project we will deliver a comprehensive report/map of both EU - as well as national legislative regulations concerning aquaculture.

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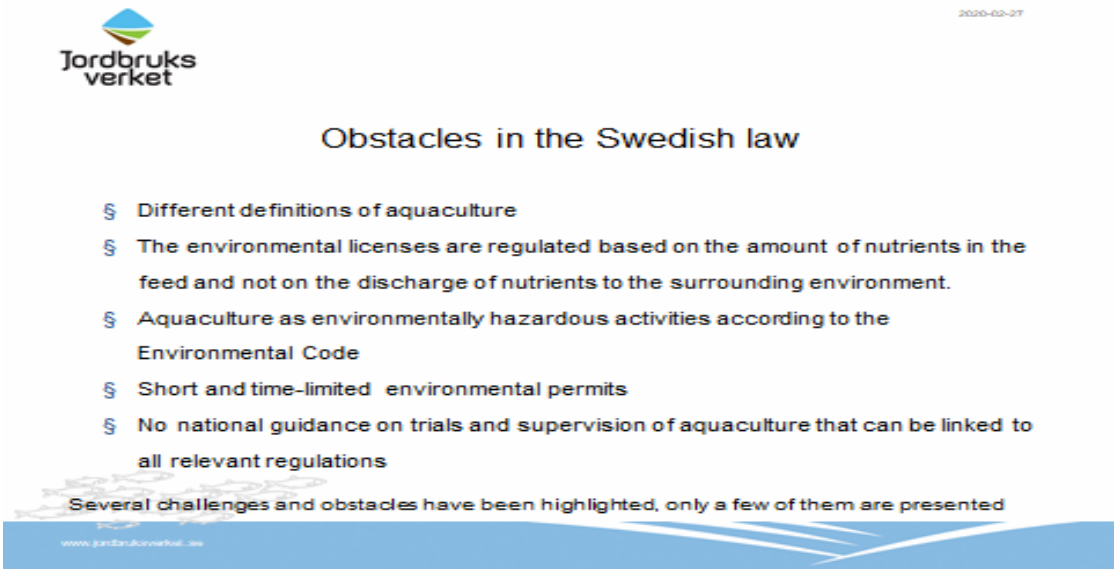
Several challenges and obstacles have been highlighted, only a few of them are presented today.

Many agencies responsible for permission giving / regulations

Aquaculture is an industry that is regulated through several different parallel regulations, whi ch results in that there are several authorities, but also several different subject areas within an authority that are responsible for permits, approvals etc.

Depending on the type of aquaculture production and what local conditions that apply all these laws regulate aquaculture and can demand permits or different kinds of approvals.



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Aquaculture has different definitions in different national and international regulations which leads to uncertainties regarding the scope of the law. The regulations that exist for aquaculture in the environmental legislation do not take into account diff erent cultivation techniques or species.

In Sweden, the environmental licenses are regulated based on the amount of nutrients in the feed and not on the discharge of nutrients to the surrounding environment. These licenses do not encourage the aquaculture industry to strive for more environmentally friendly technological solutions.

The amount of feed fed per year determine the permit level (which in turn also controls what type of trial process or permit that is needed).

And aquaculture are examined as environmentally hazardous activities according to the Environmental Code.

Short and time-limited environmental permits of about 10 years are an obstacle for development of technology and increased production. Different permissions for the same industry often have different time lengths.

Both the aquaculture farmers, the national authorities, county boards and municipalities point out that there is no national guidance on trials and supervision of aquaculture that can be linked to all relevant regulations.

The Water Framework Directive (2000/60 / EC) together with new rules on EQS for water quality, the "non-deterioration requirement" is fully implemented in Sweden, making it difficult to obtain environmental permits for aquaculture. Some fish farmers have not received (new) environmental permits due to uncertainties linked to cultivation technology (best available technology) and / or the risk of impact on EQS for water quality.

We are analysing if its possible to have environmental permits regulated through nutrient disharge

There are many different techniques and systems for aquaculture production and most likely there will be more systems and techniques in the future.

Different systems and techniques act diffe rently on the purposes of the environmental law (depending on a range of different factors).

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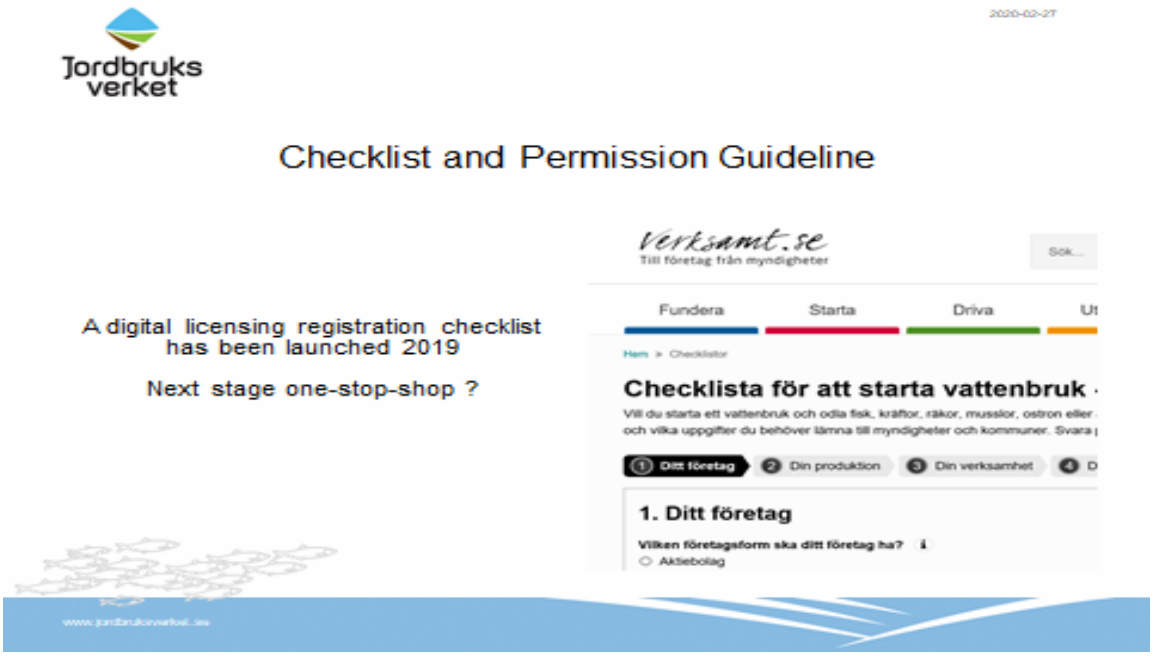
Due to the large differences between aquaculture systems it is suggested that a division is made by using different activity codes for different production systems.

