

UNIVERSITY OF SARAJEVO-VETERINARY FACULTY
VETERINARY INSTITUTE
Laboratory of Aquaculture

Overview of Freshwater Fish Diseases Situation in Bosnia and Herzegovina

prof. dr. Adnan Jažić, prof. dr. Almedina Zuko

Address:

Ismeta Alajbegovića Šerbe 7, 71000 Sarajevo
Bosnia and Herzegovina
Tel:++387 (033) 775 558
www.vfs.unsa.ba

Vukovar, mart 2023.

Bosnia & Herzegovina has a very long and rich tradition in aquaculture.

- 1886 - Decree, Organized Protection of Water (Austria-Hungary)
 - 1892 - First Fishermen Association in B&H
 - 1894 - First Salmonid Fish Farm “Vrelo Bosne”, Sarajevo
 - 1902 - First Cyprinid Fish Farm, Prijedor
-
- Bosnia and Herzegovina have good geographical, physical-chemical water characteristics, climate, hydrology, and ecology sources for intensive production and trade in aquaculture.
 - Some of the important advantages that B&H possesses for the development of aquaculture are clean water with high quality, educated and cheap employees, the capability of factories for fish processing, quality of hatcheries, and others.
 - Thanks to natural resources and above mentioned advantages, Bosnia & Herzegovina has great potential for production in the field of aquaculture.

ICHTHYOFAUNA OF B&H

27 Fish Families,

69 Genus, 120 Species

(Salmonid, Cyprinid, Marine species, Molluscs)

