2024–2025

BIENNIAL
REPORT

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BIENNIAL REPORT 2024–2025

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Prologue

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Prologue

The Faculty of Fisheries and Protection of Waters of the University of South Bohemia in České Budějovice (FFPW USB) is a state-of-the-art scientific and research institution and an important professional and academic center with a long tradition of broad societal engagement. Through its educational, scientific, research, and applied activities, the Faculty actively responds to the current needs of industry and professional practice in the Central European region, as well as to global challenges in the fields of fisheries, water management, environmental protection, fish processing, and the development of fish products.

FFPW USB contributes not only to the education of students but also to the professional development of specialists through a wide range of workshops, training courses, seminars, and other educational activities within lifelong learning programmes.

A significant and, in terms of its focus, unique component of the Faculty is the scientific center CENAKVA (South Bohemian Research Center for Aquaculture and Biodiversity of Hydrocenoses), which conducts cutting-edge research in the fields of controlled fish reproduction, long-term sustainable aquaculture, water management, and the protection of aquatic ecosystems.

The Faculty maintains and develops long-term international cooperation with leading partners worldwide and strives to achieve its strategic objectives in a modern and effective manner. Particular emphasis is placed on the popularisation of science and environmental education for the general public of all age groups, whether through the organisation of excursions and exhibitions or the implementation of preschool and school programmes for children and young people, introducing them to specialised topics related to fisheries and aquatic ecosystems.

This biennial publication presents the most important events that took place at the Faculty in 2024–2025.

We wish all readers an enjoyable reading experience.

Foreword

02

A dynamically developing Faculty requires constant care

He exchanged his position as Head of the Laboratory of Intensive Aquaculture for the equally demanding role of Dean. Professor Tomáš Policar assumed leadership of the Faculty of Fisheries and Protection of Waters on 1 April 2024. What is it like to lead a renowned scientific institution with more than two hundred employees? How has he managed to move the Faculty forward over the past two years, and what are his plans for the future?

You are approximately halfway through your term as Dean of the Faculty. How would you assess your work to date at the end of 2025?

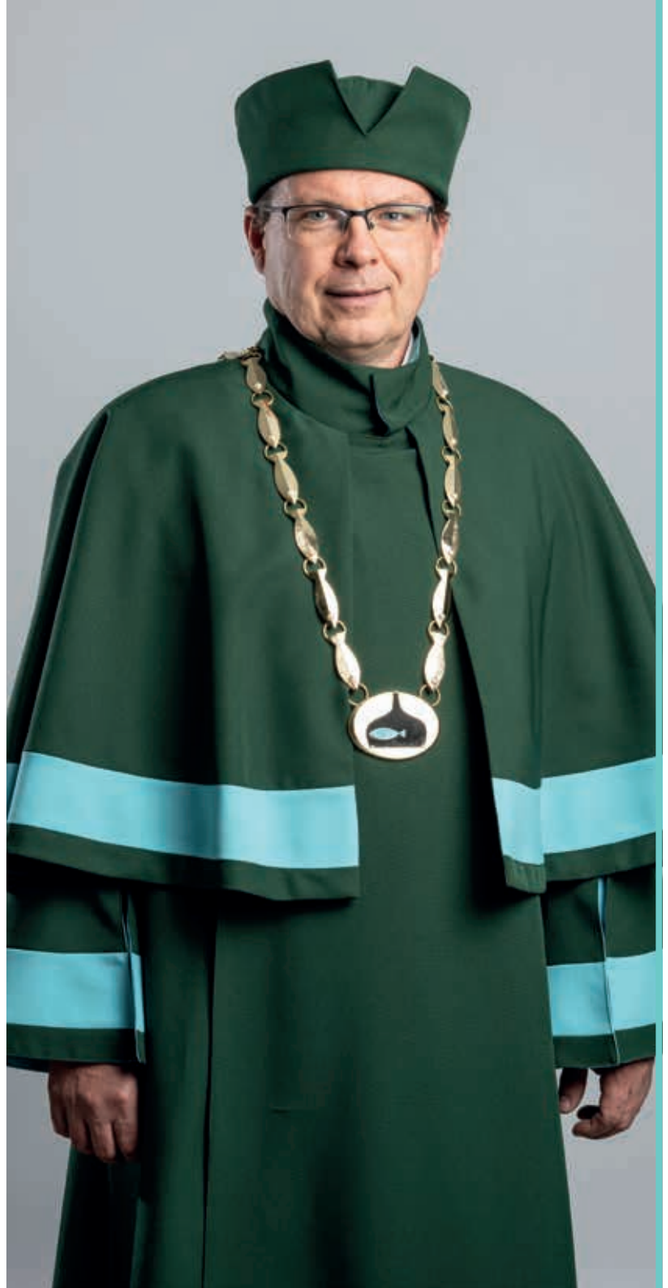
I assumed the position of Dean with great humility and a strong sense of responsibility, but also with a clear plan of what I wished to achieve. Despite having worked at the Faculty for more than 27 years and having been a member of its management in the periods 2008–2014 and again since 2022, it was only after taking on the role of Dean that I gained a truly comprehensive understanding of how the Faculty functions. I believe this provided me with a very solid starting point from which to gradually fulfil the objectives I had set for the Faculty. I must say that the workload was, and continues to be, considerable, and I had to quickly familiarise myself with a wide range of new activities. Nevertheless, the position of Dean brings me great satisfaction and fulfilment.

And what specific changes have you achieved at the Faculty over these nearly two years?

Immediately after assuming office, I sought to improve communication with employees. My aim was to be open and transparent with everyone, to approach them as fairly as possible with regard to their attitude to work, and to engage with them on topics that were important to them. For this reason, shortly after taking up the position, I met individually with almost all employees to discuss their visions and plans. I listened to their opinions and learnt what they perceived as positive and negative about the Faculty. At the same time, I shared my own plans with them. This was important to ensure that individual members of the Faculty understood the changes that were subsequently implemented and, where possible, accepted them in a positive way.

What other changes would you highlight?

Certainly, I would mention the merger of the Institute of Complex Systems in Nové Hrady with the Institute of Aquaculture and Protection of Waters in České Budějovice, which was accompanied by a substantial restructuring of the former unit. In addition, the Human Resources Department and the Property and Facilities Maintenance Unit were stabilised. Gradually, some employees were relocated to their respective work locations to streamline working relationships and make the best use of available positions. There was also improved utilisation of some accommodation capacities. We began construction of a new hall at the Genetic Fisheries Center. The hall with several experimental recirculating aquaculture systems at the Experimental Fish Culture Facility was reconstructed, with a full overhaul of the local heating system. Furthermore, the main lecture hall at the International Environmental Educational, Advisory and Information Center of Water Protection Vodňany, which celebrated its tenth anniversary, was renovated and modernized. I am also working to introduce a comprehensive performance evaluation system for scientific and academic staff to enhance their motivation. At present, we are intensively engaged in a complete personnel renewal of the Processing Unit and the Shop with Fish and Aquaculture Products. In addition, we are revising the project for the construction of an experimental aquaculture hall in České Budějovice and preparing a complete reconstruction of the heating system in the main building in Vodňany. In the field of education, there has been a significant increase in the number of doctoral students, who have been receiving a guaranteed doctoral income since autumn 2025. Moreover, we have introduced and implemented two adaptation courses for incoming bachelor's students and are actively promoting our English-language master's programme Fishery and Protection of Waters. For this programme, we have begun with online admissions procedures to improve their quality. At the end of 2024, I established close cooperation with ČSOB Bank, which currently finances student social projects and partially also the Fund for Talented Students. We have also acquired a third official faculty school, established close cooperation with the Vodňany Grammar School, and begun developing the concept of a Double-Degree English-language programme. A major step forward has been the inclusion of our South Bohemian Research Center for Aquaculture and Biodiversity of Hydrocenoses (CENAKVA) in the European Research In-



frastructure Consortium (ERIC), which represents a significant achievement by our colleague Professor Vladimír Žlábek.

It seems that you are not bored. How would you assess the current state of our Faculty?

Under my leadership, during the period 2024–2025, the Faculty and CENAKVA underwent several evaluation processes conducted by the Faculty and University International Councils, as well as by the International Evaluation Panel organised by the Ministry of Education, Youth and Sports of the Czech Republic. In addition, evaluators from the European Commission visited our University to assess progress in meeting high standards of human resources management in science and research. Furthermore, the Council for Commercialisation and Societal Relevance convened at the Faculty in May 2025. It is gratifying that all evaluation bodies concluded that our Faculty is in very good financial condition, demonstrates excellent scientific performance and potential, and can boast a high level of societal relevance. They also confirmed that we have developed extensive international cooperation and well-established management and organisational processes. I was particularly pleased by the conclusion of the most important evaluation body, the International Evaluation Panel, which stated that our Faculty is the best faculty at the University of South Bohemia in České Budějovice in terms of the societal relevance of research and the robustness of its established processes. Personally, I regard our Faculty as a dynamically developing, high-quality scientific and research institution that nevertheless requires continuous attention in the areas of personnel, organisation, development, and research. The excellent state of our Faculty is, of course, the result of the efforts of all current and former employees, previous Deans, and members of the management, to whom I would like to express my sincere thanks for their work and commitment.

How do you view student education?

High-quality science and research cannot be sustained in the long term without high-quality university education at all levels of study. I firmly believe that our teaching is of a high standard, is practically and professionally oriented, and aims to educate confident, well-educated, and promising graduates in fisheries with a strong conservation ethos, as well as conservation specialists with a pragmatic relationship to commercial aquaculture and other areas of agriculture. This conviction is based on my long-term experience, as I have been teaching at the University of South Bohemia and supervising students' qualification theses at all levels of study since 2004. In recent years, we have faced particular challenges related to the number and quality of applicants to our degree programmes, especially at the bachelor's level. However, we are addressing this issue through close cooperation with selected secondary-school students, targeted promotion at secondary schools, and by motivating newly enrolled students through various scholarship schemes. We have established systematic support for students' creative activities in laboratories and in the everyday life of the Faculty, as well as targeted support for talented students who achieve excellent results in their studies and research or who contribute to various professional and promotional activities. Furthermore, I consider it essential to further develop our English-language master's degree programme and both doctoral degree programmes, which are of key strategic importance for the Faculty.

In addition to research and teaching, close cooperation with industry and the professional community is also important for universities in the Czech Republic. How do you view the Faculty from this perspective?

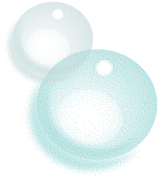
I have long been known at the Faculty for my view that applied science should deliver usable and economically viable technical and technological procedures or innovations for practice and society. We have produced dozens of such results, a substantial proportion of which have already been successfully applied in practice. It is true that the commercial exploitation of our results has not yet been fully realised; however, it has considerable potential. For this reason, upon assuming office, I established the position of Assistant Dean for Commercialisation and Societal Relevance. Over the course of the year, and in close cooperation with colleagues, this role focused on analysing and evaluating the Faculty's societal relevance. These outcomes were subsequently presented and positively assessed during the various evaluations mentioned earlier. Nevertheless, the primary objective remains to further commercialise our results, procedures, and innovations and to apply them more extensively in practice. This intention should ultimately lead to the establishment of the Faculty's first start-up or spin-off company.

There are more than two years remaining until the end of your first term as Dean. What would you still like to achieve in your role?

I would like to see at least 60 doctoral students studying on a full-time basis at our Faculty, with accommodation secured for them. I would also like to achieve stable enrolment of at least five students in each of the two years of our English-language master's programme. Another important objective is the successful completion of all ongoing construction projects and the commencement of construction of a new experimental hall on the University campus in České Budějovice in 2027–2028. A permanent task remains the strengthening of the Faculty in terms of personnel, by actively seeking high-quality and promising staff members who are not afraid of new directions, change, and responsibility.

We are conducting this interview symbolically at the end of 2025. What would you like to wish the Faculty for the coming year?

I would certainly like to wish all our employees the very best, above all, good health, happiness, personal and professional well-being, and continued success. Only satisfied colleagues can ensure the future prosperity of our Faculty. I would wish the Faculty enthusiastic and dedicated employees with many good ideas, as well as highly motivated and talented students. Looking ahead, it will continue to be essential for the Faculty to maintain its very good financial condition in the long term, to strengthen its position through high-quality research outcomes and attractive projects, and to develop effective cooperation with other scientific organisations, production enterprises, state administration bodies, and professional institutions both in the Czech Republic and abroad.



News from the Faculty

03

The two-year period from 2024 to 2025 at the Faculty of Fisheries and Protection of Waters of the University of South Bohemia in České Budějovice was marked by two major events.

In November 2023, the incumbent Dean of the Faculty, Professor Pavel Kozák, was elected Rector of the University of South Bohemia, assuming office on 1 April 2024. This represented the first time in the history of the University that a representative of the Faculty of Fisheries and Protection of Waters had been appointed Rector.

Following this development, an election was announced for the position of the new Dean. Professor Tomáš Policar accepted the nomination and was subsequently elected by the Academic Senate of the Faculty as the new Dean for the term of office from 1 April 2024 to 31 March 2028.

Upon assuming office, the new Rector appointed our colleague Professor Vladimír Žlábek as Vice-Rector for International Relations. Until then, Professor Žlábek had served at the Faculty as Vice-Dean for International Relations and Director of the South Bohemian Research Center for Aquaculture and Biodiversity of Hydrocenoses (CENAKVA). Following his appointment as Vice-Rector, he relinquished his position of Vice-Dean whilst continuing to serve as Director of CENAKVA.

It should also be noted that, as of June 2023, the position of Bursar was assumed by our former colleague Michal Hojdekr, MBA (former Faculty Registrar, and served as Vice-Rector for Development from April 2020 to June 2023). We take pride in the fact that so many colleagues from among our staff have achieved such significant professional advancement.

During this period, our International Environmental Education, Consulting and Information Centre for Water Protection in Vodňany, commonly known by its abbreviated designation MEVPIS, celebrated ten years of operation. Over the past decade, it has established a prominent position as a unit of the Faculty Dean's Office, making substantial contributions to the development and implementation of lifelong learning activities.

New Rector of the University of South Bohemia

On 27 February 2024, the President of the Czech Republic, Petr Pavel, appointed Professor Pavel Kozák as the new Rector of the University of South Bohemia in České Budějovice. The inauguration ceremony took place on 14 May 2024 at the Castle Riding Hall in Český Krumlov, attended by distinguished guests. Professor Pavel Kozák is a leading expert in the breeding of crustaceans and molluscs. He has been affiliated with the Faculty of Fisheries and Protection of Waters – formerly the Research Institute of Fish Culture and Hydrobiology of the University of South Bohemia since 1995. Between 2005 and 2017, he headed the Department of Aquaculture and Hydrobiology, later the Laboratory of Fish and Crayfish Ethology. Concurrently, from 2009, he served as Director of the Research Institute of Fish Culture and Hydrobiology in Vodňany. From 2017 to 2024, he held the position of Dean of the Faculty. Professor Kozák has also maintained a long-standing role within the leadership of the International Association of Astacology and has held various roles within evaluation panels of the Czech Science Foundation, as well as on evaluation boards of the Operational Programme Fisheries. In 2015, he was appointed Professor in the field of fisheries. Among his other achievements, he is the author of more than one hundred scientific articles indexed in the Web of Science database, as well as numerous methodologies, technologies, and books. ◀

Election of the Dean of FFPW USB

On 23 January 2024, an election was held for the position of Dean of the Faculty of Fisheries and Protection of Waters of the University of South Bohemia. The Academic Senate of the Faculty elected Professor Tomáš Policar, who assumed office on 1 April 2024 for a four-year term. Professor Tomáš Policar is a recognised expert in the field of controlled reproduction and intensive aquaculture of fish and crayfish. His professional expertise focuses on the controlled reproduction and culture of diverse fish species, native European crayfish species, and ornamental aquarium fish in recirculating aquaculture systems. He is also engaged in the optimisation of various aquaculture production systems, species diversification in aquaculture, and its long-term sustainability. He has been affiliated with the Faculty of Fisheries and Protection of Waters – formerly the Research Institute of Fish Culture

and Hydrobiology – since 1998. From 2008 to 2014, he served as Vice-Dean for Science and Research at the Faculty. From 2008 until his election as Dean, he headed the Laboratory of Intensive Aquaculture. In parallel, he has served as Director of the Institute of Aquaculture and Protection of Waters in České Budějovice since 2022. Professor Policar has maintained a long-standing role within the leadership of the European Percid Fish Culture Society and serves as the national contact person for the European Aquaculture Society. He has also been actively involved in evaluation panels and committees of the National Agency for Agricultural Research, the Technology Agency of the Czech Republic, and the Operational Programme Fisheries. In 2023, he was appointed Professor in the field of fisheries. He is the author of more than 160 scientific publications indexed in impact-factor journals, as well as over 25 applied professional outputs, including certified methodologies, verified technologies, pilot plants, utility models, and other results. ◀

Newly Appointed Professor

On 10 December 2024, the President of the Czech Republic conferred appointment decrees upon new professors of higher education institutions at the Karolinum in Prague, including our colleague Vladimír Žlábek. Professor Vladimír Žlábek has been affiliated with the Faculty of Fisheries and Protection of Waters – formerly the Research Institute of Fish Culture and Hydrobiology – of the University of South Bohemia since 2002. His scientific work has long focused on research into the occurrence, accumulation, and biotransformation of environmental pollutants in aquatic ecosystems, and on identifying the toxic effects of these substances on wild aquatic organisms. His research contributes to a deeper understanding of the impacts of pollution on aquatic organisms and the quality of the aquatic environment. He is a graduate of the Secondary Agricultural School in Písek (1996) and the Faculty of Agriculture of the University of South Bohemia (2001), where he also successfully completed his doctoral studies in 2004. He undertook his postdoctoral internship at the prestigious Swedish University of Agricultural Sciences in Uppsala. At the Faculty, he works in the Laboratory of Environmental Chemistry and Biochemistry. Between 2014 and 2017, he served as Vice-Dean for Science and Research, subsequently assuming responsibility for the portfolio of Vice-Dean for International Relations. He currently serves as Director of the South Bohemian Research Center for Aquaculture and Biodiversity of Hydrocenoses (CENAKVA) and concurrently as Vice-Rector for International Relations at the University of South Bohemia. Professor Žlábek is the author of more than 100 scientific articles indexed in the Web of Science database, and his work is internationally recognised. ◀

Comprehensive Evaluation Process – A Path towards Improvement

The years 2024 and 2025 were characterised by intensive preparations, followed by an internal evaluation of the activities and achievements of the Faculty and the CENAKVA research centre in the preceding period.

