

AQUACULTURE DEVELOPMENT IN UKRAINE

Comprehensive analysis of challenges and opportunities of aquaculture industry in Ukraine, best-practice experience and policy recommendations



NORWEGIAN MINISTRY OF TRADE,
INDUSTRY AND FISHERIES

NUCC

NORWEGIAN - UKRAINIAN
CHAMBER OF COMMERCE

easyBUSINESS



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The idea and necessity of a roadmap for aquaculture development in Ukraine is due to the considerable untapped potential for improvements in the sector. In 2016 the Norwegian-Ukrainian Chamber of Commerce (NUCC) and State Fisheries Agency of Ukraine initiated discussions and started consolidation of various stakeholders, including government, expert community, business representatives and civil society organizations, under the idea to develop a roadmap on aquaculture. This roadmap was drafted with the generous support of the Norwegian Ministry of Trade, Industry and Fisheries and the Norwegian-Ukrainian Chamber of Commerce.

The development of the roadmap was led by NUCC and the Ukrainian think tank EasyBusiness in collaboration with the lawyers of Ukrainian law firm EverLegal and The State Fisheries Agency of Ukraine, with the aim to develop the aquaculture industry in Ukraine and approximate best Norwegian and International experiences into Ukrainian practices.

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Although the advice from the mentioned institutions was taken into account with the utmost attention, all mistakes, if any, contained in this guide are purely those of the authors.



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SUMMARY

Agriculture is a strategic sector of the Ukrainian economy. It produced almost 14% of GDP and employed 17% of labor force in 2016. Aquaculture is part of the agriculture sector and its turnover amounts to around US\$3 million (0.3% of agriculture in general).

Historically, Ukrainian aquaculture industry was one of the most developed among the Soviet republics. Ukraine had all the elements for fish and seafood production, including fishing and fish processing, reproduction and protection of fish stocks, fish breeding centers. The level of productivity of fish-breeding ponds exceeded the average figure in the Soviet Union. However, after the collapse of the Soviet Union total aquaculture production dropped by 60% in the first year. Since then, import has become the main source of providing the Ukrainian population with fish and seafood products.

Taking into account previous performances, Ukraine has preconditions to become a considerable aquaculture producer. However, today aquaculture in Ukraine faces a number of challenges, including regulatory issues with the use of water bodies, lack of qualified personnel, low access to finance and the high cost of feed, equipment and technology. Despite the fact that Ukraine has the largest inner water surface area in Europe, fish productivity is one of the lowest.

The analysis of business challenges provides additional information about industry needs, improving quota regulations; collaboration with the government regarding investments or establishing joint projects; opening new educational platforms for aquaculture industry employees; and overcoming poaching and thefts.

In order to solve these challenges, Ukrainian aquaculture companies and government should consider the experience of the leading countries in the industry:

- Norway is highly specialized at cage-based marine aquaculture, and has developed a regulatory framework supporting and encouraging industrial production of aquaculture.
- Denmark is dominated by land-based aquaculture and the industry is strictly regulated by rules of the Danish Environmental Protection Act. Each individual farm has its own fixed feed quota in addition to specific requirements including feed conversion ratios, water use, and treatment, effluents, removal of waste and offal.
- Poland has mostly pond-based aquaculture and the industry is dominated by small enterprises operated by professionally trained personnel. The industry involved US\$274 million to support aquaculture from the European Maritime and Fisheries Fund for the period of 2014-2020.

On the basis of present industry conditions in Ukraine and relevant international experience, a set of policy recommendations for improvement of the aquaculture industry in Ukraine were formulated. The recommendations can be divided into two groups:

- Changing the legal framework. The main recommendations are connected with covering all water bodies in defining their legal status, creating a non-exhaustive list of possible forms of water bodies parts usage, establishing a single clear rent procedure; establishing a single clear procedure of receiving special water use, avoiding the duplication of permits, amending current Veterinary examination norms and introduce financial incentives for improving standards and increasing production of Ukrainian aquaculture. As well as creation a "single window" administration that will be responsible for coordination permits and other related issues.
- Improving business processes. Recommendations are connected with the creation of incentives for consolidation and cooperation of all aquaculture producers in order to solve legislative and other issues.



INDUSTRY OVERVIEW

Analysis of aquaculture industry in Ukraine including production, consumption, export/import, value breakdown



1.1 AQUACULTURE MARKET ASSESSMENT



The strategic position of the fishery and aquaculture industry in Ukraine

Agriculture industry takes an essential role in the Ukrainian economy, providing approximately 14% of GDP (Figure 1), provides with jobs to around one-fifth of the employed population.

The market value of aquaculture production amounts to around US\$ 3 million (0.3% of agriculture in general) and, cannot cover domestic demand. Hence, taking into account domestic fisheries, more than 80% of fish and seafood products consumed in Ukraine need to be imported.

14%

of GDP provides
agricultural industry

Figure 1. Market value and agricultural industry share of GDP



* The first data is available from 2008

Source: State Statistics Service of Ukraine



Definition of the land-based, cage-based and pond-based aquaculture

Generally, the aquaculture sector may be divided into three* main branches:

- Pond-based aquaculture.** The main volume of Ukrainian aquaculture produced through classic pond-based systems (92% of the total aquaculture production in terms of volume). Ponds range from small, rudimentary, gravity-fed facilities to large geometric ones, constructed using machines and with sophisticated water management regimes. Carp family, the widest cultivated fish species, commonly grown in freshwater ponds. Shrimp and finfish, tolerant to more saline waters, are cultivated in brackish water ponds.
- Cage-based aquaculture** includes enclosures, pens, cages, and rafts, and usually situated in sheltered coastal or inland waters. Pens rest on the bottom of a water body; cages are floating structures with net suspended underneath. There are some cage systems of fish farming in Ukraine (less than 0.003% of the total aquaculture area in terms of volume)
- Land-based aquaculture.** The share of land-based aquaculture is 0.005% of the total aquaculture area in terms of volume. It takes the advantages of reusing natural or artificial water resources by recirculation systems, either partly or in general. Land-based aquaculture incorporates RAS systems (recirculation), including raceways, basins and other facilities, some in built-in constructions, built on dry land

* - Besides the three main categories The State Agency of Fisheries of Ukraine defines others with their share in about 8%

92%

of the total
aquaculture
production in terms
of volume produced
through pond-based
systems

Indoor constructions can be used for the production of breeding materials, as well as for the production of market size fish, or even both. Normally, indoor constructions use artesian water in their production, if available, since this facilitates better water quality and more stable water temperatures during the production cycle. The raceways are practically elongated tanks with canalized flow. As most of them are flow-through, the source of good-quality water is needed. Land-based systems are typically used for high-value fish like salmonids, and for the production of breeding materials.

According to the density of cultured organisms per unit area, aquaculture systems range from traditional to industrial:

- Traditional aquaculture. The main advantages of traditional aquaculture systems are low investment costs; usage of natural water bodies and simple containment structures; low operating costs and low production costs. The main disadvantages of this type of system are low productivity, high dependence on local climate and water quality
- Industrial aquaculture. The main advantages of industrial aquaculture systems are low dependence on local climate and water quality, high productivity, generally better product quality and its main disadvantage is the high investment costs

Key facts

Aquaculture were under government support in the former USSR

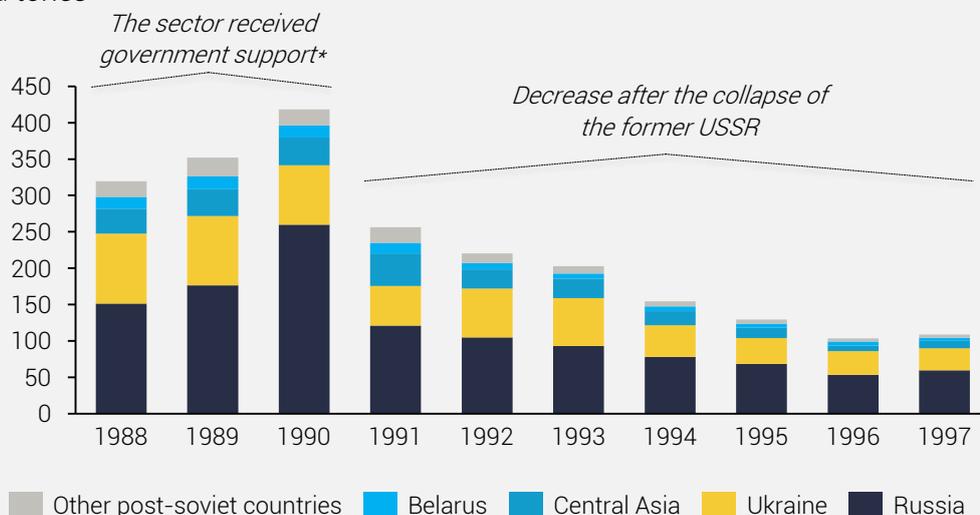


Historical prospective and selected preconditions for the market development

Transition from the Soviet Union to Ukraine

During the 1980-1990's the aquaculture production in the former Soviet Union was growing due to receiving the government support. However, in 1991 with the collapse of the Soviet Union aquaculture production decreased by about 1,6 times (from 418,277 tones in 1990 to 256,295 tones in 1991) (Figure 2).

Figure 2. Aquaculture production of the former Soviet Union area, 1988 – 1997, thd tones



* - directly through incentives and indirectly through research and development efforts

Source: Aquaculture Development Trends in the Countries of the Former USSR Area
<http://www.fao.org/docrep/003/ab412e/ab412e25.htm>

Key facts

Ukraine was the second country in the USSR at aquaculture production

Aquaculture in Ukraine was one of the most developed among the Soviet republics. Ukraine had all the elements for fish and seafood production, including fishing and fish processing, reproduction and protection of fish stocks, fish breeding centres. The level of productivity of fish-breeding ponds exceeded the average figure in the Soviet Union.

Definition of the most impactful changes have been made;

A significant transformation of the Soviet system complex into a separate complex of Ukraine occurred. In the 1990s, incentives were cancelled due to the economic situation that caused a rapid decline in the catch of fish and aquaculture production. Furthermore, economic imbalances led to the considerable decrease of floating assets in enterprises, the significant deterioration of their material and technical base.

The problems of the competitiveness of Ukrainian aquaculture industry can chiefly be explained by:

- pressure and manipulation regarding tenants of waterbodies
- lack of qualified personnel
- problem of access to markets
- unavailability of the capital market
- the high cost of feed and modern technology

Import has become the main source of providing the Ukrainian population with fish and seafood products. The turning point was 1999 when the import duty on frozen aquatic animals was reduced from 20% to 5%. Reduced fees have led to the fact that fish and seafood import to Ukraine has increased several dozen times over the last two decades.



General industry overview

The use of land and water resource

According to The State Agency of Fisheries of Ukraine, there are 101,761 hectares of the available area of water bodies. At the same time, in 2015 only 48% of available water bodies were stocked with fish.

The efficiency of the land and water management in Ukraine;

Despite the fact that Ukraine has the largest inner water surface area in Europe – approximately 1.3 million hectares, fish productivity (the amount of fish that grown per hectare) in Ukraine declined from 30 kg per hectare in 2013 to 26 kg per hectare in 2016.



Ukrainian fish and seafood market

Regional and product structure in brief (Figure 3)

- There are 24 regions in Ukraine
- The largest aquaculture production share is in Sumy, Cherkasy, Vinnytsia, Kirovohrad and Lviv regions. The least is in Poltava, Dnipropetrovs'k, Mykolaiv and Khmelnytskyi regions
- Vinnytsia, Cherkasy, Kirovohrad, Sumy, and Kherson regions have the largest aquaculture production potential (due to the high level of stocking with a fish area of water bodies)

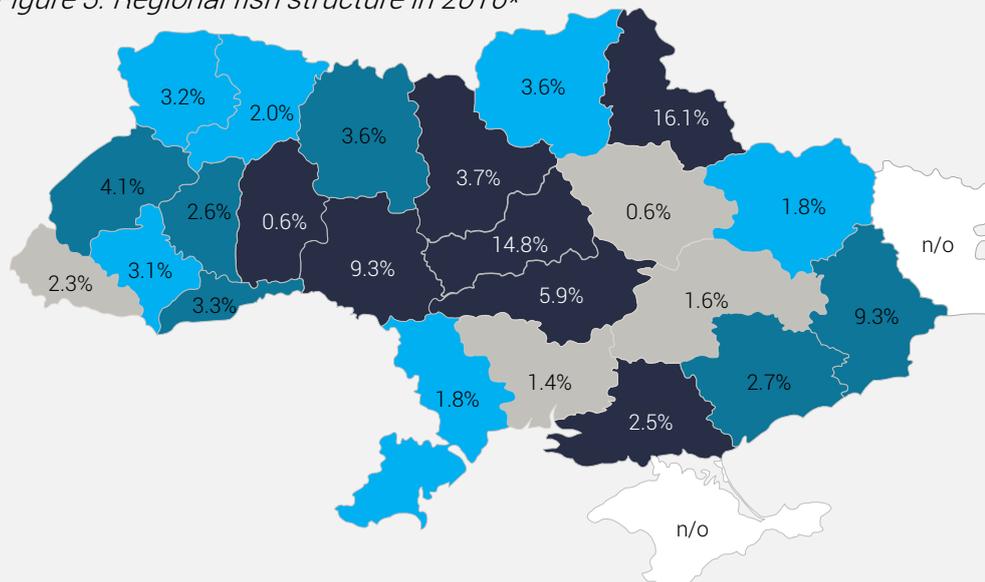
101 761 ha

of the available area
of water bodies in
Ukraine

26 kg

the amount of fish
that grown per hectare
in Ukraine

Figure 3. Regional fish structure in 2016*



* - Percentage indicates the share of all aquaculture production in Ukraine, color – the scale of stocked area of water bodies (from dark to light, from a larger area to a smaller).

Marine aquaculture (Figure 4). The Black Sea coastline is a potential place for the marine aquaculture development in Ukraine. Odesa, Mykolaiv, and Kherson regions are places where different types of marine aquaculture can be raised.

Types of fish that have a prospect for the development of marine aquaculture:

- Flounder, Siberian sturgeon, beluga, American perch, rainbow and spring trout and others are the best types for breeding
- Mussels, flat and giant oysters and the best among clams

Figure 4. Potential Ukrainian regions for marine aquaculture.



Source: State Statistics Service of Ukraine

8

regions in Ukraine are potential for marine aquaculture

6%

increasement of fish caught in inland bodies during 2005-2015

Market quality and quantity estimation

Catch of fish and seafood

Total catch of fish and other aquatic bioresources in Ukraine falls into three categories, depending on the catch location:

- *Inland water bodies.* According to the State Agency of Fisheries of Ukraine, in 2015 the total amount of fish caught in inland water bodies increased by 6% compared to 2005 (from 37.4 thousand tons of fish in 2005 to 39.6 thousand tons in 2015)

By 64%

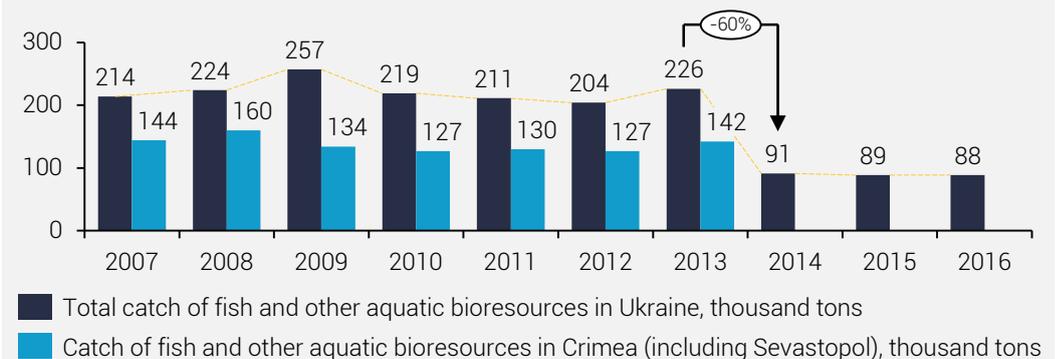
decreased fish caught in Azov-Black Sea basin during 2005-2015

The annexation of the Crimean Peninsula by Russian Federation has stimulated increased of the catching of fish from inland water bodies.

- *Azov-Black Sea basin.* According to The State Agency of Fisheries of Ukraine, in 2015 the total amount of fish caught in Azov-Black Sea basin decreased by 64% over 10 years compared to 2005 (from 61.2 thousand tons of fish in 2005 to 22.2 thousand tons in 2015). In 2010, 65% of the catch of fish from Azov-Black Sea basin provided by Crimea. Due to the annexation of the Crimean Peninsula by Russian Federation, Ukraine has no longer access to the main area of fish catches
- *Marine economic zone of other states.* According to The State Agency of Fisheries of Ukraine, in 2015 the total amount of fish caught in the Maritime economic zone of other states decreased by 82% compared to 2005 (from 167 thousand tons of fish in 2005 to 29.5 thousand tons of fish in 2015). In 2010, 73% of the catch of fish from the Maritime economic zone of other states was provided by Crimea

In 2014, the catch of fish and other aquatic bioresources by fishing enterprises of Ukraine amounted to 91 thousand tons, which is 60% less than the total catch in 2013 (Figure 5). This sharp decrease can be explained by the annexation of the Crimean Peninsula by the Russian Federation. In 2013, the share of the catch of fish and other bioresources in Crimea was 63% of the total catch in Ukraine, and since 2014, this share dropped to 0 percent.

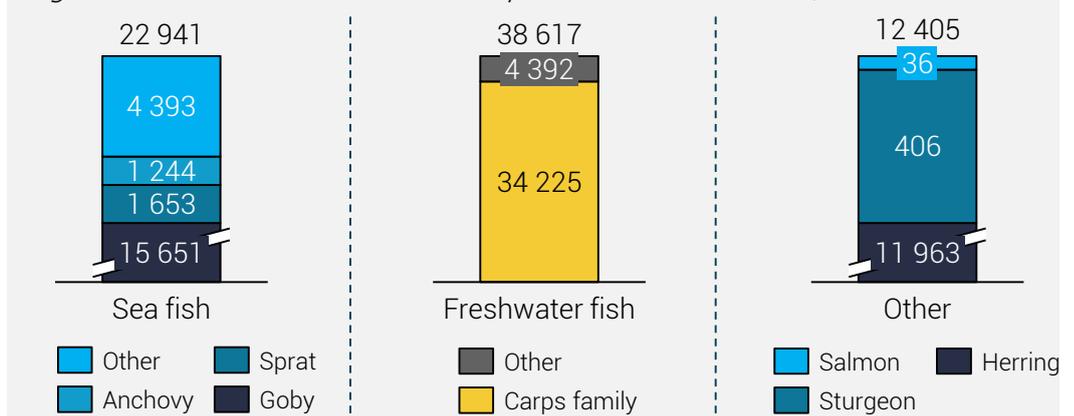
Figure 5. Catch of fish and seafood in Ukraine for the period of 2007–2016, thousand tons



Source: State Statistics Service of Ukraine

The State Agency of Fisheries of Ukraine divides the total catch of fish into 5 groups: sea fish, freshwater fish, salmon, and sturgeon herring (Figure 6).

Figure 6. The structure of total fish capture in Ukraine in 2016, tons



Source: State Statistics Service of Ukraine

Among sea fish, the largest share belongs to Goby (70% of the total catch of sea fish), Sprat (7% of the total catch of sea fish) and Anchovy (5% of the total catch of sea fish). Among freshwater fish, the largest share belongs to the Carps family (about 90% of the total catch of freshwater fish).

Aquaculture production

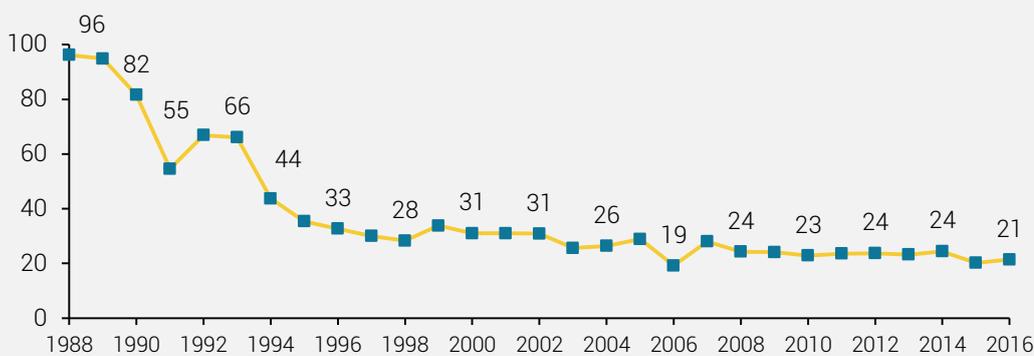
In 2016 total aquaculture production decreased by 78% compared to 1988 (from 96 thousand tons of fish in 1988 to 21 thousand tons of fish in 2016) (Fig 7). The biggest reduction happened due to the collapse of the former Soviet Union (in 1991 by -33%), the economic crisis (in 2006 by -27%) and the outbreak of military actions (in 2014 by -12.5%).

Key facts

Main species of fish caught in the sea

- goby - 70%
- sprat - 7%
- anchovy - 5%

Figure 7. Total aquaculture production in Ukraine, million dollars



Source: State Statistics Service of Ukraine

Comparing aquaculture production to the total catch of fish in Ukraine, total aquaculture production did not significantly change in terms of volume and value over the last 10 years. It is explained by the notion, that most aquaculture production locations are based in mainland Ukraine, and with the annexation of the Crimean Peninsula, Ukraine lost only 2.58% of the total aquaculture production (compared to 60% loss of the total catch of fish in 2014).

Fish and seafood products consumption

In 2016, the total fish and seafood consumption in Ukraine was estimated at 432 thousand tons (Figure 8).

Demand stability of fish and seafood consumption is relatively low, which is caused by the political and economic situation of the country. The most crucial factors, that influenced total fish and seafood consumption in Ukraine, are:

- An increase by 5% in the total catch of fish in inland water bodies and an increase of import by 25% in 2008 lead the fish and seafood consumption to grow by 20% compared to 2007
- Financial crisis decreased consumption of fish and seafood by 17% in 2009 compared to 2008, due to reduced purchasing power among consumers, increased import prices due to the exchange rates and other internal and external factors (Ukrainians were forced to replace fish products to cheaper animal protein)
- The loss of Crimea and difficulties in getting fish into militarized zones caused the reduction of fish and seafood consumption in 2014 compared to 2013

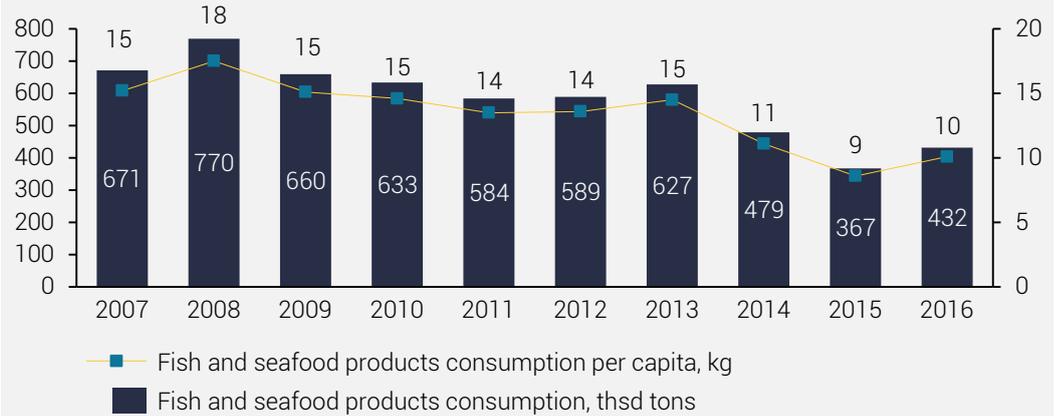
Nevertheless, in 2016 a slight improvement in the total fish and seafood consumption can be noticed, which may end a decrease of the recent 2 years.

Key facts

Decrease of consumption of fish and seafood

- due to the loss of Crimea and
- financial crisis

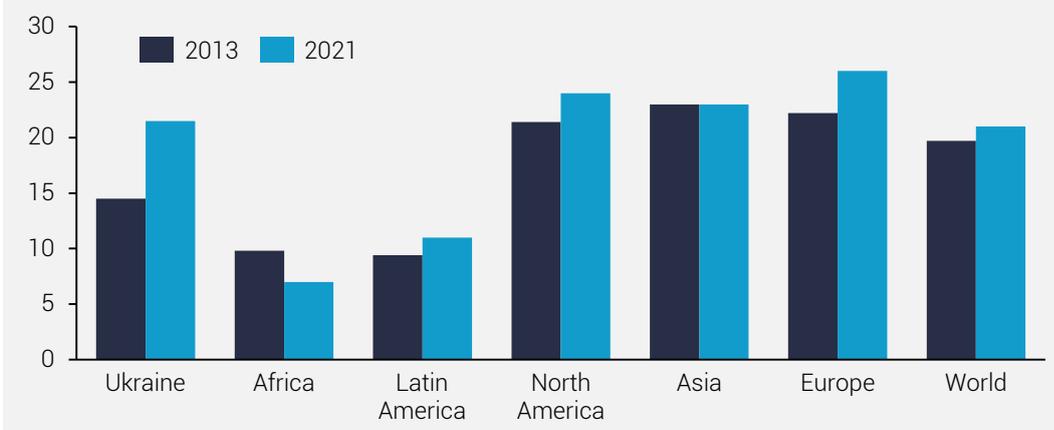
Figure 8. The dynamics of fish and seafood product consumption in Ukraine for the period of 2007–2016 (kg per capita and thousands of tons)



Source: State Statistics Service of Ukraine

Consumption of fish and seafood products per capita in Ukraine does not reach the average world level (which according to FAO is about 20 kg in 2016). However, according to the FAO, in 2021 the estimated level of Ukrainian fish consumption will increase by 67% (compared to 2013) and exceed the average world level of fish consumption (Figure 9).

Figure 9. Fish and seafood product consumption per capita in the world and Ukraine in 2013 and in 2021 (estimated)



Source: Food and Agriculture Organization of the United Nations (FAO)



Fish and seafood products export/import dynamics

Statistics from The State Agency of Fisheries of Ukraine confirms that the share of import is much higher than the export ones (Figure 10). It is explained by the fact that national production covers only 20% of domestic demand and the other 80% needs to be imported.

Changes in total fish and seafood export are influenced by the economic, political and regulatory situation in Ukraine. The biggest drop (after 2013) is predominantly caused by the loss of the Russian market, which is estimated 80-85% from total Ukrainian export, and the annexation of Crimea peninsula with previous 63% of total Ukrainian fish capture.

However, due to improving macroeconomic indicators, import started growing in 2016.

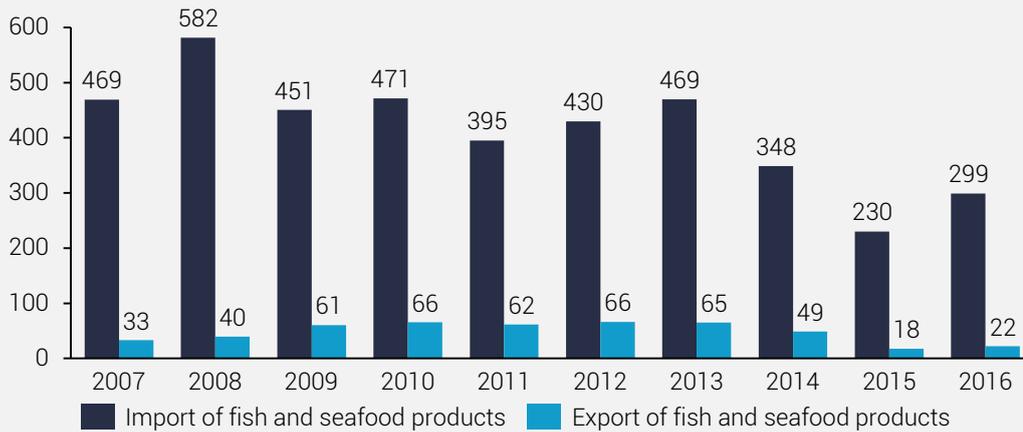
9 kg

per capita the lowest level of fish and seafood consumption in Ukraine for the last 9 years

85%

the share all export of fish and seafood products went to Russia before 2013

Figure 10. Dynamics of the export and import of fish and seafood products in Ukraine for 2011–2016 (million dollars US)



Source: State Statistics Service of Ukraine

Import

In 2016 ~78% of total Ukrainian import in terms of volume and 60% of total Ukrainian fish and seafood products import in terms of value belongs to frozen fish, which can be explained by the low purchasing power of the population. 80% of consumed fish and seafood products are imported, mostly in a low-priced segment (Figures 11 and 12).

