



Fakulta rybnářství
a ochrany vod
Faculty of Fisheries
and Protection
of Waters

Jihočeská univerzita
v Českých Budějovicích
University of South Bohemia
in České Budějovice
Czech Republic

Confidential

Review of USB FFPW PhD Thesis

First name(s), surname, titles of the PhD student: Pavel Lepič, Dipl.-Ing.	First name(s), surname, titles of supervisor: Prof. Dipl.-Ing. Pavel Kozák, Ph.D.
Title of PhD thesis: The use of recirculating systems for rearing of river fish species	
REVIEWER:	
Surname: Mareš	Institution: Mendel University Brno, Department of Fisheries and Hydrobiology, Zemědělská 1, 613 00 Brno
Name: Jan	
Titles: prof. Dipl.-Ing., Ph.D.	E-mail: jan.mares@mendelu.cz
Please describe your professional relationship to the PhD student: none	Please describe your field of expertise: Aquaculture, fish nutrition

QUESTIONNAIRE

Originality, scientific importance, perspectives and impacts of results presented in the PhD thesis for basic and/or applied research

The dissertation contains the results supplementing current knowledge on intensive farming and use of reophile fish in RAS. The author has been dedicated to intensive fish farming in RAS for many years. A number of original results were obtained during his research. The dissertation is composed of three original scientific papers from the mentioned area. The chosen theme can be considered a priority for further development on the farming and use of reophile fish. The obtained results bring progress and also other themes in applied and fundamental research to an international level.

Elaboration of the PhD thesis, objectives of the work and deliverables

All publications which form the presented work are at the standard scientific level. Two of them have already been published in prestigious scientific journals. As it can be seen from the List of publications, some results have been presented at the international scientific conferences. Publications are on a very good level. The experiments, their evaluation and results processing comply with the international scientific standards in the given area. The aims of the dissertation stated in the introductory chapter have been achieved.

OVERALL COMMENTARY ON THE PhD THESIS



Please write comments in extent of 1-2 pages:

The dissertation deals with the selected areas of current issues of breeding of reophilic species in the conditions of intensive farming. It is made of 3 original scientific works at different levels of realization of their publication. In all cases, the author of the dissertation is the first author. The co-authors of individual publications are experienced and respected experts. The methodology of the conducted experiments, the processing of the obtained results and their presentation are at a very good international level. This corresponds to the selection of scientific journals for publication. I recommend adding the assessment of the economic effect of using higher temperature, which is mentioned in the work but not quantified in the introductory paper, at least on the level of the value of the produced fish.

Scientific papers are complemented with introductory chapter, summary discussion, an overview of the author's publications and a CV. A small number of typing errors have been made in the introduction and conclusion. A list of references, used in all parts of the work, reflects a high quality professional overview of the author. Not only from areas covered by the listed publications, but also from the use of recirculation aquaculture systems for fish farming, including combined technologies.

The list of publications proves the author's professional level, presented not only by scientific, but also applicable results and chapters in books.

Based on the study of the submitted doctoral thesis, I recommend it for the defence and after successful defence, I recommend awarding the author with the corresponding scientific title of Ph.D.

FINAL RECOMMENDATION

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

30.6.2017 BPNW
.....
Date and place

prof.Dr.Ing. Jan Mareš


.....
Name and signature



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Review of USB FFPW PhD Thesis

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Title of PhD thesis: The use of recirculating systems for rearing of river fish species	
REVIEWER:	
Surname: Kucharczyk	Institution: University Warmia and Mazury Oczapowskiego 2 str. 10-719 Olsztyn Poland
Name: Dariusz	E-mail: darekk@uwm.edu.pl
Titles: Prof.	
Please describe your professional relationship to the PhD student: I have any relationship with PhD student.	Please describe your field of expertise: I am working over 26 years on the University, at the Department of Lake and River Fisheries (formerly: Department of Fisheries). I am the author of subject: Aquacultural Engineering, for student course. My main scientific topics are: artificial reproduction of wild species (including riverine fish species), larviculture, fish production for restocking, RAS systems.

