



Trabzon Sample to Make Fish Introduction Activities in Turkey

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Abstract

Increasing population, technology and industrialization have caused the wrong and disproportionate use of natural water resources. As a result, small or large HEPP projects to meet energy needs, road construction or development, breeding of streams, culvert studies, changing of water flow beds in stream beds, landslides and landslides resulting from field-winning activities, new road construction or expansion activities, ecological change and pollutant load in water resources have increased due to reasons such as random soil or rubble dumps, irrigation irrigation, active use of pesticides, pasture fertilization and exotic fish production activities. As a result of this, the habitat of the natural fish has deteriorated. The food has decreased and the reproduction areas have been destroyed and the population has been reduced or ended. This gap increased the love of introduction Fisheries is a method that has been applied for the last 200 years. Though and theoretically reasonable, it brings with it many wrongs. The first fisheries activity in our country started with the mosquito fish (*Gambusia affinis*) was introduced to the swamps of the Amik Lake by the French for biological control. Today, in addition to many ministries, associations, enterprises, municipalities and official institutions and individuals continue uncontrollably. This causes serious genetic pollution in our country's waters and continues to be. According to 2006 data, over 65 freshwater and marine species fishing programs were used in 27 countries for production and experimental purposes. The object of present study was to determine the fisheries activities and their effects in Trabzon.

Keywords: fish introduction, Trabzon, national parks.

INTRODUCTION

Fish populations has been effected because of different reasons (over fishing, population increase, agricultural activities, fabrics, HEPP etc.). When changes in the flow rate of water occur due to drought in the spawning areas, adult and juvenile fish may be trapped in small ponds that will occur in the stream and may cause death due to high temperature and oxygen depletion. Excavation poured into stream beds during construction can cause water to flow under or through the spilled material, turbidity, ponds in water and trapped lakes (trap lakes). Turbidity in water, temperature change can cause destruction of aquatic organisms. The construction of the dams made it necessary to monitor habitat change in the same area. In addition to measures including stock management, rehabilitation of breeding grounds, regulation of elements preventing fish migration, scientific monitoring studies on this subject have been made continuous. Undoubtedly, in the rivers and coastal areas, which constitute the common area of use of many sectors, problems with many social and political consequences have been encountered in taking measures according to the new understanding. Sand gravel quarries, quarry activities, sand removal from the creek cause long-term blurs, and untimely intake of sand may cause water to cloud and destroy the base structure, as well as mass deaths of eggs and larvae [1].

Fish introduction, which has been applied for 200 years in the world, was first applied by the French in the swamps of Amik Lake in Turkey [2]. More than 65 marine and freshwater fish species were used in 27 countries for experimental and production purposes. The most important topics in fish re-stocking increase in fisheries activities can be listed as follows; genetic diversity / diversity, the quality of the larvae, dropout season, characteristics of habitat/habitat, characteristics of species / non-migratory species, the size of the fish, Inter-species competition/interaction, the carrying capacity of the medium, management of dropped stock / strategy [1].

The first fisheries in the world are based on BC. In this

context, carp were left to the water resources in the places where the kings were found on the silk road route in order to leave fish to the ornamental pools of the kings or to reach the fishermen easily. The first red-colored goldfish was discovered in the 2nd century AD according to the Chinese records and was used in fisheries. In 1871, 12,000 American shad fish were introduced into the rivers in California, with 70 national hatcheries, 9 fish health centers, 7 fish technology centers and one historic fish breeding hatchery in the 35 states of America. type production [3].

In accordance with Article 354 of the circular numbered 36/1 of the 2004-2006 hunting period, which regulates commercial aquaculture in seas and inland waters, the sale, transport, hunting, collection, hunting and collection of aquaculture, eggs, larvae, broods and broods of aquaculture according to Article 354 of the circular no. use, release into the water depends on the permission of the Ministry of Food, Agriculture and Livestock [4].

The General Directorate of National Parks is authorized within the scope of the Decree Law No. 645 on the Organization and Duties of the Ministry of Forestry and Water Affairs, as well as the Strategy for the Conservation and Action Plan. It is authorized to carry out services such as stock determination, surveying and fisheries for the development of fishery products in dam lakes which are under the ownership or disposition of the General Directorate of State Hydraulic Works and to cooperate with related institutions.

The first aquaculture center in Turkey was established by DSI in 1959 in Bolu Yedigöller with a capacity of 50.000 units. In recent years, production activities have been focused on and the number of production stations has been increased to 7 by this institution. To date, a total of 546 million fish have been released in 230 dams and lakes [5]. The aim of this study is to summarize the general situation of fish re-stocking studies and to compile the studies conducted in Trabzon region.

