Fakulta rybářství
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: Lundová Katsiaryna, M.Sc.	**First name(s), surname, titles of supervisor:** Dipl.-Ing. Vlastimil Stejskal, Ph.D.
Title of PhD thesis: Technology for efficient prevention of early maturation in brook trout (*Salvelinus fontinalis Mitchill*)	

REVIEWER:

Surname: Palińska-Żarska	**Institution:** The Stanisław Sakowicz Inland Fisheries Institute, Department of Ichthyology, Hydrobiology and Aquatic Ecology
Name: Katarzyna	
Titles: Dr.	**E-mail**: wrobelek.elemelek007@gmail.com
Please describe your professional relationship to the PhD student: I have no professional relationship with PhD student.	**Please describe your field of expertise:** My field of expertise includes mainly: larviculture of freshwater fish species, reproductive biology (for example controlled reproduction) and general aquaculture production science.

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 PhD Thesis refers to a very important aspect of aquacultural production which is, widely understood the light stimulation for growth, sexual maturation, maturity and even the flesh quality of fish. The topic, althought being studied already in other fish species and by others scietific groups worldwide, is still an important and needed field of research. This regards above all to fish species, which for various reasons, must be reared in recirculating aquaculture systems (RAS), as for example the brook trout, being the model species in this Thesis. Especially, that the PhD Candidate clearly stated that, developing special methodologies to advanced (but also to delay in some cases) reproduction cycles, are very important in all salmonid aquaculture. It should be highlited, that all of the conducted experiments (already published or still being in preparation) are

not a repetition of the studies that were already performed by othe scietific groups, but they are interesting, well considered, planned and performed experiments (in my opinion the most interesting was the experiment regarding to the effects of a prolonged photoperiod and light source on growth, sexual maturation, fin condition, and vulnerability to fungal disease in brook trout), what is an added value to the overal quality of the Thesis. Conducted experiments were valuable an original research with high scientific importance, especially to the aquaculture-related production sciences. This was also confirmed by the results of three already published studies in respected scientific Journal in the field. It could be clearly seen that the PhD Thesisi of Katsiaryna Lundová is a consistent and thought out work, having also a direct, practical importance in salmonid aquaculture.

Summarizing, the Thesis of Katsiaryna Lundová is quite an original contribution of sufficient scientific value to be promoted to a PhD in fisheries and/or aquaculture-related sciences. The Thesis, in my opinion, has a very practical sound and that is why, it has high perspective of being someday implemented in the commercial production, having a direct pottential impact on the development of the aquaculture sector.

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, logicality 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 presented Thesis consisted of 6 Chapters constituting the typical structure of the PhD Thesis based on the already published materials. The Chapter 1 is the General Introduction including basic information about the research object and explaining the main research problem undertaken in the view of relevant scientific literature published so far. The first Chapter is ended with the objectives of the PhD Thesis, which later are developed in subsequent Chapters, being the main part of the Thesis. In Chapters 2, 3, 4 and 5 three original articles, already published in scientific Journal with current Impact Factor 1.748 (Chapters 2, 3 and 5) and one manuscript of the article (Chapter 4) are included. The Thesis is concluded with the General Discussion Chapter closed with the appropriate conclusions. In the last Chapter we can also find two Summaries, list of publication of the PhD Candidate as well as the list of abstracts and conference proceedings.

All in all, the presented Thesis is well and clear structure elaboration. All its parts meets the general criterions expected to be met by a PhD Candidate. The entire Thesis constitute the logic and legible whole, with clearly determined objectives, which were later expand by respective chapters and finaly concluded in a Disscussion part.

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OVERALL COMMENTARY ON THE PhD THESIS

Please write comments in extent of 1-2 pages:

The presented Thesis of Lundová Katsiaryna is consisted with three original research articles, published in a well-recognized Journal in the field of aquaculture-related sciences and one already prepared manuscript. The Thesis consist also Introduction (Chapter 1), where all relevant information concerning the justification of the undertaken study were presented. In this Chapter most needed information about the biology and aquaculture of brook trout, as well as basic information about photoperiod and its consequences on fish are provided. I would like to point out that, in my opinion, in the Chapter 1 the PhD Candidate skilfully selected the information provided, choosing them correctly from the huge volume of already existing knowledge, which proves her skills in proper understanding and right selection of the scientific texts already published. The entire Thesis is closed with a General Discussion (Chapter 6), ended with properly chosen conclusions. Besides the main body of the Thesis of Katsiaryna Lundová provided clear enough Summaries (presented in English and Czech) and an overview over her research experiences and Curriculum Vitae.

In general, the presented Thesis is well and clearly structured, and in my opinion, it content relevant scientific contribution. One of the biggest strength of the Thesis is the applied character of presented results. The experiment described in Chapter 2 brings us, for example, knowledge that "prolonged photoperiod was associated with higher survival rate of the fish during transport" and increased resistance to fungal diseases, which information I found as quite interesting and new. In Chapter 3 the PhD Candidate try to find what is the influence of timing of extended photoperiod on growth and maturity of brook trout and in Chapter 4 described the effect of non-circadian photoperiod on growth and puberty of these fish species. It can be easily seen, that the PhD Candidate has focused mainly on the practical aspects of her research, which can prove to be extremely useful in aquaculture of presented species. In Chapter 5 of the Thesis we could also find an information about how photo-stimulation can affect flesh quality, which I also found as an new information and quite practical value of this Thesis. In the articles presented in Chapters 2, 3 and 4 (although the one from Chapter 4 is still not published) Katsiaryna Lundová is the first and corresponding Author, which proves her most important contribution to the papers. It shows also that PhD Candidate have already, at least twice, went through publication process, that include MS preparation, revision of her work and what is really important, standing for the discussion with the Reviewers of those papers. And it is very important part of the scientific work.

PhD Candidate Katsiaryna Lundová did not avoid several lingual clumsiness and unclear sentences in her Thesis. Sometimes I had to even read some sentences twice, to understand what the Author had in mind. However, because both Katsiaryna Lundová and I are not the native speakers, such mistakes are not such important. I have also one technical note: please check citations in the main body of the Thesis for commas and semicolons, because sometimes the following authors in brackets are separated by commas, while in some places a semicolon suddenly appears. I would also like to know the PhD Candidate point of view about: does she think that in some cases the use of different photoperiods or different types of light stimulations in fish farming can bring more

harm than good?

Summarizing, for me it is clear that the entire Thesis was well planned and it shows both scientific and practical character, which is sometimes difficult to join, because of their different priorities. That is why, in my opinion the Thesis of Katsiaryna Lundová entitled: 'Technology for efficient prevention of early maturation in brook trout (*Salvelinus fontinalis Mitchill*)' is a good example how to join the scientific knowledge with its the practical character. Therefore, I can recommend the candidature of Katsiaryna Lundová for further evaluation process and for defence.

FINAL RECOMMENDATION

- [X] **PhD Thesis can be recommended for defence**
- [ ] **PhD Thesis can be recommended with reservations for defence**
- [ ] **PhD Thesis can not be recommended for defence**

OCSZIYN 04.09.2020
Date and place

KATARZYNA PALIŃSKA-ŻARSKA
Name and signature