Right now Swedish legislation in not fitted for cultivation of ”new” species, li ke sea cucumber or algae. We are analyzing how to include farming of other species than traditional fish species in Swedish regulations.

Moreover, as a part of that work, The Swedish Board of Agriculture, in co operation with Finnish Ministry of Agriculture and Forestry and Ålands Ministry organised a workshop regarding environmental licenses for aquaculture based on nutrient discharge and compensatory measures. It was funded by the Nordic Council of Ministers. A lso Danmark, Norway, Iceland, Faroeislands

was invited. The aim of this workshop was to gather policy makers and researchers from the Nordic countries to discuss and assess the possibilities and consequences of introducing licenses for aquaculture based on nutrient discharge to the surrounding environment. The aim with the workshop was also to asses the possible introduction and incentive to use compensatory measures that aim to remove nutrients from the environment.



An entry point for contact between producers and authorities has been established through the creation of a website, where producers can find specific information about aquaculture. The website is the primary point of information needed by farmers on various aspects of aquaculture activity, including who to contact concerning permits, registrations and research.

In order to reduce the average and maximum time for approval of applications, two projects have been initiated to raise awareness about the complexity of the approval process and to identify areas where the process can be shortened and simplified.

A digital licensing registration checklist has been launched before summer 2019.

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MANAGEMENT AND LICENSING IN AQUACULTURE OF THE REPUBLIC OF BELARUS

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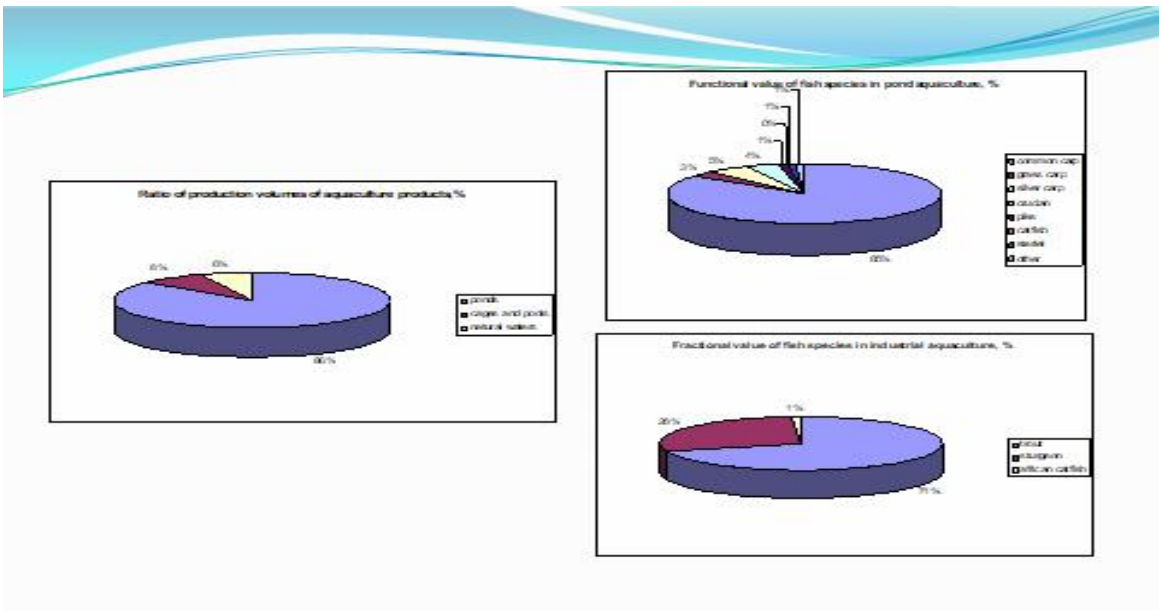
Fisheries in Belarus is an integral part of the agricultural complex, aimed at ensuring food security, obtaining high-quality animal protein, rearing seed for stocking fishing grounds and providing recreational services to the population

Modern fish farming in Belarus is represented by three areas of development:

- traditional ponds (can be called semi-intensive),
- industrial on the basis of fish farming in cages, tanks and recirculating aquaculture systems (intensive),
- culture-based fisheries on the basis of feeding of introduced fish species in ponds or fishing grounds on a natural forage base (extensive).

Commodity fish production in 2018 amounted to **12.33** thousand tons, including **11.58** thousand tons of aquaculture products and **0.75** thousand tons of catch from fishing grounds.



To date, more than 600 business entities (legal entities and individual entrepreneurs) are engaged in aquaculture activities in the Republic of Belarus, including 18 specialized pond fish farms (state-owned joint-stock companies), 512 tenants of adapted ponds for fish farming and those engaged in industrial fish farming, as well as 110 tenants and users of fishing lands using culture-based fisheries technologies in their activities.

In Belarus, the Ministry of Agriculture and Food is the main body involved in the development of a strategy for aquaculture and its management.

At the republican level, management functions are delegated to State Association «Belvodkhoz». At the regional - committees and administrations on agriculture and food.