Autothonic species

soft-mouth trout, Danube salmon, Adria trout

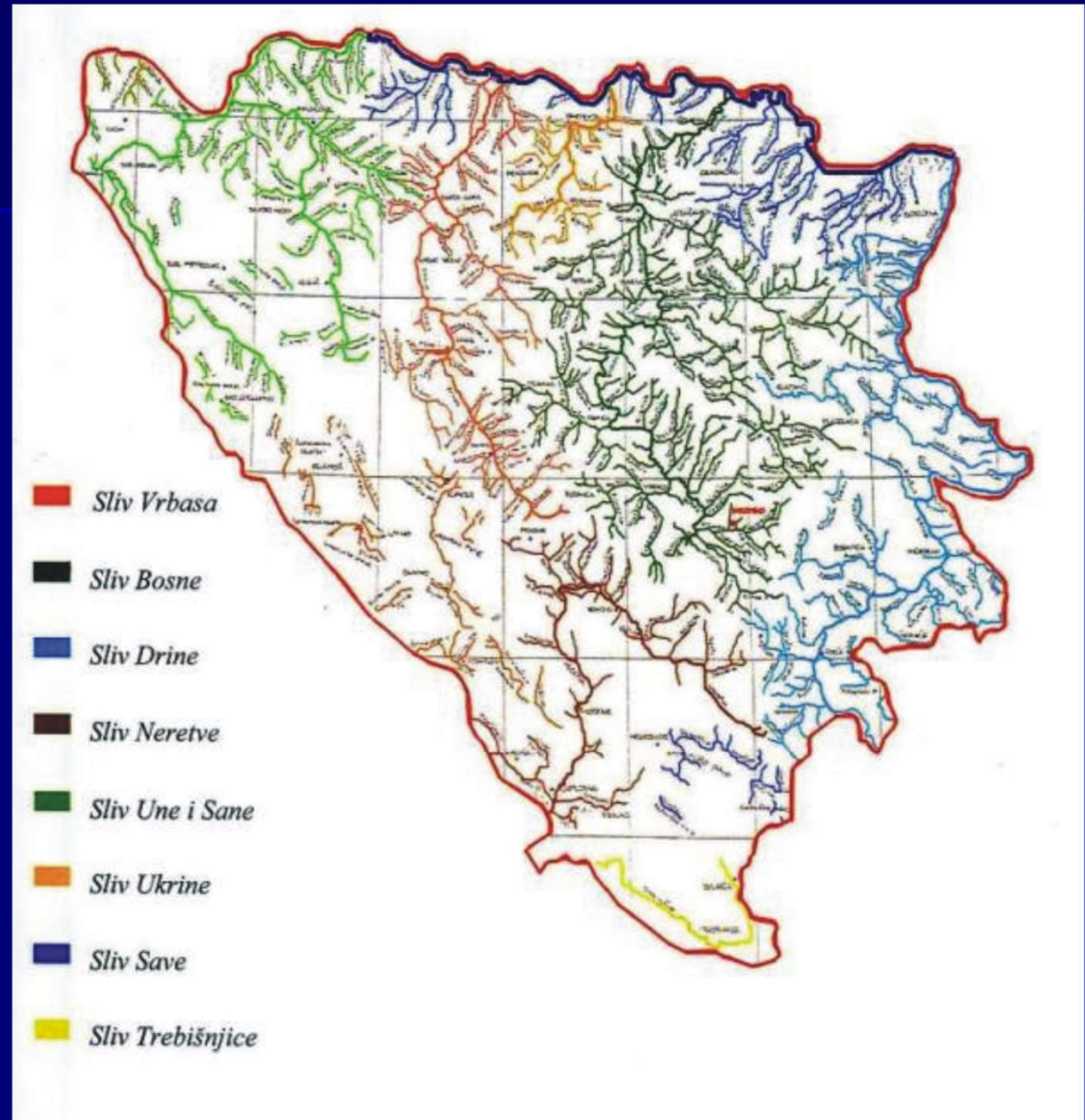
Fish farming production

brown trout, lake trout, brook trout, lake brook trout, rainbow trout, grayling, common carp, grass carp, white bighead carp, sheatfish, pike, european seabass, gilt-head seabream

Currently registered (2023) :

- 50 salmonid fish farms
- 6 cyprinid fish farms
- 2 marine fish farms

HIDROLOGY MAP OF B&H



Since 2003, regular monitoring of viral fish disease started at registered fish farms (Laboratory of Aquaculture, Veterinary Institute of Veterinary Faculty in Sarajevo).

At the beginning, Laboratory was not in a position to apply assigned diagnostic procedures, since it lacked equipment, and the samples in B&H were processed by using ELISA-tests and the same samples were sent to European Reference Laboratory for Fish Diseases in Aarhus, Denmark for confirmation.

The results of the analysis in B&H and from Denmark confirmed the existence of IPN virus (Infectious pancreatic necrosis), while the presence of VHS virus (Viral haemorrhagic septicaemia), IHN (Infectious haematopoietic necrosis), SVC (Spring viraemia of carp) and ISA (Infectious salmon anaemia) were not confirmed.

Great assistance in testing, training and development of diagnostic methods was provided by the Croatian Veterinary Institute and the Institute of Veterinary Medicine of Serbia.

Diagnosed viral fish diseases in B&H

- Infectious pancreatic necrosis
- Sleeping disease (salmonid alphavirus infection in rainbow trout) 2014.

Since there is no state monitoring of bacterial and parasitic diseases and according to available data from fish farms (internal control, restocking), veterinary inspectors, and collaboration of NRL with fish farms, massive morbidity, and mortality or existence of economical and sanitary important bacterial diseases (bacterial kidney disease, yersiniosis,...) were not registered, except sporadic cases of salmon furunculosis and erythrodermatitis of carp.

Diagnosed bacterial fish diseases in B&H

- Bacterial kidney disease
- Enteritic redmouth disease
- Furunculosis salmonis
- Erythrodermatitis cyprini
- Bacterial gill disease

Fungal diseases

- Saprolegniosis

The most common parasitic diseases of freshwater fish in B&H

Protozoa

1. Ichtyophthiriosis
2. Ichtyobodosis
3. Hexamitosis
4. Chilodonellosis
5. Trichodinosis

Fluke worms

1. Gyrodactylosis
2. Dactylogyrosis
3. Diplostomatiosis

Tape worms

1. Bothriocephalus acheilognathi
2. Khawia sp.
3. Ligula cyprinacea

Arthropoda

1. Argulus foliaceus
2. Lerneia cyprinacea
3. Ergasilus sieboldi

Implementation of preventive measures on fish farms and internal control of health status, especially at full-system fish farms, the presence of bacterial and parasitic causal agents is reduced to a minimum level.

Apart from monitoring and control of fish health status, it is necessary to pay attention to and improve factors that can significantly influence the health status of fish and the situation in B&H aquaculture, like:

- ✓ adoption of new and adjustment of existing B&H legislation in the field of aquaculture with EU legislation.
- ✓ more financing and equipping of the National Reference Laboratory
- ✓ implementation of zoning
- ✓ registration of unregistered fish farms (monitoring of viral fish disease)



