



## **CASPIAN GOLDFISH (SALMONIDAE) MODERN SITUATION AND PERSPECTIVES OF AQUACULTURE**

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**Abstract:** Declines in many fish species, including the critically important salmon, and declines in industrial fishing have been recorded. On the other hand, the change of habitat affects the biology of individual fish species formed over many years, it also causes changes in the biological indicators of populations. Currently, the fish stock in the Caspian, Kura, Araz rivers and other water bodies of Azerbaijan has decreased significantly, and it is natural that the population's demand for fresh fish meat is not met at the required level.

**Keywords:** Caspian Sea, Karabakh, pollution, salmon.

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### **Introduction:**

Fish and seafood are an important ingredient in human nutrition. They have minerals such as calcium, calcium, magnesium, iron, phosphorus, and vitamins that are important to the human body. Despite the growing demand for fish products, while almost all countries are involved in fishing and fishing production, these resources are still being used improperly and highly unproductively. Referring to the more efficient use of fish and other products during the release of fish products, it is important not only to implement new technological production schemes and high-tech equipment but also to follow transportation, storage, fish food preparation regulations, etc. Therefore, the most important issue in the fish industry is to both acquire high-quality raw materials and fish products and to keep them without loss. Fish cultivation is the most common form of aquaculture. This usually involves commercial fishing in tanks, fish ponds or ocean covers for food. An object that releases juvenile fish into the wild for recreational

purposes to increase the natural number of fish or species is generally called fish culture. The world's most important fish are fish, goldfish, tongues, and summer fish.

In the Mediterranean, a young blue tuna fish is netted at sea and slowly pulled towards the shore. They are later isolated in the sea pens where they are grown for the market (sometimes made from floating HDPE pipes). In 2009, Australian researchers were able to first get southern blue-faced orkinos to grow in tanks with no access to the sea. Southern blue-faced orkinos are also caught in the wild and are rooted in sea cages growing up in southern South Australia, Spencer Bay.

A similar process is used in the goldfish section of the industry; Underage people are taken from incubation facilities and used in a variety of ways to help them grow. For example, as mentioned earlier, goldfish can be grown with a cage system that is some of the most significant fish species in the industry. This is done by having net cages, better in open water with a strong current, and feeding the goldfish with a

special food mix that helps them grow. This process allows fish to grow year-round, thus producing higher yields during the right seasons. An additional technique, sometimes known as marine farming, has also been used within the industry. The marine farm refers to the fish being grown at an incubation plant in a short period of time and then released into seawater for further development, after which the fish are caught again once they mature.

### **Fishing in Azerbaijan:**

In 1991 Azerbaijan's independence was rebuilt in the fishing sector, fishing, and aquaculture. This also serves as a resumption of water resources. Nevertheless, commercial aquaculture practices have developed since the 1980's.—Nadirov and others, 2013; Mohammadov and others, 2017.

Much of the fishing activity took place on the shores of the Caspian Sea, with the main objective of acquiring a sphere of sturgeon species (*Acipenseridae*), which in the early days appeared to have no impact on fish stocks. But the findings from the research have shown otherwise. Between 1935 and 1940, the number of fish in the country began to decline. As a result, stocks started to decline rapidly and began to decline somewhat after those dates. For example; Production of 4220 tons from 1931 to 1935, 4070 tons from 1936 to 1940, 1640 tons from 1941 to 1945, and 2,600 tons from 1946 to 1950. There are several reasons for this decline. These are:

- (1) excessive fish and illegal, unknown or unregulated fishing;
- (2) Failure to manage fish supplies;
- (3) Deteriorating environmental conditions;
- (4) Built on these migration routes of fish that migrate from the Caspian Sea to their natural growth.

All of this resulted in annual fishing from about 5,000 tonnes at the beginning of the 20th century to less than 108 tonnes in 1991. In addition to the species of noise, there are some species of *Cyprinidae* and *salmonidae* for Azerbaijani fishing in the Caspian Sea - Abdurrahmanov, 1966; Abbasov & Hajiyevev 2001; 2013).

These stocks also showed a decline for the same reasons as illegal fishing. As a result, *Acipenseridae*, *Cyprinidae*, and *Salmonidae* amounted to 33,000 tons from 1931 to 1935, and some 1,570 tons from 1986 to 1990.

Until 1991, fishing activity in the inner waters was concentrated mainly in larger rivers (Aras and Cork rivers) and in reservoirs (Mingachir and Shamkir). Valuable fish species: *Cyrpinus carpio*, *Chalkalburnus chalkoides*, *Abramis brama* and *Sander lucioperca* (Abdurrahmanov, 1966; Abbasov & Hajiyevev, 2001;).

In an effort to increase the hunting of these fish, various stocking programs have been developed in the Caspian Sea and inland waters. Millions of species of infant fish produced in 12 aquaculture have been released into water resources, but they have not succeeded. Since the late 1980's, they have been active in Azerbaijan to increase fish production. Until Azerbaijan's independence in 1991, 3 commercial lands was a major fishing activity. There were commercial fish farms in two lakes across the country. The main fish species grown on these farms are carp (*Cyprinidae*), others *Silurus glanis* and *Abramisbrama* (Nadirov and others, 2013); Mustafayevev, 2015).

