# Post-doctoral position at the Institute of Nature Conservation Polish Academy of Sciences, Kraków as a researcher of the plastic – wody debris interactions

We invite applications for a **postdoctoral position** within the project: *The role of woody debris in deposition and retention of macroplastics in mountain rivers (PlasticJam)* (2023/51/D/ST10/01816 PL) financed by National Science Centre of Poland.
The Institutions involved are the Institute of Nature Conservation Polish Academy of Sciences (project coordinator)

**PROJECT DESCRIPTION**

This project aims to challenge the following research questions:
1. What amounts (by weight and volume) of macroplastic are deposited in wood jams in relation to characteristics of wood jam (e.g., size, dominant woody debris type, vegetation species sourcing woody debris)?
2. In what degree does river reach morphology and hydrodynamics control the amount of macroplastic trapped on a given wood jam type?
3. What are the predominant types of plastic deposited on wood jams and does their proportion differ between different types of wood jams and hydromorphological channel patterns?
4. What hydrological conditions favour deposition of macroplastics on wood jams?

We hypothesise that: macroplastics are mainly trapped during low to moderate floods; wood jams at elevated, erosion-resistant sites retain more plastic than those in erosion-prone areas; multi-thread channels trap more macroplastic than single-thread ones; jam roughness is more important than size for plastic retention; and in heavily littered sections, plastic volume may match wood volume, though wood will dominate by weight.
The study will cover six Carpathian rivers with varying channel types. Preliminary data show wood jams and vegetated islands store much more plastic than open sediments or herbaceous areas. In one case, a multi-thread reach stored 36 times more plastic per kilometer than a nearby channelized reach.
To achieve its goals, the project will use drone imagery, digital elevation models, field surveys, and hydraulic modeling to quantify plastic accumulation and flooding frequencies. The research will provide foundational knowledge to support cleanup efforts, design of trapping infrastructure, and mitigation strategies. Scientifically, it will enhance understanding of macroplastic transport in mountain rivers, while offering practical insights for managing pollution in the Carpathians and similar ecosystems.

**KEYWORDS:** macroplastic, mountain river, Carpathians, woody debris, river pollution

**SCOPE OF WORK**

The postdoctoc will be involved in both office-based and field activities aimed at assessing the role of woody debris in the deposition and retention of macroplastic in mountain river channels. In the initial phase of the project, their primary responsibility will be to generate orthophotos and digital elevation models (DEMs) of the study sites using drone imagery. Once specific river sections have been selected for more detailed investigation, the researcher will support fieldwork involving the inventory of accumulated woody debris and macroplastic. This will include evaluating the wood and plastic content in terms of weight, volume, and polymer type. The successful candidate will closely work with an interdisciplinary team of geomorphologists, biologists and hydrologists.

**CANDIDATE PROFILE**

We seek an expert in fieldwork, and GIS-related analysis as well as with environmental knowledge of the functioning of river channels and floodplains in mountain areas. Additionally, the candidate should demonstrate skills in performing statistical analyses and experience in environmental field work in mountain river valleys. We are looking for a person who will prepare data analysis and elaboration within one year and will also be able to participate in field research. Additionally, the candidate is expected to participate in the preparation of texts for publication in scientific journals.

She/he will be part of an interdisciplinary research team and will work closely with collaborators across several institutions.

**SALARY:** PLN 140,000/year total costs (approx. 11700 PLN/month gross gross salary)

This amount is the maximum possible contractual amount for a post-doc in projects funded by the National Science Centre in Poland and includes the employer's costs, full health insurance according to the national system, social security and pension contributions. After deductions according to Polish law, the net salary is approximately PLN 7000 net (depending on factors such as documented length of employment, payment of voluntary contributions, ownership of own business, etc.).
The Project will cover travel and accommodation costs during project meetings, scientific conferences and field research.

