

# **AQUACULTURE IN THE CZECH REPUBLIC**

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### **Introduction**

Aquaculture as it is understood and operated in the Czech Republic is integrally connected with fishpond farming and its 600-year historical development. Freshwater aquaculture as a narrowly specialized activity requires stabilized and strong economic structure of fishing enterprises and processing facilities on one hand, it fulfils on the other hand a multitude of environmental, biodiversity and social functions. Environmental, landscape, biodiversity protection and recreational aspects are more and more in competition with aquaculture production functions.

This report is a follow-up of the outcomes of the fact-finding mission performed in 2002 by Mr Magnus van der Meer from the Dutch consulting company Agro Eco and summarized in a report on Czech aquaculture published in August 2003. Production figures and factual findings are updated; new developments after the EU accession are reflected. Brief profiles and contacts of the most important companies are given in the annex. The stagnation of the sector from the view point of strategically possible future development is taken as a challenge. Opportunities for Dutch entrepreneurs and conclusions are revised in the light of new developments and circumstances.

A challenge of new possibilities of special fisheries/aquaculture funds could lead to innovative, modern aquaculture production and processing ways with the aim to maintain the multifunctionality of aquaculture in dividing it into classical fishpond farming with all its functions and closed systems (tank aquaculture) oriented to intensive trout production and thus modern consumer satisfaction.

## 1) Present situation

### A) **Production facilities**

In the conditions of a land-locked country fishpond farming is a specific form of aquaculture. It is a traditional farming on man-made water reservoirs and it carries out multiple functions: water management and water retention during floods, landscape creation typical for some regions (Southern Bohemia), recreational for local inhabitants but also for tourists, social - offering employment in production and processing and of course economical by production and supply of Sweetwater fish to mainly domestic market but also for export. Environmental aspects and biodiversity protection might nevertheless be in direct competition with the production functions. The commercial fishing sector belongs – following the Czech ministry of agriculture and Czech specialists from this branche - among the relatively stable fields both with respect to production and from the perspective of market mechanisms functioning.

The total water surface area in the Czech Republic represents about 80 thousand hectares. More than 24 000 fishponds represent a total area of 51 800 hectares from which around 42 000 hectares (42 137 ha in 2005) are used for sweetwater fish production. Their total retention capacity is 420 million cubic meters of water. The average production – sweetwater fish yield - is 450 kg (468,5 in 2005) of commercial fish per hectare of water surface.

The fishing sector contributes approximately CZK 1,1 billion (approximately €38,5 million) to the gross domestic product, which is 0,04% of the GDP. Gross agricultural production totals 4,42% of the GDP. The level of total animal production is CZK 59,8 billion at current prices, commercial fish comprises 1,9% of the gross animal production and fish hatching 0,25%.

In the agricultural economy of the Czech Republic, fishpond farming produces around 20 000 tons of commercial fish annually, fluctuating already for many years between 17 to 21 thousand tons. Carp production achieves over 87% of the total quantity of commercial fish, its production reaches approximately 17 000 tons annually. Other herbivorous fish represent 4,4%, salmonid fish represent 3,6%, tench represents 1% and other carnivorous/predator fish represent 1% of the total sweetwaterfish harvest.

Fishpond farming is almost exclusively based on natural fish feeding on plankton (zooplankton, zoobentos) with high content of animal proteins supplemented with untreated cereals as a sole source of energy.

In general the big fishpond farming companies do produce on their ponds also waterfowl (ducks) and often wild waterfowl (mallards).

*Commercial fish harvest according to production environment and commercial fish use*

<b>Type of environment</b>	<b>Commercial fish harvest in 2005 in tons</b>
Ponds	19 740
Special installations (tanks, bassins...)	705
Dams	10
<b>TOTAL</b>	<b>20 455</b>
Sale of live fish-local	8 590
Sale of live fish-export	9 295
Processing of fish for local market*	1 314
Processing of fish for export*	856
<b>Total processing of fish*</b>	<b>2 170</b>

*\* in live weight*

*Source: Czech Fish Farmers Association in Situation and Outlook Report Fish October 2006, MoA CR*

Fish farms breeding and producing salmon fish (rainbow trout and American grayling predominantly) in closed and semi-closed systems do exist alongside fishpond farms too. Altogether about 10 farms produce about 800 tonnes of salmonid fish per year. Fish are produced in floating cages situated in water reservoirs and/or in rearing units. These facilities are mainly specialized in production of both stock fish for streams and ornamental fish. For more significant development of the production of commercial trout, however, in particular appropriate water sources and initial operating capital are lacking.

