



Confidential

Supervisor's Review of USB RIFCH PhD Thesis

Surname of the PhD student: MSc. Miroslav Blecha	Name of supervisor: doc. Ing. Tomáš Polícar, Ph.D.
Title of PhD thesis: Innovative methods in culture and reproduction of pikeperch (<i>Sander lucioperca</i>)	

OVERALL COMMENTARY ON THE PhD THESIS

Ph.D. thesis with the title "Innovative methods in culture and reproduction of pikeperch (*Sander lucioperca*)", written by MSc. Miroslav Blecha, brings in total eight innovative technological methods and steps related to reproduction, larval and juvenile culture of pikeperch which is promising fish species for current European aquaculture. Mentioned work is a view of interesting scientific and technical results which can help to increase a basic and practical knowledge related to pikeperch biology and aquaculture. At the same time, this work can have a positive effect on future development of the pond and intensive aquaculture of highly valuable pikeperch in the Czech Republic or in the whole Europe.

Generally, the whole Ph.D. thesis includes in total 10 chapters with 146 pages. Chapter 2 – 9 are specific parts of thesis where following scientific and practical aspects of pikeperch reproduction biology and aquaculture are described. Quality and quantity of pikeperch spermatozoa after varying cold water treatments which is given in the chapter 2 can help to optimize male broodstock management with the aim to get high quality spermatozoa during seasonal and out of season spawning as well. Benefits of hormone treatment of both sexes in semi-artificial reproduction in pikeperch are described in the chapter 3 where the importance of hormonal treatment of both sexes in tank spawning for effective production of fertilized eggs and larvae is presented as the crucial factor. Alcalase treatment for the elimination of stickiness in pikeperch eggs under controlled conditions is firstly mentioned in the chapter 4 of this thesis as effective and quick method for the removing of egg stickiness and preparation of eggs for artificial incubation. Post-ovulatory oocyte ageing and its effect on eggs viability rates and occurrence of larval malformations and ploidy anomalies are listed in chapter 5. These results describe over ripening effect on eggs and possibility for egg storage and synchronization of egg fertilization process in pikeperch. The first report of heat shock triploidisation in pikeperch is described in chapter 6 with firstly documented process for 100% production of pikeperch triploids. The effect of water surface treatment on survival, swim bladder inflation and growth of larvae is given in the chapter 7 with the aim to optimize



the larval culture of pikeperch. Last two chapters (8 and 9) are describing the adaptation of intensively cultured juveniles to pond culture and the adaptation of pond-cultured juveniles to RAS such as new effective methods for on-growing production of pikeperch.

In total, four published scientific papers, one handbook, one accepted scientific paper for publication, and two prepared scientific manuscripts are included and discussed in evaluated Ph.D. thesis.

According to my opinion, evaluated Ph.D. thesis brings new, original and interesting information and knowledge related to reproduction biology, larval and juvenile culture of pikeperch which can be used for future research, optimization and development of breeding and aquaculture in this promising fish species for diversification of European aquaculture. The whole thesis including published papers and handbook, accepted paper and prepared manuscripts indicates good scientific and practical knowledge and skills of the candidate.

At the end of my supervisor's report, I can note that Ph.D. thesis written by MSc. Miroslav Blecha is interesting scientific work with highly applied importance and I recommend it for final defence.

FINAL RECOMMENDATION

- can be recommended for defence of PhD Thesis
 can be recommended with reservations for defence of PhD Thesis
 can not be recommended for defence of PhD Thesis

29.4.2016

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Date and place

Policar Tomáš

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surname and signature