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CHARACTERISTIC OF AQUATIC BIOECENOSIS OF THE TALIMARDJAN RESERVOIR IN UZBEKISTAN

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ABSTRACT

Hydrochemical, hydrobiological and fish species composition in Talimardjan reservoir (Uzbekistan) was studied under conditions of newly created culture based fisheries. Water

quality characteristics are suitable for freshwater aquaculture. Macrophytes developed poorly. Totally 131 species of phytoplankton were determined in samples including Cyanophyta (42), Bacillariophyta (54), Chlorophyta (22), Dinophyta (7), Cryptophyta (3), Euglenophyta (3). Quantity of algae was $150.20 \times 10^3 - 46620 \times 10^3$ cells/l; biomass 55.8 - 355.9 mg/l. Zooplankton was represented by 40 species; quantity varied 290.1 - 410.1 thousands specimen /m³, biomass 0.6 - 1.1 g/m³. Zoobenthos was represented with 5 species of chironomids; quantity varied 406 - 601 specimens/m³, biomass 3.9 - 5.1 g/m³. Totally 35 fish species were determined in reservoir including 11 native and 14 invasive species.

KEYWORDS : Phytoplankton, zooplankton, macrophytes, ichthiofauna, zoobenthos,

INTRODUCTION

Due to geographical peculiarities, fish productivity of water bodies in Uzbekistan is very low (1 - 5 kg/ha) (Kamilov, 1973; Salikhov et al., 2001). In order to increase productivity, fish summerlings stocking was installed in some plane water bodies including Talimardjan reservoir. In 1990 - 2000s, yield of fish capturing was 0.2-0.4 t/year in the water body. Since 2014, reservoir is stocked with 70 - 100 summerlings/ha of cultured cyprinids. In 2018, fish catch increased to 20.5 t. This is new ecological situation in reservoir: considerable stocks of silver carp (*Hypophthalmichthys molitrix*) as main object of culture based fisheries with additional smaller quantities of common carp (*Cyprinus carpio*), grass carp (*Ctenopharyngodon idella*) and bighead carp (*Hypophthalmichthys nobilis*) use reservoir as fattening water body and habitat there for several years. Quantitatively, biomass of that commercial fishes is much higher than in natural conditions. Data of hydrochemical, hydrobiological and ichthyological peculiarities in such new regime of reservoir are unknown.

Talimardjan reservoir was created in Karshi Steppe (Uzbekistan) for irrigation purposes; water supply is from middle stream of Amudarya River through Karshi Main Canal using 8 pump stations. Reservoir has total area 7735 ha, length 11.8 km, width 5.5 km, maximal water depth 40 m, average depth 20 m. This is an arid zone with an extremely continental temporary climate. Summer is hot (average monthly air temperature is about 30,2oC in July; it often reaches 35-42oC in daytime and can be even higher). Winter is rather cold (average monthly temperature in January is 2.5oC).

The goal of this work was to study of hydrochemical, hydrobiological peculiar

substantial (numerous) stock of silver carp and other stocked species. Stocking density of silver carp summerlings is 30 - 50 specimen/ha every autumn still 2014-2015. The strongest impact of silver carp is in summer when size of reservoir is the smallest; but this period is on the peak of silver carp (phytoplanktophage fish) fattening. Totally 35 fish species were determined in reservoir. Eleven species are native. Such species as common carp, shemaiah and roach had noticeable quantity (were marked in all seasons, fish of different size and age including immature ones, etc.). Other native species were represented by single specimen in catches. Such species as shovelnoses, asp, and two species of barbels were represented by 1-2 fish per year. Invasive species were represented by 14 species. Such species as silver carp, grass carp, bighead carp are regularly stocked by fishing company. All other species reproduce in reservoir naturally. All invasive species has developed stocks with noticeable quantities.

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CONCLUSION

Majority of phyto- and zooplankton species determined in Talimardjan reservoir are widely spread in inland water bodies in temporary climate; those species have high ecological valency. Diatoms, blue-green algae were the most numerous; blue-green algae were dominant the whole year, only in December diatoms quantity increased sharply. Green algae were sufficiently presented in all samples; quantity of dinophytes was rater less. Biomass of green algae and diatoms was predominant the whole year, biomass of bluegreen algae was less because size of their cells is very small? Irrigation regime strongly impacts plankton dynamics in reservoir: water accumulation permanently increase volume and depth in reservoir from September up to May; watering provoke fast lowering from May to August. Another strong factor impacted plankton (especially - phytoplankton) is presence of

fitoplanktona. (Quantitative method of phytoplankton sampling and processing).–Trudy Vsesoyuznogo Gidrobiologicheskogo Obschestva, issue 11: 411-415 (In Russian).



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