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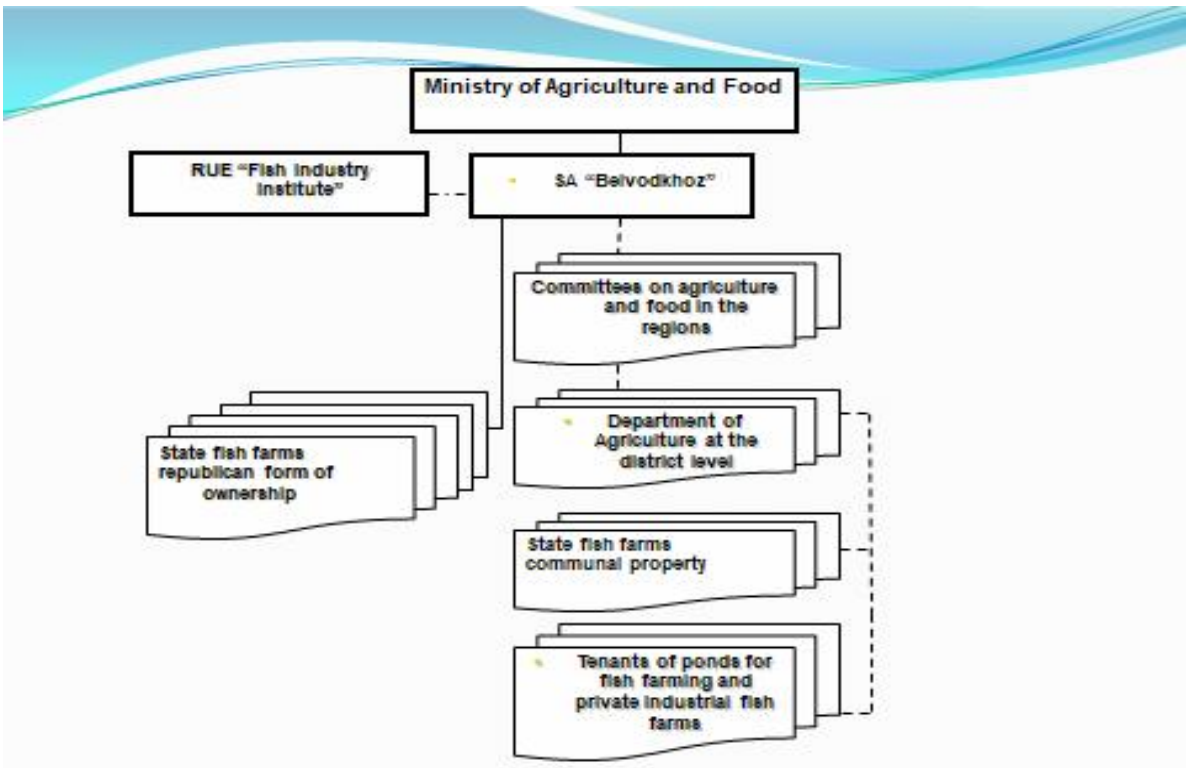
The institutional structure and public policy in the aquaculture sector is as follows:

- Fish farms of the republican form of ownership are directly subordinate to the parent organization - the Ministry of Agriculture;
- Fish farms of communal and other forms of ownership (farmers, private, joint -stock companies) are under the jurisdiction of regional committees on agriculture and food.
- The import / exchange of genetic material of fish from / outside the country is carried out only with the permission of the veterinary services of the Ministry of Agriculture, inside the country - with the permission of the veterinary services of the regional level.
-



Aquaculture of the Republic of Belarus belongs to the agricultural sector of the economy, therefore, the country does not have a separate law regulating its activities.

Laws related to aquaculture regulate the distribution of land (**Land Code**); water use (**Water Code**); livestock activities (**Livestock Breeding Act**), as well as the treatment of fish diseases (**Veterinary Law**), the production of bio-safe and organic aquaculture products (**Laws on the production and circulation of organic products and genetic engi neering safety**).

Matters related to aquaculture management are guided by the following regulatory framework:

- The law of the Republic of Belarus "**On pedigree in livestock breeding**" (05.20.2013).
- The Law of the Republic of Belarus "**On Environmental Protection**" (26.11. 1992).
- The Law of the Republic of Belarus "**On Veterinary Activities**" (04.06.2010).
- The Law of the Republic of Belarus "**On Genetic Engineering Safety**" (09.06. 2006).

- Law of the Republic of Belarus "**On the Production and Circulation of Organic Products**" (09.11 2018)
- **Water Code of the Republic of Belarus** (04.3.2014).
- **Land Code of the Republic of Belarus** (as amended on 26.10 2012)
- Decree of the Council of Ministers of the Republic of Belarus "**Regulation on the procedure for the provision of surface water bodies for rent for fish farming**" (as amended on 01.03.2017)
- Decree of the Ministry of Agriculture and Food of the Republic of Belarus "**On Establishing the Republican Complex Layout Scheme for Ponds and Waterlogged Quarries Suitable for Fish Culture**" (as amended on 5.12. 2017)

The state policy in the development of the industry boils down to maintaining the state's share in joint-stock companies, transferring part of the state fish farms from republican ownership to communal ownership and simplifying the conditions for fish farming for other business entities.

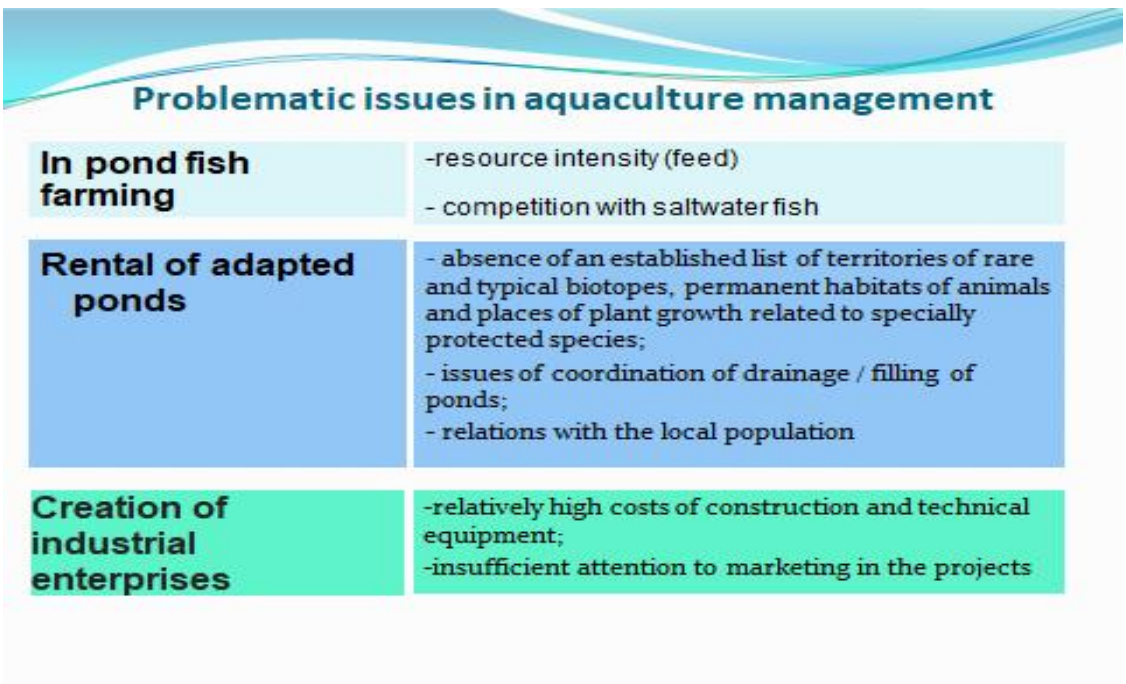
- **Surface water bodies** can be leased for fish farming on the basis of decisions taken by regional authorities in the absence of restrictions on the provision of land necessary for fish farming.
- The conclusion of a lease contract for a water body for fish farming does not exclude the need to obtain a permit for special water use if, according to the technology of fish farming, there is a need for collection / discharge of wastewater resulting from filling / emptying of the leased water body.
- Land plots necessary for the placement of buildings and structures intended for fish farming are provided in accordance with the legislation on the protection and use of land.
- The lease term for a land plot transferred for fish breeding purposes may not ex ceed the lease term for a water body transferred for fish breeding.

