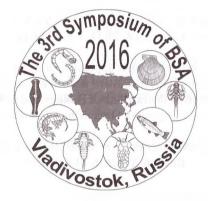
BENTHOLOGICAL SOCIETY OF ASIA RUSSIAN ACADEMY OF SCIENCES FAR EASTERN BRANCH THE FEDERAL AGENCY OF SCIENTIFIC ORGANIZATIONS INSTITUTE OF BIOLOGY AND SOIL SCIENCE A.V. ZHIRMUNSKY INSTITUTE OF MARINE BIOLOGY PRIMORSKY AQUARIUM FAR EASTERN FEDERAL UNIVERSITY PRIMORSKY BRANCH OF THE HYDROBIOLOGICAL SOCIETY AT RUSSIAN ACADEMY OF SCIENCES



## **ABSTRACT BOOK**

## 3<sup>rd</sup> INTERNATIONAL SYMPOSIUM OF BENTHOLOGICAL SOCIETY OF ASIA

Vladivostok, Russian Federation August 24–27, 2016



VLADIVOSTOK DALNAUKA 2016 **3<sup>rd</sup> International Symposium of Benthological Society of Asia.** Vladivostok, Russian Federation. August 24–27, 2016: Abstract Book. Vladivostok: Dalnauka, 2016. 180 p. ISBN 978-5-8044-1610-3.

The 3rd International Symposium of Benthological Society of Asia is held in Vladivostok, Russia, from 24 to 27 August 2016, then from 27 to 31 August 2016 is continuing as The First International Youth Freshwater Ecology School. Various aspects of freshwater and marine biodiversity, biology and ecology problems are in the focus of the Symposium papers. Special attention has been paid to conservation of waters in the urban and wildlife areas of Asian region. Water quality and transboundary water ecosystem monitoring and control are considered at the international point of view as well as questions of ecological education and involving of public to water resources protection. The future international cooperation in different branches of benthological fundamental and applied sciences is discussed.

The book will be interesting for specialists in biology, ecology and biogeography, for practical workers, students and public deal with the water ecosystems protection, monitoring and control.

Co-Conveners: Academician of RAS Yu.N. Zhuravlev, Dr. N.K. Khristoforova (FEFU) & Ph.D. T.S. Vshivkova (IBSS FEB RAS)

The Abstract Book is approved for printing by:

Scientific Editorial Council of the Far Eastern Branch of Russian Academy of Sciences Editor-Publishing Board of the Institute of Biology and Soil Science FEB RAS The Symposium Organizing Committee

> Publishing of the Abstract Book is funded by Far Eastern Branch of Russian Academy of Sciences

Carrying out the Symposium and the First International Youth Freshwater Ecology School is supported by:

Russian Foundation for Basic Research Researches (grant № 16-04-20567) Far Eastern Federal University Federal Agency of Scientific Organizations Institute of Biology and Soil Science, FEB RAS A.V. Zhirmunsky Institute of Marine Biology, FEB RAS Amursky Filial of WWF

Photo on the cover by N.V. Kurzenko

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ISBN 978-5-8044-1610-3

## (O43) ABRUPT CHANGES IN THE MACROZOOBENTHOS COMMUNITIES OF STONY LITTORAL IN LAKE BAIKAL UNDER MASS DEVELOPMENT OF *SPIROGYRA* GREEN FILAMENTOUS ALGAE

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Mass development of non-typical for Baikal green Spirogyra spp. has been detected in coastal zone since 2010-2011, first, locally, in South Basin (Kravtsova et al., 2012; Timoshkin et al., 2014). Results of 2014 round-Baikal expedition evidenced, that Spirogyra occupied shallow water zone (depth range 0.5-2 m) along ca 50 % of the coastal perimeter. General characteristics of the ecological crisis in coastal zone of Baikal, which also includes mass benthonic cyanobacterial blooms, giant coastal algal accumulations, illnesses and mass extinction of Baikal endemic Lubomirkiidae sponges, mollusks, faecal pollution, etc. is given by Timoshkin et al. (2016). Several types of cyanotoxins were isolated and determined in benthonic samples (Belvkh et al., 2015). The structure and composition of the macrozoobenthos communities (MC) of Baikal during last 87 years has been investigated on the example of the stony littoral zone (2-5 m depth). Most current and regular MC investigations have been performed on Berezovy ecological test site, "BTS" (South Baikal) since 2000 (Timoshkin et al., 2009). The depth range of 2-5 m is normally occupied by II and III algal belts (sensu Meyer, 1930), where green macroalgae Tetraspora cylindrica var. bullosa, the diatom Didymosphenia geminata and representatives of endemic green Draparnaldioides usually dominated. Mass development of Spirogyra spp. (40-60 % of wet phytomass) we detected on BTS at 2-4 m depth during 2013-2014 Multivear analysis of the stony littoral MC of south-western coast of Baikal during summer-autumn seasons of 1928, 1945-1946, 1963-1968, 2000-2001, as in June 2013-2014, evidences on rather stable condition of the MC. The mean macroinvertebrate abundance varied within 32.6–45.7 thousand specimens/ $m^2$ , the biomass – within 91.61–333.25 g/ $m^2$ . Gastropods, amphipods, caddies flies always dominated. The share of the mollusks was as high as 63-92%of the total biomass and 36-82 % of the total invertebrate abundance. However, during mass Spirogyra bloom in September 2013 this parameter increased significantly  $(79.8\pm34.9 \text{ thousand})$ specimens/m<sup>2</sup>), while the total biomass slightly decreased ( $141.67\pm88.31 \text{ g/m}^2$ ). Rocky substrate was covered by Spirogyra (50-80 % of the projective area), nonetheless, the MC taxonomic structure was not changed (except for the leeches, which were mostly absent on the spirogyracovered rocks). But the dominant groups were changed drastically: oligochaeta (44 % of total abundance and 26 % of the total biomass) and amphipoda (23 % and 43 % respectively) became dominating on BTS in September 2013. Chironomidae abundance increased significantly: up to 13 % (2013) and even to 21 % (2014). Vice versa, the share of Gastropods decreased 6 times in 2013 and over than 10 times in 2014. Their biomass was equal to 17-18 % of the total one. Mean values of Trichoptera abundance decreased over than 4 times. In summary, the mass development of Spirogyra first of all influences (suppressed) the share of the oxiphylous groups of MC, such as Gastropoda and Trichoptera. Significant changes in the quantitative characteristics and structure of the MC, accompanied by increasing of the total invertebrate abundance (1.7 times) and decreasing of their total biomass (2.3 times) can be explained by increased share of the numerous, but small-sized Oligochaetes. Respectively, it shall be considered as an indirect evidence of the increasing of the total organic matter contents.

The work is supported by the State Project of SB RAS № VI.51.1.10 "Current state...".

Key words: macrozoobenthos, Spirogyra, littoral zone, Baikal