**PERIOD**: 6 months (with the possiblity of extension to 24 months)
**ESTIMATED STARTING DATE**: October-November 2025
**LOCATION**: Kraków, Institute of Nature Conservation Polish Academy of Sciences

**CANDIDATE REQUIREMENTS**

Obligatory qualifications are:
- PhD in Earth Sciences, Geography or Biology
- Experience in field work and writing publications on macroplastic in fluvial environment
- Computer proficiency, including MS Office, statistical analysis and Corel Draw software
- Willingness to undertake travel for field work and attend conferences
- Good knowledge of spoken and written English
- The applicant must comply with the requirements of the competition rules of the National Science Centre in Poland, in particular, the PhD degree must be obtained in the year of employment in the project or within a period of 7 years before 1 January 2025. This period must be extended in certain cases; please check the NCN rules here.

Additional assets are:
- Documented previous research experience (publications, participation in scientific conferences or research projects),
- Experience in advanced GIS analyses and in production and analysis of remote sensing material,
- Documented experience in field and laboratory research on woody debris and plastic in mountain river valleys, or experimental studies, supported by publications in international peer-reviewed journals.
- Knowledge of statistical methods and analysis in Earth science and Biology,
- Availability for office-based and fieldwork, as well as willingness to present project results at national and international conferences,
- Experience in scientific writing and dissemination (author or co-author of articles in high impact peer-reviewed scientific journals),
- Field research experience in various geographical regions will be considered an asset.

**APPLICATION FOR THE POSTDOC POSITION**

The required documents are:

(1) A copy of the PhD degree in Earth Sciences or Biologial Sciences. The PhD degree must be recognised as equivalent to Polish title or, alternatively, must have passed the nostrification procedures to obtain such recognition by the time of application. The system KWALIFIKATOR is a tool to assess the level and status of qualifications in the country of issue and to know which foreign degrees are recognised in Poland. In case of obtaining a PhD title earlier than 7 years before January 1, 2025, documents confirming the possibility of extending this period in accordance with the NCN regulations will be required.

(2) A letter of interest (maximum 2 pages) detailing the candidate's qualifications for the position, her/his research and professional experience, and how this position will help fulfil personal career goals. The letter should include the candidate's contact information, as well as the contact information of two academic referees or people with whom the candidates have worked.

(3) Curriculum vitae, including education, employment and research experience with a list of publications and a short description of scientific achievements, particularly information on participation in scientific conferences, workshops, training and internships, participation in research projects, involvement in learned societies and scientific associations, and awarded distinctions and scholarships.

(4) Declaration of consent for processing of personal data for the purpose of recruitment (see below).

The recruitment rules will follow the National Science Centre regulations. The selection will be based on the qualifications of the candidates, including demonstrated skills and competences, scientific achievements and professional experience. Recruitment is a two-stage process and includes: 1) an evaluation of the candidates' documentation and 2) an interview with selected (top-ranked) candidates. The Evaluation Committee will be appointed by the Director of IOP PAN.

The documents should be combined into a single PDF and sent by email to the address sekretariat@iop.krakow.pl by 19th September 2025, 13:00 CET with the subject "Woody debris-postdoc application". The pre-selected candidates would be invited for an interview in June. The decision of the Evaluation Committee will be announced at the IOP website not later than the end of October.

# Declaration of consent for processing of personal data within the framework of the competition procedure for granting scientific scholarships in research projects funded by the National Science Centre

I consent for my personal data to be processed by the Institute of Nature Conservation Polish Academy of Sciences for the purposes necessary for the recruitment process on the award of scientific scholarships in research projects funded by the National Science Centre (in accordance with the Regulation of the European Parliament and of the Council (EU) 2016/679 of 27 April 2016, on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Regulation on Data Protection ) (J.L. EU. 2016, No. 119, p. 1) - hereinafter referred to as RODO, and national data protection regulations issued on its basis.

Place, date

Signature

I consent for my personal data to be processed by the Institute of Nature Conservation Polish Academy of Sciences in Kraków for the purposes necessary for the recruitment process on the award of scientific scholarships in research projects funded by the National Science Centre (required if the data provided include special categories of data referred to in Article 9(1) of the RODO).

Place, date

Signature