Breeding and production of other fish in closed systems is used to a limited extent. It serves primarily to breed certain fish or water species (crayfish) mainly for the purpose of their re-introduction into river systems, streams and ponds. The use of warm water from energy plants / power stations is still very limited.

No commercial angling is carried out in the Czech Republic, only recreational angling in fishing grounds managed by fishing unions is widespread. More than 2 000 fishing grounds are located in the Czech Republic with an area of approximately 42 000 hectares and there are approximately 350 000 registered members of all fishing unions. Fish caught by recreational anglers are not subject of trade but serve for

individual consumption. Each year around 4 500 tons of fish are caught and consumed in this way.

*Sweetwater fish species structure of commercial fish production 1995 – 2005 (in thousand tons of live weight)*

<b>Fish Species</b>	<b>1995</b>	<b>1998</b>	<b>2001</b>	<b>2004</b>	<b>2005</b>
Carp	16,4	15,1	17,4	17	17,804
Salmonid (Trout, grayling)	0,7	0,6	0,8	0,7	0,737
Herbivorous (grasscarp, bighead carp, northern carp)	0,7	0,5	1,2	0,9	1,023
Tench, grayling	0,4	0,4	0,2	0,2	0,288
Predator fish (pike, pikeperch, catfish, eel, bass)	0,2	0,2	0,2	0,2	0,211
Thermophilic species					0,009
Other	0,3	0,4	0,3	0,4	0,383
<b>Total</b>	<b>18,7</b>	<b>17,2</b>	<b>20,1</b>	<b>19,4</b>	<b>20,455</b>

*Source: Czech Fish Farmers Association in Situation and Outlook Report Fish October 2006, MoA CR*

## **B) Employment**

In 2004 the fishing sector was employing 1 679 persons. The development of employment in this branch shows continuously slight decrease. Despite gradual improval of both production and processing efficiency a high degree of hard physical labour under difficult natural conditions persists in fishpond farming.

Human resources are generally utilized in areas where there are otherwise low employment opportunities. Men are generally employed in the fishpond production sector and women in the processing. Employment seasonality plays an important role in both production and processing: the peaks for production being spring (March) and autumn (end September-November) for the fish harvest, for processing short before Easter and Christmas.

*Overview of employment in fishing sector 2000 - 2004*

<b>Employees</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
Men	1 455	1 393	1 395	1 460	1 387
Women	337	318	311	307	292
Total	1 792	1 711	1 706	1 767	1 679

*Source: Czech Fish Farmers Association*

### **C) Most important companies:**

The most important companies in the Czech Republic in the sector of production and processing of sweetwater fish are the Fishery Group Trebon, Blatenska Ryba and Klatovske Rybarstvi. The share of these three companies on total sweetwater fish production in the Czech Republic is together almost 50%.

All the important companies are members of the Czech Fish Farmers Association and their tradition is, despite new organisation and ownership structure, very long.

A more detailed overview of in total 11 companies is given in the annex.

### **D) Multifunctionality**

Fishpond farming – in its most ideal form - shows a characteristic balance of production, ecology, water management and recreation. Fishponds fulfil irreplaceable secondary functions in the landscape such as water retention, flood prevention (during the flooding in 2002 it enabled the retention of 150 million cubic meters of water above the normal level in South Bohemia alone), biological water purification and bird nesting.

There might be competition and friction points between different functions of this type of aquaculture. Currently the most visible and also publicly discussed friction point between biodiversity and production functions of fishpond farming are losses caused to fishpond farmers by otters, cormorants, common herons, minks, gulls and other predators. Aquaculture producers apply for and receive compensation payments for losses caused by these, in general protected, species. Exceptionally hunting of cormorants, herons and black-headed gulls is approved in some areas based on a request with evaluation of losses caused by these species.