On 2 and 3 October 2024, the sixth meeting of the International Board of the Faculty and the CENAKVA Research Centre took place. For the period 2022–2024, the International Board acknowledged significant progress, particularly with regard to increasing scientific performance, development of research infrastructure, achievements in the areas of internationalisation and societal relevance, as well as implementation of international projects, while also identifying areas requiring enhanced attention. In a similar vein, albeit at the University level, the second meeting of the International Board of the University of South Bohemia was held in April 2025. On 30 May 2025, the third meeting of the Board for Commercialisation and Societal Relevance of the Faculty and Centre subsequently took place. The Board commended the high quality of commercialisation and the established system for monitoring societal relevance. In addition, it recommended deepening cooperation with production partners, eliminating administrative barriers to the commercialisation of our research results, and placing greater emphasis on the commercial and societal impact of our scientific and research activities in the internal evaluation of individual employees and teams of both the Faculty and CENAKVA research centre. At the same time, the Board emphasised the role of CENAKVA, the need for active communication with the public, and involvement in European projects to enhance visibility and secure attractive funding sources, particularly beyond 2027. These advisory bodies provided significant inspiration and assistance in preparing materials and our presentation in accordance with the so-called Methodology for the Evaluation of Research Organisations in the Higher Education Sector 2025+. This evaluation, carried out in June 2025, was of considerable importance to us, as it occurs once every five years and is organised and coordinated by the Ministry of Education, Youth and Sports of the Czech Republic. For this purpose, a highly detailed self-evaluation report covering the period 2019–2023 was prepared, primarily focusing on our societal relevance. At the University level, the assessment encompassed the establishment of quality and management of internal processes, support for the development of

interdisciplinarity and research infrastructure, and strategic planning. It is particularly gratifying that the International Evaluation Panel, which visited the University in person on 19 and 20 June 2025, concluded that the University of South Bohemia in České Budějovice is performing excellently, and designated it as the highest-quality university in the Czech Republic, awarding it grade "A". What is especially positive is that the Faculty of Fisheries and Protection of Waters was ranked the best faculty at the University of South Bohemia, thereby making a significant contribution to the positive assessment of our entire University. In June 2025, the University was also visited by evaluators from the European Commission, who assessed our progress in maintaining the established high standards of human resources management in science and research, as reflected in the prestigious HR Award. We are pleased to report that the University of South Bohemia in České Budějovice has fulfilled the requirements of the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers. ◀

Visit by the Senate Standing` Committee on Water and Drought

On 4 November 2025, the Standing Committee on Water and Drought of the Senate of the Parliament of the Czech Republic visited our Faculty. The meeting was opened by the event initiator, Senator Tomáš Fiala, MD, MBA, who introduced the Committee's members and outlined its activities. The Dean of the Faculty, Professor Tomáš Policar, provided the guests with an overview of the Faculty's activities and those of the CENAKVA research centre. In the professional part of the programme, Associate Professors Hana Kocour Kroupová and Miloš Buřič delivered presentations on research into environmental pollutants and the impacts of global change on freshwater ecosystems. The objective was to demonstrate how the Faculty's scientific findings contribute to protecting water quality and addressing current drought-related issues. The meeting emphasised the importance of collaboration between scientific institutions and decision-making bodies at both regional and national levels, with the aim of advancing the principles of sustainable water management, biodiversity protection, and environmental protection, particularly in aquatic ecosystems. ◀

Education

04

Study

During the period 2024–2025, the Faculty offered bachelor's, follow-up master's, and doctoral degree programmes focused on fisheries and the protection of the aquatic environment. All programmes were available in both full-time and combined forms of study. Teaching took place primarily at the Institute of Aquaculture and Protection of Waters in České Budějovice, as well as in the scientific laboratories of the Research Institute of Fish Culture and Hydrobiology in Vodňany. Detailed information on individual programmes is provided below:

The bachelor's degree programme

B.Sc.

has a standard duration of three years and is offered exclusively in the Czech language. At the beginning of their studies, students choose between two fields of study – **Fishery** and **Protection of Waters** – both of which combine theoretical knowledge with practical skills. Graduates can find employment in fisheries, nature conservation, water management, and public administration. Upon successful defence of their bachelor's thesis and completion of the state final examination, graduates are awarded the degree of Bc. (equivalent to B.Sc).

The follow-up master's degree programme

Dipl.-Ing.

has a standard duration of two years, and graduates are awarded the degree of Ing. (equivalent to M.Sc). The Faculty offers one field of study: **Fishery and Protection of Waters**. This programme integrates biological, ecological, and technological aspects of fisheries with the protection of aquatic environments. Students focus on fish culture, reproduction and breeding, water resource protection, biodiversity conservation, wastewater treatment, and relevant legislative frameworks. The programme is intended primarily for graduates of our Faculty's bachelor's programmes, as well as for graduates of related fields of study. The programme is available in both Czech and English.

From October 2024 to January 2025, an intensive promotional campaign for the English-language follow-up master's degree programme **Fishery and Protection of Waters** was carried out. This programme is designed for international students interested in modern approaches to fisheries and water protection, various aquaculture production systems, controlled reproduction, fish breeding and nutrition, fish processing, fish product development, and the ecology of aquatic ecosystems in an international environment. The campaign utilised online promotion, social media, international university platforms, and direct communication with partner institutions as well as prospective students, significantly increasing awareness of the programme. The entire process also included preparing and implementing the first online admissions procedure, which took place in January 2025 and aimed at selecting the most suitable applicants with strong professional knowledge and adequate language competence.

At the same time, we are continuing to develop this programme. In the future, we seek to introduce a double-degree programme in collaboration with the Institute of Aquaculture and Environmental Safety, Hungarian University of Agriculture and Life Sciences, based in Gödöllő, Hungary. This planned partnership would enable students to obtain two full degrees, complete part of their studies in the Czech Republic and Hungary, and strengthen their academic expertise through broader international experience. This form of study would undoubtedly provide our Faculty with further opportunities for infrastructure development, international cooperation, and the enhancement of our own degree programmes, as well as for new scientific directions.

The doctoral degree programmes

Ph.D.

are strongly research-oriented, equipping students for future scientific or academic careers. The Faculty offers two programmes – **Fishery** and **Protection of Aquatic Ecosystems** – that can be pursued in Czech and English. Doctoral students are integrated into research teams within scientific laboratories and focus on specific scientific topics, such as controlled fish reproduction, fish culture in various production systems, rearing of different age categories and fish species, fish nutrition and breeding, biology and culture of aquatic invertebrates, fish processing and fish product development, ecology of aquatic ecosystems, aquatic toxicology, molecular biology, and environmental protection legislation.

Over the past two years, both programmes have experienced significant revitalisation. A total of 43 new doctoral students were admitted to the doctoral programmes, confirming the growing interest in scientific research and the attractiveness of our research topics. During the same period, 25 students successfully defended their doctoral dissertations.

This positive trend is the result of several key measures introduced over the past few years. These include, in particular, a guaranteed doctoral income, a one-off reward paid to supervisors for each doctoral student who graduates, and additional incentives to encourage supervisors to actively support doctoral students. Furthermore, the strengthening of the Department of Student Affairs has improved administrative support, accelerated communication, and enhanced professional services for doctoral students and their supervisors.

The establishment of the Welcome Office has also played a significant role in supporting doctoral studies at the Faculty. The Office provides comprehensive support and services to newly admitted international students, assists them with orientation at the Faculty, facilitates administrative and practical arrangements, and contributes to a smooth start to their studies.

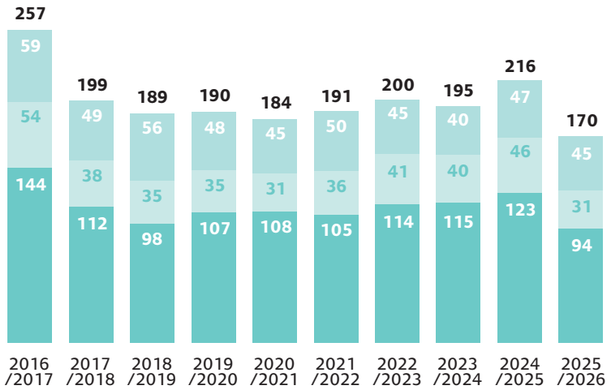
Together, these measures have created an environment that enables international students to study comfortably, fully engage in research, and develop their scientific careers at our Faculty.

All full-time students are required to participate in professional and operational practical training. At the bachelor's and follow-up master's levels, part of the practical training takes place at companies or public authorities involved in fisheries, fish culture, water management, wastewater treatment, and related fields, depending on the nature of individual degree programmes. Practical training may also be completed at the Faculty's service facilities. The most extensive practical training, totalling 12 weeks over the course of study, is included in the professionally oriented bachelor's degree programme Fishery. Students also have the opportunity to undertake study- or practice-oriented mobility abroad, primarily through the Erasmus+ programme, as detailed below.

Number of students in 2016–2025

Number of Students in 2016–2025

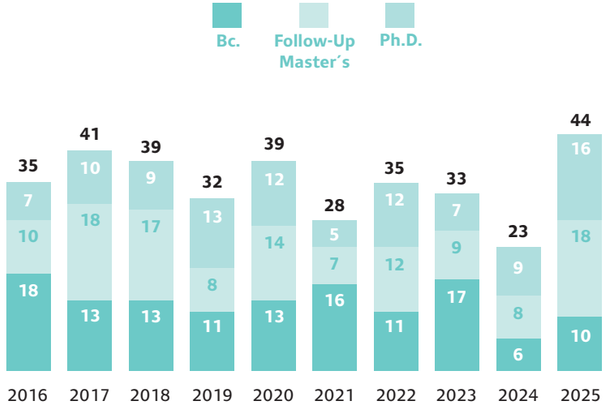
(as of 31 October of each academic year.)



From its establishment in 2009 to the end of 2025, FFPW USB produced a total of 596 graduates across all degree programmes.

Number of Graduates in 2016–2025

(as of a calendar-year basis)



Scholarships

We have long sought to motivate talented and active students through various types of scholarships. For outstanding academic performance, full-time students may receive merit-based and premium scholarships. Talented students and athletesmay qualify for extraordinary scholarships. The Faculty also grants an extraordinary scholarship to support bachelor's students with strong academic potential. In addition, the Dean may award extraordinary scholarships, e.g. for representing or promoting the Faculty, for significant involvement in the activities of the Faculty's research laboratories, and for other outstanding contributions.

The total amount of scholarships awarded

2024

933,500 CZK

2025

1,092,500 CZK

Extraordinary Scholarships for Talented and Active Students

The awarding of extraordinary scholarships to talented students at the end of October each year has become a tradition. Exceptional academic, scientific, and personal qualities of students are recognised, with particular emphasis on their active involvement in Faculty life.

In 2024, the Dean's committee awarded extraordinary scholarships to four talented students: Kateřina Karbusová, Maksim Kononov, Daniel Novák, Jan Škrabánek. In the following year, the scholarships were awarded to Lukáš Beránek, Lucie Knapíková, Daniel Novák, and Jan Škrabánek. The awards were presented during a meeting of the aforementioned students with the Dean of the Faculty, Professor Tomáš Policar, the Vice-Dean for Education, Associate Professor Martin Kocour, along with other members of the committee responsible for awarding scholarships to talented students. Extraordinary scholarships are not only a financial reward but also a form of recognition and motivation, and encouragement for further academic, professional, and scientific development. In September 2025, Tomáš Pěnka became the first doctoral student to receive the Dean's Award for outstanding achievements during his doctoral studies. He received this distinction together with a one-off financial reward of CZK 30,000, in recognition of his activities, academic achievements, and doctoral dissertation entitled Application and Utilisation of Feeds in Intensive Culture of Pikeperch.

Successful Students

The Faculty also consistently supports students' active involvement in professional and public life. Students regularly present the results of their work at conferences, workshops, symposia, and other academic events. We would like to highlight at least some of their recent achievements:

▶ During the 24th International Astacological Conference, held in Zagreb, Croatia, in 2024, Augusto Frederico Huber received the award for Best Student Oral Presentation for his lecture focused on the burrowing behaviour of two Brazilian crayfish species that were newly described.

▶ At the International Multidisciplinary Conference for Young Scientists in Prague in 2025, Gayani Kapukotuwa received the award for Best Presenter in the Animal Kingdom and Ecology category – lecture entitled Impact of Pharmaceutical Contamination on Neurotransmission in Fish.

▶ In the competition "Science for the Earth 2025", organised by the National Museum of Agriculture and the Czech Academy of Agricultural Sciences, our graduates achieved outstanding placings in the doctoral dissertation category:

First place was awarded to Tuyen Van Nguyen for his dissertation on the transformation of pharmaceuticals in wastewater recipients. Second place went to Ismael Soto Almena for his dissertation on research into biological invasions. Tomáš Pěnka shared third place for his research on optimised nutrition in the intensively reared pikeperch.

ČSOB Projects

At the end of 2024, the Faculty of Fisheries and Protection of Waters of the University of South Bohemia in České Budějovice signed a partnership agreement with Československá obchodní banka, a.s. (ČSOB), with the aim of supporting both the FFPW USB Talented Students Fund with an annual contribution of CZK 300,000 and the Student Projects Fund with CZK 1,000,000 for at least three years. The shared objective of both partners is to support student and postdoctoral projects of social relevance for the Czech Republic and, more broadly, for Central Europe, focusing primarily on topics such as: biodiversity support, landscape management, water protection, promotion of sustainable fisheries, fish processing, improved marketing and increased consumption of fish products, promotion of the Faculty towards society, and support for the education of secondary school and university students.

As of 1 April 2025, within the framework of the first project call, four students received financial support for their projects

Jakub Kocour – Know Your Enemy: How eDNA Helps Protect Native Crayfish Species.

Abdul Baten – Better Nutrition for Children or More "Junk" Food? Evaluation of Fish Dishes in School Canteens in Light of New Legislation.

Tomáš Pěnka – Innovative Use of Aquaculture Sludge Waste: Insect Farming as Feed for Fish.

Barbora Zdvihalová – Improvement of Technology for Nitrogen Removal from Wastewater: Verification of the Efficiency of a Specific Microbial Consortium for Nitrification and Denitrification.

What else can we offer students?

Student Excursions

The faculty provides its students with a wide array of excursion opportunities, both within the Czech Republic and abroad. These excursions offer firsthand exposure to various water management facilities, aquaculture enterprises, and significant protected areas, enriching the theoretical knowledge gained in their coursework. Domestically, excursions typically span one or two days, while international trips often include visits to countries such as Slovakia, Hungary, Austria, Switzerland, Germany, and Poland.

One example is the week-long excursion to Hungary, which is organised as part of the courses Ecology of Non-Native Aquatic Organisms and Applied Hydrobiology. During this excursion, students have the opportunity to practise catching and monitoring non-native species of crayfish, shrimp, fish, and other organisms, for example, in the lakes of Hevíz and Velence, terminal reservoirs in Budapest, and the Kis-Balaton wetlands.

As part of other courses, such as Culture of Salmonids, Pond Aquaculture, Culture of Warm Water Fish Species, Aquaristics, New Techniques in Culture of Additional Fish Species, Introduction to Biology of Aquarian Fish. Intensive Aquaculture, and others, students visited dozens of facilities in the Czech Republic, Slovakia, Poland, and Bavaria – ranging from fish farms and hatcheries to research and training centres. They became acquainted with the culture and farming of carp, sturgeon, trout, African catfish, pikeperch, and ornamental fish, got to know the specifics of local fisheries management in open waters, and enjoyed fish specialities. The excursions included practical demonstrations, spawning, fish processing, and environmental aspects of water management.

Mobility Opportunities

Students across all academic levels have the chance to participate in Erasmus+ mobility programmes, which offer opportunities for study, work, and graduate experiences abroad. For a study stay lasting 3 to 12 months at a partner university under the Erasmus+ programme, students are required to earn a minimum of 18 ECTS credits, which are then recognised as part of their curriculum at the Faculty. Additionally, students can undertake work placements or graduate internships lasting 2 to 12 months at various universities, institutions, organisations, and companies in participating Erasmus+ countries. In 2024 and 2025, a total of 28 students benefited from outgoing Erasmus, with study mobility destinations spanning numerous countries, including Belgium, Finland, Italy, Canada, Hungary, Germany, Norway, Slovenia, the United States of America, Spain, Sweden, Switzerland, and Thailand.

Practical Training Opportunities Abroad

Throughout their bachelor's and master's studies, students can gain hands-on experience through professional and operational practical training within aquaculture enterprises, water management organizations, and related industries. Additionally, students can opt for practical training abroad by participating in work placements supported through the Erasmus+ programme. In 2024, twelve students seized this opportunity, embarking on practical training experiences in Slovakia and Germany. The following year, in 2025, eight students completed practical training in Slovakia, Iceland, Germany, and the Netherlands.

Student Life

Numerous students at FFPW actively participate in the social life of the University of South Bohemia. This involvement extends to membership in student organisations and clubs, as well as attendance at various social gatherings. Notable among these events is the traditional induction ceremony for second-year bachelor's and master's students into the fishing guild, a long-standing tradition within the faculty. Typically organised by first-year follow-up master's students, this ceremony held in mid-May in both years, 2024 and 2025 at the Branišov Pond System near České Budějovice to the satisfaction of all involved. The event was attended by current students, alumni, and faculty members, including researchers.