QUESTIONNAIRE

Originality, scientific importance, perspectives and impacts of results presented in the PhD thesis for basic and/or applied research

Evaluate competitiveness of the PhD thesis in the international context and compare its level with the current state of the art in the field (**extent ¼ – ½ page**):

The doctoral dissertation done by Pavel Lepic entitled "The use of recirculating systems for rearing of river fish species" is a part of the modern research on the improvement of using RAS mainly for conservative aquaculture. The main research was done on riverine cyprinids: nase (*Chondrostoma nasus*) and vimba bream (*Vimba vimba*). All these species are important for many fish farmers which produce a lot of stocking material, mainly juveniles. But, the rearing protocols are not finished yet, and many bottlenecks are necessary to be studied.



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And present PhD thesis focused directly to these. Also, very important, both for researchers and fish-farmers, are the research done on vimba bream (as "trainer") and pikeperch (*Sander lucioperca*) juveniles reared in RAS. This last freshwater fish species has high potential to be aquaculture species, which might be intensively commercially reared under controlled conditions (in RAS). In conclusion, present PhD thesis done by Pavel Lepic are very interesting, strong scientifically and in my opinion will be have a huge impact in the future both for commercial fish-farming (not only in Czech Republic) and fishery science.

Elaboration of the PhD thesis, objectives of the work and deliverables

Evaluate the overall level of elaboration of the PhD thesis (structuring of the main text, comprehensibility, logicity of the chapters and their ordering) and the originality of the selected approaches to solve the objectives; evaluate publications and whether the results described correspond to objectives of the PhD thesis (**extent ¼ – ½ page**):

The doctoral dissertation done by Pavel Lepic entitled "The use of recirculating systems for rearing of river fish species" is correctly structured. The aim of the study was clear and understandable presented. The chapters are well ordered. The Chapter 1 "General Information", subchapter 1.2. "Riverine fish species" might be a little changed in my opinion, but it is only editorial suggestion. The author of present doctoral dissertation chooses the adequate and responsible research methods to solve the PhD study objectives. The quality of published and submitted papers to the scientific journals are high. Most of them are published in high aquaculture scientific journals. All attached papers and manuscripts are ordered logically. The aim of the study is strictly correspond with the described results. The PhD thesis contains important information both for scientists and fish farmers. Much of the information contained in this trial can be successfully implemented immediately to commercial fish culture, both for riverine cyprinids and pikeperch.

OVERALL COMMENTARY ON THE PhD THESIS



Please write comments in extent of 1-2 pages:

The doctoral dissertation done by Pavel Lepic entitled "The use of recirculating systems for rearing of river fish species" is a part of the modern research on the improvement of using RAS mainly for conservative aquaculture. This part of aquaculture is very important for fish farmers in Central Europe, because in many European countries, every year, a huge number of many fish specimens from many species are stocked and before stocking must be produced by fish-farmers. One of the most important in these groups are riverine cyprinids: i.e. vimba bream, nase, barbel, asp, ide, dace, ect ... For this time, the biggest lack of scientific and practical information are for vimba bream and nase culture.

The present doctoral dissertation are connected data form three papers (published or ready for submission to the scietific journal):

1. Intensive winter culture of nase (*Chondrostoma nasus*) and vimba bream (*Vimba vimba*) for spring restocking
2. Adaptation to pelleted feed in pikeperch fingerlings: learning from the trainer fish over gradual adaptation from natural food
3. Comparison of the effects of four anaesthetics on hematological and blood biochemical profiles in vimba

In all of this papers, Pavel Lepic is the first author. These papers are very well prepared. All of them are focusing on very important but not yet study aspetscs of conservative aquaculture. The doctoral dissertation was finally connection of three papers/manuscripts with very well prepared introduction and discussion. In the text I marked some my comments, remarks, but they have only editorial suggestions.



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Once again I would like to emphasize a very high scientific value assessed doctoral dissertation. In addition, many respondents also have a practical aspect and can be successfully used in aquacultural practice, especially in case of conservative aquaculture.

I also apply to the Scientific Council of the Faculty of Fisheries and Protection of Waters of the University of South Bohemia in Ceske Budejovice, for the award assessed doctoral dissertation done by Pavel Lepic entitled "The use of recirculating systems for rearing of river fish species".

FINAL RECOMMENDATION

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

Olšep, 2017-06-28
Date and place

Jamari Kadravský
Name and signature

J. Kadravský