

## **REPORT ON DISEASE OUTBREAKS IN GEORGIAN RAINBOW TROUT FARMS**

**by Dr George Savvidis, Veterinarian Aquaculture Animal Pathologist**

### 1) General introductive information

During the days of Wednesday/Thursday, October the 7<sup>th</sup>/8<sup>th</sup> 2015 I visited five(5) Georgian trout farms which located at the area of the city of Gori. My travelling to Georgia was organized by the Danish trout eggs company AquaSearch, after the relevant involvement/invitation from Mr. Irakli Pataraiia who is head of company is being activated in Georgia and dealt with aquaculture issues.

The information was collected and communicated to me before my visiting days, referred on disease outbreaks in several trout farms in Georgia during the recent couple of years. The disease is usually limited in fish individuals more than 15-20 g average weight until the market size and the losses, having various but severe character always, are observed all year around, especially during the hottest periods of time. The water temperature of the farms has considerable fluctuations starting by 13-14°C and reaching until more than 20-21°C in the hot summer days.

All the diseased fish appear the same external and internal picture; the protruded eye(s) is predominant (Ph. 1, Ph. 2 & Ph. 3).

### 2) Investigation in the field

After the necessary previous discussion with the farmers, randomly selected diseased fish were sampled from two out of five visited farms (Ph. 4). Referring the gross pathology picture of the sampled fish and apart of the stable presence of exophthalmos (Ph. 5), pale colored liver and enlarged spleen (see the photos 2 & 3) were observed after the opening of the body cavity. Despite the fact that externally observable dermal gray colored pin point lesions (characteristic for the disease of Ichthiophoniasis) were not present, fresh preparations from internal organs tissue were microscopically examined by resulting negative to the disease. After the exclusion of Ichthiophoniasis, the inoculation of several TSA (Trypticase Soy Agar) plates was followed by penetrating and taking sample from liver, kidney and endophthalmic fluid.

### 3) Laboratory results

Rich growth of whitish small colonies on TSA plates was observed 24 hours after their inoculation. It concerned about pure cultures of Gram positive cocci (Ph. 6 & Ph. 7) which appear the following biochemical profile:

Gram stain	+ (coccus)
Oxidase	-
Catalase	-
O/F test	+/+
(Oxidation/Fermentation test)	
Glucose	+
Gas from Glucose	-
Lactose	-
Arabinose	-
Raffinose	-
Xylose	-
Arginine	+
Lysine	-
Ornithine	-
Growth in Nacl 6.5%	+
Growth in pH 9.6	+

According to the afore mentioned biochemical properties of the microbial strain was isolated, it concerns about ***Lactococcus garvieae***, the etiological agent of the disease Lactococcosis.

The result of antibiogram was also performed is:

Tetracycline	S
Enrofloxacin	S
Erythromycin	I
SXT	R
Ampicillin	R
Flumequine	R

\* S = Sensitive, I = Intermediate, R = Resistant

#### 4) Conclusions/Suggestions

By taking into account the following:

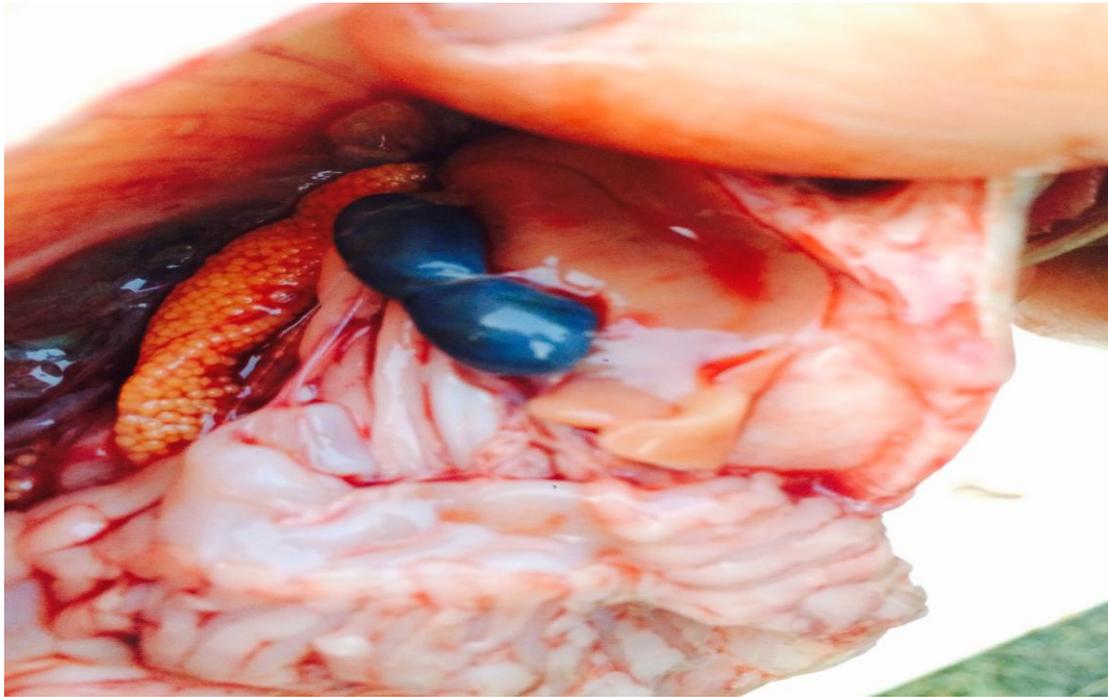
- The whole information packet was communicated before my travelling to Georgia (periods of the year when the disease cases are mainly occurred, ambient and water temperature, average weight of the usually infected fish)
- That was seen in the farms and the discussion with the farmers
- The clinical observations in the affected fish populations
- The external and internal gross pathology findings which were present in diseased fish individuals
- The negative results regarding Ichthyophthiriasis disease and
- The results of microbiological examination, by which a Gram positive coccobacterium was isolated and as ***Lactococcus garvieae*** identified,

we are talking about the disease of Lactococcosis which is common in the majority of South European countries during the last 20 years.

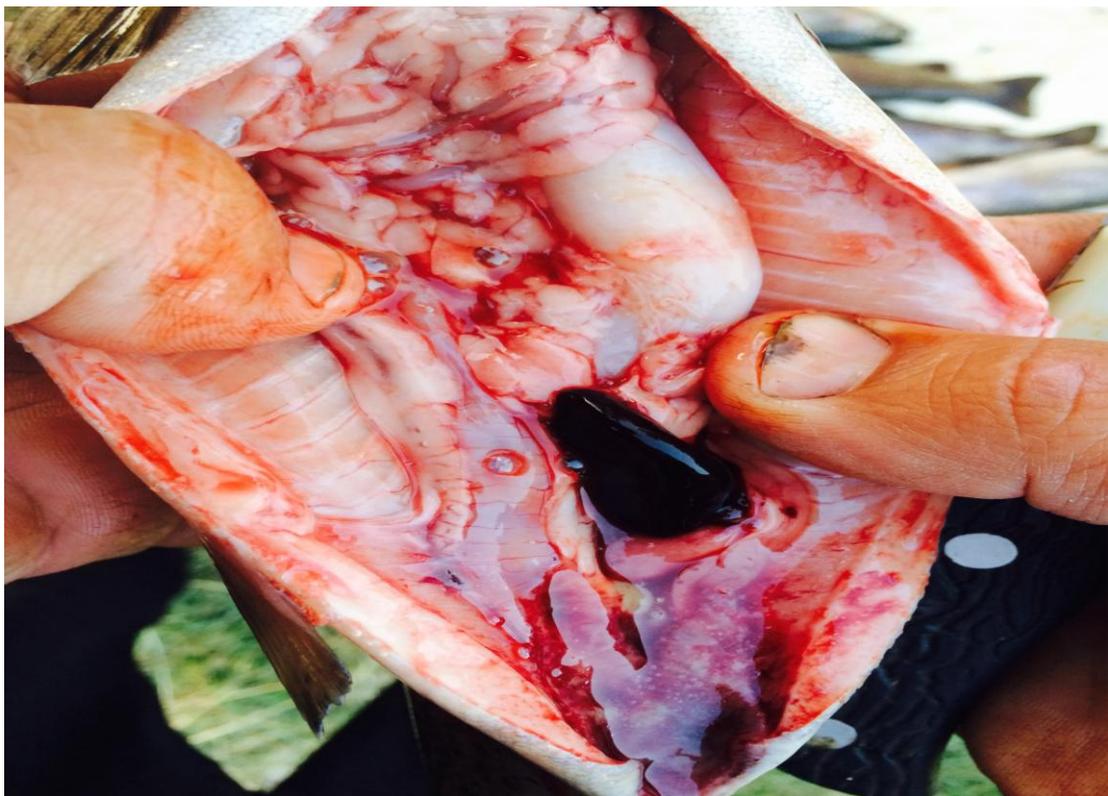
The results of antibiogram was performed, suggest that the strain is sensitive against Tetracycline and Enrofloxacin. Greek and international experience as well, showed that this *in vitro* activity doesn't always make sure the positive result of the respective antibiotic treatment, especially in case of numerous and long term apply of them. Vaccination of healthy fish populations by using market available vaccines or autovaccine, is the most suitable precaution way the whole problem to be faced, not only thanks to its offered satisfactory protection rate but to its environmentally friendly character as well.



