

## PROJECT

### RESEARCH ON THE CULTURAL POTENTIAL OF THE FLOUNDER (*PLATICHTHYS FLESUS LUSCUS*)

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The flounder species inhabit within a wide area from the Black Sea and the Mediterranean to the White Sea. Flounder juveniles, which are eurohaline and eurothermal, generally live in the stream and river mouths. The flounder is the only species among the flat fish that can live in fresh water. Flounder eggs and larvae are pelagic; juveniles and individuals are demersal. Juvenile production is carried out in countries such as Denmark and Poland. There are two studies on the adaptation of juveniles and individuals, collected from nature, regarding flounder aquaculture in Turkey. Few studies are found on the hunting-related bio-ecology of the flounder.

This project is carried out at the Central Fisheries Research Institute, Trabzon and supported by the General Directorate of Agricultural Research, Ministry of Agriculture and Rural Affairs. The subject project was launched in January 2007 and will end in December 2009.

#### AIM

The general aim of the project is handling the techniques relating to the culture of the brood stock upon which aquaculture and fishery will be based, the adaptation of the brood stock candidates, the spawning, the juvenile rearing and the

rearing until the market size. In addition, examination of the bio-ecologic properties for the conversation of species diversity in Turkey's natural waters is among the aims of the project.

#### ACTIVITIES

##### Bio-ecology

The below stated activities have been carried out while measurement of water parameters have been conducted and purse seine captures have been made at 020, 2040 and 4060 depth in the Black Sea off Trabzon.

1) Many parameters related to catch such as the weight of the flounder in the catch per unit of effort, its power in the catch per unit of effort, the depth where it extensively inhabits are being assessed.

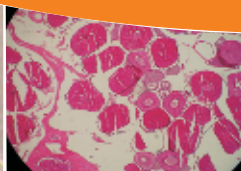
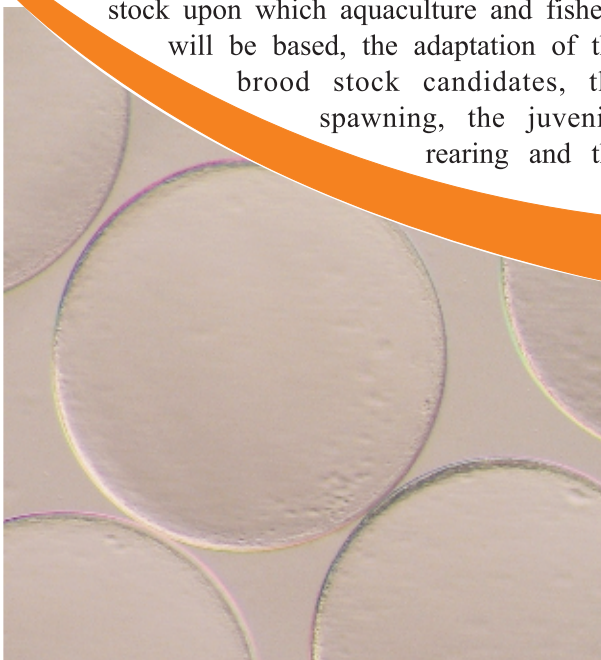
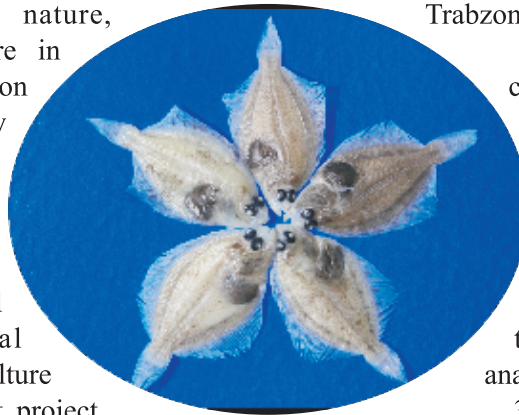
2) Food composition of the species has been specified by analyzing the stomach content.

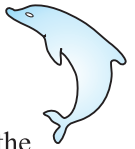
3) Gonad samples are being taken and histological analysis of the same is being undertaken.

4) Food composition is being examined through the sampled meat tissue.

5) Egg abundance is being determined with egg-larvae surveys.

6) Fish, captured from nature as brood stock candidates, have been adapted to the hatchery conditions. Juvenil





### E Aquaculture:

Below stated activities are conducted on the fish, captured from nature, from the first phase of the project:

- 1) Egg stripping has been realized by applying palletized LHRH-a.
- 2) Fertilized eggs have been obtained from the stripped eggs by means of artificial fertilization.
- 3) Pre-larvae production has been carried out with the incubation of the fertilized eggs.
- 4) Egg properties have been determined.
- 5) Development of the eggs has been monitored and two incubation durations at two different temperatures have been found out.
- 6) Egg production of the spawners has been determined.
- 7) Fertilization ability of the eggs has been presented.
- 8) Impacts of salinity (ranging from ‰0 to ‰35) on fertilization have been revealed.
- 9) Properties of the pre-larvae, cultured at the hatchery, have been determined. Larvae have been reared up with *nannocloropsis* sp. by applying the green water technique. Rotifer and artemia have been used as live bait during the larvae period.
- 10) Developments of the larvae have been determined by monitoring the same until the end of metamorphosis.
- 11) Development of the larvae and juveniles has been assessed by examining the cartilage and bone tissues of the same.
- 12) Abnormality types and rates have been specified at the end of the metamorphosis.
- 13) Optimum temperature of the juveniles has been determined at the end of a 12-week long trial.
- 14) Optimum feeding frequency of the juveniles has been indicated during a 6-week long trial, the aim of which is to specify the meal number. In addition,
- 15) Sperm properties of the flounder have been determined.
- 16) Crypreservation of the flounder sperms has been realized.
- 17) Interspecies matching trials have been conducted.

### OUTCOME:

Thanks to this ongoing project spawning of the flounder species has been realized and some aquaculture requirements of the fish have been determined. Complete determination of optimum aquaculture conditions and analysis of the growth performance of the fish under these conditions are necessary in order to decide whether the fish is appropriate for aquaculture or not. Besides, the fishermen of the region usually consume the flounder species. Therefore, field studies have been carried out to determine appropriate market size and market price. The female flounder have been found out to be growing faster than the male fish during the pre-studies. Genetic studies such as whole female aquaculture, triploid application and breeding are required in order to obtain positive outcomes from the aquaculture studies, along with the development of feed, appropriate for the requirement's of the species. At the end of all these studies, the species should be assessed in terms of being economic for aquaculture.

Flounder fish is an indispensable part of the ecosystem. It is an economic species, being hunted for commercial purposes both in Europe and Turkey. Therefore fishery issue should not be ignored. Pilot studies should be conducted regarding issues such as determination of the releasing habitat before a possible and extensive fishery, determination of the releasing time and determination of the most appropriate releasing length.

Fertilized eggs and pre-larvae have been obtained during the pre-trials as products of female flounder and male turbot matchings. However juvenile aquaculture could not be realized. On the other hand, outcomes of the female flounder and male turbot matchings should be examined.

It should be further determined that whether the flounder inhabiting in the Black Sea is different from or a sub-species of those inhabiting in the Mediterranean and Europe. Above all, the genetic structure of the population inhabiting in this region should be specified before fishery studies and if there are different stocks, they should also be indicated.

