SPONTANEOUS SPAWNING of TURBOT (*Psetta maxima*)

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The Fish Culture Development Project in the Black Sea has been successfully continued by Central Fisheries Research Institute and Japan International Cooperation Agency since 1997.One of the aim of the project is to improved and to achieve bloodstock management techniques of turbot (*Psetta maxima*). Although the technique to obtain fertilized eggs by artificial insemination has been improved in the project activities, it is necessary that the establishment of to technique to induce spontaneous spawning to prevent strong stress for spawners and to acquire high quality eggs continuously throughout the spawning season.

In order to investigate the natural spawning conditions, 3 years old hatchery-bred brood fish were reared in 20 m^3 concrete tank from September 2001 to end of spawning season in 2002. 1.34 million eggs were collected during this period. However, it was determinated that eggs were not fertilized.

Hatchery-bred turbot (4+ year's old, average body weight 2.623 gr) were stocked in 20 m^3 rearing tank in September 2002. Ratio of male and female fish was 1:1 and one fish was stocked to tank per m^2. The fish were fed 3 times a week frozen trash whiting mixed with vitamin mix. The natural sea water was introduced into the tank and it was under the natural light condition during spawning season in 2003. Water daily exchange rate was 1000 % and water depth was 80 cm. The eggs were collected at the surface of the water by a pipe (9cm diameter). 500 litter capacity tank was used as egg collector. Diameter and mesh size of the net set inside of egg collector were 70cm and 0.7 mm, respectively (figure 1).

Maximum, minimum and total annual day light were 15 h 22 min, 9 h 27 min, 691 h 7 min, respectively. It increased from 14h 30 min to 15h 15 min during spawning season. Difference of annual day light was shown in figure2.

During spawning season, it was often observed that two or three male turbot follow one female. When after these behaviours, pelagic eggs were collected in collector with outlet water.

The data of number of eggs, the date of fertilized eggs obtained and temperature are shown in figure3.The maximum amount of eggs were collected on 24 May 2003 and total number of eggs were 1,4 million. Spawning wasn't in some days. It was seen that the water temperature fluctuated and the maximum value of it occurred 17.9 ° C on 27 May 2003. On the other hand, fertilized of egg on was determined two times (26 May - 1 June 2003). The eggs were designated in samples. In this way, the natural fertilized eggs were firstly obtained from hatchery-bred turbot in Central Fisheries Research Institute. These eggs were

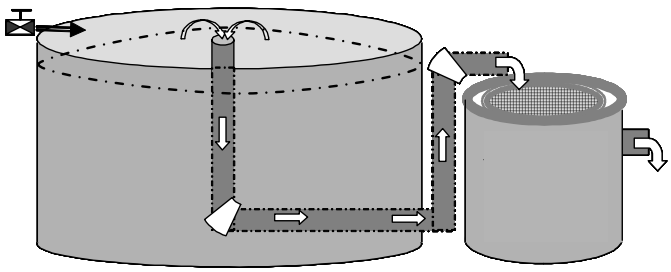

Figure 1. Egg Collection

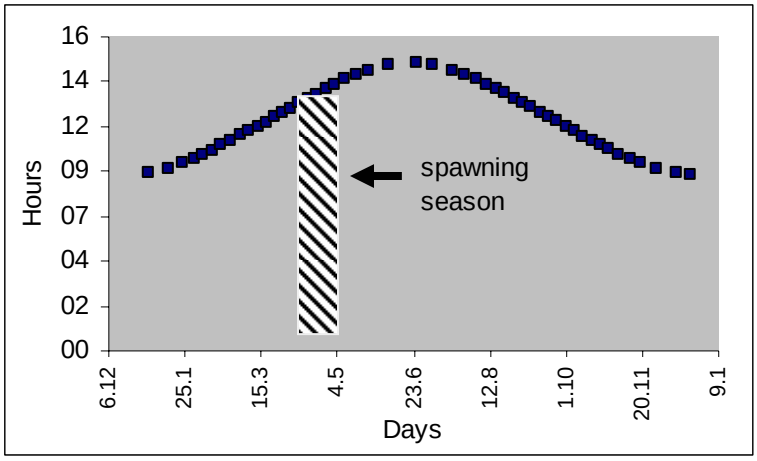

Figure 2. Natural day light in Trabzon

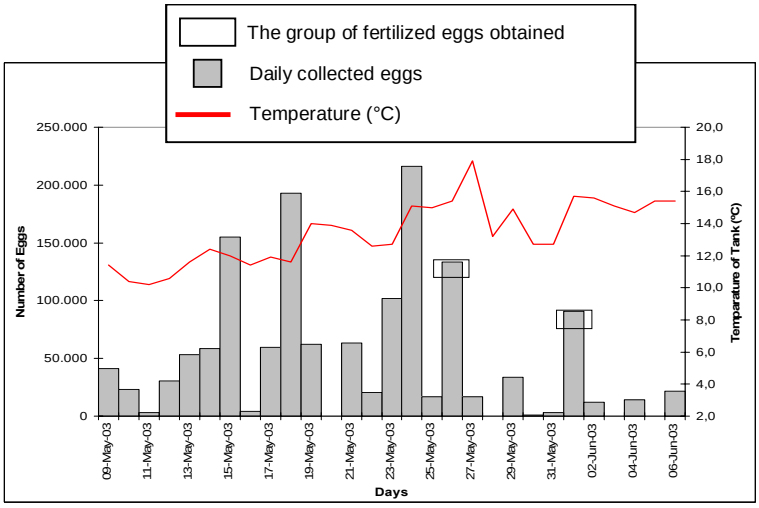

Figure 3. Natural Spawning and temperature of tank

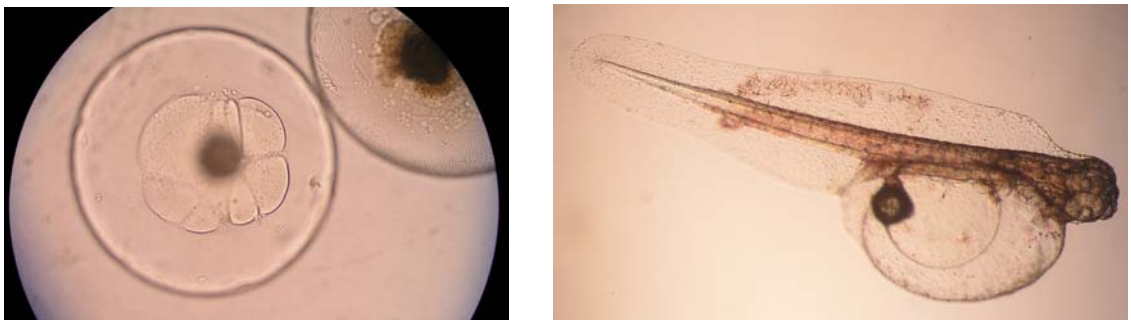

Figure 4. Natural fertilized egg and larvae

transferred to incubation tanks for hatching and larvae were obtained (figure 4).

The amount of fertilized eggs obtained by natural fertilization was less than artificial fertilization. However, spontaneous spawning has some important advantages; there are preventions of repeated handling and stress for spawners.

Some factors should be studied and determined such as spawner density, age, sex ratio, the egg collection system etc. to obtain necessary amount of high quality eggs for mass

seed production of Turbot.