MATERIALS AND METHODS

Summary of current status of studies, observing the situation in the river, the material was provided by Nature Conservation National Parks and made by appropriate method. In this study, the situation and results of the fish introduction activities in order to ensure the balance in the natural environment of endangered or decreasing populations due to various negative factors were supported by the related literature. Turkey and Trabzon Nature Protection and National Parks Branch, Nature Conservation National Parks General Directorate of Fisheries Research Institute and the State Water Works General Directorate of stocking scientific papers relating to the examination on the subject with official documents and documents related to the application in April 2017' and the investigations were completed in December 2018. The purpose of stocking activities in the provinces of Trabzon and Turkey, objective, scientific foundations, stocking made districts, instruments and other documents related fish species are left to nature and number and implementation policies are examined in chronological order. A sampling study was carried out with the officials of the Nature Conservation National Parks Maçka Branch in the Altındere Valley using the pick and drop method. SAMUS 725G type electroshock device with 650 W output power, which can work with 12 Volt DC and 560 Amps battery, was used for fish sampling. Scoops of different sizes were used to catch large and small fish from the natural environment.

RESULTS AND DISCUSSION

In our country, fish re-stocking activities in sea and inland waters are carried out by SUMAE, DSI, General Directorate of Nature Conservation and National Parks of the Ministry of Forestry and Water Affairs. Within this scope, the first trout production station was established in Bolu Yedigöller, especially Abant trout. While the capacity was 50,000 units, the number used in fisheries with the support of other production facilities established by the end of 2017 was 18.000.000 units. In general, trout which reached 5-8 cm in length was used in fish re-stocking. The fate of these fishes that have been left until recently has not been investigated.

The "Conservation of Natural Trout Production and Fisheries of Inland Forests" project, which has been carried out since 2005 by the Nature Conservation and National Parks, was put into effect in 2004 and started production in 2006 at the Altındere Production Plant in Maçka, Trabzon. Natural trout is released to a certain length-weight. Altındere Trout Breeding Station was established in 2006 on an area of 4421 m².

Differences in the morphological appearance of the fish can be seen within and within the population for most fish species. Hybridization is the acquisition of new individuals by matching different genera and species. Natural trout species (*Salmo* sp.), turbot, sturgeon and carp species were used in the fishing activities in Trabzon province. In the SUMAE, the Black Sea trout (*S. coruhensis* /*S. t. labrax*), sturgeon (*Asipencer* sp.) and turbot (*Scophthalmus* sp.) produced were left in the fresh water and sea waters of Trabzon and some other provinces.

In 2018, the Ministry of Food, Agriculture and Livestock, within the scope of the "Water Resources Fisheries Project in order to enrich the fish stocks, in over than ~ 50 provinces, ~700 water sources were fished with more than 100 million juveniles. In the fisheries studies carried out by the Ministry of Food, Agriculture and Livestock, 96,200,000 juvenile fish were left to water resources between 2012-2018. Within the framework of the project carried out by the related Ministry, 50.000 turbot fry, 10.000 sturgeon and 5 .000 Black Sea

trout were left to our resources. Between 2002 and 2017, the Ministry of Food, Agriculture and Livestock left 5.000.000 carp in 591 locations in 59 provinces in the inland waters, and in total 80.000.000 turbot, sturgeon and black sea trout juveniles were released into the natural environment. In 2018, 2.420.000 scaly carp juvenile were left in 14 reservoirs.

Within the body of DSI General Directorate; scaly carp (*C. carpio*) is produced as the main species in Şanlıurfa-Atatürk Dam, Bolu-Gölköy, İzmir-Ürkmez, Adana-Seyhan, Amasya-Yedikır, Edirne-İpsala and Elazığ-Keban aquaculture stations. In addition to this fish, Shabut (*Tor grypus*) is also produced and used in fish stocking. Within the body of DSI General Directorate; Şanlıurfa-Atatürk Dam, Bolu-Gölköy, İzmir-Ürkmez, Adana-Seyhan, Amasya-Yedikır, Edirne-İpsala and Elazığ-Keban aquaculture stations as the main species are produced in the scaly carp. In addition to this fish, Shabut fish is also produced and used in fisheries. Broadcast (*Silurus glanis*) and bizir (*Carasobarbus luteus*) are other species produced in the experimental stage. Since 1979, DSI has produced 455 million juvenile fish and left them in reservoirs [6]. Since 2005, the General Directorate of Nature Conservation and National Parks has been conducting fisheries activities in 22 provinces and 48 water resources with the "Growing Natural Trout Production and Fisheries in Forests Project". For this purpose, the Institution has production facilities in Yedigöller National Park, Trabzon Altındere, Mersin Çamlıyayla and Bolu Abant. Between the years 2005-2015, 8 million 764 thousand juvenile trout were released to nature in Trabzon Maçka Altındere Production Plant. Between 2006 and 2016, a total of 11.501.500 fish were left to nature in different provinces. Within the scope of this project, brand monitoring studies were carried out in Trabzon-Uzungöl-Demirkapı Stream, Trabzon-Maçka-Meryemana Stream, Trabzon-Uzungöl-Arpaözü Stream, Artvin-Yusufeli-Bartal Stream, Rize-Fındıklı-Çağlayan Stream and Rize Çat Valley Elevit Plateau. The project is still going on [7, 8, 9].