Ph. 1 Exophthalmos (protruded eyes) in Georgian rainbow trout  
(photo taken by Irakli Pataraia and sent to me before my travelling to Georgia)



Ph. 2 Pale colored liver in diseased fish  
(photo taken by Irakli Patariaia and sent to me before my travelling to Georgia)



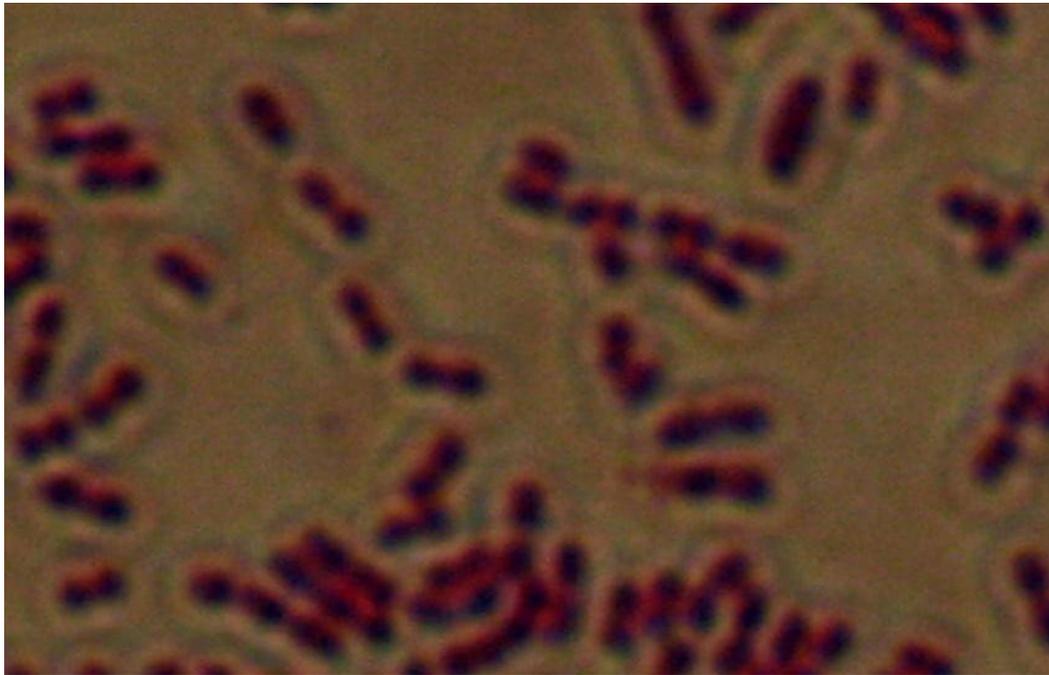
Ph. 3 Enlarged spleen in diseased fish  
(photo taken by Irakli Patariaia and sent to me before my travelling to Georgia)



