

# Challenge

## Newsletter

No - 2 February 2014

### Hatchery training course

On job Training course for 10 GAFRD technicians in K21 hatchery, from 22th to the 27th, of March, organized from GAFRD for transferring professional capacity and operative know how to young technicians. They worked in productive hatchery management issues, under the supervision of the Italian expert, Dr. Attilio Spanò (CIHEAM IAM Bari Technical assistance). Training target: to prepare marine hatchery managers giving the basic knowledge for working both in Egypt and in other Countries. The course has been divided in theoretical lectures and practical sessions, including the all phases of the fingerlings production.

Every day, from 8.30 am to 6 pm, the trainees worked in the several sector of the hatchery, with the K21 hatchery staff in order to understand the "job secrets" and the daily operations and techniques. Emphasis has been given to the production of high quality fingerlings for the private farmers: live food (vitamin and fatty acids enrichments), broodstocks management (natural spawning and hormonal therapy) eggs incubation (water quality control), larval rearing (swim bladder and deformity issues), weaning, nursery, size selection (grading, harvesting, tank density, selling).

Theoretical lessons have been organized daily as follows:

- 1- Introduction to the hatchery
- 2- Live food production: the algae
- 3- Live food production: rotifers and artemia
- 4- Larval rearing techniques
- 5- Weaning and prefattening techniques
- 6- Brood stocks management

At the end of the course, on 27 of March, an evaluation session has been organized trough a test with 60 technical and management questions, in order to assess the professional level achieved by the trainees. According to the GAFRD Examination Committee the score obtained by the trainees achieved a range from 65 to 82%.



# MICROSCOPE

The swim bladder development must be considered carefully in sea bass and sea bream hatchery management.

This organ regulates the body density and it is located between the ventral digestive tract and the dorsal spine, kidneys and aorta; it contributes to the ability of fishes to stay in the current water depth without having to waste

energy in swimming. In the “fisostomi” species the swim bladder is opened, still connected with the intestinal

tube through a pneumatic duct; for instance herrings, cyprinidae and

eels. On the contrary in the fisoclisti species the swim bladder is

completely closed; for instance sea bass, sea bream, groupers,

swordfishes, tunas, soles, halibuts. The fishes regulate their

buoyance at different depths by increasing and decreasing the

quantity of gas in the swim bladder. Obviously, in the fisostomi

species, gas enter and exit only through the pneumatic duct. On the

contrary, in the fisoclisti species, there is gas

exchange between the swim bladder and blood, under hormonal control. The primordial inflation of swim bladder

normally occurs at a size of 4 to 5 mm in sea bream and 5 to 6 mm in sea bass. The lack of a functional swim bladder

will lead to lordosis during the growing. This skeletal deformity appears at a size of about 20 mm and the lordosis

angle increases afterwards; it is hypothesized because fishes which cannot modulate their density are continuously

swimming in an oblique position to avoid sinking. Apart from that, several species respond to stress factors increasing

the size of the swim bladder. This reaction, if the stress persists in the larval tanks, can cause the death of the fish or

determine a permanent kyphosis of the spine. It is important to facilitate the swim bladder development during the larval

rearing phase. Larvae must reach the water surface for air gulping and systems which eliminate, from the surface, the

naturally occurring oily film, significantly improve the inflation rate in reared stocks. Aeration, water surface cleaning,

quality and quantity of feeding must be managed and controlled properly, monitoring the swim bladder development,

tank by tank by microscope observations, evaluating the percentage of good results. Paying attention that, sometimes,

the increase of the percentage of normal fish in the tank does not always mean good management, but can reflect the

mortality rate of fishes without the good swim bladder.



## NEWS IN EVIDENCE

**DEBT SWAP PROGRAM PHASE 3.** The Egyptian and Italian parties are now working for the third Phase of the Debt for Development Swap Program. The Ministry of International Cooperation and Planning, on behalf of the Egyptian Government, and the Embassy in Cairo, on behalf of the Italian Government, signed already the Protocol of Agreement (10/5/2012), to continue in the effort to reduce matured Italian debt on the Egypt Government. Development cooperation projects will be implemented in several sectors shared between the two parties. GAFRD already sent the MADE 2 Project Document to the Ministry of Agriculture both for analysis and for submission to the Debt Swap Management Committee for approval. The private sector know how demand is very high and GAFRD is ready to this challenge, for giving useful indications to the marine aquaculture stakeholders according to sustainable guidelines. MADE 2 Project foresees also a Master Plan Study, task that will be implemented to draw the sector strategy and to identify technologies, rearing systems, target species and, finally, the human resources and training needs.

### Editor in Chief

Prof. Dr. Mohamed Osman

Technical Coordinator

Mr. Mohamed Elaraby

Project Secretariat

Ms. Marina Victor

### GAFRD Chairman

Dr. Mohamed Elgazzar

Project Focal Point

Dr. Madani Ali Madani

Graphic Designer

Mr. Karim Eldin

### Managing Director

Dr. Roberto Ugolini

Web site Coordinator

Mrs. Amany Esmail

### Technical contributions

Riccardo Germano

Gianluca Pizzonia

Gabriele Verginelli

Stefano Moretti

Attilio Spanò