It is not allowed to lease water objects for fish farming in cases where these objects:

- are included in the republican comprehensive scheme for the placement of fishing grounds;
- are allocated for exclusive water use for drinking, hydropower and defense purposes;
- located in whole or in part on the territory of settlements;
- located on the **territory of rare and typical biotopes**, animal habitats, and plant growth sites belonging to species **included in the Red Book** of the Republic of Belarus or protected in accordance with international treaties of the Republic of Belarus.

In accordance with the fishing technology, the possibility of partial or complete drainage of water, as well as the implementation of subsequent reclamation and (or) sanitary and preventive measures, may be provided.

In the action plan, at the request of the tenant, other measures may be indicated that do not contradict the law.



Licensing of certain types of activities (conducting fish farming, trading in fish, processing fish and fish products), which was carried out earlier (until 2010), was canceled.

Design and construction work in the field of aquaculture is carried out on the basis of licenses.

Of the other types of regulation, certification of fish farms engaged in the cultivation of species from CITES lists (certificates for sturgeon fish and products obtained from them) and requirements for veterinary safety and veterin ary supervision remain.

Veterinary control in the field of aquaculture

Direction of control	Controlled indicators	Frequency of control	Terms of payment
Monitoring	Residual content of harmful substances and drugs	Once a year	is free
Monitoring for enterprises included in the register for export deliveries	Compliance with the technological regulations for the safety of fish and fish products	Once a year	for a fee
Monitoring for compliance with TC "Live pond fish"	Appearance, correspondence to mass, content of toxic elements, antibiotics, parasitology	before implementation	for a fee
Inspections on inspections' own work plans	Parasitic and infectious diseases	at least 2 times a year	is free

CONCLUSIONS

- The volume of aquaculture production in Belarus is determined by the economic condition of fish farms and domestic consumption. The value of exports is relatively small.
- Freshwater aquaculture production is experiencing significant competition from marine fish, the main factors are the price and variety of offers.
- Management of aquaculture development remains centralized; state ownership dominates in the specialized fish farming sector.
- The normative part of aquaculture management tends to reduce restrictions, but there remain problems of social and environmental character.

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AQUACULTURE GOVERNANCE AND LICENSING PROCEDURE IN REPUBLIC OF MOLDOVA

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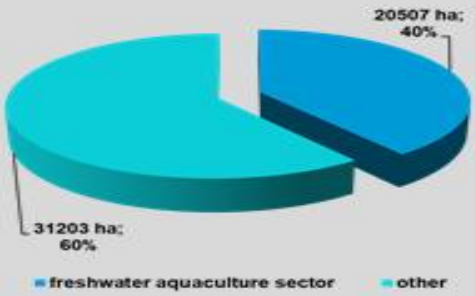
Existing logistical potential:

- The water surface of the country is 96 000 ha
- Total area of 4220 artificial reservoirs is 51710 ha

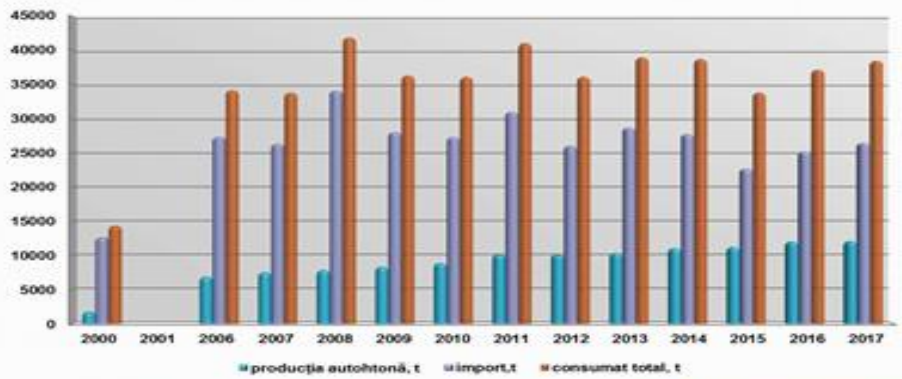


Currently involved in freshwater fish production:

- more than 1000 fish farms, which produce populated material and consumer fish
- 8 hatcheries for natural and artificial reproduction and fish stocking material growing
- 7 breeding complexes with incubators - for artificial reproduction

Food fish production and consumption in Republic of Moldova in 2000-2017

- The amount of native fish increased 7 times in comparison with 2000;
- 1.5 times - over the last 10 years and currently it represents more than 12083 tones or 31.4% of the total volume produced and of the respective products consumed in the country.



- The consumption of native fish per capita amounts to **3.4 kilograms per year**

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SWOT analysis of the aquaculture sector

Opportunities	Threats
• Inventory, mapping and qualitative assessment of water bodies • Increase in volume of fish production up to 25000 tones and of the quota of autochthonous production • Value added through fish processing • Conservation and management of the gene pool of aquaculture • Creation of certified organic fish farms, development and implementation of technologies for the production of environmentally friendly fish products (niche for export) • Development of policy and implementation of credit mechanism in aquaculture • Initiation of the organization of production of well-balanced feed for fish	• Lack of state financial support for carrying out of inventory, and qualitative assessment of water bodies, as well as for restoration of fishery facilities • Lack of state financial support for the establishment of a bank of living fish collections/farm of living genetic resources collections • Unfair competition from neighboring countries (illegal and legal import of freshwater fish) • Demographic processes leading to lower consumption.