Adaptation Course

From 17 to 19 September 2024, the Faculty organised its first adaptation course for first-year bachelor's students. The programme took place primarily in the Faculty's facilities in České Budějovice and Vodňany. Students were introduced to university life and met the Dean and members of the Faculty's management. They also became familiar with university information systems and key academic regulations. An informal component was also included, featuring a communal barbecue. A total of 15 students participated in the first adaptation course, and they evaluated the course very positively. The second course, held in 2025, took place from 15 to 17 September, and was attended by 19 new bachelor's students.

The Faculty hopes that this initiative will become a regular tradition, supporting new students in their transition to university studies and student life.

Faculty Partner Schools

We are currently developing partnerships with three partner secondary schools: the Secondary Fish Farming School and Higher Vocational School of Water Management and Ecology in Vodňany, the Jakub Krčín Secondary School of Fishery and Water Management in Třeboň. And most recently, since 2 May 2024, the Secondary Agricultural and Veterinary School in Ivanka pri Dunaji, Slovakia. Cooperation extends beyond study promotion activities to include professional practical training and excursions. We believe that graduates from these schools may increase the number of prospective students enrolling in our programmes. As part of this cooperation, in 2025, the Dean of the Faculty, Professor Tomáš Policar, attended the ceremonial opening of two aquaponic halls – one at the partner school in Třeboň and the other in Vodňany.

CENAKVA

South Bohemian
Research Center
of Aquaculture
and Biodiversity
of Hydrocenoses

Science and Research

05

Science and Research

The scientific and research activities of the Faculty of Fisheries and Protection of Waters are coordinated and conceptually framed by the South Bohemian Research Center of Aquaculture and Biodiversity of Hydrocenoses (CENAKVA), which coordinates and advances the activities through its four research programmes (RP1–RP4).

The practical implementation of research is carried out in ten specialised research laboratories and three operational service facilities. These units are organisationally divided into two research institutes:

- *Research Institute of Fish Culture and Hydrobiology in Vodňany*
- *Institute of Aquaculture and Protection of Waters in České Budějovice and Nové Hrady*

The CENAKVA research programmes connect the individual laboratories and institutes according to their scientific focus, forming an integrated platform for the development of excellent research. The Center also closely collaborates with the Faculty of Science of the University of South Bohemia and the Institute of Hydrobiology of the Biology Centre of the Czech Academy of Sciences.

CENAKVA operates as an open research infrastructure dedicated to experimental activities and is included in the Roadmap of Large Research Infrastructures of the Czech Republic.

CENAKVA's primary mission remains to promote innovation in commercial aquaculture towards long-term sustainability, while advancing understanding of changes in freshwater ecosystems and their societal relevance, particularly in relation to biodiversity conservation, protection of the aquatic environment and water resources vital for human life and society.

The centre's activities align with major European and international research frameworks, including the FAO "Blue Transformation" initiative, which promotes sustainable and resilient aquaculture as a key contributor to global food security and livelihoods, as well as the EU Green Deal, the Biodiversity Strategy for 2030, and the Water Framework Directive.

CENAKVA's strategic direction is also closely linked to the United Nations Sustainable Development Goals (SDGs), particularly Clean Water and Sanitation (SDG 6), Life Below Water (SDG 14), Climate Action (SDG 13), and Zero Hunger (SDG 2). Through its interdisciplinary approach connecting biology, technology, and environmental sciences, the center is well positioned to contribute to these global objectives through research, innovation, and education.

The CENAKVA research center actively participates in the development of the European Research Area through its involvement in the European research infrastructures DANUBIUS, LTER, and GenoPHEnix. Within the international platform DANUBIUS ERIC (European Research Infrastructure Consortium), focused on comprehensive research of freshwater ecosystems, CENAKVA serves as the coordinating partner for one of the key components of the distributed infrastructure – the SUPERSITE **Hydrological Nexus of Central Europe**.

Shared Services and Data

The CENAKVA Large Research Infrastructure operates on the principle of open access for experimental activities. Researchers from around the world can utilise its unique experimental facilities, services, and expertise. Open access enables external users to conduct experiments and benefit from the infrastructure's specialised knowledge.

Access proposals are evaluated in two stages, and focuses on three areas: the scientific quality of the proposed research, technical feasibility, and the available infrastructure capacities.

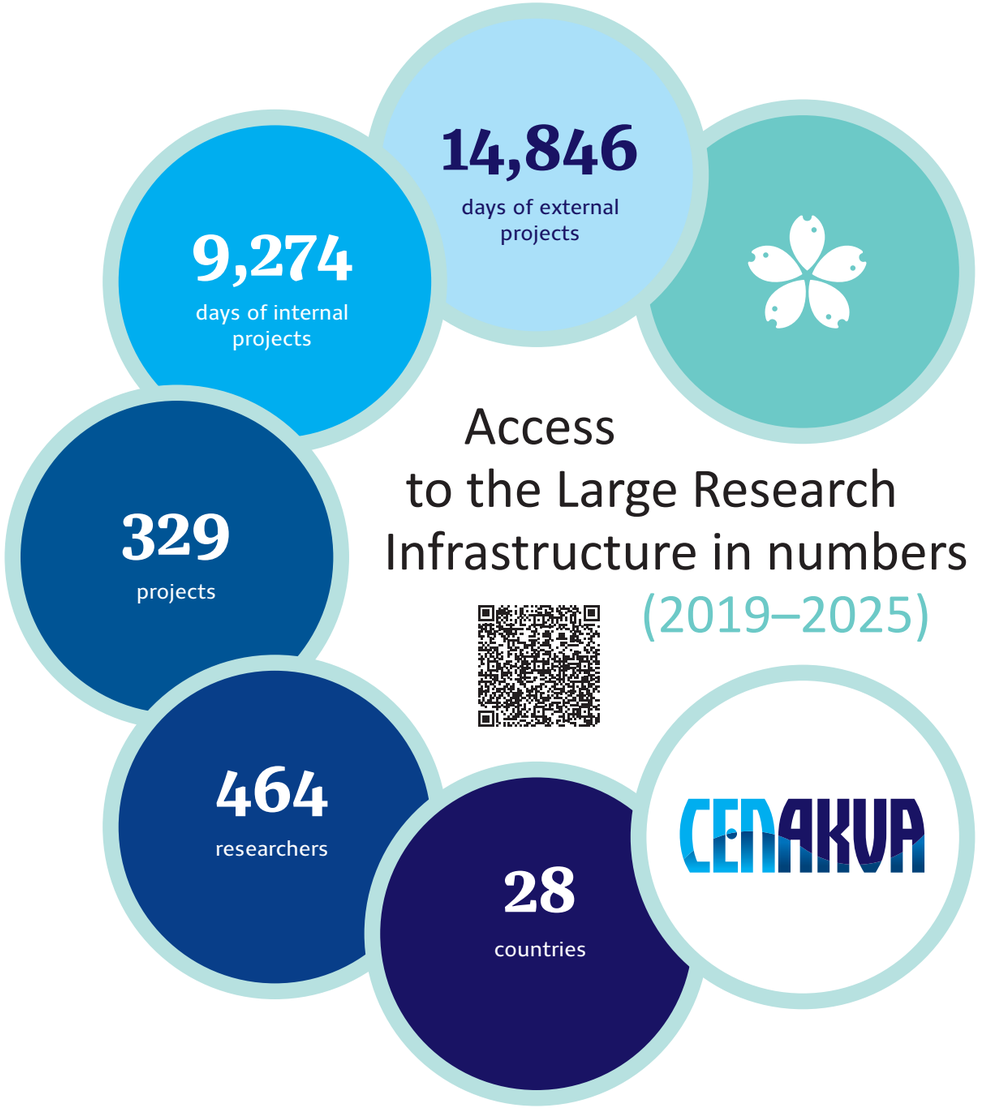
In accordance with the principles of open science, the Faculty and CENAKVA support the sharing of research outputs, including datasets made accessible in line with FAIR principles (Findable, Accessible, Interoperable, Reusable). Through this approach, they contribute to the objectives of EOSC (European Open Science Cloud), promoting transparency, reproducibility, and broader usability of scientific knowledge in the fields of aquaculture, ecology, and aquatic environmental protection.

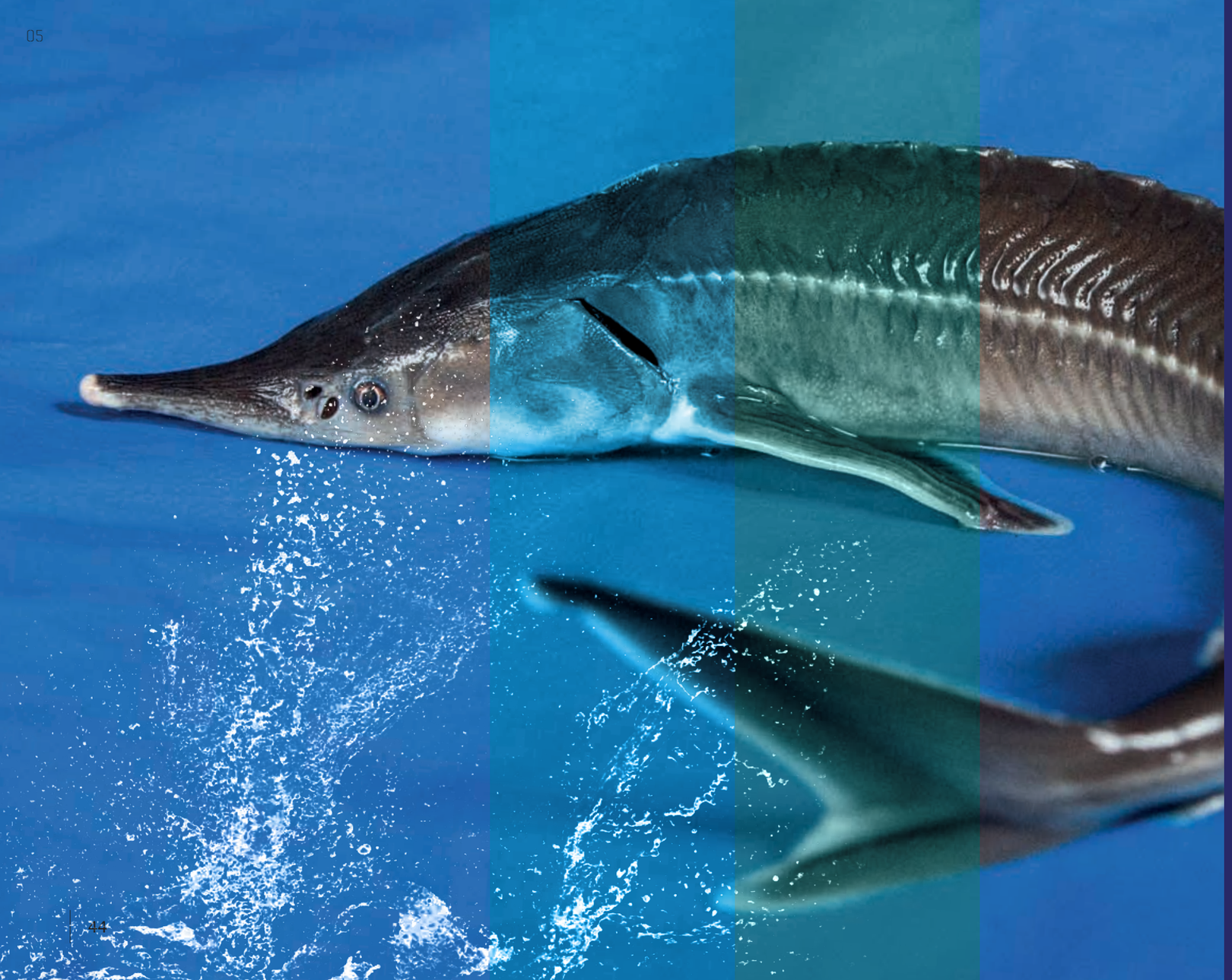
Faculty of Fisheries and Protection of Waters
South Bohemian Research Center of Aquaculture and Biodiversity of Hydrocenoses (CENAKVA)

- **RP1:** Reproductive and Genetic Procedures for Fish Biodiversity Conservation and Aquaculture
- **RP2:** "New" Pollutants in the Environment and Their Effects on Freshwater Ecosystems
- **RP3:** Sustainable Aquaculture with a Responsible Water and Nutrient Management
- **RP4:** Freshwater Ecosystems in the Era of Global Change

Laboratory of Germ Cells /LGC/ (1)	Laboratory of Environmental Chemistry and Biochemistry /LECB/ (2 4)	Laboratory of Nutrition /LN/ (3)	Laboratory of Freshwater Ecosystems /LFE/ (4)
Laboratory of Reproductive Physiology /LRP/ (1)	Laboratory of Aquatic Toxicology and Ichthyopathology /LATI/ (2 3 4)	Laboratory of Intensive Aquaculture /LIA/ (3)	Laboratory of Machine Vision in Aquaculture and Water Protection /AQUAVISION/ (2 3 4)
Laboratory of Molecular, Cellular and Quantitative Genetics /LMCQG/ (1)		Laboratory of Controlled Reproduction and Intensive Fish Culture /LCRIFC/ (3)	

- Genetic Fisheries Center /GFC/
- Experimental Fish Culture Facility /EFCF/
- Processing Unit and Shop with Fish and Aquaculture Products /PUSFAP/





CENAKVA
South Bohemian Research Center of Aquaculture and Biodiversity of Hydrocenoses

Reproductive and Genetic Procedures for Fish Biodiversity Conservation and Aquaculture

RP1

RP1 Reproductive and Genetic Procedures for Fish Biodiversity Conservation and Aquaculture

Programme Leader: Assoc. Prof. Martin Pšenička, *psenicka@frov.jcu.cz*

Vision

The research programme aims to conserve fish biodiversity while supporting the development of competitive freshwater aquaculture through a comprehensive and interdisciplinary approach grounded in the scientific expertise of the Centre's facilities. It builds on advances in reproductive physiology and biotechnology, molecular, cellular and quantitative genetics, conservation genetics, and germline stem cell bioengineering. The long-term ambition is to further refine these approaches using emerging methods and to develop innovative tools for the conservation and controlled utilisation of fish genetic resources.

Objectives

- **Investigate fish gametes and their interactions during the fertilisation process**, *with a focus on understanding the mechanisms underlying fertilisation and early embryonic development;*
- **Study disorders of gametogenesis and the biology of polyploid organisms**, *including optimisation of reproduction biotechnologies and the application of induced polyploidy;*
- **Develop and standardise methodologies and protocols for international gene banking**, *encompassing live gene banks, cryobanks, and DNA banks;*
- **Advance germline stem cell bioengineering** *for the conservation and restoration of genetic resources;*
- **Apply molecular and genomic approaches in fish breeding**, *utilising gene expression and genomic information to enhance the performance and resilience of cultured populations.*

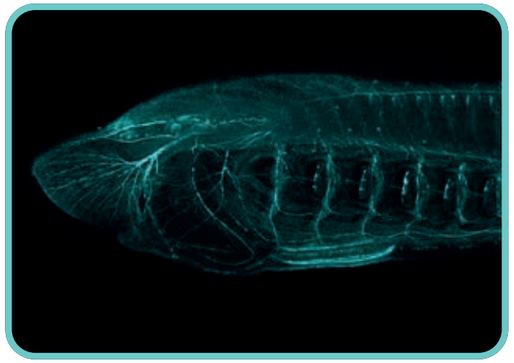
Data management, sharing, and advanced analytical use form an integral component of all research areas within the programme. The research programme plays a key role within the National Programme for the Conservation of Genetic Resources of Farm Animals and serves as the National Focal Point for Aquatic Genetic Resources within the FAO framework. It also contributes to the development of genomically guided carp breeding and innovations in aquaculture practice.

During 2024–2025, the programme further strengthened its position as an internationally recognised centre of excellence in fish reproductive biology, genetics, and development. It effectively integrates fundamental and applied research.

Our Activities

We are active partners in several major European projects and research infrastructures that fundamentally shape the direction of European research in aquaculture, biotechnology, and genetic resource conservation.

Within the AQUAEXCEL3.0 project (2020–2025), a pan-European research infrastructure promoting excellence in fish and aquaculture research, the Faculty plays a leading role in the work package Biotechnologies Based on Germ Stem Cell Transplantation. It also provides access to its unique infrastructure through the international Transnational Access (TNA) scheme.



The NeoGiANT project under the Horizon 2020 programme (2021–2025; principal investigator: Dr. Sergii Boryshpolets) offers new solutions based on the strong natural antimicrobial and antioxidant properties of grape pomace extracts. Rich in phenolic compounds, these extracts are being used to develop improved feed formulations, therapeutic preparations, and natural sperm preservation solutions, thereby contributing to a reduction in antibiotic use in livestock production and aquaculture. Researchers from the Laboratory of Reproductive Physiology investigate the antioxidant effects of these substances in fish.

The CryoStore project under the Horizon 2020 programme (2023–2027; principal investigator: Assoc. Prof. Martin Pšenička) is a doctoral network dedicated to advancing cryopreservation technologies for gametes and tissues, with the aim of improving animal breeding and biodiversity conservation. Researchers contribute to the development of novel methods for cryopreservation of fish sperm and germ cells.

The project Mature fast, die young, but what about germ cells? Germline development and aging in the turquoise killifish – naturally short-lived vertebrate (Czech Science Foundation – GAČR, 2023–2025; principal investigator: Dr. Roman Franěk) utilises the recently established short-lived fish model – the turquoise killifish – to investigate germ cell ageing. The project aims to elucidate both evolutionarily conserved and fish-specific changes associated with germ cell ageing. These findings provide an important foundation for modelling ageing phenotypes in fish.

The cross-border project Šumava Fish Jewels (INTERREG Austria-Czech Republic, 2023–2026; principal investigator: Prof. Martin Flajšhans) focuses on the conservation of native brown trout populations in the Šumava region through genetic monitoring and targeted breeding programmes.

Based on the collected data, joint strategic documents are being prepared to establish a coordinated framework for protecting natural populations of this species in open waters. The project aims to strengthen population resilience to climate change, preserve functioning ecosystems for future generations, and support long-term management strategies within the programme area, including the Šumava and Bavarian Forest National Parks and associated protected areas.