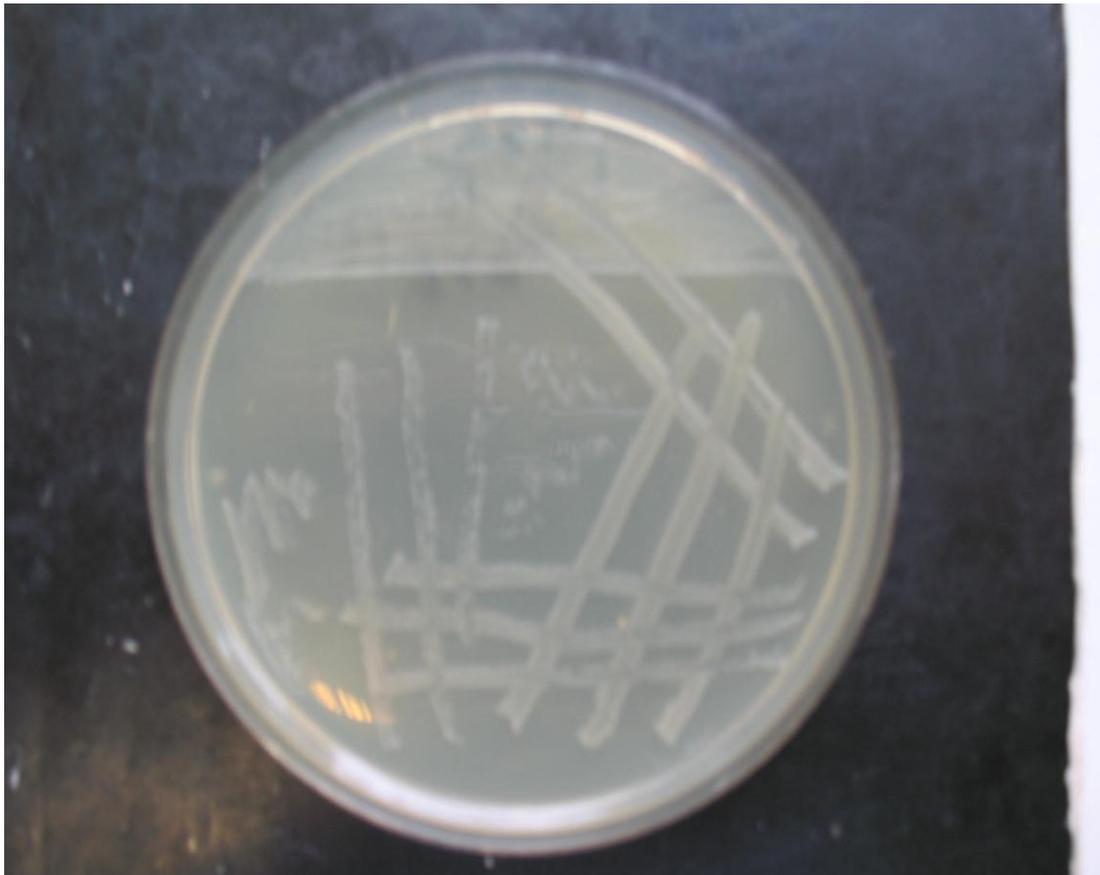
Ph. 4 Basins of a typical Georgian rainbow trout farm (by G. Savvidis)



Ph. 5 Exophthalmos (protruded eyes) (by G. Saviidis)



Ph.1 Gram positive *Lactococcus garvieae* cocci (photo from the isolated strain)  
(by G. Savvidis)



Ph. 7 Subculture of the isolated strain in TSA.  
(by G. Savvidis)