*Predators and losses caused by them in aquaculture*

<b>year</b>	<b>Otter Population in heads/losses in million CZK</b>	<b>Great cormorant Heads/losses</b>	<b>Common heron Heads/losses</b>	<b>Mink Heads/losses</b>	<b>Total losses</b>
2000	1 202/ 52,6	16 246/ 81,2	15 715/39,3	3 190/ 5,0	178,1
2001	1 250/112,7	21 520/154,3	17 162/42,9	4 360/15,9	325,8
2002	1 464/132,0	26 141/193,1	12 104/30,3	3 679/13,4	368,8
2005	2 227/200,78	63 921/651,8	13 348/33,4	5 000/18,1	904,1

*Source: Czech Fish Farmers Association in Situation and Outlook Report Fish October 2006, MoA CR*

Quality of water in ponds has become another issue of professional and public interest. Fishpond theoreticians stress that applying a complex of technical (hibernating, pond estivation, liming, additional fertilizing etc.) and zoological (stocking with appropriate fish species with control of quality, health and quantity) measures is sufficient to keep the pond's water purification function. The fragile balance which enables the ponds to fulfil their water purification and sedimentation function is often disrupted, more and more by 'civilisation' factors like aggressive waste water with content of detergents and fertilizers from fields. Increasing recreational activities too have a direct impact on ponds.

The two major effects of these civilisation factors are:

- A) Uncontrolled growth of Cyanobacteriae (blue-green algae) with direct impact on ponds water quality, the littoral zone and their fauna and flora;
- B) Mud sediment/siltation.

High siltation of ponds is a serious problem. It originated in the past socialistic era as a result of vast washing-off of agriculture soil from intensively exploited cooperative and state-farms big fields. Blue-green algae growth together with pond siltation can ultimately lead to diminution of ponds, extinction of cultural fish and gradual dying out of water and littoral fauna and flora.

Some of the fishponds are part of Natura 2000 where stricter legislation / environmental requirements limit possibilities for carp fishpond farming.

### **E) Processing**

There are currently 52 units – 'fish product establishments'- on the list of establishments approved by the Czech State Veterinary Administration for processing fish and fish products and their distribution on the internal EU market. The majority of them has facilities for sweetwater fish and also for sea fish and seafood processing including cold stores, the minority is

specialized in only sweetwater fish processing. Only 17 from these establishments have more than 20 employees. Producers process in general small volumes. Technical and production hygiene level of processing units is fully in compliance with the EU requirements.

Processed fish totals 9 to 11% of the overall domestic fish market.

Among freshwater fish products kitchen-ready trout receives the greatest consumer interest. From the perspective of consumption increase, trout is the most significant product.

The production and offer of finished and semi-finished sweetwaterfish products with higher added value seems to be a future challenge and prospect. The price of these goods together with the conservative approach of customers preferring traditional live fish and retailers preferring fast turnover cheap frozen seafood and seafood products are however a barrier to further development of sweetwaterfish processing and sales.

The construction of new fish processing facilities was until recently not a priority in the Czech Republic. The policy makers and sector representatives were of the opinion that concentration and modernization of production and better use and more economical utilisation of existing capacities could gradually decrease production costs and thus final price.

*Sweetwater commercial fish production and use in 2004, 2005 (in thousand tons of live weight)*

year	Production of commercial fish/fish harvest	Use		
		Local sale of live fish	Fish intended for processing	Export of live fish
2004	19,4	8,2	1,7	9,5
2005	20,4	8,6	2,2	9,3

*Source: Czech Fish Farmers Association in Situation and Outlook Report Fish October 2006, MoA CR*

## **F) Sales, trade**

Carp has traditionally a dominant position on the domestic market. The market with live fish is connected with Christmas and Easter when the market absorbs 60% of the total domestic consumption. Primary customers of Czech aquaculture products are traditionally on the domestic market, however, almost the half of the live fish production is exported. Carp of 2 to 3 kg – 3 to 4 year-old fish - is considered market ready.

“Christmas carps” are sold alive short before Christmas Eve, both in shops where they are kept in basins but traditionally also from stands in the streets where they are kept in big open wooden vats with supply of fresh

water. Individual customers choose their respective fish in the vat, the vendor pulls it out with a net and then the carp is either killed immediately (with a mace) or the buyer takes a live fish home and puts it in a reservoir there (often a bath in the bath-room) to kill it immediately before frying it. The old habit to buy live fish and to release it back into a pond or a river is not observed anymore due to a campaign which showed that such a fish is going to die soon due to stress and lack of nutrients reserves. Hygiene and animal-welfare conditions of live Christmas carp sales especially in stands are under supervision of veterinary and other inspection authorities. A debate concerning the sale, killing and in general poor animal-welfare conditions of these Christmas carps started in Czech media.