Other projects implemented within the research programme include EELSUPPORT (COST Action, 2023–2027; principal investigator: Assoc. Prof. Martin Pšenička), a European network addressing reproductive barriers in the European eel. The Faculty contributes its expertise in reproductive biology and assisted fish reproduction to this initiative.

cost
EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY

The DANUBIUS-IP project (Horizon Europe, 2023–2026; principal investigator: Dr. Zuzana Havlíková) supports the development of an integrated European research infrastructure for aquatic systems. Within this framework, the programme provides specialised expertise in histological and developmental analyses of fish.

DANUBIUS CZ
Hydrological Nexus of Central Europe
SUPERSITE

International Cooperation and Mobility

In April 2025, Assoc. Prof. Martin Pšenička visited China, where he met with colleagues at three research institutions: Huazhong Agricultural University, the Hunan Fisheries Science Institute, and the Beijing Academy of Agricultural and Forestry Sciences. During the visit, he delivered two lectures and signed a new cooperation agreement. Discussions primarily focused on expanding student exchange opportunities and developing joint research projects in gene and genomic manipulation in fish.

In September 2025, a visit to Iceland followed within the framework of the project Aquaculture for Future (CZ.02.01.01/00/23_021/0012616), providing an opportunity to further strengthen cooperation with The Northern Sturgeon Company. The company employs our Faculty graduate Ondřej Tunys and regularly provides professional internship opportunities for our students. Meetings at the University of Iceland and Benchmark Genetics opened new opportunities for involving our students in salmon production and advanced biotechnology research, including the use of automated systems for embryo microinjection.

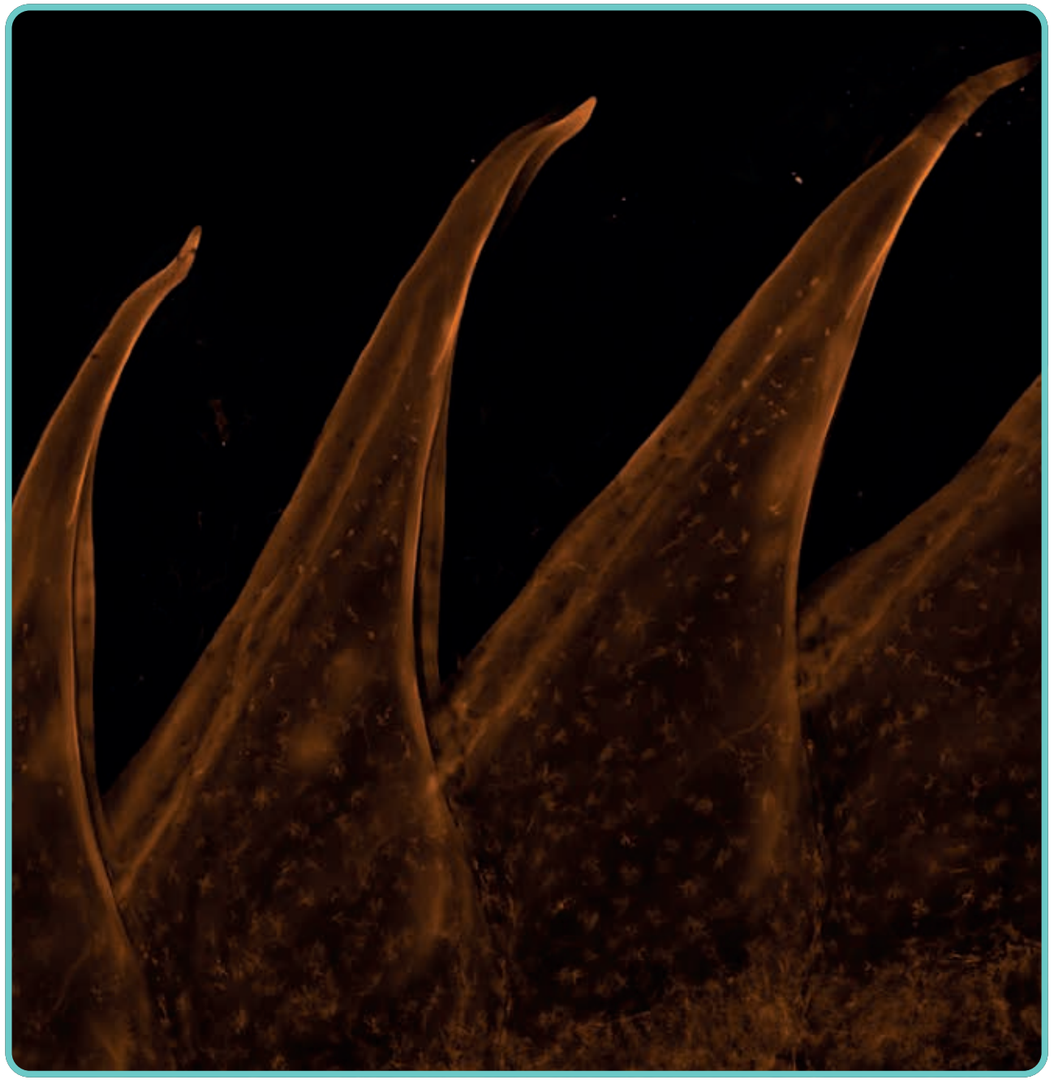
New Scientific Directions and Results

In recent years, research in developmental and evolutionary biology has been significantly strengthened, broadening the programme's traditional focus on reproduction and germ cell biology. This direction is led by Dr. Jan Štundl, who in 2020 was awarded a prestigious Marie Skłodowska-Curie fellowship supporting his postdoctoral research in the laboratory of Prof. Marianne Bronner, a leading expert in neural crest and evolutionary developmental biology at the California Institute of Technology. His team has produced outstanding scientific results, published in leading journals like Nature, PNAS, and Science Advances. These studies have provided fundamental insights into the evolution of key vertebrate traits.

A study published in PNAS demonstrated that the dermal armour of vertebrates – such as scales, shields, scutes, and carapaces covering the trunk – originates from neural crest cells, a population of embryonic cells that gives rise to numerous structures during development. Among these are diverse neuronal populations, including enteric neurones, as well as pigment cells and craniofacial bones and cartilage.

Research reported in Nature further revealed that sympathetic neurones – components of the autonomic nervous system – already originated from neural crest cells in the earliest vertebrates. Meanwhile, a study in Science Advances showed that the evolutionary origin of the vertebrate thyroid gland is linked to the incorporation of neural crest cells into the developing chordate endostyle, the evolutionary precursor of the thyroid gland.

These findings illustrate how research on non-traditional model species – including sturgeons reared at our Faculty and ectoparasitic sea lampreys – contributes fundamentally to understanding vertebrate evolution, as well as regenerative capacities such as cardiac muscle repair. This emerging research direction significantly strengthens the scientific profile of both the research programme and the CENAKVA centre in modern developmental and evolutionary biology. Importantly, it also connects with ongoing research into germ cell biology, differentiation processes, and regenerative mechanisms.



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"New" Pollutants in the Environment and Their Effect on Freshwater Ecosystems

RP2

RP2 "New" Pollutants in the Environment and Their Effect on Freshwater Ecosystems

Programme Leader: Assoc. Prof. Hana Kocour Kroupová, *kroupova@frov.jcu.cz*

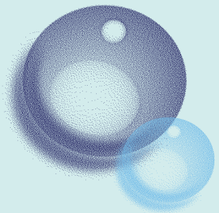
Vision

The research programme seeks to contribute to improving water quality and protecting aquatic environments in the Czech Republic, with particular attention to the growing presence of emerging pollutants. These include human and veterinary pharmaceuticals, components of cosmetic and personal care products (collectively referred to as PPCPs – Pharmaceuticals and Personal Care Products), pesticides, and a wide range of industrial chemicals, including their degradation products. Very little is currently known about the impacts of this type of contamination on ecosystems and food webs.

Objectives

- **Develop efficient sampling strategies and innovative analytical methods** *for monitoring a broad spectrum of micropollutants in aquatic environments;*
- **Expand knowledge of the occurrence, environmental fate, and biological effects of pollutants** *under real ecosystem conditions;*
- **Support economically sound and strategically informed planning** *in drinking water treatment, wastewater treatment, and landscape management.*

We actively participate in the national surface water quality monitoring programme coordinated by the Czech Hydrometeorological Institute. We work closely with River Basin Authorities and drinking water treatment facilities in micropollutant monitoring, as well as companies operating wastewater treatment plants. In the area of identifying and tracking emerging pollutants across environmental compartments, the programme also cooperates with a number of international partners.



Our Activities

The programme is involved in major projects at both national and international levels, and its activities extend well beyond academia into practical application and policy. Research outcomes serve as a foundation for expert assessments and policy-relevant materials that support the adoption of legislative measures aimed at protecting water quality and safeguarding water resources.

Within the project entitled Holistic Exposure and Effect Potential Assessment of Complex Chemical Mixtures in the Aquatic Environment (EXPRO Czech Science Foundation, 2020–2024, principal investigator: Assoc. Prof. Roman Grabic), we collaborated with the RECETOX research centre at Masaryk University in Brno. The project aimed to deepen understanding of the complexity of freshwater ecosystem contamination, combining modern approaches to water pollution monitoring, such as passive sampling techniques, advanced chemical analyses, and bioanalytical methods. This integrated strategy enabled the identification of substances responsible for harmful biological effects, particularly endocrine disruptors – chemicals that interfere with the hormonal systems of exposed organisms. To date, the results have been published in 40 peer-reviewed articles in leading international scientific journals.

Another major initiative was the international project BIOCIDE – Antibacterial Biocides in the Water Cycle – an Integrated Approach to Assess and Manage Risks for Antibiotic Resistance Development (2021–2024; principal investigator: Assoc. Prof. Roman Grabic). Conducted in collaboration with partners from Sweden, Norway, Denmark, Germany, and Romania, the project examined the role of antibacterial biocides – substances with antibacterial properties – in the emergence and spread of antibiotic resistance across different aquatic ecosystems. The project aimed to generate robust scientific evidence to support the adoption of measures that ultimately protect public health and ensure safe water resources for both human populations and wildlife. Within this initiative, our team focused on developing advanced analytical methods for detecting biocides in water and on monitoring their occurrence in wastewater and surface waters.

In 2025, a new project funded by the National Agency for Agricultural Research was launched: Occurrence of Perfluorinated and Polyfluorinated Compounds in the Meat of Fish Farmed and Wild in the Czech Republic (2025–2027; principal investigator: Dr. Kateřina Grabicová). Per- and polyfluoroalkyl substances (PFAS) represent a large group of synthetic chemicals widely used in industrial applications and everyday consumer products. These

compounds are highly persistent and accumulate in both the environment and the human body. Exposure to PFAS has been linked to serious health risks. Their presence has already been detected in waters, sediments, and fish, with treated wastewater effluents from conventional wastewater treatment plants representing an important source of environmental contamination. Given that the Czech Republic is a major fish producer and home to a large community of recreational anglers, systematic monitoring of PFAS concentrations in aquatic environments and fish meat is essential. The results of this project will provide a comprehensive assessment of the situation in the Czech Republic and support the development of measures aimed at reducing the risk of exceeding regulatory limits and limiting PFAS exposure among fish consumers.

Within the research programme, the Faculty implements a wide range of projects supported by the Czech Science Foundation (GAČR). Dr. Kateřina Grabicová serves as principal investigator of the project Consequences of the Presence of Pharmaceuticals in the Aquatic Environment: Can Laboratory Results Be Transferred to Real Ecosystems? (2025–2027). She is also a co-investigator on the project Effects of Warming and Pollutants on Nutrient Flows and Lower Trophic Levels in Freshwater Communities: From Microbes to Daphnia (2024–2026). The project Bioaccumulation Dynamics of Emerging Contaminants in Aquatic Invertebrates Using Marbled Crayfish (2023–2025; principal investigator: Prof. Vladimír Žlábek) aimed to study the bioaccumulation dynamics of pollutants in aquatic invertebrates. The marbled crayfish exhibits unique biological characteristics and has strong potential as an alternative experimental model species. The effects of endocrine disruptors on aquatic organisms were addressed in the project Characterisation of Effects of Substances with Anti-Progestogenic Activity Occurring in the Aquatic Environments on Lower Vertebrates (2022–2024; principal investigator: Assoc. Prof. Hana Kocour Kroupová). The impact of psychoactive contaminants on fish reproduction was investigated in the project From Brain to Sperm: How Psychoactive Pollutants Can Affect Fish Sperm Function (2022–2024; principal investigator: Dr. Ganna Fedorova).

Dr. Jakub Bumba leads the project Development of a Unit for Decellularization by Supercritical CO_2, Optimization of Permeations and Recipes for Tissue Decellularization and Production of a Bioactive Scaffold Equipped with Mesenchymal Cells (2023–2027) supported by the Technology Agency of the Czech Republic. This research enables the gentle removal of cells while preserving the natural structure and mechanical properties of the original tissue, with the long-term objective of applying these findings in regenerative medicine.

Several other projects are funded by the National Agency for Agricultural Research. One of them (2021–2025; principal investigator: Assoc. Prof. Josef Velíšek) focuses on expanding the range of veterinary medicinal products available in domestic aquaculture and monitoring the occurrence of their residues in fish meat. Another project, led by Prof. Tomáš Randák (2023–2025), evaluates the hydrological status of trout streams in the Czech Republic and the condition of salmonid populations in the context of ongoing climate change. Assoc. Prof. Roman Grabic is also the principal investigator of two projects (2024–2028) addressing organic contamination of drinking and irrigation water sources, as well as medium-term trends in the behaviour of micropollutants originating from wastewater and sewage sludge in soil environments.

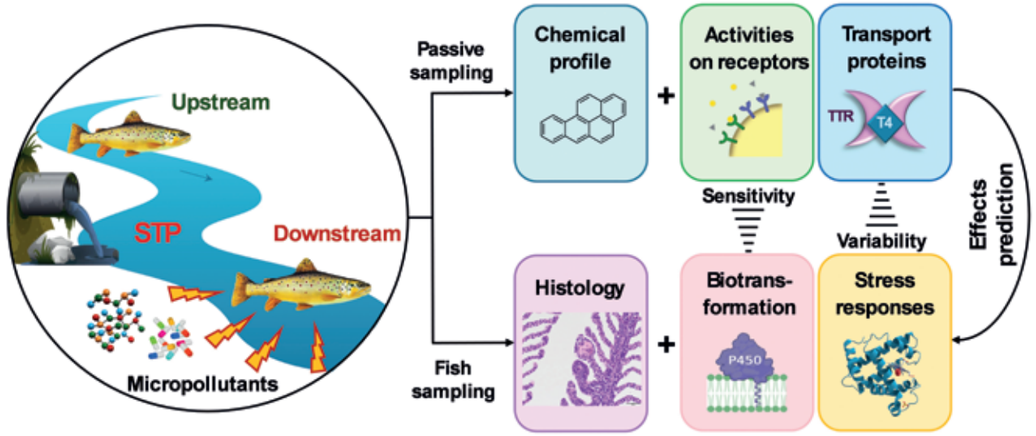
New Scientific Directions and Results

One of our recent studies focused on monitoring chemical pollution in aquatic environments by comparing three types of passive samplers differing in construction, material, and surface area exposed to water. Passive samplers are simple devices consisting of a permeable membrane and a sorbent that gradually accumulates substances present in water. Unlike conventional grab sampling, which provides only a snapshot of contamination at a given moment, passive sampling enables the assessment of time-weighted average concentrations of chemical pollutants. The samplers were deployed in treated effluent from a wastewater treatment plant containing residues of pharmaceuticals, pesticides, and other contaminants. The study aimed to compare their capacity to accumulate target compounds, the duration of linear sampling, and their resistance to physical damage. The results demonstrated that all three sampler types are suitable for environmental monitoring; however, the Speedisk sampler showed superior performance in terms of sampling duration and mechanical robustness.

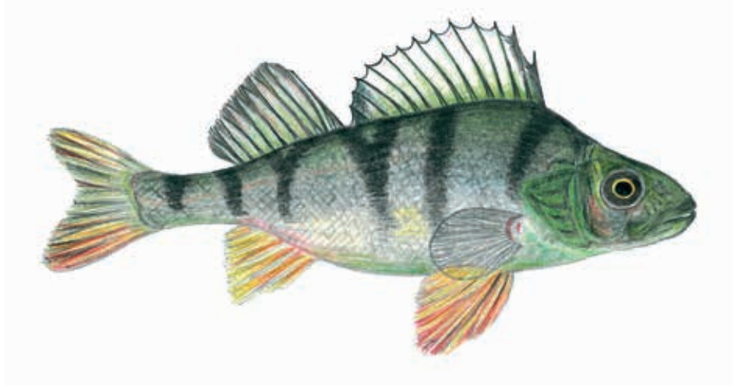
In cooperation with colleagues from Masaryk University, we are also involved in the long-term monitoring of the Danube – the largest river in the European Union – assessing the extent of its chemical contamination. We monitor concentrations of selected chemical substances in water and their development in time. Using passive sampling combined with advanced chemical analyses, we track concentration trends of selected substances and evaluate their ecological implications. These findings contribute directly to the protection of aquatic ecosystems and support evidence-based environmental policymaking.

Another noteworthy study examined the bioaccumulation of pharmaceuticals in various aquatic invertebrates in the context of climate change. In collaboration with colleagues from the Faculty of Science, our team led by Dr. Kateřina Grabicová conducted an experiment simulating a one-time contamination event involving a mixture of fifteen commonly detected pharmaceuticals. At the same time, the effects of climate warming were considered by increasing water temperature by 4 °C. The experimental design included four groups: an exposed group (organisms subjected to the pharmaceutical mixture), a control group (without exposure), and temperature-modified variants of both under ambient and elevated temperature. The setup simulated contamination events occurring during the colder season (September–March) and during summer (June–August). Following the exposure period, concentrations of pharmaceuticals and their metabolites were analysed in both water and the tissues of organisms. Substances showing the highest levels of bioaccumulation included tramadol, carbamazepine, telmisartan, venlafaxine, citalopram, and cetirizine. Accumulation patterns varied depending on species and temperature conditions. The highest levels of accumulated substances were observed in the water louse and the great ramshorn snail, indicating their strong potential as bioindicator species for monitoring environmental contamination and climate-related changes.

