

Environment – Water – Renewable Energy – Sturgeons (MARES PN 2018)

The main aim of the MARES Nucleus Program was to correlate its objectives with the “National Strategy for Research, Development and Innovation 2014-2020” (SNCDI) by further addressing multidisciplinary research in the field of environmental protection, establishing appropriate environmental technologies, harnessing types of energy and materials specific to the development and production of green / renewable energy, monitoring the behavior and the improvement in the conservation status of the sturgeons that use the habitats from the lower course of the Danube River.



- **Project Coordinators**

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- **Period**

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- **Financed via**

Beneficiary: Ministry of Research and Innovation

Objectives

Objective 1 – Environment

- Research on the development of techniques for the use of glass with special properties as an eco-friendly construction material.
- Research on the impact of the bioaccumulation of heavy metals in different freshwater fish species on the health of human population.
- Research regarding innovative methods for assessing and controlling air quality in vulnerable areas of the urban environment.
- Research concerning the use of advanced water treatment materials and their durability as dams / filters. Research regarding the ecological risk of contamination of aquatic ecosystems with pharmaceutical compounds belonging to the classes of: antibiotics, contraceptives, analgesics and anti-inflammatory drugs.

Objective 2 – Water

- Research on the evaluation of water quality parameters by utilizing numerical models in order to make a simulation of the pollutant dispersion process in the Danube River.
- Contributions concerning the improvement of wastewater quality by using modern technologies to eliminate hazardous organic compounds.
- Geomorphological studies on the evolution of the Bala Branch-Old Danube Branch, in the context of implementing the DKLB-C win-win hydrotechnical solution aimed at the redistribution of the river discharge from the Bala Branch to the Old Danube Branch.

Objective 3 – Renewable Energy

- Research on the identification and development of new renewable energy technologies by using recyclable materials as well.

Objective 4 – Sturgeons

- Studies on the migratory fish species from the lower course of the Danube River (sturgeons tagged with ultrasonic transmitters, Pontic shad) in order to improve their conservation measures.

Results

- 13 research studies according to the objectives of the Nucleus Program projects

- 8 patent applications submitted to the Romanian State Office for Inventions and Trademarks (OSIM).
- 6 published articles in ISI indexed journals.
- 2 published articles in BDI indexed magazines.
- 31 scientific communications held at national and international events.
- 2 technologies.
- 1 procedure.
- 4 analytical methods.
- 7 dispersion maps.
- 4 innovative materials.
 - 2 hydrotechnical solutions.
 - 1 database.
 - 1 hydrodynamic numerical model.
 - 14 project proposals based on the results of the Nucleus Program projects.
 - 16 diplomas of excellence and gold medals.
 - 12 silver medals.
 - 6 bronze medals.
 - 1 Innovation Cup.
 - Excellence Award in Innovation.