GROWTH OF WILD BLACK-SPOT SEA BREAM (*Pagellus bogaraveo*) FROM CANTABRIAN SEA UNDER LABORATORY CONDITIONS. SOME INTERESTING PARAMETERS.

by

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SUMMARY

Some data about growth of black-spot sea bream, as a new species in captivity are given in this paper.

Wild juvenile 20 g fish fattening under laboratory conditions are the object of this experience.

Some parameters, growth data as well as food conversion are shown.

RESUME

Plusieurs données sur la croissance du la dorade, une nouvelle espèce en captivité, sont présentées dans cette communication. Des poissons juveniles sauvages de 20 g grossis sous des conditions de laboratoire sont l'object de cette expérience.

Nous montrons plusieurs paramètres, données sur la croissance et conversion de l'aliment.
INTRODUCTION

With development of aquaculture in Spain in last years, the interest of introducing new species has increased. Black-spot sea bream (*E. bogaraveo* B.) was selected as a species with potential to be farmed.

On the other hand, decreases in catches, during last years make growth the economic interest for this species.

Thus this work led to obtain reproductive fish, data expresses in this paper were from wild juvenile of black-spot seabream collected and maintained in captivity until their maturation.

Because it was unknown dietary of black-spot seabream in captivity, different diets were tested in order to select the best according with requirements of this species.

After checking several biological parameters in nature, black-spot seabream was selected as a species possible to be farmed (Santaella, E. pers. comm.).

MATERIAL AND METHODS

Wild fish used in this experience were collected from Cantabrian Sea (North of Spain) during December 1984; specimens were catched at 150-200m depth; the net was trawled for short time and hoisted slowly to avoid the effects of difference of press.

As well, the fact of selection of juvenile fish, was because they live at less depth than the adults, so it was easier making decompression.

Another reason was that juvenile has major facility for captivity adaptation which provide growth data, etc. just until reproductive stage.

Species related collected in trawls, besides *E. bogaraveo*, were *Pagellus acarne* and *Pagellus eritrinus* making up 9% of Sparidae.

Fish were stocked in 1500 l tanks closed, with flow-water, during collection and transport.

Before the study period, fish were distributed in 3000 l fibre-glass tanks, where they were treated with nitrofuran (*Furapez*). After 48 hours, fish started feeding ad libitum twice a day, evaluating amount of feed in order to calculated food conversion.

During this adaptation period, mortality was 23.8%.

Once adapted fish were measured, weighed and random distributed. Homogeneous groups of 21 g mean weight were selected to be feeding; some of them were in wet diet, whilst the other were on commercial food.

*supplied by TROFIC, S.A.*
Characteristics

Illumination supplied by a fluorescent tube covered in order to avoid direct light over the tank, provided about 20 lux over water surface. It was regulated by a photo-period system. Numbers of hours with light was the same as outside, turning on and off slowly; this system improves adaptation, reducing stress in fish (Santaella, E. pers. comm.).

Water-flow maintained an oxygen saturation between 80 and 95%. When values were less than 75%, fish showed stress signs, and became darker and darker (melanitation). Then turnover was increased, ranging 0.4 to 3 times.

Daily wet diet was prepared, mixing raw fish (maintained at -40°C), with vitamins and minerals (PREMIX, supplied by ROCHE S.A.), in this way quality of food (vitamins was not desordered by storage and lipids no oxidized) was sured.

Because there are no commercial diet for this species, we had to use sea bream pellets to feed group in dry diet. This experience only could be carried out for three months; after this period trial had to be left because fish refused that kind of food.