80%

of all consumed fish and seafood products are imported

Figure 11. The structure of Ukrainian fish and seafood import in 2016, % (in volume)*

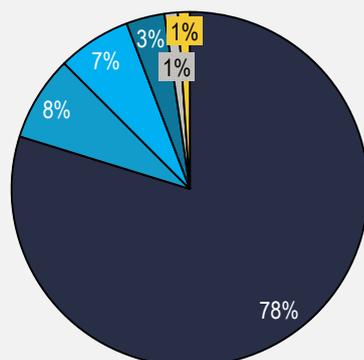
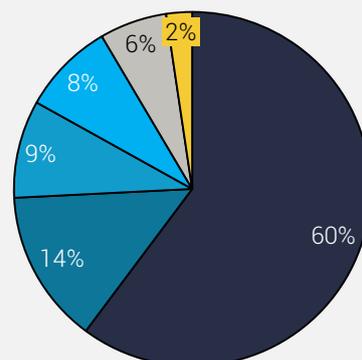


Figure 12. The structure of Ukrainian fish and seafood product import in 2016, % (in value)**



78%

of Ukrainian fish and seafood import in 2016 in volume is frozen

- Frozen fish
- Fish fillets and other fish meat
- Prepared or preserved fish
- Fresh fish
- Others
- Prepared or preserved shellfish or clams

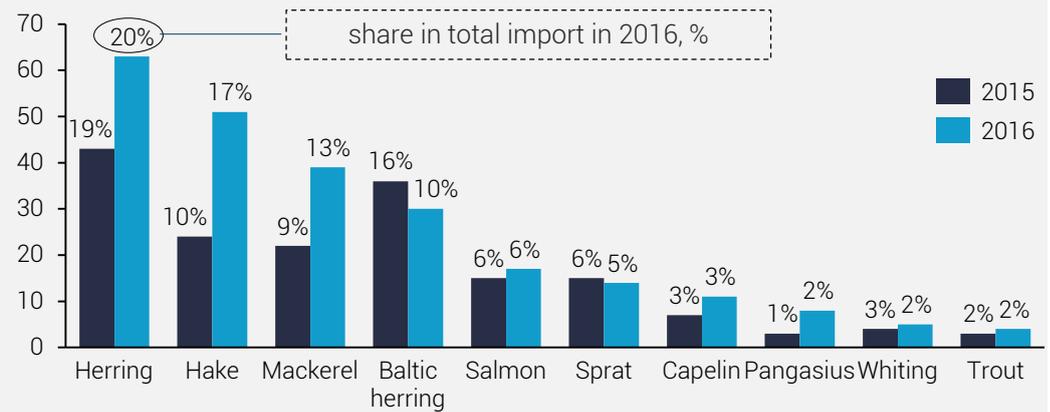
* - Less than 1%: clams, shellfish, dried or salted fish, live fish and aquatic invertebrates

** - Less than 1%: live fish, clams and fish flour or grains

Source: State Statistics Service of Ukraine

In 2016, the most imported fish (in quantity) were herring, hake, and mackerel. Moreover, their share in the total fish and seafood products import increased compared to 2015 (Figure 13).

Figure 13. The most imported types of fish (in volume, thousand tons) and their share in total import in 2015-2016



Source: State Statistics Service of Ukraine

Export

In 2016 the major part of total Ukrainian export in terms of volume and value belongs to fish fillets and other fish meat (36% in terms of volume and 37% in terms of value), as well as to prepared or preserved fish and shellfish (Figures 14 and 15).

Figure 14. The structure of Ukrainian fish and seafood export in 2016, % (in volume)

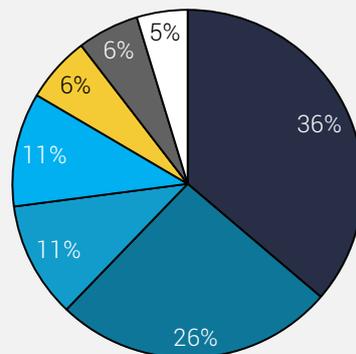
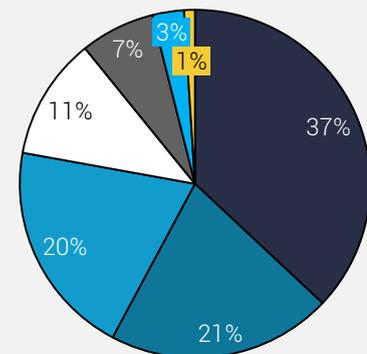


Figure 15. The structure of Ukrainian fish and seafood product export in 2016, % (in value)



Fish fillets and other fish meat
 Prepared or preserved S/C*

Prepared or preserved fish
 Fresh fish

Shellfish
 Other**

Frozen fish

* - shellfish or clams

** - Including calms, dried or salted fish, fish flour or grains

Source: State Statistics Service of Ukraine



Shadow sector

Illegal fish and seafood sector

According to FAO's estimation, Illegal, Unreported and Unregulated fishing across the world's oceans weights in at around 11–26 million tons of fish each year or in value it equals to US\$10–23 billion.

20%

Of all import accounts for Herring – the most imported fish

10-23 bln

US\$ the estimated market of Illegal, Unreported and Unregulated fishing across the world

This situation could be regulated with the establishment of transparent rules of fishing and its accounting. It is necessary to create conditions under which the legal work will be more profitable.

Illegal trade of black caviar

Demand for caviar in Europe and other parts of the world has led to overfishing of sturgeon in most parts around the world including Russia, Iran, North America Midwest, Azerbaijan, and Ukraine. Caviar trade is highly profitable with parties in Europe paying poachers and legal traders huge amounts of money for the quantity of caviars sold. Due to overfishing, sturgeon species have been declared endangered and rated vulnerable by the IUCN Red List of endangered species. The fishing in both the Caspian Sea and the Black Sea has been banned. The ban on sturgeon fishing has led to the development of increased sturgeon aquaculture. However, illegal caviar trade continues.

Ukraine is among the top-5 countries with a high share of illegal caviar trade, estimated approximately 10% between 1999 and 2014. In comparison, Russia accounts for 38% of all illegal caviar trade and The Islamic Republic of Iran accounted for 11%. Other countries with rampant illegal caviar trade include Azerbaijan, Germany, Kazakhstan, Poland, and Turkey. These countries export both black and red caviar to Europe illegally despite the restrictions and hefty penalty on sturgeon fishing.

The overfishing and overexploitation have led to a significant reduction in the number of sturgeons in most seas including the Black and the Caspian Seas. If illegal caviar trade is not brought to the end, the sturgeon variety will be extinct in the next few years.

Table 1. The Illegal Caviar Trade: Top source countries of illegal caviar trade seizures (1999-2014)

Nº	Country	% of illegal caviar trade seizures, Worldwide
1	Russian Federation	38%
2	Islamic Republic Of Iran	11%
3	Ukraine	10%
4	Azerbaijan	8%
5	Germany	4%

Source: The article "The Illegal Caviar Trade - Countries Most Involved" <http://www.worldatlas.com/articles/the-illegal-caviar-trade-top-source-countries-of-illegal-caviar-trade-seizures.html>

Value chain for land-based and cage-based aquaculture

Value Chain for land-based and pond-based aquaculture in most cases consists of three main stages:

- Input stage;
- Production stage;
- Processing and Sale stage.

3

the number of Ukraine in the list of Top source countries of illegal caviar trade

10%

is the share of illegal caviar trade in Ukraine

10%

of all cost of aquaculture production normally are vitamins and minerals



Input stage. At the current stage, all preparation processes conducted for future production: procurement of core product (brood stock), procurement of materials for cultivation (feed, vitamins, etc.), rents and preparing works.

Input stage goes through such phases:

- Land/water rent
- Brood stock supply
- Feeding and Fish intensification (vitamins and minerals)
- Procurement of additional materials (microchips, scales, etc.)
- Preparation works



Production stage. At this stage, the direct production of aquaculture products starts.

Production stage goes through such phases:

- Product quality analyzing
- Fish cultivation (organic/non-organic methods: additional equipment like recirculation systems etc.)
- Fishery
- Energy consumption (to keep up a heating system at the Indoor aquaculture aquarium)
- Water filtration
- Additional water supply: additional cost that can occur for Land-based aquaculture in order to keep up with certain levels of water together during hot seasons



Procurement and sale stage. Here, the collection, procurement, and sales of products take place.

Procurement and sale stage has the following phases:

- Aquaculture collection from its day-to-day location
- Aquaculture processing often follows the previous stage (for instance, smoking of fish or cooling any aquaculture product)
- Aquaculture storage and preservation
- Distribution to consumers

78%

the share of all costs of aquaculture production, which comes from input stage

Value break-down analysis (Figure 16)

- Feeding accounts for the biggest part of aquaculture production costs– 60%
- Second place – Salaries account for 11% of the total production costs
- A significant part – about 10% – accounts for fish vitamins, minerals, etc.
- Brood stock supply accounts 7% as other costs

Thus, pricing formed primarily by the costs incurred to feeding.

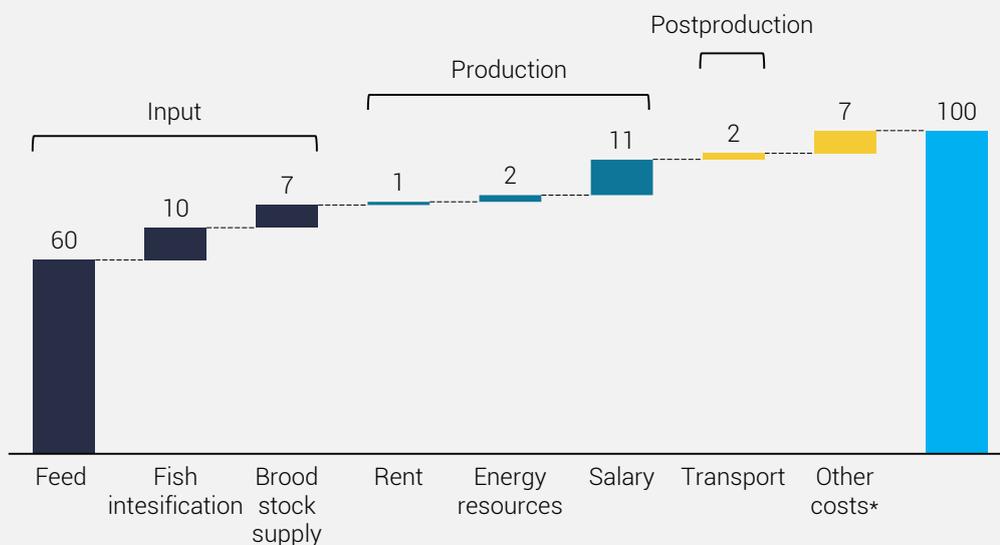
Other major costs are distributed among salary, fish intensification and brood stock supply (from 11% to 7% respectively). For these categories, the range of cost can vary significantly because of the seasonality (for fish breeding period, given costs could increase by 10-20 pp.).

Cost distribution between stages of the value chain:

- Input stage accounts for ~78% of all production costs, included feeding, vitamins, brood stock supply and rent

- Production stage accounts for ~13% of all costs included mostly energy and salary of staff
- Postproduction stage accounts for ~2% from all cost of production, the major part accounted for transportation and processing costs (smoking of fish or cooling)

Figure 16. Value breakdown of aquaculture in Ukraine



* - Other costs that account ~7% of production cost are distributed among three stages and depends on the company.

Source: Business case studies

Feed

The aquaculture industry in Ukraine is on the low stage of development, which results in a lack of demand from aquaculture producers on suppliers of domestic feed. Hence, most companies have to import feed from abroad.

In 2015, 700 tons of feed was imported. At the same time, due to the low level of technology, the usage of feed is high. It needs on average 1.2-1.4 kg of feed per 1 kg of farmed fish, which means that from 700 tons of imported feed only 500 to 600 tons of fish can be farmed.

Only a few plants that produce feed with high quality for freshwater fish species are available in Ukraine, for marine saltwater fish the number is zero. Due to the hryvnia devaluation, the cost of feed significantly increased and this is a major hinderance for Ukrainian companies to use them in sufficient volume. Aquaculture producers claim that Polish aquaculture feed is 30% more expensive for Ukrainian businesses than for Polish ones.

Since January 1, 2016, the customs fee for fish feed, used for the cultivation of predatory species (trout, carp, sturgeon), was abolished. It should consequently reduce the cost of fish to consumers.

Porter analysis

To indicate the level of competition within the industry and exemplify a development of an aquaculture business strategy, the Porter analysis was used. The methodology identifies five forces that determine the level of competition, and such, the attractiveness of doing business in a particular industry.

60%

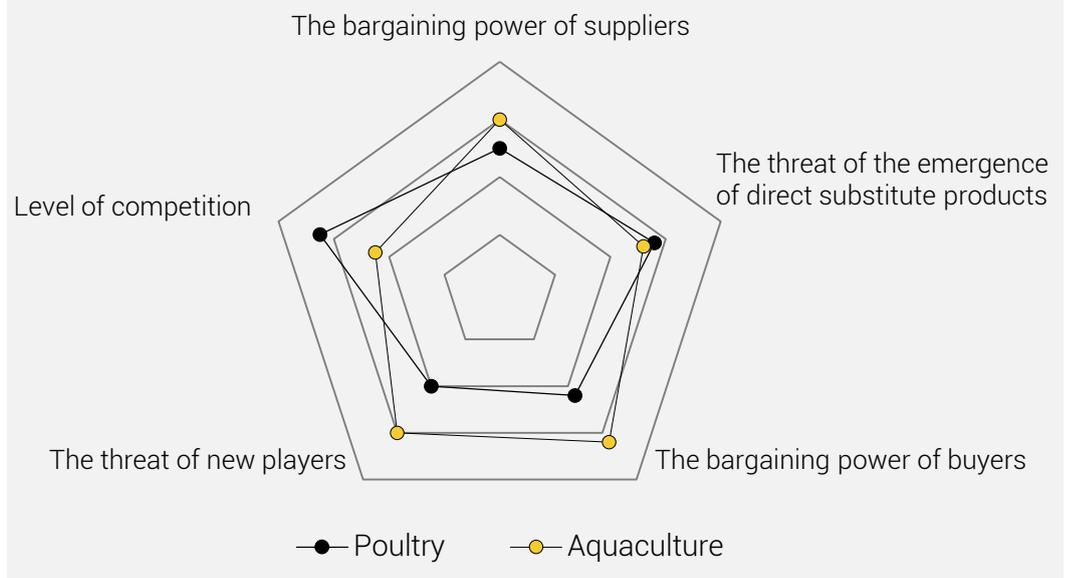
of all cost of aquaculture production are Feed

700 tons

of Feed were imported In Ukraine in 2015

Porter's five forces analysis includes three forces of "horizontal" competition: the threat of the emergence of substitute products, the threat of new players, the level of competition; and two forces of "vertical" competition: the bargaining power of suppliers and the bargaining power of consumers. Comparison of two industries was conducted: aquaculture and poultry – the common substitute for aquaculture (Figure 17).

Figure 17. Five Porter's forces analysis: Poultry vs Aquaculture



Key facts

The poultry industry production is almost complete substitute to aquaculture

Analysis

The bargaining power of buyers is higher for aquaculture compared to poultry

- high buyer price sensitivity, thus, they can switch to less expensive substitutes
- lack of differentiation at the aquaculture market
- the absence of substitutes for some unique products such as mollusks, etc.

The bargaining power of suppliers is higher for aquaculture compared to poultry

- low supplier competition at aquaculture market compared to poultry
- high switching cost (expensive to find a new supplier) among suppliers of aquaculture due to dependence on imported feed
- dependence on imported goods

The threat of new players in aquaculture is much higher than the same indicator for poultry

- low product differentiation and the strength of existing brands at aquaculture industry compared to poultry, so it is easier to enter the market
- overregulation of the aquaculture industry (a lot of expensive permits to start the business; high requirements: 30 kg of 100 kg must be provided to the government for the state fish quality examination)
- the quite long payback period for some types of aquaculture (e.g. for caviar business, the average period of maturation of fish is 6-10 years and just after that time will be possible to get the final product)
- low level of market consolidation of companies
- lack of access to distribution for aquaculture products (absence of cold logistic) that reduces the attractiveness of the industry

The level of competition is much lower for aquaculture compared to poultry

- the low concentration of companies
- high barriers to market entry (overregulation)
- low market growth
- low product differentiation and standardization in the aquaculture industry creates for the consumer an infinite number of alternatives, leads to constant switching of the customer from one player to another, provides a high level of instability of future incomes and profits

The threat of the emergence of direct substitute products is lower for aquaculture compared to poultry

- a limited number of direct substitute products available on the market (due to their expensiveness)
- a high price of the direct substitution product for the aquaculture industry (mostly because they all are imported)

In general, aquaculture has a low level of competition within the industry in Ukraine, especially compared to poultry. Among the main advantages and prospects for growth for the aquaculture industry in Ukraine are a low level of market consolidation, a limited number of direct substitute products available at the market, a high price of the direct substitution product for aquaculture industry and high bargaining power of buyers.

The main limitations for the development of aquaculture business are low product differentiation and standardization, lack of access to distribution for aquaculture products, overregulation of aquaculture production, comparatively low industry profitability, high investment costs and slow market growth.

Key facts

Low product differentiation and standardization, lack of access to distribution are the main limitation for aquaculture industry growth

1.2 LEGAL ASPECTS OF DOING AQUACULTURE BUSINESS



Government initiatives

The State agency of fisheries brought up a question of maintenance of increase of the fish capacity of water bodies from 3.0 centner/hectare to 15.0 centner/hectare.

It is necessary to mention that in Ukraine, the average density capacity of fish farms, which is reported to various types of associations and Public service of statistics of Ukraine, is 3.7 centner/hectare. Ineffective use of ponds in the country is observed. At the same time, considering the productivity of ponds on cultivation of commodity fish and a stocking material, according to the area based fish cultural and biological specifications, reservoirs can annually give more than 163 thousand tons by extensive and 6.6 centner/hectare by gazing use of water bodies, 400 thousand tons by a heavy use of internal reservoirs (16.4 centner/hectare).

There are outstanding possibilities for aquaculture to be an efficient user of primary resources, through the revitalization and modernization of the operating sector. Pond-based aquaculture has a long tradition in the countries of the former USSR, an activity that has been always based on the utilization of primary resources. There is great potential for furthering pond-based aquaculture in the region, based on the prevailing conditions and wide market acceptance of the species that feed low on the food chain. The application of appropriate polyculture technologies could not only assure that the primary resources are utilized efficiently, but also that fish ponds could play an important role in the recycling of organic wastes.

Culture-based fisheries can provide a most efficient utilization of primary resources and can be practiced in water areas that are unsuitable for conventional aquaculture. However, the efficiency of primary resource use will depend on numerous factors that include the pollution of watersheds and the stability of legislation related to the assurance of land rights. Presently, the main goal of most farms is to increase production volume and revenue, while accounting for the market needs and the buying power of the local population.

The Ukrainian laws and regulations for aquaculture industry determine the principles of state policy, development and operation of the fisheries and aquaculture industries, conservation and rational use of aquatic biological resources, set out the applicable licensing and permitting requirements. The legislation covers aquaculture activities carried out in inland waters, fishery water bodies, internal sea, territorial sea, and exclusive economic zone and aquaculture water reservoirs in Ukraine.

General principles for aquaculture industry related to the usage and lease of land, water resources, and hydro-technical constructions are prescribed by the Land Code and the Water Code of Ukraine. According to the Water Code of Ukraine, all the legal entities and individuals engaged in aquaculture industry should receive the right to use water resources for creating the necessary conditions for aquatic life. It can be private or leased water objects (or parts thereof), fishery technological devices like floating units, mollusks collectors, closed water supply installations etc.

Key facts

Revitalization and modernization of the operating sector is the main way to be an efficient user of primary resources

The aquaculture industry is heavily regulated. Each segment is subject to specific permitting and licensing requirements.

The permits for fishing activities are granted by the local authorities (for example, village council or regional state administration) in water bodies (according to art. 51 of the Water Code of Ukraine and art. 122 of the Land Code of Ukraine), fishery technological reservoirs and parts of water objects (according to art. 14 of the Law of Ukraine "On Aquaculture" and art. 122 of the Land Code of Ukraine).

Regarding the internal sea waters of the territorial sea, the exclusive (maritime) economic zone of Ukraine, the permits are granted exclusively by the Cabinet of Ministers of Ukraine according to art. 14 of the Law of Ukraine "On Aquaculture" and art. 14 of the Water Code of Ukraine.

The water bodies and fishery technological reservoirs should have a passport. The duty of such passports obtaining is imposed on the landlord according to the Order of the Ministry of Ecology and Natural Resources of Ukraine "On approval of the Procedure of water object's passport development" No. 99 dated 18 March 2013. According to the Order of the Ministry of Ecology and Natural Resources of Ukraine "On approval of the Procedure of fishery technological reservoir passport development" No. 742 dated 16 December 2013 the passport of the fishery technological reservoir, land plot under of the fishery technological reservoir and hydrotechnical constructions should make the tenant if objects are used on a rental basis).

One of the fundamental special laws for aquaculture industry is the law of Ukraine "On Aquaculture" No. 5293-VI dated 18 September 2012 (the – "Law"). It is applicable to aquaculture activities carried out in inland waters, fishery waterbodies, internal sea, territorial sea and exclusive economic zone of Ukraine, and on land areas used for aquaculture.

This Law establishes the basic aquaculture industry definitions. According to art. 1 of the Law the fish farming (aquaculture) covers agricultural activities of artificial breeding, keeping and growing objects of aquaculture in whole or in part in controlled conditions for aquaculture and feed production, reproduction of biological resources, conducting selection and breeding work, introduction, resettlement, acclimatisation and re-acclimatisation of aquatic organisms, replenishment of water biological resources, preservation of biodiversity and recreational services. The aquaculture objects include hydrobionts used for the purposes of breeding, keeping and growing in terms of aquaculture.

The aquaculture industry in Ukraine includes obtaining marketable products of aquaculture and their further implementation (commodity aquaculture), artificial breeding (reproduction), cultivation of aquatic biological resources, and providing of recreational services. According to art. 13 of the Law the commodity aquaculture can be distinguished into the land based, cage based and pond production.

The Law also establishes the basics of the land lease, lease of water bodies, fishery technological reservoir for the purposes of aquaculture and establishes the essential terms of the water bodies part lease agreement. (art. 14 of the Law, the Resolution of the Cabinet of Ministers of Ukraine "On approval of Standard lease agreement of water objects" No. 420 dated 29 May 2013).

Key facts

One of the fundamental special laws for aquaculture industry "On Aquaculture" No. 5293-VI dated 18 September 2012

Key facts

Fish and other objects of aquaculture as a part of the animal world

The Law of Ukraine "On the Animal World" No. 2894-III dated 13 December 2001 establishes fish and other objects of aquaculture as a part of the animal world (Article 3 of the Law of Ukraine "On the Animal World"). Wildlife in Ukraine can be of the state, communal and private ownership, but are protected by the state irrespective of ownership.

This Law also provides conditions of water bodies usage for fishing activities, the rights and obligations of fish farming enterprises for usage of the objects of the animal world for prevention of anthropogenic environmental pollution by aquaculture, and prevention of reduction of biological aquatic resources.

Key facts

Veterinary certificate confirm quantity and safety of live fish and other aquatic living resources

The Law of Ukraine "On Fish, Other Aquatic Biological Resources and Food Products from Them" No. 486-IV dated 6 February 2003 includes the requirements for the fish breeding and other aquatic living resources. These requirements establish that the fish breeding and other aquatic living resources in fishery water bodies (their parts) and continental shelf of Ukraine shall permit in the presence of a positive evaluation of veterinary-sanitary condition of water bodies. Quality and safety of live fish and other aquatic living resources which were grown in ponds and other water bodies (their parts), confirmed by a veterinary certificate. This certificate shall issue the central executive body that implements the state policy in the field of veterinary medicine.

The Law of Ukraine "On Veterinary Medicine" No. 2498-XII dated 25 June 1992 contains all the details and procedure of obtaining the veterinary certificates and a positive evaluation of veterinary-sanitary condition of water bodies.

The import to Ukraine of fish, fertilised fish eggs and other hydrobionts for breeding, keeping and growing in terms of aquaculture, placing them in quarantine station, migration from quarantine stations to other fishery water bodies (or parts thereof), fishery ponds and veterinary sanitary control in aquaculture (according to art. 16 of the Law, art. 18, 81, 84, 87, 95 of the Law of Ukraine "On Veterinary Medicine").

The Law of Ukraine "On Fisheries, Industrial Fisheries and Protection of Aquatic Biological Resources" No. 3677-VI dated 8 July 2011 establishes the usage of aquatic biological resources that are isolated in natural or artificial water bodies for the purposes of aquaculture is not a special usage aquatic biological resources. According to the art. 42 the accounting of the fishery water bodies (their parts), fishery technological reservoirs, water areas (water space) internal sea waters, territorial sea, the exclusive (maritime) economic zone of Ukraine provided for use for the purpose of aquaculture, shall be carried out by the central executive power in accordance with the procedure established by the Cabinet of Ministers of Ukraine (The Resolution of the Cabinet of Ministers of Ukraine "On approval of the State Register of fishery water bodies (their parts)" No. 979 dated 30 September 2015).

The laws and regulations for aquaculture industry are currently under development and require detailed review to accommodate existing needs of the domestic market players and potential inflows of foreign investments into the country.

Recently the State Fish Agency has begun active promotion of the development of the mariculture and cage fishery commercial farms (a kind of "paddocks" for fish in the sea).

Entrepreneurs for the first time have the opportunity to rent part of the marine aquatorium and grow fish there. Among the proposed changes there are decisions made by the Cabinet of Ministers of Ukraine regulating the organic fish farming.

Another recent development concerns the intensification of the fight against the infestation of poaching fish in the country's trade networks. To this end, it is planned to establish certificates of fish passages.

A top-down view of a wooden desk. In the upper right, a silver laptop keyboard is visible. To the left, a white smartphone lies vertically. Below it, a white tablet is partially visible. The bottom of the image is a dark grey overlay containing text.

CASE STUDIES

Analysis of background, problems and possible solutions of Ukrainian companies in aquaculture



Case Study N° 1. The cage-based company



Section 1. Background

Description of the business model

- The enterprise uses foreign equipment with an average service cycle of 3-5 years, for cages - 15 years. The depreciation is 15%
- The company has obtained the European certification in 2013, and in 2015, it was updated. All products must be certified; this certificate is needed for export and facilitates the passage of inspections

Key facts

The main expenditure of the company – feed – account for 60%

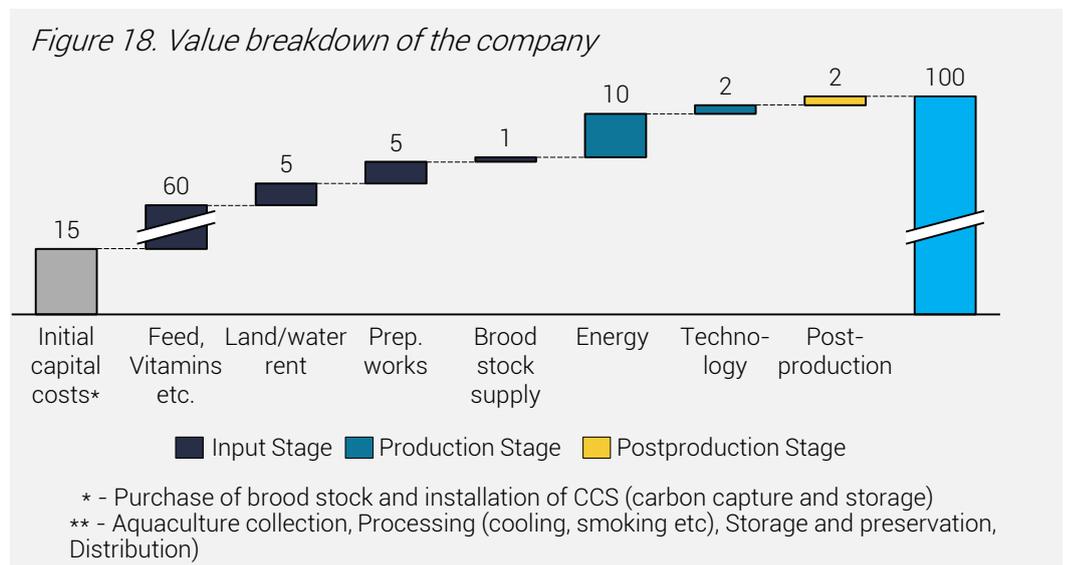
Types of products

The company is engaged in the breeding of such fish species as sterlet and sturgeon for the collection of caviar, which is the final product of the enterprise.

Sales of products

The company sells 80% of its products on domestic market, 20% - export. Small percentage of export because of small caviar production volumes; minimum threshold entry is 10 times higher than volume produced by the company. 70% of volume is generated by selling sterlet (maturing 8 years). Other 30% generated by selling sturgeon (small sales volume: long ripening of fish - 9-10 years). In value, company generated 65% and 35% by selling starlet and sturgeon respectively.

Value break down in % (cost structure of the company's production)



Key facts

The main challenges from regulatory and legal side are:

- the absence of concessional lending
- long and difficult authorization process
- downtime on customs border
- too small catch quotas



Section 2. Challenges:

Business challenges from the regulatory and legal side:

- *The absence of concessional lending.* No VAT refund for the fishing industry since January 1, 2017. The special regime has been replaced by state support for individual producers, fish industry is not included in this list
- *Long and difficult authorization process.* A passport obtaining takes 3 month, involves a special organization and has a corruption component; obsolescence of laboratory technologies on customs; no state refunding for certificates obtaining; a need of applying to veterinarians while export
- *Downtime on customs border.* The customs office does not distinguish the living and non-living product, that can cause problems with fry on the way to the destination. Thus, fries smuggling is spread on the customs

- *The quotas do not correspond to the actual production.* Quotas owners produce 10 times more than quoted. The problem lies in the low size of production limits in quotas and stiff competition in the market (20 tons as quoted, but 200). Otherwise, companies would not gain its profit.

