



METHODS OF FISH GROWING AND STUDY IN FISHERIES

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Fish products play an important role in meeting the needs of the population in protein. Fish is the most important source of vitamins for humans, as fish is widely used to increase eye acuity, cleanse the body, and prepare a number of essential medicines. Fishermen have been fishing in the oceans, seas, rivers and lakes for centuries. At the same time, for more than 2,000 years, fish have been raised in artificial ponds. The small fish that hatch from the eggs are placed in ponds, fed and fertilized. As technology progressed, fishermen's dependence on external factors decreased, and as a result of the use and development of scientific advances, they began to achieve high performance. The aquaculture sector of the economy was formed and developed particularly rapidly as natural fish stocks dwindled. Along with

ABSTRACT

This article is devoted to the development of the sector of the national economy, which is engaged in increasing and improving the quality of fish stocks in water bodies; biological bases of fish breeding activities (artificial reproduction and training of fish in new conditions, breeding of new species, improvement of a meliorative condition of water basins) and biotechnology of basic fish breeding processes (adult fishing, hatching, feeding, etc.) development.

other countries, Uzbekistan is carrying out large-scale practical work to increase fish production.

Fisheries play an important role in the national economy of our country, and along with the planned management of the economy, the rational use of natural resources, including the country's fish resources, conditions are created for the development of fisheries.

At present, the issue of drastically increasing fish production remains relevant due to food security concerns.

Low consumption of fish products leads to a deficiency of essential vitamins (iodine, calcium and other digestible proteins) in the human body (Kurbanov, Khalpaev, 2011).

They noted that the creation of food reserves in the country is the main task of



the leaders of each region and the most difficult task. The results of fisheries in each region are lagging behind, so we need to develop so many opportunities for fishing.

“In five years, we have increased from 65 tonnes to 400,000 tonnes, an increase of six times, but in some areas it has become clear that yields are lagging behind. Among these regions, Syrdarya region also has a number of shortcomings in this area. The fact that in addition to clusters, homeowners are now allowed to build and use their own ponds in addition to clusters, given the opportunity to develop fisheries, is a great focus on the development of this sector. Property taxes will be reduced by 50% if homeowners earn money by building fishing and ponds on their land. Land for fish farmers and their self-employed population will be transferred. Clusters that grow more than 80 tons of fish a year will be exempt from all taxes for a period of 3 years,” said the President of the Republic of Uzbekistan Sh.M. Mirziyoyev on December 21, 2021.

Today, special attention is paid to the development of this sector, fisheries. In other words, it is necessary to pay attention to feeding, breeding, segoletka period, observation and preparation of the winter pond. Fishing is of great importance in the national economy of the country. In addition to its use, conditions are being created for the development of fisheries. Reservoirs and ponds in the country are the main sources of live fish.

Currently, there are more than 80 species of fish in the basins of the Republic. Many fish species filled the ichthyofauna of Uzbekistan in the second half of the twentieth century. Serious reforms are

underway in the network. Its legal framework has been radically changed, the old-fashioned state-owned fisheries have been privatized, and competitive fisheries have been established that meet the requirements of market relations.

According to the recommendation of the Ministry of Health, each organism should consume 12 kg of fish products a year for healthy development. At present, the fish grown in fish farms and caught in natural reservoirs do not fully meet the needs of the population of the Republic.

The main part of the fish grown in the country is in ponds.

In the 1980s, the average productivity of ponds was 24 quintals per hectare, while according to the Ministry of Agriculture and Water Resources, the average productivity of fisheries in 2004 was 4 quintals. Currently, fish production in Uzbekistan is 10,000 tons per year. Consumption is 0.5 kg per person per year. This is well below the medically required level of 16 kg per person per year. To achieve this norm, it is necessary to produce more than 400,000 tons of fish per year. Fishing does not increase the amount of fish that can be consumed by the population. This is due to the fact that all rivers in the country are engaged in irrigation management. Irrigation regimes, on the other hand, conflict with the biological cycle of the fish and do not allow the fish to be produced normally. This situation makes fishing a risky business and a type of activity that ignores capital investment.

The decline in pond productivity is due, firstly, to the lack of compound feed that fully meets the needs of fish, the quality of feed produced is low and expensive, and



secondly, the lack of fish farming technology adapted to market economy conditions.

According to the technology of fish farming in the existing pond farms, the largest number of carp was transferred to the ponds for fish farming, followed by pike-perch and, lastly, white grass carp per hectare. at the expense of the area, only 100-150 pieces were transferred to the ponds in order to assimilate the existing grasses.

Carp is a popular fish, but in the market economy, the high cost of mixed fodder, its low quality, the fact that the cultivation of these fish is not economically viable for fisheries, leads to its almost exclusion from polyculture.