From the perspective of sweetwaterfish consumption growth, trout is the most significant product. Domestic production of trout is under strong competitive pressure caused by import from countries where natural conditions keep production costs on a low level (Austria, Italy) or where appropriate production capacities were already created in previous support program periods of EU structural funds.

There is no special sales network aimed exclusively at fish. Recently the Fishery Group Trebon started using its service/distribution companies FISH FOOD a.s. for the distribution of fish products and FISH MARKET a.s. for the distribution of live fish. This group launched also an internet fish products shop (e-shop) on [www.prodejryb.cz](http://www.prodejryb.cz). The whole variety of fish and fish products is offered in super- and hypermarkets and also in individual butchers shops. The HoReCa sector absorbs also a part of the sweetwater fish production while traditionally sweetwater fish dishes – mainly from trout and carp - are part of menus in Czech restaurants.

Disadvantages for introducing sweetwater fish and sweetwater fish products on the market are high consumer price, high degree of laboriousness in kitchen preparation and lack of advertisement of these goods.

Export of fish is an important feature of the Czech fish farming sector. It represents annually more than 40% of the total production of the commercial fish. Abroad primarily live carps intended for immediate consumption are demanded. Target areas for export are mainly Germany, Slovakia and Austria. The demand for processed fish products does not have a permanent character, primarily carp fish filets delivered in peak season (Christmas, Easter) to these above mentioned countries are exported.

*Foreign trade in live fish - custom tariff code 0301(except ornamental/aquarium fish) (in tons)*

Year	Import		Export		Balance
	Total	From which carp	Total	From which carp	
2003	484	132	9 416	8 114	8 932
2004	434	125	9 812	8 540	9 378
2005	858	274	9 460	8 233	8 602

*Source: Custom Statistics in Situation and Outlook Report Fish October 2006, Moa CR*

*Export of live carp (tariff code 030193) following most important volumes per country (in tons)*

year	Country/volume						
2004	Germany	Slovakia	Poland	Austria	Belgium	Hungary	France
	3 298	1 893	1 072	586	449	406	386
2005	Germany	Slovakia	Austria	France	Hungary	Poland	Italy
	3 297	1 747	747	414	289	1 206	231

*Source: Custom Statistics in Situation and Outlook Report Fish October 2006, MoA CR*

## **G) Consumption**

The average per capita yearly total fish (sweetwater- and sea fish) world consumption is of 16 kg. In the EU the figure is of 11 kg per capita per year, from which only around 1,4 kg is of sweetwaterfish. In the Czech Republic the total per capita annual fish consumption is only 5,5 kg, from which 1,6 kg of sweetwaterfish (including individual angling as self-subsistence supply).

*Fish consumption in the Czech Republic (in kg/capita/year)*

	2002	2003	2005 *
Total fish	5,4	5,3	5,6
From which sweetwater-	0,9	1,6 **	1,5 **

\* estimate, \*\* including fish from angling (as self-subsistence supply)

*Source: Czech Statistical Office in Situation and Outlook Report Fish July 2005, Moa CR*

*Average sweetwaterfish consumption in Europe in 2003-2005 (in kg/ capita/ year)*

Finland	Esthonia	Iceland	Norway	Denmark	Hungary	Russia	Czechia
13,0	4,7	4,0	3,5	2,1	1,8	1,8	1,4
France, Germany, Italy, Spain				1,0			

*Source: FAO-Globefish Statistics, December 2005*

This table witnesses the fact that there is a good growth potential for sweetwater fish consumption in a lot of countries, including EU Member states.

## **2) Developments**

The availability and use of European structural funds was the main development in the Czech Republic after the EU accession. The main goal of these funds was and is to modernize production and processing facilities, to support sustainable ways of production and thus environment protection and biodiversity, to link production and processing with sale and demand and to support rural development by increasing rural employment.

Already in the pre-accession period, the use of SAPARD money helped the sector, especially with the adjustment of processing facilities to EU veterinary-hygiene production standards.

