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THE EVALUATION OF THE PISCICULTURAL POTENTIAL IN ROMANIA

1. The beginning of the piscicultural arrangements in Romania

The water surface in Romania is about 500,000 ha, from which 433,000 ha have a fishing and pisciculture utility. This surface, considered piscicultural, consists of: 340,000 ha lakes and pools, where 10,000 ha are artificial accumulation lakes and 82,300 are systematic piscicultural units or arranged for breeding different species of fish with economical value.

Besides these basins, arranged or not, in our country there are 80,000 km of running waters, where one can practice fishing or breed different species of fish.

Pisciculture is the activity branch that occupies with the establishment of conditions, technologies and equipment needed for reproduction, breeding and harvesting the fish [1; p.3]. In the pisciculture concerns is presented the fish from the natural water basins, stagnant or running, but also the fish from the artificial created pools, by blocking some water courses or by special arrangement of lands placed near these waters.

About the importance of fishing and pisciculture for the human activity, it is known that fishing has been one of the most important activity, providing man's daily food, and the pisciculture an activity rising from his will to breed different species of fish.

With its intensive breeding of fish, pisciculture promises large possibilities to contribute and to improve the consistence of a food product, mostly by growing the protein quantities of animal provenience. About 1.5 kg fish offers to the human organism the same number of calories as 1 kg beef does (2, p.7). Along with milk and cheese, the fish is the most rich in iodine and has the second place as a fluorine source. It has, in its consistence, calcium, B1 and B2 vitamins, and A1 vitamin which cannot be found in beef or pork. Only 1 kg fish contains 72 g assimilable proteins.

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The documents from the XIVth century shows that, at that time, numerous carts loaded with fish were carried it from the Danube and the Prut to Braşov and Bistriţa, and later to Suceava and Galiţia. For exemple, a document drown out in Suceava, in October 8th 1407, shows that Alexander the Kind, had the control of this trade market from Galiţia. In 1440, Chilia (a small town near Black Sea) was sending to Moldoviţa monastery "two pails of fish and three steelyards with caviar". Petru Rareş, the son of Stephen the Great practiced in his youth the fish trade, passing through Moldavia in Transylvania, carrying his barrels with fresh and salted fish.

The start of the piscicultural settlements is rather far off in time, the old documents and chronicles left by the travelers that passed by ages ago, proves it. The pools set up for royal or boyars settlements along with those placed near monasteries, were well known for their wealth in fish. Later, the peasants built the well known "peasant pounds"used in multiple purposes.

These accumulations, with multiple usings represented the modest start of piscicultural settings in our country, like in many others.

The start of the XXth century is the time when the action for piscicultural settings came out from the empiric theory, stepping into modern technique.

The first piscicultural setting was initiated by George Antipa, who established, in Moldavia, the farm of pounds from Ştiubeni (North from Săveni), Botoşani, with a surface of about 400 ha.

After 1920, these special settings gain a greater extension by creating the ponds on former abandoned hearths and small farms of pools under the technical guidance of the Ministry of Agriculture. The number of ponds increased in the same rhythm as the development of agriculture, especially in Moldavia, where the rivers run dry in summer and the water is a necessity. In the hydrographic basin of Jijila there were at that time over 250 ponds and in the entire Moldavia their number was about 3,000.

In 1926 a Station for Hydrographic Research in Tulcea was established, in 1932 a Biooceanographic Institute in Constanţa, and in 1936 a ponds-farm in Nucet. Nowadays this is the biggest research station which studies with the piscicultural problems orientation from the inner waters.

In 1940 the Piscicultural Research Institute was opened with different subsidiary companies in the whole country: Cefa, Inand, Banloc, Făgăraş. Later, the work for piscicultural settings was included in economical problems of the state.

Starting with 1962 the Piscicultural Enterprise Iaşi coordinates the settings exploitation from the whole Moldavian area. In 1969 was founded the Piscicultural Research Podu Iloaiei, with a surface of about 30 ha, organized for solving some problems with the hill area but also for assuring the seedling in order to populate the limitrophe piscicultural settings.

From 1970, the work is done after the Plan for farming and development the waters in order to use the water resources completely and efficiently.