Business challenges because of Ukrainian industry specifics:

- *The problem of unqualified personnel.* Qualified specialists are mostly those, who operated in the Soviet Union. Now universities do not provide this kind of specialists
- *Cold logistics is unattainable for small businesses.* Companies use it from other industries. The company carries out logistics through portable refrigeration units
- *The fish business is not provided with insurance,* which makes impossible to take a loan for business development from abroad. In UA the loan rate is 25%. Thus, business does not attract lending either in Ukraine or other countries
- *Long time to receive feed and packing from abroad.* For instance Polish feed for Ukrainian aquaculture business is 30% more expensive than for Polish; or it takes 2 months to receive feed or tins for packing caviar from France
- *The absence of a brood stock for sale* in Ukraine. Buying abroad is expensive by 10%



Section 3. Reasonable solutions in opinion of the business representative:

- *Increase government support.* Returning VAT refund and adding aquaculture to the list of agricultural producers, which receive state support
- *Increase quotas for catch.* Adjusting unreasonable quotas to current industry conditions
- *Build a feed plant.* There are several plants that produce highly qualified feed, but it is not suitable for freshwater fish as well as for other fish species. That is why the business representative suggests building a feed plant in Ukraine



Section 4. Results:

- VAT refund may help companies receive additional funds for further investments and expansion their businesses
- Setting the reasonable quotas for the catch of fish may diminish the percentage of companies that operate in the shadow sector and receive the reliable information on the total amount of catch of fish in Ukraine
- Building a feed plant in Ukraine may help decrease the feed price as well as the final price of fish

Key facts

Business challenges because of industry specific are following:

- unqualified personnel
- absence of cold logistic
- no insurance
- long time to receive production components

Key facts

Decrease of consumption of fish and seafood

- due to the loss of Crimea and
- financial crisis

Case Study N° 2. The land-based company



Section 1. Background

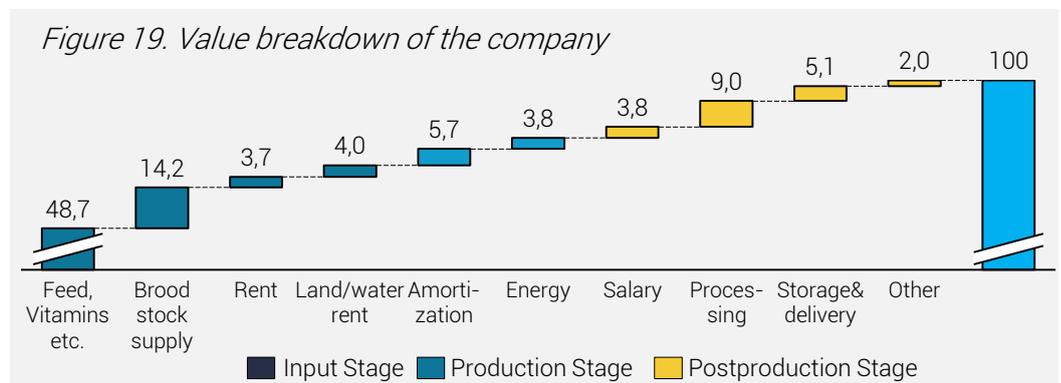
Description of the business model

- Construction and designing of fish farms for the cultivation of African catfish, tilapia, baramundi, trout, shrimp, etc.
- Construction of an own farm in the Kyiv region with a capacity of 200 tons of African catfish a year under a common Ukrainian-Lithuanian project and using modern equipment and technologies.
- The main type of technology is the cultivation of fish in closed controlled intensive RAS conditions (recirculating aquaculture system). The project operates in a full cycle from reproduction and production of fry until processing (fillets, smoked products, etc.).

Types of products

- Breeding and fish selling (African catfish, Tilapia, Baramundi, shrimp)
- Breeding and stocking material selling (Tilapia, Baramundi)

Value break down in % (cost structure of the company's production)



Key facts

The main expenditure of the company – feed – account for ~49%



Section 2. Challenges:

Business challenges from the regulatory and legal side:

- Customs duty.* Import of feed is taxed 10%, which substantially increases the cost of fish production in Ukraine. At the same time, the duty on the import of aquaculture products is 0%, which creates uncompetitive conditions for imported and domestic fish

Business challenges because of Ukrainian industry specifics:

- The problem of unqualified personnel.* There is a problem with qualified specialists in this field. In Ukraine, there is a number of universities that provide the industry with employees. But their level of competence is extremely low
- The lack of finance resources.* It is difficult to start a business because significant capital investments are needed. The loan rate is 25%
- No successful projects.* According to the fact that businesses in aquaculture industry operate for few years, there is no significant achievements and very successful projects yet. This fact prevents new companies entering the industry

Key facts

The main challenges due to industry specifics:

- the problem of unqualified personnel
- industry lacks finance resources
- lack of inspiring cases



Section 3. Reasonable solutions in opinion of the business representative:

- *Open new schools for aquaculture industry employees.* The business representative suggests opening new educational centers where new studying technologies will be introduced. Additionally, he proposes to provide aquaculture industry employees with the opportunity to visit successful aquaculture farms abroad and gain new skills
- *Increase the access to investment capital.* Due to the lack of financial resources for aquaculture producers, it is suggested to involve financial institutions in supporting aquaculture producers through organizing partnerships
- *Organize a few successful aquaculture farms.* In Ukraine, there are a few companies that operate with a profit, that creates a negative impact on desires investors and new businesses to enter the industry. Thus, the business representative suggests organizing a couple of fully modernized farms to show how technology could work and generate profit



Section 4. Results:

- *Opening new educational centers* will provide the aquaculture industry with qualified employees that improve the quality and productivity of work
- *New opportunities for partnership* with financial institutions may help companies receive investments for further expansion their businesses
- *Showing to businesses the real examples* of successful operating in aquaculture industry may increase the desire of new companies to enter the industry and persuade other market players in using new technologies

Key facts

The possible solutions are following:

- opening of new schools for industry employees
- increasing of the access to investment capital

Case Study № 3. The pond-based company



Section 1. Background

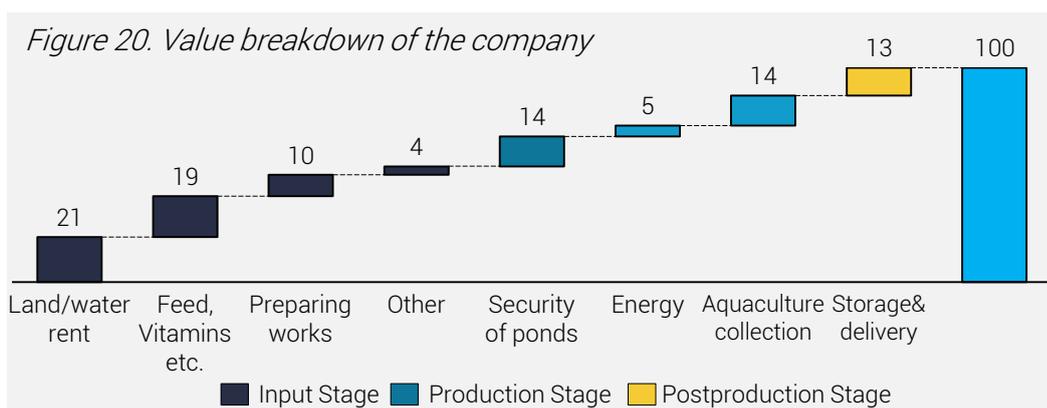
Description of the business model

- The company has a complete cycle of fish breeding
- It operates only in the domestic market

Types of products

- Breeding and fish selling (African catfish, Tilapia, Baramundi, shrimp)
- Breeding and fish selling (carp, channel catfish, white carp, pike perch, pike)
- Breeding and stocking material selling
- The company provides services for transportation of live fish and fish products

Value break down in % (cost structure of the company's production)



Section 2. Challenges:

Business challenges from the regulatory and legal side:

- *High rent of ponds.* All land is marked as a recreational zone, which causes higher rent. A change of the land's purpose is more expensive than paying high rent
- *High taxes.* The income tax is 5%. Such taxes have grown by several times:
 - land tax (now it is 3 times higher than in agriculture industry)
 - flat tax (increased due to the inclusion of all services, now it exceeds all other taxes)
 - cancellation of special VAT regime (in 2014 the difference between accrual and admission remained to the enterprise, in 2016 - 50%, in 2017 – it all goes to the state)
- *Absence of modernization in hydraulic works.* The state enterprise Ukryba is the administrator of all hydraulic works. It receives payments for the lease of hydraulic works. 70% of the received funds should go back to the state for further redirection to repair hydraulic works. However, total payments for the lease of hydraulic works are not enough to improve its quality. There is no single clear mechanism for issuing lease hydraulic works contracts. Thus, contracts are not signed, rent is not withdrawn, and the state is underpaid
- *Difficulties with rent of reservoirs of general-purpose use.* Only one firm has the exclusive right to issue a special certificate. There are two options: the certificate for 1-3 years (for new companies) and 3-25 years (for permanent usage)

Key facts

The main expenditure of the company – land and water rent – account for 21%

Key facts

The main challenges from regulatory and legal side:

- high rent of ponds
- high taxes

Due to the inconsistency of laws, the certificate is only valid for 3 years maximum (but, according to separate laws, it can be valid for 25 years). Therefore the 3 years certificate is in the second group. It costs 50,000 UAH

- *Inconsistency of laws.* If an aquaculture producer rents a pond "within a populated area" and breeds fish there, then a resident of a settlement can catch 3-5 kg per day there (Article №51 of the Water Code of Ukraine), although according to the rules of amateur sports fishing it is forbidden
- *Cogeneration or combined heat and power (CHP).* In the former USSR, majority of aquaculture companies had an agreement with CHP, with the opportunity to cultivate fish even in the winter. Now the majority of aquaculture companies cannot do this due to of the low temperature of the water. Thus, companies do not export fish, due to the obligation to provide fish continuously

Business challenges because of Ukrainian industry specifics:

- *The high cost of feed,* due to the high cost of its components (the main feed is grain; the Ukrainian one is mostly exported, what remains is very expensive). Feed is one of the main components in Value break down
- *Poaching and thefts* are the biggest problems for the aquaculture industry in Ukraine. The pond, where this company cultivates the fish, is situated in the center of the village. In similar cases about 30% of fish is stolen by thieves. Therefore, the company switched from cultivating commercial fish to fingerlings. Additionally, the company is dissatisfied with the work of the new Fish Patrol. In the case of an incident (theft or poaching) it takes several hours for Fish Patrol to reach the company. Even after reaching the destination, their help is not enough due to a difficulty of proving the guilt of a thief



Section 3. Reasonable solutions in opinion of the business representative:

- *Overcoming the poaching and thefts* by introducing the new system of control. It works in the following way: a company employee takes special courses and receives a certificate with the right to write out protocols (a document, stating that a certain person committed a theft). In this situation, all companies can have a person who is able to perform duties of Fish Patrol but faster and efficiently. Hence, the number of thefts can decrease
- *Cooperation with the government* by the establishment of joint projects between companies and the government that can be useful for both sides. Firstly, as the right amount of fish in water bodies can help clean the water, the government can create and supervise projects for stocking water bodies. Secondly, companies should clean up the bottom of reservoirs every 5 years from silt deposits, which can be used as a soils fertilizer



Section 4. Results:

- Introducing the new controlling system will help improve the quality of work of Fish Patrol that will decrease the number of thefts
- Cooperation with the government will positively influence both the profit of the companies and ecological state of the society. If companies are able to provide farmers with deposits, they will have the opportunity to cover their costs. As a result, the land will be highly fertilized

Key facts

The possible solutions are following:

- overcoming the poaching and thefts
- cooperation with the government



INTERNATIONAL EXPERIENCE

Analysis of background, business environment and legal aspect of leading countries in aquaculture



NORWAY



PRODUCTION

1.3 million tons

aquaculture production
volume in 2016

CONSUMPTION

53.3 kg

per capita consumption of
fish and seafood in 2016

EXPORT

US\$ 10.6 billion

total export of fish and
seafood products in 2016

Aquaculture is an important part of the Norwegian economy. Here, Marine aquaculture accounts for 99.8% of total aquaculture production due to geographic location and natural resources.

Ranking second in the world's leading exporters of fish products, in terms of value, its main markets, in terms of export value, are the European Union, the United States of America, Japan, China, South Korea and Vietnam.

Fish and seafood account for 11.9% of total Norwegian export in 2016 (the biggest share is represented by salmon – 58.8% in terms of value).

Aquaculture production in Norway has doubled during the 2005-2016 and exceeded 1.3 million tons in 2016, with a value of US\$ 7.6 billion. Norwegian aquaculture production accounts for ~1.8% of world total aquaculture production.

A total number of licenses in aquaculture industry reached 1342 in 2016, including: Juvenile (16%), Grow out (74%), Brood stock (3%), R&D (7%).

As of 2016, 7,537 employees are directly employed in aquaculture industry; overall, this industry generated around 22,700 Norwegian jobs. Because of high labor costs in Norway, fish farming operations have become highly rationalized.

Regulation of aquaculture industry. The authorities to operate a fish farm in Norway must license every company. All fish farms in Norway have operational plans that are assessed by the Directorate of Fisheries and the Food Safety Authority. Based on the Norwegian regulations and farming procedures imposed by the aquaculture industry, the Veterinary Institute provided with a clean bill of health to Norwegian salmon aquaculture companies. Norway has standards of fish health and a fish health service that is in the forefront of the industry internationally.

MARKET QUALITY AND QUANTITY ESTIMATION



Production

Types of product

Due to geographical location and available resources (90,000 square km of the sea within its sea baseline and long coastline, stretching 2,500 km), the most common type of aquaculture is marine/coastal that drives 99.8% of total aquaculture production.

Cage-based fish farming

The long and sheltered coastline of Norway, with its thousands of islands and inlets, as well as the Gulf stream providing a reliable and stable temperature, has proven to provide excellent opportunities for industrial cage fish farming. Ongrowing at sea is now almost exclusively based on intensive cage culture for all finfish species, some halibut is still produced in onshore tanks, but cage culture seems to dominate for this species also.

Aquaculture production. Total aquaculture production accounted for 1.3 million tons with a value of US\$ 7.6 billion in 2016 (Figure 21). From 2005-2016 the production volume increased almost 3 times. The peak of aquaculture production in terms of volume was in 2015, which accounted for 1.4 million tons.

99.8%

of all aquaculture production in Norway is driven by marine/coastline aquaculture

Figure 21. Total production of aquaculture in terms of volume and value, 2005-2016



93%

of all aquaculture production in volume in Norway in 2016 was salmon

Product segmentation

Production of salmon and rainbow trout is the most common activity, but there is also a production of cod and halibut, scallops, European lobster and blue mussels. Norway is the world's leading producer of Atlantic salmon and the second largest seafood exporter in the world.

Salmon accounted for ~93% of total aquaculture production in volume and ~94% in value in 2016 (Figures 22 and 23). Salmon is also the main type of production; its share has always been at a high level and has not changed much over the past decade (from 2005 the share of salmon was 89%). The anadromous species Atlantic salmon is native to Norwegian waters, where spawning and smoltification have taken place in the country's rivers since the last glacial period followed, by an ongrowing period at sea.

The rainbow trout occupies the second place in terms of production volume (6.6%) and value (5.7%). Rainbow trout is the only fish species in Norwegian aquaculture, which is not native, the species was introduced into Norway around 1900 and was produced in freshwater until the early 1960s.

Transfer to seawater following smoltification became a successful process from the start and intensive on-growing of fish to between 2-6 kg in sea cages has subsequently come to dominate rainbow trout production. There is also a minor, although not insignificant, production of portion size rainbow trout in freshwater in ponds or tanks. Farming of Atlantic salmon and rainbow trout takes place along the entire coast from Agder in the south to Finnmark in the north. Since 1975, production has been regulated by government licensing. Other types of fish and seafood farmed in Norway, like char, halibut, shellfish accounted for less than 1% in terms of production volume and value.

53.3 kg

per capita is annual fish consumption in Norway

Figure 22. Main species in terms of volume in 2016

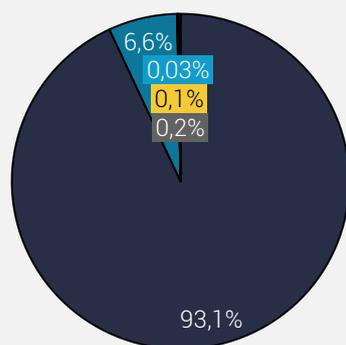
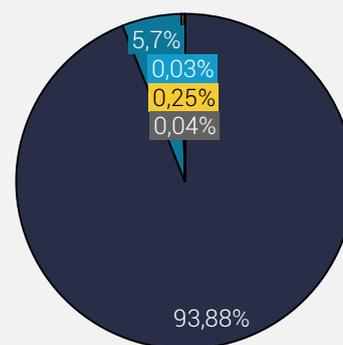


Figure 23. Main species in terms of value in 2016



Legend: Salmon (Dark Blue), Rainbow (Light Blue), Char (Medium Blue), Halibut (Yellow), Shellfish (Grey)

Consumption

As of 2015, the annual per capita fish consumption in Norway amounted to 53.3 kg. According to FAO, the consumption will increase to 55.3 kg by 2025. Norwegian per capita consumption is much higher than global per capita fish consumption that amounted to 20 kg per year in 2016.

Fresh fish represents over a half of all fish products bought for home consumption, while frozen fish is about one third. An increase in sales of fresh fish has been observed, while on the other hand a decrease in sales of fish with bones and skin. Sales of fresh fish fillets increased the most. The most popular species among Norwegian consumers are cod, salmon, shrimp, mackerel and saithe.

Export/Import

Import. Total import of fish and seafood amounted to US\$ 180 million in 2016 that demonstrated an increase by 96% since 2005 (Figure 24). The share of import of fish and seafood also increased from 0.17% to 0.25% from 2005 to 2016.

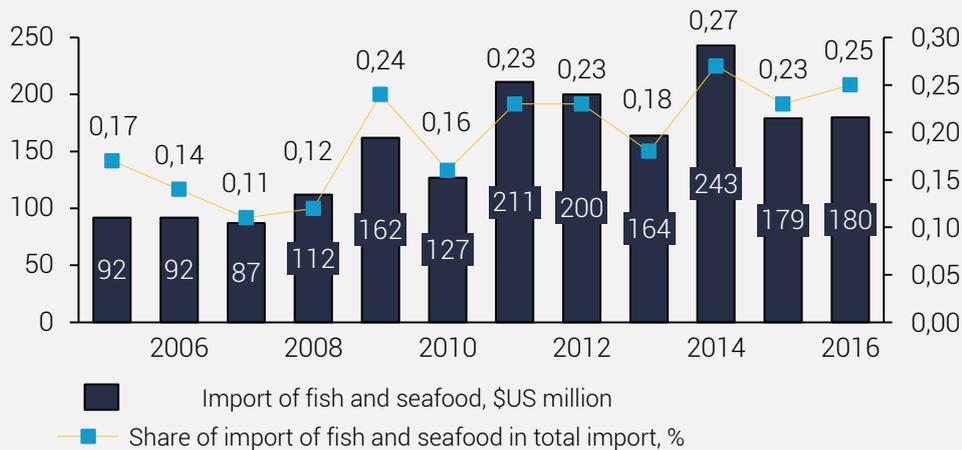
Although Norway exports more than 90% of its production, in recent years imports have grown significantly. This is partly because of the need to import fishmeal, fish oil and fish feed for its growing aquaculture industry.

The major import suppliers. The main suppliers are the EU member states and countries in South America.

90%

of produced fish is exported

Figure 24. Import of fish, seafood, and its share in total export in 2005-2016

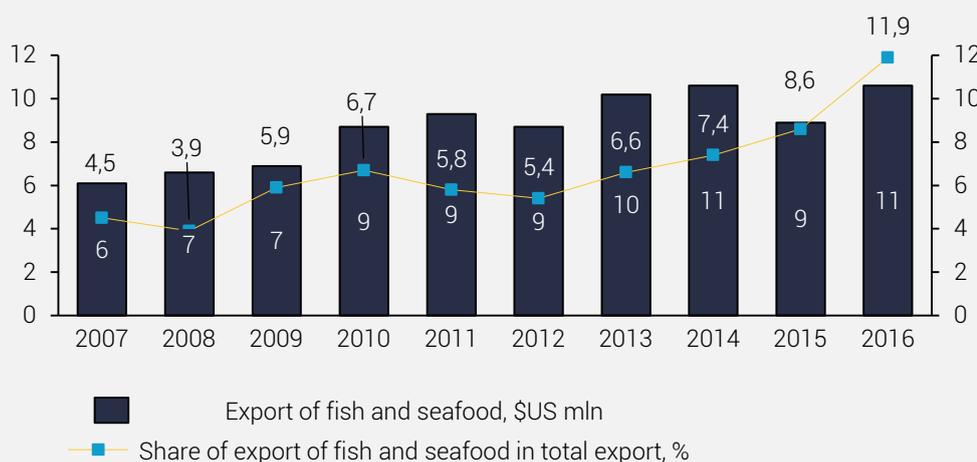


By 16%

increased export in value during 2015-2016

Export. The year 2016 showed a strong growth (19% up compared to 2015) of the Norwegian fish and seafood value and a new export record was set reaching US\$ 10.6 billion (Figure 25). Since 2005 the value of export increased by 43%. The share of export of fish and seafood in the overall Norwegian export also increased from 4.5% to 11.9% from 2005 to 2016. The export decrease in 2015 indicated in Figure 25 was due to a drop in the value of the oil price sensitive local currency against the US dollar. In fact, in 2015, Norwegian exports increased by 7% in terms of Norwegian kroner, but in US dollar terms they declined by 16%.

Figure 25. Export of fish, seafood, and its share in total export in 2007-2016



69%

of all fish and seafood export is Salmon

Product segmentation. Salmon occupies the first place in terms of volume and value in the export of fish and seafood products with ~44% and ~69% respectively (Figures 26 and 27). Further distribution in terms of volume and value slightly differs between types of fish and seafood products. Thus, the second highest sales volume has mackerel with 13.8%, in terms of value; it occupies the 4th place in value, with 4.6%. A significant share in terms of volume accounts for such types of fish as herring and cod. In 2016, Norway posted record export values in particular for salmon and cod, reached US\$ 7.3 billion for salmon and US\$ 1 billion for cod that demonstrated an increase by 19% and 6% respectively compared to 2015. Strong demand for Norwegian salmon on the global market and high prices were the reasons for the value growth in 2016. Nearly 70% of the seafood export value is represented by farmed fish species, Atlantic salmon, and sea trout amounted for US\$ 7.8 billion.

6 to 10

cages has a typical fish farm in Norway

48%

of all costs amounts feed

Figure 26. Main species in terms of volume in 2016



Figure 27. Main species in terms of value in 2016



* - Crustaceans&molluscs

In 2016, Norway posted record export values in particular for salmon and cod, reached US\$ 7.3 billion for salmon and US\$ 1 billion for cod that demonstrated an increase by 19% and 6% respectively compared to 2015. Strong demand for Norwegian salmon on the global market and high prices were the reasons for the value growth in 2016. Nearly 70% of the seafood export value is represented by farmed fish species, Atlantic salmon, and sea trout amounted for US\$ 7.8 billion.

Export markets. The EU is the biggest market for fish and seafood from Norway, taking some 60–65% of total export volumes, with Poland and France as the main destinations. Norway is one of the top two markets for fish and seafood from the EU, taking 13% of exported goods, mostly fish oil and fishmeal for aquaculture feed production. The second largest market for Norwegian seafood is Asia. At present, Norway exports seafood to 140 countries in the world.

Value breakdown

Salmon farming first became an industry in Norway in the 1980s after being on a relatively experimental level since the 1960s. Marine Harvest is the leading producer of Atlantic salmon in the world and is one of the world's largest seafood companies. The cost structure is elaborated based on the company's indicators as one of the leading fish producer in the industry.

Cage-based aquaculture

A typical fish farm consists of between six and ten cages, holding 3,000 to 4,000 tons of fish. Each cage usually has a surface area varying from 400 m² up to 1,100 m², the nets can be from 10 to 40 meters deep. Regulations allow a total cage surface area of approximately 2,800 m³ per license, but total area demand will be much larger when mooring systems are included. Circular plastic cages require more space than steel platforms.

Cost structure of salmon production:

- Feed cost is the most significant operational cost (about 48.1% of total operating costs) and variation in the feed cost largely depends on input prices for commodities used in feed production and transportation costs

- Primary processing costs constitute around 10.2% and include the cost of production of fish eggs
- Norway has the highest level of automation among the countries producing salmon, which partially offsets that it also has the highest wage levels that in turn explains the relatively low share of labor costs in the overall operating costs of production (about 5.8%)

Business environment analysis

Challenges

The continued growth of Norwegian aquaculture production has presented the industry with a range of challenges:

- In aquaculture, fish farmers from time to time experience outbreaks of parasite attacks that are transferable to wild marine capture fisheries. Especially sea lice continues to be a major challenge in the aquaculture industry. The high density of fish in the cages create with sea lice. Sea lice may be transferred from farmed fish to wild salmon and to wild trout
- Salmon farming may contribute to spread of serious diseases to wild salmon and trout like ISAV (Infectious Salmon Anemia Virus)
- The aquaculture industry imports about 75% of the feed. A lot of this is soy beans, which occupies large agricultural areas in Brazil (see Spire's report "Soyalandet" for more information about Norwegian import of soy beans)
- Farmed salmon has been bred partly to be fast growing, and is now quite different from its wild relative. Salmon escaping from cages may interbreed with wild salmon changing the genetics of the wild salmon making them less adapted to "their" rivers
- The waste from salmon farming can lead to hyper eutrophication and unsuitable conditions for other maritime species around the farms
- Farmed salmon is bred with good economics as a goal, which not always correspond with animal welfare. Deformed spines are not uncommon in farmed salmon, and can be both painful and cause poor health. The density in the cages can also cause stress and aggressiveness
- The aquaculture contributes to half of Norwegian emissions of copper. The nets are impregnated with anti-fouling agents containing copper to prevent algae growth, and most of this copper leaches out in the water

Opportunities

The prospects of growth for Norwegian aquaculture industry lies towards solving current challenges, covering new markets in terms of export and improvement of existing technology:

- Solving current challenges. There is a lot of attention and efforts to find new and better ways to handle industry challenges, including introducing so called 'green licenses' to help reduce climate challenges such as lice and farmed fish escapings. Technology driven innovation, including its funding, is crucial to solving industry challenges

Key facts

The main business challenges for the industry in Norway:

- disease in the fish farming sector
- depends on import feed
- salmon production waste

Key facts

Opportunities to develop the industry:

- solving current problems
- finding new markets
- implementing new technologies

Key facts

Key legislation is
The Aquaculture
Act of 2005

- New markets. In the future, new countries will partly supplement, and partly replace, those that are currently the largest markets for Norwegian aquaculture products. Brazil, Russia, India, China and South Africa are known as the BRICS countries, and thought to have the greatest economic potential over the next few decades
- New technology. The future for Norwegian aquaculture does not simply lie in new products for new markets around the globe, but there will also be new ways of cultivating the sea. Norwegian aquaculture is dependent upon continual development within biology and technology. If one employs closed containment fish farm facilities that float in the sea, one may reduce the risk of algae blooms, salmon lice and escapes. Submerged cages, deep under the sea are another alternative being considered by researchers, and this will also protect the equipment from bad weather. The challenge here is that salmon have an air bladder that must have air. By lifting the cages to the surface at regular intervals, or provide oxygenation to the submerged units, submerged cages may also be practicable in the future, but it is essential that production does not affect the health and welfare of the fish and is economically sustainable



Legal aspects

Introduction

Aquaculture regulation in Norway is generally comparable to regulation in the EU. The Agreement on the European Economic Area imposes several obligations on Norway, including the implementation of EU regulations on veterinary inspection, aquatic animal health and food hygiene.

Key legislation

Certain differences at the administrative implementation level were introduced in 2005. The Aquaculture Act of 2005 (the "Act") provides the basic legislative and administrative framework for aquaculture regulation and defines the relationship between aquaculture and other spheres (e.g. environmental protection). It regulates all aquaculture and sea-ranching activities in Norway, including inland, coastal and marine aquaculture. The purpose of the Act is *"to promote the profitability and competitiveness of the aquaculture industry within the framework of a sustainable development and contribute to the creation of value on the coast."* The Act regulates both commercial aquaculture and aquaculture carried out for scientific or educational purposes.

The Act establishes a licensing system and contains broad provisions dealing with environmental standards, land utilisation, registration, transfer and mortgaging of licences, control and enforcement. Regulations adopted under the Act provide detailed regulatory measures relating to aquaculture.

Key regulatory bodies

In Norway, there exists a "single-window" system for the processing of aquaculture licence applications, whereby the industry applicant deals with just one regulatory body, the Fisheries Directorate (the "Directorate"), which then coordinates other bodies. According to the Act, there is a right to transfer and mortgage aquaculture licences, which permits a licence to be transferred between private parties without any public approval or additional licence.

Key facts

Key regulatory
bodies are:

- the Fisheries Directorate
- the Ministry of Fisheries and Coastal Affairs

The Ministry of Fisheries and Coastal Affairs (the "Ministry") is in charge of the administration of the Act, and may prescribe, by regulations, detailed requirements in accordance with the Act. The Directorate is vested with the responsibility for coordination, administration and execution of surveillance and control of the aquaculture sector, including granting aquaculture licences and enforcing the Act.

The Act also provides in a number of instances that the Ministry/Directorate have powers to make aquaculture specific regulations under other Acts and/or is to act as the competent authority for the administration of other legislation in relation to aquaculture. For example, the legislation governing animal health and food safety and quality, the Act on Food Production and Food Safety of 2003, is administered in most respects by the Norwegian Food Safety Authority, but in respect of aquaculture, the Ministry has the power to make regulations regarding matters under the Act (in relation to aquaculture) and has certain administrative responsibilities.

Specific regulatory matters

Norway applies the EU regulations in relation to environmental impact assessment (EIA). But there are two significant differences between aquaculture EIA in Norway and in the EU. First, in Norway the Directorate is defined as the "competent authority", with responsibility for screening and conducting the EIA process in relation to aquaculture installations. However, this assessment relates only to the aquaculture production; if, for example, the installation involves substantial industrial building and construction a separate EIA may be required. The second difference is that the EU regulations include a specific threshold for the assessment of aquaculture. Thus, an EIA is to be carried out for large aquaculture installations and hatcheries with a capacity exceeding 5 million units (fry) if these activities may have significant effects on the environment, natural resources or community.

The Norwegian regulatory and licensing system provides flexibility to react to specific problems. These may be particular issues in relation to a specific site or installation (these issues being suitable for regulation through the licence) or there may be specific conditions in a particular area, justifying wider regulatory control.

Key facts

Two differences between Norway and the EU regulation of EIA:

- the EU requires a specific threshold for the aquaculture assessment
- Directorate in Norway is the competent authority with its own responsibility

DENMARK



PRODUCTION

36 thsd tons

aquaculture production volume in 2016

CONSUMPTION

13.5 kg

per capita consumption of fish and seafood in 2016

EXPORT

US\$ 3.58 billion

total export of fish and seafood products in 2016

Ranking the eighth in the world's leading exporters of fish products, Denmark holds a strong position in fish production. Aquaculture has a long and well-established tradition in the country. The main product is rainbow trout from freshwater ponds and land based units (90% of total species).

Total annual aquaculture production in Denmark was around 35,990 tons in 2015 or 4.36% of the total fish production (catch and aquaculture) in Denmark. Earnings from the aquaculture sector were about US\$ 122 million.