Due to the fact that the fishpond aquaculture in the Czech Republic is closely linked with environmental, landscape, biodiversity, recreational and other aspects and functions, immediately after the EU accession means from several funds were used for financing of projects and activities in this field. The Operational Programme (OP) “Rural Development and Multifunctional Agriculture”, the Horizontal Rural Development Plan (HRDP) of CR 2004-2006 and also State Aid means notified to the EC were the main instruments.

The “OP Aquaculture 2007-2013” with specific measures was drafted by the Czech Ministry of Agriculture in co-operation with the fish production and processing industry. The Czech government recently (November 1<sup>st</sup>, 2006) acknowledged it and the document was sent to the EC for technical consultations and final approval (expected within 6 months after receipt). It is based on the National Strategic Plan for the Fishing Industry (NSP) for 2007-2013 which is actually also waiting for the EC approval. These documents do reflect the aims and targets of the European Fisheries Fund (EFF, replacing since January 1<sup>st</sup>, 2007, the former FIFG) with respect to the Common Fishing Policy (CFP).

The Czech fish farming and processing sector is supposed to receive in the next seven years (2007-2013) up to one billion CZK (approximately 35 million EURO), from which two thirds from the EFF. These financial means

are ment primarily for reconstruction and development of production and processing facilities. The target in 2013 is the local production of 5 000 tons of processed fish and fish products (in 2004: 1 720 tons, in 2005: 2 170 tons). The programme counts also with new market opportunities and new markets identification, advertisement campaigns and tailor-made consumers information strategies. Important measures within the OP Aquaculture are ment to protect aquatic fauna and flora species, nesting bird's localities, migratory species corridors and spawning sites. Applicants are bound to use environment friendly production methods, introduction of new, more environment friendly methods is supported as well.

*Financial plan: summary of individual measures for the whole period 2007-2013 (in million EURO)*

Measu res	Total resources	Total resources in %	Total public resources	Public resources		Private resources
				National	EFF	
1.1.	15,492	37,8	9,295	2,789	6,507	6,197
1.2.	11,375	27,8	11,375	3,413	7,962	0,000
1.3.	3,033	7,4	1,820	0,546	1,274	1,213
2.1.	0,398	1,0	0,318	0,095	0,223	0,080
2.2.	4,875	11,9	3,99	1,170	2,730	0,975
2.3.	3,033	7,4	1,820	0,546	1,274	1,213
2.4.	2,031	4,95	1,625	0,487	1,137	0,406
3.1.	0,715	1,75	0,715	0,215	0,500	0,000
Total	40,952	100,0	30,868	9,261	21,607	10,084

*Source: Draft OP Aquaculture, MoA CR (status November 2006)*

#### Measures:

##### 1. Aquaculture

- 1.1. Investments into aquaculture production,
- 1.2. Compensation payments for aquatic environment protection,
- 1.3. Investments into processing and marketing of aquaculture products.

##### 2. Horizontal measures

- 2.1. Common interest measures,
- 2.2. Protection and development of aquatic fauna and flora,
- 2.3. Support and development of new markets
- 2.4. Pilot projects.

##### 3. Technical support

- 3.1. Technical support

The estimated financial contribution for the Czech Republic from the EU through the EFF represents EURO 27,1 million (which totals approximately CZK 770 million). The national co-financing will represent about 9 million EURO (approximately 260 million CZK). 75% will thus be from EU resources and 25% from the national budget of the Czech Republic.

### **3) Opportunities**

The use of modern tank aquaculture is underdeveloped in the Czech Republic. Production of species with good market perspective, sustainable production ways, adjustment of offer following market demand, introduction and use of new technologies, improved work conditions, education... are some of the key-words from the EU structural funds priorities matching perfectly with the aims of the modern tank aquaculture and its further developed in the Czech Republic.

#### **i) Intensive trout production**

Trout farming is nowadays a relatively small sector with a total production of less than 5% (4,1% in 2004) of the volume of carp production. However, being considered a better quality fish, its demand will further increase in the future.

Possibilities to increase aquaculture natural production capacities are limited. It is not possible to significantly increase the area designated for fishpond production and there is little quantity of running water available for natural trout farming.

