

**Dissertation Review Form**  
**-for members of the Dissertation Commission-**

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Please write a review of the dissertation taking the following criteria into account, where appropriate:

- General remarks
  - The significance and status of the dissertation in the field
  - The sufficiency and quality of the material
  - The adequacy of the methods used
  - The validity of results
  - The logic of the dissertation's structure
  - The knowledge and use of literature in the field
  - The project's contribution to the research area
  - The author's input into the achievement of the dissertation results
  - Language
  - The shortcomings of the manuscript
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**Name of the PhD Candidate** : Ms OLESYA KOLMAKOVA

**Planned Date of Graduation** : 23 September, year: 2015

**Title of the Dissertation:** MOLECULAR GENETIC IDENTIFICATION OF  
PLANKTONIC BACTERIA IN THE YENISEI RIVER BASIN AND EXPERIMENTAL STUDY OF  
THEIR BIOGEOCHEMICAL FUNCTIONS

Would you please elaborate upon your review with reference to the above mentioned criteria in the box below. Please add extra pages if needed

In recent years, interest in the study of the structure and composition of microbial communities has increased. Bacteria are one of the key components of aquatic ecosystems, ensuring self-purification of water bodies and consequently responsible for the quality of natural waters. The use of molecular genetic methods for identification of microorganisms provides opportunities for in-depth study of the microbial link of aquatic ecosystems.

The candidate together with the staff of the Laboratory of Experimental Hydroecology of the Institute of Biophysics conducted a series of experiments to identify free-living bacterioplankton utilizing the organic substrates in the Bugach Reservoir (Krasnoyarsk, Russia). These data suggest that the ability of the reservoir ecosystem for self-purification of various organic compounds can greatly depend on the seasonal characteristics of the structure and function of the bacterial community.

The candidate also conducted the pioneering NGS-based study of a great river at a section long enough to find patterns of bacterial biodiversity distribution. According to the results, the bacterial diversity of the Yenisei River depended on the surrounding landscape. The observed patterns of distribution of different bacterial groups, including phenol-oxidizing bacteria and harmful Cyanobacteria must be considered in the environmental management of the Yenisei River, including the practical use in industry and agriculture, for example in simulation of processes occurring in the river under the influence of anthropogenic factors, such as agricultural runoff and industrial waste. In addition, the obtained results can be used for integrated environmental monitoring of the Yenisei River.

The candidate proved herself as a talented experimenter, demonstrated the ability to work with sophisticated laboratory and field equipment. The used methods are high tech and adequate for the desired goal. The candidate demonstrated a sufficient level of scientific literature knowledge in the field. The dissertation is sensibly structured and the language is good.

**Name of the Dissertation Commission Member : ...Prof. Dr. Mikhail I. Glagyshev.....**

**Chair / Function : ...Scientific Advisor / Opponent.....**

**Date : ...18.09.2015.....**

**Signature :  .....**

*\* No signature required when submitted per email.*

**Please send the completed form to the Head of the office of the Doctoral and Post-doctoral, Faculty Performance Evaluation Office Grigorieva O.A. e-mail: grigorieva\_00@mail.ru, tel. +7 (391) 206-22-62, address: 79/10 Svobodny pr., Room P6-16, 660041 Krasnoyarsk, Russia**