"PERCATECH"

Securing the production of Eurasian perch juveniles

In Europe, freshwater fish farming is limited by the relatively low market value of its products in relation to production costs. This is also the case in the development of the Eurasian perch (Perca fluviatilis) culture. Presently, the availability of juveniles with a high growth potential is very low for various reasons.

First of all, for egg production, the sector is still very dependent on the natural spawning period, which occurs in early spring and only lasts for three to four weeks. Secondly, no reliable protocols exist to induce delayed or out-of-season spawning, and thirdly, variability in the quality of egg and larval survival and growth rates is high. These bottlenecks will have to be overcome if the sector is to remain sustainable.

To support the sustainable development of Eurasian perch production and the SMEs that have invested in this new way of diversification, an EU-funded R&D project was proposed.

PERCATECH was completed in September 2006 and had as its main objective to **secure the production of Eurasian perch juveniles (3-5g).** The project thus focused on perch reproduction and larval rearing, and more in particular on:

- the extension of the natural reproductive period and induction of out-of-season spawning;
- the reduction of breeders' mortality during the spawning period;
- the control of gamete quality and sperm cryopreservation; and
- the production of juveniles with genetically improved performances.

Finally, the cost of juvenile production was also studied.

Delayed spawning (or in this case early spawning) was obtained with wild breeders, caught in natural conditions, applying an early increase in temperature. This way, eggs were already produced in winter time (January) instead of April. The natural spawning season could thus possibly be extended from 3 weeks to several months. In 2006, out-of-season spawning was also obtained, using artificial environmental programs (photoperiod and temperature manipulations), in laboratory conditions as well as in SME conditions: eggs were produced in autumn (November).

OUT-OF-SEASON PRODUCED LARVA. SOURCE: PERCATECH WEB SITE.

Since the cryopreservation of sperm might diminish the quality of the sperm cells, a protocol for sperm cryopreservation was developed including the freezing conditions for perch sperm stemming from normal males as well as from neomales (i.e. sex-reversed males which are usually used to create an all-females offspring). In addition, hormonal induction protocols were developed to synchronize spawning and protocols to produce neomales were determined. The artificial propagation was thus optimised.

In another phase of the project, juveniles were produced with genetically improved performances. This way, the production cycle for domesticated individuals was

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PERCATECH

Full title of Project:
Securing juvenile production of Eurasian perch by improving reproduction and larval rearing

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"THE PERCATECH PROJECT HAS CONTRIBUTED TO THE DEVELOPMENT OF PERCH PRODUCTION AT A COMMERCIAL SCALE AND"

reduced with more than four months compared to wild individuals: the marketable weight (fillets of 10-15g corresponding to 100-150g fish) was obtained within 8 months.

THE PRODUCTION OF A DOMESTICATED PERCH STRAIN. SOURCE: PERCATECH WEB SITE.

Using a cost calculation model, the cost of juvenile production was evaluated in different environments and using different rearing systems. It was calculated that the production cost per juvenile should be 0.11 Euros to obtain a profitable farm (at the present market price of 0.3 Euros/juvenile), whereas in reality, the cost price varied between 0.18 and 0.48 Euros.

Next to developing original protocols for Eurasian perch reproduction, a lot of new important data was gained on perch culture. This way, the PERCATECH project has contributed to the development of perch production at a commercial scale. More in particular, thanks to PERCATECH, the French Company and project partner "Lucas Perches" extended its production from 20 tonnes (pilot scale) to 300 tonnes, and in Ireland, 2 new farms have been built up that will also be producing perch at commercial scale. Finally, the knowledge gained in the project has been summarised in a **practical handbook on Percid culture**, which will be disseminated at the European workshop on Percid aquaculture (see box).

Within the framework of the EU-funded projects PERCATECH (AA-FI-DIVE-06) and LUCIOPERCIMPROVE (AA-FI-DIVE-07), the project coordinators are organising a European workshop on Percid aquaculture, with the collaboration of the Federation of European Aquaculture Producers (FEAP).

This event, which will be held in Namur (Belgium) in January 2008, aims to disseminate recent progress that has been achieved in the different aspects of percid fish technology (reproduction control, feeding and nutrition, genetic improvement, market). This will be of interest to fish farmers who are already involved in this sector or to new potential investors in perch and pikeperch culture. The workshop constitutes a real opportunity for an in-depth exchange of experience between scientists and producers. The expected attendance is 100-200 participants.