Production in closed systems (tank aquaculture) is not used very often yet and the quantity of fish produced in closed systems is not significant. The main reasons are: a very strong tradition of carp production, a lack of innovative spirit and business oriented approach and insufficient operational capital.

If the impact of environmental requirements leads to a significant limitation of fishpond production, it is possible to presume a gradual replacement of decreased carp production by other forms of aquaculture. Another argument in favour of tank aquaculture development could be the availability of European funds, namely of the OP Aquaculture, especially if it could be statistically demonstrated that tank trout farming is not exceeding in production costs the classical natural trout farming ways and that demand for trout is growing and able to absorb the quantity of trout produced in new conditions.

ii) Intensive industrial processing

Live carp unequivocally dominates the strongly traditional domestic market. An increase in demand for live carp is nevertheless not expected.

The modernization and reconstruction of existing sweetwater fish processing facilities has been included into the 'National Strategic Plan for the Fishing Industry for 2007-2013' as one of the priorities. The future processing of aquaculture products will primarily have to be oriented to products with high added value. Processed fish is nowadays mostly prevalent on the market in the form of frozen products.

The attempt is to get the attention and interest of consumers for fresh (chilled) fish parts during the whole year. Smoked, spiced, pre-fried, ready made sweetwaterfish dishes are a perspective niche market.

iii) Advertisement campaigns to support sales/consumption

In the Czech conditions the supply of and demand for sweetwater fish and sweetwater fish products are seasonal and primarily aimed at live fish, predominantly live carp during Easter and Christmas.

Media campaigns to support consumers orientation to semi-finished and finished sweetwater fish products and continuous demand throughout the year for these goods are foreseen. Arguments such as high quality of processing, nutritional value fully corresponding to the requirements for healthy food and diet and consumption of local and regional products are going to be used.

#### **4) Strategy/ways to use opportunities**

The main opportunity for Dutch companies active in the field of aquaculture is the introduction of modern production ways in intensive trout production into the Czech Republic. Deliveries of know-how and of technologies and direct business-to-business co-operation is the aim. EU structural funds can be instrumental for this sector.

Seminars by Dutch professionals and specialists from the sector in combination with business-to-business meetings and excursions to production and processing facilities in the Czech Republic are foreseen. Economical aspects of the basin sweetwaterfish farming including water supply, feeding, oxygen and temperature control, health control, environmental aspects and other factors of the production will have to be tackled. Sweetwaterfish processing, products with high added value sales, campaigns to attract consumers, export to third countries possibilities are also elements to be debated.

The proposed period of the seminars is spring 2007, preferably the second half of April. Two locations are foreseen: one in Southern Bohemia (Ceske Budejovice) and one in Southern Moravia (Brno).

The representative of the Czech ministry of agriculture, director of fisheries department, is supporting the idea of a professional seminar by Dutch specialists. The Czech Fish Farmers Association representative, its managing director, expressed his willingness to co-operate in the preparation and organisation of the seminar. The representatives of the Research Institute of Fish Culture and Hydrobiology as well as the representatives of the South-Bohemian (Agriculture) University in Ceske Budejovice (Budweis) will be helpful in preparing and organising the seminar as well.

*Sources:*

Ministry of Agriculture (MoA CR), [www.mze.cz](http://www.mze.cz) (“Situation and Outlook Report Fish July 2005”, “Situation and Outlook Report Fish October 2006”, Draft “National Strategic Plan For the Fishing Industry for 2007-2013”, Draft “OP Aquaculture”, OP Agriculture, HRDP),  
Research Institute of Agriculture Economics (VUZE-RIAE), [www.vuze.cz](http://www.vuze.cz),  
State Veterinary Administration (SVA CR), [www.svscr.cz](http://www.svscr.cz),  
Research Institute of Fish Culture and Hydrobiology, [www.vurh.jcu.cz](http://www.vurh.jcu.cz),  
Czech Statistical Office, [www.czso.cz](http://www.czso.cz),  
Czech Fish Farmers Association, <http://rybsdr.fishnet.cz> ,  
Czech Fishing Union, [www.rybsvaz.cz](http://www.rybsvaz.cz) .