The Danish aquaculture is currently taking place in about 260 fish farms, of which most of them are situated on Jutland. On these farms, more than 648 people are directly employed in production, mainly in traditional fish farming. Additionally, a significant number of people employed in related industries, such as processing and smoking.

Danish aquaculture is strictly regulated by environmental rules. With the exception of full recirculation eel farms, all Danish fish farms have to be officially approved in accordance with the Danish Environmental Protection Act. A fixed feed quota^a is assigned to each individual farm in addition to specific requirements including feed conversion ratios, water use, and treatment, effluents, removal of waste and offal, etc.

Since the late 1980s, Danish companies and research institutions have specialized in resource efficient aquaculture solutions for farming high quality seafood. The key to their success lies in their full control of the water environment. This is especially the case for land-based recirculation systems where the water intake is down to just 1% per kilo of fish compared to the traditional flow-through systems.

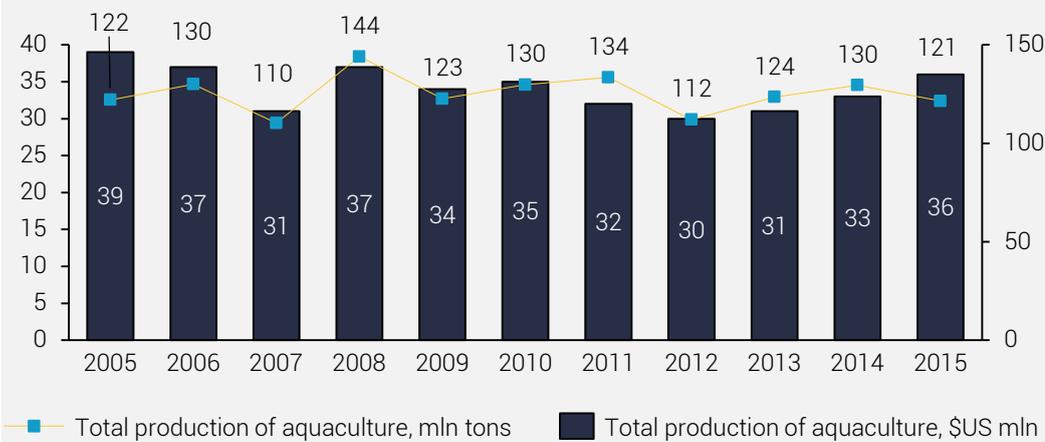
MARKET QUALITY AND QUANTITY ESTIMATION



Production

Aquaculture production. In total, the Danish aquaculture sector produced 35,990 tons in 2015, which is an increase of 9% from 2014. The total value of the production was US\$ 121.5 million in 2015, which is a decrease of 6% from 2014 (Figure 28).

Figure 28. Total production of aquaculture in terms of volume and value, 2005-2016



121.5 mln

US\$ were the aquaculture production in Denmark in 2015

Product segmentation. The main species farmed in Denmark is rainbow trout (*onchorhynchus mykiss*) which constitutes over 90% of the total production, and in 2015 amounted to 31,904 tons in volume and over \$US 108 million in value. (Figure 29 and 30).

Figure 29. Main species in terms of volume in 2016

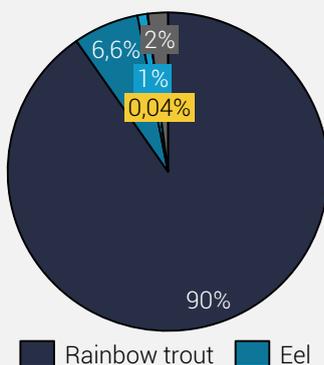
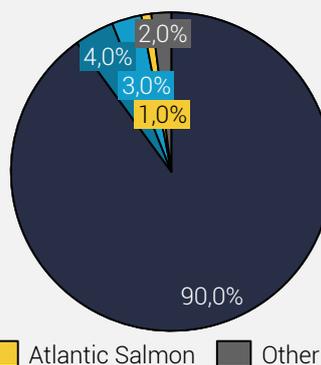


Figure 30. Main species in terms of value in 2016



90%

of all aquaculture production in volume in Norway in 2016 was Rainbow trout

Type of aquaculture. The production is divided into two segments: land-based and cage-based farms.

Land-based farms. The tradition of land-based farming dates back to the mid-19th century. Jutland accounts for 70% of the total trout production. The techniques used are ponds, raceways, and recirculating systems producing portion-size trout.

Other freshwater species such as European eel (*anguilla*) are farmed in land-based recirculation units. Pike-perch, turbot, and salmon are among the other species farmed. The Danish freshwater fish production is currently taking place in about 260 fish farms.

Sea cage farms

Sea cage farming in Denmark was introduced in the 1970s and now represents 30% of the total trout production. Around 70% of the farming takes place in the Baltic Sea area. Farming takes place mainly in the Limfjord in the northern part of Jutland, but also in the Skagerrak and Kattegat.

Consumption

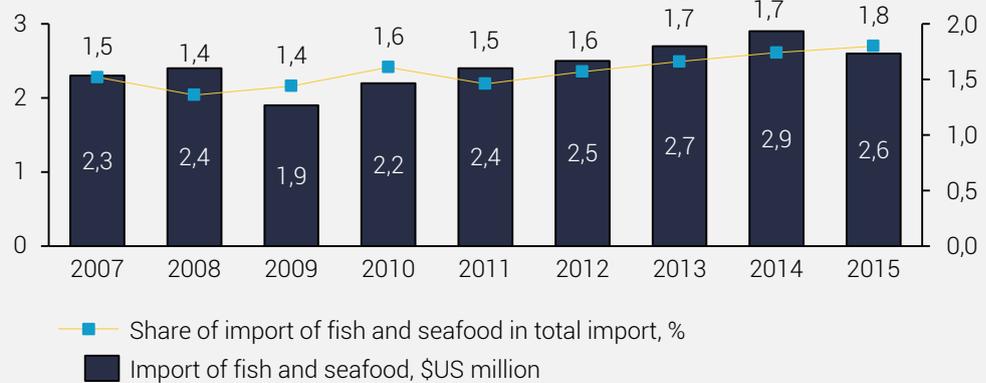
As a source of protein, fish faces strong competition from meat and poultry sectors. On average, Danes consume sixfold more meat than fish by volume and spend four times more on meat than on fish products by value. The actual volumes of fish consumption in the country are measured by consumer panel surveys. According to the most recent survey held in 2013, the consumption of fish in Denmark was 13.5 kg per capita. Herring, salmon and shrimp are the most preferred species.

Import/Export

Import. In 2015, Denmark imported 1,240,107 tons of fish and seafood for the value of US\$ 2.5 billion (Figure 31). Norway was the main country for Danish fish imports with 412,660 tons.

Sweden (176,950 tons) and Greenland (170,720 tons) were second and third major exporters of fish to Denmark in 2015.

Figure 31. Import of fish, seafood, and its share in total import



53.3 kg

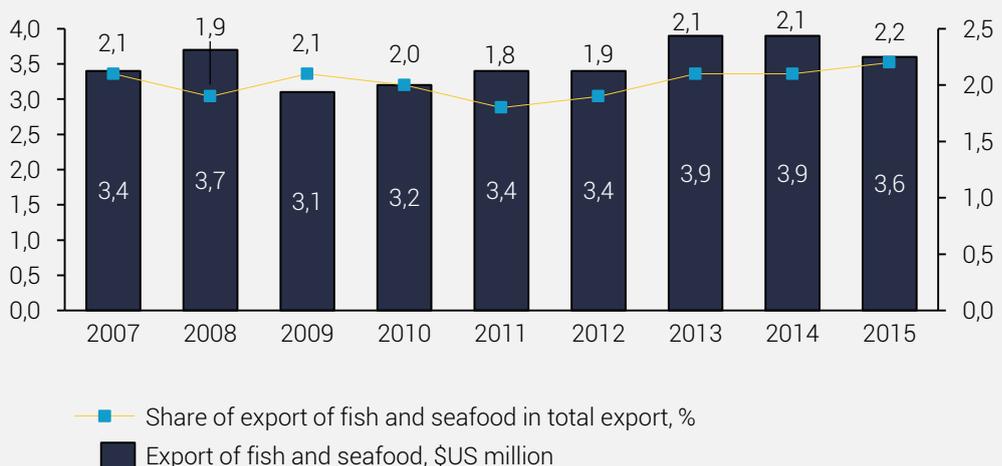
per capita is annual fish consumption in Norway

90%

of produced fish is exported

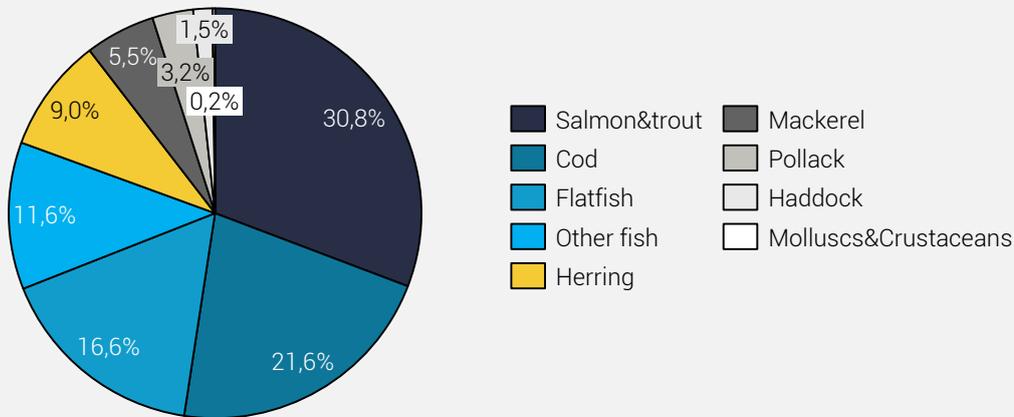
Export. In 2015, exports of fish and seafood reached nearly 1,022,197 tons for the value of US\$ 3.5 billion (Figure 32).

Figure 32. Export of fish, seafood, and its share in total export.



Product segmentation. The three largest groups of fish export are: whole fish, fillets, and prepared / preserved fish, which make up 56% of the exports. Fishmeal and fish oil, freshwater fish and various shellfish are of great importance as well. Salmon and trout occupy the first place in terms of value in the export of fish and seafood products with 30.8%. Further distribution in terms of volume and value slightly differs between types of fish and seafood products. Thus, the second highest sales value has cod with 21.6%. A significant share in terms of value accounts for such types of fish as flatfish and herring (Figure 33).

Figure 33. Main species in terms of value in 2015^b



57%

of all land-based aquaculture company costs are feed and broodstock

Export markets. Over 80% of the fish and seafood exports from Denmark were destined to EU countries, with Germany as the largest single market of over 186,000 tons. Outside of the EU, the largest importer is Norway with total volume of 196,810 tons, mainly fish feed and fish oils.

Value Breakdown

Traditional land-based (Trout):

- The trout segment shows a traditional cost composition for a land-based aquaculture industry where the main cost components are feed and broodstock, which cover 57% of the total operational costs

Land-based with highly recirculated systems:

- In this segment, the main cost components are also feed and broodstock, which cover 46% of the total operational costs
- The energy cost covers 10% of the total cost, which is twice as much as the Traditional land-based aquaculture. The reason for the higher energy cost is the use of highly recirculated systems in this segment

Sea cages (Trout):

- In the Trout cages at sea, the cost components feed and broodstock are the most important, covering 59% of the total operational costs. In sea cage farming, the cost of broodstock is more important than feed, which is the opposite of the composition in the land-based farms. The fish bought for sea cage production are larger than for land-based production, which explains the difference in the cost compositions
- In addition, the other operational costs are higher due to the cost associated with the transport of feed, fish, and equipment to the production site



Business environment analysis

Challenges

- Important challenges for Danish aquaculture are the protection of marine biodiversity and the restoration of rivers to protect biodiversity and facilitate fish migration
- Based on Denmark's EMFF Operational Programme 2014–2020, the key objectives in aquaculture are increasing aquaculture production by 25%, increasing ecological production to at least 10% of total production, and increasing the export of aquaculture production by 25%

Opportunities

One of the aims of the Operational Programme is to reinforce the processing and marketing of fisheries and aquaculture products through innovation, certification, traceability, and other suitable measures. This will strengthen the sector's competitiveness and ensure environmentally sustainable production. For instance, the volume of Aquaculture Stewardship Council (ASC) certified aquaculture production is expected to increase significantly through 2020.



Legal aspects

Introduction

Aquaculture production in Denmark can be divided into four main categories. The land-based production of trout is the major one where ponds, tanks, raceways and recirculation systems are used. Other categories are: marine production of trout and trout eggs; land-based recirculation farms producing European eel, pike-perch and salmon; and production of blue mussels on long lines.

Key legislation

Regulation of aquaculture in Denmark is based largely on EU legislation on environmental protection. Denmark has implemented a number of EU Directives into its national legislation, as follows: Water Framework Directive defining water quality standards (under the Environmental Target Act, or the Act on Environmental Objectives), Marine Strategy Framework Directive (according to which Denmark enacted the Marine Strategy Act in 2010), EIA Directive, etc.

Danish legislative framework includes number of fishery, water, environmental and other laws, and administrative orders. The environmental legislation and regulations related to aquaculture in Denmark are the following: 1) Fisheries Act, 2) Environment Protection Act, 3) Fishery Development and Aquaculture Act 4) Planning Act, 5) Water Supply Act, 6) Statuary Order for Fish Farms, 7) Water Action Plan, 8) other relative legislative acts and orders.

The Statuary Order for Fish Farms addresses aquaculture directly and creates incentives for the fish farmers to produce more fish while reducing the environmental pollution. The document includes administrative and operational provisions, adjustments, liability provisions, selfmonitoring and reporting requirements on farms, such as regular water samples, containing toxic and oxygen level, etc.

Key facts

The environmental legislation and regulations

- Fisheries Act
- Environment Protection Act
- Fishery Development and Aquaculture Act
- Planning Act,
- Water Supply Act
- Statuary Order for Fish Farms
- Water Action Plan
- other relative legislative acts and orders

Fishery Development and Aquaculture Act provides the framework for government incentives to fisheries and aquaculture sectors, where resources are used according to regional development and sustainability. The amount and conditions of such incentives are to be determined by the Minister of Food, Agriculture and Fisheries.

Key regulatory bodies

The aquaculture sector is supervised by the Ministry of Food, Agriculture and Fisheries and is mainly governed through the implementation of environmental regulations. Other public authorities in this sphere include Danish Environmental Protection Agency (as a prime enforcement authority of legislation regulating fish farms), Danish Veterinary and Food Administration, Danish Agrifish Agency and local municipal bodies.

Specific regulatory matters

Except for full recirculation eel farms, all Danish fish farms must obtain an official permit to operate in aquaculture sector. Such permits are issued by Danish AgriFish Agency or local municipalities, depending on the type of aquaculture project (marine/freshwater).

Expansions and other changes of a freshwater fish farm, which may lead to pollution increase, must be approved according to chapter 5 of the Environment Protection Act.

Key facts

Key regulatory bodies :

- The Ministry of Food, Agriculture and Fisheries
- Danish Environmental Protection Agency
- Danish Veterinary and Food Administration
- Danish Agrifish Agency

LITHUANIA



PRODUCTION

4.4 thsd tons

aquaculture production
volume in 2016

CONSUMPTION

19 kg

per capita consumption of
fish and seafood in 2016

EXPORT

US\$ 589 million

total export of fish and
seafood products in 2016

Lithuanian leading place of pond-based aquaculture can be explained by large coverage of Lithuanian territory by inland waters – 4% or 2625 km².

Comprising 44 enterprises (which employed 485 people in 2014, from whom 391 people are employed within the pond-based aquaculture sector) and aquaculture farms, the Lithuanian aquaculture sector produces around 4,450 tons of fish, with a value of US\$ 11.7 million. Most of the fish is produced in ponds (18 enterprises produced around 97% of total national production volume and covered 80% of total employment), and about half hold organic certification. All of them are integrated into national producer organization (PO).

RAS (recirculating aquaculture systems) in Lithuania have a tendency of constantly increasing capacity and production volume. No marine aquaculture in Lithuania.

Carp is the main species, representing 85% in terms of volume and 75% in terms of value of total production. Other important fish species include sturgeon, rainbow trout, northern pike, and African catfish. The main export markets are Germany, Poland and Latvia.

Regulation of aquaculture industry. The Fisheries Department under the Ministry of Agriculture is responsible for the administrative control of aquaculture. The aquaculture sector follows the normative acts of the Ministry of Environment of the Republic of Lithuania and the State Food and Veterinary Service. The main act in the aquaculture sphere is the European Parliament Regulation No. 1380/2013 "On the Common Fisheries Policy" of 2013.

MARKET QUALITY AND QUANTITY ESTIMATION

Production

According to FAO, the Lithuanian aquaculture sector in 2015 produced 4.5 thousand tons of freshwater fish, from which 3.8 thousand tons were destined for consumption, corresponding to US\$ 11.7 million and US\$ 9.9 million, respectively (Figure 34). Compared to 2014, total production in terms of volume increased by 16.0%, while production in terms of value decreased by 1.2%, whereas compared to 2005 it improved by 121.1% and 125% respectively.

The main drivers affecting aquaculture growth were the following:

- increasing trends of fish consumption at national level, while export volumes did not show an increasing tendency
- increasing investments had the significant impact on sector, by rising aquaculture production capacity through construction of modern land-based farms
- modernisation of existing pond infrastructure, contributed to competitiveness

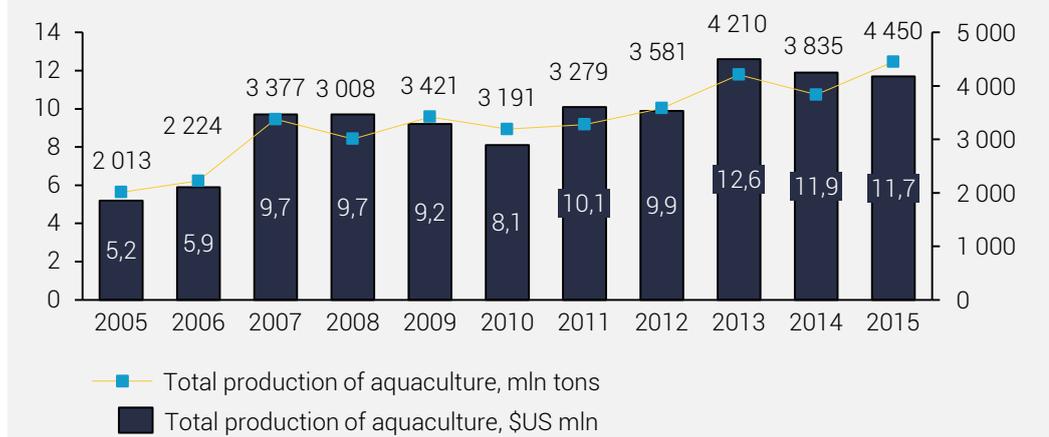
Consumption

According to USDA Gain Report, in 2015 the average annual per capita fish consumption in Lithuania was 12% higher than in 2014 and amounted to 19 kg. There is a general upward long-term trend in overall consumption and a positive perception of fish and fish products among consumers. Pollock, herring, and mackerel are the most popular saltwater species, while carp and trout are the most popular freshwater species. Pollock and salmon are gaining popularity in the market, indicating a structural change in consumption.

84.7%

of all aquaculture production in Lithuania are carps

Figure 34. Total production of aquaculture in terms of volume and value



19 kg

of fish per capita is the annual consumption of fish in Lithuania

Product segmentation. The major part of production was generated from pond-based aquaculture represented by such species as common carp, bighead carp, white amur, and other freshwater species produced in pond polyculture (Figure 35, 36).

- *Carps* constitute the main segment in the Lithuanian aquaculture sector in terms of volume and value of production, representing the 84.7% in volume and 75% in value of total production in 2015. Carps are mostly produced in polyculture with other cyprinids and other freshwater species
- *Rainbow trout* can be defined as second most important segment, contributing to 8% of total volume and 10% of total value

The majority of production is provided from RAS aquaculture units, and smaller part from traditional tanks and raceways systems

- *Other freshwater species* combined represents the rest part of production from aquaculture sector. This segment includes important sub-segment of African catfish, produced in recirculation systems and mainly for the processing industry, as well as other higher value species as sturgeons, pike-perch and European catfish, produced in ponds, but also tanks or raceways. African catfish is produced mainly by small enterprises with an average of 4 employees per unit

Key facts

The main importers of fish to the country are:

- Sweden
- Norway
- Latvia
- United States

Figure 35. Main species in terms of volume in 2016

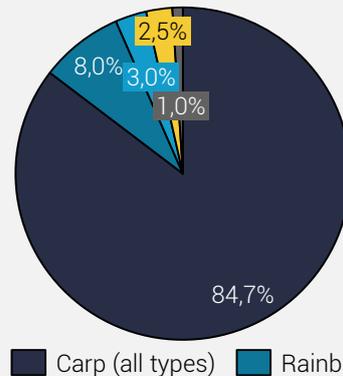
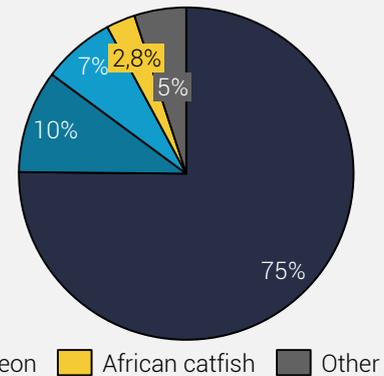


Figure 36. Main species in terms of value in 2016

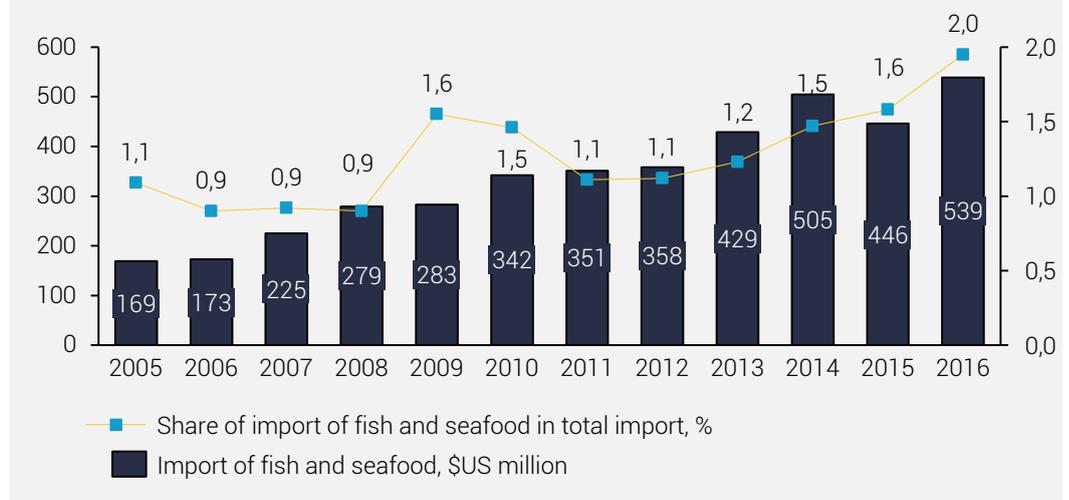


Import/export

Import. Lithuania imports mainly unpossessed fish, which is used by the local industry for further processing, which is leaned on foreign raw materials (around 95%). In 2016 import of fish and seafood products to Lithuania accounted for a value of US\$ 539 million, which comprises 1.95% of total imports (Figure 37).

The major import suppliers. Sweden, Norway, Latvia and the United States were the major suppliers of fish to Lithuania (68% of total imports of fish and seafood products in 2016).

Figure 37. Import of fish, seafood, and its share of total import



Export. In 2016, Lithuania exported fish and seafood products worth US\$ 589 million, a 10% increase in comparison to the previous year, comprising 2.3% of total export (Figure 38). From 2012 exports of aquaculture production show stable increasing tendency after the continued decrease from 2009.

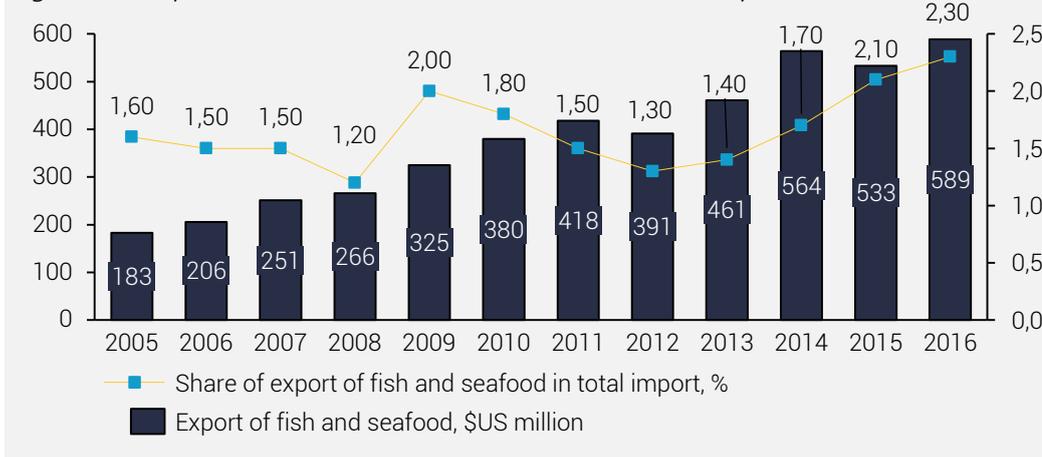
Processing. Lithuania is a country, which imports raw material, processes and exports finished products, with imports to Lithuania growing yearly. In 2016, Lithuania exported raw materials for processing with a value of around US\$ 425.5 million and imported them with value of about US\$ 403.9 million. Surimi products represented about 30% of the total export volume. Other product types – salted, smoked, dried fish and culinary fish products – are mostly supplied to the Lithuanian market.

Export markets. The EU countries are the main destination for exports of Lithuanian fish and seafood (98% of Lithuanian fish products were exported to the EU in 2016). The main export countries for Lithuanian fish production are Poland and Latvia and for processed products - Germany, France and the Baltic states.

98%

of fish products were exported to the EU

Figure 38. Export of fish, seafood, and its share in total export.



Value Breakdown

Pond-based aquaculture. The Lithuanian aquaculture sector is mostly presented by carp ponds. The increasing volume and value of production show the increasing intensity of using carp ponds. The profitability of carp production in 2007 was about 16%.

Cost structure of carp production:

- The cost of fish feeds accounted for more than 50% of the total costs. High cost could be explained by the increase in price for cereals
- The labor costs composed the other large part of the operational costs and accounted for about 20%
- The expenses for juvenile fish accounted for 11%

Modern recirculation systems are rather costly and a new type of aquaculture for Lithuanian producers. It becomes more and more popular for production of valuable fish species such as sturgeon, trout and eel in the existing enterprises. However, the European Fisheries Fund (EFF) support gives an opportunity to create new aquaculture enterprises in the sector. The production of the valuable fish species is rising⁹.



Business environment analysis

Challenges

- Low employment levels in many communities engaged in commercial fisheries and aquaculture

50%

of all production expenses are feed

- The Pesticides Safety Directorate (PSD) fee in excess of 4 European size units (ESU - 1200 EUR) increases significantly because of aquaculture activities, particularly the modern land-based farms, have considerable ESU, so some farmers are faced with an increased tax burden even though they have yet to see revenues from the modern land-based farms
- The difficulty that local fisheries products face to compete with tough competition from abroad because of high production cost and marketing tools used for aquaculture products are not effective enough. Most small and medium-sized aquaculture companies have low production yield and a lack of financial capacity to invest in development

Key facts

The main triggers affecting the industry growth:

- increase of the energy efficiency level
- expansion to international markets
- construction of new RAS

Opportunities

The triggers affecting aquaculture growth in Lithuania are the following:

- Lithuanian enterprises tend to increase the level of energy efficiency through usage of renewable sources of energy, and systems of closed recirculation
- Lithuanian aquaculture enterprises want to continue their expansion to international markets, and they concentrate production with higher added value. Thus, there is a tendency of breeding of new species that can open new markets and fetch higher prices, as well as to preserve traditional aquaculture
- Increasing investments during EFF period and projected investments from European Maritime and Fisheries Fund (EMFF) is considered as one of the main drivers, where higher demand for processing purpose after diversification of activities is increasing volume and value of production during recent years
- Boosted aquaculture production capacity through construction of new RAS farms, modernization of existing pond infrastructure, basins and channels, reduced costs of production



Legal aspects

The main production systems in Lithuania are represented by warm-water and cold-water fish ponds. The production systems in operation are warm-water ponds for carp breeding. Given the environmental conditions in Lithuania, the three-year breeding system is applied to produce carp to a marketable size. There is also cold-water aquaculture for trout and whitefish. Closed systems are applied to trout, salmon and sea trout.

Key legislation

Aquaculture regulation in Lithuania is comparable to regulation in the EU, but some differences at the administrative implementation level were introduced in 2005.

The main act in the aquaculture sphere is the European Parliament Regulation No. 1380/2013 "On the Common Fisheries Policy" of 2013. It defines priority objectives in the field of fisheries, regulates the organization of the fishery and aquaculture products market, protection of aquatic biological resources, and coordinates EU assistance programs. The floor in fisheries is shared as follows: the Ministry of the Environment deals with inland fisheries and the Department of Fisheries of the Ministry of Agriculture focuses on marine fisheries.

The legislative framework includes national Lithuanian laws and regulations, orders of the Minister of Agriculture and the Minister of the Environment, procedures and regulations of the departments. The main national law is the Law on Fisheries No. IX 2193 of 2004.

Procedural and administrative issues are subject to number of orders regulation. Order No. B1-146 "Regarding approval of requirements for veterinary approval of state veterinary control objects, except for food business operators" of 2005 of Director of the State Food and Veterinary Service considers obtaining a veterinary approval and registration of State controlled veterinary subjects, with the exception of food business operators. Order No. B1-288 "Regarding Approval of the description of the veterinary documents issuance" of 2008 of the State Food and Veterinary Service introduces veterinary certificate. Order No. D1-590/3D-583 "Regarding approval of the description of impassable artificial surface water body installation and maintenance of environmental requirements" of 2012 of The Minister of Environment of the Republic of Lithuania provides for obtaining a permit to install an artificial impassible surface body of water. Environmental Impact Assessment issue is regulated by Order No. D1-311 Regarding approval of procedure for proposed environmental impact assessment document examination by the Ministry of Environment and its subordinate institutions" of 2006 of the Lithuanian Minister of Environment.