A study published in the Journal of Hazardous Materials demonstrated that even treated wastewater discharged from wastewater treatment plants may contain micropollutants capable of adversely affecting aquatic organisms. In this study, brown trout *(Salmo trutta* m. *fario)* were monitored upstream and downstream of a wastewater treatment plant to assess their responses to long-term exposure to low concentrations of contaminants. Using passive sampling and laboratory-based analyses, researchers identified changes in hormone levels, stress responses, and tissue integrity. Micropollutants such as pharmaceutical residues and cleaning agents were shown to disrupt the endocrine system of fish and potentially impair reproductive capacity. Importantly, the study highlights that subtle environmental threats can be detected before visible damage becomes apparent. The findings support the need for further modernisation of wastewater treatment technologies and for more effective wastewater management to safeguard aquatic biodiversity.



Recent research conducted by scientists from the Laboratory of Environmental Chemistry and Biochemistry has revealed that trace concentrations of psychoactive pharmaceuticals in aquatic environments may also affect fish vision. Substances such as antidepressants and anxiolytics act on neurotransmitter systems not only in the brain but also in ocular tissues. The study demonstrated alterations in neurotransmitter levels that may impair visual function. As a result, visual performance in fish may serve as a sensitive indicator of environmental contamination with direct implications for survival. These findings open a new perspective in aquatic toxicology and underline the importance of a comprehensive assessment of pollutant effects.



An especially noteworthy experiment was carried out by a team from the Swedish University of Agricultural Sciences, which included our colleague Dr. Daniel Červený. The study, published in the prestigious journal Science, examined the effects of psychoactive pharmaceuticals – including antidepressants and anti-anxiety medications – that enter rivers due to insufficient wastewater treatment on the migration behaviour of juvenile Atlantic salmon. The experiment was conducted in Swedish rivers, where young salmon were equipped with transmitters and slow-release implants delivering small amounts of the tested pharmaceuticals over several weeks. The administered concentrations reflected levels previously detected in wild aquatic organisms. The results demonstrated that clobazam, a drug commonly used in the treatment of anxiety and epilepsy, significantly altered the natural behaviour of juvenile salmon. In particular, it affected migration speed and schooling behaviour, changes that may substantially influence survival in the wild.

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Sustainable Aquaculture with a Responsible Water and Nutrient Management

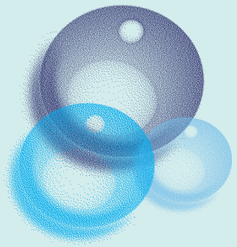
RP3

RP3 Sustainable Aquaculture with a Responsible Water and Nutrient Management

Programme Leader: Assoc. Prof. Jan Mráz, *jmraz@frov.jcu.cz*

Vision

The vision of this research programme is to drive technological innovation and develop aquaculture systems capable of producing high-quality food for a growing global population while minimising water, nutrient, and energy consumption. The programme seeks to cut down waste generation, promote local production, and minimise competition for freshwater resources among aquaculture, domestic use, and livestock production. At the same time, we aim to reduce human dependence on marine fish resources and ensure that aquaculture does not contribute to the degradation of aquatic ecosystems. On the contrary, the programme promotes systems designed to recover and utilise nutrients more efficiently than they generate.



Objectives

- **Develop integrated technologies for the production of fish and plants that maximise the utilisation of nutrients, energy, and organic waste**, *including waste materials of plant and animal origin;*
- **Minimise the discharge of pollutants and greenhouse gas emissions** *into the environment while lowering overall water consumption in these technologies;*
- **Integrate** *fish, plant, and other organism production* **technologies with waste processing and resource recovery systems;**
- **Contribute to reducing eutrophication of water bodies and reducing dependence on fishmeal and fish oil** *used in feed production derived from wild-caught marine fish.*

Our Activities

A substantial part of the projects within this research programme is funded by the Ministry of Agriculture of the Czech Republic through the National Agency for Agricultural Research.

One of the key projects is Optimalisation of supplemental feeding and management of pond aquaculture (2022–2025; principal investigator: Assoc. Prof. Jan Mráz). The project focuses on improving feeding strategies and pond management practices in order to enhance resource efficiency and reduce environmental impacts. Its primary objective is to increase feeding productivity and make better use of the natural production potential of pond ecosystems. The project aims to improve fish growth while reducing feed costs and nutrient losses, and limiting negative environmental impacts. More broadly, it seeks to optimise pond management practices from both environmental and economic perspectives. In addition, the project promotes diversification of species composition in polyculture systems and quantifies the environmental benefits of pond aquaculture under different management regimes.

Another important project, Production of Pikeperch Stock, Their Adaptability, and Optimisation of Stocking into Open Waters (2023–2025; principal investigator: Dr. Oleksandr Malinovskyi), aims to improve the production and stocking success of pikeperch in natural water bodies in order to maximise survival and growth of this economically and ecologically valuable species. The project's main outputs include scientific publications addressing optimal conditions for fry production in intensive aquaculture systems, comparative evaluation of stocking efficiency between fish produced in intensive systems and those reared in ponds, and optimisation of stocking timing with respect to survival, growth performance, and physiological condition. The project also evaluates the effects of increased predatory fish stocking densities on overall fish community structure and assesses their influence on water quality in reservoirs.

A flagship initiative of this research programme is the project Aquaculture for Future – Long-Term Sustainable Aquaculture with Responsible Resource Management, Minimal Waste Production and Maximum Ecosystem Services (2025–2028; principal investigator: Assoc. Prof. Jan Mráz), funded under the Jan Amos Komenský Operational Programme. The project connects research and practical application with the objective of advancing sustainable aquaculture in the Czech Republic, focusing on efficient resource utilisation, fish production quality, as well as reproduction and breeding technologies of fish. By introducing innovative technological solutions, the project supports environmental protection while strengthening the involvement of experts in teaching activities and the preparation of joint research proposals. The initiative has strong potential to generate new technologies, services, and economic opportunities within the aquaculture and fisheries sectors.

Two additional projects are being implemented within the international INTERREG programme. The first, Reduction of Emissions in Aquaculture through Sustainable Utilisation of Effluent Water and Nutrients (AquaCycle) (2024–2027; principal investigator: Dr. Oleksandr Malinovskyi),

aims to develop a comprehensive catalogue of measures to reduce emissions from aquaculture systems. The project promotes a circular economy approach based on the reuse of wastewater and nutrients, with the potential to cut down freshwater consumption by up to 70%, limit nutrient emissions into the environment, and decrease waste management costs.

The second INTERREG project, International Support for Pond Ecosystem Infrastructure through Multipliers to Close Nutrient Cycles (2025–2027; principal investigator: Dr. Radek Gebauer), focuses on reducing eutrophication in pond ecosystems through the application of natural nutrient sorbents and nitrification inhibitors. These measures are expected to lower sediment formation, improve water retention capacity, and limit nutrient emissions into receiving waters. The project also supports circular economy principles by promoting the reuse of recovered sorbents as fertilisers. Within the framework of cross-border cooperation, innovative approaches are being tested in aquaculture enterprises of varying structures and scales. The project aims to formulate recommendations applicable across the European Union while contributing to increasing the economic resilience of pond farmers.

Additional research topics are supported by funding from the Technology Agency of the Czech Republic. The project Valorisation of Waste from Intensive Aquaculture and Fish Processing (2024–2025; principal investigator: Dr. Radek Gebauer) seeks to develop technologically accessible methods for the valorisation of waste generated in intensive fish production and processing. The research focuses on assessing the suitability, design, and optimisation of sludge and wastewater treatment for use as fertilisers. In parallel, innovative processing technologies and formulations are being developed to convert fish-processing by-products into fish-based sausages for dogs. Another project, Utilization of biofloc technology as a cost-effective and environment-friendly solution rearing of common carp ***(Cyprinus carpio)*** fingerlings (2024–2026; principal investigator: Assoc. Prof. Vlastimil Stejskal), concentrates on the implementation and optimisation of biofloc systems as sustainable aquaculture technologies.

International Cooperation

In the field of international relations, Czech-Kazakh scientific cooperation has deepened significantly over the past period. A major milestone in this partnership was the ceremonial opening of the Kazakh-Czech Aquaculture Research Centre in Astana in March 2024. The newly established centre strengthens both scientific and applied collaboration, provides facilities for the education and training of students from both countries, and focuses on modern fish-farming technologies as well as the genetic conservation of economically important species. During a business mission to Kazakhstan in October 2025, the Faculty presented advanced aquaculture technologies to Kazakh partners, further intensifying expert cooperation in several key areas. These included innovation in the reproduction and culture of pikeperch, the development of intensive production systems for high-value fish species using recirculating aquaculture systems (RAS), diversification of freshwater aquaculture, and fish processing technologies. The mission also resulted in the establishment of partnerships aimed at implementing joint technological and innovation projects designed to increase both fish production and consumption in Kazakhstan and the Czech Republic.

The mission was initiated and organised by the Director General of the Section for EU Funds, Foreign Affairs and Trade Cooperation of the Ministry of Agriculture, Dr. Pavel Sekáč. Its purpose was to support Czech agricultural enterprises and universities in expanding scientific, research, and commercial cooperation with Kazakh partners while simultaneously contributing to the strengthening of Czech agricultural exports, including products, livestock, machinery, and technologies. International cooperation in fisheries and aquaculture was further reinforced through workshops organised under the auspices of the Ministry of Agriculture and the Food and Agriculture Organisation of the United Nations (FAO) in October 2024 and 2025. Experts from Eastern Europe, the Balkans, and the Near East shared experience in recirculating aquaculture systems, pond management, and sustainable fish production methods. These meetings contributed to strengthening professional networks and expanding platforms for international knowledge transfer.

New Scientific Directions and Results

We have long been observing the low consumption of fish among Czech children and, through a series of projects, aim to increase the proportion of fish products in their diets. In cooperation with Tilapia s.r.o. – a company marketing its products under the brand Happy Fish Delicates, we have developed specialised fish-based products designed for preschool children. Ranging from fish sausages and fish balls to fish burgers, these products are nutritionally balanced, affordable, and tailored to children's taste preferences. Compared to conventional processed meat products, these items contain lower salt levels and a higher proportion of high-quality proteins and omega-3 fatty acids, which are essential for brain and cardiovascular development in children. The project also emphasises long-term sustainability by utilising fish parts that would otherwise remain underused, thereby increasing processing yield and reducing production costs. The products are currently supplied to more than 200 schools and kindergartens across the Czech Republic, contributing both to healthier dietary habits among children and to more efficient use of food resources.

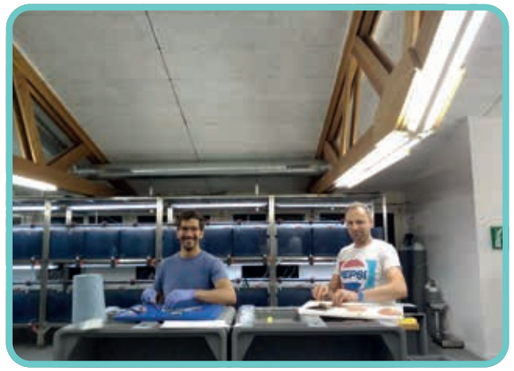
We are also advancing the optimisation of aquaponic and hydroponic systems and the recovery of nutrients from aquaculture waste streams, with microorganisms playing a crucial role in these systems, mediating nutrient transformations and other biological processes. One of our projects investigated the influence of plant species and cultivation systems on the abundance and diversity of microbial communities in aquaponic and hydroponic environments. The results indicate that both plant species and system type significantly affect microbiome composition, with consequences for nutrient uptake, particularly of iron and nitrogen. Preliminary findings reveal differences between basil and lettuce, as well as between aquaponic and hydroponic systems, insights that may be key to optimising these soil-free production systems. The study provides new knowledge supporting improved sustainability, enhanced disease management, and more efficient nutrient utilisation in integrated food production systems.

A recent study describes European aquaculture as a "sleeping giant" in the context of sustainable nutrition, highlighting the underutilised potential of semi-intensive pond systems and multitrophic aquaculture. The study emphasises their capacity to produce low-emission, nutrient-rich foods within Europe, thereby reducing reliance on imported marine fish and supporting both sustainable nutrition and the broader transformation of European food systems. According to the study, approximately 0.25 million hectares of ponds in Central and Eastern Europe could annually replace the nutritional equivalent of 1 billion fish oil capsules and 0.45 billion litres of milk, meeting the dietary needs of up to 3 million people.

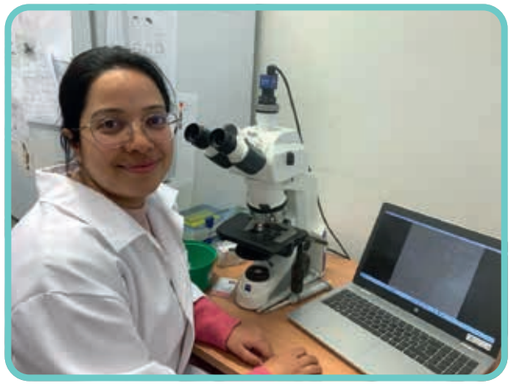
Reducing dependence on marine resources is a key objective of our research conducted in collaboration with our Swiss partner institution, Aquaforum. This work focuses on the development of environmentally sustainable feeds for European perch, using insect meal and poultry by-product meal as partial substitutes for fishmeal. Beyond decreasing reliance on marine-derived ingredients, the research promotes circular economy principles while taking environmental impacts into account, and minimising competition with food intended for direct human consumption. Feeding trials demonstrated that up to 50% of fishmeal can be replaced with these alternative ingredients without negatively affecting fish growth, health status, or production performance. The study confirms that this approach not only enhances the sustainability of aquaculture production but also reduces the ecological footprint of perch farming. The combined use of insect and poultry by-product meals, therefore, represents a promising pathway towards more resource-efficient and environmentally responsible perch culture in Europe.

Another important focus of our activities is the development of efficient and sustainable management strategies for pond aquaculture and other shallow water bodies. One of our studies demonstrated that natural pond food webs and ecosystem processes significantly improve feed digestibility in common carp. Plankton communities and the pond environment contribute to the breakdown of complex feed components such as cellulose, chitin, and phosphorus. The most favourable results were observed in ponds characterised by good water quality, low algal biomass, and high zooplankton abundance. This “digestibility synergy effect” can substantially influence pond management while optimising feeding strategies.

Another study confirmed that fish play a crucial role in phosphorus recycling in shallow aquatic ecosystems such as ponds, thereby influencing algal growth dynamics. Through active metabolism, fish release excess nitrogen and phosphorus, which may contribute to eutrophication. However, the composition of feed can significantly modulate this process. Diets rich in essential amino acids, particularly lysine and methionine, promote higher phosphorus retention in fish biomass, thereby reducing its availability for algal uptake. Conversely, deficiencies in these nutrients have an opposite effect. The findings suggest that precisely balanced feed formulations, combined with appropriate species selection, can be effective tools for mitigating eutrophication and maintaining ecological stability in pond ecosystems.



Proper nutrition of broodstock in aquaculture is equally critical for reproductive quality and offspring health. A recent study investigating long-chain polyunsaturated fatty acids (LC-PUFAs) in fish sperm demonstrated their essential role in regulating sperm motility, fertilisation capacity, and stress resilience. The study indicates that the composition of these fatty acids reflects evolutionary adaptations, dietary influences, and biomechanical requirements. Different LC-PUFAs contribute to maintaining membrane fluidity and regulating inflammatory and chemotactic processes.



CENAKVA

South Bohemian
Research Center
of Aquaculture
and Biodiversity
of Hydrocenoses

Freshwater Ecosystems in the Era of Global Change

RP4

RP4 Freshwater Ecosystems in the Era of Global Change

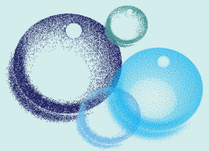
Programme Leader: Assoc. Prof. Miloš Buřič, *buric@frov.jcu.cz*

Vision

The research programme ***Freshwater Ecosystems in the Era of Global Change*** is founded on a multidisciplinary approach that builds upon both the long-standing scientific directions developed at the programme's laboratories and newly emerging methodologies capable of generating substantially broader and more robust datasets. The programme integrates and advances ecological, ethological, physiological, and ecotoxicological approaches, refining established methods while incorporating techniques that have not yet been routinely applied, and developing new methods.

Objectives

- **To improve understanding of ongoing and projected processes in freshwater ecosystems**, *including shifts in species composition in the freshwater biota, climate--driven and anthropogenic pressures, and the increasing impact of biological invasions, while assessing their broader societal implications;*
- **To develop and apply biomonitoring methods** *for water quality assessment based on physiological, ethological, and ecological responses of organisms, with applications in drinking water management and aquaculture;*
- *To provide scientific foundations for freshwater management, with particular emphasis on invasive species control and environmental change. The programme aims to strengthen* **predictive capacity regarding the ecological and economic consequences of biological invasions**, *deepen understanding of how climatic, anthropogenic, and biological changes impact ecosystem functioning, and identify specific biomarkers reflecting the physiological condition of monitored organisms;*
- **To develop contact-free systems for monitoring physiological responses of organisms** *to external stimuli, including applications in safeguarding strategic water resources, and to design predictive models of behavioural responses under diverse environmental conditions.*



Our Activities

We are involved in projects funded under a variety of national and international funding schemes. The most significant initiatives are outlined below.