Anadrom and the stocks of this species has been severely worn since 1998, Trabzon Aquaculture Central Research Institute has been cultured [10] and breeding streams to which it enters (Fırtına, Çağlayan Creek) has been fished (SUMAE and General Directorate of Nature Conservation and National Parks) [11]. Native and the stocks of this species has been severely worn since 2009, Trabzon National Park Research Center has been cultured (General Directorate of Nature Conservation and National Parks). Native and the stocks of this species has been severely worn since 1954, Bolu Abant Natural Park Center and also General Directorate of Nature Conservation and National Parks Trabzon has been cultured. Istanbul University Faculty of Fisheries In March 2001, the average size of 5 g of Russian sturgeon (*A. guldensteadi*) offspring of the Sakarya river were left offspring. Trabzon Aquaculture Central Research Institute cultured and breeding studies caring on about sturgeon. Trabzon Aquaculture Central Research Institute from 1998-2002 obtained from the breeding and broodstock obtained from broodstock (*P. maxima*) offspring, offshore zone between Sinop and Hopa, released from natural times and stations [12].

In 2017, Altındere Valley Natural Trout Production Station announced and realized that it would release 310,000 fish to Trabzon-Çaykara Demirkapı Creek [13]. In 2018. In Turkey, 11 provinces and 38 different water sources from that obtained from the supplied rootstocks trout 2.200.000 thousand fry trout water, leaving Trabzon limits a total of 358,000 juvenile trout release in Altındere Valley Natural Trout Production Station annual 2-3 million aims to produce fry fish [14]. The project duration was extended and the facility was developed. In this way, the adaptation of turbot (*Psetta maxima*) to the culture medium was

prepared. The project duration was extended and the facility was developed. In this way, the adaptation of turbot to the culture medium was prepared. Due to the problem of VHS (virus), the production of offspring occurred negatively. In addition to the solution of disease problems, a new project was initiated between 2005 and 2007 against drops, which is shown as one of the causes of intensive larval deaths [15]. A two-stage study was conducted at the station between Arsin-Yanbolu and Beşikdüzü. In the first stage, a total of 19,074 branded juvenile fish were left (regularly for each year between 1999-2001). In the second stage, recapture studies were carried out between the years 2001-2005, between April and June of each year [16]. Within the scope of the project, 19,933 branded turbot fish were left to natural environment in four different regions in Trabzon province in 2004 and 2009 and monitored for four years. 35,000 turbot fish were produced in sea fish hatcheries in Yomra district of Trabzon [17].

In conclusion, destruction of both habitats in the water resources in the province of Trabzon (sand and gravel purchases, urbanization / coastal fillings, river bed rehabilitation, HEPP's, solid and liquid wastes, etc.), as well as populations enters the danger limit. Fish are branded and populations are monitored. Specifically, these fishery studies prevent the significant decrease in the populations of the species that are identified as endangered 'in IUCN and prevent the complete disappearance of the species in the long term by creating stock and reinforcing the species living in the water resources in Trabzon province. The solution should be the protection of water resources rather than fish re-stocking, the awareness of people and the respect of nature. If the reproduction time and areas of the fish are fully known and water resources are preserved, solid data on the population structure can be obtained and the existing population will be able to renew itself more quickly. Even if fish re-stocking will be done, fish stocking should be done without creating domestication and breeding stock from fishes of the place where fish re-stocking will be done and by paying attention to the number of effective brood-stocks in a way that does not change the genetic structure much with under expert persons response. As a result, although it seems theoretically logical fish restocking in practice can bring serious and unthinkable results. Therefore, it would be more useful to make protection instead of re-stocking.

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