## Annex: most important companies

- RYBARSTVI HLUBOKA, a.s. (Fishery Hluboka),  
<http://hluboka.rybarstvi.cz>.  
2 660 hectares of in total 190 own ponds in Southern Bohemia (district Ceske Budejovice).  
Annual production of approximately 1 300 tons of consume sweetwaterfish (1 200 tons of carp) which represents 9% share of total production of sweetwaterfish in the Czech Republic.  
Processing and distribution via FISH FOOD a.s.  
([www.fishfood.cz](http://www.fishfood.cz), e-shop [www.prodejryb.cz](http://www.prodejryb.cz)) .  
Other activities: sport angling, hunting, wild duck (mallard) production, fish hatchery (capacity of 900 tons), ornamental fish and sturgeon production, production of material and technologies for fish farming (basins, incubators, thawing devices etc).  
“Contractual Supplier for Prague Castle.” Company’s slogan: “Health and Tradition.”
  
- CESKE RYBARSTVI Ltd. (Czech Fishery),  
[www.ceskerybarstvi.cz](http://www.ceskerybarstvi.cz) .  
1 652 hectares of in total 341 ponds in South-Western Bohemia (districts Cheb, Carlsbad, Sokolov, Tachov, Pilsen, Rakovnik, Louny, Kladno, Beroun, Chomutov and Prague-West).  
Annual production of approximately 650 tons of carp, 70 tons of trout and char and 20 tons of other sweetwaterfish including trout, brook trout, Nile tilapia, European catfish (use of warm water from the energy plant/power station Tisova).  
Distribution of live fish through FISH MARKET a.s.  
([www.fishmarket.cz](http://www.fishmarket.cz)) .  
Other activities: ornamental fish spawning and sales, sport angling, frozen food and wild game wholesale.
  
- RYBARSTVI TABOR, a.s. (Fishery Tabor),  
<http://tabor.rybarstvi.cz>.  
Annual production of approximately 390 tons of sweetwaterfish, mainly of mirror carp.  
Distribution of live sweetwaterfish via FISH MARKET a.s.  
([www.fishmarket.cz](http://www.fishmarket.cz)).

Other activities: farming and fattening of Peking-ducks, sale of meat and butcher's products, fish hatchery, production of fingerling and stock fish.

- RYBARSTVI TREBON, a.s. (Fishery Trebon), [www.rybarstvi.cz](http://www.rybarstvi.cz), [www.trebonskykapr.cz](http://www.trebonskykapr.cz),  
The biggest sweetwaterfish producer in the Czech Republic and in Europe. Its share on sweetwaterfish production in the Czech Republic is of 15%.  
7 426 hectares of in total 378 ponds. Own 6 867 hectares, the rest is rented from municipalities and private owners. Annual production of approximately 3 000 tons of sweetwaterfish from which 95% of carp (from which one third of mirror carp) and 5% of in-together tench, zander, pike, perch.  
Distribution of live sweetwaterfish via FISH MARKET a.s...  
Other activities: fish hatchery, sport angling ([www.jdemenaryby.cz](http://www.jdemenaryby.cz)), production of mallard, broilers fattening, hunting (four hunting-grounds), development and sale of software for aquaculture (company FED Ltd, [www.fed-trebon.cz](http://www.fed-trebon.cz)), building activities, ponds maintenance activities (pond cleaning, mud removal).  
For the fourth time in the Czech Top 100 of first Czech companies.  
All the above mentioned companies (Fishery Hluboka, Czech Fishery, Fishery Tabor, Fishery Trebon, service companies Fish Market, Fish Food and Fed) are members of the FISHERY GROUP TREBON. The group was established as producers, processors and distributors union to use EU structural funds and to have a strong position on the market.
- BLATENSKA RYBA, Ltd. (Fish from Blatna), [www.blatenskaryba.cz](http://www.blatenskaryba.cz).  
1 600 hectares of own ponds in Southern Bohemia (districts Strakonice, Pisek, Pribram).  
Production of approximately 850 tons of consume sweetwater fish per year, half of which is exported.  
Company's slogan: "Healthy food from clean waters."  
In total 6 activities: sweetwaterfish production, waterfowl production (duck farming), automobile and machines

repair, fish processing (sweetwater and sea), sport angling, import and wholesale of frozen fish (sweetwater and sea).