Since 2023, we have participated in the integrated LIFE project Implementation of the River Basin Management Plan in Selected River Sub-basins in Slovakia – Living Rivers. The project is coordinated by Slovak the Water Research Institute, with Dr. Bořek Drozd serving as the principal investigator on behalf of the Faculty. The project focuses on river restoration and improving the ecological status of selected river systems in Slovakia. Important measures are being implemented in the Danube, Hron, Ipeľ, and Belá River basins, with the aim of enhancing water quality, restoring natural fish habitats, and strengthening native biodiversity. The project promotes nature-based solutions, including the restoration of riparian forests and wetlands, as well as the reconnection of side arms to the main river channel. During 2024–2025, our activities concentrated on monitoring fish communities to assess the current status and species composition of fish populations within this ecologically unique and internationally significant river ecosystem. In parallel, we evaluated the migratory connectivity of the Slovak-Hungarian section of the Danube, including major migration barriers represented by the hydropower structures at Čunovo, Dunakiliti, and Gabčíkovo. To this end, several dozen individuals of selected fish species – including sterlet, asp, and common barbel – were equipped with acoustic transmitters, and their movements are being tracked using receiver stations installed along the river. In June 2025, in cooperation with the BROZ conservation association, WWF Slovakia, and the Slovak Angling Association, more than 12,000 juvenile sterlet were released into the Danube. This constituted the second large-scale release of young sterlet into the Danube within the past three years. In addition, in 2024, sterlet eggs were incubated directly at selected Danube sites using specialised in situ incubation devices.

Living Rivers

Co-funded by the European Union

Another major initiative is the project AQUASERV – Aquaserv – Research Infrastructure Services for Sustainable Aquaculture, Fisheries and the Blue Economy (2020–2025), led at the Faculty by Dr. Petr Císař. The project is coordinated by the Centre of Marine Sciences at the University of Algarve in Portugal and involves 34 European partners. AQUASERV aims to provide coordinated access to the research infrastructures of all participating institutions, including financial support towards travel costs.

AQUASERV

The project Living Treasures of Streams and Pools, coordinated by Dr. Natalia Zuzanna Szydlowska, focuses on freshwater biodiversity in the Czech-Austrian border region. The project addresses the decline of rheophilic and limnophilic fish species and aims to support biodiversity in upper- and middle-river stretches, as well as in adjacent pools within the programme area. In addition, the project places strong emphasis on knowledge transfer within the framework of public education among river managers, basin authorities, and land-use stakeholders. It is implemented in cooperation with the Institute of Hydrobiology of the Biology Centre of the Czech Academy of Sciences and Austrian partners under the Interreg Austria-Czech Republic programme.

Interreg Austria – Czechia Co-funded by the European Union

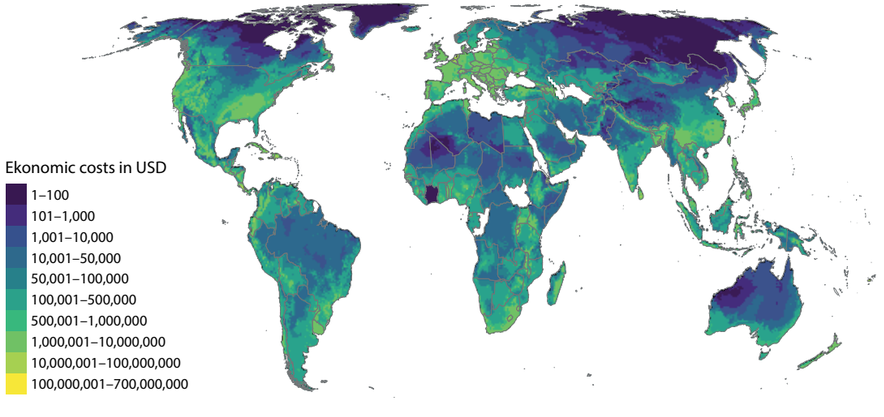
The project System for analysis of fish migration and invasive species control (Technology Agency of the Czech Republic, 2024–2026; principal investigator: Dr. Petr Císař) focuses on the development of a low-cost device for automated real-time monitoring of fish migration in fish passes. The system enables evaluation of fish pass functionality, identification of invasive species, and analysis of migratory behaviour. The project includes hardware development, data collection and annotation for training neural networks, software implementation, and validation through targeted fish sampling. In 2024, the system was installed at the St. Wenceslas weir on the Otava River in Písek, and in 2025 at the Lužnice River in Nová Ves. This pilot project represents the first implementation of its kind in the Czech Republic and is expected to provide valuable data not only on fish pass efficiency but also on the status of fish communities in Czech rivers.

Another project funded by the Technology Agency of the Czech Republic, acronymed ZAPROTERAR (2025–2028; investigators: Ing. Jan Kašpar, and Assoc. Prof. Miloš Buřič), is developing specialised electrical equipment for the field eradication of invasive fish species in compliance with legislative requirements and animal welfare principles. The system enables efficient and humane elimination of invasive fish directly in the field, thereby reducing the risk of further spread. Two prototypes are being developed: one designed for small amounts of eradicated fish and another for larger quantities. The devices are engineered to account for species-specific characteristics and water conductivity, ensuring maximum effectiveness while avoiding unnecessary suffering. The project's outcomes will support the practical implementation of invasive species control and eradication strategies at priority sites. The project is therefore being developed in close cooperation with the Ministry of the Environment to ensure regulatory alignment and practical applicability

In addition, several projects address aquaculture management from a production-oriented perspective. These include optimisation of the management of single-season carp ponds with respect to supplementary feeding strategies, water quality, and impacts on associated aquatic communities (funded by the National Agency for Agricultural Research; principal investigator: Dr. Lukáš Veselý, 2021–2025). Another project focuses on enhancing both the production and non-production functions of ponds through the application of calcium nitrate, implemented in cooperation with Štičí líheň – ESOX, s.r.o. (2024–2026). Further innovations in the management of organic (biological) ponds are being developed under the leadership of Assoc. Prof. Martin Bláha and supported by the Operational Programme Fishery (2025–2027). These projects aim to optimise nutrient utilisation, improve aquatic environmental quality, and ensure economically viable production within environmentally responsible pond systems.

New Scientific Directions and Results

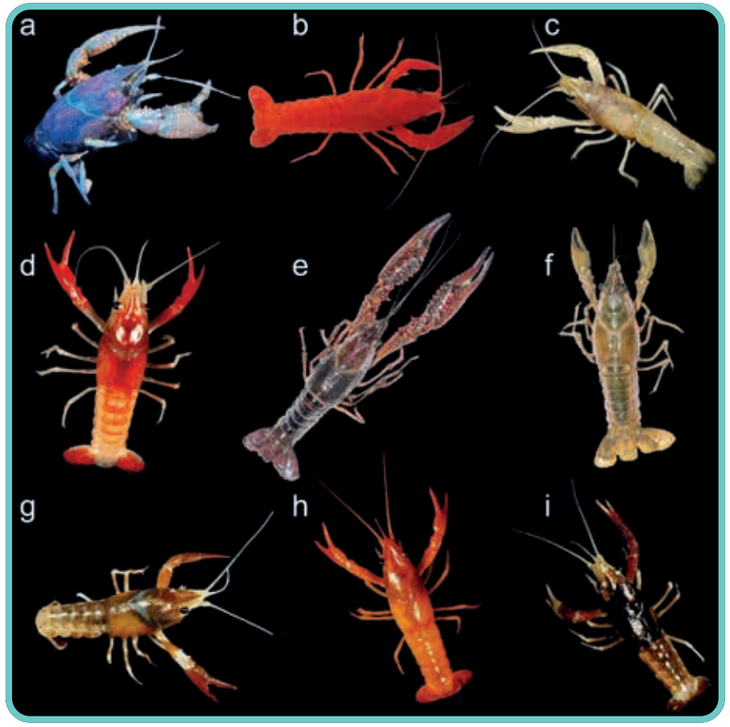
In the field of fundamental research, several landmark studies have examined the economic impacts of non-native invasive species. One study found that previous global cost estimates were substantially underestimated by more than 500%. An analysis of 162 invasive species, including the Asian tiger mosquito and tree-of-heaven, indicated global annual costs of approximately USD 12.6 billion. Europe bears the greatest financial burden, followed by North America and Asia. Mammalian invaders and invasive plants account for the largest share of economic losses. Published in Nature Ecology and Evolution, the study highlights the urgent need for regionally targeted management strategies and more comprehensive datasets, particularly in underrepresented regions such as Africa and parts of Asia. The findings provide governments with improved evidence for planning effective responses to biological invasions that threaten biodiversity and economic stability.



Another recent study demonstrated that more than one-third of global aquaculture production originates from species farmed outside their native distribution ranges. Although non-native species contribute significantly to global yields and economic returns, their translocation beyond natural habitats can result in serious ecological and societal consequences. Since 1950, approximately 160 species have been cultured outside their natural ranges, with the majority of production concentrated in Asian countries. Non-native species account for a substantial proportion of global output: 19% in fish, 55% in crustaceans, and 67% in algae. The rapid expansion of crustacean production since 2000 is largely driven by higher market value, incentivising producers to prioritise crustaceans over traditional fish species. However, the authors caution that the escape of non-native species into natural ecosystems may lead to declines in native populations, ecosystem disruption, and loss of traditional fisheries. According to the InvaCost database, 27 invasive species alone have caused damages exceeding USD 10 billion, though actual costs are likely considerably higher. The study, therefore, calls for strengthened biosecurity measures and greater preference for native species in aquaculture development strategies.

Further research activities conducted by an international team of experts from the Czech Republic, Germany, Austria, and Hungary (with Associate Professors Martin Bláha and Antonín Kouba representing the Faculty) documented the first records of the Asian freshwater shrimp *Macrobrachium nipponense* in Central Europe. This relatively large non-native species, native to East Asia, was first detected in 2023 at Racklau harbour in Passau, Germany, and on the Little Rye Island (Malý Žitný ostrov) near the village of Lipót in Hungary. At both locations, individuals of various size classes were recorded, including ovigerous females, indicating the presence of established and reproducing populations. The species is characterised by broad ecological tolerance, rapid growth, and high fecundity, traits that make it a potentially high-risk invasive organism.

A recent study published in Freshwater Biology, led by Dr. Francisco Oficialdegui and involving international collaboration, investigated the genetic diversity of the invasive red swamp crayfish available in the ornamental aquarium trade. Native to the southern United States and northern Mexico, this species is the most widespread and invasive crayfish globally. While introduction pathways linked to aquaculture have previously been identified using molecular methods and historical records, tracing the origins of individuals circulating within the aquarium trade has proven more challenging. In collaboration with researchers from the Czech Republic, Germany, the Netherlands, Belgium, Hungary, Slovakia, Austria, and Poland, 283 individuals were sampled from aquarium shops and wild populations in Europe and Southeast Asia suspected of being associated with ornamental trade activities. A fragment of the mitochondrial COI gene was sequenced to assess genetic variability and relatedness among populations. The results revealed low genetic diversity within aquarium-trade populations, likely reflecting a limited number of founding individuals. In contrast, certain wild populations, particularly in Hungary, exhibited higher genetic variability, likely due to repeated introductions from multiple sources. The study suggests that crayfish currently present in the European aquarium trade predominantly originate from Asian ornamental breeding facilities rather than directly from their native North American range.



Long-standing collaboration between Prof. Jiří Patoka (Czech University of Life Sciences Prague), Associate Professors Martin Bláha and Antonín Kouba resulted in the formal description of a new crayfish species, Cherax pulverulentus. This newly described species, commonly referred to as the “dusty crayfish,” is endemic to streams west of Lake Ayamaru in the Indonesian province of Papua. It is distinguished by multiple colour morphs and unique morphological and genetic characteristics that confirm its distinct species status. Many visually attractive crayfish species from this region are collected in the wild and exported by Indonesian wholesalers primarily to European, US, and Japanese markets. The formal scientific description of new species represents a critical step in their conservation, as harvesting is currently unregulated and poses a significant threat to their often geographically restricted wild populations.

MEVPIS Vodňany

06

MEVPIS Vodňany

The International Environmental Education, Advisory and Information Centre for Water Protection *(generally known by the acronym MEVPIS) was established in 2014 as part of the Faculty of Fisheries and Protection of Waters, University of South Bohemia in České Budějovice. Located in the historic Brok Mill in Vodňany, the centre provides modern facilities for environmental education, professional seminars, scientific conferences, thematic meetings and excursions, and public events.*

The vision of MEVPIS is to become a recognised centre of excellence in environmental education focused on aquatic ecosystems, connecting science, education, and practical nature conservation. Its mission is to educate, inspire, and promote environmentally responsible behaviour across society. Since 2025, MEVPIS has held the prestigious certification for Centres of Environmental Education, confirming the high quality of its educational programmes. MEVPIS supports environmental education and awareness-raising in the fields of aquatic ecosystem protection, sustainable water resource management, and the broader ecological context of freshwater environments. Through a wide range of educational programmes, expert seminars, and research-related activities, the centre contributes to strengthening knowledge and fostering responsible attitudes towards nature among students, teachers, professionals, and the wider public. As a result, MEVPIS demonstrates strong societal relevance.

The centre organises **one-day and multi-day professional and scientific seminars, workshops, and conferences at both national and international levels**, addressing current environmental and fisheries-related topics. It also offers ***experiential and residential*** environmental education **programmes** for children and teachers from kindergartens, primary and secondary schools, as well as extracurricular groups and other educational institutions. Within the framework of **lifelong learning**, MEVPIS provides programmes for various age groups, including the **Children's and Junior University of FFPW USB**. The centre also regularly contributes to **International Summer Schools**, combining research, field excursions, lectures, and hands-on learning for students from different countries. MEVPIS also offers conference facilities for hire, including a main hall with a capacity of 100 participants and two classrooms with capacities of 25 and 45 participants, respectively.**Accommodation for** up to **36 guests** is also available.

In **2024**, MEVPIS celebrated its **10th anniversary**. The celebration took place on 6 September as a community gathering featuring a diverse programme, including a library-themed quiz, a live performance by the band Napříč, refreshments from local businesses, and fish specialities prepared at the Faculty's Fish Processing Unit.

Over the course of its first decade, the centre has organised approximately **2,000 educational and outreach events**, involving nearly **90,000 participants**.

In 2024 and 2025, MEVPIS was involved in a wide range of significant professional, educational, and outreach events, including:

- *Conferences and workshops: The XXI Toxicology Conference; opening conferences for the Šumava Fish Jewels and AquaCycle projects; a workshop for the Living Rivers project; and the final conference of the RAGO project.*
- *International workshops under the auspices of FAO: Seminars focused on innovation in fisheries and aquaculture, aimed at supporting the sustainable development of the sector in Eastern Europe, the Balkans, and the Near East. These workshops are held annually in October.*
- *International Summer Schools: Annual programmes for international students, with approximately 10–20 participants each year;*

- *Winter workshops of the Student Section of the European Aquaculture Society (EAS): Since 2022, international meetings of students and early-career researchers in fisheries and water protection have been organised by doctoral students of FFPW USB. These events foster collaboration, knowledge exchange, and networking among participants from different countries;*

- *Other professional events: Meetings of hydrobiological laboratory staff and sessions of the Czech National Committee for the International Long-Term Ecological Research Network.*

- *Cooperation with secondary schools and grammar schools: Including Vodňany Grammar School, Secondary School Hořovice, and HLUW Yspertal. Collaboration includes week-long educational programmes, lectures, excursions to faculty laboratories, and support for students preparing projects for the Czech Secondary School Professional Activity competition and final theses.*

- *Children's University: Day camps and themed programmes focusing on ecology and crafts, autumn educational blocks, and activities exploring the sensory world of fish (approximately five events annually).*

- *Junior University: Week-long internships for talented secondary school students interested in science, environmental protection, and sustainable development (two events per year).*

- *Public outreach events: Interactive programmes for families with children organised annually for World Water Day (March), the Vodňany Fisheries Days (May), and participation in the national Let's Clean Up the Czech Republic initiative.*

- *Researchers' Night: A nationwide science popularisation event celebrating its 20th anniversary in 2025. MEVPIS prepared a diverse programme under the themes Transformation and Wealth.*

- *School programmes: Approximately 90–100 environmental education events are organised annually for kindergartens, primary, and secondary schools, reaching around 3,500 pupils each year.*

- *Professional development for teachers: Including the Fr. Kett Pedagogy seminars, the Summer School for Teachers, and art therapy courses organised in cooperation with the Asteria organisation.*

Promotion and Awards

07

Promotion and Recognition

In 2024–2025, the Faculty of Fisheries and Protection of Waters significantly strengthened the promotion of its study programmes, research activities, and fish products. Communication was carried out through the Faculty website, social media channels, and direct participation in major public and professional events. Our online platforms regularly featured reports from the Vodňany Fisheries Days, Open Days, student competitions, internships, business trips, and numerous other activities.

The Faculty was also highly visible at public events. Traditional pond harvests, such as those at **Rožmberk** and **Vrkoč**, attracted thousands of visitors. The Faculty presented demonstrations of fishing techniques, provided expert commentary, and offered fish specialities at its stand. Another important promotional opportunity was participation in the **ČSOB Market** at the bank's Prague headquarters, where Dr. Václav Nebeský and Ing. Martina Křivancová introduced the Fish for Health brand and its innovative products. These events helped raise awareness of sustainable aquaculture and demonstrated the strong connection between science and practice.

