

FISHERY COUNTRY PROFILE

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PROFIL DE LA PÊCHE PAR
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RESUMEN INFORMATIVO
SOBRE
LA PESCA POR PAISES

Organización de las Naciones
Unidas para la Agricultura y
la Alimentación

THE SLOVAK REPUBLIC**GENERAL ECONOMIC DATA**

| | |
|--|------------------------|
| Area: | 49 036 km ² |
| Water area: | 93 886 ha |
| Population (1994): | 5 347 000 |
| GDP at purchasers' value (1994) ¹ : | US\$ 13 268 million |
| GDP per head (1994) ¹ : | US\$ 2 481 |
| Agricultural GDP (1994) ¹ : | US\$ 976 million |

FISHERIES DATA**Commodity balance (1994):**

| | Production | Imports | Exports | Total supply | <i>Per caput</i> supply |
|-----------------------------------|-----------------------|---------|---------|--------------|----------------------------|
| | '000 tons live weight | | | | kg/year |
| Fish for direct human consumption | 3.5 | 18.0 | 0.5 | 21.0 | 3.9 |

| | | | | | |
|---|---|-----|---|-----|---|
| Fish for animal feed and other purposes | - | n/a | - | n/a | - |
|---|---|-----|---|-----|---|

| | |
|--------------------------------------|-------------------|
| Estimated employment (1995): | |
| (i) Primary sector: | 104 |
| (ii) Secondary sector : ² | 34 |
| Gross value of fisheries output: | n/a |
| Trade: | |
| Value of imports (1994): | US\$ 22.4 million |
| Value of exports (1994): | US\$ 2.0 million |

STRUCTURE AND CHARACTERISTICS OF THE FISHING INDUSTRY

Fisheries are one of the oldest economic activities in Slovakia. However, as Slovakia is mostly mountainous country, fishing was concentrated in free flowing waters. Fish farming and the building of ponds may be traced back as far as the 15th century, and some of these ponds still exist.

Currently, fish farm ponds cover 2 158 ha. In addition to ponds, there are over 200 natural lakes. However, 197 of these lakes are of glacial origin, with only three of them supporting fish populations. There are also 42 big and 194 small reservoirs, with a total area of 221 km². About 80% of their surface area is utilized for fishing.

Under the Fisheries Act 102/63, the Ministry of Agriculture granted fishing rights primarily to the Slovak Anglers' Union, although some rights have been assigned to national associations of the Forest Economy Department. In regions managed by the military, fishing rights fall under the jurisdiction of the Ministry of Defence. Of the 818 fishing registered areas in Slovakia, 254 are designated trout waters, 506 trout-free waters, and 67 are mixed grounds. Sub-mountain rivers, which are usually trout-free, are the normal water course for mixed grounds, while their sub-mountain stream tributaries are trout waters. Trout-free grounds include sub-mountain rivers, lowland rivers, drainage, irrigation and derivation canals, reservoirs and other types of standing water, including gravel pits, flooded quarries, and small man-made lakes.

There are 81 species of fish in Slovakia, 18 of which are exotic species. Until the end of the 1870s, the fish fauna of Slovakia could be regarded as pristine and relatively intact, since only the intensive fishing for sturgeons in the Danube and Tisa rivers had any visible effect as demonstrated by the substantial drops in catch.

In the following period, until the end of the 1960s, man began to make his presence felt. The negative factors that accompany industrial development, especially pollution and river

regulation, started to have more obvious effects on aquatic biota. Sturgeons were the first group of fish to be severely affected. Besides overfishing, the main reason for their destruction was river modification. Only two species have survived to the present day, i.e., the sterlet (*Acipenser ruthenus*) and the resident form of the Russian sturgeon (*Acipenser gueldenstaedti*). Salmonids were the second group affected by the negative impact of human activity. Since the late 1940s, Atlantic salmon (*Salmo salar*) and sea trout (*Salmo trutta m. trutta*) have disappeared from the fish fauna of Slovakia. Among native species, 27 show signs of being in danger.

The period from the beginning of the 1970s has been characterized by extensive destruction of fish habitats and aquatic ecosystems. Destructive factors include the construction of dams, canalization of rivers, release of industrial waste waters and municipal sewage, deforestation, expansion of arable land, and extraction of water for irrigation. In spite of this, Danubian huchen (*Hucho hucho*), the trophy game fish, still populates some Slovakian rivers. During the years 1990-1994, catches of this species varied from 31-64 specimens to 211-470 kgs. Annual stocking programmes support the population of huchens, as well as the brown-trout (*Salmo trutta m. fario*), the grayling (*Thymallus thymallus*), the pike-perch (*Stizostedion lucioperca*), the pike (*Esox lucius*), the wels (*Silurus glanis*), and the nase (*Chondrostoma nasus*).