SWOT analysis of the aquaculture sector

Strengths	Weaknesses
• Dynamics of sustainable growth of the volume and the quota of consumption of the local fish • 4220 artificial aquatic basins (51710 ha) • Highly productive autochthonous gene pool • Existence of a research Center specialized in aquaculture with a high scientific potential • Introduction of a two-level organization for selection and reproduction works (breeding farms - production fish farms), economically justified • Traditions of fish consumption (religious holidays, other customs)	• The lack of a complete national cadastre of registered water bodies, which should include not only their hydraulic characteristics, but also data regarding their biopotential, hydrochemical indicators, and natural fish productivity • Lack of production of well-balanced feed for fish • Lack of government financial support (subventions and credit policy) • Fish processing is poorly developed (niche for export) • Lack of information regarding the aquaculture fish market in Moldova • Limited number of staff in the field • Export is very weak developed

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Fish production for consumption (by species)

ENGLISH NAME	SCIENTIFIC NAME	2014	2015	2016	2017	2018
Common carp	*Cyprinus carpio*	3095.0	3164.0	4370.0	3994.0	4160.0
Crucian carp	*Carassius auratus gibelio*	526.0	500.0	809.0	980.8	770.0
Grass carp (White amur)	*Ctenopharyngodon idella*	685,0	780.0	645.0	860.2	780.0
Silver carp	*Hypophthalmichthys molitrix*	4320.0	4321.0	4512.1	4524.0	4800.0
Bighead carp	*Hypophthalmichthys nobilis*	2355.0	2379.0	1620.0	1670.5	1960.0
Wels (Som) catfish	*Silurus glanis*	1.0	1.0	1.2	1.5	1.7
Pike-perch	*Sander lucioperca**	18.0	21.0	53.7	52.0	58.3
TOTAL		**11 000**	**11166**	**12011**	**12083**	**12530**

Competent authority

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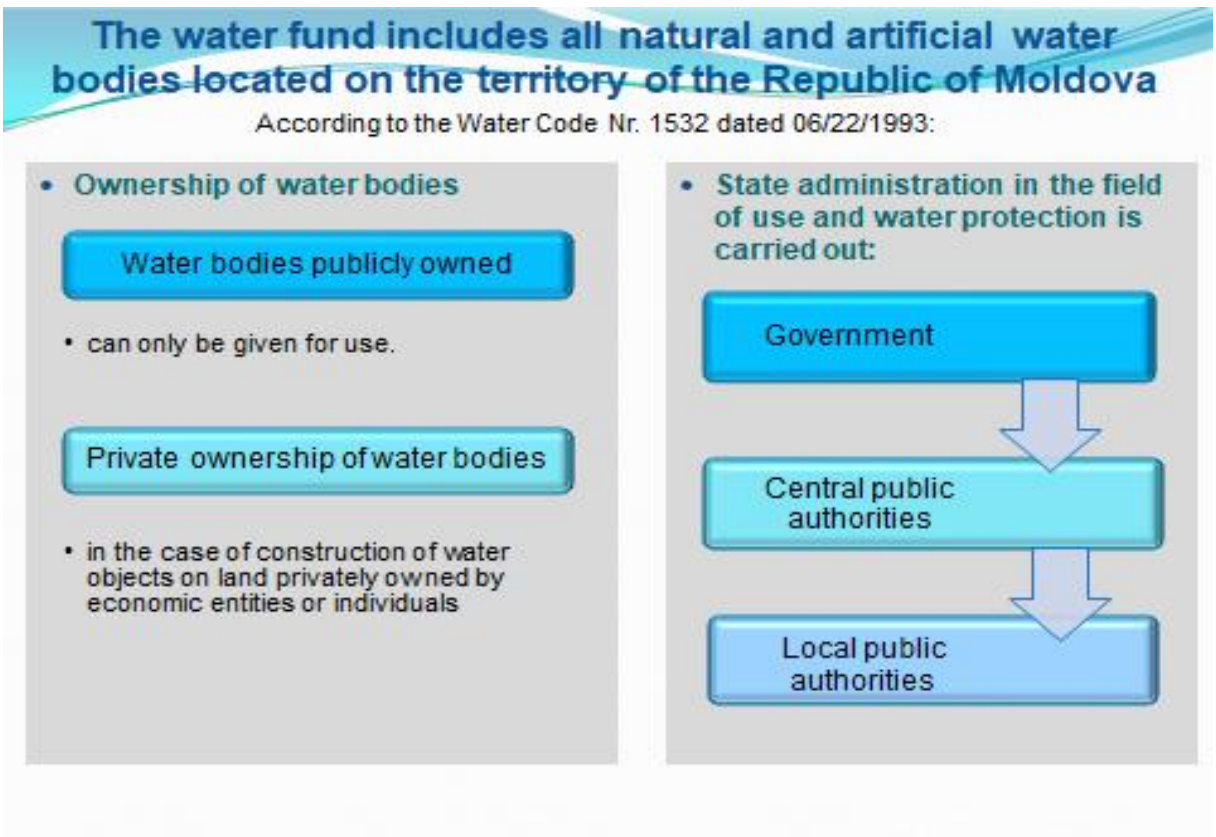
Aquaculture legislation.

The legal basis for regulating relations in the field of the fishing fund, fisheries and fish farming are the *Constitution of the Republic of Moldova, laws, Government Regulations, international treaties and other normative acts*

- Law on the fish fund, fisheries and fish farming Nr. 149 dated 06/08/2006
- The law on breeding in livestock farming Nr.371-XIII dated 15.02.95
- Water Code Nr. 1532 dated 06/22/1993
- Law on water protection zones and stripes of rivers and reservoirs Nr. 440 dated 04/27/95
- Decision of Government of the Republic of Moldova on import and export of breeding resources No. 1203 dated 8 October 2003
- Government Decision no. 810 dated 20.08.2018 for amending the Government Decision no. 977/2016 on approval of the model regulations for the operation of reservoirs/ponds
- National Program for the consolidation and development of aqua culture sector in the Republic of Moldova for 2020-2026



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The right to fish in natural fishery water bodies

The Environmental Agency is the issuing authority for permits in the field of the environment

Certificate of granting a quota for commercial fishing and commercial fishing ticket:

a) an Application containing: the name; organizational and legal form; legal address; the identity card of the applicant and the address; state identification number of administrator; fishing site / areas as per approved list; fishing gear and mesh size of fishing gear to be used; the number of workers who will fish

b) list of workers who will engage in fishing and copies of their employment orders

c) copies of the identity cards of employees who need to issue tickets for commercial fishing

d) a photograph of each employee who needs to issue a commercial fishing ticket.