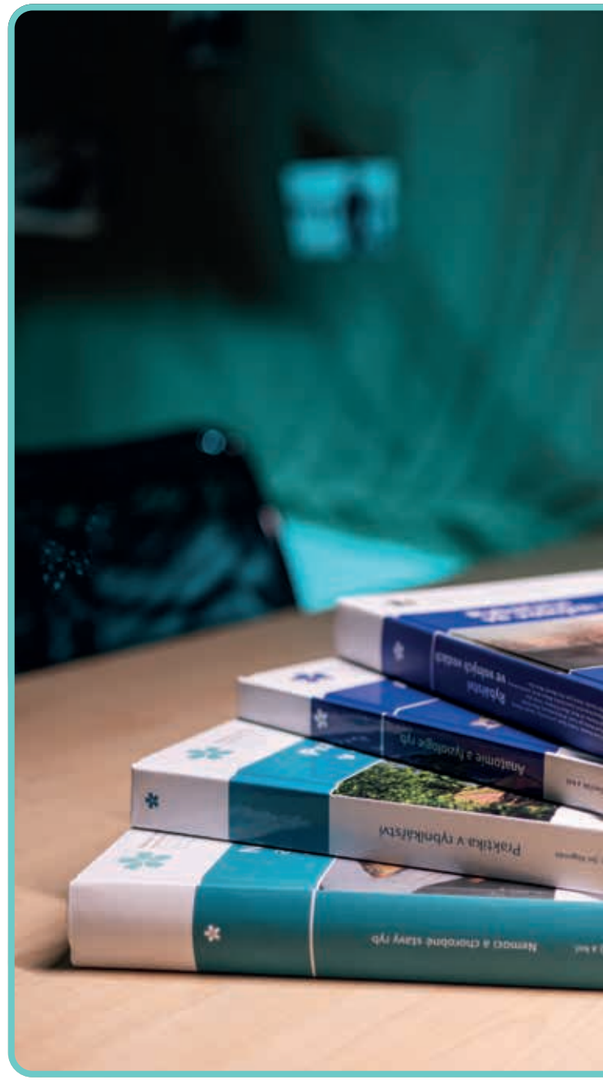
In 2024 and 2025, the Faculty actively participated in major scientific conferences, including the international AQUA 2024 conference in Copenhagen and Aquaculture Europe in Valencia, where its latest research results were presented and new scientific collaborations established. At the national level, we organised the 21st Toxicology Conference and the 6th Professional Conference in cooperation with the Czech Fish Farmers Association, focusing on innovations in fisheries and water quality, as well as current sector challenges.

A notable example of successful cooperation between the Faculty and the Ministry of Agriculture of the Czech Republic is the unique publication **Fish Flesh Encyclopaedia**. The encyclopaedia serves as a tool for identifying fish species based on muscle structure and contributes to combating fraud in fish products. Originally developed for supervisory authorities, it is also useful for transporters, traders, and the wider public. The publication is freely available in both Czech and English.

Our overview of research dissemination would be incomplete without mentioning the certified methodologies and verified technologies published within the **Methodology Series**. These materials introduce innovations in fisheries and water protection for fish producers, nature conservation professionals, and water managers. The series has been published continuously since 1982 and is freely accessible on the Faculty website.

Fish Flesh Encyclopaedia

Methodology Series



Employee Awards

Země živitelka Agricultural Exhibition

The international agricultural exhibition Země živitelka is traditionally held during the last week of August at the České Budějovice Exhibition Centre. Representatives of the University of South Bohemia and the Faculty of Fisheries and Protection of Waters regularly participate in this major national event. In both 2024 and 2025, the Faculty presented an extensive showcase of fish products. During the 51st edition of the exhibition, the Rector of the University of South Bohemia, Professor Pavel Kozák, signed a memorandum with the Minister of Agriculture, Marek Výborný. The document formalises a shared commitment to developing professional internships, educational activities, and knowledge exchange in the fields of agricultural sciences, research, and innovation. The Země živitelka exhibition is also traditionally associated with the presentation of the Minister of Agriculture Awards.

In recent years, the Faculty has achieved notable success, particularly in the young scientists category. Both mentioned years brought first-place awards to members of our Faculty.

In 2024, **Dr. Martin Prchal** received first prize for his article *Genetic Parameters and Genomic Prediction of Resistance to Koi Herpesvirus Disease Using a Low-density SNP Panel on Two Amur Mirror Carp Populations*. This research provides important insights into the genetic resistance of carp to diseases, making a significant contribution to the fisheries sector.

In 2025, **Dr. Lenka Kajgrová** was likewise awarded first prize for her article *Pond Cascades as a Tool for Ecological Aquaculture Allowing Natural Zooplankton Succession, Nutrient Retention, and Multiple stocking-harvesting Cycles*. Her research successfully integrates the ecology of pond ecosystems with their practical landscape management, contributing to the sustainable management of traditional pond aquaculture systems.

USB Rector's Awards

On the occasion of the opening of the 2024/2025 academic year, three representatives of the Faculty of Fisheries and Protection of Waters received awards from the Rector of the University of South Bohemia, Professor Pavel Kozák:

Ing. Ondřej Nikl *was recognised for his master's thesis entitled „The Effect of Alternative Protein Sources in Fish Feed on the Growth of Fish and Plants in a Dual-Loop Aquaponic System"*. His research offers an innovative perspective on sustainable aquaponics.

Dr. Ján Regenda *was awarded for his university textbook „Fishpond Management Practicals"*. This comprehensive publication covers fish culture in pond systems, including hydrology, fish biology, feeding strategies (including cereal-based diets), and the culture of common carp, as well as supplementary species such as tench, grass carp, and pike. It addresses the entire production cycle – from pond maintenance and harvesting to overwintering and relevant legal regulations – and combines theoretical foundations with practical examples applicable to standard aquaculture practice.

Ing. Jitka Hamáčková *was honoured for more than 59 years of service in research.* Her work has significantly contributed to the modernisation of fish and crayfish culture technologies, laying strong foundations for innovation in aquaculture.

In 2025, the following colleagues received distinguished awards:

Dr. Ismael Soto Almena was awarded *the Zdeněk Veselovský Prize in the disciplinary category of Natural Sciences* for his doctoral dissertation titled *„Long-Term Trends and Impacts of Past and Future Biological Invasions"*. His research focuses on invasive species and the economic costs associated with their spread. His findings have been published, among others, in the journal Nature Ecology and Evolution.

Dr. Lenka Kajgrová received *the Jakub Krčín Prize in the category of Agricultural and Fisheries Sciences* for her doctoral dissertation titled *„Functioning of Pond Ecosystems and Optimisation of Management Practices for Sustainable European Pond Aquaculture."*

Ing. Petra Plachtová was awarded *the Jarloch Prize for her outstanding long-term pedagogical work* in lifelong learning, particularly in the field of environmental education programmes for pre-school and school pupils in various formats. Her contributions include leading the Children's and Junior University programmes and organising educational activities for kindergarten teachers at the MEVPIS Vodňany centre.

In the field of science, the Faculty is also represented by several scholars who rank among *the most-cited researchers in their disciplines*. In 2025, the international portal Research.com included the following colleagues among leading scientists: **Prof. Jacky Cosson** and **Prof. Otomar Linhart** *in Biology and Biochemistry*, **Assoc. Prof. Antonín Kouba** *in Ecology*, **Prof. Tomáš Randák** *in Environmental Sciences*, and **Assoc. Prof. Roman Grabic** *in Chemistry*. This recognition further confirms the Faculty's strong scientific position at both national and international levels.

Faculty Investment Projects in 2024–2025

The years 2024 and 2025 were marked by systematic modernisation of infrastructure, strengthening of research facilities, and the development of long-term, energy-efficient, sustainable solutions. Investments focused on expanding scientific research capacity, improving the educational environment, and enhancing the operational efficiency of Faculty facilities in České Budějovice and Vodňany.

In 2024, attention was primarily directed towards the reconstruction of existing buildings and the renewal of infrastructure, a key investment being the installation of a new extrusion line in České Budějovice, together with the refurbishment of related premises. This significantly expanded the Faculty's capacity for experimental feed production in research on fish nutrition and aquaculture. At the same time, experimental ponds were renovated, the technical facilities of the aquaponic hall were modernised, and selected energy-efficiency upgrades were implemented in building in Vodňany. A strategically important step was also the preparation of construction project documentation for a new experimental aquaculture hall in České Budějovice, with construction planned to begin in 2027. In 2025, the Faculty launched several large-scale construction projects with long-term impact. Construction began on a new hall for the Genetic Fisheries Center in Vodňany, providing modern facilities for the Laboratory of Germ Cells, and the Laboratory of Molecular, Cellular and Quantitative Genetics. Extensive reconstruction was also carried out at the Experimental Fish Culture Facility, including upgrades to the recirculating aquaculture systems and heating technologies, as well as the installation of new heat pumps. Significant investment was directed towards the International Environmental Educational, Advisory and Information Centre of Water Protection Vodňany where the main hall flooring was replaced, and new audiovisual equipment was installed. The investments comprised the renewal of the vehicle fleet as well as the acquisition of new field equipment supporting both research and operational activities.

This investment represents an important step in the Faculty's long-term development, strengthening its research and educational infrastructure and contributing to the creation of a modern, energy-efficient, and internationally competitive environment capable of responding flexibly to contemporary challenges in fisheries, aquaculture, and the protection of freshwater ecosystems.

The Faculty in Numbers

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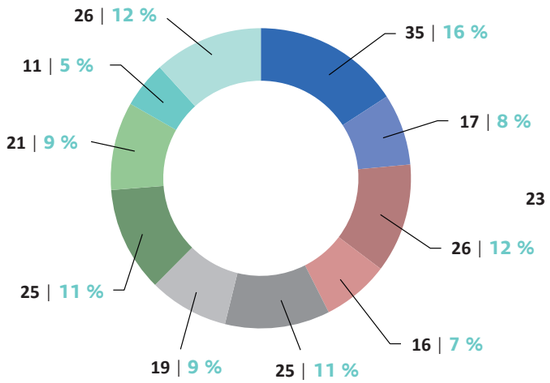
Employees

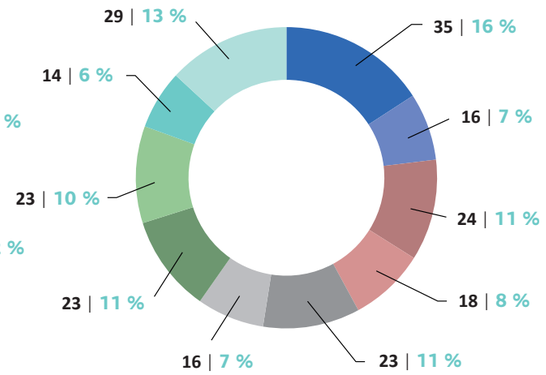
Average registered number of employees calculated as of 31st December 2024

221



Average registered number of employees calculated as of 31st December 2025

221

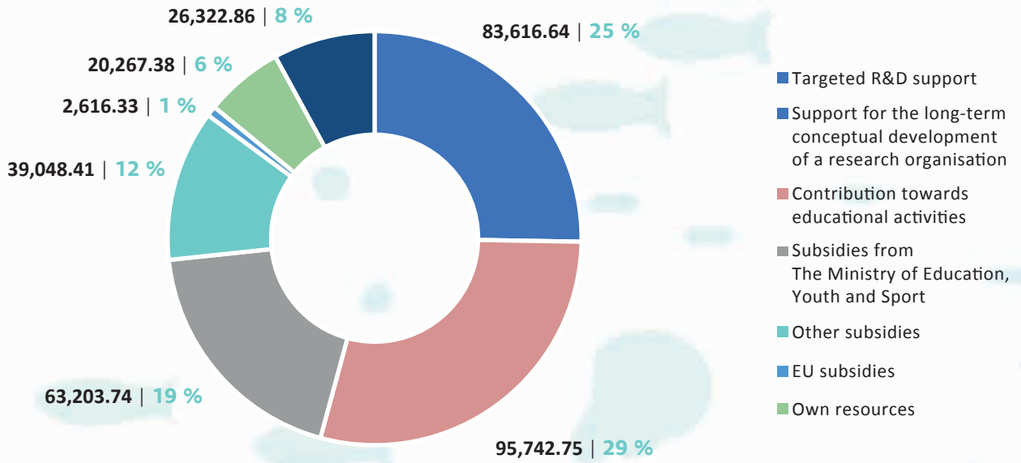


Academic staff ♂ | Researchers ♂ | Ph.D. students ♂ | Technicians ♂ | Office workers ♂
Academic staff ♀ | Researchers ♀ | Ph.D. students ♀ | Technicians ♀ | Office workers ♀

Economics

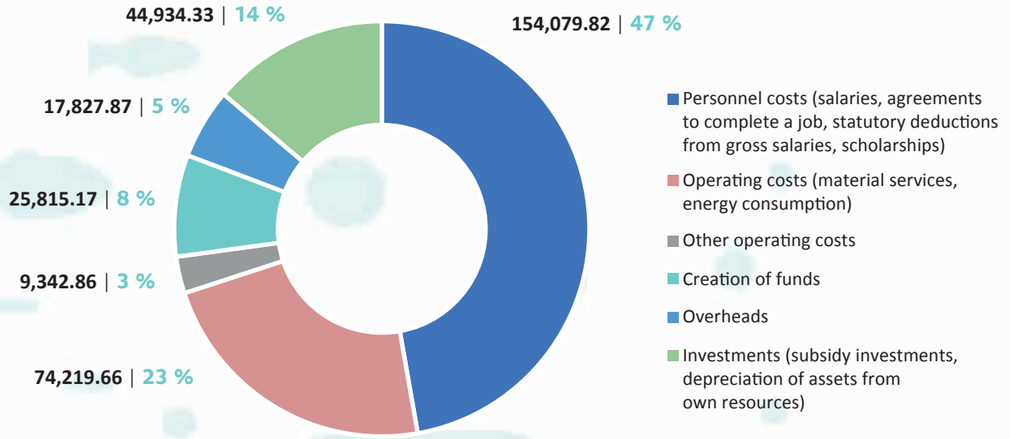
Sources of financing in 2024 including the Targeted Support Fund/Project Preparation fund in thousands CZK

330,818.12



Expenditure of the sources in 2024 in thousands CZK

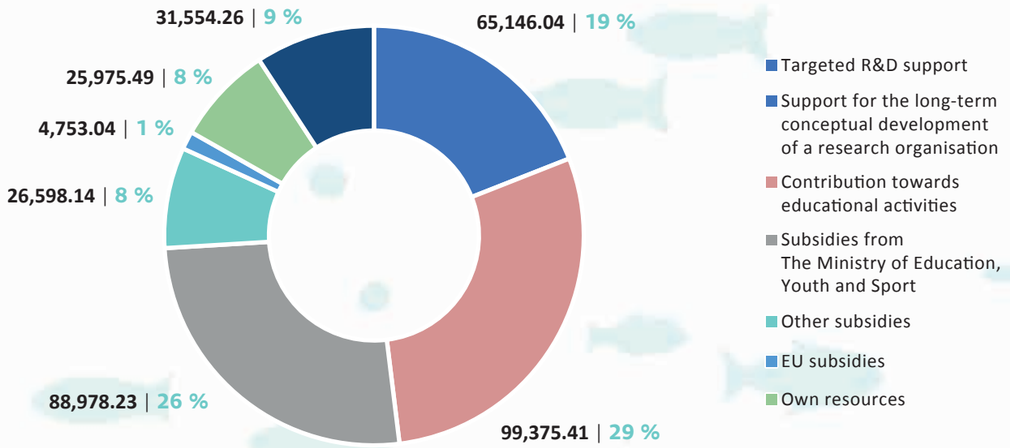
326,219.71



Economics

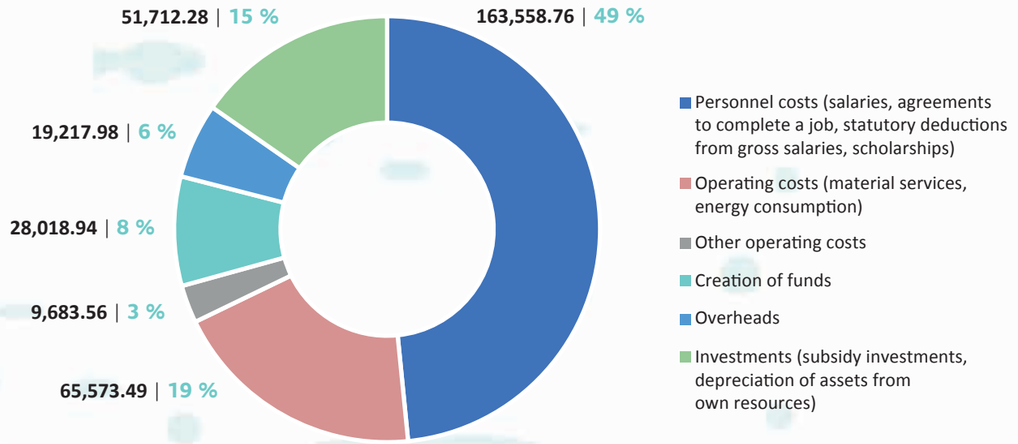
Sources of financing in 2025 including the Targeted Support Fund/Project Preparation fund in thousands CZK

342,380.61



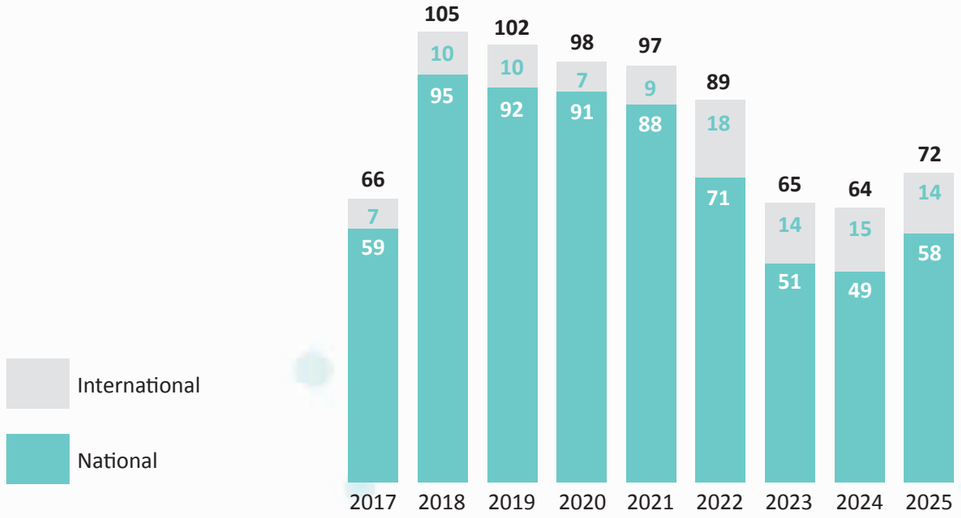
Expenditure of the sources in 2025 in thousands CZK

