

# ***NATIONAL INSTITUTE FOR RESEARCH AND DEVELOPMENT IN ENVIRONMENTAL PROTECTION BUCHAREST- INCDPM***



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***WIN-WIN SOLUTION TO PROTECT STURGEON SPECIES AND TO ENSURE  
NAVIGATION CONDITIONS ON BALA BRANCH VS. OLD DANUBE IN THE  
CONTEXT OF SUSTAINABLE DEVELOPMENT IN ROMANIA  
(project financed by Ministry of Research and Innovation)***

***10th Meeting on the Follow-up of the Joint Statement on Guiding Principles on the Development of Inland  
Navigation and Environmental Protection in the Danube River Basin***

***-11-12 September 2019-***

# INSTITUTE DESCRIPTION



**National Institute for Research and Development in Environmental Protection (INCDPM)** is a Romanian national institute coordinated by the Ministry of Research and Innovation, that has a wide experience in environmental protection field.

## Main research fields:

- Monitoring of sturgeon species in the Lower Danube River, species that are of conservation priority in all national and international plans and strategies;
- Monitoring of environmental factors (air, soil, water) and noise level respectively;
- Advanced materials, including nanomaterial's, applicable in the field of environmental protection;
- Mathematical, statistical-mathematical and physical modeling of natural and anthropogenic phenomena that have an impact on the air, soil, water, noise and biodiversity factors;
- Pollution risk assessment and the impact of anthropogenic activities on the quality of environmental factors;
- Developing solutions based on the ecosystem approach for mitigation and adaptation to the impacts of climate change;
- Assessment of environmental behavior and eco-toxicological profile of active substances / plant protection products in the procedure for their approval in the European Union



National Institute for Research and Development in Environmental Protection Bucharest (INCDPM) attended The 35th Meeting of the Standing Committee of the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention, **Strasbourg, France**)



National Institute for Research and Development in Environmental Protection Bucharest (INCDPM) attended The 8th International Symposium on Sturgeon (ISS8) held at the University of Natural Resources and Life Sciences (BOKU, **Vienna, Austria**)

## INSTITUTE DESCRIPTION



- ✓ INCDPM develops the only large-scale scientific research program of sturgeon species monitoring on the Danube River, between the Black Sea and Iron Gates, performed by tagging with ultrasonic transmitter, using acoustic telemetry method for transmitting the data to the monitoring system located on the River
- ✓ The institute holds an unique scientific database, already available for the Romanian and European Union authorities.



***Activity example - Russian sturgeon monitoring on Danube River (25.10.2017 - 16.11.2017)***



## RESEARCH INFRASTRUCTURE



Laboratory craft Ranieri model CLF22



RiverRay ADCP for flow-speed measurement



Ana 5.0 Craft



Multibathymetric system Kongsberg GeoSwat Plus Compact mounted on Ranieri CLF22 Craft



VR100 Sonar for active monitoring of sturgeon



VEMCO tags for ultrasonic tagging of sturgeon



VEMCO station for sturgeon monitoring



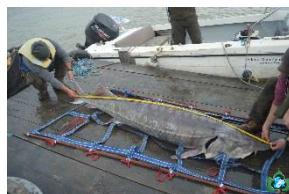
## Representative examples of applied research and technological development activities:

### 1. STURGEON TAGGING WITH ULTRASONIC TRANSMITTER

The sturgeon tagging procedure applied by INCDPM is the same used worldwide and also customized for in-situ conditions. The surgical implanting of ultrasonic tag in sturgeon abdomen is performed in a very short time, without transportation, directly into the Danube water, without stressing the specimen by using equipment that maintain vital parameters under optimal conditions and accredited experienced operators. For the purpose of easy identification of specimens by subsequent fishing, a conventional anti-poaching tag of spaghetti is used, marked with the unique sturgeon code and contact details of the institute. Identification of specimens after a long period can provide important information on their health and behaviour.