Key regulatory bodies

The establishment of new fishery and aquaculture activities is regulated by the administrations of the counties - licenses are not necessary. Various forms of private producer organisations currently prevail in the aquaculture sector: companies, cooperatives, confederations, and associations. The Fisheries Department under the Ministry of Agriculture is responsible for the administrative control of aquaculture. Regulations of the Ministry of Environment of the Republic of Lithuania and the State Food and Veterinary Service should also be noted.

Specific regulatory matters

Aquaculture in Lithuania faces the new period of the Common Fishery Policy for 2014 – 2020. Development of aquaculture will go by two axes - sustainability and innovations.

Support to modernisation of the existing aquaculture companies is planned, as well as reconstruction of water supply and discharge systems, introduction of new technologies, increasing the range, especially organic production, developing fish selection works with the Lithuanian carp species prioritised. Measures of fish disease prevention in aquaculture companies will be financed under special target programmes.

Key facts

The Fisheries Department under the Ministry of Agriculture takes the responsibility for the administrative control of aquaculture

POLAND



PRODUCTION

36,7 thsd tons

aquaculture production
volume in 2016

CONSUMPTION

12.5 kg

per capita consumption of
fish and seafood in 2016

EXPORT

US\$ 1.3 billion

total export of fish and
seafood products in 2016

Total annual aquaculture production in Poland was 36,971 tons in 2015. Earnings from the aquaculture sector were about US\$ 112 million in 2015.

The sector is dominated by small enterprises (70% of total). Totally, there are 4,400 full-time employees in the aquaculture industry. The Polish aquaculture sector is operated by professionally trained personnel, with Poland having a well-developed education system for fisheries and aquaculture.

In Poland's "Multiannual national plan for the development of sustainable aquaculture" (MNPAqua) national growth objectives are determined.

Under the Operational Programme "Fisheries and the Sea" for the period 2014-2020, almost US\$ 274 million is allocated to support aquaculture, of which 75% is support from the European Maritime and Fisheries Fund (EMFF).

Carp farms. Although carp farms are distributed throughout Poland, the larger facilities are located in central and southern Poland where climatic conditions are warmer and thus more advantageous. The surface area of carp ponds in Poland is 51,700 ha, of which 10%, or approximately 7,000 ha, is disused. Of all carp ponds, 55% are privately owned, while the remainder is state property (leased and administered). The size of carp farms ranges from several hectares to 1,777 ha (average 232 ha; median 97.5 ha).

Trout farms. Trout farms are generally distributed in the north, close to the Baltic Sea coast and in southern Poland in the Carpathian foothills in rich terrain with clear, cool waters.

MARKET QUALITY AND QUANTITY ESTIMATION



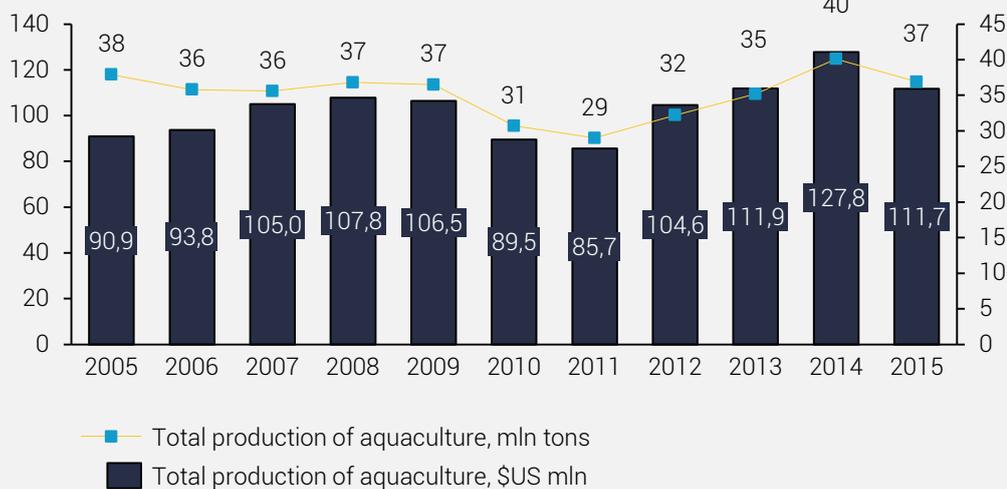
Production

Aquaculture production. Total annual aquaculture production in Poland was 36,971 tons in 2015. Earnings from the aquaculture sector were about US\$ 112 million in 2015 (Figure 39). The decrease of production of aquaculture in 2015, compared to 2014, were caused by a deteriorating hydrologic situation, especially in Wielkopolska and Lublin provinces.

48%

of all aquaculture
output in 2015 is carp

Figure 39. Total production of aquaculture in terms of volume and value



Type of aquaculture

The aquaculture in Poland is represented mainly by land-based freshwater farms and is carried out in traditional earth ponds and concrete ponds.

The aquaculture production can be divided into two main sectors:

- Carp farming.** The biggest category is carp production which amounted to 19,000 tons, and made up 48% of total aquaculture output in 2015 (Figure 40 and 41). Carp production is carried out in earth ponds. Total earth ponds useable area of production for carp is about 60 thousand ha (the largest in Europe.), which stands for about 79% of total area of earth ponds registered by the Central Office of Cartography and Geodesy. Carp is produced for the domestic market. Demand is seasonal and stagnating. Most carp is sold in December before Christmas Eve in the form of live fish and fresh whole fish
- Trout farming.** The output of rainbow trout was 15,000 tons in 2015. The active development of trout farming started at the end of the 1990s, and production has been stagnating over the past few years. Trout production is carried out in industrial fish production facilities and trout is harvested when it reaches the size of about 200–450g. Trout production is carried out in concrete ponds that are supplied with water from rivers or other running sources with partial recirculation of water

Figure 40. Main species in terms of volume in 2016

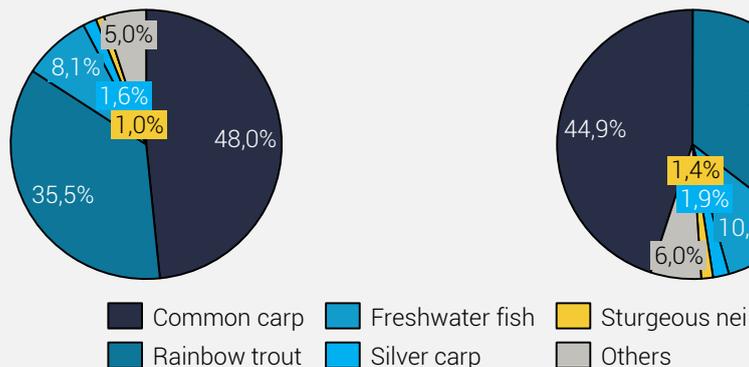
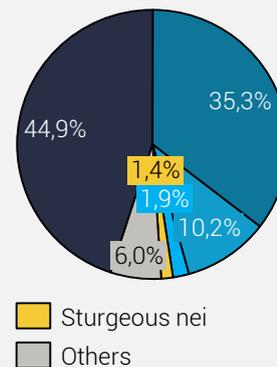


Figure 41. Main species in terms of value in 2016



12.5 kg

per capita is annual fish consumption in Poland in 2015

Consumption

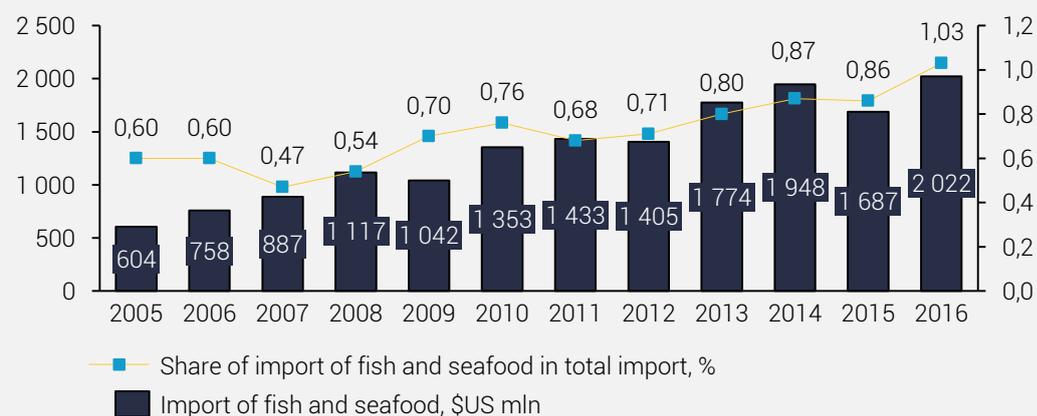
In 2015 average annual fish consumption in Poland was 12.5 kg per capita, almost half the average per capita fish consumption in the EU. In 2015 consumption of fish was 7% lower than in 2014 mainly due to reduced consumption of cod and salmon caused by competition from cheaper pork and poultry meat. Pollock, herring, and mackerel are the most popular saltwater species, while carp, trout and panga are the most popular freshwater species. Since 2007 panga consumption has been significantly declined due to perceived inferiority and health concerns. In the same time pollock, herring and trout have gained traction in the market, indicating a structural change in consumption. Consumption of pollock, the number one fish consumed in Poland, is growing due to relatively low prices compared to other fish and improved quality of fish stemming because of increased imports from the United States.

There is a growing awareness among Polish consumers regarding fish and seafood benefits. They are choosing fish products with more care and attention, are getting information about products, and are benefiting from campaigns promoting consumption and the health benefits of fish and seafood. Rising health awareness is indicated to be the most popular reason for fish consumption. In recent years, Poland has observed a dynamic development of sushi bars and restaurants, including major sushi bar chains.

Import/Export

Import. Poland is one of the biggest salmon importers in the world. In total, Poland imported 621,529 tons of fish and seafood for a value of US\$ 2.02 billion in 2016. The increase of imports by 20% in value was due to higher import prices (Fig. 42).

Figure 42. Import of fish, seafood, and its share of total import



Product segmentation. Raw materials for processing: Polish fish processing plants import significant amounts of seafood raw material for processing, specifically of pelagic fish such as herring fillets and mackerel, which are usually frozen and used for smoking and production of marinated fish, salads, and canned fish. Another important raw material is imported salmon, fresh and gutted to be filleted and smoked in Poland, mainly for re-export. Due to its great processing potential, Poland also imports white fish, which are filleted as well as breaded and frozen.

Finished products. Among finished products, the import of frozen white fish fillets such as pollock, pangasius, cod, salmon, herring and canned tuna play a major role.

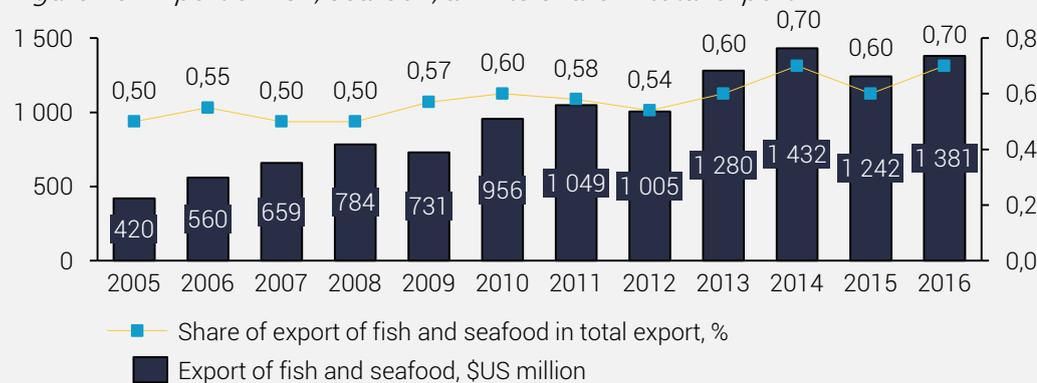
Major import suppliers. Norway is the main supplier of raw materials and fish to Poland, while other significant partners include USA, China, Germany, Denmark, the Netherlands, and others.

Export. In 2016, Poland exported 125,361 tons of seafood products valued US\$ 1.38 billion. The increase of export of fish and seafood in 2016 compared to 2015 was caused by higher sales to Germany (Figure 43).

1.38 bln

US\$ of all
aquaculture output
in 2015 is carp

Figure 43. Export of fish, seafood, and its share in total export.



Product segmentation. Poland has a large variety of different types of fish in both export and import. Salmon occupies the leading place in terms of value in Polish international trade with the share of 69.5% and 52.3% in export and import respectively (Figures 44 and 45). Further distribution of fish and seafood differs between these two categories. In export, trout and cod are splitting second place with 5.4% each one. Cod with 8.7% and Alaska pollock with 5.7% occupy 2nd and 3rd places in import breakdown by fish and seafood.

Figure 44. Main species in terms of volume in 2016

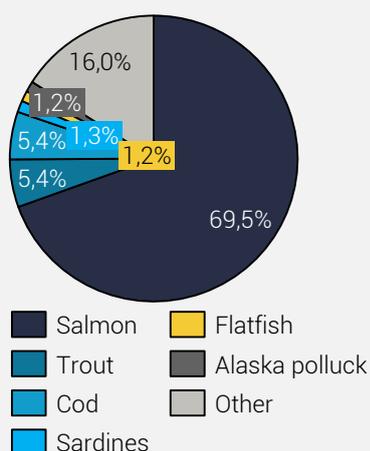
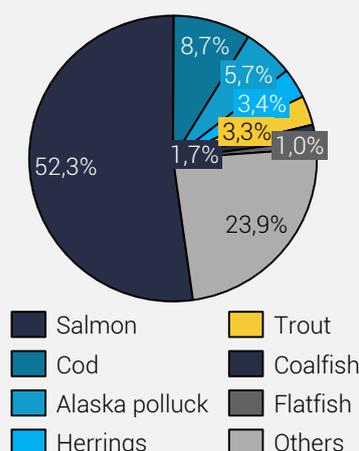


Figure 45. Main species in terms of value in 2016



52.3 %

of import is salmon

Export markets. Major destinations of Polish exports of fish were European countries (90% of total export): Germany (smoked salmon, herring, cod, trout), France (smoked salmon, fish fillets), United Kingdom (prepared fish, cod), Denmark, Romania (herrings), Italy and Vietnam.

Value Breakdown

The operating costs structure:

- More than half of the cost of operating costs (52%) belongs to feed
- Other costs were labor costs (wages and salaries and imputed value of unpaid labor) (17%) and purchase of broodstock (10%)
- The share of other elements of the cost was lower, ranged from 7% to 1%, respectively for depreciation of capital and energy costs, repair and maintenance, energy costs, other operational costs, and imputed value of unpaid labor

52%

of operating costs
are feed



Business environment analysis

Challenges

In Poland, freshwater aquaculture production in volume is dependent on the prevailing meteorological conditions. In the case of carp, too low autumn temperature shortens the feeding period and growth of fish. However, in the case of trout, too high temperature continuing in the period from June to August limits feeding and weight gain of fish. The main limiting factor in achieving maximum potential yields is outbreaks of viral diseases and the pressure of piscivorous animals (cormorants, otters) which are protected.

Opportunities

According to the Multiannual national plan for the development of sustainable aquaculture (2014-2020), Poland will enhance aquaculture competitiveness by:

- increase in government-led promotion of fish products through the Fish Promotion Fund
- increase in the profitability of traditional production farms by an average of 10% through financial support for income diversification
- development of the domestic market, increasing the supply level and doubling deliveries to processing sector (thanks to action taken by FPF)
- financial support to encourage a bond between science and producers
- reduction of energy consumption in aquaculture facilities, including moving towards renewable energy



Legal aspects

Introduction

Aquaculture in Poland is part of the inland fisheries sector and consists exclusively of freshwater fish rearing and production, primarily carp and trout. It is mainly conducted in earthen ponds. Several farms produce carp, sturgeon, and European catfish in cages, located in electric power plant discharge canals. There are also examples of recirculating systems use for the production of stocking material for aquaculture and for stocking open waters; and of closed water systems for the production of North African catfish.

Key legislation

EU accession had significant implications for the aquaculture. Poland has developed a National Strategy for the Development of Fisheries in 2012–2020, which includes priorities for developing the sector.

Main acts in Polish aquaculture area include: Environmental Protection Law of 2001, the Act "On Access to Information on Environment and its Protection, Public Participation in Environmental Protection and on Environmental Impact Assessment" of 2008.

Regulation of the Minister of Agriculture and Rural Development "On Veterinary Requirements for Breeding of Aquaculture Animals and Fish Reproduction" of 2004 is rather specific and sets forth veterinary requirements applicable to activities concerning: (a) breeding of aquaculture animals; and (b) fish reproduction. Aquaculture animals and aquaculture products must be introduced into farm areas in clean containers or disposable packaging to be cleaned and disinfected before each use.

Key facts

The key legislation
The Act "On Access to Information on Environment and its Protection, Public Participation in Environmental Protection and on Environmental Impact Assessment" of 2008.



SWOT-ANALYSIS

Analysis of Strengths, Weaknesses, Opportunities and Threats to the aquaculture industry in Ukraine



Strength

- Largest domestic water surface area in Europe (the water facilities for commodity aquaculture in Ukraine have an area of 101,760.6 ha at the end of 2015) creates favorable conditions for developing aquaculture in Ukraine
- Inexpensive labor force (average monthly salary in agriculture is 180 US\$/month)
- Low land rent rates (~70-120 US \$/ha annually)
- All complex elements of the industry are present but need to be additionally invested to the: fishing and fish processing; reproduction and protection of fish stocks; pond and basin aquaculture; commercial fish farming; fish selective breeding
- Formed the Fish Patrol, which caused decreasing of the illegal fishery (+24% of the catch in the Kyiv reservoir and +36% in Kanev reservoir) in ponds
- Privatization. In 12 out of 36 state organizations were added to the list of privatization (including 6 state organizations that grow juvenile and show great potential) As in Ukraine the state is not an effective owner, privatization will lead to increasing of companies` efficiency
- Financial support programs for aquaculture enterprises were launched (#300 resolution of KMU). As the result since 2017 enterprises can apply for receiving concessional lending. However, for now, they can just apply; all the details of this program will be clear in 2018
- Deregulation measures: Enterprises need less time and resources to start and operate the business
- Current legal framework for doing aquaculture business. However, business has not yet experienced significant improvements from implemented initiatives
- Transparency and data availability. Ukrainian aquaculture producers provided with all appropriate information about doing business resulting in the improving of market conditions in Ukraine

Opportunities

- Establishing certificates of fish origins to prevent entering the poaching fish in the country's trade networks in order to separate between wild fish and aquaculture
- Return VAT refund or government support to aquaculture industry
- Develop infrastructure for aquaculture industry (package, cages, microchip and scales etc.) and cool logistics
- Implementat an electronic monitoring of vessels and catch to separate between wild fish and aquaculture
- Draft law that aimed to reduce rent for the land of water fund from 3-12% of the land normative assessment to 3% is expected to be considered (in 2016 it was not adopted by the Verkhovna Rada)
- It is possible to stimulate domestic production of fish feed (constructing a plant to produce feed in Ukraine) in order to cover domestic demand of aquaculture producers
- Strengthen the protection of water bodies and increase penal sanctions that would reduce theft from fish farms and increase future demand for legally grown fish
- Update regulatory framework for leasing ponds
- Improve customer control for live objects (to reduce the terms of control)
- Stimulate households to cultivate breed for sale
- Inform business whereas they must submit reports (to issue some directory)

Weaknesses

- Small export to other countries caused by: required volume of supplies by International retailers , which is ten times more than Ukrainian company can produce now; too high price of international certification; the need to apply to veterinarians' analysis to each country separately every time while exporting
- Ecological problems that impact fish stocks: the mass pollution of rivers; absence of water bodies melioration
- Government regulation: pressure and manipulation in relation to the tenants of water bodies; old and ineffective sanitary regulations (30% of catch is taken for an examination)
- Personnel: excess of staff in state companies (60% are administrative personnel); the lack of qualified work force
- The absence of insurance of aquaculture business
- Long term of customs clearance and no differentiation between imports and exports of living objects causes smuggling of this type of products
- No mass production infrastructure for fish farming components
- Decreasing of aquaculture production in dollar equivalent
- Significant deterioration of material and technical base
- Inefficient breeding and research centers (11 state companies out of 36 received profit in 2015)
- Low product differentiation and standardization
- Lacking households that cultivate broodstock for sale
- Low firms concentration ratio and comparatively low industry profitability
- Exceeding of aquaculture import on its export. It leads to the growth of prices for products and can decrease the consumption of aquaculture products
- Lack of government support. No VAT refund for the fishing industry since 01.01.2017
- No cold logistics for the fishing industry, it is available for companies from other industries
- High costs of feed (~60% of total production costs)
- Business is not informed where to submit reports
- High taxes (business reports that land tax and flat tax increased, however, VAT refund was cancelled)
- No regulatory framework for leasing ponds

Threats

- The continuing import dependency of Ukrainian aquaculture (on infrastructure, feed, on technology and equipment)
- An increase of shadow sector share due to overregulation and tax burden
- Further possible devaluation of national currency can cause Increase of other costs
- Distrust from the public to the State Agency of Fisheries of Ukraine
- Arguments between recreational fishing and fish farming
- Difficulties in enacting key laws



POLICY RECOMMENDATIONS

Recommendations in order to improve the current situation



#	CURRENT PROBLEMS	PROBLEM CONTEXT	SUGGESTIONS
LEGAL SUGGESTIONS			
1	Legal status of water bodies	<p>Current legislation does not fully determine the legal status of water bodies, particularly considering their aquacultural use. The Water Code of Ukraine defines a list of bodies which can be used for aquaculture. Moreover, the Code defines the list of body categories which cannot be used for this purpose. Thus, these lists do not fully cover all Ukrainian water bodies (for instance, rivers, parts of water bodies, national sea waters area), hence the legal status of other water bodies, considering their aquacultural use, is not defined.</p>	<p>To define two categories of bodies - the water body (full-scale: pond, lake etc.) and the part of the water body. (marine areas etc). The part of the water body means not only parts of water bodies themselves, but also national sea waters area, territorial waters and the EEZ (marine) of Ukraine. To determine the restrictions in legal acts, when it deems necessary to put some restrictions on the possibility of water bodies (or their parts) transfer for their use. Provide a possibility that a number of such bodies are not exhaustive; note that a number of bodies, in which aquacultural use is forbidden, are exhaustive and provided for in the Water Code of Ukraine.</p>
2	The use of the part of the water body	<p>Current legislation provides a possibility to use the part of the water body only if it is used for fishery and only to create a floating aquacultural farm. By doing so, the use of the parts of the water body, as well as their use not only for creating floating agricultural farms, is forbidden.</p>	<p>To provide a possibility to use parts of any water bodies, as well as excluding restrictions on the use of the parts of the water body only for creating floating aquacultural farms. To define a non-exhaustive list of other possible forms of water bodies parts usage. To form a list of particular restrictions, when it deems necessary to introduce them.</p>
3	Registration of the Water Fund land parcels property rights	<p>To establish various mechanisms for registration of a right to use different categories of bodies. Current legislation provides a possibility for registration of property rights of Water Fund land parcels (not more than 3 ha) or of a right to use land parcels under rental contracts. Moreover, in some cases legislation provides a possibility to draft different rental contracts for a water body, a land parcel, on which this body is situated, hydrotechnical constructions etc., but sometimes there is a possibility to draft a single rental contract for both a land parcel and a water body. Drafting several rental contracts significantly changes the period of drawing up the right to use a body, as well as creates another possibility for corruption.</p>	<p>To establish a single rent procedure of the water body through the tender of the land parcel on which the water body (or its part) is situated. In accordance with the land tender results, to draft a single complex rental contract for the water body, the land parcel, on which the body is situated, the shelterbelt, and hydro-technical constructions (if needed). To approve a standard rental contract form instead of several existing nowadays. Current legislation provides a possibility to lend the water body if only there is the water body passport. Moreover, the issue of the necessity of such a passport is not regulated by law. To adopt legislation that the water body passport is not required in case of providing the right to use the parts of the water body. The mechanism of land auctions requires the necessity of taking several additional measures, including marking out the land parcel and determining its borders. Such procedures can be technically executed in case of providing the right to use the whole water body, but they cannot be technically executed for the part of the body. To determine in legislation that in case of providing the right to use the part of the water body its marking out and borders' determination are not required as the borders of the parcel are identical to those on the water surface. It is provided in the Water Code, that it is obligatory to negotiate a water body rental contract with the central executive body, which enforces a state policy on aquaculture. A draft rental contract can be formed after holding land tenders and choosing their winner. Moreover, the procedure of holding land tenders is rather long and expensive for its participating parties. The procedure and its terms are not determined, but the conclusion of the rental contract should be done on the day of choosing the winner bid. Moreover, it is not determined, what is the issue of acceptance for such a body, except from a possibility of using such a water body. To adopt current legislation over the central executive body, which realizes the state policy on aquaculture, according to which it will negotiate not the rental contract itself, but the possibility to grant the right to use such a water body prior to the measures, provided for in Article 136, p.4 of the Land Code of Ukraine.</p>

#	CURRENT PROBLEMS	PROBLEM CONTEXT	SUGGESTIONS
4	The right to use the water space of the national sea waters area, territorial sea, as well as the water space of the EEZ (marine) of Ukraine	The decision on granting the right to use the water space of the national sea waters area, territorial sea and of the EEZ (marine) of Ukraine is conducted by the Cabinet of Ministers of Ukraine without any land tender procedures. Such a situation contradicts with the norms of the Water Code of Ukraine, according to which, as it is provided for in Article 51, the water bodies can be used only after the land tender procedure was held. What is important, the decision-making process inside the Cabinet of Ministers is complicated, long-term and non-transparent.	To define in legislation that a right to use the part of the water body (the water space of the national sea waters area, territorial sea and of the EEZ (marine) of Ukraine) can be granted only after the land tender procedure is being held. To delegate the full powers in this issue from the Cabinet of Ministers of Ukraine to the local authorities.
5	No "single window" administration	It takes too much time to receive all appropriate permits. As well as it facilitates the development of corruption and bribery	It is suggested to establish one umbrella body administration that will be responsible for coordinating permits and other related issues.
6	Land tender procedure	The land tender procedure may be regarded invalid if there was only one bidder (except re-tender procedures).	To change current legislation in order to dismiss the rule, according to which the land tender procedure may be regarded invalid if it is the land parcel of the Water Fund, having in mind the peculiarities over such parcels.
7	Special water use	A company, which intends to acquire the right to use the water body after concluding the land parcel rental contract, as well as the water body rental contract, should have a special water use permit. Such a permit is granted by the institution, which has granted the right to use the land parcel and the water body. In such a case, a person has to deal with the same institution three times.	To change current legislation and to note, that the conclusion of the water body rental contract ipso facto means the permit for special water use.
8	Special water use permit	Current legislation does not clearly define in which cases a special water use permit is required. According to the Water Code of Ukraine, a special water use means water intake from the water body with the use of constructions or technical devices, water use, as well as water body pollution, including water intake and dumping contaminants with reverse waters through special channels. The question is whether it is obligatory to have such a permit in cases, when one component, provided in the above mentioned definition (water intake/use/removing), is absent, for instance, in case of using the part of the water body while water intake/removing not being held.	To clarify whether these special water use permit specifications are required in case of the aquacultural activity, even when it is not related to water intake/removing (use of the part of the water body). To make an extensive list of special water use activities.

#	CURRENT PROBLEMS	PROBLEM CONTEXT	SUGGESTIONS
9	Duplication of permits	As it is provided for in 'The basic principles and qualifications, concerning safety and quality of nutrition' Act, an operational permit for activities, related to animal-origin nutrition production and/or its conservation, is required. What is more, Veterinary Medicine Act requires to registrate facilities (objects/bodies), which are used for industrial animal farming.	To examine expediency of 2 licensing activities, only one of them remaining.
10	Veterinary examination	Current legislation has no requirements on the number of fry, necessary for veterinary examination. On the other hand, there is an obligation to provide 5-6 kilos of fish for its veterinary examination. Such an amount is not objective, as even some grams of product will suffice for analyses, and causes significant financial losses.	To amend current 'Procedure on selecting specimen of products of animal, plant and biotechnical origin' for examinations, approved by the Cabinet of Ministers of Ukraine Decree №833 from 14 June 2002, and to provide for a fixed limit of the number of fry, necessary for such an examination.
11	Special taxation treatment	From 1 January 2017, according to Part XIX p.2 pp. 4 of the Tax Code of Ukraine, the provision of Article 209 of the Tax Code of Ukraine, concerning special taxation treatment of the agricultural activities, forestry and fishery, was terminated. Moreover, during a period from 1 January 2017 to 1 January 2022, a 'transitional' period was established for agriculture producers, during which they can receive government incentives. But for unknown reasons, those subjects, who work in aquaculture, are not on the list of potential government incentives recipients.	To amend Article 16.1-3 Chapter VI of the Government Support of Agriculture of Ukraine Act with the following activities to be done by agriculture producers in order to receive budget incentives. Aquaculture: 1. Fresh-water fish or other fresh-water species cultivation and/or fishing (Ukrainian Industry Classification System (UICS) 05.02.0, 05.01.0); 2. Marine (sea-water/oceanic) fish or invertebrate species cultivation and fishing (UICS 05.02.0, 05.01.0); 3. Shells, oysters, shell fish, frogs and wild algae cultivation and fishing; 4. Fish or other fresh/sea-water invertebrate species, shells, oysters, shell fish, frogs and wild algae dressing.

