

ALGAE – ECONOMY BASED ECOLOGICAL SERVICE OF AQUATIC ECOSYSTEMS Dumbliai – ekonomiškai pagrįstų ekologinio vandens ekosistemų serviso dalis

# **AIM OF THE PROJECT, TASKS AND ACTIVITIES**



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12<sup>th</sup> of August 2020

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**River** Jūra © D. Morudov



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*Cladophora glomerata* effect on NATURA 2000 habitat "River rapids with *Batrachium* communities" (code 3260)

River Širvinta © J. Karosienė –



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Cyanobacteria *Microcystis aeruginosa* © J. Koreivienė Macroalgae Cladophora glomerata

© J. Karosienė



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- ✓ Diminish visibility in the water body
- $\checkmark\,$  Lowering species diversity
- ✓ Increases accumulation of the sediments
- ✓ Oxygen depletion when decay
- ✓ Produces dangerous cyanotoxins

- ✓ Overgrow water plants
- ✓ Lowering heterogeneity of habitat
- $\checkmark\,$  Reduce flow rate in the river
- ✓ Cover bottom of the river (diminish salmon nesting places)

Thus, blooms significantly affect water quality, create costly environmental and social problems, cause economic losses for recreation, fishery, shipping and other industry sectors.



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Agricultural land Wastewater plants Recreation High P and N concentrations BIOLOGICAL FILTER Low P and N concentrations BALTIC SEA

**Objective I:** To demonstrate integrated efficient management of nutrients and algal nuisance blooms **by harvesting of cyanobacteria scums and macroalgae mats** in various types of water bodies.



Construction of **two technologically different prototypes** for harvesting excess biomass of cyanobacteria and macroalgae; testing and demonstration of their efficiency in aquatic ecosystems of various type and size in Lithuania and Poland.

**Creation** and testing **methodology** for evaluation of cyanobacteria and algal agglomerations *in situ* using **traditional phycological and remote sensing** (satellite and aerial vehicle images) **methods**.



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**Objective II:** To test and demonstrate the **redesigning of waste biomass** of cyanobacteria and macroalgae **into potential valuable products** for recycling of environmental resources.





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**Objective III.** To raise awareness to environmental, water quality and health hazard issues among the national governments, local authorities, the business community and society.



#### VANDENS TELKINIŲ "ŽYDĖJIMAI"

Vykdant projektą "Dumbliai – ekonomiškai pagrįstų vandens ekosistemų paslaugų dalis (AlgaeService for LIFE)" vykdoma apklausa, kurios tikslas - surinkti informacija apie vandens telkinių "žydėjimus". Dėkojame, kad skiriate keletą minučių užpildyti žemiau pateiktą anoniminę apklausos anketą. Jūsų nuomonė mums yra labai svarbi, todėl prašome atsakyti j visus klausimus, kai kurie klausimai gali likti neatsakyti.

#### https://docs.google.com/forms/d/e/1FAIpQLSd3EemWU QLa2iGsos 8azU0yO7WlsolzepfUZnnFP21WP 8a-A/viewform





Vandens telkinių "žydėjimai"

Home > Atliekos ir gyvenimas > Vandens telkinių "žydėjimai

(limato kaitos kontekste: grėsmės ir sprendimai



siduriame su nuolat besikeičiančia aplinka, o pastaraisiais metais stiprėjantis klimate ikis kelia vis didesnį susirūpinimą. Klimato šiltėjimas (prognozuojamas vidutinės metinės or mperatūros padidėjimas, trumpesnis pastovios sniego dangos laikotarpis, metinio kritulių kiekio umažėjimas, škvalas ir kt.) yra įvairialypis, jis apima tiek gamtines sistemas, tiek ekonominę, sociali iferas. Ne išimtis ir vandens telkiniai, kurių ekologinė būklė gerai atspindi klimato pokyčius. Neabejotini ad klimato kaitos grėsmės kontekste būtina imtis papildomų priemonių, skirtų vandens ištekliams tausot

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Isolation and determination of phenolic compounds from freshwater Cladophora glomerata



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### ALGAE – ECONOMY BASED ECOLOGICAL SERVICE OF AQUATIC ECOSYSTEMS

**AIM:** The project AlgaeService for LIFE seeks to promote best practices in **ecological service** and the **circular economics** approach by implementing innovative complex system which has both demonstration and innovation character.





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MAI - maximum allowable inputs

Air 7.0%

Direct

1.0%

99%

92,7%



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SWEDISH ENVIRONMENTAL PROTECTION AGENCY, Report 5877. 2008. Costs and benefits from nutrient reductions to the Baltic Sea. Economic Marine Information.

COSTS of reduction in nutrients loads to different BS basins

The 20% reduction in **nitrogen** load - minimum cost is **30-240** millions of Euro/year. The 20% reduction in **phosphorus** load - minimum cost is **10-290** millions of Euro/year.



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**Virginijus Sinkevičius**, Lithuania's European Commission delegate. Initiation of a **joint declaration** to cut pollution in the Baltic Sea. "A declaration setting out **obligations to take specific measures** to reduce pollution of the Baltic Sea is now being harmonised with environment and agriculture ministers". The declaration should be **signed in September** by Lithuania, Latvia, Estonia, Poland, Germany, Denmark, Sweden, and Finland. The **European Union** would **provide financing** for the goals that would be set out in the declaration.



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