According to latest estimates, the fish biomass of mountain zone (trout streams) is 126 kgs/ha on average, 431 kgs/ha in upper parts of the sub-mountain zone (grayling zone), 560 kgs/ha in lower parts of the sub-mountain zone (barbel zone), and 300 kgs/ha in irrigation canals. The biomass of man-made lakes is about 200 kgs/ha and that of natural lakes about 50 kgs/ha. Total fish catches in 1994 were 1.6 thousand mt.

Before 1989, commercial fish production was assigned to state fishery enterprises. After the state fishery was disbanded, fish farming activity was consistently transferred to private firms. At present, ten companies are engaged in fish farm production. Total fish farm production is 1.9 thousand mt and average production is 862 kgs/ha. Production is almost exactly split between carp (50.1%) and rainbow-trout (45.7%). The remainder is composed of pike, brook-trout (*Salvelinus fontinalis*), tench (*Tinca tinca*), and eel (*Anguilla anguilla*). In one thermal fish farm in eastern Slovakia, the North African catfish (*Clarias gariepinus*) is bred with an annual production of 6-8 mt. In addition, negligible amounts of grass carp (*Ctenopharyngodon idella*), the bighead carp (*Aristichthys nobilis*), and the silver carp (*Hypophthalmichthys molitrix*) are also produced.

Until 1992, commercial fisheries existed in Slovakia in some reservoirs and in the Danube River. However, since then, fisheries in natural water bodies have become exclusively recreational, with all anglers organized in the Slovak Anglers' Union. Membership in 1995 amounted to 69 018 adults, 8 618 adolescents of 16-18 years of age, and 12 698 children of 10-15 years of age, meaning anglers make up 1.7% of the total population. The Slovak Anglers' Union is responsible for issuing fishing licences, stocking waters, enforcing regulations, and monitoring water quality.

Because the new Slovak Fisheries Act is under preparation and is expected to be issued only by the end of 1996, the old 1963 legislation regulating the minimum size of fish caught, the catch limits by species per day and closed seasons, is still valid. Salmonid, grayling, and huchen fishing are subject to special quotas.

Most fish are marketed fresh with the large proportion, mainly carp, sold live. The marketing of fresh carps is uneven as about 80% of production is sold in December for

Christmas. In 1994, fish exports to European countries totalled 464 mt, 76.9% of which were trouts, 4.2% eel, and 2.5% carp. Of this amount, 69.4% was exported live, 27.7% frozen, 1.9% fresh or chilled, and 0.9% smoked.

Because domestic fish production is already stretched, large quantities of marine and freshwater fish are imported annually. The total amount of imported fish and fish products was 18 000 mt in 1994, 49.7% fish filets, 29.3% frozen, 10.1% canned, 9% alive, 1.1% smoked, and 0.8% fresh and chilled.

Fish consumption is rather low compared with other countries, amounting to 3.9 kgs *per caput* in 1994, 1.3 kgs as fresh and 2.6 kgs as fish products. Recommended annual *per caput* consumption is 6 kgs. The contribution of fish to total animal protein supplies is 2.95%, and the percentage share of fish in total energy and nutrients intake in 1994 was as follows: energy 0.4, proteins 1.4, fats 0.8, calcium 1.0, phosphorus 1.1, iron 0.4, vitamin A 0.1, vitamin B₁ 0.6, vitamin B₂ 1.2, pantothenic acid 1.9, and vitamin C 0.2.

DEVELOPMENT PROSPECTS

Since Slovakia is an inland and mostly mountainous country with limited amounts of arable land, better fish yields can only be obtained from recreational fisheries. Although fish farm yields are becoming gradually more intensified, the small surface area of fish ponds prevents larger harvests. Although at an early stage of development, aquaculture offers some potential.

RESEARCH

There are actually no fisheries research institutes in Slovakia. The former Institute of Fishery Research and Hydrobiology in Bratislava was split in 1990 into the Institute of Fishery Research and Aquaculture, and the Department of Ichthyology, which is now a part of the Institute of Zoology of the Slovak Academy of Sciences. However, in the Institute of Fishery Research and Aquaculture, only fish farming and aquaculture are examined. Fishery and ichthyology research is carried out at the Institute of Zoology of the Slovak Academy of Sciences (Bratislava), and universities, i.e., Comenius University (Department of Zoology) at Bratislava, Agricultural University (Department of Fowl and Small Farming Animals) at Nitra, and the University of P.J. Šafárik (Department of Biology) at Prešov. Ichthyology research is also carried out by the Slovak National Museum. However, only a total of 13 people work in fisheries research and aquaculture.

There is a Technical High School of Agriculture at Ivánka nad Dunajom, offering a four-year course in fisheries and fish farming. The Agricultural University at Nitra provides courses in fisheries, and ichthyology is lectured at the Comenius University in Bratislava.

POLICY

The major aim of Slovakian fishery policy is to maintain and improve conditions for recreational fisheries, including improving water quality, environmental protection, and raising anglers' awareness and skills, and to increase fish farming and aquaculture.

1

Rate of exchange: US\$ 1 = SKK 32. Data derived from National System of National Material Product Balances refer to the Net Material Product.

2

Including research workers.