

Applicable topic number: Biomass resources and logistics.

Full title: THE QUANTITATIVE ESTIMATION OF THE OF THE SINKED TIMBER FROM THE FOREST RIVERS AS ECOLOGICAL BIOMASS TO PRODUCE BIOENERGY FOR LOCAL INDUSTRY AND VILLAGES IN FOREST REGIONS OF RUSSIA.

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Purpose of the work: To develop statistical method for quantity estimation of the sunked timber from the forest rivers and lakes as biomass to produce bioenergy for local industry and villages in forest regions of Russia.

Approach: There is a great amount of sunken timber in the forest rivers of Russia. The estimated volume of this timber is more than 10,000 m³ as a result of timber floating transport on the forest regions of Russia. Sunken timber has negative impacts on the environment, but also can provide valuable raw material to produce bioenergy for local industry and villages in forest. So, it is important to know how to estimate the volume of timber in the rivers and lakes.

Scientific innovation and relevance: A statistical method was developed for estimating the volume of sunken timber, based on the well-known Buffon's problem. The resulting formulas permit estimation of the volume of sunken timber by different laws of angle distribution.

Results: Practical methods and different types of instruments were designed for estimation of sunken timber. Formulas were developed for estimating the sunked timber as biomass to produce bioenergy for local industry and villages in forest regions of Russia.

Conclusions: Formulas for estimating of the volume of sunked timber in rivers and lakes were obtained. The formulas allow to estimating the volume of sunked timber in rivers and lakes with different laws of angle distribution. The sunken timber volume is a basis to plan energy supply chain systems for local industry and villages in forest regions of Russia.

Keywords: Ecological biomass resources and logistics, statistical method for quantity estimation of the sunked timber, energy supply chain systems.