



Experience Of Obtaining Fry Cyprinid Fish in Drainage Water In Bukhara Region

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ABSTRACT

Great attention is paid to the rational use of all available water resources in Uzbekistan. Currently, we practically have a managed unified irrigation system, which was created as a result of large-scale irrigation construction since the second half of the twentieth century. The flow of all major rivers in the Aral Sea basin was fully regulated for these purposes. This could not but affect the country's fish resources. In turn, the fully privatized fisheries sector of Uzbekistan has strategically gone in the right direction - the development of various approaches and aquaculture systems on available water resources. The characteristics of water resources for the development of a particular area of aquaculture must be taken into account. Thus, in irrigation systems, water accumulation in the autumn-spring period is carried out in reservoirs, then the water flow is redistributed in time and in the directions of water flows for economic needs. Naturally, it is better to locate reservoirs in mountainous and foothill zones. It is in the reservoirs and irrigation canal system that the water is clean and fresh

Keywords:

Three-day-old larvae of carp (*Cyprinus carpio*), silver carp (*Hypophthalmichthys molitrix*) and grass carp (*Ctenopharyngodon idella*) were planted on May 20 and June 1 in a polyculture with a stocking density of 500 thousand, 1 million and 100 thousand, respectively, in a pond (1 ha), fed by drainage (brackish, 2.8 - 4.1 o/oo) water. Preliminary liming and fertilization with organic and mineral fertilizers were carried out in accordance with accepted standards for the VII fish farming zone. By July 5, the fry reached a weight of 1.2 – 10.1 g. The yield averaged 61% by species.

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and fresh. As a result of this, this fresh water in the republic is concentrated in the eastern and upper parts of the Aral Sea basin. In the Bukhara region, located deep in the flat part of the republic, the situation is completely different. There is a shortage of clean and fresh water, which the region receives to a large extent through the Amu-Bukhara Machine Canal from the middle reaches of the Amu Darya, uses strictly and limitedly for the needs of agriculture and other economic purposes in the Navoi and eastern parts of the Bukhara regions. As a result, the territory of the Bukhara region is dominated by drainage canals and increasingly large lakes that store drainage water. These new types of reservoirs have more or less heated brackish water. Fish farming should be developed on such water, including pond polyculture of cyprinids and new technologies for industrial fish farming.

Pond fish farming in the region began its development during the time of the planned economy. However, in the region there was one low-capacity fish farm, which was essentially only a feeding farm. In the flat zone it was difficult and unattractive to create a nursery for the reproduction of carp fish, which require clean fresh water under controlled conditions. As a result of this, the reproduction of fish and the cultivation of fish seeding material (yearlings) was confined to the Tashkent region and the Fergana Valley (where there is sufficient fresh water and a slope of the earth's surface for nursery ponds). However, the importation of fish seeding material increased transportation costs. This system was based on the idea that only fresh water is needed to obtain fish seeding material.

The first experiments in 2017-2020 in the Syrdarya region on a drainage canal for growing fry and fingerlings of cyprinid fish showed the fundamental possibility of creating nursery ponds (O. Nosirov et al. 2021). In 2022, the first experiment in similar larval rearing of carp fish in the Bukhara region was carried out at the Nodir, Nozim Kuli fish hatchery.

Larvae (3 days old) of carp (*Cyprinus carpio*), silver carp (*Hypophthalmichthys molitrix*) and grass carp (*Ctenopharyngodon idella*) were brought to the pond (1 ha) on May

20 and June 1 from Namangan fish farm in quantities of 500 thousand, 1 million, 100 thousand respectively. One week earlier, 250 kg/ha of lime, 5 t/ha of manure over the entire area, 50 kg/ha of ammonium nitrate were added to the pond, and all generally accepted technological measures were carried out (Sbornik, 1986; Kamilov et al., 2003).

A favorable natural food supply was created in the pond. In the first 7 days, the transparency along the Secchi disk was 60 cm, then in June - July - 60 - 70 cm. The water warmed up well: on June 15 at 8-00 the water temperature was 18.1 °C, at 16-00 it increased to 28.1 °C; On July 15, the water temperature varied during the day within the range of 26 – 33°C. For the culture of carp fish in the temperate zone (CIS countries), this is a high, little-known indicator of water heating. The pH value during the growing season varied from 7.1 to 8.0. This is close to the optimum for carp polyculture (Collection..., 1986). We especially note that the water salinity throughout the season varied within the range of 2.8 – 4.1 o/oo, i.e. was salty. The water depth in the pond was 0.7 m at the top and 1.2 m at the bottom.

Already by July 5, the offspring of all three species had reached the juvenile period; the weight of the fry varied from 1.2 to 10.1 g. If the size of silver carp fry was quite the same (1.3 to 5.5 g), then the sizes of carp and grass carp were much more variable: 1.2 – 10.1 g and 3.0 – 9.9 g, respectively.

The yield was on average 61% (note that for brackish water in the former planned economy there were no standards for the yield of fry of carp fish), including 55% for silver carp, 65% for carp, and 63% for grass carp.

In the conditions of the southern temperate zone, in which Uzbekistan is located, ungrown larvae of all cultivated carp fish are obtained at different times (carp and grass carp from the beginning of May, white and bighead carp from the beginning of June). Next, they are grown in a pond, in which the development of phytoplankton and zooplankton is stimulated with fertilizers. The main task is to raise fry (1-5 g) by the beginning of July. In this case, the growth of the fry will maximally capture the most optimal regime of the growing season with

well-warmed water (July - September) (more than 20-22°C). In relation to the Bukhara region, such indicators of heated water significantly exceed the regions of the Syrdarya basin.

According to the standards of the planned economy in the VII fish farming zone (which includes Uzbekistan), the planting density of ungrown larvae in a monoculture is 1-2 million. Taking into account the difference in the time of obtaining larvae of different species and the shortage of ponds in the irrigation zone in the region, we planted all the larvae in one pond. In this regard, the total stocking density of larvae of different species is close to the standard indicators (1.6 million). The question was whether larvae of different species would experience competition (it is known that in the first month of life, all these species feed on zooplankton).

The next question was the growth of larvae of cultivated species. The standard indicators for achieving fry is 1-5 g in 1 month.

As our experience has shown, large fry of sufficient size were obtained by the beginning of July. The most important requirement for farmers is water fertilization. Recommended rates of fertilization, liming of water (lime, manure, mineral fertilizers), as well as the mandatory installation of mill gas filters on the supply sluice (to prevent the entry of piscivorous enemies of larvae and weed fish competitors in the diet) allow us to achieve good acceptable results.

We especially note the following. Incubation of eggs should be carried out in fresh water. Transporting larvae over significant distances in plastic bags (20 l) is low-cost, in contrast to previously practiced methods of transporting yearlings in live fish vehicles. One car can transport millions of larvae, which makes our experience promising for the region. That. well-prepared fry ponds for the Bukhara region, even in the presence of brackish water, make their use promising for obtaining your own fish seeding material both for your own farm and for selling yearlings for the next year for sale.

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