Proximate composition of wet diet

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein</td>
<td>50%</td>
</tr>
<tr>
<td>Lipids</td>
<td>6%</td>
</tr>
<tr>
<td>Moisture</td>
<td>40%</td>
</tr>
<tr>
<td>Ash</td>
<td>3%</td>
</tr>
</tbody>
</table>

Proximate composition of pellets

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein</td>
<td>48%</td>
</tr>
<tr>
<td>Lipids</td>
<td>10%</td>
</tr>
<tr>
<td>Ash</td>
<td>10%</td>
</tr>
</tbody>
</table>

Supplementary Premix

<table>
<thead>
<tr>
<th>Vitamin</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>6000 U.I</td>
</tr>
<tr>
<td>E</td>
<td>3 mg</td>
</tr>
<tr>
<td>B6</td>
<td>0.3 mg</td>
</tr>
<tr>
<td>Folic Ac</td>
<td>1 mg</td>
</tr>
<tr>
<td>Inositol</td>
<td>900 mg</td>
</tr>
<tr>
<td>Pantotenic Ac</td>
<td>30 mg</td>
</tr>
<tr>
<td>Niacine</td>
<td>0.5 mg</td>
</tr>
<tr>
<td>Biotine</td>
<td>0.03 mg</td>
</tr>
</tbody>
</table>
These amounts are supplemented to PREMIX in 2 g each kg of dry weight of food.

Periodically groups were sampled; individuals were measured and weighed, previously anesthetized with trichloromethyl-propanol (Dormilon*).

Once they had been handled, fishes were after treated with nitrifuran bath (Furapez*).

RESULTS

Temperature and salinity during experience period, are shown in (Figure 1).

Water temperature values ranged between 22.7 top and 11.2 low.

Salinity ranged on 30-32 ppt.

Oxygen saturation rate was maintained between 80-95% as we have mentioned before. Occasionally, when temperature increased, supplementary oxygen was supplied.

Growth

Juvenile of black-spot Sea bream 21 gr ± 6.77 SD mean weight and 10.7 cm mean length at start of experience reached 283 g ± 40.8 SD and 24.7 cm ± 1.62 sd in 18 months.

These results refered to mean weight are shown by a curve line (Figure 2). Condition factor, was 1.73 at the growth experience started and 1.88 at the end.

Food conversion index ranged between 1.27 at the first control and 2.3 just at the end, in those groups fed on wet diet, whereas in groups feeding on dry food, these index were 2.5 and 4.3 as we had say before this trial only lasted three months because fish rejected dry food. Specific growth rate was 2.41 in fish feeding on wet diet during all experimental period.

During stockage of specimens epidemiological illness were not observed, while at the same period, individuals of different species under the same condition, had some of them, such as Pseudomones, Aeromones, Yersinia, etc.

A high mortality took place in those individuals, which immediately after capture showed bilateral exophthalmos, probably due to the different of preassure.

* Supplied by TROFIC
CONCLUSIONS AND DISCUSSION

All these data lead us to the conclusion that black-spot seabream could be a species which offers some possibilities to be farmed. It is remarkable its capacity to captivity adaptation. Because we have been researching on a species of unknown behaviour and dietary requirements, data before exposed could be improved, as in fact occur through this experience.

Even if we don't know some data which would complete this study according to what has been started above, we think it could be possible its fattening until the size "portion", at least until 250 g, the size considered commercial in market.

ACKNOWLEDGMENTS

We thank to Dr. E. Santaella for all his suggestions that helped us to reach the object of this paper.

REFERENCES


Santaella E. Dirección General de Pesca Marítima. Subsecretaría General de Pesca. MAPA. Madrid
Figure 1 (A)

Temperature Year 1986

Salinity Year 1986

Temperature Year 1985

Salinity Year 1985
GROWTH OF BLACK SPOT SEA BREAM
P. bogarabeo

Figure 2

WEIGHT

MONTHS

WEIGHT

TEMPERATURE

MEAN TEMPERATURE

C

0 5 10 15 20 25

0 50 100 150 200 250 300

D J F M A M J J A S O N D J F M A M J

84 85

GROWTH OF BLACK SPOT SEA BREAM
P. bogarabeo

Figure 2

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MONTHS

WEIGHT

TEMPERATURE

MEAN TEMPERATURE

C

0 5 10 15 20 25

0 50 100 150 200 250 300

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84 85