Reservoirs and ponds in the country are the main sources of live fish. In this regard, in recent years in the Republic of Uzbekistan, great importance is attached to the establishment of artificial fish farms to establish fish farming.

One of the most pressing issues is the protection of fish from various influences in the process of ontogenetic, that is, embryonic and free life, and the achievement of high results using modern methods of breeding.

The conditions for growing summer fish in Uzbekistan are favorable, and this period lasts from June to November.

Amur loves reeds and other algae. Whitefish feed on compound feed, daphnia, and aquatic plankton. Carp were given wheat and corn. When fed, they are adapted to the following diet: the white carp feeds on surface water, the carp feeds on bottom food, and the white grass carp feeds on underwater food.

The weight of the fish raised in the pond was measured every month, and as a result, we observed that they were growing.

Fish larvae were fed twice a day, in the morning and in the evening. These fish were released into large ponds after 10 months and weighed between 0.25g and 100g.

Our observations show that about 200,000 of the 1 million larvae released into the pond, or 700,000 of the 5 million larvae, survived.

Of course, in order for fish farms to grow normally and increase their productivity, it is necessary to: improve the natural nutrient base of the watershed; improve land reclamation, provide the watershed with organic and inorganic fertilizers, and provide fish with mixed fodder.

It is known that in the early days, the larvae feed on natural nutrients in the water - phytoplankton and zooplants. The development of phyto and zooplankton organisms is observed as a result of pond treatment.

Wintering pond: When the water temperature drops to 12-14 ° C in autumn, carp fish do not feed, so one-year-old chicks in breeding ponds (chicks distributed in ponds in spring become one year old) are caught and put into wintering ponds. line is sent.

Winter ponds are designed for winter storage of fish: parent fish, segoletka. The ponds on the farm mainly take into account the characteristics of fish breeding and rearing, the species of fish bred in them, the growing seasons, as well as the topography of the selected area for the pond - field conditions, water quality. The depth of winter ponds is 2.5-3.0 meters, and low-yielding, non-organic ponds are



selected. It is kept dry throughout the summer because it is not possible to fish in muddy ponds.

The area of the winter pond is determined by the total area of the farm. Accordingly, its area can range from 0.2 hectares to 1.5 hectares. The thickness of its freezing water should not be less than 2.5-3 m. The difference between a winter pond and a summer pond is that the bottom of the winter pond should be free of hard, high aquatic plants and their remains. It is necessary to change the water of the winter pool frequently. The number of fish that come out of winter depends on the quality of the water and the water exchange. Water exchange depends on the amount of oxygen in it and the amount of carbon dioxide in the water. It also depends on the fat content of segolets for the winter. If the fat content is not at the required level, such piglets will not survive the winter.

For wintering, the average depth of the pool should be up to 1.5 meters, a maximum of 2.5 meters, and the pool water should be changed throughout the winter. If the water freezes, its surface should be perforated and an air hole should be drilled. Otherwise, the fish may suffocate and die. Of the fish mentioned above, the Amur catfish, in particular, is very fragile and dies from lack of air.

One of the most difficult tasks for fisheries is to get the wintering technology right.

The following activities will be held during the winter:

The bottom of the ponds will be cleaned and 150-200 kg of lime will be applied per hectare.

The pools are filled with water and the water in the pool (at a rate of 8 mg per

liter) is treated with malachite green. During the winter, it is very useful to repeat the treatment of water with malachite green at the rate of 0.1 mgGl every 7-10 days. To do this, a solution of the required amount of malachite green powder is prepared and poured into the pool.

One summer of carp species is overwintered at a transfer rate of 500-800 G.

During the winter, dead fish are removed from the pond every day.

The water basins should have a constant flow of water and the water should be at the same temperature. Once a month, a control hunt is held in January. It is known that fish go to the bottom of the water in winter and do not feed. If fed, they will rot to the bottom of the water, spoil the water and result in fish becoming ill.

In the spring, one-year-old chicks from the winter are placed in ponds where fish are eaten.

Segoletka (one summer fish) period: In the spring, one-year-old chicks from the winter are placed in ponds where fish are raised for consumption.

The weight of segoletka (one summer fish) varies: 40-50g for white squid and 60-70g for cypress squid. Survival is 40%, and 70 to 260 kg of segolteka (one summer fish) are planted per hectare when the fish are fed with natural feed for growth.

The area of ponds set aside for growing seedlings will be smaller (1, 2, 3, 4 ha) than the area of ponds. Excessive growth of tall aquatic plants in these ponds is not allowed. This reduces the grazing area of the fish. The pool water is fertilized before the segolet is installed. Water is poured



into the pool through kapron sieves. An iron ring is made.

Without mixed feeding, 8,000 carcasses of carp weighing 30 kg per 1 hectare of growing pond will be fed at the expense of natural nutrients. To do this, 11,430 small fish will be placed, taking into account the 30% catch. If fed intensively, mixed feed, this figure is increased by 5-7 times. Segoletka is a special compound feed.