- KLATOVSKÉ RYBARSTVÍ, a.s. (Fishery Klatovy), [www.klatryb.cz](http://www.klatryb.cz),  
The third biggest sweetwaterfish company – from the view point of area and production – in the Czech Republic.  
2 300 hectares of in total 411 ponds.  
Annual turnover: 95 million CZK (about 3,32 million EURO), 115 employees.  
Processing and deliveries of sweetwater- and sea fish (fresh, frozen, spiced, smoked parts, filets) in own facilities (CZ 435 EHS).  
Other activities: wild waterfowl and poultry farming (mallard, pheasant DOCs, chicken, adults), sport angling, fish feed sale (specialities for trout farming Skretting-Trouvit, Royal Optima/Select/Classic, Vitalis Laichfischfutter, Perla Larva/Plus), fish hatching (use of industrial warm water for thermophilic species production and warming of trout hatcheries), sale of hunting ammunition.  
Company's slogan: "Fish from Klatovy on your Table."
  
- RYBNÍKARSTVÍ POHORELICE, a.s. (Fishpond Management Pohorelice), [www.rybnikarstvi-pohorelice.cz](http://www.rybnikarstvi-pohorelice.cz),  
1 614 hectares of ponds (own 1 228 hectares, 386 hectares rented) in Southern Moravia (districts Breclav, Znojmo, Vyskov, Brno and Blansko).  
Annual harvest of approximately 1 230 tons of sweetwaterfish from which 85% of carp.  
Export of about 40% of live fish production to Slovakia, Austria, Hungary, Italy, France, Belgium, Great Britain, Poland and Germany.  
Hatching: 20 million fingerlings of carp, 10 million of fingerlings of other herbivorous fish (grass carp, black carp, silver carp, bighead carp), 500 thousand of catfish, 5 million of zander hard roe and 500 thousand of pike fry.  
Own sweetwater- and sea fish processing of about 270 tons a year. Deliveries to retail chains Makro, Spar, Tesco.  
Company slogan: "Your Fish Supplier."  
Other activities: pond cleaning/mud removal, aquaculture consulting, sport angling including accommodation.

- RYBARSTVI CHLUMEC nad CIDLINOU, a.s. (Fishery Chlumeč nad Cydlinou), [www.rybychlumec.cz](http://www.rybychlumec.cz) ,  
1 818 hectares of ponds in 9 districts.  
6% share of Czech sweetwater consume fish harvest, 9% share of total sales of live fish and 2% of export of live fish. Processing (cutting, smoking, spicing, packing, freezing) and deliveries of sweetwater- and sea fish (annual production capacity of about 2 000 tons, currently used by 50%).  
Other activities: fish hatching, ornamental fish production and sale, sport angling.
  
- RYBARSTVI TELC, a.s. (Fishery Telc), [www.fish.cz](http://www.fish.cz),  
1 370 hectares of ponds, 44 employees.  
Supply and deliveries of live fish and of fish products.  
Own processing: cutting, smoking, packing.  
Other activities: sport angling/rod fishing.
  
- LESNI A RYBNICNI SPRAVA ZBIROH – Ing. Jerome Colloredo-Mannsfeld (Forest and Fishpond Management), [www.lesyzbiroh.cz](http://www.lesyzbiroh.cz),  
Private company restituted back in 1993 by the family Colloredo-Mannsfeld.  
430 hectares of ponds from which 18 hectares rented from other owners.  
Production of live fish: carp, mainly mirror carp, pike, zander, tench, catfish.  
Other activities: ponds maintenance (cleaning, mud removal), sport angling.
  
- STICI LIHEN ESOX, Ltd. (Pike Hatchery ESOX), [www.esoxfish.cz](http://www.esoxfish.cz),  
650 hectares of ponds in districts Tabor, Benesov, Pribram, Prague. 25 employees.  
Production of live sweetwaterfish, export of live sweetwaterfish (up to 1 500 tons of carp, pike, zander, tench to Germany, Belgium, France, Italy, Austria, Serbia, Hungary, Slovakia, Poland, The Netherlands etc using own transport means for live fish transport). Import of fresh, smoked and frozen sea fish from Argentina, Chile, Peru, Spain, France, Bulgaria and its distribution also via e-shop. Own shop in Tabor. Production of special ornamental fish

including: koi carp (18 varieties), Shubunkin fish, goldfish, purplefish, lemonfish. Sport angling.