1. Capturing the sturgeon



2. Biometric measurements



3. **Weighing**



4. Local anesthesia with lidocaine



5. Performing incision



6. Tag implanting



7. Performing the suture



8. Desinfecting the incision area



9. T-bar (anti-poaching) tag



10. Taking DNA sample



11. Sex determination



12. Sturgeon releasing

## 2. STURGEON MONITORING USING ACOUSTIC TELEMETRY



### ACOUSTIC TELEMETRY BASED ON MONITORING SYSTEMS DKTB AND DKMR-01T

#### STEP 1 - Sturgeon tagging

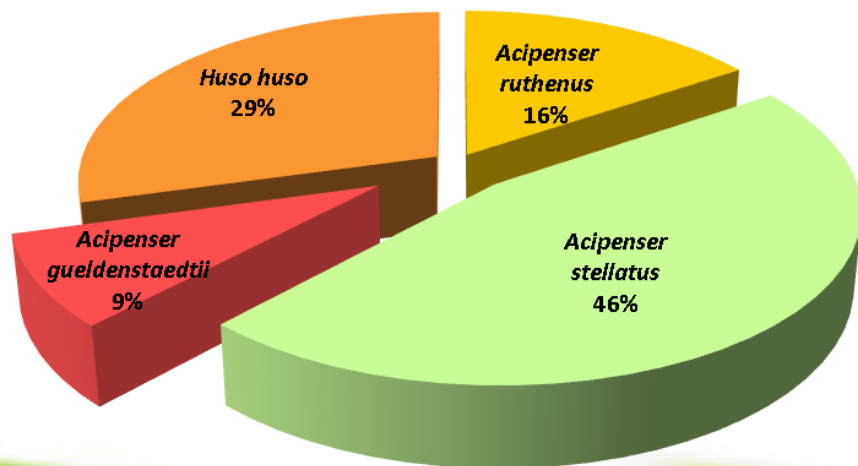
Mobile device -  
determination of sturgeon's  
location - wintering and  
spawning habitat detection

#### STEP 2 - Sturgeon monitoring

Stationary device  
- Establishing  
migration routes



Study of sturgeon behavior in the area with hydro-technical constructions (submersible) and evaluation of poaching pressure



Total captured and tagged (ultrasonic tag, anti poaching tag) sturgeon specimens: 532.

Monitoring result until 2018 (obtained by institute's own efforts)


## WIN-WIN SOLUTION TO PROTECT STURGEON SPECIES AND TO ENSURE NAVIGATION CONDITIONS ON BALA BRANCH VS. OLD DANUBE IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT IN ROMANIA





- In the following, we present some of the unique results obtained by INCDPM team (Sturgeons Monitoring Team), on specific and general behavior of sturgeons tagged by ultrasonic transmitter, during the overcoming of the submersible obstacle (bottom sill), in the area of the Bala Branch
- We present the general and specific behavior of 4 specimens of Huso Huso (Beluga), that crossed the new bottom sill on Bala Branch, in 2016
- This unique database (which respects the provisions of the Aarhus Convention), it is based on techniques and procedures developed by INCDPM team and validated by an International Commission.



# INCDDPM

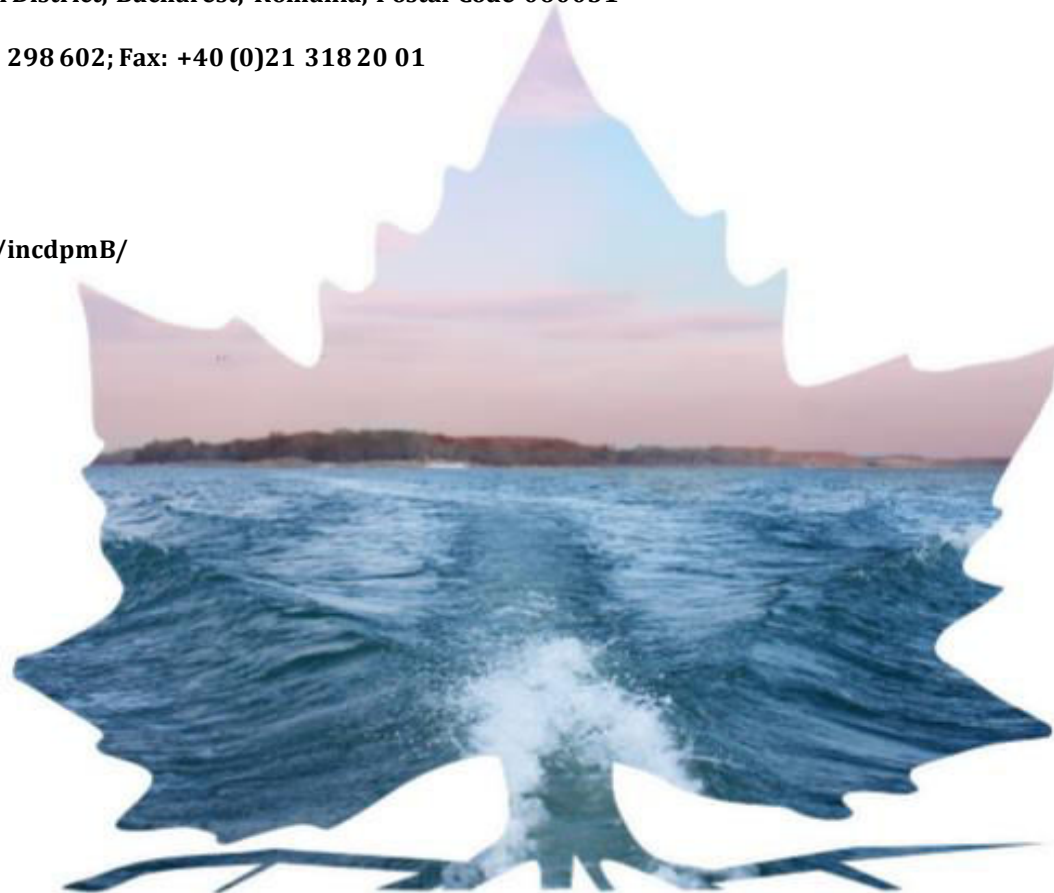
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