Azerbaijan

Background

The total area of the The Republic of Azerbaijan is 86,000 km^2, with a population of about 10.7 million (2024), and population density of 120 km^{-2}. About 25% of the country's population live in the metropolitan area of the capital Baku. The country is rich in natural resources and a major producer of oil and gas and minerals. The economy is growing rapidly, driven primarily by the hydrocarbon sector.

Three main mountain ranges cover about 40% of the country and over half of the country consists of mountain ridges, crests and highlands. The rest of the country is plains and lowlands. The climate is extremely varied covering 9 out of 11 existing climate zones. The central and eastern parts of Azerbaijan have dry subtropical climate with mild winters and hot summers, averaging 27 °C with maximum temperatures up to 43 °C. The lowlands and foothills of the mountain regions are steppe and semidesert. Souteastern Azerbaijan has more humid climate.

The main rivers are Kura and its tributary, the Aras. There is a network of irrigation canals between the rivers, and a number of reservoirs, the largest is the Mingäçevir reservoir on the Kura River which has a surface area of 606 square km. About 1.6% of the country's area is covered with water.

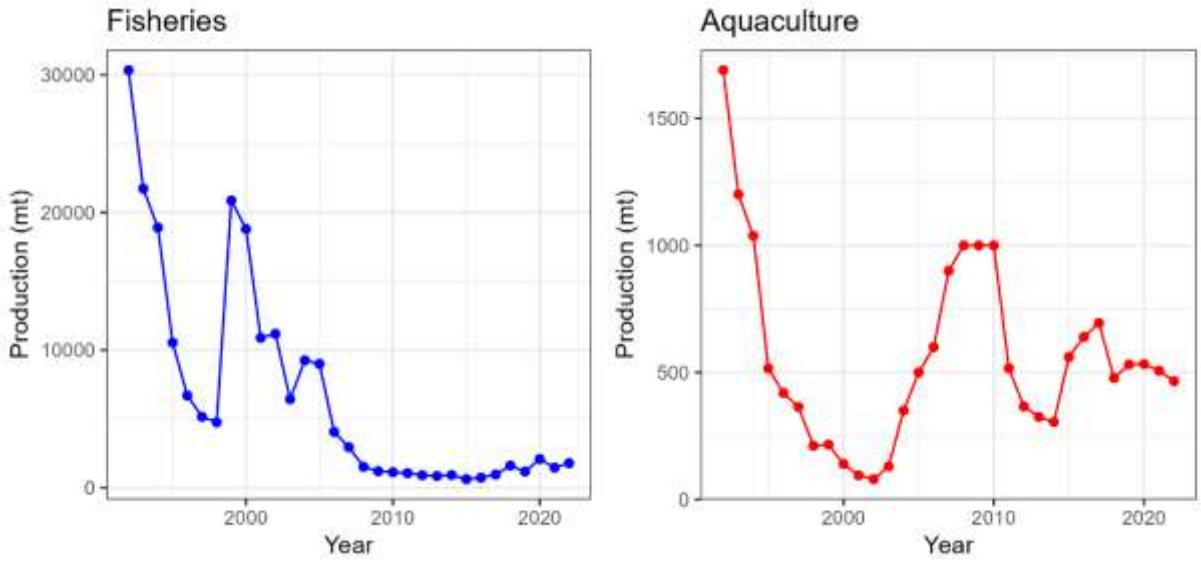

Figure 1. Fish production through capture fisheries and aquaculture in Azerbaijan. Note the different scale of the two figures.

Conditions for aquaculture are good in the country although environmental threats may be a problem for the development of the sector. On the lowlands around the main rivers are possibilities for developing pond aquaculture of carps, while higher lying areas with lower temperatures may be ideal for pond culture of rainbow trout and other salmonids. There may be possibilities for cage aquaculture on the Caspian Sea coast and in the numerous waterbodies and reservoirs. However, these are contingent on clean water and good environmental conditions.

Challenges facing the environment of the Caspian Sea include falling water levels, environmental pollution from agricultural and industrial activities, the entrance of exotic species, the loss of habitats, and eutrophication. There are considerable resources of anadromous and semi-anadromous fish in the regional waters, and about 60 species of fish inhabit the Kura and its tributaries. Azerbaijan's

freshwater ecosystems require better water management, stricter environmental regulations, investment in wastewater treatment, and conservation programs to protect aquatic biodiversity.

Fisheries and aquaculture production and supply.

Fish production, both capture fisheries and aquaculture, decreased drastically after the collapse of the Soviet Union (Figure 1.). The last available information on production is from 2022 when production from capture fisheries was 1,790 mt and 466 mt from aquaculture. The capture fisheries consist mainly of sprat and bream. Previously, there was a large fishery of sturgeon, however, that has decreased due to overfishing and environmental degradation amongst other factors.

Aquaculture has existed in Azerbaijan both as food fish production since the Soviet era, mainly in earthen ponds, and as hatcheries for restocking rivers and lakes. These hatcheries produce different species for stocking, and it is estimated that over 20 million fingerlings have been released in the last five years. However, the results from these programs are uncertain and wild stocks have continued to decline despite this effort. The total aquaculture production has fallen drastically (Figure 1) and is at present very small. The main aquaculture species are carps: common carp, grass carp and silver carp (Table 1). These farms are mainly in the lowland areas around the river Kura. There is also some production of rainbow trout and, as mentioned above, there are good possibilities for trout production at higher elevation where temperatures are lower.