Among the biggest pond farms from our country are: Cefa (Bihor), Banloc and Ineu (Arad) for carp; Oești (Argeș), Vaşcău and Finish (Bihor), Gilău (Cluj), Tarcău (Neamț) and Valea Brodinei (Suceava) for trout.

After 1970 in Moldavia, especially in the Iași county, pisciculture excessively developed, up to the point where it started to produce the biggest quantity of fish from the fresh waters, surpassing, from this point of view (fish production) counties with tradition and reknown in this field: Galați, Brăila, Constanța.

A special importance has, today, the achieving of piscicultural and economical production comparative with the piscicultural production on quality and quantity (3; p.5). Economic production means obtaining fish in order to repopulate the waters, which has a high commercial value. The production unit is not the weight, but the number. In these cases, the quantity production, expressed in kilograms is not so big. It is the case of achievement of sampling for a summer from valuable species asked on the market, like: sheat-fish, pike, tench, etc., but mostly sapling for repopulate the pools and the ponds which have a small piscicultural fund, with species without economical value.

2. The mountain and submountain piscicultural sector from Romania

From the large background of fishing and pisciculture, one of its components referring to the breeding and exploitation of fish in the mountain and submountain area, is today very important for our pedoclimate conditions from the country. It represents an efficient alternative to obtain important quantities of fish meat – valuable fish – but also an encouragement form to practice the mountain agrotourism. Also there are created favorable conditions to conserve the piscicultural funds specific for the mountain and the submountain areas and its developing by protection and repopulating.

Every piscicultural fund comes off with some dominant species, having in its composition a "restricted area" which has the meaning to assure an average number of reproduction, necessary to recover the initial effective (4; p.15).

In the country there are 416 fishing funds for running waters from which 51 are reserved and 154 turned to good account in administration. 216 piscicultural funds are attributed for use to county's branches for sports fishing and 5 with didactic purposes. The hydrographic network from the mountain areas has a length of 17,500 km (15% of Romania's hydrographic network) and a surface of 8,000 ha stagnant water: for mountain trout 11,000 km, for umber 1,000 km, for barbel 4,000 km and 100 km for rainbow trout.

In order to increase the fish production there are taken into consideration two necessary actions: repopulating with sampling of the deficient areas and introducting new valuable species.

Organizing new, intensive trout farms in which specialized species of rainbow trout are bred, is the sign of a new and modern way of developing the piscicultural production from the mountain areas. This way, the two farms from Prejmer – Braşov, with good results in this direction, is an exemple.

Also to this piscicultural fonds belong some mountain lakes, alpine or barrage, which contain piscicultural fauna or are populated with fish. Some of this lakes are naturally populated by their affluents, others have been, and are, at present, artificially populated with different species of fish, depending on the climate, on the topographic or physico-chemical conditions from these waters.

The hydrographic network of the mountain and Subcarpathian Moldavia areas is totally tributary to Siret, river that collects its main affluents, excepting Bârlad, only from the right: Suceava 172 km, Moldova 205 km, Bistriţa 279 km, Trotuş 149 km, Putna 146 km, Rm. Sărat 139 km, Buzău 334 km.

In our country there are over 55 mountain lakes with a total surface of 4,3000 ha where the lake known as Izvorul Muntelui (Mountain Spring) has 3,000 ha.

The main fish species from the mountain and submountain waters are: the mountain trout (native), the lake trout, (well) the rainbow trout, the umber, etc.

The secondary fish species from the mountain waters are: the violet barbel, the blake, the bream, the perch, the groundling, the burbot.

3. The piscicultural sector from the natural water basins from Romania

The piscicultural sector from the natural water basins includes the accumulation lakes, the inferior Danube curs, the littoral lakes.

The system of piscicultural exploitation of the accumulation lakes is determined by the first utility of stored water.

The accumulations realized having in purpose the water supplying can be pisciculturally developed through fish species that contribute at their purifying process and develop especially the phytoplankton that grows in excess, mostly in the hill and field area.

The accumulations which are about to occupy the freshets can also be pisciculturally developed, if they keep the water in the time of intensive growth of the fish (spring-autumn) with depths that assures the normal evolution of development processes of the natural trophic base and the nutrition processes as well as the breeding and growing of fish.

The accumulations that have like main use the irrigation could be basins that can run short of water (remain), in winter, (temporary basins) or permanent , keeping the water for the whole year.