Herbivorous fish segolets are fed until the water temperature drops to 8 ° C. The daily norm or ration is 0.5-1.0% of the body weight of fish, which then increases to 6-8% with age. The fish are fed after 15-20 days. Segolets should be well fattened before winter and have a body fat reserve of 3% relative to body weight.

If the grower puts too many small fish in the pond without reckoning and does not feed them intensively, the fish will not grow. The reason is a lack of nutrients. Fish don't grow well enough. In this case, the segolets do not survive the winter easily. If the segolets are less than the required norm, the fish can grow well, but the number is small. Small fish are fed until the water temperature reaches 8 ° C. In autumn, the yield of segolets should not be less than 70-80.

Fish for consumption: In the breeding pond, these fry are raised all summer long and in the fall each weighs 400-500 g, reaching the level of edible fish.

Consumer fish ponds are also prepared as spawning and breeding ponds before the fish are brought in, after which the fish are distributed to them. Each hectare of such a pond will be planted with 400-500 one-year-old carp, which will produce 200-2500 kg of fish per hectare. And if the fish

there are more nutritious, you can put more fish in each pond.

In the summer, ponds for edible fish are maintained in the same way as breeding ponds. These fish, raised in ponds, are caught in October-November. The water in the pond is slowly released so that the fish can collect in the pits and then be easier to catch. The fish caught are weighed and counted to determine how many fish have died during the summer.

In the fall, fish are caught from the ponds and sent for sale in accordance with the fishery management plan. By this time the mass of commercial fish, for example: 500-600 g in carp; The 2-year-old white amur and white sturgeon weighs 900-950 grams. In order for natural nutrients to grow well, 5-10 tons of well-rotted manure should be spread evenly on each hectare of the pond. The water in the pond is replenished 7-10 days before the fish larvae lay, the water must pass only through the specified net.

One day after the pool is filled, a pool of natural food organisms (*Daphnia magna*) is placed in the ponds. The daphnia galaxy is brought from the daphnia growing ponds around the pool. There are 3 ways to grow fish in fisheries.

1. Extensive fish farming is a method of natural feeding and fertilization. Fish productivity is 8-10 kg.
2. Incomplete accelerated method. In this method, in addition to natural nutrients, mixed fodder is given. It is supplemented with natural nutrients. 20 kgG.
3. Intensive fish feeding. Fish fed in this way are fed with mixed fodder. In fact, natural foods make water nauseous and negatively affect fish productivity.

Very cheap, especially extensive technology-based carp (carp, white and



cypress carp and grass carp) are the most suitable fish species for the conditions of Uzbekistan, and their food is natural food. Therefore, it is necessary to stimulate the development of nutritious organisms and organize their consumption by fish.

Only after good conditions in the pond do daphnia multiply and develop well, and when their number reaches 1-1.2 thousand per liter of water in 5-6 days, it is possible to lay fish larvae. Grown for 25 days. During the breeding season, laboratory fish specialists constantly monitor the growth of fish larvae, the amount of nutrients, the hydrochemical regime of the water, and so on. If the amount of natural food in the pond is depleted, the fish larvae are transferred from small ponds to breeding ponds.

In small ponds, artificial feeding is also provided when natural nutrients are depleted. Wheat flour (1 kg 100 thousand larvae) and soy flour (2 kg 100 thousand larvae) are used as artificial food.

It is recommended to place 1.5-2.5 million larvae of herring (white grass carp) on the surface of a small breeding pond per hectare. The amount and weight of juveniles raised in these ponds also vary. Carnivorous fish fry weigh 30-50 milligrams and yield 60%.

The feeding of grass carp with high aquatic plants begins when the water temperature is 10-12 ° C. The maximum temperature for their maximum feeding is 20-30 ° C. The growth rate of fish depends largely on water temperature and nutrient supply. At 30 days of age, the grass carp is 3 cm long and is partially fed by soft algae. Selectively consumes algae at low temperatures, consumes algae intensively when the water temperature is between 15 and 30 degrees, if it is densely packed, weighs 250-. Not less than 300 grams.

The food used in fishing is natural and artificial. Natural nutrients include aquatic organisms such as phytoplankton, zooplankton, zoobenthos, and higher algae. To stimulate their development, the ponds are fertilized with organic and inorganic fertilizers. In such ponds, if the fish are fed on a completely natural basis, it is called an extensive method. Incomplete intensive fish feeding is called if the pond uses a supplementary feeding method other than fertilizer. If the fish is fed this way, the productivity will be much higher. Intensive fish farming is when the fish are fed a complete mix of feed without the use of natural feed and fertilizer. It is advisable to have a mill on the farm to prepare artificial fodder.

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