#	CURRENT PROBLEMS	PROBLEM CONTEXT	SUGGESTIONS
OTHER SUGGESTIONS			
12	No consolidation of all aquaculture producers	Majority of aquaculture producers are small enterprises	Increased industry consolidation is recommended in order to invest properly, keep enough skilled workers, better positioned to solve industry legislative or other issues. Thus, providing the financial strength for some companies to evolve into modern innovative enterprises in industrial aquaculture, using modern technology and equipment.
13	Lack of skilled staff	Having no work places the most qualified university graduated leave the country	To encourage graduates of higher education institutions in the field of aquaculture to remain in the country. Provide an opportunity to practice abroad with the condition of returning to Ukraine and further implementation of all knowledge and skills acquired abroad (China's example).
14	Production	Expensiveness of production cost and lack of the government support	<ol style="list-style-type: none"> 1. Create competition through small entrepreneurs support; 2. Cut production costs; 3. Regulatory framework should provide incentives for increasing sustainable production.
15	Protection of property	The problem of poaching and thefts which is mostly spread for land-based and pond aquaculture	To strengthen criminal and administrative liability for theft in aquaculture (for example, by increasing the fine).
16	Popularization, branding, marketing	The lack of awareness about aquaculture activity among people in Ukraine	Collaboration with marketing agencies to promote aquaculture among consumers and businessmen.
LONG-RUN INITIATIVES			
17	Fishfood plant construction	Expensiveness of feed from abroad (takes the lion's share in all cost of production)	<p>In the long term, given the increased demand for feed from aquaculture producers, it is worth considering the possibility of creating a plant for the production of feed.</p> <p>In short-term a solution is to support aquaculture producers by reduction of import levies.</p>
18	Research centers	Lack of finance for the research in the field of aquaculture	Creation of a special fund for research funding in the field of aquaculture.
19	Technology	In industry, obsolete technology and technology is predominantly used	<p>In the long run, it is worth considering the possibility of producing equipment in Ukraine, using innovative technologies. At this stage, some incentives for existing aquaculture producers to update equipment and technologies (government aid, cheap loans) should be considered.</p> <p>In short-term a solution is to make sure that the fish farmers have access to modern technology and equipment by reduction of import levies, making the farmers robust by supporting their activities by a good legal framework, and by letting the business create a surplus to reinvest in better and more modern production.</p>

A stack of white papers is shown from a low angle, fanned out towards the top right. The papers are slightly blurred, suggesting movement or a shallow depth of field. The background is a solid, vibrant blue. The overall composition is clean and modern.

ANNEXES

Comparison of companies portfolio,
applicable legislation in Ukraine and
experience of the five countries



Annex 1. Questionnaire

#	QUESTION	ANSWER
1	For how long have you been farming fish?	<input type="checkbox"/> Less than 5 years <input type="checkbox"/> 5 – 10 years <input type="checkbox"/> More than 10 years
2	What type of aquaculture do you have?	<input type="checkbox"/> Land-based aquaculture <input type="checkbox"/> Pond-based aquaculture <input type="checkbox"/> Cage-based aquaculture <input type="checkbox"/> Other (please, specify)
3	What aquaculture species are cultivated at your farm:	<input type="checkbox"/> Carps <input type="checkbox"/> Herbivorous (white, silver carp and their hybrids, white amur) <input type="checkbox"/> Salmononides (rainbow trout, brook trout) <input type="checkbox"/> Pike <input type="checkbox"/> Sander <input type="checkbox"/> Perch <input type="checkbox"/> Catfish (European, channel) <input type="checkbox"/> Sturgeon (starlet, sturgeon, stellate sturgeon) <input type="checkbox"/> Paddlefish <input type="checkbox"/> Carassius <input type="checkbox"/> Tench or doctor fish <input type="checkbox"/> Common bream <input type="checkbox"/> And other (please, specify)
4	Total production in tons (please, specify the number):	
5	Productivity kg per hectare (please, specify the number):	
6	The level of technical equipment of your farm:	<input type="checkbox"/> Incubation department <input type="checkbox"/> Feeders for fish <input type="checkbox"/> Ichthyopatological laboratory <input type="checkbox"/> Mechanized equipment such as automatic feeding, dead fish collectors <input type="checkbox"/> Fish-sorting machines <input type="checkbox"/> Monitoring equipment <input type="checkbox"/> Computer equipment
7	Product realization:	<input type="checkbox"/> Retail networks <input type="checkbox"/> At the market <input type="checkbox"/> Through dealers <input type="checkbox"/> For processing <input type="checkbox"/> Other (please, specify)
8	A number of employees at your farm (please, specify the number):	
9	Describe the level of education and experience of the management and the staff	
10	What authorization documents are the most difficult to obtain?	<input type="checkbox"/> The lease agreement for water bodies (land) <input type="checkbox"/> Permission for special water use <input type="checkbox"/> Passport of water object <input type="checkbox"/> Veterinary certificate <input type="checkbox"/> Veterinary note <input type="checkbox"/> Other (please, specify)
11	Please, explain why those documents that you specified are the most difficult to obtain? (please, specify top 3 aspects)	
12	Profitability of production (please, specify in %):	
13	Please, specify the three largest components of expenses at your farm (specify the percentage from the total production cost of fish)	1.....(…%) 2.....(…%) 3.....(…%)
14	What sources of finance do you use?	
15	Do you feel the enough availability of finance resources?	
16	What do you need in order to make the production more cost beneficial, to work with a higher profit? (please, specify top 3 aspects)	
17	Are there any theft incidents at your farm?	<input type="checkbox"/> Yes <input type="checkbox"/> No
18	What are the most common problems for aquaculture business in Ukraine? (please, specify top 3 aspects)	
19	What measures for aquaculture development should be implemented at national level, in your opinion? (please, specify top 3 aspects)	

Annex 2. Profiles of companies in aquaculture

Country	Ukraine
Average operational life	more than 10 years
Type of aquaculture	pond-based aquaculture
Main cultivated species	<ol style="list-style-type: none"> 1. carps 2. herbivorous 3. pike 4. carrasius
Average total production	700 tons
Average productivity (kg per hectare)	10
Typical equipment of aquaculture farm	<ol style="list-style-type: none"> 1. incubation department 2. feeders for fish 3. monitoring equipment 4. computer equipment
Level of education	<p>management - higher education</p> <p>others - vocational school</p>
Product realization	<p>through dealers</p> <p>through retail networks</p>
Types of documents with difficulties in obtaining	<ol style="list-style-type: none"> 1. the lease agreement for water bodies 2. permission for special water use
Main reasons for difficulties	<ol style="list-style-type: none"> 1. bureaucracy 2. corruption 3. weak regulatory environment
Average profitability of production	20%
Main expenses components	<ol style="list-style-type: none"> 1. feed 2. labor costs 3. gasoline and oil materials
Type of financing	self-supporting basis
Key directions for cost improvements of the company	<ol style="list-style-type: none"> 1. decrease of corruption and bureaucracy 2. governmental support (concessional lending) 3. decrease of taxation
Main problems in Ukrainian aquaculture	<ol style="list-style-type: none"> 1. bureaucracy and corruption 2. low purchasing power of buyers 3. absence of governmental support and high taxation
Key directions for improvements of the industry	<ol style="list-style-type: none"> 1. governmental grants and decrease of taxation 2. private ownership on factors of production 3. amendments to the Ukrainian legal acts

Annex 3. Applicable legislation

ACQUISITION OF THE RIGHT TO USE A WATER BODY

To operate in the field of aquaculture, a person may acquire ownership or the right to use the land plot, on which the water body is situated.

1. THE RIGHT TO USE A WATER BODY

According to Article 14 of the Law of Ukraine "On Aquaculture" fishery water bodies for aquaculture purposes are assigned for use under lease to a legal or natural person according to the Water Code of Ukraine. Thereby, fishery water body (its part) is a water body (its part) that is or can be used for the purposes of fishery (Article 1 of the Law of Ukraine "On Fish Industry, Commercial Fishing and Protection of Aquatic Bioresources").

1.1. The use of fishery water bodies (according to a comprehensive analysis of the legislation it is possible to suggest that the case is about the use of a whole body, rather than its part)

According to Article 51 of the Water Code of Ukraine storage reservoirs (except multi-purpose reservoirs), ponds, lakes and land-locked natural bodies of water may be assigned for use under lease for fishery needs, cultural and health, recreational, sport and tourist purposes or scientific research.

Following water bodies are not available for use under lease for fishery needs:

- are used for drinking purposes;
- are located within the areas and sites protected according to the Law of Ukraine "On Nature Reserve Fund of Ukraine".

At the same time, the legal status of water bodies not specified by Article 51 of the Water Code of Ukraine is unclear.

Water bodies are assigned for use under the water fund land lease agreement at the land tender in the complex with the land plot.

Water bodies are assigned for use under lease by the bodies, which carry out the disposal of water area (water space) pursuant to authority, defined by the Land Code of Ukraine, according to the lease agreement agreed with the central executive body that implements the public policy in the field of water resources.

Water bodies are assigned for use under lease on the condition of water body passport existence. The procedure of drafting and passport form is approved by the central executive body, that forms public policy in the field of environmental protection.

Water bodies are assigned for use under lease without limitation of general right to use water, unless otherwise provided by law.

Lessees of the water body must provide areas to ensure charge-free general right of citizens to use water (swimming, boating, amateur and sport fishing, etc.).

While determining such areas, places of public entertainment are traditionally preferred.

Restriction of any kind of general use of water within the limits of settlements is prohibited, unless otherwise provided by law.

1.2 The use of fishery technological water bodies

The assignment of fishery technological water bodies for use in aquaculture purposes is governed by the Law of Ukraine "On Aquaculture" (Article 51 of the Water Code of Ukraine).

Fishery technological water body is an artificially created water body of special technological purpose, defined by the technical project and / or passport, artificially filled with the help of hydraulic waterworks and devices and designed to create conditions for the existence and development of aquaculture facilities (paragraph 1 of Article 1 of the Law of Ukraine "On Aquaculture").

Annex 3. Applicable legislation

Fishery technological water bodies for use in aquaculture purposes are assigned to legal or natural person on the water fund land lease agreement by the body, which executes the disposal of land under water (water space) according to the Land Code of Ukraine.

Fishery technological water bodies are assigned for use under lease on the condition of existence of fishery technological water body passport and / or fishery technological water body technological project.

The object of fishery technological water body use under lease is the land plot under water, where the aquaculture is performed, and water (water space), which together are simultaneously assigned for use to the same legal or natural person.

User fee for fishery technological water body under lease consists of lease payment for the use of land plots and lease payment for fishery technological water body (Resolution of the Order of Ecology and Natural Resources of Ukraine "On Approving the Methodology of Determining a Fee for Leased Water Bodies" No. 236 dated 28 May 2013).

It should be noted that definitions of terms in the Water Code and the Law of Ukraine "On Aquaculture" do not allow to inviolately state, that water bodies specified in Article 51 of the Water Code cannot be a fishery technological water body, namely storage reservoirs, ponds, lakes and land-locked natural bodies of water, and therefore the order of registration of the lease may be different (Water Code provides additional approval of the lease agreement with the central executive body that implements the public policy in the field of water resources).

1.3. The use of a part of water body

Assignment of parts of fishery water bodies for use in aquaculture purposes is governed by the Law of Ukraine "On Aquaculture" (Article 51 of the Water Code of Ukraine).

Parts of fishery water body are assigned for use under lease agreement to a legal or natural person by the body, which executes the disposal of land plots under water (water space) according to the Land Code of Ukraine, only for siting of floating fish-breeding gardens. (In this case, limits of fishery water body assigned for use are determined by coordinates of designated water area. Siting of water fund land plot under water (water space) and establishment of its site boundaries is not implemented) (Article 14 of the Law of Ukraine "On Aquaculture").

Current legislation does not give any instructions on the order of assignment for use of a part of water body.

The legislation does not directly prescribe land tenders, but it is possible to use the norms of the Land Code of Ukraine on land tenders by analogy (as well to a body of water in general).

1.4. The use of water areas (water space) of inland sea waters, territorial sea, exclusive (maritime) economic zone of Ukraine

Assignment for use under lease of water areas (water space) of inland sea waters, territorial sea, exclusive (maritime) economic zone of Ukraine, establishment of their boundaries (coordinates) for the purposes of aquaculture (mariculture) is done by the Cabinet of Ministers of Ukraine (the "CMU") (Article 14 of the Law of Ukraine "On Aquaculture").

If water areas (water space) of inland sea waters, territorial sea, exclusive (maritime) economic zone of Ukraine are assigned by the CMU for use under lease to a legal or natural person, bodies, which according to the Land Code of Ukraine carry out the disposal of land plots, can assign land plots of coastal shelter belts strips and land plots of buffer zones to a legal or natural person for use under lease (Siting of water fund land plot under water (water space) and establishment of its boundaries at the site is not implemented).

The object of lease under this agreement are water areas (water space) of inland sea waters, territorial sea, exclusive (maritime) economic zone of Ukraine within the specified coordinates.

Annex 3. Applicable legislation

In this case land plot is not leased out. Land tender is not held.

Meanwhile such position contradicts the requirements of Article 51 of the Water Code of Ukraine, according to which water bodies are assigned for use under the water fund land lease agreement at the land tender in the complex with the land plot.

Up to this date, there are no decisions of the CMU on the conclusion of water areas lease agreements for the activities in the field of aquaculture.

2. OWNERSHIP OF A LAND PLOT

Contrary to Article 14 of the Law of Ukraine "On Aquaculture", norms of the Land Code of Ukraine provide the possibility to acquire ownership rights to water fund land plots. Owners in the prescribed manner can create fishery, erosion preventive and other artificial water bodies on their land plots (Article 59 of the Land Code of Ukraine).

2.1. Ownership of water fund land plot may be acquired through charge-free transfer into the ownership of legal entities-residents - only for land-locked natural bodies of water with total area of up to 3 hectares.

2.2. Ownership of water fund land plot may also be acquired through the auction (land tender).

2.3. Acquisition of ownership of a land plot by non-residents.

According to paragraph 2 of Article 82 of the Land Code of Ukraine, foreign legal entities may acquire ownership of land plots with non-agricultural purposes:

- a. within limits of settlements in case of acquisition of real property and with the purpose of construction of objects associated with business activity in Ukraine. This wording is rather vague, as it effectively means a situation where the person has acquired the property and it has the intention of constructing new facilities;
- b. outside of the settlements in case of purchase of real estate.

Along with this, according to paragraphs 3 and 5 of Article 129 of the Land Code of Ukraine the sale of land plots to non-resident legal persons can be carried out under the following conditions:

- existence of legal person's ownership of the immovable property located on such land;
- registration of permanent establishment with the right to conduct business in Ukraine by a non-resident legal person.

The sale of a land plot is performed by the CMU upon the agreement with Verkhovna Rada of Ukraine (for plots where the facilities which are not subject to privatisation are situated), or by the privatisation bodies upon the agreement with the CMU (for plots where the facilities which are subject to privatisation are situated) or the respective councils upon the agreement with the CMU in case of sale of plots which are owned by local communities (paragraphs 1 and 2 of Article 129 of the Land Code of Ukraine).

At the same time, the Constitution of Ukraine establishes that water resources belong to the objects of ownership of Ukrainian people, on whose behalf public authorities and local governments are acting. Since water bodies are inextricably linked to the land plots on which they are located, the issue of acquiring the ownership of these plots is controversial, it is recommended to consider options of lease of water fund land plots on a priority basis.

3. WATER BODY PASSPORT RECEIPT

3.1. General provisions

Water bodies are assigned for use under lease on the condition of water body passport existence (paragraph 5 of Article 51 of the Water Code of Ukraine).

Fishery technological water bodies are assigned for use under lease on the condition of existence of fishery technological water body passport and / or fishery technological water body technological project (subparagraph 3 of paragraph 2 of Article 14 of the Law of Ukraine "On Aquaculture").

Annex 3. Applicable legislation

Conclusion: Passport is needed: for all water bodies except for parts of fishery water bodies and water areas (water space) of inland sea waters, territorial sea, exclusive (maritime) economic zone of Ukraine for the purposes of aquaculture.

3.2. Water body passport is drafted according to the Order of the Ministry of Ecology and Natural Resources of Ukraine "On Approving the Procedure for Drafting Fishery Technological Water Body Passport" No. 99 of 18 March 2013.

Waterbody Passport is agreed with the State Water Resources Agency of Ukraine in a period not exceeding 15 working days of its receipt.

Waterbody Passport is drafted in four copies that are stored each separately: in a basin or regional department of water resources archive, in the State Water Resources Agency, in the possession of lessor and lessee. After the end of the lease term the lessee returns his copy of the water body passport to the lessor.

Unless otherwise provided by the water body lease agreement, water body passport is subject to review every five years and in case of changes of technical parameters of water bodies or hydraulic waterworks, changes in the hydrological regime of the river (watercourse) and subject to appropriate adjustment.

Water body passport adjustments are carried out according to its Draft Procedure.

3.3. Fishery technological water body passport (fish-breeding ponds, fish-breeding pools and fish-breeding gardens, fish wells and pits) is drafted according to the Order of the Ministry of Agrarian Policy of Ukraine "On Approving the Procedure for Drafting Fishery Technological Water Body Passport" No. 742 dated 16 December 2013.

Fishery technological water body passport – is the basic data on the condition of fishery technological water body, water regime, physiographic and technical characteristics of the water body and hydraulic waterworks, by the account of which it was created and is functioning, fish productivity, complex graphic materials and drawings.

Lessor is a customer of passport drafting procedure. In the case if the fishery technological water body, land plot under this water body or fishery technological water body hydraulic waterworks are in use under lease, the lessee is customer of passport drafting procedure.

The passport is drafted in four copies, one of which within ten working days of the date of Passports drafting is sent (delivered) to the relevant territorial authority of the State Agency of Fisheries of Ukraine, *as well as basin or regional department of water resources of the State Water Resources Agency of Ukraine at the location of fishery technological water body.

Unless otherwise stipulated in the lease agreement, passport is subject to review every 5 years, and in case of changes of technical parameters of water bodies or hydraulic waterworks, changes in the hydrological regime of the river (watercourse) and subject to appropriate adjustment.

The main sources of initial information for drafting the Passport are:

- a. materials of comprehensive field water body and water-supply source inspections;
- b. data achieved from long-term observations of surface and groundwater;
- c. information about the natural environment of the region;
- d. archive materials on extreme parameters of hydrometeorological characteristics;
- e. topographic and thematic maps, plans and drawings composed of complex field water body inspections;
- f. water body project materials;
- g. used water accounting data;
- h. State Land Cadastre data and natural agricultural zoning of water body and water-supply source.

Annex 3. Applicable legislation

4. ACQUISITION OF OWNERSHIP OR RIGHT TO USE A LAND PLOT ACCORDING TO THE RESULTS OF LAND TENDER

Water bodies are assigned for use under the water fund land lease agreement at the land tender in the complex with the land plot (Article 51 of the Water Code of Ukraine).

Land plots of state or municipal ownership or rights to them (lease, superficies, perpetual lease), including real estate objects of state or municipal property located on them, are subject to sale as separate lots on competitive principles (land tender) (Article 134 of the Land Code of Ukraine).

Currently, paragraph 2 of Article 134 of the Land Code of Ukraine stipulates that land plots of state or municipal ownership or rights to them are subject to sale as separate lots on competitive principles (land tender) if they are used for the needs related to subsoil use, and special use according to received permits.

Procedure for issuing permits for special water use, the list of documents for the issue of which does not contain documents confirming the rights to land plot is determined by the Resolution of the CMU "On Approving the Procedure for Issuing Permits for Special Water Use and Amendments to Resolution of the CMU No. 459 dated 10 August 1992" No. 321 dated 13 March 2002.

At the same time, according to the Law of Ukraine "On amending some legislative acts of Ukraine governing the relations connected with receipt of permissive documents for special water use" No. 1830-VIII dated 7 February 2017 new requirements of receipt of permission for special water use are established, including mandatory provision of copies of water body legal documents (for lessees of water bodies).

Thus, starting from 4 June 2017, the right to use for the water fund land plot is acquired only according to the results of land tender.

Moreover, the conflict of norms between the Water Code of Ukraine and the Law of Ukraine "On Aquaculture" suggests that at present time the assignment of water areas (water space) of inland sea waters, territorial sea, exclusive (maritime) economic zone of Ukraine to use in agricultural purposes can be carried out without land tender or land plot lease agreement.

4.1. Land tender

Land tender is held in the form of auction, as a results of which land plot lease agreement is concluded with the participant (winner) of the land tender, who offered the highest usage fee during the land tender.

Tender organiser is a natural or legal person - the owner of the land, Verkhovna Rada of the Autonomous Republic of Crimea, Council of Ministers of the Autonomous Republic Crimea, executive authority, local authority that implements the right of state or municipal ownership to the land plots, which has concluded land tender agreement with the land tender action officer.

Land tender action officer is an economic entity that has concluded land tender agreement with tender organiser on holding the tender.

Participant of the land tender is a natural or legal person who filed necessary documents referred to in paragraph seven of Article 137 of the Code to the land tender action officer, paid registration fee and margin, is registered in the land tender participants book, and according to the law may acquire ownership or right to use of a land plot that is placed on a land tender.

Land tenders on land plots of state or municipal ownership or rights to them are held by the decision of land tender organiser, which shall include:

- a. a list of land plots or rights to them, which are placed on a land tender as separate lots;
- b. starting price of the lot;
- c. terms and other land plot use conditions in case of acquisition of right to use of the land on the land tender;

Annex 3. Applicable legislation

d. a person authorised by the land tender organiser to conclude a lease agreement on a land plot, or rights to a land plot, which is placed on the land tender.

Expenses (costs) made by an organiser or action officer of the land tender to hold the tender are reimbursed to him by the winner of the land tender.

Following the publication of the announcement of the land tender action officer can withdraw from the agreement only in cases where it has become impossible to hold the land tender for reasons beyond his control.

Reward of the land tender action officer is set at 50 percent of the annual fee for the use of land plot, but no more than 2,000 non-taxable minimum incomes for each lot.

The amount of the registration fee is determined by the action officer and cannot exceed 50 percent of the minimum subsistence income for able-bodied persons at the date of publication of land tender.

The margin amounts to 5 percent of starting annual fee for the use of land plot.

Preparation of lots (is done by the tender organiser) before the land tender includes:

- a. processing, negotiation and approval of the land survey project for land allotment in accordance with legislation (in the case of change of the purposive appointment of land plot and in case if the site boundaries are not established (on ground));
- b. state registration of the land plot;
- c. state registration of property right to the land plot;
- d. obtaining an extract about the normative monetary value of the land plot according to the Law of Ukraine "On Land Valuation" in case of sale of leasehold at the land tender;
- e. starting amount of annual lease payment, which for land of state and municipal property shall not be less than the lease payment determined by the Tax Code of Ukraine;
- f. identify the land tender action officer, date and place of the land tender.

Expenses (costs) made by an organiser or action officer of the land tender to prepare lots for the land tender, are compensated by the winner of the land tender for each lot.

Land tender is held not earlier than 30 days and not later than 90 days after the publication of the announcement.

A person who wants to participate in the land tender, not later than three working days before the land tender shall submit:

- I. an application for participation in the land tender;
- II. information about the name, address and identification number of legal person from the Unified State Register of Enterprises and Organisations of Ukraine, information about the state where founders (participants) of the legal person, which has foreign capital share in its authorised (share) capital are registered or have permanent residence; or surname, name, middle name and taxpayer identification number or passport number and series (for individuals who, because of their religious beliefs refuse to accept the taxpayer identification number, officially reported about this fact to the appropriate body of revenues and have a mark in the passport) of self-employed person. Natural persons who are not self-employed, submit a copy of their taxpayer identification number certificate (taxpayer identification number) or a copy of passport (for individuals who, because of their religious beliefs refuse to accept the taxpayer identification number, officially reported about this fact to the appropriate body of revenues and have a mark in the passport). For foreign citizens and persons without citizenship - surname, name, and middle name citizenship (nationality) of another state, permanent residence, citizen (national) of which the person is; for foreign legal persons - name, address and State where legal person is registered.

Annex 3. Applicable legislation

Copies shall be signed by the person that is willing to take part in the tender;

III. documents proving the payment of registration fees and margin (copies of accounting documents, account statements).

Representative of natural or legal person submits the documents confirming the right to act on behalf of the participant of the tender. Land tender acting officer accepts documents from participants – natural persons and representatives of participants – legal persons.

Land tender acting officer after accepting the documents referred to in the first paragraph of this article, makes a record of serial participant's sequence number and number of lots that he was willing to buy, and gives the participant (his representative) certificate of documents receipt indicating their list, admission ticket, information card for the lot and participant's card (indicating tender conditions on the flip side of the card).

On the tender day action officer registers all participants. Participant (his representative) is obliged to disclose his passport (power of attorney to act during the tender, particularly to participate in the tender and sign protocol on the results of the tender, and passport).

After that action officer gives the participant his number plate.

Registration begins three hours before and ends 20 minutes before the start of the tender.

During the tender action officer is keeping a record, where lot number, starting price and selling price of the lot, information about the winner, account numbers to which the winner should transfer money for the purchased lot are mentioned. If necessary, the other information can be kept on record. The record is signed by the winner, tender organiser and land tender action officer or his representative immediately after the end of the tender for the lot in two copies.

One copy of the record is issued to the winner.

Land tender is recognised as such, that were not held, if only one participant is present (except when re-tender is held).

4.2. Conclusion of the land plot lease agreement as a result of land tender

According to Article 137 of the Land Code land plot lease agreement between the tender organiser and winner of the tender shall be concluded on the day of the tender.

In the case if winner purchases several lots, agreement is concluded separately for each of them. The ownership to the land plot acquired as a result of the tender, is subject to state registration in the procedure prescribed by law.

In accordance with the requirements of Article 51 of the Water Code of Ukraine and Articles 7 and 14 of the Law of Ukraine "On Aquaculture", the CMU has the authority to approve standard forms of water body lease agreements and methods for determining the fees for such use.

According to these regulations approved by the CMU:

- Standard water body lease agreement (Resolution No. 420 dated 29 May 2013);
- Typical use under lease agreements for the use of part of fishery water body, water areas (water space) of inland sea waters, territorial sea, exclusive (maritime) economic zone of Ukraine for aquaculture purposes (Resolution No. 981 dated 30 September 2015);
- Use-under-lease fee determination methods for the use of water areas (water space) of inland sea waters, territorial sea, exclusive (maritime) economic zone of Ukraine for aquaculture (mariculture) (Resolution No. 1066 dated 30 September 2015);
- Leased-water-bodies fee determination methods (Order of the Ministry of Ecology and Natural Resources of Ukraine No. 236 dated 28 May 2013).

Annex 3. Applicable legislation

4.3. State registration of lease agreement

Water body lease agreement shall take effect upon its state registration (Extract from the State Register of Property Rights to Immovable Property, confirming the state registration of right to use the land plots).

Lessee addresses the State Registration Service at the location of the property with the approved water body lease agreement. Registration is done in accordance with the Law of Ukraine "On State Registration of Proprietary Rights to Real Property and Their Encumbrances". As a result of state registration, the Extract is given out.

State Registration Service registers the land plot of as immovable property (According to Article 28 of the Law of Ukraine "On State Registration of Proprietary Rights to Real Property and Their Encumbrances").

Lessee shall bear costs associated with the state registration of the water body lease agreement.

5. SPECIAL WATER USE PERMIT OBTAINING

5.1. General provisions:

Special water use is the withdrawal of water out of water body using installations and facilities, use of water and polluted discharge into the water bodies, including withdrawal of water and polluted discharge using channels.

Special water use is used by entities and individuals primarily for satisfying the drinking people needs, as well as for utility, medical, health, agricultural, industrial, transport, energy, fishery (as well as for aquaculture) and other state and public needs (Article 48 of the Water Code of Ukraine).

Permits are issued in case of the following water bodies use:

- nationwide – by the Council of Ministers of the Autonomous Republic Crimea, regional, Kyiv and Sevastopol city administration;
- of local significance – by the executive body of Autonomous Republic Crimea in the field of environmental protection, by regional, Kyiv and Sevastopol municipal councils upon the approval of the Council of Ministers of the Autonomous Republic Crimea, regional, Kyiv and Sevastopol municipal administrations.

Permits are issued based on entity or individual application which includes reasons of water needs.

Permits issuance are subjects to approval:

- if using surface water – by the State Water Resources Agency of Ukraine;
- if using underground water – by the State Geology and Mineral Resources Agency of Ukraine;
- if using medical water body – by the Ministry of Health Care of Ukraine.

Permits are issued within thirty calendar days from the lodgement date.

Within five calendar days from the lodgement day, authorities, which issue the permits, send the copies of documents, certified by them, to the State Water Resources Agency of Ukraine, in case of use underground water – to the Public services Geology and Mineral resources of Ukraine, in case of use medical water body – to the Ministry of Health Care of Ukraine.

The central executive bodies submit respective approvals on possibility of issuance of such permit to the authorities, which issue the permits, on a free basis within fifteen calendar days from the day of receiving of document copies.

Authorities, which issue the permits, consider respective approvals the State Water Resources Agency of Ukraine, the Public services Geology and Mineral resources of Ukraine and the Ministry of Health Care of Ukraine, to issue such permit or to reject.

In case of reject, an answer with rejection reasons is submitted to the water user.

Annex 3. Applicable legislation

Special water use may be:

- short term (up to 3 years) – if water user is going to polluted discharge in the amount over limits, stated by executive body of Autonomous Republic Crimea in the field of environmental protection, by regional, Kyiv and Sevastopol municipal councils;
- long term (from 3 to 25 years) – in any other case.

If the conditions of special water use remain unchangeable, the special water use term may be exceeded upon water user request, but not more than respective short term or long term period by the authority, which has issued the permit, in witness of such fact the respective mark is made in the permit.

Permits issuance and approvals are free of charge.

Water users submit the copies of permits to the respective State sanitary epidemiologic service and bodies in the field of water resources.

Termination of right for special water use is executed by the state body, which has issued the permit for special water use.

If special water use is in the boundary waters, the permits are issued considering treaty requirements.

6. REGISTRATION OF FISHERY WATER BODY

Accounting of fishery water body (parts thereof), fishery technological water body, water areas (water space) of inland sea waters, territorial sea, exclusive (maritime) economic zone of Ukraine, which are provided for use for aquaculture purposes, is executed by the central executive body that implements the public policy in the field of fishery according to the procedure, stated by the Cabinet of Ministers of Ukraine (Article 42 of the Law of Ukraine "On Fish Industry, Commercial Fishing and Protection of Aquatic Bioresources" No. 3677-VI dated 8 July 2011).