337,765.01



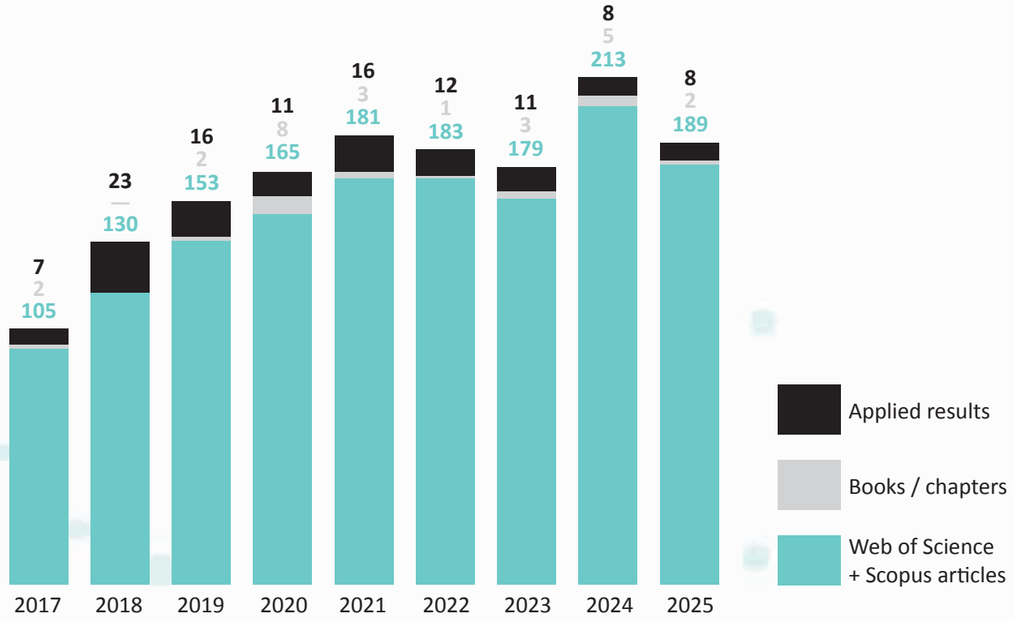
Projects

National and international projects 2017–2025



Publication

Publication activities 2017–2025



Faculty Structure

09

FACULTY OF FISHERIES AND PROTECTION OF WATERS

- Academic Senate of FFPW USB
- Scientific Committee of FFPW USB
- International Board of FFPW USB and CENAKVA
- Dean's Collegium
- Board of Commerce and Social Relevance
- Other councils, commisions and bodies

Dean's Office

- Dean's Section
  - Dean's Office
  - Office for Property Management and Maintenance
- Registrar's Section
  - Economic Office
- Vice-dean for Study Affairs's Section
  - Study Office
- Vice-dean for Science and Research's Section
  - Office of Science and Research
  - Editorial Board and Library
- Vice-dean for Open Science Section
  - (originally: Vice-dean for Development's Section, till 3/2024)
- Vice-dean for International Relations's Section
  - Office of Foreign Relations
- Management's Section
  - Office of Project's Managers
  - MEVPIS

South Bohemian Research Center of Aquaculture and Biodiversity of Hydrocenoses /CENAKVA/

- Office of CENAKVA
- RP1: Reproductive and genetic procedures for fish biodiversity and aquaculture conservation
- RP2: „New" pollutants in the environment and their effect on freshwater ecosystems
- RP3: Sustainable aquaculture with a responsible water and nutrient management
- RP4: Freshwater ecosystems in the era of global change

Institutes

Research Institute of Fish Culture and Hydrobiology /RIFCH/

- Office of RIFCH
- Experimental Fish Culture Facility /EFCF/
- Laboratory of Molecular, Cellular and Quantitative Genetics /LMCQG/
- Laboratory of Germ Cells /LGC/
- Laboratory of Aquatic Toxicology and Ichthyopathology /LATI/
- Genetic Fisheries Center /GFC/
- Laboratory of Reproductive Physiology /LRP/
- Laboratory of Intensive Aquaculture /LIA/
- Laboratory of Environmental Chemistry and Biochemistry /LECHB/
- Laboratory of Freshwater Ecosystems /LFE/

Institute of Aquaculture and Protection of Waters (IAPW)

- Office of IAPW
- Laboratory of Controlled Reproduction and Intensive Fish Culture /LCRIFC/
- Laboratory of Nutrition /LN/
- Laboratory of Machine Vision in Aquaculture and Water Protection /AquaVision/
- (originally: Laboratory of Signal and Image Processing, till 12/2024)
- Processing Unit and Shop with Fish and Aquculture Products

Institute of Complex Systems /ICS/ (till 12/2024)

- Office of ICS
- Laboratory of Experimental Complex Systems /LECS/ (till 5/2025)
- Laboratory of Signal and Image Processing /LZSO/ (till 12/2024)

Faculty Management

Dean
Prof. Tomáš Policar (since 4/2024)
policar@frov.jcu.cz

Dean
Prof. Pavel Kozák (till 3/2024)
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Vice-Dean for Study Affairs, Deputy of the Dean
Assoc. Prof. Martin Kocour
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Vice-Dean for Science and Research
Assoc. Prof. Antonín Kouba, Ph.D.
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Vice-Dean for International Relations
Assoc. Prof. Martin Pšenička (since 4/2024) **/ Prof. Vladimír Žlábek** (till 3/2024)
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Vice-Dean for Open Science (since 4/2024),
Vice-Dean for Development (till 3/2024) **/ Director of Institute of Complex Systems** (till 12/ 2024)
Petr Císař, Ph.D.
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Director of Research Institute of Fish Culture and Hydrobiology
Prof. Tomáš Randák
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Director of Institute of Aquaculture and Protection of Waters
Assoc. Prof. Jan Mráz (since 4/2024) **/ Prof. Tomáš Policar** (till 3/2024)
jmraz@frov.jcu.cz

Director of South Bohemian Research Center CENAKVA,
Vice-Dean for Int. Relations (till 3/2024) **/ Vice-Rector of USB for Int. Relations** (since 4/2024)
Prof. Vladimír Žlábek
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Faculty Registrar
Ing. Jaromíra Vondrášková
vondraskova@frov.jcu.cz

Head of Management Section
Ing. Martin Vlček
vlcek@frov.jcu.cz

Scientific Committee

Chairman
Prof. Tomáš Policar, FFPW, USB, Vodňany (since 4/2024) / **Prof. Pavel Kozák,** FFPW, USB, Vodňany (till 3/2024)

Registrar
Assoc. Prof. Antonín Kouba, FFPW, USB, Vodňany

Internal Members
Assoc. Prof. Petr Bartoš, FAT USB, České Budějovice
Ing. Petr Císař, FFPW, USB, Nové Hrady
Prof. Martin Flajšhans, FFPW, USB, Vodňany
Assoc. Prof. Roman Grabic, FFPW, USB, Vodňany
Assoc. Prof. Martin Kocour, FFPW, USB, Vodňany
Assoc. Prof. Hana Kocour Kroupová, FFPW, USB, Vodňany (since 4/2024)
Prof. Pavel Kozák, FFPW, USB, Vodňany (since 4/2024)
Prof. Otomar Linhart, FFPW, USB, Vodňany
Assoc. Prof. Jan Mráz, FFPW, USB, České Budějovice
Prof. Tomáš Policar, FFPW, USB, Vodňany (till 3/2024)
Prof. Tomáš Polívka, FFPW, USB, České Budějovice (till 3/2024)
Prof. Tomáš Randák, FFPW, USB, Vodňany
Assoc. Prof. Irena Šetlíková, FAT USB (since 4/2024)
Prof. Dalibor Štys, FFPW, USB, Nové Hrady (till 3/2024)
Prof. Vladimír Žlábek, FFPW, USB, Vodňany

External Members
Prof. Luděk Bláha, Faculty of Science, Masaryk University, Brno
Assoc. Prof. Pavel Drozd, Faculty of Science, University of Ostrava (till 3/2024)
Prof. Milan Gelnar, Faculty of Science, Masaryk University, Brno
Assoc. Prof. Pavel Jurajda, Institute of Vertebrate Biology, Czech Academy of Sciences, Brno
Prof. Radka Kodešová, Faculty of Agrobiology, Food and Natural Resources, Czech University of Life Sciences, Prague
Prof. Miroslava Palíková, Faculty of Veterinary Hygiene and Ecology, University of Veterinary Sciences, Brno (since 4/2024)
Jiří Peterka, Ph.D., Institute of Hydrobiology, Biology Centre, Czech Academy of Sciences, České Budějovice (since 4/2024)
Prof. Ondřej Slavík, Faculty of Agrobiology, Food and Natural Resources, Czech University of Life Sciences, Prague
Prof. Eva Zažímalová, Czech Academy of Sciences, Prague

† **Prof. Petr Ráb,** Institute of Animal Physiology and Genetics, Liběchov (till 11/ 2024)

Academic Senate

On April 19, 2024, the elections to the Academic Senate for the 2024–2027 term were announced. On May 17, 2024, the results were published.

Composition of the Academic Senate since 6/2024

Academic Staff

David Gela, Ph.D. – Chairman
Eliška Zusková, Ph.D.
Pavel Lepič, Ph.D.
Assoc. Prof. Hana Kocour Kroupová
Ing. Petra Plachtová
Assoc. Prof. Josef Velíšek
Prof. Otomar Linhart
Veronika Piačková, Ph.D.

Students

Ing. Václav Kučera – Vice-Chairman
Zuzana Stoklasová
Daniel Novák
Jan Škrabánek

Composition of the Academic Senate till 6/2024

Academic Staff

Eliška, Zusková, Ph.D. – Chairman
Mgr. Hana Ash, M.Sc.
Assoc. Prof. Martin Bláha
David Gela, Ph.D.
Assoc. Prof. Roman Grabic
Kateřina Grabicová, Ph.D.
Assoc. Prof. Jan Mráz
Pavel Lepič, Ph.D.

Students

Ing. Lenka Kajgrová – Vice-Chairman
BSc. Anna Hovorková
Ing. Nikola Mikšovská
Lucie Bártová

Board of commerce and social relevance of the Faculty and CENAKVA

Chairman: **Prof. Tomáš Policar** (since 4/2024)
Dean, FFPW USB

Chairman: **Prof. Pavel Kozák** (till 3/2024)
Dean, FFPW USB

Vice-Chairman: **Prof. Vladimír Žlábek**
Director, CENAKVA, and Vice-Rector for International Relations, USB, České Budějovice

Prof. Věra Adámková
Member, the Chamber of Deputies of the Parliament of the Czech Republic

Rut Bízková, M.Sc.
Chairwoman, the Board of ISFOR

Vlastislav Bříza, Ph.D.
Chairman, the Board of Directors of KOH-I-NOOR holding, a.s.

Ing. Jan Cihlář
Director, the Company Vodohospodářský rozvoj a výstavba, a.s.

Tomáš Fiala, M.D., MBA (since 5/2025)
Senator, the Parliament of the Czech Republic for the Strakonice and Vimperk Region, Director of Strakonice Hospital, a.s.

Vojtěch Fikar, M.Sc (since 5/2025)
Ministerial Advisor in the Field of Higher Education, Ministry of Education, Youth and Sports

Jakub Horecký, Ph.D.
Ministerial Adviser, Ministry of the Environment

Pavel Hubený, M.Sc.
Director, the Šumava National Park

Jan Hůda, Ph.D.
President, Czech Fish Farmers Association

Eva Janouškovcová, Ph.D.
Project coordinator, Masaryk University

Ing. Silvana Jirotková
Member of the Supervisory Board, the ČEZ Group

Prof. Bohumil Jiroušek (till 5/2025)
Rector, University of South Bohemia in České Budějovice

Vít Kodeš, Ph.D. (since 5/2025)
Head of the Water Quality Department, Czech Hydrometeorological Institute

Prof. Pavel Kozák (since 4/2024)
Rector, University of South Bohemia in České Budějovice

Assoc. Prof. Jiří Krechl
Head of the Research and Development Support Department, CzechInvest

Martin Kuba, M.D.
Governor, the South Bohemian Region

Petr Kubala
General Director, the Vltava River Basin

Ing. Jan Kříž
Chief Director, Environmental Economy Section, Ministry of the Environment

Pavel Punčochář, CSc.
Specialist of the Water Management Section, Ministry of Agriculture

Mark Rieder, M.Sc.
Director, Czech Hydrometeorological Institute

Pavel Sekáč Ph.D. (since 5/2025)
Director of the EU Funds, Foreign Affairs, and Trade Cooperation Section, Ministry of Agriculture

Ing. Pavel Tichý (since 5/2025)
Segment Director and Wealth Office, ČSOB bank

Růžena Štemberková, Ph.D.
Head of the Technology Transfer Office, University of South Bohemia in České Budějovice

Ing. Hana Šťastná
Director, Agricultural Chamber of the South Bohemian Region

Ing. Vilém Žák
Director and member of the board, SOVAK Czech Republic

International Board of the Faculty and CENAKVA (IBFC)

Chairman

Prof. Johan Verreth
Wageningen University, the Netherlands

Prof. Sadasivam Kaushik (till 5/2024)
French National Institute for Agriculture, Food, and Environment (INRAE), France

Prof. Achim Kohler
Norwegian University of Life Sciences, Ås, Norway

Prof. Dr. Werner Kloas
Leibniz-Institute of Freshwater Ecology and Inland Fisheries, Berlin, Germany

Prof. Carsten Schulz (since 5/2024)
Christian-Albrechts-Universität zu Kiel Institute of Animal Breeding and Husbandry, Marine Aquaculture, Kiel, Germany

Prof. Mats Tysklind
Umea University, Sweden

Prof. Béla Urbányi
Széchenyi István University of Győr, Hungary

Dr. Marc Vandeputte
French National Institute for Agriculture, Food, and Environment (INRAE), France

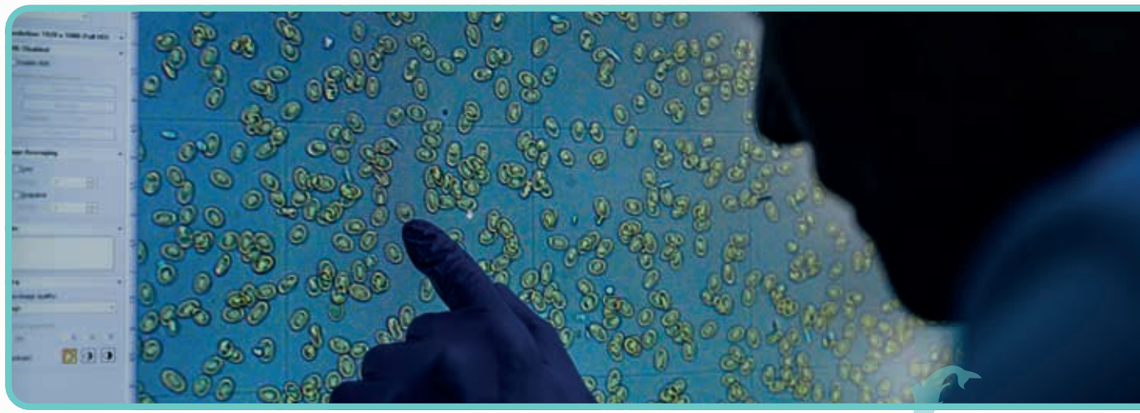
South Bohemian Research Center
CENAKVA
of Aquaculture and Biodiversity of Hydrocenoses

Summary Overview in Numbers

10

Brief overview 2024/2025

CENAKVA South Bohemian Research Center of Aquaculture and Biodiversity of Hydrocenoses



221/221
employees consisting of
94/93 academic and scientific staff and
83/89 technical and office staff

213/189
Web of Science + Scopus articles
8/8
applied results

64/72
Projects consisting of
49/58 national projects
15/14 international projects

123/94
Bachelor students
46/31
Master students
47/45
Ph.D. students

3/2
Institutes
1
Research center CENAKVA
14/13
Laboratories and service units

8
ponds over 1 ha (total **41.2** ha)
68
experimental ponds (total **9.3** ha)

331,000
343,000
budget in thousands CZK

*data for **2024** / data for **2025***

Processing Unit and Shop with Fish and Aquaculture Products

Founded in 2012 by the Faculty of Fisheries and Protection of Waters of the University of South Bohemia, the centre connects scientific research, education, and the production of high-quality fish products. Through **seminars, courses**, and **public events**, it promotes the health benefits of fish consumption and presents the diversity of traditional and modern fish cuisine. The offer includes processed fish products, pâtés, caviar, and **catering services**, which can also be tasted at fairs and exhibitions.

Ing. Bohdan Kadlec Head of the Unit bkadlec@frov.jcu.cz +420 601 591 085

www.rybyprozdravi.cz

Caviar Care.cz

Fakulta rybářství a ochrany vod
Faculty of Fisheries and Protection of Waters

Jihočeská univerzita v Českých Budějovicích
University of South Bohemia in České Budějovice

STURGEON / TROUT FRIENDLY CAVIAR COSMETICS

We followed up on the successful caviar project and developed a method of obtaining an oil base from ovulated sturgeon roes. The extract obtained in this way from roe from the faculty farm is called ***Sturgeon Friendly Caviar Extract***. Handmade processed extract from the eggs is then used as a unique ingredient of specially developed cosmetics. From the beginning, we wanted to have the most effective cosmetics. That's why we chose the path of the highest quality. In addition to the friendly handling of the fish, our cosmetics are also characterized by a high concentration of pure Sturgeon Friendly Caviar Extract up to the level of 0.5%. It contains unsaturated fatty acids, vitamins, minerals, and other components that are important for a newly created life. These substances can regenerate your skin, giving it strength and elasticity.

SPECIAL DAY CREAM
with sturgeon caviar extract

SPECIAL NIGHT CREAM
with sturgeon caviar extract

24H REGENERATION CREAM
with trout caviar extract

All our cosmetic products are available at

www.caviarcare.cz

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