Table 1. Main aquaculture species produced in Azerbaijan in 2022. Source FAO 2025

ASFIS species (Name)	**Production (MT)**
Common carp	193
Freshwater bream	21
Freshwater fishes nei	45
Grass carp(=White amur)	36
Rainbow trout	108
Roaches nei	0
Silver carp	63
Total	466

Azerbaijan has made significant progress in aquaculture development over the past six years. Large scale facilities have been built in the Neftchala, Pirallahi, and Ismayilli regions, as well as at the Mingachevir Reservoir. However, the results of these efforts are still not evident in increased production (Figure 1). Caspian Kutum (*Rutilus kutum*) is a native species that is a highly desired aquatic food, and there are farms producing it. The Azerbaijan Fish Farm Company is implementing several projects aimed at the development of aquaculture production of rainbow trout, sturgeon meat and black caviar. There is, in fact, a growing interest in sturgeon farming in the country that may give Azerbaijan the possibility to restore some of its previous caviar export. In fact, an Azerbaijani sturgeon farm just received a BAP (Best Aquaculture Practices) certificate from the Global Seafood Alliance.

The fish farms and hatcheries are mainly from the Soviet era. The hatcheries for restocking are government owned, but the fish farms for food production were privatised after independence. Many

of the latter are deteriorating and preforming under the original capacity. There are allegedly 500 fish farms in Azerbaijan, but the low total production suggests that only some of these are operational.

Fish supply and fish markets in Azerbaijan

The average caloric consumption in Azerbaijan is 3 328 kcal·capita^{-1}·day^{-1}, and the daily protein consumption is 98 g·capita^{-1}·day^{-1}. Both are well over the world average and have increased in recent decades. However, this is not reflected in increased fish consumption which appears to be decreasing. In 2022, the total domestic fish and seafood supply was 20,050 mt. About 95% of the fish and seafood supply comes from imports. The per capita consumption of fish and seafood products in 2022 was 2.3 kg·capita^{-1}·year^{-1} (Table 2), which is much lower than the world average of 20 kg·capita^{-1}·year^{-1}. Only 0.1% of the daily caloric intake and 0.6% of protein intake come from fish. In contrast, animal proteins constitute about 40% of the protein consumption in Azerbaijan, out of which fish is only 2%. Therefore, fish is at present a very insignificant part of the diet in Azerbaijan. One of the reasons mentioned for small fish consumption is that the low supply may have driven up prices. Increasing fish consumption in Azerbaijan, could be challenging even if supply increases and prices are reduced. It may be necessary to launch campaigns to advertise the benefits of eating fish and seafood and an encourage people to increase their consumption.

Table 2. Summary of food supply in Azerbaijan in 2022.

	Quantity	Unit
Total production of fish and seafood	1,970	mt
Imports of fish and seafood	20,840	mt
Exports of fish and seafood	760	mt
Fish and seafood supply quantity	2.3	kg/capita/yr
Energy supply from fish and seafood	4.0	kcal/capita/day
Protein through fish and seafood	0.6	g/capita/day
Total caloric intake	3,328	kcal/capita/day
Total protein intake	97.6	g/capita/day
Total caloric intake from animal products	688	kcal/capita/day
Total protein intake from animal products	38.7	g/capita/day

Government policy and governance of aquaculture

The governance of aquaculture in Azerbaijan is under the auspices of the Department for Reproduction and Protection of Aquatic Bioresources (DAPAB) which is a part of the Ministry of Ecology and Natural Resources. The Azerbaijan Fisheries Research institute under the DRPAB conducts research on artificial reproduction of fish and commercial aquaculture techniques, and in natural food supplies and fish nutrition. The Aquatic Bioresources Conservation Services controls the 11 state-managed hatcheries. Both these departments would be instrumental in building up aquaculture in Azerbaijan.

Both Baku State University and Azerbaijan Pedagogical University offer subjects related to aquaculture. However, there is no degree offered specifically on aquaculture. Technical School of the Fish Industry offers a practical training in aquaculture at the vocational level which is essential for the development of aquaculture.

There is clear commitment by the government to build up aquaculture in the country. In 2023, Azerbaijan developed the "State Programme for the Development of Aquaculture in Azerbaijan for 2023-2027", with a decree signed by President Ilham Aliyev, titled "On Additional Measures for the Development of Fisheries and Aquaculture in Azerbaijan." The document aims to advance fisheries and aquaculture in the country, including enhancing productivity, improving the management and control systems in this sector, developing fish resources with consideration for their environmental impact, and organizing and regulating and modernizing fisheries and aquaculture operations. The decree establishes a public legal entity, the Fishing and Aquaculture Center, under the Ministry of Agriculture, funded at US$588,000. The Center will be responsible for the organization and management of fisheries and aquaculture, including enhancement, conservation, and control of fish and other aquatic biological resources. The Ministry of Ecology and the Ministry of Agriculture will monitor and assess the environmental impact of existing aquaculture operations that are not registered with the state, to establish a proper registry of fish farming facilities in the country.

Future of aquaculture in Azerbaijan.

There is certainly a potential to increase aquaculture in Azerbaijan from its current levels. However, this is a challenging task. The most direct measures appear to be to promote the current pond aquaculture of carps and other species. There may also be possibilities of developing cage culture in the many reservoirs and in the Caspian Sea. However, this requires estimates of the suitability of the water for aquaculture, especially the Caspian Sea. The new initiatives for land-based production of sturgeon for caviar appear promising but require technical knowledge and specialised education. Hatcheries for restocking could be important for future fisheries. However, first it is necessary to critically evaluate if these measures increase catches.