Aquaculture Licensing

The economic entity is recognized legally established if it meets the following conditions:

- registered in accordance with the established procedure with the inclusion in the activities of fish farming
- has in possession or use water objects arranged for fish farming
- meets fish and biological requirements, environmental requirements as well as sanitary and veterinary requirements

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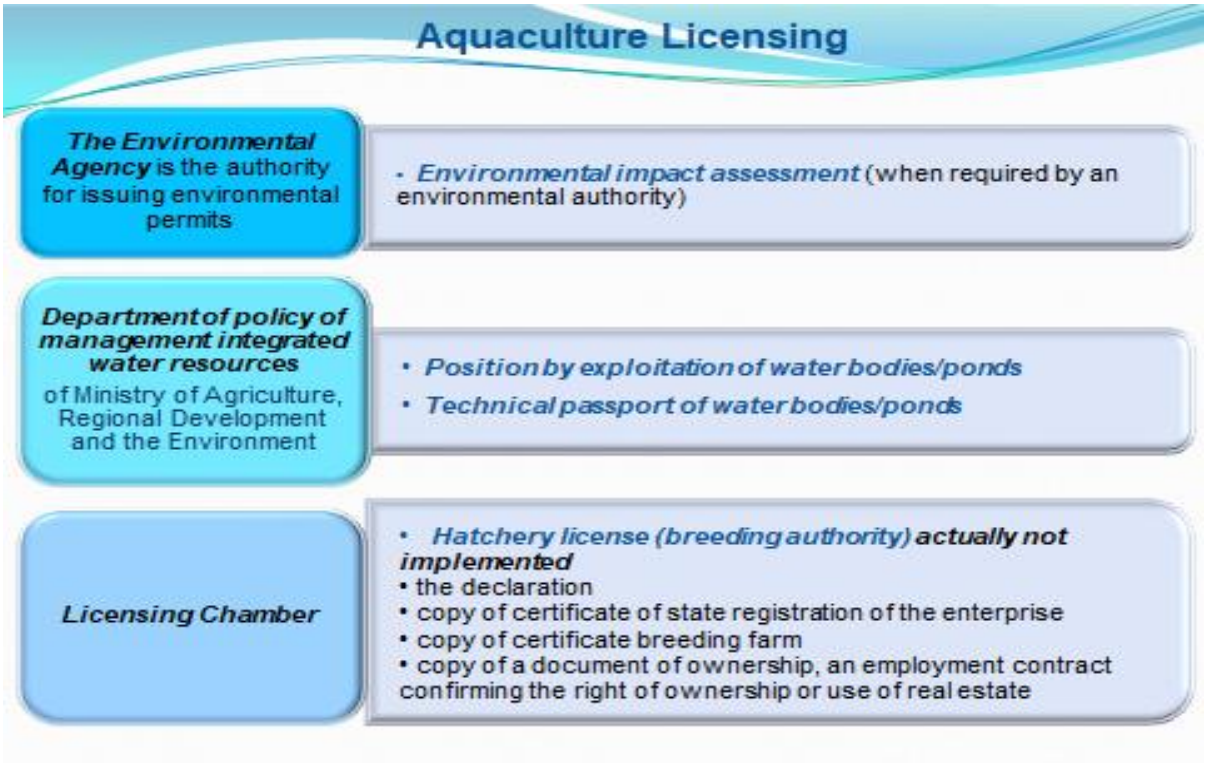

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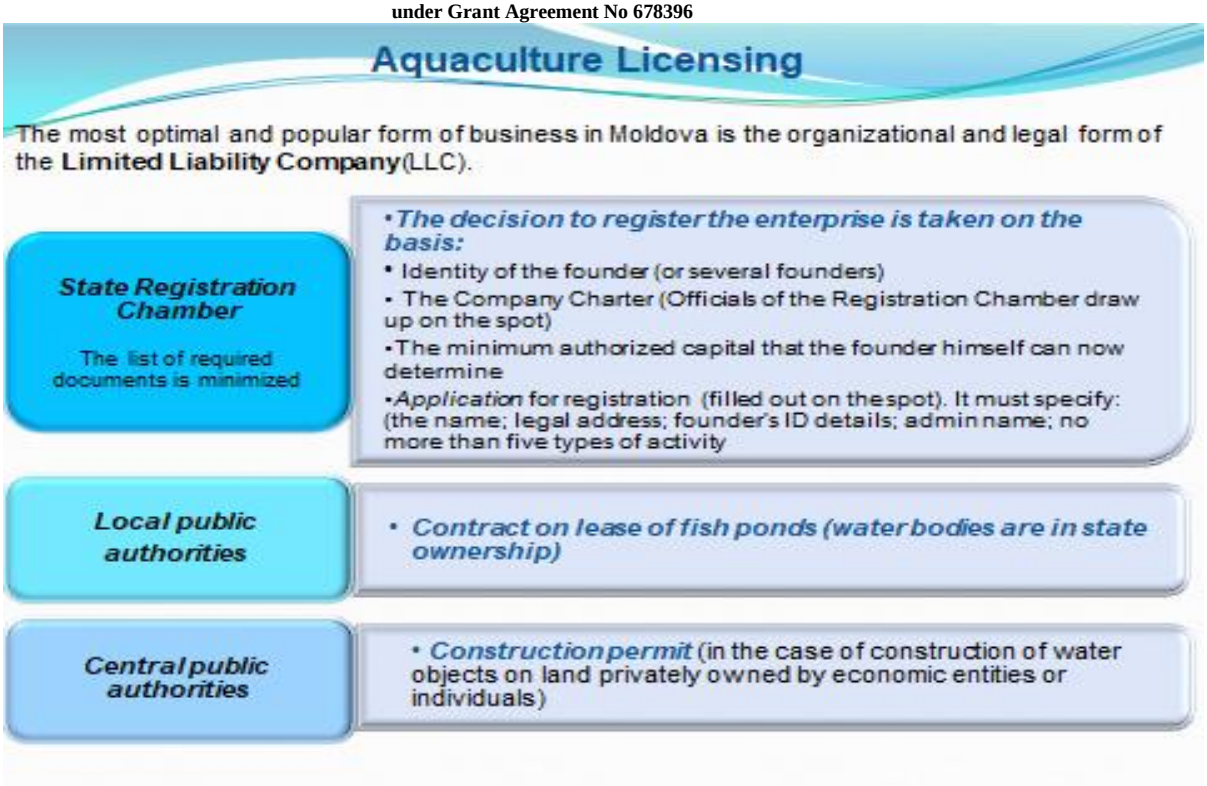