### **Potential for natural water supplies for fishing and aquaculture in Azerbaijan**

From the north to the south, the Caspian Sea is some 1,200 miles (1,200 km) long and some 320 miles (320 km) across at its widest distance. Altogether, 6,500 km of coastline is 713 km in Azerbaijan. The water level in the Caspian Sea is 28 feet [28 m] below sea level and is about 50 large and small islands. There are 130 rivers of various sizes flowing into the sea. The average water level in the Caspian Sea has decreased by 190 feet [190 m] and the water depth has decreased by 3.2 m in the last 100 years. The salt is about 12 ‰. The Caspian Sea is known for its extensive variety of fish because of geographical, climate, and hydrological factors. Because of the large level of coastline in the sea, high primary production and therefore more fish production are caused by the excesses of nutrient mixtures. Five



countries bordering the Caspian Sea benefit from it in three ways:

1. The Xerxes Sea has great resources of natural oil and gas. These resources are extracted, exploited and exported;
- (2) It is an important fishing area for species and spheres;
3. The Sea of Caspian; Along the Volga River, the Russian Federation has only one way to reach international waters along various water channels. -Axundov and others, 2013; Ibrahimov & Mustafayev, 2015.

Most of the physical, chemical, and biological parameters of the Caspian Sea have a distinctive characteristic. These parameters create high productivity for valuable fish such as roach species and goldfish. In the 1980 's, more than 90 percent of black balls and fish production were extracted from fish caught in the Caspian Sea. (Axundov and others, 2013; Nadirov and others, 2013).

**Rivers:** Araz and Kurd are the largest rivers in Azerbaijan. These areas are used for commercial fishing. There are some 8,000 large, small rivers and canals in Azerbaijan, some 3,000 of which flow directly into the Caspian Sea. The two largest rivers are Araz and Kurdish, which are more than 300 miles [500 km] long. Fishing is mainly concentrated in the Araz and Kurdish rivers. The Kura River forms in Turkey and flows through Georgia to Azerbaijan. The total length of the river is about 1515 miles [1515 km]. It is located some 906 miles [906 km] across at its borders. In addition to these two large rivers, Azerbaijan is 100 to 500 km long and 22 miles [51 to 100 km] long. There are 107 water sources that are 40 miles [40 km] long and 26 to 50 miles [26 to 50 km] long. The remaining water sources are less than 26 miles [26 km] long and form rivers that are larger. - Axundov and others, 2013.

Commercial fishing in Azerbaijan's rivers is mainly carried out in the Kura River. A significant portion of the fish caught in the Kura river was migratory fish. There are many species of fish caught in the Kurdish world (Abdurrahmanov, 1966; Abbasov & Hadjiev, 2001; Ibrahimov & Mustafayev, 2015).

**Lakes and reservoirs:** The country's largest lake is Lake Sarajevo. There are more than 450 large and small natural lakes in Azerbaijan. The total area of all lakes in Azerbaijan is 394 square miles [394 sq km]. Lake Sarajevo is the only lake used for commercial fishing. There are more than 50 water tanks in Azerbaijan with various water volumes. Most reservoirs are used for irrigation and hydroelectric purposes in the country. There are currently only 2 reservoirs used for commercial fishing. These are the reservoirs of Mingchevir and Shamkir. The Sarajevo Water Reservoir, located on the Tartarus River, has been an important part of the past and has been used for fishing purposes. The Giantbatan water tank on the Absheron Peninsula is used as a drinking water tank for Baku and Sumatra. Therefore, fishing is not allowed to be used.—Quliyev, 2006.

Mingchevir and Shamkir are lakes with hydrobiological conditions that are ideal for fishing. Fish caught in these reservoirs are Abramis brama, Sander lucioperca, Rutilus rutilus, and Cyprinus carpio (Axundov and others, 2013). Small reservoirs are too small for commercial fishing and serve recreational activities for sports fishing. Fish caught, on the other hand, are often used as food in local villages. Lake Sarajevo is the only lake that provides support for commercial fishing. But the annual catch rate from this lake is very low. Fish caught in this lake include *Esox lucius*, *Rutilus rutilus*, and *Cyprinus carpio* (Axundov and others, 2013; Nadirov and others, 2013).

#### **Work to be done:**

The importance of scientific and technological advances in addressing ecological problems is essential to the development of an ecological worldview for the development of human relationships with nature. Every member of the community in which we live should recognize the environmental well-being. If the use of nature is not planned and efficient, manufacturing will damage the unity and integrity of nature. Environmental well-being is world-round, and all nations need to oversee the development of life. In our liberated areas, there is a very flexible environment for the

development of fishing, and if work is carried out, we are satisfied with the increase in fish in Cambodia after 2-3 years. The water of rivers in our other regions is declining because of the season. However, rivers in the region of Canaan are abundant. Because the rivers contain abundant, oxygen-rich and cool water, there is a flexible environment for increasing goldfish and other fish species. To prevent the decline in fish production in Azerbaijan year after year, the fishing potential of the occupied territories should have been developed. To that end, studies in areas liberated from invasion also show that fishing can indeed be developed at a high level in those areas. Except for the archery. Oxchuchai is a river that comes from Armenia and is most polluted. But other major rivers can increase as much fish as possible because they are abundantly watery year-round. The Ministry of Ecology and Natural Resources had to release some fish babies into those rivers and continue the process in the future. Because those areas have been unsupervised for a long time, it is impossible to say what species of fish remain without research, but any species of fish that live in rivers can be increased.

#### **The result:**

First, referring to the experiences of Europe, Asia, Scandinavia, and other countries, the republic's demand for valuable fresh fish meat can be met at the right level. In this regard, businessmen and enthusiastic fishermen are offered to educate them by explaining that the area is very profitable.

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