Registered number is assigned to the water body, as well as its fish capacity is defined.

State fishery agency of Ukraine fills the Register with the information on water bodies.

The following information to be included to the registry:

- information obtained by the State fishery agency of Ukraine;
- information submitted by the entities and individuals-entrepreneurs in the applications on the free of charge basis).

The application is enclosed with:

- for aquaculture subjects – copy of lease agreement (water body, land plot) and water body passport or fishery water body;
- information received by the central executive bodies, regional state administrations, local governments, entities, organisations, which are ruled by the State fishery agency of Ukraine, in the answer to request of State fishery agency of Ukraine (Resolution of the Cabinet of Ministers of Ukraine "On Approving the Procedure for Maintaining the State Register of Fishery Water Bodies (Parts Thereof)" No. 979 dated 30 September 2015).

7. ACQUISITION OF RIGHTS TO USE HYDRAULIC WATERWORKS

In case of lease of fishery technological water body, the hydraulic waterworks may be leased too (Article 14 of the Law of Ukraine "On Aquaculture").

Besides, according to the legislation leaseholder and landlord are not obliged to conclude the hydraulic waterworks lease agreement.

Also, the lease of the hydraulic waterworks in case of lease of other fishery water body, except of fishery technological water body, is not regulated.

Annex 3. Applicable legislation

8. VETERINARY PERMITS

8.1. Operating permit

Persons, who carry out activities related to the production and / or storage of food products of animal origin shall obtain operating permit for each individual facility prior to the beginning of its operation (Article 23 of the Law of Ukraine "On Fundamental Principles and Requirements for Safety and Quality of Food Products").

Operating permit is issued by the central executive body that implements the state policy in the field of safety and quality parameters of food products. The fee is charged for the issuance of operating permit.

To receive operating permit application and a list of food products that is planned to be produced or stored shall be filed.

Operating permit is issued during 30 calendar days from the day when a competent authority received all documents, after the facilities inspection which is held no later than 15 calendar days after receipt of the documents by the competent authority.

Operating permit is valid for an indefinite term.

8.2. Approval of export facilities

Upon the request of the market operator, who intends to export food products, the competent authority shall inspect a certain facility to comply with the stated requirements (Article 26 of the Law of Ukraine "On Fundamental Principles and Requirements for Safety and Quality of Food Products").

Competent authority approves facilities indicating food products authorised for export based on inspection on compliance with the stated requirements (the "approved export facilities").

8.3. Requirements for the facilities that produce food products for their import (inflow) onto the customs territory of Ukraine, and their inspection procedure

Article 28 of the Law of Ukraine "On Fundamental Principles and Requirements for Safety and Quality of Food Products" states, that import (inflow) onto the customs territory of Ukraine of food products produced on facilities that do not meet the requirements established by the legislation on safety and specific parameters of quality of food products by a market operator is not allowed.

The competent authority shall have free access to facilities that produce food products for their inflow onto the customs territory of Ukraine in order to inspect such facilities to satisfy the requirements specified in parts one and two of this article. The competent authority shall notify the relevant competent authorities of the importing country about the inspection in 60 days prior to the inspection. The period of inspection procedures after such notification or after filing the relevant application by a market operator and until the adoption of the decision shall not exceed 60 calendar days.

The competent authority keeps a register of countries, from which food products of animal origin can be imported to Ukraine, and a register of facilities in such countries, from which food products of animal origin can be imported to Ukraine. Registers are published on the official website of the competent authority and are updated on monthly basis not later than on 15th date of the month.

After the inspection of importing country state control system, which is conducted on the proposal of the competent authority, such country is enlisted on the register of countries from which food products of animal origin can be imported to Ukraine. Creation of facilities register from which food products of animal origin can be imported to Ukraine is carried out on the proposal of the competent authority of such facility.

Countries and facilities in such countries, which at the time of enactment of this Act have a history of import of food products of animal origin onto the territory Ukraine are enlisted on these registers automatically without any action by the competent authority.

Annex 3. Applicable legislation

Inspections procedure and procedure of keeping the registers referred to in this Article shall be established by the CMU.

8.4. Issuance of veterinary documents for transportation of animals (including fish):

- international veterinary certificates (for CIS countries - veterinary certificate of forms N 1, N 2 and N 3) – if transported outside of Ukraine;
- veterinary certificates (for Ukraine - forms N 1, N 2) - if transported outside the territory of the Autonomous Republic of Crimea, Kyiv and Sevastopol, districts, cities (except food products of animal and plant origin for human consumption);
- veterinary statement - when moving within the district.

The relevant state veterinary medicine inspectors and authorised doctors of veterinary medicine are entitled to issue international veterinary certificates, veterinary certificates, veterinary statements:

- Departments of Veterinary Medicine in the Autonomous Republic of Crimea, Kyiv and Sevastopol, cities of regional importance, districts;
- state veterinary medicine institutions;
- regional state veterinary and sanitary services on monitoring and supervision at the state border and on transport.

Issuance of the appropriate veterinary documents is implemented on a paid basis.

The decision on the issuance or refusal of veterinary documents is made not later than one month from the date when documents are received for review.

8.5. Registration of facilities operator

Operators of facilities (production sites) that are used for industrial animal production (breeding) shall place them on public record in the respective state veterinary medicine authority. The registry contains data on specific types of animals that are kept at the respective facilities (production sites), number of animals of each species, name of the facility (production site) and if necessary – animals' owner name, addresses, phone numbers and other information (paragraph 2 of Article 34 of the Law of Ukraine "On Veterinary Medicine").

8.6. State registration of veterinary drugs

Veterinary drugs are subject to registration before turnover and use in Ukraine. Maximum validity period of such registration is five years.

With the purpose of state registration of veterinary drugs applicant submit the application with supporting documents, which list is defined by the Department, to the State Scientific Research Control Institute, authorised by the Department. Applicant is responsible for correctness of submitting information in registration profile according to the legislation requirement (Article 63 of the Law of Ukraine "On Veterinary Medicine", Resolution of the Cabinet of Ministers of Ukraine "On Approving Regulations on State Registration of Veterinary Drugs, Feed Additives, Premixes and Finished Feed" No. 1349 dated 21 November 2007).

Veterinary drugs unregistered in Ukraine are allowed to import only with the following purposes:

- a. state registration in Ukraine;
- b. participation in exhibitions, trade fairs, conferences;
- c. scientific researches (Article 73 of the Law of Ukraine "On Veterinary Medicine").

8.7. Registration of feed additives, premixes and finished feed

Turnover and use of feed additives, premixes and finished feed in Ukraine is allowed only after their state registration.

Annex 3. Applicable legislation

For state registration of feed additives, premixes and finished feed applicant submit the application with supporting documents, which list is defined by the Department, to the State Scientific Research Control Institute, authorised by the Department. Applicant is responsible for correctness of submitting information in registration profile according to the legislation requirement. Applicant mark in the documents all information which should be confidential (Article 76 of the Law of Ukraine "On Veterinary Medicine).

MAIN STAGES

1. Acquisition or registration of a Ukrainian company or registration of a permanent representative office in Ukraine
2. Obtaining a water body passport obtaining (if required for the tender)
3. Participation in the land plot tender
4. Conclusion of a water body lease agreement and land lease agreement
5. Conclusion of a hydraulic waterworks lease agreement
6. State registration of the lease agreement
7. Obtaining of a permit for special water use
8. Obtaining of veterinary documents
9. Registration of a fishery water body

APPLICABLE LEGISLATION:

1. Law of Ukraine "On Aquaculture" No. 5293-VI dated 18 September 2012
2. Water Code of Ukraine No. 213/95-BP dated 6 June 1995
3. Land Code of Ukraine No. 2768-III dated 25 October 2001
4. Law of Ukraine "On State Registration of Proprietary Rights to Immovable Property and Their Encumbrances" No. 1952-IV dated 1 July 2004
5. Law of Ukraine "On Land Valuation" No. 1378-IV dated 11 December 2003
6. Tax Code of Ukraine No. 2755-VI dated 2 December 2010
7. Law of Ukraine "On Land Lease" No 161-XIV dated 16 October 1998
8. Law of Ukraine "On Veterinary Medicine" No. 2498-XII dated 25 June 1992
9. Law of Ukraine "On land protection" No. 962-IV dated 19 June 2003
10. Law of Ukraine "On Lease of State and Communal Property" No. 2269-XII dated 10 April 1992
11. Resolution of the Cabinet of Ministers of Ukraine "On Approving the Procedure for Maintaining the State Land Register" No. 1051 dated 17 October 2012
12. Resolution of the Cabinet of Ministers of Ukraine "On Approving the Procedure for Maintaining the State Register of Proprietary Rights to Immovable Property" No. 1141 dated 26 October 2011
13. Resolution of the Cabinet of Ministers of Ukraine "On Approving Template Water Body Lease Agreement" No. 420 dated 29 May 2013
14. Resolution of the Cabinet of Ministers of Ukraine "On Approving Template Agreements for Using under Lease a Part of Fishery Water Body, Water Area (Water Space) of Internal Sea Waters, Territorial Sea, Exclusive (Maritime) Economic Zone of Ukraine for Aquaculture Purposes" No. 981 dated 30 September 2015
15. Resolution of the Cabinet of Ministers of Ukraine "On Approving Methodology of Determining a Fee for Using under Lease Water Area (Water Space) of Internal Sea Waters, Territorial Sea, Exclusive (Maritime) Economic Zone of Ukraine for Aquaculture (Mariculture) Purposes" No. 1066 dated 30 September 2015
16. Resolution of the Cabinet of Ministers of Ukraine "On Approving the Procedure for Maintaining the State Register of Fishery Water Bodies (Parts Thereof)" No. 979 dated 30 September 2015
17. Order of the Ministry of Ecology and Natural Resources of Ukraine "On Approving the Methodology of Determining a Fee for Leased Water Bodies" No. 236 dated 28 May 2013

Annex 3. Applicable legislation

18. Order of the Ministry of Ecology and Natural Resources of Ukraine "On Approving the Procedure for Drafting Water Body Passport" No. 99 dated 18 March 2013
19. Order of the Ministry of Agrarian Policy and Food of Ukraine "On Approving the Procedure for Drafting Fishery Technological Water Body Passport" No. 742 dated 16 December 2013
20. Resolution of the Cabinet of Ministers of Ukraine "On Approving the Procedure for Issuing Permits for Special Water Use and Amendments to Resolution of the Cabinet of Ministers of Ukraine No. 459 dated 10 August 1992" No. 321 dated 13 March 2002
21. Resolution of the Cabinet of Ministers of Ukraine "On Approving Template Land Lease Agreement" No. 220 dated 3 March 2004
22. Order of the Ministry of Agrarian Policy and Food of Ukraine "On Approving Methodology of Determining a Fee for Using under Lease a Part of Fishery Water Body, Fishery Technological Water Body" No. 11 dated 14 January 2014
23. Resolution of the Cabinet of Ministers of Ukraine "On Approving the Procedure for Issuing Veterinary Documents" No. 857 dated 21 November 2013
24. Order of the Ministry of Agrarian Policy and Food of Ukraine "On Approving Rules of Filling out, Retaining, Writing off Veterinary Documents and Requirements for Keeping Records of Them" No. 288 dated 1 August 2014
25. Resolution of the Cabinet of Ministers of Ukraine "On Approving the List of Paid Administrative Services Provided by the State Service for Food Safety and Consumer Protection, Agencies and Institutions under Its Control, and Fees for the Provision of Such Services" No. 641 dated 9 June 2011
26. Resolution of the Cabinet of Ministers of Ukraine "On Approving Rules of Transportation of Animals" No. 1402 dated 16 November 2011
27. Resolution of the Cabinet of Ministers of Ukraine "On Approving Regulations on State Registration of Veterinary Drugs, Feed Additives, Premixes and Finished Feed" No. 1349 dated 21 November 2007
28. Resolution of the Cabinet of Ministers of Ukraine "On Approving the Procedure for Sample Selection of Animal Extracted, Vegetable Origin and Biotechnological for Researches " No. 833 dated 14 June 2002

Annex 4. Table of permits

#	TYPE OF PERMIT	APPLICABLE LEGISLATION
A) PERMITS FOR USING AN ENTIRE WATER BODY / FISHERY TECHNOLOGICAL WATER BODY		
1	Applying to an executive body / local authority for leasing a land plot.	Article 13 of the Constitution of Ukraine No. 254к/96-BP dated 28 June 1996 Articles 6, 51 of the Water Code of Ukraine No. 213/95-BP dated 6 June 1995 Articles 93, 116, 122, 124, 134-139 of the Land Code of Ukraine No. 2768-III dated 25 October 2001 Article 14 of Law of Ukraine "On Aquaculture" No. 5293-VI dated 18 September 2012 Law of Ukraine "On Land Lease" No. 161-XIV dated 16 October 1998.
2	Passport of a water body / fishery technological water body (technical design of a fishery technological water body).	Article 51 of the Water Code of Ukraine No. 213/95-BP dated 6 June 1995 Article 14 of Law of Ukraine "On Aquaculture" No. 5293-VI dated 18 September 2012 Order of the Ministry of Ecology and Natural Resources of Ukraine "On Approving the Procedure for Drafting Water Body Passport" No. 99 dated 18 March 2013 Order of the Ministry of Agrarian Policy and Food of Ukraine "On Approving the Procedure for Drafting Fishery Technological Water Body Passport" No. 742 dated 16 December 2013.
3	Permit for drafting the land plot allotment plan.	Article 123 of the Land Code of Ukraine No. 2768-III dated 25 October 2001.
4	Land plot allotment plan.	Article 123 of the Land Code of Ukraine No. 2768-III dated 25 October 2001 Article 50 of Law of Ukraine "On Land Management" No. 858-IV dated 22 May 2003.
5	Approval of the land plot allotment plan (Local department of the State Service of Geodesy, Cartography and Cadastre in Ukraine).	Articles 186-186 of the Land Code of Ukraine No. 2768-III dated 25 October 2001.
6	Approval of the land plot allotment plan (State Water Resources Agency).	Articles 186-186 of the Land Code of Ukraine No. 2768-III dated 25 October 2001.
7	Expert opinion regarding approval of the land plot allotment plan.	Law of Ukraine "On State Expert Examination of Land Management Documents" No. 1808-IV dated 17 June 2004.
8	Standard monetary valuation of a land plot.	Articles 13, 18, 23 of Law of Ukraine "On Land Valuation" No. 1378-IV dated 11 December 2003 Article 271 of the Tax Code of Ukraine No. 2755-VI dated 2 December 2010 Order of the Ministry of Ecology and Natural Resources of Ukraine "On Approving the Methodology of Determining a Fee for Leased Water Bodies" No. 236 dated 28 May 2013.
9	Approval of technical documentation (allotment plan, standard monetary valuation, draft lease agreement).	Article 122-123 of the Land Code of Ukraine No. 2768-III dated 25 October 2001 Resolution of the Cabinet of Ministers of Ukraine "On Approving Template Water Body Lease Agreement" No. 420 dated 29 May 2013.
10	Registration of participation in land tenders regarding leasing a land plot.	Article 134-139 of the Land Code of Ukraine No. 2768-III dated 25 October 2001.
11	Participation in land tenders regarding leasing a land plot.	Article 134-139 of the Land Code of Ukraine No. 2768-III dated 25 October 2001.
12	Signing a water fund land plot lease agreement based on the results of land tenders.	Article 134-139 of the Land Code of Ukraine No. 2768-III dated 25 October 2001.
B) PERMITS FOR USING A PART OF A WATER BODY		
1	Applying to an executive body / local authority for leasing a land plot.	Article 13 of the Constitution of Ukraine No. 254к/96-BP dated 28 June 1996 Articles 6, 51 of the Water Code of Ukraine No. 213/95-BP dated 6 June 1995 Articles 93, 116, 122, 124, 134-139 of the Land Code of Ukraine No. 2768-III dated 25 October 2001 Article 14 of Law of Ukraine "On Aquaculture" No. 5293-VI dated 18 September 2012 Law of Ukraine "On Land Lease" No. 161-XIV dated 16 October 1998.
2	Technical documentation (outline of the part of a water body, standard monetary valuation, draft lease agreement).	Article 122-123 of the Land Code of Ukraine No. 2768-III dated 25 October 2001 Article 14 of Law of Ukraine "On Aquaculture" No. 5293-VI dated 18 September 2012 Resolution of the Cabinet of Ministers of Ukraine "On Approving Template Agreements for Using under Lease a Part of Fishery Water Body, Water Area (Water Space) of Internal Sea Waters, Territorial Sea, Exclusive (Maritime) Economic Zone of Ukraine for Aquaculture Purposes" No. 981 dated 30 September 2015 Order of the Ministry of Agrarian Policy and Food of Ukraine "On Approving Methodology of Determining a Fee for Using under Lease a Part of Fishery Water Body, Fishery Technological Water Body" No. 11 dated 14 January 2014.
3	Registration of participation in land tenders regarding leasing a land plot.	Article 134-139 of the Land Code of Ukraine No. 2768-III dated 25 October 2001.
4	Participation in land tenders regarding leasing a land plot.	Article 134-139 of the Land Code of Ukraine No. 2768-III dated 25 October 2001.

Annex 4. Table of permits

#	TYPE OF PERMIT	APPLICABLE LEGISLATION
5	Signing a water fund land plot lease agreement based on the results of land tenders.	Article 134-139 of the Land Code of Ukraine No. 2768-III dated 25 October 2001.
C) PERMITS FOR USING WATER AREA (WATER SPACE) OF INTERNAL SEA WATERS, TERRITORIAL SEA, EXCLUSIVE (MARITIME) ECONOMIC ZONE UKRAINE		
1	Submitting a request to the Cabinet of Ministers of Ukraine.	Article 14 of the Water Code of Ukraine No. 213/95-BP dated 6 June 1995 Article 14 of Law of Ukraine "On Aquaculture" No. 5293-VI dated 18 September 2012.
2	Singing a lease agreement for water area (water space) of internal sea waters, territorial sea, exclusive (maritime) economic zone Ukraine.	Article 14 of the Water Code of Ukraine No. 213/95-BP dated 6 June 1995 Article 14 of Law of Ukraine "On Aquaculture" No. 5293-VI dated 18 September 2012 Resolution of the Cabinet of Ministers of Ukraine "On Approving Template Agreements for Using under Lease a Part of Fishery Water Body, Water Area (Water Space) of Internal Sea Waters, Territorial Sea, Exclusive (Maritime) Economic Zone of Ukraine for Aquaculture Purposes" No. 981 dated 30 September 2015 Resolution of the Cabinet of Ministers of Ukraine "On Approving Methodology of Determining a Fee for Using under Lease Water Area (Water Space) of Internal Sea Waters, Territorial Sea, Exclusive (Maritime) Economic Zone of Ukraine for Aquaculture (Mariculture) Purposes" No. 1066 dated 30 September 2015.
REGISTRATION OF THE RIGHT TO USE LAND UNDER A WATER BODY		
1	Extract from the State Land Register.	Article 125 of the Land Code of Ukraine No. 2768-III dated 25 October 2001 Law of Ukraine "On Land Lease" No. 161-XIV dated 16 October 1998 Resolution of the Cabinet of Ministers of Ukraine "On Approving the Procedure for Maintaining the State Land Register" No. 1051 dated 17 October 2012.
2	Extract from the State Register of Proprietary Rights to Immovable Property, confirming the state registration of rights to use a land plot.	Article 125 of the Land Code of Ukraine No. 2768-III dated 25 October 2001 Law of Ukraine "On State Registration of Proprietary Rights to Immovable Property and Their Encumbrances" No. 1952-IV dated 1 July 2004 Resolution of the Cabinet of Ministers of Ukraine "On Approving the Procedure for Maintaining the State Register of Proprietary Rights to Immovable Property" No. 1141 dated 26 October 2011.
PERMITS FOR USING WATER BODIES		
1	Permit for special purpose water use.	Article 49 of the Water Code of Ukraine No. 213/95-BP dated 6 June 1995 Resolution of the Cabinet of Ministers of Ukraine "On Approving the Procedure for Issuing Permits for Special Water Use and Amendments to Resolution of the Cabinet of Ministers of Ukraine No. 459 dated 10 August 1992" No. 321 dated 13 March 2002.
2	Registration of a fishery water body.	Article 42 of Law of Ukraine "On Fish Industry, Commercial Fishing and Protection of Aquatic Bioresources" No. 3677-VI dated 8 July 2011 Resolution of the Cabinet of Ministers of Ukraine "On Approving the Procedure for Maintaining the State Register of Fishery Water Bodies (Parts Thereof)" No. 979 dated 30 September 2015.
VETERINARY PERMITS		
1	Operational permit.	Article 50 of Law of Ukraine "On Veterinary Medicine" No. 2498-XII dated 25 June 1992 Article 23 of Law of Ukraine "On Fundamental Principles and Requirements for Safety and Quality of Food Products" No. 771/97-BP dated 23 December 1997.
2	Registration of broodstock facilities.	Article 26 of Law of Ukraine "On Fundamental Principles and Requirements for Safety and Quality of Food Products" No. 771/97-BP dated 23 December 1997 Order of the Ministry of Agrarian Policy and Food of Ukraine "On Approving the Procedure for State Registration of Facilities, Maintaining State Register of Facilities of Market Operators and Providing Information from It to Interested Entities" No. 39 dated 10 February 2016.
3	Registration of export facilities.	Article 26 of Law of Ukraine "On Fundamental Principles and Requirements for Safety and Quality of Food Products" No. 771/97-BP dated 23 December 1997 Order of the Ministry of Agrarian Policy and Food of Ukraine "On Approving the Procedure for State Registration of Facilities, Maintaining State Register of Facilities of Market Operators and Providing Information from It to Interested Entities" No. 39 dated 10 February 2016.

Annex 4. Table of permits

#	TYPE OF PERMIT	APPLICABLE LEGISLATION
4	Inspection of facilities that produce food products to be further imported (shipped) to the customs territory of Ukraine.	<p>Article 28 of Law of Ukraine "On Fundamental Principles and Requirements for Safety and Quality of Food Products" No. 771/97-BP dated 23 December 1997</p> <p>Order of the Ministry of Agrarian Policy and Food of Ukraine "On Approving the Procedure for State Registration of Facilities, Maintaining State Register of Facilities of Market Operators and Providing Information from It to Interested Entities" No. 39 dated 10 February 2016</p> <p>Resolution of the Cabinet of Ministers of Ukraine "On Approving Rules of Transportation of Animals" No. 1402 dated 16 November 2011</p> <p>Order of the State Department of Veterinary Medicine "On Approving Veterinary Requirements for Importing Objects Subject to State Veterinary and Sanitary Control and Supervision to Ukraine" No. 71 dated 14 June 2004.</p>
5	Veterinary documents: veterinary statement, veterinary certificate, international veterinary certificate.	<p>Article 32 of Law of Ukraine "On Veterinary Medicine" No. 2498-XII dated 25 June 1992</p> <p>Resolution of the Cabinet of Ministers of Ukraine "On Approving the Procedure for Issuing Veterinary Documents" No. 857 dated 21 November 2013</p> <p>Order of the Ministry of Agrarian Policy and Food of Ukraine "On Approving Rules of Filling out, Retaining, Writing off Veterinary Documents and Requirements for Keeping Records of Them" No. 288 dated 1 August 2014</p> <p>Resolution of the Cabinet of Ministers of Ukraine "On Approving the List of Paid Administrative Services Provided by the State Service for Food Safety and Consumer Protection, Agencies and Institutions under Its Control, and Fees for the Provision of Such Services" No. 641 dated 9 June 2011.</p>
6	Registration of veterinary drugs imported.	<p>Articles 63-65 of Law of Ukraine "On Veterinary Medicine" No. 2498-XII dated 25 June 1992</p> <p>Resolution of the Cabinet of Ministers of Ukraine "On Approving Regulations on State Registration of Veterinary Drugs, Feed Additives, Premixes and Finished Feed" No. 1349 dated 21 November 2007.</p>
7	Registration of feed additives, premixes and finished feed (when importing them).	<p>Article 76 of Law of Ukraine "On Veterinary Medicine" No. 2498-XII dated 25 June 1992</p> <p>Resolution of the Cabinet of Ministers of Ukraine "On Approving Regulations on State Registration of Veterinary Drugs, Feed Additives, Premixes and Finished Feed" No. 1349 dated 21 November 2007.</p>

Annex 4. Table of permits

#	Type of Permit	Issuer	Timing		
			Submission	Consideration period	Validity period
A) PERMITS FOR USING AN ENTIRE WATER BODY / FISHERY TECHNOLOGICAL WATER BODY					
1	Application to an executive body / local authority for leasing a land plot	For a territory situated within an inhabited locality – by an executive body of a village, township, city council. For a territory situated outside an inhabited locality – by a respective district state administration.	Not specified. Determined on a case-by-case basis.	Not specified. In practice, at least 10 days.	Not specified.
2	Passport of a water body / fishery technological water body (technical design of a fishery technological water body) ^c	Certified professionals.	Determined on a case-by-case basis. Approx. 30-35 business days prior to a desired date of the receipt of a passport.	Determined on a case-by-case basis. Passport of a water body should be approved by the State Water Resources Agency in 15 business days (not required for passport of a fishery technological water body).	Valid for 5 years (if the technical parameters of water object are not changed).
3	Permit for drafting the land plot allotment plan (if required) ^d	For a territory situated within an inhabited locality – by an executive body of a village, township, city council. For a territory situated outside an inhabited locality – by a respective district state administration.	Not specified. Determined on a case-by-case basis.	Not specified. Determined on a case-by-case basis.	Not specified.
4	Land plot allotment plan	Licensed land surveyor.	After the permit for preparation of the land allotment design is obtained. Approx. 6 months prior to a desired date of the receipt of a land plot allotment plan.	Determined on a case-by-case basis but usually from 2 to 6 months.	Valid for an indefinite term.
5	Approval of the land plot allotment plan	Local department of the State Service of Geodesy, Cartography and Cadastre in Ukraine	After the land plot allotment plan is prepared. Approx. 10 business days prior to a desired date of the receipt of an approval.	Issued within 10 business days.	Valid for an indefinite term.
6	Approval of the land plot allotment plan	State Water Resources Agency	After the land plot allotment plan is prepared. Approx. 10 business days prior to a desired date of the receipt of an approval.	Issued within 10 business days.	Valid for an indefinite term.
7	Expert opinion regarding approval of the land plot allotment plan	State Service of Geodesy, Cartography and Cadastre in Ukraine / local departments of the State Service of Geodesy, Cartography and Cadastre in Ukraine.	After all approvals in relation to a land plot allotment plan are obtained. Approx. 20 business days prior to a desired date of the receipt of an expert opinion.	Issued within 20 business days.	A positive state expert report shall be valid for a period of validity of the land plot allotment plan, however no more than 3 years following the day when such expert report was issued. If no action prescribed by the land plot allotment plan is undertaken within the period specified above, such land plot allotment plan shall be subject to another expert assessment.

Annex 4. Table of permits

#	Applicable state duty (fee) for the issuance of the permit (UAH/USD equivalent)	List of permit application documents	Form of official approval
A) PERMITS FOR USING AN ENTIRE WATER BODY / FISHERY TECHNOLOGICAL WATER BODY			
1	No fees charged.	Not specified. Verbal / written application to an executive body / local authority for leasing a land plot.	Not specified. An executive body / local authority shall decide to hold land tenders. Decision is officially published.
2	Determined on a case-by-case basis. Approx. UAH 1,500 (approx. EUR 52) for 1 hectare.	Agreement between the land user and the contractor.	4 hard copies of the permit obtained from the issuer. One copy for: land user, an executive body / local authority, State Water Resources Agency and archive of water resources' Regional Department.
3	No fees charged.	Verbal / written application to an executive body / local authority for leasing a land plot.	Hard copy of the permit obtained from the issuer.
4	The land surveyor's fee is negotiated on a case-by-case basis. In practice, an ordinary land plot allotment plan may cost approx. UAH 30,000 (approx. EUR 1,042).	A contract entered into between the land user and a licensed land surveyor. The template of such contract was approved by the Cabinet of Ministers of Ukraine.	Hard copy of the land plot allotment plan obtained from the issuer.
5	No fees charged.	Hard copy of the land plot allotment plan.	Hard copy of the approval obtained from the issuer.
6	No fees charged.	Copy (certified by the land user) of the land plot allotment plan.	Hard copy of the approval obtained from the issuer.
7	3 per cent of the land surveyor's fee (as indicated in item 4 above), however, not less than UAH 20.	Hard copies of the land plot allotment plan and all applicable approvals thereof.	Hard copy of the report obtained from the issuer.

Annex 4. Table of permits

#	Type of Permit	Issuer	Timing		
			Submission	Consideration period	Validity period
8	Standard monetary valuation of a land plot	A company licenced to elaborate land surveying documentation.	<p>After a decision of an executive or local self-government body to conduct such an evaluation was adopted.</p> <p>Approx. 10 business days prior to a desired date of the receipt of a standard monetary valuation of a land plot.</p>	Determined on a case-by-case basis but usually from 2 to 10 business days.	For land plots situated within inhabited localities irrespective of their designated use – the evaluation must be conducted at least once in 5-7 years. For agricultural land plots situated outside inhabited localities – at least once in 5-7 years. For non-agricultural land plots situated outside inhabited localities – at least once in 7-10 years.
9	Approval of technical documentation (allotment plan, standard monetary valuation, draft lease agreement) ^e	<p>For a territory situated within an inhabited locality – by an executive body of a village, township, city council.</p> <p>For a territory situated outside an inhabited locality – by a respective district state administration.</p>	<p>As soon as respective documentation are ready.</p> <p>Approx. 10 business days prior to a desired date of the receipt of an approval.</p>	Determined on a case-by-case basis but usually from 10 business days.	Depends on when new evaluation is conducted (see the timeframes above).
10	Registration of participation in land tenders regarding leasing a land plot	<p>Land tender action officer^f.</p> <p>Land tender action officer is an economic entity that has concluded land tender agreement with tender organizer^g on holding the tender.</p>	<p>Land tender is held not earlier than 30 days and not later than 90 days after the publication of the announcement.</p> <p>A person who wants to participate in the land tender, not later than three business days before the land tender shall submit all documents.</p>	Usually 1 business day.	Registration of participation in land tender is valid just for land tender that was officially published.
11	Participation in land tenders regarding leasing a land plot	Land tender action officer.	<p>Land tender is held not earlier than 30 days and not later than 90 days after the publication of the announcement.</p> <p>Registration begins three hours before and ends 20 minutes before the start of the tender.</p>	Usually 1 business day.	Usually 1 business day.