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Aquaculture Licensing

Department of policy for the Production, Processing and Regulation of the Quality of Products of Animal origin	• *Certificate breeding farm* (for three years)
Territorial veterinary authorities	• *Veterinary certificate* (Sanitary and veterinary examination of one batch of live fish - at the beginning of the trading period - after 90 days - re-examination • *Documents proving the origin of goods*
Department of policy in the field of Biodiversity of Ministry of Agriculture, Regional Development and the Environment	• *Permit to use alien species* (on the basis of scientific and biological justification)
Ministry of Agriculture, Regional Development and the Environment	• *Permit to import and export breeding resources* is based on the following documents: • a) an agreement on the acquisition of breeding resources • b) a breeding certificate issued by the exporter • c) veterinary and sanitary conclusion

Problems	Possible solutions
• The accounting and control of fish production is not at the highest level. Fish farming is in the zone of the shadow economy • The aquaculture's economic weight is insufficient • The mechanism for the conservation and management of breeding resources needs to be improved • Inconsistencies between the various authorities/departamens of ministries • It is necessary to improve the public awareness	• The inventory and assessment of bio-productive potential, which will allow planning and account for fish products, are included in the National Program for the Consolidation and Development of Aquaculture. • Make some changes to the laws • Different authorities should be involved in the developing of legislation • Improvement of e-governance

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FISHERY COMPLEX OF THE LENINGRAD REGION: MAIN DIRECTIONS OF DEVELOPMENT AND ACHIEVEMENTS

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Popov N. V. - individual entrepreneur in fishery, senior lecturer at the Environmental faculty of the Russian state hydrometeorological University,
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Fishery is one of the traditional branches of the Leningrad region economics and plays an important role in the socio-economic development of the region. Rational and efficient exploitation of aquatic bioresources and increase in the volume of aquaculture production are priorityobgectives of the regional fishery development.

The main tasks of the Leningrad region industrial fishery are:

- increase in aquaculture production to meet the needs of the population and fish processing enterprises;
- increase in production of competitive marketable food fish products, filling of the regional market and delivery of fish products with high added value to other regions of Russia and abroad;
- increase in the revenue of the regional and local budgets;
- ensuring employment of the population provision of employment of local population and increase of tax base due to creation of new productions;
- increase in investments.
- ensuring the need for fish planting material for reproduction purposes.

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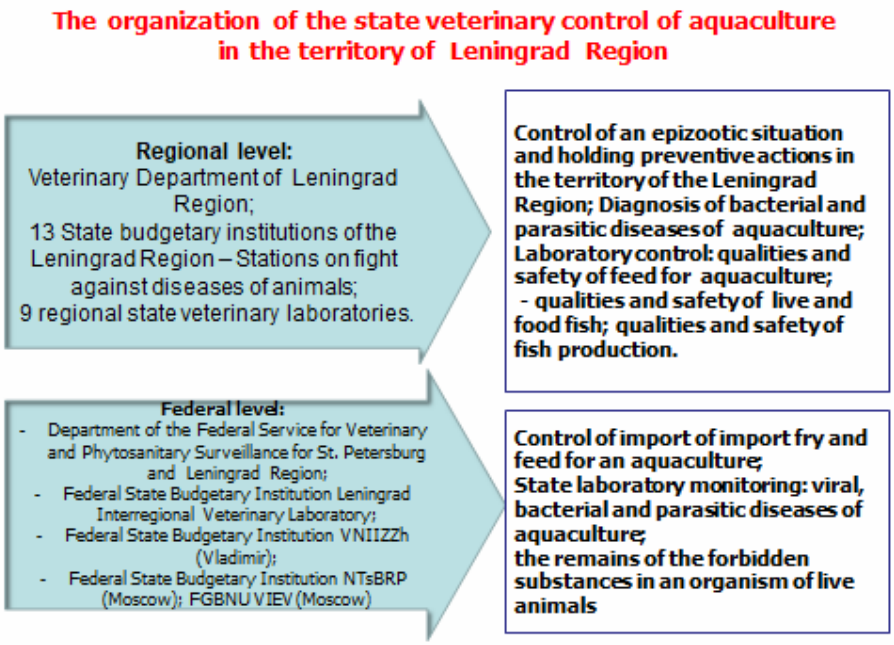
Fish-breeding sites

According to the operating standard and legal base the Commission on delimitation of fishery and fish-breeding sites of the Leningrad Region which is permanent collegial body at Committee on Agroindustrial and Fisheries Complex of the Leningrad Region is formed.

Since 2015 work on formation of fish-breeding sites is conducted according to Rules of delimitation of the water objects and (or) their parts, sites of the continental shelf of the Russian Federation and sites of an exclusive economic zone of the Russian Federation recognized as the fish-breeding sites approved by the resolution of the Government of the Russian Federation of 11.11.2014 No. 1183.

Now to companies contracts of use assigned 70 fish-breeding sites.



Federal branch (North-Western territorial administration of Rosrybolovstvo - Russian Fishery Agency) and regional branch (Committee on agro-industrial and fishery complex of the Leningrad region) - state authorities carry out coordination management of the fishery complex and provide it with extensive legal, consulting and financial support in the following main areas:

- formation and assignment of fish-breeding sites for placement of aquaculture enterprises;
- monitoring and supervision of water biologic al resources and their habitat;
- organization of public services in the field of protection, rational use, study, conservation and reproduction of aquatic biological resources;
- assistance in overcoming of import dependence in feed, fish roe and fish farming equipment for regional enterprises;
- organization of professional development programs and assistance in establishing interregional and international relations;
- participation in the preparation of proposals to change the regulatory framework in the Russian fisheries sector.