The inferior course of the Danube from Buziaş until the flow into Black Sea represents an important found of the fish production for Romania. In this ecosystem one can differentiate: the inferior river bed (the territorial Danube), the Danube's meadow and the Delta (Danube's flow area) .

The minor river bed both with the flow branches into Black Sea, on the Romanian territory totalize 1,500 km. In this situation the minor river bed is not anymore a fish reserve which supplies the ponds from the meadow and the Delta, because the providing source, the river's meadow, was dyked. This way, both the minor river bed and the Delta do not receive anymore, on natural way, the sampling reserve which is the base for the ulterior fish production, thing that produced the continuous decrease of the quantity captured from the main species of economic valuable fish such as: pike perch, sheat fish, carp, etc., and the increasing of the quantity of the fish species less valuable.

The minor river bed of the Danube's inferior curs modified considerably by constructing of Barrage from the Iron Gates I; the modification continues downstream, by the Iron Gates II and Nicopole, Turnu Măgurele.

The Danube's meadow was represented by a band of land which unfurls on the one part and another of the river starting on downstream of Iron Gates, with a maximum width of 12 km.

Resulting from the ample workings of dyking, the piscicultural exploitation reduced on its surface, limiting itself to the central areas from the ponds complexes, passing to the intensive exploitation system.

To pass into intensive pisciculture, the big ponds complexes (Bistreț, Călărași, Brateș, Oltina, Seimeni, Jijila, etc.), were settled as breeding and fatting units, in order to produce culture carp and Asiatic ci(y)prinides acclimatized in Romania.

Danube's Delta is the territory extent between Chilia and Sf.Gheorghe branches with the Dranov depression area. From the Delta's total surface 68% is thicket, forest and pasture, 26% water surface, 3% sands and dunes.

The piscicultural sector develops its activity on a surface of 312,000 ha from which 150,000 strictly piscicultural and 162,000 reed and piscicol. The pisciculture in the Delta has in view its development in a free inundation system as well as in a directed one.

In the Delta there are organized piscicultural farms on the type of incomplet units for feeding the fish or on the type of complete units, in which it is produced the populating piscicultural material and the fish as a merchandise product.

The pisciculture in Danube's Delta is an economical branch important not only for the local territory but for the national level; at the achievement of the fish production for the inner waters, Delta has the third part.

The whole Romanian part of the Danube's Delta was declared a Biosphere Reservation in 1990 and registered after Ramsar Convention. Over half of its surface is on the list of World's Legacy convention.

4. The piscicultural sector in the salted and marine waters from Romania

On the seashore of Black Sea, on South of Sf. Gheorghe branch, and to the Bulgarian border there can be found a complex of lakes, some of them marine golfs, others flow draughts for some water courses: the Razelm-Sinoe complex, Taşaul-Gargalâc complex, Siutghiol-Tăbăcăria complex, Agigea lake, Tatlageac lake, Mangalia lake.

A common element for pisciculture in the waters with reduced salinity and marine waters is the marine origin of the main species of fish cultures.

The species with marine provenience that live properly in salmaser waters too, and have a real importance for Romanian pisciculture are: the trout, the sturgeon, the grey mullet.

In Romania, salmaster basins can be found in the maritime zone of the Delta, in the predeltic zone of the Black Sea, and in south of the lagoons

complex Razelm-Sinoe. The most important potential for this type of pisciculture contains Sinoe, Istria and Nuntaşi lagoons which totalize 200 ha.

The start of transition of the market economy in Romania determined some unbalances and an important lowering in fish production.

The causes for this regress are multiple and complex, related to an overexploitation of piscicultural pools in the last decades, with the aggressive water pollution, and the changes from the inner piscicultural population stratum in the legislative ford.

Much deeper roots seems to have the decreasing of the piscicultural potential of natural waters: The Danube and its Delta with the abusive and nonscientifical reduceing policy for the reproduction in these waters by the Danube's Meadow and the other rivers meadows or the lack of protection in fishing of some valuable species which existed in the country's waters.

The reorganization processus of the Romanian piscicultural economy imposes a strategy of development in pisciculture and fishing which aims at defining and consolidating the existent potential, the development of the actions in order to align to the standards of the European Union countries.

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