Annex 4. Table of permits

#	Applicable state duty (fee) for the issuance of the permit (UAH/USD equivalent)	List of permit application documents	Form of official approval
8	A company's fee is negotiated on a case-by-case basis. In practice, the fee is UAH 500 (approx. EUR 18) and more (it depends on the parameters of a land plot).	A contract entered into between the land user and a company licenced to elaborate land surveying documentation.	Hard copy of the technical documentation on a standard monetary valuation of a land plot.
9	No fees charged.	Hard copies of the land plot allotment plan with all approvals; Hard copy of the technical documentation on a standard monetary evaluation of a land plot.	Decision is officially published.
10	The amount of the registration fee is determined by the action officer and can not exceed 50 percent of the minimum subsistence income for able-bodied persons at the date of publication of land tender.	An application for participation in the land tender; Information about the name, address and identification number of legal person from the Unified State Register of Enterprises and Organisations of Ukraine, information about the state where founders (participants) of the legal person, which has foreign capital share in its authorised (share) capital are registered or have permanent residence; or surname, name, middle name and taxpayer identification number or passport number and series (for individuals who, because of their religious beliefs refuse to accept the taxpayer identification number, officially reported about this fact to the appropriate body of revenues and have a mark in the passport) of self-employed person. Natural persons who are not self-employed, submit a copy of their taxpayer identification number certificate (taxpayer identification number) or a copy of passport (for individuals who, because of their religious beliefs refuse to accept the taxpayer identification number, officially reported about this fact to the appropriate body of revenues and have a mark in the passport). For foreign citizens and persons without citizenship - surname, name, and middle name citizenship (nationality) of another state, permanent residence, citizen (national) of which the person is; for foreign legal persons - name, address and State where legal person is registered. Documents proving the payment of registration fees and margin (copies of accounting documents, account statements). Representative of natural or legal person submits the documents confirming the right to act on behalf of the participant of the tender.	Land tender acting officer after accepting the documents referred to in the first paragraph of this article, makes a record of serial participant's sequence number and number of lots that he was willing to buy, and gives the participant (his representative) certificate of documents receipt indicating their list, admission ticket, information card for the lot and participant's card (indicating tender conditions on the flip side of the card).
11	No fees charged.	Participant (his representative) is obliged to disclose his passport (power of attorney to act during the tender, particularly to participate in the tender and sign protocol on the results of the tender, and passport).	Registration of all participants of the land tender. After that action officer gives the participant his number plate. Singing the protocol on the results of the land tender.

Annex 4. Table of permits

#	Type of Permit	Issuer	Timing		
			Submission	Consideration period	Validity period
12	Signing a water fund land plot lease agreement based on the results of land tenders	For a territory situated within an inhabited locality – by an executive body of a village, township, city council. For a territory situated outside an inhabited locality – by a respective district state administration.	Signing a water fund land plot lease agreement by both parties takes one day at the end of the land tender.	Usually 1 business day.	The term is specified in the land use agreement and may not exceed 50 years.
B) PERMITS FOR USING A PART OF A WATER BODY^h					
1	Application to an executive body / local authority for leasing a land plot	For a territory situated within an inhabited locality – by an executive body of a village, township, city council. For a territory situated outside an inhabited locality – by a respective district state administration.	Not specified. Determined on a case-by-case basis.	Not specified. In practice, at least 10 days.	Not specified.
2	Technical documentation (outline of the part of a water body, standard monetary valuation, draft lease agreement) ⁱ	For a territory situated within an inhabited locality – by an executive body of a village, township, city council. For a territory situated outside an inhabited locality – by a respective district state administration.	As soon as respective documentation are ready. Approx. 10 business days prior to a desired date of the receipt of an approval.	Determined on a case-by-case basis but usually from 10 business days.	Depends on when new evaluation is conducted (see the timeframes above).
3	Registration of participation in land tenders regarding leasing a land plot ^j	Land tender action officer ^k . Land tender action officer is an economic entity that has concluded land tender agreement with tender organiser ^l on holding the tender.	Land tender is held not earlier than 30 days and not later than 90 days after the publication of the announcement. A person who wants to participate in the land tender, not later than three business days before the land tender shall submit all documents.	Usually 1 business day.	Registration of participation in land tender is valid just for land tender that was officially published.
4	Participation in land tenders regarding leasing a land plot	Land tender action officer.	Land tender is held not earlier than 30 days and not later than 90 days after the publication of thannouncement. Registration e begins three hours before and ends 20 minutes before the start of the tender.	Usually 1 business day.	Usually 1 business day.

Annex 4. Table of permits

#	Applicable state duty (fee) for the issuance of the permit (UAH/USD equivalent)	List of permit application documents	Form of official approval
12	No fees charged. If one of the parties to the agreement chooses to have it notarised, a notary fee, which usually does not exceed UAH 1,000, is to be paid. Expenses (costs) made by an organiser or action officer of the land tender to hold the tender are reimbursed to him by the winner of the land tender within 3 business days after signing a water fund land plot lease agreement.	<ul style="list-style-type: none"> ▪ Protocol on the results of the land tender; ▪ Draft of the water fund land plot lease agreement. 	Hard copy of the agreement signed with the issuer.
B) PERMITS FOR USING A PART OF A WATER BODY^h			
1	No fees charged.	Not specified. - Verbal / written application to an executive body / local authority for leasing a land plot.	Not specified. An executive body / local authority shall decide to hold land tenders. Decision is officially published.
2	No fees charged.	Not specified.	Documents shall be prepared to the land tender.
3	The amount of the registration fee is determined by the action officer and can not exceed 50 percent of the minimum subsistence income for able-bodied persons at the date of publication of land tender. The margin amounts to 5 percent of starting annual fee for the use of land plot.	<ul style="list-style-type: none"> - An application for participation in the land tender; - Information about the name, address and identification number of legal person from the Unified State Register of Enterprises and Organisations of Ukraine, information about the state where founders (participants) of the legal person, which has foreign capital share in its authorised (share) capital are registered or have permanent residence; or surname, name, middle name and taxpayer identification number or passport number and series (for individuals who, because of their religious beliefs refuse to accept the taxpayer identification number, officially reported about this fact to the appropriate body of revenues and have a mark in the passport) of self-employed person. Natural persons who are not self-employed, submit a copy of their taxpayer identification number certificate (taxpayer identification number) or a copy of passport (for individuals who, because of their religious beliefs refuse to accept the taxpayer identification number, officially reported about this fact to the appropriate body of revenues and have a mark in the passport). For foreign citizens and persons without citizenship - surname, name, and middle name citizenship (nationality) of another state, permanent residence, citizen (national) of which the person is; for foreign legal persons - name, address and State where legal person is registered. - documents proving the payment of registration fees and margin (copies of accounting documents, account statements). Representative of natural or legal person submits the documents confirming the right to act on behalf of the participant of the tender. 	Land tender acting officer after accepting the documents referred to in the first paragraph of this article, makes a record of serial participant's sequence number and number of lots that he was willing to buy, and gives the participant (his representative) certificate of documents receipt indicating their list, admission ticket, information card for the lot and participant's card (indicating tender conditions on the flip side of the card).
4	No fees charged.	Participant (his representative) is obliged to disclose his passport (power of attorney to act during the tender, particularly to participate in the tender and sign protocol on the results of the tender, and passport).	Registration of all participants of the land tender. After that action officer gives the participant his number plate. Signing the protocol on the results of the land tender.

Annex 4. Table of permits

#	Type of Permit	Issuer	Timing		
			Submission	Consideration period	Validity period
5	Signing a water fund land plot lease agreement based on the results of land tenders	For a territory situated within an inhabited locality – by an executive body of a village, township, city council. For a territory situated outside an inhabited locality – by a respective district state administration.	Signing a water fund land plot lease agreement by both parties takes one day at the end of the land tender.	Usually 1 business day.	The term is specified in the land use agreement and may not exceed 50 years.
C) PERMITS FOR USING WATER AREA (WATER SPACE) OF INTERNAL SEA WATERS, TERRITORIAL SEA, EXCLUSIVE (MARITIME) ECONOMIC ZONE UKRAINE					
1	Submitting a request to the Cabinet of Ministers of Ukraine	The Cabinet of Ministers of Ukraine	Not specified.	Not specified.	Not specified.
2	Singing a lease agreement for water area (water space) of internal sea waters, territorial sea, exclusive (maritime) economic zone Ukraine ^m	The Cabinet of Ministers of Ukraine	After the resolutions and lease agreement are prepared.	Not specified.	The term is specified in the land use agreement and may not exceed 50 years.
REGISTRATION OF THE RIGHT TO USE LAND UNDER A WATER BODY					
1	Extract from the State Land Register	State Service of Geodesy, Cartography and Cadastre in Ukraine / local departments of the State Service of Geodesy, Cartography and Cadastre in Ukraine.	After the land use agreement is signed.	Issued within 14 business days.	Valid indefinitely.
2	Extract from the State Register of Proprietary Rights to Immovable Property, confirming the state registration of rights to use a land plot	Local Department of the State Registration Service / a notary.	After the land use agreement is signed and land use rights are registered with the State Land Cadastre.	Issued within 5 business days after the acceptance of an application for state registration of rights.	Valid indefinitely.
PERMITS FOR USING WATER BODIES					
1	Permit for special purpose water use	Local state administrations in relation to state-owned lands. Local councils in relation to municipally-owned lands (with approving of the local state administrations). <i>Starting from June 4, 2017: Local departments of the State Water Resources Agency.</i> Issuance of permit agrees: with the State Water Resources Agency in relation to usage of surface waters; with the State Agency of Geology and Mineral Resources of Ukraine in relation to usage of ground waters; with The Ministry of healthcare of Ukraine in relation to usage of "medicinal" water.	Approx. 30-35 business days prior to a desired date of the receipt of a permit.	Issued within 30 calendar days. In practice, issued within 3 months.	A permit on the short-term (3 years) - if water users make discharges of pollutants into water in amounts exceeding the maximum that set out by the executive authority; A permit on the long-term (from 3 to 25 years) - in all other cases.
2	Registration of a fishery water body	State Agency of Fisheries of Ukraine	After the land use agreement is signed and land use rights are registered.	Not specified.	Not specified.

Annex 4. Table of permits

#	Applicable state duty (fee) for the issuance of the permit (UAH/USD equivalent)	List of permit application documents	Form of official approval
5	No fees charged. If one of the parties to the agreement chooses to have it notarised, a notary fee, which usually does not exceed UAH 1,000, is to be paid. Expenses (costs) made by an organiser or action officer of the land tender to hold the tender are reimbursed to him by the winner of the land tender within 3 business days after signing a water fund land plot lease agreement.	<ul style="list-style-type: none"> Protocol on the results of the land tender; Draft of the water fund land plot lease agreement. 	Hard copy of the agreement signed with the issuer.
C) PERMITS FOR USING WATER AREA (WATER SPACE) OF INTERNAL SEA WATERS, TERRITORIAL SEA, EXCLUSIVE (MARITIME) ECONOMIC ZONE UKRAINE			
1	No fees charged.	<p>Not specified.</p> <ul style="list-style-type: none"> Verbal / written request to the Cabinet of Ministers of Ukraine. 	Resolution of the Cabinet of Ministers of Ukraine to lease water area (water space) of internal sea waters, territorial sea, exclusive (maritime) economic zone Ukraine is officially published.
2	Payment for using water objects (shall be determined by the Cabinet of Ministers of Ukraine).	<ul style="list-style-type: none"> Resolution of the Cabinet of Ministers of Ukraine to lease water area (water space) of internal sea waters, territorial sea, exclusive (maritime) economic zone Ukraine; Draft of the lease agreement. 	Hard copy of the agreement signed with the issuer.
REGISTRATION OF THE RIGHT TO USE LAND UNDER A WATER BODY			
1	Approx. EUR 3 (0.05 of minimum wages).	<ul style="list-style-type: none"> An application; Evidence of payments of the registration fee. 	Hard copy of the extract obtained from the issuer.
2	Statutory registration fee is approx. EUR 150, plus EUR 5 for the registration extract.	<ul style="list-style-type: none"> An application in the form approved by the Ministry of Justice; Evidence of authority and identity of the representative; Extract from the State Land Cadastre; Hard copy of the land use agreement; Evidence of payment of the registration fee and the extract fee. 	Hard copy of the extract obtained from the issuer.
PERMITS FOR USING WATER BODIES			
1	No fees charged.	<ul style="list-style-type: none"> An application; Justification of water resources usage. Starting from June 4, 2017: <ul style="list-style-type: none"> An application; Justification of water resources usage. a description and location of places of water intake and discharge of wastewaters; Pollutants discharge standards; Individual standards of drinking water usage; Copy of water body legal documents (for lessees of water bodies). 	Hard copy of the permit obtained from the issuer.
2	No fees charged.	<ul style="list-style-type: none"> An application; Passport of a water body; Copy of a water fund land plot lease agreement. 	Determine the water body fish productivity and water body registration number.

Annex 4. Table of permits

#	Type of Permit	Issuer	Timing		
			Submission	Consideration period	Validity period
VETERINARY PERMITS					
1	Operational permit	State Service of Ukraine On Food Safety and Consumer Protection / Local departments of the State Service of Ukraine On Food Safety and Consumer Protection.	Approx. 30 business days prior to a desired date of the receipt of a permit.	Usually 30 days of receipt of an application and after inspection of broodstock facilities (inspection of broodstock facilities are held in a period not exceeding 15 days of receipt of an application.)	Valid indefinitely.
2	Registration of broodstock facilities	State Service of Ukraine On Food Safety and Consumer Protection / Local departments of the State Service of Ukraine On Food Safety and Consumer Protection. State Veterinary and Phytosanitary Service of Ukraine.	Approx. 40 business days prior to a desired date of the receipt of a result.	Within 15 days after receiving the application for such registration. It may be extended for 15 days.	Not specified.
3	Registration of export facilities	State Service of Ukraine On Food Safety and Consumer Protection / Local departments of the State Service of Ukraine On Food Safety and Consumer Protection. State Veterinary and Phytosanitary Service of Ukraine.	Approx. 40 business days prior to a desired date of the receipt of a result.	Within 15 days after receiving the application for such registration. It may be extended for 15 days.	Not specified.
4	Inspection of facilities that produce food products to be further imported (shipped) to the customs territory of Ukraine	State Service of Ukraine On Food Safety and Consumer Protection / Local departments of the State Service of Ukraine On Food Safety and Consumer Protection. State Veterinary and Phytosanitary Service of Ukraine.	Approx. 60 business days prior to a desired date of the receipt of a result.	State Service of Ukraine On Food Safety and Consumer Protection informs the relevant competent authorities of the importing country of the inspection for 60 days. Inspections should be conducted in a period not exceeding 60 days.	Not specified.
5	Veterinary documents: veterinary statement, veterinary certificate, international veterinary certificate	Inspectors of Veterinary Medicine and authorized veterinarians. Head doctor of the State Veterinary and Phytosanitary Service of Ukraine.	Approx. 30 business days prior to a desired date of the receipt of a result.	Issued within 30 business days.	For each batch of fish caught.
6	Registration of veterinary drugs imported	National agency of veterinary medicinal products and feed additives and State Veterinary and Phytosanitary Service of Ukraine.	Approx. 8 months prior to a desired date of the receipt of a result.	National agency of veterinary medicinal products and feed additives prepares an expert opinion to the State pharmacological commission of veterinary medicine in a period not exceeding 210 days of receipt of an application. The hard copy of the registration certificate shall be made in 30 days.	5 years.
7	Registration of feed additives, premixes and finished feed (when importing them)	National agency of veterinary medicinal products and feed additives and State Scientific-Research Control Institute of Veterinary Medicinal Products and Feed Additives.	Approx. 4-5 months prior to a desired date of the receipt of a result.	National agency of veterinary medicinal products and feed additives prepares an expert opinion to the State pharmacological commission of veterinary medicine in a period not exceeding 90 days of receipt of an application. The hard copy of the registration certificate shall be made in 30 days.	5 years.

Annex 4. Table of permits

#	Applicable state duty (fee) for the issuance of the permit (UAH/USD equivalent)	List of permit application documents	Form of official approval
VETERINARY PERMITS			
1	Approx. EUR 20 (0.17 of minimum wages).	An application; List of products which are planned to produce.	4 hard copies of the permit obtained from the issuer. One copy for; a food business operator ⁿ , State Service of Ukraine On Food Safety and Consumer Protection, Local departments of the State Service of Ukraine On Food Safety and Consumer Protection.
2	No fees charged.	An application to the competent authority on the location of facilities not later than 10 days before the beginning of work.	The hard copy of the registration certificate.
3	No fees charged.	An application to the competent authority on the location of facilities not later than 10 days before the beginning of work.	The hard copy of the registration certificate.
4	No fees charged.	Providing an unhindered access to broodstock facilities.	The hard copy of the registration certificate.
5	Approx. from EUR 2 to EUR 10.	Providing an unhindered access to broodstock facilities.	Hard copies of veterinary documents.
6	Approx. from EUR 280 to EUR 4,600.	An application with other documents (if required).	The hard copy of the registration certificate.
7	Approx. from EUR 280 to EUR 4,600.	An application with other documents (if required).	The hard copy of the registration certificate.

Annex 5. Comparative table of international experience

	NORWAY	DENMARK	LITHUANIA
Key legislation	Aquaculture Act of 2005, Marine Living Resources Act of 2008, Act on Food Production and Food Safety of 2003 and other relative legislative acts	European Parliament Regulation No. 1380/2013 "On the Common Fisheries Policy" of 2013, Fisheries Act of 2004, Environment Protection Act of 2016, Planning Act of 2007, Water Supply Act of 2017, Statutory Order for Fish Farms of 2012, Danish Action Plan for Aquatic Environment of 2004, other relative legislative acts and orders	European Parliament Regulation No. 1380/2013 "On the Common Fisheries Policy" of 2013, Law on Fisheries of 2004, Order No. B1-146 "Regarding Approval of Requirements for Veterinary Approval of state Veterinary Control Objects, except for Food Business Operators" of 2005 of Director of the State Food and Veterinary Service, Order No. B1-288 "Regarding Approval of the Description of the Veterinary Documents Issuance" of 2008 of the State Food and Veterinary Service, other relative legislative acts and orders
Type of aquaculture	Land-based, cage-based, pond-based aquaculture and sea-ranching activities, including inland, coastal and marine aquaculture	The land-based production using ponds, tanks, raceways and recirculation systems, marine production of trout and trout eggs; land-based recirculation farms producing European eel, pike-perch and salmon; and production of blue mussels on long lines.	The production systems in operation are warm-water ponds for carp breeding and cold-water aquaculture for trout and whitefish. Trout, salmon and sea trout are bred in closed systems
Legal definition	No specific definition is available, but according to Aquaculture Act, it "applies to the production of aquatic organisms (aquaculture). Aquatic organisms are defined as animals and plants that live in, on, or near water. Any measures to influence the weight, size, number, characteristics or quality of living aquatic organisms are regarded as production. In cases of doubt, the Ministry may determine what is to be regarded as aquaculture by an administrative decision or regulations"	There is no general definition of aquaculture, however, some governmental acts define marine fish farming (as fish farms consisting of cages and similar structures, installed in marine waters which require the use of feed for its operation), land fish farming (as fish farms placed on land that has an intake of marine water including cooling water from power plants or similar sources, which requires the use of feed for its operation) and freshwater aquaculture (as fish farms that exclusively take in fresh water and which has a water outlet to water ways, lakes or the ocean)	Aquatic organisms such as fish, shellfish, crustaceans and aquatic plant cultivation. Aquaculture includes the raising of microorganisms in fresh and sea water under controlled conditions
Compliance with EU regulations	National legislation is comparable to regulation in the EU with some differences at the administrative implementation level	National legislation is developed in compliance with EU regulations	Aquaculture regulation in Lithuania is comparable to regulation in the EU with some differences at the administrative implementation level
Environmental impact assessment	EU legislation is applied, but there are two significant differences: (1) the Directorate of Fisheries is defined as the "competent authority" and (2) the Regulations include a specific threshold for the assessment of aquaculture	Every farm is subject to prior environmental approval, including EIA	Introduced by Order No. D1-311 on the approval of procedure for proposed environmental impact assessment document examination by the Ministry of Environment and its subordinate institutions
Key regulatory bodies	(1) Ministry of Fisheries and Coastal Affairs, (2) Fisheries Directorate (Ministry), (3) Norwegian Food Safety Authority	(1) Ministry of Food, Agriculture and Fisheries, (2) Danish Environmental Protection Agency, (3) Danish Veterinary and Food Administration, (4) Danish AgriFish Agency, (5) local municipal bodies	(1) Ministry of Environment, (2) State Food and Veterinary Service, (3) Fisheries Department under the Ministry of Agriculture

Annex 5. Comparative table of international experience

POLAND	UKRAINE
<p>European Parliament Regulation No. 1380/2013 "On the Common Fisheries Policy" of 2013, National Strategy for the Development of Fisheries in period of 2012–2020, Environmental Protection Law of 2001, Act "On Access to Information on Environment and its Protection, Public Participation in Environmental Protection and on Environmental Impact Assessment" of 2008, Regulation of the Minister of Agriculture and Rural Development "On Veterinary Requirements for Breeding of Aquaculture Animals and Fish Reproduction" of 2004</p>	<p>The Land Code, The Water Code of Ukraine, The Law of Ukraine "On Aquaculture" of 2012, The Law of Ukraine "On the Animal World" of 2001 "On Fish, Other Aquatic Biological Resources and Food Products from Them" of 2003, "On approval of the Procedure of water object's passport development" of 2013 "On Fisheries, Industrial Fisheries and Protection of Aquatic Biological Resources" of 2011 "On Veterinary Medicine" of 1992, other relative legislative acts and resolution of the Ukrainian Parliament</p>
<p>Land-based production of freshwater fish, primarily carp and trout, mainly using ponds</p>	<p>Land-based, cage-based, pond-based aquaculture, marine aquaculture</p>
<p>Aquaculture is a form of economic activity aimed at increasing the extraction of food (other products) from the aquatic environment which includes the raising of individual species of aquatic organisms, especially animals in natural or artificial water bodies - fresh water or salt water</p>	<p>The fish farming (aquaculture) covers agricultural activities of artificial breeding, keeping and growing objects of aquaculture in whole or in part in controlled conditions for aquaculture and feed production, reproduction of biological resources, conducting selection and breeding work, introduction, resettlement, acclimatisation and re-acclimatisation of aquatic organisms, replenishment of water biological resources, preservation of biodiversity and recreational services</p>
<p>Aquaculture regulation in Poland is comparable to regulation in the EU with some differences at the administrative implementation level</p>	<p>National legislation is at the stage of introduction EU regulations. Also, according to Ukraine-European Union Association Agreement the Parliament of Ukraine has developed a strategy on the implementation of Chapter 4 about sanitary and phytosanitary measures, including the field of aquaculture. The preparation of such legislation is planned until 2019, and the introduction into force as early as 2020</p>
<p>EIA requirement is presented in Polish legislation, and is mandatory for projects which may have significant impact on the environment.</p>	<p>The Law of Ukraine "On the Animal World", the Law of Ukraine "On environment impact assessment" is applied</p>
<p>(1) Ministry of Agriculture and Rural Development, (2) Department of Fisheries</p>	<p>(1) The Cabinet of Ministers of Ukraine (2) Ministry of Ecology and Natural Resources of Ukraine, (3) The State Agency of Fisheries of Ukraine, (4) State Service of Geodesy, Cartography and Cadastre in Ukraine, (5) State Water Resources Agency, (6) State Service of Ukraine On Food Safety and Consumer Protection, (7) State Veterinary and Phytosanitary Service of Ukraine, and (8) local authorities</p>

Annex 5. Comparative table of international experience

	NORWAY	DENMARK	LITHUANIA
Key permits	Licenses for aquaculture of salmon, trout and rainbow trout	(1) Environmental permit, (2) Water extraction license, (3) Veterinary authorization	(1) Veterinary approval and registration; (2) veterinary certificate, permit to install an artificial impassable surface body of water; (3) Environmental Impact Assessment
Possibility of licences transfer/changes in ownership	Aquaculture licenses may be transferred or mortgaged between private parties without any approval from the authorities	N/A	N/A
Flexibility of national regulation	Regulatory and licensing system provides flexibility to react to specific issues, i.e. issues relating to a specific site or its installation	N/A	N/A
Government incentives	Yes	Yes	Yes
Total aquaculture production in terms of value	7 601.6 \$US million	121.46 \$US million	11.7 \$US million
Main species in terms of value	Salmon (93.88%), rainbow trout (5.7%), halibut (0.25%)	Rainbow trout (90.0%), eel (4.0%), blue mussel (3.0%)	Carp (84.7%), rainbow trout (3.5%), African catfish (2.5%)
Ranking in the world's main exporters	2	8	79
Export of seafood	10 681 \$US million	3 583 \$US million	589 \$US million
Share of export of seafood in total export	11.9% Salmon (68.8%), cod (9.8%), other (4.8%)	2.2% Salmon and trout (30.8%), cod (21.6%), flatfish (16.6%)	2.3%
Import of seafood	180 \$US million	2 595 \$US million	539 \$US million Raw materials (90%)
Share of import of seafood in total import	0.25%	1.8%	1.95%
Main export markets	EU - 50-55% (especially Poland and France)	EU – 80% (main market – Germany)	EU countries - 98%
Main import suppliers	EU countries, South America	Denmark, Sweden and Greenland	Sweden, Norway, Latvia and USA
Per capita consumption	53.3 kg	13.5 kg	19.0 kg
Main challenges for business development	(1) dependence on imported raw materials, (2) sea lice developing resistance	(1) discard ban, (2) protection of marine biodiversity, (3) restoration of rivers	(1) dependence on imported raw materials, (2) modernization of existing pond infrastructure
Main opportunities for business development	(1) growing opportunities at BRICS countries' markets, (2) development of new technologies (e.g. submerged cages deep under the sea)	(1) reinforcement of processing and marketing through innovation, certification and traceability	(1) usage of renewable sources of energy, (2) breeding of new species of fish in order to strengthen the position on international markets

Annex 5. Comparative table of international experience

POLAND	UKRAINE
(1) Veterinary approval, (2) Veterinary certificate, (3) Environmental Impact Assessment. A permit must be obtained to use state-owned surface waters	(1) The water bodies and fishery technological reservoirs should have a passport, (2) Veterinary certificates, (3) Registration of fishery water body, (4) Permit for special purpose water use, (5) Operational permit, (6) Registration of broodstock facilities, (7) Registration of export facilities, (8) Registration of veterinary drugs imported, (9) Registration of feed additives, premixes and finished feed (when importing them)
N/A	N/A
N/A	N/A
Yes, available for the modernization of the fisheries and aquaculture facilities	No
111.7 \$US million	42 \$US million
Common carp (44.9%), rainbow trout (35.3%), freshwater fishes (10.2%)	Common carp (72%), grass carp (18.2%), prussian carp (4.1%)
61	N/A
1 381 \$US million	2 \$US million
0.7%	0.19% Herring (20%), hake (17%), mackerel (13%)
2 022 \$US million	299 \$US million
1.03%	2.7%
EU countries – 90% (especially Germany, France, United Kingdom and Denmark)	CIS countries – 42%, EU – 39%
Norway, China, Germany, Denmark, and the Netherlands	Norway, Iceland, USA, Canada and Denmark
12.5 kg	9 kg
(1) high dependence on meteorological conditions, (2) outbreaks of viral diseases, (3) pressure of piscivorous animals (cormorants, otters) which are protected	(1) pressure and manipulation regarding tenants of waterbodies, (2) unavailability of the capital market, (3) the high cost of feed
(1) government-led promotion of fish products, (2) reduction of energy consumption in aquaculture facilities, including moving towards renewable energy	(1) fish production potentials of vast marine and inland water areas remain underutilized, (2) restocking based fish ranching on several hundred thousand hectares facilitates fish production with low primary costs

Footnotes

- a Feed-in tariffs (FITs) are generation-based, price driven incentives. The price that a utility or supplier or grid operator is legally obligated to pay for a unit of electricity from RES-E producers is determined by the system. Thus, a federal (or regional) government regulates the tariff rate.
- b Fish for reduction - fish destined for reduction for fish meal and other non-food uses
- c According to applicable law, passport of a water body / fishery technological water body should be made by landlord. But, in practice, it's a land user's duty
- d Land allocation is carried out in the case of change of the purposive appointment of land plot and in case if the site boundaries are not established (on ground).
- e Draft lease agreement shall be made by an executive body / local authority
- f Land tender action officer is an economic entity that has concluded land tender agreement with tender organiser on holding the tender
- g Tender organiser for a territory situated within an inhabited locality is an executive body of a village, township, city council and for a territory situated outside an inhabited locality is a respective district state administration
- h Parts of fishery water body are assigned for use under lease agreement to a legal or natural person by the body, which executes the disposal of land plots under water (water space) according to the Land Code of Ukraine, only for siting of floating fish-breeding gardens.
- i Technical documentation shall be prepared by an executive body / local authority.
- j Current legislation does not determine the order of use of water body's part clearly, in connection with it there is no confidence in the need for land tender.
- k Land tender action officer is an economic entity that has concluded land tender agreement with tender organiser on holding the tender.
- l Tender organiser for a territory situated within an inhabited locality is an executive body of a village, township, city council and for a territory situated outside an inhabited locality is a respective district state administration.
- m If water areas (water space) of inland sea waters, territorial sea, exclusive (maritime) economic zone of Ukraine are assigned by the Cabinet of Ministers for use under lease to a legal or natural person, bodies, which according to the Land Code of Ukraine carry out the disposal of land plots, can assign land plots of coastal shelter belts strips and land plots of buffer zones to a legal or natural person for use under lease.
- n A food business operator is the natural or legal person responsible for ensuring that the requirements of food law are met within the food business under their control.