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The State Program of the Leningrad Region "Development of Agriculture of the Leningrad Region" is approved by the resolution of the Government of the Len ingrad Region No. 463 of 29.12.2012

The main directions of the state support are:

- subsidies to breeding fish-breeding farms for the maintenance of a uterine livestock of fish,
- subsidies for compensation of a part of costs of feed,
- subsidies for compens ation of a part of the factor incurred cost for creation and (or) modernization of aquaculture objects and also for acquisition of the machinery and equipment, a subsidy for compensation of a part of payment costs of percent on the credits, grant support o f the beginning farmers and development of family livestock farms.

Also fish-breeding enterprises can get the state support as subjects of small and average business through the relevant committees and funds.

STATE SYSTEM OF ORGANIZATION OF A RTIFICIAL REPRODUCTION OF WATER BIORESOURCES IN THE RUSSIAN FEDERATION

Popov N. V. - individual entrepreneur in fishery, senior lecturer at the Environmental faculty of the Russian state hydrometeorological University,
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In Russia now adays there are 4 sectoral Federal laws regulating the main activities in the field of fisheries:

- No. 166-FZ of 20.12.2014 "On fishing and conservation of aquatic biological resources "(hereinafter - the law "On fishing"),
- No. 148-FZ of 02.07.2013. "On aquaculture (fish farming) and amendments to certain Russian Federation legislative acts" (hereinaft er - the law "On aquaculture"),
- No. 475-FZ of 12.12.2018 "On Amateur fishing and amendments to certain Russian Federation legislative acts",
- No. 7-FZ of 10.01.2002 "On environmental protection".

The basin principle of industry management adopted by the l aw "On fisheries", makes it possible to develop programs and plans for the reproduction of aquatic bioresources in the fisheries basin, focusing on existing natural conditions and the state of fish stocks in a particular water body.

Russian Fishery Agency (in Russian – Rosrybolovstvo) and its territorial administrations (hereinafter – TA RFA) operating in each fishery basin coordinate and control activities for the development of plans and measures implementation for the reproduction of fish stocks. The inspection staff of 18 RFA departments monitors compliance with mandatory requirements for the operation of fishery water bodies, and also participates in the organization of growing and releasing juveniles of valuable species of aquatic bioresources to rep lenish populations and maintain a stable raw material base of the fishery.

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Scientific recommendations for each fishery basin are developed annually by specialists of Russian Research Institute of Fisheries and Oceanography (hereinafter referred to as VNIR O) and its local branches.

The main practical work on artificial reproduction of fish stocks within the framework of the subprogram "Development of aquaculture" of the State program of the Russian Federation "Development of the Fishery Complex" approved b y the decree of the Government of the Russian Federation of 15.04.2014 No. 314 (with changes) is conducted by the Federal State Budgetary Institution “The Main Basin Department for Fisheries and Conservation of Aquatic Biological Resources” (In Russian – GLAVRYBVOD), 28 local branches of which are located in all fishing basins and have production plants for incubating caviar and growing juveniles of valuable species of aquatic bioresources - fish hatcheries. There are 102 fish farms in the Russian Federatio n.

In recent years, compensatory measures have contributed to the increase in the volume of artificial reproduction of aquatic bioresources. Federal law No. 7 -FZ of 10.01.2002 "On environmental protection" (item 1, article 77) establishes the liability of legal entities and individuals who caused damage to the environment in the form of mandatory compensation for the damage caused in general. To establish the boundaries of the harm caused and calculate the amount of compensation measures, for example, in th e form of release of young aquatic bioresources into a fishery water body, an assessment of the impact of the planned activity on bioresources and their habitat is performed.

THE REGIONAL IDENTIFIED PROBLEMS AND VULNERABILITIES IN AQUACULTURE MANAGEMENT IN THE LENINGRAD AND PSKOV REGIONS, THE YAMALO -NENETS AUTONOMOUS REGION, THE REPUBLIC O F SAKHA (YAKUTIA), THE FAR EAST

ZSHachkin D.A. Aquaculture Technologist-Consultant,
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Consideration of aquaculture development factors in the regions of the Russian Federation to identify disadvantages and provide with recommendations for management optimization.

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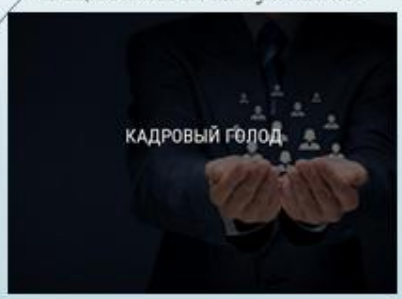
Административная нагрузка/Administrative burden

Кадровое обеспечение/Human resourcing

- Малое количество выпускаемых специалистов высшего и среднего образования
- Отсутствие квалифицированных работников
- Низкий процент трудоустроенных по специальности выпускников

- A small number of graduates of higher and secondary education
- Lack of skilled workers
- Low percentage of graduated work in profession



Испытательные лаборатории/Testing laboratories

- отбор проб проводится необученными сотрудниками;
- возникают проблемы с доставкой проб к месту проведения анализа, которые приводят к нарушению сроков и условий доставки;
- не обеспечивается контроль полного перечня обязательных показателей;
- отсутствие методик исследования на некоторые показатели или их несовершенство;
- высокие финансовые затраты на лабораторные исследования;
- существует риск привлечения недобросовестных лабораторий, выполняющих исследования «на бумаге» (выдающих протоколы без проведения исследований).

- sampling is carried out by untrained employees;
- there are problems with the delivery of samples to the place of analysis, which lead to a violation of the terms and conditions of delivery;
- control over the full list of mandatory indicators is not ensured;
- lack of research methods for some indicators or their imperfection;
- high financial costs for laboratory research;
- there is a risk of attracting unscrupulous laboratories performing research "on paper" (issuing protocols without conducting research).

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Недостаточная информированность по программам государственной поддержки в сфере аквакультуры/ Insufficient Awareness of government support programs in aquaculture

Заключение/Conclusion

- Недостаточная нормативно-правовая база
- Высокая административная нагрузка со стороны надзорных органов
- Отсутствие аккредитованных исыытательных лабораторий
- Нехватка квалифицированных рабочих
- Информированность по программам государственной поддержки в сфере аквакультуры

- Lack of regulatory framework
- High administrative burden on from regulatory authorities
- Lack of accredited testing laboratories
- Lack of skilled workers
- Awareness of government support programs in aquaculture